Figure 2A-1 Lake Station 2012, Windrose-All

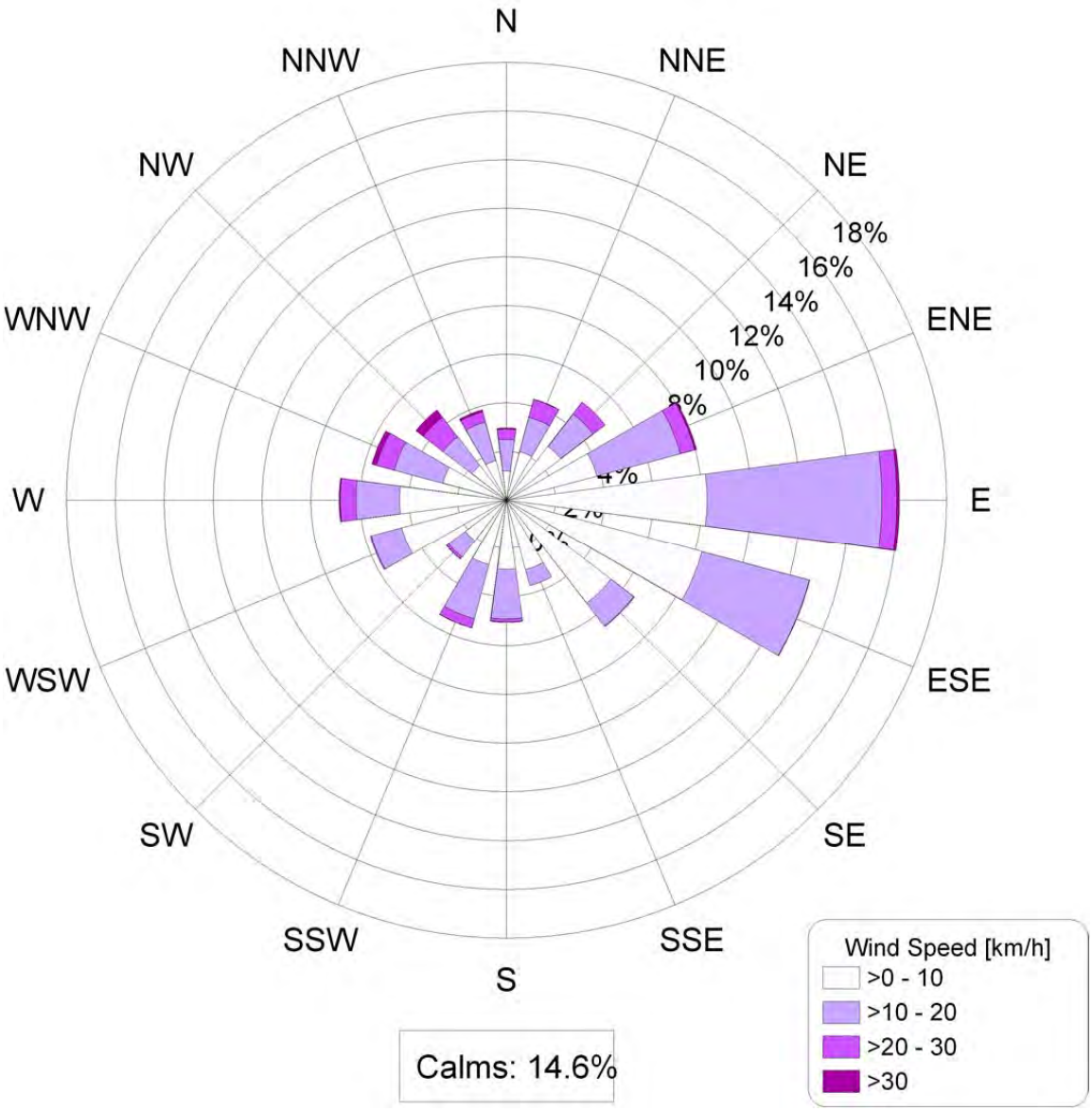


Figure 2A-2 Lake Station 2012, Windrose-Quarterly

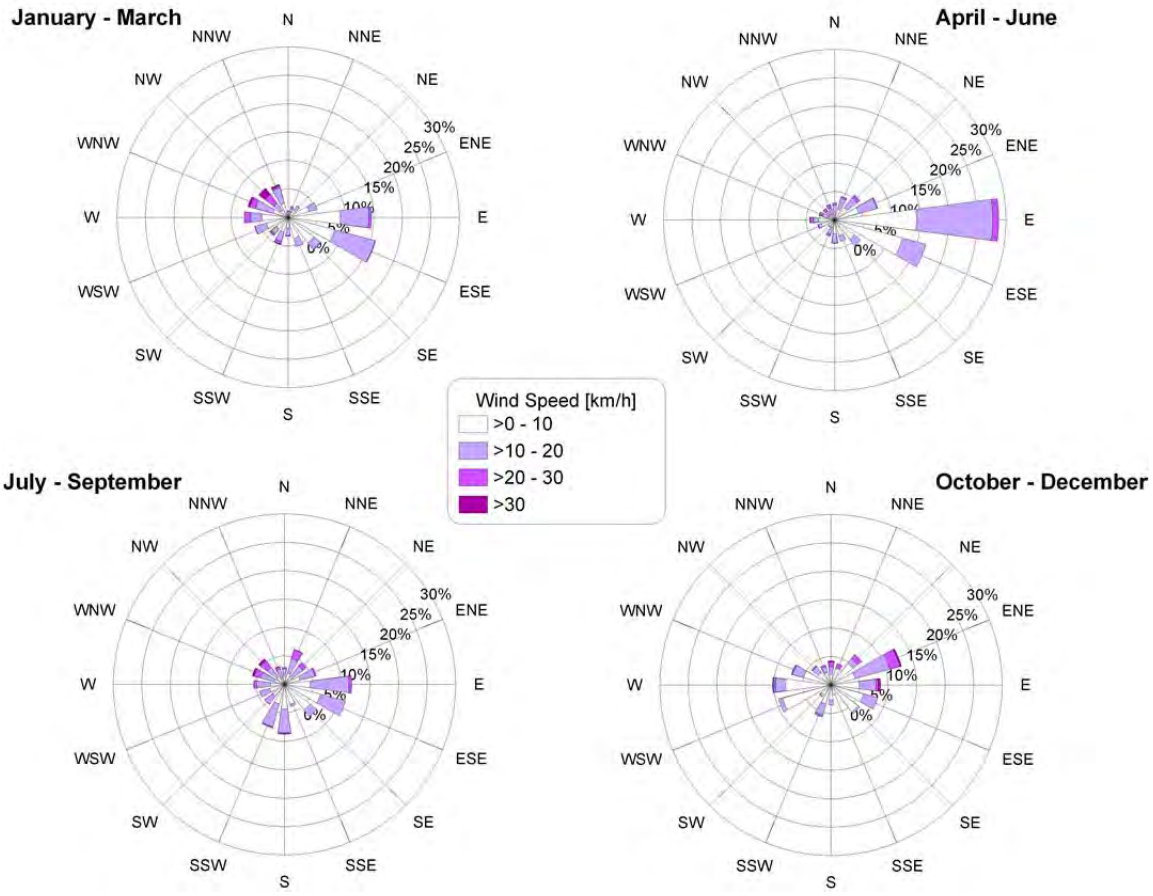


Figure 2A-3 Lake Station, Relative Humidity (1)

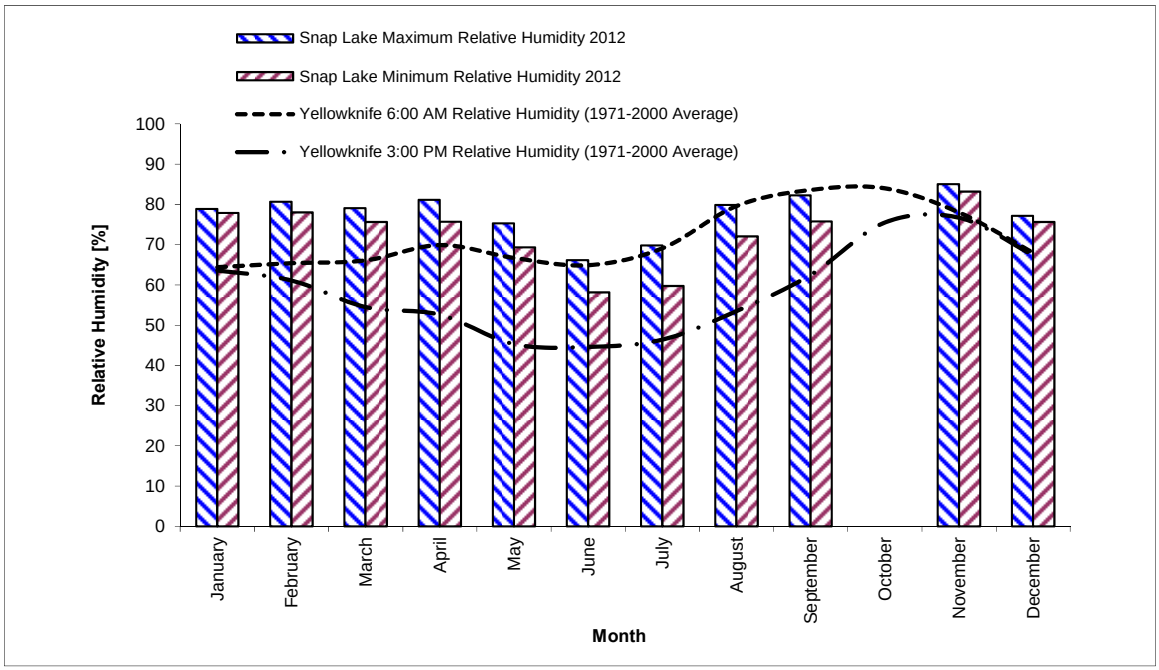


Figure 2A-4 Lake Station, Relative Humidity (2)

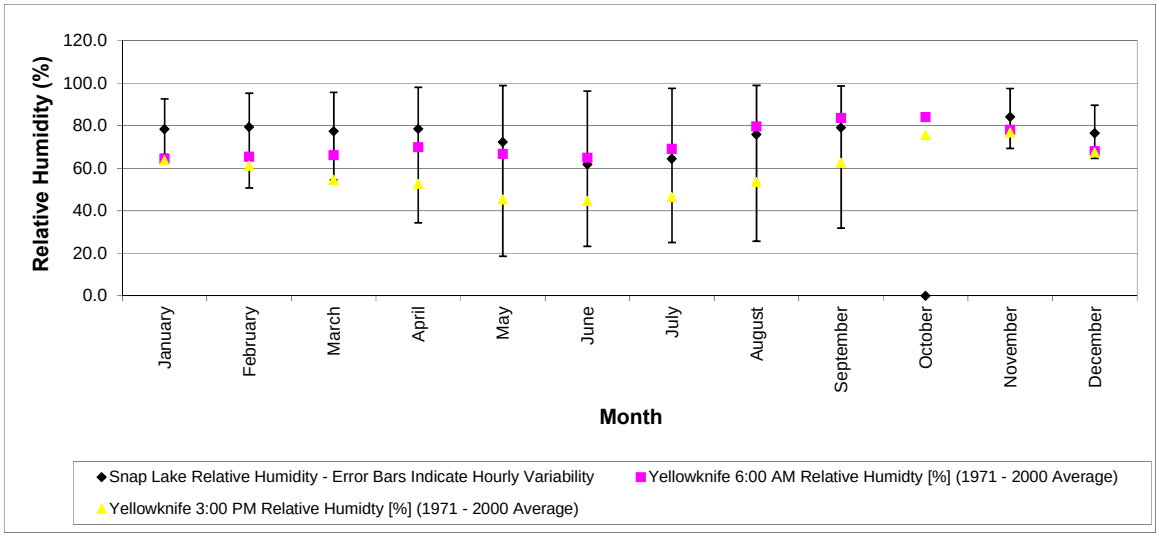


Figure 2A-5 Lake Station, Temperature

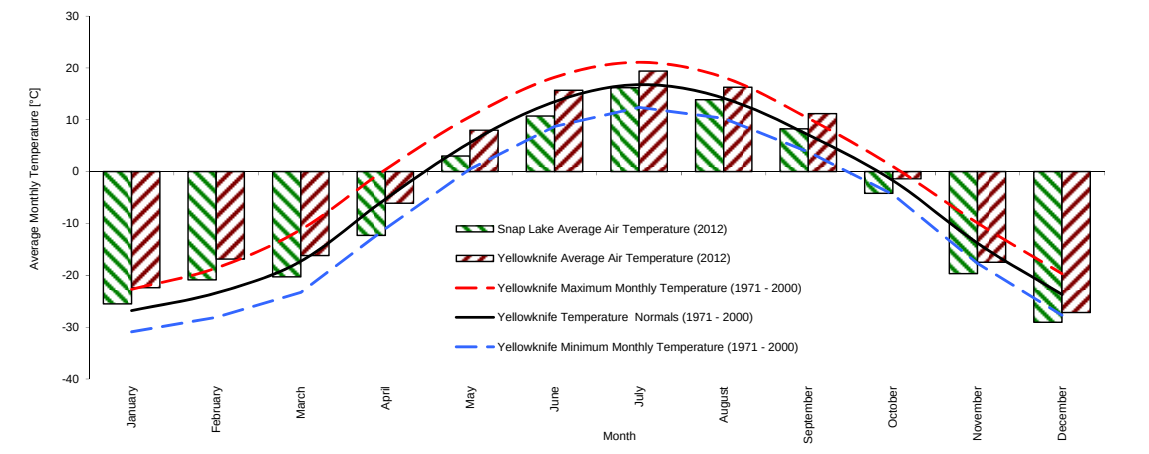


Figure 2A-6 Lake Station, Precipitation

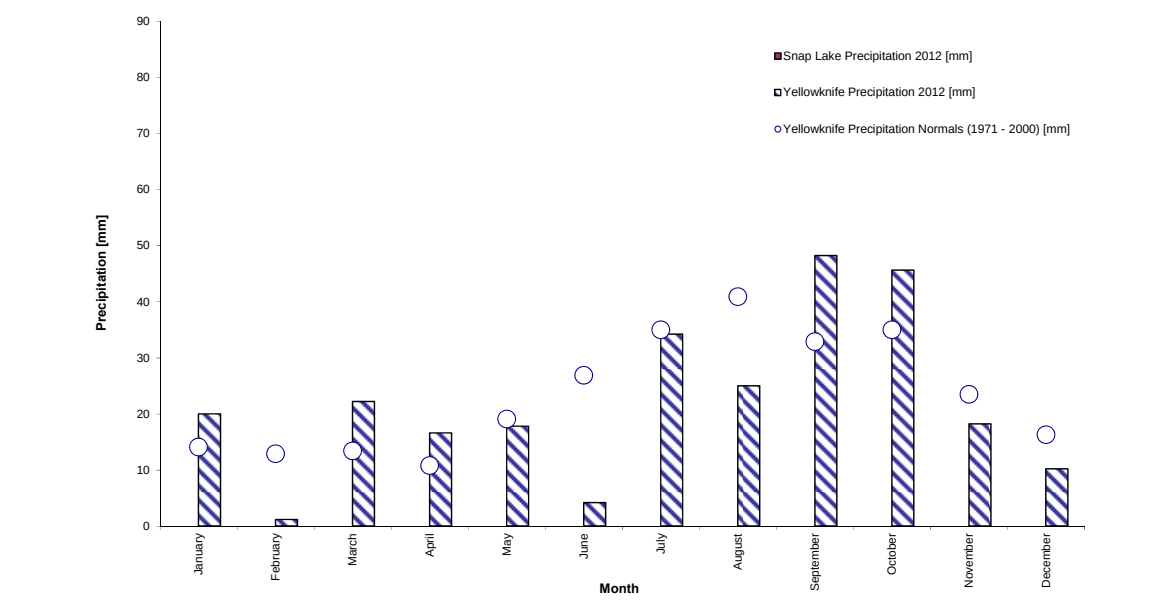


Figure 2A-7 Lake Station, Solar Radiation

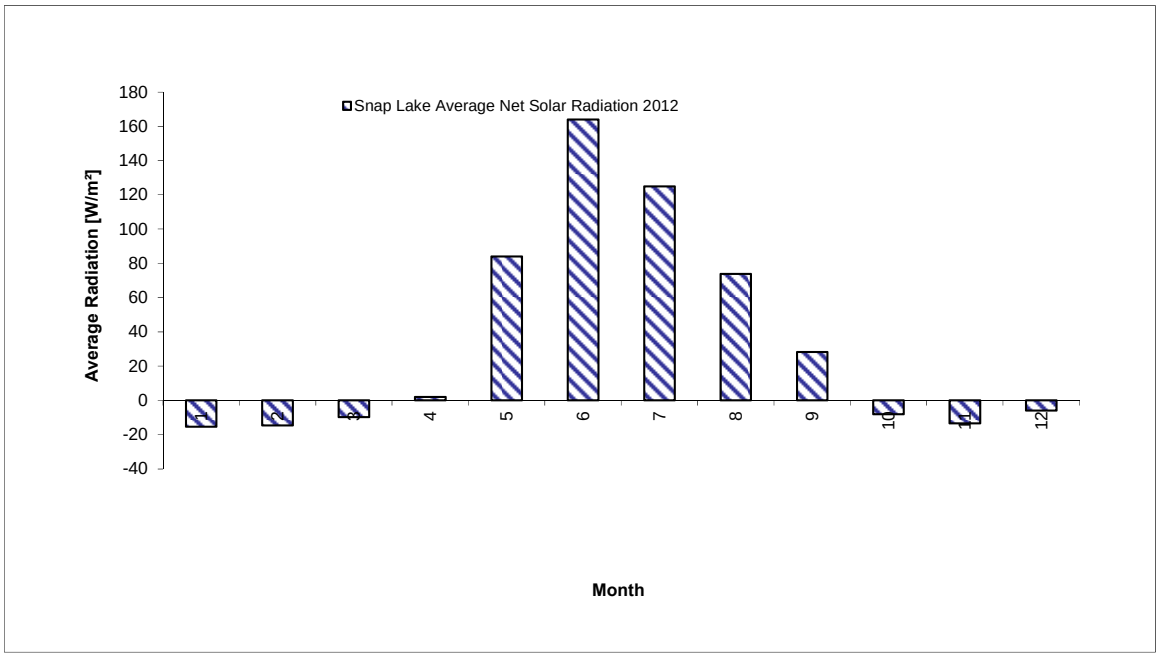


Figure 2A-8 Hill Station, Windrose-All

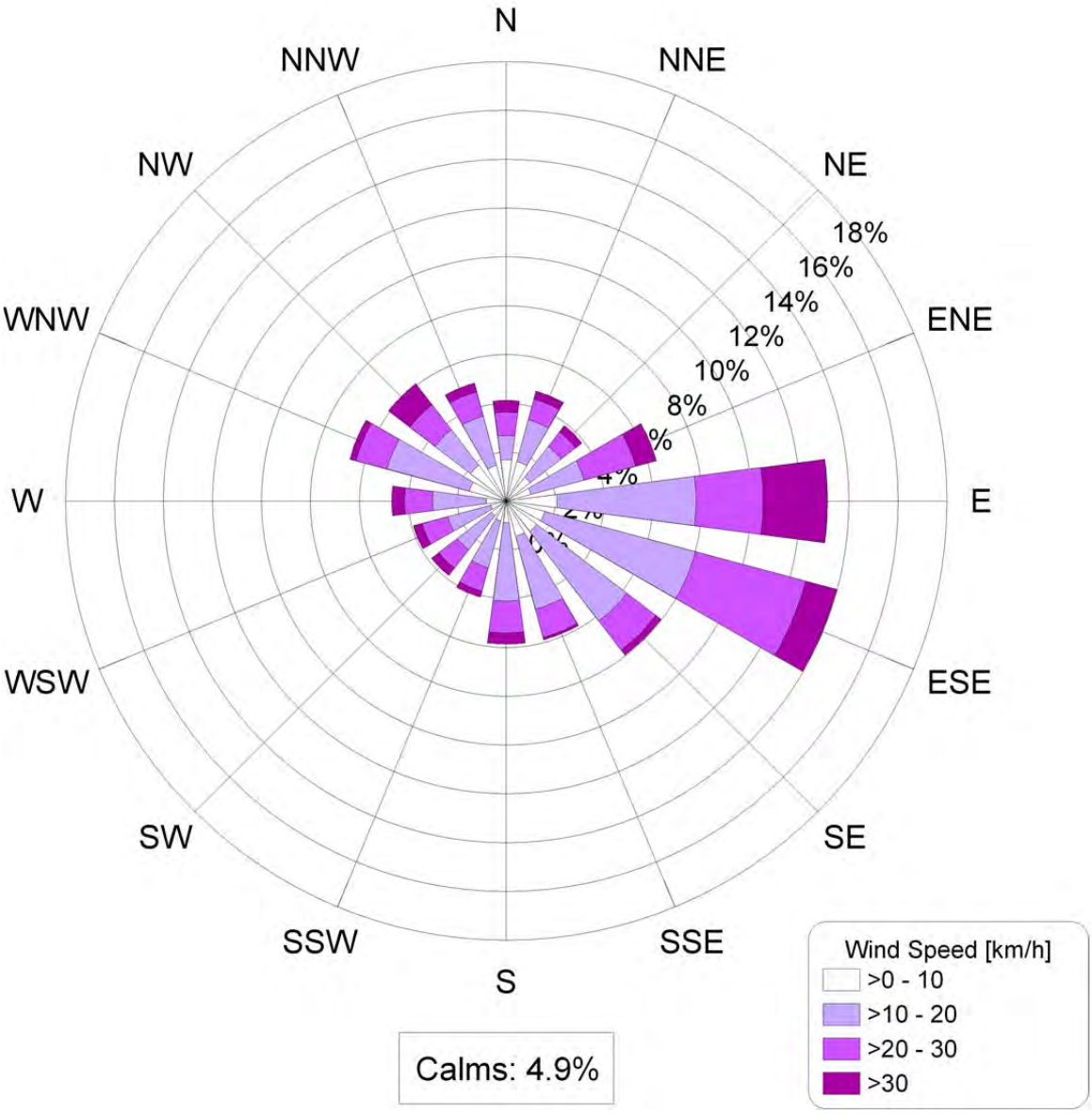


Figure 2A-9 Hill Station, Windrose-Quarterly

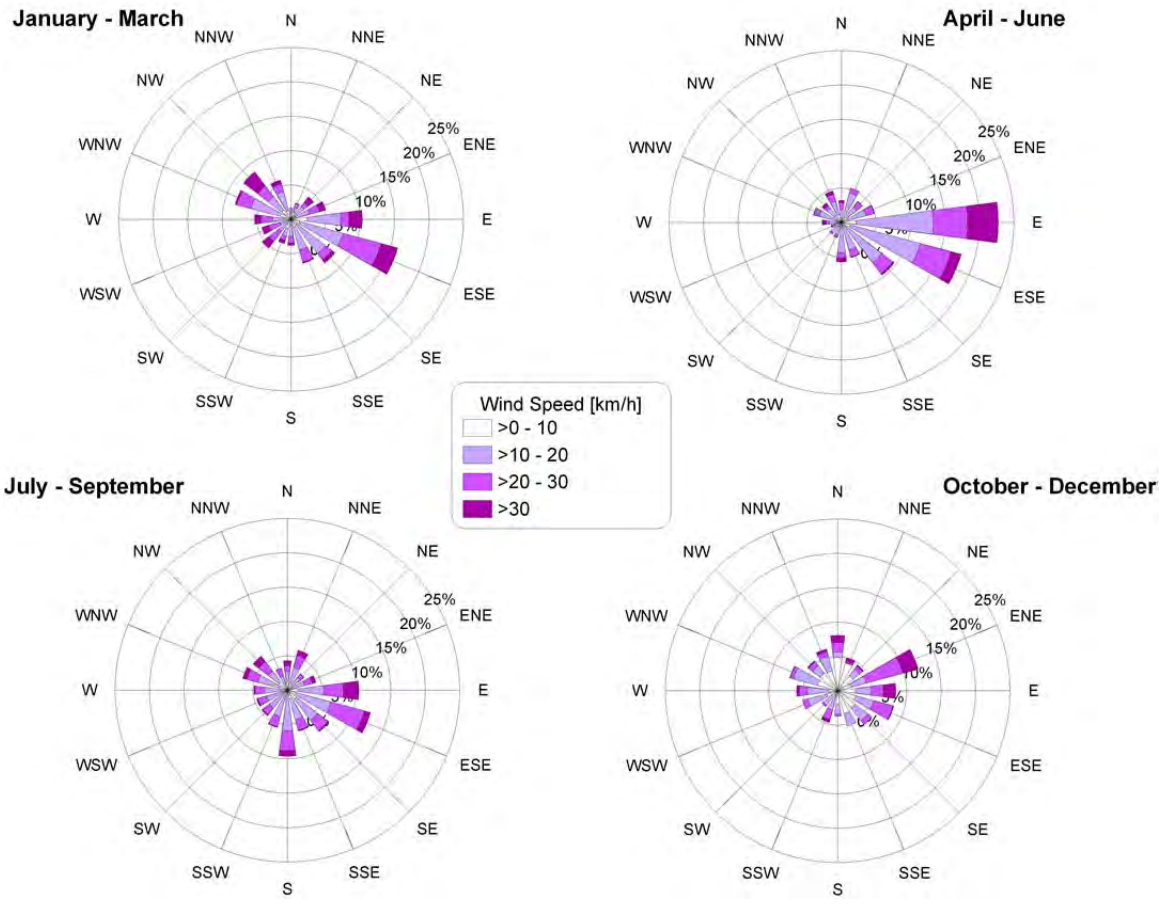


Figure 2A-10 Hill Station, Humidity (1)

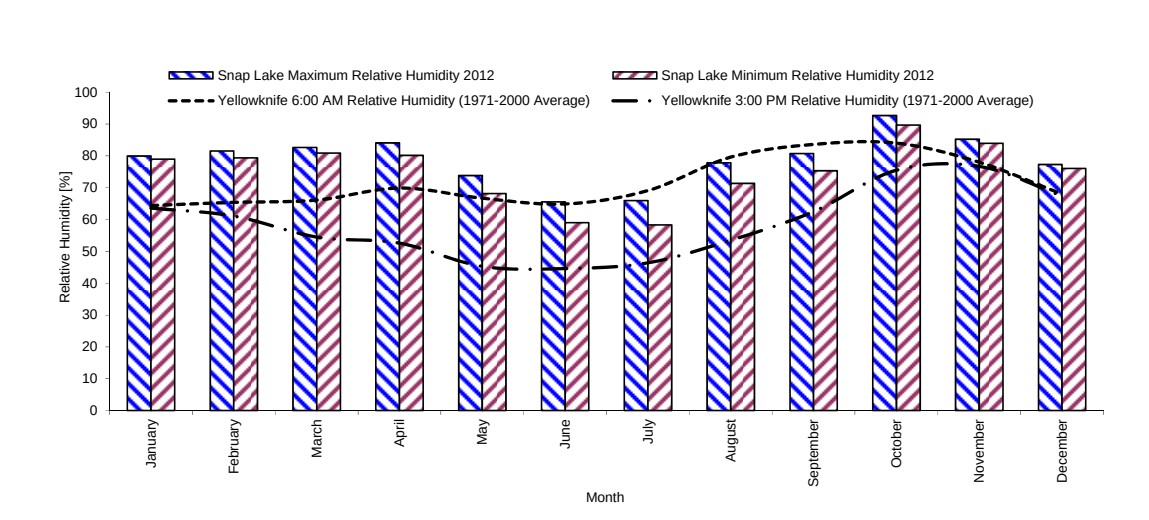


Figure 2A-11 Hill Station, Humidity (2)

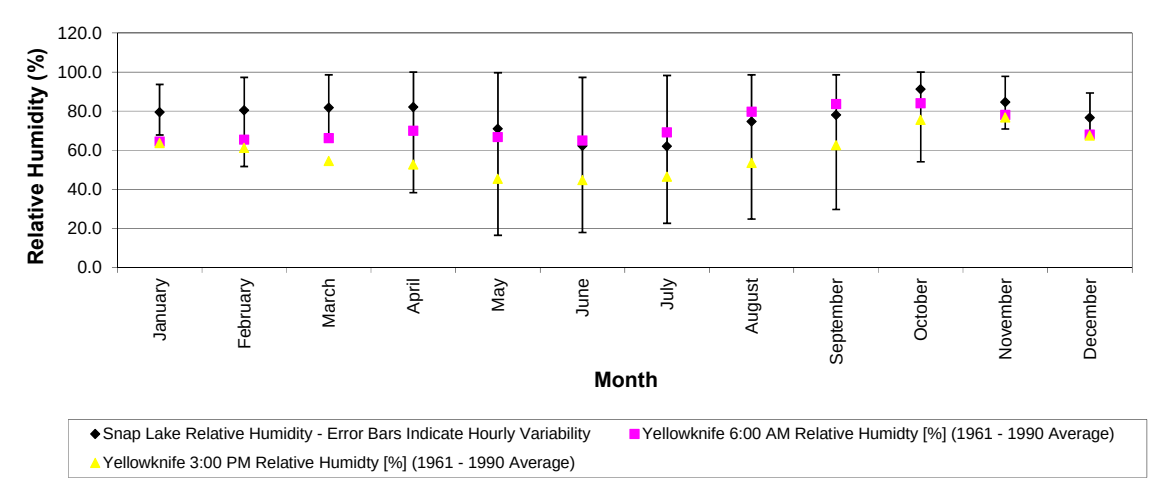


Figure 2A-12 Hill Station, Temperature

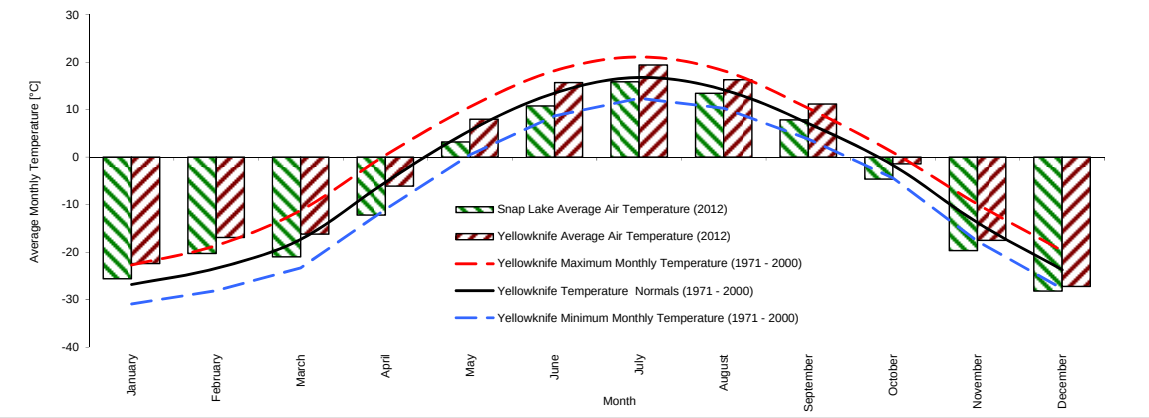


Figure 2A-13 Hill Station, Precipitation

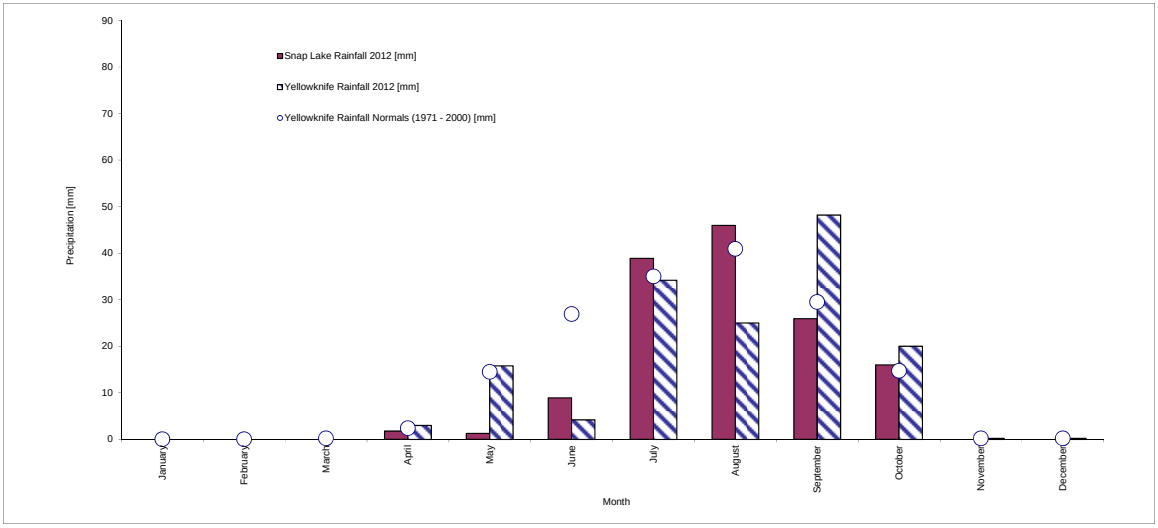


Figure 2A-14 Hill Station, Solar Radiation

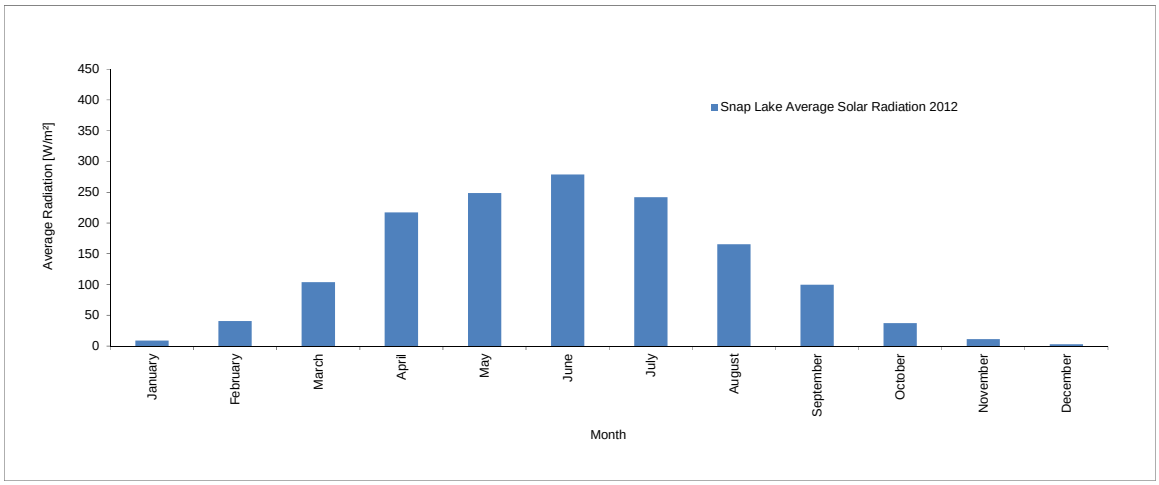


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3A.1 QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES AND RESULTS FOR THE WATER QUALITY PROGRAM

3A.1.1 PROCEDURES

Quality assurance (QA) and quality control (QC) procedures for the water quality monitoring program cover three areas of internal and external management: field staff training and operations; laboratory analyses and requirements; and, office operations. The QA/QC procedures apply to all water quality samples collected for the 2012 Aquatics Effects Monitoring Program (AEMP). The following is a detailed description of each QA/QC component.

3A.1.1.1 Field Quality Assurance/Quality Control Procedures

3A.1.1.1.1 Field Methods

A task manager provided specific work instructions (SWIs) outlining each field task to the field crew. Detailed field notes were recorded in waterproof field books and on pre-printed waterproof field data sheets in pencil. Data sheets and sample labels were checked at the end of each field day for completeness and accuracy.

Samples were labelled, preserved, and shipped according to standard protocols provided by laboratories and De Beers Environmental Management System (EMS) procedures (De Beers 2002a). Each sample was given a name and unique sample control number (SCN) to identify the sample. Chain-of-custody (COC) forms specific to the Snap Lake Mine (the Mine) were used to track the shipment and analyses of samples.

Sample-related QA/QC procedures included testing of the repeatability and reliability of the sample results by submitting QC samples for analysis. The QC samples used in the AEMP included duplicate water quality samples, inter-laboratory water quality split samples, equipment blanks, field blanks, and travel blanks. These QC samples were used to detect and reduce systematic and random errors that may have occurred during field sampling and laboratory procedures. The QA/QC procedures require that one blank sample be prepared and analyzed for every ten water samples collected. These procedures are based on the Environment Canada (2012) recommendations that blank samples should represent 10 percent (%) of the samples analyzed. The QA/QC procedures involved:

- Duplicate samples were prepared from a separate sample collected from the same location as the original sample. Duplicate samples were prepared, labelled, and preserved individually, and then submitted to the appropriate analytical laboratories along with the

original sample. These samples were used to measure variability in water quality at the sampling stations.

- Split samples were prepared from a single sample collected from a given location (i.e., twice the normal sample volume), which was split evenly into two sets of sample bottles. The sample, and the associated split sample, were labelled and preserved individually, and then submitted to ALS Canada Ltd. (ALS) and Maxxam Analytics Inc. (Maxxam), for identical analyses to evaluate the variability associated with sample heterogeneity and laboratory analysis.
- Equipment blanks were prepared in the De Beers water processing facility by filling bottles with distilled de-ionized water (DDW) provided from the appropriate laboratories and used to rinse the sampling equipment, which include the plastic and Teflon Kemmerer samplers. The equipment blanks were submitted to ALS in the same manner as field water samples. Equipment blanks were used to detect potential sample contamination due to the sampling equipment.
- Field blanks were prepared in the field during each sampling event by filling a set of sample bottles using DDW provided by the laboratory. These blanks were exposed to the sampling environment at the stations for as long as it took to fill a normal sample bottle with a field water sample. Field blanks were preserved at the sampling stations, following the same method as the water samples. Field blanks were used to detect potential sample contamination during collection, handling, shipping, and analyses.
- Travel blanks were sample bottles pre-filled with DDW, preserved prior to the sample trip, and sealed by the laboratory. These bottles were transported to and from the field and remained sealed at all times during the sampling program. Travel blanks were used to detect sample contamination during shipping, storage, and analyses.

All QC samples were collected in the same manner as water samples, conforming to standard sampling methods (Environment Canada 2012). The QC samples were labelled with unique sample control numbers so they could not be identified as QC samples by the laboratory.

3A.1.1.1.2 Equipment

A field water quality multi-meter was used to measure physicochemical parameters: pH, dissolved oxygen (DO), temperature, and specific conductivity, herein referred to as conductivity, at the sampling locations. The multi-meter was maintained and calibrated regularly, following the SWIs provided to the field crew, as follows:

- The DO probe of the multi-meter was calibrated daily before each sampling event; and,
- The pH and conductivity probes were calibrated every four days using standard solutions specific to each sensor.

The temperature probe was not calibrated on a regular basis; however, it is recommended that routine checks of the temperature probe, using a constant temperature bath, be incorporated into future equipment calibration procedures.

Results of each calibration and required maintenance were recorded in the field data sheets or notebooks.

Winkler titrations were completed twice daily on samples collected from the field to check that the DO probe of the multi-meter was functioning properly. The DO measurements obtained by the multi-meter and Winkler titration were recorded in field data sheets or notebooks.

The sampling and filtration equipment were regularly maintained and inspected for damage or malfunctioning parts. Samples analyzed for non-metal parameters were collected using a plastic Kemmerer sampler; samples analyzed for total and dissolved metals were collected using a Teflon Kemmerer sampler. The same sampling equipment was used consistently for the same parameters throughout the field program to reduce the variability in QC issues related to the sampling equipment.

The sampling equipment was cleaned thoroughly at the beginning of each field program. The cleanliness of sampling equipment was checked at the end of every sampling event. If conductivity measurements from a DDW rinse through the Kemmerer samplers were more than 2 microSiemens per centimetre (µS/cm), the plastic Kemmerer sampler was cleaned with a laboratory-grade soap, then rinsed with tap water, and finally rinsed with DDW. The Teflon Kemmerer sampler was cleaned using a laboratory-grade soap and then rinsed with the following sequence: tap water; 3% hydrochloric acid or nitric acid solution; tap water again; and, finally DDW. One equipment blank was collected at the beginning, at the middle point, and the end of each field program to check for any potential contamination introduced by the Kemmerer samplers.

The field filtration kit consisted of a GeoPump unit, laboratory-grade silicon tubing, and a capsule filter (GWV-0.45 micron filter). The unit was rinsed with DDW before and between filtering of samples. A new capsule filter and new tubing were used for each new sample.

3A.1.1.2 Laboratory Quality Assurance/Quality Control Procedures

In accordance with Water Licence MV2011L2-0004 (MVLWB 2012) and the De Beers QA/QC Plan (De Beers 2008), water samples were submitted only to accredited laboratories where rigorous internal QA/QC procedures were in place. Laboratories contracted for analysis during the 2012 AEMP were ALS in Edmonton; Flett Research Limited (Flett) in Winnipeg; Alberta Innovates Technology Futures (Alberta Innovates) in Vegreville; Maxxam in Burnaby; HydroQual Laboratories in Calgary; and, Taiga Environmental Laboratory (Taiga) in Yellowknife. The internal QA/QC procedures and results from these laboratories were reviewed if inconsistent results were identified.

3A.1.1.3 Office Quality Assurance/Quality Control Procedures

Office QA/QC requirements consist of procedures to validate data and the results of the data analyses. The office data management system provides an organized and consistent system of data control and analysis. This management system has procedures for tracking collected samples, data entry, and data validation within a Microsoft Access database, which is referred to as the Snap Lake Environmental Database.

3A.1.1.3.1 Data Validation

Field Data

Dissolved oxygen measurements recorded using the multi-meter (i.e., a field DO reading) and Winkler titration were manually compiled into an Excel worksheet from field data sheets. The field DO readings were compared to the corresponding two-stage Winkler titration results measured at the same station and on the same day. If the Winkler titration results were not within 1.5 milligrams per litre (mg/L) of the field DO reading, the differences were investigated. If the differences between the field DO readings and the Winkler titration results were greater than 1.5 mg/L and unexplained, then the field DO reading was excluded from any assessment.

The Winkler titration validation procedure for DO was not completed for all the sampling events in 2012. Winkler titrations were not completed during the January 2012 program due to a shortage of Winkler titration solutions at the Mine. Additionally, Winkler titration samples were collected on February 19, 2012, but could not be analyzed because the samples froze before they were brought into the water processing facility.

Two Winkler titration results were collected from one of two titration sample bottles on February 20 and 21, 2012. In this case, the average of the two Winkler titration results in each sample bottle were compared to the corresponding field DO reading on those days.

Laboratory Data

Laboratory data were transferred electronically into the Snap Lake Environmental Database to avoid transcription errors associated with manual data. The laboratory analytical method for each parameter was entered into the Snap Lake Environmental Database along with the analytical results.

Once data were entered into the Snap Lake Environmental Database, a nine-step procedure was followed to validate the sample results. The purpose of this system was to validate data collection, handling, and analysis procedures, so that any identified problems could be corrected. The nine steps in the data management system were:

1. ***Check for laboratory-stated qualifiers***. Qualifiers, or alphabetical codes, were assigned by the laboratory to results when the laboratory identified a potential issue with the result. If a parameter was frequently assigned a qualifier code, the laboratory was questioned to determine the reason. In 2012, the only qualifier added by the laboratories was a "Q" flag from ALS when the F1-BTEX (benzene, toluene, ethylene, and xylene) samples were received with headspace in the sample bottle.

2. ***Compare detection limits (DLs)***. Required Mine DLs were specified for all chemical analyses for the AEMP and Surveillance Network Program (SNP), and were included in the Snap Lake Environmental Database. The requested DLs and DLs provided by each laboratory for individual samples were compared. If laboratory DLs were higher than requested DLs, the laboratory would be notified and requested to provide an explanation for the change in DLs. If possible, a parameter would be re-analyzed at the Mine DL. Changes in DLs by the laboratory during the program could cause limitations when comparing results with different DLs. For example, if a laboratory increased the DL, parameter concentrations could be masked by the higher DL. If re-analysis was not possible, the results were evaluated on a case-by-case basis to determine whether they were suitable for the assessment.

3. ***Review holding times***. Laboratory holding times, derived from Standard Methods for the Examination of Water and Wastewater (Standard Methods; APHA 2012), were the recommended maximum periods between sample collection and analysis. Holding times that were longer than the laboratory-recommended holding times were reviewed for patterns, reasons for longer holding times, and the significance of not meeting the recommended holding times. If the recommended holding times were not met because of field or shipping procedures, these procedures were reviewed and revised so that future field programs, to the extent possible, would meet recommended holding times for these parameters. A warning qualifier (WH) was placed on results for analyzed samples that exceeded the laboratory-requested holding times. Based on Standard Methods (APHA 2012), a number of parameters were considered particularly sensitive to holding times of greater than 10 days. These parameters were *Escherichia coli (E. coli)*, ammonia, alkalinity, biochemical oxygen demand (BOD), nitrate+nitrite, nitrate, ortho-phosphate, pH, conductivity, total dissolved solids (TDS), and turbidity. As such, the results for these eleven parameters were invalidated with the qualifier "XH" if the analysis date was more than ten days after the sample collection date.

4. ***Review data from the blank samples***. The results from the QC samples were reviewed to determine whether contamination occurred during the field procedures or during the preparation, storing, shipping, or analyzing of the blanks. If detectable concentrations of a parameter were found in greater than 5% of the equipment, field, or travel blanks, additional review of the blanks for that parameter was completed, as described in Section 3A.1.1.3.2.

5. ***Split and duplicate samples were reviewed by calculating the relative percent difference (RPD) between samples***. The RPD is the absolute difference between two values divided by the average of the two values. The results of the split and duplicate samples were considered acceptable when the RPD between the two results was 20% or less and the results were greater than five times above the DL. The use of five times the DL was based on accepted practices (BCMOE 2009; USEPA 1994, 2007) and

recommendations from ALS staff that a greater degree of uncertainty exists in results within five times of the DL (Crowther 2011). For inter-laboratory split samples, RPD values were not calculated when differences in the DLs were the source of the variation. When a parameter for a split sample was detected and five times above the DL at one laboratory, but the value was less than the DL from the alternate laboratory, the RPD was not calculated and was reported as non-calculable (NC).

- Within-site variability and field sampling precision of duplicate sample results were rated as:
  - **low and high**, respectively, if less than 10% of the parameters included in the duplicate sample analysis were notably different from one another;
  - **moderate**, if 10% to 30% of the parameters included in the duplicate sample analysis were notably different from one another; or,
  - **high and low**, respectively, if more than 30% of the parameters included in the duplicate sample analysis were notably different from one another.
- Analytical precision of split sample results was rated as follows:
  - **high**, if less than 10% of the total number of parameters were notably different from one another;
  - **moderate**, if 10% to 30% of the total number of parameters were notably different from one another; or,
  - **low**, if more than 30% of the total number of parameter.

6. ***Compare dissolved and total concentrations***. Corresponding dissolved and total concentrations were compared for each parameter to determine whether the dissolved values were greater than the corresponding total values. The RPD between the dissolved and total metal concentrations was calculated when the dissolved concentration was five times above the DL and the dissolved concentration was reported to be higher than the total concentration. If the RPD between the dissolved and total concentration was less than 30%, then the result was accepted as valid. When the RPD was greater than 30%, the laboratory was contacted to confirm the result. If the results were confirmed by the laboratory, the data were further reviewed for other causes. If no other cause was identified, then the data were considered valid for total, but the dissolved values were qualified with the qualifier “XG” as having a dissolved to total RPD outside of the acceptable range.
7. ***Review units***. The units reported by the laboratory were compared against the expected units, as coded into the database, for each parameter and matrix type. Where laboratory units were inconsistent with expected units, the results were confirmed with the laboratory and the units were corrected in the database. If corrections were necessary, hard copies of the results were re-issued by the laboratory.
8. ***Proofing sheets***. Approximately 5% of hard copies of the laboratory results were compared to the data entered into the database. If errors were identified, data were re-entered and further checks were conducted (i.e., greater than 5% of the dataset).

9. ***Record data management processes and actions***. Notes were recorded for the above eight steps, which included results from each step and follow-up action items to resolve any significant issue. These notes were stored electronically. Once all QA/QC items were resolved, the data were marked as valid and proofed in the database.

3A.1.1.3.2 Blank Validation

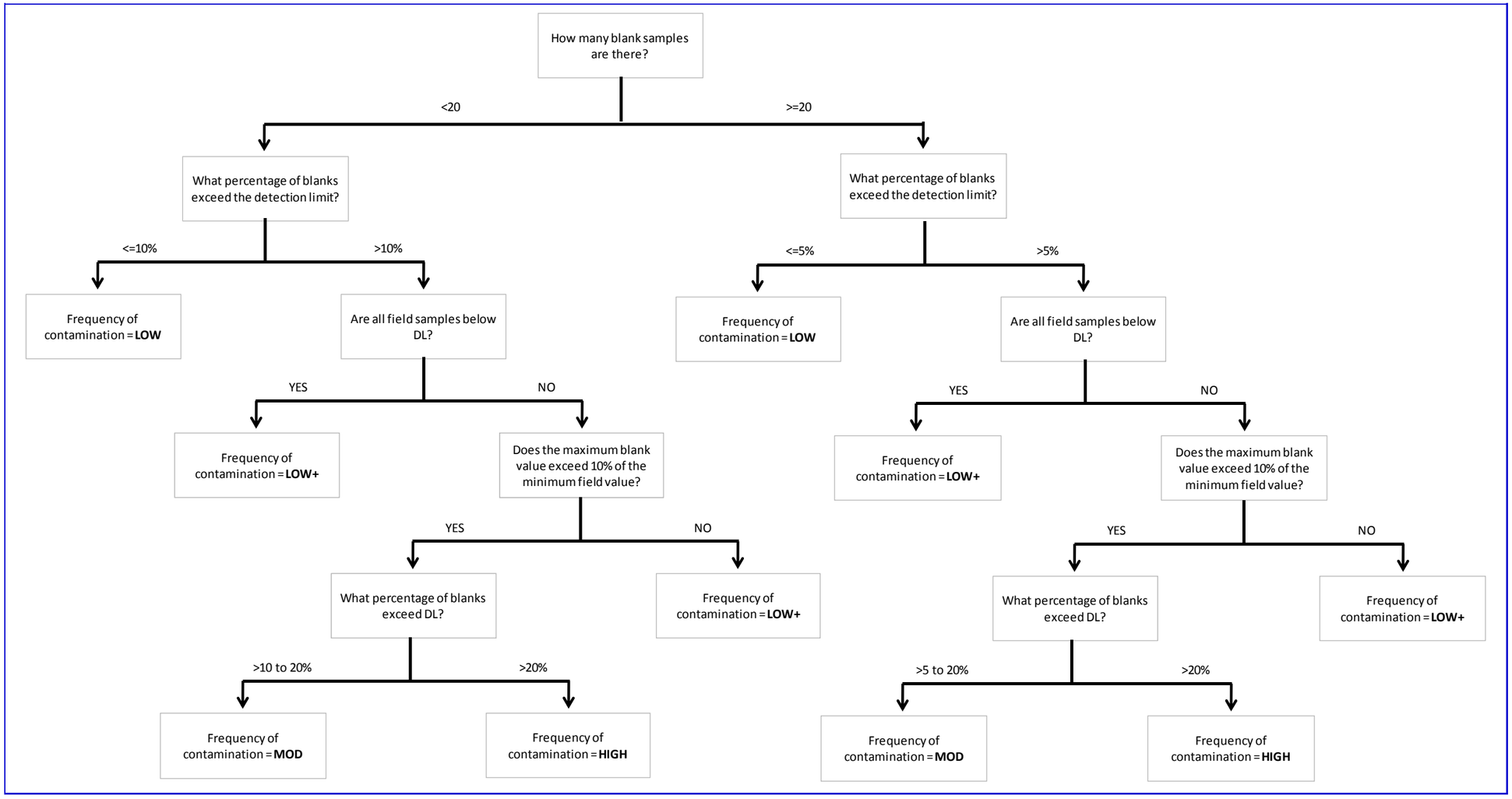
The results from equipment, field, and travel blanks collected during the 2012 field program were used to evaluate the 2012 AEMP water quality data. The validation method using blanks was based on recommended methods prepared by British Columbia's Ministry of Environment (BCMOE 1998). A modified version of this method, as described below and in Figure 3A-1, was adopted for evaluating the 2012 AEMP water quality data.

For each type of blank and for each parameter, the percentage of parameter results above their DL was calculated. If the percentage of results above the DL was 5% or less in each of the three types of blanks, the frequency of blank contamination was considered low, and results for that parameter were assumed valid and appropriate to use in all analyses. A threshold of 10% was used when the number of blanks was less than 20 to account for the low number of samples.

If the percentage of results in the blanks was greater than 5% or 10%, when the number of blanks was less than 20, then the results in the blanks were compared to concentrations measured in lake water samples. If the results in the blanks were substantially lower than parameter concentrations measured in the lake in 2012, which was considered less than 10% of the minimum concentration in the lake water, the results for that parameter were assumed valid and appropriate to use in all analyses. When blank results were greater than 10% of lake concentrations, the parameters were categorized as either having a moderate or high frequency of contamination in the blanks. If the frequency of occurrence was between 6% to 20% of the blanks if there were more than 20 blanks, or 11% to 20% when the number of blanks was less than 20, then the frequency of contamination was considered moderate. If greater than 20% of the blank samples were affected, then the frequency of contamination was considered high.

The results for parameters with a moderate frequency of contamination in any one of the blank types were used in all analyses but the results were qualified, using a “QP” flag, as having potentially been affected by contamination. The water quality results for parameters with a high frequency of contamination in the blanks were analyzed in the 2012 field program but results were also qualified, by using an “NP” flag, as likely having been affected by contamination. Regardless of the blank qualifiers on any parameter, all results were compared to AEMP benchmarks (CCME 1999 with updates to 2012; De Beers 2002b), and Environmental Assessment Report (EAR) predictions (De Beers 2002b). However, if a result for these parameters was over a benchmark, or prediction, the likelihood of contamination contributing to the elevated levels was assessed.

Figure 3A-1 Decision Tree Used to Determine Frequency of Contamination in Blank Samples



Note:
"LOW" = Frequency of contamination is low. DLs are exceeded 5% or less (or 10% or less if the number of blanks are less than 20) of the time.
"LOW+" = Frequency of contamination is low. DLs are exceeded more than 5% (or more than 10% when the number of blanks are less than 20) of the time, but concentrations in the blanks are well below lake levels, or all lake levels are below DL, and therefore need not be qualified.
"MOD" = Frequency of contamination is moderate. DLs are exceeded between 6% and 20% (or 11% to 20% of the time when the number of blanks are less than 20) of the time, and concentrations in the blanks are typically more than 10% of minimum lake values.
"HIGH" = Frequency of contamination is high. DLs are exceeded more than 20% of the time and the concentrations in blanks are typically more than 10% of lake values.
pH and specific conductivity were excluded from the blank validation.
DL = detection limit; <= less than; >= greater than; % = percent.

3A.1.1.3.3 Invalidation of Specific Data

Field Data

On occasion, field data were determined to be inconsistent relative to the other values in the water quality profile. Data were examined and the field notes reviewed to determine whether there was a potential cause for the anomalous results. Anomalous field data from 2012 were excluded from the assessment because:

- The probes were assumed to be near the sediment boundary, or submerged in sediment as denoted by substantial changes in DO, associated with notable changes in pH, temperature and/or conductivity values (see footnotes and data in Appendix 3B; Table 3B-1);
- Dissolved oxygen as percent saturation (% sat) was inconsistent with the measured DO (mg/L) value (Appendix 3B; Table 3B-1); and,
- Field conductivity measurements were inconsistent with spatial patterns typically observed in Snap Lake, and were different from laboratory conductivity results from the same stations.

Laboratory Data

Invalidation of specific data was completed using a two-step process. The first step was a visual review of the 2012 data on a parameter-by-parameter basis using scatter-plots to identify outliers from the overall dataset for that parameter. Data from the Snap Lake Environmental Database were exported, appropriately grouped, and plotted. Unusually high or low data outliers were selected for further investigation.

The second step of the process involved data invalidation on the selected outlying data. The selected data were invalidated on a case-by-case basis, considering the following test conditions:

- The result of a duplicate or a split sample was not within the expected range of concentrations in the lake;
- Unusually high or low results were inconsistent with the conductivity measurement in the same sample, in cases when a parameter was correlated with conductivity;
- The concentration of a parameter was high in a lake station far from the diffuser, and average lake concentrations measured in 2012 were less than 10 times the unusual result; and,
- The parameter had a high degree of contamination in the blank samples, and average lake concentrations measured in 2012 were less than 10 times the unusual result.

All invalidated data were retained in the Snap Lake Environmental Database, but flagged with the qualifier “X”, indicating that the sample was considered contaminated or the results were designated as not correct following an internal review of the data.

3A.1.1.3.4 Data Analyses

The AEMP data were stored within the Snap Lake Environmental Database, but exported to separate software programs for data analyses. When using separate software programs (e.g., Microsoft Excel) to analyse the data, the data were directly transferred from the Snap Lake Environmental Database to the software working files, so that the data were from one source and the same for all analyses. If errors were identified, the database calculation routines were reviewed.

Data were checked on an ongoing basis for accuracy and consistency with expected concentrations and, where appropriate, data were plotted to visually confirm significant statistical results for spatial gradients and comparisons to baseline. Data or statistical results observed to be inconsistent with expected concentrations or results were investigated further. Where possible, data were copied directly from the software output files (e.g., Microsoft Excel) to the report document to avoid transcription errors.

3A.1.1.4 Quality Assurance and Quality Control for Special Studies

Two special studies, the Downstream Lakes Special Study (Section 12.2) and the Suitability of Lake 13 as a Reference Lake Special Study (Section 12.3), were completed during the 2012 AEMP between August 17 and 26, 2012. Water quality data collected during the 2012 Special Studies were entered into the Snap Lake Environmental Database and validated using the same QA/QC protocols applied to the core AEMP. The nine-step management system outlined in the laboratory results section of Section 3A1.1.3.1 was used to validate data collection, handling, and analysis procedures, with the exception of the blank validation for the reasons outlined below.

The trip and field blanks from the two special studies in 2012 were grouped because the programs occurred at the same time. However, the fieldwork was conducted separately from the core AEMP (i.e., timing, field crew, and analytical suite were separate), so the blank data were considered discretely. The small sample size did not warrant application of the AEMP blank validation decision tree (Figure 3A-1). Therefore, when a parameter concentration exceeded the relevant DLs in any blank sample from the special studies, the value was individually compared to 10% of minimum concentrations measured in field samples collected during the Special Studies. The comparison was used to determine whether potential sample contamination was limited to the blank sample or apparent in field samples collected during these studies. If, based on the comparison, the potential sample contamination did not appear to have been an isolated error lake sample results were qualified. The QA/QC results for the 2012 special studies are presented in Section 12.2; Appendix 12 B-1.

3A.1.2 RESULTS

The QA/QC results include any issues observed during field procedures, data validation, and data review. Field requirements included procedures for maintaining and operating field equipment, and methods for undertaking field measurements, and the collection, handling, and shipping of samples. Office QA/QC procedures consisted of validating laboratory data and validating data analyses completed for the 2012 AEMP.

3A.1.2.1 Field Data

Winkler Titrations for Dissolved Oxygen

Field equipment were maintained and calibrated according to standard procedures during the 2012 field program. Two-stage Winkler titrations, using titrations 1 and 2, were used to verify field readings of DO measured by the water quality multi-meter. Field DO readings were typically within 1.5 mg/L of the Winkler titration results during the program (Table 3A-1). The average differences between the Winkler titration results and the field DO readings were 1.9 mg/L for titration 1 and 1.5 mg/L for titration 2.

Table 3A-1 Winkler Titration Results, Snap Lake, 2012

Date[a]	Station	Depth (m)	Dissolved Oxygen Concentration (mg/L)		
			YSI Multi-meter	Winkler Titration #1	Winkler Titration #2
February 17, 2012	SNAP06	6	11.8	12.6	12.9
February 18, 2012	SNAP12	4	14.1	**12.0**	12.6
February 18, 2012	SNAP28	3	15.0	**12.5**	**13.1**
February 20, 2012 [b]	SNAP29	4	15.1	13.8	14.4
February 21, 2012 [b]	NEL02	6	13.3	**11.7**	12.0
March 16, 2012	SNAP23	3	14.6	13.4	13.9
March 17, 2012	SNAP07	3	13.7	12.6	13.0
March 17, 2012	SNAP06	5	14.0	13.3	13.2
March 18, 2012	SNP 02-20d	2	14.6	**12.8**	**13.0**
March 21, 2012	SNP 02-20f	2	14.4	13.2	13.4
April 13, 2012	SNAP29	3	15.9	**10.9**	**11.8**
April 14, 2012	NEL02	6	13.7	**11.1**	**10.2**
April 15, 2012 [c]	SNP 02-20f	13	20.2	**11.4**	**11.8**
April 15, 2012 [d]	SNP 02-20f	0.3	10.6	11.8	11.1
April 16, 2012	SNAP06	7	13.7	12.5	12.2
April 17, 2012	SNAP26	3	15.0	**13.3**	**12.9**
May 13, 2012	SNP 02-20f	7	13.1	**15.1**	12.3
July 6, 2012[e]	SNAP23	6	11.4	**5.1**	-

Table 3A-1 Winkler Titration Results, Snap Lake, 2012

Date[a]	Station	Depth (m)	Dissolved Oxygen Concentration (mg/L)		
			YSI Multi-meter	Winkler Titration #1	Winkler Titration #2
July 12, 2012[e]	SNAP11A	7	10.5	**5.4**	**5.4**
July 13, 2012	SNAP08	3	9.3	8.2	8.3
September 7, 2012	SNAP03	7	11.0	10.2	10.4
September 7, 2012	SNAP12	4	11.2	10.2	10.4
September 8, 2012	NEL05	5	9.9	9.6	10.2
September 9, 2012	SNP 02-20d	3	10.1	9.8	9.6
September 11, 2012	SNAP04	2	11.0	10.4	10.8
September 12, 2012	SNAP29	3	11.0	9.6	10.0
September 13, 2012	SNAP09	7	10.8	10.6	10.6
September 14, 2012	SNP 02-20d	6	10.6	10.2	10.2
September 15, 2012	IL3	0.3	12.0	11.2	11.6

Note: Values in **bold** indicate that differences between the field dissolved oxygen (DO) reading and the corresponding Winkler titrations were greater than 1.5 mg/L.

(a) Winkler titration samples were not collected in January 2012 because of a shortage of the Winkler titration solutions at the Mine. Winkler titrations were not completed on February 19, 2012, as the titration samples froze during transit to the water processing facility.

(b) Two readings from each of two titration sample bottles were taken at the same station on February 20 and 21, 2012. The average of two titration readings from each bottle was presented as Winkler titration #1 and Winkler titration #2.

(c) The field DO and the Winkler titration results collected on April 15, 2012 were notably different. The DO membrane was changed at the end of the day and the Winkler titration was repeated. The field DO readings collected on April 15, 2012 were excluded from the 2012 AEMP assessment.

(d) Repeated Winkler titration was completed after the DO membrane was replaced.

(e) The field DO and the Winkler titration results were notably different for SNAP23 on July 6, 2012 and SNAP11A on July 12, 2012. The Winkler titration values were considered to be incorrect and the field DO readings were included in the assessment.

"-" = no data/not applicable; m = metre; mg/L = milligrams per litre.

The field DO reading and the Winkler titration results were notably different for SNP 02-20f on April 15, 2012 (Table 3A-1). The field DO readings at the diffuser stations on April 15, 2012 ranged from 18.9 to 20.2 mg/L, which was approximately 4 to 5 mg/L higher than the maximum DO reading measured at the diffuser stations in April 2011 (De Beers 2012a). The DO membrane on the multi-meter was replaced at the end of the day, and the subsequent field DO reading measured with the new DO membrane was within 1.5 mg/L of the Winkler titration results (Table 3A-1). The high field DO readings measured on April 15, 2012 were considered erroneous due to a malfunctioning DO membrane; the field DO readings collected on April 15, 2012 were excluded from the 2012 AEMP assessment.

The field DO reading and the Winkler titration results were also notably different for SNAP23 on July 6, 2012 and SNAP11A on July 12, 2012 (Table 3A-1). The Winkler titrations at those stations were 5.1 and 5.4 mg/L, respectively. The field DO readings at those two stations in 2012 ranged from 9.8 to 11.4 mg/L, similar to the range measured July 2011 (i.e., 9.1 to 11.2 mg/L; De Beers

2012a). For this reason, the Winkler titration values were considered to be incorrect and the field DO readings were included in the assessment.

The results from the Winkler titrations indicate that when differences occur, they are most likely due to isolated errors associated with sampling procedures, quality of the titration reagent, or handling the Winkler titration equipment during the Winkler titration. Therefore, the rest of the field DO readings were validated and included in the assessment.

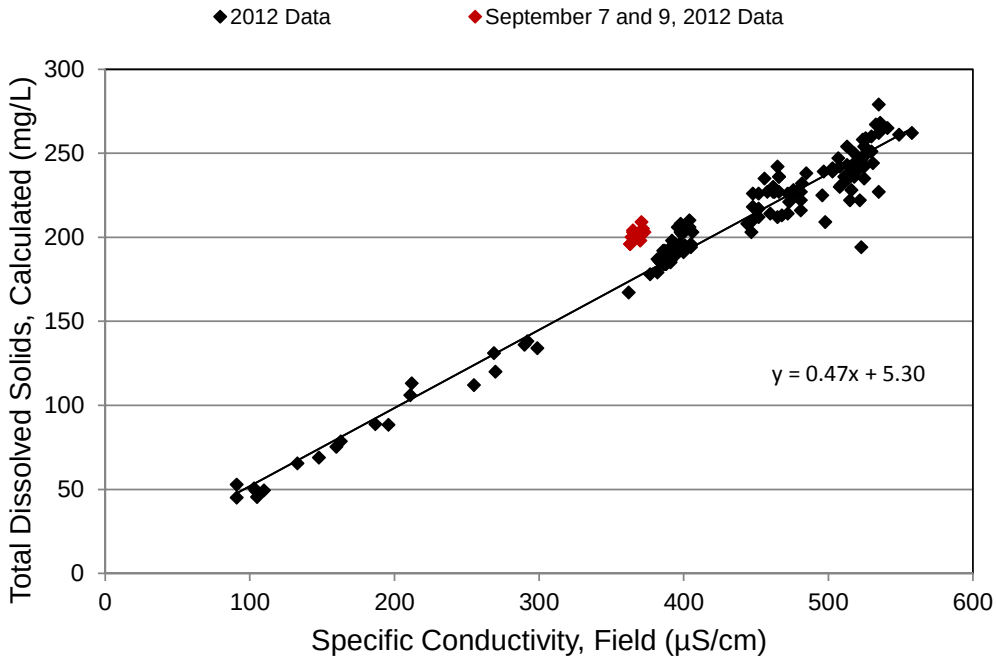
Completing the two-step titration procedure for the Winkler titrations is recommended for the 2013 AEMP to maintain a level of QC necessary to verify the accuracy of field DO readings. In addition, a three-step Winkler titration (i.e., completion of an additional titration) is recommended if notable variability is observed between the first two Winkler titration results to confirm which result is most reliable.

Other Field Data

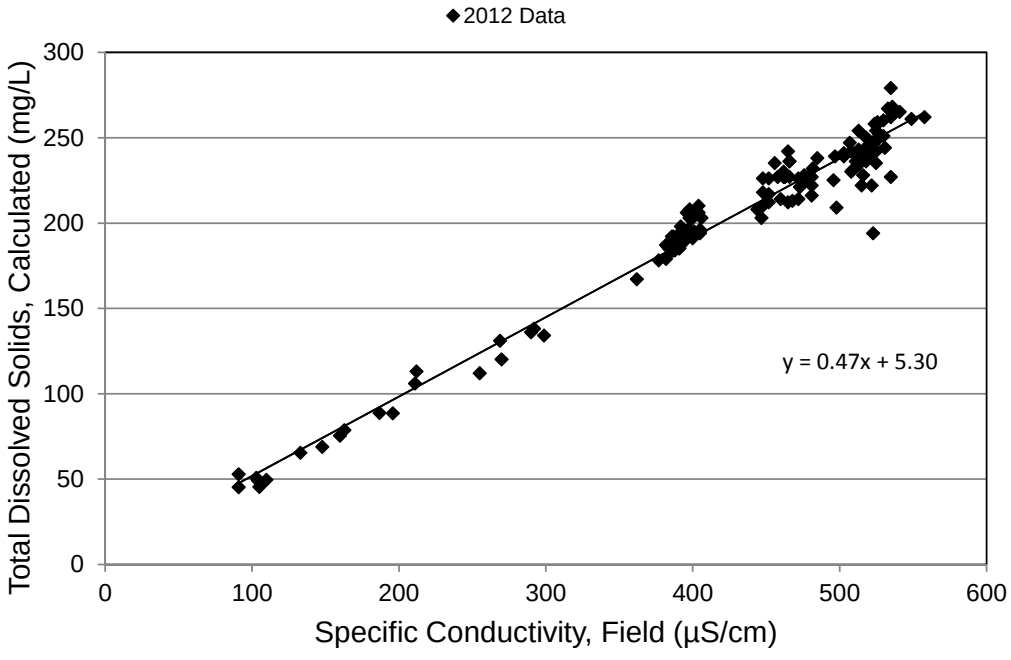
Field conductivity data collected at the diffuser stations, SNAP03, SNAP12, SNAP26, and SNAP28 on September 7 and 9, 2012 were considered erroneous due to a potential calibration error. Conductivity is typically highest at the diffuser and all the near-field stations relative to other parts of Snap Lake. However, the conductivity measurements collected on those dates at the diffuser and near-field stations were approximately 20 to 30 µS/cm lower than those measured in the far-field and mid-field. The spatial pattern was not consistent with spatial patterns typically observed throughout the year in Snap Lake; that is, decreasing conductivity levels as distance from the diffuser stations increases was not observed. The field conductivity data also did not fit the linear relationship between total dissolved solids (calculated) and field specific conductivity (Figure 3A-2), or field and laboratory measured specific conductivity (Figures 3A-3). Due to the unreliable nature of these measurements, the specific conductivity field data collected on September 7 and 9, 2012 were removed from the assessment.

Figure 3A-2 Correlation Between Calculated Total Dissolved Solids and Field Specific Conductivity in Snap Lake, all 2012 Data

a) All 2012 data, including data collected on September 7 and 9, 2012



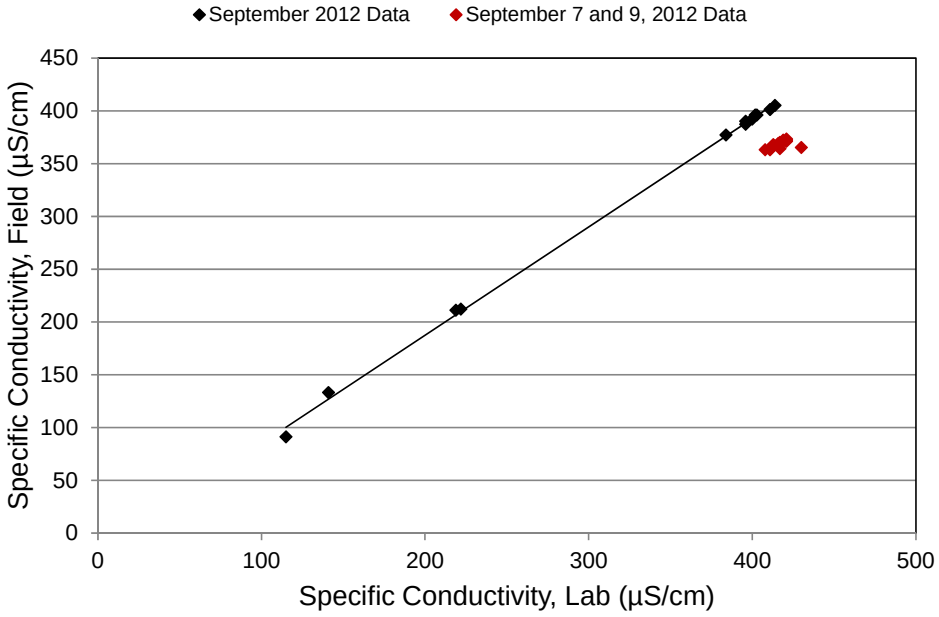
b) All 2012 data, excluding data collected on September 7 and 9, 2012



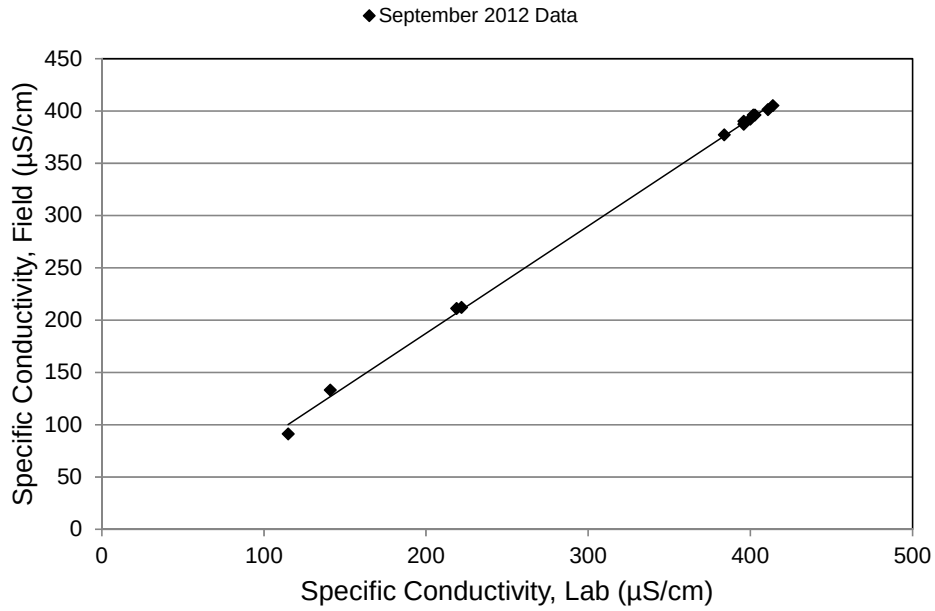
mg/L = milligrams per litre; µS/cm = microSiemens per centimetre.

Figure 3A-3 Comparison of Field and Laboratory Conductivity Values in Snap Lake, September 2012

a. September 2012 data, including data collected on September 7 and 9, 2012



b. September 2012 data, excluding data collected on September 7 and 9, 2012



µS/cm = microSiemens per centimetre.

3A.1.2.1 Data Validation

Results from the laboratory were transferred electronically into the Snap Lake Environmental Database, and the procedures outlined in Section 3A.1.3.1 were followed to validate the data. Data validation was completed for all data collected between January 13 and September 15, 2012. The results of each of the data validation steps are summarized below and include a discussion on any QA/QC issues identified.

3A.1.2.1.1 Detection Limits

Most of the parameters were analyzed at the standard AEMP DLs (Table 3A-2). However, the DLs for several parameters increased on at least one occasion due to dilution, matrix interference, insufficient sample volume received, or misplaced samples (i.e., the appropriate bottle was not received at the laboratory and sample was analyzed from the routine bottle with higher DLs), or a combination of these issues. When the DLs increased, the laboratories were contacted, and an explanation for the increase in the DL was requested. Standard AEMP DLs are available upon request; however, parameters for which the DLs increased above the standard AEMP DLs in 2012 are presented in Table 3A-2. For two parameters (i.e., reactive silica [ALS], and methyl mercury [Flett]), the standard AEMP DLs were frequently not achieved. Reasons for the differences are discussed below.

The standard AEMP DL for reactive silica was achieved in 13% of the samples submitted to ALS in 2012 (Table 3A-2). The DLs selected by the laboratories were based on the reactive silica concentration in the sample, i.e., the higher the concentration, the higher the DL. The analysis of reactive silica is a sensitive method, and typically freshwater samples require dilution prior to analysis at the lower DL. To minimize the effort required to prepare the sample for analysis, ALS modified their preparation procedure. The new process consisted of analyzing the samples with a higher DL first, and if the sample was below that DL, then the sample was reanalyzed at the lower DL (Evaristo-Cordero 2013).

The DL for methyl mercury analyzed by Flett was either 0.00003 micrograms per litre (µg/L) or 0.00008 µg/L in 2012. The standard AEMP DL for methyl mercury (i.e., 0.00003 µg/L) was achieved approximately half of the time (Table 3A-2). Matrix interferences (i.e., low recovery percentages in the matrix spike samples) were often observed using the standard direct method. Thus, to remove the interferences Flett implemented a distillation method. The distillation method used smaller aliquots of sample than the direct analysis; because the DL was determined by dividing the concentration detected by the volume measured, the DL increased with distillation (Flett 2012).

Table 3A-2 Frequency of Laboratory Detection Limits

Parameter	Units	Laboratory	Units	Standard AEMP Detection Limit	Frequency (%)	First Alternate Detection Limit	Frequency (%)	Second Alternate Detection Limit	Frequency (%)	Third Alternate Detection Limit	Frequency (%)	Fourth Alternate Detection Limit	Frequency (%)
Conventional Parameters													
Total Suspended Solids	mg/L	Maxxam	mg/L	1	81.8	4	9.1	-	-	-	-	-	-
Ions													
Reactive Silica, as SiO_2	mg/L	ALS	mg/L	0.005	13.0	0.5	61.9	0.025	19.7	0.25	5.0	0.05	0.4
Nutrients and Carbons													
Nitrate, as N	mg-N/L	Maxxam	mg-N/L	0.004	96.6	0.01	3.4	-	-	-	-	-	-
Nitrate/Nitrite, as N	mg-N/L	Maxxam	mg-N/L	0.004	96.6	0.01	3.4	-	-	-	-	-	-
Total Kjeldahl Nitrogen	mg-N/L	Maxxam	mg-N/L	0.04	65.5	0.2	24.1	0.1	10.3	-	-	-	-
Total Nitrogen	mg-N/L	Maxxam	mg-N/L	0.04	65.5	0.2	24.1	0.1	10.3	-	-	-	-
Total Organic Carbon	mg/L	ALS	mg/L	1	99.5	5	0.5	-	-	-	-	-	-
Total Metals, Metalloids, and Non-Metals													
Aluminum	µg/L	ALS	µg/L	0.3	99.5	3	0.5	-	-	-	-	-	-
Antimony	µg/L	ALS	µg/L	0.02	99.5	0.1	0.5	-	-	-	-	-	-
Arsenic	µg/L	ALS	µg/L	0.02	99.5	0.1	0.5	-	-	-	-	-	-
Beryllium	µg/L	ALS	µg/L	0.01	99.5	0.5	0.5	-	-	-	-	-	-
Bismuth	µg/L	ALS	µg/L	0.01	99.5	0.05	0.5	-	-	-	-	-	-
Boron	µg/L	ALS	µg/L	1	99.5	2	0.5	-	-	-	-	-	-
Cadmium	µg/L	ALS	µg/L	0.005	99.5	0.01	0.5	-	-	-	-	-	-
Chromium	µg/L	ALS	µg/L	0.06	99.5	0.1	0.5	-	-	-	-	-	-
Cobalt	µg/L	ALS	µg/L	0.01	99.5	0.1	0.5	-	-	-	-	-	-
Iron	µg/L	ALS	µg/L	1	99.5	10	0.5	-	-	-	-	-	-
Lead	µg/L	ALS	µg/L	0.01	99.5	0.05	0.5	-	-	-	-	-	-
Lithium	µg/L	ALS	µg/L	0.5	99.5	5	0.5	-	-	-	-	-	-
Manganese	µg/L	ALS	µg/L	0.05	99.5	2	0.5	-	-	-	-	-	-
Methyl Mercury	µg/L	Flett	µg/L	0.00003	48.0	0.00008	52.0	-	-	-	-	-	-
Nickel	µg/L	ALS	µg/L	0.06	99.5	0.1	0.5	-	-	-	-	-	-
Selenium	µg/L	ALS	µg/L	0.04	99.5	0.1	0.5	-	-	-	-	-	-
Silver	µg/L	ALS	µg/L	0.005	99.5	0.01	0.5	-	-	-	-	-	-
Strontium	µg/L	ALS	µg/L	0.05	99.5	0.1	0.5	-	-	-	-	-	-
Thallium	µg/L	ALS	µg/L	0.01	99.5	0.05	0.5	-	-	-	-	-	-
Titanium	µg/L	ALS	µg/L	0.1	99.5	0.3	0.5	-	-	-	-	-	-
Vanadium	µg/L	ALS	µg/L	0.05	99.5	0.1	0.5	-	-	-	-	-	-
Zinc	µg/L	ALS	µg/L	0.8	99.5	3	0.5	-	-	-	-	-	-
Dissolved Metals, Metalloids, and Non-Metals													
Aluminum	µg/L	ALS	µg/L	0.3	99.2	1	0.8	-	-	-	-	-	-
Antimony	µg/L	ALS	µg/L	0.02	99.2	0.1	0.8	-	-	-	-	-	-
Arsenic	µg/L	ALS	µg/L	0.02	99.2	0.1	0.8	-	-	-	-	-	-
Beryllium	µg/L	ALS	µg/L	0.01	99.2	0.5	0.8	-	-	-	-	-	-
Bismuth	µg/L	ALS	µg/L	0.01	99.2	0.05	0.8	-	-	-	-	-	-
Boron	µg/L	ALS	µg/L	1	99.2	2	0.8	-	-	-	-	-	-
Cadmium	µg/L	ALS	µg/L	0.005	99.2	0.01	0.8	-	-	-	-	-	-
Chromium	µg/L	ALS	µg/L	0.06	99.2	0.1	0.8	-	-	-	-	-	-
Cobalt	µg/L	ALS	µg/L	0.01	99.2	0.1	0.8	-	-	-	-	-	-
Iron	µg/L	ALS	µg/L	1	96.9	10	3.1	-	-	-	-	-	-
Lead	µg/L	ALS	µg/L	0.01	99.2	0.05	0.8	-	-	-	-	-	-
Lithium	µg/L	ALS	µg/L	0.5	99.2	5	0.8	-	-	-	-	-	-
Manganese	µg/L	ALS	µg/L	0.05	99.2	2	0.8	-	-	-	-	-	-
Nickel	µg/L	ALS	µg/L	0.06	99.2	0.1	0.8	-	-	-	-	-	-
Selenium	µg/L	ALS	µg/L	0.04	99.2	0.1	0.8	-	-	-	-	-	-
Silver	µg/L	ALS	µg/L	0.005	99.2	0.01	0.8	-	-	-	-	-	-
Strontium	µg/L	ALS	µg/L	0.05	99.2	0.1	0.8	-	-	-	-	-	-
Thallium	µg/L	ALS	µg/L	0.01	99.2	0.05	0.8	-	-	-	-	-	-
Titanium	µg/L	ALS	µg/L	0.1	99.2	0.3	0.8	-	-	-	-	-	-
Vanadium	µg/L	ALS	µg/L	0.05	99.2	0.1	0.8	-	-	-	-	-	-

Table 3A-2 Frequency of Laboratory Detection Limits

Parameter	Units	Laboratory	Units	Standard AEMP Detection Limit	Frequency (%)	First Alternate Detection Limit	Frequency (%)	Second Alternate Detection Limit	Frequency (%)	Third Alternate Detection Limit	Frequency (%)	Fourth Alternate Detection Limit	Frequency (%)
Zinc	µg/L	ALS	µg/L	0.8	99.2	1	0.8	-	-	-	-	-	-
Organics-Volatiles													
Benzene	mg/L	Maxxam	mg/L	0.0004	90.9	0.0007	9.1	-	-	-	-	-	-
BTEX, calculated	mg/L	Maxxam	mg/L	0.0004	70.0	0.0008	20.0	0.0007	10.0	-	-	-	-
Toluene	mg/L	Maxxam	mg/L	0.0004	81.8	0.0008	18.2	-	-	-	-	-	-
Microbiology													
E. coli	MPN/100 mL	Maxxam	MPN/100 mL	1	77.8	2	22.2	-	-	-	-	-	-

SiO_2 = silicate; N = nitrogen; P = phosphorus; BTEX = benzene, toluene, ethylbenzene, and xylene; *E. coli* = *Escherichia coli;* AEMP = Aquatic Effects Monitoring Program; ALS = ALS Laboratories; Maxxam = Maxxam Analytics Inc.; Flett = Flett Research Limited; - = no data; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; % = percent; µg/L = micrograms per litre; mg-N/L = milligrams as nitrogen per litre; mg-P/L = milligrams as phosphorus per litre; MPN/100 mL = most probable number per 100 millilitres.

3A.1.2.1.2 Mercury, Silver, and Cadmium Results From ALS Laboratory Group

Historically, mercury, silver, and cadmium results from ALS were not used in the AEMP analyses because the DLs from the inductively coupled plasma mass spectrometry (ICP-MS) instrument at ALS were substantially higher than DLs provided by other laboratories used specifically for the analysis of mercury, cadmium, and silver for the AEMP. The lower DLs provided by Flett for mercury, Alberta Innovates for cadmium, and Maxxam for silver, have been necessary to compare results to the Canadian Council of Ministers of the Environment (CCME 1999) water quality guidelines.

In 2011, ALS upgraded their metals analytical methods to collision cell inductively coupled plasma mass spectrometry (CCMS) instrument technology, which allowed for lower DLs for many parameters than previously provided using ICP-MS. Using CCMS, ALS provided a DL of 0.005 µg/L for silver, which is equal to the Maxxam's DL for silver, and considered appropriate for use in the water quality assessment. Silver concentrations have been comparable between split samples analyzed by ALS and Maxxam (De Beers 2012a). Therefore, silver has been analyzed by ALS since June 2011, thereby reducing the number of sample bottles filled and shipped during the AEMP. It is recommended that ALS continues to analyze ultra-low silver in the future.

Similarly, Alberta Innovates previously analyzed samples for ultra-low cadmium for the AEMP. After ALS updated to CCMS technology, an improved DL for ultra-low cadmium (0.005 µg/L) was provided, which was higher than that provided by Alberta Innovates (0.002 µg/L), but adequate for comparison to the AEMP benchmark (0.36 ug/L) and maximum whole-lake average cadmium concentration from the EAR (0.058 ug/L; De Beers 2002b). Total cadmium data measured by Alberta Innovates and ALS in 2012 provided similar spatial and temporal patterns (Section 2.4.4 and 2.4.5). Therefore, it is recommended that cadmium be analyzed by ALS for the 2013 AEMP.

Water samples were submitted to Flett for ultra-low mercury and methyl mercury analyses during the 2012 AEMP. ALS can provide similar DLs to Flett for ultra-low total and methyl mercury; however, such analyses have not previously been requested as part of the AEMP, so direct comparisons could not be made. At this time, it is recommended that Flett continue to analyze ultra-low mercury in the 2013 AEMP.

3A.1.2.1.3 Laboratory-Calculated Total Dissolved Solids

ALS routinely provides both calculated TDS (TDS_{Calc}) and measured TDS (TDS_{Meas}) as part of their routine analysis package. Calculated TDS is used rather than measured TDS for the De Beers Snap Lake Project to be consistent with recommendations in the Water Licence (MVLWB 2012) and for the reasons outlined in De Beers (2012a,b):

1) Measured TDS is subject to laboratory interferences that can reduce the accuracy of the measurement (Evaristo-Cordero 2011). Waters with considerable calcium, magnesium and chloride concentrations, such as those from Snap Lake, can form a hygroscopic (i.e., absorbs ambient water) residue that will continue to absorb water under normal laboratory conditions, thereby biasing the measurement higher than actual (APHA 2005; Evaristo-Cordero 2011). Calculated TDS is based on the major inorganic ions, measured in milligrams per litre (mg/L), which could measurably contribute to TDS values in Snap Lake. Unlike measured TDS, calculated TDS implicitly assumes the analytes exist in the sample in the forms analyzed, so are not influenced by any changes that may occur when taken out of solution. Using this method is likely more accurate given the practical limitations in handling and measuring TDS. Using calculated TDS concentration, therefore, means that changes in the amount of TDS in Snap Lake will be detected with more certainty than if measured TDS concentrations were used.

2) TDS_{Calc} was used in the EAR and in recent modelling updates to predict the concentration of TDS in the treated effluent. To be consistent with the EAR predictions, past practice has been to use TDS_{Calc} in the reporting of monitoring results and modelling.

3) Forecasts of TDS concentrations in the treated effluent from the Mine must be based on TDS_{Calc} to account for the contribution of the specific ions to mass releases associated with Mine activities, such as groundwater contributions (e.g., calcium, chloride) and blasting (e.g., nitrate).

Until the end of 2011, ALS used an equation very similar to Method 1030E in Standard Methods for TDS_{Calc} (Equation 1; APHA 2005). Equation 1 includes the major inorganic ions, measured in mg/L, which measurably contribute to TDS in Snap Lake and at the Mine. There are other dissolved inorganic ions that could also contribute to TDS, such as nitrite, strontium, and iron; however, concentrations of these parameters are very low in proportion to the major inorganic ions in water quality samples collected from the Snap Lake Mine.

Equation 1: (APHA 2005)

$$TDS_{Calc}(SM)\ (mg/L) = (0.6 \times \text{Total Alkalinity as } CaCO_3) + Na^+ + Mg^+ + K^+ + Ca^{2+} + SO_4^- + Cl^- + NO_3^- + F^- + SiO_3^{2-}$$

Where:

SM = Standard Methods; Na^+ = sodium cation; Mg^+ = magnesium cation; K^+ = potassium ion; Ca^{2+} = calcium cation; $CaCO_3$ = calcium carbonate; SO_4^- = sulphate anion; Cl^- = chloride anion; NO_3^- = nitrate anion (multiply nitrate as nitrogen by 4.427); F^- = fluoride anion; and SiO_3^{2-} = silicate anion (multiply reactive silica as SiO_2, by 1.266).

The 2012 TDS_{Calc} included nitrite, but did not include the silicate anion as per Standard Methods (APHA 2005). ALS was asked to update the formula to include the silicate anion. Nitrite continued to be included, as its contribution to the overall TDS concentration was negligible. By March 2012, ALS had added the silicate anion, but made other changes to the formula as part of their Canada-wide standardization process. The additional ions included total organic carbon (TOC), ammonium ($NH4^+$), dissolved aluminum (Al^+), dissolved iron (Fe^{2+}), dissolved manganese (Mn^{2+}), dissolved copper (Cu^{2+}), and dissolved zinc (Zn^{2+}) were also added. The 2012 equation with the additional parameters (Equation 2) will be referred to as TDS_{Calc}(Lab). All of the AEMP TDS_{Calc} values received between January and September 2012 were affected.

Equation 2: (Evaristo-Cordero 2013)

$$2012\ TDS_{Calc}(Lab)\ (mg/L) = (0.6 \times \text{Total Alkalinity as } CaCO_3) + Na^+ + Mg^+ + K^+ + Ca^{2+} + SO_4^- + Cl^- + NO_3^{-+}NO_2^{2-} + F^- + SiO_3^{2-} + NH_4^+ + Fe^{2+} + Mn^{2+} + Al^+ + Cu^{2+} + Zn^{2+} + TOC$$

The 2012 TDS_{Calc}(Lab) equation was inconsistent with Standard Methods, past practice (De Beers 2011), and specific project documentation and approval (De Beers 2005a,b; DFO 2006). The inclusion of the additional parameters, particularly TOC and ammonium, introduced potential bias in the lake data. For example, samples collected from Snap Lake on the same day may have had different TDS concentrations, solely based on the calculation method and the measured parameters. ALS states that for the 2012 TDS calculation “only those parameters for which analysis has been requested are included in this calculation. Absent or non-detect constituent results are assigned a zero value in the formula”. TOC is routinely analyzed at the diffuser stations (e.g., SNP 02-20e), but not at the AEMP TDS stations (e.g., SNAP05). Therefore, on a given day, TDS concentrations at the SNP diffuser stations would be biased high compared to the AEMP TDS stations due to the calculation method.

While the bias introduced would have minimal effects on conclusions regarding lake dynamics, temporal trends, and spatial patterns, for consistent and defensible data the discrepancy was addressed. TDS_{Calc}(SM) was calculated on an interim basis, using the De Beers Environmental

Database. The interim TDS_{Calc}(SM) results were used in this report until final revised results are re-issued. As such, three versions of TDS are presented:

- Total Dissolved Solids, measured [TDS measured gravimetrically];
- Total Dissolved Solids, calculated (Lab) [TDS calculated using the Equation 2, not consistent with Standard Methods]; and,
- Total Dissolved Solids, calculated (Standard Methods) [TDS calculated using Equation 1, consistent with Standard Methods].

For the 2012 AEMP, TDS_{Calc}(SM) was used in all assessments, including plots, calculations and trend analyses.

3A.1.2.1.4 Other Qualifiers

Due to travel time constraints from the Mine to the laboratories, holding times were exceeded for several parameters from ALS, Maxxam, Taiga, and Alberta Innovates in 2012. No holding times were exceeded for samples sent to Flett. Most of the results that exceeded holding times were given a "WH" qualifier, which warns that the holding time was exceeded, which may have affected results (Table 3A-3). The number of parameters qualified with "WH" in 2012 was similar to 2011 (De Beers 2012a). A much smaller percentage of results were given an "XH" qualifier, which indicates that the data were invalidated because the holding times were exceeded by a timeframe that would likely affect the result (Table 3A-3). Less than 1% of the concentrations of laboratory pH, and turbidity analyzed at ALS, were invalidated with the qualifier "XH" as the analysis date was more than ten days after the sample collection date. In 2012, less parameters were qualified with "XH" than in 2011 (De Beers 2012a), indicating that improvements to the transportation efficiencies from the Mine to the analytical laboratories have occurred. Options to further reduce holding time issues, particularly for nutrients, such as freezing samples (MacDonald and McLauglin 1982; Avanzino and Kennedy 1993; Maher and Woo 1998) or confirmatory on-site analyses for nitrate and nitrite, will continue to be considered in future programs.

One sample collected at SNP 02-20f in May 2012, had a headspace upon receipt by the laboratory and was therefore qualified with "Q" by the laboratory. Results from this sample were included in the assessment.

Table 3A-3 Summary of Holding Time Qualifiers

Laboratory	Parameter	Number of Qualifiers	Total Number of Results	Percentage of Results with Qualifiers (%)
Qualifier of XH				
ALS	Laboratory pH	1	239	0.4
ALS	Turbidity	2	215	1
Maxxam	Nitrate/Nitrite, as N	3	29	10.3
Maxxam	Nitrite, as N	3	29	10.3
Maxxam	ortho-Phosphate, as P	3	29	10.3

Table 3A-3 Summary of Holding Time Qualifiers

Laboratory	Parameter	Number of Qualifiers	Total Number of Results	Percentage of Results with Qualifiers (%)
Qualifier of WH				
ALS	BOD (5-day)	79	126	62.7
ALS	F2 (>C_{10}-C_{16})	21	122	17.2
ALS	Ion Balance	10	239	4.2
ALS	Nitrate, as N, calculated	229	239	95.8
ALS	Nitrate/Nitrite, as N	218	239	91.2
ALS	Nitrite, as N	218	239	91.2
ALS	Oil & Grease	2	122	1.6
ALS	ortho-Phosphate, as P	188	206	91.3
ALS	Laboratory pH	230	239	96.2
ALS	Total Dissolved Solids, measured	50	239	20.9
ALS	Total Suspended Solids	18	215	8.4
ALS	Turbidity	199	215	92.6
Maxxam	BOD (5-day)	10	11	90.9
Maxxam	*E. coli*	9	9	100
Maxxam	F2 (>C_{10}-C_{16})	9	11	81.8
Maxxam	Nitrate, as N	29	29	100
Maxxam	Nitrate/Nitrite, as N	26	29	89.7
Maxxam	Nitrite, as N	26	29	89.7
Maxxam	ortho-Phosphate, as P	26	29	89.7
Maxxam	Laboratory pH	10	12	90.9
Maxxam	Total Coliforms	3	4	75
Maxxam	Total Dissolved Solids. measured	5	11	45.5
Maxxam	Total Suspended Solids	3	11	27.3
Maxxam	Turbidity	10	11	90.9
Taiga	*E. coli*	20	109	18.3

WH = warning, holding time was exceeded and may have an effect on results; XH = data invalidated because the analysis date was more than ten days after the sample collection date.

ALS = ALS Laboratory Group; Maxxam = Maxxam Analytics; Taiga = Taiga Environmental Laboratory; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; *E. coli* = *Escherichia coli*; F2 (>C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from >C_{10} to C_{16}; >= greater than; % = percent.

3A.1.2.1.1 Quality Control Samples

Ten duplicate samples and eleven split samples were collected as part of the 2012 field program between January 13 and September 15, 2012. The number of blanks collected and sent to each of the four analytical laboratories is summarized in Table 3A-4.

Table 3A-4 Summary of the Number of Blanks Collected During the 2012 Aquatic Effects Monitoring Program, January 13 to September 15, 2012

Laboratory	Equipment Blanks	Field Blanks	Travel Blanks
ALS Canada Limited (Edmonton)	19	16	16
Alberta Innovates Technology Futures (Vegreville)	19	16	16
Flett Research Limited (Winnipeg)	19	16	16
Taiga Environmental Laboratory (Yellowknife)	17	15	0

Duplicate Samples

Results for duplicate samples are presented in Table 3A-5 along with calculated RPD values. The notable results for the duplicate samples, which were defined by a RPD greater than 20% for any parameter, are summarized in Table 3A-6.

The following parameters had the greatest number of notable results:

- nutrients: total Kjeldahl nitrogen (TKN);
- total metals: aluminum, antimony, cadmium (Alberta Innovates), iron, titanium; and,
- dissolved metals: antimony.

The notable results observed in the duplicate samples for total aluminum, antimony, and cadmium (Alberta Innovates), and dissolved antimony may be due to potential contamination of the duplicate samples or errors in the analysis process and in the field procedures. The results in the blank validation indicate that sample contamination may have occurred for these parameters (see Section 3A1.1.3.2 Blank Validation). The notable results for TKN may be due to analytical variability or interferences as similar variability was not noted for other nitrogen parameters. The reason for the notable results in the duplicate samples for iron and titanium is unknown because concentrations of those parameters were below DLs in all blank samples.

Notable variations in the duplicate samples represented less than 10% of the parameters analyzed at each station (Table 3A-7). Therefore, intra-site variability and field sampling precision were rated as low and high, respectively.

Table 3A-5 Comparison of Duplicate Water Quality Sample Results for Snap Lake, January 2012 to September 2012

Station			SNP 02-20d surface		Relative Percent Difference[(a)]	SNP 02-20e surface		Relative Percent Difference[(a)]	SNP 02-20e surface		Relative Percent Difference[(a)]	SNP 02-20d surface		Relative Percent Difference[(a)]	SNP 02-20e surface		Relative Percent Difference[(a)]
Sample Date			2012-02-19			2012-02-19			2012-03-18			2012-04-15			2012-04-15		
Sample Control Number			2012-5043	2012-5046		2012-5038	2012-5041		2012-5060	2012-5061		2012-5089	2012-5092		2012-5093	2012-5096	
Parameter Name	Units	DL	Sample	Duplicate Sample		Sample	Duplicate Sample		Sample	Duplicate Sample		Sample	Duplicate Sample		Sample	Duplicate Sample	
Conventional Parameters																	
Laboratory pH	unitless	-	7.5	7.5	-	7.6	7.5	-	7.3	7.3	-	7.3	7.4	-	7.4	7.4	-
Laboratory Specific Conductivity	µS/cm	2	431	430	0%	454	456	0%	458	458	0%	458	459	0%	464	467	1%
Total Dissolved Solids, measured	mg/L	10	206	266	**25%**	275	271	1%	262	270	3%	310	309	0%	312	332	6%
Total Dissolved Solids, calculated (Lab)	mg/L	1	210	218	4%	228	226	1%	217	226	4%	230	227	1%	236	236	0%
Total Dissolved Solids, calculated (Standard Methods)	mg/L	1	206	214	4%	224	222	1%	213	222	4%	226	222	2%	232	231	0%
Total Suspended Solids	mg/L	3	<3	<3	-	<3	<3	-	<3	<3	-	<3	<3	-	<3	<3	-
Turbidity	NTU	0.1	0.2	0.2	-	0.1	0.2	-	0.1	0.1	-	0.2	0.1	-	0.3	0.2	-
Ions																	
Bicarbonate, as HCO_3	mg/L	5	26	25	3%	26	27	3%	30	30	0%	29	29	1%	29	29	1%
Calcium	mg/L	0.5	42	47	11%	47	46	1%	41	44	8%	45	44	2%	48	49	1%
Carbonate, as CO_3	mg/L	5	<5	<5	-	<5	<5	-	<5	<5	-	<5	<5	-	<5	<5	-
Chloride	mg/L	0.5	95	95	0%	101	100	1%	98	100	2%	102	101	1%	102	103	1%
Fluoride	mg/L	0.05	0.14	0.14	-	0.15	0.14	-	0.14	0.14	-	0.14	0.14	-	0.14	0.14	-
Hardness, as $CaCO_3$	mg/L	1	125	139	11%	141	139	1%	123	134	9%	136	133	2%	146	147	1%
Hydroxide, as OH	mg/L	5	<5	<5	-	<5	<5	-	<5	<5	-	<5	<5	-	<5	<5	-
Ion Balance	%	-	96	109	-	103	102	-	91	97	-	97	95	-	104	103	-
Magnesium	mg/L	0.1	5.1	5.7	11%	5.8	5.7	3%	5.1	5.7	10%	5.7	5.6	2%	6.3	6.3	0%
Potassium	mg/L	0.1	2.0	2.1	7%	2.3	2.2	7%	2.0	2.3	14%	2.2	2.1	7%	2.4	2.4	2%
Reactive Silica, as SiO_2	mg/L	0.5	0.9	0.9	-	0.9	1.0	-	1.3	1.1	-	1.0	1.0	-	1.1	1.0	-
Sodium	mg/L	1	22	25	14%	24	24	1%	22	24	10%	24	23	5%	26	25	4%
Sulphate	mg/L	0.05	18	19	1%	20	20	1%	19	19	0%	20	19	1%	20	20	2%
Total Alkalinity, as $CaCO_3$	mg/L	5	21	21	-	22	22	-	24	25	-	24	24	-	24	24	-
Nutrients and Carbon																	
BOD (5-day)	mg/L	2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	-
Dissolved Inorganic Phosphorus	mg-P/L	0.001	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-
Dissolved Organic Phosphorus, calculated	mg-P/L	0.0014	<0.0014	<0.0014	-	<0.0014	<0.0014	-	<0.0014	<0.0014	-	<0.0014	<0.0014	-	<0.0014	<0.0014	-
Nitrate, as N, calculated	mg-N/L	0.006	1.89	1.83	3%	2.08	2.02	3%	2.16	2.25	4%	2.57	2.59	1%	2.58	2.27	13%
Nitrate/Nitrite, as N	mg-N/L	0.006	1.90	1.84	3%	2.10	2.03	3%	2.18	2.26	4%	2.59	2.61	1%	2.59	2.28	13%
Nitrite, as N	mg-N/L	0.002	0.013	0.014	4%	0.013	0.014	4%	0.013	0.014	8%	0.014	0.015	7%	0.015	0.015	1%
ortho-Phosphate, as P	mg-P/L	0.001	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-
Total Ammonia, as N	mg-N/L	0.005	0.130	0.134	3%	0.139	0.137	1%	0.144	0.149	3%	0.169	0.172	2%	0.179	0.178	1%
Total Dissolved Phosphorus	mg-P/L	0.001	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-
Total Inorganic Phosphorus	mg-P/L	0.001	<0.001	<0.001	-	<0.001	0.002	-	<0.001	<0.001	-	<0.001	<0.001	-	0.003	<0.001	-
Total Kjeldahl Nitrogen	mg-N/L	0.05	0.44	0.50	12%	0.48	0.49	1%	0.43	0.40	8%	0.20	0.45	**77%**	0.57	0.40	**36%**
Total Organic Carbon	mg/L	1	4	4	-	4	4	-	4	4	-	4	4	-	4	4	-
Total Organic Phosphorus, calculated	mg-P/L	0.0014	0.0015	0.0016	-	0.0022	<0.0014	-	<0.0014	<0.0014	-	0.0021	0.0032	-	<0.0014	0.0025	-
Total Phosphorus	mg-P/L	0.001	0.002	0.002	-	0.002	0.002	-	<0.001	<0.001	-	0.002	0.003	-	0.003	0.003	-
Total Metals, Metalloids, and Non-Metals																	
Aluminum	µg/L	0.3	4.2	2.7	**42%**	2.8	3.1	8%	2.9	3.0	0%	2.5	3.3	**28%**	2.2	2.5	9%
Antimony	µg/L	0.02	2.94	2.00	**38%**	1.11	0.83	**29%**	1.57	2.11	**29%**	3.09	3.63	16%	1.08	0.87	**21%**

Table 3A-5 Comparison of Duplicate Water Quality Sample Results for Snap Lake, January 2012 to September 2012

Station			SNP 02-20d surface		Relative Percent Difference[(a)]	SNP 02-20e surface		Relative Percent Difference[(a)]	SNP 02-20e surface		Relative Percent Difference[(a)]	SNP 02-20d surface		Relative Percent Difference[(a)]	SNP 02-20e surface		Relative Percent Difference[(a)]
Sample Date			2012-02-19			2012-02-19			2012-03-18			2012-04-15			2012-04-15		
Sample Control Number			2012-5043	2012-5046		2012-5038	2012-5041		2012-5060	2012-5061		2012-5089	2012-5092		2012-5093	2012-5096	
Parameter Name	Units	DL	Sample	Duplicate Sample		Sample	Duplicate Sample		Sample	Duplicate Sample		Sample	Duplicate Sample		Sample	Duplicate Sample	
Arsenic	µg/L	0.02	0.10	0.12	16%	0.12	0.11	7%	0.10	0.10	6%	0.12	0.13	7%	0.11	0.11	3%
Barium	µg/L	0.05	21	21	2%	23	23	0%	22	22	1%	21	21	1%	21	21	1%
Beryllium	µg/L	0.01	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Bismuth	µg/L	0.01	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Boron	µg/L	1	38	38	1%	40	41	2%	41	43	6%	41	42	1%	42	42	0%
Cadmium	µg/L	0.005	<0.005	0.006	-	<0.005	<0.005	-	0.030	0.025	18%	0.009	0.011	-	0.011	0.008	-
Cadmium (Alberta Innovates)	µg/L	0.002	0.009	0.004	-	0.004	0.006	-	0.034	0.026	**27%**	0.018	0.011	**51%**	0.012	0.009	**28%**
Cesium	µg/L	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Chromium	µg/L	0.06	<0.06	0.06	-	<0.06	0.08	-	0.07	0.07	-	0.10	0.15	-	0.12	0.10	-
Cobalt	µg/L	0.01	0.02	0.02	-	0.02	0.02	-	0.02	0.02	-	0.02	0.02	-	0.02	0.01	-
Copper	µg/L	0.1	0.4	0.4	-	0.5	0.6	**21%**	0.5	0.5	-	0.4	0.5	-	0.5	0.4	-
Hexavalent Chromium	µg/L	1	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-
Iron	µg/L	1	4	3	-	4	5	**36%**	4	4	-	3	3	-	2	2	-
Lead	µg/L	0.05	0.01	<0.01	-	<0.01	<0.01	-	0.04	0.03	-	<0.01	<0.01	-	<0.01	<0.01	-
Lithium	µg/L	0.5	7.9	8.5	8%	8.8	8.3	5%	10.0	10.3	3%	8.5	8.7	2%	9.1	9.0	1%
Manganese	µg/L	0.05	4.65	4.48	4%	4.68	4.54	3%	5.25	5.51	5%	4.86	5.10	5%	4.73	4.78	1%
Mercury	µg/L	0.02	<0.02	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	-
Mercury (Flett)	µg/L	0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	0.0012	0.0008	-
Methyl Mercury, as Hg (Flett)	µg/L	0.00003	<0.00003	<0.00003	-	<0.00003	<0.00003	-	<0.00008	<0.00008	-	<0.00003	<0.00003	-	<0.00003	<0.00003	-
Molybdenum	µg/L	0.05	0.97	0.93	4%	1.01	1.01	0%	1.04	1.06	2%	1.01	1.01	0%	1.00	1.00	0%
Nickel	µg/L	0.06	1.08	1.08	0%	1.18	1.16	2%	1.21	1.3	7%	1.20	1.19	1%	1.25	1.19	5%
Rubidium	µg/L	1	4	4	-	4	4	-	4	4	-	4	4	-	4	4	-
Selenium	µg/L	0.04	<0.04	<0.04	-	<0.04	<0.04	-	<0.04	<0.04	-	<0.04	<0.04	-	<0.04	<0.04	-
Silver	µg/L	0.005	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-
Strontium	µg/L	0.05	610	596	2%	643	639	1%	611	603	1%	619	613	1%	635	628	1%
Thallium	µg/L	0.01	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Titanium	µg/L	0.1	0.2	0.2	-	0.1	<0.1	-	<0.1	0.1	-	0.6	0.1	**136%**	<0.1	<0.1	-
Uranium	µg/L	0.01	0.12	0.12	3%	0.12	0.12	2%	0.12	0.12	3%	0.12	0.12	0%	0.12	0.12	0%
Vanadium	µg/L	0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-
Zinc	µg/L	0.8	<0.8	<0.8	-	<0.8	0.9	-	2.2	1.5	-	1.2	1.9	-	1.0	1.2	-
Dissolved Metals, Metalloids, and Non-Metals																	
Aluminum	µg/L	0.3	2.3	2.3	0%	2.0	2.4	15%	1.8	1.9	5%	1.7	1.7	2%	1.8	1.8	4%
Antimony	µg/L	0.02	0.45	0.32	**33%**	0.16	0.16	1%	0.66	0.56	17%	0.29	0.29	1%	0.28	0.19	**35%**
Arsenic	µg/L	0.02	0.10	0.10	-	0.11	0.10	7%	0.11	0.10	9%	0.11	0.10	6%	0.11	0.11	3%
Barium	µg/L	0.05	21	21	0%	22	22	1%	22	22	1%	20	20	0%	21	21	0%
Beryllium	µg/L	0.01	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Bismuth	µg/L	0.01	0.02	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Boron	µg/L	1	40	40	0%	40	40	1%	42	41	1%	42	41	0%	42	43	1%
Cadmium	µg/L	0.005	<0.005	<0.005	-	<0.005	<0.005	-	0.030	0.023	**26%**	0.009	0.009	-	0.009	0.009	-
Cesium	µg/L	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Chromium	µg/L	0.06	0.07	<0.06	-	0.06	0.06	-	0.06	<0.06	-	0.12	0.11	-	0.13	0.11	-
Cobalt	µg/L	0.01	0.02	0.02	-	0.02	0.01	-	0.01	0.02	-	0.01	0.01	-	0.01	<0.01	-
Copper	µg/L	0.1	0.5	0.4	-	0.5	0.4	-	0.4	0.4	-	0.4	0.4	-	0.4	0.4	-

Table 3A-5 Comparison of Duplicate Water Quality Sample Results for Snap Lake, January 2012 to September 2012

Station			SNP 02-20d surface		Relative Percent Difference[(a)]	SNP 02-20e surface		Relative Percent Difference[(a)]	SNP 02-20e surface		Relative Percent Difference[(a)]	SNP 02-20d surface		Relative Percent Difference[(a)]	SNP 02-20e surface		Relative Percent Difference[(a)]
Sample Date			2012-02-19			2012-02-19			2012-03-18			2012-04-15			2012-04-15		
Sample Control Number			2012-5043	2012-5046		2012-5038	2012-5041		2012-5060	2012-5061		2012-5089	2012-5092		2012-5093	2012-5096	
Parameter Name	Units	DL	Sample	Duplicate Sample		Sample	Duplicate Sample		Sample	Duplicate Sample		Sample	Duplicate Sample		Sample	Duplicate Sample	
Iron	µg/L	1	2	2	-	2	2	-	1	1	-	<1	<1	-	<1	<1	-
Lead	µg/L	0.01	<0.01	<0.01	-	<0.01	<0.01	-	0.022	0.018	-	<0.01	<0.01	-	<0.01	<0.01	-
Lithium	µg/L	0.5	8.6	8.6	0%	9.1	9.0	1%	10.5	10.3	2%	8.6	8.6	1%	8.8	9.2	4%
Manganese	µg/L	0.05	3.96	3.93	1%	3.97	3.89	2%	4.07	4.34	6%	3.15	3.23	3%	3.20	3.18	1%
Mercury	µg/L	0.02	<0.02	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	-
Molybdenum	µg/L	0.05	0.95	0.95	1%	0.95	1.00	5%	1.04	1.07	3%	1.00	1.00	1%	1.01	1.04	3%
Nickel	µg/L	0.06	1.08	1.04	4%	1.06	1.11	5%	1.19	1.19	0%	1.18	1.20	2%	1.23	1.24	1%
Rubidium	µg/L	1	4	4	-	4	4	-	4	4	-	4	4	-	4	4	-
Selenium	µg/L	0.04	<0.04	<0.04	-	<0.04	<0.04	-	<0.04	<0.04	-	<0.04	<0.04	-	<0.04	<0.04	-
Silver	µg/L	0.005	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-
Strontium	µg/L	0.05	601	607	1%	629	627	0%	613	604	1%	628	613	2%	637	635	0%
Thallium	µg/L	0.01	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Titanium	µg/L	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Uranium	µg/L	0.01	0.12	0.12	2%	0.13	0.12	2%	0.12	0.13	2%	0.12	0.12	0%	0.12	0.12	2%
Vanadium	µg/L	0.05	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-
Zinc	µg/L	0.8	1.8	1.8	-	<0.8	<0.8	-	2.4	1.9	-	1.6	1.3	-	1.9	1.1	-
Organics-General																	
F2 (>C_{10}-C_{16})	mg/L	0.25	<0.25	<0.25	-	<0.25	<0.25	-	<0.25	<0.25	-	<0.25	<0.25	-	<0.25	<0.25	-
Oil & Grease	mg/L	1	<1	<1	-	1.2	<1	-	<1	<1	-	<1	<1	-	<1	<1	-
Organics-Volatiles																	
BTEX, calculated	mg/L	0.00071	<0.00071	<0.00071	-	<0.00071	<0.00071	-	<0.00071	<0.00071	-	<0.00071	<0.00071	-	<0.00071	<0.00071	-
Benzene	mg/L	0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Ethylbenzene	mg/L	0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-
F1 (C_6-C_{10})	mg/L	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
F1-BTEX	mg/L	0.1	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
m&p-Xylene	mg/L	0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-
o-Xylene	mg/L	0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Toluene	mg/L	0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Xylene	mg/L	0.00071	<0.00071	<0.00071	-	<0.00071	<0.00071	-	<0.00071	<0.00071	-	<0.00071	<0.00071	-	<0.00071	<0.00071	-
Microbiology																	
E. coli (Taiga)	MPN/ 100 mL	1	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-

Table 3A-5 Comparison of Duplicate Water Quality Sample Results for Snap Lake, January 2012 to September 2012

		Station	SNP 02-20d surface		Relative Percent Difference[a]	SNP 02-20d bottom		Relative Percent Difference[a]	SNP 02-20f surface		Relative Percent Difference[a]	SNP 02-20f bottom		Relative Percent Difference[a]	SNP 02-20f surface		Relative Percent Difference[a]
		Sample Date	2012-05-13			2012-07-09			2012-07-09			2012-08-12			2012-09-09		
		Sample Control Number	2012-5124	2012-5127		2012-5156	2012-5164		2012-5160	2012-5163		2012-5215	2012-5217		2012-5906	2012-5906D	
Parameter Name	Units	DL	Sample	Duplicate Sample		Sample	Duplicate Sample		Sample	Duplicate Sample		Sample	Duplicate Sample		Sample	Duplicate Sample	
Conventional Parameters																	
Laboratory pH	Unitless	unitless	7.3	7.3	-	7.6	7.6	-	7.6	7.6	-	7.6	7.6	-	7.5	7.5	-
Laboratory Specific Conductivity	µS/cm	2	455	462	2%	390	391	0%	392	395	1%	411	413	0%	419	422	1%
Total Dissolved Solids, measured	mg/L	10	340	354	4%	278	291	5%	293	290	1%	297	299	1%	311	322	3%
Total Dissolved Solids, calculated (Lab)	mg/L	1	228	240	5%	186	185	1%	186	189	2%	210	206	2%	205	207	1%
Total Dissolved Solids, calculated (Standard Methods)	mg/L	1	230	238	3%	182	182	0%	183	186	1%	207	203	2%	202	204	1%
Total Suspended Solids	mg/L	3	<3	<3	-	<3	<3	-	<3	<3	-	<3	<3	-	<3	<3	-
Turbidity	NTU	0.1	<0.1	0.4	-	0.4	0.4	-	0.5	0.3	-	0.4	0.5	-	0.4	0.4	-
Ions																	
Bicarbonate, as HCO_3	mg/L	5	28	36	**25%**	25	22	-	22	25	-	27	27	0%	28	28	0%
Calcium	mg/L	0.5	42	45	5%	37	37	1%	37	37	0%	45	42	7%	40	40	0%
Carbonate, as CO_3	mg/L	5	<5	<5	-	<5	<5	-	<5	<5	-	<5	<5	-	<5	<5	-
Chloride	mg/L	0.5	101	102	1%	83	84	1%	84	84	1%	89	89	0%	91	92	2%
Fluoride	mg/L	0.05	0.16	0.16	-	0.11	0.11	-	0.11	0.09	-	0.14	0.14	-	0.10	0.10	-
Hardness, as $CaCO_3$	mg/L	1	127	134	5%	109	111	2%	111	111	0%	137	128	7%	121	120	1%
Hydroxide, as OH	mg/L	5	<5	<5	-	<5	<5	-	<5	<5	-	<5	<5	-	<5	<5	-
Ion Balance	%	-	91	92	-	94	95	-	96	94	-	111	103	-	97	95	-
Magnesium	mg/L	0.1	5.1	5.4	6%	4.3	4.4	1%	4.4	4.4	2%	5.7	5.3	8%	5.1	5.0	2%
Potassium	mg/L	0.1	1.9	2.0	7%	1.9	1.9	2%	1.9	1.8	4%	2.3	2.1	8%	1.9	1.9	1%
Reactive Silica, as SiO_2	mg/L	0.5	12	11	13%	0.9	0.9	-	0.9	1.0	-	0.9	1.1	-	1.0	1.0	-
Sodium	mg/L	1	21	23	7%	18	18	1%	19	19	2%	24	22	6%	22	22	0%
Sulphate	mg/L	0.05	20	20	1%	17	17	1%	17	17	1%	18	18	1%	18	18	2%
Total Alkalinity, as $CaCO_3$	mg/L	5	23	29	**25%**	20	18	-	18	20	-	22	22	-	23	23	-
Nutrients and Carbons																	
BOD (5-day)	mg/L	2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	-
Dissolved Inorganic Phosphorus	mg-P/L	0.001	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-
Dissolved Organic Phosphorus, calculated	mg-P/L	0.0014	0.0017	0.0024	-	<0.0014	0.0039	-	<0.0014	<0.0014	-	0.0023	0.0023	-	0.0017	0.0027	-
Nitrate, as N, calculated	mg-N/L	0.006	2.21	2.26	2%	1.91	1.87	2%	1.96	1.96	0%	1.99	1.98	1%	2.13	2.11	1%
Nitrate/Nitrite, as N	mg-N/L	0.006	2.23	2.28	2%	1.93	1.89	2%	1.98	1.98	0%	2.01	2.00	0%	2.16	2.12	2%
Nitrite, as N	mg-N/L	0.002	0.018	0.017	1%	0.015	0.016	1%	0.018	0.018	1%	0.021	0.021	1%	0.022	0.017	**26%**
ortho-Phosphate, as P	mg-P/L	0.001	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-
Total Ammonia, as N	mg-N/L	0.005	0.203	0.208	2%	0.115	0.112	3%	0.134	0.133	1%	0.110	0.114	4%	0.094	0.098	3%
Total Dissolved Phosphorus	mg-P/L	0.001	0.002	0.002	-	0.001	0.004	-	<0.001	<0.001	-	0.002	0.002	-	0.002	0.003	-
Total Inorganic Phosphorus	mg-P/L	0.001	<0.001	<0.001	-	<0.001	0.001	-	<0.001	<0.001	-	0.001	<0.001	-	0.001	<0.001	-
Total Kjeldahl Nitrogen	mg-N/L	0.05	0.46	0.41	11%	0.39	0.42	7%	0.48	0.41	17%	0.34	0.42	**22%**	0.29	0.21	**30%**
Total Organic Carbon	mg/L	1	4	4	-	4	3	-	3	3	-	3	3	-	3	3	-
Total Organic Phosphorus, calculated	mg-P/L	0.0014	0.0026	0.0036	-	0.0028	0.0014	-	<0.0014	0.0014	-	0.0030	0.0034	-	0.0021	0.0038	-
Total Phosphorus	mg-P/L	0.001	0.003	0.004	-	0.003	0.003	-	0.001	0.001	-	0.004	0.003	-	0.003	0.004	-

Table 3A-5 Comparison of Duplicate Water Quality Sample Results for Snap Lake, January 2012 to September 2012

			Station	SNP 02-20d surface			SNP 02-20d bottom			SNP 02-20f surface			SNP 02-20f bottom			SNP 02-20f surface		
			Sample Date	2012-05-13			2012-07-09			2012-07-09			2012-08-12			2012-09-09		
			Sample Control Number	2012-5124	2012-5127		2012-5156	2012-5164		2012-5160	2012-5163		2012-5215	2012-5217		2012-5906	2012-5906D	
Parameter Name	Units	DL		Sample	Duplicate Sample	Relative Percent Difference[a]	Sample	Duplicate Sample	Relative Percent Difference[a]	Sample	Duplicate Sample	Relative Percent Difference[a]	Sample	Duplicate Sample	Relative Percent Difference[a]	Sample	Duplicate Sample	Relative Percent Difference[a]
Total Metals, Metalloids, and Non-Metals																		
Aluminum	µg/L	0.3		6.7	5.6	18%	5.6	5.7	3%	6.0	5.2	14%	7.1	7.3	4%	4.7	5.4	15%
Antimony	µg/L	0.02		17	13	**24%**	0.07	0.07	-	0.08	0.07	-	0.18	0.18	2%	0.05	0.05	-
Arsenic	µg/L	0.02		0.13	0.12	3%	0.08	0.08	-	0.08	0.08	-	0.09	0.09	-	0.08	0.07	-
Barium	µg/L	0.05		22	22	4%	18	18	1%	17	17	0%	18	18	1%	17	18	5%
Beryllium	µg/L	0.01		<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Bismuth	µg/L	0.01		<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Boron	µg/L	1		43	44	3%	38	36	5%	37	36	5%	42	41	2%	38	40	5%
Cadmium	µg/L	0.005		0.007	0.009	-	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-	0.005	<0.005	-
Cadmium (Alberta Innovates)	µg/L	0.002		0.010	0.008	-	0.008	0.005	-	0.007	0.007	-	0.005	0.005	-	0.004	-	-
Cesium	µg/L	0.1		<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Chromium	µg/L	0.06		0.12	0.11	-	<0.06	0.07	-	0.08	<0.06	-	<0.06	<0.06	-	<0.06	0.06	-
Cobalt	µg/L	0.01		0.06	0.06	3%	0.03	0.03	-	0.03	0.03	-	0.03	0.02	-	0.02	0.02	-
Copper	µg/L	0.1		0.5	0.5	12%	0.4	0.4	-	0.4	0.4	-	0.7	0.7	0%	0.4	0.5	-
Hexavalent Chromium	µg/L	1		<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-
Iron	µg/L	1		11	9	16%	8	8	3%	8	7	3%	9	6	**36%**	6	6	5%
Lead	µg/L	0.05		0.04	0.03	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Lithium	µg/L	0.5		8.7	8.7	0%	8.0	7.7	3%	7.9	8.0	2%	8.0	7.9	1%	6.9	7.8	12%
Manganese	µg/L	0.05		6.41	6.98	9%	4.71	4.69	0%	4.42	4.45	1%	4.95	4.84	2%	5.49	5.60	2%
Mercury	µg/L	0.02		<0.02	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	-
Mercury (Flett)	µg/L	0.0005		<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Methyl Mercury, as Hg (Flett)	µg/L	0.00003		<0.00008	<0.00008	-	<0.00003	<0.00003	-	<0.00003	<0.00003	-	<0.00008	<0.00008	-	<0.00008	<0.00008	-
Molybdenum	µg/L	0.05		1.10	1.16	5%	0.79	0.80	1%	0.82	0.81	1%	0.99	1.00	1%	1.22	1.20	2%
Nickel	µg/L	0.06		1.47	1.62	10%	1.17	1.14	3%	1.23	1.27	3%	1.13	1.20	6%	0.93	0.99	6%
Rubidium	µg/L	1		4	4	-	3	3	-	3	3	-	4	3	-	3	3	-
Selenium	µg/L	0.04		<0.04	<0.04	-	<0.04	<0.04	-	<0.04	<0.04	-	<0.04	<0.04	-	<0.04	<0.04	-
Silver	µg/L	0.005		<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-
Strontium	µg/L	0.05		605	622	3%	505	509	1%	505	515	2%	549	543	1%	574	571	1%
Thallium	µg/L	0.01		<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Titanium	µg/L	0.1		0.4	0.5	**24%**	0.2	<0.1	-	0.1	0.1	-	<0.1	0.2	-	<0.1	0.1	-
Uranium	µg/L	0.01		0.14	0.15	6%	0.14	0.14	1%	0.14	0.14	3%	0.15	0.15	1%	0.15	0.15	1%
Vanadium	µg/L	0.05		<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-
Zinc	µg/L	0.8		2.7	2.2	-	0.9	<0.8	-	1.2	<0.8	-	<0.8	0.9	-	1.2	1.6	-
Dissolved Metals, Metalloids, and Non-Metals																		
Aluminum	µg/L	0.3		2.0	1.7	14%	3.8	4.0	5%	4.4	4.5	4%	5.6	4.9	14%	3.7	4.3	14%
Antimony	µg/L	0.02		0.86	0.80	7%	0.07	0.05	-	0.07	0.08	-	0.06	0.06	-	0.09	0.07	-
Arsenic	µg/L	0.02		0.11	0.09	13%	0.08	0.09	-	0.08	0.08	-	0.09	0.08	-	0.08	0.08	-
Barium	µg/L	0.05		21	22	3%	18	17	2%	18	17	1%	17	18	2%	18	17	6%
Beryllium	µg/L	0.01		<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Bismuth	µg/L	0.01		<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Boron	µg/L	1		43	44	4%	38	36	5%	38	38	1%	42	43	1%	40	41	2%
Cadmium	µg/L	0.005		0.006	0.007	-	0.006	0.006	-	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-
Cesium	µg/L	0.1		<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-

Table 3A-5 Comparison of Duplicate Water Quality Sample Results for Snap Lake, January 2012 to September 2012

			Station	SNP 02-20d surface		Relative Percent Difference[(a)]	SNP 02-20d bottom		Relative Percent Difference[(a)]	SNP 02-20f surface		Relative Percent Difference[(a)]	SNP 02-20f bottom		Relative Percent Difference[(a)]	SNP 02-20f surface		Relative Percent Difference[(a)]
			Sample Date	2012-05-13			2012-07-09			2012-07-09			2012-08-12			2012-09-09		
			Sample Control Number	2012-5124	2012-5127		2012-5156	2012-5164		2012-5160	2012-5163		2012-5215	2012-5217		2012-5906	2012-5906D	
Parameter Name	**Units**	**DL**		**Sample**	**Duplicate Sample**		**Sample**	**Duplicate Sample**		**Sample**	**Duplicate Sample**		**Sample**	**Duplicate Sample**		**Sample**	**Duplicate Sample**	
Chromium	µg/L	0.06		0.07	0.09	-	<0.06	<0.06	-	<0.06	<0.06	-	<0.06	<0.06	-	<0.06	<0.06	-
Cobalt	µg/L	0.01		0.04	0.04	-	0.01	<0.01	-	0.01	0.02	-	0.02	0.01	-	0.02	0.01	-
Copper	µg/L	0.1		0.5	0.5	-	0.4	0.4	-	0.4	0.4	-	0.5	0.5	-	0.4	0.4	-
Iron	µg/L	1		1	1	-	2	2	-	2	3	-	1	1	-	1	2	-
Lead	µg/L	0.01		<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Lithium	µg/L	0.5		9.0	9.2	2%	7.9	7.6	3%	8.1	8.1	0%	8.1	7.9	2%	7.6	7.9	3%
Manganese	µg/L	0.05		5.71	6.33	10%	1.57	1.31	18%	2.00	2.02	1%	1.47	1.41	4%	2.15	2.36	9%
Mercury	µg/L	0.02		<0.02	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	-	<0.02	<0.02	-
Molybdenum	µg/L	0.05		1.09	1.16	6%	0.79	0.77	2%	0.82	0.83	2%	1.00	0.97	3%	1.12	1.19	6%
Nickel	µg/L	0.06		1.45	1.54	6%	1.17	1.11	5%	1.16	1.18	2%	1.12	1.09	3%	1.05	0.90	16%
Rubidium	µg/L	1		4	4	-	3	3	-	3	3	-	3	3	-	3	3	-
Selenium	µg/L	0.04		<0.04	<0.04	-	<0.04	<0.04	-	<0.04	<0.04	-	<0.04	<0.04	-	<0.04	<0.04	-
Silver	µg/L	0.005		<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-
Strontium	µg/L	0.05		603	626	4%	512	506	1%	515	518	1%	547	543	1%	565	566	0%
Thallium	µg/L	0.01		<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Titanium	µg/L	0.1		<0.1	0.2	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
Uranium	µg/L	0.01		0.13	0.14	6%	0.14	0.13	1%	0.14	0.14	3%	0.16	0.16	1%	0.16	0.17	1%
Vanadium	µg/L	0.05		<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	-
Zinc	µg/L	0.8		2.7	2.4	-	1.6	1.7	-	0.9	<0.8	-	<0.8	<0.8	-	<0.8	<0.8	-
Organics-General																		
F2 (>C_{10}-C_{16})	mg/L	0.25		<0.25	<0.25	-	<0.25	<0.25	-	<0.25	<0.25	-	<0.25	<0.25	-	<0.25	<0.25	-
Oil & Grease	mg/L	1		<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-
Organics-Volatiles																		
BTEX, calculated	mg/L	0.00071		<0.00071	<0.00071	-	<0.00071	<0.00071	-	<0.00071	<0.00071	-	<0.00071	<0.00071	-	<0.00071	<0.00071	-
Benzene	mg/L	0.0005		<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Ethylbenzene	mg/L	0.0005		<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-
F1 (C_6-C_{10})	mg/L	0.1		<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
F1-BTEX	mg/L	0.1		<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-	<0.1	<0.1	-
m&p-Xylene	mg/L	0.0005		<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-
o-Xylene	mg/L	0.0005		<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Toluene	mg/L	0.0005		<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Xylene	mg/L	0.00071		<0.00071	<0.00071	-	<0.00071	<0.00071	-	<0.00071	<0.00071	-	<0.00071	<0.00071	-	<0.00071	<0.00071	-
Microbiology																		
E. coli (Taiga)	MPN/100 mL	1		<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-	<1	<1	-

(a) Relative percent difference was calculated using the following formula: (|maximum concentration – minimum concentration| / average concentration) x 100; notable results are in bold; - = relative percent difference was not calculated because recorded concentrations in one or both of the duplicate samples was less than five times the corresponding detection limit.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Hg = mercury; Alberta Innovates = Alberta Innovates Technology Futures; Maxxam = Maxxam Analytics Inc.; BTEX = benzene, toluene, ethylbenzene, and xylene; *E. coli* = *Escherichia coli*; Taiga = Taiga Environmental Laboratory; F1 (C_6 – C_{10}) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (>C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from >C_{10} to C_{16}.; DL = detection limit'; >= greater than; <= less than the DL; yyyy-mm-dd = year-month-day; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; % = percent; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres; mg-N/L = milligrams as nitrogen per litre; mg-P/L = milligrams as phosphorus per litre.

Table 3A-6 Percentage of Notable Results in Duplicates by Parameter, January 2012 to September 2012

Parameters	Percentage of Notable Results
Conventional Parameters	
Total Dissolved Solids, measured	10%
Ions	
Bicarbonate, as HCO_3	10%
Total Alkalinity, as $CaCO_3$	10%
Nutrients	
Nitrite, as N	10%
Total Kjeldahl Nitrogen	40%
Total Metals	
Aluminum	20%
Antimony	50%
Cadmium (Alberta Innovates)	30%
Copper	10%
Iron	20%
Titanium	20%
Dissolved Metals	
Antimony	20%
Cadmium	10%

Note: The table contains results for parameters that had notable results in the duplicate samples (defined by a relative percent difference greater than 20%).

Alberta Innovates = Alberta Innovates Technology Futures; HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; N = nitrogen; % = percent.

Table 3A-7 Percentage of Notable Results in Duplicates by Station, January 2012 to September 2012

Station	Date	Percentage of Notable Results (%)	Within-site Variability and Field Sampling Precision Rate
SNP 02-20d	2012-02-19	4%	Low and High
SNP 02-20e	2012-02-19	3%	Low and High
SNP 02-20e	2012-03-18	3%	Low and High
SNP 02-20d	2012-04-15	4%	Low and High
SNP 02-20e	2012-04-15	4%	Low and High
SNP 02-20d	2012-05-13	4%	Low and High
SNP 02-20d	2012-07-09	0%	Low and High
SNP 02-20f	2012-07-09	0%	Low and High
SNP 02-20f	2012-08-12	2%	Low and High
SNP 02-20f	2012-09-09	2%	Low and High

Note: The table contains results for parameters that had notable results in the duplicate samples (defined by a RPD greater than 20%).

% = percent; yyyy-mm-dd = year-month-day.

Split Samples

The results of split samples from ALS and Maxxam were comparable; however, inter-sample variability was observed for several parameters (Table 3A-8). The notable results for the split samples, which were defined by a RPD greater than 20% for any parameter, are summarized in Table 3A-9.

The following parameters had the greatest number of notable results:

- conventional parameters: total dissolved solids, measured (TDS);
- major ions: bicarbonate (as HCO_3), fluoride, total alkalinity (as $CaCO_3$);
- nutrients and carbons: nitrite (as N), TKN, and TOC;
- total metals and metalloids: aluminum, antimony, arsenic, cadmium (Alberta Innovates), cobalt, copper, iron, manganese, molybdenum, uranium, zinc; and,
- dissolved metals and metalloids: aluminum, arsenic, and molybdenum.

The method used for analyzing TDS_{Meas} is known to produce variability in the results (Section 3A1.2.2.3). Waters with considerable calcium, magnesium, and chloride concentrations, such as those from Snap Lake, can form a hygroscopic (i.e., absorbs ambient water) residue that will continue to absorb water under normal laboratory conditions, thereby biasing the measurement higher than actual (Evaristo-Cordero 2011; APHA 2012). In 2012, 27% of the TDS_{Meas} split results were notable (Table 3A-9), which was likely due to the variability introduced by the laboratory procedure.

The percentage of notable results between TKN concentrations in the inter-laboratory split samples was 45% (Table 3A-9). The variability between splits was likely related to the different approaches in measuring and calculating TKN and total nitrogen (TN) by ALS and Maxxam. The reported TKN values by Maxxam were calculated with a formula that is directly related to TN, nitrite and nitrate measured concentrations (Section 12.4). The TKN reported values by ALS were measured, while the TN values were calculated based on the measured concentrations of TKN, nitrate, and nitrite. Further discussion on nutrient differences in split samples is provided as part of the Nutrients Special Study in Section 12.4.

The percentage of notable results for fluoride was 100% (Table 3A-9). The fluoride results analyzed by Maxxam were consistently higher than those analyzed by ALS. On average, Maxxam results were 0.05 mg/L higher than ALS results. Both laboratories were contacted about the difference in fluoride concentrations between the split samples; ALS analyzed fluoride using Method 4110 B. Ion Chromatography with Chemical Suppression of Eluent Conductivity (APHA 2012) and Maxxam used Method 4500-F^- C. Ion-Selective Electrode Method (APHA 2012). In 2011, the fluoride results analyzed by Maxxam were often higher than those analyzed by ALS, but the RPD was greater than 20% on only one occasion (De Beers 2012a). The ion-selective electrode method used by Maxxam is common, but not as reliable as the ion chromatography

method used by ALS, the principal laboratory used for the AEMP. Ion chromatography measures the ion concentration in solution, whereas the ion-selective electrode method measures the ion activity of fluoride in solution (rather than concentration), which is then converted to a concentration (APHA 2012). Fluoride concentrations in split samples will continue to be reviewed in 2013 to determine whether the bias continues. In addition, fluoride measurements by ion chromatography will be requested from Maxxam in 2013 so that the preferred analytical method is used, consistent with ALS.

Notable concentrations of TOC, total aluminum, antimony, cadmium (Alberta Innovates), cobalt, copper, zinc and dissolved aluminum were also measured in the blank validation in the ALS analysis (see section on Blank Validation). Therefore, sample contamination for these parameters may have contributed to the variation in concentrations measured in the split samples.

Table 3A-8 Split Water Quality Sample Results for Snap Lake, January 2012 to September 2012

				Station	SNP 02-20e surface	SNP 02-20e surface	Relative Percent Difference[(a)]	SNP 02-20f surface	SNP 02-20f surface	Relative Percent Difference[(a)]	SNP 02-20d surface	SNP 02-20d surface	Relative Percent Difference[(a)]	SNP 02-20d surface	SNP 02-20d surface	Relative Percent Difference[(a)]
				Date	2012-02-19	2012-02-19		2012-02-19	2012-02-19		2012-03-18	2012-03-18		2012-04-15	2012-04-15	
				Sample Control Number	2012-5038	2012-5042		2012-5048	2012-5047		2012-5064	2012-5065		2012-5089	2012-5100	
Parameter Name	Units	Other DL	Maxxam DL		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample	
Conventional Parameters																
Laboratory pH	unitless	0.1	-		7.6	7.1	-	7.5	7.1	-	7.2	6.9	-	7.3	7.5	-
Laboratory Specific Conductivity	µS/cm	0.2	1		454	429	6%	426	455	7%	453	460	2%	458	457	0%
Total Dissolved Solids, measured	mg/L	10	10		275	288	5%	228	264	15%	258	330	**24%**	310	294	5%
Total Suspended Solids	mg/L	3	1		<3	<1	-	<3	<1	-	<3	<4	-	<3	<1	-
Turbidity	NTU	0.1	0.1		0.1	0.1	-	0.1	0.1	-	0.1	0.1	-	0.2	0.2	-
Ions																
Bicarbonate, as HCO_3	mg/L	5	0.5		26	28	6%	25	27	7%	30	28	7%	29	29	0%
Calcium	mg/L	0.5	0.05		47	51	7%	44	48	9%	45	45	0%	45	45	0%
Carbonate, as CO_3	mg/L	5	0.5		<5	<0.5	-	<5	<0.5	-	<5	<0.5	-	<5	<0.5	-
Chloride	mg/L	0.5	0.5		101	100	1%	94	95	1%	99	110	10%	102	96	6%
Fluoride	mg/L	0.05	0.01		0.15	0.18	**21%**	0.14	0.18	**28%**	0.14	0.19	**30%**	0.14	0.18	**27%**
Hardness, as $CaCO_3$	mg/L	1	0.5		141	151	7%	131	142	8%	136	136	0%	136	138	1%
Hydroxide, as OH	mg/L	5	0.5		<5	<0.5	-	<5	<0.5	-	<5	<0.5	-	<5	<0.5	-
Magnesium	mg/L	0.1	0.05		5.8	6.0	4%	5.4	5.6	3%	5.7	5.7	1%	5.7	6.1	7%
Potassium	mg/L	0.1	0.05		2.3	2.6	9%	2.2	2.4	9%	2.1	2.2	5%	2.2	2.3	2%
Reactive Silica, as SiO_2	mg/L	0.5	0.5		0.9	1.1	-	0.9	1.0	-	1.1	1.2	-	1.0	1.2	-
Sodium	mg/L	1	0.05		24	26	6%	23	24	4%	23	23	1%	24	25	3%
Sulphate	mg/L	0.05	0.5		20	19	5%	18	18	3%	19	21	7%	20	20	2%
Total Alkalinity, as $CaCO_3$	mg/L	5	0.5		22	23	6%	20	22	7%	24	23	7%	24	24	0%
Nutrients and Carbons																
BOD (5-day)	mg/L	2	2		<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	-
Dissolved Inorganic Phosphorus	mg-P/L	0.001	0.002		<0.001	<0.002	-	<0.001	0.002	-	<0.001	<0.002	-	<0.001	0.002	-
Dissolved Organic Phosphorus, calculated	mg-P/L	0.0014	0.002		<0.0014	<0.002	-	<0.0014	<0.002	-	<0.0014	0.003	-	<0.0014	<0.002	-
Nitrate, as N, calculated	mg-N/L	0.006	0.004		2.08	2.17	4%	1.83	2.10	14%	2.34	2.29	2%	2.57	2.38	8%
Nitrate/Nitrite, as N	mg-N/L	0.006	0.004		2.10	2.18	4%	1.85	2.11	13%	2.35	2.31	2%	2.59	2.40	8%
Nitrite, as N	mg-N/L	0.002	0.002		0.013	0.013	2%	0.013	0.012	9%	0.014	0.013	6%	0.014	0.013	8%
ortho-Phosphate, as P	mg-P/L	0.001	0.001		<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	-
Total Ammonia, as N	mg-N/L	0.005	0.005		0.14	0.21	**41%**	0.13	0.14	10%	0.15	0.18	18%	0.17	0.19	12%
Total Dissolved Phosphorus	mg-P/L	0.001	0.002		<0.001	<0.002	-	<0.001	0.003	-	<0.001	0.003	-	<0.001	<0.002	-
Total Inorganic Phosphorus	mg-P/L	0.001	0.002		<0.001	0.003	-	<0.001	0.003	-	<0.001	<0.002	-	<0.001	0.003	-
Total Kjeldahl Nitrogen	mg-N/L	0.05	0.04		0.48	0.51	6%	0.49	0.40	**20%**	0.41	0.46	11%	0.20	0.35	**54%**
Total Organic Carbon	mg/L	1	0.5		3.9	3.5	12%	4.1	3.5	15%	4.0	2.9	**31%**	3.9	3.3	18%
Total Organic Phosphorus, calculated	mg-P/L	0.0014	0.002		0.002	0.008	-	0.002	<0.002	-	<0.0014	0.002	-	0.002	<0.002	-
Total Phosphorus	mg-P/L	0.001	0.002		0.002	0.011	**133%**	0.002	0.003	-	<0.001	0.002	-	0.002	0.003	-
Total Metals, Metalloids, and Non-Metals																
Aluminum	µg/L	0.3	0.2		2.8	4.5	**46%**	2.9	5.9	**69%**	2.6	5.1	**66%**	2.5	3.0	18%
Antimony	µg/L	0.02	0.02		1.11	0.19	**142%**	1.21	0.89	**30%**	1.49	1.95	**27%**	3.09	1.72	**57%**
Arsenic	µg/L	0.02	0.02		0.12	0.11	10%	0.11	0.10	12%	0.11	0.11	4%	0.12	0.14	14%
Barium	µg/L	0.05	0.02		23	22	3%	21	21	3%	22	23	2%	21	22	8%
Beryllium	µg/L	0.01	0.01		<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Bismuth	µg/L	0.01	0.005		<0.01	<0.005	-	<0.01	<0.005	-	0.01	<0.005	-	<0.01	<0.005	-

Table 3A-8 Split Water Quality Sample Results for Snap Lake, January 2012 to September 2012

				Station	SNP 02-20e surface	SNP 02-20e surface	Relative Percent Difference[(a)]	SNP 02-20f surface	SNP 02-20f surface	Relative Percent Difference[(a)]	SNP 02-20d surface	SNP 02-20d surface	Relative Percent Difference[(a)]	SNP 02-20d surface	SNP 02-20d surface	Relative Percent Difference[(a)]
				Date	2012-02-19	2012-02-19		2012-02-19	2012-02-19		2012-03-18	2012-03-18		2012-04-15	2012-04-15	
				Sample Control Number	2012-5038	2012-5042		2012-5048	2012-5047		2012-5064	2012-5065		2012-5089	2012-5100	
Parameter Name	Units	Other DL	Maxxam DL		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample	
Boron	µg/L	1	50		40	<50	NC	39	<50	NC	42	<50	NC	41	<50	NC
Cadmium	µg/L	0.005	0.005		<0.005	0.006	-	<0.005	<0.005	-	0.071	0.042	**52%**	0.009	0.007	-
Cadmium (Alberta Innovates)	µg/L	0.002	0.005		0.004	0.006	-	0.005	<0.005	-	0.069	0.042	**49%**	0.018	0.007	89%
Chromium	µg/L	0.06	0.1		<0.06	<0.1	-	0.06	<0.1	-	<0.06	<0.1	-	0.10	<0.1	-
Cobalt	µg/L	0.01	0.005		0.02	0.02	-	0.02	0.02	-	0.02	0.02	-	0.02	0.02	-
Copper	µg/L	0.1	0.05		0.46	0.88	**63%**	0.42	0.42	0%	0.50	0.32	**44%**	0.43	0.38	12%
Hexavalent Chromium	µg/L	1	1		<1	2	-	<1	2	-	<1	1	-	<1	1	-
Iron	µg/L	1	1		4	3	-	3	5	**44%**	3	4	-	3	3	-
Lead	µg/L	0.01	0.005		<0.01	0.005	-	<0.01	0.01	-	0.01	0.01	-	<0.01	<0.005	-
Lithium	µg/L	0.5	0.5		8.8	9.7	10%	7.4	9.2	**22%**	11	10	6%	8.5	9.3	9%
Manganese	µg/L	0.05	0.005		4.68	3.90	18%	4.50	4.47	1%	5.57	5.63	1%	4.86	4.77	2%
Mercury	µg/L	0.02	0.01		<0.02	<0.01	-	<0.02	<0.01	-	<0.02	<0.01	-	<0.02	<0.01	-
Mercury (Flett)	µg/L	0.0005	0.01		<0.0005	<0.01	-	<0.0005	<0.01	-	<0.0005	<0.01	-	<0.0005	<0.01	-
Molybdenum	µg/L	0.05	0.05		1.01	1.02	1%	0.98	0.98	0%	1.05	1.13	7%	1.01	1.08	7%
Nickel	µg/L	0.06	0.02		1.18	1.16	2%	1.04	1.03	1%	1.19	1.15	3%	1.20	1.12	7%
Selenium	µg/L	0.04	0.04		<0.04	<0.04	-	<0.04	<0.04	-	<0.04	0.08	-	<0.04	0.07	-
Silver	µg/L	0.005	0.005		<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-
Strontium	µg/L	0.05	0.05		643	598	7%	609	577	5%	623	626	0%	619	605	2%
Thallium	µg/L	0.01	0.002		<0.01	<0.002	-	<0.01	0.002	-	<0.01	0.003	-	<0.01	0.004	-
Titanium	µg/L	0.1	0.5		0.1	<0.5	-	<0.1	<0.5	-	<0.1	<0.5	-	0.6	<0.5	NC
Uranium	µg/L	0.01	0.002		0.12	0.13	3%	0.12	0.12	1%	0.12	0.14	15%	0.12	0.13	14%
Vanadium	µg/L	0.05	0.2		<0.05	<0.2	-	<0.05	<0.2	-	<0.05	<0.2	-	<0.05	<0.2	-
Zinc	µg/L	0.8	0.1		<0.8	0.9	NC	<0.8	0.9	NC	1.5	1.4	8%	1.2	0.8	**44%**
Dissolved Metals, Metalloids, and Non-Metals																
Aluminum	µg/L	0.3	0.2		2.0	5.0	**84%**	2.5	3.5	**34%**	2.1	4.8	**77%**	1.7	2.4	**33%**
Antimony	µg/L	0.02	0.02		0.16	1.29 XG	NC	0.19	0.20	7%	0.36	0.35	3%	0.29	0.24	**20%**
Arsenic	µg/L	0.02	0.02		0.11	0.12	11%	0.11	0.06	**58%**	0.11	0.08	**30%**	0.11	0.12	6%
Barium	µg/L	0.05	0.02		22	24	10%	21	22	7%	23	22	4%	20	22	7%
Beryllium	µg/L	0.01	0.01		<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Bismuth	µg/L	0.01	0.005		<0.01	<0.005	-	<0.01	<0.005	-	<0.01	<0.005	-	<0.01	<0.005	-
Boron	µg/L	1	50		40	<50	NC	38	<50	NC	41	<50	NC	42	<50	NC
Cadmium	µg/L	0.005	0.005		<0.005	0.007	-	<0.005	<0.005	-	0.066	0.037	**56%**	0.009	0.012	-
Chromium	µg/L	0.06	0.1		0.06	<0.1	-	<0.06	<0.1	-	0.06	0.1	-	0.12	<0.1	-
Cobalt	µg/L	0.01	0.005		0.02	0.02	-	0.01	0.02	-	0.01	0.02	-	0.01	0.01	-
Copper	µg/L	0.1	0.05		0.47	0.41	14%	0.42	0.37	13%	0.48	0.55 XG	NC	0.43	0.45	4%
Iron	µg/L	1	1		2	5	**86%**	1	2	-	1	3	-	<1	2	-
Lead	µg/L	0.01	0.005		<0.01	0.01	-	<0.01	0.01	-	<0.01	0.02	-	<0.01	<0.005	-
Lithium	µg/L	0.5	0.5		9.1	10	10%	8.4	9.2	9%	10	9.8	4%	8.6	9.1	6%
Manganese	µg/L	0.05	0.05		4.00	4.74	18%	3.86	3.78	2%	4.38	4.09	7%	3.15	3.31	5%
Mercury	µg/L	0.02	0.01		<0.02	<0.01	-	<0.02	<0.01	-	<0.02	<0.01	-	<0.02	<0.01	-
Molybdenum	µg/L	0.05	0.05		0.95	1.09	14%	0.92	1.07	15%	1.03	1.10	7%	1.00	1.03	3%
Nickel	µg/L	0.06	0.02		1.06	1.10	4%	1.02	0.95	7%	1.22	1.17	4%	1.18	1.39	16%

Table 3A-8 Split Water Quality Sample Results for Snap Lake, January 2012 to September 2012

Station				SNP 02-20e surface	SNP 02-20e surface	Relative Percent Difference[a]	SNP 02-20f surface	SNP 02-20f surface	Relative Percent Difference[a]	SNP 02-20d surface	SNP 02-20d surface	Relative Percent Difference[a]	SNP 02-20d surface	SNP 02-20d surface	Relative Percent Difference[a]
Date				2012-02-19	2012-02-19		2012-02-19	2012-02-19		2012-03-18	2012-03-18		2012-04-15	2012-04-15	
Sample Control Number				2012-5038	2012-5042		2012-5048	2012-5047		2012-5064	2012-5065		2012-5089	2012-5100	
Parameter Name	Units	Other DL	Maxxam DL	Sample	Maxxam Split Sample		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample	
Selenium	µg/L	0.04	0.04	<0.04	0.06	-	<0.04	0.06	-	<0.04	0.07	-	<0.04	0.08	-
Silver	µg/L	0.005	0.005	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-
Strontium	µg/L	0.05	0.05	629	625	1%	590	590	0%	617	591	4%	628	583	7%
Thallium	µg/L	0.01	0.002	<0.01	0.003	-	<0.01	0.003	-	<0.01	0.004	-	<0.01	0.006	-
Titanium	µg/L	0.1	0.5	<0.1	<0.5	-	<0.1	<0.5	-	<0.1	<0.5	-	<0.1	<0.5	-
Uranium	µg/L	0.01	0.002	0.125	0.138	10%	0.116	0.123	6%	0.118	0.131	10%	0.117	0.115	2%
Vanadium	µg/L	0.05	0.2	<0.05	<0.2	-	<0.05	<0.2	-	<0.05	<0.2	-	<0.05	<0.2	-
Zinc	µg/L	0.8	0.1	<0.8	0.8	NC	<0.8	0.9	NC	1.7	2.2 XG	NC	1.6	2.1 XG	NC
Organics															
F2 (>C_{10}-C_{16})	mg/L	0.25	0.2	<0.25	<0.2	-	<0.25	<0.2	-	<0.25	<0.2	-	<0.25	<0.2	-
Oil & Grease	mg/L	1	2	1	<2	-	<1	<2	-	<1	<2	-	<1	<2	-
BTEX, calculated	mg/L	0.00071	0.0004	<0.00071	<0.0004	-	<0.00071	<0.0004	-	<0.00071	<0.0004	-	<0.00071	<0.0007	-
Benzene	mg/L	0.0005	0.0004	<0.0005	<0.0004	-	<0.0005	<0.0004	-	<0.0005	<0.0004	-	<0.0005	<0.0007	-
Ethylbenzene	mg/L	0.0005	0.0004	<0.0005	<0.0004	-	<0.0005	<0.0004	-	<0.0005	<0.0004	-	<0.0005	<0.0004	-
F1 (C_6-C_{10})	mg/L	0.1	0.3	<0.1	<0.3	-	<0.1	<0.3	-	<0.1	<0.3	-	<0.1	<0.3	-
F1-BTEX	mg/L	0.1	0.3	<0.1	<0.3	-	<0.1	<0.3	-	<0.1	<0.3	-	<0.1	<0.3	-
Toluene	mg/L	0.0005	0.0004	<0.0005	<0.0004	-	<0.0005	<0.0004	-	<0.0005	<0.0004	-	<0.0005	<0.0004	-
Xylene	mg/L	0.00071	0.0004	<0.00071	<0.0004	-	<0.00071	<0.0004	-	<0.00071	<0.0004	-	<0.00071	<0.0004	-
Microbiological															
E. coli (Taiga)	MPN/100 mL	1	1	<1	-	-	<1	-	-	<1	<2	-	<1	<1	-

Table 3A-8 Split Water Quality Sample Results for Snap Lake, January 2012 to September 2012

Station				SNP 02-20e surface	SNP 02-20e surface	Relative Percent Difference[a]	SNP 02-20f surface	SNP 02-20f surface	Relative Percent Difference[a]	SNP 02-20f bottom	SNP 02-20f bottom	Relative Percent Difference[a]	SNP 02-20d surface [b]	SNP 02-20d surface	Relative Percent Difference[a]
Date				2012-04-15	2012-04-15		2012-05-13	2012-05-13		2012-07-09	2012-07-09		2012-07-09	2012-07-09	
Sample Control Number				2012-5093	2012-5101		2012-5131	2012-5134		2012-5162	2012-5166		2012-5154	2012-5167	
Parameter Name	Units	Other DL	Maxxam DL	Sample	Maxxam Split Sample		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample	
Conventional Parameters															
Laboratory pH	unitless	0.1	-	7.4	7.4	-	7.4	7.1	-	7.7	7.5	-	7.3	7.1	-
Laboratory Specific Conductivity	µS/cm	0.2	1	464	473	2%	386	392	2%	407	386	5%	394	389	1%
Total Dissolved Solids, measured	mg/L	10	10	312	264	17%	315	250	**23%**	251	330	**27%**	278	328	17%
Total Suspended Solids	mg/L	3	1	<3	<1	-	<3	<2	-	<3	<1	-	<3	<1	-
Turbidity	NTU	0.1	0.1	0.3	0.1	-	0.3	0.3	-	0.4	0.3	-	0.3	0.3	-
Ions															

Table 3A-8 Split Water Quality Sample Results for Snap Lake, January 2012 to September 2012

			Station	SNP 02-20e surface	SNP 02-20e surface	Relative Percent Difference[a]	SNP 02-20f surface	SNP 02-20f surface	Relative Percent Difference[a]	SNP 02-20f bottom	SNP 02-20f bottom	Relative Percent Difference[a]	SNP 02-20d surface [b]	SNP 02-20d surface	Relative Percent Difference[a]
			Date	2012-04-15	2012-04-15		2012-05-13	2012-05-13		2012-07-09	2012-07-09		2012-07-09	2012-07-09	
			Sample Control Number	2012-5093	2012-5101		2012-5131	2012-5134		2012-5162	2012-5166		2012-5154	2012-5167	
Parameter Name	Units	Other DL	Maxxam DL	Sample	Maxxam Split Sample		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample	
Bicarbonate, as HCO_3	mg/L	5	0.5	29	30	4%	26	21	**21%**	25	20	**24%**	27	20	**30%**
Calcium	mg/L	0.5	0.05	48	45	7%	39	38	2%	37	40	9%	40	39	3%
Carbonate, as CO_3	mg/L	5	0.5	<5	<0.5	-	<5	<0.5	-	<5	<0.5	-	<5	<0.5	-
Chloride	mg/L	0.5	0.5	102	100	2%	84	84	1%	87	83	5%	84	84	0%
Fluoride	mg/L	0.05	0.01	0.14	0.19	**32%**	0.13	0.16	**24%**	0.11	0.16	**34%**	0.10	0.16	**44%**
Hardness, as $CaCO_3$	mg/L	1	0.5	146	139	5%	116	115	1%	109	120	10%	122	119	2%
Hydroxide, as OH	mg/L	5	0.5	<5	<0.5	-	<5	<0.5	-	<5	<0.5	-	<5	<0.5	-
Magnesium	mg/L	0.1	0.05	6.3	6.3	0%	4.9	5.1	4%	4.3	4.9	13%	5.2	5.1	3%
Potassium	mg/L	0.1	0.05	2.4	2.3	4%	1.8	2.1	15%	1.8	1.8	1%	2.1	2.0	9%
Reactive Silica, as SiO_2	mg/L	0.5	0.5	1.1	1.3	-	11	1.1	**162%**	1.1	0.9	-	0.9	1.0	-
Sodium	mg/L	1	0.05	26	25	2%	20	19	2%	18	19	6%	22	20	8%
Sulphate	mg/L	0.05	0.5	20	19	4%	17	16	6%	17	16	10%	17	16	8%
Total Alkalinity, as $CaCO_3$	mg/L	5	0.5	24	25	5%	22	18	**21%**	21	16	**25%**	22	17	**30%**
Nutrients and Carbons															
BOD (5-day)	mg/L	2	2	<2	<2	-	<2	<2	-	<2	<2	-	<2	<2	-
Dissolved Inorganic Phosphorus	mg-P/L	0.001	0.002	<0.001	<0.002	-	<0.001	<0.002	-	<0.001	0.003	-	<0.001	<0.002	-
Dissolved Organic Phosphorus, calculated	mg-P/L	0.0014	0.002	<0.0014	0.002	-	0.002	0.003	-	<0.0014	<0.002	-	<0.0014	0.003	-
Nitrate, as N, calculated	mg-N/L	0.006	0.004	2.58	2.42	6%	2.05	2.18	6%	2.14	1.88	13%	1.97	1.91	3%
Nitrate/Nitrite, as N	mg-N/L	0.006	0.004	2.59	2.43	6%	2.07	2.19	6%	2.16	1.9	13%	1.98	1.93	3%
Nitrite, as N	mg-N/L	0.002	0.002	0.015	0.013	16%	0.016	0.011	**42%**	0.021	0.015	**32%**	0.017	0.017	4%
ortho-Phosphate, as P	mg-P/L	0.001	0.001	<0.001	<0.001	-	<0.001	0.0018	-	<0.001	<0.001	-	<0.001	<0.001	-
Total Ammonia, as N	mg-N/L	0.005	0.005	0.18	0.20	11%	0.18	0.23	**24%**	0.11	0.11	1%	0.13	0.13	2%
Total Dissolved Phosphorus	mg-P/L	0.001	0.002	<0.001	0.002	-	0.002	0.003	-	<0.001	<0.002	-	<0.001	0.003	-
Total Inorganic Phosphorus	mg-P/L	0.001	0.002	0.0033	0.003	-	<0.001	0.003	-	<0.001	0.007	-	<0.001	<0.002	-
Total Kjeldahl Nitrogen	mg-N/L	0.05	0.04	0.57	0.30	**63%**	0.73	0.76	4%	0.40	0.36	9%	0.45	0.29	**44%**
Total Organic Carbon	mg/L	1	0.5	3.8	2.7	**33%**	<1	5.3	NC	3.2	3.5	9%	3.3	3.1	6%
Total Organic Phosphorus, calculated	mg-P/L	0.0014	0.002	<0.0014	<0.002	-	0.004	<0.002	-	<0.0014	<0.002	-	0.002	<0.002	-
Total Phosphorus	mg-P/L	0.001	0.002	0.003	0.003	-	0.004	0.004	-	<0.001	0.003	-	0.002	<0.002	-
Total Metals, Metalloids, and Non-Metals															
Aluminum	µg/L	0.3	0.2	2.2	3.8	**51%**	11	13	20%	6.0	12	**68%**	5.0	6.5	**28%**
Antimony	µg/L	0.02	0.02	1.08	0.76	**35%**	12	8.08	**41%**	0.05	0.11	**72%**	0.14	0.17	15%
Arsenic	µg/L	0.02	0.02	0.11	0.11	1%	0.14	0.15	2%	0.08	0.09	-	0.08	0.09	-
Barium	µg/L	0.05	0.02	21	24	12%	21	20	3%	18	18	2%	18	18	4%
Beryllium	µg/L	0.01	0.01	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Bismuth	µg/L	0.01	0.005	<0.01	<0.005	-	<0.01	<0.005	-	<0.01	<0.005	-	<0.01	<0.005	-
Boron	µg/L	1	50	42	<50	NC	38	<50	NC	38	<50	NC	36	<50	NC
Cadmium	µg/L	0.005	0.005	0.011	0.015	-	0.007	0.010	-	<0.005	0.028	NC	0.005	0.009	-
Cadmium (Alberta Innovates)	µg/L	0.002	0.005	0.012	0.015	**23%**	0.009	0.010	-	0.005	0.028	**142%**	0.008	0.009	-
Chromium	µg/L	0.06	0.1	0.12	<0.1	-	0.11	0.10	-	0.07	0.1	-	0.16	0.16	-
Cobalt	µg/L	0.01	0.005	0.02	0.02	-	0.06	0.05	17%	0.03	0.14	**126%**	0.03	0.04	**38%**
Copper	µg/L	0.1	0.05	0.46	0.45	2%	0.53	0.55	3%	0.39	3.14	**156%**	0.48	0.63	**27%**

Table 3A-8 Split Water Quality Sample Results for Snap Lake, January 2012 to September 2012

				Station	SNP 02-20e surface	SNP 02-20e surface	Relative Percent Difference[a]	SNP 02-20f surface	SNP 02-20f surface	Relative Percent Difference[a]	SNP 02-20f bottom	SNP 02-20f bottom	Relative Percent Difference[a]	SNP 02-20d surface [b]	SNP 02-20d surface	Relative Percent Difference[a]
				Date	2012-04-15	2012-04-15		2012-05-13	2012-05-13		2012-07-09	2012-07-09		2012-07-09	2012-07-09	
				Sample Control Number	2012-5093	2012-5101		2012-5131	2012-5134		2012-5162	2012-5166		2012-5154	2012-5167	
Parameter Name	Units	Other DL	Maxxam DL		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample	
Hexavalent Chromium	µg/L	1	1		<1	1	-	<1	<1	-	<1	2	-	<1	<1	-
Iron	µg/L	1	1		2	3	-	7	18	**87%**	8	24	**99%**	7	289	**190%**
Lead	µg/L	0.01	0.005		<0.01	<0.005	-	0.05	0.04	8%	<0.01	0.10	NC	<0.01	0.01	-
Lithium	µg/L	0.5	0.5		9.1	9.8	8%	7.2	8.2	12%	8.0	8.1	1%	7.3	8.1	11%
Manganese	µg/L	0.05	0.005		4.73	4.69	1%	6.63	5.78	14%	4.97	6.17	**22%**	4.33	6.68	**43%**
Mercury	µg/L	0.02	0.01		<0.02	<0.01	-	<0.02	<0.01	-	<0.02	<0.01	-	<0.02	<0.01	-
Mercury (Flett)	µg/L	0.0005	0.01		0.001	<0.01	-	0.001	<0.01	-	<0.0005	<0.01	-	<0.0005	<0.01	-
Molybdenum	µg/L	0.05	0.05		1.00	1.12	11%	1.14	1.01	12%	0.79	1.15	**37%**	0.84	1.78	**72%**
Nickel	µg/L	0.06	0.02		1.25	1.09	14%	1.49	1.29	14%	1.23	1.14	8%	1.28	1.28	0%
Selenium	µg/L	0.04	0.04		<0.04	0.06	-	<0.04	0.07	-	<0.04	0.08	-	<0.04	0.08	-
Silver	µg/L	0.005	0.005		<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-
Strontium	µg/L	0.05	0.05		635	635	0%	509	484	5%	510	508	0%	507	533	5%
Thallium	µg/L	0.01	0.002		<0.01	0.004	-	<0.01	0.005	-	<0.01	0.004	-	<0.01	0.005	-
Titanium	µg/L	0.1	0.5		<0.1	<0.5	-	0.4	1.1	-	0.15	<0.5	-	0.2	<0.5	-
Uranium	µg/L	0.01	0.002		0.12	0.15	**24%**	0.11	0.11	4%	0.14	0.13	6%	0.14	0.14	0%
Vanadium	µg/L	0.05	0.2		<0.05	<0.2	-	<0.05	<0.2	-	<0.05	<0.2	-	<0.05	<0.2	-
Zinc	µg/L	0.8	0.1		1.0	0.8	**30%**	2.3	2.6	13%	<0.8	7.5	NC	1.6	1.5	3%
Dissolved Metals, Metalloids, and Non-Metals																
Aluminum	µg/L	0.3	0.2		1.8	2.3	**26%**	4.4	4.0	9%	4.6	4.9	6%	-	5.3	-
Antimony	µg/L	0.02	0.02		0.28	0.24	14%	0.61	0.29	**70%**	0.05	0.05	-	-	0.17	-
Arsenic	µg/L	0.02	0.02		0.11	0.09	**22%**	0.10	0.13	19%	0.08	0.13 XG	NC	-	0.06	-
Barium	µg/L	0.05	0.02		21	23	10%	21	20	5%	17	18	3%	-	18	-
Beryllium	µg/L	0.01	0.01		<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-	-	<0.01	-
Bismuth	µg/L	0.01	0.005		<0.01	<0.005	-	<0.01	<0.005	-	<0.01	<0.005	-	-	<0.005	-
Boron	µg/L	1	50		42	<50	NC	39	<50	NC	37	<50	NC	-	<50	-
Cadmium	µg/L	0.005	0.005		0.009	0.011	-	0.006	0.010	-	<0.005	0.007	-	-	0.013	-
Chromium	µg/L	0.06	0.1		0.13	<0.1	-	0.08	<0.1	-	<0.06	<0.1	-	-	<0.1	-
Cobalt	µg/L	0.01	0.005		0.01	0.01	-	0.04	0.03	**32%**	<0.01	0.01	-	-	0.02	-
Copper	µg/L	0.1	0.05		0.44	0.46	4%	0.48	0.44	8%	0.36	0.54	**39%**	-	0.73	-
Iron	µg/L	1	1		<1	1	-	3	1	-	2	4	-	-	5	-
Lead	µg/L	0.01	0.005		<0.01	<0.005	-	<0.01	<0.005	-	<0.01	0.02	-	-	0.02	-
Lithium	µg/L	0.5	0.5		8.8	9.8	11%	7.1	7.0	1%	7.9	8.0	2%	-	7.8	-
Manganese	µg/L	0.05	0.05		3.20	3.07	4%	5.67	4.78	17%	1.47	1.46	1%	-	2.31	-
Mercury	µg/L	0.02	0.01		<0.02	<0.01	-	<0.02	<0.01	-	<0.02	<0.01	-	-	<0.01	-
Molybdenum	µg/L	0.05	0.05		1.0	1.1	11%	1.0	0.3	**110%**	0.8	1.1	**33%**	-	1.1	-
Nickel	µg/L	0.06	0.02		1.23	1.27	3%	1.35	1.2	12%	1.14	1.27	11%	-	1.48	-
Selenium	µg/L	0.04	0.04		<0.04	0.06	-	<0.04	<0.04	-	<0.04	0.05	-	-	0.07	-
Silver	µg/L	0.005	0.005		<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-	-	<0.005	-
Strontium	µg/L	0.05	0.05		637	620	3%	519	491	6%	502	515	3%	-	515	-
Thallium	µg/L	0.01	0.002		<0.01	0.005	-	<0.01	0.004	-	<0.01	0.004	-	-	0.005	-
Titanium	µg/L	0.1	0.5		<0.1	<0.5	-	0.11	<0.5	-	<0.1	<0.5	-	-	<0.5	-

Table 3A-8 Split Water Quality Sample Results for Snap Lake, January 2012 to September 2012

Station				SNP 02-20e surface	SNP 02-20e surface	Relative Percent Difference[a]	SNP 02-20f surface	SNP 02-20f surface	Relative Percent Difference[a]	SNP 02-20f bottom	SNP 02-20f bottom	Relative Percent Difference[a]	SNP 02-20d surface [b]	SNP 02-20d surface	Relative Percent Difference[a]
Date				2012-04-15	2012-04-15		2012-05-13	2012-05-13		2012-07-09	2012-07-09		2012-07-09	2012-07-09	
Sample Control Number				2012-5093	2012-5101		2012-5131	2012-5134		2012-5162	2012-5166		2012-5154	2012-5167	
Parameter Name	Units	Other DL	Maxxam DL	Sample	Maxxam Split Sample		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample	
Uranium	µg/L	0.01	0.002	0.12	0.12	2%	0.12	0.09	**27%**	0.14	0.15	9%	-	0.15	-
Vanadium	µg/L	0.05	0.2	<0.05	<0.2	-	<0.05	<0.2	-	<0.05	<0.2	-	-	<0.2	-
Zinc	µg/L	0.8	0.1	1.9	2.1 XG	NC	2.0	1.1	**56%**	<0.8	2.6	NC	-	2.0	-
Organics															
F2 (>C_{10}-C_{16})	mg/L	0.25	0.2	<0.25	<0.2	-	<0.2	<0.2	-	<0.25	<0.2	-	<0.25	<0.2	-
Oil & Grease	mg/L	1	2	<1	<2	-	<1	<2	-	<1	<2	-	<1	3	-
BTEX, calculated	mg/L	0.00071	0.0004	<0.00071	<0.0004	-	<0.00071	0.0006	-	<0.00071	<0.0004	-	<0.00071	<0.0004	-
Benzene	mg/L	0.0005	0.0004	<0.0005	<0.0004	-	<0.0005	<0.0004	-	<0.0005	<0.0004	-	<0.0005	<0.0004	-
Ethylbenzene	mg/L	0.0005	0.0004	<0.0005	<0.0004	-	<0.0005	<0.0004	-	<0.0005	<0.0004	-	<0.0005	<0.0004	-
F1 (C_6-C_{10})	mg/L	0.1	0.3	<0.1	<0.3	-	<0.1	<0.3	-	<0.1	<0.3	-	<0.1	<0.3	-
F1-BTEX	mg/L	0.1	0.3	<0.1	<0.3	-	<0.1	<0.3	-	<0.1	<0.3	-	<0.1	<0.3	-
Toluene	mg/L	0.0005	0.0004	<0.0005	<0.0004	-	<0.0005	<0.0004	-	<0.0005	<0.0004	-	<0.0005	<0.0004	-
Xylene	mg/L	0.00071	0.0004	<0.00071	<0.0004	-	<0.00071	0.00061	-	<0.00071	<0.0004	-	<0.00071	<0.0004	-
Microbiological															
E. coli (Taiga)	MPN/100 mL	1	1	<1	<1	-	<1	<1	-	<1	<1	-	<1	<0.2	-

Table 3A-8 Split Water Quality Sample Results for Snap Lake, January 2012 to September 2012

Station				SNP 02-20f bottom	SNP 02-20f bottom	Relative Percent Difference[a]	SNP 02-20e mid	SNP 02-20e mid	Relative Percent Difference[a]	SNP 02-20d mid	SNP 02-20d mid	Relative Percent Difference[a]
Date				2012-08-12	2012-08-12		2012-09-09	2012-09-09		2012-09-09	2012-09-09	
Sample Control Number				2012-5215	2012-5216		2012-5901	2012-5901A		2012-5904	2012-5904A	
Parameter Name	Units	Other DL	Maxxam DL	Sample	Maxxam Split Sample		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample	
Conventional Parameters												
Laboratory pH	unitless	0.1	-	7.6	7.5	-	7.4	7.5	-	7.4	7.4	-
Laboratory Specific Conductivity	µS/cm	0.2	1	411	400	3%	412	415	1%	421	424	1%
Total Dissolved Solids, measured	mg/L	10	10	297	314	6%	306	320	4%	303	328	8%
Total Suspended Solids	mg/L	3	1	<3	<1	-	<3	<1	-	<3	<1	-
Turbidity	NTU	0.1	0.1	0.4	0.3	-	0.4	0.3	-	0.3	0.4	-
Ions												
Bicarbonate, as HCO_3	mg/L	5	0.5	27	27	1%	27	26	5%	27	25	9%
Calcium	mg/L	0.5	0.05	45	39	16%	42	41	2%	42	41	2%
Carbonate, as CO_3	mg/L	5	0.5	<5	<0.5	-	<5	<0.5	-	<5	<0.5	-
Chloride	mg/L	0.5	0.5	89	85	4%	90	89	1%	90	89	1%
Fluoride	mg/L	0.05	0.01	0.14	0.17	**22%**	0.10	0.16	**46%**	0.11	0.16	**42%**

Table 3A-8 Split Water Quality Sample Results for Snap Lake, January 2012 to September 2012

				Station	SNP 02-20f bottom	SNP 02-20f bottom	Relative Percent Difference[(a)]	SNP 02-20e mid	SNP 02-20e mid	Relative Percent Difference[(a)]	SNP 02-20d mid	SNP 02-20d mid	Relative Percent Difference[(a)]
				Date	2012-08-12	2012-08-12		2012-09-09	2012-09-09		2012-09-09	2012-09-09	
				Sample Control Number	2012-5215	2012-5216		2012-5901	2012-5901A		2012-5904	2012-5904A	
Parameter Name	Units	Other DL	Maxxam DL		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample	
Hardness, as $CaCO_3$	mg/L	1	0.5		137	118	15%	124	121	2%	127	124	2%
Hydroxide, as OH	mg/L	5	0.5		<5	<0.5	-	<5	<0.5	-	<5	<0.5	-
Magnesium	mg/L	0.1	0.05		5.7	5.1	11%	5.1	4.9	3%	5.2	5.2	2%
Potassium	mg/L	0.1	0.05		2.3	2.0	10%	2.0	2.0	2%	2.0	2.1	2%
Reactive Silica, as SiO_2	mg/L	0.5	0.5		0.9	1.0	-	0.9	0.9	-	1.0	1.0	-
Sodium	mg/L	1	0.05		24	21	14%	24	19	**21%**	24	21	15%
Sulphate	mg/L	0.05	0.5		18	17	7%	17	17	4%	18	18	2%
Total Alkalinity, as $CaCO_3$	mg/L	5	0.5		22	22	1%	22	21	5%	22	20	9%
Nutrients and Carbons													
BOD (5-day)	mg/L	2	2		<2	<2	-	<2	<2	-	<2	<2	-
Dissolved Inorganic Phosphorus	mg-P/L	0.001	0.002		<0.001	<0.002	-	<0.001	<0.002	-	<0.001	<0.002	-
Dissolved Organic Phosphorus, calculated	mg-P/L	0.0014	0.002		0.002	<0.002	-	<0.0014	<0.002	-	<0.0014	<0.002	-
Nitrate, as N, calculated	mg-N/L	0.006	0.004		1.99	1.81	9%	2.05	1.88	9%	2.16	2.08	4%
Nitrate/Nitrite, as N	mg-N/L	0.006	0.004		2.01	1.83	9%	2.07	1.89	9%	2.18	2.10	4%
Nitrite, as N	mg-N/L	0.002	0.002		0.021	0.020	5%	0.017	0.016	10%	0.019	0.018	4%
ortho-Phosphate, as P	mg-P/L	0.001	0.001		<0.001	0.0012	-	<0.001	0.0011	-	<0.001	<0.001	-
Total Ammonia, as N	mg-N/L	0.005	0.005		0.11	0.11	0%	0.08	0.08	5%	0.09	0.10	2%
Total Dissolved Phosphorus	mg-P/L	0.001	0.002		0.002	<0.002	-	<0.001	<0.002	-	<0.001	<0.002	-
Total Inorganic Phosphorus	mg-P/L	0.001	0.002		0.001	<0.002	-	0.001	<0.002	-	0.001	<0.002	-
Total Kjeldahl Nitrogen	mg-N/L	0.05	0.04		0.34	0.43	**24%**	0.32	0.36	13%	0.34	0.23	**37%**
Total Organic Carbon	mg/L	1	0.5		3.2	3.3	3%	3.3	4.6	**33%**	3.4	3.9	14%
Total Organic Phosphorus, calculated	mg-P/L	0.0014	0.002		0.003	<0.002	-	<0.0014	<0.002	-	<0.0014	<0.002	-
Total Phosphorus	mg-P/L	0.001	0.002		0.004	<0.002	-	0.002	<0.002	-	0.002	<0.002	-
Total Metals, Metalloids, and Non-Metals													
Aluminum	µg/L	0.3	0.2		7.1	20	**95%**	5.2	7.7	**38%**	5.6	7.1	**23%**
Antimony	µg/L	0.02	0.02		0.18	0.18	2%	0.06	0.07	-	0.07	0.07	-
Arsenic	µg/L	0.02	0.02		0.09	0.11	**26%**	0.08	0.11	**22%**	0.08	0.11	**33%**
Barium	µg/L	0.05	0.02		18	19	9%	18	17	5%	17	17	2%
Beryllium	µg/L	0.01	0.01		<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Bismuth	µg/L	0.01	0.005		<0.01	<0.005	-	<0.01	<0.005	-	<0.01	<0.005	-
Boron	µg/L	1	50		42	<50	NC	42	<50	NC	40	<50	NC
Cadmium	µg/L	0.005	0.005		<0.005	0.009	-	<0.005	<0.005	-	<0.005	<0.005	-
Cadmium (Alberta Innovates)	µg/L	0.002	0.005		0.005	0.009	-	0.006	<0.005	-	0.004	<0.005	-
Chromium	µg/L	0.06	0.1		<0.06	0.12	-	<0.06	<0.1	-	<0.06	<0.1	-
Cobalt	µg/L	0.01	0.005		0.03	0.03	11%	0.02	0.03	**43%**	0.03	0.03	4%
Copper	µg/L	0.1	0.05		0.70	0.66	6%	0.40	0.42	5%	0.41	0.41	1%
Hexavalent Chromium	µg/L	1	1		<1	1	-	<1	-	-	<1	-	-
Iron	µg/L	1	1		9	8	11%	5	11	**81%**	6	11	**58%**
Lead	µg/L	0.01	0.005		<0.01	0.01	-	<0.01	0.01	-	0.01	0.01	-
Lithium	µg/L	0.5	0.5		8.0	8.8	9%	7.9	8.2	4%	7.9	8.2	4%
Manganese	µg/L	0.05	0.005		4.95	4.79	3%	4.84	6.19	**24%**	5.50	5.64	3%
Mercury	µg/L	0.02	0.01		<0.02	<0.01	-	<0.02	<0.01	-	<0.02	<0.01	-
Mercury (Flett)	µg/L	0.0005	0.01		<0.0005	<0.01	-	<0.0005	<0.01	-	<0.0005	<0.01	-

Table 3A-8 Split Water Quality Sample Results for Snap Lake, January 2012 to September 2012

				Station	SNP 02-20f bottom	SNP 02-20f bottom	Relative Percent Difference[(a)]	SNP 02-20e mid	SNP 02-20e mid	Relative Percent Difference[(a)]	SNP 02-20d mid	SNP 02-20d mid	Relative Percent Difference[(a)]
				Date	2012-08-12	2012-08-12		2012-09-09	2012-09-09		2012-09-09	2012-09-09	
				Sample Control Number	2012-5215	2012-5216		2012-5901	2012-5901A		2012-5904	2012-5904A	
Parameter Name	Units	Other DL	Maxxam DL		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample	
Molybdenum	µg/L	0.05	0.05		0.99	1.47	**39%**	1.17	1.24	6%	1.21	1.20	1%
Nickel	µg/L	0.06	0.02		1.13	1.08	5%	0.84	1.24	**39%**	0.94	1.09	15%
Selenium	µg/L	0.04	0.04		<0.04	<0.04	-	<0.04	<0.04	-	<0.04	<0.04	-
Silver	µg/L	0.005	0.005		<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-
Strontium	µg/L	0.05	0.05		549	605	10%	557	529	5%	568	531	7%
Thallium	µg/L	0.01	0.002		<0.01	0.005	-	<0.01	0.005	-	<0.01	0.004	-
Titanium	µg/L	0.1	0.5		<0.1	<0.5	-	<0.1	<0.5	-	<0.1	<0.5	-
Uranium	µg/L	0.01	0.002		0.15	0.20	**28%**	0.14	0.18	**24%**	0.16	0.18	16%
Vanadium	µg/L	0.05	0.2		<0.05	0.27	-	<0.05	<0.2	-	<0.05	<0.2	-
Zinc	µg/L	0.8	0.1		<0.8	0.4	-	2.4	0.9	**96%**	<0.8	0.4	-
Dissolved Metals, Metalloids, and Non-Metals													
Aluminum	µg/L	0.3	0.2		5.6	9.4	**50%**	3.6	5.1	**36%**	3.7	4.5	18%
Antimony	µg/L	0.02	0.02		0.06	0.08	-	0.09	0.05	-	0.08	0.06	-
Arsenic	µg/L	0.02	0.02		0.09	0.09	-	0.07	0.09	-	0.09	0.07	-
Barium	µg/L	0.05	0.02		17	18	2%	18	18	1%	17	18	2%
Beryllium	µg/L	0.01	0.01		<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	-
Bismuth	µg/L	0.01	0.005		<0.01	<0.005	-	<0.01	<0.005	-	<0.01	<0.005	-
Boron	µg/L	1	50		42	<50	NC	39	<50	NC	40	<50	NC
Cadmium	µg/L	0.005	0.005		<0.005	0.010	-	<0.005	<0.005	-	<0.005	<0.005	-
Chromium	µg/L	0.06	0.1		<0.06	0.1	-	<0.06	<0.1	-	<0.06	<0.1	-
Cobalt	µg/L	0.01	0.005		0.02	0.02	-	<0.01	0.01	-	0.01	0.01	-
Copper	µg/L	0.1	0.05		0.49	0.56	14%	0.36	0.33	10%	0.69 XG	0.42	NC
Iron	µg/L	1	1		1	3	-	2	3	-	2	2	-
Lead	µg/L	0.01	0.005		<0.01	0.01	-	<0.01	<0.005	-	<0.01	<0.005	-
Lithium	µg/L	0.5	0.5		8.1	8.4	4%	7.7	8.4	8%	7.8	8.3	6%
Manganese	µg/L	0.05	0.05		1.47	1.47	0%	1.30	2.12	**48%**	2.05	0.88	**80%**
Mercury	µg/L	0.02	0.01		<0.02	<0.01	-	<0.02	<0.01	-	<0.02	<0.01	-
Molybdenum	µg/L	0.05	0.05		1.0	1.4	**30%**	1.1	1.3	12%	1.2	1.2	2%
Nickel	µg/L	0.06	0.02		1.12	1.14	2%	0.77	0.95	**21%**	1.06	1.36	25%
Selenium	µg/L	0.04	0.04		<0.04	<0.04	-	<0.04	<0.04	-	<0.04	<0.04	-
Silver	µg/L	0.005	0.005		<0.005	<0.005	-	<0.005	<0.005	-	<0.005	<0.005	-
Strontium	µg/L	0.05	0.05		547	555	1%	545	559	3%	569	550	3%
Thallium	µg/L	0.01	0.002		<0.01	0.005	-	<0.01	0.005	-	<0.01	0.006	-
Titanium	µg/L	0.1	0.5		<0.1	<0.5	-	<0.1	<0.5	-	<0.1	<0.5	-
Uranium	µg/L	0.01	0.002		0.16	0.18	14%	0.15	0.18	15%	0.16	0.17	2%
Vanadium	µg/L	0.05	0.2		<0.05	<0.2	-	<0.05	<0.2	-	<0.05	<0.2	-
Zinc	µg/L	0.8	0.1		<0.8	0.9 XG	NC	1.2	0.9	**31%**	1.2	0.3	-
Organics													
F2 (>C_{10}-C_{16})	mg/L	0.25	0.2		<0.25	<0.2	-	<0.25	<0.2	-	<0.25	<0.2	-
Oil & Grease	mg/L	1	2		<1	<2	-	<1	<2	-	<1	<2	-
BTEX, calculated	mg/L	0.00071	0.0004		<0.00071	<0.0004	-	<0.00071	<0.0008	-	<0.00071	<0.0008	-
Benzene	mg/L	0.0005	0.0004		<0.0005	<0.0004	-	<0.0005	<0.0004	-	<0.0005	<0.0004	-
Ethylbenzene	mg/L	0.0005	0.0004		<0.0005	<0.0004	-	<0.0005	<0.0004	-	<0.0005	<0.0004	-

Table 3A-8 Split Water Quality Sample Results for Snap Lake, January 2012 to September 2012

				Station	SNP 02-20f bottom	SNP 02-20f bottom	Relative Percent Difference[(a)]	SNP 02-20e mid	SNP 02-20e mid	Relative Percent Difference[(a)]	SNP 02-20d mid	SNP 02-20d mid	Relative Percent Difference[(a)]
				Date	2012-08-12	2012-08-12		2012-09-09	2012-09-09		2012-09-09	2012-09-09	
				Sample Control Number	2012-5215	2012-5216		2012-5901	2012-5901A		2012-5904	2012-5904A	
Parameter Name	Units	Other DL	Maxxam DL		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample		Sample	Maxxam Split Sample	
F1 (C_6-C_{10})	mg/L	0.1	0.3		<0.1	<0.3	-	<0.1	<0.3	-	<0.1	<0.3	-
F1-BTEX	mg/L	0.1	0.3		<0.1	<0.3	-	<0.1	<0.3	-	<0.1	<0.3	-
Toluene	mg/L	0.0005	0.0004		<0.0005	<0.0004	-	<0.0005	<0.0008	-	<0.0005	<0.0008	-
Xylene	mg/L	0.00071	0.0004		<0.00071	<0.0004	-	<0.00071	<0.0004	-	<0.00071	<0.0004	-
Microbiological													
E. coli (Taiga)	MPN/100 mL	1	1		<1	<1	-	<1	<1	-	<1	<1	-

(a) Relative percent difference was calculated using the following formula: (⎪maximum concentration – minimum concentration⎪/ average concentration) x 100; notable results are in bold; "-" = relative percentage difference was not calculated because recorded concentrations in both of the split samples was less than five times the corresponding DL; NC = non-calculable, relative percentage difference was not calculated because differences in the DL was the source of the variation; the value was detected at one laboratory, but was less than the DL at the alternate laboratory.

(b) The dissolved metal bottle was not received at ALS, so the analysis could not be performed.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Hg = mercury; Alberta Innovates = Alberta Innovates Technology Futures; Maxxam = Maxxam Analytics Inc.; BTEX = benzene, toluene, ethylbenzene, and xylene; F1 (C_6 – C_{10}) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 ($>C_{10}$-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from $>C_{10}$ to C_{16}; *E. coli* = *Escherichia coli*; Taiga = Taiga Environmental Laboratory; - = no data; >= greater than; <= less than the detection limit; DL = detection limit; yyyy-mm-dd = year-month-day; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; % = percent; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres; mg-N/L = milligrams as nitrogen per litre; mg-P/L = milligrams as phosphorus per litre.

Table 3A-9 Percentage of Notable Results in Splits by Parameter January 2012 to September 2012

Parameter	Percentage of Notable Results
Conventional Parameters	
Total Dissolved Solids, measured	27%
Ions	
Bicarbonate, as HCO_3	27%
Fluoride	100%
Reactive Silica, as SiO_2	9%
Sodium	9%
Total Alkalinity, as $CaCO_3$	27%
Nutrients and Carbons	
Nitrite, as N	18%
Total Ammonia, as N	18%
Total Kjeldahl Nitrogen	45%
Total Organic Carbon	27%
Total Phosphorus	9%
Total Metals and Metalloids	
Aluminum	82%
Antimony	64%
Arsenic	27%
Cadmium	9%
Cadmium (Alberta Innovates)	36%
Cobalt	27%
Copper	36%
Iron	55%
Lithium	9%
Manganese	27%
Molybdenum	27%
Nickel	9%
Uranium	27%
Zinc	27%
Dissolved Metals and Metalloids	
Aluminum	64%
Antimony	18%
Arsenic	27%
Cadmium	9%
Cobalt	9%
Copper	9%
Iron	9%
Manganese	18%
Molybdenum	27%
Nickel	18%
Uranium	9%
Zinc	18%

Note: The table is limited to the parameters that had notable results in the split samples (defined with a relative percent difference greater than 20%).

SiO_2 = silicate; HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; N = nitrogen; Alberta Innovates = Alberta Innovates Technology Futures; % = percent.

A moderate precision rate was assigned to about half the split samples, based on notable differences in 10% to 16% of the total number of parameters analyzed in the split samples (Table 3A-10). Precision in the remaining split samples was rated as high based on notable differences in less than 10% of the total number of parameters analyzed.

Table 3A-10 Percentage of Notable Results in Splits by Station January 2012 to September 2012

Station	Date	Percentage of Notable Results (%)	Analytical Precision Rate
SNP 02-20e	2012-02-19	8%	High
SNP 02-20f	2012-02-19	7%	High
SNP 02-20d	2012-03-18	11%	Moderate
SNP 02-20d	2012-04-15	7%	High
SNP 02-20e	2012-04-15	10%	Moderate
SNP 02-20f	2012-05-13	14%	Moderate
SNP 02-20f	2012-07-09	15%	Moderate
SNP 02-20d	2012-07-09	14%	Moderate
SNP 02-20f	2012-08-12	8%	High
SNP 02-20e	2012-09-09	16%	Moderate
SNP 02-20d	2012-09-09	7%	High

% = percent; yyyy-mm-dd = year-month-day.

Blank Validation

Based on a review of the equipment, field, and travel blank results (Tables 3A-11 to 3A-13), detectable concentrations of parameters were most frequently observed in equipment blanks and the majority of qualified parameters in these blanks were metals (Table 3A-11).

Results with the flag "NP" have a high degree of uncertainty associated with them. As such, before concluding that a pattern within Snap Lake exists for any of these parameters, the degree and frequency of detectable concentrations in blanks is reviewed. Results of parameters with the "QP" flag are less likely to be affected by the contamination observed in the blanks. However, the detectable levels in blanks are considered if patterns in the lake are identified.

Thirteen parameters were qualified with "NP" and six parameters were qualified with "QP" (Table 3A-14). The number of contaminated parameters in blank samples was higher in 2012 compared to 2011 (De Beers 2012a). Most of the detectable concentrations of parameters occurred in the equipment blanks as in previous years (De Beers 2012a).

Reactive silica concentrations were above the DL in the majority of the 2012 equipment and field blanks, and at concentrations near lake levels during ice-covered conditions. Therefore, reactive silica concentrations were qualified with the "NP" flag. As indicated in APHA (2012), silica and boron may leach from glass containers. Flett DDW (stored in glass) and the Teflon Kemmerer were used for preparing the equipment blanks for all metals parameters (i.e., total and dissolved metals, hexavalent chromium, cadmium, and total and methyl mercury). ALS DDW (stored in glass) and the PVC Kemmerer were used to prepare the equipment blanks for all non-metal parameters.

To evaluate possible sources of the silica contamination in the blanks, ALS tested their DDW stored in glass and plastic bottles (Table 3A-15). The reactive silica concentrations in the DDW stored in plastic bottles were below the DL (<0.005 mg/L). However, the silica concentrations in the DDW samples stored in glass bottles were detectable (0.185 mg/L and 0.143 mg/L). The results indicate that the glass bottles used to store DDW were likely the source of the silica contamination in the equipment and field blank samples. For the 2013 AEMP sampling program, it is recommended that ALS use plastic bottles to store the DDW water. Glass bottles would still be used for blank samples for organics analyses. Because reactive silica values were included in the calculation of TDS, values of calculated TDS were biased high in same blank samples where elevated reactive silica was detected. For this reason, the TDS calculated values were flagged with "QP"; however, the average proportion of calculated TDS that was contributed by reactive silica in the main basin and the northwest arm was 0.5% (both areas). Therefore, the effect on calculated TDS concentrations was minimal.

As further follow-up, Flett DDW stored in glass bottles was analyzed by ALS for total and dissolved metals. Boron was detected in the three samples of Flett DDW water stored in glass bottles at concentrations near the levels detected in the 2012 blank samples (Table 3A-15).

Therefore, glass storage bottles were likely also contributing to the detectable concentrations of boron in the blank samples. The concentrations of boron in the blank samples were much lower than the lake results, and for this reason the data were considered acceptable to use. Flett water was free of other contamination, as no other metals were detectable in the blank samples, thus it is recommended that Flett DDW continue to be used to prepare the blank samples for metals.

Table 3A-11 Equipment Blank Results, January 2012 to September 2012

Sample Date	Units	2012-01-13	2012-02-17	2012-02-20	2012-02-21	2012-03-18	2012-03-21	2012-04-12	2012-04-14	2012-04-17	2012-05-13	2012-05-13	2012-07-06	2012-07-14	2012-08-10	2012-08-13	2012-08-14	2012-09-07	2012-09-12	2012-09-14
Sample Control Number		**2012-5000**	**2012-5018**	**2012-5056**	**2012-5059**	**2012-5072**	**2012-5074**	**2012-5075**	**2012-5088**	**2012-5117**	**2012-5122**	**2012-5135**	**2012-5141**	**2012-5201**	**2012-5220**	**2012-5221**	**2012-5222**	**2012-5284[a]**	**2012-5285[a]**	**2012-5283**
Conventional Parameters																				
Laboratory pH	unitless	6.0 WH	6.1 WH	6.2 WH	6.0 WH	6.5 WH	6.3 WH	6.0 WH	6.0 WH	6.1 WH	6.2 WH	6.2 WH	6.3 WH	6.1 WH	6.3 WH	6.3 WH	6.2 WH	6.0 WH	6.4	6.4 WH
Laboratory Specific Conductivity	µS/cm	0.3	0.9	0.7	0.3	1.3	0.8	0.3	0.5	0.4	1.2	2.6	1.4	0.7	1.3	1.1	1.0	<0.2	0.4	1.2
Total Dissolved Solids, measured	mg/L	<10	<10	<10	<10	<10	<10	<10 WH	<10	<10	<10 WH	<10 WH	<10	<10	<10 WH	<10	<10	<10 WH	<10	<10
Total Dissolved Solids, calculated (Lab)	mg/L	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	11.5	7.3	<3.5	<3.5	<3.4	<3.4	<3.4	<3.3	<3.5	<3.5
Total Dissolved Solids, calculated (Standard Methods)	mg/L	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	11.7	7.4	<3.5	<3.5	<3.4	<3.4	<3.4	<3.3	<3.5	<3.5
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3 WH	<3 WH	<3	<3	<3 WH	<3	<3	<3	<3	<3
Turbidity	NTU	<0.1	<0.1 WH	<0.1 WH	<0.1	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	0.11 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 XH	<0.1 WH	<0.1	<0.1 WH
Ions																				
Bicarbonate, as HCO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Calcium	mg/L	<0.5	<0.5	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoride	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hardness, as $CaCO_3$	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Reactive Silica, as SiO_2	mg/L	0.2	0.1	0.2	0.2	0.1	0.1	0.3	0.04	0.1	9	6	<0.5	<0.5	0.1	0.5	0.2	<0.5	<0.5	<0.5
Sodium	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sulphate	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	<0.05	<0.05	<0.05	<0.05
Total Alkalinity, as $CaCO_3$	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Nutrients and Carbons																				
BOD (5-day)	mg/L	<2	<2 WH	<2 WH	<2	<2	<2	<2 WH	<2 WH	<2	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	-	-	<2 WH
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014
Nitrate, as N, calculated	mg-N/L	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006	<0.006 WH	<0.006 WH	<0.006	<0.006 WH
Nitrate/Nitrite, as N	mg-N/L	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006	<0.006 WH	<0.006 WH	<0.006	<0.006 WH
Nitrite, as N	mg-N/L	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002	<0.002 WH	<0.002 WH	<0.002	<0.002 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001	<0.001 WH	<0.001 WH	<0.001	<0.001 WH
Total Ammonia, as N	mg-N/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Organic Carbon	mg/L	1	<1	1	1	<1	1	2	<1	1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1
Total Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	0.0015	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014
Total Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0015	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Metals, Metalloids, and Non-Metals																				
Aluminum	µg/L	0.4	<0.3	<0.3	0.4	0.6	<0.3	<0.3	<0.3	0.3	0.6	<0.3	0.5	<0.3	<0.3	<0.3	<0.3	0.5	0.7	0.5
Antimony	µg/L	0.59	0.08	0.40	0.59	14.10	1.29	0.18	0.19	0.41	0.22	0.34	0.13	0.13	0.12	0.17	0.26	0.15	0.08	0.14
Arsenic	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Barium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Table 3A-11 Equipment Blank Results, January 2012 to September 2012

Sample Date	Units	2012-01-13	2012-02-17	2012-02-20	2012-02-21	2012-03-18	2012-03-21	2012-04-12	2012-04-14	2012-04-17	2012-05-13	2012-05-13	2012-07-06	2012-07-14	2012-08-10	2012-08-13	2012-08-14	2012-09-07	2012-09-12	2012-09-14
Sample Control Number		2012-5000	2012-5018	2012-5056	2012-5059	2012-5072	2012-5074	2012-5075	2012-5088	2012-5117	2012-5122	2012-5135	2012-5141	2012-5201	2012-5220	2012-5221	2012-5222	2012-5284[a]	2012-5285[a]	2012-5283
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	1	1	1	1	1	<1	1	1	2	1	1	2	2	2	2	1	2	2	6
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.014	0.012	0.007	0.003	0.002	0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.08	0.11	<0.06	0.08	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.07	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	µg/L	<0.1	3.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.5	<0.1	1.1	<0.1	1.7	<0.1	<0.1	<0.1	<0.1	<0.1
Iron	µg/L	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Lead	µg/L	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Manganese	µg/L	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.052	<0.05	0.21
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Methyl Mercury, as Hg (Flett)	µg/L	<0.00003	<0.00003	<0.00003	<0.00003	<0.00008	<0.00008	<0.00003	<0.00003	<0.00003	<0.00008	<0.00008	<0.00003	<0.00008	<0.00008	<0.00008	<0.00008	-	-	<0.00008
Molybdenum	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Rubidium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	0.29	<0.05	0.08	<0.05	<0.05	0.09	0.19
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	0.3	<0.8	<0.8	<0.8	0.9	<0.8	<0.8	<0.8	<0.8	<0.8
Dissolved Metals, Metalloids, and Non-Metals																				
Aluminum	µg/L	0.6	<0.3	<0.3	0.6	0.4	<0.3	0.3	0.4	<0.3	<0.3	<0.3	0.5	0.6	<0.3	<0.3	<0.3	2.5 XG	<0.3	0.4
Antimony	µg/L	1.46 XG	0.05	0.27	1.46 XG	7.55	0.64	0.13	0.58 XG	0.93 XG	0.13	0.35	0.23 XG	0.08	0.19 XG	0.18	0.06	0.49 XG	0.10	0.14
Arsenic	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Barium	µg/L	0.09	<0.05	<0.05	0.09	<0.05	<0.05	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	0.05	<0.05	<0.05
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	1	2	<1	1	2	<1	2	2	1	1	1	2	3	2	2	1	2	2	6
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0055	<0.005
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	<0.06	0.22	0.11	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.07	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Cobalt	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	µg/L	<0.1	1.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.9	<0.1	2.2 XG	<0.1	2.0	<0.1	<0.1	<0.1	<0.1	<0.1
Iron	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	4	<1	<1
Lead	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Manganese	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.33 XG	<0.05	0.24
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Table 3A-11 Equipment Blank Results, January 2012 to September 2012

Sample Date	Units	2012-01-13	2012-02-17	2012-02-20	2012-02-21	2012-03-18	2012-03-21	2012-04-12	2012-04-14	2012-04-17	2012-05-13	2012-05-13	2012-07-06	2012-07-14	2012-08-10	2012-08-13	2012-08-14	2012-09-07	2012-09-12	2012-09-14
Sample Control Number		2012-5000	2012-5018	2012-5056	2012-5059	2012-5072	2012-5074	2012-5075	2012-5088	2012-5117	2012-5122	2012-5135	2012-5141	2012-5201	2012-5220	2012-5221	2012-5222	2012-5284[a]	2012-5285[a]	2012-5283
Molybdenum	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Rubidium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	<0.05	<0.05	0.08	<0.05	<0.05	0.17	<0.05	<0.05	0.07	<0.05	0.05	0.15	0.26	<0.05	0.10	<0.05	0.06	0.09	0.16
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.23	<0.1	<0.1
Uranium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	0.8	<0.8	<0.8	0.8	<0.8	<0.8	<0.8	0.9	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	1.2	<0.8
Organics-General																				
F2 (>C_{10}-C_{16})	mg/L	<0.25 WH	<0.25	<0.25 WH	<0.25 WH	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25 WH	<0.25 WH	<0.25	<0.25	<0.25	<0.25	<0.25 WH	-	-	<0.25
Oil & Grease	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	-	-	<1
Organics-Volatiles																				
BTEX, calculated	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	0.00139	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	-	-	<0.00071
Benzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	-	<0.0005
Ethylbenzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	-	<0.0005
F1 (C_6-C_{10})	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	<0.1
F1-BTEX	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	<0.1
m&p-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00083	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	-	<0.0005
o-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	-	<0.0005
Toluene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00056	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	-	<0.0005
Xylene	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	0.00083	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	-	-	<0.00071
Microbiology																				
E. coli (Taiga)	MPN/100 mL	<1	<1 WH	<1	<1	<1	<1 WH	<1 WH	<1 WH	<1	<1	<1	<1 WH	<1 WH	<1 WH	<1	<1	-	-	<1 WH

Notes: Qualifier flags assigned by Golder: WH = warning, hold time was substantially exceeded and may have an effect on results; XG = data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample.

(a) Dissolved metals, BOD, methyl mercury and *E .coli* samples were not collected.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Hg = mercury; Alberta Innovates = Alberta Innovates Technology Futures; BTEX = benzene, toluene, ethylbenzene, and xylene; F1 (C_6 – C_{10}) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to $C_{10;}$ F2 (>C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from >C_{10} to C_{16}; *E. coli* = *Escherichia coli*; Taiga = Taiga Environmental Laboratory; >= greater than; <= less than the detection limit; yyyy-mm-dd = year-month-day; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units;% = percent; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres.

Table 3A-12 Field Blank Results, January 2012 to September 2012

Sample Date	Units	2012-01-13	2012-02-17	2012-02-19	2012-02-21	2012-03-21	2012-04-13	2012-04-15	2012-04-17	2012-07-06	2012-07-09	2012-07-12	2012-08-13	2012-08-28	2012-09-09	2012-09-12	2012-09-14
Sample Control Number		**2012-5004**	**2012-5025**	**2012-5051**	**2012-5058**	**2012-5071**	**2012-5081[a]**	**2012-5087**	**2012-5116**	**2012-5146**	**2012-5165**	**2012-5194**	**2012-5218**	**2012-5237**	**2012-5999**	**2012-5279[b]**	**2012-5277**
Conventional Parameters																	
Laboratory pH	unitless	6.0 WH	6.2 WH	6.1 WH	6.1 WH	6.4 WH	5.9 WH	5.9 WH	6.1 WH	6.2 WH	6.4 WH	6.2 WH	6.4 WH	6.0	6.1 WH	6.2	6.6 WH
Laboratory Specific Conductivity	µS/cm	0.8	1.0	0.5	0.4	0.7	0.4	<0.2	<0.2	0.9	1.4	0.5	1.1	<0.2	0.5	0.2	1.29
Total Dissolved Solids, measured	mg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10 WH	<10	<10	<10	<10	<10
Total Dissolved Solids, calculated (Lab)	mg/L	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.5	<3.5	<3.5	<3.4	<3.5	<3.5	<3.5	<3.5
Total Dissolved Solids, calculated (Standard Methods)	mg/L	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	<3.5	<3.5	<3.5	<3.4	<3.5	<3.5	<3.5	<3.5
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Turbidity	NTU	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 XH	<0.1	<0.1 WH	<0.1	<0.1 WH
Ions																	
Bicarbonate, as HCO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Calcium	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoride	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hardness, as $CaCO_3$	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Reactive Silica, as SiO_2	mg/L	0.03	0.04	0.2	0.2	0.2	0.1	0.02	0.06	<0.5	<0.5	<0.5	0.1	<0.5	<0.5	<0.5	<0.5
Sodium	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sulphate	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Alkalinity, as $CaCO_3$	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Nutrients and Carbons																	
BOD (5-day)	mg/L	<2 WH	<2 WH	<2 WH	<2	<2	<2 WH	<2	<2	<2 WH	<2	<2 WH	<2 WH	<2	<2 WH	-	<2 WH
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0012
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	0.0016	<0.0014	<0.0014
Nitrate, as N, calculated	mg-N/L	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006	<0.006 WH	<0.006 WH	<0.006	<0.006 WH	<0.006	<0.006 WH
Nitrate/Nitrite, as N	mg-N/L	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006	<0.006 WH	<0.006 WH	<0.006	<0.006 WH	<0.006	<0.006 WH
Nitrite, as N	mg-N/L	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002	<0.002 WH	<0.002 WH	<0.002	<0.002 WH	<0.002	<0.002 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001	<0.001 WH	<0.001 WH	<0.001	<0.001 WH	<0.001	<0.001 WH
Total Ammonia, as N	mg-N/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Organic Carbon	mg/L	<1	<1	1	1.5	1.1	1.3	1.4	1.3	<1	<1	<1	<1	<1	<1	<1	<1
Total Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	0.0016	<0.0014	<0.0014
Total Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0016	<0.001	<0.001
Total Metals, Metalloids, and Non-Metals																	
Aluminum	µg/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.38	<0.3	<0.3	<0.3	<0.3	<0.3	0.48	<0.3	<3	<0.3
Antimony	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	0.11	<0.02	0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02
Arsenic	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02
Barium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.5	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01
Boron	µg/L	2	2	<1	<1	<1	<1	1	2	1	2	3	3	2	4	<2	2
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
Cadmium (Alberta Innovates)	µg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.009	<0.002	<0.002	0.002	<0.002	<0.002	0.005	<0.002	<0.002	<0.002
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	<0.06	0.11	<0.06	<0.06	<0.06	0.07	0.07	0.07	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.1	<0.06

Table 3A-12 Field Blank Results, January 2012 to September 2012

Sample Date	Units	2012-01-13	2012-02-17	2012-02-19	2012-02-21	2012-03-21	2012-04-13	2012-04-15	2012-04-17	2012-07-06	2012-07-09	2012-07-12	2012-08-13	2012-08-28	2012-09-09	2012-09-12	2012-09-14
Sample Control Number		**2012-5004**	**2012-5025**	**2012-5051**	**2012-5058**	**2012-5071**	**2012-5081[a]**	**2012-5087**	**2012-5116**	**2012-5146**	**2012-5165**	**2012-5194**	**2012-5218**	**2012-5237**	**2012-5999**	**2012-5279[b]**	**2012-5277**
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01
Copper	µg/L	<0.1	<0.1	<0.1	0.12	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.13	<0.1
Iron	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1
Lead	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01
Lithium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5
Manganese	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<2	<0.05
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Methyl Mercury, as Hg (Flett)	µg/L	<0.00003	<0.00003	<0.00003	<0.00003	<0.00008	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00008	<0.00008	<0.00008	<0.00008	-	<0.00008
Molybdenum	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.1	<0.06
Rubidium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.1	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
Strontium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.27	<0.1	<0.05
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.3	<0.1
Uranium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05
Zinc	µg/L	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	0.84	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<3	<0.8
Dissolved Metals, Metalloids, and Non-Metals																	
Aluminum	µg/L	<0.3	<0.3	<0.3	0.4	<0.3	-	0.5	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<1	<0.3
Antimony	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02
Arsenic	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02
Barium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.5	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01
Boron	µg/L	<1	<1	<1	1.1	<1	-	1.2	1.1	1.1	2.7	7.8 XG	1.5	3.3	2.3	2.7	2.1
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	<0.06	0.103	<0.06	0.10	<0.06	-	<0.06	<0.06	0.065	<0.06	<0.06	<0.06	<0.06	<0.06	<0.1	<0.06
Cobalt	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01
Copper	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Iron	µg/L	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1
Lead	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01
Lithium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.5
Manganese	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	0.061	<0.05	<0.05	<2	<0.05
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	<0.06	<0.06	<0.06	<0.06	<0.06	-	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.1	<0.06
Rubidium	µg/L	<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.1	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
Strontium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.3	<0.1
Uranium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05
Zinc	µg/L	<0.8	<0.8	<0.8	<0.8	<0.8	-	1.2	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<1	0.9

Table 3A-12 Field Blank Results, January 2012 to September 2012

Sample Date	Units	2012-01-13	2012-02-17	2012-02-19	2012-02-21	2012-03-21	2012-04-13	2012-04-15	2012-04-17	2012-07-06	2012-07-09	2012-07-12	2012-08-13	2012-08-28	2012-09-09	2012-09-12	2012-09-14
Sample Control Number		**2012-5004**	**2012-5025**	**2012-5051**	**2012-5058**	**2012-5071**	**2012-5081[a]**	**2012-5087**	**2012-5116**	**2012-5146**	**2012-5165**	**2012-5194**	**2012-5218**	**2012-5237**	**2012-5999**	**2012-5279[b]**	**2012-5277**
Organics-General																	
F2 (>C_{10}-C_{16})	mg/L	<0.25	<0.25	<0.25	<0.25 WH	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25 WH	<0.25 WH	<0.25	<0.25	-	<0.25
Oil & Grease	mg/L	<1	<1	<1	1.1	<1	<1	<1	<1	<1	<1	1.1	<1	<1	<1	-	<1
Organics-Volatiles																	
BTEX, calculated	mg/L	<0.00071	0.00252	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	-	<0.00071
Benzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005
Ethylbenzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005
F1 (C_6-C_{10})	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1
F1-BTEX	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1
m&p-Xylene	mg/L	<0.0005	0.00108	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005
o-Xylene	mg/L	<0.0005	0.00053	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005
Toluene	mg/L	<0.0005	0.00091	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005
Xylene	mg/L	<0.00071	0.00161	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	-	<0.00071
Microbiology																	
E. coli (Taiga)	MPN/100 mL	<1 WH	<1 WH	<1	<1	<1 WH	<1 WH	<1	<1	<1 WH	<1	<1 WH	<1 WH	<1	<1	-	<1 WH

Note: Qualifier flags assigned by Golder: WH = warning, hold time was substantially exceeded and may have an effect on results; XG = data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample.

(a) Dissolved metal sample was not collected.

(b) Dissolved metal sample was not received at the lab, the analysis was performed from the routine bottle therefore the DL were higher. Organics, methyl mercury and *E. coli* samples were not collected.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Hg = mercury; Alberta Innovates = Alberta Innovates Technology Futures; BTEX = benzene, toluene, ethylbenzene, and xylene; ; F1 (C_6 – C_{10}) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (>C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from >C_{10} to C_{16}; *E. coli* = *Escherichia coli*; Taiga = Taiga Environmental Laboratory; >= greater than; <= less than the detection limit; yyyy-mm-dd = year-month-day; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units;% = percent; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres.

Table 3A-13 Travel Blank Results, January 2012 to September 2012

Sample Date	Units	2012-01-14	2012-02-18	2012-02-20	2012-03-18	2012-04-14	2012-04-16	2012-05-13	2012-07-07	2012-07-09	2012-07-11	2012-07-13	2012-08-10	2012-08-12	2012-09-07	2012-09-11	2012-09-14
Sample Control Number		**2012-5005**	**2012-5031**	**2012-5057**	**2012-5073**	**2012-5086[a]**	**2012-5108**	**2012-5123**	**2012-5145**	**2012-5175**	**2012-5193**	**2012-5199**	**2012-5219**	**2012-5226**	**2012-5278[b]**	**2012-5280[c]**	**2012-5282**
Conventional Parameters																	
Laboratory	unitless	5.6 WH	5.5 WH	5.6 WH	6.3 WH	5.6 WH	5.7 WH	5.2 WH	5.9 WH	5.9 WH	5.9 WH	5.8 WH	6.0 WH	6.0 WH	5.9 WH	5.9	6.0 WH
Laboratory Specific Conductivity	µS/cm	0.6	<0.2	<0.2	0.9	<0.2	<0.2	2	0.6	0.6	0.4	0.3	0.7	0.7	<0.2	0.4	<0.2
Total Dissolved Solids, measured	mg/L	<10	<10	<10 WH	<10	<10	<10	<10 WH	<10	<10	<10	<10	<10 WH	<10 WH	<10 WH	<10	<10
Total Dissolved Solids, calculated (Lab)	mg/L	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	4	<3.5	<3.5	<3.5	<3.5	<3.4	<3.4	<3.3	<3.5	<3.5
Total Dissolved Solids, calculated (Standard Methods)	mg/L	<3.4	<3.4	<3.4	<3.4	<3.4	<3.4	4.3	<3.5	<3.5	<3.5	<3.5	<3.4	<3.4	<3.3	<3.5	<3.5
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3 WH	<3	<3	<3	<3	<3	<3	<3	<3	<3
Turbidity	NTU	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1 WH	<0.1	<0.1 WH
Ions																	
Bicarbonate, as HCO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Calcium	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoride	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hardness, as $CaCO_3$	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1
Reactive Silica, as SiO_2	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	3.4	<0.5	<0.5	<0.5	<0.5	<0.005	<0.005	<0.5	<0.5	<0.5
Sodium	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sulphate	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.11	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Alkalinity, as $CaCO_3$	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Nutrients and Carbons																	
BOD (5-day)	mg/L	<2 WH	<2 WH	<2 WH	<2	-	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	-	-	<2 WH
Dissolved Inorganic Phosphorus	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg/L	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	0.0106	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014
Nitrate, as N, calculated	mg/L	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006	<0.006 WH
Nitrate/Nitrite, as N	mg/L	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006	<0.006 WH
Nitrite, as N	mg/L	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002	<0.002 WH
ortho-Phosphate, as P	mg/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001	<0.001 WH
Total Ammonia, as N	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Dissolved Phosphorus	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Inorganic Phosphorus	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Kjeldahl Nitrogen	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Organic Carbon	mg/L	<1	1	1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1
Total Organic Phosphorus, calculated	mg/L	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014
Total Phosphorus	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Metals, Metalloids, and Non-Metals																	
Aluminum	µg/L	<0.3	<0.3	<0.3	<0.3	<0.3	0.4	0.4	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Antimony	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Barium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	4	7	5	3	4	<1	1	3	2	2	4	10	8	5	5	5

Table 3A-13 Travel Blank Results, January 2012 to September 2012

Sample Date	Units	2012-01-14	2012-02-18	2012-02-20	2012-03-18	2012-04-14	2012-04-16	2012-05-13	2012-07-07	2012-07-09	2012-07-11	2012-07-13	2012-08-10	2012-08-12	2012-09-07	2012-09-11	2012-09-14
Sample Control Number		**2012-5005**	**2012-5031**	**2012-5057**	**2012-5073**	**2012-5086[a]**	**2012-5108**	**2012-5123**	**2012-5145**	**2012-5175**	**2012-5193**	**2012-5199**	**2012-5219**	**2012-5226**	**2012-5278[b]**	**2012-5280[c]**	**2012-5282**
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	0.003	<0.002	<0.002	<0.002	0.015	<0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	<0.002
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.17	0.14	0.22	<0.06	0.07	<0.06	<0.06	0.07	<0.06	<0.06	<0.06	0.29	0.35	<0.06	<0.06	0.06
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Iron	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Lead	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Manganese	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Methyl Mercury, as Hg (Flett)	µg/L	<0.00003	<0.00003	<0.00003	<0.00008	-	<0.00003	<0.00008	<0.00003	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	-	<0.00008	<0.00008
Molybdenum	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Rubidium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	0.8	1.8	0.9	<0.8	<0.8	1.6	<0.8	<0.8	1.2	<0.8	1.1	0.9	<0.8	<0.8	<0.8	<0.8
Dissolved Metals, Metalloids, and Non-Metals																	
Aluminum	µg/L	0.5	0.3	<0.3	<0.3	-	<0.3	<0.3	0.5	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Antimony	µg/L	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Arsenic	µg/L	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Barium	µg/L	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Boron	µg/L	4	5	6	2	-	<1	1	2	3	2	2	10	12 XG	5	5	5
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.2	0.2	0.3 XG	<0.06	-	0.06	<0.06	<0.06	0.07	<0.06	0.13	0.20	0.17	<0.06	<0.06	<0.06
Cobalt	µg/L	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Copper	µg/L	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Iron	µg/L	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Lead	µg/L	<0.01	<0.01	<0.01	0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	µg/L	<0.5	<0.5	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Manganese	µg/L	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	<0.06	<0.06	<0.06	0.27	-	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06

Table 3A-13 Travel Blank Results, January 2012 to September 2012

Sample Date	Units	2012-01-14	2012-02-18	2012-02-20	2012-03-18	2012-04-14	2012-04-16	2012-05-13	2012-07-07	2012-07-09	2012-07-11	2012-07-13	2012-08-10	2012-08-12	2012-09-07	2012-09-11	2012-09-14
Sample Control Number		**2012-5005**	**2012-5031**	**2012-5057**	**2012-5073**	**2012-5086[a]**	**2012-5108**	**2012-5123**	**2012-5145**	**2012-5175**	**2012-5193**	**2012-5199**	**2012-5219**	**2012-5226**	**2012-5278[b]**	**2012-5280[c]**	**2012-5282**
Rubidium	µg/L	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	1.5	1.0	1.8	<0.8	-	1.1	<0.8	1.0	1.2	1.4	1.0	1.7	<0.8	<0.8	<0.8	<0.8
Organics-General																	
F2 (>C_{10}-C_{16})	mg/L	<0.25	<0.25	<0.25 WH	<0.25	-	<0.25	<0.25 WH	<0.25	<0.25 WH	<0.25	<0.25	<0.25	<0.25	-	-	<0.25
Oil & Grease	mg/L	<1	<1	<1	1	-	<1	<1	<1	3	<1	<1	<1	<1	-	-	<1
Organics-Volatiles																	
BTEX, calculated	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	-	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	-	-	<0.00071
Benzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005 Q	<0.0005	<0.0005	<0.0005 Q	<0.0005 Q	-	-	<0.0005
Ethylbenzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005 Q	<0.0005	<0.0005	<0.0005 Q	<0.0005 Q	-	-	<0.0005
F1 (C_6-C_{10})	mg/L	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1 Q	<0.1	<0.1	<0.1 Q	<0.1 Q	-	-	<0.1
F1-BTEX	mg/L	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	<0.1
m&p-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005 Q	<0.0005	<0.0005	<0.0005 Q	<0.0005 Q	-	-	<0.0005
o-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005 Q	<0.0005	<0.0005	<0.0005 Q	<0.0005 Q	-	-	<0.0005
Toluene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005 Q	<0.0005	<0.0005	<0.0005 Q	<0.0005 Q	-	-	<0.0005
Xylene	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	-	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	-	-	<0.00071

Note: Qualifier flags assigned by Golder: WH = warning, hold time was substantially exceeded and may have an effect on results; XG = data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample; Q = headspace upon laboratory receipt.

(a) Dissolved metals, organics, BOD, and methyl mercury samples were not collected.

(b) Organics, BOD and methyl mercury samples were not collected.

(c) Organics and BOD samples were not collected.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Hg = mercury; Alberta Innovates = Alberta Innovates Technology Futures; BTEX = benzene, toluene, ethylbenzene, and xylene; F1 (C_6 – C_{10}) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to $C_{10;}$ F2 (>C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from >C_{10} to $C_{16.;}$ >= greater than; <= less than the detection limit; yyyy-mm-dd = year-month-day; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; % = percent; µg/L = micrograms per litre; mg-N/L = milligrams as nitrogen per litre; mg-P/L = milligrams as phosphorus per litre.

Table 3A-14 Summary of Qualifiers Based on Blank Validation, January 2012 to September 2012

Parameter	Qualifier		
	Equipment Blank	Field Blank	Travel Blank
Conventional Parameters			
Total Dissolved Solids, calculated	QP	NONE	NONE
Ions			
Potassium	NONE	NONE	QP
Reactive Silica, as SiO_2	NP (ICE)	NP (ICE)	NONE
Nutrients and Carbons			
Total Organic Carbon	NP	NP (ICE)	NP
Total Metals and Metalloids			
Aluminum	NP	QP	QP
Antimony	NP	QP	NONE
Boron	NP	NP	NP
Cadmium (Alberta Innovates)	NP	QP	NP
Cobalt	QP	NONE	NONE
Copper	NP	QP	NONE
Lead	QP	NONE	NONE
Zinc	QP	NONE	NP
Dissolved Metals and Metalloids			
Aluminum	NP	QP	QP
Antimony	NP	NONE	NONE
Boron	NP	NP (OPEN)	NP
Copper	NP	NONE	NONE
Manganese	QP	NONE	NONE
Zinc	QP	QP	NP
Organics-General			
Oil & Grease	NONE	QP	QP

Note: Figure 3A-1 describes the frequency ratings (low, moderate and high).

NP = lake patterns using this parameter result should be reviewed because the concentration of either the equipment, field or travel blanks was above the DL, at concentrations near lake levels, and with moderate to high frequency.

QP = lake patterns using this parameter result should be reviewed because the concentration of either the equipment, field or travel blanks was above the DL, at concentrations near lake levels, and with low to moderate frequency.

OPEN = open-water period; ICE = ice-covered period; SiO_2 = silicate; Alberta Innovates = Alberta Innovates Technology Futures.

Table 3A-15 Silica and Boron Levels in DDW Samples Stored in Glass and Plastic Bottles

Parameter	Units	DL	Storage Type of Bottle				
			Glass Bottle			Plastic Bottle	
			Sample 1	Sample 2	Sample 3	Sample 1	Sample 2
Silica, Reactive as SiO_2	mg/L	0.005	0.185[(a)]	0.143[(a)]	-	<0.005	<0.005
Boron	mg/L	0.001	0.0075[(b)]	0.0081[(b)]	0.008[(b)]	-	-

(a) ALS DDW stored in glass and plastic bottles was analyzed by ALS in triplicate on February 1st, 2013.
(b) Flett DDW stored in glass bottles was analyzed by ALS in duplicate on January 21st, 2013.
- = not analyzed; <= less than; DL = detection limit; SiO_2 = silicate; mg/L = milligrams per litre.

Concentrations of antimony were detectable in all of the equipment blank samples during the 2012 AEMP program. Total and dissolved aluminum and chromium, and dissolved barium, manganese, and copper were detected in several equipment blank samples (Table 3A-14).

Equipment cleaning, filtering, and rinsing procedures may have contributed to the contamination of the equipment blanks. In addition to the aforementioned changes in DDW storage, it is recommended that the proper cleaning of equipment be emphasized in the 2013 AEMP. Specifically, the frequency of equipment cleaning procedures should increase. As outlined in Section 4.1.1.2, the equipment blanks were thoroughly cleaned at the beginning of each field program. At the end of each sampling event, the Kemmerers were rinsed with DDW and, if conductivity measurements were less than 2 µS/cm, the Kemmerer samplers were stored until the next sampling event. For the 2013 AEMP, it is recommended that the sampling equipment be washed using an appropriate analytical-grade soap, and rinsed with DDW (Section 4.1.1.2) at the end of each sampling event, regardless of the conductivity values. In addition, it is also recommended that the DDW used to rinse the equipment be filtered when appropriate (i.e., for dissolved metals and nutrients) so that field samples and equipment blanks are treated consistently.

3A.1.2.1.2 Dissolved and Total Metals (including Metalloids and Non-Metals) Concentrations

The measured dissolved concentrations of metals were generally lower than the measured total concentrations in the 2012 AEMP samples. If results for the dissolved concentrations were greater than five times the DLs and the RPD was greater than 30%, the data were qualified as having a dissolved to total RPD outside of an acceptable range. The exclusion of dissolved metals from the data analyses did not affect the conclusion of this report because the evaluation of changes and comparison to AEMP benchmarks were based on total metals concentrations that were considered valid. Dissolved values that were greater than five times the DLs, with RPD values greater than 30% between dissolved and total values, occurred most frequently for antimony, copper, and zinc. The equipment cleaning, filtering equipment, or a component of the filtering process may have contributed to the higher concentration of these dissolved metals.

3A.1.2.1.3 Proofing Sheets

Hard copies of the laboratory results were compared to the data entered into the database. Differences in sample data were crosschecked and updated in the database.

3A.1.2.1.4 Record Data Management Processes and Action

Notes were recorded for all issues identified through each of the previous QA/QC processes. Notes included listing follow-up action items to resolve any issues, and outcomes of the action items.

3A.1.2.2 Invalidation of Individual Data Points

Several values were invalidated on the basis that the data were unusually high and were flagged with "X", as per the methods outlines in Section 3A.1.3. Concentrations for the following samples were determined to be approximately ten times greater than average lake concentrations measured in 2012:

- conventional parameters: TSS and turbidity collected at Inland Lake (IL)4 on August 28, 2012 (395 mg/L compared to the average concentration of the inland lakes 5 mg/L, and 25 NTU compared to the average level 2.4 NTU);
- ions: reactive silica collected at the diffuser stations on May 13, 2012 (7.85 and 12 mg/L compared to the concentrations of Snap Lake 0.9 to 1.6 mg/L from 2011); silica concentrations in the equipment blank prepared in May 2012 were also high (6 and 9 mg/L), indicating that the silica contamination likely affected the results of the field samples and,
- total metals: titanium from SNAP07 collected on February 17, 2012 (0.95 mg/L compared to the average concentration of Snap Lake 0.1 mg/L).

3A.1.3 CONCLUSIONS

The QC results from the 2012 AEMP indicate that:

- Most of the parameters were analyzed at the standard AEMP DL. However, the DL for some parameters increased on occasion due to dilutions, matrix interferences, insufficient sample volume received or misplaced, or a combination of these issues.
- The 2012 TDS equation was inconsistent with Standard Methods (APHA 2005) and included parameters not appropriate to the TDS calculation. All of the AEMP TDS_{Calc} values received between January and September 2012 were affected; therefore, interim TDS_{Calc}(Standard Methods) values were used in this report until final revised results are re-issued.

Duplicate samples:

- The notable results observed in the duplicate samples for total aluminum, antimony, and cadmium (Alberta Innovates), and dissolved antimony may be due to potential contamination of the duplicate samples or errors in the analysis process and in the field procedures. The results in the blank validation indicate that sample contamination may have occurred for these parameters.
- The notable results for TKN may be due to analytical variability or interferences as similar variability was not noted for other nitrogen parameters.
- The reason for the notable results in the duplicate samples for iron and titanium is unknown because concentrations of those parameters were below DLs in all blank samples.
- Notable variations in the duplicate samples represented less than 10% of the parameters analyzed at each station. Therefore, intra-site variability and field sampling precision were rated as low and high, respectively.

Split samples:

- In 2012, 27% of the TDS_{Meas} split results were notable, likely due to the variability introduced by the laboratory procedure.
- The percentage of notable results between TKN concentrations in the inter-laboratory split samples was 45%. The variability between splits was likely related to the different approaches in measuring and calculating TKN by ALS and Maxxam.
- The percentage of notable results for fluoride was 100%. The fluoride results analyzed by Maxxam were consistently higher than those analyzed by ALS. Different analytical methods were used by the two laboratories for determining fluoride concentrations. The ion chromatography method employed by ALS, the principal laboratory for the AEMP, was the more reliable of the two methods.
- Notable concentrations of TOC, total aluminum, antimony, cadmium (Alberta Innovates), cobalt, copper, zinc, and dissolved aluminum may be due to potential contamination in split samples for these parameters.
- Based on the results of the split samples, the analytical precision was rated as moderate to high.

Blank samples:

- Potential silica and boron contamination from DDW storage in glass bottles was evident.
- Based on the results of blank samples, thirteen parameters were flagged with “NP”, which indicates the water quality results for parameters with a high frequency of contamination and have a high degree of uncertainty associated with them. The parameters flagged with “NP” occurred most frequently in equipment blanks, and majority the parameters detected were metals.
- The parameters flagged with “NP” should be reviewed before concluding that a pattern within Snap Lake exists for any of these parameters.

Overall, the quality of water chemistry data collected during the 2012 AEMP is considered to be of acceptable quality and adequate to address the objectives of the program.

3A.1.4 RECOMMENDATIONS

Based on the findings from the QA/QC assessment, recommendations for the 2013 AEMP are summarized below:

To investigate potential contamination:

- Use plastic bottles to store the ALS DDW to reduce boron and silica contamination in the blank samples and continue to use Flett DDW water to prepare the blank samples for metals.
- Wash the equipment using appropriate analytical-grade soap and rinse with DDW at the end of each sampling event, regardless of the conductivity values. In addition, the DDW used to rinse the equipment should be filtered when appropriate.
- Discuss analytical procedures with the laboratories, particularly for antimony, to determine potential sources and/or interferences that may be contributing to measured blank concentrations.

To investigate variability between samples:

- Continue to review the fluoride results in the split samples between ALS and Maxxam to determine whether the high difference between splits continues. In addition, fluoride measurements by ion chromatography will be requested from Maxxam in 2013 so that the preferred analytical method is used and is consistent with ALS.

Continual Improvement:

- Incorporate routine checks (i.e., before and after field programs) of the temperature probe using a constant temperature bath.
- Continue to complete a two-step titration procedure for the Winkler titrations to maintain a level of QC necessary to verify the accuracy of field DO readings. A three-step Winkler titration is recommended if the results are greater than 1.5 mg/L between the first two Winkler titration results.
- Continue to consider options for alleviating the holding time issues, such as freezing samples or on-site confirmatory analyses for some parameters, such as nitrate and nitrite.
- Analyze silver and cadmium using ultra-low CCMS methods at ALS.

3A.1.5 REFERENCES

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Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
WQ1	24-Mar-99	-	-	1	0	16.2	-	7.6	6
				3	0.1	13.9	-	7.1	3
				5	1.1	13	-	7.7	4
				7	1.4	13	-	6.8	5
				9	1.9	10.5	-	6.7	3
				11	2.2	8.6	-	6.4	3
				13	2.3	8.3	-	6.3	4
				15	2.3	7.9	-	6.2	4
				17	2.4	7.6	-	6.2	4
				18	2.4	7.4	-	6.2	4
	9-Jul-99	-	-	1	13.7	10.8	-	6.8	-
				2	13.7	10.8	-	6.8	-
				3	13.7	10.7	-	6.8	-
				4	13.7	10.6	-	6.7	-
				5	13.6	10.7	-	6.7	-
				6	13.6	10.6	-	6.7	-
				7	13.6	10.6	-	6.7	-
				8	13.5	10.6	-	6.7	-
				9	13.4	10.6	-	6.7	-
				10	13.4	10.5	-	6.6	-
				11	13.4	10.6	-	6.6	-
				12	13.4	10.6	-	6.6	-
				13	13.3	10.5	-	6.6	-
				14	13.3	10.5	-	6.6	-
				15	13.3	10.6	-	6.6	-
WQ2	24-Mar-99	-	-	1	-0.1	17.5	-	6.7	7
				2	0.4	17	-	6.5	7
				3	1.1	16.1	-	6.4	5
				4	2.4	12.4	-	6.3	5
				5	3.1	9.2	-	6.1	5
				6	3.1	6.6	-	6	6
				6.5	3.3	4.8	-	5.9	7
	29-Mar-99	-	-	1	-0.1	17.5	-	6.7	-
				2	0.4	17	-	6.5	-
				3	1.1	16.1	-	6.4	-
				4	2.4	12.4	-	6.3	-
				5	3.1	9.2	-	6.1	-
				6	3.1	6.6	-	6	-
				6.5	3.3	4.8	-	5.9	-
	12-Aug-99	-	-	1	14.1	10.7	-	6.7	-
				2	13.9	10.6	-	6.7	-
				3	13.9	10.6	-	6.7	-
				4	13.9	10.6	-	6.7	-
				5	13.9	10.6	-	6.7	-
WQ3	24-Mar-99	-	-	1	0.6	17.8	-	6.8	6
				2	0.6	16.2	-	6.7	4
				2.5	0.8	14.7	-	6.6	4
	29-Mar-99	-	-	1	0.6	17.8	-	6.8	-
				2	0.6	16.2	-	6.7	-
				3	0.8	14.7	-	6.6	-
	9-Jul-99	-	-	<0.3	12.9	14.5	-	-	-
				1	12.9	14.2	-	-	-
				2	12.8	14.2	-	-	-
				3	12.5	14.1	-	-	-
				4	12.1	14.6	-	-	-
				5	11.8	14.9	-	-	-
				6	11.5	14.8	-	-	-
	12-Aug-99	-	-	1	13.9	10.7	-	-	-
				2	13.8	10.7	-	-	-
				3	13.8	10.7	-	-	-
				4	13.8	10.7	-	-	-
				5	13.8	10.7	-	-	-
				6	13.8	10.6	-	-	-
				7	13.8	10.7	-	-	-
				8	13.8	10.7	-	-	-
				9	13.7	10.6	-	-	-
				10	13.7	10.6	-	-	-
				11	13.6	10.5	-	-	-
WQ4	24-Mar-99	-	-	1	-0.1	16.9	-	6.6	6
				2	0.8	15.2	-	6.5	4
				3	2	11.7	-	6.3	4
				4	3	6.6	-	6	5

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	29-Mar-99	-	-	1	-0.1	16.9	-	-	-
				2	0.8	15.2	-	-	-
				3	2	11.7	-	-	-
				4	3	6.6[b]	-	-	-
	12-Aug-99	-	-	1	10.7	10.8	-	6.8	-
				2	10.7	10.7	-	6.8	-
				3	10.7	10.7	-	6.7	-
				4	10.7	10.7	-	6.7	-
				5	10.6	-	-	6.7	-
				6	10.6	-	-	6.7	-
				7	10.5	-	-	6.7	-
				8	10.5	-	-	6.7	-
WQ6	24-Mar-99	-	-	1	0.1	11.9	-	7.9	20
				2	-	-	-	7.7	-
	29-Mar-99	-	-	1	-	-	-	6.6	-
				2	-	-	-	6.5	-
				3	-	-	-	6.3	-
				4	-	-	-	6	-
	12-Aug-99	-	-	1	-	13.9	-	6.7	
				2	-	13.9	-	6.7	-
				3	-	13.9	-	6.7	-
				4	-	13.8	-	6.7	-
				5	-	13.8	-	-	-
				6	-	13.8	-	-	-
WQ7	24-Mar-99	-	-	1	-0.1	10.7	-	6.5	0
				2	0.2	15.2	-	6.8	5
				3	0.8	13.8	-	6.6	4
				4	1.3	12.5	-	6.5	4
				5	1.7	11.2	-	6.3	5
				6	2	10.3	-	6.2	5
	29-Mar-99	-	-	1	-0.1	10.7	-	6.6	-
				2	0.3	15.2	-	6.8	-
				3	0.8	13.8	-	6.6	-
				4	1.3	12.5	-	6.5	-
				5	1.7	11.2	-	6.3	-
				6	2	10.3	-	6.2	-
	8-Jul-99	-	-	<0.3	14.7	12.8	-	-	-
				1	14.7	13.2	-	-	-
				2	14.6	13.6	-	-	-
				3	14	13.8	-	-	-
				4	13.2	14.2	-	-	-
				5	12.3	14.1	-	-	-
				6	11.8	14.6	-	-	-
	12-Aug-99	-	-	1	13.8	10.7	-	6.8	
				2	13.8	10.7	-	6.7	-
				3	13.8	10.6	-	6.7	-
				4	13.8	10.6	-	6.7	-
				5	13.8	10.6	-	6.7	-
				6	13.8	10.5	-	6.7	-
				7	13.7	10.5	-	6.6	-
				8	13.5	10.4	-	-	-
1	15-Feb-03	-	-	<0.3	1.2	14.8	-	-	-
				1	1.2	14.5	-	-	-
				2	2.1	12.9	-	-	-
				3	3.1	10.9	-	-	-
				4	3.9	7.3	-	-	-
				5	4.3	3.4	-	-	-
				5.5	4.4	2.8	-	-	-
2	15-Feb-03	-	-	<0.3	0.7	15.9	-	-	-
				1	0.8	16.1	-	-	-
				2	1.7	13.7	-	-	-
				3	2.2	12.5	-	-	-
				4	2.5	11.8	-	-	-
				6	3.1	10.7	-	-	-
				8	3.7	8.6	-	-	-
				10	3.9	6.5	-	-	-
				11	4.2	5.5	-	-	-
				11.5	4.2	4.7	-	-	-

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
3	15-Feb-03	-	-	<0.3	0	17	-	-	-
				1	0	16.7	-	-	-
				2	0.8	14.4	-	-	-
				3	1.3	13	-	-	-
				4	1.6	12.1	-	-	-
				5	1.8	11.5	-	-	-
				6	2	11.2	-	-	-
				7	2.1	10.8	-	-	-
				7.5	2.5	7.2	-	-	-
4	15-Feb-03	-	-	<0.3	0.2	15.6	-	-	-
				1	0.1	16.2	-	-	-
				2	0.9	15	-	-	-
				3	1.3	14.7	-	-	-
				4	1.6	14.3	-	-	-
				5	1.8	14	-	-	-
				6	2	13.2	-	-	-
				6.5	2	12.4	-	-	-
5	14-Feb-03	-	-	<0.3	0	14.8	-	-	-
				1	0	14.8	-	-	-
				2	0.9	12.4	-	-	-
				3	1.3	11.5	-	-	-
				4	1.5	11.2	-	-	-
				6	1.8	10.8	-	-	-
				8	2	10.3	-	-	-
				9	2.1	10	-	-	-
				10	2.2	9.5	-	-	-
				11	2.2	9	-	-	-
				12	2.3	8.7	-	-	-
6	14-Feb-03	-	-	<0.3	0.1	16.5	-	-	-
				1	0.2	17.1	-	-	-
				2	1	15.8	-	-	-
				3	1.5	15.2	-	-	-
				4	1.7	14.7	-	-	-
				5	1.9	13.8	-	-	-
				5.5	2.1	12.7	-	-	-
7	14-Feb-03	-	-	<0.3	0	15.7	-	-	-
				1	0	15.7	-	-	-
				2	1.1	12.4	-	-	-
				3	1.4	11.7	-	-	-
				4	1.6	11.4	-	-	-
				6	1.8	10.9	-	-	-
				8	2	10.4	-	-	-
				10	2.2	9.9	-	-	-
				12	2.4	8.9	-	-	-
				14	2.6	7.7	-	-	-
				14.5	2.7	5.3	-	-	-
8	15-Feb-03	-	-	<0.3	0.1	17.8	-	-	-
				0.5	0.1	17.6	-	-	-
				1	0.1	17.7	-	-	-
				1.5	0.5	16.8	-	-	-
				2	0.9	16.2	-	-	-
				2.5	1.2	15.6	-	-	-
				3	1.7	14.1	-	-	-
				3.3	2.4	8.4	-	-	-
				3.5	2.6	5.2	-	-	-
				4	3	2.5	-	-	-
				4.5	3.4	1.1	-	-	-
9	15-Feb-03	-	-	<0.3	0.1	15.7	-	-	-
				0.5	0.1	16.1	-	-	-
				1	0.1	16.3	-	-	-
				1.5	0.5	15.8	-	-	-
				2	0.9	15.3	-	-	-
				3	1.5	13.9	-	-	-
				4	1.6	13.7	-	-	-
				5	2.1	11.6	-	-	-
				5.3	2.4	8	-	-	-
				5.5	2.6	5.7	-	-	-

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
10	15-Feb-03	-	-	<0.3	0.1	18	-	-	-
				1	0.1	17.7	-	-	-
				2	0.9	14.5	-	-	-
				3	1.3	13.2	-	-	-
				4	1.6	12.6	-	-	-
				6	2.1	11.8	-	-	-
				8	2.6	10.2	-	-	-
				10	2.9	8.2	-	-	-
				11	3.1	7.3	-	-	-
				12	3.2	6.5	-	-	-
				13	3.3	4.9	-	-	-
				13.5	3.4	4.4	-	-	-
11	14-Feb-03	-	-	<0.3	0.1	18	-	-	-
				0.5	0.1	17.5	-	-	-
				1	0.1	17.3	-	-	-
				2	0.7	15.8	-	-	-
				3	1.4	13.6	-	-	-
				4	1.7	12.8	-	-	-
				6	2	12.1	-	-	-
				8	2.2	11.5	-	-	-
				10	2.3	10.9	-	-	-
				12	2.5	9.8	-	-	-
				13	2.7	9.3	-	-	-
				13.5	2.7	7.7	-	-	-
12	14-Feb-03	-	-	<0.3	0.1	18.7	-	-	-
				1	0.2	18.6	-	-	-
				2	1.2	13.7	-	-	-
				3	1.6	13	-	-	-
				4	1.7	12.7	-	-	-
				6	2	12.3	-	-	-
				8	2.2	11.6	-	-	-
				10	2.3	11.2	-	-	-
				12	2.5	10	-	-	-
				14	2.8	8.6	-	-	-
				15	3	6.6	-	-	-
13	14-Feb-03	-	-	<0.3	0.1	14.8	-	-	-
				1	0.1	14.6	-	-	-
				2	0.9	12.3	-	-	-
				3	1.3	11.8	-	-	-
				4	1.6	10.8	-	-	-
				5	1.9	10.4	-	-	-
				6	2	9.6	-	-	-
				6.5	2.2	8.9	-	-	-
14	14-Feb-03	-	-	<0.3	0	14.6	-	-	-
				1	0	15	-	-	-
				2	0.9	12.7	-	-	-
				3	1.4	12	-	-	-
				4	1.7	11.5	-	-	-
				5	2.1	10.1	-	-	-
				6	3.1	7.1	-	-	-
				6.5	3.3	3.3	-	-	-
				7	3.6	2.2	-	-	-
				7.5	3.9	1.2	-	-	-
15	14-Feb-03	-	-	<0.3	0	13.8	-	-	-
				1	0	14.1	-	-	-
				2	0.9	13.2	-	-	-
				3	1.4	12.7	-	-	-
				4	1.6	11.5	-	-	-
				5	2	9.9	-	-	-
				6	2.5	6.9	-	-	-
				7	3.3	3.7	-	-	-
				7.5	3.5	3.3	-	-	-
16	14-Feb-03	-	-	<0.3	0.2	16.2	-	-	-
				1	0	15.9	-	-	-
				2	0.8	14.7	-	-	-
				3	1.3	13.3	-	-	-
				4	1.5	12	-	-	-
				5	1.6	11.8	-	-	-
				6	2.1	9.8	-	-	-
				6.5	2.5	8.4	-	-	-

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
17	13-Feb-03	-	-	<0.3	0	17.3	-	-	-
				0.5	0.1	17.4	-	-	-
				1	0.2	17.3	-	-	-
				1.5	0.6	15.8	-	-	-
				2	1.1	14.8	-	-	-
				2.5	1.2	14.5	-	-	-
				3	1.5	14.3	-	-	-
				3.5	1.6	13.7	-	-	-
				4	1.8	13.3	-	-	-
				4.5	1.9	12.8	-	-	-
				5	2	12.6	-	-	-
				5.5	2	12.2	-	-	-
				6	2.1	12	-	-	-
18	13-Feb-03	-	-	<0.3	0	16.2	-	-	-
				0.5	0.1	17.2	-	-	-
				1	0.2	16.9	-	-	-
				1.5	0.6	15.5	-	-	-
				2	1	14.7	-	-	-
				2.5	1.3	13.9	-	-	-
				3	1.4	13.6	-	-	-
				3.5	1.6	13	-	-	-
				4	1.8	12.6	-	-	-
				4.5	1.8	12.5	-	-	-
				5	1.8	12.4	-	-	-
				5.5	1.9	12.1	-	-	-
19	13-Feb-03	-	-	<0.3	0	16.7	-	-	-
				1	0	16.9	-	-	-
				1.5	0.4	15.8	-	-	-
				2	0.8	14.7	-	-	-
				2.5	1.1	14.3	-	-	-
				3	1.3	13.9	-	-	-
				3.5	1.5	13.5	-	-	-
				4	1.5	13.1	-	-	-
				4.5	1.6	12.8	-	-	-
				5	1.7	12.2	-	-	-
				5.5	1.8	11.9	-	-	-
20	13-Feb-03	-	-	<0.3	0.1	19.4	-	-	-
				0.5	0.1	18.2	-	-	-
				1	0.2	18	-	-	-
				1.5	0.5	16.2	-	-	-
				2	1	15.4	-	-	-
				2.5	1.2	15.3	-	-	-
				3	1.4	14.4	-	-	-
				3.5	1.6	14.3	-	-	-
				4	1.7	14.1	-	-	-
				4.5	1.9	12.9	-	-	-
21	12-Feb-03	-	-	<0.3	0	18.4	-	-	-
				1	0.1	17.6	-	-	-
				2	0.9	14.1	-	-	-
				3	1.4	12.9	-	-	-
				4	1.6	12.6	-	-	-
				5	1.7	12.4	-	-	-
				6	1.9	11.8	-	-	-
				7	2.2	11.1	-	-	-
				8	2.4	10.8	-	-	-
				9	2.6	9.5	-	-	-
				10	3	8	-	-	-
				11	3.2	6.6	-	-	-
				12	3.4	4.7	-	-	-
				12.5	3.5	4.3	-	-	-
22	12-Feb-03	-	-	<0.3	0	18	-	-	-
				1	0	17.6	-	-	-
				2	0.8	14.2	-	-	-
				3	1.3	13.1	-	-	-
				4	1.5	12.6	-	-	-
				5	1.7	12.1	-	-	-
				6	1.9	11.7	-	-	-
				7	2	11.3	-	-	-

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
23	12-Feb-03	-	-	<0.3	0.2	15.1	-	-	-
				0.5	0	15.9	-	-	-
				1	0.1	15.7	-	-	-
				1.5	0.6	14.2	-	-	-
				2	0.9	13.8	-	-	-
				2.5	1.2	13.2	-	-	-
				3	1.4	13.1	-	-	-
				3.5	1.4	13	-	-	-
				4	1.6	13	-	-	-
				4.5	1.8	12.7	-	-	-
				5	1.9	12.4	-	-	-
				5.5	2	9.9	-	-	-
24	16-Feb-03	-	-	<0.3	0	14.9	-	-	-
				0.5	0.1	15.2	-	-	-
				1	0.2	15	-	-	-
				1.5	0.7	14	-	-	-
				2	1.1	13.4	-	-	-
				2.5	1.4	12.9	-	-	-
				3	1.7	11.8	-	-	-
				3.5	2.2	10.5	-	-	-
25	16-Feb-03	-	-	<0.3	0.1	15.2	-	-	-
				1	0.2	16.1	-	-	-
				2	1.3	13.5	-	-	-
				3	1.8	11.9	-	-	-
				4	2.5	8.4	-	-	-
				5	3	5.7	-	-	-
				6	3.5	2.5	-	-	-
26	12-Feb-03	-	-	<0.3	0.2	17	-	-	-
				1	0.1	17.4	-	-	-
				2	1	14	-	-	-
				3	1.2	13.2	-	-	-
				4	1.6	12.8	-	-	-
				5	1.7	12.2	-	-	-
				6	1.9	12	-	-	-
				7	2.1	11.5	-	-	-
				8	2.4	10.4	-	-	-
				9	2.8	8.5	-	-	-
				10	3.1	6.3	-	-	-
				11	3.4	3	-	-	-
				12	3.5	1.5	-	-	-
27	12-Feb-03	-	-	<0.3	0	15.8	-	-	-
				0.5	0	16	-	-	-
				1	0.2	15.9	-	-	-
				1.5	0.5	15.2	-	-	-
				2	0.8	14.9	-	-	-
				2.5	1.3	13.4	-	-	-
				3	1.4	12.7	-	-	-
				3.5	1.5	12.1	-	-	-
				4	1.6	11.9	-	-	-
				4.5	1.7	11.5	-	-	-
				5	1.9	11.3	-	-	-
				5.5	1.9	11.1	-	-	-
				6	2	10.8	-	-	-
28	13-Feb-03	-	-	<0.3	0	14.4	-	-	-
				0.5	0	14.5	-	-	-
				1	0.2	15.3	-	-	-
				1.5	0.5	15.2	-	-	-
				2	0.8	14.9	-	-	-
				2.5	1.1	14.3	-	-	-
				3	1.3	14	-	-	-
				3.5	1.4	13.9	-	-	-
				4	1.4	13.6	-	-	-
				4.5	1.5	13.4	-	-	-
				5	1.7	12.5	-	-	-

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
29	13-Feb-03	-	-	<0.3	0	19.2	-	-	-
				0.5	0	18.9	-	-	-
				1	0	19.1	-	-	-
				1.5	0.4	18.2	-	-	-
				2	0.9	17.1	-	-	-
				2.5	1.3	15.9	-	-	-
				3	2	12.2	-	-	-
				3.5	2.4	8.8	-	-	-
				4	2.8	5.7	-	-	-
30	12-Feb-03	-	-	<0.3	0	16.3	-	-	-
				1	0.1	16.2	-	-	-
				2	0.9	13.3	-	-	-
				3	1.3	12.5	-	-	-
				4	1.6	12	-	-	-
				5	1.8	11.3	-	-	-
				6	2	10.7	-	-	-
				7	2.2	10.4	-	-	-
				8	2.4	9.9	-	-	-
				9	2.5	9.2	-	-	-
				9.5	2.6	9	-	-	-
31	11-Feb-03	-	-	<0.3	0.1	18.8	-	-	-
				1	0.1	19.1	-	-	-
				2	0.9	15.6	-	-	-
				3	1.4	14.7	-	-	-
				4	1.6	13.6	-	-	-
				5	1.8	13	-	-	-
				6	1.9	12.4	-	-	-
				7	2.1	11.3	-	-	-
				8	2.3	11.1	-	-	-
				10	2.7	10.1	-	-	-
				11	2.8	9.4	-	-	-
				12	3	6.3	-	-	-
				13	3.3	3.1	-	-	-
				13.5	3.3	2.3	-	-	-
				14	3.6	1	-	-	-
				14.5	3.7	0.4	-	-	-
32	11-Feb-03	-	-	<0.3	0	16.4	-	-	-
				1	0.1	17	-	-	-
				2	0.5	13.5	-	-	-
				3	1.1	12.6	-	-	-
				4	1.6	12	-	-	-
				5	1.8	11.5	-	-	-
				6	2	10.9	-	-	-
				7	2.2	10.4	-	-	-
				8	2.4	9.7	-	-	-
				9	2.8	7.6	-	-	-
33	11-Feb-03	-	-	<0.3	0.2	17.7	-	-	-
				1	0.2	18.3	-	-	-
				2	0.9	14.6	-	-	-
				3	1.4	13.1	-	-	-
				4	1.7	12.6	-	-	-
				5	1.9	12.3	-	-	-
				6	2	11.8	-	-	-
				7	2.2	10.9	-	-	-
				8	2.5	10.4	-	-	-
				9	2.6	9.9	-	-	-
				9.5	2.7	9.7	-	-	-

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
34	17-Feb-03	-	-	<0.3	0	16.6	-	-	-
				1	0.9	16.9	-	-	-
				2	1.4	15.3	-	-	-
				4	1.6	13.4	-	-	-
				6	1.9	12.8	-	-	-
				8	2.3	11	-	-	-
				10	2.6	9.3	-	-	-
				12	2.7	8.5	-	-	-
				14	2.7	6.7	-	-	-
				16	2.8	5.5	-	-	-
				18	2.8	4.8	-	-	-
				20	2.8	4.5	-	-	-
				22	-	2.8	-	-	-
				24	-	2	-	-	-
				25	-	1.3	-	-	-
				25.5	-	0.7	-	-	-
35	13-Feb-03	-	-	<0.3	0.1	16.6	-	-	-
				1	0.1	16.5	-	-	-
				2	1	14.3	-	-	-
				3	1.4	13.3	-	-	-
				4	1.6	12.8	-	-	-
				6	2	11.8	-	-	-
				8	2.4	10.2	-	-	-
				10	2.7	9	-	-	-
				12	2.8	7.7	-	-	-
				14	2.9	7.4	-	-	-
				16	2.9	7.1	-	-	-
				17	3	6.6	-	-	-
				17.5	3	6.2	-	-	-
36	13-Feb-03	-	-	<0.3	0	19	-	-	-
				0.5	0	19.3	-	-	-
				1	0	19.3	-	-	-
				1.5	0.5	16.7	-	-	-
				2	0.9	15.7	-	-	-
				2.5	1.2	13.9	-	-	-
				3	1.4	13.8	-	-	-
				3.5	1.5	13.4	-	-	-
				4	1.7	12.3	-	-	-
				4.5	1.9	11.8	-	-	-
				5	2.5	8.2	-	-	-
37	12-Feb-03	-	-	<0.3	0.1	16.7	-	-	-
				1	0.1	16.9	-	-	-
				1.5	0.6	14.2	-	-	-
				2	0.9	13	-	-	-
				2.5	1.3	12.5	-	-	-
				3	1.4	12	-	-	-
				3.5	1.5	11.9	-	-	-
				4	1.6	11.8	-	-	-
				4.5	1.7	12	-	-	-
				5	1.8	12	-	-	-
				5.5	1.9	11.9	-	-	-
38	15-Feb-03	-	-	<0.3	0.1	15.6	-	-	-
				1	0.1	16.4	-	-	-
				2	1	13.9	-	-	-
				3	1.4	12.9	-	-	-
				4	1.8	11.7	-	-	-
				5	2.1	10	-	-	-
				6	2.4	8.7	-	-	-
				7	2.8	6.4	-	-	-
				8	3	4.9	-	-	-
				8.5	3.2	3.1	-	-	-

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
39	16-Feb-03	-	-	<0.3	0.1	16.7	-	-	-
				1	0.2	18.1	-	-	-
				2	1.2	15	-	-	-
				3	1.8	12.9	-	-	-
				4	1.9	11.8	-	-	-
				6	2.1	11.3	-	-	-
				8	2.2	10.7	-	-	-
				10	2.2	10.5	-	-	-
				12	2.3	10.3	-	-	-
				14	2.3	9.8	-	-	-
				16	2.4	9.1	-	-	-
				18	2.5	7.3	-	-	-
				19	2.6	4.4	-	-	-
40	16-Feb-03	-	-	<0.3	0.1	13.6	-	-	-
				0.5	0.1	13.8	-	-	-
				1	0.1	14	-	-	-
				1.5	0.7	13.2	-	-	-
				2	1	13.1	-	-	-
				2.5	1.4	12.7	-	-	-
				3	1.9	11.6	-	-	-
				3.5	2.2	10.5	-	-	-
				4	2.4	10	-	-	-
				4.5	2.7	7.2[(b)]	-	-	-
41	16-Feb-03	-	-	<0.3	0	15.1	-	-	-
				0.5	0	14.9	-	-	-
				1	0.1	14.9	-	-	-
				1.5	0.5	14.1	-	-	-
				2	0.9	13.8	-	-	-
				2.5	1.4	13.5	-	-	-
				3	1.8	12.8	-	-	-
				3.5	2	11	-	-	-
				4	2.1	10.4	-	-	-
42	17-Feb-03	-	-	<0.3	0	16.9	-	-	-
				1	0	16.3	-	-	-
				2	1	14.3	-	-	-
				3	1.8	12.7	-	-	-
				4	2.3	10.4	-	-	-
				5	2.7	7.3	-	-	-
				6	2.9	4.6	-	-	-
				7	3.1	3.3	-	-	-
				8	3.3	2.4	-	-	-
				9	3.4	1.9	-	-	-
43	13-Feb-03	-	-	<0.3	0	18.5	-	-	-
				0.5	0	19.5	-	-	-
				1	0	19.3	-	-	-
				1.5	0.4	17.4	-	-	-
				2	0.8	16.6	-	-	-
				2.5	1	15.6	-	-	-
				3	1.6	15.2	-	-	-
				3.5	2.2	11.6	-	-	-
44	15-Feb-03	-	-	<0.3	0.2	16.1	-	-	-
				1	0.2	16.4	-	-	-
				2	0.8	15.4	-	-	-
				3	1.5	13.9	-	-	-
				4	1.6	13.5	-	-	-
				5	1.9	12.5	-	-	-
				6	2.1	11.5	-	-	-
				7	2.3	11	-	-	-
				8	2.5	9.8	-	-	-
				8.5	2.6	9.5	-	-	-
45	15-Feb-03	-	-	<0.3	0.1	15.8	-	-	-
				0.5	0.1	16	-	-	-
				1	0.1	16.7	-	-	-
				1.5	0.5	15.8	-	-	-
				2	1	14.4	-	-	-
				2.5	1.3	14.2	-	-	-
				3.5	1.6	13.3	-	-	-
				4.5	1.8	12.7	-	-	-
				5.5	2	12	-	-	-
				6	2.1	11.7	-	-	-

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
46	14-Feb-03	-	-	<0.3	0.1	11.4	-	-	-
				0.5	0	11.3	-	-	-
				1	0.1	11.4	-	-	-
				1.5	0.6	10.9	-	-	-
				2	0.9	10.8	-	-	-
				2.5	1.2	10.7	-	-	-
				3	1.6	10	-	-	-
47	16-Feb-03	-	-	<0.3	0.1	16.7	-	-	-
				1	0.2	15.7	-	-	-
				2	1.1	13.7	-	-	-
				3	1.8	12.8	-	-	-
				4	2.5	10.2	-	-	-
				4.5	2.7	8.1	-	-	-
				5	3.2	2.6[b]	-	-	-
				5.5	3.4	1.6[b]	-	-	-
48	15-Feb-03	-	-	<0.3	1.4	17.6	-	-	-
				1	1.4	17	-	-	-
				2	2.4	13.9	-	-	-
				3	3.4	11.2	-	-	-
				4	4	8	-	-	-
				5	4.2	6.9	-	-	-
				6	4.3	5.7	-	-	-
				6.5	4.4	3.8	-	-	-
49	15-Feb-03	-	-	<0.3	0	15.7	-	-	-
				1	0	16	-	-	-
				2	0.8	14.6	-	-	-
				3	1.4	13.2	-	-	-
				4	1.6	12.3	-	-	-
				5	1.8	11.8	-	-	-
				6	1.9	11.3	-	-	-
				7	2.2	10.1	-	-	-
				8	2.4	9.7	-	-	-
				9	2.5	9.2	-	-	-
50	14-Feb-03	-	-	<0.3	0	14.6	-	-	-
				0.5	0	14.8	-	-	-
				1	0	15.1	-	-	-
				1.5	0.5	14.7	-	-	-
				2	0.8	13.8	-	-	-
				2.5	1.1	13.5	-	-	-
				3	1.4	12.9	-	-	-
				3.5	1.7	12	-	-	-
				4	2.4	9.7	-	-	-
				4.5	2.7	7.3	-	-	-
				5	2.9	2.7[b]	-	-	-
SNAP01	8-May-04	-	-	<0.3	2.8	16.7	-	5.7	28
				1	1.4	18.6	-	5.9	28
				2	2.1	15.9	-	6	27
				3	3	12.4	-	6	27
				4	3.6	6.3[b]	-	6	27
				5	4.1	1[b]	-	5.9	28
SNAP02	8-May-04	-	-	<0.3	0.4	15.8	-	6	29
				1	0.6	15.7	-	6.1	29
				2	2.1	13.3	-	6.2	26
				3	2.9	8.7	-	6.2	24
				4	3.1	6.9	-	6.1	26
				5	3.3	10.3	-	6.1	29
				6	3.4	7.3	-	6.1	30
				7	3.4	8.6	-	6.1	31
				8	3.5	11.3[b]	-	6.1	33
	31-Jul-04	-	-	<0.3	12.6	10.1	-	6.9	17
SNAP03	8-May-04	-	-	<0.3	0.1	16.9	-	6.2	23
				1	0.1	17.1	-	6.2	23
				2	1.3	15.4	-	6.2	21
				3	1.5	14.7	-	6.3	21
				4	1.7	14.3	-	6.3	22
				5	1.9	14.8	-	6.3	23
				6	2	13.7	-	6.3	23
				7	2.3	11.3	-	6.3	22
				8	2.6	9	-	6.3	23
				9	2.9	5[b]	-	6.2	24
				10	3.3	2[b]	-	6.1	25
	30-Jul-04	-	-	<0.3	14.3	10	-	7	21

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP04	30-Jul-04	-	-	<0.3	15.6	9.8	-	7	19
				1	15.6	9.6	-	7	19
				2	15.6	9.6	-	7	19
				3	15.6	9.6	-	7	19
				4	15.6	9.6	-	7	19
				5	15.5	9.6	-	7	19
	1-Sep-04	-	-	<0.3	10.6	11.4	-	6.8	20
				1	10.3	11.3	-	6.8	20
				2	10	11.3	-	6.8	20
				3	9.9	11.3	-	6.8	20
				4	9.9	11.3	-	6.8	19
SNAP05	11-May-04	-	-	<0.3	0.4	17.6	-	5.6	25
				1	0.7	20.2	-	5.7	26
				2	1.5	18.1	-	5.9	23
				3	1.7	17	-	5.9	23
				4	1.8	17.6	-	6	24
				5	1.9	17.8	-	6	24
				6	2.1	17.2	-	6.1	24
				7	2.3	17.3	-	6.1	26
				8	2.4	18.1	-	6.1	26
				9	2.7	12.3	-	6.1	24
				10	3	6.4	-	6.1	22
				11	3.3	4.2	-	6.1	23
	30-Jul-04	-	-	<0.3	14.2	10.3	-	6.9	21
SNAP06	10-May-04	-	-	<0.3	0.2	21.2	-	5	33
				1	1	22	-	5.3	29
				2	1.5	18.8	-	5.5	23
				3	1.7	17.8	-	5.6	24
				4	1.8	18.4	-	5.7	25
				5	1.9	19.1	-	5.7	25
				6	2.1	19.3	-	5.8	25
				7	2.4	18.4	-	5.9	26
				8	2.5	17.9	-	5.9	26
				9	2.7	0.8[(b)]	-	5.8	47
	30-Jul-04	-	-	<0.3	14.9	10.3	-	6.9	21
SNAP07	7-May-04	-	-	<0.3	0.7	18.9	-	5.4	27
				1	0.5	19.4	-	5.5	27
				2	1.2	18.5	-	5.5	25
				3	1.6	18.4	-	5.6	26
				4	1.8	17.1	-	5.7	26
				5	2.2	14.4	-	5.8	26
				6	2.5	11.7	-	5.8	25
				7	2.7	13.4	-	5.9	26
				8	2.9	14.6	-	5.9	26
				9	3	15.1	-	6	26
				10	3.1	0.4[(b)]	-	5.8	27
	30-Jul-04	-	-	<0.3	14.4	9.8	-	7.1	18
SNAP08	6-May-04	-	-	<0.3	0.7	18.5	-	6.2	28
				1	0.6	19.6	-	6.2	27
				2	4	14.5	-	6.2	25
				3	4	14.4	-	6.1	24
				4	4	14.1	-	6.2	24
				5	4	13.6	-	6.2	24
	30-Jul-04	-	-	<0.3	15.6	9.6	-	7.3	17
SNAP09	8-May-04	-	-	<0.3	0.2	16	-	6.3	22
				1	0.2	16.8	-	6.3	23
				2	1.3	14.8	-	6.3	20
				3	1.5	14.5	-	6.3	21
				4	1.6	14.3	-	6.3	21
				5	1.7	14.2	-	6.3	22
				6	1.8	14.1	-	6.3	23
				7	1.9	14.9	-	6.3	24
				8	1.9	14.4	-	6.3	23
				9	2	13.1	-	6.3	23
				10	2.1	12.8	-	6.3	23
				11	2.2	11.2	-	6.3	23
				12	2.4	9.8	-	6.3	23
				13	2.5	8.3	-	6.3	23
	30-Jul-04	-	-	<0.3	12.7	10.9	-	6.9	19

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP10	30-Jul-04	-	-	<0.3	14.4	10.1	-	6.9	18
				1	14.3	10	-	6.9	18
				2	14.3	10	-	6.9	18
				3	14.3	10	-	6.9	18
				4	14.2	10.1	-	7	18
				4.5	14	10.3	-	7	18
	31-Aug-04	-	-	<0.3	10.1	11.4	-	6.7	19
				1	10.1	11.2	-	6.7	19
				2	10.1	11.2	-	6.7	19
				3	10.1	11.2	-	6.7	19
				4	10	11.2	-	6.7	19
SNAP11	8-May-04	-	-	<0.3	0	16.6	-	6.3	22
				1	0.2	16.8	-	6.2	22
				2	1.3	14.8	-	6.3	20
				3	1.6	14.4	-	6.2	21
				4	1.7	14.3	-	6.2	22
				5	1.7	14.1	-	6.3	22
				6	1.8	15	-	6.3	23
				7	1.9	14.7	-	6.3	24
				8	1.9	14.8	-	6.3	24
				9	2	14.5	-	6.3	24
				10	2.1	12.7	-	6.3	23
				11	2.2	11.6	-	6.3	23
				12	2.3	12.5	-	6.3	24
				13	2.5	9.6	-	6.3	23
				14	2.8	5.8	-	6.2	23
				15	3	0.7[(b)]	-	6.1	31
	30-Jul-04	-	-	<0.3	14.3	10.5	-	6.9	19
SNAP12	11-May-04	-	-	<0.3	0.3	18.4	-	6.2	24
				1	0.1	18.7	-	6.2	23
				2	1.2	17.5	-	6.3	22
				3	1.6	17	-	6.3	22
				4	1.7	16.2	-	6.3	22
				5	1.9	15.2	-	6.3	22
				6	2.2	1.2[(b)]	-	6.2	24
SNAP13	9-May-04	-	-	<0.3	0	19.7	-	6.1	28
				1	0.1	21	-	6.3	28
				2	1.3	18.5	-	6.4	22
				3	1.6	16.9	-	6.4	22
				4	1.8	15.9	-	6.4	23
				5	1.9	15.1	-	6.4	23
				6	2.1	14	-	6.5	23
				7	2.3	12.3	-	6.4	22
				8	2.4	9.8	-	6.4	21
				9	2.5	9.3	-	6.4	22
				10	2.6	8.7	-	6.4	22
				11	2.6	8.6	-	6.4	22
				12	2.6	8.4	-	6.4	22
				13	2.6	8.1	-	6.3	22
				14	2.7	7.7	-	6.3	23
				15	2.7	7.6	-	6.3	23
				16	2.7	7.6	-	6.3	23
				17	2.7	7.6	-	6.3	23
				18	2.7	7.4	-	6.3	23
				19	2.7	7.3	-	6.2	23
				20	2.7	7.2	-	6.2	24
				21	2.7	6.9	-	6.2	23
				22	2.8	1.5[(b)]	-	6	32
SNAP14	5-May-04	-	-	<0.3	-0.1	17.7	-	6.2	21
				1	0	17.1	-	6.2	22
				2	1.3	14.5	-	6.2	19
				3	1.5	13.6	-	6.1	19
				4	1.7	13.2	-	6.1	20
				5	1.9	15.2	-	6.1	23
				6	2.1	14.6	-	6.1	23
				7	2.3	12.1	-	6	22
				8	2.5	11.3	-	6	25
				9	2.5	10.1	-	6	21
				10	2.6	0.7[(b)]	-	5.9	34

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNP 02-20a	31-Jul-04	-	-	<0.3	12.5	10	-	6.9	26
				1	12.4	10	-	6.9	26
				2	12.2	10	-	7	26
				3	12.1	10.1	-	7	26
				4	12.1	10.1	-	7	26
				4.5	12.2	10.1	-	7	26
	1-Sep-04	-	-	<0.3	9.8	11.3	-	6.8	35
				1	9.9	11.2	-	6.8	35
				2	9.9	11.2	-	6.8	36
				3	9.9	11.2	-	6.8	37
				4	9.9	11.2	-	6.8	39
SNP 02-20b	31-Jul-04	-	-	<0.3	12.4	10.2	-	7	26
				1	12.3	10.1	-	7	26
				2	12.3	10.1	-	7	26
				3	12.2	10.1	-	7	26
				4	12.2	10.1	-	7	26
				5	12.2	10.1	-	7	26
				6	12.3	9.2	-	6.8	27
	18-Aug-04	-	-	<0.3	10.3	11.5	-	7.6	21
	1-Sep-04	-	-	<0.3	10	11.6	-	6.8	38
				1	10	11.3	-	6.9	39
				2	9.9	11.2	-	6.8	39
				3	9.9	11.2	-	6.9	39
				4	9.9	11.2	-	6.9	39
				5	9.9	11.2	-	6.9	39
SNP 02-20c	31-Jul-04	-	-	<0.3	12.7	10.5	-	7	27
				1	12.6	10.2	-	7	27
				2	12.4	10.4	-	7	29
	1-Sep-04	-	-	<0.3	10.2	11.4	-	6.9	36
				1	10.2	11.2	-	6.8	36
SNAP01	19-Jan-05	0.8	-	0.9	0.6	15.8	-	6.8	36
				1	0.6	15.4	-	6.8	35
				2	1.4	14.6	-	6.8	28
				3.1	2.4	13.1	-	6.8	24
				4	3	10.3	-	6.7	25
	17-Feb-05	1.2	-	1.4	2.5	13.4	-	6.7	26
				2.4	3	10.8	-	6.1	22
				3.4	4.8	9.5	-	6.5	21
	15-Mar-05	1.2	-	1.2	0.5	14.2	-	5.9	30
				2.1	1.3	14.1	-	5.9	25
				3.2	2.5	12.3	-	5.9	23
				4	3	9.3	-	5.8	24
	16-Apr-05	1.4	-	1.7	1.3	11.8	-	5.4	27
				2	1.7	12	-	5.4	25
				3	2.6	11.3	-	5.4	23
				4	3.3	9.5	-	5.4	23
	17-May-05	1.2	-	1.5	1.6	13.3	-	5.8	27
				2.2	3.1	12.6	-	5.8	23
				3	3.9	12.2	-	5.8	25
				4	4.1	12.3	-	5.7	27
	20-Jul-05	no ice	-	1	15	8.9	-	5.9	18
				2	15.1	9.1	-	5.9	18
				3	15.1	9.3	-	5.9	18
	13-Sep-05	no ice	-	1	8.7	10.4	-	7.6	17
				2	8.5	10.4	-	7.5	17
				3	8.4	10.2	-	7.5	17
				4	8.2	10.2	-	7.4	17
SNAP02	19-Jan-05	0.9	-	1	0.8	13.9	-	6.3	36
				2	1.9	11.5	-	6.3	28
				3	2.9	9.7	-	6.3	24
				4	3.2	8.6	-	6.3	24
				5	3.4	6.8	-	6.2	25
				6	3.6	5.5	-	6.2	27
				7	3.7	5	-	6.3	29
	17-Feb-05	1.3	-	<0.3	0.4	16.2	-	6.5	34
				1	0.7	15.1	-	6.5	33
				2	2.4	11.4	-	6.5	23
				3	3	9.7	-	6.5	22
				4	3.4	6	-	6.5	21
				5	3.8	4.8	-	6.5	22
				6	4	3.2	-	6.5	24

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	15-Mar-05	1.3	-	1.3	0.2	14.5	-	6	31
				2.1	1	14	-	5.9	27
				3	2.2	13	-	6	24
				4	2.8	12.3	-	6	23
				5	3.3	11.5	-	5.9	23
				6.1	3.6	7.8	-	5.9	25
				7	3.8	6.3	-	5.8	26
	16-Apr-05	1.4	-	1.5	1.1	12.9	-	5.7	31
				2	1.6	12.8	-	5.7	27
				3	2.5	12.2	-	5.8	24
				4.1	3.2	11.3	-	5.8	23
				5	3.5	10.3	-	5.7	24
				6	3.7	8.2	-	5.7	26
				7	3.9	7.6	-	5.6	27
	17-May-05	0.7	-	0.9	0.2	13.7	-	5.8	25
				2	2.3	13.5	-	5.8	26
				3	3.6	13.5	-	5.8	26
				3.9	4	13.3	-	5.9	27
				5	4.1	12.7	-	5.8	27
				6.1	4.1	11.4	-	5.8	27
				7.3	4.1	9.6	-	5.8	29
				8.3	4.1	8.9	-	5.8	30
				9.3	4.1	7.2	-	5.8	31
	21-Jul-05	no ice	-	1	13.8	9.2	-	6.2	18
				2	13.9	9.3	-	6.2	18
				3.1	13.9	9.4	-	6.2	18
				4	14	9.4	-	6.3	18
				5.1	14	9.4	-	6.2	18
				6.2	14	9.4	-	6.3	18
				7.1	14	9.5	-	6.3	18
	13-Sep-05	no ice	-	1.1	8.3	10.8	-	7.2	18
				2	8.5	10.3	-	7.4	18
				3	8.5	10.3	-	7.3	18
				4	8.5	10.3	-	7.3	18
				5	8.5	10.3	-	7.4	18
				6	8.5	10.2	-	7.3	18
				7.1	8.5	10.2	-	7.3	18
				8.1	8.5	10.1	-	7.3	18
				9	8.3	10.2	-	7.4	18
SNAP03	19-Jan-05	0.9	-	1.1	0.4	13.8	-	6.4	37
				2	1	12.8	-	6.5	32
				4	1.4	11.9	-	6.4	30
				5.1	1.6	11.4	-	6.4	30
				6	1.8	10.6	-	6.4	30
				7	2.1	8.8	-	6.3	31
				8	2.4	7.4	-	6.3	30
				9	2.7	5.9	-	6.3	32
				10	2.8	5.5	-	6.3	43
				11	2.8	5.5	-	6.3	54
				12	2.8	4.6	-	6.3	73
				12.5	2.7	4.1	-	6.2	96
	16-Feb-05	1.2	-	<0.3	0.2	15.5	-	6.2	32
				0.7	0.3	14.2	-	6.2	31
				1.7	0.9	13.4	-	6.2	27
				2.7	1.3	12.2	-	6.2	25
				3.7	1.5	11.8	-	6.2	24
				4.7	1.7	11.2	-	6.2	24
				5.7	1.9	10.5	-	6.2	23
				6.7	2.2	9.2	-	6.2	23
				7.7	2.5	7.4	-	6.2	24
				8.7	2.7	7.4	-	6.2	34
				9.7	2.8	7.1	-	6.1	56
				10.7	2.9	6.7	-	6.1	63
				11.7	2.9	6.2	-	6.1	84

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	15-Mar-05	1.3	-	1.4	0.2	15.5	-	6	32
				2.2	0.6	15.1	-	6.1	29
				3.1	1.1	14.4	-	6.1	27
				4	1.3	13.7	-	6.1	26
				5.1	1.6	12.7	-	6.1	25
				6.1	1.8	12.2	-	6.1	25
				7.1	2.1	11.9	-	6.1	25
				8	2.5	8.2	-	5.9	46
				8.9	2.6	13.6	-	5.9	64
				9.9	2.6	11.5	-	5.9	105
				11.2	2.7	8.5	-	5.9	114
				12	2.7	8.3	-	5.9	133
	18-Apr-05	1.3	-	1.5	0.6	13.4	-	6	31
				2	0.9	13.3	-	5.9	29
				3	1.3	13	-	5.9	27
				4.1	1.5	12.6	-	5.9	26
				5	1.7	12	-	5.9	27
				6	2	11.4	-	5.9	28
				7	2.2	10.3	-	5.9	40
				8	2.4	8.9	-	5.8	71
				9	2.5	8.8	-	5.8	101
				10	2.6	9.1	-	5.8	119
				11.1	2.6	9	-	5.8	144
				12	2.6	8.7	-	5.8	162
	17-May-05	1.3	-	1.6	0.5	15.7	-	6.4	29
				2.1	1.1	15.3	-	6.4	27
				3	1.6	14.8	-	6.4	27
				4	1.7	14.3	-	6.4	28
				5.1	1.9	13.5	-	6.3	32
				6.1	2.1	13	-	6.2	59
				7.1	2.2	11.4	-	6.1	88
				8	2.4	10.9	-	6.1	99
				9	2.5	10.9	-	6.2	118
				10.1	2.6	11	-	6.1	137
				11.2	2.8	11.3	-	6.2	154
				12.1	3	9.9	-	6	158
	19-Jul-05	no ice	-	1.2	15.4	9.5	-	6.3	41
				2	15.5	9.8	-	6.5	41
				3	15.5	9.9	-	6.5	41
				4	15.4	10	-	6.5	40
				5	13.5	10.3	-	6.6	38
				6	13.4	10.4	-	6.6	38
				7	12.4	10.5	-	6.6	37
				8	11.9	10.6	-	6.6	38
				9	11.6	10.6	-	6.6	40
				10	11.2	10.6	-	6.6	42
				11	11	10.6	-	6.6	42
				12.1	10.8	10.5	-	6.6	42
				13	10.7	10.2	-	6.5	48
	13-Sep-05	no ice	-	1.1	8.9	11	-	7.4	41
				2	9.1	10.6	-	7.5	41
				3	9.1	10.5	-	7.5	41
				4	9.2	10.5	-	7.5	41
				5	9.2	10.4	-	7.5	41
				6	9.2	10.3	-	7.5	41
				7.1	9.2	10.4	-	7.5	41
				8	9.2	10.4	-	7.5	41
				9.1	9.2	10.4	-	7.5	41
				10	9.2	10.3	-	7.5	41
				11	9.1	10.2	-	7.5	41
				12	9.1	10.3	-	7.5	41
SNAP04	19-Jan-05	0.9	-	1	0.4	16	-	6.4	48
				2	1.3	13	-	6.4	36
				3	2.2	10.9	-	6.4	32
				4	2.8	9.2	-	6.4	30
	16-Feb-05	-	-	<0.3	0.3	16.5	-	6.2	41
				0.8	0.5	15.8	-	6.2	41
				1.8	1.5	11.5	-	6.2	32
				2.8	2.2	8.9	-	6.2	28
				3.8	3	5[(b)]	-	6.2	25

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	15-Mar-05	1.5	-	2	0.8	15.5	-	6	37
				3.1	1.9	14.5	-	6	32
				4.1	2.9	13.3	-	6	29
	18-Apr-05	1.4	-	1.5	1.7	13.1	-	5.9	38
				2	1.6	13.2	-	6	36
				3	2.4	12.7	-	6	34
				4	3.8	10.5[b]	-	5.9	29
	17-May-05	1.4	-	1.6	0.5	14.7	-	6.1	36
				2	1.8	14.6	-	6.1	35
				3	3.7	13.8	-	6	34
				4	4	12.8	-	6	34
	19-Jul-05	no ice	-	1.1	16.1	9.3	-	6.5	32
				2.1	16.1	9.6	-	6.5	32
				3	16.1	9.7	-	6.5	32
	13-Sep-05	no ice	-	1	7.5	11.2	-	7.3	34
				2.1	7.7	10.9	-	7.4	34
				3	7.7	10.7	-	7.4	33
				4.1	7.8	10.5	-	7.5	33
SNAP05	19-Jan-05	0.9	-	1	0.3	14.6	-	6.3	40
				2	0.9	12.9	-	6.3	33
				3	1.2	12.3	-	6.3	31
				4	1.4	11.6	-	6.3	29
				5	1.5	10.9	-	6.3	31
				6	1.7	10.2	-	6.4	31
				7	1.9	10.3	-	6.4	36
				8	1.9	10.6	-	6.3	82
				9	1.9	10.1	-	6.3	125
				10	2.1	9.8	-	6.3	121
				11	2.4	9.5	-	6.3	119
				12	2.5	9.2	-	6.3	117
				13	2.7	8.6	-	6.3	112
				14.1	2.9	8.5	-	6.3	118
	16-Feb-05	1.2	-	0.5	0.2	15.5	-	6.2	32
				1.5	0.7	14.4	-	6.2	29
				2.5	1.2	13.1	-	6.3	25
				3.5	1.4	12.4	-	6.3	24
				4.5	1.5	11.3	-	6.3	24
				5.5	1.7	10.4	-	6.3	25
				6.5	2	9.9	-	6.2	30
				7.5	2	10.8	-	6.3	46
				8.5	1.9	10.5	-	6.2	98
				9.5	2	10.3	-	6.1	130
				10.5	2.3	9.9	-	6.1	128
				11.5	2.6	9.5	-	6.1	123
				12.5	2.8	9.4	-	6.1	120
				13.5	3.1	9.5	-	6.1	115
	15-Mar-05	1.2	-	1.3	0.9	14.4	-	6	32
				2	1	14.4	-	6.1	30
				3	1.3	14.1	-	6.1	27
				4.1	1.5	13.5	-	6.1	27
				5	1.7	12.9	-	6.1	26
				6	1.9	12.1	-	6.1	29
				6.9	2	10.7	-	6	48
				7.8	2	10.2	-	5.9	77
				9	1.9	11	-	5.9	155
				9.9	2.1	10.9	-	5.9	159
				11	2.4	10.4	-	6	155
				12	2.6	10	-	6	152
				13	2.9	9.7	-	6	149

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	19-Apr-05	1.2	-	1.5	0.5	14	-	6.1	31
				2.1	0.9	14	-	6.1	29
				3	1.3	13.7	-	6.1	28
				4	1.5	13.2	-	6.1	27
				5	1.8	12.8	-	6.1	27
				6.1	1.9	12.3	-	6	30
				7	1.8	12.1	-	5.9	92
				8.1	1.9	12.1	-	5.9	119
				9	2	11.7	-	5.9	165
				10	2.2	11.4	-	5.9	170
				11	2.5	10.9	-	6	169
				12	2.7	10.5	-	6	166
				13	2.9	10	-	6	164
				14.1	3.2	9.5	-	6	163
	17-May-05	1.2	-	1.5	0.5	15.4	-	6.6	30
				2.1	1.2	15.1	-	6.6	28
				3	1.6	14.8	-	6.6	27
				4.3	1.9	14	-	6.5	28
				5.1	2.1	13.1	-	6.5	31
				6	2.1	13.2	-	6.4	37
				6.9	2.1	14.1	-	6.3	89
				8	2	13.8	-	6.2	139
				9.1	2	13.1	-	6.2	174
				10	2.3	12.7	-	6.2	176
				11.1	2.6	12	-	6.2	174
				12	2.8	11.3	-	6.2	172
				13.1	3	10.8	-	6.2	171
				14	3.3	10.2	-	6.2	170
	21-Jul-05	no ice	-	1	12.5	9.8	-	6.1	37
				2.1	12.6	9.9	-	6.2	36
				3	12.6	9.9	-	6.2	36
				4	12.7	9.9	-	6.3	36
				5	12.7	9.9	-	6.3	37
				6	12.7	10	-	6.4	37
				7.1	12.7	10	-	6.4	37
				8.1	12.7	10	-	6.4	37
				9	12.7	10	-	6.4	38
				10	12.7	10	-	6.4	38
				11	12.7	10	-	6.4	38
				12.1	12.7	10	-	6.4	38
				13.1	12.7	10	-	6.5	38
	13-Sep-05	no ice	-	1	9.2	10.4	-	7.3	40
				2.9	9.1	10.4	-	7.3	40
				2.1	9.2	10.4	-	7.4	40
				5	9	10.3	-	7.4	39
				4	9	10.3	-	7.4	39
				6	8.9	10.3	-	7.4	39
				7	8.9	10.3	-	7.4	39
				8	8.9	10.3	-	7.4	39
				9	8.8	10.3	-	7.4	38
				10	8.8	10.3	-	7.4	38
				10.9	8.8	10.2	-	7.4	38
				12	8.8	10.3	-	7.4	38
				13	8.7	10.2	-	7.4	38
SNAP06	19-Jan-05	0.9	-	1	0.3	14.4	-	6.3	39
				2	0.8	13	-	6.3	33
				3	1.2	12.2	-	6.3	30
				4	1.3	11.9	-	6.2	30
				5	1.5	10.8	-	6.2	30
				6	1.8	10.2	-	6.2	31
				7	2.1	8.5	-	6.1	32
				8	2.3	7.9	-	6.2	33
				9	2.4	6.9	-	6.2	36
				10	2.5	6.2	-	6.1	51
				11	2.5	5.7	-	6.2	58
				12	2.6	5.1	-	6.2	54
				13	2.9	5.5	-	6.2	56

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Feb-05	1.4	-	<0.3	0.2	15.8	-	6.1	32
				0.8	0.3	14.9	-	6.1	31
				1.8	1	13.1	-	6.1	26
				2.8	1.3	12.4	-	6.1	24
				3.8	1.5	11.8	-	6.1	24
				4.8	1.6	10.8	-	6.1	24
				5.8	1.9	9	-	6.1	25
				6.8	2.3	7.8	-	6.1	28
				7.8	2.4	8	-	6	40
				8.8	2.5	8.2	-	6	65
				9.8	2.5	8.2	-	6	80
				10.8	2.6	8.1	-	6	82
				11.8	2.6	5.5	-	6	83
	16-Mar-05	1.3	-	1.5	0.7	14.6	-	5.8	31
				2	0.8	14.3	-	5.9	29
				3	1.3	13.9	-	6	27
				4.1	1.5	13.1	-	6	26
				5.1	1.7	12.8	-	6	28
				6.1	1.9	12.4	-	6	28
				7	2.2	11.5	-	5.9	36
				7.9	2.3	9.5	-	5.9	69
				9.1	2.4	8.8	-	5.8	96
				10.1	2.4	8.8	-	5.8	116
				11	2.6	8.5	-	5.9	116
				11.9	2.8	8.3	-	5.8	118
	19-Apr-05	1.4	-	1.5	0.6	14.3	-	6	33
				2	0.5	14.4	-	6	30
				3	0.6	14.3	-	6	28
				4	1.5	13.6	-	6	27
				5	1.8	13	-	5.9	28
				6	2	12.5	-	6	31
				7.1	2.1	11.7	-	5.8	69
				8	2.3	10.7	-	5.8	96
				9.1	2.4	9.8	-	5.7	126
				10.1	2.5	9.4	-	5.8	139
				11	2.6	9.1	-	5.8	139
				12	2.8	8.8	-	5.8	139
	17-May-05	1.4	-	2	0.7	15.5	-	6.4	30
				3	1.7	14.8	-	6.3	27
				4	1.9	14.1	-	6.3	27
				5	2	13.9	-	6.3	29
				6.1	2.3	14.6	-	6.3	35
				7.1	2.2	14.7	-	6.1	86
				8	2.3	11.6	-	6.1	114
				9	2.4	9.8	-	6	140
				10.1	2.5	9.6	-	6	151
				11.2	2.7	9.2	-	6	151
				12.2	3	8.7	-	6	149
				13.2	3.3	7.5	-	6	148
	21-Jul-05	no ice	-	1.1	12.7	9.6	-	6.5	35
				2.1	12.7	9.6	-	6.4	35
				3	12.7	9.6	-	6.5	35
				4	12.7	9.7	-	6.5	35
				5	12.7	9.7	-	6.5	35
				5.9	12.7	9.7	-	6.5	35
				7	12.8	9.7	-	6.6	35
				8.1	12.8	9.7	-	6.5	35
				9	12.8	9.7	-	6.6	35
	13-Sep-05	no ice	-	1	9.1	10.5	-	7.3	38
				2	9.2	10.3	-	7.3	38
				3.1	9.2	10.3	-	7.4	38
				4	9.2	10.4	-	7.4	38
				5	9.2	10.3	-	7.4	38
				6	9.2	10.2	-	7.4	38
				7	9.2	10.3	-	7.4	38
				9	9.2	10.2	-	7.4	38
				8	9.2	10.2	-	7.4	38
				10	9.2	10.3	-	7.4	38
				11	9.2	10.2	-	7.4	38
				12	9.1	10.3	-	7.4	38
				13	9.1	10.2	-	7.3	38

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP07	20-Jan-05	0.9	-	1	0.3	14.7	-	6.2	41
				2	1	13.5	-	6.2	34
				3	1.1	13.1	-	6.2	33
				4	1.4	12.5	-	6.2	33
				5	1.7	10.9	-	6.1	36
				6	2.3	10.3	-	6.1	32
				7	2.8	9.6	-	6.1	30
				8	3.4	10.1	-	6.1	29
	15-Feb-05	1.6	-	<0.3	0.2	15.9	-	6.4	32
				1.1	0.3	15.4	-	6.4	31
				2.1	1	13.7	-	6.4	27
				3.1	1.3	13	-	6.4	27
				4.1	1.5	12.2	-	6.4	27
				5.1	1.8	11.4	-	6.4	27
				6.1	2.3	10.2	-	6.4	25
				7.1	2.7	9.1	-	6.4	24
				8.1	3	7.1	-	6.4	23
				9.1	3.2	7.3	-	6.4	24
	16-Mar-05	1.3	-	1.5	1.1	14	-	6.2	36
				2.1	1	14.1	-	6.1	31
				3	1.3	13.9	-	6.1	30
				4	1.4	13.7	-	6.1	31
				5	1.7	13.3	-	6.1	31
				6	2.2	12.1	-	6.1	30
				7	2.7	11.4	-	6	29
				8	3	10.6	-	6	25
	22-Apr-05	1.6	-	1.7	0.6	15.3	-	6.1	34
				2	0.8	15.4	-	6.1	33
				3	1.3	15.1	-	6.1	30
				4	1.6	14.6	-	6.1	32
				5	1.8	14.2	-	6.1	32
				6	2.3	13	-	6.1	30
				7	2.8	11.2	-	6	29
				8	3.1	7.7	-	6	28
	19-May-05	1.5	-	1.6	1.3	14.3	-	5.9	34
				2	1.8	14.3	-	5.9	31
				3	2.1	14.3	-	5.9	30
	22-Jul-05	no ice	-	1	11.5	9.4	-	6.2	32
				2	11.5	9.5	-	6.2	32
				3.1	11.5	9.5	-	6.2	32
				4.1	11.6	9.6	-	6.2	32
				5.1	11.6	9.6	-	6.3	32
				6	11.6	9.6	-	6.3	32
				7.1	11.6	9.6	-	6.3	32
				8.1	11.6	9.6	-	6.3	32
				9.1	11.6	9.6	-	6.3	32
				10	11.6	9.6	-	6.3	32
	13-Sep-05	no ice	-	1.1	8.1	11.2	-	7.2	36
				2	8.2	11	-	7.3	36
				3	8.3	10.7	-	7.4	36
				4	8.4	10.6	-	7.4	36
				5	8.4	10.5	-	7.4	36
				6	8.4	10.6	-	7.4	36
				7	8.3	10.4	-	7.4	36
				8.1	8.3	10.5	-	7.4	36
				9	8.2	10.5	-	7.4	35
				10	8.3	10.4	-	7.2	39
SNAP08	20-Jan-05	0.9	-	1	0.7	12.1	-	5.8	41
				2	2.1	9.8	-	5.8	31
				2.9	3.3	7	-	5.8	30
				4	4	5.6	-	5.7	31
				5	4.2	4.5	-	5.7	32
				6	4.3	4.6	-	5.7	33
				7	4.3	5.1	-	5.7	35

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	15-Feb-05	1.3	-	<0.3	0.3	15.2	-	6.5	35
				1	0.6	14.3	-	6.5	34
				2	1.7	9.2	-	6.5	27
				3	3.3	4.6	-	6.5	24
				4	3.8	3.1	-	6.5	25
				5	3.9	2.4	-	6.5	25
				6	3.9	2.2	-	6.5	26
				7	4	2	-	6.5	27
				8	3.9	1.9	-	6.6	29
	16-Mar-05	1.1	-	1.2	1.8	13	-	6.1	35
				1.5	1.1	13.2	-	6	35
				1.8	1.4	13	-	6	35
	21-Apr-05	1.4	-	1.5	1.6	13.4	-	5.8	33
				2.1	2.1	13.6	-	5.9	30
				3	3.5	12	-	5.9	26
				4	4.2	9.8	-	5.8	26
				5	4.2	7.9	-	5.8	27
				6	4.3	5.3	-	5.7	28
				7	4.3	3.5	-	5.7	31
				8	4.4	2.2	-	5.6	52
	17-May-05	1.4	-	1.5	2.8	14.5	-	6.2	29
				2	4	13.1	-	6.2	28
				3.3	4	12.3	-	6.2	28
				4.1	4.1	14.2	-	6.2	28
				5	4.1	12.1	-	6.2	28
				6.1	4.4	8.6	-	6.1	28
				7.1	4.5	4.2	-	6	30
				8.3	4.5	2.1	-	5.9	55
	22-Jul-05	no ice	-	1	11.8	9	-	6.2	29
				2	11.8	9.1	-	6.1	29
				3	11.8	9.2	-	6.1	29
				4.1	11.7	9.2	-	6.1	29
				5.1	11.4	9.3	-	6.2	29
				6	11.4	9.3	-	6.2	30
				7.1	11.4	9.4	-	6.2	30
				8	11.4	9.4	-	6.2	30
				9	11.4	9.4	-	6.2	30
	13-Sep-05	no ice	-	1	7.5	11.2	-	7.3	35
				2	7.6	10.9	-	7.4	35
				3	7.6	10.7	-	7.4	35
				4	7.6	10.6	-	7.5	34
				5	7.7	10.7	-	7.5	34
				6	7.7	10.4	-	7.4	35
SNAP09	20-Jan-05	1	-	1	0.4	13.1	-	6.3	36
				2	1	12.4	-	6.4	29
				2.9	1.2	12.2	-	6.3	29
				4	1.3	12	-	6.3	29
				5	1.4	11.9	-	6.3	29
				6	1.5	11.7	-	6.3	29
				7.1	1.6	11.2	-	6.3	29
				8	1.7	11.1	-	6.3	30
				9	1.8	10.5	-	6.3	30
				10	1.8	9.8	-	6.2	30
				11	1.9	8.8	-	6.2	29
				12	2	6.7	-	6.2	29
				13	2.1	4.9	-	6.2	29
				14	2.2	2.8	-	6.9	30

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Feb-05	1.3	-	<0.3	0.3	14.9	-	6.3	30
				0.9	0.5	13.8	-	6.3	29
				1.9	1.1	12.7	-	6.3	24
				2.9	1.4	12.2	-	6.3	22
				3.9	1.5	12	-	6.3	22
				4.9	1.6	11.8	-	6.3	22
				5.9	1.8	11.6	-	6.2	23
				6.9	1.9	11.3	-	6.3	23
				7.9	1.9	11.1	-	6.3	23
				8.9	2	10.8	-	6.3	23
				9.9	2.1	10.9	-	6.3	23
				10.9	2.4	8.6	-	6.3	23
				11.9	2.5	7.6	-	6.2	23
				12.9	2.8	5.7	-	6.3	23
				13.9	3	3	-	6.3	23
	17-Mar-05	1.2	-	1.3	1.6	12.5	-	6	29
				2	1.7	12.7	-	6	26
				3	2	12.2	-	6	25
				4	1.9	12	-	5.9	24
				5	1.9	11.6	-	5.9	24
				6	1.9	11.3	-	5.9	25
				7	2	11.1	-	5.8	25
				8.1	2.1	10.8	-	5.9	26
				9	2.1	10.6	-	5.8	26
				10	2.2	10.3	-	5.8	26
				11	2.2	10.1	-	5.8	27
				12	2.3	9.6	-	5.8	26
				13	2.4	8.9	-	5.8	26
				14	2.5	7.6	-	5.8	27
				14.9	2.7	5.1	-	5.6	30
	22-Apr-05	1.3	-	1.5	0.5	13.6	-	6	29
				2	1	13.4	-	6.1	26
				3	1.3	13.1	-	6.1	25
				4	1.6	12.6	-	6.1	24
				5.1	1.7	12.1	-	6.1	25
				6.1	1.8	11.7	-	6.1	26
				7.2	1.9	11.5	-	6.1	26
				8	2	11.3	-	6.1	26
				9	2.1	11	-	6	27
				10	2.2	10.5	-	6	26
				11.1	2.3	9.9	-	6	25
				12	2.3	8.8	-	6	26
				13.2	2.5	8	-	5.9	26
				14	2.6	6.7	-	5.9	27
	19-May-05	1.4	-	1.7	1.7	12.5	-	6.2	26
				2.1	1.9	12.6	-	6.2	24
				3.1	2.1	12.5	-	6.2	25
				4.1	2.1	12.1	-	6.2	25
				4.9	2.2	11.8	-	6.2	26
				6.1	2.2	11.6	-	6.2	26
				7	2.3	11.4	-	6.1	28
				7.7	2.3	11.5	-	6.1	28
				9.1	2.4	11.7	-	6.1	29
				10.3	2.4	11	-	6.1	29
				11.1	2.5	10.5	-	6	29
				12	2.6	9.5	-	6.1	28
				13	2.7	8.5	-	6	29
				14	2.8	8.5	-	5.9	29
	23-Jul-05	no ice	-	1.1	12	8.6	-	6.5	35
				2	12	8.8	-	6.5	35
				3.1	12	8.9	-	6.5	35
				4	12	9	-	6.5	35
				5.1	12	9.1	-	6.5	35
				6	12	9.1	-	6.5	35
				7.1	12	9.1	-	6.5	35
				8	12	9.2	-	6.5	35
				9	12	9.2	-	6.5	35
				10	12	9.2	-	6.5	35
				11	11.9	9.2	-	6.5	35
				12	11.9	9.3	-	6.5	35
				13	11.9	9.3	-	6.5	35

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Sep-05	no ice	-	1	9.6	10.4	-	7.3	36
				2	9.6	10.3	-	7.3	36
				3.1	9.6	10.2	-	7.2	36
				4	9.5	10.3	-	7.3	36
				5	9.6	10.2	-	7.3	36
				6	9.5	10.2	-	7.3	36
				7	9.5	10.2	-	7.3	36
				8	9.5	10.2	-	7.3	36
				9	9.5	10.1	-	7.3	36
				10	9.5	10.2	-	7.3	36
				11	9.5	10.2	-	7.3	36
				12	9.5	10.1	-	7.3	36
				13	9.5	10.2	-	7.3	36
				14	9.2	10	-	7.3	36
SNAP10	20-Jan-05	1	-	1	0.4	15.7	-	6.4	41
				2	1.2	13.7	-	6.4	35
				3	1.5	13.1	-	6.4	34
				4	1.8	12.8	-	6.4	34
				5	2.4	12	-	6.5	39
	16-Feb-05	1.4	-	<0.3	0.9	15.8	-	7.4	37
				1.5	1.1	14.9	-	7.5	32
				2.5	1.8	13.9	-	7.6	29
				3.5	2.1	13.4	-	7.6	26
				4.5	2.5	12.8	-	7.6	31
	17-Mar-05	1.3	-	1.4	0.8	14.7	-	5.5	35
				2.1	1	14.6	-	5.6	33
				3	1.3	14.4	-	5.5	30
				4	1.6	14	-	5.5	35
				5	2	13.8	-	5.5	40
	22-Apr-05	1.5	-	1.5	1.2	13.5	-	5.6	33
				2	1.2	14	-	5.7	32
				3	1.5	14	-	5.8	30
				4	1.7	13.8	-	5.8	33
	17-May-05	1.5	-	1.5	0.7	16.5	-	6.4	31
				2	1.2	16.3	-	6.4	29
				3.2	1.7	16.2	-	6.3	32
				4	2	16.8	-	6.4	32
				5	2.6	16.9	-	6.3	33
	22-Jul-05	no ice	-	1.1	12.2	9.7	-	6.4	31
				2	12.2	9.7	-	6.4	31
				3	12.2	9.7	-	6.4	31
	13-Sep-05	no ice	-	1	8.4	10.6	-	7.3	35
				2	8.4	10.4	-	7.3	35
				3.1	8.4	10.5	-	7.3	35
				4	8.4	10.5	-	7.3	35
				5	8.4	10.5	-	7.3	35
SNAP11	20-Jan-05	1.1	-	1	0.5	13.4	-	6.5	36
				2	1.1	12.4	-	6.4	31
				3	1.3	12	-	6.4	29
				4	1.5	11.8	-	6.4	29
				5	1.6	11.6	-	6.3	29
				6	1.7	11.6	-	6.3	29
				7	1.8	11.4	-	6.3	30
				8	1.9	11.2	-	6.2	30
				9	2	11	-	6.2	30
				10	2.1	10.6	-	6.2	31
				11	2.2	10.2	-	6.2	31
				12	2.3	9.4	-	6.2	30
				13	2.7	8.9	-	6.2	30
				14.6	2.9	7	-	6.1	30
				15	3.3	5.7	-	6.1	31
				16	4.1	4.9	-	6.2	32

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Feb-05	1.4	-	<0.3	0.3	14.4	-	6.5	29
				1.2	0.7	13.8	-	6.7	27
				2.2	1.2	12.7	-	6.5	23
				3.2	1.4	12.4	-	6.5	23
				4.2	1.6	12	-	6.5	23
				5.2	1.7	11.8	-	6.5	23
				6.2	1.8	11.7	-	6.5	23
				7.2	1.8	11.6	-	6.5	23
				8.2	2	11.5	-	6.5	24
				9.2	2.1	10.7	-	6.5	24
				10.2	2.3	10	-	6.5	24
				11.2	2.4	9.3	-	6.6	24
				12.2	2.6	8.3	-	6.6	24
				13.2	2.9	7.5	-	6.6	23
				14.2	3.1	6	-	6.7	23
				15.2	3.4	5.8	-	6.7	24
	17-Mar-05	1.2	-	1.3	0.7	15	-	5.9	30
				2	1	14	-	5.9	27
				3	1.3	13.4	-	5.9	25
				4	1.5	12.7	-	5.9	25
				5	1.6	12.2	-	5.9	25
				6.1	1.7	11.5	-	5.9	26
				6.9	1.8	11.3	-	5.9	26
				8	1.9	11.1	-	5.9	26
				9	1.9	10.9	-	5.9	27
				10	2	10.7	-	5.9	27
				11	2.1	10.6	-	5.9	28
				12	2.2	10.3	-	5.9	27
				13	2.3	9.7	-	5.9	27
				14	2.4	8.6	-	5.8	26
				15.1	2.6	7.4	-	5.8	27
	22-Apr-05	1.5	-	1.7	1	12.6	-	5.8	28
				2.1	1.1	12.7	-	5.8	27
				3	1.5	12.3	-	5.8	25
				4	1.7	11.9	-	5.8	24
				5	1.8	11.6	-	5.8	25
				6.1	1.9	11.4	-	5.8	27
				7	2	11.1	-	5.9	27
				8	2	10.9	-	5.9	27
				9	2.1	10.8	-	5.9	28
				10	2.2	10.6	-	5.9	28
				11	2.2	10.5	-	5.8	28
				12	2.3	10.1	-	5.9	28
				13	2.4	9.3	-	5.9	30
				13.9	2.6	8.7	-	5.8	29
				15	2.8	7.2	-	5.8	29
	18-May-05	1.6	-	1.7	1.3	13.4	-	6.1	27
				2.1	1.5	13.3	-	6.1	27
				3	1.9	13.2	-	6.2	25
				4	2.1	12.5	-	6.1	26
				5	2.1	12	-	6.1	26
				6	2.2	11.7	-	6.1	27
				7	2.3	11.3	-	6.1	28
				8	2.3	11	-	6.1	29
				9	2.4	10.9	-	6.1	30
				10.1	2.4	10.7	-	6.1	32
				11	2.4	10.7	-	6	35
				12	2.5	10.7	-	6	38
				13	2.6	10.2	-	6	36
				14.1	2.7	8.6	-	5.9	37
				15	2.8	7.3	-	5.9	42

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	22-Jul-05	no ice	-	1.1	12.2	9.8	-	6.4	33
				2	12.2	9.7	-	6.4	33
				3.1	12.2	9.7	-	6.4	33
				3.9	12.2	9.8	-	6.4	33
				5	12.2	9.8	-	6.4	33
				6	12.2	9.8	-	6.5	33
				7	12.2	9.8	-	6.5	33
				8	12.1	9.8	-	6.4	33
				9	12.1	9.9	-	6.5	33
				10	12	9.9	-	6.5	33
				11.1	11.8	9.9	-	6.5	33
				12	11.6	9.9	-	6.5	32
				13	11.6	9.9	-	6.5	32
				14.2	9.8	10.2	-	6.4	30
				15	9.6	10.2	-	6.4	30
	13-Sep-05	no ice	-	1	9.5	10.4	-	7.2	36
				2	9.5	10.4	-	7.3	36
				3	9.5	10.3	-	7.3	36
				4	9.5	10.2	-	7.3	36
				5	9.4	10.2	-	7.3	36
				6	9.3	10.4	-	7.3	36
				7	9.3	10.2	-	7.3	36
				8	9.3	10.3	-	7.3	36
				9.1	9.2	10.3	-	7.3	36
				10	9.2	10.3	-	7.3	36
				11	9.1	10.2	-	7.3	36
				12.1	9.1	10.2	-	7.3	36
				13	9	10.2	-	7.3	36
				14	9	10.2	-	7.3	36
				15	9	10.3	-	7.3	36
				16	9.1	9.3	-	7.2	36
SNAP12	15-Mar-05	1.3	-	1.4	0.2	16.6	-	6.3	34
				2	0.7	16.3	-	6.3	30
				3	1.1	15.6	-	6.3	28
				4	1.3	14.8	-	6.3	27
				5.1	1.6	14.1	-	6.3	27
				6	1.7	13.4	-	6.3	33
				7	1.8	12.1	-	6.2	61
	20-Apr-05	1.5	-	1.8	0.6	13.3	-	6.2	31
				2.1	0.9	13.8	-	6.2	30
				3	1.3	13.6	-	6.2	28
				4.1	1.6	13	-	6.2	27
				5	1.8	12.6	-	6.2	27
				6	1.8	11.6	-	6.1	42
				7.1	1.9	11.3	-	6	79
	18-May-05	1.4	-	1.4	0.7	16.2	-	6.1	32
				2	1.3	15.9	-	6.1	28
				3	1.7	15.5	-	6.2	28
				4	1.9	14.9	-	6.2	29
				5.1	2.1	13.7	-	6.1	34
				6	2.1	13.4	-	6	68
				7	2.2	13.7	-	6.1	83
	21-Jul-05	no ice	-	1.1	12.8	9.6	-	6.6	39
				2	12.9	9.6	-	6.6	39
				3.1	12.9	9.7	-	6.6	39
				4.1	12.9	9.7	-	6.6	39
				5	13	9.7	-	6.6	39
				6.1	13	9.8	-	6.6	39
				7	13	9.8	-	6.6	39
				8	13	9.7	-	6.6	40
	13-Sep-05	no ice	-	1.1	9.2	10.7	-	7.3	41
				2	9.2	10.5	-	7.3	41
				3	9.2	10.5	-	7.4	41
				4	9.2	10.5	-	7.4	41
				5	9.2	10.4	-	7.4	41
				6	9.2	10.5	-	7.4	41
				7	9.2	10.4	-	7.4	41

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP13	16-Mar-05	1.2	-	1.4	0.3	15.5	-	6.1	33
				2	0.7	15.1	-	6.1	30
				3.1	1.1	14.4	-	6.2	28
				4	1.4	13.5	-	6.2	27
				5	1.6	13	-	6.2	27
				6	1.7	12.1	-	6.1	45
				6.9	1.7	11.4	-	6	67
				8	1.6	11.5	-	5.9	125
SNAP13	16-Mar-05	1.2	-	9	1.7	11.9	-	5.9	191
				10	1.7	11.9	-	6	196
				11	1.9	11.7	-	6	194
				12.1	1.9	11.4	-	6	197
				13	1.9	11.3	-	6.1	198
				14.1	1.9	11.1	-	6.1	198
				15	2	11.1	-	6.1	198
				16	2	11	-	6.1	198
				17.1	2	10.9	-	6.1	200
				18	2	10.8	-	6.1	199
				19	2.1	10.6	-	6.1	197
				20	2.1	10.6	-	6.1	196
				21	2.1	10.4	-	6.2	194
	18-Apr-05	1.2	-	1.5	0.4	13.7	-	6.1	32
				2	0.6	13.6	-	6.2	30
				3	1.2	13.1	-	6.2	29
				4	1.5	12.8	-	6.2	27
				5	1.7	12.3	-	6.1	31
				6	1.7	11.7	-	6.1	53
				7	1.8	10.8	-	6	82
				8	1.7	10.8	-	6	145
				9	1.7	11.7	-	6	189
				10	1.9	11.7	-	6.1	194
				11	2	11.3	-	6.1	194
				12	2	11	-	6.1	194
				13.1	2.1	10.8	-	6.1	194
				14.1	2.1	10.5	-	6.1	194
				15	2.1	10.5	-	6.2	194
				16	2.2	10.4	-	6.2	193
				17	2.2	10.3	-	6.2	193
				18	2.2	10.2	-	6.2	193
				19	2.2	10.1	-	6.2	193
				20.1	2.2	10	-	6.2	193
				21.1	2.2	10	-	6.2	198
	18-May-05	1.3	-	1.5	1	14.8	-	5.9	31
				2.1	1.6	14.7	-	5.9	29
				3.1	2	13.8	-	5.9	28
				4	2.2	12.8	-	5.9	32
				5.1	2.2	12.3	-	5.9	33
				6.1	2.3	12.1	-	5.8	47
				7	2.3	11	-	5.8	67
				7.9	2.2	10.1	-	5.7	145
				8.9	2.1	12.5	-	5.8	173
				10.1	2.1	13.3	-	5.8	197
				11	2.2	12.6	-	5.9	197
				12	2.3	12.1	-	5.9	196
				13.2	2.3	11.7	-	6	196
				14.1	2.3	11.4	-	6	196
				15	2.3	11.1	-	6	196
				15.9	2.3	11	-	6	195
				17.1	2.3	11	-	6	195
				18.2	2.4	10.9	-	6	194
				19	2.4	10.8	-	6	194
				20	2.4	10.8	-	6.1	194
				20.9	2.5	5.6[(b)]	-	5.9	173

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	23-Jul-05	no ice	-	1	12.2	9.1	-	6.4	40
				2.1	12.2	9.2	-	6.4	40
				3.1	12.2	9.2	-	6.4	40
				4.1	12.2	9.3	-	6.5	40
				5	12.3	9.4	-	6.4	40
				6	12.3	9.4	-	6.5	40
				7.1	12.3	9.4	-	6.5	40
				8.1	12.3	9.4	-	6.5	40
				9.1	12.3	9.4	-	6.5	40
				10.1	12.2	9.4	-	6.5	40
				11	12.2	9.4	-	6.5	42
				12.2	12	9.5	-	6.5	49
				12.9	11.1	9.5	-	6.6	42
				14.1	10	9.8	-	6.6	43
				15	9.5	9.7	-	6.5	46
				16.1	8.7	9.7	-	6.5	59
				17	7.3	9.6	-	6.4	100
				18	5.6	9.2	-	6.3	143
				19	4.7	8.9	-	6.3	158
				20	4.3	8.6	-	6.3	166
				21.1	3.9	8.4	-	6.2	173
				22	3.8	8.4	-	6.2	176
	14-Sep-05	no ice	-	1	9	10.1	-	7.2	41
				2.1	9	10.1	-	7.2	41
				3	8.9	10	-	7.2	41
				4	8.9	10.1	-	7.2	41
				5.1	8.9	10	-	7.2	41
				6.3	8.9	10.1	-	7.2	41
				7	8.9	10.1	-	7.3	41
				8	8.9	10.1	-	7.3	41
				9	8.8	10.2	-	7.3	42
				10	8.8	10.3	-	7.3	42
				11	8.8	10	-	7.3	44
				11.9	8.7	10.1	-	7.3	46
				12.9	8.7	10.4	-	7.3	46
				14	8.6	10.1	-	7.3	47
				15	8.6	10	-	7.3	48
				16	8.6	10.1	-	7.3	48
				16.8	8.5	10.3	-	7.3	48
				17.8	8.5	10.3	-	7.3	49
				19.1	8.5	10.1	-	7.3	49
				19.9	8.4	10	-	7.3	50
				21	8.4	10.2	-	7.3	50
SNAP14	15-Mar-05	1.2	-	1.3	0.4	15.6	-	6.3	33
				2	0.7	15.5	-	6.3	29
				3.1	1.1	14.8	-	6.3	28
				4	1.4	14.1	-	6.3	29
				5.1	1.5	13.2	-	6.3	37
				6	1.7	12.3	-	6.2	39
				7.1	1.9	11	-	6.3	57
				8.1	1.7	11.1	-	6.1	104
				9	1.8	11.5	-	6.1	169
				10	2	11.2	-	6.1	172
				11	2.2	10.7	-	6.1	170
				12	2.5	10.2	-	6.1	169
				13.1	2.7	9.5	-	6.1	168
	17-Apr-05	1.4	-	1.6	0.7	13.5	-	6.2	30
				2	0.9	13.6	-	6.2	29
				3	1.3	13.4	-	6.2	27
				4	1.6	12.7	-	6.2	27
				5	1.7	12.1	-	6.2	31
				6	1.9	11.5	-	6.1	34
				7	2.1	10.8	-	6	55
				8	2.2	10.4	-	6	77
	17-May-05	1.4	-	1.6	0.1	15.7	-	6.6	30
				1.9	1	14.5	-	6.5	28
				2.9	1.5	14.3	-	6.5	27
				4.1	1.8	14.1	-	6.5	27
				4.1	1.9	13.5	-	6.4	35
				6.2	2.1	10.6	-	6.3	54
				7.2	2.3	10.6	-	6.2	91

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	23-Jul-05	no ice	-	1.1	12	9.2	-	6.6	38
				2	12	9.3	-	6.6	38
				3	12.1	9.4	-	6.6	38
				3.9	12.1	9.4	-	6.6	38
				5	12.1	9.5	-	6.6	38
				6.1	12.1	9.5	-	6.6	38
				7	12.1	9.5	-	6.6	38
				8.1	12.2	9.5	-	6.6	38
				9.1	12.2	9.5	-	6.7	38
				10	12.2	9.5	-	6.7	38
				11.1	12.2	9.5	-	6.7	38
				12	12.1	9.5	-	6.6	38
				13	12.1	9.5	-	6.6	40
	14-Sep-05	no ice	-	1	8.9	10.1	-	7.2	41
				2	8.9	10.2	-	7.2	41
				3	8.9	10.1	-	7.2	41
				4	8.9	10.2	-	7.2	41
				5.1	8.9	10.1	-	7.2	41
				6	8.9	10.1	-	7.2	41
				7	8.9	10	-	7.3	41
				8	8.9	10.1	-	7.2	41
				9	8.9	10.2	-	7.2	41
				10.1	8.9	10.1	-	7.2	41
				11	8.9	10.1	-	7.2	41
				12	8.9	10	-	7.2	41
				13	8.9	10.1	-	7.3	41
				14.1	8.9	10.1	-	7.2	41
SNAP16 (2of3)	19-Apr-05	1.3	-	1.3	0.4	14.8	-	6.4	33
				2.3	1.1	14.4	-	6.4	29
				3.3	1.4	14	-	6.4	27
				4.3	1.6	13.5	-	6.4	27
				5.3	1.8	12.9	-	6.4	28
				6.3	2	12.4	-	6.3	36
				7.3	2	11.6	-	6.1	85
				8.3	2.3	11.3	-	6.1	108
				9.3	2.3	10.2	-	6	136
				10.3	2.3	9.8	-	6	150
SNAP16 (3of3)	19-Apr-05	1.3	-	1.3	0.3	15.3	-	6.2	34
				2.3	0.9	15.1	-	6.2	29
				3.3	1.3	14.3	-	6.3	27
				4.3	1.6	13.6	-	6.3	27
				5.3	1.8	12.9	-	6.2	28
				6.3	1.9	12.2	-	6.2	36
				7.3	2	11.5	-	6	91
				8.3	2.3	10.6	-	6	116
				9.3	2.3	9.5	-	6	129
				10.3	2.3	9.4	-	6	153
SNP 02-20a	18-Jan-05	0.9	-	1	1.1	20.5	-	6.2	48
				2	1.1	19.7	-	6.2	37
				3.1	1.4	18.2	-	6.2	34
				3.5	1.4	17	-	6.2	43
	18-Feb-05	1.3	-	0.1	0.6	16.8	-	7.1	41
				1	0.8	15.7	-	7.1	40
				2	1.3	14.1	-	7.1	32
				3	1.7	13.9	-	7.1	31
	21-Mar-05	1.2	-	1.5	1.8	15.1	-	6.1	39
				2	1.5	14.5	-	6.1	33
				3	1.7	13.8	-	6.2	30
	17-Apr-05	1.3	-	1.5	0.6	14.2	-	6.2	36
				2	0.8	14.5	-	6.2	34
				3	1.3	14.3	-	6.2	30
	18-May-05	1.3	-	1.6	0.5	17.6	-	6.5	34
				2	1	17.4	-	6.5	35
				3.1	1.5	16.9	-	6.4	62
	24-Jul-05	no ice	-	1.1	11.7	9.2	-	5.4	51
				2.1	11.7	9.3	-	5.5	52
				3.1	11.5	9.5	-	5.6	54
				4	11.4	9.6	-	5.6	55
	17-Aug-05	no ice	-	1	11.8	10.3	-	7.1	42
				2	11.6	10.3	-	7.1	42
				3.1	11.4	10.5	-	7.1	44

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	14-Sep-05	no ice	-	1	8.2	10.4	-	7.2	44
				2	8.2	10.4	-	7.2	43
				3	8.2	10.4	-	7.2	43
				4	8.1	10.3	-	7.3	44
SNP 02-20b	18-Jan-05	1.1	-	1	0.1	20.8	-	6.4	41
				2	0.6	18.9	-	6.4	36
				3	0.9	17.8	-	6.4	35
				4.1	1.4	15.2	-	6.3	34
				5.1	1.6	15.4	-	6.4	42
	18-Feb-05	1.5	-	0.5	0.3	15	-	7.1	36
				1.5	0.8	14.3	-	7.2	35
				2.5	1.2	13.6	-	7.2	35
				3.5	1.5	13.2	-	7.1	142
				4.5	1.9	13	-	6.8	341
	22-Mar-05	1.4	-	1.5	0.8	13.9	-	6.4	36
				2	0.8	14	-	6.4	33
				3	1.1	13.9	-	6.3	36
				4	1.6	14	-	6.1	188
				5	1.9	13.1	-	6.2	307
	20-Apr-05	1.5	-	1.6	1	12.8	-	5.6	35
				2	0.9	13.8	-	5.7	35
				3	1.3	14.1	-	5.7	41
				4	1.6	14.3	-	5.5	191
				5	1.8	14	-	5.6	257
	18-May-05	1.3	-	1.5	0.2	15.1	-	6.5	31
				2.1	1	15.2	-	6.5	31
				3	1.4	15.6	-	6.3	96
				4.1	1.8	15.4	-	6.2	197
				5	2	15.1	-	6.2	220
	24-Jul-05	no ice	-	1	11.9	9.1	-	5.8	52
				2	11.9	9.2	-	5.9	52
				3	11.8	9.3	-	6	52
				4.1	11.8	9.3	-	6	53
				5	11.7	9.3	-	6	55
	17-Aug-05	no ice	-	1.1	12	10.5	-	7.3	43
				2.1	11.7	10.4	-	7.3	43
				3.1	11.4	10.5	-	7.3	45
				4.1	11.3	10.5	-	7.3	102
				5.3	11.2	10.3	-	7.4	158
	14-Sep-05	no ice	-	1	7.7	10.9	-	7.2	45
				2	7.7	10.6	-	7.3	45
				3	7.7	10.5	-	7.3	44
				4	7.7	10.5	-	7.3	44
			-	5	7.6	10.6	-	7.3	44
SNP 02-20c	18-Jan-05	1	-	1.2	0.3	20.8	-	6.6	47
				1.4	0.3	20.5	-	6.7	47
	17-Feb-05	1.4	-	0.5	0	16.1	-	6.6	47
	22-Mar-05	1.5	-	1.6	0.5	13.8	-	6.4	37
	20-Apr-05	1.5	-	1.7	1.2	13	-	5.4	36
				2	1	13.6	-	5.5	36
	18-May-05	1.3	-	1.5	0.6	15.4	-	6.5	34
				1.7	0.9	15.3	-	6.5	35
	24-Jul-05	no ice	-	0.5	12.2	9.7	-	6.3	66
				1	12.2	9.8	-	6.3	65
	17-Aug-05	no ice	-	0.5	11.8	10.4	-	7.3	44
				1	11.7	10.3	-	7.3	44
				1.5	11.6	10.4	-	7.3	44
				2	11.5	10.5	-	8.5	44
	14-Sep-05	no ice	-	0.5	7.7	10.7	-	7.4	63
				1	7.7	10.8	-	7.3	63
				1.5	7.7	10.5	-	7.4	57
				2	7.6	10.8	-	7.7	51
SNAP01	18-Jan-06	0.8	-	1	1.5	16.7	119	6.6	28
				2	1.7	14.5	104	6.5	22
				3	2.5	12.5	91	6.5	21
				4	3.2	9.9	74	6.3	22
	18-Feb-06	1	-	1.1	1.9	17.5	127	6.2	17
				2	2.2	14.9	108	6.1	14
				3	2.6	11.3	83	6	12
				4	3.2	8.5	63	6	13

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	17-Mar-06	1.2	-	1.1	0.9	18.6	130	6.1	16
				2	1.5	17.7	125	6.1	14
				3	2.3	15.4	111	6.1	13
				4.1	3.3	11.2	84	6.1	14
SNAP02	18-Jan-06	0.9	-	1	0.4	17.8	123	6	28
				2	1.7	15.2	110	5.9	23
				3	2.3	13.6	99	5.9	21
				4	2.9	11.9	88	5.9	21
				5	3.3	9.9	74	5.9	22
				6	3.6	8.4	63	5.9	23
				7	3.8	7.1	54	5.9	24
	18-Feb-06	1.1	-	1.3	1.1	18.1	128	6.1	17
				2	1.6	16	114	6	14
				3	2.6	13.4	98	6.1	12
				4	3	11.5	86	6	12
				5	3.5	8.5	64	5.9	13
				6	3.8	5.9	45	6	14
				7	3.9	5.7	43	5.8	15
				8	4	3.8	29	5.8	16
	17-Mar-06	1.3	-	1.4	0.5	18.9	131	6.3	17
				2	1.4	17.9	127	6.3	15
				3	2.2	16.9	123	6.2	14
				4	3.1	14.3	106	6.3	13
				5	3.5	11.4	84	6.2	14
				5.1	3.8	6.5	48	6.1	15
				7	4	4.7	35	6	16
				8.1	4.1	3.1	24	5.9	17
SNAP02A	16-Apr-06	1.3	-	1.5	1.1	16.9	119	6.4	16
				2	1.6	16.1	116	6.4	15
				3	2.5	14.3	107	6.4	14
				4	3.3	12.9	96	6.4	14
				5	3.7	9.3	73	6.3	14
				6	4	6	47	6.3	15
				7	4.2	4.1	31	6.2	16
				8	4.1	3.1	24	6.2	17
				9	4.1	2.7	21	6.2	18
				10	4.2	2.4	18	6.2	18
	14-Sep-06	no ice	-	1	8.9	10.9	100	6.6	17
				2	8.9	10.8	98	6.6	17
				3	8.9	10.8	98	6.6	17
				4	8.9	10.7	98	6.6	17
				5	8.9	10.7	98	6.6	17
				6	8.9	10.7	98	6.7	17
				7	8.9	10.7	98	6.6	17
				8	8.9	10.7	98	6.7	17
				8	8.9	10.7	98	6.7	17
				10	8.9	10.7	97	6.7	17
SNAP03	14-Jan-06	0.8	-	1	0.3	16.2	111	6.7	51
				2	0.7	15.2	106	6.6	47
				3	1	14.6	102	6.6	45
				4	1.2	14	99	6.6	44
				5	1.4	13.4	96	6.7	42
				6	1.7	13.2	95	6.6	41
				7	2	10.9	79	6.4	57
				8	2.1	10.5	76	6.3	89
				9	2.2	9.4	68	6.2	118
				10	2.3	6.8	53	6.2	147
				11	2.2	8.7	63	6	162
				12	2.2	8.7	63	6	181
SNAP03	18-Feb-06	1	-	1.1	0.1	15.6	107	6.6	28
				2	0.7	14.7	102	6.6	48
				3	0.9	14.1	99	6.5	46
				4	1.2	13.8	98	6.5	45
				5	1.5	13.3	95	6.5	44
				6	1.8	11.2	81	5.4	46
				7	2.1	10.4	75	6.1	88
				8	2.1	9.9	72	6	132
				9	2.2	8.3	61	5.9	156
				10	2.2	8.8	64	5.9	190
				11	2.3	7.9	57	5.8	205

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	17-Mar-06	1.1	-	1.2	0.7	17.4	122	7	29
				2.1	0.9	16.8	118	6.9	28
				3	1.4	15.6	111	6.8	26
				4.1	1.5	15.1	108	6.7	26
				5	1.7	14.7	106	6.7	26
				7.1	2.1	12.9	96	6.5	61
				6.1	2	11.3	82	6.6	30
				8	2.2	10.7	78	6.4	82
				9	2.3	9.9	73	6.3	102
				10	2.4	9.8	68	6.3	112
				11.1	2.4	8.2	61	6.3	126
				12	2.3	8.2	60	6.3	140
	8-Apr-06	1.2	-	1.3	0.5	16.2	113	6.5	29
				2	1	15.8	111	6.5	27
				3	1.3	14.8	105	6.5	26
				4	1.5	14.1	101	6.5	26
				5	1.7	13.5	97	6.5	27
				6	1.9	11.9	86	6.4	32
				7	2.2	9.5	69	6.3	65
				8	2.3	9.1	66	6.2	97
				9	2.3	8.4	62	6.2	115
				10	2.4	7.6	56	6.2	123
				11	2.3	7.1	52	6.2	138
				12	2.4	7.3	53	6.2	147
	13-Jul-06	no ice	-	1	14.3	11.5	118	7	73
				2	14.4	11.5	120	7	73
				3	14.4	11.5	120	7.1	73
				4	14.4	11.5	120	7.1	73
				5	14.4	11.5	120	7.1	73
				6	14.4	11.5	120	7.1	73
				7	14.4	11.5	120	7.1	73
				8	14.4	11.5	120	7.1	73
				9	14.4	11.5	120	7.1	73
				10	14.4	11.5	120	7.1	73
				11	14.4	11.5	120	7.1	73
				12	14.4	11.5	120	7.1	73
	13-Sep-06	no ice	-	1.1	10.3	12.1	110	7.1	71
				2	10.4	11.9	113	7.1	71
				3	10.4	11.9	113	7.1	71
				4.1	10.4	11.9	113	7.1	71
				5.1	10.4	11.9	113	7.1	71
				6.1	10.4	11.9	113	7.2	71
				7	10.4	11.9	112	7.1	71
				8.1	10.5	11.9	112	7.1	71
				9.1	10.5	12	114	7.2	72
				10.2	10.5	11.9	112	7.2	71
				11	10.5	11.8	112	7.2	72
				12.1	10.5	11.8	112	7.2	72
SNAP04	17-Jan-06	0.8	-	1	0.4	17.1	118	6.7	55
				2	1.1	15.3	108	6.7	50
				3	2.1	12.5	91	6.6	45
				4	3.2	9.2	69	6.5	42
	19-Feb-06	1	-	1	0.4	18.1	125	6.2	33
				2	1.1	17.3	122	6.2	29
				3	2.1	14.9	107	6.2	27
				4	3	9.7	72	6.2	26
				4.4	3.4	7.4	56	6.1	26
	17-Mar-06	1	-	1.2	0.7	18.4	128	6.4	34
				2.1	1	17.6	123	6.4	31
				3.1	2.1	15.3	109	6.4	28
				4	3	11.2	85	6.4	27
	13-Apr-06	1.1	-	1.3	0.4	16.5	114	6.3	32
				2	1.1	15.6	110	6.3	31
				3	1.8	14.1	102	6.3	30
	19-Jul-06	no ice	-	1	16	9.6	103	6.6	53
				2	15.9	9.6	103	6.7	53
				3	15.9	9.6	103	6.7	53
				4	15.9	6.6	71	6.7	53

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	14-Sep-06	no ice	-	1	8.5	11.3	102	6.5	48
				2	8.6	11	100	6.5	48
				1.5	8.7	11	100	6.6	48
				2.5	8.7	10.9	99	6.6	48
				3	8.7	10.9	99	6.7	48
				3.5	8.7	10.9	99	6.7	48
				4	8.8	10.9	99	6.7	48
SNAP05	14-Jan-06	0.8	-	1	0	16.3	112	6.5	51
				2	0.6	15.7	109	6.6	47
				3	0.9	14.9	105	6.5	45
				4	1.1	14	99	6.5	45
				5	1.3	13.7	97	6.5	45
				6	1.5	12.9	92	6.5	48
				7	1.6	12.3	88	6.3	100
				8	1.6	12.1	87	6.2	133
				9	1.6	11.8	84	6.2	202
				10	1.8	11.3	81	6.2	207
				11	2.1	9.8	66	6.1	204
				12	2.2	9.7	70	6.1	203
				13	2.4	9.7	71	6	189
	18-Feb-06	1	-	1.1	0.2	16.1	111	6.6	54
				2	0.7	15	107	6.6	49
				3	1	14.7	104	6.5	48
				4	1.3	14	100	6.5	47
				5	1.4	13	93	6.5	46
				6	1.6	11.6	83	6.4	54
				7	1.6	11.8	84	6.1	130
				8	1.7	11	79	6.1	162
				9	1.7	10.6	76	6	234
				10	1.9	10.1	73	6	242
				11	2.1	9.5	69	6	239
				12	2.4	8.9	65	6	235
				13	2.6	8.2	60	6	233
	16-Mar-06	1.2	-	1	0.1	18	123	6.6	31
				2	0.7	16.9	117	6.6	28
				3	1.1	15.8	112	6.6	27
				4	1.4	15	106	6.6	27
				5	1.6	14.1	100	6.5	28
				6	1.7	13.3	94	6.4	51
				7	1.7	12.5	89	6.4	84
				8	1.8	11.7	83	6.4	112
				9	1.8	11.1	79	6.3	144
				10	2	10.2	83	6.4	147
				11	2.3	9.3	68	6.4	147
				12	2.5	8.7	64	6.4	146
				13	2.8	8.2	60	6.3	145
				14	3.1	6.6	48	6.3	145
	8-Apr-06	1.2	-	1.5	0.8	16.5	115	6.4	28
				2	0.9	15.7	111	6.4	27
				3.1	1.3	15.1	107	6.4	27
				4.1	1.6	14.2	102	6.4	26
				4.9	1.7	12.8	93	6.4	28
				6.1	1.8	11.7	83	6.2	58
				7	1.8	11.6	84	6.2	89
				8.1	1.9	11	80	6.1	122
				9.1	1.9	10	72	6.2	148
				10.1	2.1	9.4	68	6.2	149
				11	2.3	8.7	64	6.2	148
				12.1	2.6	8.1	60	6.2	147
				13	2.7	7.6	56	6.2	147
				14.1	3.1	5.4	40	6.2	147
	13-Jul-06	no ice	-	6	14.2	11.5	118	7	65
				7	14.3	11.5	119	7	65
				8	14.2	11.5	118	7	64
				9	14.2	11.5	118	7	64
				10	14.2	11.5	118	7	64
				11	14.1	11.5	118	7	64
				12	14	11.5	118	7	62
				13	14	11.5	118	7	62

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Sep-06	no ice	-	1.1	10.3	11.9	107	7.1	66
				2	10.3	11.9	111	7.1	66
				3	10.4	11.9	110	7.1	66
				4	10.4	11.9	110	7.1	66
				5.1	10.4	11.8	110	7.1	67
				6	10.4	11.8	110	7.1	66
				7.1	10.4	11.8	112	7.1	66
				8	10.4	11.9	110	7.1	66
				9.1	10.4	11.8	110	7.1	66
				10.1	10.4	11.8	110	7.1	66
				11	10.4	11.8	110	7.1	66
				12	10.4	11.8	106	7.1	66
				13	10.3	11.8	106	7.1	66
SNAP06	15-Jan-06	0.9	-	1	0.5	15.8	110	6.7	50
				2	0.9	14.3	100	6.6	46
				3	1.1	13.8	97	6.6	44
				4	1.2	13.3	94	6.6	45
				5	1.4	13.1	83	6.5	46
				6	1.6	12	86	6.4	49
				7	1.8	10.9	79	6.3	99
				8	2	10.1	73	6.2	116
				9	2	9.4	68	6.1	149
				10	2.3	8	59	6	165
				11	2.3	8.2	60	5.9	165
	19-Feb-06	1.2	-	1.3	0.4	17	118	6.4	28
				2	0.8	15.6	109	6.4	26
				3	1.1	14.8	104	6.4	25
				4	1.3	16.3	97	6.4	25
				5	1.5	13.9	99	6.3	27
				6	1.7	13	93	6.3	29
				7	1.8	11.4	82	6.2	63
				8	2	9.3	67	6.2	84
				9	2.1	9	66	6.2	102
				10	2.2	8.4	61	6.2	114
				11	2.3	8.2	60	6.2	117
				12	2.4	8	59	6.2	119
	16-Mar-06	1.4	-	1.5	0.3	17.2	119	6.5	29
				2.1	0.8	16.4	114	6.6	28
				3	1.1	15.8	111	6.5	27
				4.1	1.4	14.8	105	6.5	26
				5.1	1.6	14.2	102	6.5	30
				6.1	1.7	13.4	96	6.4	33
				7	1.8	12.5	89	6.3	88
				8.2	2	10.8	77	6.3	101
				9.1	2.2	8.8	64	6.3	120
				10.1	2.2	8.3	60	6.3	128
				11.1	2.4	7.8	57	6.3	129
				12.1	2.5	7.4	54	6.3	131
	8-Apr-06	1.4	-	1.4	0.9	16.3	115	5.9	30
				2	1.1	16	113	6	28
				3	1.4	15.1	108	6	27
				4	1.7	13.8	100	6	26
				5	1.9	12.2	89	6.1	27
				6	2	12	86	6	35
				7	1.9	10.9	79	5.9	95
				8	2.2	9.1	67	6	107
				9	2.3	7.9	58	6	124
				10	2.4	7.1	52	6.1	132
				10.9	2.5	6.6	48	6.1	133
				11.9	2.7	6	44	6.2	134

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Jul-06	no ice	-	1	14.2	11.5	119	7	64
				2	14.3	11.5	119	7	64
				3	14.3	11.5	119	7	64
				4	14.3	11.5	119	7	64
				5	14.3	11.5	119	7	63
				6	14.3	11.5	119	7.1	63
				7	14.3	11.5	119	7	63
				8	14.3	11.5	119	7.1	63
				9	14.3	11.5	119	7	63
				10	14.2	11.5	119	7	62
				11	14.2	11.5	119	7.1	62
				12	14.2	11.5	119	7	62
				13	14.2	11.5	119	7.1	61
	13-Sep-06	no ice	-	1.1	10.3	11.8	107	6.5	62
				2	10.4	11.7	111	6.5	62
				3.1	10.5	11.7	110	6.5	62
				4.1	10.5	11.6	110	6.6	62
				5	10.5	11.6	110	6.6	62
				6	10.5	11.6	110	6.6	62
				7	10.5	11.8	112	6.6	62
				8.1	10.5	11.6	110	6.7	63
				9.1	10.5	11.6	110	6.7	63
				10	10.5	11.6	110	6.7	63
				11.1	10.4	11.6	110	6.7	64
				12	10.3	11.6	106	6.7	64
				13.1	10.3	11.6	106	6.7	64
SNAP07	16-Jan-06	0.9	-	1	0.6	16.8	117	6.9	55
				2	1	15.8	111	6.9	50
				3	1.1	15.3	108	6.9	51
				4	1.3	14.8	105	6.8	50
				5	1.5	13.9	99	6.7	50
				6	2	12.6	91	6.7	47
				7	2.4	11.6	84	6.7	45
	19-Feb-06	1.1	-	1.2	0.3	17.5	121	6.5	30
				2	0.7	16	112	6.5	28
				3	1	14.9	105	6.4	28
				4	1.3	14.8	105	6.4	29
				5	1.4	13.8	98	6.3	29
				6	1.9	11.4	82	6.3	28
				7	2.4	10.4	76	6.2	27
				8	2.7	9.3	69	6.2	26
	17-Mar-06	1.3	-	1.3	0.5	18.3	127	6.9	31
				2.1	0.9	17.7	124	6.8	30
				3	1.1	17	120	6.7	29
				4	1.3	16.3	116	6.7	29
				5	1.6	14.8	106	6.6	30
				6.1	2.1	12.2	89	6.6	29
				7	2.5	11	80	6.5	28
				8	2.8	9.6	71	6.4	28
	10-Apr-06	1.3	-	1.3	0.6	16	112	6.4	32
				2.1	1	16	112	6.4	30
				3	1.3	16	113	6.3	29
				4	1.6	15.5	111	6.3	31
				5	1.8	14.9	108	6.3	30
				5.9	2.2	12.8	93	6.2	30
				7	2.6	11.6	86	6.2	29
				8	2.9	9.6	70	6.2	29
				9.1	3	6[(b)]	45	6	29
	14-Jul-06	no ice	-	1	14	11.6	119	6.6	54
				2	14	11.6	119	6.7	54
				3	14	11.6	119	6.7	54
				4	14	11.6	119	6.8	54
				5	14	11.6	119	6.8	54
				6	14	11.6	119	6.8	54
				7	13.94	11.6	119	6.8	54
				8	13.9	11.6	119	6.8	54
				9	13.9	11.6	119	6.8	54

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	15-Sep-06	no ice	-	1	9	11.6	106	6.3	57
				2	9	11.4	104	6.4	57
				3	8.9	11.3	103	6.5	57
				4	8.9	11.3	103	6.5	56
				5	8.8	11.3	102	6.5	56
				6	8.7	11.2	112	6.6	55
				7	8.7	11.2	112	6.6	55
				8	8.6	11.3	102	6.6	55
				9	8.5	11.3	102	6.8	55
SNAP08	16-Jan-06	0.8	-	1	1.6	15.7	112	7.6	54
				2	2.5	13.9	102	7.4	46
				3	3.5	12.4	93	7.4	43
				4	4.2	8.4	64	7.1	43
				5	4.1	8	61	7	43
				6	4.3	5.7	44	6.8	44
				7	4.3	3.9	30	6.6	44
				8	4.2	4.4	34	6.6	46
	19-Feb-06	1.1	-	1.2	0.2	17.1	118	6.4	31
				2	1.4	14.5	104	6.4	27
				3	3	10.7	79	6.4	25
				4	3.8	6.9	52	6.3	25
				5	4	6.6	50	6.1	26
				6	4	6.2	47	6.1	27
				7	4.1	4.8	46	6	27
				8	4.3	2.2	17	6	29
	17-Mar-06	1.1	-	1.1	0.3	17.5	121	6.5	33
				2.1	1	16.9	119	6.5	29
				3.1	2.8	13.8	103	6.4	26
				4	3.9	10.6	83	6.4	26
				5.1	4.1	7	54	6.3	27
				6	4.1	5.5	43	6.2	27
				7.1	4.2	4	32	6.1	28
				8.1	4.4	1.9	16	6.1	31
				9.1	4.6	0.6	5	6.1	69
	10-Apr-06	1.2	-	1.3	0.9	16.1	113	6.3	32
				2	2.1	13.7	100	6.2	30
				3.1	3.3	12	92	6.2	28
				4	4	8.2	65	6.1	27
				5	4.1	6.1	48	6.1	27
				6	4.2	4.7	38	6	28
				7.1	4.2	3.8	30	6	29
				8	4.5	1.6	13	6	39
	14-Jul-06	no ice	-	1	14.1	11.5	118	6.4	52
				2	14.1	11.5	118	6.5	52
				3	14	11.5	118	6.5	52
				4	14	11.5	118	6.5	52
				5	14	11.5	118	6.5	52
				6	14	11.5	118	6.6	52
				7	14	11.5	118	6.6	52
				8	14	11.5	118	6.6	52
				1	14.2	11.6	120	6.8	52
				2	14.1	11.6	119	6.8	52
				3	14.1	11.6	119	6.9	52
				4	14.1	11.7	120	6.9	52
	15-Sep-06	no ice	-	1	8.6	11.3	102	6.3	52
				2	8.4	11.3	102	6.3	52
				3	8.4	11.3	102	6.3	52
				4	8.3	11.3	102	6.3	51
				5	8.3	11.3	102	6.4	51
				6	8.2	11.3	102	6.4	51
				7	8.2	11.3	102	6.4	51

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP09	16-Jan-06	0.8	-	1	0.4	14.4	100	6.8	48
				2	0.8	13.9	97	6.8	44
				3	1	13.4	94	6.7	43
				4	1.1	13.1	92	6.7	43
				5	1.3	12.8	91	6.6	43
				6	1.4	12.7	90	6.6	44
				7	1.5	12.4	88	6.5	44
				8	1.6	12.1	86	6.5	44
				9	1.7	11.9	85	6.4	45
				10	1.8	11.7	84	6.3	45
				11	1.9	11.3	81	6.3	45
				12	1.9	10.4	75	6.2	44
				13	2	9.8	71	6.1	44
				14	2.2	8.9	64	6	44
	19-Feb-06	1	-	1.2	0.6	15.3	107	6.3	27
				2	0.9	13.8	97	6.2	24
				3	1.2	13	92	6.3	23
				4	1.4	12.6	89	6.3	23
				5	1.5	12.3	88	6.3	24
				6	1.6	12	86	6.3	24
				7	1.7	11.7	84	6.3	25
				8	1.8	11.5	83	6.2	25
				9	1.9	10.8	78	6.2	25
				10	2	10.4	75	6.2	25
				11	2.1	9.6	70	6.2	25
				12	2.2	8.7	63	6.1	25
				13	2.3	7.9	58	6.1	25
				14	2.4	6.9	51	6	26
	17-Mar-06	1.2	-	1.2	0.2	16.8	116	6.5	28
				2	0.8	15.7	110	6.5	25
				3	1.2	14.7	104	6.5	24
				4.1	1.4	13.4	96	6.5	24
				5.1	1.6	12.9	92	6.5	25
				6.1	1.7	12.4	89	6.4	25
				7.1	1.8	12	87	6.4	26
				8.1	1.9	11.6	4	6.4	26
				9.1	2	10.9	79	6.4	28
				10	2.1	10.4	76	6.4	28
				11	2.2	9.3	68	6.3	29
				12.1	2.3	8.4	61	6.2	30
				13	2.4	7.5	55	6.5	31
				14.1	2.4	6.6	49	6.1	35
	11-Apr-06	1.2	-	1.3	0.7	15.2	106	6.6	28
				2	1	14.9	105	6.6	26
				3	1.4	13.7	98	6.6	25
				4	1.7	12.8	92	6.6	25
				5.1	1.8	12	87	6.6	26
				6	1.9	11.5	83	6.5	26
				7	2	11	80	6.5	27
				8	2.1	10.4	77	6.5	28
				9	2.2	8.7	63	6.4	30
				10	2.3	8.3	60	6.3	32
				11	2.3	7.8	57	6.3	35
				11.9	2.4	7.3	54	6.3	36
				13	2.4	6.9	50	6.2	41
				14	2.4	6.9	50	6.2	49
				15	2.5	4.8	33	6.2	52
	14-Jul-06	no ice	-	1	14.4	11.6	121	6.9	56
				2	14.4	11.6	121	6.9	56
				3	14.3	11.6	119	6.9	56
				4	14.3	11.6	120	6.9	56
				5	14.3	11.6	120	6.9	56
				6	14.3	11.6	120	6.9	56
				7	14.3	11.6	120	7	56
				8	14.2	11.6	120	7	56
				9	14.2	11.6	120	6.9	55
				10	14.1	11.6	119	6.9	55
				11	14.1	11.6	119	6.9	55
				12	14.1	11.6	119	7	55
				13	14	11.6	119	6.7	55

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	15-Sep-06	no ice	-	1	9.8	11.4	107	6.8	58
				2	9.8	11.2	105	6.9	58
				3	9.8	11.2	104	6.9	58
				4	9.7	11.2	104	6.9	58
				5	9.7	11.2	104	6.9	58
				6	9.7	11.2	104	6.9	58
				7	9.7	11.1	104	6.9	58
				8	9.7	11.1	104	6.9	58
				9	9.7	11.1	103	6.9	58
				10	9.7	11.1	103	7	58
				11	9.7	11.1	103	7	58
				12	9.6	11.1	103	7	58
				13	9.6	11.1	103	7	57
				14	9.5	11.1	103	7	57
SNAP10	17-Jan-06	0.8	-	1	0.9	16.4	115	7.9	54
				2	1	15.7	110	7.8	51
				3	1.2	14.8	105	7.7	53
				4	1.3	14.6	104	7.6	54
	19-Feb-06	1	-	1.1	0.5	17.3	120	6.3	30
				2	0.9	16	112	6.3	27
				3	1.1	14.9	106	6.3	27
				4	1.3	14.5	103	6.3	27
	17-Mar-06	1.1	-	1	0.1	18.2	125	6.6	31
				2	0.6	17	118	6.6	29
				3	1.1	16	112	6.5	29
				4	1.4	15.4	110	6.5	29
				5	1.9	15.1	101	6.4	35
	11-Apr-06	1.2	-	1.3	0.5	16.3	113	6.5	31
				2.1	0.7	16	112	6.1	30
				3	1.1	15.3	108	6.5	29
				4	1.5	14.9	106	6.5	29
				5	2	13.9	102	6.4	35
	15-Sep-06	no ice	-	1	8.6	11.7	106	6.6	53
				2	8.6	11.5	104	6.7	53
				3	8.6	11.4	104	6.7	53
				4	8.5	11.4	103	6.7	53
SNAP11	17-Jan-06	0.8	-	1	0.5	14.8	103	7.3	48
				2	0.9	13.8	96	7.2	44
				3	1	13.4	94	7.2	44
				4	1.2	13.1	93	7.2	44
				5	1.3	12.9	92	7.2	44
				6	1.4	12.8	91	7.1	46
				7	1.5	12.6	90	7.1	46
				8	1.6	12.4	89	7.1	46
				9	1.6	12.1	86	7	46
				10	1.7	11.7	84	7	46
				11	1.8	11.1	80	6.8	48
				12	1.9	10.6	77	6.7	50
				13	2	10.2	73	6.5	54
				14	2.1	9.6	69	6.5	53
				15	2.3	8.2	60	6.4	53
	19-Feb-06	1	-	1.2	0.5	15.9	110	6.3	27
				2	0.9	14.2	100	6.3	25
				3	1.2	13.3	94	6.3	24
				4	1.4	12.8	91	6.3	24
				5	1.5	12.7	91	6.3	25
				6	1.6	12.4	89	6.3	25
				7	1.7	11.9	85	6.3	25
				8	1.8	11.6	83	6.3	26
				9	1.9	10.9	79	6.2	27
				10	1.9	10.7	77	6.2	28
				11	2	10.5	75	6.2	29
				12	2.1	9.5	69	6.2	31
				13	2.1	9.2	67	6.1	35
				14	2.2	8.3	60	6.1	36
				15	2.4	7.4	54	6	39

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	17-Mar-06	1.2	-	1	0.1	16.8	115	6.4	29
				2	0.8	16	111	6.4	26
				3	1.2	14.5	102	6.4	25
				4	1.4	13.7	97	6.4	25
				5	1.6	12.9	92	6.4	26
				6	1.7	12.2	88	6.4	26
				7	1.8	11.9	85	6.4	27
				8	1.9	11.5	83	6.4	27
				9	2	11	79	6.3	30
				10	2	10.3	75	6.3	31
				11	2.1	10	72	6.2	35
				12	2.2	9.5	69	6.2	38
				13	2.2	8.9	95	6.2	41
				14	2.3	8.2	59	6.2	43
				15	2.5	7.4	54	6.1	46
				16	2.8	6	43	6.1	47
SNAP11A	12-Apr-06	1.3	-	1.5	0.4	15	104	6.4	28
				2	0.8	14.5	101	6.4	27
				3.1	1.3	13.4	96	6.4	25
				4.1	1.6	12	86	6.4	26
				5	1.8	11.4	82	6.4	26
				6	1.9	10.8	78	6.3	28
				7	2	10.3	75	6.3	29
				8	2	10	72	6.2	25
				9	2	9.7	70	6.2	41
				10	2	9.5	69	6.2	44
				11	2.1	9.4	68	6.2	46
				12	2.1	9.2	67	6.2	48
				13	2.3	8.4	61	6.2	49
	14-Jul-06	no ice	-	1	14.4	11.5	120	6.9	56
				2	14.4	11.5	121	6.9	56
				3	14.3	11.6	121	6.9	56
				4	14.2	11.6	121	6.9	56
				5	14.2	11.6	119	6.9	56
				6	14.2	11.6	119	6.9	56
				7	14.2	11.6	119	6.9	57
				8	14.2	11.6	119	6.9	57
				9	14.2	11.6	119	6.9	57
				10.1	14.2	11.5	119	6.9	57
				11	14.2	11.5	119	6.9	58
				12	14.2	11.5	119	6.9	58
				13	14.2	11.6	119	6.9	58
SNAP12	15-Jan-06	0.7	-	1	1.1	15.7	110	7.6	53
				2	1.4	14.6	104	7.5	48
				3	1.3	14	99	7.5	47
				4	1.5	13.2	94	7.5	45
				5	1.6	12.8	91	7.5	45
				6	1.7	12	86	7.4	56
				7	1.8	11.1	80	7.2	80
	18-Feb-06	0.9	-	1	0.3	16.6	115	6.7	55
				2	0.7	15.7	110	6.7	50
				3	1.1	14.3	101	6.6	48
				4	1.3	13.4	95	6.5	47
				5	1.5	12.3	88	6.5	47
				6	1.7	11.1	80	6.3	62
	16-Mar-06	1.1	-	1	0.1	17.6	121	6.7	30
				2	0.6	16.8	116	6.7	27
				3	1.1	15.8	110	6.7	28
				4	1.4	14.9	105	6.7	27
				5	1.6	13	93	6.7	27
				6	1.7	12.1	86	6.5	52
				7	1.9	11.3	81	6.5	68
	9-Apr-06	1	-	1.2	0.2	17	117	6.7	29
				2	0.7	16.1	113	6.7	27
				3	1.2	15.2	108	6.7	27
				4	1.4	14	100	6.7	27
				4.9	1.7	12.9	92	6.6	28
				5.9	1.8	12	88	6.5	52
				7	2	11.7	80	6.4	75

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Jul-06	no ice	-	1	14.3	11.5	120	6.8	70
				2	14.3	11.5	120	6.8	70
				3	14.4	11.5	120	6.8	70
				4	14.4	11.5	120	6.9	70
				5	14.4	11.5	120	6.9	70
				6	14.4	11.5	120	6.9	70
				7	14.4	11.5	120	6.9	70
	13-Sep-06	no ice	-	1.1	10.2	12.3	116	6.8	72
				2.1	10.4	11.9	112	6.8	73
				3.1	10.4	11.8	112	6.8	73
				4	10.5	11.8	112	6.9	72
				5	10.5	11.8	112	6.9	73
				6	10.5	11.8	112	6.9	72
				7	10.5	11.8	112	6.9	73
SNAP13	15-Jan-06	0.8	-	1	0.5	16.2	112	6.9	52
				2	0.8	14.9	104	6.9	48
				3	1.1	14	99	6.9	45
				4	1.2	13.4	95	6.9	44
				5	1.4	12.7	90	6.9	44
				6	1.6	11.4	81	6.6	52
				7	1.5	11.6	83	6.3	115
				8	1.5	12.1	86	6.2	161
				9	1.6	11.7	84	6.2	238
				10	1.6	11.5	82	6.2	256
				11	1.6	11.4	82	6.2	261
				12	1.7	11.2	80	6.2	261
				13	1.7	11.2	80	6.2	265
				14	1.7	11.2	80	6.2	265
				15	1.7	11.1	80	6.2	267
				16	1.7	11.1	80	6.2	267
				17	1.7	11	79	6.2	267
				18	1.8	10.9	79	6.2	267
				19	1.8	10.8	78	6.2	265
				20	1.8	10.8	77	6.2	264
	17-Feb-06	-	-	1.2	0.3	17.6	121	6.8	51
				2	0.6	17	118	6.8	50
				3	1	15.4	108	6.7	48
				4	1.3	14.5	103	6.7	46
				5	1.4	13.8	98	6.6	47
				6	1.6	12.8	91	6.6	70
				7.1	1.7	11.9	85	6.4	119
				8	1.6	11.9	85	6.3	189
				9	1.6	12.2	87	6.2	264
				10	1.7	12	86	6.2	272
				11	1.8	11.6	83	6.2	271
				12	1.8	11.4	82	6.2	271
				13	1.9	11.2	81	6.2	272
				14	1.9	11.2	81	6.1	272
				15	1.9	11	80	6.1	272
				16	1.9	10.9	79	6.1	271
				17	1.9	10.8	78	6.1	272
				18	2	10.7	77	6.1	272
				19	2	10.6	77	6.1	270
				20	2	10.5	76	6.1	270
				21	2	10.2	74	6.1	269

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Mar-06	-	-	1.2	-0.1	17.1	117	6.7	2
				2	0.8	15.4	108	6.6	28
				3	1.1	15.3	107	6.6	28
				4	1.3	14.5	103	6.6	28
				5.1	1.5	13.8	98	6.6	28
				6.1	1.6	12.6	90	6.5	53
				7	1.6	12	86	6.4	89
				7.1	1.6	11.9	85	6.4	128
				9.1	1.6	11.9	85	6.3	158
				10	1.7	11.5	83	6.4	161
				11	1.8	11	79	6.4	159
				12	1.9	10.7	77	6.4	160
				13.1	2	10.4	75	6.4	160
				14.2	2	10.2	74	6.4	160
				15.1	2	10.1	73	6.4	160
				16	2.1	9.8	71	6.4	160
				17.3	2.1	9.7	70	6.4	160
				18	2.1	9.6	70	6.4	161
				19.1	2.1	9.5	69	6.4	160
				20	2.1	9.4	68	6.4	160
				21.1	2.2	9.1	66	6.4	159
	9-Apr-06	1.2	-	1.3	0.6	17.1	119	6.3	30
				2.1	0.9	16.3	115	6.4	28
				3.1	1.3	15.3	108	6.4	27
				4	1.6	13.8	99	6.4	26
				5	1.7	12.1	87	6.4	28
				6	1.7	11.8	84	6.2	54
	9-Apr-06	1.2	-	7.1	1.8	11	79	6.2	87
				8.1	1.7	11.5	82	6.2	133
				9.1	1.8	11.1	80	6.2	157
				10	1.9	10.5	76	6.3	158
				11.1	1.9	10.3	74	6.3	162
				12	2	9.8	71	6.3	160
				13	2.1	9.7	70	6.3	161
				14	2.1	9.6	70	6.3	161
				15.1	2.1	9.5	69	6.3	162
				16.1	2.1	9.5	69	6.3	163
				17	2.1	9.4	69	6.3	164
				18	2.1	9.5	69	6.4	165
				19	2.1	9.4	69	6.4	165
				20	2.1	9.4	68	6.4	165
SNAP14	15-Jan-06	0.9	-	1	0.4	15.2	105	6.7	50
				2	0.8	14.5	102	6.7	46
				3	1	14	98	6.7	45
				4	1.3	12.9	92	6.8	44
				5	1.4	12.6	89	6.6	46
				6	1.5	12	89	6.5	54
				7	1.6	11.7	84	6.3	98
				8	1.5	11.8	84	6.2	177
				9	1.6	11.7	83	6.1	231
				10	1.8	11	79	6.1	232
				11	2.1	10.5	76	6.1	226
				12	2.3	10	72	6.1	244
	18-Feb-06	1	-	1.1	0.3	15.7	108	6.5	52
				2	0.8	14.7	103	6.5	49
				3	1.1	14.2	99	6.5	46
				4	1.3	13.7	97	6.5	45
				5	1.5	13	93	6.4	46
				6	1.5	11.7	83	6.2	59
				7	1.5	11.8	84	6	129
				8	1.6	11.8	84	5.9	164
				9	1.6	11.2	81	5.8	266
				10	1.7	10.7	77	5.9	266
				11	1.9	10.2	74	5.9	262
				12	2.3	9.9	73	5.9	258

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Mar-06	1.2	-	1.1	0.1	16.8	115	6.6	29
				2	0.6	16.4	114	6.5	28
				3	1	15.8	110	6.5	27
				4	1.3	15.1	107	6.5	26
				5.1	1.5	13.7	97	6.5	28
				6	1.6	12.8	91	6.4	46
				7.1	1.6	12.3	88	6.3	83
				8.1	1.6	12.2	87	6.3	121
				9.1	1.7	11.9	85	6.3	156
				10.1	1.8	11.2	80	6.3	157
				11	2	10.4	75	6.4	156
				12	2.3	10	73	6.4	155
				13	2.6	8.6	65	6.4	155
	10-Apr-06	1.2	-	1.3	0.7	15.8	111	6.3	28
				2	0.9	15.4	108	6.3	28
				3	1.3	14.8	105	6.3	27
				4	1.5	14.1	101	6.3	27
				5	1.7	12.3	89	6.2	29
				6	1.7	11.7	83	6.1	56
				7	1.7	11.2	81	6.1	90
				8	1.8	11	79	6	126
				9	1.9	10.8	78	6	157
				10	2	9.9	72	6.1	158
				11.1	2.2	9.2	67	6.1	157
				12	2.4	8.6	63	6.1	158
				13.1	2.7	8	59	6.1	158
	13-Jul-06	no ice	-	1	14.5	11.4	118	6.5	71
				2	14.5	14.4	150	6.5	71
				3	14.4	11.4	120	6.6	71
				4	14.4	11.4	120	6.6	71
				5	14.4	11.5	120	6.6	71
				6	14.4	11.5	120	6.6	71
				7	14.4	11.5	120	6.6	71
				8	14.4	11.5	120	6.7	71
				9	14.4	11.4	120	6.7	71
				10	14.4	11.5	120	6.7	71
				11	14.4	11.5	120	6.7	71
				12	14.4	11.5	120	6.8	71
				13	14.4	11.4	120	6.8	71
	13-Sep-06	no ice	-	1	10.3	12	109	6.9	71
				2	10.4	11.9	112	7	71
				3	10.4	11.9	112	7	71
				4.1	10.4	11.8	112	7	71
				5	10.4	11.8	112	7	71
				6	10.4	11.8	112	7	71
				7	10.4	11.8	112	7	71
				8	10.4	11.9	112	7	71
				9.1	10.4	11.8	112	7	73
				10	10.4	11.8	111	7	71
				11.1	10.4	11.8	111	7	71
				12.1	10.4	11.7	111	7	71
				13.1	10.4	11.8	111	7	71
SNAP15	9-Apr-06	1.3	-	1.5	0.5	16.9	117	6.5	29
				2	0.7	16.3	114	6.6	28
				3	1.3	15.3	109	6.6	27
				4	1.4	14.6	104	6.5	27
				5	1.6	12.8	92	6.5	32
				6.1	1.7	11.6	83	6.4	60
				7	1.7	11.5	82	6.3	98
				8	1.7	11.5	83	6.3	133
				9	1.8	11	80	6.3	155
				10	1.9	10.4	75	6.3	158
SNAP17	13-Apr-06	1.2	-	1.5	0.5	15.3	107	5.9	28
				2	0.9	14.9	105	6	26
				3	1.3	14	99	6	25
				4.1	1.6	13.1	94	6	26
				5	1.7	12.2	88	6	26
				6	1.9	11.6	84	6	27
				7	2	10.9	79	6	29
				8	2.1	10.5	76	6	29
				9.1	2.1	9.4	68	6	37

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP18	12-Apr-06	1.2	-	1.3	0.5	15.7	109	6.3	29
				2	0.8	15.2	106	6.3	28
				3	1.2	14.3	102	6.3	27
				4	1.6	13.2	95	6.3	26
				5	1.8	11.9	86	6.3	27
				6	1.9	10.5	76	6.2	28
				7	2	10.2	74	6.2	29
				8	2.1	9.7	70	6.2	34
				9	2.1	9	65	6.1	36
				10	2.2	8.7	63	6.1	40
				11	2.2	8.5	62	6.1	41
SNAP19	13-Apr-06	1.3	-	1.5	0.4	15.5	108	6.3	28
				2	0.9	15	105	6.3	26
				3	1.4	13.9	99	6.3	25
				4	1.6	12.6	90	6.3	25
				5	1.7	12.3	88	6.3	26
				6	1.9	11.6	84	6.3	27
				7	2	11.1	80	6.2	27
				8	2.1	10.6	77	6.2	29
				9	2.2	9.7	71	6.2	31
				10	2.3	8.9	65	6.2	33
				11	2.4	8.1	59	6.2	33
SNAP20	13-Apr-06	1.3	-	1.5	0.8	15	105	6.3	13
				2	1.1	14.3	101	6.3	12
				3	1.8	12.9	93	6.3	11
				4	2	12	87	6.3	11
				5	2	11.4	83	6.3	11
				6	2.1	11.2	81	6.3	11
				7	2.1	11.1	81	6.3	11
				8	2.1	11.1	81	6.3	11
				9	2.1	11.1	81	6.3	11
				10	2.1	11.1	81	6.3	11
				11	2.1	11.1	80	6.3	11
				12	2.1	11.1	80	6.2	11
	18-Jul-06	no ice	-	1	15.4	10	106	6.6	15
				2	15.4	9.9	105	6.7	15
				3	15.4	9.9	105	6.7	15
				4	15.3	10	105	6.6	15
				5	15.3	9.9	105	6.7	15
				6	15.3	9.9	105	6.7	15
				7	15.3	9.9	105	6.7	15
				8	14.7	10	104	6.7	14
				9	11.4	10.8	105	6.7	13
				10	8.5	11.5	112	6.6	12
				11	6.8	11.7	113	6.5	11
				12	6.3	11.5	112	6.4	11
	14-Sep-06	no ice	-	1	9.7	10.4	97	6.5	14
				2	9.8	10.4	97	6.5	14
				3.1	9.8	10.3	96	6.5	14
				4	9.8	10.3	96	6.4	14
				5	9.7	10.4	96	6.5	14
				6	9.7	10.3	96	6.5	14
				7	9.7	10.4	96	6.5	14
				8	9.7	10.4	96	6.5	14
				9	9.6	10.4	96	6.5	14
				10	9.6	10.4	96	6.5	14
				11.1	9.6	10.4	96	6.5	14
				12	9.6	10.4	96	6.5	14
				13	9.5	10.4	96	6.5	14
SNAP23	16-Apr-06	1.2	-	1.5	1.1	16	113	6.7	19
				2.1	1.4	15.9	112	6.7	19
				3	2.1	14.6	106	6.7	17
				4	2.9	13.3	99	6.7	18
				5	3.3	10.8	82	6.6	18
				6	3.7	7.2	56	6.6	18
				7	4	4.5	36	6.5	20
				8.1	4.2	3	24	6.4	24
				9	4.3	1.5	12	6.4	25
				10	4.3	0.8	6	6.4	29
				11	4.4	0.3	3	6.5	38
				12	4.6	0.2	2	6.6	56

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNP 02-20a	13-Jan-06	0.8	-	1	0.2	17.8	122	7.6	57
				2	0.6	16.2	113	7.4	51
				3	0.9	15.3	107	7.4	47
	17-Feb-06	1	-	1	0.1	18.9	130	6.6	63
				2	0.6	18.4	128	6.6	55
				3	1	17.2	120	6.6	56
				3.7	1.3	15.3	108	6.2	156
	16-Mar-06	1.1	-	1	-0.3	16	109	6.8	4
				2	0	14.4	98	6.6	3
				3	0.5	12.6	87	6.5	3
				4	1.1	11.2	78	6.3	4
	7-Apr-06	1.2	-	1.2	2.2	15.8	115	6.6	33
				2	1.3	16.3	116	6.6	32
				3	1.6	15.4	110	6.5	31
				3.4	1.7	13.7	98	6.4	96
				3.7	1.7	13.4	96	6.3	115
SNP02-20b	14-Jan-06	0.9	-	1	0.9	16.8	118	6.9	56
				2	1	16.1	113	6.8	51
				3	1.2	15.3	108	6.8	51
				4	1.6	13.7	98	6.3	320
	17-Feb-06	1.1	-	1	0.1	18.9	130	6.5	48
				2	0.6	18.7	129	6.5	44
				3	0.9	17.2	120	6.5	55
				4	1.4	15.4	106	6.1	349
				5	1.5	12.4	88	6.1	440
				5.4	1.7	11.6	82	6.1	438
	16-Mar-06	1.3	-	1.1	0.9	18.7	131	6.4	36
				2	1	18.2	128	6.4	31
				3	1.3	17.1	121	6.3	33
				4.1	1.7	14.8	104	6.1	200
				5.1	1.8	13.1	94	6.2	246
	7-Apr-06	1	-	1.3	0.4	17.1	118	6.7	32
				2	0.7	16.5	115	6.7	30
				3	1.1	16	113	6.6	33
				4.1	1.6	14.4	106	6.3	209
				5.1	1.9	11.9	87	6.4	265
SNP 02-20c	13-Jan-06	0.7	-	1	0.3	17.6	122	7.9	60
				1.7	0.5	16.6	115	7.6	63
	17-Feb-06	0.8	-	0.2	0.8	17.9	125	7	66
				0.4	0.3	18.6	128	6.6	64
				0.6	0.2	18.8	129	6.6	64
				0.8	0.2	18.8	130	6.5	64
				1	0.2	18.8	129	6.5	64
				1.2	0.3	18.7	129	6.5	64
				1.4	0.3	18.2	126	6.4	64
				1.6	0.4	17.9	124	6.4	65
				1.8	0.5	16.7	116	6.4	68
				2	0.6	16.2	112	6.3	75
	14-Mar-06	1	-	1	0.3	18.9	131	6.9	34
				1.5	0.3	18.8	130	6.8	34
	7-Apr-06	1	-	1	0.3	17.4	120	6.4	34
				1.3	0.4	17.4	120	6.4	34
				1.5	0.4	17.1	119	6.4	35
				1.8	0.5	16.3	113	6.4	35
SNP 02-20d	12-Jul-06	no ice	-	1	14.9	9.8	103	6.5	72
				2	15	9.3	98	6.6	72
				3	14.9	9.9	104	6.7	72
				4	14.9	9.6	101	6.8	72
				5	14.9	9.8	103	6.8	72
				6	15	-	-	6.8	72
				7	14.9	-	-	6.8	72
				8	14.9	-	-	6.8	72
				9	14.8	-	-	6.8	73
				10	14.8	-	-	6.8	95
				11	14.8	-	-	6.8	110

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	19-Jul-06	no ice	-	1	15.7	9.8	104	7	72
				2.1	15.5	9.8	104	7.1	70
				3.1	15.3	9.8	104	7	71
				4	15.3	9.8	103	7	72
				5.1	15.3	9.8	104	7.1	73
				6	15.3	9.8	103	7.1	72
				7	15.2	9.8	103	7.1	72
				8	15.2	9.8	103	7.1	71
				9	15.2	9.8	103	7.1	71
				10	15.2	9.8	103	7.1	74
				11	15	9.7	102	7	102
				12.1	14.8	9.3	98	7	101
	13-Aug-06	no ice	-	<0.3	16.1	9.5	103	6.4	74
				1	16.1	9.5	103	6.4	74
				2	16.1	9.5	103	6.5	74
				3	16.1	9.5	103	6.5	74
				4	16.1	9.5	102	6.5	74
				5	16.1	9.5	103	6.6	74
				6	16.1	9.5	103	6.6	74
				7	16.1	9.5	102	6.6	75
				8	16.1	9.5	102	6.6	75
				9	16	9.6	102	6.6	74
				10	15.7	9.4	101	6.6	100
				11	15.5	9.4	100	6.6	138
				12	15.4	9.2	98	6.6	139
	20-Sep-06	no ice	-	<0.3	9.1	12	110	6.3	71
				1.1	9.1	11.7	108	6.4	72
				2	9.1	11.7	107	6.4	72
				3.1	9.1	11.7	107	6.5	72
				4	9.1	11.7	107	6.5	72
				5	9.1	11.6	107	6.5	72
				6.1	9.1	11.6	107	6.5	72
				7	9.1	11.6	107	6.5	72
				8	9	11.6	106	6.5	73
				9	9	11.6	106	6.6	73
				10.1	9	11.6	106	6.6	72
				11	9.1	11.6	106	6.6	76
SNP 02-20e	11-Jul-06	no ice	-	1	15.4	9.9	104	6.6	69
				2	15.3	9.8	104	6.6	69
				3	15.3	9.8	104	6.7	68
				4	15.2	9.7	102	6.7	68
				5	15.1	9.7	103	6.8	67
				6	14.9	9.7	102	6.8	68
				7	14.8	9.8	102	6.8	69
				8	14.7	10.2	106	6.8	71
				9	14.5	9.7	102	6.9	72
				10	14.5	9.9	103	6.9	79
				11	14.5	10.1	104	6.9	108
				12	14.4	10.1	106	7	109
				13	14.3	10	103	6.9	103
				14	14.3	9.9	102	7	105
				15	14.2	10.2	105	7	112
				16	12.2	9.8	101	6.9	97
				17	6.3	10.3	88	6.7	145
				18	4.6	10.3	85	6.6	155
				19	4	10.2	82	6.6	164
				20	3.7	10.1	81	6.5	169
				21	3.5	10	80	6.5	162
				22	3.4	9.9	78	6.5	174
				23	3.4	9.8	78	6.4	175
				24	3.3	9.3	74	6.4	176
				25	3.3	9.6	76	6.4	176

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	20-Jul-06	no ice	-	1	15.6	9.8	104	6.2	70
				2	15.4	9.8	104	6.4	70
				3	15.3	9.8	104	6.5	70
				4	15.3	9.8	103	6.5	69
				5	15.3	9.8	104	6.5	69
				6	15.2	9.8	104	6.6	68
				7	15.2	9.8	104	6.6	70
				8	15.2	9.8	104	6.6	70
				9	15.2	9.8	103	6.6	78
				10	15.2	9.8	103	6.7	80
				11	15.1	9.7	102	6.6	106
				12	14.9	9.7	102	6.7	102
				13	14.9	9.7	101	6.7	110
				14	14.7	9.6	101	6.7	100
				15	14.4	9.7	100	6.8	92
				16	14.1	9.6	99	6.8	91
	20-Jul-06	no ice	-	17	10	9.5	89	6.6	122
				18	6.5	9.5	82	6.5	153
				19	4.8	9.5	78	6.4	163
				20	4.2	9.4	76	6.4	166
				21	3.8	9.3	75	6.4	169
				22	3.6	8.6	69	6.3	171
				23	3.5	8.7	69	6.3	173
				24	3.4	8.3	66	6.3	175
				25	3.4	7.9	63	6.3	175
				26	3.3	7.6	60	6.3	175
				27	3.3	7.2	57	6.3	176
	13-Aug-06	no ice	-	<0.3	16.5	9.9	107	7	76
				1	16.4	9.6	104	7	76
				2	16.3	9.6	88	7	76
				3	16.3	9.6	88	7.1	76
				4	16.3	9.6	88	7.1	76
				5	16.3	9.6	88	7.1	76
				6	16.2	9.6	103	7.1	76
				7	16	9.6	103	7.1	80
				8	15.9	9.5	102	7.1	75
				9	15.9	9.5	102	7.1	75
				10	15.9	9.5	102	7.1	76
				11	15.6	9.5	102	7.1	109
				12	15.5	9.4	101	7.1	134
				13	15.5	9.4	100	7.1	132
				14	15.3	9.4	99	7.1	122
				15	15	9.3	98	7.1	105
				16	14.7	9	95	7.1	93
				17	14.5	8.7	90	7.1	89
				18	12.5	8.4	83	6.9	87
				19	8.3	7.6	65	6.7	152
				20	6.3	7.3	62	6.6	165
				21	4.9	7.1	58	6.6	171
				22	4.1	7	57	6.5	174
				23	3.9	6.9	56	6.5	174
				24	3.8	6.8	55	6.5	174
				25	3.7	6.8	54	6.4	174

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	19-Sep-06	no ice	-	<0.3	9.5	11.4	106	6.1	72
				1	9.2	11.5	106	6.2	71
				2	9.1	11.5	105	6.3	71
				3.1	9.1	11.5	105	6.3	71
				4.1	9.1	11.5	105	6.4	71
				5	9.1	11.5	105	6.4	71
				6	9	11.5	105	6.4	70
				7	9	11.6	107	6.5	70
				7.9	9	11.5	106	6.5	70
				9.1	9	11.5	105	6.5	71
				10.1	9	11.5	105	6.5	73
				11	9	11.4	105	6.6	75
				12.1	9	11.4	115	6.5	83
				13	9	11.3	114	6.6	83
				14	9	11.3	114	6.6	82
				14.9	9	11.3	114	6.6	82
				16.1	9	11.4	114	6.6	80
				17.2	9	11.3	114	6.6	78
				17.9	8.9	11.3	114	6.7	72
				19	8.9	11.3	114	6.7	71
				20.1	8.9	11.3	114	6.7	71
				21.1	8.9	11.3	114	6.7	71
				22	8.9	11.3	114	6.7	74
				23.1	8.9	11.2	113	6.7	75
				24	8.9	11.2	113	6.7	78
				25	8.9	11.3	113	6.7	80
				26.1	8.9	11.2	113	6.7	81
				27	8.9	11.1	111	6.7	86
				28	8.9	11	111	6.7	86
SNAP02-20f	12-Jul-06	no ice	-	1	14.9	-	-	6.8	74
				2	14.9	-	-	6.9	74
				3	15	-	-	6.9	74
				4	15	-	-	6.9	74
				5	15	-	-	6.9	74
				6	15	-	-	6.9	74
				7	15	-	-	7	74
				8	15	-	-	7	75
				9	15	-	-	6.2	75
				10	14.9	-	-	7	85
				11	14.8	-	-	6.9	112
				12	14.6	-	-	6.9	118
				13	14.4	-	-	6.9	122
	19-Jul-06	no ice	-	1	15.9	9.7	104	7	72
				2	15.5	9.8	104	7	71
				3	15.5	9.8	104	7	70
				4.1	15.4	9.8	104	7	70
				5	15.4	9.8	103	7	71
				6	15.3	9.8	103	7	71
				7	15.3	9.8	103	7	72
				8	15.2	9.8	103	7	71
				9.1	15.2	9.8	103	7	73
				10.1	15.1	9.7	102	7	79
				11.1	15.1	9.7	102	7	87
				12.1	14.9	9.6	101	7	120
				13.1	14.8	9.6	101	7	112
				14	14.5	6.5	68	7	105
	13-Aug-06	no ice	-	<0.3	16.1	9.8	106	7	75
				1	16.1	9.6	103	7	75
				2	16.2	9.6	103	7	75
				3	16.2	9.6	103	7.1	75
				4	16.2	9.6	103	7.1	75
				5	16.3	9.6	103	7.1	75
				6	16.2	9.6	103	7.2	75
				7	16.1	9.6	102	7.2	73
				8	15.9	9.6	103	7.2	78
				9	15.9	9.5	102	7.2	84
				10	15.8	9.5	102	7.1	115
				11	15.6	9.4	100	7.1	147
				12	15.5	9.4	100	7.1	144
				13	15.4	9.4	99	7.1	136

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	19-Sep-06	no ice	-	<0.3	9.4	11.5	106	6.8	71
				1	9.3	11.5	106	6.8	71
				2	9.3	11.5	106	6.9	71
				3	9.2	11.5	105	6.9	72
				3.9	9.2	11.5	106	6.9	72
				5.1	9.1	11.5	106	6.9	73
				6.1	9.1	11.5	106	6.9	72
				7.1	9.1	11.5	105	6.9	72
				8.1	9.1	11.5	105	6.9	72
				9.1	9	11.5	105	6.9	72
				10	9	11.5	105	7	73
				11	9	11.4	104	7	73
				12	9.1	11.3	104	6.9	88
				13	9.1	11.3	104	6.9	93
				14	9	11.4	114	7	91
SNAP25	19-Jul-06	no ice	-	1	15.6	9.7	104	6.7	71
				2	15.6	9.7	103	6.8	71
				3	15.6	9.7	103	6.9	71
	18-Sep-06	no ice	-	0.5	8.8	14.1	128	6.6	65
				1	8.9	13.8	126	6.6	66
				1.5	8.9	13.7	126	6.6	65
				2	8.9	13.7	126	6.7	67
				2.5	8.9	13.7	125	6.7	66
SNAP26	19-Jul-06	no ice	-	1	15.8	9.7	104	6.9	70
				2	15.6	9.8	104	6.9	71
				3.1	15.6	9.8	104	7	71
				4	15.6	9.7	103	7	71
				5	15.4	9.7	103	7	74
	18-Sep-06	no ice	-	0.5	8.8	14	141	6.3	66
				1	8.8	13.8	139	6.4	66
				1.5	8.8	13.7	138	6.5	66
				2	8.8	13.6	137	6.5	66
				2.5	8.8	13.6	137	6.5	66
				3	8.8	13.6	137	6.5	66
				3.5	8.8	13.6	137	6.5	66
				4	8.7	13.6	124	6.5	66
				4.5	8.6	13.6	124	6.6	65
				5	8.4	13.7	124	6.6	65
SNAP27	19-Jul-06	no ice	-	0.3	15.6	9.7	104	7	72
				0.5	15.7	9.7	103	7	71
				0.8	15.6	9.7	103	7	72
				1	15.6	9.7	103	7	72
				1.2	15.6	9.7	103	7	72
	18-Sep-06	no ice	-	0.3	8.8	13.6	124	6.1	66
				0.5	8.8	13.5	123	6.2	66
				0.7	8.8	13.5	123	6.3	66
				1	8.8	13.5	123	6.3	66
				1.3	8.7	13.5	123	6.3	66
				1.5	8.7	13.5	123	6.3	66
				1.7	8.5	13.4	122	6.4	66
SNAP28	13-Jul-06	no ice	-	1	14.3	11.4	118	6.8	77
				2	14.4	11.4	118	6.8	73
				3	14.4	11.5	118	6.9	75
				4	14.4	11.5	118	6.9	75
				5	14.4	11.5	119	6.9	75
				6	14.4	11.5	119	6.9	75
				7	14.4	11.5	119	6.9	74
	19-Jul-06	no ice	-	1	15.5	9.8	104	7	70
				2	15.4	9.7	103	7	70
				3	15.4	9.7	103	7	70
				4	15.4	9.7	103	7	70
				5	15.3	9.7	103	7	70
				6	15.3	9.7	103	7	70

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Sep-06	no ice	-	0.5	10.2	12.4	116	7	71
				1.1	10.3	12	114	7.1	72
				1.5	0.4	12	113	7.1	72
				2.1	10.4	11.9	113	7.1	72
				2.6	10.4	11.9	113	7.1	71
				3.1	10.4	11.9	112	7.1	71
				3.5	10.4	11.9	112	7.1	71
				4.1	10.4	11.9	112	7.1	71
				4.5	10.4	11.9	112	7.1	71
				5	10.4	12	114	7.1	71
SNAP29	18-Jul-06	no ice	-	1	15.8	9.8	105	6.5	17
				2	15.8	9.9	105	6.5	17
				3	15.8	9.9	105	6.5	17
				4	15.7	9.9	105	6.6	17
				5	15.7	9.9	105	6.6	17
				6	15.7	9.9	105	6.6	17
				7	15.7	9.9	105	6.6	17
				8	15.7	9.9	105	6.6	17
				9	15.7	9.8	105	6.6	17
				10	15.6	9.8	105	6.7	17
	19-Jul-06	no ice	-	1	16.1	9.7	104	7.2	36
				2	16	9.7	104	7.2	36
				3	16	9.7	104	7.2	36
				4	15.9	6.7	72	7.1	36
				5	15.9	9.7	104	7.2	34
				6	15.8	9.7	104	7.1	37
	14-Sep-06	no ice	-	1	8.9	11	101	6.8	30
				2	8.9	10.9	99	6.8	30
				3	8.9	10.8	99	6.8	30
				4	9	10.8	99	6.8	30
				5	9	10.8	99	6.8	30
SNAP02A	1-Mar-07	1.3	-	<0.3	0.1	17.4	120	6.9	46
				1	0.2	18	124	6.8	49
				2	1.2	16.8	118	6.7	40
				3	2.4	14.7	107	6.7	35
				4	2.9	12.6	92	6.6	32
				5	3.3	10.1	75	6.5	34
				6	3.6	8.5	64	6.4	36
				7	3.7	8.6	65	6.4	39
				8	3.8	7.9	60	6.3	40
				9	3.8	7.2	54	6.3	41
				10	3.8	6.8	52	6.2	44
	18-Mar-07	1.4	-	0.3	0.7	16.4	115	6.1	45
				1	0.6	16.6	116	6.1	43
				2	1.4	15.1	109	6.1	38
				3	2.4	14.1	103	6.1	33
				4	3	13	96	6	31
				5	3.3	10.2	76	6	31
				6	3.7	8.8	61	5.7	33
				7	3.8	7.7	59	5.7	36
				8	3.9	6.7	51	5.7	37
				9	3.9	6.4	48	5.7	38
				10	3.9	6.1	47	5.7	41
	25-Apr-07	1.7	-	0.3	0.6	14.5	101	6.5	45
				1	0.6	14.5	102	6.5	45
				2	1.9	14.1	101	6.5	40
				3	2.8	13.3	98	6.5	36
				4	3.4	12.2	91	6.5	35
				5	3.9	8	61	6.4	36
				6	4.1	7.3	56	6.4	39
				7	4	7.9	60	6.4	41
				8	4	7.6	58	6.4	43
				9	4	7.4	56	6.4	43

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	24-Jul-07	no ice	-	<0.3	18.3	9.1	96	6.1	25
				1	17.9	9.1	95	5.9	25
				2	17.5	9	95	5.9	24
				3	17.5	9	94	5.9	24
				4	17.3	9	94	6	24
				5	17.3	9	94	6	24
				6	17.3	9	94	6	24
				7	17.2	9	94	6	24
				8	17.2	9	94	6	24
				9	17.1	9	93	6	24
				10	13.8	9.4	91	6.1	23
	16-Sep-07	no ice	-	0.3	4.7	13.3	103	6.7	29
				1	4.7	13.2	103	6.7	29
				2	4.8	13.2	103	6.7	29
				3	4.8	13.2	103	6.6	29
				4	4.7	13.2	103	6.6	29
				5	4.8	13.2	103	6.6	29
				6	4.8	13.2	103	6.6	29
				7	4.8	13.2	103	6.7	29
				8	4.8	13.2	103	6.6	29
				9	4.8	13.2	103	6.6	29
				10	4.8	13.1	102	6.6	29
SNAP03	24-Feb-07	1	-	0.3	0.8	15.2	106	6.7	138
				1	0.8	15.2	106	6.7	129
				2	1.7	14.3	103	6.7	119
				3	2	13.8	100	6.7	117
				4	2.2	13.2	96	6.7	118
				5	2.3	11.8	86	6.7	137
				6	2.2	11	80	6.5	244
				7	2.2	10.7	77	6.5	279
				8	2.3	10.8	79	6.5	293
				9	2.6	10.5	77	6.5	292
				10	2.8	9.8	72	6.5	291
				11	3.1	8.8	63	6.5	290
				12	3.3	6.7	48	6.5	289
	19-Mar-07	1.4	-	0.3	0.1	16.6	114	6.5	136
				1	0.3	16.4	113	6.5	132
				2	1.3	15.1	106	6.5	118
				3	1.9	13.9	100	6.5	114
				4	2.1	13.2	95	6.5	114
				5	2.2	12	88	6.5	138
				6	2.1	11.1	80	6.4	239
				7	2.1	10.8	78	6.4	266
				8	2.3	10.6	78	6.4	278
				9	2.5	10.4	76	6.4	279
				10	2.8	8.8	64	6.4	278
				11	3.1	7.8	58	6.4	276
				12	3.4	5.8	44	6.4	273
	13-Apr-07	1.3	-	0.3	0.2	13.5	93	6.3	130
				1	0.6	13.4	93	6.3	127
				2	1.7	12.8	91	6.2	117
				3	2	12.3	88	6.2	115
				4	2.2	11.4	82	6.2	130
				5	2.1	10.8	78	6.1	191
				6	2.1	10.5	76	6.1	255
				7.1	2.1	10.8	79	6.2	280
				8	2.3	10.7	78	6.2	281
				9	2.6	9.1	67	6.2	280
				10	2.9	7.7	57	6.2	278
				11	3.2	6.5	48	6.2	276
				12	3.5	4.5	32	6.1	274
				11.5	3.3	4.7	3.5	6.2	275

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	23-Jul-07	no ice	-	0.3	16.5	10	102	6.8	123
				1	16.5	10	102	6.7	123
				2	16.5	10	102	6.6	123
				3	16.5	10	102	6.6	124
				4	16.5	10	102	6.7	124
				5	16.5	10	102	6.7	123
				6	16.5	10	102	6.6	123
				7	16.4	10	102	6.6	124
				8.1	16.3	10	102	6.6	124
				9.1	11.3	12.9	118	6.6	130
				10	8.4	14.2	121	6.5	135
				11	7.8	13.8	116	6.4	136
	22-Sep-07	no ice	-	0.3	4.3	13.6	104	7.1	156
				1	4.3	13.6	104	7.1	156
				2	4.3	13.6	104	7.1	156
				3	4.2	13.6	104	7.1	157
				4	4.2	13.6	104	7.1	157
				5	4.2	13.6	104	7.1	157
				6	4.2	13.6	104	7.1	157
				7	4.2	13.6	104	7.1	157
				8	4.2	13.5	104	7.1	153
				9	4.2	13.5	104	7.1	157
				10	4.2	13.5	104	7.1	157
				11	4.2	13.5	104	7.1	157
				12	4.2	13.5	104	7.1	157
SNAP04	27-Feb-07	1.3	-	0.3	1.4	14.3	102	5.1	145
				1	0.9	14.7	103	5.2	143
				2	1.8	14.1	101	5.2	130
				3	2.6	13.3	98	5.3	124
				4	3.2	12.9	97	5.4	121
	19-Mar-07	1.3	-	0.3	0.4	15.2	105	6.4	152
				1	0.4	15.7	109	6.5	140
				2	1.4	15.3	109	6.5	128
				3	2.6	14.2	104	6.5	119
				4	3.2	12.9	96	6.5	117
	23-Apr-07	no ice	-	0.3	0.3	15.6	107	6.5	140
				1	0.3	14.1	97	6.4	139
				2	1.3	13.6	97	6.4	132
				3	2.7	12.8	93	6.5	125
				4	3.3	11.9	88	6.5	123
	22-Jul-07	no ice	-	0.3	17.3	9.4	98	6.7	109
				1	17.3	9.5	99	6.7	109
				2	17.3	9.5	99	6.6	109
				3	17.3	9.5	99	6.5	109
				4	17.3	9.5	99	6.5	109
	22-Sep-07	no ice	-	0.3	2.9	14.3	106	7	131
				1	2.9	14.3	106	7	131
				2	2.9	14.3	106	7	131
				3	2.9	14.2	105	7	131
				4	2.9	14.2	105	7	131
SNAP05	24-Feb-07	1.2	-	0.3	0.2	15.1	104	6.7	135
				1	0.2	15.5	107	6.7	134
				2	1.5	14.3	102	6.8	111
				3	2	13.8	100	6.8	118
				4	2.2	12.5	91	6.7	119
				5	2.2	11.8	86	6.7	136
				6.1	1.8	12.6	91	6.6	279
				7	1.8	12.6	91	6.6	300
				8	2	12.1	88	6.6	296
				9	2.4	11.2	82	6.6	291
				10	2.8	10.9	80	6.6	294
				11	3.1	9.8	73	6.6	293
				12	3.3	9.4	69	6.6	292
				13	3.6	6.8	51	6.5	291

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	19-Mar-07	1.3	-	0.3	0	16.6	113	6.5	126
				1	0	16.6	114	6.5	126
				2	0.9	15.7	110	6.5	116
				3	1.1	14.3	100	6.5	119
				4	2.1	12.9	93	6.5	113
				5	2.1	12.4	90	6.4	168
				6	1.9	12.6	90	6.4	262
				7	1.9	12.6	91	6.4	284
				8	2	12.3	89	6.4	280
				9	2.5	11.3	82	6.4	274
				10	2.9	9.8	72	6.4	277
				11	3.1	8.4	63	6.4	276
				12	3.4	7.6	56	6.4	276
	14-Apr-07	1.5	-	0.3	0.5	13.5	93	6.4	133
				1	0.6	13.7	95	6.4	131
				2	1.6	13	93	6.4	120
				3	2.2	12.3	89	6.3	119
				4	2.4	10.9	79	6.3	122
				5	2.1	11.4	83	6.2	183
				6	1.9	11.9	86	6.3	276
				7	1.9	11.8	85	6.3	284
				8	2.2	11.4	83	6.3	279
				9	2.5	10.7	78	6.3	275
				10	3	9.1	66	6.3	279
				11	3.2	7.8	58	6.3	277
				12	3.5	7.1	54	6.2	278
				13	3.5	5.8	51	6.2	278
				13.2	3.6	5.8	44	6.2	278
	23-Jul-07	no ice	-	0.3	16.4	10	102	6.7	123
				1	16.4	10	102	6.6	123
				2	16.4	10	102	6.5	123
				3	16.4	10	102	6.5	123
				4.1	16.4	10	102	6.5	122
				5	16.4	10	102	6.5	122
				6	16.4	10	102	6.5	122
				7	16.3	10	102	6.5	121
				8	16.3	10	102	6.5	122
				9	16.4	10	102	6.5	122
				10	16.3	10	102	6.5	122
				11	16.3	10	102	6.5	122
				12	16.3	10	102	6.5	121
	16-Aug-07	no ice	-	0.3	12.3	10.6	99	6.2	156
				1	12.3	10.6	99	6.2	155
				2	12.3	10.6	99	6.3	156
				3	12.3	10.6	99	6.3	155
				4	12.3	10.6	99	6.3	155
				5	12.3	10.6	98	6.3	154
				6.1	12.3	10.5	98	6.4	154
				7	12.3	10.5	98	6.4	155
				8.1	12.2	10.5	98	6.4	154
				9.1	12.2	10.5	98	6.4	154
				10.1	12.2	10.5	98	6.5	154
				11	12.2	10.5	98	6.5	154
				12	12.2	10.5	98	6.5	154
				13.1	12.2	10.5	98	6.5	154
				14.1	12.1	9.4	84	6.4	156
	21-Sep-07	no ice	-	0.3	4.3	13.6	104	7.1	154
				1	4.3	13.5	104	7.1	154
				2	4.3	13.5	104	7.1	154
				3	4.3	13.5	104	7.1	154
				4	4.3	13.5	104	7.1	154
				5	4.3	13.5	104	7.1	154
				6	4.3	13.5	104	7.1	154
				7	4.3	13.5	104	7.1	154
				8	4.3	13.5	104	7	154
				9	4.3	13.5	104	7	154
				10	4.3	13.5	104	7	154
				11	4.3	13.5	104	7	154
				12	4.3	13.5	104	7	154
				13	4.3	13.5	104	7	154
				14	4.3	13.3	103	6.9	154

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP06	27-Feb-07	1.3	-	0.3	0.9	15.5	109	6.1	134
				1	0.5	15.9	110	6.1	132
				2	0.7	15.1	105	6.2	122
				3	2.2	13.7	99	6.2	114
				4	2.4	12.5	91	6.2	116
				5	2.6	11.1	82	6.3	115
				6	2	12.2	88	6.2	249
				7	2	12.1	88	6.2	299
				8	2.2	11.5	83	6.3	292
				9	2.5	10.9	80	6.3	289
				10	2.7	10.2	75	6.4	286
				11	3	9.7	72	6.4	284
				12	3.1	9.2	68	6.4	283
	19-Mar-07	1.3	-	0.3	0	16.4	113	6.4	110
				1	0	17	116	6.4	107
				2	0	16.5	113	6.4	99
				3	0.1	15.8	108	6.5	96
				4	0.3	14.4	99	6.4	97
				5	0.6	12.5	87	6.4	134
				6	1.8	12.4	89	6.3	242
				7	1.9	12.7	92	6.3	278
				8	2.2	12.3	89	6.4	275
				9	2.5	11.2	82	6.4	273
				10	2.8	10.1	75	6.4	270
				11	3	9.6	72	6.4	269
				12	3.3	8.7	65	6.4	267
	18-Apr-07	1.6	-	0.3	0.2	13.7	94	6.4	120
				1	0.2	13.8	95	6.4	126
				2	1.4	13.2	94	6.3	117
				3	2.3	12.2	89	6.4	112
				4.1	2.7	9.7	71	6.3	115
				5	2.5	9.7	71	6.3	150
				6	2	11.1	80	6.2	264
				7.1	2	11.6	84	6.3	282
				8	2.2	11.4	83	6.3	280
				9	2.5	11	80	6.3	278
				10.1	2.8	9.6	70	6.3	275
				11	3.1	8.6	64	6.3	273
				12.1	3.4	7.8	58	6.3	273
				12.1	3.4	7.3	55	6.3	277
	23-Jul-07	no ice	-	0.3	16.4	9.8	100	6.6	120
				1	16.4	9.9	101	6.5	120
				2	16.4	9.9	101	6.4	120
				3	16.4	9.9	101	6.4	120
				4.1	16.4	9.9	101	6.4	120
				5	16.4	9.9	101	6.4	120
				6	16.4	9.9	101	6.5	120
				7	16.4	9.9	101	6.5	120
				8.1	16.3	9.9	101	6.5	119
				9	16.3	9.9	101	6.4	119
				10.1	16.3	9.9	101	6.5	119
				11	12.8	11.1	106	6.4	117
				12.1	10.8	9.6	79	6.3	127
	21-Sep-07	no ice	-	0.3	4.4	13.6	105	7.1	153
				1	4.4	13.5	105	7.1	153
				2	4.4	13.5	104	7.1	153
				3	4.4	13.5	104	7.1	153
				4	4.4	13.5	104	7.1	153
				5	4.4	13.5	104	7.1	153
				6	4.4	13.5	104	7.1	154
				7	4.4	13.5	104	7.1	153
				8	4.4	13.5	104	7.1	153
				9	4.4	13.5	104	7.1	153
				10	4.4	13.5	104	7.1	154
				11.1	4.4	13.5	104	7.1	153
				12	4.4	13.5	104	7.1	154
				13	4.4	13.5	104	7.1	154

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP07	27-Feb-07	1.3	-	0.3	2.1	15.2	109	6	136
				1	1.1	15.5	110	6	133
				2	1.9	14.8	106	6	121
				3	2.3	14.1	102	6	119
				4	2.5	13.4	95	6	120
				5	2.7	12.3	91	6	121
				6	2.9	11.4	84	6	121
				7	3.1	10.4	78	6.1	119
				8	3.2	9.6	72	6.1	120
				9	3.3	9.1	67	6.1	121
				10	3.4	7.9	56	6	126
	19-Mar-07	1.4	-	0.3	0.1	16.9	115	6.6	126
				1	0.2	16.9	116	6.5	126
				2	1.2	16.4	116	6.5	117
				3	2	14.8	107	6.5	114
				4	2.3	14.2	104	6.5	113
				5	2.7	13	96	6.5	112
				6	2.9	11.4	84	6.5	111
				7	3.1	10.4	77	6.4	113
				8	3.2	9	67	6.4	114
				9	3.2	8.6	64	6.4	116
				10	3.3	4.9	37	6.3	121
	27-Apr-07	1.5	-	0.3	1.2	14.2	101	6.7	132
				1	0.7	14.6	102	6.6	132
				2	1.7	13.7	98	6.5	127
				3	2.4	12.8	93	6.5	125
				4	2.8	12	89	6.4	123
				5	3.1	10.2	75	6.4	123
				6	3.3	9.5	71	6.3	125
				7	3.3	7.9	59	6.3	126
				8	3.3	7.6	57	6.3	127
				9	3.4	7.4	56	6.3	129
				9	3.4	7.1	53	6.3	128
	20-Jul-07	no ice	-	0.3	17.5	9.7	101	6.7	123
				1	17.4	9.8	103	6.4	123
				2.1	17.3	9.8	103	6.5	123
				3	17.3	9.9	103	6.4	123
				4	17.2	9.9	103	6.5	123
				5	16.7	11.1	112	6.5	117
				6	13.5	12	115	6.5	114
				7	11.5	12.6	116	6.5	114
				8	11.2	12	110	6.5	115
	20-Sep-07	no ice	-	0.3	3.6	13.7	104	6.5	143
				1	3.6	13.7	104	6.6	143
				2	3.6	13.7	104	6.6	143
				3	3.6	13.7	104	6.7	143
				4	3.6	13.7	104	6.7	143
				5	3.6	13.7	104	6.7	143
				6	3.6	13.7	104	6.8	143
				7	3.5	13.7	103	6.8	143
				8	3.5	14	105	6.8	143
				9	3.5	13.8	104	6.8	143
				10	3.5	13.8	104	6.8	143
SNAP08	27-Feb-07	1.2	-	0.3	0.8	15.2	106	5	146
				1	0.5	15.2	106	5.2	143
				2.1	1.8	14.1	100	5.4	126
				3	3	12.2	90	5.6	118
				4	3.9	9.5	72	5.8	115
				5	3.9	8.9	68	5.9	116
				6	4	8.4	64	5.9	117
				7	4	7	53	6	120
				8	4	6.8	52	6	126
	19-Mar-07	1.3	-	0.3	0.3	16.1	111	6.5	140
				1	0.1	16.6	114	6.5	137
				2	1.5	15.6	110	6.5	120
				3	3.2	12.1	91	6.5	112
				4	3.8	10.1	76	6.5	110
				5	3.7	9.6	73	6.4	113
				6	4.1	7.9	59	6.4	112
				7	4.1	4.4	34	6.3	112
				8	4.1	3	24	6.3	117

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	27-Apr-07	1.4	-	0.3	0.1	14.4	99	6.4	144
				1	0.2	14.5	100	6.4	141
				2	2.3	12.4	90	6.3	128
				3	3.6	10.9	82	6.3	125
				4	3.8	10.5	80	6.2	124
				5	3.9	10	76	6.2	125
				6	4	9.5	72	6.2	125
				7	4.1	5.6	42	6.1	125
				8	4.2	3	22	6.1	126
	20-Jul-07	no ice	-	0.3	17.7	9.6	100	6.8	128
				1	17.8	9.6	101	6.4	128
				2.1	17.8	9.6	101	6.4	128
				3	17.8	9.6	101	6.4	128
				4	17.8	9.6	101	6.3	128
				5	17.8	9.6	101	6.4	128
				6	17.7	9.6	101	6.4	128
				7	13.3	11.1	106	6.6	124
	18-Sep-07	no ice	-	0.3	3	13.9	103	7.1	140
				1	2.9	13.9	103	7.1	140
				2	2.9	13.9	103	7.1	140
				3	2.9	13.9	103	7.1	140
				4	2.9	13.9	103	7.1	140
				5	2.9	13.9	103	7.1	140
				6	2.9	13.9	103	7.1	140
				7	2.9	13.9	103	7.1	141
				7	2.9	13.9	103	7.1	140
				9	3	13.1	98	6.9	140
SNAP09	27-Feb-07	1.3	-	0.3	0.4	15.5	107	6.5	127
				1.1	0.5	15.3	106	6.4	123
				2	2	13.4	99	6.5	107
				3	2.3	12.8	93	6.5	105
				4	2.5	11.7	86	6.5	105
				5	2.6	11.3	83	6.5	108
				6	2.7	10.5	77	6.5	117
				7	2.7	10.2	75	6.4	142
				8	2.7	10.1	74	6.4	158
				9	2.6	10.1	75	6.4	177
				10	2.6	10.1	74	6.3	185
				11	2.7	9.7	72	6.3	192
				12	2.9	9	66	6.3	191
				13	2.8	8.9	66	6.3	204
				14	2.9	8.5	62	6.3	210
	19-Mar-07	1.4	-	0.3	0.1	15.2	105	6.6	120
				1	0.3	15.2	105	6.6	115
				2	1.4	14.4	102	6.6	105
				3	2.1	13.6	99	6.5	101
				4	2.3	12.1	87	6.5	102
				5	2.5	11.1	81	6.5	108
				6	2.5	10.4	76	6.4	134
				7	2.5	10.2	75	6.4	157
				8	2.5	9.9	72	6.4	170
				9	2.5	9.7	71	6.4	184
				10	2.7	9.5	70	6.4	185
				11	2.6	9.3	69	6.4	198
				12	2.7	9.1	67	6.4	204
				13	2.7	9.1	67	6.3	217
				14	2.8	8.4	62	6.3	218
	20-Apr-07	1.5	-	0.3	0.1	13	89	6.4	117
				1	0.1	13	89	6.3	116
				2	1.6	12.3	88	6.3	107
				3	2.4	11.6	85	6.3	104
				4	2.6	10.4	76	6.3	115
				5.1	2.6	9.8	72	6.3	145
				6	2.6	9.5	70	6.3	166
				7	2.6	9.4	69	6.3	182
				8	2.6	9.3	69	6.3	195
				9	2.6	9.3	68	6.3	202
				10	2.6	9.1	67	6.3	213
				11.1	2.7	8.8	65	6.3	216
				12	2.6	9	66	6.3	228
				13	2.7	8.9	65	6.3	231
				14	2.8	8.6	64	6.3	238

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	23-Jul-07	no ice	-	0.3	16.2	10	101	6.5	119
				1	16.2	9.9	101	6.4	119
				2	16.2	9.9	101	6.4	119
				3	16.2	10	101	6.3	119
				4	16.2	9.9	101	6.3	119
				5.1	16.2	10	101	6.3	119
				6	16.2	10	101	6.3	119
				7	16.2	10	101	6.3	119
				8.1	16.1	10	101	6.3	118
				9	14.7	10.6	104	6.4	117
				10.1	11.5	12	109	6.3	115
				11	9.1	12.5	109	6.3	114
				12	8.7	12.5	108	6.2	112
				13.1	8.2	11.8	101	6.2	112
	21-Sep-07	no ice	-	0.3	5.1	13.2	104	7.1	145
				1	5	13.2	104	7.1	145
				2	5	13.2	104	7.1	146
				3.1	4.9	13.2	104	7.1	145
				4	4.9	13.2	103	7.1	145
				5	4.9	13.2	103	7.1	145
				6	4.9	13.2	103	7.1	146
				7	4.9	13.2	103	7.1	146
				8	4.9	13.2	103	7.1	145
				9	4.9	13.2	103	7.1	146
				10	4.9	13.2	103	7.1	146
				11	4.9	13.2	103	7.1	146
				12	4.9	13.2	103	7.1	146
				13	4.9	13.2	103	7.1	146
				14	4.9	12.8	100	7.1	146
SNAP10	28-Feb-07	1.3	-	0.3	0.3	15.1	104	4.8	137
				1	0.3	15.7	108	5	137
				2	1.3	15.6	111	5.2	128
				3	1.9	15.5	112	5.4	124
				4	2.2	15.2	111	5.4	123
				5	2.7	13.7	101	5.6	135
	17-Mar-07	no ice	-	0.3	0	16.3	111	6.6	68
				1	0	16.6	114	6.5	68
				2	0.5	16.3	113	6.5	67
				3	1.7	15.8	114	6.5	118
				4	2.2	15.2	111	6.5	116
				5	2.6	13.9	102	6.5	129
	20-Apr-07	1.5	-	0.3	0.1	13.5	93	6.4	133
				1	0.1	13.8	95	6.4	132
				2	1.3	13.6	96	6.4	127
				3	2	13.4	97	6.4	125
				4	2.5	12.5	91	6.4	123
				5	2.9	10.7	79	6.3	136
	22-Jul-07	no ice	-	0.3	16.1	9.8	99	6.6	118
				1	16.1	9.8	100	6.6	118
				2	16.1	9.9	100	6.6	118
				3	16.1	9.8	100	6.5	118
				4	16.1	9.8	100	6.5	118
				5	16.1	9.8	100	6.5	118
	19-Sep-07	no ice	-	0.3	3.9	13.7	104	7.2	141
				1	3.8	13.7	104	7.1	141
				2	3.8	13.7	104	7.1	141
				3	3.8	13.8	105	7.1	141
				4	3.8	13.8	105	7.1	141
				5	3.8	13.8	105	7.1	142

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP11A	28-Feb-07	1.3	-	0.3	0.8	15.9	111	5.9	127
				1	0.7	15.9	111	5.9	124
				2	1.7	14.5	104	6	111
				3	2.2	14.1	103	6.1	105
				4	2.4	13	94	6.1	106
				5	2.6	12.2	90	6.1	110
				6	2.8	11.2	82	6.1	114
				7	2.8	10.5	78	6.1	141
				8	2.6	10.5	77	6.1	171
				9	2.5	10.6	78	6.1	189
				10	2.4	11	81	6.2	204
				11	2.3	11.4	83	6.2	217
				12	2.4	11.3	83	6.2	220
				13	2.5	11.2	81	6.2	223
	17-Mar-07	1.4	-	0.3	0	16.2	110	6.5	84
				1	0	14.3	98	6.5	79
				2	0.3	13.1	90	6.5	74
				3	1.9	13.8	101	6.4	101
				4	2.3	13.7	100	6.4	103
				5	2.6	11.5	83	6.4	110
				6	2.5	10.7	79	6.4	144
				7	2.4	10.8	79	6.4	165
				8	2.4	10.5	77	6.3	176
				9	2.3	11	80	6.3	193
				10	2.3	11.3	83	6.3	201
				11	2.4	11.2	82	6.3	202
				12	2.4	11	81	6.3	214
				13	2.4	10.6	77	6.3	224
	21-Apr-07	1.2	-	0.3	0.2	13.7	94	6.5	126
				1	0.3	13.6	94	6.5	124
				2	1.5	13	93	6.5	113
				3	2.3	11.5	83	6.5	109
				4	2.5	9.9	73	6.4	122
				5	2.5	10	73	6.4	161
				6	2.5	9.8	71	6.4	184
				7	2.4	9.9	72	6.4	200
				8	2.4	10	73	6.4	212
				9	2.3	10	73	6.4	223
				10	2.4	9.9	73	6.4	229
				11	2.3	10.6	77	6.4	245
				12	2.2	11	80	6.4	258
				13	2.4	10.6	77	6.4	255
				14	2.6	9.9	72	6.4	250
				15	2.9	9.2	68	6.4	246
				16	3	8.6	44	6.4	248
				16.9	3	8.2	60	6.4	248
	23-Jul-07	no ice	-	0.3	16.2	9.8	99	6.2	119
				1	16.2	10	101	6	119
				2	16.1	10	101	6	119
				3.1	16.1	10	102	6	118
				4	15.9	10.1	102	6.2	118
				5	15.8	10.1	102	6.1	118
				6	15.4	10.3	104	6.1	118
				7	12	11	107	6.1	117
				8.1	10.4	12.3	110	6.2	113
				9	9.6	12.6	111	6.1	112
				10.1	8.9	12.5	108	6.1	113
				11.1	8.6	12.4	106	6	113
				12	8.3	12.3	104	6	112
				13.1	8.2	12.3	104	6	112
				14.1	8.2	12.2	104	6	112
				15	8	11.8	100	6	112
				16	7.8	12	97	5.9	114

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	19-Sep-07	no ice	-	0.3	5.2	13.4	105	7	145
				1	5.3	13.1	103	7	145
				2	5.3	13	103	7	145
				3	5.3	13	103	7	145
				4	5.3	13	103	7	145
				5	5.3	13	103	7	145
				6	5.3	13	103	7	145
				7	5.2	13	103	7	145
				8	5.2	13	103	7	145
				9	5.2	13	102	7	145
				10	5.2	13	102	7	145
				11	5.2	13	102	7	145
				12	5.2	13	102	7	145
				13	5.2	13	102	7	145
				14	5.1	13	102	7	145
				15	5.1	13	102	7	145
				16	5.1	13	102	7	145
SNAP12	24-Feb-07	1	-	0.3	0.5	15.9	110	6.4	142
				1	1.8	15.7	109	6.5	129
				2	1.7	14.5	105	6.6	121
				3	1.9	14.2	103	6.6	119
				4	2.2	12.9	93	6.6	117
				5	1.8	12.8	92	6.5	219
				6	1.8	12.8	92	6.5	279
				7	2	12.1	87	6.5	292
	19-Mar-07	1.2	-	0.3	0.2	17.4	119	6.5	138
				1	0.2	17	116	6.5	132
				2	1.4	15.6	111	6.5	115
				3	2	14.6	105	6.5	112
				4	2.1	13.9	99	6.5	111
				5	2	13.2	96	6.4	207
				6	1.8	13.1	94	6.5	264
				7	2	12.7	91	6.5	274
	11-Apr-07	1.2	-	0.3	0.2	14	96	6.4	132
				1	0.5	14	97	6.4	125
				2	1.5	13.5	96	6.4	117
				3	1.9	13	94	6.2	114
				4	2.1	11.8	86	6.1	142
				5	1.8	12.5	90	6.1	245
				6	1.8	12.4	89	6.2	260
SNAP12	11-Apr-07	1.2	-	7	2	11.3	82	6.2	273
	23-Jul-07	no ice	-	0.3	16.5	9.8	101	6.9	124
				1	16.5	10	102	6.9	124
				2	16.5	10	102	6.8	124
				3	16.5	10	102	6.8	124
				4	16.5	10	102	6.8	124
				5	16.5	10	102	6.8	124
				6.1	16.5	10	102	6.7	124
	16-Aug-07	no ice	-	0.3	12.4	10.6	99	6.6	156
				1	12.4	10.6	99	6.6	156
				2	12.4	10.6	99	6.6	156
				3	12.4	10.6	99	6.6	156
				4.1	12.4	10.5	99	6.6	156
				5	12.4	10.6	99	6.6	156
				6	12.4	10.6	99	6.7	156
				7.1	12.4	10.5	99	6.7	156
	17-Sep-07	no ice	-	0.3	5.5	12.8	102	7	158
				1	5.5	12.6	100	7.1	157
				2	5.6	12.6	100	7.1	157
				3	5.6	12.6	100	7.1	157
				4	5.6	12.6	100	7.1	157
				5	5.6	12.6	100	7	157
				6	5.6	12.6	100	7	157
				7	5.6	12.6	100	7	157

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP13	19-Mar-07	1.1	-	0.3	0.3	16	111	6.5	127
				1	0.7	15.6	109	6.5	115
				2	1.3	14.7	104	6.4	143
				3	1.7	14.3	102	6.5	134
				4	1.9	13.6	98	6.5	130
				5	1.9	13.6	98	6.4	197
				6	1.8	13.3	96	6.3	249
				7	1.8	13	93	6.3	283
				8	1.8	12.8	92	6.4	289
				9	1.8	12.7	92	6.4	291
				10	1.9	12.5	90	6.4	288
				11	1.9	12.4	90	6.4	293
				12	1.9	12.4	90	6.4	294
				13	2	12.3	89	6.4	292
				14	2	12.2	88	6.4	294
				15	2.1	11.9	86	6.4	290
				16	2.2	11.2	81	6.4	294
				17	2.2	10.6	77	6.4	319
				18	2.2	10.3	75	6.4	319
				19	2.2	10.2	74	6.4	319
				20	2.3	4.1	29	6.3	318
				21	2.3	5.4	37	6.3	317
SNAP14	24-Feb-07	1.1	-	0.3	0.3	15.4	107	6.5	145
				1	1	15	105	6.6	130
				2	1.7	14.2	102	6.6	121
				3	2	13.2	95	6.6	117
				4	2.1	11.7	85	6.6	126
				5	1.9	11.9	86	6.5	179
				6	1.8	12.4	89	6.5	263
				7	1.8	12.6	90	6.5	297
				8	1.8	12.5	90	6.5	305
				9	1.9	12	87	6.5	303
				10	2.1	11.7	84	6.6	296
				11	2.3	10.8	79	6.6	294
				12	2.6	9.3	68	6.5	296
				13	3.2	6.1	42	6.5	302
	19-Mar-07	-	-	0.3	0.1	17.5	120	6.5	142
				1	0.2	17.2	118	6.5	135
				2	0.8	16.2	113	6.5	120
				3	2	13.9	100	6.6	113
				4	2.1	13.5	97	6.6	114
				5	1.9	13.1	95	6.5	192
				6	1.8	13.4	96	6.4	264
				7	1.8	13.3	96	6.5	280
				8	1.9	13.2	95	6.5	285
				9	1.9	13	94	6.5	287
				10	2.1	12.7	92	6.5	284
				11	2.3	12.2	89	6.5	280
				12	2.6	10.3	75	6.5	279
				13	3	7.2	50	6.5	288
	12-Apr-07	1.2	-	0.3	0.2	14.2	98	6.2	139
				1	0.5	14.2	98	6.2	130
				2	1.6	13.4	95	6.3	116
				3	1.9	12.5	90	6.3	116
				4	1.9	11.4	82	6.3	146
				5.1	1.8	11.9	86	6.2	254
				6	1.8	12	86	6.3	265
				7	1.8	11.9	86	6.3	281
				8	1.9	11.8	85	6.3	285
				9	1.9	11.7	85	6.3	284
				10	2.1	11.4	83	6.3	280
				11	2.3	10.7	78	6.3	279
				12	2.7	7.4	55	6.3	280
				13	3.2	4	25	6.2	278

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	25-Jul-07	no ice	-	0.3	16.5	9.9	102	6.2	122
				1	16.5	10	102	6	122
				2	16.5	10	102	6	122
				3	16.5	10	102	6	122
				4	16.5	10	102	6.1	122
				5	16.5	10	102	6.1	122
				6	16.5	10	102	6.1	122
				7	16.4	10	102	6.2	123
				8	16.2	10.1	103	6.1	134
				9	15.5	10.5	106	6.2	153
				10	14.9	10.8	107	6.2	163
				11	14.5	11	108	6.3	166
				12	13	11.4	109	6.3	168
	16-Sep-07	no ice	-	0.3	5.8	13.1	105	6.9	158
				1	5.9	12.9	103	7	158
				2	5.9	12.8	103	7	157
				3	5.9	12	103	7	157
				4	5.9	12.8	103	7	157
				5	5.9	12.8	103	7	157
				6	5.9	12.8	103	7	157
				7.1	5.9	12.8	103	7	158
				8	5.9	12.8	103	7	157
				9	5.9	12.8	103	7	158
				10	5.9	12.8	103	7	157
				11	5.9	12.8	103	7	157
				12	5.9	12.8	103	7	158
				13.1	5.9	12.8	103	6.9	158
SNAP17	22-Apr-07	-	-	0.3	0.4	13.1	91	6.3	121
				1	0.3	13.2	91	6.4	123
				2	1.6	12.6	90	6.4	115
				3	2.3	12	87	6.4	111
				4	2.6	9.4	68	6.3	114
				5	2.7	9.3	69	6.3	152
				6	2.6	9.2	68	6.3	185
				7	2.5	9.7	71	6.3	206
				8	2.4	9.7	71	6.3	219
				9	2.4	9.9	73	6.4	228
				10	2.5	8.2	58	6.3	211
SNAP18	28-Apr-07	1.4	-	0.3	0.4	14.4	100	6.4	124
				1	0.6	14.5	101	6.4	124
				2	1.8	13.9	100	6.4	115
				3	2.4	13.2	97	6.4	114
				4	2.6	10.3	75	6.4	117
				5	2.7	9.5	70	6.3	164
				6	2.6	9.6	70	6.3	190
				7	2.5	9.8	72	6.3	213
				8	2.4	10.1	74	6.4	224
				9	2.4	9.9	73	6.4	231
				10	2.4	9.9	73	6.4	241
				11	2.4	9.9	72	6.4	249
SNAP19	29-Apr-07	1.7	-	0.3	0.6	13.2	92	6.5	113
				1	0.8	13.1	93	6.5	115
				2	2	12.8	92	6.4	111
				3	2.6	11.9	87	6.4	108
				4	2.7	10.5	77	6.3	127
				5	2.7	9.9	74	6.2	162
				6	2.7	9.4	69	6.3	178
				7	2.6	9.4	68	6.3	195
				8	2.6	9.3	68	6.3	211
				9	2.7	9.2	68	6.2	219
				10	2.7	9.1	67	6.2	222
				11	2.8	8.8	65	6.3	222

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP20	26-Feb-07	1.3	-	0.3	2.7	14.6	107	5	33
				1	1.4	14.9	106	5.2	32
				2	2	14	100	5.4	27
				3	2.4	12.7	93	5.6	25
				4	2.6	12.1	89	5.7	25
				5	2.7	11.8	87	5.9	26
				6	2.7	11.6	85	6	26
				7	2.8	11.5	85	6.1	26
				8	2.8	11.5	85	6.2	26
				9	2.8	11.4	84	6.3	26
				10	2.8	11.3	84	6.3	26
				11	2.9	11.2	83	6.3	26
				12	2.9	11.1	82	6.4	25
				13	2.9	11	81	6.4	26
	18-Mar-07	1.4	-	0.3	0.5	16.2	112	6	32
				1	0.3	16.6	114	5.9	32
				2	0.8	15.7	109	5.9	26
				3	2.1	14.1	102	6	24
				4	2.4	13.5	98	6	24
				5	2.5	12.9	94	6	24
				6	2.6	12.3	91	6	25
				7	2.7	12.2	90	6	24
				8	2.7	12	89	6.1	24
				9	2.8	11.9	88	6	24
				10	2.8	11.8	87	6.1	24
				11	2.9	11.7	87	6.1	24
				12	2.9	11.5	85	6.1	24
				13	2.9	11.1	82	6.1	24
	25-Apr-07	1.4	-	0.3	0.5	14.6	101	6.6	32
				1	0.5	15	104	6.5	31
				2	1.6	14.2	102	6.5	27
				3	2.3	13.4	97	6.5	26
				4	2.5	12.6	92	6.5	25
				5	2.6	12.1	89	6.5	25
				6	2.7	11.6	86	6.5	26
				7	2.8	11.4	84	6.5	25
				8	2.8	11.2	83	6.5	25
				9	2.9	11.1	82	6.5	25
				10	2.9	11	82	6.5	25
				11	2.9	10.9	81	6.5	25
				12	2.9	10.8	80	6.5	25
				13	2.9	9	67	6.4	34
SNAP20B	24-Jul-07	no ice	-	0.3	17.4	9	94	6.4	21
				1	17.3	9.1	95	6	21
				2	17.2	9.2	95	6	20
				3.1	17.1	9.2	95	5.9	20
				4	17.1	9.2	95	5.9	20
				5.1	17.1	9.2	95	6	20
				6	16.9	9.2	95	5.9	20
				7	12	10.4	101	5.9	18
				8.1	7.7	11.9	99	5.9	15
				9	6.7	11.9	97	5.8	14
				10	6.3	11.8	96	5.8	14
				11	6	11.7	94	5.8	14
				12	5.8	11.4	91	5.8	14

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Aug-07	no ice	-	0.3	12.3	10.6	99	6.2	25
				1	12.2	10.5	98	6.3	25
				2	12.2	10.5	98	6.3	25
				3.1	12.2	10.5	98	6.3	25
				4	12.2	10.5	97	6.2	25
				5	12.1	10.5	97	6.2	25
				6	12.1	10.4	97	6.2	25
				7	12.1	10.4	97	6.2	25
				8	12.1	10.4	97	6.3	25
				9	9.4	11.5	100	6.2	23
				10.1	6.3	11.6	94	6.1	23
				11	5.9	11.5	92	6.1	23
				12	5.6	11.1	88	6	23
				12	5.3	10.8	85	6	23
				14	5	10.6	83	6	23
				15	4.8	10.3	80	5.9	23
				16.1	4.7	10.2	79	5.9	23
				17	4.6	10.1	78	5.9	23
				18	4.5	10.2	79	5.9	24
				19	4.5	10.1	78	5.9	24
				20.1	4.4	10	77	5.9	24
				21.1	4.3	10	77	5.8	24
				22	4.3	10	77	5.9	24
				23	4.3	9.8	75	5.8	24
				24.1	4.2	9.6	74	5.8	24
				25.1	4.2	9.6	73	5.8	25
				26	4.2	9.5	73	5.8	25
				27.1	4.2	9.5	73	5.8	25
				28	4.2	9.6	73	5.8	25
				29.1	4.2	9.5	72	5.8	25
	16-Sep-07	no ice	-	0.3	6.6	12.3	101	6.7	24
				1	6.5	12.3	100	6.7	24
				2	6.5	12.3	100	6.7	24
				3	6.5	12.3	100	6.6	24
				4	6.5	12.3	100	6.6	24
				5	6.5	12.3	100	6.6	24
				6	6.4	12.3	100	6.6	24
				7.1	6.4	12.3	100	6.6	24
				8	6.4	12.3	100	6.6	24
				9	6.4	12.3	100	6.6	24
				10	6.4	12.3	100	6.6	24
				11.1	6.4	12.3	100	6.6	24
				12	6.4	12.3	100	6.6	24
				13	6.4	12.3	100	6.6	24
				14.1	6.3	12.2	99	6.6	24
				15	6	12.1	97	6.5	24
				16	5.9	12.1	97	6.4	24
				17	5.9	12.1	97	6.4	24
				18	5.8	12.1	97	6.4	24
				19	5.5	12	95	6.3	24
				20.1	5.1	10.5	82	5.9	22
				21	4.6	9.9	77	5.8	22
				22	4.4	9.9	77	5.8	23
				23.1	4.4	9.9	77	5.8	23
				24	4.3	9.8	76	5.8	23
				25	4.3	9.8	75	5.8	23
				26	4.3	9.6	74	5.8	23
				27	4.2	9.3	72	5.7	23
				28.1	4.2	9.3	72	5.7	23
				29	4.2	9.4	72	5.7	23
				30.1	4.2	9.4	72	5.7	23

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP23	24-Apr-07	1.1	-	0.3	1.3	15.4	108	5.8	62
				1	0.6	15.3	106	5.8	61
				2	1.5	15.2	108	5.8	60
				3	2.4	14	102	6	62
				4	2.9	12.9	96	6.2	61
				5	3.3	11.2	83	6.2	61
				6	3.8	8.5	64	6.3	62
				7	4	5.4	39	6.2	65
				8	4	3.6	27	6.2	73
				9	4	2.2	17	6.2	79
				10	4.1	1.3	10	6.3	81
				11	4.2	0.7	5.3	6.3	83
				12	4.5	0.5	3.5	6.3	133
				11.5	4.4	0.3	2.1	6.6	100
	24-Jul-07	no ice	-	0.3	18	9.1	96	6.4	46
				1	17.9	9.2	97	6.3	46
				2	17.5	9.3	97	6.2	45
				3	17.2	9.3	96	6.2	46
				4	17.1	9.3	96	6.1	44
				5	17	9.3	96	6.1	42
				6	16.9	9.3	96	6.1	43
				7	16.8	9.3	96	6.2	40
				8	16.4	9.4	95	6.1	40
				9	11.1	10.9	99	6.1	33
				10	9.5	11.2	97	6	30
				11	8.7	10.8	93	6	30
				12	8.4	9.2	78	5.9	30
	14-Sep-07	no ice	-	0.3	6.3	12.7	103	6.8	55
				1	6.4	12.4	101	6.8	55
				2	6.4	12.4	101	6.8	55
				3	6.4	12.4	101	6.8	55
				4.1	6.4	12.4	100	6.8	55
				5	6.4	12.4	100	6.8	55
				6.1	6.4	12.3	100	6.8	55
				7	6.4	12.3	100	6.8	55
				8	6.4	12.3	100	6.8	55
				9	6.4	12.3	100	6.8	55
				10	6.3	12.3	100	6.8	55
				11.1	6.4	12.3	100	6.8	55
				12	6.3	12.1	99	6.8	55
SNAP25	23-Feb-07	1.5	-	0.3	2.5	15.1	111	5.6	134
				1	1.4	15.2	108	5.6	135
				2	2	14.8	107	5.7	126
				3	2.3	14.4	105	5.8	124
	17-Mar-07	1.4	-	0.3	0	16.9	116	6.5	76
				1	0	16.2	110	6.5	78
				2	0	15.9	109	6.5	79
				3	0	15.8	108	6.5	81
SNAP26	24-Feb-07	1.2	-	0.3	0.2	14.4	99	6.2	138
			-	1	0.6	14.4	100	6.4	130
				2	1.6	14	100	6.4	119
				3	1.9	13.6	98	6.4	122
				4	2.3	13.1	95	6.4	136
				5	3.3	7.9	58	6.3	180
	10-Apr-07	1.2	-	0.3	0.7	13.5	94	6.2	131
				1	0.5	13.6	94	6.3	130
				2	1.8	13.2	94	6.3	117
				3	2.2	12.4	90	6.4	122
				4	2.5	12.1	88	6.3	136
				5	3.4	5.9	42	6.3	197
	22-Jul-07	no ice	-	0.3	16.7	9.6	99	6.7	127
				1.1	16.7	9.8	101	6.7	128
				2	16.7	9.8	101	6.6	128
				3	16.7	9.8	101	6.6	128
				4	16.7	9.8	101	6.8	128
				5.1	16.7	9.8	101	6.6	128
	15-Sep-07	no ice	-	0.3	5.1	13.5	105	7	155
				1	5.1	13.1	103	7	155
				2	5.2	13	103	7.1	155
				3	5.2	13	102	7	155
				4	5.1	13	102	7.1	155
				5	5.2	13	102	7	155

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP27	24-Feb-07	1.5	-	0.3	0.5	15.4	107	6.3	148
				0.3	0.3	15.3	106	6.4	147
				0.5	0.2	15.3	105	6.4	147
				0.8	0.2	15.3	105	6.5	146
				1	0.4	15.2	104	6.5	151
				1.2	0.6	12.7	87	6.5	162
				1.6	0.8	7	49	6.3	207
	17-Mar-07	1.1	-	0.3	0	16.6	114	6.4	136
				0.3	0	16.7	114	6.4	136
				0.5	0	16.8	115	6.4	135
				0.8	0	16.8	115	6.4	135
				1	0.1	16.8	115	6.5	134
				1.3	0	16.7	114	6.4	135
SNAP28	23-Feb-06	1.2	-	0.3	4.5	13.8	107	4.4	127
				1	3.3	13.7	103	4.3	127
				2	2.3	13.5	98	4.3	119
				3	2.6	12.6	98	4.3	124
				4	2.3	12.6	92	5.2	158
				5	2	12.7	92	5.5	213
				6	2	12.5	90	5.6	273
	17-Mar-07	1.2	-	0.3	0	15.6	107	6.3	116
				1	0.4	15.6	108	6.3	116
				2	0.8	15.1	105	6.3	142
				3	1.1	14.4	101	6.3	126
				4	1.7	13.7	99	6.3	122
				5	1.6	14	100	6.2	220
				6	1.6	13.8	99	6.3	269
	22-Jul-07	no ice	-	0.3	16.8	9.6	99	6.5	125
				1	16.8	9.7	100	6.4	126
				2	16.7	9.8	101	6.4	127
				3	16.6	9.9	102	6.3	127
				4	16.6	9.9	102	6.3	131
				5	16.4	9.7	100	6.4	134
				6	16.2	8.9	90	6.4	137
	15-Aug-07	no ice	-	0.3	12.5	10.8	102	6.8	153
				1.1	12.4	10.8	101	6.8	153
				2	12.4	10.8	101	6.8	153
				3.1	12.4	10.7	101	6.8	153
				4	12.4	10.7	100	6.8	153
				5	12.4	10.7	100	6.8	154
				6	12.4	8.5	80	6.7	153
	15-Sep-07	no ice	-	0.3	6.5	12.8	104	7	158
				1	6.5	12.7	103	7	158
				2	6.5	12.6	103	7	157
				3	6.5	12.6	103	7	157
				4	6.5	12.7	103	7	158
				5	6.5	12.7	103	7	158
				6	6.4	12.7	103	7	158
SNAP29	25-Feb-07	1.3	-	0.3	0.3	15.4	107	5.6	83
				1	0.3	16	111	5.5	80
				2	0.8	16	112	5.4	75
				3	1.6	15.2	108	5.5	66
				4	2.4	13.2	96	5.6	64
				5.1	2.8	11.8	87	5.8	64
				6	3	10.6	78	5.8	67
	19-Mar-07	1.4	-	0.3	0.4	15.9	109	6.6	83
				1	1	16.1	114	6.6	79
				2	0.9	15.9	112	6.5	66
				3	1.5	15.6	111	6.5	66
				4	2.4	14.4	105	6.5	62
				5	2.9	12.5	92	6.4	64
				6	3.3	10.3	75	6.3	67
	24-Apr-07	-	-	0.3	0.6	16.1	112	6.7	83
				1	0.4	16.3	113	6.6	80
				2	1.2	15.2	108	6.6	78
				3	2.1	13.8	100	6.6	68
				4	2.7	12	88	6.6	65
				5	3.1	9.1	68	6.5	66
				6	3.5	4.9	37	6.4	68

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	19-Jul-07	no ice	-	0.3	17.3	9.7	101	6.7	115
				1	17.3	9.7	101	6.7	115
				2	17.3	9.7	101	6.6	115
				3	17.3	9.7	101	6.6	115
				4	17.3	9.7	101	6.6	115
				5	17.2	9.9	102	6.6	115
				6	14.7	11	109	6.6	160
				7	13.6	11.4	111	6.6	153
				8	13.1	11.6	110	6.6	164
				9	12.7	11.7	111	6.6	147
				10	12.1	12	112	6.6	152
				11	10.6	11.5	104	6.6	149
	20-Jul-07	no ice	-	0.3	18.7	9.9	103	6.6	46
				1	18.5	9.4	101	6.3	46
				2	18.3	9.5	101	6.2	47
				3	18.3	9.5	101	6.2	47
				4	18.2	9.5	101	6.3	45
				5	16.8	10	102	6.3	44
				6	15.1	10.3	102	6.2	41
	15-Aug-07	no ice	-	0.3	12.3	10.6	99	6.4	154
				1	12.3	10.6	99	6.3	154
				2	12.3	10.6	99	6.4	154
				3.1	12.3	10.6	99	6.4	154
				4	12.3	10.6	99	6.4	154
				5.1	12.3	10.6	99	6.4	154
				6	12.3	10.6	99	6.4	154
				7.1	12.3	10.6	99	6.4	154
				8	12.2	10.6	99	6.5	155
				9.1	12.2	10.6	99	6.5	154
				10.1	12.2	10.6	99	6.5	154
				11	12.2	10.6	99	6.5	155
	16-Aug-07	no ice	-	0.3	12.1	10.8	100	6.7	54
				1	12.1	10.7	100	6.7	58
				2.1	12.1	10.7	99	6.7	58
				3.1	12.1	10.7	99	6.7	58
				4.1	12.1	10.7	99	6.7	58
				5	12.1	10.7	99	6.8	58
				6	12.1	10.6	99	6.7	58
	17-Sep-07	no ice	-	0.3	5.4	13	103	7.2	157
				1	5.5	12.7	100	7.1	156
				2	5.5	12.6	100	7.1	156
				3	5.5	12.5	100	7.1	156
				4	5.6	12.5	100	7.1	157
				5	5.6	12.5	100	7.1	157
				6	5.6	12.5	100	7.1	156
				7	5.6	12.5	99	7.1	156
				8	5.6	12.5	99	7.1	156
				9	5.6	12.5	100	7.1	157
				10	5.6	12.5	99	7.1	156
				11	5.5	12.5	99	7.1	156
	21-Sep-07	no ice	-	0.3	3.5	14	105	7	57
				1	3.5	14	105	6.9	57
				2	3.5	13.9	105	6.9	57
				3	3.5	13.9	105	6.9	57
				4	3.5	13.9	105	6.9	57
				5	3.5	13.9	105	6.8	57
				6	3.5	13.9	105	6.9	57
				7	3.5	13.7	103	6.8	57
SNP02-20D	21-Feb-07	1	-	0.3	0.9	15.3	107	5.1	131
				1	1.1	14.9	105	5.5	123
				2	1.8	13.8	99	5.8	112
				3	2.2	13.1	95	6.1	109
				4	2.2	11.9	86	6.1	114
				5	1.9	12.5	90	6.1	190
				6	1.8	12.7	91	6.2	258
				7	1.8	12.5	90	6.3	276
				8	1.8	12.5	90	6.3	278
				9	1.8	12.4	89	6.4	283
				10	1.9	12.2	88	6.4	285
				11	2.3	10.6	77	6.4	280

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	14-Mar-07	1.1	-	0.3	0.1	15.7	108	6.2	140
				1	0.4	16.1	112	6.2	129
				2	1.4	16	113	6.2	115
				3	1.9	16.1	116	6.2	111
				4	2.2	15.2	111	6.2	112
				5	1.9	15.1	109	6.1	215
				6	1.8	15.1	109	6.2	256
				7	1.8	15.1	109	6.2	275
				8	1.8	14.6	105	6.2	282
				9	1.9	14.4	104	6.2	286
				10	1.9	13.6	98	6.3	287
				11	2.4	12	88	6.3	278
	16-Apr-07	1.3	-	0.3	0.4	13.8	95	6.2	140
				1	0.6	13.5	94	6.3	134
				2	1.9	12.8	92	6.3	116
				3	2	11	80	6.3	141
				4	1.9	11.3	82	6.3	179
				5	1.9	12	86	6.3	220
				6	1.9	11.9	86	6.3	253
				7	1.9	11.9	86	6.4	257
				8	1.9	11.8	85	6.4	266
				9	1.9	11.9	86	6.4	266
				10	1.9	11.8	85	6.4	266
				11	2.4	9.9	73	6.4	276
				11.1	2.5	9.6	71	6.4	276
SNPe02-20e	21-Feb-07	1	-	0.3	0.9	15.5	109	6.6	135
				1	1.1	14.4	102	6.5	119
				2	1.7	13.5	97	6.5	112
				3	2.1	13.1	95	6.5	105
				4	2.2	12.4	90	6.5	109
				5	1.9	12.8	93	6.4	191
				6	1.7	12.8	92	6.4	269
				7	1.8	12.6	90	6.5	274
				8	1.7	12.6	90	6.5	287
				9	1.8	12.4	89	6.5	288
				10	1.8	12.2	88	6.6	286
				11	2	12.1	87	6.6	283
				12	2	12	87	6.6	282
				13	2	11.9	86	6.6	287
				14	2.1	11.7	85	6.6	289
				15	2.2	11.3	82	6.6	288
				16	2.2	11.1	81	6.6	294
				17	2.1	11.1	80	6.6	314
				18	2.1	10.9	79	6.6	314
				19	2.2	10.5	76	6.6	313
				20	2.2	10.2	74	6.6	313
				21	2.2	9.9	72	6.6	313
				22	2.2	9.6	70	6.6	313
				23.1	2.2	9.3	67	6.6	313
				24	2.2	9	66	6.6	312
				25	2.3	8.8	64	6.6	312
				26	2.3	7.7	56	6.5	314
				27	2.4	5.3	38	6.5	316

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	15-Mar-07	1.1		0.3	0.1	16.3	112	6.1	133
				1	0.5	16.3	113	6.1	127
				2	1.4	15.5	110	6.1	118
				3	2	14.9	107	6.1	110
				4	2	13.9	100	6.1	126
				5	1.7	14.1	102	6	210
				6	1.8	14.1	102	6	261
				7	1.8	14	101	6.1	282
				8	1.8	14.4	104	6.1	288
				9	1.82	13.7	99	6.1	288
				10	1.8	13.5	97	6.2	290
				11	1.9	13.3	96	6.2	290
				12	1.9	13	94	6.2	288
				13	2	13	95	6.2	287
				14	2.1	12.8	93	6.3	287
				15	2.1	12.4	90	6.3	286
				16	2.2	11.9	86	6.3	291
				17	2.2	11.5	83	6.3	316
				18	2.2	11	80	6.3	316
				19	2.2	10.5	77	6.3	315
				20	2.2	10.3	75	6.3	315
				21	2.3	9.5	69	6.2	315
				22	2.3	9.2	68	6.2	315
				23	2.3	9.1	67	6.2	315
				24	2.3	8.9	65	6.2	314
				25	2.3	8.3	60	6.2	314
				26	2.4	6.6	48	6.2	315
				27	2.5	4.6	32	6.1	318
				28	2.5	1.6	11	6.1	311
	15-Apr-07	1.2	-	0.3	0.2	13.5	93	6.3	131
				1	0.8	13.3	93	6.2	124
				2	2	12.2	88	6.2	115
				3	1.9	12.2	88	6.1	165
				4	1.8	12.2	88	6.2	200
				5	1.8	12.2	88	6.2	248
				6	1.8	12.1	87	6.2	259
				7	1.8	12	87	6.3	264
				8	1.8	12.1	87	6.3	277
				9	1.9	12	87	6.3	278
				10	1.9	12	86	6.3	284
				11	1.9	11.9	86	6.3	287
				12	2	11.6	84	6.3	293
				13	2.1	11.4	83	6.3	298
				14	2.1	11.2	81	6.4	297
				15	2.1	11.3	82	6.4	304
				16	2.2	11.2	82	6.3	317
				17	2.2	10.3	74	6.3	321
				18	2.3	9.5	69	6.3	321
				19	2.3	9	66	6.3	320
				20	2.3	8.6	62	6.3	320
				21	2.3	8.4	61	6.3	320
				22	2.3	8.3	60	6.3	319
				23	2.4	8	59	6.3	319
				24	2.4	7.8	57	6.3	319
				25	2.4	7.2	52	6.3	319
				26	2.5	4.3	32	6.2	320
				27	2.5	1.1	8.2	6.2	322
				28	2.5	0.7	5.3	6.3	322

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	22-Apr-07	1.1	-	0.3	0.3	13.7	94	6.7	130
				1	0.5	13.5	94	6.7	129
				2	1.5	12.8	92	6.6	135
				3	1.8	12.5	89	6.7	132
				4	2	12	86	6.7	165
				5	1.9	11.7	85	6.6	211
				6	1.9	11.8	85	6.6	257
				7	1.8	11.8	85	6.6	269
				8	1.9	11.8	85	6.7	274
				9	1.9	11.7	85	6.7	278
				10	1.9	11.7	85	6.7	283
				11	2	11.7	84	6.7	286
				12	2	11.4	83	6.7	288
				13	2.1	10.8	79	6.7	286
				14	2.2	10.7	78	6.7	291
				15	2.2	10.6	77	6.7	299
				16	2.2	10.8	78	6.7	311
				17	2.2	10.3	74	6.7	323
				18	2.3	9.5	69	6.7	323
				19	2.3	9.1	67	6.7	323
				20	2.3	8.9	65	6.6	323
				21	2.3	8.5	62	6.6	323
				22	2.3	8.4	61	6.6	322
				23	2.4	7.8	57	6.6	322
				24	2.4	7.5	55	6.6	322
				25	2.4	6.8	49	6.6	322
				26	2.5	5.3	39	6.5	323
	22-Jul-07	no ice	-	0.3	16.9	9.6	99	6.3	124
				1	16.8	9.6	99	6	124
				2	16.8	9.6	99	6	124
				3	16.8	9.6	99	6	124
				4	16.8	9.6	99	6	124
				5	16.8	9.6	99	6	125
				6	16.2	10.1	103	6	131
				7	15.7	10.5	106	6.1	141
				8	14.9	10.9	108	6.1	148
				9	14.2	11.5	112	6.1	149
				10	13.4	11.8	113	6.1	156
				11	12.8	12	113	6.2	165
				12	12.5	12	113	6.2	173
				13	12.1	12.1	112	6.2	170
				14.1	11.7	12.1	111	6.3	161
				15	10.7	12	108	6.3	157
				16	7.1	11.8	97	6.2	152
				17	5.4	11.3	89	6.1	155
				18	4.7	10.9	85	6	162
				19	4.6	10.6	82	6	163
				20	4.4	10.5	81	6	166
				21	4.2	10.1	77	5.9	168
				22	4.2	9.9	76	5.9	169
				23.3	4.1	9.8	75	5.9	169
				24	4.1	9.7	74	5.9	169
				25	4.1	9.6	74	5.9	170
				26	4	9.4	72	5.9	170
				27.1	4	9.3	71	5.8	170
				28	4	8.8	67	5.8	170

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	14-Aug-07	no ice	-	0.3	12.6	10.2	96	6.4	149
				1	12.5	10.2	95	6.4	150
				2	12.5	10.1	95	6.4	150
				3	12.5	10.1	95	6.4	149
				4	12.5	10.1	95	6.5	149
				5	12.4	10.1	95	6.5	149
				6	12.4	10.1	95	6.5	149
				7	12.4	10.1	95	6.5	149
				8	12.4	10.1	95	6.5	149
				9	12.4	10.1	94	6.6	149
				10	12.3	10.1	95	6.6	149
				11	12.4	10.1	94	6.7	149
				12	12.4	10.1	94	6.7	149
				13	12.3	10.1	95	6.7	149
				14	12.3	10.1	95	6.7	149
				15	12.3	10.1	95	6.7	150
				16	12.3	10.1	95	6.7	150
				17	12.3	10.2	95	6.7	150
				18	11.4	9.9	90	6.7	162
				19	5.9	8.5	68	6.6	246
				20	4.7	8.3	65	6.5	260
				21	4.4	8	67	6.4	264
				22	4.2	7.6	58	6.4	265
				23	4.1	7.4	57	6.4	267
				24	4.1	7.3	56	6.3	268
				25	4.1	6.8	52	6.3	268
				26	4	6.5	49	6.3	269
				26.5	4	6.2	47	6.2	269
	13-Sep-07	no ice	-	0.3	7.6	12	100	7	160
				1	7.6	11.9	100	7	160
				2	7.5	12	100	7	160
				3.1	7.5	11.9	100	7	160
				4	7.5	11.9	100	7	160
				5	7.5	11.9	100	7	160
				6.1	7.5	11.9	99	7	160
				7	7.5	11.9	99	7	160
				8	7.5	11.9	100	7	160
				9	7.5	11.9	99	7	160
				10	7.5	11.9	99	7	160
				11	7.5	11.9	99	7	160
				12	7.5	11.9	99	7	160
				13	7.4	11.9	99	6.9	160
				14.1	7.4	11.9	99	6.9	160
				15.1	7.4	11.9	99	6.9	160
				16.1	7.4	11.9	99	6.9	160
				17	7.4	11.9	99	6.9	160
				18	7.4	11.9	99	6.9	160
				19	7.4	11.9	99	6.9	160
				20.1	7.4	11.9	99	6.9	160
				21	7.4	11.9	99	6.9	160
				22	7.4	11.9	99	6.9	160
				23	7.3	11.9	99	6.9	161
				24	7.3	11.9	99	6.9	161
				25	7.3	11.9	99	6.9	162
				26	7.1	12	99	6.9	159

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	19-Sep-07	no ice	-	0.3	4.5	13.5	105	7.1	156
				1	4.5	13.4	104	7.1	156
				2	4.5	13.4	103	7.1	156
				3	4.5	13.4	104	7	156
				4	4.5	13.4	104	7	156
				5	4.5	13.4	103	7	156
				6	4.5	13.4	103	7	156
				7	4.5	13.3	103	7	156
				8	4.5	13.4	103	7	156
				9	4.5	13.4	103	7	156
				10.1	4.5	13.4	103	7	156
				11	4.4	13.4	103	7	156
				12	4.4	13.4	103	7	156
				13	4.4	13.4	103	7	156
				14	4.4	13.4	103	7	156
				15	4.4	13.4	103	7	156
				16	4.4	13.4	103	7	156
				17	4.4	13.4	103	7	156
				18	4.4	13.4	103	7	156
				19	4.4	13.4	103	7	156
				20	4.4	13.4	103	7	156
				21	4.4	13.4	103	7	156
				22	4.4	13.4	103	7	156
				23	4.4	13.4	103	6.9	156
				24	4.4	13.4	103	6.9	156
				25	4.4	13.4	103	6.9	156
				26	4.4	13.4	103	6.9	156
				27	4.4	13.4	103	6.9	156
				28	4.4	13.4	95	6.5	157
SNP 02-20f	22-Feb-07	1.1	-	0.3	0.4	14.6	101	6	132
				1	0.8	14.8	104	6.1	135
				2	1.6	14.4	102	6.1	118
				3	2	13.8	100	6.2	116
				4	2.1	12.9	94	6.2	117
				5	1.9	12.5	90	6.2	194
				6	1.8	12.6	91	6.3	257
				7	1.8	12.5	90	6.3	291
				8	1.8	12.5	90	6.3	294
				9	1.8	12.4	89	6.4	300
				10	1.8	12.4	89	6.4	303
				11	1.9	12.3	88	6.4	302
				12	2.1	11.8	86	6.5	295
				13	2.2	11.4	83	6.5	292
				14	2.6	8.5	59	6.4	306
	17-Mar-07	1.2	-	0.3	0.1	16.1	110	6.3	132
				1	0.3	16.4	113	6.2	127
				2	1.5	15.5	110	6.3	111
				3	1.9	15.2	110	6.2	108
				4	2.1	13.9	101	6.3	114
				5	1.9	14.1	102	6.1	221
				6	1.8	14	101	6.2	257
				7	1.8	14.4	104	6.2	270
				8	1.9	14.4	104	6.2	275
				9	1.9	14.1	101	6.3	279
				10	1.9	13.4	97	6.3	283
	17-Apr-07	1.4	-	0.3	0.2	13.4	92	6.3	131
				1	0.6	13.5	94	6.3	130
				2	1.7	12.8	92	6.3	119
				3	2.1	11.5	83	6.2	117
				4.1	1.8	11.8	85	6.1	197
				5	1.8	12	86	6.1	247
				6	1.8	12	86	6.2	258
				7	1.8	12	86	6.2	262
				8	1.9	11.9	86	6.2	268
				9	1.9	11.9	86	6.2	270
				10	1.9	11.8	85	6.2	277
				11	2.1	11.4	82	6.2	283
				12	2.1	11.1	80	6.2	284
				13	2.2	10.9	79	6.3	284
				14	2.4	7.8	57	6.2	287

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	19-Jul-07	no ice	-	0.3	17.3	9.7	101	6.9	115
				1	17.3	9.7	101	6.8	115
				2	17.3	9.7	101	6.7	115
				3	17.3	9.7	101	6.6	115
				4	17.3	9.7	101	6.6	115
				5	17.3	9.7	101	6.6	115
				6	15.2	10.8	107	6.6	134
				7	14	11.6	113	6.6	162
				8	13.1	11.6	110	6.6	176
				9	12.5	11.8	110	6.6	170
				10	12.3	11.8	110	6.6	159
				11	11.9	11.8	110	6.6	161
				12	11.5	11.9	109	6.6	155
				13	10.7	12.4	110	6.6	151
				11	1.9	13.2	95	6.3	284
				12	2	13.1	95	6.3	282
				13	2.2	12.6	91	6.3	273
				14	2.5	8	56	6.2	278
	15-Aug-07	no ice	-	0.3	12.3	10.6	99	6.6	156
				1.1	12.3	10.6	99	6.6	156
				2	12.3	10.6	99	6.6	156
				3	12.3	10.6	99	6.7	157
				4	12.3	10.6	99	6.7	157
				5	12.3	10.6	99	6.7	156
				6	12.3	10.6	99	6.7	156
				7.1	12.3	10.6	99	6.7	155
				8	12.3	10.6	99	6.7	155
				9	12.3	10.6	99	6.7	155
				10	12.3	10.6	99	6.7	155
				11	12.3	10.6	99	6.7	155
				12.1	12.2	10.6	99	6.8	157
				13	12.2	10.6	99	6.7	156
	17-Sep-07	no ice	-	0.3	5.4	12.9	102	7.1	157
				1	5.5	12.6	100	7.1	157
				2	5.5	12.6	100	7.1	157
				3	5.5	12.6	100	7.1	157
				4	5.5	12.6	100	7.1	157
				5	5.5	12.6	100	7	157
				6	5.5	12.6	100	7	157
				7	5.5	12.6	100	7	157
				8	5.5	12.6	100	7	157
				9	5.5	12.5	100	7	157
				10	5.5	12.5	100	7	157
				11	5.5	12.5	100	7	157
				12	5.5	12.5	100	7	157
				13	5.5	12.5	100	7	157
NEL01	18-Jul-07	-	-	0.3	16.8	9.5	98	6.3	17
				1	16.8	9.5	98	6.2	17
				2	16.8	9.5	98	6.2	17
				3	16.8	9.5	98	6.1	17
				4	16.7	9.6	99	6.6	17
				5	12.5	11.2	105	6	15
				6	10.9	11.6	105	6	15
				7	10.5	11.6	104	6	15
				8	10.2	11.7	104	6	14
				9	10	12.9	114	5.9	14
				10	9.8	11.8	104	6	14
	12-Sep-07	-	-	0.3	7.7	11.9	100	6.6	19
				1	7.7	11.8	99	6.6	19
				2	7.7	11.8	99	6.6	19
				3	7.7	11.8	99	6.5	19
				4	7.7	11.8	99	6.5	19
				5.1	7.7	11.8	99	6.5	19
				6	7.7	11.8	99	6.5	19
				7.1	7.7	11.8	99	6.5	19
				8	7.7	11.8	99	6.5	19
				9	7.7	11.8	99	6.5	19
				10	7.6	11.8	98	6.5	19
				11	7.5	11.8	99	6.5	19

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
NEL02	17-Jul-07	-	-	0.3	15.7	7.7	77	6.4	16
				1	15.6	7.7	77	6.5	16
				2	15.5	7.7	77	6.3	16
				3	15.5	7.7	77	6.3	16
				4	15.4	7.7	77	6.1	16
				5	13.2	8.3	79	6.1	15
				6	12.2	8.6	80	6.1	15
				7	11	8.8	80	6.1	14
				8	10.5	8.9	79	6.1	14
				9	10.2	8.9	79	6.1	14
				10	9.8	8.9	78	6.1	14
				11	9.6	8.9	78	6.1	14
	12-Sep-07	-	-	0.3	8	11.9	100	6.6	19
				1	8	11.6	98	6.6	19
				2	8	11.6	98	6.6	19
				3.1	8	11.6	98	6.6	19
				4	8	11.6	98	6.6	19
				5.1	8	11.6	98	6.6	19
				6	8	11.6	98	6.6	19
				7	8	11.6	98	6.6	19
				8.1	8	11.6	98	6.6	19
				9	8	11.6	98	6.6	19
				10	8	11.6	98	6.6	19
				11	8	11.6	98	6.6	19
NEL03	17-Jul-07	-	-	0.3	15.3	7.8	78	6.5	16
				1	15.2	7.7	77	6.5	16
				2	15.2	7.7	77	6.4	16
				3	15.1	7.7	77	6.3	16
				4	15.1	7.8	77	6.2	16
				5	13.1	8.3	80	6.1	15
				6	11.2	8.8	80	6	15
				7	11.1	8.8	80	6	15
				8	10.8	9.2	82	6	14
				9	10.3	8.9	80	6	14
	12-Sep-07	-	-	0.3	8.5	11.6	99	6.8	19
				1	8.5	11.5	98	6.8	19
				2	8.4	11.5	98	6.7	19
				3	8.4	11.5	98	6.7	19
				4.1	8.4	11.5	98	6.7	19
				5	8.4	11.5	98	6.7	19
				6	8.4	11.5	98	6.7	19
				7	8.4	11.5	98	6.7	19
				8	8.4	11.5	98	6.7	19
				9	8.4	11.5	98	6.7	19
				10	8.3	9.8	84	6.4	19
NEL04	18-Jul-07	-	-	0.3	15.9	9.8	100	6.3	17
				1	15.9	9.8	99	6.2	17
				2	15.9	10.1	102	6.1	17
				3	15.8	9.9	100	6.1	17
				4	15.9	9.8	99	6	17
				5	15.8	9.9	99	6	17
				6	13.1	11	105	5.9	16
				7	11.8	11.4	105	5.9	15
				8	10.9	11.6	105	5.9	15
				9	10.4	11.7	104	5.9	15
				10	9.8	11.8	104	5.9	14
				11	9.2	10.4	90	5.9	14
				12	8.8	7.4	64	5.7	18
	11-Sep-07	-	-	0.3	8.3	11.8	101	6.6	20
				1	8.3	11.8	101	6.6	20
				2	8.3	11.8	101	6.5	20
				3	8.4	11.8	100	6.5	20
				4	8.4	11.8	100	6.5	20
				5	8.4	11.8	100	6.5	20
				6	8.4	11.8	100	6.5	20
				7	8.3	11.8	100	6.5	20
				8	8.4	11.8	100	6.5	20
				9	8.4	11.8	100	6.5	20
				10	8.3	11.8	100	6.6	20
				11	8.2	11.8	100	6.6	20
				12	8.2	11.8	100	6.6	20
				13	8.2	11.8	100	6.6	20

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
NEL05	18-Jul-07	-	-	0.3	15	10.1	100	5.9	16
				1.1	15	10.1	100	5.8	16
				2	14.9	10.1	100	5.8	16
				3	14.9	10.1	100	5.8	16
				4	14.6	11	105	5.8	16
				5	13.1	10.9	104	5.8	16
				6	12.1	11.3	105	5.8	15
				7	11.7	11.4	105	5.8	15
				8	11	11.6	105	5.8	15
				9	10.6	11.6	104	5.8	15
	11-Sep-07	-	-	0.3	8.6	11.8	101	6.5	20
				1	8.6	11.7	100	6.6	19
				2.1	8.6	11.7	100	6.6	19
				3	8.6	11.7	100	6.6	19
				4	8.6	11.7	100	6.6	19
				5	8.6	11.7	100	6.6	19
				6	8.6	11.7	100	6.6	19
				7.1	8.6	11.7	100	6.6	19
				8	8.6	11.7	100	6.6	19
				9	8.6	11.7	100	6.6	19
				10	8.6	11.7	100	6.6	19
SNP 02-20d	23-Jan-08	1.1	-	1.4	0.6	15.7	109	7	198
				2	0.9	15.4	108	7	190
				3	0.9	15.4	108	6.9	235
				4	0.9	15.5	109	6.9	239
				5.1	1	15.5	109	6.9	241
				6	1	15.5	109	6.9	247
				7	1	15.4	108	6.9	248
				8	1	15.1	106	6.9	248
				9	1	15	106	6.9	249
				10	1	15	106	6.9	249
				11	1.1	14.9	105	6.9	249
	19-Feb-08	1.4	-	1.3	0.7	16.2	113	6.8	227
				1.4	0.9	15.5	109	6.7	226
				1.4	1.4	18.1	129	6.8	223
				2	1	15.3	108	6.7	207
				3	1	14.8	105	6.7	255
				3	1	14.9	105	6.7	255
				4	1	14.9	105	6.7	260
				5	1	14.9	105	6.7	264
				6	1.1	14.9	105	6.7	268
				7	1.1	14.8	105	6.7	271
				8	1.1	14.8	105	6.7	272
				9	1.1	14.8	104	6.6	272
				10	1.1	14.8	104	6.6	272
				11	1.2	14.5	103	6.6	271
	13-Mar-08	1.4	-	0.2	0.1	14.9	102	6.4	125
				1	0.1	14.9	102	6.3	124
				2	1	14	98	6.4	116
				3	1.1	14.2	101	6.4	146
				4	1.1	14.3	101	6.3	147
				5	1.1	14.3	101	6.4	148
				6	1.1	14.3	101	6.3	149
				7	1.1	14.2	101	6.2	152
				8	1.2	13.9	98	6.5	153
				9	1.2	13.9	98	6.4	154
				10	1.2	13.9	98	6.5	154
				11	1.2	13.9	98	6.3	154
	6-Apr-08	1.6	-	1.6	0.6	14.8	103	6.2	248
				2	1	14.4	101	6.1	230
				3	1.2	14.6	103	6.3	288
				4	1.2	14.7	104	6.3	291
				5	1.2	14.7	104	6.3	291
				6	1.2	14.6	103	6.4	293
				7	1.2	14.5	103	6.4	297
				8	1.2	14.4	102	6.4	298
				9	1.2	14.4	102	6.4	299
				10	1.2	14.4	102	6.4	299
				11	1.2	14.4	102	6.4	300

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	9-May-08	1.6	-	1.6	1	15.5	109	-	252
				2	1.7	14.6	104	-	248
				3	1.6	14.7	106	-	315
				4	1.5	15.1	108	-	314
				5	1.5	15.1	108	-	318
				6	1.5	15.1	107	-	319
				7	1.5	15	107	-	322
				8	1.5	15	107	-	322
				9	1.5	15	107	-	323
				10	1.5	14.9	107	-	323
				11	1.5	14.9	107	-	322
				12	1.6	5.6[b]	37[b]	-	294[b]
	14-Jul-08	no ice	7	0.3	13.4	10.5	101	7.2	203
				2.1	13.4	10.3	99	7.2	203
				3	13.4	10.3	99	7.2	203
				5.1	13.4	10.3	99	7.2	204
				6	13.4	10.4	99	7.2	204
				7.1	13.4	10.4	99	7.2	205
				8.1	13.4	10.4	99	7.2	205
				9	13.3	10.4	99	7.2	205
				10.3	13.2	10.5	100	7.2	209
				11	13.1	10.6	101	7.2	214
				12.1	11.9	11.2	104	7.2	204
	14-Aug-08	no ice	-	<0.3	16.56	9.3	95	7	216
				1	16.56	9.3	95	7	215
				2	16.56	9.3	95	7	216
				3	16.56	9.3	95	7	216
				4	16.56	9.3	95	7	216
				5	16.56	9.3	95	7	216
				6	16.55	9.3	95	6.9	218
				7	16.54	9.3	95	6.9	218
				8	16.55	9.3	95	6.9	218
				9	16.54	9.3	95	6.9	220
				10	16.53	9.3	95	6.9	221
				11	16.52	9.3	95	6.8	215
	15-Sep-08	no ice	4.3	0.2	6.6	11.8	97	7.2	222
				1.1	6.6	11.8	96	7.2	222
				2	6.7	11.8	96	7.3	222
				3.1	6.7	11.7	96	7.3	222
				4.1	6.6	11.7	96	7.3	221
				5	6.6	11.7	95	7.3	221
				6.1	6.6	11.7	95	7.3	220
				7.1	6.6	11.7	95	7.3	220
				8	6.6	11.6	95	7.3	220
				9	6.6	11.6	95	7.3	220
				10.1	6.6	11.6	95	7.3	220
				11	6.6	11.6	95	7.3	220
SNP 02-20d[c]	8-May-08	1.6	-	1.6	0.5	15	111	-	-
				2	1	15.4	107	-	-
				3	1.4	15	107	-	-
				4	1.4	15.1	108	-	-
				5	1.4	15.1	108	-	-
				6	1.4	15.1	108	-	-
				7	1.5	15.1	107	-	-
				8	1.5	15	107	-	-
				9	1.5	14.9	107	-	-
				10	1.5	14.9	107	-	-
				11	1.5	15	107	-	-

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNP 02-20e	22-Jan-08	0.98	-	1	1.4	16.8	119	7.1	208
				2	1.3	16.4	117	7.1	194
				3	1.2	16.1	114	7	213
				4	1.1	16	113	7	229
				5	1.2	16	113	7	241
				6	1.1	16	113	7	246
				7	1.1	15.9	112	7	247
				8	1.1	15.7	111	7	246
				9	1.1	15.6	110	7	245
				10	1.1	15.5	110	7	247
				11	1.1	15.4	108	6.9	245
				12	1.1	15.1	106	6.9	240
				13	1.2	14.7	105	6.9	237
				14	1.3	14.1	100	6.8	236
				15	1.3	13.9	98	6.8	237
				16	1.3	13.8	98	6.8	242
				17	1.3	13.7	98	6.8	244
				18	1.3	13.5	96	6.8	244
				19	1.3	13.4	95	6.8	244
				20	1.4	13.2	94	6.7	244
				21	1.4	13.1	93	6.7	245
				22	1.4	12.9	91	6.7	245
				23	1.4	12.8	91	6.7	245
				24	1.4	12.5	89	6.7	246
				25	1.4	12.1	86	6.6	247
				26	1.5	11.4	81	6.6	247
				27	1.5	10.2	73	6.5	247
				28	1.5	8.7	69	6.5	249
				29	1.6	6.7	46	6.3	240
	17-Feb-08	1.1	-	1.1	0.5	15.6	108	6.4	234
				2	0.9	15.5	109	6.6	222
				3	1	14.9	105	6.6	245
				4	1	14.7	104	6.5	254
				5	1	14.7	103	6.5	266
				6	1.1	14.6	103	6.5	267
				7	1.1	14.6	103	6.5	268
				8	1.1	14.5	102	6.5	267
				9	1.1	14.5	102	6.5	268
				10	1.1	14.4	102	6.5	269
				11	1.1	14.4	102	6.5	269
				11.7	1.1	15.2	107	6.5	269
				12	1.1	14.4	102	6.6	269
				13	1.2	14.2	101	6.6	259
				14	1.3	13.9	99	6.5	262
				15	1.3	13.7	97	6.5	266
				16	1.3	13.5	96	6.5	272
				17	1.3	13.4	95	6.5	273
				18	1.3	13.4	95	6.5	273
				19	1.3	13.3	94	6.5	271
				20	1.4	13.1	93	6.5	271
				21	1.4	12.8	91	6.5	270
				22	1.4	12.6	90	6.4	270
				23	1.4	12.3	88	6.4	269
				24	1.5	12.1	86	6.4	268
				25	1.5	11.7	83	6.3	268
				26	1.5	11.2	80	6.3	268
				27	1.6	10.6	76	6.2	269
				28	1.6	10.2	73	6.2	271

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Mar-08	1.3	-	0.2	0.5	13.8	96	6.4	130
				1	0.2	14.5	100	6.4	132
				2	0.8	14.9	104	6.3	123
				3	1.1	14.9	105	6.4	141
				4	1.1	14.9	105	6.2	145
				5	1.1	15	106	6.2	150
				6	1.1	15.1	106	6.3	151
				7	1.2	14.9	106	6.4	151
				8	1.2	14.8	105	6.3	152
				9	1.2	14.7	104	6.4	152
				10	1.2	14.4	102	6.3	152
				11	1.2	14.3	101	6.3	153
				12	1.2	14.1	100	6.3	152
				13	1.3	13.8	97	6.3	149
				14	1.4	13.3	95	6.3	147
				15	1.3	13.1	93	6.3	154
				16	1.3	13	92	6.2	154
				17	1.4	12.8	91	6.2	154
				18	1.3	13	92	6.2	156
				19	1.4	12.9	92	6.2	155
				20	1.4	12.9	91	6.2	155
				21	1.4	12.6	90	6.2	154
				22	1.4	12.3	88	6.2	153
				23	1.5	11.9	85	6.2	153
				24	1.5	11.3	81	6.1	152
				25	1.5	11	78	6.1	153
				26	1.5	10.8	77	6	153
				27	1.6	10.1	72	6.1	153
				28	1.6	9.8	70	6	154
	7-Apr-08	1.3	-	1.3	2.1	14.3	104	6.5	266
				2	1.4	14.5	104	6.4	250
				3	1.4	14.4	102	6.3	262
				4	1.4	14.6	104	6.4	284
				5	1.3	14.5	103	6.4	287
				6	1.3	14.4	102	6.4	297
				7	1.3	14.2	101	6.4	297
				8	1.3	14	99	6.4	297
				9	1.3	13.9	99	6.4	298
				10	1.3	13.9	99	6.4	299
				11	1.3	13.9	99	6.4	300
				12	1.3	13.8	98	6.4	295
				13	1.4	13.3	95	6.4	287
				14	1.4	13.2	94	6.3	294
				15	1.4	13.4	95	6.4	301
				16	1.4	13.3	95	6.4	300
				17	1.4	13.3	95	6.4	301
				18	1.4	13.4	95	6.4	303
				19	1.4	13.2	94	6.4	302
				20	1.4	13.1	93	6.3	301
				21	1.4	13.1	93	6.3	301
				22	1.4	13.1	93	6.3	303
				23	1.4	13	93	6.4	302
				24	1.5	12.7	91	6.3	301
				25	1.5	12.6	90	6.3	300
				26	1.5	11.7	83	6.3	298
				27	1.5	11.3	81	6.2	297
				28	1.6	9.8	70	6.1	297

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	11-May-08	1.4	-	1.4	1.1	15.2	107	-	248
				2	1.3	15.1	107	-	261
				3	1.7	14.5	104	-	284
				4	1.5	14.6	104	-	316
				5	1.6	14.8	106	-	318
				6	1.5	14.9	107	-	318
				7	1.6	15	107	-	317
				8	1.6	15	107	-	317
				9	1.6	14.9	107	-	315
				10	1.7	14.9	107	-	310
				11	1.8	14.9	107	-	308
				12	1.8	14.9	107	-	304
				13	1.9	14.8	107	-	303
				14	1.8	14.9	107	-	316
				15	1.8	14.8	107	-	314
				16	1.9	14.7	106	-	312
				17	1.9	14.7	106	-	312
				18	1.9	14.7	106	-	313
				19	1.9	14.7	106	-	312
				20	1.9	14.6	105	-	313
				21	1.9	14.5	105	-	315
				22	1.9	14.5	104	-	315
				23	1.9	14.5	104	-	314
				24	1.9	14.5	104	-	313
				25	1.9	14.5	105	-	314
				26	1.9	14.5	104	-	316
				27	1.9	14.4	104	-	317
				28	1.9	1.1[b]	8.2[b]	-	318[b]
	15-Jul-08	no ice	7.5	1	13.6	10.3	100	7.4	207
				2	13.5	10.3	99	7.3	205
				3	13.4	10.3	99	7.3	207
				4.1	13.4	10.3	99	7.3	207
				5.1	13.4	10.3	99	7.3	207
				6.1	13.3	10.3	99	7.3	207
				7	13.3	10.3	99	7.2	209
				8.1	13.3	10.4	99	7.2	213
				9	13.3	10.4	99	7.2	215
				10.1	13.3	10.4	99	7.2	218
				11.1	13.2	10.4	99	7.2	219
				12.1	13.2	10.4	99	7.2	218
				13	13.2	10.4	99	7.2	219
				14.1	12.5	10.9	103	7.2	211
				15.1	11.4	11.1	102	7.2	206
				16	9.3	11.4	100	7.2	206
				17	8.1	11.6	98	7.1	204
				18.1	7.4	11.6	97	7	204
				19.1	6.9	11.6	95	7	207
				20.1	6.6	11.5	94	6.9	211
				21	6.4	11.4	93	6.8	215
				22	6	11.2	90	6.7	225
				23	5.6	11.1	88	6.6	236
				24.1	5.4	11	87	6.5	240
				25	5.4	10.9	86	6.5	241
				26	5.4	10.8	86	6.6	244
				27.1	5.3	10.7	84	6.5	245
				28.1	5.2	9.9	78	6.4	245

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	12-Aug-08	no ice	-	1	17.33	9.4	98	6.9	202
				2	17.45	9.3	97	7.1	202
				3	17.46	9.2	97	7.1	202
				4	17.47	9.2	97	7.2	202
				5	17.46	9.2	96	7.1	202
				6	17.46	9.2	96	7.1	202
				7	17.46	9.2	96	7.2	202
				8	17.46	9.2	96	7.2	202
				9	17.46	9.2	96	7.2	202
				10	17.46	9.2	96	7.2	202
				11	17.44	9.2	96	7.2	202
				12	17.44	9.2	96	7.2	202
				13	17.43	9.2	96	7.2	202
				14	17.43	9.2	96	7.2	203
				15	17.4	9.2	96	7.2	203
				16	17.37	9.2	96	7.2	203
				17	13	9.7	90	7.1	202
				18	8.12	10.3	90	7	198
				19	7.47	10.2	85	6.7	201
				20	6.68	10.2	83	6.5	206
				21	6.26	9.8	80	6.5	212
				22	5.99	9.3	75	6.4	217
				23	5.82	8.8	70	6.3	219
				24	5.76	8.6	69	6.3	220
				25	5.73	8.4	67	6.3	220
				26	5.66	7.6	59	6.1	238
				27	5.85	8.8	70	6.6	220
				28	5.72	7.1	60	6.3	262
	15-Sep-08	no ice	4.3	0.1	6.7	11.8	97	7.1	221
				1.1	6.7	11.7	96	7.1	222
				2	6.7	11.7	96	7.1	222
				3	6.7	11.7	96	7.1	222
				4	6.7	11.7	96	7.1	222
				5.1	6.7	11.7	96	7.2	223
				6	6.7	11.7	95	7.2	224
				7.1	6.7	11.7	95	7.2	224
				8.1	6.6	11.7	95	7.2	223
				9	6.7	11.6	95	7.2	224
				10	6.6	11.6	95	7.2	225
				11	6.6	11.6	95	7.2	224
				12	6.6	11.6	95	7.2	225
				13.1	6.7	11.6	95	7.2	226
				14.1	6.6	11.6	95	7.2	225
				15	6.6	11.6	95	7.2	227
				16	6.6	11.6	95	7.2	227
				17	6.6	11.6	95	7.2	228
				18	6.6	11.6	95	7.2	228
				19	6.6	11.6	95	7.2	225
				20.1	6.5	11.6	95	7.2	222
				21.1	6.5	11.6	95	7.2	222
				22.1	6.5	11.6	94	7.2	221
				23.1	6.5	11.6	94	7.2	222
				24.1	6.3	11.6	94	7.3	216
				25.1	6.3	11.6	94	7.2	216
				26.1	6.3	11.6	94	7.2	216
				27.1	6.3	11.6	94	7.2	216
				28.1	6.3	11.6	94	7.2	216
SNP 02-20f	24-Jan-08	1.1	-	1.1	0.3	16.8	116	6.8	208
				2	0.7	16.5	115	6.8	196
				3	0.9	16.5	116	6.8	227
				4	0.9	16.8	118	6.8	243
				5	0.9	16.8	118	6.8	248
				6	1	16.8	118	6.8	254
				7	1	16.4	115	6.8	255
				8	1	15.9	112	6.8	256
				9	1	15.7	110	6.8	258
				10	1	15.9	112	6.8	260
				11	1	15.5	109	6.8	261
				12	1.1	15	106	6.8	259
				13	1.2	14.7	104	6.8	256
				14	1.4	13.5	96	6.7	248

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	20-Feb-08	1.3	-	1.3	0.5	17.4	121	6.4	243
				1.3	0.5	17.5	121	6.4	238
				2	1	16.6	117	6.4	221
				3	1	15.9	112	6.4	234
				4	1.1	15.8	111	6.4	274
				5	1.1	15.7	111	6.4	279
				6	1.1	15.6	110	6.4	284
				7	1.1	15.5	110	6.4	287
				8	1.1	15.5	109	6.4	287
				9	1.1	15.5	109	6.4	287
				10	1.1	15.4	109	6.4	287
				11	1.1	15.4	109	6.4	288
				12	1.2	15.3	109	6.3	285
				13	1.3	14.9	106	6.3	280
				14	1.5	14.1	101	6.2	275
	16-Mar-08	no ice	-	0.3	0.1	15	103	6.1	127
				1	0.1	15.6	107	6	125
				2	0.3	15.5	107	6	115
				3	0.5	15.4	107	5.9	140
				4	1.1	15	106	6	148
				5	1.1	15.1	107	6	151
				6	1.1	15.2	107	5.9	152
				7	1.1	15.1	107	6	153
				8	1.2	14.7	104	6	153
				9	1.2	14.3	101	6	153
				10	1.2	14.1	100	6	154
				11	1.2	14	99	5.6	154
				12	1.2	14	99	5.9	155
				13	1.3	13.7	97	5.9	153
				14	1.5	12.9	92	5.8	150
	13-Apr-08	1.5	-	1.5	0.7	15.4	108	6.0 - 6.6	241
				2	0.9	15.3	107	6.0 - 6.6	236
				3	1.2	15.3	108	5.9 - 6.7	282
				4	1.2	15.4	109	5.9 - 6.7	295
				5	1.2	15.3	108	5.9 - 6.7	302
				6	1.2	15.3	108	5.9 - 6.8	303
				7	1.3	15.2	108	5.9 - 6.8	305
				7.5	1.3	15.2	108	5.9 - 6.8	307
				8	1.3	15.2	108	5.9 - 6.8	307
				9	1.3	15.2	108	5.9 - 6.8	309
				10	1.3	15.2	107	5.9 - 6.8	311
				11	1.3	15.1	107	5.9 - 6.8	312
				12	1.3	15	106	5.9 - 6.8	309
				13	1.3	14.9	106	5.9 - 6.8	309
				14	1.4	14.3	102	5.9 - 6.8	307
	9-May-08	no ice	-	1.6	0.8	13.5	95	-	259
				2	1	13.4	94	-	256
				3	1.4	13.3	95	-	317
				4	1.5	13.4	95	-	322
				5	1.5	13.4	96	-	327
				6	1.5	13.4	96	-	328
				7	1.6	13.4	96	-	328
				8	1.6	13.3	95	-	328
				9	1.6	13.3	95	-	328
				10	1.6	13.3	95	-	329
				11	1.5	13.3	95	-	329
				12	1.5	13.3	95	-	330
				13	1.5	13.3	95	-	330
				14	1.6	13.3	95	-	330

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Jul-08	no ice	8	0.1	17.3	9.3	97	7.1	18
				0.3	13.9	10.3	100	6.9	183
				1	13.9	10.2	99	7	183
				2	13.7	10.2	99	7.1	182
				3	13.7	10.3	99	7.1	182
				4	13.7	10.3	99	7.1	182
				5.1	13.6	10.3	99	7.1	182
				6.1	13.6	10.3	99	7.1	183
				7	13.5	10.3	99	7.1	182
				8.1	13.4	10.3	99	7.1	182
				9	13.4	10.3	99	7.1	183
				10.1	13.4	10.4	99	7.1	183
				11.1	13.4	10.4	99	7.1	184
				12.1	13.3	10.4	100	7.1	186
				13.1	13.3	10.4	99	7.1	188
				14	12	10.7	100	7.1	190
	14-Aug-08	no ice	-	<0.3	16.5	9.2	94	7	215
				1	16.5	9.2	94	7	215
				2	16.5	9.2	94	7	215
				3	16.5	9.2	94	7	215
				4	16.5	9.2	94	7	215
				5	16.5	9.2	94	7	215
				6	16.5	9.2	94	7	215
				7	16.5	9.2	94	7	214
				8	16.5	9.2	94	7	215
				9	16.47	9.2	94	7	214
				10	16.45	9.2	94	7	216
				11	16.45	9.2	94	7	215
				12	16.45	9.2	94	7	213
				13	16.44	9.2	94	7	213
	14-Sep-08	no ice	4.25	0.3	6.9	11.8	97	7	219
				1.1	6.9	11.8	97	7.1	219
				2	6.9	11.8	97	7.1	219
				3.1	6.9	11.6	95	7.2	221
				4	6.9	11.5	95	7.2	221
				5.1	6.9	11.5	95	7.2	221
				6.1	6.9	11.5	94	7.2	220
				7	6.9	11.5	94	7.2	220
				8.1	6.9	11.4	94	7.2	221
				9.1	6.9	11.4	94	7.2	221
				10	6.9	11.4	94	7.2	221
				11.1	6.9	11.4	94	7.2	221
				12	6.9	11.4	94	7.2	221
				13	6.8	11.4	94	7.2	221
				14.1	6.8	11.3	93	7.2	221
SNP 02-20f[(c)]	8-May-08	1.6	-	1.6	1.6	14.8	105	-	-
				2	1.5	14.2	102	-	-
				3	1.5	14.7	105	-	-
				4	1.5	14.8	106	-	-
				5	1.4	15	107	-	-
				6	1.4	15	107	-	-
				7	1.5	15	107	-	-
				8	1.5	14.9	107	-	-
				9	1.5	15	107	-	-
				10	1.5	14.9	107	-	-
				11	1.5	15	107	-	-
				12	1.5	15	107	-	-
				13	1.5	14.9	107	-	-
				14	1.5	14.9	107	-	-
	13-Aug-08	no ice	-	<0.3	16.96	9.2	95	6.9	214
				1	16.95	9.2	95	6.9	214
				2	16.96	9.2	95	6.9	214
				3	16.96	9.2	95	6.9	214
				4	16.96	9.2	95	6.8	214
				5	16.96	9.2	95	6.8	214
				6	16.94	9.2	95	6.7	214
				7	16.95	9.2	95	6.7	214
				8	16.94	9.2	95	6.7	214
				9	16.93	9.2	95	6.7	214
				10	16.93	9.2	95	6.6	214
				11	16.92	9.2	95	6.5	214

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP03	11-Apr-08	1.3	-	1.3	0.1	16.8	115	6.0 - 6.7	246
				2	0.7	16.3	114	6.0 - 6.7	236
				3	1.1	16.1	114	6.0 - 6.6	263
				4	1.2	15.9	112	6.1 - 6.6	291
				5	1.2	15.7	111	6.0 - 6.6	295
				6	1.2	15.5	110	6.1 - 6.7	301
				7	1.2	15.3	109	6.0 - 6.7	300
				8	1.3	15.2	108	6.0 - 6.7	299
				9	1.5	14.6	104	5.6 - 6.7	289
				10	1.8	14.1	101	5.9 - 6.6	285
				11	2	13.6	98	5.9 - 6.6	281
				12	2.2	12.8	92	5.8 - 6.5	279
	9-May-08	1.5	-	1.5	0.6	15.7	109	6.0 - 6.6	250
				2	1.1	15	105	6.0 - 6.5	240
				3	1.4	14.8	106	5.9 - 6.6	302
				4	1.5	15	107	5.9 - 6.6	315
				5	1.5	15	107	6.0 - 6.6	321
				6	1.5	14.9	106	6.0 - 6.6	319
				7	1.5	14.8	106	6.0 - 6.6	319
				8	1.5	14.8	105	6.0 - 6.4	319
				9	1.8	14.4	104	6.0 - 6.6	310
				10	2	14	101	6.0 - 6.6	303
				11	2.2	13.4	97	5.9 - 6.6	298
				12	2.3	13	95	5.9 - 6.5	296
	20-Jul-08	no ice	7.5	0.3	15.9	9.6	97	7.1	193
				1.1	15.8	9.5	96	7.1	193
				2.1	15.8	9.5	96	7.1	193
				3.1	15.8	9.5	96	7.2	193
				4	15.8	9.5	96	7.2	193
				5	15.8	9.5	95	7.2	193
				6	15.7	9.5	95	7.2	193
				7	15.6	9.5	95	7.2	194
				8.1	15.5	9.5	95	7.2	194
				8.9	15.4	9.5	95	7.2	196
				10.1	15.1	9.6	95	7.2	196
				10.9	15	9.6	95	7.2	195
				12.1	13.1	10.3	98	7.2	193
	16-Sep-08	no ice	4	0.2	6.1	12.1	98	6.9	218
				1	6.1	12.1	98	6.9	219
				2.1	6.1	12	97	6.9	219
				3.1	6.1	12	97	7	219
				4.1	6.1	12	97	7	218
				5	6.1	12	97	7	218
				6	6.1	12	97	7	218
				7	6.1	12	97	7	218
				8.1	6.1	12	97	7	218
				9	6.1	12	97	7	218
				10.1	6.1	12	97	7	218
				11	6.1	12	96	7	219
				12.1	6.1	12	96	7	218
SNAP05	26-Jan-08	1.09	-	1.2	0.2	17.8	123	6.9	201
				2	0.7	17.4	121	6.9	192
				3	0.9	17.1	119	6.9	189
				4	0.9	16.9	119	6.9	202
				5	0.9	16.6	116	6.8	236
				6	0.9	16.5	116	6.8	245
				7	1	16.1	113	6.8	244
				8	1.2	15.5	109	6.8	236
				9	1.5	14.6	104	6.8	232
				10	1.7	14.1	101	6.7	229
				11	1.9	13.4	97	6.7	226
				12	2.1	12.5	91	6.6	225
				13	2.3	10.9	79	6.5	226

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	22-Feb-08	1.3	-	1.3	0.3	16.2	112	6.4	240
				2	0.8	15.9	111	6.3	225
				3	1.1	15.5	109	6.4	221
				4	1.1	15.1	107	6.4	238
				5	1.1	14.9	105	6.2	269
				6	1.1	14.6	103	6.3	279
				7	1.2	14.3	102	6.3	274
				8	1.4	13.5	96	6.2	267
				9	1.7	12.8	92	6.3	264
				10	2	12.4	89	6.1	260
				11	2.2	11.5	84	6.2	258
				12	2.4	11.1	81	6.1	256
				13	2.5	10	74	6	256
	8-Apr-08	1.7	-	1.8	1	15.6	109	6.6	235
				2	0.9	15.7	110	6.6	227
				3	1.2	15	107	6.6	223
				4	1.1	15.5	109	6.6	275
				5	1.2	15.6	111	6.6	278
				6	1.2	15.5	110	6.6	283
				7	1.3	15.2	108	6.6	279
				8	1.5	14.5	104	6.6	274
				9	1.8	13.6	99	6.6	269
				10	2	13.3	96	6.6	266
				11	2.2	12.7	92	6.6	264
				12	2.4	12	88	6.5	262
				13	2.6	10.9	80	6.5	261
				14	2.8	9.3	98	6.4	260
	8-May-08	1.4	-	1.4	0.2	15.8	108	6.0 - 6.6	246
				2	1.1	14.9	105	5.9 - 6.6	239
				3	1.7	14.6	105	5.8 - 6.5	242
				4	1.5	15	107	5.7 - 6.6	303
				5	1.6	15.4	110	5.7 - 6.6	301
				6	1.6	15.3	109	5.7 - 6.7	307
				7	1.8	15	108	5.7 - 6.7	295
				8	2	14.8	107	5.7 - 6.6	289
				9	2.1	14.1	101	6.0 - 6.5	294
				10	2.3	12.7	93	5.9 - 6.6	290
				11	2.5	12.2	89	5.6 - 6.5	288
				12	2.6	12	88	5.5 - 6.5	288
				13	2.8	11.4	84	5.5 - 6.5	286
				14	3	8.9	65	5.4 - 6.4	283
	21-Jul-08	no ice	7.3	0.3	15.8	9.8	99	7	195
				1	15.8	9.8	99	7	195
				2.1	15.8	9.8	99	7.1	195
				3	15.8	9.7	98	7.1	195
				4.1	15.8	9.7	98	7.2	195
				5	15.8	9.7	98	7.2	195
				6	15.8	9.7	98	7.2	196
				7.1	15.8	9.7	98	7.2	195
				8	15.8	9.7	98	7.2	195
				9	15.7	9.7	97	7.2	195
				10.1	15.7	9.7	97	7.2	195
				11	15.6	9.7	97	7.2	195
				12	15.6	9.7	97	7.2	195
				13	15.5	9.7	97	7.2	195
	13-Sep-08	no ice	-	0.2	7.2	11.5	95	7.2	215
				1	7.2	11.5	95	7.2	215
				2.1	7.2	11.4	95	7.2	215
				3	7.2	11.4	94	7.2	215
				4	7.2	11.4	94	7.3	215
				5.1	7.2	11.4	94	7.3	215
				6	7.2	11.4	94	7.3	214
				7	7.2	11.4	94	7.3	215
				8.1	7.2	11.4	94	7.3	215
				9.1	7.2	11.4	94	7.3	214
				10.1	7.2	11.4	94	7.3	214
				11	7.2	11.4	94	7.3	214
				12.1	7.2	11.4	94	7.3	214
				13.1	7.2	11.4	94	7.3	214

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP06	11-Apr-08	1.3	-	1.3	0.2	16.6	114	5.8 - 6.5	248
				2	0.6	16.3	113	5.8 - 6.5	233
				3	1.4	14.7	104	5.8 - 6.5	223
				4	1.5	14	100	5.9 - 6.8	226
				5	1.5	14.4	104	5.7 - 6.5	260
				6	1.4	14.8	105	5.9 - 6.5	273
				7	1.6	14.4	103	5.7 - 6.5	269
				8	1.9	14.5	105	5.7 - 6.5	261
				9	2.1	15.2	110	5.7 - 6.5	253
				10	2.2	13.1	95	6.0 - 6.4	255
				11	2.3	11.9	87	5.8 - 6.4	254
	9-May-08	1.6	-	1.6	0.4	15.9	110	6.0 - 6.8	247
				2	0.7	15.7	110	5.9 - 6.7	246
				3	1.8	13.8	99	5.8 - 6.7	245
				4	2	13.7	99	5.8 - 6.6	246
				5	2.3	14.1	104	5.8 - 6.6	238
				6	2.1	14.6	106	5.7 - 6.6	279
				7	2.2	14.6	106	5.7 - 6.6	272
				8	2.8	14.8	110	5.7 - 6.6	251
				9	3	15.3	114	5.7 - 6.6	246
				10	3	15.5	115	5.7 - 6.6	249
				11	2.8	14.4	106	6.0 - 6.7	260
				12	2.7	12.2	89	5.6 - 6.5	268
	19-Jul-08	no ice	8	0.3	15.4	10.2	102	7	190
				1.1	15.4	10.1	101	7.1	190
				2	15.4	10.1	101	7.1	191
				3	15.4	10.1	101	7.1	191
				4.1	15.4	10.1	101	7.1	190
				5	15.3	10.1	100	7.2	191
				6.1	15.3	10.1	101	7.2	191
				7.1	15.2	10.1	100	7.2	191
				8	15.2	10.1	100	7.2	191
				9.1	15.1	10.1	101	7.2	192
				10	14.9	10.2	101	7.2	192
				11.1	14.7	10.2	100	7.2	192
				12.1	14.6	10.2	100	7.2	192
				13.1	14.2	10.3	100	7.2	190
	13-Sep-08	no ice	4.25	0.2	7.2	11.6	96	7.1	206
				1.1	7.2	11.5	95	7.2	207
				2	7.2	11.4	95	7.2	207
				2.1	7.2	11.4	95	7.2	207
				3	7.2	11.4	95	7.2	206
				4	7.2	11.4	94	7.2	207
				5.1	7.2	11.4	94	7.2	207
				6.1	7.2	11.4	94	7.2	207
				7.1	7.2	11.4	95	7.2	207
				8	7.2	11.4	95	7.2	207
				9.1	7.2	11.4	95	7.2	207
				10.1	7.1	11.4	95	7.2	207
				11.2	7.1	11.5	95	7.2	207
				12	7.1	11.5	95	7.2	207
SNAP06[(c)]	10-Apr-08	1.3	-	1.3	0.2	15.4	106	-	249
				2	0.7	15.1	105	-	236
				3	1.4	12.8	91	-	228
				4	1.5	13.4	96	-	231
				5	1.6	14.6	105	-	235
				6	1.4	14.5	103	-	270
				7	1.5	13.8	99	-	276
				8	1.8	14	101	-	266
				9	2	14.7	107	-	256
				10	2.1	13.2	95	-	261
				11	2.2	10.7	78	-	260
SNAP12	22-Jan-08	1.1	-	1.1	0.1	16.8	116	6.9	206
				2	0.4	15.8	109	6.9	191
				3	0.6	15	104	6.9	191
				4	0.8	15.2	106	6.9	225
				5	0.9	15.2	106	6.9	233
				6	0.9	15.1	106	6.9	241
				7	1	15.2	107	6.9	247

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	22-Feb-08	1.4	-	1.4	0.8	15.3	107	6.5	238
				2	1	15	105	6.5	220
				3	1.1	14.5	102	6.5	233
				4	1.1	14.2	101	6.5	267
				5	1.1	14.3	101	6.4	274
				6	1.1	14.2	100	6.4	281
				7	1.2	14.3	101	6.4	286
	27-Mar-08	1.6	-	1.6	0.4	14.3	99	6.2	238
				2	1.1	13.5	95	6.3	229
				3	1.2	13.5	95	6.3	254
				4	1.2	13.5	96	6.1	277
				5	1.2	13.5	96	6.1	283
				6	1.2	13.5	96	6.2	287
				7	1.2	13.5	96	6.1	291
	9-May-08	1.7	-	1.7	0.9	13.5	95	-	248
				2	1.7	12.8	91	-	248
				3	1.5	12.9	92	-	308
				4	1.5	13.2	94	-	317
				5	1.5	13.2	94	-	320
				6	1.6	13.2	94	-	324
				7	1.7	13.1	94	-	324
				8	2.4	11.5	84	-	318
	21-Jul-08	no ice	7.8	0.4	15.7	9.7	97	7.2	197
				1	15.7	9.6	97	7.2	197
				2	15.7	9.6	97	7.2	197
				3.1	15.7	9.6	97	7.2	197
				4.1	15.7	9.6	97	7.2	198
				5	15.7	9.6	97	7.3	197
				6	15.7	9.6	97	7.2	197
				7.1	15.7	9.6	97	7.2	198
	12-Sep-08	no ice	4.3	0.3	7.6	11.6	97	7	216
				1	7.6	11.6	97	7.1	217
				2.1	7.6	11.6	97	7.1	217
				3	7.6	11.6	97	7.1	217
				4	7.6	11.5	97	7.1	217
				5	7.6	11.5	97	7.1	217
				6	7.6	11.5	96	7.2	217
				7	7.6	11.5	96	7.2	217
SNAP14	24-Jan-08	1	-	1	0.1	16.8	115	6.8	210
				2	0.2	16.5	114	6.8	198
				3	0.9	15.7	110	6.8	239
				4	0.9	15.4	108	6.8	244
				5	1	15.2	107	6.8	249
				6	1	15.1	106	6.8	254
				7	1	15.1	106	6.8	257
				8	1	15.1	106	6.8	258
				9	1	15.1	106	6.8	258
				10	1	15	106	6.8	259
				11	1.3	14	99	6.8	249
				12	1.5	13.2	94	6.7	245
				13	1.8	10.6	76	6.4	239
	20-Feb-08	1.25	-	1.3	0.4	17.1	118	6.4	245
				2	0.9	16.3	115	6.4	223
				3	1.1	16.1	113	6.4	264
				4	1.1	16	112	6.4	273
				5	1.1	15.9	112	6.4	280
				6	1.1	15.9	112	6.4	286
				7	1.1	15.8	112	6.4	287
				8	1.1	15.7	111	6.4	287
				9	1.1	15.5	109	6.4	287
				10	1.1	15.5	109	6.3	288
				11	1.4	14.9	106	6.3	277
				12	1.6	13.8	99	6.1	272
				13	2	12.1	88	6	264
				13	2	10.8	78	6	264

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	9-Apr-08	1.4	-	1.4	0.2	17.1	118	6.7	262
				2	0.2	16.2	113	6.7	240
				3	1	15.9	112	6.7	289
				4	1.1	15.9	112	6.7	298
				5	1.1	15.8	112	6.7	301
				6	1.2	15.8	111	6.7	308
				6.5	1.2	15.1	107	6.7	310
				7	1.1	15.7	111	6.8	310
				8	1.1	15.6	110	6.8	310
				9	1.1	15.6	110	6.8	310
				10	1.1	15.6	110	6.8	310
				11	1.4	14.5	103	6.8	300
				12	1.6	13.8	99	6.8	293
	9-May-08	1.7	-	1.7	0.8	13.3	93	-	250
				2	1.4	13	92	-	253
				3	1.5	13	93	-	317
				4	1.5	13.2	94	-	319
				5	1.5	13.3	95	-	321
				6	1.5	13.3	95	-	325
				7	1.6	13.3	95	-	326
				8	1.6	13.3	95	-	327
				9	1.6	13.3	95	-	327
				10	1.6	13.3	95	-	328
				11	1.6	13.3	95	-	328
				12	1.7	12.8	99	-	324
				13	2.2	11.9	86	-	306
	18-Jul-08	no ice	8	0.3	14.9	10	99	6.7	183
				1	14.8	10	99	6.8	184
				2	14.7	10	99	6.9	184
				3	14.7	10	99	7	184
				4.1	14.7	10	98	7.1	184
				5	14.7	10	98	7.1	184
				6	14.6	10	98	7.1	184
				7.1	14.6	10	98	7.1	183
				8.1	14.6	10	98	7.1	184
				8.8	14.6	10	98	7.2	184
				10.1	14.4	10.1	99	7.2	184
				11	14.4	10.1	99	7.2	184
				12	13.8	10.3	99	7.2	190
	16-Sep-08	no ice	4.25	0.2	6.1	12.1	98	6.9	218
				0.2	6.1	12.1	97	6.8	219
				1	6.1	12	97	6.8	219
				2.1	6.1	12	97	6.8	219
				3	6.1	12	97	6.8	219
				4	6.2	12	97	6.8	219
				5.1	6.2	12	97	6.9	219
				6	6.2	12	97	6.9	219
				7	6.2	12	97	6.9	219
				8.1	6.2	12	97	6.9	219
				9.1	6.2	11.9	96	6.9	220
				10	6.2	11.9	96	6.9	220
				11	6.2	11.9	96	6.9	220
				12.1	6.2	11.9	96	7	220
				13.1	6.2	11.9	96	7	220
SNAP26	23-Jan-08	1	-	1	0.7	17	118	6.9	216
				2	0.9	16.7	117	6.9	207
				3	1.1	15.6	110	6.9	205
				4	1.5	14.6	104	6.7	212
				5	2.4	5.7[(b)]	41[(b)]	6.4[(b)]	217[(b)]
	16-Apr-08	1.5	-	1.5	0.4	16.9	117	-	272
				2	0.8	16.7	117	-	264
				3	1.2	15.7	111	-	260
				4	1.6	15.1	109	-	263
				5	2.5	10.9	77	-	254
	9-May-08	no ice	-	1	0.5	13.8	96	-	271
				2	1.5	13.4	96	-	275
				3	1.9	13.2	95	-	285
				4	2.8	12.8	95	-	275
				5	3.5	12.6	95	-	283

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	15-Jul-08	no ice	6.1	0.4	14.2	10.2	99	7	208
				1	14.1	10.2	99	7.1	207
				2.1	13.8	10.2	98	7.2	206
				3.1	13.6	10.2	98	7.2	205
				4.1	13.6	10.2	98	7.2	206
				5	13.6	10.2	98	7.2	206
	19-Sep-08	no ice	-	1.1	3.9	13	99	7	216
				1.1	3.9	13	99	7	216
				2.1	3.9	13	99	7	216
				3.1	3.9	13	99	7	215
				4.1	3.9	13	99	7	216
				5.1	3.9	13	99	7	216
SNAP28	5-Apr-08	1.2	-	1.3	0.9	15.1	106	6.6	241
				2.1	1	15.2	107	6.4	244
				3	1.3	15	106	6.3	276
				4	1.3	15.2	108	6.3	299
				5.1	1.3	15.3	109	6.3	301
				6.1	1.3	15.6	110	6.3	302
	14-Jul-08	no ice	7	0.3	13.4	10.6	102	7.1	208
				1	13.4	10.4	99	7.2	208
				2	13.4	10.3	99	7.2	208
				3	13.4	10.3	99	7.2	208
				4	13.4	10.3	99	7.2	208
				6.1	13.4	10.4	99	7.2	216
	12-Sep-08	no ice	4.25	0.3	7.6	11.7	98	6.6	223
				0.3	7.6	11.7	98	6.5	222
				1	7.6	11.6	97	6.8	223
				2.1	7.6	11.6	97	6.9	223
				3	7.6	11.6	97	6.9	223
				4.1	7.6	11.6	97	7	223
				5.1	7.6	11.6	97	7	223
				6	7.5	11.6	97	7.1	221
SNAP09	26-Jan-08	1.2	-	1.2	0.1	17.9	123	-	206
				2	0.6	17.1	118	-	193
				3.1	0.9	16.1	112	-	187
				4	1	15.1	106	-	191
				5	1.1	14.8	105	-	195
				6	1.1	14.8	105	-	200
				7	1.2	14.7	104	-	200
				8	1.2	14.8	105	-	205
				9	1.3	14.5	103	-	202
				10	1.3	14.4	102	-	201
				11	1.4	14.1	100	-	202
				12	1.5	13.5	96	-	198
				13	1.6	13.1	94	-	198
				14	1.7	12.6	91	-	198
	22-Feb-08	1.4	-	1.4	0.7	15.2	106	6.5	237
				2	0.9	14.7	103	6.4	223
				3	1.3	14	99	6.4	212
				4	1.3	13.1	93	6.4	215
				5	1.4	12.7	90	6.2	221
				6	1.4	12.5	89	6.2	224
				7	1.4	12.5	89	6.2	228
				8	1.3	12.7	90	6.2	244
				9	1.4	12.6	90	6.2	237
				10	1.6	12.3	87	6.2	226
				11	1.6	11.8	84	6.1	224
				12	1.7	11.4	82	6.1	222
				13	1.8	11	79	6.1	221
				14	1.9	10.5	75	6.1	220

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	4-Apr-08	1.7	-	1.7	1.1	14.4	102	5.7	248
				2	1.4	13.3	95	6.2	232
				3	1.5	12.4	89	5.9	228
				4.1	1.5	12.5	89	6.1	231
				5.1	1.5	12.4	89	6	231
				6.1	1.6	12.2	87	5.9	230
				7.1	1.6	12	86	6.1	229
				8.1	1.6	12.1	87	6	235
				9	1.7	12	86	5.9	234
				10	1.7	11.6	84	5.9	232
				11.1	1.8	11.2	81	5.9	229
				12	1.9	11.1	80	5.9	228
				13.1	2	10.9	79	6	229
				14	2.1	10.5	76	5.9	228
	10-May-08	1.65	-	1.7	0.9	13.7	96	-	243
				2	1.8	13.3	95	-	233
				3	1.9	13	94	-	237
				4	1.9	12.7	92	-	237
				5	1.9	12.7	92	-	238
				6	1.9	12.7	91	-	235
				7	1.9	12.7	92	-	245
				8	2	12.8	92	-	247
				9	2	12.6	91	-	247
				10	2.1	12.2	89	-	248
				11	2.1	12.2	88	-	248
				12	2.1	12	87	-	252
				13	2.3	11.7	85	-	246
				14	2.4	11.5	84	-	246
	19-Jul-08	no ice	8.1	0.2	15.2	10.2	101	7	188
				1.1	15.1	10.1	101	7	188
				2	15.1	10.1	101	7	188
				3	15	10.1	100	7.1	189
				4	15.1	10.1	100	7.1	188
				5.1	15	10.1	100	7.1	189
				6.1	15	10.1	100	7.1	189
				7.1	14.9	10.1	100	7.1	189
				8.1	14.7	10.2	100	7.1	189
				9.1	14.7	10.2	101	7.1	189
				10	12.3	11.4	106	7.2	188
				11.2	10.6	12.1	109	7.1	189
				12	9.9	12.3	109	7.1	189
				13.1	9.7	12.3	108	7.1	189
				14	9.4	12.2	107	7	189
	19-Sep-08	no ice	4.5	0.2	5.1	12.7	100	7	204
				1.1	5.1	12.7	100	7	204
				2.1	5.1	12.7	100	7	204
				3	5.1	12.7	100	7	204
				4.1	5.2	12.7	100	7	204
				5.1	5.2	12.7	100	7	204
				6	5.2	12.7	100	7	204
				7	5.2	12.7	100	7.1	204
				8.1	5.1	12.7	100	7.1	204
				9	5.2	12.6	99	7.1	204
				10.1	5.2	12.6	99	7.1	204
				11.1	5.2	12.6	99	7.1	204
				12	5.2	12.6	99	7.1	204
				13	5.2	12.6	99	7.1	204
				14.1	5.2	12.6	99	7.1	204
				15.1	5.2	12.6	99	7.1	204
SNAP11A	24-Feb-08	1.4	-	1.4	0.5	15.3	106	6.3	221
				2	0.9	14.9	105	6.4	208
				3	1.2	14.5	103	6.3	204
				4	1.3	13.8	98	6.3	202
				5	1.3	13.5	96	6.1	205
				6	1.4	12.9	92	6.1	210
				7	1.4	12.8	91	6.1	210
				8	1.5	12.6	90	6	212
				9	1.5	12.5	89	6.1	215
				10	1.6	12.4	89	6.1	215
				11	1.6	12.1	87	6	215
				12	1.7	11.6	84	6	216
				13	1.8	11.4	82	6	217

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	5-Apr-08	1.4	-	1.5	0.5	13.9	97	6.5	233
				2	1.1	13.5	95	6.3	216
				3	1.4	12.5	89	6.3	213
				4	1.5	11.9	85	6.2	220
				5	1.5	11.9	85	6.1	228
				6	1.5	12.1	87	6.2	240
				7	1.5	12.4	88	6.2	245
				8	1.5	12.5	89	6.2	249
				9	1.5	12.8	91	6.2	252
				10	1.6	12.6	90	6.2	246
				11	1.7	12.2	88	6.2	240
				12	1.8	12.2	88	6.2	244
				13	1.7	12.6	90	6.2	258
	9-May-08	1.8	-	1.8	1.6	12.4	89	-	236
				2	1.6	12.4	89	-	234
				3	1.9	12.3	89	-	234
				4	1.9	12.1	87	-	245
				5	1.9	12	86	-	257
				6	1.9	11.9	86	-	257
				7	2	11.9	86	-	255
				8	2	11.9	86	-	254
				9	2	11.9	86	-	260
				10	2.1	11.8	86	-	253
				11	2.3	11.6	84	-	248
				12	2.1	11.4	83	-	266
				13	2.2	11.4	83	-	269
				14	2.3	11.4	83	-	265
				15	2.3	10.4	76	-	266
				16	2.4	9.6	70	-	266
	19-Jul-08	no ice	7.9	0.3	14.9	10.2	101	6.8	188
				1	14.8	10.2	100	6.9	188
				2.1	14.8	10.1	100	7	188
				3.1	14.8	10.1	100	7	188
				4.1	14.8	10.1	100	7	188
				5	14.8	10.1	100	7.1	188
				6	14.7	10.1	100	7.1	188
				7.1	14.7	10.1	100	7.1	188
				8	14.7	10.1	100	7.1	188
				9.1	14.7	10.1	100	7.1	188
				10	13	10.9	104	7.1	190
				11	10.4	12.1	108	7.2	189
				12	9.9	12.2	107	7.1	189
				13	9.6	12.1	106	7.1	189
				14.1	9.5	12	105	7	190
				15.1	9.4	12	105	7	189
				16	9.3	12	104	7	189
	19-Sep-08	no ice	4.8	0.2	5.1	12.7	100	7	204
				0.2	3.9	13.1	100	6.9	216
				1.1	5.1	12.7	100	7.1	204
				2	5.1	12.7	100	7.1	204
				3.1	5.1	12.7	100	7.1	204
				4.1	5.1	12.7	100	7.1	204
				5.1	5.1	12.6	99	7.1	204
				6.1	5.1	12.7	99	7.1	204
				7.1	5.1	12.6	99	7.1	204
				8	5.1	12.6	99	7.1	204
				9.1	5.1	12.6	99	7.1	204
				10.1	5.1	12.6	99	7.1	204
				11	5.1	12.6	99	7.1	204
				12.1	5.1	12.6	99	7.1	204
				13	5.1	12.6	99	7.1	204
				14.1	5.1	12.5	98	7.1	204
				15	5	12.5	98	7.1	204
				16	5.1	4.2	33	6.7	203

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
SNAP17	5-Apr-08	1.7	-	1.7	0.9	13.4	94	6.5	226
				2.1	1.2	13.3	94	6.4	217
				3	1.5	12.2	87	6.3	213
				4.1	1.5	12	86	6.5	227
				5	1.5	12.1	86	6.2	235
				6	1.5	12.4	88	6.2	246
				7.1	1.5	12.4	89	6.2	247
				8.1	1.5	12.4	89	6.2	246
				9	1.6	12.4	89	6.2	244
SNAP18	7-Apr-08	1.7	-	1.9	1.2	13.6	96	7.1	230
				3	1.5	12.8	92	6.4	216
				4.1	1.6	11.8	84	6.2	224
				5.1	1.6	11.8	84	6.3	232
				6	1.6	11.9	85	6.6	235
				7.1	1.6	11.8	84	6.2	236
				8	1.7	11.7	84	6.3	235
				9	1.8	11.9	85	6.3	236
				11.1	1.9	11.7	84	6.3	238
				12	2	2.6[b]	19[b]	6.1[b]	229[b]
SNAP19	7-Apr-08	1.9	-	1.9	1.2	13.1	93	6.0 - 6.5	236
				2.1	1.3	13	92	6.0 - 6.5	225
				3	1.5	12.2	87	6.0 - 6.5	223
				4.1	1.5	12.1	86	6.0 - 6.5	228
				5	1.5	11.9	85	6.0 - 6.5	227
				6	1.6	11.7	84	6.0 - 6.5	227
				8.1	1.7	12.2	88	6.0 - 6.5	231
				9	1.7	11.5	83	6.0 - 6.5	232
				10.1	1.8	11.2	81	6.0 - 6.5	232
SNAP04	20-Feb-08	1.3	-	1.3	0.3	17.3	120	6.2	252
				2	1.5	14.4	103	6.2	235
				3	2.3	14.5	105	6.2	226
				4	2.8	13.4	99	6.1	222
	3-Apr-08	1.3	-	1.3	0.6	14.2	99	6.5	261
				1.3	0.8	14	98	6.5	259
				1.5	0.4	14.3	99	6.2	255
				2	1	13.9	98	6.2	246
				2.5	1.9	13	94	6.3	239
				3	2.5	12.4	91	6.1	234
				3.5	2.9	11.6	86	6.2	232
	10-May-08	1.4	-	1.4	0.7	13.5	94	-	264
				2	2.9	12.5	92	-	249
				3	3.9	11.5	87	-	245
				4	3.9	10.9	83	-	246
	20-Jul-08	no ice	4.9	0.3	17.1	9.2	95	7.1	162
				1.1	17	9.2	95	7.2	162
				2.1	17	9.1	95	7.2	162
				3	17	9.1	95	7.2	162
				4	17	9.2	95	7.2	162
	12-Sep-08	no ice	4.5	0.2	5.8	12.2	97	7	185
				1.1	5.8	12.1	97	7.1	185
				2	5.8	12.1	97	7.1	185
				3	5.8	12.1	97	7.1	185
				4	5.8	12.1	96	7.1	185
SNAP07	25-Jan-08	1.15	-	1.3	0.3	18.2	126	6.9	204
				2	0.7	17.6	123	6.9	193
				3	0.9	17.5	122	6.9	191
				4	1	16.9	119	6.9	191
				5.1	1.1	16.4	115	6.8	193
				6	1.4	15.7	112	6.8	190
				7	1.7	14.8	106	6.7	187
				8	1.8	13.5	97	6.6	185
				9	1.8	13.1	94	6.6	192
				10	1.9	12.7	91	6.5	191
	10-Apr-08	1.61	-	1.6	0.1	17.5	120	6.7	233
				2	0.7	17.1	119	6.8	221
				3	1.4	16.6	118	6.7	214
				4	1.7	16.4	118	6.7	211
				5	1.9	16.2	117	6.7	208
				6	2.1	15.5	112	6.7	207
				7	2.2	14.9	108	6.7	210

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	10-May-08	1.7	-	1.7	0.4	14	97	-	251
				2	1.3	13.5	96	-	243
				3	2.2	13.2	96	-	235
				4	2.4	13.7	101	-	234
				5	2.8	13.7	102	-	236
				6	2.9	13.6	101	-	238
				7	3	13.7	102	-	238
				8	3	14	104	-	237
				9	3.1	14.1	105	-	237
				10	3.1	13.4	101	-	237
	17-Jul-08	no ice	8	0.3	14.9	10.1	100	7.2	177
				0.3	16.4	12.8	131	7.2	75
				1	14.9	10	99	7.2	177
				2	14.9	10	99	7.2	177
				3	14.8	10	99	7.2	177
				4	14.6	10	98	7.2	177
				5.1	14.4	10	98	7.2	177
				6	14.3	10	98	7.2	178
				7	14.2	10.1	98	7.2	177
				8	12.8	11.1	105	7.3	178
				9	11.2	12.2	111	7.3	178
				10	10.6	12	108	7.3	178
	13-Sep-08	no ice	4.5	0.2	6.1	12	96	6.9	201
				1	6.2	11.9	96	7	201
				2	6.1	11.9	96	7	201
				3	6.1	11.9	96	7	201
				4	6.1	11.8	95	7.1	201
				5	6.1	11.8	95	7.1	201
				6	6.1	11.8	95	7.1	201
				7.1	6.1	11.8	95	7.1	201
				8.1	6.1	11.8	95	7.1	201
				9.1	6.1	11.8	95	7.1	201
				9.9	6.1	11.3	91	7	201
SNAP08	25-Jan-08	1.2	-	1.3	0.9	17.7	124	7.1	213
				2	1.7	16.7	119	7	194
				3	3	14.3	106	6.9	184
				4	3.6	13	98	6.8	180
				5	3.6	11.8	89	6.6	184
				6	3.8	11.1	84	6.5	185
				7	3.9	9	67	6.4	188
				8	3.9	9.4	71	6.3	193
	24-Feb-08	1.5	-	1.5	1.1	16.2	114	5.9	234
				2	1.6	15.1	108	5.8	223
				3	2.8	13.6	100	5.9	206
				4	3.7	12.4	94	5.8	198
				5	3.8	11.5	87	6	200
				6	3.8	11.7	89	6	204
				7	3.8	11.4	85	5.7	206
				8	3.8	11.1	85	5.8	212
	10-Apr-08	1.8	-	1.8	0.2	17.4	120	6.8	230
				2	1.2	17	120	6.7	223
				3	3.6	15.9	120	6.7	210
				4	3.8	15.9	121	6.7	210
				5	3.9	16	122	6.7	210
				6	4	16	123	6.7	211
				7	4.1	15.7	120	6.7	212
				8	4	15.6	119	6.7	215
	10-May-08	1.9	-	1.9	3.4	16	120	-	230
				2	3.7	16.1	122	-	230
				3	4	16	122	-	230
				4	4	16.1	123	-	230
				5	4	16.2	124	-	230
				6	4	16.2	123	-	230
				7	4.1	16.2	124	-	230
				8	4.1	16.2	124	-	230
				9	4.1	16.1	123	-	229

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	17-Jul-08	no ice	7.9	0.3	15.4	9.8	98	7.1	174
				1	15.4	9.8	98	7.1	174
				2.1	15.3	9.8	98	7.2	174
				3.1	15.2	9.8	98	7.2	174
				4.1	15.2	9.8	98	7.2	174
				5	15.2	9.8	98	7.2	174
				6.1	14.7	9.8	97	7.3	174
				7	14.5	9.9	97	7.3	174
				8	14.3	9.9	97	7.3	174
	13-Sep-08	no ice	4.5	0.3	5.2	12.2	96	6.9	192
				1	5.2	12.2	96	6.9	192
				2.1	5.2	12.2	96	7	192
				3.1	5.2	12.1	96	7	188
				4	5.2	12.1	95	7	188
				5	5.2	12.1	95	7	192
				6.1	5.2	12.1	95	7	192
				7	5.2	12.1	95	7.1	192
				8.1	5.2	12.1	95	7.1	192
				9	5.2	11.8	93	6.9	192
SNAP10	26-Jan-08	1.2	-	1.2	0.2	19.3	133	-	215
				2.2	0.5	18.7	130	-	206
				3.2	0.8	18	126	-	200
				4.2	1	17.7	125	-	211
	3-Apr-08	1.6	-	1.6	0.5	15.1	105	6.5	229
				2	0.9	15	105	6.6	221
				2.5	1.2	14.9	105	6.6	218
				3	1.4	14.8	106	6.4	216
				3.5	1.5	14.8	105	6.4	217
				3.5	1.5	14.8	105	6.4	217
				3.5	1.5	14.8	105	6.4	217
				4	1.5	15.2	108	6.8	231
				4	1.5	15.2	108	6.8	231
				4.5	1.6	15.1	108	6.6	243
	9-May-08	1.9	-	1.9	1.3	17.8	119	-	227
				2	1.4	16.5	118	-	226
				3	1.8	16.3	117	-	226
				4	2.1	16.9	123	-	240
				5	2.7	16.6	123	-	242
	19-Jul-08	no ice	5.5	0.4	15.3	10.1	101	6.4	186
				1	15.2	10.1	101	6.6	186
				2.1	15.2	10	100	6.7	186
				3.1	15.2	10	100	6.8	186
				4.1	15.2	10	100	6.8	186
				4.5	15.2	10	100	6.9	186
	12-Sep-08	no ice	4.5	0.4	6.6	12	98	7.1	196
				1	6.6	11.9	97	7.1	196
				2	6.6	11.9	97	7.1	197
				3.1	6.6	11.9	97	7.1	197
				4.1	6.6	11.9	97	7.2	197
				5	6.6	11.8	97	7.2	197
SNAP02A	16-Apr-08	1.7	-	1.7	0.7	18.3	128	6.2	53
				2	1.1	18.3	129	6.2	50
				3	2	17.2	124	6.2	48
				4	2.5	16.2	119	6.2	47
				5	2.9	11.5	85	6	45
				6	3.1	9.9	74	5.9	50
				7	3.2	9.6	71	5.9	51
				8	3.2	10.9	82	5.9	56
				9	3.3	11.5	86	5.9	57
	11-May-08	1.65	-	1.7	0.5	16.9	117	-	46
				2	2	16.1	116	-	45
				3	3.2	16.2	121	-	50
				4	3.5	13.9	104	-	50
				5	3.6	15	115	-	54
				6	3.8	16	122	-	56
				7	3.7	18.4	139	-	61
				8	3.7	17.1	129	-	63
				9	3.7	16.4	124	-	64

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	18-Jul-08	-	7.5	0.2	-	9.5	-	-	-
				1.1	-	9.5	-	-	-
				2	-	9.5	-	-	-
				3.1	-	9.5	-	-	-
				4.1	-	9.5	-	-	-
				5.1	-	9.5	-	-	-
				6.1	-	9.5	-	-	-
				7.1	-	9.5	-	-	-
				8.1	-	9.5	-	-	-
				9.1	-	9.5	-	-	-
				10.2	-	9.4	-	-	-
	10-Sep-08	-	4.5	0.3	7.2	11.8	98	6.4	43
				0.4	7.2	11.6	96	6.5	43
				1	7.2	11.5	95	6.5	43
				2.1	7.1	11.5	95	6.6	44
				3	7.1	11.5	95	6.6	44
				4.1	7.1	11.5	95	6.7	44
				5	7.1	11.5	95	6.7	44
				6.1	7.1	11.5	95	6.7	44
				7	7.1	11.5	95	6.7	44
				8	7.1	11.5	95	6.7	43
				9	7.1	11.5	95	6.8	45
				9.6	7.1	6	50	6.5	45
SNAP20	15-Apr-08	1.7	-	1.7	0.1	17.1	117	6.6	39
				2	0.7	16.2	113	6.5	37
				3	1.2	14.9	105	6.4	33
				4	1.3	13.8	98	6.4	34
				5	1.4	13.6	96	6.3	34
				6	1.4	13.4	96	6.3	34
				7	1.4	13.5	96	6.3	34
				8	1.4	13.5	96	6.3	34
				9	1.4	13.5	96	6.2	34
				10	1.4	13.6	97	6.2	34
				11	1.5	13.7	97	6.2	34
				12	1.5	13.6	97	6.2	34
				13	1.5	13.6	97	6.2	34
SNAP20B	19-Feb-08	1.04	-	1	1	18	126	6.5	44
				2	0.8	15.8	111	6.5	35
				3	1.1	14.7	104	6.5	32
				4	1.2	13.6	96	6.4	32
				5	1.2	13.3	94	6.4	32
				6	1.2	13.1	93	6.3	32
				8	1.3	13	92	6.3	32
				9	1.3	13	92	6.3	32
				11	1.3	13	92	6.3	33
				12	1.3	13.1	93	6.3	33
				14	1.3	13	92	6.4	33
				15	1.3	12.9	92	6.3	33
				16	1.3	12.9	91	6.3	33
				16	1.3	12.8	91	6.3	33
				17	1.3	12.8	91	6.2	33
				18	1.4	12.8	91	6.2	33
				19	1.4	12.6	90	6.2	33
				20	1.4	12.5	89	6.1	33
				21	1.4	12.5	89	6.1	33
				22	1.4	12.4	88	6.1	32
				23	1.4	12.1	86	6.1	32
				24	1.4	12	85	6.1	32
				25	1.4	11.9	85	6.1	33
				26	1.4	12.1	86	6.1	33
				27	1.4	11.9	85	6	32
				28	1.4	11.7	83	6	32
				29	1.4	11.5	82	6	32

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	12-Apr-08	1.27	-	1.3	0.5	18.7	130	6.6	43
				2	0.8	18.3	128	6.5	38
				3	1.3	15.3	108	6.4	33
				4	1.4	14.4	102	6.4	34
				5	1.4	14	99	6.4	34
				6	1.4	13.9	99	6.3	34
				7	1.4	13.9	99	6.3	34
				8	1.4	13.8	98	6.3	34
				9	1.4	13.9	99	6.3	34
				10	1.4	14.1	100	6.3	34
				11	1.4	14	99	6.3	35
				12	1.5	14	99	6.3	34
				13	1.5	14	100	6.3	35
				14	1.5	13.9	99	6.3	35
				15	1.5	13.8	98	6.2	34
				16	1.5	13.6	97	6.2	34
				17	1.5	13.5	96	6.2	35
				18	1.5	13.7	98	6.2	35
				19	1.5	13.8	98	6.2	35
				20	1.5	13.9	99	6.2	35
				21	1.5	13.7	98	6.2	35
				22	1.5	13.8	98	6.2	35
				23	1.5	13.4	96	6.2	35
				24	1.5	13.5	96	6.2	35
				25	1.5	13.2	94	6.2	35
				26	1.5	13.2	94	6.2	35
				27	1.5	13.3	95	6.2	35
				28	1.5	13.3	95	6.2	35
				29	1.5	13.1	94	6.2	35
				30	1.5	13	93	6.2	35
	10-May-08	1.3	-	1.3	0.6	16.6	115	-	39
				2	1.4	14.6	103	-	35
				3	1.6	13.9	99	-	34
				4	1.6	13.7	98	-	35
				5	1.7	13.7	98	-	35
				6	1.7	13.7	98	-	35
				7	1.7	13.6	98	-	35
				8	1.7	13.4	96	-	35
				9	1.7	13.4	96	-	35
				10	1.7	13.5	97	-	35
				11	1.7	13.4	96	-	35
				12	1.7	13.5	97	-	35
				13	1.7	13.5	96	-	35
				14	1.7	13.5	97	-	35
				15	1.7	13.6	98	-	35
				16	1.7	13.5	97	-	35
				17	1.7	13.5	97	-	35
				18	1.8	13.6	97	-	35
				19	1.8	13.5	97	-	35
				20	1.8	13.5	97	-	35
				21	1.8	13.5	97	-	35
				22	1.8	13.5	97	-	35
				23	1.8	13.5	97	-	35
				24	1.8	13.5	97	-	35
				25	1.8	13.5	97	-	35
				26	1.8	13.5	97	-	34
				27	1.8	13.5	97	-	34
				28	1.8	13.5	97	-	34
				29	1.8	13.5	97	-	35
				30	1.8	13.4	97	-	34
				31	1.8	13.4	96	-	34

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	18-Jul-08	no ice	7.5	0.2	15.5	9.8	98	7	27
				2.1	15.5	9.8	98	6.9	27
				3.1	15.5	9.8	98	6.9	27
				4.1	15.4	9.8	98	6.8	27
				5	14.8	9.9	98	6.8	27
				6	14.6	10	98	6.8	27
				7	13.4	10.4	100	6.7	27
				8.1	10.5	11.6	104	6.7	26
				9	8.9	11.8	102	6.7	28
				10	8.1	11.7	99	6.6	26
				11	7.9	11.7	98	6.6	26
				12.1	7.6	11.6	97	6.5	26
				13.2	7.4	11.6	96	6.5	26
				14	6.8	11.5	94	6.4	26
				15	6.4	11.5	93	6.4	26
				16.1	5.8	11.4	91	6.3	27
				17	5.4	11.4	91	6.3	27
				18.1	5.2	11.4	90	6.2	27
				19.1	5.1	11.4	90	6.2	27
				20.1	5.1	11.5	90	6.2	27
				21	5	11.5	90	6.2	27
				22.2	4.8	11.5	90	6.2	27
				23.1	4.8	11.4	89	6.2	27
				24	4.7	11.4	89	6.2	27
				25	4.6	11.4	88	6.1	27
				26	4.6	11.4	88	6.2	27
				27.1	4.5	11.4	88	6.1	24
				28.1	4.5	11.4	88	6.1	27
				29.1	4.5	11.3	87	6.1	27
				30.1	4.4	11.3	87	6.1	28
	10-Sep-08	no ice	4.5	0.2	8.7	11.3	97	7	34
				0.2	8.7	11.3	97	6.9	34
				1.1	8.6	11	94	6.9	34
				2.1	8.6	10.9	94	6.8	34
				3	8.6	10.9	94	6.8	34
				4	8.6	10.9	93	6.8	34
				5.1	8.6	10.9	93	6.8	34
				6	8.6	10.9	93	6.8	34
				7	8.6	10.9	93	6.8	34
				8.1	8.6	10.9	93	6.8	34
				9	8.6	10.8	93	6.8	34
				10	8.5	10.8	92	6.7	34
				10	8.5	10.8	92	6.7	34
				11.1	8.5	10.8	92	6.7	35
				12	8.3	10.9	93	6.7	35
				13.1	8.3	10.9	93	6.7	35
				14	8.3	10.9	92	6.7	35
				15.1	8.2	10.9	92	6.7	35
				16.1	7.8	10.8	91	6.7	34
				17	7.7	10.7	90	6.6	34
				18	5.9	10.6	85	6.5	30
				19.1	5.4	10.5	83	6.4	30
				20	5.2	10.4	82	6.2	30
				21	5	10.5	82	6.1	30
				22	4.9	10.6	83	6.1	30
				23	4.9	10.5	82	6.1	30
				24	4.8	10.4	81	6.1	30
				25	4.8	10.2	80	6.1	30
				26	4.7	10.1	79	6	30
				27.1	4.6	10.1	78	6	30
				28.1	4.6	10.1	78	6	30
				29	4.5	10.1	78	6	30
				30.1	4.5	10	77	6	31

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
SNAP23	12-Apr-08	1.95	-	1.8	0.3	18.9	131	6.0 - 6.1	100
				2	0.8	18.6	130	6.1 - 6.4	98
				3	2.1	18.1	125	6.2 - 4.5	92
				4	2.4	17	124	6.1 - 6.4	90
				5	2.6	14.3	106	5.9 - 6.3	89
				6	2.9	12.2	89	5.9 - 6.3	90
				7	3	6.5	47	5.8 - 6.0	95
				8	3.1	5.6	43	5.6 - 6.0	97
				9	3.2	6.3	48	5.6 - 6.0	101
				10	3.3	7.9	55	5.6 - 6.0	105
				11	3.3	8.8	67	5.6 - 6.1	109
	10-May-08	1.9	-	1.9	2	15.2	110	-	82
				2	2.7	14.7	108	-	89
				3	3.7	14.4	109	-	94
				4	6.8	14.3	108	-	96
				5	4	14.2	109	-	95
				6	3.9	12.9	97	-	102
				7	3.7	11.7	89	-	107
				8	3.8	11.1	83	-	110
				9	3.7	10.3	78	-	112
				10	3.8	10.3	78	-	113
				11	3.8	10.1	76	-	113
				12	3.8	8.3	62	-	112
				13	3.9	11.2[b]	84[b]	-	215[b]
	13-Jul-08	no ice	6	0.2	13.5	10.2	98	7.2	202
				0.3	14.8	9.9	98	6.9	72
				1	14.8	9.9	97	6.9	72
				2	14.8	9.8	97	7	72
				3	14.8	9.8	97	7	72
				4.1	14.8	9.9	97	7	72
				5	14.8	9.9	97	6.9	72
				6	14.8	9.9	97	7	72
				7.3	14.8	9.9	97	7	72
				8	14.8	9.9	97	7	72
				9.1	14.6	9.9	97	7	72
				10	13.9	9.9	96	6.9	70
				11.1	13.2	9.4	89	6.8	70
	10-Sep-08	no ice	4	0.3	7.6	11.7	98	6.5	88
				0.3	7.6	11.4	95	6.6	88
				1	7.6	11.3	95	6.7	88
				2.1	7.6	11.3	95	6.8	88
				3.1	7.6	11.3	95	6.8	88
				4.1	7.6	11.3	94	6.8	88
				5.1	7.6	11.3	94	6.9	88
				6	7.6	11.3	94	6.9	88
				7.1	7.5	11.3	94	6.9	88
				8.1	7.5	11.3	94	6.9	88
				9.1	7.5	11.3	94	6.9	88
				10.1	7.5	11.3	94	6.9	88
				11	7.5	11.3	94	6.9	88
				12	7.5	11.3	94	6.9	89
SNAP29	21-Jan-08	1.05	-	1.1	0.8	18.1	127	6.7	96
				2.1	1.1	18	127	6.7	85
				3.1	1.4	16.1	125	6.7	82
				4.1	1.5	14.2	120	6.6	84
				5.1	1.8	14.2	117	6.5	87
				6.1	2.2	14.5	82	6.3	94
				6.5	2.4	6.8	50	6.1	94
	20-Feb-08	1.33	-	1.3	0.2	19.6	134	6.5	119
				2	0.7	18.7	130	6.4	103
				3	1.2	17.8	126	6.4	97
				4	1.6	15.1	108	6.2	100
				5	1.9	14.5	105	6.1	96
				6	2.3	8.8	64	5.9	100
				6	2.3	8.9	65	5.9	100
	29-Mar-08	1.5	-	1.5	0.4	17.5	121	6.6	120
				2	0.9	16.8	118	6.4	108
				3	1.6	15.8	113	6.3	108
				4	1.9	14.4	104	6.2	104
				5	2.2	14.1	103	5.8	101
				6	2.7	7.2	53	5.8	100

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	10-May-08	1.75	-	1.8	1.2	15.9	112	-	116
				2	2.1	15.5	113	-	109
				3	3.1	15.2	116	-	103
				4	3.5	15.9	120	-	101
				5	3.8	16.2	123	-	100
				6	3.7	14.1	107	-	103
				7	3.6	9.8	74	-	111
	17-Jul-08	no ice	6.5	0.3	16	9.8	99	7.1	79
				1	16	9.7	99	7.1	76
				2	15.9	9.7	98	7.1	76
				3.1	15.9	9.7	98	7.1	75
				4	15.7	9.9	100	7.1	79
				5	15.7	9.9	99	7.1	79
				6.1	15.7	9.8	99	7.1	84
	9-Sep-08	no ice	-	0.3	7.6	11.6	97	6.6	89
				0.3	7.6	12.1	101	6.4	89
				1	7.6	11.5	96	6.6	89
				2	7.6	11.5	96	6.7	89
				3	7.6	11.5	96	6.7	89
				4	7.6	11.5	96	6.7	89
				5	7.6	11.5	96	6.8	89
				6.1	7.6	11.5	96	6.8	89
				7	7.6	11.5	96	6.8	89
NEL01	21-Feb-08	1.35	-	1.4	0.2	17.6	122	6.6	31
				2	0.4	17.8	123	6.5	28
				3	0.6	16.6	115	6.3	25
				4	0.7	15.8	110	6.2	25
				5	0.8	15.4	108	5.9	25
				6	0.9	15.3	107	5.8	26
				7	0.9	15.4	108	5.8	26
				8	1	15.3	108	5.7	27
				9	1.1	15.3	108	5.6	27
				10	1.6	11.7	84	5.5	27
				11	2.3	7.4	54	5.2	29
	1-Apr-08	1.65	-	1.6	1.1	17.7	125	6.7	31
				2	0.7	17	119	7.1	29
				3.1	1	15.5	109	6.4	26
				4.1	0.9	14.8	104	6.6	25
				5	1	14.7	103	6	25
				6	1.1	14.7	104	6.5	26
				7	1.1	15.1	106	6.6	27
				8.1	1.2	14.9	105	6.3	27
				11	2.5[b]	3.2[b]	24[b]	5.5[b]	28[b]
	12-Jul-08	no ice	7.5	0.3	12	10.9	101	6.6	21
				1.1	11.9	10.9	101	6.6	21
				2.2	11.8	10.9	101	6.6	21
				3.1	11.8	10.9	101	6.7	21
				4	11.6	10.9	101	6.6	21
				5.1	11.4	11.1	101	6.7	21
				6.1	10.3	11.5	102	6.7	21
				7.2	9.7	11.6	102	6.7	21
				8.4	9.6	11.7	102	6.6	21
				8.8	9.4	11.7	102	6.6	21
				10.1	9.4	11.7	102	6.7	21
				11.1	9.3	11.7	102	6.6	21
	17-Sep-08	no ice	6.25	0.1	6.2	12	97	6.7	20
				1	6.2	12	97	6.7	20
				2	6.2	12	97	6.7	20
				3	6.2	11.9	96	6.7	20
				4.2	6.2	11.9	96	6.8	20
				5.1	6.2	11.9	96	6.8	20
				5.9	6.2	11.9	96	6.8	20
				7	6.2	11.9	96	6.7	20
				8.1	6.2	11.9	96	6.8	20
				9.1	6.2	11.9	96	6.8	20
				10.1	6.2	11.9	96	6.8	20
				10.9	6.2	11.9	96	6.8	20

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
NEL02	21-Feb-08	1.4	-	1.4	0.2	16.9	116	6.5	27
				2	0.4	16.7	115	6.4	24
				3	0.6	16.2	113	6.3	22
				4	0.7	15.9	111	6.1	23
				5	0.8	15.7	110	6	24
				6	0.9	15.3	108	5.8	24
				6	0.9	15.3	107	5.8	24
				7	0.9	15.1	106	5.7	24
				8	1	14.5	102	5.7	24
				9	1.1	14.1	99	5.6	24
				10	1.2	13.5	96	5.7	24
				11	1.3	13.3	95	5.6	24
	30-Mar-08	1.5	-	1.5	0.8	15.7	110	7.2	28
				3	0.8	14	98	6.6	24
				4	0.9	13.7	96	6	23
				5	1	13.3	94	5.9	23
				6.2	1	13.5	95	5.2	24
				7	1.1	13.2	93	5.8	23
				8.1	1.2	13	92	5.5	24
				9	1.3	12.5	88	5.8	23
				10.1	1.4	12.4	88	5.6	23
	12-Jul-08	no ice	7.5	<0.3	14.4	10.7	104	6.7	21
				0.4	12.7	10.5	99	6.7	21
				1.1	12.7	10.5	99	6.7	21
				2.1	12.7	10.5	99	6.7	21
				3.1	12.7	10.5	99	6.7	21
				4.1	12.7	10.5	99	6.7	21
				5.1	12.6	10.5	99	6.7	21
				6.1	11.4	11.2	102	6.7	21
				7	10.6	11.4	102	6.7	21
				8	10.1	11.5	102	6.7	21
				9.1	9.9	11.6	102	6.7	21
				10.1	9.5	11.6	102	6.7	21
				11.1	9.4	11.6	102	6.7	21
	17-Sep-08	no ice	6.5	0.3	6.3	12	98	6.8	20
				1	6.3	12	97	6.8	20
				2	6.4	12	97	6.8	20
				3	6.4	12	97	6.8	20
				4.1	6.4	12	97	6.8	20
				5.1	6.3	12	97	6.8	20
				6.1	6.3	12	97	6.8	20
				7.1	6.3	12	97	6.8	20
				8.1	6.3	12	97	6.8	20
				9.1	6.3	12	97	6.8	20
				10.1	6.3	11.9	97	6.8	20
				11.1	6.3	11.9	97	6.8	20
				12.1	6.3	11.9	97	6.8	20
NEL03	31-Mar-08	1.5	-	1.5	0.3	14	96	6.3	30
				2.1	0.3	16.1	111	5.9	27
				3.1	0.6	15	105	6.1	24
				4.1	0.9	14.3	100	5.8	23
				5.1	1	13.9	98	6.3	23
				6.1	1	13.4	95	5.8	23
				7	1.1	13.2	93	6.2	23
				8.1	1.2	13.2	93	5.7	24
				9.1	1.3	13.3	94	6.1	24
				10	1.4	12.8	91	5.7	23
	12-Jul-08	no ice	7.5	3.1	12.7	10.6	99	6.8	21
				5	12.3	10.7	100	6.7	21
				6	11.3	11.2	102	6.7	21
				7.1	10.1	11.5	102	6.7	21
				8	9.9	11.6	102	6.7	21
				8.9	9.7	11.6	102	6.6	21
				10	9.4	11.3	98	6.6	21

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	17-Sep-08	no ice	6.75	0.3	6.2	12.1	97	6.7	20
				1.1	6.2	12	97	6.7	20
				2	6.2	12	97	6.7	20
				3	6.2	12	97	6.7	20
				4.1	6.2	12	97	6.8	20
				5.1	6.2	12	97	6.8	20
				6.1	6.2	12	97	6.8	20
				7.3	6.2	12	97	6.8	21
				8.1	6.2	11.9	96	6.8	21
				9	6.2	11.9	96	6.8	21
NEL04	31-Mar-08	1.8	-	1.8	0.3	18.3	127	6.8	30
				2	0.4	18.1	125	6.6	29
				3	0.8	15.9	111	6.7	24
				4	0.9	14.8	103	6.1	24
				5	1	14.8	104	6.5	25
				6	1	14.8	104	6.3	26
				7	1.1	14.3	101	6.5	25
				8	1.2	13.8	97	6.1	24
				9	1.3	13.3	94	5.9	24
				10	1.3	12.8	91	6.1	23
				11	1.4	12.4	88	6	24
				12	1.4	12.2	87	6	24
	11-Jul-08	no ice	8.5	0.3	12	11.2	104	6.7	22
				1.1	12.2	11	103	6.7	20
				2.1	12.2	11	102	6.7	20
				3	12.2	11	102	6.7	20
				4.1	12	11.1	103	6.7	20
				5	11.5	11.2	103	6.7	20
				6	11	11.4	103	6.7	20
				7	10.7	11.5	104	6.7	21
				8.3	10.5	11.6	104	6.7	20
				9	10.1	11.7	104	6.7	20
				10.1	9.9	11.7	104	6.7	20
				11	9.5	11.8	103	6.7	20
				12	9.1	11.8	102	6.6	20
				13.1	8.9	11.8	102	6.6	21
	17-Sep-08	no ice	6.75	1.1	6.5	12	98	6.8	20
				2	6.5	12	98	6.8	20
				3	6.5	12	98	6.8	20
				4	6.5	12	97	6.8	20
				5	6.5	12	97	6.8	20
				6	6.5	11.9	97	6.8	20
				7.1	6.5	11.9	97	6.8	20
				8.1	6.5	11.9	97	6.8	20
				9.1	6.5	11.9	97	6.8	20
				10.1	6.5	11.9	97	6.8	20
				11.1	6.5	11.9	97	6.8	20
				12.1	6.5	11.9	97	6.8	20
NEL05	23-Feb-08	1.7	-	1.7	0.8	16.7	117	6.4	27
				2	0.6	16.7	116	6.3	25
				3	0.7	16.5	114	6	22
				4	0.8	15.9	111	5.7	22
				5	0.9	15.1	106	5.9	22
				6	0.9	14.7	103	5.7	22
				7	1	14.5	102	5.6	22
				8	1	14.3	101	5.8	23
				9	1.1	14.2	100	5.5	23
	28-Mar-08	1.7	-	1.6	0.5	17.1	118	6.7	31
				1.7	0.5	17.1	119	6.6	31
				2	0.5	16.9	118	6.2	28
				3	0.8	14.8	103	6.6	24
				4	0.9	13.6	95	5.9	23
				5	1	13.1	92	6.3	23
				6	1.1	12.9	91	5.8	23
				7	1.1	12.8	90	5.5	23
				8	1.2	12.6	89	5.5	23
				9	1.2	12.6	89	5.2	23
				10	1.2	12.5	89	5.2	23

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	10-Jul-08	no ice	7.5	0.3	13	10.6	100	6.5	20
				0.4	13.1	10.6	101	6.6	20
				1.1	12.9	10.5	100	6.6	19
				2.1	12.9	10.5	100	6.7	20
				3	12.7	10.6	100	6.7	20
				4	12.4	10.7	100	6.7	20
				5.1	11.9	10.8	100	6.7	20
				6	11.8	10.8	100	6.7	20
				7	11.3	11	100	6.7	20
				8.1	10.1	11.3	100	6.7	19
				9.1	9.5	11.5	101	6.7	20
				10.1	9.3	11.5	101	6.7	20
	17-Sep-08	no ice	7	<0.3	6.1	12.3	99	7	20
				1.1	6.1	12.3	99	7	20
				2	6.1	12.2	99	7	20
				3	6.1	12.2	98	7	20
				4.1	6.1	12.2	98	7	20
				5	6.1	12.2	98	7	18
				6.1	6.1	12.2	98	6.9	20
				7.1	6.1	12.1	98	6.9	20
				8.1	6.1	12.1	98	6.9	18
				9	6.1	12.1	97	6.9	20
				10.1	6	12.1	97	6.9	20
				11	6	12.1	97	6.9	20
SNP02-20d	12-Feb-09	1.1	-	1.1	0.1	16.4	113	6.8	259
				2	0.3	15.9	109	6.8	250
				3	0.6	15.6	109	6.8	290
				4	0.2	16.1	111	6.8	304
				5	0.7	15.8	110	6.8	300
				6	0.9	15.7	110	6.8	299
				7	0.9	15.6	110	6.7	300
				8	1	15.6	110	6.7	302
				9	1	15.6	109	6.7	303
				10	1	15.5	109	6.7	303
				11	1	15.4	108	6.7	302
	19-Mar-09	1.3	-	<0.3	0.2	16.9	117	6.8	246
				1	0.2	17.1	117	6.8	273
				2	0.7	16.3	114	6.8	254
				3	1	16.1	113	6.8	293
				4	1	16.1	114	6.8	298
				5	1	16.1	113	6.8	299
				6	1	16.1	113	6.8	300
				7	1	16	113	6.8	301
				8	1.1	16	113	6.8	302
				9	1.1	15.9	112	6.8	302
				10	1.1	16	113	6.8	302
				11	1.1	16	113	6.8	302
	3-May-09	1.4	-	1.5	0.7	14.6	102	6.8	285
				2	0.9	14.3	101	6.7	283
				3	1.2	14	99	6.7	330
				4	1.3	14.2	101	6.7	339
				5	1.3	14.3	101	6.7	341
				6	1.3	14.3	101	6.7	342
				7	1.3	14.3	101	6.7	342
				8	1.3	14.2	101	6.7	343
				9	1.3	14.2	101	6.7	345
				10	1.3	14.1	100	6.7	346
				11	1.3	14.1	100	6.7	347
	7-Jun-09	1.5	-	1.5	1.5	13.9	99	5.8	225
				1.5	1.1	15	106	5.8	151
				2	1.7	13.8	99	5.8	315
				3	1.7	13.9	100	5.8	341
				4	1.7	14	100	5.9	341
				5	1.6	14	100	6	341
				6	1.6	14	100	6	344
				7	1.6	14	100	6	344
				8	1.6	14	100	6	345
				9	1.7	14	100	6	347
				10	1.7	14	100	6	348
				11	1.7	14	100	6	348

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	7-Jul-09	-	6.5	<0.3	8.6	12.7	109	5.8	227
				1	8.5	12.9	110	6	227
				2	8.4	12.9	110	6.1	228
				3	8.4	13	111	6.2	228
				4	8.3	13	111	6.2	228
				5	8.2	13	111	6.3	229
				6	7.8	13.2	111	6.3	237
				7	7	13.3	109	6.3	239
				8	6.7	13.3	109	6.3	238
				9	6.5	13.4	109	6.4	236
				10	6.3	13.4	109	6.4	235
				11	6	13.5	108	6.4	232
				12	5.5	13.5	107	6.4	231
	18-Aug-09	-	-	1	13.2	12.4	118	6.5	243
				2	13.2	12.4	118	6.6	243
				3	13.1	12.4	118	6.6	243
				4	13.1	12.4	118	6.6	243
				5	13.1	12.4	118	6.6	243
				6	13.1	12.4	118	6.7	243
				7	13.1	12.4	118	6.7	243
				8	13.1	12.4	118	6.7	244
				9	13.1	12.4	118	6.7	244
				10	13.1	12.4	118	6.7	244
				11	13	12.4	118	6.7	247
	16-Sep-09	-	5.5	<0.3	10.9	11.1	100	6.1	259
				1	10.9	11.1	100	6.1	259
				2	10.9	11.1	100	6.2	259
				3	10.9	11.1	100	6.2	260
				4	10.9	11.1	100	6.3	260
				5	10.9	11.1	100	6.3	260
				6	10.9	11.1	100	6.3	260
				7	10.9	11	100	6.4	260
				8	10.9	11.1	100	6.4	260
				9	10.9	11.1	100	6.4	260
				10	10.9	11.1	100	6.4	260
				11	10.9	11	100	6.5	260
				12	10.9	11	100	6.5	260
SNP02-20e	12-Feb-09	1.3	-	1.3	0.4	16.7	115	6.7	258
				2	0.6	16.1	112	6.7	262
				3	0.8	15.8	110	6.7	287
				4	0.9	15.7	110	6.7	295
				5	0.9	15.6	110	6.7	297
				6	0.9	15.6	110	6.6	299
				7	0.9	15.6	109	6.6	301
				8	1	15.5	109	6.6	303
				9	1	15.5	109	6.6	303
				10	1	15.4	109	6.6	303
				11	1.1	15.4	108	6.6	303
				12	1.8	15.3	108	6.6	302
				13	1	15.3	107	6.6	301
				14	1.1	15.2	107	6.6	300
				15	1.1	15	106	6.6	300
				16	1.1	14.9	105	6.6	298
				17	1.1	14.8	104	6.6	297
				18	1.1	14.6	103	6.6	297
				19	1.2	14.5	103	6.6	295
				20	1.2	14.2	101	6.6	293
				21	1.2	13.9	98	6.5	293
				22	1.3	13.5	98	6.5	289
				23	1.3	13	92	6.5	288
				24	1.3	12.9	91	6.5	287
				25	1.3	12.6	89	6.5	287
				26	1.4	12.3	87	6.4	286
				27	1.4	11.9	85	6.4	286

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	18-Mar-09	1.2	-	0.2	2.1	15.5	112	6.2	293
				1	1.1	16	113	6.2	287
				2	0.6	16.3	114	6.3	268
				3	0.6	16.3	114	6.2	295
				4	1.1	16.1	114	6.2	294
				5	1.2	16.6	118	6.3	301
				6	1.1	16.5	116	6.3	301
				7	1.1	16.4	116	6.3	302
				8	1.2	15.9	112	6.3	302
				9	1.1	15.2	107	6.3	301
				10	1.1	15	106	6.3	300
				11	1.1	14.9	105	6.4	300
				12	1.1	14.8	105	6.4	299
				13	1.1	14.8	105	6.4	300
				14	1.1	14.8	105	6.4	300
				15	1.1	14.9	105	6.4	300
				16	1.1	14.9	105	6.4	300
				17	1.2	14.8	104	6.4	298
				18	1.2	14.8	105	6.4	297
				19	1.2	14.8	104	6.4	297
				20	1.2	14.8	105	6.4	297
				21	1.2	14.7	104	6.4	296
				22	1.2	14.4	102	6.4	294
				23	1.3	14.2	101	6.4	293
				24	1.3	14.2	101	6.4	293
				25	1.3	14	99	6.4	292
				26	1.3	13.9	98	6.4	292
				27	1.3	13.6	97	6.4	292
				28	1.3	13.2	94	6.4	293
	3-May-09	1.4	-	1.5	1.9	14	101	6.4	283
				2	1.4	14.1	100	6.3	280
				3	1.5	14.1	101	6.3	297
				4	1.4	14.1	101	6.3	328
				5	1.5	14.1	101	6.3	333
				6	1.5	14.1	101	6.3	342
				7	1.4	14.1	101	6.4	341
				8	1.4	14.2	101	6.4	342
				9	1.4	14.1	100	6.4	342
				10	1.4	14.1	100	6.4	343
				11	1.4	14.1	100	6.4	344
				12	1.4	14.1	100	6.4	344
				13	1.3	14	100	6.4	344
				14	1.3	14	100	6.5	344
				15	1.6	13.9	100	6.8	343
				16	1.5	14	100	6.7	345
				17	1.4	14	100	6.7	345
				18	1.4	14	99	6.7	345
				19	1.4	14	99	6.7	346
				20	1.4	13.9	99	6.7	346
				21	1.4	13.9	99	6.7	346
				22	1.4	13.9	99	6.7	346
				23	1.4	13.9	99	6.7	346
				24	1.4	13.9	99	6.7	345
				25	1.4	13.9	99	6.7	346
				26	1.4	13.8	98	6.7	346
				27	1.4	13.8	98	6.7	346
				28	1.4	13.7	97	6.7	345

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	6-Jun-09	1.5	-	1.5	1.2	14.8	105	6.7	281
				2	1.5	14.4	103	6.6	309
				3	1.7	14.1	101	6.4	334
				4	1.7	14	100	6.2	335
				5	1.7	14	100	6.2	337
				6	1.6	14	100	6.2	339
				7	1.6	13.9	100	6.2	343
				8	1.6	13.9	100	6.2	342
				9	1.6	14	100	6.2	343
				10	1.6	14	100	6.2	344
				11	1.6	14	100	6.2	344
				12	1.6	14	100	6.2	345
				13	1.6	14	100	6.2	345
				14	1.6	14	100	6.2	345
				15	1.6	14	100	6.2	345
				16	1.7	13.8	99	6.2	346
				17	1.6	13.9	99	6.2	345
				18	1.7	13.9	100	6.2	345
				19	1.7	13.9	100	6.2	344
				20	1.7	13.9	100	6.2	345
				21	1.7	13.9	100	6.2	344
				22	1.7	13.9	100	6.2	344
				23	1.7	13.9	100	6.2	344
				24	1.7	13.9	100	6.2	343
				25	1.7	14	100	6.2	342
				26	1.7	13.9	100	6.2	342
				27	1.7	13.9	100	6.2	341
				28	1.7	9.8	63	6.1	331
	9-Jul-09	-	6.3	1	7.8	12.5	105	6.8	228
				2	7.8	12.5	105	6.8	228
				3	7.7	12.5	105	6.8	229
				4	7.7	12.5	105	6.8	229
				5	7.7	12.6	105	6.8	229
				6	7.7	12.6	106	6.8	229
				7	7.7	12.6	106	6.8	229
				8	7.7	12.6	106	6.8	229
				9	7.6	12.6	106	6.9	230
				10	7.6	12.6	106	6.8	229
				11	7.6	12.6	106	6.8	229
				12	7.5	12.7	106	6.8	229
				13	7.5	12.7	106	6.8	230
				14	7.5	12.7	106	6.9	230
				15	7.5	12.7	106	6.9	230
				16	7.5	12.7	106	6.9	230
				17	7.4	12.7	106	6.9	230
				18	7.4	12.7	106	6.9	231
				19	7.4	12.7	106	6.9	231
				20	7.4	12.7	106	6.8	231
				21	7.4	12.7	106	6.8	231
				22	7.4	12.7	106	6.9	231
				23	7.4	12.7	106	6.9	231
				24	7.4	12.8	106	6.9	231
				25	7.3	12.8	106	6.9	231
				26	7.3	12.8	106	6.9	231

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	18-Aug-09	-	-	1	13.4	11.8	113	6.6	245
				2	13.3	11.9	114	6.7	245
				3	13.3	11.9	114	6.7	245
				4	13.3	11.9	114	6.7	245
				5	13.3	11.9	114	6.7	245
				6	13.3	11.9	114	6.7	245
				7	13.3	11.9	114	6.7	245
				8	13.3	11.9	114	6.8	245
				9	13.2	12	114	6.8	245
				10	13.2	12	114	6.8	246
				11	13.2	12	114	6.8	246
				12	13.2	12	114	6.8	246
				13	13.1	12	114	6.8	246
				14	13.1	12	114	6.8	246
				15	13.1	12	114	6.8	246
				16	13.1	12	114	6.8	246
				17	12.9	12	113	6.8	247
				18	12.6	12	112	6.8	249
				19	12.5	11.9	112	6.8	250
				20	12.3	11.8	111	6.8	250
				21	11.9	11.5	107	6.8	249
				22	10.7	11	99	6.7	244
				23	8.6	10.3	88	6.6	240
				24	8	9.9	83	6.6	239
				25	7.2	9.5	79	6.5	239
				26	6.9	8.6	70	6.4	239
				27	6.8	8.3	68	6.3	240
				28	6.8	7.9	65	6.2	240
				29	6.6	0.9	6.1	6.1	270
	15-Sep-09	-	5	<0.3	11	11.2	101	6.4	260
				1	11	11.2	101	6.4	260
				2	11	11.2	101	6.4	260
				3	11	11.2	101	6.5	260
				4	11	11.2	101	6.5	260
				5	11	11.2	101	6.5	260
				6	11	11.2	101	6.6	260
				7	11	11.2	101	6.6	260
				8	11	11.2	101	6.6	260
				9	11	11.2	101	6.6	260
				10	11	11.2	101	6.6	260
				11	11	11.2	101	6.7	260
				12	11	11.2	101	6.7	260
				13	11	11.2	101	6.7	261
				14	11	11.1	101	6.8	261
				15	11	11.1	101	6.8	261
				16	10.9	11.2	101	6.8	269
				17	10.8	11.1	100	6.9	268
				18	10.7	11.1	100	6.9	274
				19	10.7	11.1	100	6.9	274
				20	10.6	11.1	99	6.9	273
				21	10.6	11	100	6.9	272
				22	10.6	11	99	7	269
				23	10.6	11	98	7	268
				24	10.5	10.9	98	7	267
				25	10.5	10.9	97	7	266
				26	10.4	10.7	96	7	265
				27	10.4	10.6	95	6.9	264
				28	10.4	10.4	93	6.7	265
SNP02-20f	9-Feb-09	0.9	-	0.9	0.5	19.3	135	6.5	233
				2	0.9	17.6	124	6.5	239
				3	1	16.7	118	6.4	275
				4	1	16.6	117	6.4	286
				5	1	16.6	116	6.4	290
				6	1	16.5	116	6.5	291
				7	1	16.5	116	6.4	291
				8	1	16.4	116	6.4	291
				9	1	16.4	115	6.5	292
				10	1	16.4	115	6.5	292
				11	1	16.4	115	6.5	292
				12	1	16.4	115	6.5	292
				13	1.1	16.2	114	6.5	289
				14	1.4	15.1	107	6.5	280

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	19-Mar-09	1.3	-	0.1	1.5	17	121	6.9	275
				1	0.7	18	126	6.9	266
				2	1.1	17.5	122	6.8	253
				3	1.2	16.5	117	6.8	270
				4	1.2	16.7	118	6.8	299
				5	1.2	16.7	119	6.8	301
				6	1.2	16.6	117	6.8	304
				7	1.1	16.3	115	6.8	302
				9	1.1	16	113	6.8	303
				10	1.1	15.9	112	6.8	303
				11	1.1	15.9	112	6.8	304
				12	1.1	15.8	112	6.8	305
				13	1.1	15.8	111	6.8	301
				14	1.3	15	107	6.8	294
	5-May-09	1.7	-	2	1.8	14.3	103	7.1	281
				3	1.8	13.8	100	6.9	329
				4	1.6	14	100	6.7	341
				5	1.5	14	100	6.6	344
				6	1.4	14	100	6.5	344
				7	1.4	14	99	6.5	344
				8	1.4	14	100	6.5	345
				8.9	1.3	14	100	6.5	344
				10	1.3	14	100	6.5	343
				11	1.3	14	100	6.5	344
				12	1.3	14	99	6.5	345
				13	1.3	14	99	6.5	345
				14	1.4	13.6	97	6.5	342
	7-Jun-09	1.5	-	1.5	1.6	14.3	102	5.7	270
				2	1.7	13.9	100	5.6	318
				3	1.7	13.9	100	5.7	334
				4	1.7	13.9	100	5.7	343
				5	1.7	13.9	100	5.7	344
				6	1.7	14	100	5.7	345
				7	1.7	14	100	5.7	346
				8	1.7	13.9	100	5.8	346
				9	1.7	13.9	100	5.8	347
				10	1.6	13.9	100	5.8	347
				11	1.6	13.9	100	5.8	347
				12	1.6	13.9	100	5.8	347
				13	1.6	13.9	100	5.8	347
				14	1.7	13.9	100	5.9	347
				<0.3	8.9	12.8	111	6.5	227
				1	8.8	12.8	111	6.6	228
				2	8.7	12.9	111	6.6	228
				3	8.4	13	111	6.6	229
				4	7.7	13.1	110	6.6	238
				5	7.2	13.2	109	6.6	242
				6	6.8	13.3	109	6.7	241
				7	6.6	13.3	109	6.7	239
				8	6.5	13.3	109	6.7	236
				9	6.3	13.4	108	6.7	235
				10	6	13.4	108	6.7	233
				11	5.8	13.5	108	6.7	232
				12	5.8	13.5	108	6.7	231
				13	5.7	13.5	108	6.7	232
				14	5.6	13.5	107	6.7	231
				15	5.5	13.5	107	6.7	230
	18-Aug-09	-	7	1	13.1	12.2	116	6.7	245
				2	13.1	12.2	116	6.7	245
				3	13.1	12.2	116	6.7	245
				4	13.1	12.2	116	6.8	245
				5	13.1	12.2	116	6.8	245
				6	13.1	12.2	116	6.8	246
				7	13.1	12.2	116	6.8	246
				8	13.1	12.2	116	6.8	249
				9	13.1	12.2	116	6.8	250
				10	13.1	12.2	116	6.8	249
				11	13.1	12.2	116	6.8	250
				12	13.1	12.2	116	6.8	250
				13	13.1	12.2	116	6.9	249
				14	12.7	1.7	15	6.6	252

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Sep-09	-	5.3	<0.3	10.9	11.1	100	6.7	261
				1	10.9	11.1	100	6.7	261
				2	10.9	11.1	100	6.8	261
				3	10.9	11.1	100	6.8	260
				4	10.9	11.1	100	6.8	261
				5	10.9	11.1	100	6.8	262
				6	10.8	11.1	100	6.8	263
				7	10.8	11.1	100	6.9	263
				8	10.8	11.1	100	6.9	265
				9	10.8	11.1	100	6.9	267
				10	10.8	11.1	100	6.9	267
				11	10.8	11.1	100	6.9	267
				12	10.8	11.1	100	6.9	267
				13	10.8	11.1	100	6.9	268
				14	10.8	11.1	100	6.9	268
SNAP03	6-Feb-09	1.3	-	1.3	0.3	18	124	6.6	263
				2	0.5	17.7	123	6.6	257
				3	0.8	17.2	120	6.7	256
				4	0.9	16.3	114	6.6	276
				5.1	0.9	16	112	6.6	287
				6	0.9	15.7	110	6.6	288
				7	0.9	15.5	109	6.6	287
				8	1	15.4	108	6.5	287
				9	1.2	15	106	6.5	279
				10	1.5	14.2	101	6.3	274
				11	1.9	13.7	99	6.3	269
				12	2.1	13.1	95	6.2	266
	16-Mar-09	1.2	-	0.2	0	13.8	94	6.6	268
				1	0	13.7	94	6.6	264
				2	0.4	13.5	93	6.6	254
				3	0.3	13.5	94	6.6	260
				4	0.5	13.3	92	6.6	290
				5	0.8	12.9	90	6.6	294
				6	0.9	12.7	89	6.6	297
				7	0.8	12.7	89	6.6	300
				8	1	12.5	88	6.6	298
				9	1.3	12.2	87	6.6	290
				10	1.6	11.8	84	6.6	285
				11	1.8	11.5	82	6.6	282
				12	2.1	11.1	80	6.6	279
				13	2.4	7.2	49	6.4	266
	7-May-09	1.4	-	1.5	1.4	14.1	101	6.1	298
				2	1.3	14.2	100	6.1	287
				3	1.4	13.8	98	6.1	294
				4	1.4	14.2	101	6.2	342
				4	1.4	14.2	101	6.2	341
				5	1.4	14.3	102	6.2	342
				6	1.3	14.2	101	6.2	345
				7	1.4	14.1	100	6.2	344
				8	1.4	14	100	6.3	346
				9	1.5	13.8	99	6.3	341
				10	1.7	13.4	96	6.3	337
				11	1.9	12.9	93	6.3	334
				12	2.1	12.4	90	6.3	331
	5-Jun-09	1.42	-	1.4	0.6	15	104	5.8	281
				1.4	0.7	15	105	5.8	281
				2	1.3	14.1	100	5.8	278
				3	1.5	13.9	99	5.7	328
				4	1.5	14.2	102	5.7	342
				5	1.5	14.3	103	5.6	342
				6	1.5	14.4	103	5.7	343
				7	1.5	14.4	103	5.7	343
				8	1.6	14.4	103	5.7	342
				9	1.6	14.3	102	5.8	341
				10	1.8	14.1	101	5.8	337
				11	1.9	13.6	98	5.8	335
				12	2.1	13.1	95	5.8	332

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Jul-09	-	6.8	1	9.3	12.1	108	6.9	238
				2	9.2	12.4	108	6.9	238
				3	9	12.5	108	6.9	238
				4	8.9	12.4	108	6.9	238
				5	8.9	12.4	107	6.9	238
				6	8.8	12.4	107	7	238
				7	8.8	12.4	107	7	238
				8	8.8	12.4	107	7	238
				9	8.7	12.4	107	7	238
				10	8.5	12.5	107	7	238
				11	8.4	12.5	106	7	238
				12	8.3	12.5	106	7	239
				13	8.3	12.5	106	7	238
	12-Sep-09	-	5.5	<0.3	10.6	11.2	100	6.5	251
				1	10.6	11.1	100	6.6	251
				2	10.6	11.1	100	6.6	251
				3	10.6	11.1	100	6.6	251
				4	10.6	11.1	100	6.7	251
				5	10.6	11.1	100	6.7	251
				6	10.6	11.1	100	6.7	251
				7	10.6	11.1	100	6.7	251
				8	10.6	11.1	100	6.7	251
				9	10.6	11.1	100	6.7	251
				10	10.6	11.1	100	6.7	251
				11	10.6	11.1	100	6.7	251
				12	10.6	11.1	100	6.7	251
SNAP05	8-Feb-09	1.4	-	1.4	0.5	16.7	116	6.4	248
				2	0.7	16.7	116	6.4	245
				3	0.8	16.7	117	6.4	249
				4	0.8	16.5	116	6.4	269
				5	0.9	16.1	113	6.5	279
				6	1	15.9	112	6.5	285
				7	1.1	15.5	109	6.5	280
				8	1.3	14.8	105	6.5	272
				9	1.5	13.9	99	6.4	268
				10	1.9	13	94	6.4	262
				11	2.2	12.1	88	6.4	260
				12	2.3	11.2	81	6.3	259
				13	2.5	9.9	72	6.2	253
	16-Mar-09	1.3	-	0.1	0.1	15	103	6.7	260
				1	0.2	14.6	100	6.6	255
				2	0.8	14.1	98	6.7	245
				2.9	1	13.6	96	6.7	242
				3.9	1	14	98	6.7	275
				5.1	1	13.9	98	6.7	290
				6.1	1.1	13.8	97	6.7	293
				7	1.2	13.5	96	6.7	289
				8	1.3	13	92	6.7	283
				9	1.6	12.5	89	6.6	278
				10	2	11.8	85	6.6	273
				11	2.3	11.2	81	6.6	271
				12	2.4	10.2	75	6.5	269
				13	2.6	9.2	67	6.5	267
				14	2.9	6.7	50	6.4	266
	4-May-09	1.5	-	1.5	0.7	15	104	6.9	280
				2	1.2	14.1	99	6.9	275
				3	1.4	13.1	93	6.9	282
				4	1.3	13.7	97	6.8	323
				5	1.3	14.1	100	6.8	334
				6	1.3	14.1	100	6.8	336
				7	1.3	14	100	6.8	336
				8	1.5	13.6	97	6.8	331
				9	1.8	13	93	6.8	323
				10	2.2	11.9	86	6.8	318
				11	2.4	10.9	79	6.8	315
				12	2.6	10.3	76	6.7	314
				13	2.7	10	73	6.7	312

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	5-Jun-09	1.5	-	1.5	1.1	14.6	103	6.2	272
				2	1.5	13.7	98	6.1	277
				3	1.6	13.4	96	6.1	297
				4	1.5	13.7	98	6	336
				5	1.5	14.3	102	6.1	341
				6	1.5	14.3	102	6.1	340
				7	1.6	14.3	102	6.1	341
				8	1.7	13.6	98	6.1	337
				9	2	13.2	96	6.1	331
				10	2.3	12	87	6.1	327
				11	2.5	11.6	85	6.1	326
				12	2.7	10.6	78	6.1	323
				13	2.8	10	74	6.1	322
	11-Jul-09	-	6.3	1	8.2	12.6	107	5.9	238
				2	8.1	12.7	107	6	238
				3	8.1	12.7	107	6.1	238
				4	8	12.7	107	6.1	238
				5	8	12.7	107	6.2	238
				6	8	12.7	107	6.3	238
				7	8	12.7	107	6.3	238
				8	8	12.7	107	6.3	238
				9	8	12.7	107	6.4	238
				10	8	12.7	107	6.4	238
				11	8	12.7	107	6.4	238
				12	8	12.7	107	6.5	238
				13	8	12.7	107	6.5	238
	14-Sep-09	-	6	<0.3	11.3	11	101	6.1	258
				1	11.2	11	101	6.1	258
				2	11	11.1	101	6.1	258
				3	10.9	11.1	101	6.2	258
				4	10.9	11.1	101	6.2	259
				5	10.9	11.1	101	6.2	258
				6	10.8	11.1	100	6.3	259
				7	10.8	11.1	100	6.3	259
				8	10.8	11.1	100	6.3	259
				9	10.8	11.1	100	6.3	259
				10	10.8	11.1	100	6.4	259
				11	10.8	11.1	100	6.4	259
				12	10.8	11	100	6.4	259
				13	10.7	11.1	100	6.4	259
				14	10.7	11.1	100	6.4	259
SNAP06	8-Feb-09	1.1	-	1.1	0.4	16.1	112	6.8	244
				2	0.8	15.6	109	6.8	235
				3	1	15.1	106	6.8	233
				4	1	15	106	6.8	256
				5	0.9	15.2	107	6.8	269
				6	1	15.4	109	6.8	280
				7	1.2	14.7	104	6.8	269
				8	1.5	15.5	96	6.8	260
				9	1.7	12.3	88	6.7	255
				10	1.9	11.5	83	6.7	252
				11	2.1	10.6	77	6.6	249
				12	2.3	10.2	74	6.6	246
	16-Mar-09	1.2	-	0.2	-	14.8	108	6.9	269
				1	0.7	15.5	108	6.9	263
				2	1.1	15.1	106	6.9	250
				3	1.4	14.4	103	6.8	245
				4	1.4	13.9	99	6.8	248
				5	1.3	13.9	98	6.8	282
				6	1.2	14.2	100	6.8	293
				7	1.3	14	100	6.7	289
				8	1.5	13.5	97	6.7	278
				9	1.8	12.6	90	6.7	271
				10	2	11.5	83	6.6	267
				11	2.2	10.8	79	6.6	264
				12	2.5	10.2	75	6.6	261

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	4-May-09	1.4	-	1.5	0.8	14.8	103	6.8	289
				2	1	14.2	100	6.7	280
				3	1.5	13.3	94	6.7	282
				4	1.4	13.2	94	6.7	296
				5	1.3	13.3	95	6.7	330
				6	1.3	13.6	97	6.7	336
				7	1.4	13.4	96	6.7	332
				8	1.6	13.1	94	6.7	322
				9	1.9	12.3	88	6.7	316
				10	2.2	11.5	83	6.7	311
				11	2.4	10.1	79	6.7	309
				12	2.6	10.1	73	6.6	307
	5-Jun-09	1.5	-	1.5	0.7	15.1	105	6	276
				2	1.2	14.3	101	6	280
				3	1.7	13.6	98	6	293
				4	1.7	13.4	96	6	299
				5	1.6	13.8	99	6	335
				6	1.5	14.3	102	6	338
				7	1.7	13.9	100	6.1	334
				8	1.9	13.2	95	6.1	328
				9	2.1	12.4	90	6.1	323
				10	2.3	11.7	85	6.1	320
				11	2.5	11	81	6	318
				12	2.7	10.2	75	6	316
	13-Jul-09	-	6	1	9.8	12.1	107	6.9	238
				2	9.7	12.2	108	6.9	238
				3	9.4	12.3	108	6.9	238
				4	9.3	12.3	107	7	238
				5	9.2	12.3	107	7	238
				6	9	12.4	107	7	239
				7	9	12.4	107	7	238
				8	8.7	12.4	107	7	241
				9	8.6	12.4	107	7	241
				10	8.6	12.4	106	7	241
				11	8.5	12.4	106	7	241
				12	8.5	12.3	105	7	241
	13-Sep-09	-	6	<0.3	11	11.2	102	6.9	247
				1	11	11.2	102	6.9	247
				2	11	11.2	102	6.9	247
				3	10.9	11.2	102	6.9	247
				4	10.9	11.2	102	7	247
				5	10.9	11.2	102	7	247
				6	10.9	11.2	102	7	247
				7	10.9	11.2	102	7	247
				8	10.9	11.2	102	7	247
				9	10.9	11.2	102	7	247
				10	10.9	11.2	102	7	247
				11	10.9	11.2	102	7	247
				12	10.9	11.2	101	7	247
SNAP12	12-Feb-09	1.1	-	1.1	0.3	16.1	111	6.5	255
				2	0.8	15.7	110	6.5	245
				3	0.9	15.5	108	6.4	266
				4	0.9	15.4	108	6.4	289
				5	0.9	15.5	109	6.4	293
				6	0.9	15.5	109	6.4	295
				7	1	15.5	109	6.4	298
	18-Mar-09	1.2	-	0.1	0.2	18.7	128	6.5	274
				1	0.1	18.7	129	6.5	270
				2	0.4	18.4	127	6.5	253
				3	1	17.9	126	6.5	278
				4	1	18.2	128	6.5	289
				5	1	18	127	6.5	292
				6	1.1	17.8	125	6.5	294
				7	1.1	17.7	125	6.5	298
	5-May-09	1.38	-	1.5	1.8	14.1	101	6.9	290
				2	1.4	14	99	6.8	283
				3	1.6	13.8	99	6.7	314
				4.1	1.5	14	100	6.7	335
				5.1	1.4	14.1	101	6.7	339
				6	1.4	14.1	101	6.7	342
				7	1.4	14	100	6.6	343

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	5-Jun-09	1.3	-	1.3	0.8	16.4	115	6	275
				2	1.5	14.7	105	6	297
				3	1.5	14.1	101	6	333
				4	1.5	14.5	103	6	341
				5	1.5	14.5	104	6	343
				6	1.5	14.5	103	6	343
				7	1.6	14.4	103	6	344
	13-Jul-09	-	8	1	9.9	12.3	109	6.9	237
				2	9.4	12.4	109	6.9	237
				3	9.2	12.5	108	6.9	239
				4	9	12.5	108	6.9	242
				5	9	12.5	108	7	240
				6	8.9	12.5	108	7	239
				7	8.8	12.5	107	7	242
				8	8.7	12.4	106	7	241
	14-Sep-09	-	6	<0.3	11.4	11.1	102	6.5	259
				1	11	11.2	102	6.5	261
				2	10.9	11.2	101	6.5	262
				3	10.9	11.2	101	6.6	262
				4	10.8	11.2	101	6.6	262
				5	10.8	11.2	101	6.6	262
				6	10.8	11.2	101	6.6	262
				7	10.8	11.2	101	6.6	262
SNAP14	12-Feb-09	1.1	-	1.1	0.9	16.6	116	7.1	275
				2	0.9	16.1	113	7.1	248
				3	1.1	15.6	110	7.1	274
				4	1	15.6	110	7	296
				5	1.1	15.6	110	7	300
				6	1.1	15.5	110	7	301
				7	1.1	15.4	109	7	305
				8	1.1	15.5	109	7	303
				9	1.1	15.4	109	7	304
				10	1	15.4	109	7	304
				11	1.3	14.7	104	7	292
				12	1.6	13.8	99	6.9	285
	16-Mar-09	1.2	-	0.3	0	15.7	108	6.7	269
				1	0	15.2	104	6.8	264
				2	0.6	14.3	99	6.8	247
				3	0.6	14.3	99	6.8	263
				4	0.9	14.3	100	6.8	294
				5	1	14.6	103	6.9	299
				6	1	14.2	100	6.9	300
				7	1	14.1	99	6.9	301
				8	1	14.1	99	6.9	301
				9	1	14	98	6.9	301
				10	1.1	13.9	98	6.9	301
				11	1.3	13.4	95	6.9	293
				12	1.6	12.7	91	6.9	287
				13	2	12	86	6.8	280
	9-May-09	-	-	1.5	0.8	14.6	102	6.3	290
				2	1.3	13.7	97	6.3	287
				3	1.5	13.9	99	6.4	337
				4	1.4	14.3	102	6.4	344
				5	1.4	14.4	102	6.4	344
				6	1.3	14.4	102	6.5	345
				7	1.3	14.4	102	6.5	346
				8	1.3	14.4	102	6.5	347
				9	1.3	14.3	102	6.5	347
				10	1.3	14.3	102	6.5	347
				11	1.6	13.7	98	6.5	343
				12	1.7	12.8	92	6.5	337
SNAP26	12-Feb-09	1.3	-	1.3	0.3	17.5	121	6.5	281
				2	0.6	17.1	119	6.5	277
				3	0.9	16.9	118	6.5	271
				4	1.2	16	114	6.5	266
				5	2.1	14.3	102	6.5	269

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Mar-09	1.3	-	0.1	0	15.5	107	6.7	300
				0.5	0	14.9	102	6.7	297
				1.1	0	14.7	101	6.7	292
				1.5	0.3	14.6	101	6.7	284
				2	0.7	14.3	100	6.7	279
				2.5	0.8	14	98	6.6	277
				3	1	13.5	95	6.6	274
				3.5	1.1	13.1	92	6.6	276
				4	1.3	12.7	91	6.6	271
				4.5	1.6	12.2	88	6.5	269
				4.9	2.1	11.3	82	6.5	266
				5.5	2.6	4.5	32	6.4	277
	30-Apr-09	1.4	-	0.6	0.1	16.1	111	6.8	331
				0.6	0.1	16.1	110	6.8	332
				0.6	0.1	16.1	110	6.8	332
				0.6	0.1	16.1	110	6.8	332
				0.6	0.1	16.1	110	6.8	332
				0.6	0.1	16.1	110	6.8	332
				0.6	0.1	16.1	110	6.8	331
				0.6	0.1	16.1	110	6.8	331
				0.6	0.1	16.1	110	6.8	331
				1.5	0.2	16.1	111	6.8	327
				2.4	0.9	15	105	6.8	320
				3.4	1.2	14.5	102	6.8	319
				4.5	1.7	13.3	95	6.8	313
				5.4	2.4	9.8	72	6.7	308
	9-Jul-09	-	to bottom	1	8.2	12.5	106	6.5	217
				2	8.2	12.5	106	6.5	217
				3	8.2	12.5	106	6.6	218
				4	8.2	12.5	106	6.6	218
				5	8.1	12.5	106	6.6	219
				6	8	12.7	107	6.7	219
	12-Sep-09	-	5.5	<0.3	10.5	11.2	101	6.8	251
				1	10.5	11.2	101	6.8	251
				2	10.4	11.2	101	6.8	251
				3	10.4	11.2	100	6.8	251
				4	10.4	11.2	100	6.8	251
				5	10.4	11.2	100	6.8	251
SNAP28	12-Feb-09	0.9	-	0.9	0.5	16.8	116	6.5	244
				1	0.5	16.8	116	6.5	254
				2	0.6	16.8	117	6.5	257
				3	0.8	16.8	117	6.4	283
				4	0.9	16.4	115	6.5	303
				5	0.9	16.2	114	6.5	303
				6	1	16	113	6.5	304
	30-Apr-09	1	-	0.1	0.8	14.1	99	6.5	279
				1	1.1	14	99	6.5	307
				2	1.3	14	99	6.5	340
				3	1.3	14	99	6.6	341
				4	1.3	14	99	6.6	340
				5	1.3	12.3	99	6.6	341
	9-Jul-09	-	to bottom	1	7.7	12.9	108	6.7	236
				2	7.6	12.8	107	6.7	237
				3	7.6	12.8	107	6.8	237
				4	7.6	12.8	107	6.8	237
				5	7.6	12.8	107	6.8	237
	14-Sep-09	-	-	<0.3	11.3	11.1	101	6.6	260
				1	11.1	11.2	101	6.7	258
				2	11.1	11.2	101	6.7	257
				3	11	11.2	101	6.7	257
				4	11	11.2	101	6.7	259
				5	11	11.2	101	6.7	260
				6	10.9	11.2	101	6.7	269

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP09	9-Feb-09	1.2	-	1.2	0.7	15.3	107	6.6	233
				2	1	15	104	6.6	228
				3	1.1	14.6	103	6.6	230
				4	1.1	14.3	101	6.6	230
				5	1.2	14.1	99	6.6	234
				6	1.2	13.9	98	6.6	234
				7	1.3	13.7	97	6.5	236
				8	1.3	13.7	98	6.5	242
				9	1.3	13.7	97	6.5	241
				10	1.4	13.4	96	6.5	240
				11	1.5	13.1	93	6.5	237
				12	1.6	12.6	90	6.4	235
				13	1.8	12.2	87	6.4	233
				14	1.9	11.5	83	6.4	231
	17-Mar-09	1.3	-	0.3	0.1	4.3	29	7	250
				1	0	4.7	32	7	248
				2	0.1	5.6	38	7.1	238
				3	1.1	6.8	41	7	233
				4	1.2	5.9	42	7	238
				5	1.3	5.8	42	7	241
				6	1.3	5.9	42	7	247
				7	1.3	5.9	42	7	252
				8	1.4	6	42	7	258
				9	1.4	6	43	7	256
				10.1	1.5	6	43	7	256
				11	1.6	5.9	42	7	255
				12	1.7	5.8	42	7	252
				13.1	1.8	5.7	41	7	25
				14	1.9	5.5	40	7	246
	7-May-09	1.4	-	1.5	1.1	14	99	6.8	272
				2	1.5	13.2	94	6.7	273
				3	1.6	12.7	91	6.6	284
				4	1.6	12.4	89	6.6	291
				5	1.6	12.3	88	6.5	292
				6	1.6	12.1	87	6.5	296
				7	1.6	11.9	85	6.5	298
				8	1.7	11.9	85	6.5	301
				9	1.7	11.8	85	6.5	304
				10	1.7	11.7	84	6.5	305
				11	1.8	11.6	84	6.5	305
				12	1.9	11.2	81	6.4	302
				13	1.9	11	80	6.4	301
				14	2.1	10.6	77	6.4	298
	5-Jun-09	1.4	-	1.4	0.6	15.9	111	5.9	222
				2	1.5	14.4	103	5.9	283
				3	1.7	13.5	97	5.8	292
				4	1.7	13.3	95	5.8	297
				5	1.7	13.1	94	5.8	298
				6	1.7	12.7	91	5.8	304
				7	1.7	12.5	90	5.8	307
				8	1.8	12.3	88	5.8	307
				9	1.7	12.3	89	5.9	315
				10	1.8	12.5	90	5.9	313
				11	1.8	12.5	90	5.9	312
				12	1.9	12.3	89	5.9	310
				13	2	11.9	86	6	308
				14	2.1	11.5	84	6	306
	10-Jul-09	-	6.8	1	8.1	12.6	107	6.8	233
				2	8	12.6	107	6.8	233
				3	8	12.6	107	6.8	233
				4	8	12.6	107	6.8	233
				5	8	12.6	106	6.8	233
				6	8	12.6	106	6.9	233
				7	7.9	12.6	106	6.9	233
				8	7.9	12.6	106	6.9	233
				9	7.9	12.6	106	6.9	233
				10	7.9	12.6	106	6.9	233
				11	7.9	12.6	106	6.9	233
				12	7.8	12.6	106	6.9	233

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	13-Sep-09	-	-	<0.3	11	11.1	101	6.8	242
				1	11	11.1	101	6.8	242
				2	11	11.1	101	6.8	242
				3	11	11.1	101	6.9	242
				4	11	11.1	101	6.9	242
				5	10.9	11.1	101	6.9	242
				6	10.9	11.1	101	6.9	242
				7	10.9	11.1	101	6.9	242
				8	10.9	11.1	100	6.9	242
				9	10.9	11.1	101	6.9	242
				10	10.9	11.1	100	6.9	242
				11	10.8	11.1	100	6.9	243
				12	10.8	11.1	100	6.9	243
				13	10.8	11.1	100	6.9	243
				14	10.8	11.1	100	6.9	243
SNAP11	12-Jul-09	-	6.3	1	9.1	12.2	-	6.7	236
				2	9	12.2	-	6.7	236
				3	8.9	12.3	-	6.8	236
				4	8.8	12.3	-	6.8	237
				5	8.6	12.3	-	6.8	237
				6	8.4	12.3	-	6.8	238
				7	8.4	12.3	-	6.8	238
				8	8.3	12.3	-	6.8	238
				9	8.2	12.3	-	6.8	238
				10	8.2	12.3	-	6.8	238
				11	8.2	12.3	-	6.8	238
				12	8.2	12.3	-	6.8	238
				13	8.1	12.3	-	6.8	238
				14	8.1	12.3	-	6.9	239
				15	8.1	12.3	-	6.9	238
				16	7.86[b]	11.1[b]	-	6.8[b]	261[b]
	14-Aug-09	-	6	1	12.4	12.1	-	6.7	237
				2	12.5	11.9	-	6.7	239
				3	12.5	11.9	-	6.7	239
				4	12.5	11.9	-	6.8	238
				5	12.5	11.9	-	6.8	238
				6	12.5	11.9	-	6.7	238
				7	12.5	11.9	-	6.7	238
				8	12.5	11.9	-	6.8	238
				9	12.5	11.9	-	6.8	239
				10	12.5	11.9	-	6.8	238
				11	12.5	11.9	-	6.8	238
				12	12.5	11.9	-	6.8	238
				13	12.5	11.9	-	6.8	238
				14	12.4	11.9	-	6.8	238
				15	12.4	11.8	-	6.8	238
				16	12.4	11.8	-	6.8	238
	13-Sep-09	-	6.3	<0.3	11	10.6	-	6.9	246
				1	10.9	10.7	-	6.9	247
				2	10.9	10.7	-	6.9	246
				3	10.8	10.7	-	6.9	247
				4	10.9	10.7	-	6.9	247
				5	10.9	10.7	-	6.9	247
				6	10.9	10.7	-	6.9	247
				7	10.8	10.7	-	6.9	247
				8	10.8	10.7	-	7	247
				9	10.8	10.7	-	6.9	247
				10	10.8	10.7	-	6.9	247
				11	10.8	10.7	-	6.9	247
				12	10.8	10.7	-	6.9	247
				13	10.8	10.7	-	7	247
				14	10.8	10.6	-	7	247
				15	10.8	10.6	-	6.9	247

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP11A	9-Feb-09	1.1	-	1.1	0.8	15.5	109	6.8	245
				2	1	15.2	107	6.8	232
				3	1.1	14.9	105	6.8	232
				4	1.1	14.6	103	6.7	237
				5	1.1	14.4	102	6.7	240
				6	1.2	14.3	101	6.7	244
				7	1.2	14.2	101	6.7	246
				8	1.2	14.3	102	6.7	259
				9	1.2	14.6	110	6.7	259
				10	1.3	14.3	102	6.6	254
				11	1.4	14	99	6.7	249
				12	1.5	13	96	6.7	245
				13	1.7	13	93	6.6	239
	17-Mar-09	1.3	-	0.2	0	3.8	26	6.9	200
				1	0.1	4.2	29	6.9	186
				2	0.6	4.4	31	6.9	175
				3	0.8	4.4	31	6.9	197
				4	1.1	4.3	31	6.9	240
				5	1.1	4.3	30	6.9	252
				6	1.2	4.2	30	6.9	254
				7	1.2	4.3	30	6.9	268
				8	1.2	4.4	31	6.9	277
				9	1.2	4.5	32	6.9	277
				10	1.3	4.4	32	6.9	272
				11	1.4	4.4	31	6.8	267
				12	1.5	4.3	31	6.8	264
				13	1.5	4.2	30	6.8	258
				14	1.8	4	29	6.8	254
	7-May-09	1.4	-	1.5	1.6	13.9	100	6.7	286
				2	1.6	13.6	97	6.6	280
				3	1.7	13	93	6.6	294
				4	1.6	12.8	91	6.6	299
				5	1.6	12.7	91	6.6	305
				5	1.6	12.7	91	6.6	307
				6	1.5	12.6	90	6.5	306
				7	1.5	12.6	90	6.5	317
				8	1.5	12.7	90	6.5	317
				9	1.5	12.7	90	6.5	316
				10	1.6	12.4	89	6.5	312
				11	1.7	12.2	88	6.5	310
				12	1.7	11.9	85	6.5	309
				13	1.8	11.6	84	6.5	308
	5-Jun-09	1.3	-	1.4	0.5	16.4	114	6	271
				2	1.3	14.7	104	6	292
				3	1.6	13.9	97	6	308
				4	1.6	13.6	97	6	308
				5	1.6	13.3	95	6	310
				6	1.6	13.2	94	6	316
				7	1.6	13.1	94	6	317
				8	1.6	13.1	94	6	326
				9	1.6	13.5	96	6.1	327
				10	1.6	13.5	97	6.1	328
				11	1.6	13.6	97	6.1	328
				12	1.7	13.3	96	6.1	325
				13	1.9	13	94	6.1	317
	10-Jul-09	-	6.5	1	7.7	12.7	106	6.8	231
				2	7.8	12.6	106	6.9	231
				3	7.7	12.6	106	6.9	231
				4	7.7	12.6	106	6.9	231
				5	7.7	12.6	106	6.8	231
				6	7.6	12.6	106	6.9	231
				7	7.6	12.6	106	6.9	231
				8	7.6	12.6	106	6.9	232
				9	7.6	12.6	106	6.9	232
				10	7.6	12.6	105	6.9	232
				11	7.2	12.7	105	6.9	234
				12	7.1	12.6	104	6.8	235
				13	6.5	12.8	104	6.9	235
				14	6.4	12.8	104	6.8	236
				15	6.3	12.8	104	6.8	236
				16	6.2	12.8	103	6.8	236

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Sep-09	-	6	<0.3	11.1	11.1	101	6.9	242
				1	11.1	11.1	101	6.9	242
				2	11	11.1	101	6.9	242
				3	11	11.1	101	6.9	242
				4	11	11.1	101	6.9	242
				5	11	11.1	101	6.9	242
				6	11	11.1	101	6.9	242
				7	11	11.1	101	6.9	242
				8	11	11.1	101	6.9	242
				9	11	11.1	101	6.9	242
				10	11	11.1	101	6.9	242
				11	10.9	11.1	101	6.9	242
				12	10.9	11.1	101	6.9	242
				13	10.9	11.1	101	6.9	242
				14	10.9	11.1	101	6.9	242
SNAP17	10-Sep-09	-	-	1	11	13.5	122	6.3	246
				2	11	13.6	123	6.3	246
				3	11	13.6	123	6.3	246
				4	11	13.5	123	6.3	246
				5	11	13.5	123	6.4	246
				6	11	13.5	123	6.4	246
				7	11	13.5	123	6.4	246
				8	11.1	13.2	121	6.4	246
SNAP18	10-Sep-09	-	-	1	10.9	13	117	6.7	247
				2	10.9	12.8	116	6.7	247
				3	10.9	12.8	116	6.7	247
				4	10.9	12.7	115	6.7	247
				5	11	12.6	115	6.7	247
				6	11	12.6	114	6.7	247
				7	11	12.6	114	6.7	247
				8	11	12.6	114	6.7	247
				9	11	12.6	114	6.7	247
				10	11	12.6	114	6.7	247
				11	11	12.6	114	6.7	247
SNAP19	10-Sep-09	-	-	1	10.9	12.4	112	6.7	247
				2	10.9	12.2	111	6.8	247
				3	11	12.2	111	6.8	247
				4	11	12.1	110	6.8	247
				5	11	12.1	110	6.8	247
				6	11	12.1	110	6.8	246
				7	11	12	109	6.8	246
				8	11	12	109	6.8	246
				9	11	12	109	6.8	246
				10	11.1	12	109	6.8	246
SNAP04	8-Feb-09	1	-	1	0.4	16.7	116	6.4	242
				1.5	0.7	16.4	114	6.4	235
				2	0.9	15.7	110	6.4	231
				2.5	1.3	15.4	109	6.4	227
				3	1.6	15.1	108	6.4	225
				3.5	1.9	14.7	106	6.4	223
	17-Mar-09	1	-	1	0.8	6.1	43	7.6	259
				1.5	0.7	6.5	45	7.3	252
				2	1	7.1	50	7.4	245
				2.5	1.2	7.6	54	7.2	240
				3	1.6	8	57	7.2	237
				3.5	1.9	8.3	60	7.1	234
				4	2.2	8.4	61	7.1	232
				4.5	2.5	8.1	59	7	231
	4-May-09	1.2	-	1.5	0.7	15.1	104	7.3	272
				2	1.2	13.7	96	7.2	273
				2.5	1.5	13.1	93	7.1	272
				3	1.5	12.6	91	7.1	270
				3.5	2.2	12.3	89	7	267
	10-Jul-09	-	to bottom	0.5	10.4	10.1	108	6.9	188
				1	10.3	12.1	108	6.9	188
				1.5	10.3	12.1	108	6.9	188
				2	10.3	12.1	108	7	188
				2.5	10.3	12.1	108	7	188
				3	10.3	12	107	7	188
				3.5	10.3	12	107	7	188
				4	10.3	12	107	7	188

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	14-Sep-09	-	to bottom	<0.3	10.6	11.3	102	5.7	227
				0.5	10.6	11.3	102	5.7	227
				1	10.5	11.4	102	5.8	227
				1.5	10.5	11.4	102	5.9	227
				2	10.5	11.4	102	5.9	227
				2.5	10.5	11.4	102	5.9	227
				3	10.5	11.4	102	6	227
				3.5	10.5	11.4	102	6	227
				4	10.5	11.3	102	6	227
				4.5	10.5	10.3[b]	92[b]	6	228
SNAP07	8-Feb-09	1.3	-	1.3	0.9	15.7	110	6.8	252
				2	1	15.5	109	6.8	241
				3	1.1	15.2	107	6.8	243
				4	1	15.3	107	6.8	241
				5	1.2	14.8	104	6.8	241
				6	1.5	14	100	6.7	237
				7	1.8	13.4	96	6.7	235
				8	1.9	12.8	92	6.7	235
				9	2	12.4	89	6.7	234
				10	2.1	11.6	84	6.7	237
	17-Mar-09	1.1	-	0.3	0	5.9	40	7	262
				1.1	0	6.1	42	7.1	257
				1.9	0.6	6.5	45	7.1	245
				3.1	1.1	6.4	45	7	243
				4	1.2	6.8	48	7	242
				5	1.3	6.9	49	7	245
				6	1.6	6.8	49	7	242
				7	1.9	6.8	49	7	239
				8	2	6.6	48	7	237
				9	2.1	6.3	45	6.9	239
				10	2.2	6	44	6.9	241
	4-May-09	1.4	-	1.5	1.4	13.7	97	6.7	280
				2	1.3	13.2	94	6.7	275
				3	1.6	13	93	6.7	271
				4	1.6	13	93	6.7	277
				5	1.7	12.7	91	6.6	279
				6	2	12.1	88	6.6	278
				7	2.1	11.3	82	6.6	277
				8	2.3	10.8	79	6.6	275
				9	2.3	9.9	72	6.5	275
				10	2.4	9.5	69	6.5	276
	5-Jun-09	1.4	-	1.4	0.8	15.9	111	5.9	261
				1.4	0.5	15.6	108	6	205
				2	1.6	15	108	5.9	273
				3	1.9	14.6	105	5.9	275
				4	2.1	14.4	105	5.9	274
				5	2.3	14.2	104	5.9	275
				6	2.4	13.8	101	5.8	274
				7	2.5	12.8	93	5.8	275
				8	2.5	12.3	90	5.8	276
				9	2.6	12.1	89	5.8	277
				10	2.6	11.8	87	5.8	276
	10-Jul-09	-	6.3	1	8.3	12.7	108	6.8	241
				2	8.2	12.7	108	6.9	241
				3	8.2	12.7	107	6.9	241
				4	8.2	12.6	107	6.9	241
				5	8.2	12.6	107	6.9	241
				6	8.2	12.6	107	6.9	241
				7	8.2	12.6	107	6.9	241
				8	8.1	12.6	107	6.9	241
				9	8.1	12.6	107	6.9	241
				10	8.1	12.6	107	6.9	241

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Sep-09	-	-	<0.3	10.5	11.3	101	6.7	240
				1	10.5	11.3	101	6.8	241
				2	10.5	11.3	101	6.8	241
				3	10.5	11.3	101	6.8	240
				4	10.5	11.3	101	6.8	240
				5	10.5	11.3	101	6.8	240
				6	10.5	11.3	101	6.8	241
				7	10.5	11.3	101	6.8	240
				8	10.5	11.3	101	6.8	241
				9	10.5	11.3	101	6.8	240
				10	10.5	11.3	101	6.9	240
SNAP08	8-Feb-09	1	-	1	0.5	15.2	106	7.3	253
				2	0.9	14.8	104	7.3	244
				3	1.7	13.7	98	7.2	236
				4	2.4	12.1	89	7.1	230
				5	2.8	10.8	80	7	229
				6	3	8	59	6.8	229
				7	3.1	7.2	53	6.7	232
				8	3.2	7	53	6.7	240
	17-Mar-09	1.4	-	0.3	0.3	7.4	51	7.1	276
				1	0.1	8	55	7	274
				2	0.9	8.2	58	7	252
				3	1.5	8.3	59	7	244
				4	2.5	8.2	60	7	237
				5	3	7.6	56	6.9	235
				6.1	3.1	7.1	52	6.9	238
				7	3.2	6.2	46	6.8	240
				8.1	3.4	5.5	41	6.8	244
				8.9	3.4	4.5	34	6.8	254
	4-May-09	1.4	-	1.5	2.3	13.4	98	6.6	290
				2	1.7	13.4	96	6.5	284
				3	2.4	12.4	90	6.4	278
				4	3.2	10.9	81	6.4	269
				5	3.4	9.6	73	6.3	272
				6	3.5	8.7	65	6.3	273
				7	3.6	7.2	55	6.2	274
				8	3.6	6.9	52	6.2	277
	5-Jun-09	1.4	-	1.4	0.9	15.5	109	5.9	272
				2	1.7	14.5	104	5.9	275
				3	3.1	13.5	101	5.9	271
				4	3.6	12.9	98	5.9	269
				5	3.8	12.6	96	5.9	269
				6	3.8	11.4	87	5.9	271
				7	3.8	10	76	5.8	272
				8	3.8	7.6	58	5.8	273
	12-Jul-09	-	6.8	1	10.8	11.8	107	6.8	241
				2	10.8	11.8	107	6.9	241
				3	10.7	11.8	106	6.9	241
				4	10.7	11.8	106	6.9	241
				5	10.7	11.7	106	6.9	241
				6	10.7	11.7	106	6.9	242
				7	10.6	11.7	105	7	241
				8	10.5	11.7	105	7	242
				9	10.4	11.7	105	7	242
	13-Sep-09	-	-	<0.3	10.2	11.4	102	6.6	239
				1	10.2	11.4	102	6.7	239
				2	10.2	11.4	102	6.7	239
				3	10.2	11.4	102	6.7	239
				4	10.2	11.4	102	6.7	239
				5	10.1	11.4	102	6.7	239
				6	10.1	11.4	102	6.7	239
				7	10.1	11.4	102	6.7	239
				8	10	11.4	101	6.8	238
				9	10	11.2	92	6.7	239
SNAP10	9-Feb-09	1	-	1.1	1	17	119	7.6	255
				1.5	1	16.9	119	7.5	256
				2	1	16.7	117	7.5	249
				2.5	1	16.5	116	7.4	245
				3	1.1	16.3	115	7.4	242
				3.5	1.1	16	113	7.3	240
				4	1.2	15.5	109	7.3	241
				4.5	1.3	14.9	105	7.2	250

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	17-Mar-09	1.4	-	0.1	0	3.9	27	7	241
				1	0	4.4	30	7	220
				1.5	0.1	4.5	31	7	213
				2	0.5	4.7	33	7	233
				2.5	0.7	4.8	34	7	249
				3	0.9	4.8	34	7	252
				3.5	1	4.8	34	7	252
				4	1.1	4.9	34	7	251
				4.5	1.2	4.8	34	6.9	257
				5	1.4	4.7	34	6.9	261
	7-May-09	1.4	-	1.5	0.6	15.1	105	6.7	289
				2	1	14.8	104	6.6	288
				2.5	1.3	14.5	103	6.6	286
				3	1.4	14.3	102	6.6	286
				3.5	1.5	14	100	6.6	285
				4	1.6	13.9	100	6.5	291
				4.5	1.7	13.9	100	6.5	301
	10-Jul-09	-	to bottom	0.5	9.5	12	105	6.6	213
				1	9.4	12	105	6.7	213
				1.5	9.4	12	105	6.7	213
				2	9.4	12	105	6.8	213
				2.5	9.4	12	105	6.8	213
				3	9.3	12	105	6.8	213
				3.5	9.3	12	105	6.8	213
				4	9.3	12.1	105	6.8	214
	13-Sep-09	-	to bottom	<0.3	10.9	11.4	103	6.9	236
				0.5	10.8	11.4	103	6.9	237
				1	10.7	11.4	103	6.9	237
				1.5	10.8	11.4	103	6.9	237
				2	10.7	11.4	103	6.9	237
				2.5	10.7	11.4	102	6.9	237
				3	10.7	11.4	102	7	238
				3.5	10.7	11.4	102	7	238
				4	10.7	11.4	102	7	238
				4.5	10.7	11.4	102	6.9	238
				5	10.7	11.4	102	7	238
SNAP23	11-Feb-09	1.2	-	1.2	0.4	16.7	116	6.4	92
				2	0.9	16	112	6.4	95
				3	1.3	13.6	96	6.4	102
				4	1.6	12.9	92	6.3	101
				5	1.8	12.2	88	6.2	111
				6	2.2	10.5	76	6.2	108
				7	2.5	8.8	63	6.1	112
				8	2.7	6.2	45	6	117
				9	2.8	4.5	33	6	119
				10	3	2.9	21	5.8	120
				11	3.1	1.6	11	5.8	121
	15-Mar-09	1.3	-	<0.3	0.2	16.7	115	6.7	103
				1	0.2	16.4	113	6.6	98
				2	0.9	16.3	114	6.6	92
				3	1.3	15.6	111	6.6	102
				4	1.6	14.9	117	6.6	109
				5	1.9	13.8	100	6.6	110
				6	2.4	12.8	98	6.5	107
				7	2.7	11.1	82	6.5	109
				8	2.9	8.9	67	6.4	114
				9	3	5	38	6.4	114
				10	3.2	1.7	14	6.4	115
				11	3.3	0.8	6.5	6.4	119
	6-May-09	1.4	-	1.5	0.7	16	112	6.9	95
				2	1.4	15.8	113	6.8	104
				3	2	15.5	112	6.7	111
				4	2.3	14.7	107	6.7	114
				5	2.6	12.3	90	6.6	119
				6	2.9	10	74	6.5	119
				7	3.2	7.5	56	6.4	122
				8	3.3	5.3	40	6.4	124
				9	3.4	2.9	22	6.3	126
				10	3.5	1.7	13	6.2	129
				11	3.6	0.8	5.9	6.2	137

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	5-Jun-09	1.3	-	1.1	0.4	16.3	113	5.8	90
				1.1	0.3	16.3	113	5.6	90
				2	1.8	16.1	116	5.7	104
				3	2.5	14.7	108	5.8	113
				4	2.8	13.5	100	5.9	115
				5	3	10.5	78	5.9	120
				6	3.2	6.2	46	5.8	121
				7	3.3	4.1	31	5.8	123
				8	3.3	3.4	26	5.7	130
				9	3.4	3.7	28	5.7	131
				10	3.6	3.5	26	5.7	133
				11	3.7	2.4	18	5.7	145
				12	4	1	7.6	5.8	168
	11-Jul-09	-	4.8	1	10.2	12.1	108	6.4	86
				2	10.2	12.1	108	6.4	85
				3	10.2	12.1	108	6.4	85
				4	10.1	12.1	108	6.5	85
				5	10.1	12.1	107	6.5	85
				6	10.1	12.1	107	6.5	85
				7	10	12.1	107	6.6	85
				8	10	12	107	6.6	85
				9	10	12	106	6.6	85
				10	9.9	12	106	6.6	84
				11	9.8	12	106	6.7	83
				12	9.2	12	104	6.7	84
	10-Sep-09	-	-	<0.3	10.5	10.9	97	5.8	105
				1	10.5	10.8	97	5.9	104
				2	10.5	10.8	97	6	105
				3	10.5	10.8	97	6.1	104
				4	10.5	10.8	97	6.1	104
				5	10.5	10.8	97	6.2	104
				6	10.5	10.8	97	6.3	104
				7	10.5	10.8	97	6.3	104
				8	10.5	10.8	94	6.3	104
				9	10.5	10.8	97	6.4	104
				10	10.5	10.8	97	6.4	104
				11	10.5	10.8	97	6.5	103
				12	10.5	10.8	97	6.5	103
SNAP02A	7-Feb-09	1.4	-	1.4	0.7	19.1	133	6.3	60
				2	1	18.5	130	6.3	56
				3	1.4	16.7	118	6.2	54
				4	1.9	14.4	104	6.3	51
				5	2.3	14.5	97	6.2	49
				6	2.6	10.7	78	6.1	51
				7	2.8	9.1	67	6.1	54
				8	2.8	8.4	62	6.1	58
				9	2.9	8.1	60	6	59
	15-Mar-09	1.5	-	1	0.7	17.2	120	6.1	65
				2	1.1	16.8	119	6.1	60
				3	1.7	16.1	115	6.2	54
				4	2.3	12.7	93	6.2	51
				5	2.6	9.1	67	6.1	50
				6	2.9	7.3	54	6.1	53
				7	2.9	8.3	62	6.1	59
				8	3.1	7	52	6.1	59
				9	3.1	7.7	57	6.1	63
				10	3.1	6.6	49	6.1	64
	2-May-09	1.4	-	1.5	1.1	16.7	118	6.6	64
				2	1.3	16.6	118	6.6	62
				3	1.8	16.2	116	6.5	61
				4	2.4	15.3	112	6.5	59
				5	2.8	12.4	92	6.4	59
				6	3.1	9.2	68	6.4	62
				7	3.1	8.1	60	6.4	72
				8	3.2	8.7	65	6.3	73
				9	3.2	8.7	65	6.3	75

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	5-Jun-09	1.2	-	1.3	0.6	18.6	130	5.8	52
				2	2	17.5	126	5.7	61
				3	2.6	15.8	116	5.8	61
				4	2.8	14.5	107	5.8	67
				5	3.1	13	97	5.7	67
				6	3.2	11.7	88	5.7	71
				7	3.3	12	90	5.7	77
				8	3.3	12.8	96	5.6	78
				9	3.3	13.2	99	5.6	81
	11-Jul-09	-	5.3	1	10.9	11.8	107	6.4	46
				2	10.9	11.7	106	6.4	45
				3	10.9	11.7	106	6.4	45
				4	10.9	11.7	106	6.5	44
				5	10.9	11.7	105	6.5	44
				6	10.9	11.6	105	6.5	45
				7	10.9	11.6	105	6.5	44
				8	10.8	11.6	105	6.5	44
				9	10.8	11.6	105	6.6	44
	11-Sep-09	-	3.8	<0.3	10.3	11.1	99	6.2	54
				1	10.2	11.1	99	6.3	55
				2	10.2	11.1	99	6.3	54
				3	10.2	11.1	99	6.4	55
				4	10.2	11.1	99	6.4	55
				5	10.1	11.1	99	6.4	55
				6	10.1	11.1	99	6.4	55
				7	10.1	11.1	99	6.4	55
				8	10.1	11.1	99	6.4	55
				9	10.1	11.1	99	6.5	55
SNAP20	13-Sep-09	-	-	1	10.8	10.6	96	7.1	45
				2	10.7	10.6	96	7	45
				3	10.7	10.6	96	6.9	45
				4	10.7	10.6	96	6.9	45
				5	10.6	10.6	96	6.8	45
				6	10.6	10.6	96	6.8	45
				7	10.6	10.6	95	6.8	45
				8	10.5	10.6	95	6.8	45
				9	10.5	10.6	95	6.7	45
				10	10.5	10.6	95	6.7	45
				11	10.4	10.5	94	6.7	45
				12	10.4	10.5	94	6.7	45
				13	10.3	10.5	94	6.7	45
				14	10	10.5	93	6.7	44

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP20B	7-Feb-09	1.3	-	1.3	0.7	16.5	115	7.6	47
				2	1	15.7	110	7.5	43
				3	1.1	14.8	104	7.4	41
				4	1.2	14.3	101	7.4	41
				5	1.2	14.1	100	7.3	41
				6	1.2	14	99	7.2	42
				7	1.2	13.9	98	7.2	42
				8	1.2	13.8	98	7.1	42
				9.1	1.2	13.7	97	7.1	42
				10.1	1.3	13.6	96	7	42
				11	1.3	13.6	96	7	42
				12	1.3	13.6	96	6.9	42
				13	1.3	13.5	96	6.9	42
				14	1.3	13.5	95	6.5	42
				15	1.3	13.3	94	6.4	41
				16	1.4	13	93	6.4	41
				17	1.4	12.8	91	6.4	40
				18	1.5	12.7	90	6.3	41
				19	1.6	12	86	6.3	40
				20	1.9	12	86	6.3	38
				21	2.2	12.1	88	6.3	37
				22	2.5	12.4	91	6.4	36
				23	2.8	12.5	92	6.3	35
				24	2.9	12.6	93	6.4	35
				25	3	12.5	93	6.3	35
				26	3.1	12.4	92	6.4	35
				27	3.1	12.1	90	6.4	35
				28	3.1	11.9	89	6.4	35
				29	3.2	11.8	88	6.4	35
				30	3.2	11.5	86	6.3	35
				31	3.2	11.2	83	6.2	36
				31.3	3.2	10.9	81	6.2	36
	16-Mar-09	1.2	-	0.1	0	12.6	85	6.6	54
				1	0.1	12.1	83	6.5	52
				2	0.8	11.9	83	6.5	44
				3	1.1	11.4	80	6.5	41
				4	1.2	11	78	6.5	41
				5	1.2	10.7	76	6.5	42
				6.1	1.3	10.3	73	6.4	42
				7	1.3	9.9	70	6.4	42
				8	1.3	9.7	69	6.4	42
				9	1.3	9.6	68	6.4	42
				10	1.3	9.5	67	6.4	42
				11	1.4	9.4	67	6.4	43
				12	1.4	9.3	66	6.4	43
				13	1.4	9.3	66	6.3	43
				14	1.4	9.2	66	6.3	43
				15	1.4	9.1	65	6.3	42
				16.1	1.4	8.9	63	6.3	42
				17.1	1.5	8.8	63	6.3	42
				18.1	1.6	8.5	61	6.3	41
				19.1	1.7	8.5	61	6.3	40
				20	1.9	8.5	61	6.3	38
				21.1	2.2	8.5	62	6.3	37
				22	2.5	8.5	62	6.3	36
				23	2.7	8.6	63	6.3	36
				24	2.9	8.6	64	6.3	35
				25	3	8.7	64	6.3	35
				26.1	3.1	8.6	64	6.3	35
				27.1	3.1	8.5	63	6.3	35
				28.1	3.2	8.4	63	6.2	35

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	2-May-09	1.3	-	1.4	1.2	15.8	112	6.7	50
				2	1.3	15.6	111	6.7	49
				3	1.6	14.9	107	6.6	45
				4	1.7	13.7	98	6.6	46
				5	1.6	13	93	6.6	46
				6	1.6	12.7	91	6.6	46
				7	1.6	12.6	90	6.5	46
				8	1.6	12.6	90	6.5	47
				9	1.6	12.6	90	6.5	47
				10	1.6	12.5	89	6.5	47
				11	1.6	12.5	89	6.5	47
				12	1.6	12.5	89	6.5	47
				13	1.6	12.4	89	6.5	47
				14	1.6	12.4	88	6.5	47
				15	1.6	12.3	88	6.4	47
				16	1.6	12.1	87	6.5	47
				17	1.6	12	86	6.5	46
				18	1.7	11.7	84	6.5	45
				19	1.9	11.4	82	6.5	43
				20	2.1	11.1	81	6.4	42
				21	2.3	10.9	80	6.5	41
				22	2.5	10.8	79	6.4	40
				23	2.7	10.9	80	6.4	39
				24	2.9	11	82	6.5	39
				25	3	11	82	6.4	39
				26	3.1	11	82	6.4	38
				27	3.1	10.8	81	6.4	38
				28	3.1	10.4	78	6.4	38
				29	3.2	9.9	74	6.3	38
				30	3.2	8.5	63	6.3	39
	5-Jun-09	1.1	-	1.1	0.7	15.9	111	6.4	51
				1.6	1.7	15.2	109	6.4	48
				2	1.6	15.3	110	6.4	47
				3	1.7	14.1	101	6.4	47
				4	1.7	13.5	97	6.3	47
				5	1.7	13.4	96	6.3	47
				6	1.7	13.3	95	6.2	47
				7	1.7	13.3	95	6.2	47
				8	1.7	13.1	94	6.1	47
				9	1.8	13	94	6.1	47
				10	1.8	13	93	6.1	47
				11	1.8	13.1	94	6	47
				12	1.8	13.2	95	5.6	47
				13	1.8	13.2	95	5.6	47
				14	1.8	13	93	5.5	47
				15	1.8	12.9	93	5.4	47
				16	1.9	13.3	96	5.2	47
				17	1.9	13.5	97	5.3	47
				18	1.9	13.4	96	5.3	47
				19	1.9	13.2	95	5.3	47
				20	2.1	12.6	91	5.3	46
				21	2.3	10.9	80	5.3	43
				22	2.5	10.2	75	5.3	41
				23	2.7	10.3	76	5.3	40
				24	2.9	10.6	78	5.3	40
				25	3	10.7	79	5.3	39
				26	3	10.4	77	5.3	41
				27	3.1	9.7	72	5.3	40
				28	3.1	8.7	65	5.3	40
				29	3.1	8	60	5.3	40
				30	3.1	7	52	5.2	40

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	11-Jul-09	-	5.3	1	10.1	12	106	6.4	39
				2	10	12	106	6.5	39
				3	9.9	12	106	6.5	39
				4	9.8	12	106	6.5	39
				5	9	12.3	106	6.6	39
				6	8.7	12.4	106	6.5	39
				7	8	12.6	106	6.6	39
				8	7.3	12.6	105	6.5	39
				9	7	12.7	104	6.6	39
				10	6.6	12.6	103	6.5	39
				11	6.4	12.4	101	6.5	39
				12	6.4	12.4	101	6.5	39
				13	6.2	12.4	100	6.5	39
				14	6.2	12.4	99	6.4	39
				15	6.1	12.3	99	6.4	39
				16	6	12.3	98	6.5	39
				17	6	12.2	98	6.5	39
				18	5.8	12.2	98	6.4	39
				19	5.8	12.2	97	6.4	39
				20	5.7	12.2	97	6.4	39
				21	5.7	12.2	97	6.4	39
				22	5.7	12.1	97	6.4	39
				23	5.6	12.2	97	6.3	39
				24	5.6	12.1	96	6.3	39
				25	5.6	12.1	96	6.3	39
				26	5.6	12.1	96	6.3	39
				27	5.5	12.1	96	6.3	39
				28	5.5	12.1	96	6.3	39
				29	5.4	12.1	96	6.3	39
	11-Sep-09	-	4.4	<0.3	10.6	10.7	96	6.3	44
				1	10.6	10.7	96	6.3	44
				2	10.6	10.7	96	6.3	44
				3	10.6	10.7	96	6.3	44
				4	10.6	10.7	96	6.3	44
				5	10.6	10.7	96	6.3	44
				6	10.6	10.7	96	6.4	44
				7	10.6	10.7	96	6.3	44
				8	10.6	10.7	96	6.4	44
				9	10.6	10.7	96	6.3	44
				10	10.6	10.7	96	6.3	44
				11	10.6	10.7	96	6.3	44
				12	10.6	10.7	96	6.4	44
				13	10.6	10.7	96	6.4	44
				14	7.2	10.8	89	6.4	39
				15	6.3	10.6	86	6.2	39
				16	6.1	10.3	82	6.2	39
				17	5.9	10.2	82	6.1	39
				18	5.8	10	80	6.1	39
				19	5.7	10.1	80	6	39
				20	5.7	10	80	6	39
				21	5.6	9.8	78	5.9	39
				22	5.6	9.9	79	6	39
				23	5.6	9.8	78	5.9	40
				24	5.5	9.8	77	5.9	40
				25	5.5	9.7	77	5.9	40
				26	5.5	9.6	76	5.9	40
				27	5.5	9.5	75	5.8	40
				28	5.5	9.4	74	5.8	40
				29	5.4	9.2	73	5.8	40
SNAP29	11-Feb-09	1.3	-	1.3	0.6	18.3	128	6.1	112
				2	0.7	18.2	127	6.1	128
				2.5	0.9	17.4	122	6.1	121
				3	1	17	120	6.1	125
				3.5	1.2	16.7	118	6.1	127
				4	1.4	16.1	114	6.2	123
				4.5	1.6	15.2	108	6.2	125
				5	1.8	14	100	6.1	123
				5.5	1.9	13.4	96	6.1	123
				6	2.1	12.2	87	6.1	123
				6.5	2.3	10.3	75	6	123

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	16-Mar-09	1	-	0.2	0.1	13.9	95	6.6	129
				1	0.1	13.8	95	6.5	125
				2	0.6	13.5	94	6.5	121
				3	1.2	12.8	90	6.5	116
				4.1	1.5	12.1	86	6.5	116
				5	1.9	11.3	82	6.4	119
				6	2.3	8.8	64	6.3	118
				1.2	0.7	15.6	109	6.6	125
				2	1.1	15.4	109	6.6	120
				3	1.6	15.2	109	6.5	135
				4	2.1	14.8	107	6.5	129
				5	2.4	14	103	6.4	128
				6	2.7	12.3	91	6.4	129
	6-May-09	1.1	-	1.2	0.7	15.6	109	6.6	127
				2	1.3	15.4	109	6.6	118
				3	1.6	15.2	108	6.5	136
				4	2.1	14.5	105	6.5	130
				5	2.4	13.5	98	6.4	128
				6	2.7	11.6	83	6.6	130
	11-Jul-09	-	-	1	10.4	11.9	107	6.6	88
				2	10.5	11.9	107	6.6	87
				3	10.5	11.9	106	6.6	86
				4	10.4	11.8	106	6.7	89
				5	10.4	11.8	106	6.7	88
				6	10.3	11.8	106	6.7	100
				7	10.3	11.8	105	6.8	103
	12-Sep-09	-	4.5	<0.3	10.6	11.3	102	6.5	110
				1	10.5	11.3	102	6.5	110
				2	10.5	11.3	102	6.5	110
				3	10.5	11.3	102	6.6	109
				4	10.5	11.3	102	6.6	109
				5	10.5	11.3	101	6.6	109
				6	10.5	11.3	101	6.5	110
SNAP01	12-Jul-09	-	4.5	1	10.8	11.3	-	6.7	42
				2	10.7	11.3	-	6.6	42
				3	10.6	11.3	-	6.6	41
				4	10.6	11.3	-	6.6	41
				4.8	10.3[b]	5.3[b]	-	6.4[b]	54[b]
	14-Aug-09	-	5	1	12.7	11.6	-	6.8	45
				2	12.7	11.6	-	6.7	45
				3	12.7	11.6	-	6.7	45
				4	12.7	11.6	-	6.7	45
				5	12.7	11.6	-	6.7	45
	11-Sep-09	-	-	<0.3	10.1	11.1	-	6.2	51
				1	10.1	11.1	-	6.2	51
				2	10.1	11.1	-	6.3	51
				3	10.1	11.1	-	6.3	51
				4	10.1	11.1	-	6.3	51
				5	10.1	10.5	-	6.3	51
SNAP30	12-Jul-09	-	5.5	1	11.3	11.1	-	6.4	40
				2	11.2	11.2	-	6.4	40
				3	11.1	11.2	-	6.5	40
				4	11.1	11.2	-	6.5	40
				5	11.1	11.2	-	6.5	40
				6	11	11.2	-	6.5	40
				7	10.8	11.2	-	6.5	40
				8	10.4	11.2	-	6.6	40
				9	8.7	11.5	-	6.7	40
	14-Aug-08	-	5	1	12.8	11.4	-	6.9	44
				2	12.8	11.4	-	6.9	44
				3	12.8	11.3	-	6.8	44
				4	12.8	11.4	-	6.9	44
				5	12.8	11.3	-	6.9	44
				6	12.7	11.3	-	6.8	44

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	12-Sep-09	-	4.7	<0.3	10.4	11.3	-	6.5	48
				1	10.3	11.3	-	6.6	48
				2	10.3	11.3	-	6.6	48
				3	10.3	11.3	-	6.6	48
				4	10.3	11.3	-	6.6	48
				5	10.3	11.3	-	6.6	48
				6	10.2	11.3	-	6.6	48
				7	10.2	11.3	-	6.6	48
				8	10.2	11.3	-	6.6	48
				9	10.2	11.3	-	6.6	48
SNAP31	12-Jul-09	-	bottom	1	10.5	11.5	-	6.5	86
				2	10.4	11.7	-	6.5	86
				3	10.4	11.7	-	6.6	86
	14-Aug-09	-	bottom	0.5	12.8	12.1	-	7.1	106
				1	12.8	12.1	-	7.1	106
				1.5	12.8	12.1	-	7.1	106
				2	12.8	12.1	-	7.1	105
				2.5	12.9	12.1	-	7	106
				3	12.9	12.1	-	7	105
				3.5	12.8	12.1	-	7.1	105
	12-Sep-09	-	bottom	<0.3	10.7	11.4	-	6.6	104
				1	10.7	11.4	-	6.6	105
				2	10.7	11.4	-	6.7	105
				3	10.7	11.4	-	6.7	105
IL3	15-Jul-09	-	-	<0.3	12.6	10.1	95	6.2	19
	16-Aug-09	-	-	0.2	11.8	10.8	100	5.6	20
	14-Sep-09	-	-	0.2	11.4	10.9	100	6.8	22
IL4	15-Jul-09	-	-	<0.3	13.1	10.1	96	6.5	16
	16-Aug-09	-	-	0.5	11.4	9.9	91	5.4	17
	14-Sep-09	-	-	<0.3	17.2	9.8	102	6.7	20
IL5	15-Jul-09	-	-	<0.3	12.9	10.5	99	6.3	50
	16-Aug-09	-	-	0.2	12.5	11.7	110	6	50
	14-Sep-09	-	-	0.3	13.3	11.2	107	6.9	55
S1	9-Jul-09	-	-	0.2	9.6	10.5	92	6.5	19
	16-Aug-09	-	-	0.1	13.9	10.1	97	5.9	20
	12-Sep-09	-	-	0.1	9.9	11.3	100	6.3	23
KING01	15-Jul-09	-	-	0.8	10.5	10.9	98	6.7	19
	17-Sep-09	-	-	0.2	10.1	14.5	128	6.4	21
NEL01	10-Feb-09	1.4	-	1.4	0.4	18	124	7.4	26
				2	0.5	17.8	123	7.3	25
				3	0.6	17.1	119	7.3	23
				4	0.7	16.5	116	7.3	23
				5	0.8	16.1	113	7.2	23
				6	0.9	15.9	111	7.2	24
				7	0.9	15.8	111	7.2	25
				8	1	15.8	111	7.1	25
				9	1.1	15.8	111	7.1	25
				10	1.7	13.7	98	7	25
				11	2.4	11.4	81	6.9	27
	1-May-09	1.4	-	0.8	1	17.2	121	7.5	28
				1.5	0.8	18.1	126	7.3	28
				2	0.7	18.5	129	7	26
				3	0.9	18.1	127	7	25
				4	1	17.4	123	6.9	25
				5	1.1	17.1	120	6.9	26
				6	1.2	16.8	119	6.8	27
				7	1.3	16.7	118	6.8	28
				8	1.3	16.7	119	6.8	28
				9	1.5	16.6	118	6.7	28
				10	2.1	14	102	6.7	28
				11	2.8[(b)]	7.2[(b)]	53[(b)]	6.5[(b)]	30[(b)]

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	14-Jul-09	-	6.8	1	8.9	11.5	100	7.1	21
				2	8.7	11.9	102	7	21
				3	8.7	12	103	7	21
				4	8.6	12.1	104	6.9	21
				5	8.5	12.2	104	6.9	21
				6	8.3	12.2	104	6.8	21
				7	8.1	12.2	104	6.8	21
				8	7.9	12.3	103	6.8	21
				9	7.7	12.3	103	6.8	21
				10	7.6	12.3	103	6.7	21
				11	7.5	12.3	103	6.7	21
				12	7.5	12.3	103	6.7	23
	19-Sep-09	-	6	<0.3	10.4	11.2	100	6.6	20
				1	10.3	11.2	100	6.5	20
				2	10.3	11.2	100	6.5	20
				3	10.3	11.2	100	6.6	20
				4	10.3	11.3	100	6.6	20
				5	10.3	11.3	100	6.6	20
				6	10.3	11.3	100	6.6	20
				7	10.3	11.2	100	6.7	20
				8	10.3	11.2	100	6.6	20
				9	10.3	11.2	100	6.6	20
				10	10.3	11.2	100	6.6	20
				11	10.3	11.3	100	6.7	20
NEL02	10-Feb-09	1.4	-	1.4	0.3	16.7	115	6.4	28
				2	0.5	16.2	112	6.4	22
				3	0.5	15.8	110	6.4	22
				4	0.7	15.3	107	6.5	22
				5	0.7	15.1	106	6.4	22
				6	0.8	14.9	104	6.5	22
				7	0.9	14.8	104	6.4	22
				8	1	14.6	103	6.4	22
				9	1.1	14.5	101	6.4	22
				10	1.2	14.3	101	6.3	22
				11	1.3	14	99	6.3	22
	1-May-09	1.4	-	1.5	0.5	16.7	116	6.7	26
				2.4	0.8	16.2	113	6.7	23
				3.5	0.9	15.2	106	6.7	23
				4.5	1	14.7	103	6.6	24
				5.5	1.1	14.5	102	6.6	24
				6.4	1.2	14.2	100	6.6	24
				7.5	1.3	14	100	6.6	24
				8.5	1.4	13.8	98	6.6	24
				9.5	1.5	13.3	95	6.6	24
				10.5	1.6	12.8	91	6.5	24
				11.3	1.7	12.2	88	6.4	24
	14-Jul-09	-	4.3	1	8.7	12.4	106	6.3	21
				2	8.7	12.4	106	6.4	21
				3	8.7	12.4	106	6.4	21
				4	8.6	12.4	106	6.4	21
				5	8.6	12.4	106	6.4	21
				6	8.5	12.4	106	6.4	21
				7	8.4	12.4	105	6.4	21
				8	8.2	12.4	105	6.4	21
				9	7.8	12.4	105	6.4	21
				10	7.8	12.4	104	6.5	21
				11	7.8	12.4	104	6.4	21
				12	7.7	11.6	97	6.5	22
	19-Sep-09	-	6	<0.3	10.4	11.2	100	6.6	20
				1	10.4	11.2	100	6.6	20
				2	10.4	11.2	100	6.5	20
				3	10.4	11.2	100	6.5	20
				4	10.4	11.2	100	6.5	20
				5	10.4	11.2	100	6.6	20
				6	10.4	11.2	100	6.6	20
				7	10.4	11.2	100	6.6	20
				8	10.4	11.2	100	6.6	20
				9	10.4	11.2	100	6.6	20
				10	10.4	11.2	100	6.6	20
				11	10.4	11.2	100	6.6	20
				12	10.4	11.2	100	6.6	20

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
NEL03	10-Feb-09	1.2	-	1.2	0.3	18.2	126	6.5	26
				2	0.6	17.4	121	6.6	24
				3	0.7	16.4	114	6.6	23
				4	0.7	15.7	109	6.6	22
				5	0.8	15.2	106	6.5	22
				6	0.9	14.9	105	6.5	22
				7	1	14.7	103	6.5	22
				8	1	14.5	102	6.5	22
				9	1.1	14.4	102	6.5	23
	1-May-09	1.4	-	1.5	0.6	18.4	128	6.8	28
				2	0.8	17.8	125	6.8	26
				3	0.9	17.4	122	6.7	24
				4	1.1	16.5	116	6.7	24
				5	1.1	15.3	108	6.6	23
				6	1.2	14.7	104	6.6	23
				7	1.3	14	99	6.5	23
				8	1.4	13.6	97	6.5	24
				9	1.5	13.6	97	6.5	24
	14-Jul-09	-	5.5	1	8.3	12.5	106	6.4	21
				2	8.3	12.5	106	6.4	21
				3	8.2	12.4	106	6.4	21
				4	8.2	12.4	106	6.4	21
				5	8.2	12.4	105	6.5	21
				6	8.2	12.4	105	6.5	21
				7	7.9	12.4	105	6.5	21
				8	7.8	12.4	105	6.5	21
				9	7.7	12.4	104	6.5	21
				10	7.6	12.4	104	6.5	21
	18-Sep-09	-	6.5	<0.3	10.6	11	99	6.4	20
				1	10.6	11	99	6.4	20
				2	10.6	11	99	6.4	20
				3	10.6	11	99	6.5	20
				4	10.6	11	99	6.5	20
				5	10.6	11	99	6.5	20
				6	-	-	-	-	-
				7	10.6	11	99	6.6	20
				8	10.6	11	99	6.6	20
				9	10.5	11	99	6.6	20
				10	10.5	11	99	6.7	21
NEL04	10-Feb-09	1.2	-	1.2	0.3	19	131	6.8	27
				2	0.4	18.8	129	6.8	25
				3	0.6	17.9	124	6.8	22
				4	0.7	16.7	117	6.8	22
				5	0.8	15.9	111	6.8	22
				6	0.9	15.4	108	6.7	22
				7	1	15.1	106	6.7	22
				8	1.1	14.8	104	6.7	22
				9	1.1	14.6	103	6.7	22
				10	1.2	14.2	100	6.7	22
				11	1.2	13.9	98	6.7	22
				12	1.3	13.6	97	6.7	22
	1-May-09	1.4	-	1.5	1.2	17.6	124	6.8	28
				2	0.8	17.7	124	6.8	26
				3	1	16.8	118	6.8	25
				4	1.1	16.4	116	6.7	24
				5	1.2	16.1	113	6.7	25
				6	1.2	15.9	112	6.7	25
				7	1.3	15.6	111	6.7	26
				8	1.4	15.1	107	6.7	25
				9	1.4	14.6	104	6.7	25
				10	1.5	13.9	99	6.7	24
				11	1.6	13.2	95	6.6	24
				12	1.6	12.8	92	6.6	24

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	14-Jul-09	-	6.3	1	8.9	12.1	104	6.5	21
				2	8.8	12.2	105	6.5	21
				3	8.8	12.2	105	6.5	21
				4	8.8	12.3	106	6.5	21
				5	8.8	12.2	106	6.5	21
				6	8.8	12.3	106	6.5	21
				7	8.8	12.3	106	6.5	21
				8	8.7	12.3	105	6.5	21
				9	8.7	12.3	105	6.5	21
				10	8.7	12.3	105	6.5	21
				11	8.6	12.2	105	6.5	21
				12	8.5	12.2	104	6.5	21
	19-Sep-09	-	6.5	<0.3	10.5	11.2	101	6.3	20
				1	10.4	11.3	101	6.3	20
				2	10.4	11.2	101	6.4	20
				3	10.4	11.3	101	6.3	20
				4	10.4	11.3	101	6.4	20
				5	10.4	11.2	101	6.4	20
				6	10.4	11.3	101	6.4	20
				7	10.4	11.3	101	6.4	20
				8	10.4	11.2	101	6.5	20
				9	10.4	11.2	101	6.5	20
				10	10.4	11.3	101	6.5	20
				11	10.3	11.2	100	6.5	20
				12	10.3	11.3	100	6.5	20
NEL05	11-Feb-09	1.1	-	1.1	1.2	18.8	133	7.1	29
				2	0.7	18.6	129	7	24
				3	0.8	17	118	7	22
				4	0.9	16	111	7	22
				5	0.9	15.4	108	7	22
				6	1	15	105	6.9	21
				7	1	14.7	103	6.9	22
				8	1.1	14.5	102	6.9	22
				9	1.1	14.3	100	6.8	22
				10	1.1	14.1	100	6.8	22
				11	1.1	14	99	6.8	22
	1-May-09	1.5	-	1.5	0.5	15.4	108	6.6	27
				1.5	0.5	15	104	6.6	27
				2	0.7	17.8	124	6.7	27
				3	0.9	17.2	120	6.7	24
				4	1.1	15.2	107	6.6	23
				5	1.1	14.5	102	6.6	23
				5.9	1.2	14.2	100	6.6	23
				7	1.3	13.7	97	6.7	23
				8	1.3	13.5	96	6.6	23
				9.1	1.4	13.2	94	6.6	23
				10	1.4	13	92	6.5	23
				11	1.6[(b)]	8.5[(b)]	60[(b)]	6.5[(b)]	41[(b)]
	14-Jul-09	-	5.8	1	8.4	12.2	105	6.3	21
				2	8.4	12.4	106	6.3	21
				3	8.4	12.4	106	6.4	21
				4	8.4	12.4	106	6.4	21
				5	8.4	12.4	106	6.4	21
				6	8.4	12.4	106	6.4	21
				7	8.4	12.4	106	6.4	21
				8	8.4	12.4	106	6.4	21
				9	8.4	12.4	106	6.4	21
				10	8.4	12.4	106	6.4	21
	18-Sep-09	-	6	<0.3	10.6	11	99	6.4	20
				1	10.6	11	99	6.4	20
				2	10.6	11	99	6.4	20
				3	10.6	11	99	6.4	20
				4	10.6	11	99	6.4	20
				5	10.6	11	99	6.5	20
				6	10.6	11	99	6.5	20
				7	10.5	11	99	6.5	20
				8	10.5	11	99	6.5	20
				9	10.5	11	99	6.5	20
				10	10.5	11	98	6.5	20

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNP02-20d	24-Jan-10	0.87	-	1	0.9	16.0	113	6.8	335
				2	1.6	15.5	111	6.6	317
				3	1.6	15.2	109	6.5	353
				4	1.6	15.0	107	6.5	360
				5	1.5	14.9	107	6.5	361
				6	1.5	14.9	106	6.5	363
				7	1.5	14.8	106	6.5	365
				8	1.5	14.8	106	6.5	366
				9	1.5	14.8	106	6.5	368
				10	1.5	14.7	105	6.5	367
				11	1.9	14.3	104	6.5	356
	21-Feb-10	0.75	-	1	1.6	15.1	108	7.0	325
				2	2.0	13.7	100	7.0	330
				3	1.9	13.5	97	6.9	359
				4	1.8	13.4	97	6.9	358
				5	1.7	13.4	96	6.9	360
				6	1.7	13.1	94	6.9	363
				7	1.7	13.1	94	6.9	364
				8	1.6	13.1	94	6.9	365
				9	1.7	13.1	94	6.9	367
				10	1.7	13.1	94	6.9	367
				11	1.7	13.1	94	6.8	367
				12	2.4	6.7	43	6.8	329
	17-Mar-10	0.97	-	1	0.8	13.2	93	6.7	313
				2	1.6	13.0	93	6.6	345
				3	1.7	13.0	93	6.6	361
				4	1.7	13.0	93	6.6	363
				5	1.7	13.0	93	6.6	363
				6	1.7	13.0	93	6.6	366
				7	1.7	12.9	93	6.6	367
				8	1.7	12.9	93	6.6	369
				9	1.7	12.9	93	6.6	371
				10	1.7	12.9	93	6.6	374
				11	1.9	12.8	92	6.6	366
	11-Apr-10	1.09	-	1.5	0.6	13.2	92	6.6	293
				2	1.4	12.6	90	6.6	282
				3	1.7	12.5	90	6.5	316
				4	1.7	12.7	91	6.5	336
				5	1.7	12.6	91	6.6	344
				6	1.7	12.6	90	6.6	344
				7	1.7	12.6	90	6.6	345
				8	1.7	12.5	90	6.6	346
				9	1.7	12.5	90	6.6	348
				10	1.8	12.5	90	6.6	348
				11	2.2	11.8	87	6.6	339
	4-May-10	1.07	-	1	2.4	12.3	90	7.1	251
				2	1.8	12.5	90	6.9	360
				3	2.0	12.4	90	6.9	378
				4	2.0	12.4	90	6.9	380
				5	2.0	12.4	90	6.8	381
				6	2.0	12.4	90	6.8	382
				7	2.0	12.4	90	6.8	382
				8	2.0	12.3	89	6.8	381
				9	2.0	12.2	89	6.8	380
				10	2.2	12.1	88	6.8	376
				11	2.3	11.9	87	6.8	375
	16-Jul-10	-	6.2	0.2	16.7	10.6	109	7.2	284
				1	16.7	10.4	107	7.2	284
				2	16.7	10.3	106	7.2	284
				3	16.6	10.3	106	7.2	284
				4	16.5	10.3	105	7.2	284
				5	15.9	10.3	104	7.2	293
				6	14.8	10.4	103	7.2	297
				7	14.4	10.4	102	7.2	295
				8	14.1	10.4	101	7.2	296
				9	13.8	10.3	100	7.1	292
				10	13.5	10.2	98	7.1	290
				11	13.3	10.2	97	7.0	291
				12	13.1	10.1	96	6.9	293

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	11-Aug-10	-	6	0.2	17.5	9.1	95	6.3	296
				1	17.5	9.3	97	6.3	296
				2	17.5	9.1	95	6.4	296
				3	17.3	9.1	95	6.4	297
				4	17.2	9.1	94	6.4	299
				5	17.2	9.1	94	6.4	299
				6	17.2	9.1	94	6.5	299
				7	17.1	9.1	94	6.5	299
				8	17.0	9.1	94	6.5	305
				9	17.0	9.1	94	6.5	306
				10	16.9	9.1	94	6.5	307
				11	16.9	10.1	94	6.5	305
				12	16.8	9.0	93	6.4	307
	8-Sep-10	-	6	0.2	12.3	10.5	98	6.9	303
				1	12.3	10.4	97	6.9	303
				2	12.3	10.4	97	6.9	302
				3	12.3	10.4	97	6.9	303
				4	12.3	10.4	97	7.0	302
				5	12.3	10.4	97	7.0	303
				6	12.3	10.4	97	7.0	303
				7	12.3	10.4	97	7.0	303
				8	12.3	10.4	97	7.0	304
				9	12.3	10.4	97	7.0	304
				10	12.3	10.4	97	7.0	305
				11	12.3	10.4	97	7.0	304
				12[(b)]	12.3[(b)]	6.3[(b)]	61[(b)]	6.9[(b)]	303[(b)]
SNP02-20e	23-Jan-10	1.11	-	1	0.9	15.2	107	6.8	331
				2	1.5	14.8	106	6.7	342
				3	1.4	14.7	105	6.6	361
				4	1.4	14.7	105	6.5	363
				5	1.4	14.7	105	6.5	363
				6	1.4	14.7	105	6.5	364
				7	1.4	14.7	105	6.5	365
				8	1.4	14.7	105	6.5	366
				9	1.5	14.7	110	6.5	365
				10	1.5	14.6	104	6.5	361
				11	1.5	14.6	104	6.5	367
				12	1.5	14.6	104	6.5	367
				13	1.5	14.6	104	6.5	367
				14	1.5	14.6	104	6.5	368
				15	1.5	14.6	104	6.5	368
				16	1.5	14.6	104	6.5	367
				17	1.5	14.6	104	6.5	367
				18	1.5	14.5	104	6.5	367
				19	1.5	14.5	104	6.5	367
				20	1.5	14.5	104	6.5	366
				21	1.6	14.4	103	6.5	362
				22	1.8	13.9	100	6.5	354
				23	2.0	13.4	97	6.5	346
				24	2.3	12.5	92	6.5	338
				25	2.4	11.8	86	6.4	335
				26	2.5	10.9	81	6.4	333
				27	2.6	9.6	71	6.4	333
				28	2.6	8.2	60	6.4	334

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	17-Feb-10	1.22	-	2	2.2	12.7	92	7.0	328
				3	2.0	13.0	94	7.0	346
				4	1.8	13.1	94	6.9	351
				5	1.7	13.1	94	6.9	354
				6	1.6	13.1	94	6.9	359
				7	1.6	13.1	94	6.9	360
				8	1.6	13.1	94	6.9	360
				9	1.6	13.1	94	6.9	360
				10	1.6	13.1	94	6.9	360
				11	1.6	13.1	94	6.9	360
				12	1.6	13.0	93	6.9	359
				13	1.6	13.0	93	6.9	357
				14	1.7	13.0	93	6.9	357
				15	1.6	13.0	93	6.9	357
				16	1.6	13.0	93	6.8	358
				17	1.6	13.0	93	6.8	358
				18	1.6	13.0	93	6.8	359
				19	1.6	12.7	93	6.8	359
				20	1.6	12.9	93	6.8	359
				21	1.7	12.8	92	6.8	356
				22	1.8	12.3	89	6.8	351
				23	1.9	11.8	86	6.8	347
				24	2.1	11.2	82	6.8	342
				25	2.3	10.5	77	6.8	336
				26	2.5	9.6	71	6.7	333
				27	2.6	8.3	61	6.7	332
				28	2.7	6.4	47	6.6	326
	16-Mar-10	1.21	-	0.1	0.8	12.9	91	6.2	330
				1	0.3	13.5	93	6.1	318
				2	1.5	13.0	93	6.1	350
				3	1.6	13.1	93	6.2	355
				4	1.6	13.2	94	6.2	363
				5	1.6	13.2	94	6.2	365
				6	1.6	13.2	94	6.2	366
				7	1.6	13.2	94	6.3	367
				8	1.6	13.2	94	6.3	369
				9	1.6	13.2	94	6.3	369
				10	1.6	13.2	94	6.3	369
				11	1.6	13.2	94	6.3	370
				12	1.6	13.2	94	6.4	370
				13	1.7	13.2	94	6.4	371
				14	1.7	13.1	94	6.4	371
				15	1.7	13.1	94	6.4	371
				16	1.7	13.1	94	6.4	371
				17	1.7	13.1	94	6.4	371
				18	1.7	13.1	94	6.4	370
				19	1.7	13.0	93	6.4	370
				20	1.7	12.9	93	6.5	369
				21	1.8	12.8	92	6.5	368
				22	1.8	12.7	91	6.5	367
				23	1.8	12.6	91	6.5	367
				24	1.8	12.5	90	6.5	366
				25	2.0	12.2	89	6.5	362
				26	2.1	11.8	86	6.5	359
				27	2.3	10.6	78	6.5	353
				28	2.4	9.7	71	6.4	344

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	6-Apr-10	1.29	-	1.5[d]	3.3[d]	12.4[d]	93[d]	6.2[d]	346[d]
				2	1.8	12.9	93	6.2	343
				3	1.7	12.9	92	6.2	345
				4	1.7	12.9	92	6.2	346
				5	1.7	12.9	92	6.3	348
				6	1.7	12.8	92	6.3	350
				7	1.7	12.8	92	6.3	350
				8	1.7	12.8	92	6.3	352
				9	1.7	12.8	92	6.4	352
				10	1.8	12.8	92	6.4	353
				11	1.8	12.7	91	6.4	354
				12	1.7	12.7	91	6.4	353
				13	1.8	12.7	91	6.4	352
				14	1.8	12.6	91	6.4	351
				15	1.8	12.5	90	6.4	351
				16	1.8	12.5	90	6.4	351
				17	1.8	12.4	89	6.4	350
				18	1.8	12.4	89	6.4	350
				19	1.8	12.3	89	6.4	349
				20	1.9	12.1	88	6.5	348
				21	1.9	12.1	87	6.5	348
				22	1.9	12.0	86	6.4	347
				23	1.9	11.8	85	6.5	347
				24	1.9	11.7	85	6.5	346
				25	2.0	11.4	83	6.5	345
				26	2.0	11.0	79	6.5	344
				27	2.1	10.6	77	6.5	342
				28	2.2	6.7[b]	46[b]	6.4	329[b]
	5-May-10	1.28	-	2	2.9	12.0	89	7.0	385
				3	2.3	12.3	90	7.0	378
				4	2.1	12.4	90	7.0	380
				5	2.2	12.4	90	7.0	387
				6	2.0	12.5	90	7.0	380
				7	2.0	12.5	91	7.0	380
				8	2.0	12.5	91	6.9	384
				9	1.9	12.5	90	6.9	385
				10	1.9	12.5	90	6.9	384
				11	1.9	12.6	91	6.9	385
				12	1.9	12.6	91	6.9	384
				13	2.0	12.6	91	6.9	384
				14	2.0	12.6	91	6.9	385
				15	2.0	12.5	91	6.9	385
				16	2.0	12.5	91	6.9	386
				17	1.9	12.6	91	6.9	387
				18	1.9	12.6	91	6.9	388
				19	1.9	12.6	91	6.9	387
				20	1.9	12.6	91	6.9	388
				21	1.9	12.6	91	6.9	387
				22	1.9	12.6	91	6.9	388
				23	1.9	12.6	91	6.9	389
				24	1.9	12.7	91	6.9	389
				25	1.9	12.7	92	6.9	389
				26	1.9	12.7	92	6.8	389
				27	1.9	12.7	92	6.8	389

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	14-Jul-10	-	6	0.1	17.0	10.0	130[e]	6.4	283
				1	16.9	9.8	101	6.5	283
				2	15.9	9.8	99	6.5	287
				3	15.7	9.8	98	6.5	292
				4	15.3	9.7	97	6.5	287
				5	14.7	9.8	96	6.5	304
				6	14.1	9.8	95	6.3	295
				7	13.8	9.7	94	6.4	288
				8	13.6	9.7	93	6.4	290
				9	13.4	9.7	93	6.4	289
				10	13.3	9.6	92	6.5	290
				11	13.2	9.6	91	6.5	292
				12	13.0	9.5	91	6.5	293
				13	12.9	9.5	90	6.5	295
				14	12.8	9.5	90	6.5	292
				15	12.7	9.5	89	6.5	291
				16	12.5	9.4	89	6.5	290
				17	12.4	9.4	88	6.5	291
				18	12.2	9.4	88	6.5	293
				19	12.0	9.3	87	6.5	293
				20	11.6	9.2	85	6.5	291
				21	9.2	9.1	79	6.5	291
				22	7.6	9.1	76	6.4	296
				23[f]	6.4[f]	9.2[f]	74[f]	6.4[f]	300[f]
				24[f]	6.0[f]	10.1[f]	81[f]	6.3[f]	302[f]
				25[f]	5.8[f]	9.5[f]	76[f]	6.3[f]	303[f]
				26[f]	6.0[f]	5.6[f]	46[f]	6.3[f]	306[f]
	15-Aug-10	-	6.5	0.5	16.5	9.3	96	5.5	286
				1	16.5	9.4	96	5.7	286
				2	16.5	9.4	96	5.8	286
				3	16.5	9.3	96	5.8	286
				4	16.5	9.3	96	5.9	286
				5	16.5	9.3	95	5.9	286
				6	16.5	9.3	95	6.0	286
				7	16.5	9.3	95	6.0	286
				8	16.5	9.3	95	6.1	286
				9	16.5	9.3	95	6.1	286
				10	16.5	9.3	95	6.1	286
				11	16.5	9.3	95	6.1	287
				12	16.5	9.2	94	6.2	287
				13	16.5	9.2	95	6.2	288
				14	16.4	9.2	94	6.2	287
				15	16.4	9.2	94	6.2	286
				16	16.4	9.2	94	6.2	286
				17	16.3	9.3	94	6.3	286
				18	16.2	9.2	93	6.3	286
				19	14.1	8.0	77	6.2	282
				20	10.4	7.7	69	6.2	289
				21	9.1	6.9	60	5.9	288
				22	8.3	6.8	58	5.8	290
				23	7.8	6.6	56	5.8	291
				24	7.2	6.6	52	5.7	292
				25	6.6	6.2	51	5.7	293
				26	6.4	5.7	46	5.6	294

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	7-Sep-10	-	6	0.5	12.7	10.3	97	5.7	302
				1	12.7	10.3	97	5.8	302
				2	12.7	10.3	97	5.9	302
				3	12.7	10.3	97	5.9	302
				4	12.7	10.2	97	6.0	302
				5	12.7	10.2	97	6.0	302
				6	12.7	10.2	96	6.0	302
				7	12.7	10.2	96	6.1	302
				8	12.7	10.2	96	6.1	302
				9	12.7	10.2	96	6.1	302
				10	12.7	10.2	96	6.1	302
				11	12.6	10.2	96	6.2	302
				12	12.6	10.2	96	6.2	302
				13	12.6	10.2	96	6.2	302
				14	12.6	10.2	96	6.2	302
				15	12.6	10.2	96	6.3	302
				16	12.6	10.2	96	6.3	302
				17	12.6	10.2	96	6.3	302
				18	12.6	10.2	96	6.3	302
				19	12.6	10.2	96	6.3	302
				20	12.6	10.2	96	6.4	302
				21	12.6	10.2	96	6.4	302
				22	12.6	10.2	96	6.4	302
				23	12.6	10.2	96	6.4	302
				24	12.6	10.2	96	6.5	302
				25	12.1[(b)]	3.5[(b)]	36[(b)]	6.2[(b)]	306[(b)]
SNP02-20f	24-Jan-10	0.89	-	1	0.6	17.5	122	6.6	303
				2	1.4	16.6	118	6.5	321
				3	1.5	16.2	115	6.4	351
				4	1.5	15.9	114	6.4	356
				5	1.5	15.8	113	6.4	361
				6	1.5	15.7	112	6.4	365
				7	1.5	15.4	110	6.4	367
				8	1.5	15.2	108	6.4	371
				9	1.5	15.1	107	6.4	370
				10	1.5	14.9	107	6.4	372
				11	1.5	14.9	106	6.4	374
				12	1.5	14.8	106	6.4	374
				13	1.5	14.7	106	6.4	372
				14	2.0	14.4	103	6.4	355
	16-Feb-10	1.07	-	1	1.2	13.1	93	6.7	302
				2	1.6	13.0	93	6.7	330
				3	1.6	13.0	93	6.7	349
				4	1.6	13.0	93	6.7	352
				5	1.6	12.9	93	6.7	355
				6	1.7	12.9	93	6.6	357
				7	1.7	12.9	93	6.7	357
				8	1.7	12.9	93	6.7	358
				9	1.7	12.8	92	6.7	359
				10	1.8	12.8	92	6.6	360
				11	1.9	12.8	92	6.6	361
				12	2.1	12.7	92	6.7	364
				13	2.1	12.4	90	6.7	362
				14	2.6	11.9	87	6.7	346
	17-Mar-10	1.13	-	1.5	1.9	12.8	93	6.5	313
				2	1.7	12.8	92	6.5	346
				3	1.9	12.9	93	6.5	373
				4	1.8	12.9	93	6.5	373
				5	1.6	13.0	93	6.6	370
				6	1.7	12.9	93	6.6	376
				7	1.6	13.0	93	6.6	374
				8	1.6	13.0	93	6.6	375
				9	1.6	13.0	93	6.6	375
				10	1.6	13.0	93	6.6	376
				11	1.6	13.0	94	6.6	373
				12	1.7	12.9	96	6.6	370
				13	1.8	12.9	93	6.6	370
				14	2.1	12.3	90	6.6	360

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	7-Apr-10	1.21	-	1.5	1.5	12.5	89	6.8	284
				2	1.8	12.1	87	6.8	285
				3	1.7	12.5	90	6.7	340
				4	1.6	12.6	90	6.7	342
				5	1.6	12.6	90	6.7	345
				6	1.6	12.6	90	6.7	347
				7	1.6	12.6	90	6.7	349
				8	1.7	12.6	90	6.7	349
				9	1.7	12.6	90	6.7	350
				10	1.7	12.5	90	6.7	350
				11	1.7	12.5	90	6.7	350
				12	1.7	12.5	90	6.7	350
				13	1.8	12.4	89	6.7	348
				14	1.9	12.2	88	6.7	346
	11-Apr-10	1.21	-	1.5	1.1	12.8	90	6.7	287
				2	1.6	12.3	88	6.7	286
				3	1.6	12.4	89	6.7	336
				4	1.7	12.5	90	6.7	340
				5	1.7	12.5	90	6.7	342
				6	1.7	12.4	89	6.7	343
				7	1.8	12.4	89	6.7	344
				8	1.8	12.4	89	6.6	345
				9	1.8	12.4	89	6.7	345
				10	1.8	12.3	89	6.7	344
				11	1.8	12.3	89	6.7	344
				12	1.9	12.3	89	6.7	344
				13	1.9	12.2	88	6.7	344
				14	2.0	12.1	88	6.7	343
	4-May-10	1.17	-	1	0.5	13.1	91	6.8	249
				2	1.6	12.8	91	6.7	371
				3	1.8	12.7	91	6.7	375
				4	1.8	12.7	91	6.7	376
				5	1.8	12.7	91	6.7	377
				6	1.8	12.7	91	6.7	378
				7	1.9	12.6	91	6.7	378
				8	1.9	12.6	91	6.7	379
				9	1.9	12.6	91	6.7	381
				10	2.0	12.5	90	6.7	379
				11	2.0	12.5	90	6.7	377
				12	2.0	12.4	90	6.7	377
				13	2.1	12.4	90	6.7	377
				14	2.1	12.3	89	6.7	376
	14-Jul-10	-	6	0.2	16.9	10.7	111	7.1	284
				1	16.6	10.5	108	7.0	284
				2	16.2	10.2	104	7.0	283
				3	15.5	10.1	101	7.0	282
				4	15.5	10.0	100	7.0	283
				5	15.2	9.9	99	6.9	284
				6	14.8	9.9	98	6.9	299
				7	13.9	9.8	95	6.8	288
				8	13.6	9.8	94	6.9	287
				9	13.5	9.7	93	6.9	288
				10	13.3	9.6	92	6.9	290
				11	13.2	9.6	92	6.9	294
				12	13.1	9.6	91	6.9	294
				13	12.9	9.5	90	6.9	295
				14	12.8	8.3	79	6.8	295

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	12-Aug-10	-	-	0.5	17.6	9.3	97	7.0	292
				1	17.6	9.3	97	7.0	293
				2	17.5	9.3	97	7.0	293
				3	17.4	9.3	97	7.1	296
				4	17.4	9.3	97	7.1	297
				5	17.4	9.3	97	7.1	297
				5	17.4	9.3	97	7.0	298
				6	17.3	9.3	97	6.9	298
				7	17.2	9.3	97	7.0	301
				8	17.1	9.3	97	7.0	308
				9	17.1	9.3	96	7.0	311
				10	17.0	9.3	96	7.0	309
				11	16.9	9.3	96	7.0	306
				12	16.9	9.2	95	7.0	307
				13	16.8	9.2	94	7.0	308
				14	16.6	8.1	83	6.9	310
	8-Sep-10	-	6	0.1	12.3	10.4	97	6.7	303
				1	12.4	10.4	97	6.6	303
				2	12.4	10.4	97	6.6	302
				3	12.3	10.4	97	6.6	302
				4	12.3	10.4	97	6.6	302
				5	12.3	10.3	97	6.6	302
				6	12.3	10.3	97	6.6	302
				7	12.3	10.3	97	6.7	302
				8	12.3	10.3	97	6.7	302
				9	12.3	10.3	97	6.7	302
				10	12.3	10.3	97	6.7	302
				11	12.3	10.3	97	6.8	302
				12	12.3	10.3	96	6.8	302
				12.7	12.4[b]	0.6[b]	6[b]	6.4[b]	290[b]
SNAP03	10-Jan-10	0.87	-	1	0.3	15.6	106	6.5	323
				2	1.1	15.2	107	6.4	316
				3	1.4	14.6	104	6.4	319
				4	1.4	14.3	102	6.4	344
				5	1.4	14.3	102	6.3	356
				6	1.5	14.2	102	6.3	356
				7	1.5	14.2	101	6.3	355
				8	1.6	14.0	100	6.3	350
				9	2.1	13.6	99	6.3	339
				10	2.6	12.8	95	6.3	330
				11	2.9	12.3	91	6.3	328
				12	3.1	11.4	85	6.3	326
	18-Feb-10	0.98	-	1	0.5	14.6	101	6.3	338
				2	1.2	14.0	99	6.4	321
				3	1.6	13.7	98	6.4	320
				4	1.6	13.3	95	6.4	338
				5	1.6	13.1	94	6.4	352
				6	1.7	12.9	93	6.5	352
				7	1.7	12.8	92	6.5	349
				8	1.9	12.6	90	6.5	347
				9	2.1	12.1	88	6.5	341
				10	2.5	11.8	87	6.5	337
				11	2.8	11.4	84	6.5	333
				12	3.1	10.9	81	6.5	331
				13	3.2	3.6	25	6.4	330
	17-Mar-10	1.07	-	1.5	2.0	14.6	106	6.0	311
				2	1.7	14.5	105	5.9	305
				3	1.7	14.5	104	5.9	342
				4	1.7	14.4	104	5.8	366
				5	1.7	14.3	103	5.9	370
				6	1.7	14.3	103	5.9	372
				7	1.7	14.3	102	5.9	373
				8	1.8	14.2	102	5.9	369
				9	2.1	13.8	100	5.9	363
				10	2.4	13.4	98	5.9	359
				11	2.7	13.0	96	5.9	356
				12	2.9	12.6	94	5.9	354

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	8-Apr-10	1.14	-	1.5	1.4	12.9	92	6.7	298
				2	1.7	12.7	91	6.7	291
				3	2.0	12.5	90	6.7	294
				4	1.8	12.5	90	6.7	339
				5	1.8	12.6	91	6.7	346
				6	1.8	12.6	91	6.7	348
				7	1.8	12.6	91	6.7	347
				8	1.9	12.4	90	6.7	346
				9	2.1	12.1	88	6.7	341
				10	2.3	11.8	86	6.7	338
				11	2.6	11.5	84	6.7	335
				12	2.9	11.1	82	6.7	333
	3-May-10	1.12	-	1	0.7	11.8	83	6.2	308
				2	1.8	11.9	86	6.2	335
				3	1.9	12.2	88	6.2	373
				4	1.9	12.3	88	6.2	376
				5	1.8	12.3	89	6.2	379
				6	1.8	12.3	89	6.3	381
				7	1.9	12.3	88	6.3	381
				8	1.9	12.2	88	6.3	380
				9	2.1	12.0	87	6.3	374
				10	2.4	11.8	86	6.3	369
				11	2.6	11.3	83	6.3	365
				12	2.9	10.6	78	6.3	363
	17-Jul-10	-	5	0.2	17.2	10.1	105	6.2	280
				1	17.2	10.1	105	6.3	280
				2	17.2	10.1	104	6.3	280
				3	17.1	10.1	104	6.3	280
				4	17.1	10.1	104	6.3	280
				5	16.9	10.1	104	6.4	281
				6	14.9	10.6	105	6.4	290
				7	14.2	10.9	106	6.5	286
				8	14.0	10.9	106	6.5	287
				9	13.7	11.0	106	6.4	286
				10	13.5	10.9	105	6.3	284
				11	13.4	10.9	104	6.2	284
				12	13.2	10.9	104	6.2	284
				13	12.7[b]	2.8[b]	28[b]	6.0[b]	291[b]
	13-Aug-10	-	-	0.5	16.5	10.1	104	6.7	300
				1	17.0	9.4	97	6.8	298
				2	17.0	9.4	97	6.8	297
				3	17.1	9.4	97	6.8	297
				4	17.1	9.4	97	6.9	297
				5	17.1	9.3	97	6.9	297
				6	17.1	9.3	97	6.9	297
				6	17.1	9.3	97	6.9	297
				8	17.1	9.3	97	6.9	297
				9	17.1	9.3	97	7.0	297
				10	17.1	9.3	97	7.0	297
				11	17.1	9.3	97	7.0	298
				12	17.0	8.8	91	7.0	298
	11-Sep-10	-	6	0.5	12.3	10.5	98	5.8	303
				1	12.2	10.5	98	5.8	303
				2	12.2	10.5	98	5.7	303
				3	12.2	10.5	98	5.7	303
				4	12.2	10.5	98	5.6	303
				5	12.2	10.5	97	5.7	303
				6	12.2	10.4	97	5.8	303
				7	12.2	10.4	97	5.8	303
				8	12.2	10.4	97	5.8	303
				9	12.2	10.4	97	5.9	303
				10	12.1	10.4	97	5.9	303
				11	12.1	10.4	97	6.0	303
				12	12.1	10.4	97	6.0	303

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP05	20-Jan-10	0.9	-	1	0.3	15.7	109	6.6	323
				2	1.2	15.7	111	6.6	310
				3	1.5	14.5	104	6.5	309
				4	1.6	13.7	100	6.5	311
				5	1.6	13.7	98	6.5	330
				6	1.7	13.6	98	6.5	335
				7	1.8	13.5	97	6.4	337
				8	1.9	13.3	96	6.4	335
				9	2.3	12.8	94	6.4	332
				10	2.7	12.3	91	6.4	326
				11	3.0	11.9	89	6.4	324
				12	3.1	11.7	87	6.3	324
				13	3.2	11.3	85	6.3	325
	20-Feb-10	1.06	-	2	2.3	13.1	95	6.8	298
				3	2.0	12.9	94	6.8	320
				4	1.8	13.0	94	6.8	348
				5	1.8	13.0	93	6.8	358
				6	1.7	13.0	93	6.8	359
				7	1.8	12.8	92	6.8	356
				8	2.0	12.5	91	6.8	348
				9	2.4	11.7	86	6.8	342
				10	2.8	11.5	85	6.8	336
				11	3.1	11.1	83	6.8	334
				12	3.2	10.8	81	6.8	333
				13	3.3	10.5	78	6.8	333
				14	3.4	9.4	71	6.8	335
	17-Mar-10	1.06	-	1.5	1.2	14.2	100	6.1	299
				2	1.6	14.0	100	6.1	295
				3	1.8	13.9	100	6.0	299
				4	1.6	13.6	97	6.0	361
				5	1.6	14.0	99	6.0	370
				6	1.6	14.0	100	6.0	368
				7	1.7	13.8	99	6.0	366
				8	1.9	13.5	98	6.0	361
				9	2.3	13.2	96	6.0	355
				10	2.7	12.7	94	6.0	350
				11	2.9	12.3	91	6.0	348
				12	3.1	11.7	88	6.0	346
				13	3.1	11.3	84	6.0	346
	8-Apr-10	1.15	-	1.5	1.2	12.4	88	6.8	287
				2	1.9	12.1	88	6.8	280
				3	2.1	11.1	80	6.8	287
				4	1.7	12.4	89	6.7	342
				5	1.7	12.5	90	6.7	348
				6	1.7	12.7	91	6.7	348
				7	1.7	12.6	90	6.7	349
				8	1.9	12.4	90	6.7	342
				9	2.3	11.9	87	6.7	335
				10	2.8	11.0	82	6.7	330
				11	3.1	10.3	77	6.7	326
				12	3.2	10.1	76	6.7	325
				13	3.4	9.9	74	6.6	325
				14	3.5	9.1	69	6.6	325
	6-May-10	1.2	-	2	2.9	14.9	112	5.9	294
				3	2.6	13.4	99	5.8	325
				4	2.4	13.2	96	5.8	362
				5	2.2	13.6	99	5.8	363
				6	2.2	13.6	99	5.8	363
				7	2.3	13.5	98	5.8	362
				8	2.4	13.4	98	5.8	359
				9	2.5	13.2	97	5.8	358
				10	2.8	12.4	92	5.8	355
				11	3.1	11.8	88	5.8	353
				12	3.3	11.0	83	5.8	352
				13	3.4	10.6	80	5.8	351

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	17-Jul-10	-	5.5	0.2	17.1	9.8	103	6.4	282
				1	17.0	10.1	105	6.5	282
				2	17.0	10.1	105	6.5	282
				3	17.0	10.1	105	6.5	282
				4	16.9	10.1	104	6.5	282
				5	15.9	10.4	106	6.6	289
				6	15.3	10.6	106	6.6	297
				7	14.8	10.7	106	6.6	298
				8	14.0	10.8	105	6.6	288
				9	13.8	10.8	105	6.7	288
				10	13.7	10.8	104	6.7	287
				11	13.5	10.8	104	6.7	286
				12	13.3	10.8	103	6.7	286
				13	13.2	10.6	101	6.7	287
				14	12.9[b]	6.0[b]	5.5[b]	6.4[b]	291[b]
	11-Sep-10	-	6	0.5[d]	11.9[d]	11.8[d]	110[d]	8.3[d]	300[d]
				1	12.0	10.7	99	8.0[g]	300
				2	12.0	10.7	99	7.9[g]	300
				3	12.0	10.7	100	7.9[g]	300
				4	12.0	10.8	100	7.9[g]	300
				5	12.0	10.8	100	7.9[g]	300
				6	12.0	10.9	101	7.8[g]	300
				7	12.0	11.0	102	7.8[g]	300
				8	12.0	11.0	102	7.8[g]	300
				9	12.0	11.0	102	7.8[g]	300
				10	12.0	11.0	102	7.8[g]	300
				11	12.0	11.0	102	7.8[g]	299
				12	12.0	11.1	103	7.5[g]	300
				13	12.0	11.1	103	7.6[g]	300
				14	12.0	11.1	103	7.5[g]	299
SNAP06	22-Jan-10	0.91	-	1	0.7	15.5	108	6.3	317
				2	2.2	13.8	101	6.3	309
				3	2.0	13.6	99	6.3	293
				4	1.9	13.4	98	6.2	310
				5	1.8	13.3	96	6.2	323
				6	1.7	13.5	97	6.3	337
				7	1.9	13.3	96	6.3	331
				8	2.3	12.6	72	6.3	321
				9	2.7	12.0	89	6.3	312
				10	2.9	11.3	84	6.3	309
				11	3.1	10.9	81	6.3	307
				12	3.2	10.3	77	6.3	306
	19-Feb-10	1.15	-	2	2.5	12.5	91	6.3	300
				3	2.3	11.8	86	6.4	290
				4	2.1	12.0	87	6.4	295
				5	1.9	12.6	91	6.4	340
				6	1.8	12.7	92	6.4	353
				7	1.9	12.6	91	6.5	347
				8	2.3	11.9	87	6.5	335
				9	2.6	11.4	84	6.5	330
				10	2.9	11.0	82	6.5	325
				11	3.0	10.5	78	6.5	323
				12	3.2	10.2	76	6.5	321
	16-Mar-10	1.14	-	1.5	0.9	16.3	115	6.0	301
				2	1.5	15.8	113	5.9	295
				3	1.9	14.9	108	5.8	293
				4	1.9	14.2	103	5.7	302
				5	1.7	14.6	104	5.7	355
				6	1.6	15.3	109	5.7	361
				7	1.8	15.2	110	5.7	357
				8	2.0	14.9	108	5.8	350
				9	2.4	14.3	105	5.8	344
				10	2.7	13.7	101	5.8	341
				11	2.9	13.3	99	5.8	340
				12	3.0	12.8	95	5.8	338

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	9-Apr-10	1.24	-	1.5	1.7	12.4	89	6.6	282
				2	1.8	12.3	88	6.6	279
				3	1.9	11.3	81	6.5	297
				4	1.7	12.3	88	6.5	339
				5	1.8	12.5	90	6.5	339
				6	1.8	12.4	89	6.6	339
				7	1.9	12.1	88	6.6	335
				8	2.2	11.7	85	6.6	329
				9	2.5	11.2	83	6.6	323
				10	2.9	10.5	78	6.5	320
				11	3.0	10.1	76	6.5	319
				12	3.2	9.8	72	6.5	318
	6-May-10	1.22	-	2	2.4	12.2	89	6.6	301
				3	2.5	11.7	86	6.6	330
				4	2.4	11.6	85	6.6	334
				5	2.7	11.7	86	6.6	326
				6	2.4	12.2	89	6.6	354
				7	2.5	12.4	91	6.6	356
				8	2.6	12.4	91	6.6	354
				9	2.7	12.5	92	6.6	352
				10	3.0	11.5	86	6.6	350
				11	3.2	11.0	82	6.6	350
				12	3.3	10.2	77	6.6	348
	17-Jul-10	-	5.5	0.2	17.0	10.0	104	6.6	278
				1	17.0	10.1	104	6.7	278
				2	16.9	10.1	104	6.7	278
				3	16.9	10.1	104	6.7	278
				4	16.7	10.1	104	6.7	278
				5	15.2	10.2	104	6.8	288
				6	14.7	10.7	106	6.7	288
				7	14.3	10.8	105	6.8	286
				8	14.0	10.8	105	6.8	283
				9	13.7	10.8	105	6.8	283
				10	13.5	10.8	104	6.8	283
				11	13.2	10.7	103	6.8	283
				12	13.1	10.7	101	6.8	282
	14-Aug-10	-	-	0.5	17.2	9.4	97	7.6	290
				1	16.9	9.4	97	7.6	290
				1	16.9	9.4	97	7.5	292
				2	16.8	9.4	96	7.5	290
				3	16.7	9.3	96	7.5	290
				3	16.7	9.3	96	7.5	290
				4	16.6	9.3	95	7.5	290
				5	16.5	9.3	95	7.4	290
				6	16.5	9.3	95	7.3	290
				7	16.4	9.3	95	7.2	289
				8	16.4	9.3	95	7.2	289
				9	16.3	9.3	95	7.2	289
				10	16.3	9.3	95	7.2	289
				10	16.3	9.3	94	7.2	290
				11	16.2	9.3	95	7.2	290
				12	16.2	9.3	95	7.2	291
				12	16.2	9.3	95	7.2	291
				13.1	16.1	9.3	95	7.2	291
	9-Sep-10	-	7	0.5	12.2	10.4	97	7.0	297
				1	12.2	10.4	97	7.0	297
				2	12.2	10.3	96	7.0	297
				3	12.2	10.3	96	7.0	297
				4	12.2	10.3	96	7.0	297
				5	12.2	10.3	96	7.1	297
				6	12.2	10.3	96	7.1	297
				7	12.2	10.3	96	7.1	297
				8	12.2	10.3	96	7.1	297
				9	12.2	10.3	96	7.1	297
				10	12.2	10.3	96	7.1	297
				11	12.2	10.3	96	7.1	297
				12	12.2	10.3	96	7.1	297

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP12	23-Jan-10	0.8	-	1	0.5	15.2	106	6.5	321
				2	1.3	14.9	106	6.4	310
				3	1.4	14.8	105	6.3	332
				4	1.5	14.6	104	6.3	347
				5	1.5	14.5	104	6.3	351
				6	1.5	14.5	104	6.3	357
				7	1.5	14.5	104	6.3	363
	20-Feb-10	0.9	-	1	0.5	13.1	92	6.8	316
				2	1.7	12.7	91	6.8	293
				3	1.7	12.8	92	6.8	335
				4	1.7	13.0	93	6.8	347
				5	1.7	13.0	93	6.8	358
				6	1.7	13.0	93	6.8	358
				7	1.7	13.0	93	6.8	359
	17-Mar-10	0.86	-	1	0.1	12.9	89	6.0	317
				2	1.1	12.0	84	5.9	298
				3	1.4	11.5	82	5.8	344
				4	1.3	12.1	85	5.8	367
				5	1.4	13.2	94	5.9	369
				6	1.5	13.4	96	5.9	370
				7	1.5	13.4	96	5.9	372
	8-Apr-10	1.08	-	1.5	1.7	12.5	90	7.1	299
				2	1.8	12.3	89	7.0	286
				3	1.8	12.4	89	6.9	340
				4	1.7	12.6	90	6.9	345
				5	1.7	12.7	91	6.8	347
				6	1.7	12.6	91	6.8	349
	5-May-10	0.99	-	1	0.8	12.5	87	6.8	298
				2	1.7	12.4	89	6.7	370
				3	1.8	12.6	91	6.7	378
				4	1.8	12.7	91	6.7	379
				5	1.8	12.7	91	6.7	380
				6	1.8	12.7	92	6.7	380
				7	1.9	12.7	92	6.7	379
	17-Jul-10	-	5	0.2	16.8	10.0	103	6.9	283
				1	16.8	10.0	103	6.9	283
				2	16.8	9.9	103	6.9	282
				3	16.8	9.9	102	7.0	283
				4	16.5	10.0	103	7.0	285
				5	16.1	10.1	103	7.0	289
				6	15.8	10.2	103	7.0	291
				7	15.1	10.5	104	7.0	292
	14-Aug-10	-	-	0.5	17.7	9.5	100	7.7	295
				0.5	17.1	9.3	97	7.5	298
				1	17.0	9.3	96	7.3	298
				2	16.9	9.3	96	7.3	298
				3	16.8	9.3	96	7.2	298
				4	16.8	9.3	96	7.2	298
				5	16.7	9.3	95	7.2	298
				6	16.7	9.3	95	7.2	298
				7	16.7	9.3	95	7.2	298
	11-Sep-10	-	6	0.5	12.0	10.5	98	6.2	311
				1	12.0	10.5	98	6.3	310
				2	12.1	10.5	97	6.3	310
				3	12.1	10.5	97	6.3	310
				4	12.1	10.5	97	6.3	310
				5	12.1	10.4	97	6.4	310
				6	12.1	10.4	97	6.4	310
				7	12.1	10.4	97	6.4	310

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP13	20-Jul-10	-	8.0	0.2	17.8	9.9	104	7.3	286
				1	17.3	9.9	103	7.3	284
				2	17.0	9.9	103	7.3	285
				3	16.7	10.0	103	7.2	289
				4	16.5	10.1	103	7.1	292
				5	16.1	10.2	103	7.1	294
				6	15.9	10.3	104	7.0	299
				7	15.4	10.4	105	6.9	301
				8	15.3	10.4	104	6.9	302
				9	15.2	10.5	104	7.0	302
				10	14.9	10.6	105	7.0	300
				11	14.6	10.6	105	7.0	294
				12	14.3	10.7	105	7.0	291
				13	14.1	10.7	104	7.0	292
				14	13.9	10.7	103	6.9	292
				15	13.4	10.6	102	7.0	291
				16	13.0	10.6	101	6.9	291
				17	12.5	10.4	97	6.9	290
				18	12.3	10.2	96	6.9	290
				19	11.8	10.0	93	6.8	290
	14-Aug-10	-	-	0.5	17.2	9.3	-	7.2	297
				1	17.1	9.3	-	7.2	297
				2	16.9	9.3	-	7.2	297
				3	16.8	9.3	-	7.2	297
				4	16.8	9.3	-	7.2	297
				5	16.7	9.2	-	7.2	297
				6	16.7	9.2	-	7.2	297
				7	16.7	9.2	-	7.2	297
				8	16.7	9.2	-	7.2	297
				9	16.6	9.2	-	7.2	297
				10	16.6	9.2	-	7.2	297
				11	16.6	9.2	-	7.2	297
				12	16.6	9.2	-	7.2	297
				13	16.6	9.2	-	7.2	297
				14	16.6	9.2	-	7.2	296
				15	16.4	9.3	-	7.2	297
				16	16.4	9.3	-	7.2	297
				17	16.3	9.2	-	7.2	297
				18	16.2	9.2	-	7.2	297
				19	12.1	8.6	-	7.2	303
				20	10.2	7.8	-	7.0	296
				21	9.3	7.1	-	6.8	298
	7-Sep-10	-	-	0.5	12.5	10.3	-	6.4	303
				1	12.5	10.3	-	6.5	302
				2	12.6	10.4	-	6.5	302
				3	12.6	10.2	-	6.5	302
				4	12.6	10.2	-	6.6	302
				5	12.6	10.2	-	6.6	302
				6	12.6	10.2	-	6.6	302
				7	12.6	10.2	-	6.6	302
				8	12.6	10.2	-	6.6	302
				9	12.6	10.2	-	6.8	302
				10	12.6	10.2	-	6.8	302
				11	12.6	10.2	-	6.8	302
				12	12.6	10.2	-	6.8	302
				13	12.6	10.2	-	6.8	302
				14	12.6	10.2	-	6.8	302
				15	12.6	10.2	-	6.8	302
				16	12.6	10.2	-	6.8	302
				17	12.6	10.2	-	6.8	302

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP14	6-May-10	1.2	-	2	1.8	12.4	89	6.3	375
				3	1.9	12.4	90	6.4	377
				4	1.9	12.4	90	6.4	380
				5	1.9	12.5	90	6.4	380
				6	1.9	12.5	90	6.4	381
				7	1.9	12.5	90	6.4	381
				8	2.0	12.4	90	6.5	380
				9	2.1	12.4	90	6.5	377
				10	2.2	12.1	88	6.5	373
				11	2.3	11.9	87	6.5	371
				12	2.4	11.8	86	6.5	369
				13	2.6	11.1	82	6.5	368
	12-Sep-10	-	6	0.5	12.1	10.5	98	7.2	305
				1	12.0	10.5	97	7.0	305
				2	11.9	10.4	97	6.8	305
				3	11.9	10.4	97	6.7	306
				4	11.9	10.4	96	6.7	306
				5	11.9	10.4	96	6.7	306
				6	11.9	10.4	96	6.7	306
				7	11.9	10.4	96	6.7	306
				8	11.9	10.4	96	6.7	306
				9	11.8	10.4	96	6.7	306
				10	11.8	10.4	96	6.7	306
				11	11.8	10.3	96	6.7	306
				12	11.8	10.3	96	6.7	306
				13	11.8	10.3	96	6.7	306
SNAP15	12-Sep-10	-	6	0.5	11.7	10.7	99	6.3	309
				1	11.8	10.4	96	6.8	309
				2	11.8	10.4	96	6.8	309
				3	11.8	10.4	96	6.9	309
				4	11.8	10.4	96	6.9	308
				5	11.8	10.4	96	6.9	308
				6	11.8	10.4	96	6.9	308
				7	11.8	10.4	96	7.0	308
				8	11.8	10.4	96	7.0	308
				9	11.8	10.4	96	7.0	308
				10	11.8	10.3	96	7.0	308
SNAP26	23-Jan-10	1.02	-	1	0.7	14.9	104	6.6	359
				2	1.6	14.5	104	6.5	340
				3	1.7	14.4	104	6.5	341
				4	2.1	14.0	101	6.4	332
				5	2.9	12.3	91	6.4	325
	20-Feb-10	1.22	-	2	1.7	13.1	94	6.7	347
				3	1.8	13.0	93	6.7	350
				4	2.1	12.3	89	6.7	342
				5	2.8	10.9	80	6.7	340
	17-Mar-10	1.24	-	1.5	0.8	13.3	94	6.2	358
				2	1.2	13.0	92	6.0	361
				3	1.4	12.9	91	6.0	360
				4	1.7	12.7	92	5.9	355
				5	2.7	12.2	91	5.9	348
	9-Apr-10	1.27	-	1.5	1.0	12.8	90	6.3	337
				2	1.4	12.8	91	6.4	337
				3	1.6	12.7	91	6.3	337
				4	2.0	12.3	89	6.4	332
				5	2.8	11.3	85	6.4	325
	5-May-10	1.2	-	2	2.2	12.4	90	6.8	385
				3	2.0	12.5	90	6.8	374
				4	2.5	12.4	91	6.8	365
				5	3.2	11.4	86	6.7	361
	20-Jul-10	-	5.5	0.2	17.4	10.1	106	7.1	287
				1	17.1	10.0	103	7.1	288
				2	16.9	10.0	103	7.1	290
				3	16.7	10.1	104	7.1	292
				4	16.6	10.2	105	7.2	294
				5	16.5	10.2	105	7.2	297
	11-Sep-10	-	-	0.5	11.7	10.6	98	6.4	307
				1	11.7	10.6	98	6.4	307
				2	11.7	10.5	97	6.4	307
				3	11.7	10.5	97	6.4	306
				4	11.7	10.5	97	6.4	307
				5	11.8	10.5	97	6.5	307

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP09	22-Jan-10	0.71	-	1	0.7	14.3	100	6.7	298
				2	1.7	13.8	99	6.6	282
				3	1.8	13.6	98	6.5	281
				4	2.0	13.5	97	6.5	280
				5	2.1	13.2	96	6.4	279
				6	2.2	12.6	92	6.4	280
				7	2.2	12.2	98	6.4	283
				8	2.3	11.9	87	6.3	282
				9	2.4	11.7	85	6.3	283
				10	2.4	11.5	84	6.3	283
				11	2.5	11.2	82	6.3	281
				12	2.7	10.9	80	6.3	280
				13	2.8	10.6	78	6.3	279
				14	2.9	9.4	69	6.3	279
	19-Feb-10	0.94	-	1	0.5	13.2	92	6.6	299
				2	1.8	12.3	89	6.6	282
				3	2.2	12.0	87	6.6	279
				4	2.3	11.8	86	6.7	277
				5	2.4	11.3	82	6.7	277
				6	2.5	10.9	80	6.7	276
				7	2.5	10.5	77	6.7	279
				8	2.6	10.1	74	6.6	282
				9	2.6	10.1	74	6.6	288
				10	2.6	9.9	72	6.6	287
				11	2.7	9.4	69	6.6	286
				12	2.7	9.2	68	6.6	292
				13	2.8	9.2	68	6.6	292
				14	2.9	8.9	65	6.6	290
	16-Mar-10	0.99	-	1	0.4	15.7	109	6.1	298
				2	1.9	14.6	105	5.9	284
				3	2.2	14.1	103	5.9	282
				4	2.3	13.8	101	5.7	282
				5	2.2	13.1	96	5.7	298
				6	2.1	12.7	92	5.7	310
				7	2.3	12.5	91	5.6	310
				8	2.2	12.8	93	5.6	323
				9	2.2	13.0	94	5.6	323
				10	2.3	12.9	94	5.6	323
				11	2.3	12.8	94	5.6	324
				12	2.5	12.7	93	5.6	321
				13	2.6	12.3	90	5.6	317
				14	2.8	11.7	87	5.6	314
	9-Apr-10	1.09	-	1.5	1.6	12.0	86	6.5	270
				2	2.1	11.7	85	6.5	268
				3	2.4	11.3	83	6.5	268
				4	2.4	11.1	82	6.5	271
				5	2.4	10.6	77	6.5	288
				6	2.3	10.5	76	6.5	298
				7	2.2	10.6	77	6.5	305
				8	2.1	11.5	83	6.5	327
				9	2.0	11.8	84	6.5	326
				10	2.3	11.5	84	6.5	317
				11	2.5	10.9	80	6.5	310
				12	2.7	10.5	77	6.5	305
				13	2.7	10.3	77	6.5	304
				14	2.8	10.0	74	6.5	304
	7-May-10	1.2	-	2	2.4	11.6	85	6.1	288
				3	2.4	11.5	84	6.1	312
				4	2.4	11.6	85	6.1	318
				5	2.3	11.8	86	6.1	333
				6	2.3	11.8	86	6.1	335
				7	2.3	11.8	86	6.1	334
				8	2.4	11.7	86	6.1	333
				9	2.5	11.7	85	6.1	332
				10	2.6	11.5	85	6.1	330
				11	2.5	11.4	83	6.1	334
				12	2.6	11.1	82	6.1	333
				13	2.7	11.0	81	6.0	331
				14	2.9	10.6	79	6.0	329

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	17-Jul-10	-	5.5	0.2	16.7	10.1	104	7.0	277
				1	16.7	10.0	103	7.0	277
				2	16.6	10.0	103	7.0	277
				3	16.6	10.0	103	7.0	277
				4	16.4	10.1	103	7.0	279
				5	14.8	10.6	105	7.1	283
				6	14.7	10.6	105	7.1	280
				7	14.2	10.7	104	7.1	278
				8	13.9	10.7	104	7.1	278
				9	13.5	10.7	103	7.1	277
				10	13.3	10.6	102	7.1	277
				11	12.9	10.6	100	7.1	277
				12	12.8	10.5	99	7.1	277
				13	12.7	10.5	99	7.1	277
				14	12.5	10.5	98	7.1	276
				15	12.3[b]	8.0[b]	78[b]	6.8[b]	277[b]
	9-Sep-10	-	7.5	0.5	12.4	10.3	97	7.1	288
				1	12.4	10.3	96	7.1	288
				2	12.4	10.3	96	7.1	288
				3	12.4	10.3	96	7.1	288
				4	12.4	10.3	96	7.1	288
				5	12.3	10.3	96	7.1	288
				6	12.3	10.3	96	7.1	288
				7	12.3	10.3	96	7.1	288
				8	12.3	10.3	96	7.1	288
				9	12.3	10.2	96	7.1	288
				10	12.3	10.2	96	7.1	288
				11	12.3	10.2	96	7.1	288
				12	12.3	10.2	96	7.1	288
				13	12.3	10.2	95	7.1	288
				14	12.3	10.2	95	7.1	288
SNAP11	20-Jul-10	-	8.0	0.2	17.0	9.7	101	7.1	279
				1	16.9	9.9	102	7.1	279
				2	16.4	9.9	101	7.1	279
				3	16.3	9.9	101	7.1	278
				4	16.2	9.9	101	7.1	278
				5	16.0	10.0	101	7.1	278
				6	15.8	10.0	101	7.1	276
				7	15.7	10.0	101	7.1	277
				8	15.0	10.3	102	7.1	279
				9	14.0	10.6	103	7.1	279
				10	13.5	10.7	103	7.1	277
				11	13.0	10.7	102	7.1	276
				12	12.5	10.4	98	6.8	277
				13	12.4	10.4	98	6.9	277
				14	12.4	10.3	97	6.9	277
				15	12.3	10.3	96	6.9	277
	14-Aug-10	-	-	0.5	16.5	9.3	-	7.0	287
				1	16.5	9.3	-	7.0	287
				2	16.5	9.3	-	7.0	287
				3	16.5	9.3	-	7.0	287
				4	16.5	9.3	-	7.0	287
				5	16.5	9.3	-	7.0	287
				6	16.5	9.2	-	7.0	287
				7	16.5	9.2	-	7.0	287
				8	16.4	9.2	-	7.0	287
				9	16.4	9.2	-	7.0	287
				10	16.4	9.2	-	7.0	287
				11	16.3	9.2	-	7.1	287
				12	16.1	9.2	-	7.0	286
				13	15.6	9.1	-	7.0	284
				14	13.3	9.3	-	7.1	280
				15	12.8	9.1	-	7.0	280

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	9-Sep-10	-	7.5	0.5	12.6	10.3	-	7.2	289
				1	12.5	10.3	-	7.2	288
				2	12.5	10.3	-	7.2	288
				3	12.5	10.3	-	7.2	289
				4	12.4	10.3	-	7.2	289
				5	12.4	10.2	-	7.2	289
				6	12.4	10.2	-	7.2	289
				7	12.4	10.2	-	7.2	289
				8	12.4	10.2	-	7.2	289
				9	12.4	10.2	-	7.2	289
				10	12.3	10.2	-	7.2	289
				11	12.3	10.2	-	7.2	289
				12	12.3	10.2	-	7.2	289
				13	12.3	10.2	-	7.2	289
				14	12.3	10.2	-	7.2	289
				15	12.2	10.2	-	7.2	289
SNAP11A	22-Jan-10	0.92	-	1	0.8	14.9	104	6.7	298
				2	1.7	13.9	100	6.6	282
				3	1.9	13.7	99	6.6	281
				4	2.0	13.5	98	6.5	280
				5	2.1	13.2	96	6.4	281
				6	2.1	12.7	92	6.4	283
				7	2.2	12.4	90	6.4	289
				8	2.2	12.3	89	6.3	298
				9	2.1	12.2	89	6.3	302
				10	2.2	12.1	88	6.3	299
				11	2.4	11.7	86	6.3	292
				12	2.4	11.4	84	6.3	290
				13	2.3	11.5	84	6.3	305
	20-Feb-10	0.93	-	1	1.3	12.9	91	6.9	303
				2	2.2	12.4	90	6.9	293
				3	2.2	12.5	91	6.9	281
				4	2.3	12.2	89	6.9	283
				5	2.4	11.7	85	6.9	285
				6	2.4	10.9	80	6.9	289
				7	2.3	11.0	80	6.9	308
				8	2.2	11.2	82	6.9	317
				9	2.2	11.4	83	6.8	318
				10	2.2	11.4	83	6.8	321
				11	2.2	11.5	83	6.8	320
				12	2.2	11.4	83	6.8	321
				13	2.4	11.0	81	6.8	315
				14	2.7	10.3	76	6.8	309
				15	2.8	9.9	73	6.8	314
				16	2.9	8.8	65	6.7	312
	16-Mar-10	1.03	-	1	0.2	18.2	125	6.1	304
				2	1.6	17.2	123	5.9	292
				3	2.0	16.7	121	5.7	289
				4	2.1	15.6	113	5.7	292
				5	2.2	14.5	107	5.7	300
				6	2.2	14.4	105	5.7	315
				7	2.0	15.0	108	5.7	339
				8	1.9	15.5	112	5.7	349
				9	1.9	15.8	114	5.7	348
				10	1.9	15.9	115	5.7	346
				11	2.1	15.6	114	5.7	336
				12	2.3	15.1	111	5.7	329
				13	2.3	15.0	109	5.7	336

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	9-Apr-10	1.12	-	1.5	1.5	12.7	91	6.5	282
				2	1.9	12.3	98	6.5	275
				3	2.3	12.1	88	6.5	272
				4	2.3	11.2	82	6.5	285
				5	2.3	10.9	80	6.5	293
				6	2.3	10.9	80	6.5	303
				7	2.3	10.9	80	6.5	306
				8	2.3	10.9	80	6.5	310
				9	2.3	11.0	80	6.5	312
				10	2.4	11.0	81	6.5	312
				11	2.4	11.1	81	6.5	313
				12	2.5	10.9	80	6.5	311
				13	2.6	10.6	78	6.5	310
				14	2.7	10.1	74	6.5	310
				15	2.9	9.5	71	6.5	308
	6-May-10	1.11	-	2	2.3	11.9	87	6.5	297
				3	2.4	11.6	85	6.5	317
				4	2.4	11.4	84	6.5	329
				5	2.4	11.4	83	6.5	334
				6	2.4	11.3	83	6.5	337
				7	2.4	11.3	83	6.5	340
				8	2.5	11.2	82	6.5	341
				9	2.5	11.2	82	6.5	344
				10	2.4	11.3	83	6.5	347
				11	2.5	11.4	84	6.5	349
				12	2.6	11.4	84	6.5	345
				13	2.6	11.1	82	6.5	344
				14	2.8	10.8	80	6.5	342
				15	2.9	10.4	77	6.5	340
				16	3.2	9.6	72	6.4	337
	17-Jul-10	-	5	0.2	16.7	10.0	103	7.0	277
				1	16.7	10.0	103	7.0	277
				2	16.7	10.0	103	7.0	277
				3	16.7	10.0	102	7.1	276
				4	16.7	9.9	102	7.0	277
				5	16.6	10.0	102	7.1	277
				6	14.4	10.4	102	7.1	276
				7	13.8	10.6	103	7.1	276
				8	13.4	10.7	102	7.2	276
				9	13.2	10.6	101	7.2	276
				10	12.8	10.5	100	7.2	276
				11	12.6	10.4	99	7.1	276
				12	12.5	10.5	98	7.1	276
				13	12.4	10.4	97	7.1	276
				14	12.3	10.3	97	7.0	276
				15	12.2	10.2	95	7.0	276
	14-Aug-10	-	-	0.3	16.3	9.3	95	6.9	288
				0.5	16.5	9.3	95	7.0	287
				1.1	16.5	9.3	95	7.0	287
				2.0	16.5	9.3	95	7.0	287
				3.1	16.5	9.3	95	7.0	287
				3.3	16.5	9.3	95	7.0	287
				4.0	16.5	9.3	95	7.0	287
				5.1	16.5	9.3	95	7.0	287
				5.0	16.5	9.3	95	7.0	287
				6.0	16.5	9.2	95	7.0	287
				7.0	16.5	9.2	94	7.0	287
				8.1	16.4	9.2	94	7.0	287
				8.0	16.4	9.2	94	7.0	287
				9.1	16.4	9.2	94	7.0	286
				9.2	16.4	9.2	94	7.0	287
				10.2	16.4	9.2	94	7.0	287
				10.3	16.3	9.2	94	7.0	287
				11.1	16.3	9.2	94	7.0	287
				12.0	16.1	9.2	93	7.0	286
				13.0	15.6	9.2	93	7.1	284
				13.1	15.5	9.2	92	7.0	284
				14.1	13.8	9.5	92	7.1	278
				15.0	12.8	9.1	86	7.0	280

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	9-Sep-10	-	7.5	0.5	12.6	10.3	97	7.1	289
				1	12.5	10.3	97	7.1	289
				2	12.5	10.3	96	7.2	289
				3	12.5	10.3	96	7.2	290
				4	12.4	10.3	96	7.2	290
				5	12.4	10.3	96	7.2	290
				6	12.4	10.2	96	7.2	290
				7	12.4	10.2	96	7.2	290
				8	12.4	10.2	96	7.2	290
				9	12.3	10.2	96	7.2	290
				10	12.3	10.2	95	7.2	290
				11	12.3	10.2	95	7.2	290
				12	12.3	10.2	95	7.2	290
				13	12.3	10.2	95	7.2	290
SNAP17	10-Apr-10	1.15	-	1.5	1.4	12.1	86	6.4	277
				2	2.0	12.0	87	6.5	272
				3	2.2	11.7	85	6.5	277
				4	2.3	11.3	82	6.5	282
				5	2.2	11.1	81	6.5	297
				6	2.1	11.1	81	6.5	308
				7	2.1	11.2	82	6.5	315
				8	2.2	11.3	82	6.5	314
				9	2.3	11.1	81	6.5	312
	10-Sep-10	-	-	0.2	12.6	10.6	100	7.0	292
				1	12.5	10.6	100	6.9	292
				2	12.5	10.7	100	6.8	292
				3	12.4	10.7	101	6.8	292
				4	12.4	10.7	101	6.9	292
				5	12.3	10.8	101	6.9	292
				6	12.3	10.8	101	6.9	292
				7	12.3	10.8	101	6.9	292
				8	12.2	10.8	101	6.9	292
				9	12.1	10.9	101	6.9	291
				9.5	12.1[b]	4.8[b]	42[b]	6.7[b]	290[b]
SNAP18	10-Sep-10	-	-	0.2	12.3	10.6	99	6.8	292
				1	12.3	10.6	99	6.7	291
				2	12.3	10.7	100	6.6	292
				3	12.3	10.8	100	6.7	292
				4	12.3	10.8	100	6.7	292
				5	12.2	10.8	101	6.7	292
				6	12.2	10.8	101	6.7	292
				7	12.2	10.8	101	6.8	292
				8	12.2	10.8	101	6.7	292
				9	12.2	10.8	101	6.8	292
				10	12.2	10.8	101	6.8	292
				11	12.2	10.8	101	6.8	292
				12	12.2	6.3[b]	65[b]	6.7	295
SNAP19	10-Apr-10	1.15	-	1.5	1.4	12.7	91	6.6	276
				2	1.9	12.3	89	6.6	273
				3	2.2	12.0	87	6.6	272
				4	2.2	11.4	84	6.6	279
				5	2.1	11.1	80	6.5	302
				6	2.1	11.0	80	6.5	304
				7	2.1	11.0	80	6.5	316
				8	2.3	11.1	81	6.5	313
				9	2.5	10.9	80	6.5	307
				10	2.6	10.6	78	6.5	304
				11	2.6	10.4	76	6.5	304
	10-Sep-10	-	-	0.1	12.2	10.8	102	6.6	291
				1	12.2	10.5	98	6.5	291
				2	12.3	10.6	99	6.4	291
				3	12.3	10.6	98	6.4	291
				4	12.3	10.7	100	6.4	291
				5	12.2	10.7	100	6.4	291
				6	12.2	10.7	100	6.4	290
				7	12.2	10.7	100	6.5	291
				8	12.2	10.8	100	6.5	291
				9	12.2	10.8	100	6.5	290
				10	12.2	10.7	100	6.6	291
				11	12.1	10.6	99	6.6	290
				11.5	12.1	9.1[b]	83[b]	6.6	290

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP04	20-Jan-10	0.86	-	1.0	0.2	14.6	100	6.6	319
				1.5	0.9	14.2	100	6.6	305
				2.0	1.3	13.9	98	6.6	299
				2.5	1.7	13.6	97	6.5	296
				3.0	2.2	13.3	97	6.5	291
				3.5	2.5	13.0	95	6.5	288
				4.0	2.8	12.5	92	6.5	287
	19-Feb-10	1.05	-	1.5	2.2	12.5	91	6.5	317
				2.0	2.0	12.6	91	6.4	310
				2.5	2.3	12.5	91	6.4	307
				3.0	2.6	12.5	92	6.3	301
				3.5	2.9	12.4	92	6.3	300
				4.0	3.1	12.2	91	6.3	298
				4.5	3.2	8.5	64	6.3	298
	16-Mar-10	1.22	-	1.5	0.6	16.1	112	6.0	323
				2.0	1.2	15.7	111	5.9	316
				2.5	1.8	15.3	110	5.8	312
				3.0	2.1	15.0	109	5.8	308
				3.5	2.5	14.7	108	5.8	307
	10-Apr-10	1.2	-	1.5	0.8	12.4	87	6.5	301
				2.0	1.6	12.0	86	6.5	295
				2.5	1.9	11.8	85	6.5	293
				3.0	2.4	11.7	85	6.5	292
				3.5	2.7	11.6	85	6.5	292
				4.0	2.8	11.5	85	6.5	292
	3-May-10	1.23	-	0.5	0.7	11.7	82	6.4	318
				1.0	0.6	11.7	82	6.4	318
				1.5	1.6	11.5	82	6.3	316
				2.0	2.0	11.4	83	6.3	314
				2.5	2.5	11.3	83	6.3	312
				3.0	2.9	11.2	83	6.3	310
	16-Jul-10	-	4	0.2	18.3	9.7	103	7.2	248
				1.0	18.2	9.4	100	7.2	248
				2.0	17.9	9.2	97	7.2	248
				3.0	17.7	9.2	96	7.1	253
				4.0	17.1	9.2	95	7.1	262
	9-Sep-10	-	-	0.5	11.8	10.5	97	7.2	269
				1.0	11.7	10.5	97	7.2	270
				1.5	11.7	10.5	97	7.2	270
				2.0	11.7	10.4	96	7.2	270
				2.5	11.7	10.4	96	7.2	270
				3.0	11.7	10.4	96	7.2	270
				3.5	11.7	10.4	96	7.2	270
SNAP07	22-Jan-10	0.85	-	1	1.3	14.5	103	6.5	314
				2	1.7	14.2	102	6.4	300
				3	1.9	14.1	102	6.4	300
				4	1.9	13.9	100	6.3	302
				5	2.1	13.3	97	6.3	298
				6	2.6	12.5	93	6.3	292
				7	2.9	11.9	88	6.2	288
				8	3.0	11.5	86	6.2	287
				9	3.0	11.0	82	6.2	291
				10	3.0	10.6	79	6.2	294
	19-Feb-10	0.97	-	1	1.1	13.1	92	6.6	304
				2	1.8	12.6	90	6.6	295
				3	2.0	12.2	89	6.6	294
				4	2.1	11.9	87	6.6	295
				5	2.2	11.4	83	6.6	301
				6	2.6	11.1	81	6.6	296
				7	2.9	10.7	80	6.6	293
				8	3.0	10.1	75	6.6	294
				9	3.0	9.6	71	6.5	297
				10	3.1	9.0	67	6.5	298

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Mar-10	1.11	-	1.5	1.7	14.4	104	6.1	304
				2	1.9	14.2	102	6.0	297
				3	2.1	13.8	100	5.9	300
				4	3.1	13.6	99	5.8	303
				5	2.3	12.9	94	5.8	309
				6	2.6	12.4	91	5.8	306
				7	2.9	12.1	90	5.7	304
				8	3.0	11.7	87	5.7	305
				9	3.0	11.1	83	5.7	307
				10	3.0	10.0	75	5.7	309
	11-Apr-10	1.17	-	1.5	1.2	11.9	84	6.7	281
				2	1.7	11.8	85	6.7	277
				3	2.1	11.6	85	6.7	276
				4	2.3	11.3	82	6.7	283
				5	2.4	11.0	80	6.7	288
				6	2.7	10.6	78	6.6	286
				7	2.9	10.2	75	6.6	286
				8	3.0	9.2	69	6.6	285
				9	3.1	8.5	64	6.6	287
				10	3.2	7.7	58	6.7	287
	6-May-10	1.15	-	2	2.5	12.4	91	6.7	299
				3	2.8	11.7	87	6.7	306
				4	3.0	11.3	84	6.6	308
				5	3.1	10.9	81	6.7	310
				6	3.2	10.9	81	6.6	311
				7	3.3	11.2	84	6.6	311
				8	3.3	11.3	85	6.6	314
				9	3.3	11.3	85	6.6	316
				10	3.4	11.2	84	6.6	317
	20-Jul-10	-	6.5	0.2	17.5	9.6	101	7.0	275
				1	17.3	9.7	101	7.0	276
				2	17.0	9.7	101	7.0	276
				3	16.7	9.8	100	7.0	277
				4	16.4	9.9	101	7.0	278
				5	16.2	9.9	101	7.0	277
				6	15.8	10.1	101	7.0	277
				7	14.6	10.5	103	7.1	276
	9-Sep-10	-	8	0.5	11.8	10.4	97	7.0	286
				1	11.8	10.4	96	7.0	285
				2	11.8	10.4	96	7.0	285
				3	11.8	10.4	96	7.0	285
				4	11.8	10.4	96	7.0	285
				5	11.8	10.4	96	7.0	285
				6	11.8	10.4	96	7.0	285
				7	11.7	10.4	96	7.0	285
				8	11.7	10.4	96	7.0	285
				9	11.7	10.4	96	7.0	285
				10	11.7	10.3	95	7.0	285
SNAP08	22-Jan-10	1.11	-	1	0.3	14.8	103	6.7	318
				2	1.5	13.7	98	6.6	308
				3	2.3	13.1	96	6.5	301
				4	2.9	12.4	92	6.5	296
				5	3.2	11.7	89	6.4	295
				6	3.3	11.0	83	6.3	296
				7	3.5	9.8	75	6.2	300
				8	3.6	9.0	68	6.2	307
	19-Feb-10	1.27	-	2	1.9	12.2	88	6.5	310
				3	2.5	11.5	85	6.5	306
				4	3.2	10.9	82	6.5	300
				5	3.5	9.1	74	6.5	298
				6	3.6	8.7	66	6.5	299
				7	3.7	8.2	62	6.5	306
				8	3.8	7.4	56	6.5	308
				9	3.7	6.3	48	6.4	320
	16-Mar-10	1.37	-	1.5	2.9	12.7	94	6.3	328
				2	1.7	13.0	94	6.3	314
				3	2.7	12.4	91	6.2	308
				4	3.3	11.4	86	6.2	305
				5	3.5	9.9	75	6.2	309
				6	3.6	8.7	66	6.1	311
				7	3.7	8.0	61	6.0	314
				8	3.6	7.1	54	6.0	319

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	11-Apr-10	1.22	-	1.5	1.3	11.7	83	6.5	298
				2	1.5	11.6	83	6.5	294
				3	2.5	10.9	80	6.5	290
				4	3.2	10.9	77	6.5	287
				5	3.5	9.1	69	6.5	289
				6	3.6	8.3	63	6.5	290
				7	3.6	7.2	54	6.6	294
				8	3.7	5.7	44	6.5	296
	6-May-10	1.31	-	2	2.7	12.5	92	6.6	311
				3	3.7	12.2	93	6.6	310
				4	3.8	12.2	93	6.6	310
				5	3.7	11.6	89	6.6	312
				6	3.8	10.1	77	6.5	313
				7	3.9	8.4	64	6.5	314
				8	3.8	6.9	53	6.5	319
	20-Jul-10	-	7.5	0.2	17.7	9.4	99	6.7	270
				1	17.7	9.4	99	6.7	270
				2	17.6	9.4	99	6.7	269
				3	17.5	9.4	98	6.8	270
				4	17.5	9.4	98	6.8	269
				5	17.5	9.4	98	6.8	269
				6	16.6	9.9	101	6.8	267
				7	15.4	10.1	101	6.8	265
				8	14.9	10.1	100	6.8	265
				9	14.8	8.5	84	6.7	266
	14-Aug-10	-	-	0.5	16.1	9.2	94	7.1	284
				1	16.3	9.3	94	7.1	283
				2	16.3	9.2	94	7.1	283
				3	16.3	9.3	94	7.1	283
				3	16.3	9.2	94	7.1	282
				4	16.3	9.2	94	7.1	282
				5	16.3	9.2	94	7.1	283
				6	16.2	9.2	93	7.1	283
				7	16.1	9.2	93	7.1	283
				8	16.0	9.2	93	7.1	283
	9-Sep-10	-	7	0.5	11.5	10.5	96	6.6	283
				1	11.5	10.4	96	6.6	283
				2	11.5	10.4	96	6.6	283
				3	11.5	10.4	96	6.6	283
				4	11.5	10.4	96	6.7	283
				5	11.5	10.4	96	6.7	283
				6	11.5	10.4	96	6.7	283
				7	11.5	10.4	96	6.7	283
SNAP10	22-Jan-10	0.99	-	1	0.8	15.3	108	6.6	305
				2	1.4	14.5	104	6.6	299
				3	1.7	14.1	102	6.5	298
				4	1.9	13.6	98	6.4	300
				5	2.3	13.0	95	6.4	306
	19-Feb-10	1.04	-	1.5	1.1	13.3	94	6.5	305
				2	1.5	12.8	92	6.6	304
				2.5	1.8	12.7	91	6.6	301
				3	1.9	12.5	90	6.6	299
				3.5	2.0	12.2	88	6.6	305
				4	2.0	12.0	87	6.6	304
				4.5	2.2	11.5	83	6.6	306
				5	2.3	11.1	80	6.6	308
	16-Mar-10	0.99	-	1	0.9	16.0	113	6.0	316
				2	1.6	15.5	111	5.9	303
				3	1.9	15.2	110	5.8	310
				4	2.2	14.7	107	5.8	309
				5	2.5	12.9	95	5.7	318
	9-Apr-10	1.21	-	1.5	1.0	12.4	87	6.4	292
				2	1.4	12.3	88	6.4	286
				2.5	1.8	12.2	88	6.4	283
				3	2.1	12.1	88	6.4	287
				3.5	2.2	11.9	87	6.4	288
				4	2.3	11.7	85	6.4	289
				4.5	2.4	11.5	84	6.4	291
				5	2.6	10.5	78	6.4	297

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	6-May-10	1.19	-	2	2.0	13.1	95	6.5	312
				3	2.5	13.2	97	6.5	311
				4	2.7	13.5	100	6.5	319
				5	3.2	13.5	101	6.5	320
	16-Jul-10	-	5	0.2	16.2	9.5	97	7.4	276
				1	16.1	9.3	94	7.4	276
				2	16.0	9.1	93	7.4	276
				3	16.0	9.0	91	7.4	276
				4	15.0	8.7	89	7.4	276
				5	14.2	8.8	86	7.3	276
	9-Sep-10	-	-	0.5	12.1	10.4	97	7.2	285
				1	12.1	10.4	97	7.2	285
				1.5	12.1	10.4	97	7.2	285
				2	12.0	10.4	96	7.2	285
				2.5	12.0	10.4	96	7.2	285
				3	12.0	10.4	96	7.2	285
				3.5	11.9	10.4	96	7.2	285
				4	11.9	10.3	96	7.2	285
				4.5	11.9	10.3	96	7.2	285
SNAP23	20-Jan-10	0.91	-	1	0.4	17.6	122	6.4	123
				2	1.3	15.5	110	6.4	123
				3	2.0	13.1	95	6.3	126
				4	2.2	12.3	89	6.2	145
				5	2.4	11.2	81	6.1	157
				6	2.6	10.6	78	6.1	179
				7	2.8	10.2	75	6.0	189
				8	3.0	9.6	71	6.0	198
				9	3.3	7.9	57	6.0	197
				10	3.5	6.9	51	5.8	198
				11	3.6	5.7	42	5.9	199
	18-Feb-10	1.02	-	1	0.5	14.9	104	6.4	122
				2	1.5	13.6	97	6.4	125
				3	2.0	12.5	90	6.4	124
				4	2.4	10.7	78	6.4	142
				5	2.7	9.6	71	6.4	155
				6	2.8	9.2	68	6.3	173
				7	3.1	8.4	62	6.3	186
				8	3.3	7.4	55	6.3	191
				9	3.5	5.9	45	6.3	191
				10	3.7	4.0	31	6.2	190
				11	3.8	3.3	25	6.2	191
				12	4.0	1.7	13	6.2	191
	18-Mar-10	1.09	-	1.5	1.3	13.4	95	6.8	117
				2	1.6	13.2	95	6.7	139
				3	2.2	12.6	92	6.7	141
				4	2.7	12.1	89	6.7	148
				5	2.9	11.2	84	6.6	157
				6	3.2	9.9	75	6.6	175
				7	3.3	9.0	67	6.5	183
				8	3.5	7.5	58	6.5	192
				9	3.7	6.2	49	6.5	192
				10	3.9	4.1	32	6.4	194
				11	4.0	3.1	25	6.4	194
	10-Apr-10	1.33	-	1.5	1.1	12.2	86	6.3	109
				2	1.4	12.5	88	6.3	122
				3	2.1	12.0	87	6.3	136
				4	2.4	11.2	82	6.3	144
				5	2.9	9.9	73	6.3	151
				6	3.1	8.6	65	6.3	163
				7	3.3	7.1	55	6.2	172
				8	3.5	5.5	42	6.2	179
				9	3.7	3.8	29	6.2	180
				10	3.9	2.1	17	6.2	181
				11	4.0	1.0	8	6.2	181
				12	4.1	0.6	5	6.2	185

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	3-May-10	1.16	-	1	0.7	11.3	79	6.0	106
				2	2.8	11.1	82	6.0	130
				3	3.1	10.9	82	6.0	145
				4	3.2	10.3	78	6.0	161
				5	3.4	9.3	71	5.9	171
				6	3.4	8.1	62	6.0	179
				7	3.6	6.9	53	6.0	185
				8	3.7	5.5	42	5.9	190
				9	3.9	3.5	26	5.9	192
				10	4.0	2.3	17	5.9	194
				11	4.1	1.3	10	5.9	195
	18-Jul-10	-	5	0.2	17.6	9.5	100	7.4	131
				1	17.6	9.5	100	7.4	131
				2	17.6	9.5	99	7.3	131
				3	17.5	9.5	99	7.3	132
				4	17.4	9.6	100	7.3	134
				5	16.2	10.1	102	7.3	141
				6	15.5	10.2	103	7.4	136
				7	15.2	10.3	102	7.4	134
				8	14.9	10.2	101	7.4	131
				9	14.7	10.1	100	7.3	131
				10	14.3	9.5	96	7.3	130
				11	14.1	9.6	94	7.2	129
				12	13.9	9.4	92	7.1	129
	10-Sep-10	-	5.5	0.5	11.9	10.4	97	6.3	145
				1	11.9	10.4	96	6.3	145
				2	11.9	10.4	96	6.3	145
				3	11.8	10.4	96	6.4	145
				4	11.8	10.4	96	6.4	145
				5	11.8	10.4	96	6.4	145
				6	11.8	10.3	96	6.4	145
				7	11.8	10.3	95	6.4	145
				8	11.8	10.3	95	6.5	145
				9	11.8	10.3	95	6.5	144
				10	11.8	10.3	95	6.5	144
				11	11.8	10.3	95	6.5	143
SNAP02A	20-Jan-10	0.97	-	1	2.3	16.4	120	6.4	83
				2	2.1	15.7	113	6.4	75
				3	2.6	14.2	104	6.3	71
				4	2.9	12.7	94	6.2	70
				5	3.1	11.2	82	6.1	70
				6	3.3	9.4	70	6.0	78
				7	3.4	8.3	63	6.0	83
				8	3.5	7.5	56	5.9	81
				9	3.5	6.4	49	5.8	82
				10	3.6	5.2	38	5.7	86
	18-Feb-10	0.96	-	1	0.9	15.1	105	6.6	85
				2	1.7	14.6	104	6.7	74
				3	2.3	13.3	96	6.7	70
				4	2.8	11.8	87	6.6	69
				5	3.2	8.4	63	6.6	69
				6	3.3	7.7	58	6.5	77
				7	3.5	6.0	45	6.4	79
				8	3.6	5.1	39	6.4	81
				9	3.7	4.7	36	6.3	81
	16-Mar-10	0.95	-	1	0.3	19.3	132[(d)]	5.6	85
				2	1.3	17.1	122	5.4	79
				3	2.2	15.4	112	5.3	73
				4	2.8	14.2	106	5.2	72
				5	3.1	12.1	92	5.1	77
				6	3.4	9.5	74	5.0	80
				7	3.4	7.2	55	5.0	83
				8	3.4	6.9	52	4.9	87
				9	3.5	7.0	53	4.9	89

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	12-Apr-10	0.89	-	1	0.8	14.1	99	7.0	78
				2	1.5	13.6	97	6.9	77
				3	2.4	12.6	92	6.9	72
				4	3.1	11.1	84	6.9	70
				5	3.4	8.7	65	6.8	74
				6	3.7	7.0	54	6.7	76
				7	3.7	6.0	45	6.6	81
				8	3.7	5.6	43	6.6	84
				9	3.7	4.7	36	6.5	84
	6-May-10	1.2	-	2	3.3	13.1	99	5.9	73
				3	3.4	12.9	97	5.6	76
				4	3.6	11.0	85	5.7	78
				5	3.8	10.2	77	5.5	82
				6	3.8	9.2	70	5.5	86
				7	3.6	9.9	75	5.4	93
				8	3.6	11.4	86	5.5	94
				9	3.6	11.2	86	5.5	95
	18-Jul-10	-	4.5	<0.3	17.6	9.3	98	7.2	64
				1	17.6	9.4	99	7.2	65
				2	17.6	9.4	99	7.2	65
				3	17.6	9.4	99	7.2	64
				4	17.6	9.4	99	7.2	65
				5	16.9	9.6	99	7.2	64
				6	15.9	9.9	100	7.1	61
				7	15.5	9.9	99	7.2	59
				8	15.0	9.8	97	7.1	59
				9	14.7	9.6	95	7.1	59
				10	13.7	9.0	97	7.1	60
	10-Sep-10	-	5.5	0.5	11.8	10.5	96	6.2	74
				1	11.7	10.4	96	6.3	74
				2	11.7	10.4	96	6.3	74
				3	11.7	10.4	96	6.3	74
				4	11.7	10.4	96	6.3	74
				5	11.7	10.4	96	6.3	74
				6	11.7	10.4	96	6.3	73
				7	11.7	10.4	96	6.3	73
				8	11.7	10.4	95	6.3	73
				9	11.6	10.2	94	6.3	75
SNAP01	18-Jul-10	-	4.5	0.2	17.9	9.4	99	6.7	59
				1	17.9	9.4	99	6.7	58
				2	17.9	9.3	98	6.7	58
				3	17.9	9.3	98	6.7	58
				4	17.7	9.4	98	6.8	58
				5	16.5[b]	6.9[b]	71[b]	6.5[b]	70[b]
	13-Aug-10	-	5.0	0.5	17.2	9.2	-	7.4	65
				1	17.2	9.2	-	7.4	65
				2	17.2	9.2	-	7.4	65
				3	17.1	9.2	-	7.4	69
				4	17.1	9.2	-	7.3	66
				5	17.0	9.2	-	7.3	66
	10-Sep-10	-	5.0	0.5	11.6	10.5	-	5.8	71
				1	11.6	10.5	-	5.8	71
				1.5	11.6	10.5	-	5.9	71
				2	11.6	10.5	-	5.9	71
				2.5	11.6	10.5	-	5.9	71
				3	11.6	10.5	-	5.9	71
				3.5	11.6	10.4	-	5.9	71
				4	11.6	10.4	-	5.9	71
				4.5	11.6	10.4	-	6.0	70
				5	11.6[b]	8.9[b]	-	5.8[b]	86[b]
SNAP20	10-Apr-10	1.33	-	1.5	1.2	12.7	90	6.7	55
				2	1.5	12.4	89	6.7	53
				3	2.0	11.9	87	6.6	50
				4	2.2	11.3	83	6.6	49
				5	2.2	10.9	80	6.6	50
				6	2.2	10.7	78	6.6	50
				7	2.3	10.5	77	6.6	51
				8	2.3	10.5	76	6.5	51
				9	2.3	10.4	76	6.5	51
				10	2.3	10.4	76	6.5	52
				11	2.3	10.4	76	6.5	52
				12	2.3	10.3	75	6.5	52

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	9-Sep-10	-	-	0.2	12.2	11.2	105	6.3	54
				1	12.1	10.4	97	5.9	54
				2	12.0	10.4	96	5.9	54
				3	11.9	10.5	97	5.9	54
				4	11.9	10.6	98	5.9	54
				5	11.9	10.6	98	5.9	54
				6	11.9	10.7	99	6.0	54
				7	11.8	10.8	100	6.0	54
				8	11.8	10.8	100	6.0	54
				9	11.8	10.8	100	6.0	54
				10	11.8	10.8	100	6.0	54
				11	11.8	10.8	100	6.0	54
				12	9.9	10.7	94	6.0	51
				13	7.5	9.3	82	5.8	56
SNAP20B	19-Jan-10	0.75	-	1	1.5	15.7	112	6.3	66
				2	1.8	14.1	102	6.2	55
				3	1.9	12.9	93	6.2	52
				4	2.0	12.3	89	6.2	52
				5	2.0	12.1	88	6.1	52
				6	2.0	12.0	87	6.2	53
				7	2.0	11.9	86	6.1	53
				8	2.0	11.9	86	6.0	53
				9	2.0	11.8	85	6.0	53
				10	2.1	11.7	85	6.0	53
				11	2.1	11.7	85	6.1	54
				12	2.1	11.6	84	6.0	54
				13	2.1	11.5	83	6.0	53
				14	2.1	11.4	82	5.9	53
				15	2.1	11.3	82	5.9	53
				16	2.1	11.1	81	5.8	53
				17	2.2	11.1	80	5.9	53
				18	2.2	10.9	79	5.8	52
				19	2.2	10.7	78	5.8	53
				20	2.2	10.3	75	5.8	53
				21	2.3	10.1	74	5.7	52
				22	2.5	10.1	74	5.7	51
				23	2.7	10.2	75	5.7	50
				24	2.9	10.4	77	5.7	49
				25	3.1	10.4	77	5.7	49
				26	3.3	10.5	78	5.7	48
				27	3.4	10.6	80	5.7	48
				28	3.5	10.7	81	5.7	48
				29	3.5	10.8	81	5.7	48
				30	3.5	10.3	78	5.7	48

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	18-Feb-10	0.8	-	1	2.9	13.7	102	8.0	65
				2	2.5	12.8	94	7.9	57
				3	2.5	11.6	85	7.8	52
				4	2.5	11.1	81	7.7	52
				5	2.4	10.8	79	7.6	52
				6	2.3	10.8	79	7.5	52
				7	2.3	10.6	77	7.4	53
				8	2.2	10.6	77	7.4	52
				9	2.3	10.5	77	7.4	53
				10	2.2	10.5	76	7.3	52
				11	2.3	10.4	76	7.3	52
				12	2.3	10.3	75	7.3	52
				13	2.3	10.2	74	7.2	52
				14	2.3	10.1	74	7.2	53
				15	2.3	10.0	73	7.2	52
				16	2.3	9.9	72	7.1	52
				17	2.3	9.9	72	7.1	53
				18	2.3	9.8	72	7.1	53
				19	2.3	9.6	70	7.0	52
				20	2.4	9.3	68	7.0	52
				21	2.5	9.2	68	7.0	50
				22	2.6	9.2	68	7.0	49
				23	2.8	9.2	68	7.0	49
				24	3.0	9.2	69	6.9	48
				25	3.2	9.4	70	6.9	48
				26	3.4	9.5	71	6.9	47
				27	3.5	9.5	72	6.9	47
				28	3.6	9.6	72	6.8	47
				29	3.6	9.1	68	6.8	47
				30	3.6	8.6	64	6.8	47
	16-Mar-10	0.96	-	1	1.1	17.5	123	6.7	64
				2	1.6	16.8	120	6.1	57
				3	2.1	15.4	112	5.9	53
				4	2.1	14.4	105	5.7	53
				5	2.2	13.9	101	5.6	53
				6	2.2	13.5	98	5.6	54
				7	2.2	13.3	97	5.5	54
				8	2.2	13.2	99	5.5	54
				9	2.2	13.1	95	5.4	54
				10	2.2	13.0	94	5.4	54
				11	2.2	12.8	93	5.3	54
				12	2.2	12.7	93	5.3	54
				13	2.2	12.6	92	5.3	54
				14	2.2	12.5	91	5.3	54
				15	2.2	12.5	91	5.2	54
				16	2.2	12.4	90	5.2	55
				17	2.2	12.3	90	5.2	55
				18	2.3	12.2	89	5.1	54
				19	2.3	12.0	87	5.1	55
				20	2.3	11.4	84	5.1	54
				21	2.4	11.2	81	5.1	54
				22	2.5	10.9	80	5.0	52
				23	2.7	11.0	81	5.0	51
				24	2.9	11.2	83	5.0	50
				25	3.1	11.3	84	5.0	50
				26	3.3	11.4	86	5.0	49
				27	3.4	11.5	86	5.0	48
				28	3.4	11.5	86	5.0	49
				29	3.5	10.7	81	5.0	48
				30	3.5	10.1	77	4.9	48

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	10-Apr-10	0.93	-	1	0.6	14.0	97	6.9	61
				2	1.7	12.6	90	6.9	53
				3	2.1	11.5	83	6.9	50
				4	2.2	11.0	80	6.9	50
				5	2.3	10.7	78	6.8	50
				6	2.3	10.5	76	6.8	50
				7	2.3	10.4	76	6.8	51
				8	2.3	10.3	74	6.8	51
				9	2.3	10.2	75	6.8	51
				10	2.3	10.1	74	6.7	51
				11	2.3	10.0	73	6.7	51
				12	2.3	9.9	73	6.7	51
				13	2.3	9.9	72	6.7	51
				14	2.3	9.8	71	6.7	51
				15	2.4	9.7	71	6.6	51
				16	2.4	9.7	70	6.6	51
				17	2.4	9.6	70	6.6	52
				18	2.4	9.5	69	6.6	51
				19	2.4	9.2	68	6.6	51
				20	2.5	9.0	66	6.5	50
				21	2.5	8.6	63	6.5	50
				22	2.7	8.2	60	6.5	49
				23	2.8	8.2	60	6.5	48
				24	3.1	8.5	63	6.5	47
				25	3.2	8.6	64	6.5	47
				26	3.4	8.7	65	6.5	46
				27	3.4	8.7	65	6.4	46
				28	3.5	8.5	64	6.4	46
				29	3.5	7.6	57	6.4	45
				30	3.5	6.8	52	6.4	46
	6-May-10	0.92	-	1	1.6	12.0	86	7.4	59
				2	2.5	11.4	84	7.3	54
				3	2.5	10.8	80	7.3	54
				4	2.5	10.4	77	7.2	55
				5	2.5	10.2	75	7.2	55
				6	2.5	10.1	74	7.1	55
				7	2.5	10.1	74	7.1	55
				8	2.5	10.0	73	7.1	55
				9	2.4	9.8	72	7.1	55
				10	2.4	9.6	70	7.0	54
				11	2.4	9.6	70	7.0	56
				12	2.5	9.9	73	7.0	56
				13	2.5	10.2	75	7.0	56
				14	2.5	10.3	76	7.0	56
				15	2.5	10.3	76	6.9	56
				16	2.5	10.3	76	6.9	56
				17	2.5	10.4	76	6.9	56
				18	2.5	10.4	76	6.9	56
				19	2.5	10.2	75	6.9	56
				20	2.5	10.2	75	6.8	56
				21	2.5	10.0	73	6.8	56
				22	2.7	9.6	71	6.8	54
				23	2.8	9.0	66	6.8	52
				24	3.1	8.7	65	6.7	50
				25	3.2	8.6	64	6.7	50
				26	3.3	8.5	64	6.7	50
				27	3.4	8.4	63	6.7	50
				28	3.5	8.0	60	6.6	50
				29	3.5	7.1	54	6.6	49
				30	3.5	6.1	46	6.5	50

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	18-Jul-10	-	5	0.2	17.8	9.3	98	7.2	52
				1	17.8	9.4	99	7.2	52
				2	17.8	9.4	99	7.2	52
				3	17.7	9.5	99	7.2	52
				4	16.7	9.9	102	7.2	51
				5	14.7	10.4	102	7.2	50
				6	13.9	10.5	101	7.2	50
				7	13.2	10.5	100	7.2	50
				8	12.3	10.5	98	7.2	50
				9	10.2	10.5	94	7.1	49
				10	7.8	10.4	88	6.6	49
				11	6.9	10.5	86	6.6	49
				12	6.5	10.4	84	6.6	49
				13	6.1	10.4	84	6.5	49
				14	5.8	10.3	82	6.5	49
				15	5.6	10.2	81	6.5	49
				16	5.4	10.0	79	6.4	49
				17	5.3	9.8	77	6.4	49
				18	5.2	9.6	76	6.4	50
				19	5.1	9.5	75	6.4	50
				20	5.1	9.4	74	6.3	50
				21	5.0	9.3	73	6.4	50
				22	5.0	9.3	73	6.3	50
				23	5.0	9.4	73	6.3	50
				24	4.9	9.3	73	6.2	50
				25	4.9	9.3	73	6.2	50
				26	4.9	9.3	72	6.2	50
				27	4.8	9.2	72	6.2	50
				28	4.8	9.2	72	6.2	50
				29	4.8	9.1	71	6.2	50
				30	4.8	9.1	71	6.2	50
	10-Sep-10	-	6	0.5	12.0	10.4	97	5.3[g]	58
				1	12.0	10.3	96	5.3[g]	58
				2	12.0	10.3	96	5.3[g]	58
				3	12.0	10.3	95	5.4[g]	58
				4	12.0	10.3	95	5.4[g]	58
				5	12.0	10.3	95	5.4[g]	58
				6	12.0	10.3	95	5.5[g]	58
				7	11.9	10.3	95	5.5[g]	58
				8	11.9	10.3	95	5.6[g]	58
				9	11.9	10.2	95	5.6[g]	58
				10	11.9	10.2	95	5.6[g]	58
				11	11.7	10.2	94	5.7[g]	59
				12	11.1	10.2	93	5.7[g]	59
				13	7.7	10.0	84	5.6[g]	50
				14	6.3	9.4	77	5.6[g]	50
				15	5.8	8.8	70	5.5[g]	50
				16	5.5	9.3	66	5.5[g]	50
				17	5.4	9.1	64	5.5[g]	50
				18	5.3	8.0	63	5.5[g]	50
				19	5.2	7.9	62	5.5[g]	50
				20	5.1	8.0	63	5.5[g]	50
				21	5.0	8.0	63	5.5[g]	50
				22	5.0	8.0	62	5.5[g]	51
				23	5.0	7.9	62	5.5[g]	51
				24	4.9	7.8	61	5.5[g]	51
				25	4.9	7.6	59	5.5[g]	51
				26	4.8	7.4	58	5.5[g]	51
				27	4.8	7.4	57	5.4[g]	51
				28	4.8	7.2	56	5.4[g]	51
				29	4.8	7.2	56	5.4[g]	51
				30	4.8	7.1	55	5.4[g]	51
SNAP29	20-Jan-10	0.94	-	1	0.3	15.9	109	6.4	148
				2	0.8	16.6	117	6.3	177
				3	1.5	14.9	108	6.3	167
				4	1.8	13.9	100	6.3	168
				5	2.0	13.2	96	6.2	184
				6	2.3	11.9	88	6.1	193

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	18-Feb-10	1.08	-	1	0.4	15.7	108	6.4	152
				2	1.0	14.7	103	6.4	171
				3	1.7	13.9	99	6.4	159
				4	2.1	12.8	92	6.4	163
				5	2.3	11.8	86	6.4	171
				6	2.6	10.2	75	6.4	178
				7	3.2	7.3	53	6.3	193
	18-Mar-10	1.16	-	1.5	0.8	14.3	100	6.6	144
				2	1.0	14.1	99	6.5	167
				3	1.7	13.5	97	6.5	165
				4	2.0	13.0	95	6.5	178
				5	2.4	11.7	86	6.5	175
				6	2.7	10.6	79	6.5	183
	8-Apr-10	1.15	-	1.5	0.6	14.7	102	6.8	143
				2	1.0	14.2	100	6.7	172
				3	1.6	13.3	95	6.7	172
				4	2.1	12.3	90	6.7	159
				5	2.5	11.3	83	6.7	167
				6	2.9	9.4	71	6.6	170
	3-May-10	1.06	-	1	1.6	12.8	92	6.1	130
				2	2.6	12.9	95	6.1	145
				3	2.8	12.8	95	6.1	163
				4	3.0	12.5	93	6.1	169
				5	3.3	12.3	92	6.1	175
				6	3.5	11.9	90	6.1	177
	16-Jul-10	-	5	0.2	18.2	9.7	103	7.4	141
				1	17.7	9.5	99	7.4	142
				2	17.5	9.3	97	7.4	140
				3	17.3	9.2	95	7.4	142
				4	16.6	9.2	94	7.4	175
				5	15.7	9.0	91	7.4	148
				6	15.3	8.9	89	7.4	149
	10-Sep-10	-	6	0.5	12.0	10.7	99	6.4	150
				1	12.0	10.4	97	6.4	150
				2	11.9	10.4	96	6.4	150
				3	11.9	10.4	96	6.5	148
				4	11.9	10.4	96	6.5	147
				5	11.9	10.4	96	6.5	147
				6	11.9	10.4	96	6.5	146
SNAP30	18-Jul-10	-	5.0	0.2	18.1	9.2	97	6.7	55
				1	18.1	9.2	98	6.7	55
				2	18.1	9.2	98	6.7	55
				3	18.1	9.2	97	6.7	55
				4	17.0	9.7	103	6.7	55
				5	15.9	9.9	102	6.7	54
				6	15.3	10.0	99	6.8	54
				7	14.8	9.8	97	6.7	54
	13-Aug-10	-	4.5	0.5	17.1	9.1	-	7.2	62
				1	17.1	9.1	-	7.2	62
				2	17.1	9.1	-	7.2	62
				3	17.1	9.1	-	7.2	62
				4	17.1	9.1	-	7.2	62
				5	17.1	9.1	-	7.1	62
				6	17.1	9.1	-	7.2	62
				7	17.1	9.1	-	7.2	62
				8	17.0	9.1	-	7.1	63
				9	16.9	9.1	-	7.2	63
	10-Sep-10	-	6.0	0.5	11.8	10.4	-	6.0	66
				1	11.7	10.4	-	6.0	66
				2	11.7	10.4	-	6.0	66
				3	11.7	10.4	-	6.0	66
				4	11.7	10.4	-	6.0	66
				5	11.7	10.4	-	6.1	66
				6	11.6	10.4	-	6.1	66
				7	11.6	10.4	-	6.1	66
				8	11.6	10.4	-	6.1	66
				9	11.5	10.3	-	6.1	67
SNAP31	18-Jul-10	-	3.4	0.2	17.5	9.4	99	6.6	143
				1	17.5	9.5	99	6.6	143
				2	17.6	9.5	100	6.7	143
				3	17.5	9.5	100	6.7	142

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	13-Aug-10	-	2.0	0.1	16.8	9.2	-	6.9	146
				0.5	17.0	9.2	-	6.9	146
				1	17.1	9.2	-	6.9	146
				1.5	17.2	9.2	-	6.9	146
				2	17.2	9.2	-	6.9	146
	10-Sep-10	-	3.0	0.5	12.1	10.4	-	6.5	148
				1	12.1	10.4	-	6.5	148
				1.5	12.1	10.4	-	6.6	148
				2	12.1	10.4	-	6.6	148
				2.5	12.1	10.4	-	6.6	148
NEL01	21-Jan-10	1.04	-	1	1.1	17.6	124	6.4	31
				2	1.0	16.6	116	6.4	26
				3	1.1	15.2	107	6.4	24
				4	1.2	14.5	102	6.3	23
				5	1.3	13.8	98	6.3	23
				6	1.4	13.6	96	6.2	24
				7	1.4	13.5	96	6.2	24
				8	1.5	13.3	95	6.3	25
				9	1.6	13.2	95	6.2	25
				10	2.2	12.5	91	6.1	25
				11	3.1	7.2	59	6.0	29
	14-Apr-10	1.24	-	1.5	0.6	15.0	104	6.3	26
				2	0.8	14.6	102	6.5	24
				3	1.1	13.8	98	6.5	23
				4	1.4	13.0	92	6.5	22
				5	1.5	12.6	90	6.5	23
				6	1.6	12.5	89	6.4	24
				7	1.7	12.5	90	6.4	25
				8	1.8	12.5	90	6.4	25
				9	1.9	12.1	88	6.4	27
				10	2.6	9.8	73	6.3	28
				11	3.2[b]	5.2[b]	42[b]	6.3[b]	29[b]
	19-Jul-10	-	8.5	0.2	15.9	9.7	99	6.6	21
				1	15.9	9.7	98	6.7	21
				2	15.8	9.7	98	6.7	21
				3	15.6	9.8	98	6.7	21
				4	15.4	9.9	98	6.9	21
				5	14.3	10.2	100	6.7	21
				6	13.6	10.4	100	6.7	20
				7	13.5	10.4	99	6.7	21
				8	13.2	10.4	99	6.7	21
				9	13.0	10.4	99	6.6	21
				10	12.8	10.4	98	6.6	21
				11	12.6	10.4	98	6.6	21
	14-Sep-10	-		0.13	11.3	10.3	94	6.0	21
				1	11.3	10.3	94	6.1	21
				2	11.3	10.3	94	6.1	21
				3	11.3	10.3	94	6.2	21
				4	11.3	10.3	94	6.2	21
				5	11.3	10.3	94	6.2	21
				6	11.3	10.3	94	6.3	21
				7	11.3	10.3	94	6.3	21
				8	11.3	10.3	94	6.3	21
				9	11.2	10.3	94	6.4	21
NEL02	21-Jan-10	1.04	-	1	0.3	15.3	113	6.5	27
				2	0.7	15.3	106	6.5	23
				3	0.9	14.2	99	6.4	22
				4	1.0	13.6	96	6.3	22
				5	1.1	13.4	94	6.2	22
				6	1.2	13.2	93	6.2	22
				7	1.3	13.1	93	6.1	22
				8	1.4	13.0	92	6.1	22
				9	1.6	12.7	90	6.1	22
				10	1.7	12.5	90	6.0	22
				11	1.8	12.1	87	6.0	22

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	13-Apr-10	1.38	-	1.5	1.0	14.4	101	5.9	25
				2	1.1	13.8	98	5.9	24
				3	1.3	13.0	92	6.0	22
				4	1.5	11.9	85	6.0	21
				5	1.6	11.7	84	6.0	22
				6	1.7	11.6	83	6.0	22
				7	1.8	11.3	81	6.0	22
				8	1.8	11.2	81	6.0	22
				9	1.9	11.0	80	6.0	22
				10	2.1	10.7	78	6.0	22
				11	2.2	10.3	75	6.0	22
	19-Jul-10	-	7	0.2	15.5	9.8	98	6.9	20
				1	15.5	9.7	98	6.9	20
				2	15.5	9.8	98	6.9	20
				3	15.5	9.8	98	6.9	20
				4	15.5	9.8	98	6.9	20
				5	15.5	9.8	98	6.9	20
				6	15.5	9.8	98	6.9	20
				7	14.5	10.0	99	6.9	21
				8	13.6	10.3	99	6.9	20
				9	13.4	10.4	99	6.9	20
				10	12.8	10.4	99	6.9	20
				11	12.7	10.4	98	6.9	20
	15-Sep-10	-	-	0.3	10.7	10.2	91	6.4	21
				1	10.6	10.3	93	6.4	21
				2	10.6	10.6	92	6.4	21
				3	10.6	10.3	92	6.4	21
				4	10.6	10.3	92	6.4	21
				5	10.6	10.3	92	6.4	21
				6	10.6	10.3	92	6.4	21
				7	10.6	10.3	92	6.4	21
				8	10.5	10.3	92	6.4	21
				9	10.4	10.3	92	6.5	21
NEL03	21-Jan-10	0.99	-	1	0.3	16.8	116	6.5	29
				2	0.7	16.5	115	6.5	25
				3	0.9	15.2	107	6.5	22
				4	1.1	14.0	99	6.4	22
				5	1.2	13.6	96	6.3	22
				6	1.3	13.2	93	6.2	22
				7	1.4	12.9	92	6.2	22
				8	1.5	12.8	91	6.1	22
				9	1.6	12.7	91	6.0	22
	14-Apr-10	1.18	-	1.5	1.5	14.3	102	6.7	28
				2	1.2	14.4	102	6.7	24
				3	1.2	13.8	98	6.6	23
				4	1.4	13.0	93	6.6	22
				5	1.6	12.1	87	6.6	22
				6	1.7	11.8	85	6.6	22
				7	1.8	11.4	82	6.6	22
				8	1.9	11.2	81	6.5	22
				9	2.0	11.2	81	6.5	23
	19-Jul-10	-	7.5	0.2	15.5	9.8	98	7.1	21
				1	15.5	9.8	99	7.1	21
				2	15.5	9.8	98	7.1	21
				3	15.5	9.8	98	7.0	21
				4	15.5	9.8	98	7.0	21
				5	15.5	9.8	98	7.0	21
				6	15.5	9.8	98	7.0	21
				7	15.4	9.8	98	7.0	21
				8	15.5	10.1	98	7.0	21
				9	13.3	10.4	99	7.0	20
	16-Sep-10	-	6.5	0.2	9.7	10.7	95	8.1[g]	21
				1	9.8	10.4	91	8.0[g]	21
				2	9.8	10.3	91	7.8[g]	21
				3	9.9	10.5	92	7.6[g]	21
				4	9.9	10.5	93	7.6[g]	21
				5	9.9	10.5	92	7.5[g]	21
				6	9.9	10.5	92	7.5[g]	21
				7	9.8	10.4	92	7.4[g]	21
				8	9.8	10.3	91	7.3[g]	21
				9	9.8	10.3	91	7.3[g]	21
				10	9.8[b]	9.1[b]	85[b]	7.1[g]	34[b]

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
NEL04	21-Jan-10	0.61	-	1	0.5	17.6	122	6.5	30
				2	0.6	16.7	116	6.4	25
				3	1.0	15.1	106	6.3	23
				4	1.1	14.0	98	6.3	23
				5	1.2	13.7	97	6.1	23
				6	1.3	13.5	95	6.1	23
				7	1.4	13.1	93	6.1	23
				8	1.5	12.9	92	6.1	23
				9	1.6	12.8	91	6.1	23
				10	1.7	12.6	90	6.1	23
				11	1.7	12.4	89	6.1	22
				12	1.8	12.2	88	6.0	23
	14-Apr-10	1.07	-	1.5	0.4	15.2	105	6.5	27
				2	0.7	14.5	101	6.5	25
				3	1.1	13.2	94	6.5	23
				4	1.4	12.6	89	6.5	22
				5	1.5	12.1	87	6.5	22
				6	1.6	11.9	85	6.5	23
				7	1.7	11.6	83	6.5	23
				8	1.8	11.4	82	6.5	23
				9	1.9	11.2	81	6.5	22
				10	2.0	10.7	78	6.4	23
				11	2.1	10.4	76	6.4	23
				12	2.1	10.3	75	6.4	23
	19-Jul-10	-	8.5	0.2	16.1	10.0	102	6.9	21
				1	15.9	9.8	99	6.9	21
				2	15.9	9.8	99	6.9	21
				3	15.7	9.9	99	6.8	21
				4	15.6	9.9	99	6.5	21
				5	15.1	10.0	99	6.5	21
				6	14.6	10.1	100	6.8	21
				7	14.1	10.4	101	6.8	21
				8	13.6	10.4	100	6.8	21
				9	13.2	10.5	100	6.8	21
				10	12.6	10.5	99	6.8	20
				11	13.3	10.5	98	6.8	20
				12	12.2	10.5	98	6.8	20
	14-Sep-10	-	-	0.3	11.4	10.3	94	6.3	21
				1	11.4	10.3	94	6.4	21
				2	11.4	10.2	94	6.4	21
				3	11.4	10.2	94	6.4	21
				4	11.4	10.2	94	6.4	21
				5	11.4	10.2	93	6.4	21
				6	11.4	10.2	93	6.5	21
				7	11.4	10.2	93	6.5	21
				8	11.4	10.2	93	6.5	21
				9	11.4	10.2	93	6.5	21
				10	11.4	10.2	93	6.6	20
				11	11.4	10.2	93	6.6	21
				12	11.4	10.2	93	6.6	21
				12.5	11.4[b]	2.5[b]	25[b]	6.3[b]	44[b]
NEL05	21-Jan-10	0.62	-	1	0.1	17.9	122	6.4	30
				2	0.6	16.9	118	6.4	25
				3	0.9	15.7	109	6.4	23
				4	1.1	14.7	103	6.4	22
				5	1.2	14.1	99	6.2	22
				6	1.3	13.7	97	6.1	22
				7	1.4	13.4	95	6.1	22
				8	1.4	13.2	94	6.0	22
				9	1.5	12.9	92	6.0	22
				10	1.5	12.8	91	6.0	22
	14-Apr-10	1.12	-	1.5	0.5	14.8	102	6.5	26
				2	0.8	14.3	100	6.5	25
				3	1.1	13.6	96	6.5	23
				4	1.4	12.7	90	6.5	22
				5	1.5	11.9	85	6.5	21
				6	1.7	11.5	82	6.5	21
				7	1.7	11.1	80	6.5	22
				8	1.8	10.9	79	6.5	22
				9	1.8	10.9	78	6.5	22
				10	1.9	10.8	78	6.4	22

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	19-Jul-10	-	9	0.2	15.8	10.1	102	6.9	20
				1	15.8	9.9	100	6.9	20
				2	15.7	9.8	99	8.9	20
				3	15.7	9.8	99	6.8	20
				4	15.7	9.8	98	6.9	20
				5	15.6	9.8	98	6.8	20
				6	15.5	9.8	98	6.8	20
				7	15.2	9.9	98	6.9	20
				8	14.0	10.2	99	6.8	20
				9	13.2	10.4	99	6.9	20
				10	12.6	10.5	98	6.8	20
				11	12.3[b]	5.8[b]	54[b]	6.6[b]	28[b]
	12-Sep-10	-	6.5	0.2	9.6	10.5	93	7.2	21
				1	9.6	10.1	89	7.0	21
				2	9.7	10.1	89	6.7	21
				3	9.7	10.1	89	6.7	21
				4	9.7	10.1	89	6.7	21
				5	9.7	10.1	89	6.7	21
				6	9.7	10.1	89	6.7	21
				7	9.7	10.1	89	6.7	21
				8	9.7	10.1	89	6.7	21
				9	9.7	9.5	88	6.6	21
KING01	27-Jan-10	-	-	0.1	1.1	15.6	109	8.7	25
	12-Apr-10	-	-	0.1	0.7	14.1	98	7.3	25
	19-Jul-10	-	-	0.2	17.2	9.7	101	7.0	20
	13-Sep-10	-	-	0.2	10.7	11.0	99	5.7	21
SNP02-20d	20-Feb-11	0.97	-	1.3	1.2	13.2	93	7.1	369
				2	1.4	13.2	94	7.1	369
				3	1.3	13.2	94	7.1	402
				4	1.3	13.4	95	7.0	417
				5	1.3	13.4	95	7.0	418
				6	1.3	13.4	95	7.0	420
				7	1.3	13.4	95	7.0	421
				8	1.3	13.4	95	7.4	424
				9	1.3	13.4	95	7.4	425
				10	1.3	13.2	94	7.4	426
	21-Mar-11	0.95	-	1.5	1.5	13.2	94	6.8	381
				2.0	1.4	13.7	97	6.8	397
				3	1.3	13.9	99	6.8	427
				4	1.3	14.0	99	6.8	430
				5	1.3	13.9	99	6.9	433
				6	1.3	14.0	99	6.9	434
				7	1.3	14.0	99	6.9	435
				8	1.3	14.0	99	6.9	435
				9	1.3	14.0	99	6.9	435
				10	1.3	13.9	99	6.9	436
				11	1.9	12.7	93	6.9	417
				11.6 [b]	2.0 [b]	7.1 [b]	51 [b]	6.8 [b]	392 [b]
	12-Apr-11	0.95	-	1.3	0.4	13.8	95	6.9	388
				2	1.2	13.6	96	6.9	388
				3	1.3	13.7	98	6.8	430
				4	1.3	13.8	98	6.8	431
				5	1.3	13.8	98	6.8	434
				6	1.3	13.8	98	6.9	434
				7	1.4	13.8	98	6.8	436
				8	1.4	13.8	98	6.9	438
				9	1.4	13.8	98	6.9	438
				10	1.4	13.8	98	6.9	438
				11	1.4	13.7	98	6.9	439
				12 [b]	2.0 [b]	1.9 [b]	14 [b]	6.6 [b]	424 [b]
	26-Apr-11 [h]	1.00	-	1.3	0.4	15.0	106	6.9	415
				2	1.4	13.7	98	6.8	391
				3	1.5	13.8	98	6.9	447
				4	1.4	13.9	99	6.9	448
				5	1.5	14.0	100	6.9	449
				6	1.5	14.0	100	6.9	453
				7	1.5	14.0	100	6.9	456
				8	1.5	14.0	100	6.9	454
				9	1.5	14.0	100	6.9	454
				10	1.5	14.0	100	6.6	454
				11	1.5	13.9	100	6.9	455
				12	2.1	6.9	53	6.5	424

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	8-May-11	1.00	-	1.5	1.2	14.3	101	6.9	413
				2	1.7	13.3	96	6.9	401
				3	1.6	14.2	102	6.9	444
				4	1.5	14.3	102	6.9	453
				5	1.5	14.3	102	6.9	455
				6	1.5	14.3	103	6.9	455
				7	1.6	14.3	103	6.9	457
				8	1.6	14.3	102	6.9	459
				9	1.6	14.3	103	6.9	457
				10	1.6	14.3	102	6.9	457
				11	1.7	14.0	101	6.9	456
				12	2.2	12.4	91	6.8	444
	5-Jul-11	-	7.5	0.1	12.4	11.1	105	7.0	324
				1	12.3	10.9	102	7.1	325
				2	12.3	10.9	102	7.1	325
				3	12.3	10.9	102	7.1	325
				4	12.3	10.9	102	7.2	325
				5	12.3	10.9	101	7.2	325
				6	12.3	10.9	101	7.2	325
				7	12.2	10.9	101	7.2	325
				8	12.2	10.9	101	7.2	325
				9	12.2	10.9	101	7.2	325
				10	12.2	10.9	101	7.2	325
				11	12.2	10.9	101	7.2	325
	9-Aug-11	-	n/a	0.1	17.5	9.8	102	6.4	354
				1	17.5	9.7	102	6.6	354
				2	17.5	9.7	102	6.7	354
				3	17.5	9.7	102	6.8	354
				4	17.4	9.7	102	6.8	355
				5	17.4	9.7	102	6.9	355
				6	17.3	9.8	102	7.0	356
				7	17.3	9.9	103	7.1	359
				8	17.3	9.9	103	7.1	357
				9	17.1	9.9	103	7.2	358
				10	17.1	9.9	103	7.2	363
				11	17.0	9.9	102	7.2	363
				12	16.9	9.8	102	7.2	363
				13	16.6	4.9	53	7.0	365
	11-Sep-11	-	11.0	0.3	11.3	10.5	96	6.9	358
				1	11.3	10.5	96	6.9	356
				2	11.2	10.5	96	7.0	356
				3	11.2	10.5	96	7.0	357
				4	11.1	10.5	96	7.1	357
				5	11.1	10.5	96	7.1	357
				6	11.1	10.5	96	7.1	357
				7	11.1	10.5	96	7.2	357
				8	11.1	10.5	96	7.2	357
				9	11.1	10.5	96	7.2	357
				10	11.1	10.5	96	7.2	357
				11	11.1	10.5	96	7.2	357
				12	11.1	10.5	95	7.2	357

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNP02-20e	20-Feb-11	1.20	-	1.5	1.2	13.9	99	6.8	403
				2	1.2	13.5	96	6.8	405
				3	1.3	13.4	95	6.8	404
				4	1.3	13.4	95	6.8	417
				5	1.2	13.4	95	6.8	421
				6	1.3	13.5	96	6.8	423
				7	1.2	13.5	96	7.0	424
				8	1.2	13.5	96	7.0	424
				9	1.2	13.5	96	7.0	424
				10	1.2	13.5	96	7.1	424
				11	1.2	13.5	96	7.2	425
				12	1.2	13.5	96	7.3	425
				13	1.3	13.5	96	7.5	425
				14	1.3	13.4	95	7.6	424
				15	1.3	13.4	95	7.7	424
				16	1.3	13.4	95	7.8	423
				17	1.3	13.4	95	7.8	425
				18	1.3	13.4	95	7.8	423
				19	1.3	13.4	95	7.8	424
				20	1.3	13.4	95	7.8	425
				21	1.3	13.4	95	7.8	425
				22	1.3	13.3	94	7.8	423
				23	1.4	13.1	93	7.8	420
				24	1.4	13.0	93	7.8	419
				25 [(b)]	1.4 [(b)]	0.8 [(b)]	6.1 [(b)]	7.5 [(b)]	398 [(b)]
	20-Mar-11	1.05	-	1.5	1.9	14.0	101	6.2	425
				2	1.6	14.2	101	6.3	427
				3	1.4	14.5	103	6.3	434
				4	1.4	14.5	104	6.4	434
				5	1.3	14.4	103	6.4	435
				6	1.3	14.3	101	6.4	435
				7	1.3	14.2	101	6.5	433
				8	1.3	14.0	100	6.5	434
				9	1.3	14.0	99	6.5	434
				10	1.3	13.9	99	6.5	434
				11	1.3	13.9	99	6.6	434
				12	1.3	13.9	99	6.6	434
				13	1.3	13.9	99	6.6	435
				14	1.3	13.1	98	6.6	433
				15	1.3	13.8	98	6.6	433
				16	1.3	13.8	98	6.6	433
				17	1.3	13.8	98	6.6	432
				18	1.3	13.8	98	6.6	434
				19	1.3	13.7	97	6.6	433
				20	1.3	13.7	97	6.7	432
				21	1.3	13.6	97	6.7	431
				22	1.4	13.5	96	6.7	430
				23	1.4	13.5	96	6.7	430
				24	1.4	13.3	95	6.7	428
				25	1.4	13.1	94	6.7	428
				26	1.4	12.9	92	6.7	427
				26.8 [(b)]	1.6 [(b)]	3.3 [(b)]	25 [(b)]	6.5 [(b)]	377 [(b)]

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	10-Apr-11	1.05	-	1.4	1.6	13.7	98	6.3	442
				2	1.5	13.6	97	6.3	443
				3	1.3	13.7	97	6.4	442
				4	1.3	13.7	98	6.5	443
				5	1.3	13.7	97	6.5	442
				6	1.3	13.7	98	6.5	441
				7	1.3	13.7	97	6.6	441
				8	1.3	13.7	97	6.6	440
				9	1.3	13.7	98	6.6	440
				10	1.3	13.7	97	6.6	441
				11	1.4	13.6	97	6.7	443
				12	1.4	13.6	97	6.7	443
				13	1.4	13.6	97	6.7	443
				14	1.4	13.6	97	6.7	444
				15	1.4	13.6	97	6.7	444
				16	1.4	13.6	97	6.7	443
				17	1.4	13.6	97	6.7	444
				18	1.4	13.6	97	6.7	444
				19	1.4	13.6	97	6.7	444
				20	1.4	13.6	98	6.7	444
				21	1.4	13.6	97	6.7	444
				22	1.4	13.6	97	6.7	444
				23	1.4	13.6	97	6.7	444
				24	1.4	13.6	97	6.8	444
				25	1.4	13.6	97	6.8	444
				26	1.4	13.5	96	6.8	444
				27	1.4	13.2	94	6.8	444
	7-May-11	0.98	-	1.5	0.9	15.1	105	6.9	446
				2	1.3	14.5	103	6.9	445
				3	1.4	14.4	102	6.9	448
				4	1.4	14.4	102	6.9	449
				5	1.5	14.4	103	6.9	455
				6	1.5	14.3	102	6.9	455
				7	1.5	14.4	103	6.9	455
				8	1.5	14.4	103	6.9	456
				9	1.5	14.4	103	6.9	458
				10	1.6	14.3	103	6.9	458
				11	1.6	14.3	103	6.9	459
				12	1.6	14.3	103	6.9	459
				13	1.6	14.3	102	6.9	459
				14	1.6	14.3	102	6.9	459
				15	1.6	14.3	102	6.9	459
				16	1.6	14.3	102	6.9	459
				17	1.6	14.3	102	6.9	459
				18	1.6	14.3	102	6.9	459
				19	1.6	14.3	102	6.9	460
				20	1.6	14.1	101	6.9	460
				21	1.6	14.2	101	6.9	460
				22	1.6	14.2	102	6.9	460
				23	1.6	14.2	102	6.9	460
				24	1.6	14.1	101	6.9	460
				25	1.6	14.1	101	6.9	460
				26	1.6	14.1	101	6.9	459
				27	1.6	14.1	101	6.9	459

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	5-Jul-11	-	7.0	0.1	12.6	10.9	102	7.1	322
				1	12.6	10.9	102	7.2	322
				2	12.6	10.9	102	7.2	322
				3	12.6	10.9	102	7.2	322
				4	12.6	10.9	102	7.2	322
				5	12.5	10.9	102	7.2	324
				6	12.5	10.9	102	7.2	324
				7	12.5	10.9	102	7.2	324
				8	12.5	10.9	102	7.2	325
				9	12.5	10.9	102	7.2	325
				10	12.4	10.9	102	7.2	326
				11	12.5	10.9	102	7.2	326
				12	12.4	10.9	102	7.2	332
				13	12.3	10.9	102	7.2	332
				14	12.2	11.0	102	7.2	331
				15	11.9	11.0	102	7.2	330
				16	11.8	11.0	102	7.2	330
				17	11.6	11.0	101	7.2	330
				18	11.3	11.0	101	7.2	329
				19	10.3	11.3	101	7.1	336
				20	6.3	12.7	102	7.0	377
				21	5.2	13.3	105	6.9	385
				22	4.7	13.4	105	6.8	389
				23	4.6	13.3	103	6.7	391
				24	4.6	13.1	101	6.7	391
				25	4.5	12.7	99	6.5	392
				26	4.5	12.7	99	6.5	392
				27	4.4	12.2	94	6.5	392
				28	4.4	11.0	84	6.3	392
	10-Aug-11	-	n/a	0.3	17.3	9.6	101	7.4	355
				1	17.3	9.6	100	7.5	355
				2	17.3	9.6	100	7.5	356
				3	17.3	9.6	100	7.6	356
				4	17.3	9.6	100	7.6	356
				5	17.3	9.6	100	7.6	357
				6	17.3	9.6	100	7.6	358
				7	17.3	9.6	100	7.6	358
				8	17.3	9.6	100	7.6	361
				9	17.3	9.7	101	7.6	363
				10	17.3	9.7	101	7.6	364
				11	17.3	9.7	101	7.6	363
				12	17.2	9.7	101	7.6	364
				13	17.2	9.7	101	7.6	365
				14	17.1	9.7	101	7.6	366
				15	17.1	9.7	101	7.6	366
				16	16.7	9.8	101	7.6	359
				17	16.4	9.7	99	7.6	354
				18	16.2	9.6	97	7.6	353
				19	15.4	9.5	95	7.6	353
				20	11.1	10.2	94	7.4	382
				21	8.0	10.9	92	7.3	410
				22	7.1	10.9	90	7.2	410
				23	6.3	10.9	89	7.2	408
				24	5.5	10.8	87	7.1	414
				25	5.2	10.0	81	7.0	409

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	11-Sep-11	-	10.0	0.3	11.2	10.9	99	6.6	362
				1	11.2	10.9	99	6.6	360
				2	11.2	10.8	99	6.7	360
				3	11.2	10.8	99	6.7	361
				4	11.2	10.8	99	6.8	360
				5	11.2	10.8	99	6.8	360
				6	11.2	10.8	99	6.8	360
				7	11.2	10.8	99	6.9	361
				8	11.2	10.8	99	6.9	360
				9	11.2	10.8	99	6.9	361
				10	11.2	10.8	99	6.9	360
				11	11.2	10.8	99	6.9	360
				12	11.2	10.8	99	7.0	360
				13	11.2	10.8	98	7.0	359
				14	11.2	10.8	98	7.0	359
				15	11.2	10.8	98	7.0	359
				16	11.2	10.8	98	7.0	359
				17	11.2	10.8	98	7.0	359
				18	11.2	10.8	98	7.1	359
				19	11.2	10.8	98	7.1	359
				20	11.2	10.8	98	7.1	359
				21	11.2	10.8	98	7.1	359
				22	11.2	10.8	98	7.1	359
				23	11.2	10.8	98	7.1	359
				24	11.2	10.8	99	7.1	359
				25	11.2	10.8	98	7.1	359
				26	11.2	10.8	98	7.2	359
				27	11.2	10.8	98	7.2	359
				28	11.1	10.8	98	7.2	358
SNP02-20f	20-Feb-11	0.85	-	1.1	2.0	13.9	100	6.8	380
				2	1.8	13.3	96	6.8	358
				3	1.7	13.2	95	6.8	397
				4	1.6	13.3	95	6.8	407
				5	1.5	13.4	96	6.8	416
				6	1.5	13.4	96	6.8	418
				7	1.4	13.4	96	6.8	420
				8	1.4	13.4	96	6.8	421
				9	1.4	13.4	96	7.0	420
				10	1.3	13.4	95	7.0	421
				11	1.3	13.4	95	7.0	421
				12	1.3	13.4	95	7.1	422
				13	1.4	13.3	96	7.1	420
				14	1.6	11.9	85	7.6	413
	21-Mar-11	1.11	-	1.5	1.2	13.8	98	7.0	373
				2	1.3	14.3	101	7.0	394
				3	1.3	14.6	103	7.0	426
				4	1.3	14.8	105	7.0	430
				5	1.3	15.0	107	7.0	433
				6	1.3	15.0	107	7.0	433
				7	1.3	15.1	107	7.0	433
				8	1.3	15.1	107	7.0	433
				9	1.3	15.2	108	7.0	433
				10	1.3	14.5	103	7.0	434
				11	1.3	14.3	102	7.0	434
				12	1.3	14.0	100	7.0	434
				13	1.5	13.3	95	7.0	427
				14	1.7	11.9	85	7.0	421
	10-Apr-11	1.15	-	1.5	1.3	13.4	95	6.6	381
				2	1.5	13.3	95	6.6	397
				3	1.5	13.7	97	6.6	434
				4	1.4	13.7	98	6.7	435
				5	1.4	13.7	98	6.7	435
				6	1.4	13.7	98	6.7	436
				7	1.4	13.7	97	6.8	438
				8	1.4	13.6	97	6.8	438
				9	1.4	13.7	97	6.8	439
				10	1.4	13.7	97	6.8	439
				11	1.4	13.7	97	6.8	440
				12	1.4	13.7	97	6.8	440
				13	1.4	13.7	97	6.8	440
				14	1.4	13.6	97	6.8	441

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	8-May-11	1.14	-	1.5	1.2	14.1	100	6.9	403
				2	1.5	14.0	100	6.9	422
				3	1.6	14.1	101	6.9	445
				4	1.6	14.2	102	6.9	456
				5	1.6	14.3	102	6.9	456
				6	1.6	14.3	102	6.9	460
				7	1.6	14.2	102	6.9	464
				8	1.6	14.3	102	6.9	460
				9	1.6	14.3	102	6.9	458
				10	1.6	14.3	103	6.9	459
				11	1.6	14.3	103	6.9	459
				12	1.6	14.3	103	6.9	459
				13	1.6	14.3	102	6.9	460
				14	1.7	13.8	99	6.9	456
	5-Jul-11	-	6.5	0.1	12.4	11.0	103	6.9	324
				1	12.4	10.8	102	7.0	324
				2	12.3	10.8	101	7.0	325
				3	12.3	10.8	101	7.1	325
				4	12.3	10.8	101	7.1	325
				5	12.3	10.8	101	7.1	325
				6	12.3	10.8	101	7.1	325
				7	12.3	10.8	101	7.1	326
				8	12.3	10.8	101	7.1	327
				9	12.3	10.8	101	7.1	328
				10	12.2	10.8	101	7.1	330
				11	12.2	10.8	101	7.1	328
				12	12.1	10.8	101	7.1	328
				13	12.0	10.8	101	7.1	330
				14	11.9	10.9	101	7.1	330
	9-Aug-11	-	n/a	0.1	17.5	9.8	103	7.4	354
				1	17.5	9.8	103	7.5	354
				2	17.5	9.8	102	7.5	354
				3	17.5	9.8	102	7.6	354
				4	17.4	9.8	103	7.6	356
				5	17.3	9.8	103	7.6	357
				6	17.3	9.9	103	7.6	364
				7	17.2	9.9	103	7.6	365
				8	17.1	9.9	103	7.6	368
				9	17.1	9.9	103	7.6	369
				10	17.1	9.9	103	7.6	369
				11	17.1	9.9	103	7.6	368
				12	17.0	9.9	103	7.6	362
				13	17.0	9.9	103	7.6	361
				14	16.7	6.7	75	7.3	360
	11-Sep-11	-	11.0	0.3	10.9	10.6	97	7.3	359
				1	11.0	10.6	96	7.4	357
				2	11.0	10.6	96	7.4	357
				3	11.0	10.6	96	7.4	357
				4	11.0	10.6	96	7.4	357
				5	11.0	10.6	96	7.4	357
				6	11.0	10.6	96	7.4	357
				7	11.0	10.6	96	7.4	357
				8	11.0	10.6	96	7.4	357
				9	11.0	10.6	96	7.4	357
				10	11.0	10.6	97	7.4	361
				11	11.0	10.6	97	7.4	361
				12	11.0	10.7	97	7.4	360
				13	11.0	10.7	97	7.4	362
SNAP03	19-Feb-11	1.00	-	1.3	0.5	15.5	107	7.2 [(i)]	397
				2	0.8	15.3	107	7.2 [(i)]	391
				3	1.0	15.1	107	7.2 [(i)]	388
				4	1.1	14.8	105	7.2 [(i)]	398
				5	1.2	14.4	102	7.1 [(i)]	406
				6	1.2	14.1	100	7.1 [(i)]	414
				7	1.3	13.8	98	7.1 [(i)]	413
				8	1.4	13.5	97	7.2 [(i)]	411
				9	1.6	13.3	96	7.2 [(i)]	407
				10	1.9	12.9	93	7.2 [(i)]	403
				11	2.2	12.4	91	7.2 [(i)]	398
				12	2.4	12.0	88	7.2 [(i)]	394

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	19-Mar-11	1.15	-	1.5	1.2	13.8	98	6.8	387
				2	1.2	13.8	98	6.8	385
				3	1.2	13.8	98	6.8	414
				4	1.2	13.9	98	6.8	426
				5	1.3	13.8	98	6.8	429
				6	1.3	13.8	98	6.8	431
				7	1.3	13.7	97	6.8	431
				8	1.3	13.5	96	6.8	430
				9	1.6	13.0	93	6.8	420
				10	1.9	12.6	91	6.8	416
				11	2.1	12.3	90	6.8	413
				12	2.4	11.0	80	6.8	410
				12.3	2.5	7.8	57	6.7	403
	11-Apr-11	1.30	-	1.6	0.7	13.4	93	6.8	380
				2	1.1	13.2	93	6.8	375
				3	1.3	13.2	98	6.8	408
				4	1.3	13.8	98	6.8	428
				5	1.4	13.8	98	6.9	431
				6	1.4	13.6	97	6.9	436
				7	1.4	13.6	97	6.9	436
				8	1.4	13.5	96	6.9	435
				9	1.6	13.3	95	6.9	431
				10	1.8	12.9	93	6.8	426
				11	2.0	12.6	91	6.9	423
				12	2.2	12.1	88	6.8	420
				13 [b]	2.5 [b]	4.4 [b]	38 [b]	6.7 [b]	395 [b]
	6-May-11	1.31	-	1.5	1.0	14.1	99	6.8	393
				2	1.4	13.9	99	6.8	385
				3	1.5	14.5	104	6.9	431
				4	1.5	14.7	105	6.9	448
				5	1.5	14.6	104	6.9	452
				6	1.5	14.5	104	6.9	453
				7	1.5	14.5	104	6.9	454
				8	1.5	14.5	104	6.9	457
				9	1.7	14.3	103	6.9	452
				10	1.9	14.0	101	6.8	446
				11	2.1	13.7	99	6.8	443
				12	2.3	12.9	95	6.7	442
	7-Jul-11	-	7.5	0.1	13.7	10.8	105	7.1	325
				1	13.6	10.9	105	7.1	325
				2	13.3	10.9	104	7.1	324
				3	13.1	10.9	104	7.1	324
				4	13.1	10.9	104	7.2	323
				5	13.1	10.9	104	7.2	323
				6	13.1	10.9	104	7.2	323
				7	13.1	10.9	104	7.2	323
				8	13.1	10.9	104	7.2	323
				9	13.0	10.9	104	7.1	324
				10	13.0	10.9	104	7.2	324
				11	13.0	10.9	104	7.2	324
				12	13.0	10.9	103	7.2	324
				13	13.0	10.6	101	7.1	324
	11-Aug-11	-	7.5	0.1	17.1	9.7	*101*	7.6	355
				1	17.2	9.7	*101*	7.6	355
				2	17.2	9.6	*100*	7.6	355
				3	17.2	9.6	*100*	7.6	355
				4	17.2	9.6	*100*	7.6	355
				5	17.2	9.6	*100*	7.6	355
				6	17.2	9.7	*101*	7.6	355
				7	17.1	9.7	*101*	7.6	355
				8	17.1	9.7	*101*	7.6	355
				9	17.1	9.7	*101*	7.6	354
				10	17.1	9.7	*101*	7.6	354
				11	17.1	9.7	*101*	7.6	354
				12	17.1	9.7	*101*	7.7	354
				13	16.6	4.6	*47*	6.8	354

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	9-Sep-11	-	11.5	0.3	11.4	10.7	98	7.4	340
				1	11.4	10.7	98	7.4	340
				2	11.3	10.7	98	7.5	341
				3	11.3	10.7	98	7.5	340
				4	11.3	10.7	98	7.5	340
				5	11.3	10.7	98	7.5	340
				6	11.3	10.7	98	7.5	340
				7	11.3	10.7	98	7.5	340
				8	11.2	10.7	98	7.5	340
				9	11.2	10.7	98	7.5	340
				10	11.2	10.8	98	7.5	340
				11	11.2	10.7	98	7.5	340
				12	11.2	10.7	97	7.5	340
				13	11.2	7.4	72	7.1	340
	8-Sept-11 [j]	-	-	0.3	12.1	10.8	100	7.5	341
				1	11.9	10.7	98	7.5	341
				2	11.4	10.7	98	7.5	343
				3	11.3	10.8	99	7.5	341
				4	11.2	10.8	99	7.5	340
				5	11.2	10.8	95	7.5	341
				6	11.2	10.8	96	7.5	340
				7	11.2	10.8	96	7.5	340
				8	11.2	10.8	96	7.5	340
				9	11.1	10.8	98	7.5	339
				10	11.1	10.8	99	7.5	339
				11	11.1	10.9	99	7.5	340
				12	11.1	10.9	98	7.5	340
SNAP05	18-Feb-11	1.00	-	1.3	1.1	13.8	*98*	6.8	376
				2	1.2	13.7	*97*	6.8	367
				3	1.3	13.7	*97*	6.8	368
				4	1.5	13.6	*97*	6.8	371
				5	1.4	13.4	*96*	6.7	388
				6	1.5	13.1	*94*	6.7	397
				7	1.5	12.9	*93*	6.6	399
				8	1.6	12.8	*92*	6.6	395
				9	1.9	12.4	*90*	6.6	389
				10	2.3	12.0	*87*	6.6	385
				11	2.6	11.6	*85*	6.6	382
				12	2.8	11.2	*83*	6.6	380
				13	2.9	10.4	*77*	6.6	378
	19-Mar-11	1.00	-	1.5	1.3	13.1	93	6.5	374
				2	1.3	13.1	93	6.5	370
				3	1.3	13.4	95	6.6	391
				4	1.3	13.7	97	6.6	411
				5	1.3	13.7	97	6.6	425
				6	1.4	13.5	96	6.6	425
				7	1.5	13.1	94	6.7	416
				8	1.8	12.5	90	6.7	407
				9	2.2	12.1	88	6.7	403
				10	2.5	11.7	86	6.7	399
				11	2.7	11.3	83	6.7	396
				12	2.8	10.6	79	6.7	396
				13	3.1	9.8	73	6.7	396
				13.8 [b]	3.3 [b]	4.4 [b]	35 [b]	6.6 [b]	374 [b]
	11-Apr-11	1.18	-	1.5	0.8	12.9	90	6.9	373
				2	1.2	12.8	91	6.9	369
				3	1.5	12.5	90	6.9	367
				4	1.4	13.9	99	6.8	414
				5	1.4	13.9	99	6.8	430
				6	1.4	13.7	97	6.9	432
				7	1.5	13.3	95	6.8	428
				8	1.7	12.9	93	6.8	422
				9	2.0	12.3	89	6.8	416
				10	2.4	12.0	88	6.8	413
				11	2.7	11.6	85	6.8	410
				12	2.8	11.3	84	6.8	408
				13	3.0	10.7	80	6.8	407

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	7-May-11	1.25	-	1.5	1.3	13.8	98	6.9	401
				2	1.4	13.7	97	6.9	389
				3	1.7	13.0	93	6.8	395
				4	1.5	14.6	105	6.9	444
				5	1.5	14.4	103	6.9	451
				6	1.5	14.3	102	6.9	453
				7	1.6	14.1	101	6.9	453
				8	1.8	13.7	99	6.9	447
				9	2.2	13.3	96	6.8	440
				10	2.6	12.8	94	6.8	435
				11	2.8	12.2	90	6.7	432
				12	2.9	12.0	89	6.7	431
				13	3.1	11.2	84	6.7	429
				14	3.2	10.5	79	6.6	429
	12-Jul-11	-	10.0	0.1	16.3	10.2	104	6.8	335
				1	16.3	10.2	104	7.0	335
				2	16.2	10.2	104	7.1	335
				3	16.1	10.2	104	7.1	335
				4	15.8	10.3	104	7.2	336
				5	15.2	10.5	106	7.2	337
				6	14.6	10.9	107	7.3	336
				7	14.5	10.9	107	7.3	337
				8	14.3	10.9	106	7.4	336
				9	14.1	11.0	107	7.4	335
				10	14.1	11.0	107	7.4	335
				11	13.9	11.0	107	7.5	335
				12	13.9	11.0	106	7.5	335
				13	13.7	11.0	106	7.5	333
				14	13.3	10.8	104	7.5	334
	9-Sep-11	-	9.0	0.3	11.2	10.8	98	7.4	340
				1	11.2	10.7	98	7.4	340
				2	11.2	10.7	98	7.4	340
				3	11.2	10.7	98	7.4	340
				4	11.2	10.7	98	7.5	339
				5	11.2	10.7	98	7.5	340
				6	11.2	10.7	98	7.5	340
				7	11.2	10.7	98	7.5	340
				8	11.2	10.7	98	7.5	340
				9	11.2	10.7	98	7.5	340
				10	11.2	10.7	98	7.5	340
				11	11.2	10.7	98	7.5	340
				12	11.2	10.7	98	7.5	340
				13	11.2	10.7	98	7.5	339
	11-Sept-11 [j]	-	-	0.3	11.1	10.8	98	7.2	349
				1	11.1	10.8	98	7.2	349
				2	11.1	10.8	98	7.2	349
				3	11.1	10.8	99	7.3	349
				4	11.1	10.8	98	7.3	349
				5	11.1	10.8	98	7.3	350
				6	11.1	10.8	98	7.3	350
				7	11.1	10.8	98	7.3	350
				8	11.1	10.8	98	7.3	351
				9	11.1	10.8	98	7.3	351
				10	11.1	10.8	98	7.3	351
				11	11.1	10.8	98	7.3	351
				12	11.1	10.8	98	7.3	351
				13	11.1	10.8	98	7.3	351
SNAP06	19-Feb-11	1.25	-	1.5	1.2	13.7	97	7.3 [i]	370
				2	1.2	13.5	96	7.2 [i]	359
				3	1.5	13.2	95	7.2 [i]	354
				4	1.4	13.1	93	7.1 [i]	383
				5	1.3	13.3	95	7.1 [i]	395
				6	1.3	13.3	95	7.1 [i]	406
				7	1.5	13.1	94	7.1 [i]	401
				8	1.9	12.5	90	7.2 [i]	389
				9	2.1	12.0	87	7.1 [i]	383
				10	2.4	11.5	84	7.1 [i]	378
				11	2.7	11.0	81	7.1 [i]	373
				12	2.8	10.7	80	7.1 [i]	371

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	18-Mar-11	1.24	-	1.5	1.1	13.4	95	6.6	370
				2	1.3	13.2	94	6.6	368
				3	1.4	13.0	93	6.7	368
				4	1.4	13.2	94	6.6	399
				5	1.3	13.3	95	6.6	412
				6	1.5	13.3	95	6.6	416
				7	1.7	12.8	92	6.7	407
				8	1.9	12.6	91	6.7	401
				9	2.2	12.0	88	6.7	397
				10	2.5	11.6	85	6.7	392
				11	2.7	11.2	83	6.7	389
				12	2.9	10.8	81	6.7	387
	7-Apr-11	1.40	-	1.7	1.2	12.8	91	6.8	375
				2	1.2	12.8	91	6.8	368
				3	1.7	12.4	89	6.8	364
				4	1.6	12.5	90	6.8	383
				5	1.5	13.2	94	6.8	417
				6	1.5	13.3	95	6.8	423
				7	1.6	13.1	94	6.8	420
				8	1.8	12.2	92	6.8	411
				9	2.1	12.0	87	6.8	406
				10	2.4	11.5	84	6.8	401
				11	2.7	11.2	83	6.8	398
				12	2.8	10.7	79	6.8	396
	6-May-11	1.40	-	1.5	0.7	14.4	100	6.8	397
				2	1.3	14.2	101	6.8	386
				3	1.8	13.2	95	6.8	389
				4	1.7	13.3	95	6.8	410
				5	1.6	14.2	102	6.9	442
				6	1.7	14.1	101	6.8	445
				7	2.0	13.6	99	6.8	437
				8	2.2	13.0	95	6.7	430
				9	2.6	12.6	93	6.7	425
				10	2.8	12.2	90	6.7	422
				11	3.0	11.8	88	6.7	420
				12	3.4	10.8	82	6.6	417
				13	3.4	5.9	42	6.6	417
	12-Jul-11	-	11.0	0.1	16.8	10.1	104	7.4	335
				1	16.6	10.1	104	7.4	335
				2	16.5	10.2	104	7.5	334
				3	16.5	10.2	104	7.5	334
				4	16.4	10.2	104	7.5	334
				5	16.2	10.2	104	7.5	333
				6	15.7	10.4	104	7.5	334
				7	14.5	10.7	105	7.5	333
				8	14.2	10.9	106	7.5	332
				9	13.7	11.0	107	7.5	332
				10	13.5	11.2	107	7.5	332
				11	13.4	11.2	107	7.6	332
				12	13.1	11.2	107	7.6	332
				13	13.0	10.1	98	7.6	333
	11-Aug-11	-	5.5	0.1	17.3	9.6	*101*	7.3	346
				1	17.3	9.6	*100*	7.4	346
				2	17.3	9.6	*100*	7.4	346
				3	17.3	9.6	*100*	7.5	347
				4	17.3	9.6	*100*	7.5	347
				5	17.3	9.6	*100*	7.5	347
				6	17.2	9.6	*100*	7.5	347
				7	17.2	9.6	*100*	7.5	347
				8	17.2	9.6	*100*	7.6	347
				9	17.2	9.6	*100*	7.6	347
				10	17.2	9.6	*100*	7.6	348
				11	17.2	9.6	*100*	7.6	348
				12	17.2	9.6	*100*	7.6	348
				13	17.1	8.1	*84*	7.5	351

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	8-Sep-11	-	8.0	0.3	11.7	10.7	99	7.4	334
				1	11.4	10.8	99	7.4	332
				2	11.3	10.8	99	7.4	332
				3	11.3	10.8	98	7.4	332
				4	11.3	10.8	98	7.5	332
				5	11.2	10.8	98	7.5	334
				6	11.2	10.8	98	7.5	333
				7	11.2	10.8	98	7.5	333
				8	11.2	10.8	98	7.5	334
				9	11.2	10.8	98	7.5	336
				10	11.2	10.8	98	7.5	336
				11	11.1	10.8	98	7.5	337
				12	11.1	10.8	99	7.5	338
				13	11.1	10.6	97	7.4	338
SNAP12	19-Feb-11	1.00	-	1.3	0.8	13.9	97	6.8 [(i)]	371
				2	1.1	13.6	97	6.8 [(i)]	364
				3	1.2	13.6	96	6.8 [(i)]	383
				4	1.2	13.7	97	6.8 [(i)]	406
				5	1.3	13.7	98	6.8 [(i)]	409
				6	1.3	13.7	98	6.8 [(i)]	411
				7	1.3	13.7	98	6.8 [(i)]	421
	19-Mar-11	1.24	-	1.5	1.4	13.1	94	6.5	385
				2	1.5	13.2	94	6.6	378
				3	1.3	13.6	97	6.6	420
				4	1.3	13.7	97	6.6	425
				5	1.3	13.7	97	6.7	426
				6	1.3	13.6	97	6.7	430
				7	1.5	11.1	82	6.7	430
	11-Apr-11	1.25	-	1.6	1.4	13.0	93	6.8	384
				2	1.5	12.8	92	6.8	374
				3	1.6	13.5	96	6.8	420
				4	1.5	13.8	99	6.8	430
				5	1.4	13.8	99	6.9	432
				6	1.5	13.6	97	6.9	436
				7	1.5	13.5	96	6.9	438
	7-May-11	1.33	-	1.5	2.4	13.6	100	6.9	403
				2	1.5	13.9	99	6.9	404
				3	1.6	14.0	100	6.9	448
				4	1.5	14.2	101	6.9	448
				5	1.6	14.3	102	6.9	453
				6	1.6	14.2	102	6.9	454
				7	1.6	14.2	102	6.9	457
	8-Jul-11	-	7.5	0.1	14.5	10.7	105	7.5	332
				1	14.5	10.6	104	7.5	332
				2	14.2	10.7	104	7.5	332
				3	13.9	10.8	104	7.5	335
				4	13.7	10.8	104	7.5	331
				5	13.6	10.8	104	7.5	335
				6	13.5	10.9	105	7.5	339
				7	13.5	10.9	105	7.5	331
	10-Aug-11	-	7.5	0.1	17.3	9.6	*100*	7.1	351
				1	17.3	9.6	*100*	7.1	351
				2	17.3	9.6	*100*	7.2	351
				3	17.3	9.7	*102*	7.3	351
				4	17.3	9.6	*100*	7.4	351
				5	17.3	9.6	*100*	7.4	351
				6	17.3	9.6	*100*	7.4	351
				7	17.3	9.6	*100*	7.4	352
	9-Sep-11	-	9.0	0.3	11.2	10.8	98	7.4	341
				1	11.2	10.8	98	7.4	341
				2	11.2	10.8	98	7.4	341
				3	11.2	10.8	98	7.4	341
				4	11.2	10.8	98	7.4	341
				5	11.2	10.8	98	7.4	341
				6	11.1	10.8	98	7.5	342
				7	11.2	10.1	94	7.4	342

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP13	8-Jul-11	-	8.0	0.1	14.8	10.5	*104*	7.4	327
				1	14.7	10.5	*104*	7.4	327
				2	14.3	10.6	*104*	7.5	326
				3	14.3	10.6	*104*	7.5	330
				4	14.0	10.7	*104*	7.5	337
				5	13.8	10.7	*104*	7.5	338
				6	13.5	10.8	*104*	7.5	329
				7	13.4	10.8	*104*	7.4	337
				8	13.3	10.8	*104*	7.5	332
				9	13.3	10.8	*103*	7.5	334
				10	13.2	10.8	*103*	7.5	331
				11	13.2	10.8	*103*	7.5	333
				12	13.1	10.9	*103*	7.5	333
				13	13.0	10.9	*103*	7.5	330
				14	12.9	10.9	*103*	7.5	331
				15	12.8	10.9	*103*	7.5	332
				16	12.3	11.0	*103*	7.5	334
				17	11.5	11.0	*102*	7.5	335
				18	11.2	11.0	*101*	7.5	335
				19	9.8	11.4	*101*	7.4	346
				20	5.9	12.8	*103*	7.2	388
	10-Aug-11	-	6.0	0.1	17.3	9.7	*101*	7.3	355
				1	17.3	9.7	*101*	7.4	356
				2	17.3	9.8	*103*	7.4	356
				3	17.3	9.7	*101*	7.5	356
				4	17.3	9.7	*101*	7.5	357
				5	17.3	9.7	*101*	7.5	360
				6	17.3	9.8	*103*	7.5	362
				7	17.3	9.7	*102*	7.6	363
				8	17.3	9.7	*101*	7.6	363
				9	17.3	9.7	*101*	7.6	362
				10	17.3	9.7	*101*	7.6	363
				11	17.2	9.7	*101*	7.6	365
				12	17.2	9.7	*101*	7.6	366
				13	17.2	9.7	*101*	7.6	366
				14	17.2	9.7	*101*	7.6	366
				15	17.1	9.7	*101*	7.6	365
				16	16.6	9.8	*101*	7.6	358
				17	16.5	9.7	*100*	7.6	357
				18	16.2	9.6	*98*	7.6	353
				19	15.3	9.5	*95*	7.5	354
				20	9.9	10.6	*94*	7.0	390
	9-Sep-11	-	10.5	0.3	11.3	10.8	*99*	7.4	340
				1	11.3	10.7	*98*	7.4	340
				2	11.3	10.7	*98*	7.4	340
				3	11.3	10.7	*98*	7.4	340
				4	11.3	10.7	*98*	7.4	340
				5	11.3	10.7	*98*	7.4	341
				6	11.3	10.7	*98*	7.4	341
				7	11.3	10.7	*98*	7.4	341
				8	11.2	10.8	*98*	7.5	343
				9	11.2	10.8	*98*	7.5	344
				10	11.2	10.7	*98*	7.5	346
				11	11.2	10.8	*98*	7.5	346
				12	11.2	10.8	*98*	7.4	354
				13	11.2	10.8	*98*	7.4	348
				14	11.1	10.8	*98*	7.5	344
				15	11.1	10.7	*97*	7.5	344
				16	11.1	10.7	*97*	7.4	346
				17	11.1	10.7	*97*	7.4	348
				18	11.1	10.7	*97*	7.4	348
				19	11.0	10.6	*97*	7.4	347

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
SNAP14	11-Sep-11	-	10.0	0.3	11.2	10.9	99	7.3	362
				1	11.2	10.8	99	7.3	362
				2	11.2	10.9	99	7.3	362
				3	11.2	10.8	99	7.3	362
				4	11.2	10.8	99	7.3	362
				5	11.2	10.8	99	7.3	362
				6	11.2	10.8	99	7.4	362
				7	11.2	10.8	99	7.4	362
				8	11.2	10.8	99	7.4	361
				9	11.2	10.8	99	7.4	360
				10	11.2	10.8	99	7.4	359
				11	11.2	10.8	99	7.4	359
				12	11.1	10.8	99	7.4	358
				13	11.1	10.8	98	7.4	358
	9-Apr-11	1.10	-	1.4	0.8	13.4	94	6.8	378
				2	1.3	13.3	95	6.8	377
				3	1.3	14.0	100	6.8	420
				4	1.3	14.1	100	6.8	425
				5	1.3	14.0	100	6.8	426
				6	1.3	14.0	99	6.8	429
				7	1.4	13.9	99	6.8	430
				8	1.4	13.9	99	6.8	431
				9	1.4	13.9	99	6.8	432
				10 [b]	1.5 [b]	3.8 [b]	28 [b]	6.7 [b]	397 [b]
	11-Sep-11	-	10.0	0.3	11.1	10.8	99	7.3	357
				1	11.1	10.8	99	7.3	357
				2	11.1	10.8	99	7.3	357
				3	11.1	10.8	99	7.3	358
				4	11.1	10.8	99	7.3	358
				5	11.1	10.8	99	7.4	358
				6	11.1	10.8	99	7.4	358
				7	11.1	10.8	98	7.4	358
				8	11.1	10.8	98	7.4	357
				9	11.1	10.8	99	7.4	358
				10	11.1	10.8	98	7.4	357
SNAP26	19-Feb-11	0.80	-	1.1	0.6	14.6	102	7.0 [i]	414
				2	1.0	14.4	101	7.0 [i]	408
				3	1.1	14.1	101	7.0 [i]	404
				4	1.6	13.5	97	7.0 [i]	395
				5	2.4	11.0	81	7.0 [i]	387
	19-Mar-11	1.05	-	1.5	2.1	13.7	100	6.7	425
				2	1.5	13.9	99	6.7	421
				2.5	1.4	13.6	97	6.7	418
				3	1.4	13.6	97	6.7	418
				3.5	1.7	13.0	94	6.7	415
				4	2.0	12.1	88	6.7	411
				4.5	2.6	10.7	79	6.7	405
				5.0	2.9	5.3	41	6.6	400
	9-Apr-11	1.13	-	1.5	0.8	14.6	102	6.8	430
				2	1.1	14.4	102	6.8	426
				3	1.3	14.2	101	6.8	425
				4	1.6	13.9	99	6.8	423
				5	2.6	12.1	89	6.8	420
	7-May-11	1.15	-	1.5	2.1	14.7	107	7.0	529 [d]
				2	1.4	14.8	106	7.0	465
				3	1.5	14.6	105	7.0	453
				4	1.8	14.0	101	6.9	450
				5	2.8	12.3	91	6.7	441
	8-Jul-11	-	bottom	0.1	15.3	10.3	103	7.1	325
				1	15.2	10.3	103	7.2	325
				2	15.2	10.3	103	7.2	325
				3	14.3	10.6	103	7.2	329
				4	14.0	10.8	104	7.3	329
				5	13.7	10.7	104	7.3	329
	9-Sep-11	-	-	0.3	11.3	10.9	100	7.4	342
				1	11.3	10.9	100	7.5	342
				2	11.3	11.0	100	7.5	342
				3	11.3	11.0	100	7.5	342
				4	11.3	10.9	100	7.5	342
				5	11.3	10.9	99	7.5	342

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
SNAP28	8-Jul-11	-	to bottom	0.1	15.2	10.6	106	7.4	328
				1	14.9	10.6	105	7.5	326
				2	14.7	10.7	105	7.5	323
				3	14.6	10.7	105	7.5	325
				4	14.3	10.7	104	7.5	331
				5	13.7	10.8	104	7.5	341
				6	13.6	10.9	105	7.5	342
	11-Sep-11	-	to bottom	0.3	10.9	10.8	98	7.1	363
				1	10.9	10.6	96	7.2	363
				1.5	11.0	10.6	96	7.2	363
				2	11.0	10.6	96	7.2	363
				2.5	11.0	10.6	96	7.3	363
				3	11.0	10.6	96	7.3	363
				3.5	11.0	10.6	96	7.3	363
				4	11.0	10.6	97	7.3	363
				4.5	11.0	10.6	96	7.3	363
SNAP09	19-Feb-11	0.96	-	1.3	1.2	12.6	89	6.8 [(i)]	351
				2	1.4	12.5	89	6.8 [(i)]	347
				3	1.5	12.5	89	6.8 [(i)]	346
				4	1.6	12.2	87	6.8 [(i)]	345
				5	1.6	11.9	85	6.8 [(i)]	351
				6	1.6	11.9	85	6.8 [(i)]	356
				7	1.7	11.9	85	6.8 [(i)]	354
				8	1.8	11.7	85	6.7 [(i)]	352
				9	1.8	11.6	84	6.7 [(i)]	355
				10	1.9	11.6	84	6.8 [(i)]	357
				11	2.0	11.3	82	6.8 [(i)]	356
				12	2.2	11.0	80	6.8 [(i)]	350
				13	2.3	10.6	78	6.8 [(i)]	346
				14	2.5	10.3	75	6.8 [(i)]	344
	18-Mar-11	1.07	-	1.5	0.5	13.3	92	6.5	365
				2	1.4	12.7	91	6.5	359
				3	1.5	12.5	90	6.5	357
				4	1.6	12.1	87	6.5	356
				5	1.6	11.9	85	6.6	363
				6	1.6	11.8	84	6.6	368
				7	1.7	11.6	83	6.6	367
				8	1.8	11.5	83	6.6	370
				9	1.9	11.4	82	6.6	370
				10	2.0	11.1	81	6.6	367
				11	2.1	10.9	79	6.6	365
				12	2.3	10.6	78	6.6	363
				13	2.4	10.3	76	6.6	361
				14	2.5	7.2	53	6.5	358
	7-Apr-11	1.15	-	1.5	0.8	12.5	88	6.7	366
				2	1.4	12.2	87	6.7	359
				3	1.7	11.8	85	6.8	358
				4	1.7	11.6	83	6.8	362
				5	1.8	11.5	83	6.8	370
				6	1.8	11.4	82	6.8	372
				7	1.8	11.4	82	6.8	371
				8	1.8	11.6	84	6.7	385
				9	1.8	11.7	84	6.7	386
				10	2.0	11.4	83	6.7	384
				11	2.0	11.3	82	6.7	384
				12	2.1	11.1	80	6.7	380
				13	2.3	10.6	78	6.7	375
				14	2.5	10.3	76	6.7	373
	6-May-11	0.35	-	1.5	1.5	13.3	95	6.8	393
				2	1.7	13.1	94	6.8	382
				3	1.9	12.7	92	6.7	383
				4	1.8	12.6	91	6.7	390
				5	1.9	12.6	91	6.7	398
				6	1.9	12.6	91	6.7	402
				7	1.9	12.5	91	6.7	407
				8	2.0	12.4	90	6.7	407
				9	2.0	12.5	90	6.7	410
				10	2.1	12.4	90	6.7	407
				11	2.3	12.1	89	6.7	405
				12	2.4	11.9	87	6.7	404
				13	2.5	11.5	85	6.6	401
				14	2.6	11.3	83	6.6	399

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	10-Jul-11	-	10.6	0.1	16.9	10.4	108	7.5	326
				1	15.7	10.6	107	7.5	323
				2	15.0	10.7	106	7.5	324
				3	14.7	10.7	106	7.5	325
				4	14.6	10.7	106	7.5	324
				5	13.9	10.9	105	7.5	324
				6	13.2	11.0	105	7.5	324
				7	12.9	11.1	105	7.5	323
				8	12.8	11.1	105	7.5	323
				9	12.6	11.1	105	7.5	323
				10	12.5	11.1	105	7.5	322
				11	12.4	11.2	105	7.5	322
				12	12.4	11.2	105	7.5	322
				13	12.3	11.2	105	7.5	322
				14	12.3	11.2	105	7.5	323
	8-Sep-11	-	8.0	0.3	11.3	10.8	98	7.4	330
				1	11.3	10.8	98	7.4	330
				2	11.3	10.7	98	7.4	330
				3	11.3	10.7	98	7.4	330
				4	11.3	10.7	98	7.4	330
				5	11.3	10.7	98	7.4	330
				6	11.3	10.7	98	7.4	330
				7	11.3	10.7	98	7.4	330
				8	11.3	10.7	98	7.4	330
				9	11.2	10.7	98	7.4	330
				10	11.2	10.7	98	7.4	330
				11	11.2	10.7	98	7.4	330
				12	11.2	10.7	98	7.4	330
				13	11.2	10.7	98	7.4	330
				14	11.2	10.7	98	7.4	330
SNAP11	10-Jul-11	-	10.5	0.1	16.1	10.4	*106*	7.4	323
				1	15.6	10.5	*106*	7.4	323
				2	15.3	10.5	*106*	7.4	322
				3	15.1	10.6	*106*	7.4	324
				4	14.3	10.8	*105*	7.4	325
				5	14.0	10.8	*105*	7.4	325
				6	13.3	11.0	*106*	7.5	324
				7	12.9	11.1	*105*	7.5	324
				8	12.8	11.0	*104*	7.5	324
				9	12.7	11.1	*104*	7.5	323
				10	12.5	11.1	*104*	7.5	323
				11	12.4	11.1	*104*	7.5	323
				12	12.4	11.1	*104*	7.5	323
				13	12.3	11.1	*104*	7.5	322
				14	12.3	11.1	*104*	7.5	322
				15	12.2	11.1	*104*	7.5	322
	11-Aug-11	-	8.5	0.1	17.1	9.6	*100*	7.6	343
				1	17.1	9.6	*100*	7.6	343
				2	17.1	9.6	*100*	7.6	343
				3	17.1	9.6	*100*	7.6	343
				4	17.1	9.6	*100*	7.6	343
				5	17.1	9.6	*100*	7.6	343
				6	17.1	9.6	*100*	7.6	343
				7	17.1	9.6	*100*	7.6	343
				8	17.1	9.6	*100*	7.6	343
				9	17.1	9.6	*100*	7.6	343
				10	17.1	9.6	*100*	7.6	343
				11	17.1	9.6	*100*	7.6	343
				12	17.0	9.6	*100*	7.6	343
				13	16.7	9.7	*100*	7.6	342
				14	16.5	9.7	*100*	7.6	341
				15	16.4	9.7	*100*	7.6	341

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	8-Sep-11	-	8.0	0.3	11.4	10.7	*98*	7.4	330
				1	11.4	10.8	*98*	7.4	330
				2	11.3	10.8	*98*	7.4	330
				3	11.3	10.7	*98*	7.4	330
				4	11.3	10.7	*98*	7.4	330
				5	11.3	10.7	*98*	7.4	330
				6	11.3	10.7	*98*	7.4	330
				7	11.3	10.8	*98*	7.4	330
				8	11.3	10.7	*98*	7.4	330
				9	11.3	10.7	*98*	7.5	330
				10	11.3	10.7	*98*	7.5	330
				11	11.3	10.7	*98*	7.5	330
				12	11.3	10.7	*98*	7.5	330
				13	11.3	10.7	*98*	7.5	330
				14	11.3	10.7	*98*	7.5	330
SNAP11A	21-Feb-11	1.10	-	1.4	1.4	13.8	98	6.9	356
				2	1.5	13.8	98	6.9	353
				3	1.6	13.3	96	6.9	352
				4	1.6	13.1	94	6.9	357
				5	1.6	12.5	90	6.9	357
				6	1.7	12.5	90	6.9	359
				7	1.7	12.4	89	6.9	366
				8	1.8	12.3	88	7.3	366
				9	1.8	12.3	88	7.3	373
				10	1.8	12.4	89	7.4	375
				11	1.9	12.3	89	7.4	371
				12	1.9	12.1	88	7.8	369
				13	2.0	11.7	85	7.6	371
				14	2.3	11.2	82	7.7	364
	18-Mar-11	1.00	-	1.5	1.0	13.4	94	6.6	348
				2	1.3	13.2	94	6.6	360
				3	1.5	13.1	93	6.6	358
				4	1.6	12.5	90	6.6	362
				5	1.7	12.3	88	6.6	366
				6	1.7	12.2	87	6.6	374
				7	1.7	12.2	87	6.6	382
				8	1.6	12.5	89	6.6	392
				9	1.6	12.7	91	6.6	397
				10	1.6	12.7	91	6.7	396
				11	1.8	12.4	90	6.7	388
				12	1.9	12.2	88	6.7	385
				13	2.1	11.7	85	6.7	381
				14	2.3	10.8	79	6.6	378
				15	2.6	10.4	77	6.6	377
				16	2.7	6.9	54	6.6	349
	7-Apr-11	1.05	-	1.4	1.3	13.0	92	6.8	383
				2	1.8	12.8	92	6.8	362
				3	2.0	12.5	91	6.8	361
				4	1.9	11.7	85	6.8	365
				5	1.8	11.8	85	6.8	372
				6	1.8	11.9	85	6.8	383
				7	1.8	11.9	85	6.8	386
				8	1.7	12.4	89	6.8	399
				9	1.7	12.4	89	6.8	400
				10	1.8	12.3	89	6.8	397
				11	1.7	12.5	90	6.8	403
				12	1.8	12.3	89	6.8	397
				13	2.0	11.9	86	6.8	396
				14	2.2	11.5	84	6.8	394

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	6-May-11	1.22	-	1.5	1.1	14.2	100	6.9	395
				2	1.6	13.8	99	6.8	384
				3	1.8	13.3	96	6.8	383
				4	1.8	12.9	93	6.8	396
				5	1.8	12.9	93	6.8	403
				6	1.9	13.1	94	6.8	411
				7	1.9	13.2	95	6.8	416
				8	1.9	13.1	95	6.8	416
				9	2.0	13.0	94	6.7	415
				10	2.1	12.8	93	6.7	414
				11	2.1	12.7	92	6.7	416
				12	2.2	12.1	88	6.7	414
				13	2.3	11.7	86	6.7	412
				14	2.5	11.6	85	6.7	410
				15	2.6	11.1	82	6.6	414
				16	2.9	10.4	78	6.6	409
	10-Jul-11	-	10.5	0.1	16.2	10.4	106	7.5	324
				1	15.7	10.5	106	7.5	321
				2	15.3	10.6	105	7.5	323
				3	14.9	10.7	106	7.5	323
				4	14.4	10.8	106	7.5	324
				5	14.0	10.9	105	7.5	325
				6	13.6	11.0	105	7.5	324
				7	13.0	11.1	105	7.5	323
				8	12.9	11.1	105	7.5	324
				9	12.7	11.1	105	7.5	323
				10	12.6	11.1	105	7.5	323
				11	12.5	11.1	104	7.5	323
				12	12.4	11.1	104	7.5	323
				13	12.4	11.1	104	7.5	323
				14	12.3	11.2	104	7.5	323
				15	12.2	11.2	104	7.5	323
				16	12.1	11.1	104	7.5	322
	8-Sep-11	-	-	0.3	11.4	10.7	98	7.4	331
				1	11.3	10.7	98	7.4	330
				2	11.3	10.7	98	7.4	330
				3	11.3	10.7	98	7.4	330
				4	11.3	10.7	98	7.4	330
				5	11.3	10.7	98	7.4	330
				6	11.3	10.7	98	7.4	330
				7	11.3	10.7	98	7.4	330
				8	11.3	10.7	98	7.4	330
				9	11.3	10.7	98	7.5	330
				10	11.3	10.7	98	7.5	330
				11	11.3	10.7	98	7.5	330
				12	11.3	10.7	98	7.4	330
				13	11.3	10.7	98	7.4	330
SNAP17	9-Apr-11	1.06	-	1.1	0.4	13.4	93	5.5	373
				2	1.4	12.8	91	5.7	364
				3	1.6	12.5	90	5.8	362
				4	1.7	12.2	87	5.9	371
				5	1.7	12.1	87	6.0	377
				6	1.6	12.3	88	6.1	389
				7	1.7	12.3	88	6.2	390
				8	1.7	12.3	89	6.2	393
				9	1.8	12.2	88	6.2	392
				10	1.9	4.0	32	6.2	368
	9-Sep-11	-	8.0	0.3	11.5	10.9	100	7.1	327
				1	11.5	10.8	99	7.1	327
				2	11.5	10.8	99	7.1	326
				3	11.5	10.8	99	7.1	326
				4	11.5	10.8	99	7.1	326
				5	11.5	10.8	99	7.1	326
				6	11.5	10.7	99	7.1	326
				7	11.5	10.7	98	7.1	327
				8	11.5	10.7	99	7.1	326
				9	11.4	10.7	98	7.1	326

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
SNAP18	9-Apr-11	1.15	-	1.2	0.3	13.7	95	6.5	376
				2	1.1	13.3	94	6.5	366
				3	1.5	13.0	93	6.6	365
				4	1.6	12.5	90	6.6	367
				5	1.7	12.1	87	6.6	372
				6	1.7	12.1	87	6.6	385
				7	1.7	12.1	87	6.6	389
				8	1.7	12.4	89	6.6	402
				9	1.7	12.6	90	6.6	400
				10	1.8	12.2	88	6.6	395
				11	2.0	11.6	84	6.6	388
				12 [b]	2.1 [b]	0.4 [b]	3 [b]	6.4 [b]	369 [b]
	9-Sep-11	-	9.0	0.3	11.4	11.2	103	7.0	326
				1	11.4	10.9	100	7.0	326
				2	11.4	10.8	100	7.0	326
				3	11.4	10.8	99	7.0	326
				4	11.4	10.8	99	7.0	326
				5	11.4	10.8	99	7.0	326
				6	11.4	10.8	99	7.0	326
				7	11.4	10.8	99	7.0	325
				8	11.4	10.8	99	7.1	325
				9	11.3	10.8	99	7.1	325
				10	11.3	10.5	98	7.1	325
				11	11.3	10.8	98	7.1	325
SNAP19	9-Apr-11	1.20	-	1.3	0.2	13.2	91	6.7	373
				2	1.4	12.6	90	6.7	360
				3	1.6	12.3	88	6.7	360
				4	1.7	11.9	86	6.7	363
				5	1.7	11.7	84	6.7	375
				6	1.7	11.6	83	6.7	374
				7	1.7	11.5	83	6.7	376
				8	1.9	11.8	85	6.7	387
				9	1.9	12.1	87	6.7	385
				10	2.0	11.6	84	6.7	381
				11	2.1	11.2	82	6.7	380
	9-Sep-11	-	10.5	0.3	11.4	10.8	99	7.1	326
				1	11.4	10.8	99	7.1	326
				2	11.4	10.8	99	7.1	326
				3	11.4	10.8	99	7.1	326
				4	11.4	10.8	99	7.1	326
				5	11.4	10.8	99	7.1	326
				6	11.4	10.8	99	7.1	326
				7	11.4	10.8	99	7.1	326
				8	11.3	10.8	98	7.1	326
				9	11.3	10.8	98	7.1	326
				10	11.3	10.8	98	7.1	326
				11	11.3	10.8	98	7.1	326
SNAP04	25-Feb-11	0.80	-	1	1.9	16.6	119	5.7	415
				1.5	1.5	16.8	120	5.6	383
				2	1.9	16.3	118	5.5	376
				2.5	2.1	16.1	117	5.5	373
				3	2.2	15.8	115	5.5	369
				3.5	2.4	15.7	115	5.4	367
				4	2.7	15.6	116	5.5	363
	19-Mar-11	0.95	-	1.5	1.8	12.2	88	6.4	386
				2	1.7	12.3	88	6.5	378
				2.5	2.1	12.0	87	6.5	376
				3	2.3	11.7	86	6.6	374
				3.5	2.6	11.3	83	6.6	370
				3.9	2.9	10.7	80	6.6	369
	6-Apr-11	0.95	-	1.3	0.8	12.5	87	6.2	381
				1.5	0.9	12.2	86	6.2	382
				2	1.3	12.1	86	6.3	380
				2.5	2.2	11.9	86	6.3	376
				3	2.3	11.8	86	6.3	376
				3.5	2.5	11.7	86	6.3	375
				4	2.8	11.3	84	6.4	373

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	6-May-11	1.15	-	1.5	1.1	13.1	92	6.6	407
				2	1.6	12.9	92	6.6	396
				2.5	1.9	12.8	92	6.6	395
				3	2.3	12.8	93	6.6	393
				3.5	2.8	12.5	95	6.6	391
				4	3.1	12.1	91	6.6	390
	7-Jul-11	-	to bottom	0.1	14.6	10.6	104	7.2	300
				1	14.6	10.5	104	7.2	301
				2	14.6	10.5	104	7.2	301
				3	14.6	10.6	104	7.2	301
				4	14.5	10.6	104	7.2	303
	9-Sep-11	-	-	0.3	10.9	11.0	99	7.3	316
				1	10.9	10.9	98	7.4	316
				1.5	10.9	10.8	98	7.4	316
				2	10.9	10.9	98	7.4	316
				2.5	10.9	10.8	98	7.4	316
				3	10.9	10.8	98	7.4	316
				3.5	10.9	10.5	95	7.3	316
				4	10.9	10.9	98	7.4	316
SNAP07	21-Feb-11	0.90	-	1.2	0.8	14.1	99	6.9	366
				2	1.1	13.9	98	6.9	362
				3	1.3	13.8	98	6.9	360
				4	1.4	13.7	97	6.9	365
				5	1.6	13.3	96	6.8	362
				6	2.2	12.2	89	6.8	358
				7	2.7	11.6	86	6.8	353
				8	2.9	11.1	83	7.1	353
				9	3.0	10.8	81	7.2	351
				10	3.0	10.3	77	7.2	355
	18-Mar-11	1.10	-	1.5	1.1	13.4	95	6.4	373
				2	1.3	13.4	95	6.5	371
				3	1.4	13.2	94	6.5	369
				4	1.5	12.6	90	6.5	374
				5	1.9	11.9	86	6.5	370
				6	2.5	11.0	81	6.5	359
				7	2.8	10.5	78	6.5	359
				8	2.9	10.2	76	6.5	359
				9	2.9	9.9	73	6.5	363
				10	3.0	5.4	42	6.4	364
	7-Apr-11	1.05	-	1.4	0.5	13.2	92	6.6	378
				2	1.0	13.0	91	6.7	371
				3	1.5	12.9	92	6.7	368
				4	1.6	12.3	88	6.7	373
				5	1.7	12.1	87	6.7	384
				6	2.2	11.6	84	6.7	377
				7	2.7	11.0	81	6.7	371
				8	2.8	10.8	80	6.7	372
				9	2.9	10.4	77	6.7	373
				10	2.9	10.2	76	6.7	372
	6-May-11	1.22	-	1.5	0.9	13.8	97	6.8	391
				2	1.4	13.6	97	6.8	385
				3	1.8	13.4	96	6.8	382
				4	1.9	13.2	96	6.7	391
				5	2.0	12.7	92	6.7	396
				6	2.5	12.2	90	6.6	392
				7	2.9	11.8	88	6.6	389
				8	3.1	11.6	86	6.6	390
				9	3.1	11.0	82	6.6	392
				10	3.1	10.1	76	6.5	393
	12-Jul-11	-	to bottom	0.1	16.8	10.2	105	7.5	334
				1	16.6	10.2	104	7.5	334
				2	16.4	10.2	105	7.5	333
				3	16.4	10.2	104	7.5	334
				4	16.3	10.2	104	7.5	333
				5	16.0	10.3	104	7.5	334
				6	14.0	11.2	108	7.6	333
				7	13.5	11.2	108	7.6	330
				8	13.3	11.2	107	7.6	331
				9	13.1	11.2	107	7.6	331
				10	13.6	3.7	30	7.1	331

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	8-Sep-11	-	-	0.3	10.9	10.9	98	7.4	328
				1	10.9	10.9	98	7.4	328
				2	10.9	10.9	99	7.4	328
				3	11.0	10.9	98	7.4	328
				4	10.9	10.8	98	7.4	328
				5	10.9	10.9	98	7.4	328
				6	10.9	10.9	98	7.4	328
				7	10.9	10.9	98	7.4	328
				8	10.9	10.8	98	7.4	328
				9	10.9	10.8	98	7.4	328
				10	10.9	10.8	98	7.4	328
				11	10.9	10.8	98	7.4	328
SNAP08	21-Feb-11	1.05	-	1.3	1.0	13.1	92	6.7	390
				2	1.3	13.2	94	6.7	387
				3	2.2	12.5	91	6.7	378
				4	3.0	11.2	84	6.7	370
				5	3.2	10.0	75	6.7	367
				6	3.3	9.5	71	6.7	369
				7	3.4	9.0	68	6.6	370
				8	3.5	8.4	63	7.0	376
	18-Mar-11	1.15	-	1.5	0.5	13.0	90	6.3	420
				2	1.7	12.5	90	6.3	354
				3	2.5	12.1	89	6.4	392
				4	2.9	11.5	85	6.4	387
				5	3.1	10.4	78	6.4	386
				6	3.3	10.0	75	6.4	386
				7	3.3	9.0	68	6.4	392
				8	3.3	8.5	64	6.4	401
				8.7 [(b)]	3.3 [(b)]	4.5 [(b)]	36 [(b)]	6.3 [(b)]	366 [(b)]
	7-Apr-11	1.30	-	1.6	1.5	11.7	83	6.7	411
				2	1.3	11.8	84	6.7	409
				3	2.3	11.4	84	6.7	398
				4	3.0	11.0	82	6.7	393
				5	3.2	10.5	78	6.7	395
				6	3.3	10.1	75	6.7	398
				7	3.3	9.7	73	6.6	401
				8	3.3	9.5	71	6.6	409
	6-May-11	1.22	-	1.5	1.0	13.0	91	6.7	438
				2	1.5	12.9	92	6.6	424
				3	2.7	12.3	91	6.6	416
				4	3.4	11.7	88	6.6	412
				5	3.5	11.0	83	6.6	414
				6	3.6	10.5	80	6.5	416
				7	3.6	10.0	76	6.5	419
	12-Jul-11	-	to bottom	0.1	18.1	9.9	104	7.5	334
				1	17.7	9.9	104	7.5	335
				2	17.6	10.0	105	7.5	335
				3	17.6	9.9	104	7.5	335
				4	17.2	9.9	104	7.6	335
				5	17.0	10.1	104	7.6	336
				6	16.3	10.5	107	7.6	335
				7	15.7	10.5	106	7.6	335
				8	15.5	10.4	104	7.5	335
	11-Aug-11	-	5.0	0.1	17.4	9.5	*100*	7.2	341
				1	17.4	9.5	*100*	7.3	341
				2	17.4	9.5	*99*	7.3	342
				3	17.4	9.5	*99*	7.4	342
				4	17.4	9.5	*99*	7.4	341
				5	17.4	9.5	*99*	7.5	341
				6	17.4	9.5	*99*	7.5	341
				7	17.3	9.5	*99*	7.5	341
				8	17.3	9.5	*99*	7.5	341
				9	17.0	8.3	*86*	6.8	346
	8-Sep-11	-	8.0	0.3	10.6	10.9	98	7.4	320
				1	10.5	10.9	98	7.4	319
				2	10.5	10.9	98	7.4	319
				3	10.5	10.9	98	7.4	320
				4	10.5	10.9	98	7.4	320
				5	10.5	10.9	98	7.4	319
				6	10.5	10.9	98	7.4	319
				7	10.5	10.9	98	7.4	319
				8	10.5	10.9	98	7.4	319

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP10	21-Feb-11	0.88	-	1.2	0.6	14.2	99	7.0	372
				1.5	0.8	14.1	98	7.0	369
				2	1.0	14.0	99	7.0	366
				2.5	1.2	13.9	98	7.0	364
				3	1.4	13.7	98	7.0	364
				3.5	1.5	13.5	96	7.0	364
				4	1.5	13.2	94	6.9	366
				4.5	1.6	12.3	90	6.9	375
				5	1.9	12.1	87	6.9	376
	18-Mar-11	0.95	-	1	0.7	13.7	95	6.5	383
				1.5	0.9	13.6	96	6.6	379
				2	1.1	13.6	96	6.6	377
				2.5	1.2	13.4	95	6.6	375
				3	1.4	13.2	94	6.6	373
				3.5	1.5	13.0	93	6.6	373
				4	1.6	12.3	89	6.6	386
				4.5	1.9	11.4	82	6.6	388
	7-Apr-11	0.90	-	1	0.3	13.6	94	6.8	385
				1.5	0.6	13.7	95	6.8	384
				2	0.9	13.6	95	6.8	382
				2.5	1.2	13.4	95	6.8	379
				3	1.5	13.0	93	6.8	376
				3.5	1.6	12.8	92	6.8	375
				4	1.6	12.5	89	6.8	384
				4.5	1.7	11.9	86	6.7	390
				5	1.9	11.2	81	6.7	396
	6-May-11	1.01	-	1.5	1.1	14.4	102	6.8	407
				2	1.1	14.4	102	6.8	400
				2.5	1.4	14.3	102	6.8	397
				3	1.7	14.0	101	6.7	397
				3.5	1.8	13.7	99	6.7	396
				4	1.9	13.6	98	6.7	397
				4.5	2.1	12.7	92	6.6	405
				5	2.4	11.9	88	6.6	406
	10-Jul-11	-	to bottom	0.1	15.9	10.3	104	7.1	319
				0.5	15.8	10.3	104	7.2	318
				1	15.8	10.3	104	7.2	318
				1.5	15.7	10.3	104	7.2	318
				2	15.5	10.4	104	7.2	318
				2.5	15.4	10.4	104	7.3	318
				3	15.4	10.3	104	7.3	318
				3.5	15.4	10.3	103	7.3	319
				4	15.3	10.3	103	7.3	319
				4.5	14.4	10.5	103	7.4	322
				5	14.3	10.8	106	7.4	321
				5.5	14.3	10.5	103	7.2	322
	8-Sep-11	-	-	0.3	11.2	10.8	99	7.4	328
				1	11.1	10.9	99	7.4	328
				1.5	10.9	10.9	99	7.4	327
				2	10.9	10.9	99	7.4	327
				2.5	10.9	10.9	99	7.4	327
				3	10.8	10.9	99	7.5	327
				3.5	10.8	10.9	99	7.5	327
				4	10.8	10.9	99	7.5	327
				4.5	10.8	10.9	99	7.5	327
				5	10.8	11.0	99	7.4	327
SNAP02A	23-Feb-11	0.82	-	1.1	0.5	16.1	112	6.6	120
				2	1.2	14.5	103	6.6	119
				3	1.8	13.8	99	6.6	114
				4	2.4	12.7	93	6.6	109
				5	2.9	11.6	87	6.6	106
				6	3.2	9.2	70	6.5	113
				7	3.3	7.7	58	6.5	117
				8	3.5	7.1	54	6.4	116
				9	3.6	4.8	36	6.6	116
				10	3.6	4.9	37	6.5	117
				11	3.7	4.1	32	6.5	120

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	18-Mar-11	1.07	-	1.5	1.3	13.5	96	6.2	128
				2	1.8	12.7	92	6.3	120
				3	2.3	12.2	89	6.3	115
				4	2.7	11.7	86	6.3	112
				5	3.2	9.4	72	6.2	113
				6	3.3	7.6	57	6.2	118
				7	3.5	6.3	47	6.2	119
				8	3.5	5.5	42	6.2	120
				9	3.6	5.3	40	6.1	120
				9.6	3.7	1.4	11	6.0	127
	6-Apr-11	1.05	-	1.3	0.7	14.9	104	6.1	118
				2	1.4	13.7	100	6.2	114
				3	2.1	12.5	91	6.2	111
				4	2.7	11.1	82	6.2	112
				5	3.0	9.0	68	6.2	117
				6	3.4	7.8	60	6.2	117
				7	3.5	7.1	54	6.2	121
				8	3.5	5.8	44	6.1	121
				9	3.5	6.0	45	6.1	124
				10	3.5	6.7	50	6.1	129
	6-May-11	1.25	-	1.5	0.4	15.6	108	6.5	122
				2	1.3	14.8	106	6.5	118
				3	2.5	13.7	100	6.5	115
				4	3.1	12.4	93	6.4	115
				5	3.4	9.3	71	6.2	118
				6	3.7	7.6	58	6.2	122
				7	3.6	8.3	63	6.2	128
				8	3.6	8.0	60	6.2	132
				9	3.6	7.9	60	6.2	135
	7-Jul-11	-	6.5	0.1	14.6	10.3	101	6.4	80
				1	14.6	10.3	101	6.5	80
				2	14.5	10.3	102	6.5	80
				3	14.5	10.3	101	6.6	80
				4	14.5	10.3	101	6.6	81
				5	14.5	10.3	101	6.6	81
				6	14.5	10.3	101	6.6	81
				7	14.5	10.3	101	6.6	81
				8	14.5	10.2	100	6.6	81
				9	14.4	10.2	100	6.7	80
	12-Sep-11	-	7.0	0.3	10.2	10.8	96	7.4	107
				1	10.2	10.8	96	7.3	107
				2	10.2	10.8	96	7.3	107
				3	10.2	10.8	96	7.3	107
				4	10.2	10.8	96	7.3	107
				5	10.2	10.8	96	7.3	107
				6	10.2	10.8	96	7.3	107
				7	10.2	10.8	96	7.3	107
				8	10.2	10.8	96	7.3	107
				9	10.2	10.8	96	7.3	107
SNAP 02A SHORE	7-Jul-11	-	to bottom	0.1	14.7	10.4	102	6.7	79
				1	14.6	10.4	102	6.7	80
				2	14.5	10.4	102	6.8	79
				3	14.5	10.4	102	6.7	80
				4	14.5	10.4	102	6.7	80
SNAP 02A MID	7-Jul-11	-	6.5	0.1	14.6	10.4	102	6.6	80
				1	14.6	10.4	102	6.7	80
				2	14.6	10.4	102	6.7	81
				3	14.5	10.3	102	6.7	82
				4	14.6	10.3	101	6.7	82
				5	14.5	10.3	102	6.7	82
				6	14.5	10.3	101	6.7	81
				7	14.5	10.3	101	6.7	81
				8	14.4	10.3	101	6.7	82
				9	14.4	10.3	101	6.7	82
SNAP01	6-Jul-11	-	to bottom	0.1	14.7	10.3	*101*	6.5	78
				1	14.8	10.2	*101*	6.5	78
				2	14.7	10.2	*101*	6.6	78
				3	14.7	10.3	*102*	6.6	77
				4	14.7	10.2	*101*	6.6	77

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	11-Aug-11	-	4.0	0.1	17.5	9.8	*103*	7.5	93
				1	17.5	9.8	*102*	7.5	93
				2	17.5	9.8	*102*	7.6	93
				3	17.5	9.8	*102*	7.6	92
				4	17.4	9.8	*102*	7.6	92
	12-Sep-11	-	-	0.3	9.5	11.0	*97*	7.1	96
				1	9.6	10.9	*96*	7.1	96
				2	9.7	10.9	*95*	7.1	96
				3	9.7	10.8	*95*	7.1	96
				4	9.7	10.9	*95*	7.1	96
				5	9.7	10.9	*95*	7.1	96
SNAP20	9-Apr-11	1.10	-	1.2	0.9	14.4	101	6.8	85
				2	1.6	13.0	93	6.9	76
				3	2.0	12.4	90	6.9	73
				4	2.1	11.8	86	6.9	72
				5	2.2	11.1	81	6.8	72
				6	2.2	10.9	80	6.8	72
				7	2.2	10.9	80	6.8	73
				8	2.2	11.0	80	6.8	73
				9	2.2	11.1	81	6.7	74
				10	2.2	11.1	81	6.7	74
				11	2.2	11.1	81	6.7	74
	12-Sep-11	-	-	0.3	10.6	11.0	98	7.3	86
				1	10.6	10.9	98	7.2	86
				2	10.6	11.0	98	7.2	86
				3	10.6	10.9	98	7.2	86
				4	10.6	10.9	98	7.2	86
				5	10.6	10.9	98	7.1	86
				6	10.6	10.9	98	7.1	86
				7	10.5	10.9	98	7.1	86
				8	10.5	10.9	98	7.1	86
				9	10.5	10.9	98	7.1	86
				10	10.5	10.9	98	7.1	86
				11	10.5	10.9	98	7.1	86
				12	10.5	10.9	98	7.1	86
SNAP20B	23-Feb-11	0.80	-	1.2	1.2	14.8	105	7.4	86
				2	1.7	14.2	103	7.3	77
				3	2.1	12.1	88	7.3	71
				4	2.2	11.8	86	7.2	70
				5	2.2	11.6	85	7.2	70
				6	2.2	11.4	83	7.2	71
				7	2.2	11.3	82	7.1	71
				8	2.2	11.3	82	7.1	71
				9	2.2	11.2	81	7.1	72
				10	2.2	11.1	81	7.3	72
				11	2.2	11.0	80	7.2	71
				12	2.2	10.9	79	7.2	71
				13	2.2	10.8	79	7.2	71
				14	2.2	10.8	79	7.2	71
				15	2.2	10.7	78	7.3	71
				16	2.2	10.8	79	7.5	73
				17	2.2	10.8	79	7.5	73
				18	2.2	10.6	77	7.5	72
				19	2.3	10.4	76	7.4	71
				20	2.3	10.3	75	7.4	71
				21	2.3	10.2	74	7.4	70
				22	2.3	10.0	73	7.4	70
				23	2.3	9.9	72	7.4	70
				24	2.3	9.6	70	7.3	70
				25	2.3	9.5	69	7.3	71
				26	2.4	9.4	68	7.3	71
				27	2.4	9.3	68	7.3	71
				28	2.4	9.0	66	7.2	70
				29	2.4	8.9	65	7.2	70
				30	2.4	8.7	64	7.2	70

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	18-Mar-11	1.05	-	1.5	2.9	12.4	92	5.8	80
				2	2.5	12.1	89	6.0	76
				3	2.4	11.7	86	6.0	73
				4	2.3	11.4	84	6.1	72
				5	2.3	11.1	81	6.1	72
				6	2.3	10.9	80	6.1	72
				7	2.2	10.9	80	6.2	73
				8	2.3	10.8	78	6.2	73
				9	2.2	10.6	77	6.2	73
				10	2.2	10.5	76	6.2	72
				11	2.2	10.5	76	6.2	72
				12	2.2	10.4	76	6.2	72
				13	2.2	10.4	76	6.2	72
				14	2.2	10.2	75	6.2	72
				15	2.2	10.2	74	6.2	73
				16	2.2	10.2	74	6.2	73
				17	2.2	10.2	74	6.2	73
				18	2.3	10.1	73	6.2	73
				19	2.3	9.9	72	6.2	73
				20	2.3	9.8	71	6.2	72
				21	2.3	9.4	68	6.2	72
				22	2.3	9.2	67	6.2	71
				23	2.3	9.1	66	6.2	71
				24	2.3	8.8	64	6.2	71
				25	2.3	8.9	65	6.2	73
				26	2.3	8.7	64	6.2	71
				27	2.4	8.5	62	6.2	71
				28	2.4	8.3	61	6.2	70
				29.5	2.4	7.9	58	6.2	71
	6-Apr-11	1.03	-	1	1.0	14.2	100	5.8	87
				2	1.6	13.1	94	5.9	76
				3	2.0	12.2	89	5.9	72
				4	2.1	11.5	84	5.9	72
				5	2.2	11.0	80	6.0	72
				6	2.2	10.8	78	6.0	72
				7	2.2	10.6	77	6.0	72
				8	2.2	10.5	76	6.0	73
				9	2.2	10.4	76	6.0	73
				10	2.2	10.4	75	6.1	73
				11	2.2	10.3	75	6.1	73
				12	2.2	10.2	74	6.1	73
				13	2.2	10.1	74	6.1	73
				14	2.2	10.1	74	6.1	73
				15	2.3	10.0	73	6.1	73
				16	2.3	10.0	73	6.1	73
				17	2.3	9.9	72	6.1	72
				18	2.3	9.7	71	6.1	72
				19	2.3	9.7	71	6.1	74
				20	2.3	9.5	69	6.1	72
				21	2.3	9.3	68	6.1	72
				22	2.3	9.1	66	6.1	72
				23	2.3	9.0	66	6.1	73
				24	2.3	8.9	65	6.1	73
				25	2.3	8.7	64	6.1	72
				26	2.3	8.6	63	6.1	73
				27	2.3	8.6	63	6.1	73
				28	2.4	8.5	62	6.1	73
				29	2.4	8.4	61	6.1	73
				30	2.4	7.8	57	6.1	72
				30.5	2.4	7.7	56	6.1	72

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	6-May-11	1.10	-	1.5	1.3	12.1	107	6.8	90
				2	1.7	14.0	101	6.7	80
				3	2.2	12.7	92	6.6	75
				4	2.3	12.1	88	6.6	74
				5	2.3	11.7	85	6.5	75
				6	2.3	11.2	82	6.5	75
				7	2.3	11.1	81	6.5	76
				8	2.3	11.0	81	6.4	76
				9	2.3	11.0	80	6.4	76
				10	2.3	10.9	80	6.4	76
				11	2.3	10.9	80	6.4	77
				12	2.3	10.9	79	6.4	77
				13	2.3	10.8	79	6.4	76
				14	2.3	10.9	79	6.4	77
				15	2.4	10.8	79	6.4	77
				16	2.4	10.7	78	6.4	77
				17	2.4	10.5	76	6.3	77
				18	2.4	10.3	76	6.3	77
				19	2.4	10.2	75	6.3	76
				20	2.4	10.0	74	6.3	76
				21	2.4	9.8	72	6.3	76
				22	2.4	9.5	70	6.2	75
				23	2.4	9.7	71	6.3	77
				24	2.4	6.7	71	6.3	78
				25	2.4	9.7	71	6.3	77
				26	2.4	9.6	70	6.3	77
				27	2.4	9.6	70	6.3	77
				28	2.4	9.3	68	6.2	76
				29	2.4	9.0	66	6.2	76
				30	2.5	8.8	64	6.2	76
				30.5	2.5	8.6	63	6.2	77
	6-Jul-11	-	6.5	0.1	14.0	10.2	99	6.5	68
				1	14.0	10.2	99	6.5	68
				2	14.0	10.2	99	6.5	68
				3	14.0	10.2	99	6.6	68
				4	14.0	10.2	99	6.6	68
				5	14.0	10.2	99	6.6	68
				6	14.0	10.2	99	6.7	68
				7	14.0	10.2	99	6.6	68
				8	13.9	10.2	99	6.7	68
				9	10.4	11.0	98	6.7	67
				10	6.0	12.2	98	6.7	64
				11	5.6	12.2	97	6.6	64
				12	5.3	12.1	96	6.5	64
				13	5.2	11.9	94	6.4	64
				14	5.1	11.7	92	6.4	64
				15	4.8	11.3	89	6.3	65
				16	4.7	11.0	85	6.1	65
				17	4.6	10.9	84	6.1	65
				18	4.5	10.8	84	6.1	65
				19	4.5	10.7	83	6.0	65
				20	4.5	10.5	82	6.0	65
				21	4.4	10.5	81	5.9	65
				22	4.4	10.5	81	5.9	65
				23	4.4	10.5	81	5.9	66
				24	4.3	10.5	81	5.9	66
				25	4.3	10.4	80	5.9	66
				26	4.3	10.3	79	5.9	66
				27	4.2	10.3	79	5.9	67
				28	4.2	10.2	79	5.9	67
				29	4.2	10.2	78	5.8	67

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	12-Sep-11	-	7.0	0.3	10.3	10.8	96	7.0	85
				1	10.4	10.7	96	7.1	85
				2	10.4	10.7	96	7.1	85
				3	10.5	10.7	96	7.1	85
				4	10.5	10.7	95	7.1	85
				5	10.5	10.7	96	7.1	85
				6	10.5	10.7	96	7.1	85
				7	10.5	10.7	96	7.1	85
				8	10.5	10.7	96	7.1	85
				9	10.5	10.7	96	7.1	85
				10	10.5	10.7	96	7.1	85
				11	10.5	10.7	95	7.1	85
				12	10.4	10.6	95	7.1	85
				13	10.3	10.6	95	7.1	85
				14	10.1	10.6	94	7.0	84
				15	7.5	10.1	85	6.8	72
				16	5.4	9.2	74	6.5	69
				17	5.0	8.8	69	6.4	69
				18	4.8	8.8	68	6.3	69
				19	4.7	8.8	68	6.3	69
				20	4.5	8.8	68	6.3	69
				21	4.5	8.8	68	6.3	69
				22	4.4	8.4	65	6.2	69
				23	4.4	8.2	63	6.2	70
				24	4.3	8.0	62	6.2	70
				25	4.3	7.9	60	6.2	70
				26	4.2	7.7	59	6.1	70
				27	4.2	7.6	59	6.1	70
SNAP23	14-Jan-11	0.72	-	1.0	2.6	15.3	112	6.8	153
				2	1.8	13.5	97	6.3	169
				3	2.1	12.6	92	6.2	166
				4	2.5	11.3	83	6.2	170
				5	2.7	10.5	78	6.2	176
				6	3.0	10.0	74	6.1	189
				7	3.1	9.8	73	6.1	205
				8	3.2	9.5	71	6.1	214
				9	3.4	8.3	62	6.1	223
				10	3.7	6.4	49	6.0	223
				11	3.9	5.2	40	6.0	222
	23-Feb-11	1.00	-	1.3	0.4	15.3	105	6.5	164
				2	1.1	14.7	104	6.5	159
				3	1.7	13.8	99	6.5	180
				4	2.2	12.3	90	6.5	184
				5	2.5	11.1	82	6.5	194
				6	3.0	9.8	73	6.5	191
				7	3.3	9.0	68	6.4	206
				8	3.4	7.8	58	6.4	214
				9	3.6	6.2	47	6.5	217
				10	3.7	5.4	41	6.5	217
				11	3.9	4.8	38	6.5	217
				12	4.0	3.5	27	6.4	217
	18-Mar-11	1.10	-	1.5	0.6	14.2	101	6.2	184
				2	1.1	13.7	97	6.2	183
				3	2.0	12.8	93	6.2	197
				4	2.5	11.7	86	6.3	202
				5	2.9	10.4	77	6.3	202
				6	3.2	8.8	66	6.3	209
				7	0.4	7.5	57	6.3	215
				8	3.6	5.8	45	6.2	218
				9	3.8	4.3	36	6.2	218
				10	3.9	3.1	24	6.2	217
				11	4.0	2.7	21	6.1	217
				12	4.0	1.4	12	6.1	217

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	6-Apr-11	1.15	-	1.5	1.1	12.2	93	6.2	177
				2	1.5	12.8	91	6.2	181
				3	2.2	12.0	88	6.3	198
				4	2.6	11.8	87	6.3	199
				5	3.0	10.6	79	6.3	198
				6	3.3	8.5	64	6.3	203
				7	3.5	6.9	52	6.3	120
				8	3.9	4.8	37	6.3	211
				9	3.9	4.8	37	6.2	213
				10	4.0	4.1	31	6.2	213
				11	4.0	3.2	25	6.2	213
	6-May-11	1.30	-	1.5	1.1	14.5	102	6.6	194
				2	1.4	14.3	102	6.6	191
				3	2.2	13.9	101	6.6	207
				4	2.8	12.4	92	6.5	208
				5	3.2	9.9	74	6.4	213
				6	4.0	8.0	61	6.3	211
				7	4.1	5.9	46	6.3	217
				8	4.0	5.4	41	6.2	220
				9	3.9	7.2	54	6.3	225
				10	3.9	8.1	61	6.3	227
				11	3.9	8.2	62	6.3	229
	7-Jul-11	-	8.5	0.1	14.5	10.5	103	6.8	150
				1	14.5	10.5	103	6.8	150
				2	14.4	10.5	103	6.8	153
				3	14.3	10.5	103	6.8	153
				4	14.3	10.5	103	6.9	153
				5	14.2	10.6	103	6.9	153
				6	14.2	10.5	102	6.9	154
				7	14.2	10.5	102	6.9	154
				8	14.1	10.4	102	6.9	155
				9	14.1	10.4	101	6.9	155
				10	14.1	10.4	101	6.9	154
				11	14.1	10.3	101	6.9	155
	12-Sep-11	-	7.0	0.1	9.9	10.9	96	6.9	194
				1	9.9	10.8	96	7.0	194
				2	10.0	10.8	96	7.0	194
				3	10.0	10.8	96	7.1	194
				4	10.0	10.8	96	7.1	194
				5	10.0	10.8	96	7.1	192
				6	10.0	10.8	96	7.1	192
				7	10.0	10.8	96	7.1	192
				8	10.0	10.8	96	7.1	192
				9	10.0	10.8	96	7.2	192
				10	10.0	10.8	96	7.2	192
				11	10.0	10.8	96	7.2	192
				12	10.0	10.8	96	7.2	192
SNAP29	21-Feb-11	0.70	-	1	0.5	16.9	117	6.9	188
				2	1.2	15.3	109	6.9	199
				3	1.6	14.0	104	6.8	215
				4	2.0	13.4	97	6.8	214
				5	2.3	12.4	91	6.8	220
				6	2.8	9.4	69	6.7	226
	18-Mar-11	0.92	-	1.5	1.0	14.3	100	6.3	229
				2	1.3	14.2	101	6.3	224
				3	1.7	13.8	99	6.3	223
				4	2.0	13.1	95	6.3	231
				5	2.3	12.2	89	6.4	232
				6	3.1	6.9	53	6.3	222
	11-Apr-11	1.10	-	1.4	0.7	15.0	105	6.8	212
				2	0.7	14.9	104	6.8	256
				3	1.4	14.3	102	6.8	235
				4	2.1	13.4	97	6.8	220
				5	2.3	12.8	93	6.8	237
				6	2.6	10.8	80	6.7	233
				7	3.4	3.5	26	6.5	226

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	6-May-11	1.08	-	1.4	0.7	15.8	110	6.7	236
				2	0.7	15.9	111	6.7	266
				3	1.8	15.5	111	6.6	236
				4	2.4	14.9	109	6.6	230
				5	2.6	13.7	101	6.6	240
				6	3.1	12.1	90	6.4	237
				7	3.6	9.1	69	6.3	239
	7-Jul-11	-	6.5	0.1	14.3	10.6	104	7.0	155
				1	14.2	10.6	104	7.0	155
				2	14.1	10.6	103	7.0	155
				3	14.0	10.6	103	7.0	155
				4	14.0	10.6	103	7.0	154
				5	14.0	10.6	103	7.0	154
				6	13.9	10.6	103	7.0	155
	12-Sep-11	-	6.0	0.3	9.7	10.9	96	7.3	197
				1	9.7	10.9	96	7.3	197
				2	9.7	10.9	96	7.3	197
				3	9.7	10.9	96	7.3	197
				4	9.7	10.9	96	7.3	197
				5	9.7	10.9	96	7.3	197
				6	9.7	10.9	96	7.3	197
				7	9.8	10.3	91	7.2	197
SNAP30	6-Jul-11	-	6.5	0.1	14.8	10.2	*101*	6.6	72
				1	14.8	10.2	*101*	6.6	72
				2	14.7	10.2	*100*	6.7	72
				3	14.7	10.4	*102*	6.7	72
				4	14.7	10.2	*100*	6.7	72
				5	14.7	10.1	*100*	6.7	72
				6	14.6	10.1	*100*	6.7	72
				7	14.3	8.3	*81*	6.6	73
	11-Aug-11	-	4.0	0.1	17.5	9.6	*101*	7.2	86
				1	17.5	9.6	*101*	7.2	86
				2	17.5	9.7	*101*	7.2	86
				3	17.5	9.7	*102*	7.3	86
				4	17.5	9.7	*102*	7.3	86
				5	17.5	9.6	*100*	7.3	86
				6	17.4	9.6	*100*	7.3	86
				7	16.7	9.4	*97*	7.3	85
	12-Sep-11	-	7.0	0.3	9.8	10.9	*96*	7.2	94
				1	9.8	10.8	*96*	7.2	94
				2	9.9	10.8	*96*	7.2	94
				3	9.9	10.8	*96*	7.2	94
				4	9.9	10.8	*96*	7.2	94
				5	9.9	10.8	*96*	7.2	94
				6	9.7	10.8	*95*	7.2	95
				7	9.7	10.8	*95*	7.2	95
				8	9.7	10.8	*95*	7.2	95
SNAP31	7-Jul-11	-	to bottom	0.1	14.3	10.6	*104*	6.9	156
				1	14.3	10.6	*104*	6.9	157
				2	14.0	10.0	*97*	7.0	157
				3	14.0	10.6	*103*	6.9	157
	11-Aug-11	-	to bottom	0.1	17.5	9.8	*103*	7.2	191
				1	17.5	9.7	*102*	7.3	191
				2	17.4	9.7	*101*	7.3	191
				3	17.4	9.7	*102*	7.3	191
	12-Sep-11	-	-	0.3	9.7	11.3	*99*	7.1	195
				1	9.8	11.0	*97*	7.2	195
				1.5	9.9	10.5	*93*	7.2	195
				2	9.8	10.9	*96*	7.2	195
				2.5	9.9	9.8	*87*	7.1	195
				3	9.9	10.9	*96*	7.2	195
NEL01	22-Feb-11	0.98	-	1.3	0.5	16.1	112	7.0	29
				2	0.7	15.4	108	7.0	27
				3	1.0	14.6	103	7.1	24
				4	1.2	13.9	99	7.1	23
				5	1.3	13.1	93	7.1	23
				6	1.4	12.9	92	7.0	24
				7	1.5	12.8	91	7.0	25
				8	1.6	12.6	90	7.0	25
				9	1.7	12.2	87	7.2	25
				10	2.5	6.0	44	6.9	26
				11 [b]	3.2 [b]	1.4 [b]	10 [b]	6.7 [b]	28 [b]

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	8-Apr-11	1.20	-	1.5	0.9	16.5	115	7.4	28
				2	1.0	15.8	111	7.4	26
				3	1.2	14.6	103	7.4	25
				4	1.3	13.9	99	7.4	24
				5	1.5	13.5	96	7.3	24
				6	1.6	13.2	94	7.3	25
				7	1.7	13.0	93	7.3	26
				8	1.7	13.0	94	7.2	26
				9	1.9	13.0	94	7.2	26
				10	2.7	3.3	24	6.8	26
				11 [b]	3.5 [b]	0.4 [b]	3 [b]	6.6 [b]	36 [b]
	9-Jul-11 [c]	-	11.5	0.1	15.7	10.4	105	7.1	20
				1	15.1	10.6	105	7.1	20
				2	14.9	10.6	105	7.1	20
				3	14.7	10.6	105	7.1	20
				4	13.8	10.9	105	7.1	20
				5	13.0	11.1	105	7.1	20
				6	12.5	11.1	104	7.1	20
				7	12.4	11.0	103	7.1	20
				8	12.3	11.0	103	7.0	20
				9	12.2	11.0	103	7.0	20
				10	12.2	11.0	103	7.0	20
				11	12.1	11.0	103	7.0	20
	11-Jul-11	-	9.5	0.1	16.9	10.0	104	7.0	21
				1	16.9	10.1	104	7.0	21
				2	14.6	10.6	105	7.0	21
				3	13.7	11.0	106	7.0	20
				4	13.0	11.1	105	7.0	21
				5	12.7	11.1	105	7.0	20
				6	12.6	11.1	104	7.0	20
				7	12.5	11.1	104	6.9	20
				8	12.5	11.0	104	6.9	20
				9	12.5	11.0	104	7.0	20
				10	12.4	11.0	103	6.9	20
				11	12.4	11.0	103	6.9	20
	12-Aug-11	-	7.5	0.1	16.7	9.5	*97*	7.3	22
				1	16.7	9.4	*97*	7.3	22
				2	16.7	9.4	*97*	7.2	22
				3	16.7	9.4	*97*	7.2	22
				4	16.7	9.4	*97*	7.2	22
				5	16.7	9.4	*97*	7.2	22
				6	16.7	9.4	*97*	7.1	22
				7	16.7	9.4	*97*	7.1	22
				8	16.7	9.4	*97*	7.1	22
				9	16.6	9.4	*96*	7.1	22
				10	16.6	9.4	*96*	7.1	22
				11	16.6	9.4	*96*	7.1	22
				12	16.5	6.7	*69*	6.8	39
	6-Sep-11	-	6.0	0.3	11.4	10.3	94	6.6	20
				1	11.4	10.3	94	6.6	20
				2	11.4	10.2	94	6.6	20
				3	11.4	10.2	94	6.6	20
				4	11.4	10.3	94	6.6	20
				5	11.4	10.2	94	6.6	20
				6	11.4	10.3	94	6.6	20
				7	11.4	10.3	94	6.6	20
				8	11.4	10.3	94	6.6	20
				9	11.4	10.3	94	6.6	20
				10	11.4	10.3	94	6.6	20
				11	11.4	10.2	94	6.6	20
NEL02	22-Feb-11	0.90	-	1.2	0.2	16.3	112	6.7	29
				2	0.7	15.7	110	6.7	24
				3	1.0	14.4	102	6.7	22
				4	1.1	13.6	96	6.8	22
				5	1.2	12.9	91	6.7	22
				6	1.3	12.6	89	6.7	23
				7	1.4	12.3	88	6.7	22
				8	1.5	12.1	86	6.7	22
				9	1.6	11.7	84	6.7	22
				10	1.8	11.5	83	6.8	23
				11	1.9	11.0	79	6.8	23

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	8-Apr-11	1.10	-	1.4	0.7	16.2	113	6.8	27
				2	0.9	15.4	108	6.8	25
				3	1.1	14.7	104	6.8	23
				4	1.3	13.4	95	6.8	23
				5	1.4	13.0	92	6.8	22
				6	1.5	12.5	90	6.8	22
				7	1.6	12.3	88	6.8	23
				8	1.7	11.9	86	6.8	22
				9	1.8	11.5	82	6.7	23
				10	1.9	11.0	79	6.7	23
				11	2.1	10.7	77	6.7	23
	9-Jul-11 [c]	-	10.5	0.1	14.6	10.7	105	6.7	20
				1	14.5	10.7	105	6.8	20
				2	14.1	10.8	105	6.8	20
				3	13.9	10.8	104	6.8	20
				4	13.5	10.8	104	6.8	20
				5	13.1	10.9	104	6.8	20
				6	12.9	11.0	104	6.8	20
				7	12.6	11.0	104	6.8	20
				8	12.4	11.0	103	6.8	20
				9	12.1	11.1	103	6.8	20
				10	12.0	11.0	103	6.8	20
				11	12.0	5.1	53	6.4	23
	11-Jul-11	-	10.0	0.1	16.1	10.3	105	6.9	21
				1	16.1	10.3	105	6.9	21
				2	16.0	10.3	105	6.9	21
				3	15.8	10.4	105	6.9	21
				4	14.8	10.6	105	6.9	21
				5	14.1	10.8	105	6.9	21
				6	13.3	10.9	105	6.9	21
				7	12.9	11.1	104	6.9	21
				8	12.7	11.0	104	6.9	21
				9	12.7	11.0	104	6.9	21
				10	12.6	11.0	104	6.9	21
				11	12.4	11.0	103	6.9	21
	12-Aug-11	-	7.0	0.1	16.8	9.4	*98*	6.8	21
				1	16.8	9.4	*97*	6.8	21
				2	16.9	9.4	*97*	6.8	21
				3	16.8	9.4	*97*	6.9	21
				4	16.8	9.4	*97*	6.8	21
				5	16.8	9.4	*97*	6.8	21
				6	16.8	9.4	*97*	6.9	21
				7	16.8	9.4	*97*	6.9	21
				8	16.8	9.4	*97*	6.9	21
				9	16.8	9.4	*97*	6.9	21
				10	16.8	9.4	*97*	6.9	21
				11 [b]	16.7 [b]	4.3 [b]	-	6.6 [b]	27 [b]
	6-Sep-11	-	6.0	0.3	11.7	10.3	95	6.5	20
				1	11.7	10.2	94	6.6	20
				2	11.7	10.2	94	6.5	20
				3	11.7	10.2	94	6.5	20
				4	11.7	10.2	94	6.5	20
				5	11.7	10.2	94	6.5	20
				6	11.7	10.2	94	6.5	20
				7	11.7	10.2	94	6.5	20
				8	11.7	10.2	94	6.5	20
				9	11.7	10.2	94	6.5	20
				10	11.7	10.2	94	6.5	20
				11	11.7	10.2	94	6.5	20
				12	11.7	10.2	94	6.5	20
				13	11.7	10.2	94	6.5	20
NEL03	22-Feb-11	0.90	-	1.2	0.2	15.9	110	6.7	28
				2	0.6	15.0	105	6.7	25
				3	0.9	13.9	98	6.7	23
				4	1.1	12.9	91	6.7	22
				5	1.2	12.6	89	6.7	22
				6	1.4	12.2	87	6.7	22
				7	1.5	12.0	85	6.7	22
				8	1.6	11.8	85	6.7	23
				9	1.7	11.7	84	6.7	23
				10	1.8	10.7	77	6.8	23

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	8-Apr-11	1.10	-	1.5	0.5	16.1	111	6.8	27
				2	0.7	15.5	108	6.8	25
				3	1.0	14.3	101	6.8	24
				4	1.2	13.5	96	6.8	23
				5	1.4	12.7	90	6.8	22
				6	1.6	12.3	88	6.8	23
				7	1.7	12.0	86	6.8	22
				8	1.7	11.9	85	6.8	23
				9	1.8	11.8	85	6.7	23
	9-Jul-11 [(c)]	-	9.5	0.1	14.4	10.7	105	6.7	20
				1	14.3	10.8	105	6.7	20
				2	14.3	10.8	105	6.7	20
				3	14.2	10.8	105	6.7	20
				4	13.8	10.8	105	6.7	20
				5	13.2	11.0	104	6.7	20
				6	12.7	11.0	104	6.8	20
				7	12.4	11.1	104	6.8	20
				8	12.1	11.1	103	6.8	20
				9	12.0	11.1	103	6.8	20
				10	12.0	11.1	103	6.8	20
	11-Jul-11	-	8.5	0.1	16.0	10.4	105	6.8	20
				1	16.0	10.4	105	6.8	20
				2	16.0	10.4	105	6.8	20
				3	15.9	10.4	105	6.8	20
				4	15.8	10.4	105	6.8	20
				5	14.2	10.8	105	6.8	20
				6	13.9	10.8	105	6.8	20
				7	12.9	11.0	105	6.8	20
				8	12.7	11.0	104	6.8	20
				9	12.3	11.1	104	6.8	20
				10	12.3	10.9	102	6.7	20
	12-Aug-11	-	7.5	0.1	16.9	9.4	*97*	6.7	22
				1	16.9	9.4	*97*	6.8	21
				2	16.9	9.4	*97*	6.8	21
				3	16.9	9.4	*97*	6.8	22
				4	16.9	9.3	*97*	6.8	21
				5	16.9	9.4	*97*	6.8	22
				6	16.8	9.4	*97*	6.8	22
				7	16.8	9.4	*97*	6.8	21
				8	16.8	9.4	*97*	6.8	22
				9	16.8	9.4	*97*	6.9	21
	6-Sep-11	-	6.0	0.1	11.6	10.3	94	6.5	20
				1	11.6	10.3	94	6.5	20
				2	11.6	10.2	94	6.5	20
				3	11.6	10.2	94	6.5	20
				4	11.6	10.2	94	6.5	20
				5	11.6	10.2	94	6.5	20
				6	11.6	10.3	94	6.5	20
				7	11.6	10.3	94	6.5	20
				8	11.6	10.3	94	6.5	20
				9	11.4	10.3	94	6.5	20
NEL04	22-Feb-11	0.85	-	1.2	0.3	16.6	114	6.7	30
				2	0.7	15.7	110	6.7	25
				3	1.0	14.5	102	6.7	23
				4	1.1	13.2	94	6.8	23
				5	1.2	12.9	91	6.7	23
				6	1.4	12.5	89	6.7	23
				7	1.5	12.3	88	6.7	23
				8	1.6	12.0	86	6.7	23
				9	1.7	11.8	85	6.7	23
				10	1.8	11.4	82	6.7	23
				11	1.8	11.2	81	6.9	23
				12	1.8	11.2	80	6.9	23
				13	2.0	7.9	56	6.8	24

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	8-Apr-11	1.20	-	1.5	0.5	17.1	119	6.9	28
				2	0.8	15.7	110	6.9	26
				3	1.1	14.5	102	6.9	24
				4	1.3	13.6	97	6.9	23
				5	1.4	12.9	92	6.9	23
				6	1.5	12.5	89	6.9	23
				7	1.7	12.2	88	6.9	23
				8	1.8	11.7	84	6.8	23
				9	1.9	11.2	81	6.8	23
				10	1.9	10.8	78	6.8	23
				11	2.0	10.5	76	6.7	23
				12	2.0	10.4	75	6.7	23
	9-Jul-11 [c]	-	9.5	0.1	15.3	10.7	106	6.8	21
				2	15.2	10.7	106	6.8	21
				2	15.0	10.7	106	6.8	21
				3	14.9	10.7	106	6.8	21
				4	14.8	10.7	106	6.8	21
				5	13.8	10.9	105	6.8	21
				6	12.8	11.1	105	6.8	21
				7	12.6	11.1	105	6.8	20
				8	12.5	11.1	104	6.8	20
				9	12.4	11.1	104	6.8	20
				10	12.2	11.2	104	6.8	20
				11	12.2	11.1	104	6.8	20
				12	12.0	11.1	103	6.8	20
	11-Jul-11	-	10.0	0.1	15.6	10.5	106	6.7	21
				1	15.5	10.5	105	6.7	21
				2	15.2	10.6	106	6.8	21
				3	14.1	10.9	106	6.8	20
				4	13.8	11.0	106	6.8	20
				5	13.7	11.0	106	6.8	20
				6	13.4	11.0	106	6.8	20
				7	12.9	11.1	105	6.8	20
				8	12.8	11.1	105	6.8	20
				9	12.5	11.1	105	6.8	20
				10	12.4	11.1	104	6.8	20
				11	12.1	11.1	103	6.8	20
				12	11.8	8.5	78	6.5	25
	12-Aug-11	-	7.5	0.1	16.8	9.4	*97*	6.8	21
				1	16.8	9.4	*97*	6.9	21
				2	16.8	9.4	*97*	6.9	21
				3	16.8	9.4	*97*	6.9	21
				4	16.8	9.4	*97*	6.8	21
				5	16.8	9.4	*97*	6.8	21
				6	16.8	9.4	*97*	6.9	21
				7	16.8	9.4	*96*	6.9	21
				8	16.7	9.4	*96*	6.9	21
				9	16.7	9.4	*96*	6.9	21
				10	16.7	9.4	*96*	6.9	21
				11	16.5	9.4	*96*	6.9	21
	6-Sep-11	-	6.0	0.3	11.6	10.2	94	6.4	20
				1	11.6	10.2	94	6.4	20
				2	11.6	10.2	94	6.5	20
				3	11.6	10.2	94	6.4	20
				4	11.6	10.2	94	6.5	20
				5	11.6	10.2	94	6.5	20
				6	11.6	10.2	94	6.5	20
				7	11.6	10.2	94	6.5	20
				8	11.6	10.2	94	6.5	20
				9	11.6	10.2	94	6.5	20
				10	11.6	10.2	94	6.5	20
				11	11.6	10.2	94	6.5	20
				12	11.6	10.2	94	6.5	20
NEL05	22-Feb-11	0.90	-	1.2	0.3	16.2	111	6.7	29
				2	0.7	15.4	108	6.7	25
				3	1.0	14.1	101	6.7	25
				4	1.1	13.1	93	6.8	22
				5	1.3	12.7	90	6.7	22
				6	1.4	12.4	88	6.7	22
				7	1.5	12.2	87	6.7	22
				8	1.5	12.0	86	6.7	22
				9	1.6	11.7	84	6.7	22

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	8-Apr-11	1.20	-	1.5	0.4	16.9	117	6.8	29
				2	0.7	16.4	114	6.8	26
				3	1.1	15.4	108	6.8	24
				4	1.3	14.5	103	6.8	22
				5	1.4	13.6	97	6.8	22
				6	1.5	13.0	93	6.8	22
				7	1.6	12.6	90	6.8	22
				8	1.7	12.3	88	6.8	22
				9	1.8	11.9	86	6.8	22
				10	1.8	11.7	84	6.8	22
	9-Jul-11 [(c)]	-	9.5	0.1	14.2	10.8	105	6.7	21
				1	14.1	10.8	105	6.7	21
				2	14.0	10.8	105	6.7	21
				3	13.9	10.8	105	6.7	21
				4	13.5	10.9	105	6.8	21
				5	13.2	11.0	104	6.8	21
				6	12.6	11.1	104	6.8	20
				7	12.4	11.1	104	6.8	20
				8	12.3	11.1	104	6.8	20
				9	12.2	11.1	104	6.8	20
				10	12.1	11.1	104	6.8	20
				11	12.0	9.8	94	6.7	21
	11-Jul-11	-	to bottom	0.1	15.1	10.6	105	6.8	21
				1	15.1	10.5	105	6.8	21
				2	15.1	10.5	105	6.8	21
				3	15.1	10.5	105	6.8	21
				4	15.1	10.5	105	6.8	21
				5	13.8	10.8	105	6.8	20
				6	13.7	10.9	105	6.8	20
				7	13.4	10.9	105	6.8	20
				8	13.1	11.0	105	6.8	20
				9	12.9	11.0	105	6.8	20
				10	12.4	6.9	69	6.4	26
	12-Aug-11	-	7.5	0.1	16.8	9.4	*97*	6.8	21
				1	16.8	9.4	*97*	6.8	21
				2	16.8	9.4	*97*	6.8	21
				3	16.8	9.4	*97*	6.8	21
				4	16.8	9.4	*97*	6.9	21
				5	16.8	9.4	*97*	6.9	21
				6	16.8	9.4	*97*	6.9	21
				7	16.8	9.4	*97*	6.9	21
				8	16.8	9.4	*97*	6.9	21
				9	16.8	9.2	*95*	6.9	21
				10	16.7	9.4	*96*	6.9	22
	9-Sep-11	-	7.0	0.3	11.7	10.3	94	6.5	20
				1	11.7	10.2	94	6.5	20
				2	11.7	10.2	94	6.5	20
				3	11.7	10.2	94	6.5	20
				4	11.7	10.2	94	6.5	20
				5	11.6	10.2	94	6.5	20
				6	11.6	10.2	94	6.5	20
				7	10.6	10.2	94	6.5	20
				8	10.6	10.2	94	6.5	20
				9	11.6	10.2	94	6.5	20
				10	11.6	10.2	94	6.5	20
KING01	18-Jan-11	-	-	0.1	0.9	13.3	93	-	26
	9-Apr-11	-	-	0.2	0.8	15.8	110	6.7	29
	11-Jul-11	-	-	0.1	18.7	9.9	106	6.7	21
	6-Sep-11	-	-	0.1	10.0	10.8	96	6.3	21
IL3	4-Jul-11	-	-	0.3	15.6	10.4	104	6.4	17
	11-Aug-11	-	-	0.3	15.3	8.8	88	7.3	23
	7-Sep-11	-	-	0.3	11.9	10.8	100	6.6	22
IL4	4-Jul-11	-	-	0.1	18.9	9.8	106	6.3	18
	11-Aug-11	-	-	0.3	13.2	8.1	80	7.0	11
	7-Sep-11	-	-	0.3	17.0	9.7	101	6.9	16
IL5	4-Jul-11	-	-	0.3	15.8	10.3	104	6.3	38
	11-Aug-11	-	-	0.3	16.1	9.8	100	6.8	43
	7-Sep-11	-	-	0.3	12.4	10.8	101	6.5	32
S1	8-Jul-11	-	-	0.1	17.0	8.6	89	6.0	20
	10-Aug-11	-	-	0.1	15.6	7.6	76	6.7	27
	9-Sep-11	-	-	0.3	10.6	10.4	94	7.1	29

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
K28 [k]	9-Jul-11	-	10.5	0.1	14.7	10.6	105	6.8	21
				1	14.7	10.6	105	6.9	21
				2	14.1	10.7	104	6.8	21
				3	13.7	10.8	104	6.8	21
				4	13.6	10.8	104	6.9	21
				5	12.9	10.9	104	6.8	20
				6	12.7	11.0	103	6.8	20
				7	12.5	11.0	103	6.9	20
				8	12.4	11.0	103	6.9	20
				9	12.4	11.0	103	6.9	20
				10	12.3	11.0	103	6.8	20
				11	12.2	11.0	103	6.8	20
				12	12.1	11.0	102	6.8	20
				13	11.8	11.1	102	6.8	20
				14	11.7	11.0	102	6.8	20
				15	11.5	11.1	102	6.8	20
				16	11.3	11.1	101	6.8	20
				17	11.0	11.1	101	6.8	20
				18	10.7	11.2	100	6.8	21
				19	10.5	11.2	100	6.8	20
				20	10.3	11.2	100	6.8	21
				21	10.0	11.2	99	6.8	21
				22	6.9	12.0	99	6.8	21
(30 (new NEL06) [	9-Jul-11	-	9.5	0.1	14.5	10.8	105	6.7	21
				1	14.0	10.8	105	6.8	21
				2	13.9	10.8	105	6.8	21
				3	13.4	10.9	103	6.8	21
				4	13.3	10.9	104	6.8	21
				5	13.2	10.9	104	6.8	21
				6	12.8	11.0	104	6.8	21
				7	12.2	11.1	104	6.8	21
				8	12.1	11.1	103	6.8	20
				9	12.0	11.1	103	6.7	21
				10	11.9	11.1	103	6.8	21
				11	11.8	11.1	103	6.8	21
				12	11.8	11.1	103	6.8	20
				13	11.8	11.1	103	6.7	20
				14	11.7	11.1	102	6.8	20
				15	11.6	11.1	102	6.7	20
				16	11.6	11.1	102	6.7	20
				17	11.4	11.1	102	6.8	20
				18	11.3	11.1	101	6.7	20
				19	10.9	11.2	101	6.7	20
				20	10.7	11.2	101	6.7	20
				21	10.6	11.8	100	6.7	20
				22	10.1	11.2	100	6.7	20
				23	9.6	11.3	99	6.7	21
				24	8.4	11.5	98	6.6	21
				25	7.6	11.7	98	6.6	21
				26	7.2	11.7	97	6.4	21
				27	7.0	11.1	93	6.4	21

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
NE ARM NEL [k]	11-Jul-11	-	10.0	0.1	16.0	10.4	105	6.8	20
				1	16.0	10.4	105	6.8	20
				2	15.9	10.4	105	6.8	20
				3	15.9	10.4	105	6.8	20
				4	15.1	10.6	105	6.8	20
				5	13.5	11.0	105	6.9	20
				6	13.2	11.0	105	6.8	20
				7	12.9	11.1	105	6.8	20
				8	12.8	11.1	105	6.8	20
				9	12.7	11.1	104	6.8	20
				10	12.6	11.1	104	6.8	20
				11	12.5	11.1	104	6.8	20
				12	12.4	11.1	104	6.8	20
				13	12.3	11.1	103	6.8	20
				14	12.2	11.1	103	6.8	20
				15	12.2	11.1	103	6.8	20
				16	12.1	11.1	103	6.8	20
				17	12.1	11.0	103	6.8	20
				18	12.1	11.0	102	6.8	20
				19	12.0	11.0	102	6.7	20
				20	11.9	11.0	102	6.8	20
				21	11.8	10.9	101	6.7	20
				22	11.8	10.9	101	6.7	20
				23	11.2	11.0	100	6.7	20
				24	9.8	11.0	98	6.6	20
				25	7.5	11.6	97	6.7	20
				26	7.0	11.6	95	6.5	20
SNP02-20d	19-Feb-12	1.2	-	1.5	0.7	14.1	98	6.9	455
				2	1.1	13.9	98	6.9	448
				3	1.1	14.2	100	6.9	495
				4	1.1	14.3	101	6.9	511
				5	1.1	14.4	102	7.0	513
				6	1.1	14.5	102	7.0	516
				7	1.1	14.5	102	7.0	516
				8	1.1	14.5	102	7.0	516
				9	1.1	14.5	102	7.0	517
				10	1.1	14.5	102	7.0	518
				11	1.2	14.5	102	7.0	518
	18-Mar-12	1.5	-	1.8	1.2	14.7	104	7.0	455
				2	1.3	14.6	104	7.0	448
				3	1.4	14.9	106	7.0	495
				4	1.4	15.0	107	7.0	503
				5	1.4	14.9	106	7.0	510
				6	1.4	15.0	106	7.0	509
				7	1.4	15.0	106	7.0	512
				8	1.4	14.9	106	7.0	512
				9	1.4	14.9	106	7.0	513
				10	1.4	14.9	106	7.0	513
				11	1.4	14.9	106	7.0	513
	15-Apr-12	1.5	-	2	1.6	19.1[l]	137[l]	6.6	462
				3	1.5	20.0 [l]	143[l]	6.6	512
				4	1.4	20.1[l]	143[l]	6.6	520
				5	1.4	20.2[l]	144[l]	6.6	522
				6	1.4	20.2[l]	144[l]	6.6	522
				7	1.4	20.2[l]	144[l]	6.6	524
				8	1.4	20.2[l]	144[l]	6.6	524
				9	1.4	20.2[l]	144[l]	6.7	524
				10	1.4	20.2[l]	144[l]	6.7	526
				11	1.4	20.2[l]	144[l]	6.7	526
	17-Apr-12 [h]	1.5	-	2	1.4	14.0	100	6.9	460
				3	1.5	14.3	102	6.9	501
				4	1.5	14.5	103	6.9	527
				5	1.5	14.5	104	6.9	528
				6	1.5	14.5	103	6.9	528
				7	1.5	14.5	103	6.9	529
				8	1.5	14.5	103	6.9	529
				9	1.5	14.5	103	6.9	530
				10	1.5	14.4	103	6.9	530
				11	1.5	14.4	103	6.9	530

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	13-May-12	1.5	-	2	2.3	12.9	95	6.8	516
				3	2.1	13.1	95	6.8	527
				4	2.1	13.1	95	6.8	529
				5	2.1	13.1	95	6.8	531
				6	2.1	13.1	95	6.8	533
				7	2.1	13.1	95	6.8	534
				8	2.1	13.2	95	6.8	534
				9	2.1	13.2	95	6.8	534
				10	2.1	13.1	95	6.8	536
				11	2.1	13.1	95	6.8	536
				12	2.1	12.2	92	6.8	530
	8-Jul-12	-	-	0	15.4	10.1	102	7.3	392
				1	15.0	10.2	101	7.3	392
				2	14.9	10.2	100	7.3	392
				3	14.6	10.2	101	7.3	395
				4	14.3	10.3	101	7.4	399
				5	14.0	10.3	100	7.4	397
				6	13.8	10.4	100	7.4	400
				7	13.6	10.4	100	7.4	400
				8	13.5	10.4	100	7.4	398
				9	13.5	10.4	100	7.4	396
				10	13.5	10.4	100	7.4	396
				11	13.3	10.4	100	7.4	386
				12	13.2	10.4	100	7.4	387
				13	13.1	10.4	99	7.4	388
	10-Aug-12[h]	-	-	0.5	17.1	9.7	100	7.4	396
				1	17.1	9.7	101	7.4	396
				2	17.2	9.7	101	7.4	396
				3	17.1	9.7	101	7.4	396
				4	17.1	9.8	101	7.4	396
				5	17.1	9.8	101	7.5	396
				6	17.1	9.8	101	7.5	396
				7	17.1	9.8	102	7.5	395
				8	17.1	9.8	102	7.5	396
				9	17.1	9.8	102	7.5	396
				10	17.1	9.8	102	7.5	396
				11	17.1	9.8	102	7.5	396
				12	17.0	9.9	102	7.5	398
				13[b]	16.4[b]	7.3[b]	74[b]	7.2[b]	387[b]
	11-Aug-12[m]	-	-	0.5	16.9	9.5	98	7.4	395
				1	16.9	9.5	99	7.4	397
				2	17.0	9.6	99	7.5	397
				3	17.0	9.6	99	7.5	397
				4	17.0	9.6	99	7.5	398
				5	17.0	9.6	100	7.5	398
				6	17.0	9.6	100	7.6	398
				7	17.0	9.6	100	7.6	398
				8	16.9	9.7	100	7.6	400
				9	16.9	9.7	100	7.6	402
				10	16.9	9.7	100	7.6	402
				11	16.8	9.7	100	7.6	403
				12	16.8	8.0	92	7.5	404
	12-Aug-12	-	-	0.5	16.9	10.0	103	7.5	400
				1	16.9	10.0	103	7.5	400
				2	16.9	10.0	103	7.6	399
				3	16.9	10.0	103	7.6	399
				4	16.9	10.0	103	7.6	400
				5	16.9	10.0	104	7.6	399
				6	16.9	10.0	104	7.6	399
				7	16.9	10.0	104	7.6	400
				8	16.9	10.0	104	7.6	401
				9	16.9	10.0	104	7.6	401
				10	16.9	10.1	104	7.6	405
				11	16.9	10.1	104	7.7	406
				12	16.9	10.1	104	7.7	407

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	9-Sep-12	-	-	0.3	12.9	10.1	96	7.1	371[(n)]
				1	12.9	10.1	96	7.1	371[(n)]
				2	12.9	10.0	95	7.1	371[(n)]
				3	12.9	10.1	95	7.1	371[(n)]
				4	12.9	10.1	95	7.2	371[(n)]
				5	12.9	10.1	95	7.2	371[(n)]
				6	12.9	10.1	96	7.2	371[(n)]
				7	12.9	10.1	96	7.2	371[(n)]
				8	12.9	10.1	96	7.2	371[(n)]
				9	12.9	10.1	96	7.2	372[(n)]
				10	12.9	10.1	96	7.2	373[(n)]
				11	12.9	10.1	96	7.2	372[(n)]
				12	12.8	10.1	96	7.2	375[(n)]
SNP02-20e	19-Feb-12	1.1	-	1.5	1.7	14.4	104	7.0	485
				2	1.2	14.6	103	7.0	476
				3	1.2	14.7	104	7.0	488
				4	1.2	14.7	104	7.0	493
				5	1.3	14.5	103	7.0	513
				6	1.3	14.4	102	7.0	515
				7	1.3	14.2	101	7.0	516
				8	1.2	14.2	101	7.1	514
				9	1.2	14.2	101	7.1	514
				10	1.2	14.3	101	7.1	514
				11	1.2	14.2	101	7.1	513
				12	1.2	14.2	101	7.1	513
				13	1.2	14.2	101	7.1	513
				14	1.2	14.2	101	7.1	513
				15	1.2	14.2	101	7.1	514
				16	1.3	14.1	100	7.1	513
				17	1.3	14.1	100	7.1	513
				18	1.3	14.0	100	7.1	513
				19	1.3	14.0	100	7.1	514
				20	1.3	14.0	99	7.1	513
				21	1.3	13.9	99	7.1	511
				22	1.4	13.5	96	6.9	511
				23	1.4	13.5	96	6.9	510
				24	1.4	13.5	96	6.9	509
				25	1.4	13.3	95	6.9	506
				26	1.5	12.2	87	6.9	503
				27	1.8	11.3	82	6.9	493
	18-Mar-12	1.3	-	1.5	1.1	15.0	106	7.1	470
				2	1.1	15.0	106	7.1	452
				3	1.3	14.9	106	7.1	493
				4	1.3	15.1	107	7.1	503
				5	1.4	15.1	107	7.1	505
				6	1.4	15.0	106	7.1	505
				7	1.4	14.9	106	7.1	505
				8	1.4	15.0	107	7.1	504
				9	1.4	14.9	106	7.1	504
				10	1.4	14.8	106	7.1	506
				11	1.4	14.8	105	7.1	507
				12	1.4	14.8	105	7.1	507
				13	1.4	14.8	106	7.1	508
				14	1.4	14.8	105	7.1	507
				15	1.4	14.7	108	7.1	506
				16	1.4	14.6	104	7.1	505
				17	1.5	14.5	103	7.1	504
				18	1.5	14.4	103	7.1	503
				19	1.5	14.4	103	7.1	502
				20	1.5	14.3	103	7.1	503
				21	1.5	14.3	102	7.1	502
				22	1.5	14.2	101	7.1	502
				23	1.5	14.1	101	7.0	502
				24	1.5	13.8	99	7.0	500
				25	1.6	13.7	98	7.0	498
				26	1.6	13.2	95	7.0	497
				27	1.7	12.2	88	7.0	491

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	15-Apr-12	1.3	-	1.6	1.9	18.9[(l)]	137[(l)]	6.5	472
				2	1.4	19.4[(l)]	138[(l)]	6.5	466
				3	1.4	19.5[(l)]	139[(l)]	6.5	487
				4	1.4	19.7[(l)]	141[(l)]	6.5	497
				5	1.3	19.8[(l)]	141[(l)]	6.6	506
				6	1.3	19.9[(l)]	141[(l)]	6.6	518
				7	1.3	19.9[(l)]	142[(l)]	6.5	520
				8	1.4	19.9[(l)]	142[(l)]	6.6	524
				9	1.4	20.0[(l)]	142[(l)]	6.6	524
				10	1.4	20.0[(l)]	142[(l)]	6.6	525
				11	1.4	20.0[(l)]	143[(l)]	6.6	525
				12	1.4	20.0[(l)]	142[(l)]	6.6	526
				13	1.4	20.0[(l)]	143[(l)]	6.6	526
				14	1.4	20.0[(l)]	143[(l)]	6.6	527
				15	1.4	20.0[(l)]	142[(l)]	6.7	529
				16	1.4	20.0[(l)]	142[(l)]	6.7	531
				17	1.4	19.9[(l)]	142[(l)]	6.7	533
				18	1.4	19.9[(l)]	142[(l)]	6.7	534
				19	1.4	19.8[(l)]	141[(l)]	6.6	536
				20	1.4	19.8[(l)]	141[(l)]	6.6	539
				21	1.3	19.8[(l)]	141[(l)]	6.6	542
				22	1.3	19.7[(l)]	140[(l)]	6.6	545
				23	1.3	19.6[(l)]	139[(l)]	6.6	549
				24	1.3	19.5[(l)]	139[(l)]	6.6	549
				25	1.4	19.1[(l)]	136[(l)]	6.6	550
				26	1.4	19.0[(l)]	136[(l)]	6.6	553
	17-Apr-12	1.4	-	2	1.3	14.1	100	7.0	469
				3	1.4	14.2	101	7.0	494
				4	1.4	14.4	102	7.0	508
				5	1.4	14.4	103	7.0	519
				6	1.4	14.5	103	7.0	525
				7	1.4	14.5	103	7.0	528
				8	1.4	14.5	103	7.0	530
				9	1.5	14.5	103	7.0	532
				10	1.5	14.5	103	7.0	532
				11	1.5	14.4	103	7.0	533
				12	1.5	14.4	103	7.0	533
				13	1.5	14.4	103	7.0	534
				14	1.5	14.4	103	7.0	535
				15	1.5	14.4	103	7.0	536
				16	1.5	14.4	103	7.0	537
				17	1.5	14.3	102	7.0	538
				18	1.5	14.3	102	7.0	540
				19	1.5	14.2	102	7.0	542
				20	1.5	14.2	101	7.0	543
				21	1.5	14.2	101	6.9	550
				22	1.5	14.1	101	6.9	553
				23	1.5	14.0	100	6.9	556
				24	1.5	13.9	99	6.9	557
				25	1.5	13.7	98	6.9	558
				26	1.5	13.6	97	6.9	558

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-May-12	1.3	-	1.5	3.4	12.5	94	6.0	494
				2	2.9	12.7	94	6.1	485
				3	2.4	13.0	95	6.2	526
				4	2.2	13.1	96	6.2	534
				5	2.2	13.1	96	6.3	535
				6	2.1	13.2	96	6.4	532
				7	2.1	13.2	95	6.4	534
				8	2.1	13.1	95	6.4	532
				9	2.1	13.2	96	6.4	531
				10	2.1	13.2	96	6.5	532
				11	2.1	13.2	96	6.5	531
				12	2.1	13.2	96	6.5	531
				13	2.1	13.2	96	6.5	535
				14	2.1	13.2	96	6.5	535
				15	2.1	13.2	96	6.5	537
				16	2.1	13.2	96	6.6	537
				17	2.1	13.2	96	6.6	537
				18	2.1	13.2	96	6.6	537
				19	2.2	13.2	96	6.6	537
				20	2.2	13.2	96	6.6	537
				21	2.2	13.2	96	6.6	537
				22	2.2	13.1	96	6.6	538
				23	2.2	13.1	95	6.6	539
				24	2.2	13.1	95	6.6	539
				25	2.2	13.0	95	6.6	540
				26	2.2	13.0	95	6.6	541
				27	2.2	13.0	94	6.6	541
				28	2.2	12.9	94	6.6	543
	8-Jul-12	-	6.0	0.3	14.8	10.2	101	7.3	391
				1	14.5	10.2	100	7.3	394
				2	14.1	10.3	100	7.3	400
				3	13.9	10.4	100	7.3	400
				4	13.8	10.4	100	7.3	400
				5	13.8	10.3	100	7.3	399
				6	13.7	10.3	100	7.4	399
				7	13.6	10.4	100	7.4	396
				8	13.6	10.4	100	7.4	397
				9	13.6	10.4	100	7.4	396
				10	13.5	10.4	100	7.4	395
				11	13.4	10.3	99	7.4	394
				12	13.4	10.3	99	7.4	394
				13	13.3	10.3	98	7.4	395
				14	13.2	10.3	98	7.4	393
				15	13.1	10.2	98	7.4	391
				16	13.1	10.2	97	7.4	390
				17	13.0	10.2	96	7.4	391
				18	12.9	10.1	96	7.4	391
				19	12.6	10.0	95	7.4	392
				20	11.0	10.3	94	7.4	409
				21	7.2	11.4	95	7.3	463
				22	5.3	12.1	96	7.3	490
				23	4.7	12.4	97	7.3	497
				24	4.1	12.6	97	7.2	506
				25	3.9	12.6	96	7.2	508
				26	3.8	12.3	94	7.2	509

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	10-Aug-12[h]	-	7.0	0.5	17.0	9.7	101	6.4	407
				1	17.0	9.9	102	6.4	407
				2	17.0	10.1	105	6.6	407
				3	17.0	9.8	102	6.7	407
				4	16.9	9.8	102	6.7	407
				5	16.9	9.8	102	6.8	408
				6	16.9	9.8	102	6.8	407
				7	16.9	9.8	102	6.9	407
				8	16.9	9.8	102	6.9	407
				9	16.8	9.9	102	7.0	412
				10	16.8	9.9	102	7.0	416
				11	16.8	9.9	102	7.0	414
				12	16.8	9.9	102	7.1	416
				13	16.8	9.9	102	7.1	416
				14	16.8	9.9	102	7.1	415
				15	16.8	9.8	101	7.1	414
				16	16.7	9.8	101	7.1	407
				17	16.6	9.8	101	7.2	406
				18	16.6	9.8	100	7.1	406
				19	16.5	9.7	99	7.1	405
				20	15.7	9.4	94	7.3	401
				21	8.5	9.3	80	7.2	448
				22	7.8	7.3	64	7.0	450
	11-Aug-12[m]	-	6.5	0.5	17.0	9.5	98	7.3	400
				1	17.0	9.5	98	7.3	400
				2	17.0	9.5	99	7.4	401
				3	17.0	9.5	99	7.4	401
				4	16.9	9.5	99	7.4	401
				5	16.9	9.6	99	7.4	402
				6	16.9	9.6	99	7.4	401
				7	16.9	9.6	99	7.4	401
				8	16.9	9.6	99	7.4	401
				9	16.9	9.6	99	7.4	401
				10	16.9	9.6	99	7.4	402
				11	16.9	9.6	99	7.4	402
				12	16.9	9.6	100	7.5	402
				13	16.8	9.7	100	7.5	403
				14	16.8	9.6	100	7.5	402
				15	16.8	9.6	99	7.5	402
				16	16.8	9.6	100	7.5	403
				17	16.8	9.7	100	7.5	404
				18	16.7	9.6	99	7.5	404
				19	16.5	9.6	98	7.5	404
				20	14.1	9.3	91	7.5	408
				21	9.8	9.4	84	7.4	447
				22	8.1	9.0	77	7.3	456
				23	7.5	8.7	73	7.3	459
				24	6.6	8.6	71	7.2	469
				25	5.8	8.5	68	7.1	476
				26 [b]	5.52 [b]	6.93 [b]	57.6 [b]	6.89 [b]	445 [b]

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	12-Aug-12	-	-	0.5	16.9	9.9	103	7.6	398
				1	16.9	10.0	103	7.6	398
				2	16.9	10.0	103	7.6	398
				3	16.9	10.0	103	7.6	398
				4	16.9	10.0	103	7.6	397
				5	16.9	10.0	103	7.6	397
				6	16.9	10.0	103	7.6	397
				7	16.9	10.0	103	7.6	397
				8	16.9	10.0	103	7.6	397
				9	16.9	10.0	103	7.6	396
				10	16.9	10.0	103	7.6	397
				11	16.9	10.0	103	7.6	397
				12	16.9	10.0	103	7.6	396
				13	16.9	10.0	103	7.6	398
				14	16.9	10.0	104	7.6	402
				15	16.9	10.0	104	7.6	401
				16	16.9	10.0	104	7.6	401
				17	16.8	10.0	104	7.6	400
				18	16.8	10.0	104	7.6	399
				19	16.6	10.0	103	7.6	399
				20	15.3	9.8	100	7.6	403
				21	8.7	9.3	81	7.5	449
				22	7.7	9.0	76	7.4	456
				23	7.0	8.9	73	7.3	460
				24	6.5	8.9	72	7.2	465
				25	6.0	8.8	71	7.2	471
	9-Sep-12	-	6.5	0.3	12.9	10.0	94	6.6	364[(n)]
				1	12.9	10.0	95	6.7	365[(n)]
				2	12.9	10.0	95	6.8	365[(n)]
				3	12.9	10.0	95	6.8	365[(n)]
				4	12.9	10.0	95	6.8	365[(n)]
				5	12.9	10.0	95	6.9	365[(n)]
				6	12.9	10.1	96	7.0	365[(n)]
				7	12.9	10.0	95	7.0	365[(n)]
				8	12.9	10.0	95	7.0	365[(n)]
				9	12.9	10.1	95	7.1	365[(n)]
				10	12.8	10.0	95	7.1	365[(n)]
				11	12.9	10.1	96	7.1	365[(n)]
				12	12.8	10.0	95	7.1	365[(n)]
				13	12.8	10.0	95	7.1	364[(n)]
				14	12.8	10.0	95	7.1	364[(n)]
				15	12.8	10.0	95	7.1	364[(n)]
				16	12.8	10.1	95	7.2	365[(n)]
				17	12.8	10.0	95	7.2	365[(n)]
				18	12.8	10.0	95	7.2	365[(n)]
				19	12.8	10.0	95	7.2	366[(n)]
				20	12.8	10.0	95	7.2	365[(n)]
				21	12.8	10.0	95	7.2	367[(n)]
				22	12.7	10.0	95	7.2	368[(n)]
				23	12.7	10.0	95	7.2	368[(n)]
				24	12.7	10.0	94	7.1	368[(n)]
SNP02-20f	19-Feb-12	1.1	-	1.5	0.7	14.4	101	7.0	463
				2	0.9	14.1	99	7.0	452
				3	1.1	14.1	99	7.0	473
				4	1.1	14.3	101	7.0	510
				5	1.1	14.4	102	7.0	512
				6	1.1	14.5	102	7.0	515
				7	1.2	14.5	103	7.0	516
				8	1.2	14.5	103	7.0	517
				9	1.2	14.5	103	7.0	518
				10	1.2	14.5	103	7.0	517
				11	1.2	14.5	103	7.0	518
				12	1.2	14.5	102	7.0	518
				13	1.2	14.5	102	7.0	518

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	21-Mar-12	1.4	-	1.7	0.8	14.9	104	6.5	480
				2	1.2	14.4	102	6.5	466
				3	1.4	14.6	104	6.6	498
				4	1.3	14.7	105	6.6	517
				5	1.3	14.7	105	6.6	521
				6	1.3	14.8	105	6.6	523
				7	1.3	14.7	105	6.7	524
				8	1.3	14.7	105	6.7	523
				9	1.4	14.7	105	6.7	524
				10	1.4	14.7	105	6.7	524
				11	1.4	14.7	105	6.8	524
				12	1.4	14.7	105	6.8	524
				13	1.4	14.6	104	6.8	525
				14	1.4	14.7	105	6.8	525
	15-Apr-12	1.5	-	2	1.4	19.3[(l)]	138[(l)]	6.7	458
				3	1.4	19.8[(l)]	141[(l)]	6.7	514
				4	1.4	20.0[(l)]	142[(l)]	6.7	524
				5	1.4	20.1[(l)]	143[(l)]	6.7	524
				6	1.4	20.2[(l)]	143[(l)]	6.7	523
				7	1.4	20.2[(l)]	144[(l)]	6.7	523
				8	1.4	20.2[(l)]	144[(l)]	6.7	524
				9	1.4	20.2[(l)]	144[(l)]	6.7	523
				10	1.4	20.2[(l)]	144[(l)]	6.7	524
				11	1.4	20.2[(l)]	144[(l)]	6.7	524
				12	1.4	20.2[(l)]	144[(l)]	6.7	525
				13	1.4	20.2[(l)]	144[(l)]	6.7	525
	17-Apr-12	1.5	-	2	1.0	14.2	100	7.0	480
				3	1.5	14.2	101	7.0	500
				4	1.5	14.4	103	7.0	526
				5	1.5	14.4	103	7.0	531
				6	1.5	14.5	103	6.9	530
				7	1.5	14.5	103	7.0	530
				8	1.5	14.5	103	7.0	529
				9	1.5	14.4	103	7.0	530
				10	1.5	14.5	103	7.0	529
				11	1.5	14.5	103	7.0	530
				12	1.5	14.4	103	7.0	530
				13	1.5	14.4	103	7.0	530
	13-May-12	1.3	-	1.5	1.7	12.8	92	6.8	456
				2	2.0	12.9	93	6.7	523
				3	2.0	13.0	94	6.7	530
				4	2.0	13.1	95	6.8	532
				5	2.0	13.1	95	6.8	534
				6	2.0	13.1	95	6.8	535
				7	2.1	13.1	95	6.8	535
				8	2.1	13.1	95	6.8	535
				9	2.1	13.1	95	6.8	535
				10	2.1	13.1	95	6.8	535
				11	2.1	13.1	95	6.8	535
				12	2.1	13.1	95	6.8	535
				13	2.1	13.1	95	6.8	535
				14	2.1	11.7	81	6.8	529
	8-Jul-12	-	-	0.3	15.7	10.1	102	7.3	392
				1	15.3	10.1	101	7.4	391
				2	15.1	10.2	101	7.4	391
				3	14.8	10.2	101	7.4	393
				4	14.5	10.2	101	7.4	397
				5	14.3	10.3	101	7.4	405
				6	14.1	10.4	101	7.4	408
				7	13.8	10.4	101	7.4	405
				8	13.6	10.4	100	7.4	401
				9	13.5	10.5	100	7.4	398
				10	13.4	10.4	100	7.4	393
				11	13.4	10.4	100	7.4	391
				12	13.3	10.5	100	7.4	387
				13	13.2	10.4	100	7.5	387
				14	13.2	10.4	100	7.5	387

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	10-Aug-12[h]	-	-	0.5	17.1	9.7	100	7.4	401
				1	17.1	9.7	101	7.4	401
				2	17.1	9.7	101	7.4	402
				3	17.1	9.7	101	7.4	401
				4	17.1	9.8	101	7.5	402
				5	17.1	9.8	101	7.5	402
				6	17.1	9.8	102	7.5	402
				7	17.1	9.8	102	7.5	402
				8	17.1	9.8	102	7.5	402
				9	17.0	9.8	102	7.5	402
				10	17.0	9.8	102	7.5	403
				11	17.0	9.9	102	7.5	403
				12	16.9	9.9	102	7.5	404
				13	16.9	9.9	102	7.5	406
				14	16.7	5.2	55	7.2	409
	11-Aug-12[m]	-	-	0.5	17.1	9.6	99	7.7	393
				1	17.1	9.6	99	7.7	394
				2	17.1	9.6	99	7.7	394
				3	17.0	9.6	99	7.7	398
				4	17.0	9.6	100	7.7	398
				5	17.0	9.6	100	7.6	399
				6	17.0	9.6	100	7.7	399
				7	17.0	9.7	100	7.7	399
				8	16.9	9.7	100	7.7	401
				9	16.9	9.7	100	7.7	404
				10	16.9	9.7	100	7.7	406
				11	16.9	9.7	100	7.7	406
				12	16.9	9.7	100	7.7	407
				13	16.8	9.7	100	7.6	406
	12-Aug-12	-	-	0.5	16.9	10.0	103	7.6	399
				1	16.9	10.0	103	7.6	398
				2	16.9	10.0	103	7.7	399
				3	16.9	10.0	103	7.7	399
				4	16.9	10.0	103	7.7	399
				5	16.9	10.0	103	7.7	399
				6	16.9	10.0	103	7.7	399
				7	16.9	10.0	103	7.6	401
				8	16.9	10.0	103	7.6	400
				9	16.9	10.0	103	7.6	401
				10	16.9	10.0	103	7.6	403
				11	16.9	10.0	103	7.6	404
				12	16.9	10.0	103	7.6	404
				13	16.9	10.0	103	7.6	404
	9-Sep-12	-	-	0.3	12.9	10.1	95	7.3	372[n]
				1	12.9	10.1	96	7.3	372[n]
				2	12.9	10.1	96	7.3	372[n]
				3	12.9	10.1	96	7.3	373[n]
				4	12.9	10.1	96	7.3	373[n]
				5	12.9	10.1	96	7.3	373[n]
				6	12.9	10.1	96	7.3	373[n]
				7	12.9	10.1	96	7.3	373[n]
				8	12.9	10.1	96	7.3	373[n]
				9	12.9	10.1	96	7.3	373[n]
				10	12.9	10.1	96	7.3	374[n]
				11	12.9	10.1	96	7.3	375[n]
				12	12.9	10.1	96	7.3	375[n]
				13	12.9	10.1	96	7.3	375[n]
				14	12.9	10.1	96	7.3	375[n]
SNAP03	14-Jan-12	0.9	-	1	0.3	16.6	115	6.4	437
				2	0.7	16.5	116	6.4	425
				3	0.9	16.1	113	6.5	428
				4	1.0	15.7	111	6.5	454
				5	1.0	15.6	110	6.5	463
				6	1.1	15.4	109	6.6	465
				7	1.1	15.3	108	6.6	467
				8	1.1	15.2	107	6.6	467
				9	1.3	14.8	105	6.7	459
				10	1.7	14.5	104	6.7	447
				11	2.0	13.8	100	6.7	440
				12	2.3	13.5	98	6.7	437
				13[b]	2.5[b]	1.9[b]	15[b]	6.5[b]	420[b]

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	18-Feb-12	1.2	-	1.5	0.7	14.5	101	6.8	465
				2	0.9	14.3	104	6.9	454
				3	1.0	14.8	104	6.9	477
				4	1.1	14.6	103	6.9	497
				5	1.1	14.4	102	6.9	506
				6	1.1	14.3	101	7.0	511
				7	1.1	14.3	101	7.0	513
				8	1.2	14.2	101	7.0	512
				9	1.3	14.1	100	7.0	508
				10	1.5	13.7	98	7.0	502
				11	1.8	13.0	94	7.0	495
				12	2.0	12.7	92	7.0	493
				13	2.3	10.8	80	6.9	493
	16-Mar-12	1.5	-	1.8	1.0	14.0	98	6.6	457
				2	1.1	14.0	98	6.6	455
				3	1.3	13.9	99	6.6	468
				4	1.3	13.8	98	6.6	496
				5	1.3	13.8	98	6.7	500
				6	1.3	13.7	98	6.7	502
				7	1.3	13.7	98	6.7	504
				8	1.4	13.7	97	6.7	504
				9	1.4	13.6	97	6.7	505
				10	1.7	13.2	95	6.7	493
				11	1.9	12.6	91	6.7	488
				12	2.1	12.3	89	6.7	485
	17-Apr-12	1.4	-	2	1.0	14.9	105	6.6	470
				3	1.4	14.8	105	6.6	488
				4	1.4	14.8	106	6.6	516
				5	1.5	14.6	104	6.6	522
				6	1.5	14.6	104	6.6	526
				7	1.5	14.5	104	6.6	527
				8	1.5	14.5	104	6.7	529
				9	1.5	14.5	103	6.7	529
				10	1.4	14.4	103	6.7	524
				11	1.9	14.0	101	6.7	518
				12	2.0	13.6	99	6.7	516
				13[b]	2.25[b]	9.95[b]	75.6[b]	6.68[b]	487[b]
	15-May-12	1.7	-	2	3.0	13.5	100	6.5	509
				3	2.6	13.7	101	6.6	538
				4	2.3	13.9	102	6.5	537
				5	2.3	13.9	102	6.6	532
				6	2.3	13.9	101	6.6	542
				7	2.3	13.9	101	6.6	533
				8	2.3	13.8	101	6.6	531
				9	2.3	13.9	101	6.6	530
				10	3.0	14.1	104	6.7	516
				11	3.2	14.5	108	6.7	513
				12	3.3	14.8	111	6.7	513
				13	3.3	7.4	59	6.6	510
	7-Jul-12	-	6.0	0.3	15.7	9.9	106	7.1	384
				1	15.1	10.1	100	7.1	384
				2	14.9	10.0	100	7.1	386
				3	14.7	10.0	99	7.3	386
				4	14.1	10.1	99	7.1	394
				5	13.7	10.2	99	7.2	394
				6	13.6	10.2	99	7.2	388
				7	13.5	10.2	98	7.2	387
				8	13.4	10.3	98	7.2	390
				9	13.3	10.3	98	7.2	387
				10	13.2	10.3	98	7.2	387
				11	13.2	10.3	98	7.2	388
				12	13.2	10.2	97	7.3	388
				13	13.0	5.8	63	7.2	386

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	13-Aug-12[h]	-	6.0	0.5	16.6	9.5	98	7.3	403
				1	16.6	9.5	98	7.3	403
				2	16.6	9.5	98	7.3	403
				3	16.6	9.5	98	7.3	403
				4	16.6	9.5	98	7.3	403
				5	16.6	9.5	98	7.3	403
				6	16.6	9.5	98	7.3	402
				7	16.6	9.5	98	7.3	402
				8	16.6	9.5	98	7.3	402
				9	16.6	9.5	98	7.4	402
				10	16.6	9.5	98	7.4	402
				11	16.6	9.5	98	7.4	402
				12	16.5	9.5	98	7.4	400
	7-Sep-12	-	7.0	0.3	13.5	11.0	106	7.1	362[n]
				1	13.4	11.0	105	7.2	363[n]
				2	13.3	11.0	105	7.1	363[n]
				3	13.3	11.0	105	7.2	363[n]
				4	13.3	11.0	105	7.2	363[n]
				5	13.3	11.0	105	7.3	363[n]
				6	13.3	11.0	105	7.3	363[n]
				7	13.3	11.0	105	7.3	363[n]
				8	13.3	11.0	105	7.3	363[n]
				9	13.3	11.0	105	7.3	363[n]
				10	13.3	11.0	105	7.3	363[n]
				11	13.3	11.0	105	7.3	363[n]
				12	13.3	11.0	105	7.3	363[n]
				13	13.5[b]	0.9[b]	10[b]	6.7[b]	347[b]
SNAP05	18-Feb-12	1.2	-	1.5	0.6	14.1	98	6.8	451
				2	1.0	13.9	98	6.9	441
				3	1.1	14.0	99	6.9	443
				4	1.0	14.4	101	6.9	489
				5	1.1	14.2	101	6.9	502
				6	1.2	14.2	100	6.9	506
				7	1.3	13.9	98	7.0	503
				8	1.4	13.4	95	7.0	498
				9	1.7	13.2	95	7.0	492
				10	2.2	12.4	90	6.9	481
				11	2.4	12.1	88	6.9	478
				12	2.6	11.9	88	6.9	477
				13	2.7	10.9	82	6.9	472
				14	3.0	6.9	74	6.8	481
	16-Mar-12	1.5	-	1.5	0.8	13.4	94	6.8	447
				2	1.2	13.2	93	6.8	441
				3	1.4	13.0	92	6.8	437
				4	1.3	13.6	97	6.8	479
				5	1.4	13.6	97	6.7	493
				6	1.4	13.5	96	6.8	499
				7	1.5	13.5	96	6.8	496
				8	1.7	13.1	94	6.8	489
				9	2.0	12.3	89	6.8	480
				10	2.3	12.0	88	6.8	477
				11	2.7	11.6	86	6.8	474
				12	2.8	11.2	83	6.8	471
				13	3.0	10.8	81	6.8	471
	17-Apr-12	1.5	-	2	0.3	14.5	100	6.8	468
				3	1.4	14.2	101	6.8	461
				4	1.4	15.1	107	6.8	504
				5	1.5	14.7	105	6.8	516
				6	1.5	14.3	102	6.8	523
				7	1.6	14.3	102	6.8	519
				8	1.8	13.7	99	6.8	515
				9	2.1	13.2	96	6.8	509
				10	2.4	12.7	93	6.8	502
				11	2.7	12.4	92	6.8	497
				12	2.8	12.1	90	6.8	495
				13	2.9	11.5	86	6.8	497
				14	3.1	11.0	83	6.8	500

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	14-May-12	1.4	-	2	2.4	13.5	99	6.6	264
				3	2.5	13.2	97	6.6	268
				4	2.6	13.9	102	6.6	280
				5	2.2	14.0	102	6.6	295
				6	2.9	14.0	104	6.6	290
				7	2.9	13.9	103	6.7	290
				8	2.7	13.5	100	6.6	297
				9	2.9	13.0	97	6.6	297
				10	3.1	13.1	98	6.6	297
				11	3.1	13.0	97	6.6	299
				12	3.2	13.1	98	6.6	300
				13	3.3	13.5	101	6.6	302
				14	3.6	12.6	96	6.6	303
	7-Jul-12	-	-	0.3	15.5	9.9	100	7.2	389
				1	15.3	9.9	99	7.2	388
				2	14.5	10.1	99	7.2	385
				3	14.5	10.1	99	7.3	384
				4	14.3	10.1	99	7.3	386
				5	14.0	10.1	99	7.3	386
				6	13.6	10.2	98	7.3	389
				7	13.5	10.2	98	7.3	391
				8	13.4	10.3	98	7.3	387
				9	13.3	10.3	98	7.3	387
				10	13.1	10.3	98	7.3	386
				11	13.0	10.3	98	7.3	385
				12	13.0	10.3	97	7.4	385
				13	12.8	10.3	98	7.4	384
	10-Aug-12[(m)]	-	-	0.5	17.2	9.8	101	7.6	394
				1	17.2	9.8	102	7.6	395
				2	17.2	9.8	102	7.6	395
				3	17.2	9.8	102	7.6	395
				4	17.2	9.8	102	7.7	395
				5	17.2	9.8	102	7.6	395
				6	17.2	9.8	102	7.7	395
				7	17.2	9.8	102	7.7	394
				8	17.2	9.8	102	7.7	395
				9	17.2	9.8	102	7.6	395
				10	17.2	9.8	102	7.6	395
				11	17.2	9.9	102	7.6	394
	11-Aug-12	-	-	0.5	17.1	9.6	99	7.6	397
				1	17.1	9.6	99	7.7	397
				2	17.0	9.6	100	7.7	397
				3	17.0	9.6	100	7.7	397
				4	17.0	9.6	100	7.7	397
				5	17.0	9.6	100	7.7	397
				6	17.0	9.6	100	7.7	396
				7	17.0	9.6	100	7.7	396
				8	17.0	9.6	100	7.7	396
				9	17.0	9.6	100	7.7	396
				10	17.0	9.6	99	7.6	396
				11	17.0	9.6	99	7.7	396
				12	17.0	9.6	99	7.7	396
				13	17.0	9.6	100	7.7	396
				14	17.0	9.6	100	7.7	396
	12-Aug-12	-	-	0.5	16.8	9.8	101	7.3	398
				1	16.8	9.8	102	7.4	398
				2	16.8	9.9	102	7.4	397
				3	16.8	9.9	102	7.5	398
				4	16.8	9.9	102	7.5	398
				5	16.8	9.9	102	7.5	398
				6	16.8	9.9	102	7.5	398
				7	16.8	9.9	102	7.5	398
				8	16.8	9.9	102	7.5	399
				9	16.8	9.9	102	7.5	399
				10	16.8	9.9	102	7.5	399
				11	16.8	9.9	102	7.5	399
				12	16.8	9.9	102	7.5	399
				13	16.8	9.9	102	7.5	400
				14	16.8	9.9	102	7.5	399

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	11-Sep-12	-	6.5	0.3	12.0	10.6	99	7.2	401
				1	12.0	10.6	99	7.2	401
				2	12.0	10.6	99	7.2	401
				3	12.0	10.6	99	7.2	401
				4	12.0	10.6	99	7.2	401
				5	12.0	10.6	99	7.2	401
				6	12.0	10.6	99	7.2	401
				7	12.0	10.7	99	7.2	401
				8	12.0	10.7	99	7.2	402
				9	12.0	10.7	99	7.3	402
				10	12.0	10.7	99	7.3	402
				11	12.0	10.7	99	7.3	402
				12	12.0	10.7	99	7.3	402
SNAP06	17-Feb-12	1.3	-	1.5	0.2	12.2	84	6.9	453
				2	0.7	12.1	85	6.9	438
				3	1.2	11.8	83	6.9	438
				4	1.2	12.0	85	6.9	456
				5	1.3	12.2	86	6.9	484
				6	1.4	11.8	84	6.9	481
				7	1.5	11.5	82	6.9	486
				8	1.7	11.4	82	6.9	485
				9	1.9	11.1	80	6.9	478
				10	2.1	10.6	77	6.9	473
				11	2.3	10.3	75	6.9	470
				12	2.5	9.8	72	6.9	467
	17-Mar-12	1.6	-	1.9	0.7	14.5	101	6.8	459
				2	0.9	14.4	101	6.8	454
				3	1.5	13.9	99	6.8	444
				4	1.5	14.0	100	6.8	458
				5	1.4	14.0	100	6.8	483
				6	1.5	13.9	99	6.8	493
				7	1.7	13.4	96	6.8	488
				8	1.8	13.2	95	6.8	482
				9	2.1	12.7	92	6.8	475
				10	2.4	12.2	90	6.8	470
				11	2.6	11.8	88	6.8	470
				12	2.8	11.4	84	6.8	465
	16-Apr-12	1.5	-	2	0.9	13.8	97	6.7	473
				3	1.4	13.6	97	6.7	477
				4	1.5	13.9	99	6.7	491
				5	1.4	14.0	100	6.7	516
				6	1.4	13.9	99	6.6	529
				7	1.5	13.7	98	6.7	525
				8	1.8	13.3	96	6.7	509
				9	2.0	12.9	93	6.7	506
				10	2.3	12.4	90	6.6	500
				11	2.5	12.0	88	6.6	497
				12	2.7	11.6	86	6.6	496
				13	3.0	11.1	83	6.6	493
	14-May-12	1.6	-	2	1.6	13.2	95	6.6	439
				3	2.4	12.8	94	6.6	474
				4	3.1	13.0	97	6.6	465
				5	3.7	13.3	101	6.6	462
				6	3.5	13.6	102	6.5	468
				7	2.9	13.4	100	6.6	505
				8	2.8	12.7	94	6.6	506
				9	3.0	12.7	94	6.6	502
				10	3.1	19.5[(e)]	93	6.6	502
				11	3.2	12.5	93	6.6	503
				12	3.5	12.9	97	6.6	502

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Jul-12	-	7.0	0.3	16.4	9.6	98	6.5	382
				1	16.5	9.6	98	6.6	382
				2	16.5	9.6	98	6.6	382
				3	16.5	9.6	98	6.7	382
				4	16.5	9.5	98	6.7	382
				5	16.4	9.6	98	6.8	382
				6	16.4	9.6	98	6.8	382
				7	16.4	9.6	98	6.8	382
				8	15.9	9.8	99	6.8	383
				9	15.3	10.1	101	6.9	384
				10	15.1	10.2	101	6.9	384
				11	15.0	10.2	101	6.9	384
				12	14.8	10.3	101	6.9	384
				13	14.6	10.3	101	6.9	383
	10-Aug-12[(m)]	-	6.5	0.5	17.4	9.8	102	7.7	385
				1	17.4	9.8	102	7.7	385
				2	17.4	9.8	102	7.7	385
				3	17.4	9.8	102	7.7	385
				4	17.4	9.8	102	7.7	385
				5	17.4	9.8	103	7.7	386
				6	17.3	9.8	103	7.7	386
				7	17.3	9.8	103	7.7	386
				8	17.3	9.8	102	7.7	386
				9	17.2	9.8	102	7.7	386
				10	17.2	9.8	102	7.7	386
				11	17.2	9.8	102	7.7	386
				12	17.2	9.9	103	7.7	386
				13	17.1	7.9	81	7.5	386
	11-Sep-12	-	5.5	0.3	12.1	10.1	94	7.0	406
				1	12.1	10.1	94	7.0	405
				2	12.1	10.1	94	7.0	405
				3	12.2	10.1	94	7.1	405
				4	12.1	10.1	94	7.1	405
				5	12.1	10.1	94	7.1	406
				6	12.2	10.1	94	7.1	405
				7	12.2	10.1	94	7.1	405
				8	12.2	10.1	94	7.1	405
				9	12.2	10.1	94	7.1	405
				10	12.2	10.1	94	7.1	405
				11	12.2	10.1	94	7.2	406
				12	12.2	10.0	94	7.1	405
SNAP12	18-Feb-12	1.0	-	1.5	0.7	14.3	100	6.9	453
				2	1.1	14.1	99	6.9	444
				3	1.2	13.8	98	6.9	447
				4	1.1	14.1	100	6.9	498
				5	1.1	14.4	102	6.9	510
				6	1.2	14.4	102	6.9	515
				7	1.2	14.2	101	6.9	515
	16-Mar-12	1.2	-	1.5	0.7	13.7	96	6.8	457
				2	1.2	13.4	95	6.8	446
				3	1.3	13.7	97	6.8	476
				4	1.3	13.7	98	6.8	497
				5	1.4	13.7	97	6.8	501
				6	1.4	13.7	97	6.8	508
				7	1.4	13.6	97	6.8	508
	17-Apr-12	1.3	-	1.5	0.8	14.4	101	6.9	476
				2	1.3	14.0	96	6.9	461
				3	1.5	14.3	102	6.9	495
				4	1.5	14.4	103	6.8	522
				5	1.5	14.4	103	6.9	525
				6	1.5	14.4	103	6.9	529
				7	1.5	14.4	103	6.9	529
	15-May-12	1.3	-	1.5	1.7	13.4	97	6.7	459
				2	2.4	13.3	98	6.7	472
				3	2.2	13.7	99	6.7	525
				4	2.2	13.8	100	6.7	525
				5	2.2	13.8	100	6.7	525
				6	2.3	13.8	100	6.7	528
				7	2.3	13.8	100	6.7	529

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	13-Jul-12	-	7.5	0.3	16.1	9.8	99	6.1	387
				1	16.1	9.8	99	6.2	387
				2	16.1	9.7	99	6.3	387
				3	16.1	9.7	99	6.3	387
				4	16.1	9.7	99	6.4	387
				5	16.1	9.7	99	6.4	387
				6	16.0	9.7	99	6.5	387
				7	16.0	9.8	99	6.5	387
	10-Aug-12[m]	-	-	0.5	17.2	9.7	101	7.5	397
				1	17.2	9.7	101	7.5	397
				2	17.2	9.7	101	7.6	398
				3	17.2	9.8	102	7.6	398
				4	17.2	9.8	102	7.6	398
				5	17.2	9.8	102	7.6	398
				6	17.2	9.8	102	7.6	398
				7	17.2	9.8	102	7.6	398
	11-Aug-12	-	-	0.5	17.0	9.5	99	7.5	399
				1	17.0	9.5	99	7.5	399
				2	17.0	9.5	99	7.6	399
				3	17.0	9.6	99	7.6	398
				4	17.0	9.6	99	7.6	398
				5	17.0	9.6	99	7.6	397
				6	17.0	9.6	100	7.6	397
				7	17.0	9.6	100	7.6	397
	12-Aug-12	-	-	0.5	16.8	9.9	102	7.6	399
				1	16.8	9.9	102	7.6	399
				2	16.9	9.9	102	7.6	399
				3	16.9	9.9	102	7.6	399
				4	16.9	9.9	102	7.6	399
				5	16.9	9.9	102	7.6	399
				6	16.9	9.9	102	7.6	399
				7	16.9	9.9	102	7.6	399
	7-Sep-12	-	6.2	0.3	13.4	11.1	106	6.9	363[n]
				1	13.3	11.0	106	7.0	363[n]
				2	13.3	11.0	105	7.0	363[n]
				3	13.3	11.0	105	7.1	364[n]
				4	13.3	11.2	108	7.1	363[n]
				5	13.3	11.0	105	7.1	363[n]
				6	13.3	11.4	105	7.2	363[n]
				7	13.3	11.0	106	7.2	364[n]
				7.5	13.3	11.0	106	7.2	364[n]
SNAP26	18-Feb-12	1.1	-	1.5	0.2	15.4	106	6.9	481
				2	0.7	15.2	106	6.9	479
				3	1.0	15.0	106	6.9	478
				4	1.4	13.8	98	6.9	471
				5	2.5	11.5	84	6.9	470
	16-Mar-12	1.3	-	1.5	0.1	15.0	103	6.9	507
				2	0.5	14.8	103	6.9	500
				3	1.2	14.2	101	6.9	488
				4	1.6	13.7	98	6.9	487
				5	2.8	11.9	88	6.8	470
	17-Apr-12	1.3	-	1.5	0.5	15.5	108	6.9	515
				2	0.9	15.3	108	6.9	506
				3	1.3	15.0	107	7.0	508
				4	1.6	14.6	105	6.9	511
				5	2.7	13.4	100	6.9	501
	14-May-12	1.3	-	1.5	1.5	13.0	93	6.6	231
				2	2.3	13.0	97	6.5	476
				3	2.3	13.7	100	6.5	509
				4	3.1	13.6	101	6.5	513
				5	3.6	13.4	101	6.5	513
	11-Jul-12	-	-	0.3	17.4	10.0	105	6.3	391
				1	17.4	10.0	105	6.5	392
				2	17.2	10.1	105	6.5	392
				3	16.0	10.7	108	6.6	397
				4	15.4	10.8	108	6.7	399
				5	14.9	10.8	107	6.7	401

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	16-Aug-12[m]	-	-	0.5	14.9	9.9	98	7.2	401
				1	14.9	9.9	98	7.3	401
				2	14.9	9.9	98	7.4	401
				3	14.9	9.9	98	7.4	401
				4	14.8	9.9	98	7.4	401
				5	14.6	10.0	99	7.4	400
	7-Sep-12	-	6.0	0.3	13.0	11.0	104	6.9	369[n]
				1	12.9	10.9	104	7.0	370[n]
				2	12.9	10.9	104	7.0	370[n]
				3	12.9	11.0	104	7.0	370[n]
				4	12.9	11.0	104	7.1	369[n]
				5	12.9	11.0	104	7.1	369[n]
				5.5	12.9	11.0	104	7.1	369[n]
SNAP28	18-Feb-12	0.9	-	1.5	0.7	15.3	107	6.9	458
				2	0.7	15.6	109	6.9	466
				3	1.0	15.0	106	6.9	481
				4	1.1	14.6	103	6.9	502
				5	1.1	14.5	103	6.9	505
				6	1.1	14.5	102	7.0	508
	16-Mar-12	1.2	-	1.5	1.0	14.2	100	6.9	458
				2	1.2	14.1	100	6.9	460
				3	1.3	13.8	98	6.9	495
				4	1.3	13.7	98	6.9	504
				5	1.3	13.7	98	6.9	505
				6	1.3	13.7	98	6.9	506
	17-Apr-12	1.1	-	1.5	1.2	14.3	102	7.0	460
				2	1.3	14.3	102	7.0	459
				3	1.4	14.3	102	7.0	513
				4	1.5	14.4	103	7.0	525
				5	1.5	14.4	103	7.0	528
				6	1.5	14.4	103	7.0	529
				7	1.5	14.3	102	7.0	529
	11-Jul-12		-	0.3	16.2	10.4	106	6.9	400
				1	15.6	10.5	106	7.0	403
				2	15.0	10.6	106	7.0	404
				3	14.8	10.7	106	7.1	405
				4	14.7	10.7	106	7.2	405
				5	14.5	10.8	106	7.2	404
				6	14.3	10.8	106	7.2	402
				7	14.2	10.8	106	7.2	401
	16-Aug-12[m]	-	-	0.5	15.3[o]	9.9[o]	98[o]	7.5[o]	401[o]
				1	15.3[o]	9.9[o]	99[o]	7.5[o]	401[o]
				2	15.3[o]	9.9[o]	99[o]	7.5[o]	401[o]
				3	15.3[o]	9.9[o]	99[o]	7.5[o]	402[o]
	7-Sep-12	-	5.5	0.3	13.5	10.7	103	5.6	368[n]
				1	13.3	10.8	103	6.2	369[n]
				2	13.3	10.9	104	6.4	369[n]
				3	13.3	10.9	104	6.6	369[n]
				4	13.3	10.9	104	6.7	369[n]
				5	13.3	10.9	104	6.7	369[n]
				6	13.3	11.0	105	6.7	369[n]
				7	13.3	11.0	105	6.9	369[n]
SNAP09	17-Feb-12	1.2	-	1.5	1.2	11.4	82	6.7	439
				2	1.5	11.3	81	6.8	424
				3	1.5	11.1	80	6.8	423
				4	1.5	10.9	78	6.8	428
				5	1.6	10.8	77	6.8	434
				6	1.6	10.6	76	6.8	441
				7	1.6	10.6	76	6.8	444
				8	1.6	10.7	76	6.8	447
				9	1.6	10.6	76	6.8	452
				10	1.7	10.5	75	6.8	453
				11	1.8	10.3	74	6.8	450
				12	1.9	10.0	72	6.8	448
				13	2.0	9.8	71	6.8	445
				14	2.1	9.7	70	6.8	446

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Mar-12	1.2	-	1.5	1.0	12.6	89	6.9	431
				2	1.5	12.3	88	6.9	424
				3	1.6	12.0	86	6.9	424
				4	1.6	11.8	85	6.9	428
				5	1.6	12.0	86	6.9	441
				6	1.6	12.0	86	6.9	445
				7	1.7	11.9	86	6.9	448
				8	1.7	12.0	86	6.8	454
				9	1.8	11.8	85	6.8	452
				10	1.8	11.8	85	6.8	453
				11	1.9	11.7	84	6.8	455
				12	2.1	11.3	82	6.8	449
				13	2.2	10.9	79	6.8	445
				14	2.4	10.6	78	6.8	444
	16-Apr-12	1.4	-	2	1.5	12.6	90	6.7	458
				3	1.7	12.5	90	6.7	459
				4	1.7	12.5	89	6.7	464
				5	1.7	12.5	89	6.7	472
				6	1.7	12.4	89	6.7	475
				7	1.7	12.4	89	6.7	481
				8	1.7	12.4	89	6.6	483
				9	1.8	12.3	89	6.6	484
				10	1.8	12.2	88	6.6	485
				11	1.9	11.9	86	6.6	479
				12	2.0	11.6	84	6.6	478
				13	2.2	11.4	83	6.6	475
				14	2.3	11.0	81	6.6	473
	14-May-12	1.4	-	1.5	1.0	12.3	86	6.4	295
				2	2.4	12.1	89	6.3	460
				3	2.5	12.5	92	6.4	467
				4	2.5	12.5	92	6.4	467
				5	2.5	12.5	92	6.4	469
				6	2.4	12.5	92	6.4	478
				7	2.3	12.4	91	6.4	482
				8	2.3	12.7	93	6.4	486
				9	2.3	12.5	91	6.4	485
				10	2.6	12.3	91	6.4	481
				11	2.8	12.3	91	6.4	479
				12	2.9	12.0	89	6.4	478
				13	3.0	11.6	86	6.4	481
				14	3.1	11.7	87	6.4	480
				15	3.2	11.1	84	6.4	475
	12-Jul-12	-	-	0.3	16.9	9.7	101	7.2	386
				1	16.9	9.7	100	7.2	386
				2	16.9	9.7	100	7.2	386
				3	16.9	9.7	100	7.3	386
				4	16.9	9.7	100	7.3	386
				5	16.9	9.7	100	7.3	386
				6	16.9	9.7	100	7.3	386
				7	16.8	9.7	100	7.3	386
				8	16.1	10.1	102	7.3	386
				9	14.2	10.6	103	7.4	385
				10	14.1	10.6	103	7.4	385
				11	13.8	10.7	103	7.4	386
				12	13.5	10.7	103	7.4	385
				13	13.3	10.7	103	7.4	385
				14	13.0	10.7	102	7.4	385
				15	12.6	3.0	34	7.3	384
	14-Aug-12[(m)]	-	-	0.5	16.1	9.8	100	7.5	385
				1	16.1	9.8	100	7.5	385
				2	16.2	9.8	100	7.6	385
				3	16.2	9.8	100	7.6	385
				4	16.2	9.8	100	7.6	385
				5	16.2	9.8	100	7.6	385
				6	16.2	9.8	100	7.6	385
				7	16.2	9.8	100	7.6	385
				8	16.2	9.8	100	7.6	385
				9	16.2	9.8	100	7.6	385
				10	16.2	9.8	100	7.6	385
				11	16.2	9.8	100	7.6	385
				12	16.1	9.8	100	7.6	385
				13	16.1	9.8	100	7.6	385

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Sep-12	-	5.3	0.3	11.3	10.8	99	7.2	396
				1	11.3	10.8	99	7.2	396
				2	11.3	10.8	99	7.2	396
				3	11.3	10.8	99	7.2	396
				4	11.3	10.8	99	7.3	396
				5	11.3	10.9	99	7.2	396
				6	11.3	10.8	99	7.3	396
				7	11.3	10.8	99	7.2	396
				8	11.3	10.8	99	7.2	396
				9	11.3	10.8	99	7.2	396
				10	11.3	10.8	99	7.3	396
				11	11.3	10.8	99	7.3	397
				12	11.3	10.8	99	7.3	397
				13	11.3	10.8	99	7.3	397
				14	11.3	10.8	99	7.3	397
SNAP11A	17-Feb-12	1.2	-	1.5	1.2	12.0	85	6.8	450
				2	1.2	12.0	85	6.9	439
				3	1.3	11.8	84	6.9	439
				4	1.3	11.5	82	6.9	444
				5	1.3	11.5	82	6.9	457
				6	1.3	11.5	82	6.9	466
				7	1.3	11.6	82	6.9	469
				8	1.4	11.5	82	6.9	472
				9	1.3	11.6	83	6.9	482
				10	1.3	11.7	83	6.9	481
				11	1.4	11.5	82	6.9	476
				12	1.5	11.4	82	6.9	475
				13	1.5	11.4	82	6.9	484
				14	1.8	11.1	80	6.9	474
				15	2.0	10.6	77	6.9	469
				16	2.4	9.9	73	6.9	463
	16-Mar-12	1.6	-	1.9	1.2	13.3	94	6.9	445
				2	1.3	13.2	94	6.9	443
				3	1.4	13.0	92	6.9	443
				4	1.5	12.8	91	6.9	448
				5	1.5	12.7	91	6.9	456
				6	1.5	12.6	90	6.9	460
				7	1.6	12.6	90	6.9	462
				8	1.6	12.6	90	6.9	467
				9	1.7	12.5	90	6.9	466
				10	1.7	12.5	90	6.9	469
				11	1.6	12.8	91	6.9	480
				12	1.6	12.7	91	6.9	478
				13	1.8	12.5	90	7.9[(p)]	475
	16-Apr-12	1.6	-	2	1.3	13.7	97	6.6	470
				3	1.5	13.3	95	6.6	473
				4	1.5	13.2	94	6.6	479
				5	1.5	13.1	94	6.6	486
				6	1.5	13.1	94	6.6	491
				7	1.6	13.1	93	6.6	491
				8	1.6	13.0	93	6.6	496
				9	1.6	12.9	93	6.6	498
				10	1.6	13.2	94	6.6	506
				11	1.5	13.3	95	6.6	514
				12	1.6	13.4	96	6.6	513
				13	1.7	13.3	95	6.6	512
				14	1.9	12.7	92	6.6	502
				15	2.2	12.0	88	6.6	497
				16	2.5	11.3	83	6.6	492

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	14-May-12	1.5	-	1.5	1.4	13.0	93	6.5	430
				2	2.2	13.1	95	6.5	475
				3	2.3	13.1	96	6.5	483
				4	2.3	13.1	96	6.5	484
				5	2.2	13.1	95	6.5	491
				6	2.2	13.0	95	6.5	491
				7	2.1	13.0	95	6.5	502
				8	2.1	12.9	93	6.5	503
				9	2.3	12.7	93	6.5	494
				10	2.4	12.3	92	6.5	490
				11	2.9	12.5	93	6.5	483
				12	2.8	12.5	93	6.5	489
				13	2.8	12.4	92	6.5	494
				14	3.0	12.7	94	6.5	492
				15	3.0	12.9	96	6.5	492
				16	3.0	13.0	97	6.5	495
	12-Jul-12	-	7.0	0.3	16.7	9.8	101	7.4	384
				1	16.7	9.8	101	7.4	385
				2	16.7	9.8	101	7.4	384
				3	16.6	9.8	101	7.4	384
				4	16.6	9.8	101	7.4	384
				5	16.6	9.8	101	7.4	384
				6	15.2	10.4	100	7.5	385
				7	14.8	10.5	100	7.5	385
				8	14.2	10.6	103	7.5	385
				9	13.5	10.7	103	7.5	385
				10	13.2	10.8	103	7.5	384
				11	12.9	10.7	101	7.5	384
				12	12.8	10.7	101	7.5	384
				13	12.7	10.7	101	7.5	384
				14	12.7	10.7	101	7.5	384
				15	12.7	10.7	101	7.5	384
	13-Aug-12[(m)]	-	8.0	0.5	16.6	9.5	97	7.0	386
				1	16.6	9.4	97	7.0	386
				2	16.6	9.4	97	7.0	386
				3	16.6	9.4	97	7.0	386
				4	16.6	9.4	97	7.1	386
				5	16.6	9.4	97	7.1	386
				6	16.6	9.4	97	7.1	385
				7	16.6	9.4	97	7.1	386
				8	16.6	9.4	97	7.1	386
				9	16.6	9.4	97	7.1	386
				10	16.6	9.4	97	7.1	386
				11	16.6	9.4	97	7.1	386
				12	16.6	9.4	97	7.1	386
				13	16.5	9.4	97	7.1	386
				14	16.5	9.4	97	7.2	386
				15	16.5	9.4	97	7.2	386
				16	16.5	9.4	97	7.2	385
	13-Sep-12	-	4.8	0.3	11.4	10.7	98	7.0	397
				1	11.4	10.7	98	7.0	397
				2	11.4	10.7	98	7.1	396
				3	11.4	10.7	98	7.1	396
				4	11.4	10.7	98	7.1	396
				5	11.4	10.7	98	7.2	396
				6	11.4	10.7	98	7.2	396
				7	11.4	10.7	98	7.2	396
				8	11.4	10.7	98	7.2	396
				9	11.4	10.7	98	7.2	396
				10	11.4	10.7	98	7.2	396
				11	11.4	10.9	100	7.2	396
				12	11.4	10.7	99	7.2	396
				13	11.4	10.8	98	7.2	396
				14	11.3	10.8	98	7.2	396
				15	11.3	10.8	98	7.2	395
				16	11.3	10.8	98	7.2	395
SNAP04	18-Feb-12	1.2	-	1.5	0.7	14.3	100	7.0	469
				2	1.1	14.1	100	7.0	460
				2.5	1.5	13.9	99	7.0	453
				3	1.7	13.8	99	6.9	452
				3.5	2.0	13.7	99	6.9	451
				4	2.2	13.7	100	6.9	450

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	17-Mar-12	1.5	-	1.8	0.3	14.8	102	6.8	475
				2	0.9	14.4	101	6.8	464
				3	2.1	13.9	101	6.8	452
				4	2.5	13.8	101	6.8	451
	17-Apr-12	1.4	-	1.5	0.4	15.0	104	6.5	495
				2	1.1	14.6	104	6.5	482
				2.5	1.9	14.4	104	6.5	468
				3	2.3	14.1	103	6.5	462
				3.5	2.8	14.0	103	6.5	458
				4	2.9	13.9	103	6.5	459
	14-May-12	1.6	-	2	3.6	12.7	96	6.6	439
				2.5	4.4	12.9	99	6.6	451
				3	4.5	13.3	103	6.6	457
				3.5	4.4	13.4	103	6.6	457
				4	4.1	13.4	103	6.6	459
	12-Jul-12	-	-	0.3	18.1	9.6	102	6.8	361
				0.5	18.1	9.6	102	6.9	362
				1	18.1	9.6	101	7.0	362
				1.5	18.1	9.6	101	7.0	362
				2	18.1	9.6	101	7.1	362
				2.5	18.1	9.5	101	7.1	362
				3	18.1	9.5	101	7.1	362
				3.5	18.1	9.5	101	7.2	362
				4	18.1	9.6	101	7.2	362
	14-Aug-12[m]	-	-	0.5	16.0	9.7	99	7.5	366
				1	16.1	9.7	99	7.5	366
				1.5	16.1	9.7	99	7.5	366
				2	16.1	9.7	99	7.5	366
				2.5	16.1	9.7	99	7.5	366
				3	16.1	9.7	99	7.5	366
				3.5	16.1	9.8	99	7.6	366
				4	16.1	9.8	100	7.6	366
				4.5	16.1	9.1	95	7.5	365
	11-Sep-12	-	4.5	0.3	10.9	11.1	100	7.2	377
				1	10.9	11.0	100	7.2	377
				2	10.9	11.0	99	7.2	377
				3	10.9	11.0	99	7.2	377
				4	10.9	11.0	99	7.2	377
SNAP07	17-Feb-12	1.3	-	1.5	0.9	12.1	85	6.7	456
				2	1.0	12.1	85	6.7	445
				3	1.1	12.1	86	6.7	454
				4	1.2	12.1	86	6.8	459
				5	1.2	12.1	86	6.8	471
				6	1.6	11.7	84	6.8	463
				7	1.9	11.3	82	6.8	455
				8	2.1	11.0	80	6.8	453
				9	2.2	10.3	75	6.7	456
				10	2.2	10.2	74	6.7	462
	17-Mar-12	1.4	-	1.5	0.5	14.0	97	6.7	455
				2	1.1	13.7	97	6.7	441
				3	1.4	13.7	98	6.7	444
				4	1.5	13.7	98	6.7	454
				5	1.6	13.8	99	6.7	460
				6	1.9	13.6	98	6.7	456
				7	2.2	12.8	93	6.7	448
				8	2.4	12.3	92	6.7	449
				9	2.4	11.7	86	6.7	450
				10[b]	2.6[b]	6[b]	45[b]	6.6[b]	442[b]
	16-Apr-12	1.5	-	2	1.3	13.2	94	6.7	462
				3	1.6	13.2	94	6.7	461
				4	1.6	13.4	96	6.6	470
				5	1.8	13.0	94	6.6	472
				6	2.0	12.6	91	6.6	478
				7	2.3	12.3	90	6.6	471
				8	2.4	11.9	87	6.6	474
				9	2.4	10.9	80	6.5	478

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	14-May-12	1.4	-	1.5	0.4	13.3	92	6.2	198
				2	0.5	13.8	96	6.2	249
				3.0	3.1	13.1	97	6.2	265
				4	3.8	13.3	101	6.2	271
				5	4.0	13.6	102	6.3	276
				6	3.9	13.7	104	6.3	276
				7	4.0	13.6	104	6.3	278
				8	3.9	13.8	105	6.3	279
				9	3.9	13.9	106	6.3	280
				10	3.9	13.9	105	6.3	281
				11	4.0	12.6	99	6.3	282
	13-Jul-12	-	-	0.3	16.8	9.5	98	6.8	384
				1	16.8	9.5	98	6.9	384
				2	16.8	9.5	98	6.9	384
				3	16.8	9.5	98	6.9	384
				4	16.8	9.5	98	7.0	384
				5	16.8	9.5	98	7.0	384
				6	16.7	9.5	98	7.0	384
				7	14.3	11.0	107	7.1	381
				8	13.8	11.1	107	7.1	381
				9	13.6	10.9	104	7.1	381
	14-Aug-12[m]	-	-	0.5	16.0	9.8	100	7.5	385
				1	16.0	9.8	100	7.5	385
				2	16.0	9.8	100	7.5	385
				3	16.0	9.8	100	7.6	385
				4	16.0	9.8	100	7.6	385
				5	16.0	9.9	100	7.6	385
				6	16.0	9.8	100	7.6	385
				7	16.0	9.8	100	7.6	384
				8	16.0	9.8	100	7.6	385
				9	16.0	9.8	100	7.6	384
				10	16.0	9.8	100	7.6	385
	11-Sep-12	-	5.5	0.3	11.4	10.2	93	6.6	392
				1	11.4	10.2	93	6.6	392
				2	11.4	10.2	93	6.7	392
				3	11.4	10.2	93	6.7	392
				4	11.4	10.2	93	6.7	392
				5	11.4	10.2	93	6.8	392
				6	11.4	10.2	93	6.8	392
				7	11.4	10.2	93	6.8	392
				8	11.4	10.2	93	6.9	392
				9	11.4	10.1	93	6.9	392
				10	11.4	10.1	93	6.9	392
SNAP08	17-Feb-12	1.1	-	1.5	1.1	12.0	85	6.4	474
				2	1.5	11.7	84	6.5	472
				3	2.4	11.2	82	6.5	459
				4	2.9	10.1	75	6.5	456
				5	3.0	8.9	66	6.5	459
				6	3.1	8.4	62	6.5	465
				7	3.1	9.6	77	6.5	479
				8	3.3	7.6	57	6.5	483
	12-Mar-12 [q]	1.5	-	1.8	0.9	14.3	100	6.6	466
				2	1.2	14.1	100	6.6	463
				3	2.5	13.2	97	6.6	450
				4	3.2	12.3	92	6.6	448
				5	3.2	12.2	92	6.6	455
	16-Apr-12	1.3	-	1.5	1.5	13.2	94	6.5	488
				2	1.2	13.4	95	6.5	477
				3	2.5	12.8	94	6.5	474
				4	3.3	12.4	93	6.5	470
				5	3.5	11.7	88	6.5	473
				6	3.5	11.1	84	6.5	476
				7	3.5	11.2	84	6.5	480
				8	3.6	10.1	77	6.5	482
				9[b]	3.7[b]	8.53[b]	66.6[b]	6.4[b]	453[b]

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	14-May-12	1.3	-	1.5	1.9	12.8	92	5.8	157
				2	4.7	12.9	101	5.8	273
				3	4.8	13.6	106	5.9	281
				4	4.8	13.9	108	6.0	281
				5	4.6	13.7	107	6.0	281
				6	4.4	13.1	101	6.1	281
				7	4.3	11.3	88	6.1	282
				8	4.3	10.4	80	6.1	283
				9	4.3	8.8	70	6.1	277
	13-Jul-12	-	6.0	0.3	17.6	9.3	99	7.0	387
				1	17.7	9.3	98	7.0	387
				2	17.7	9.3	98	7.1	387
				3	17.7	9.3	98	7.1	387
				4	17.7	9.3	98	7.1	387
				5	17.7	9.4	98	7.1	387
				6	15.8	10.8	109	7.2	386
				7	15.2	11.1	111	7.3	386
	13-Aug-12[(m)]	-	7.5	0.5	16.5	9.3	95	6.3	383
				1	16.5	9.3	95	6.3	383
				2	16.4	9.4	96	6.7	383
				3	16.4	9.4	96	6.7	383
				4	16.4	9.4	96	6.7	383
				5	16.3	9.4	96	6.7	383
				6	16.3	9.4	96	6.8	382
				7	16.2	9.4	96	6.8	382
				8	16.1	9.4	96	6.8	382
				9	16.1	9.4	96	6.8	385
	11-Sep-12	-	5.0	0.3	11.1	10.2	93	6.0	387
				1	11.1	10.2	93	6.2	387
				2	11.1	10.2	93	6.2	388
				3	11.0	10.3	93	6.3	387
				4	11.0	10.2	93	6.3	387
				5	11.0	10.2	93	6.4	387
				6	11.0	10.2	93	6.4	387
				7	11.0	10.2	93	6.5	387
				8	11.0	10.2	93	6.5	387
SNAP10	17-Feb-12	1.1	-	1.5	0.8	12.4	87	6.9	454
				2	0.9	12.2	86	6.9	451
				3	1.2	12.0	85	6.9	447
				4	1.4	11.8	84	6.8	448
				5	1.7	11.2	81	6.8	465
	16-Mar-12	1.0	-	1.5	0.3	14.1	97	6.9	430
				2	0.9	13.9	97	6.9	417
				3	1.2	13.3	94	6.9	448
				4	1.6	13.2	94	6.9	451
	16-Apr-12	1.2	-	1.5	0.4	14.6	101	6.8	479
				2	0.8	14.4	101	6.8	475
				3	1.3	14.1	100	6.7	468
				4	1.5	13.9	99	6.7	473
				5	1.8	13.5	97	6.7	493
	14-May-12	1.0	-	1.5	1.2	13.2	93	6.6	347
				2	2.1	13.4	95	6.5	452
				2.5	2.5	13.4	98	6.6	455
				3	2.6	13.4	99	6.5	459
				3.5	2.9	13.6	101	6.5	459
				4	3.2	13.8	103	6.5	457
				4.5	3.7	14.4	110	6.6	457
				5	4.2	14.9	114	6.6	464
	12-Jul-12	-	-	0.3	16.6	9.9	102	7.3	382
				0.5	16.6	9.9	102	7.3	382
				1	16.6	9.9	102	7.3	382
				1.5	16.6	9.9	102	7.4	382
				2	16.6	9.9	102	7.4	382
				2.5	16.6	9.9	102	7.4	382
				3	16.6	9.9	102	7.4	382
				3.5	16.5	9.9	102	7.4	382
				4	15.5	10.7	108	7.5	383
				4.5	15.3	10.8	108	7.5	383
				5	15.2	3.3	33	7.4	383

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	14-Aug-12[m]	-	-	0.5	15.8	9.9	100	7.6	383
				1	15.8	9.9	100	7.6	383
				1.5	15.8	9.9	100	7.7	383
				2	15.8	9.9	100	7.6	383
				2.5	15.8	9.9	100	7.7	383
				3	15.8	9.9	100	7.6	383
				3.5	15.8	9.9	100	7.7	383
				4	15.8	9.9	100	7.6	383
				4.5	15.8	9.9	100	7.6	383
	13-Sep-12	-	4.3	0.3	10.3	11.2	100	7.2	390
				1	10.3	11.2	100	7.2	390
				2	10.3	11.2	100	7.3	390
				3	10.3	11.2	100	7.3	390
				4	10.3	11.2	100	7.3	390
SNAP02A	14-Jan-12	1.1	-	1.5	0.9	17.1	120	6.6	157
				2	1.2	16.1	114	6.6	153
				3	1.6	14.8	106	6.6	149
				4	2.1	13.1	98	6.6	145
				5	2.4	11.2	82	6.5	148
				6	2.7	12.1	90	6.5	152
				7	2.8	10.2	75	6.5	158
				8	3.0	8.4	62	6.4	156
				9	3.0	7.1	53	6.4	157
	20-Feb-12	1.3	-	1.5	0.9	15.8	111	6.6	167
				2	1.2	15.4	109	6.6	167
				3	1.6	13.4	103	6.6	165
				4	2.1	13.3	97	6.6	162
				5	2.5	11.6	86	6.6	160
				6	2.8	10.5	79	6.5	164
				7	2.8	9.0	67	6.5	146
				8	2.9	7.8	59	6.5	174
				9	3.0	6.8	51	6.4	172
	17-Mar-12	>1.5	-	2	0.3	15.6	108	7.1	171
				3	1.9	14.3	103	7.0	163
				4	2.4	13.3	97	7.0	160
				5	2.8	12.0	88	7.0	157
				6	3.1	7.7	58	6.8	162
				7	3.1	7.8	57	6.8	171
				8	3.2	7.0	52	6.7	170
				9	3.2	6.8	51	6.8	172
				10	3.3	6.7	51	6.7	175
	13-Apr-12	1.5	-	2	1.1	15.6	110	6.2	162
				3	1.9	15.0	108	6.2	164
				4	2.5	13.7	100	6.2	163
				5	2.9	11.6	86	6.2	163
				6	3.1	7.5	56	6.1	165
				7	3.1	8.3	62	6.1	172
				8	3.1	9.2	69	6.0	179
				9	3.1	9.3	70	6.0	183
	12-May-12	1.4	-	1.5	1.9	13.0	94	6.1	124
				2	3.3	12.3	92	6.1	135
				3	3.6	12.9	98	6.1	164
				4	3.6	12.6	95	6.1	171
				5	3.6	11.9	90	6.1	177
				6	3.9	14.7	112	6.1	184
				7	4.0	15.0	114	6.1	187
				8	4.0	15.3	117	6.1	193
				9	3.9	13.1	100	6.1	194
	7-Jul-12	-	5.5	0.3	15.7	9.6	97	6.8	116
				1	15.6	9.6	96	6.9	115
				2	15.5	9.6	96	6.9	114
				3	15.3	9.6	96	7.0	112
				4	14.6	9.7	95	7.0	110
				5	14.5	9.7	95	7.0	113
				6	14.3	9.6	94	7.0	111
				7	14.3	9.6	94	7.0	111
				8	14.2	9.6	93	7.0	111
				9[b]	13.4[b]	1.2[b]	13[b]	6.5[b]	138[b]

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	11-Aug-12	-	5.5	0.5	17.8	9.3	98	7.0	125
				1	17.8	9.3	98	7.0	125
				2	17.7	9.3	98	7.0	125
				3	17.6	9.4	98	7.1	125
				4	17.5	9.4	98	7.1	123
				5	17.4	9.4	98	7.1	122
				6	17.4	9.4	98	7.1	122
				7	17.4	9.4	98	7.1	122
				8	17.3	9.4	98	7.1	121
				9	17.2	9.4	98	7.1	121
	12-Sep-12	-	4.3	0.3	10.7	10.9	98	6.6	133
				1	10.7	11.0	99	6.6	133
				2	10.7	11.0	99	6.7	132
				3	10.7	11.0	99	6.7	133
				4	10.7	10.9	99	6.7	133
				5	10.7	11.0	99	6.7	133
				6	10.7	11.0	99	6.7	132
				7	10.7	11.0	99	6.7	132
				8	10.7	10.8	99	6.7	133
SNAP02A MID	14-Jan-12	1.0	-	1	0.2	17.4	120	6.5	163
				2	1.1	17.1	121	6.5	151
				3	1.6	15.9	114	6.5	149
				4	2.0	14.7	107	6.5	144
				5	2.4	13.1	96	6.5	141
				6	2.6	11.3	83	6.5	150
				7	2.9	9.9	74	6.4	153
				8	3.0	8.5	63	6.4	155
				9	3.1	4.6	35	6.3	157
	20-Feb-12	1.2	-	1	0.8	15.2	110	6.6	179
				2	1.1	15.2	107	6.6	172
				3	1.5	14.9	107	6.6	167
				4	2.0	14.5	105	6.6	163
				5	2.5	12.7	93	6.6	160
				6	2.8	9.5	72	6.5	160
				7	2.8	8.0	60	6.5	172
				8	3.0	7.0	52	6.4	171
	17-Mar-12	1.5	-	1.8	0.9	15.1	106	6.7	171
				2	1.3	14.8	105	6.7	169
				3	2.0	14.3	103	6.7	162
				4	2.5	13.7	100	6.7	159
				5	2.8	12.3	91	6.7	157
				6	3.1	8.5	64	6.6	160
				7	3.3	5.5	41	6.6	164
				8	3.3	5.1	39	6.5	165
				9	3.4	4.2	32	6.4	166
	13-Apr-12	1.5	-	2	1.4	15.1	107	6.2	170
				3	2.0	14.7	106	6.2	165
				4	2.6	14.0	103	6.2	162
				5	2.9	11.9	89	6.2	162
				6	3.1	8.5	65	6.2	164
				7	3.2	7.9	59	6.1	173
				8	3.2	8.1	60	6.1	178
				9	3.3	5.3	41	6.0	175
	15-May-12	1.4	-	1.5	2.2	12.8	93	6.5	86
				2	3.9	10.2	78	6.4	126
				3	3.8	12.0	91	6.4	149
				4	3.8	12.6	96	6.4	165
				5	3.7	11.5	87	6.3	175
				6	4.0	8.9	68	6.3	176
				7	3.9	11.9	90	6.3	186
				8	3.9	10.7	82	6.3	189
				9	3.8	11.1	84	6.2	192

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	7-Jul-12	-	-	0.3	15.9	9.7	98	6.8	115
				1	15.8	9.7	98	6.8	115
				2	15.6	9.7	97	6.8	115
				3	15.2	9.8	97	6.8	110
				4	14.6	9.9	97	6.8	110
				5	14.5	9.8	96	6.8	109
				6	14.4	9.8	96	6.9	110
				7	14.3	9.7	95	6.9	112
				8	14.2	9.7	94	6.9	111
				9	14.2	9.6	94	6.9	111
				10	14.1	9.6	93	6.9	111
	11-Aug-12	-	5.5	0.5	17.7	9.4	98	7.1	125
				1	17.7	9.4	98	7.1	125
				2	17.7	9.4	98	7.1	125
				3	17.7	9.4	98	7.1	125
				4	17.7	9.4	99	7.1	125
				5	17.4	9.4	98	7.2	122
				6	17.4	9.4	98	7.2	122
				7	17.3	9.4	98	7.2	121
				8	17.3	9.4	98	7.2	121
				9	17.0	6.1	69	6.9	128
	12-Sep-12	-	4.3	0.3	10.7	11.0	99	6.8	128
				1	10.7	11.0	99	6.8	128
				2	10.7	11.0	99	6.8	128
				3	10.7	10.9	99	6.8	128
				4	10.7	11.0	99	6.8	129
				5	10.7	11.0	99	6.8	130
				6	10.7	11.0	99	6.8	130
				7	10.7	11.0	99	6.8	129
				8	10.7	11.0	99	6.8	131
				9	10.7	11.0	99	6.8	129
				10	10.7	11.0	99	6.9	129
SNAP20B	14-Jan-12	0.9	-	1.0	1.2	15.6	110	6.9	123
				2	1.8	14.8	106	7.0	110
				3	2.0	13.8	100	6.9	105
				4	1.8	13.7	99	6.9	101
				5	1.9	13.3	96	6.9	100
				6	1.9	13.0	94	6.9	99
				7	1.9	12.8	93	6.9	99
				8	2.0	12.7	92	6.9	100
				9	2.0	12.6	91	6.8	100
				10	2.1	12.5	91	6.8	102
				11	2.1	12.5	81	6.8	105
				12	2.2	12.3	90	6.8	103
				13	2.4	12.2	89	6.8	100
				14	2.6	12.0	88	6.8	97
				15	2.7	12.0	88	6.7	95
				16	2.9	11.9	88	6.7	94
				17	3.0	11.8	88	6.7	93
				18	3.1	11.8	88	6.7	92
				19	3.2	11.7	88	6.7	92
				20	3.2	11.7	87	6.7	91
				21	3.2	11.6	87	6.7	91
				22	3.2	11.5	86	6.7	91
				23	3.2	10.5	79	6.6	91
				24	3.2	10.4	78	6.6	91
				25	3.2	10.1	76	6.6	92
				26	3.2	9.9	74	6.5	92
				27	3.2	9.7	73	6.5	92
				28	3.2	9.5	71	6.5	92
				29	3.2	9.3	70	6.5	92

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	20-Feb-12	1.2	-	1.5	1.1	13.4	95	7.0	117
				2	1.5	13.0	92	7.0	112
				3	1.7	12.6	90	7.0	109
				4	1.8	12.2	88	7.0	108
				5	1.9	11.6	85	7.0	108
				6	1.9	11.6	84	6.9	109
				7	1.9	11.3	82	6.9	109
				8	2.0	11.3	82	6.9	109
				9	2.0	11.2	81	6.8	109
				10	2.1	11.1	81	6.8	109
				11	2.1	11.0	80	6.8	108
				12	2.2	10.9	79	6.8	107
				13	2.3	10.8	79	6.8	106
				14	2.5	10.8	79	6.7	106
				15	2.6	10.6	78	6.7	104
				16	2.8	10.5	78	6.7	103
				17	2.9	10.5	78	6.7	101
				18	2.9	10.4	77	6.7	101
				19	3.0	10.4	77	6.7	101
				20	3.0	10.3	77	6.7	100
				21	3.0	10.1	75	6.7	100
				22	3.0	9.1	68	6.6	99
				23	3.0	8.8	66	6.6	99
				24	3.0	8.7	67	6.5	100
				25	3.0	8.7	65	6.5	101
				26	3.0	8.6	64	6.5	101
				27	3.0	8.5	63	6.5	100
				28	3.1	8.2	61	6.4	100
				29	3.1	7.7	58	6.4	100
	17-Mar-12	1.2	-	1.5	0.9	13.1	92	6.7	115
				2	1.5	12.7	90	6.7	110
				3	2.0	12.1	87	6.7	106
				4	2.0	11.7	85	6.6	106
				5	2.1	11.5	83	6.6	105
				6	2.1	11.1	81	6.6	105
				7	2.1	10.9	79	6.6	106
				8	2.2	10.8	78	6.6	106
				9	2.2	10.6	77	6.6	105
				10	2.3	10.6	77	6.6	105
				11	2.3	10.5	77	6.5	105
				12	2.4	10.4	76	6.5	105
				13	2.5	10.2	75	6.5	104
				14	2.6	10.0	74	6.5	102
				15	2.8	9.9	73	6.5	101
				16	2.9	9.8	72	6.5	100
				17	3.0	9.6	72	6.5	99
				18	3.1	9.6	71	6.5	98
				19	3.1	9.5	71	6.4	98
				20	3.1	9.4	70	6.5	98
				21	3.1	9.2	69	6.5	97
				22	3.1	8.8	66	6.5	97
				23	3.1	8.3	62	6.4	97
				24	3.1	8.2	61	6.4	98
				25	3.1	7.9	59	6.4	98
				26	3.1	7.9	59	6.4	98
				27	3.1	7.7	58	6.3	98
				28	3.1	7.2	54	6.3	98
				29	3.1	6.7	50	6.3	98

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Apr-12	1.5	-	2	2.3	12.3	90	6.2	113
				3	2.2	12.1	88	6.3	107
				4	2.2	11.7	85	6.3	107
				5	2.2	11.4	83	6.3	106
				6	2.2	11.3	82	6.3	106
				7	2.2	11.1	80	6.3	106
				8	2.2	10.9	80	6.3	106
				9	2.2	10.9	80	6.2	107
				10	2.3	10.9	80	6.2	106
				11	2.3	10.9	79	6.2	106
				12	2.3	10.7	78	6.2	106
				13	2.4	10.4	76	6.2	104
				14	2.6	10.3	76	6.2	103
				15	2.7	10.2	75	6.2	103
				16	2.8	10.1	75	6.2	101
				17	2.9	10.0	74	6.2	100
				18	2.9	9.8	73	6.2	100
				19	2.9	9.6	71	6.2	100
				20	3.0	9.4	70	6.1	99
				21	3.0	9.0	67	6.1	99
				22	3.0	6.6[(e)]	64	6.1	99
				23	3.0	8.2	61	6.1	99
				24	3.0	8.0	60	6.1	99
				25	3.0	8.0	59	6.1	99
				26	3.0	7.9	59	6.0	99
				27	3.0	7.8	58	6.0	100
				28	3.0	8.0	60	6.0	102
				29	3.0	8.0	60	6.0	102
	12-May-12	1.3	-	1.5	3.3	11.0	82	6.1	113
				2	2.6	10.7	79	6.1	109
				3	2.7	10.8	80	6.1	110
				4	2.7	10.9	80	6.1	110
				5	2.7	10.9	80	6.1	110
				6	2.7	10.9	80	6.1	110
				7	2.7	10.9	80	6.2	110
				8	2.7	10.9	80	6.2	110
				9	2.7	10.9	80	6.2	110
				10	2.8	10.7	79	6.2	110
				11	2.8	10.5	78	6.2	110
				12	2.9	10.4	77	6.2	109
				13	2.9	10.4	77	6.1	109
				14	2.9	10.5	78	6.1	110
				15	3.0	10.5	78	6.1	108
				16	3.0	9.6	72	6.1	105
				17	3.0	10.0	74	6.1	105
				18	3.0	10.2	76	6.1	106
				19	3.0	9.5	71	6.1	105
				20	3.0	8.0	60	6.1	106
				21	3.1	7.7	57	6.1	106
				22	3.1	7.2	54	6.1	102
				23	3.1	7.2	54	6.1	106
				24	3.0	8.0	60	6.1	109
				25	3.0	9.5	71	6.1	107
				26	3.0	9.9	74	6.1	107
				27	3.0	10.1	75	6.1	107
				28	3.1	9.5	71	6.1	105
				29	3.1	8.8	66	6.1	105

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	6-Jul-12	-	6.0	0.3	15.0	11.7	116	6.3	95
				1	14.9	11.7	116	6.4	95
				2	14.9	11.7	116	6.4	95
				3	14.5	11.8	115	6.5	95
				4	14.2	11.8	115	6.5	95
				5	14.1	11.8	115	6.5	95
				6	13.7	11.8	114	6.5	95
				7	13.5	11.8	113	6.5	94
				8	13.4	11.7	112	6.5	95
				9	13.3	11.7	112	6.5	95
				10	12.4	11.7	110	6.5	94
				11	8.0	12.9	109	6.5	92
				12	7.0	13.0	107	6.5	91
				13	6.4	12.9	105	6.5	91
				14	6.2	12.9	104	6.5	91
				15	6.0	12.8	103	6.5	91
				16	5.7	12.7	101	6.5	91
				17	5.7	12.5	100	6.5	91
				18	5.6	12.4	99	6.5	91
				19	5.5	12.2	97	6.4	91
				20	5.4	12.1	96	6.4	91
				21	5.4	12.2	96	6.4	91
				22	5.3	12.3	97	6.4	91
				23	5.3	12.2	96	6.4	91
				24	5.2	12.1	96	6.4	91
				25	5.1	12.1	94	6.4	91
				26	5.1	12.0	94	6.3	91
				27	5.0	11.9	93	6.3	91
				28	5.0	11.9	93	6.3	91
				29	5.0	11.8	93	6.3	91
	10-Aug-12	-	7.5	0.5	17.5	9.5	99	7.4	104
				1	17.4	9.5	99	7.4	104
				2	17.4	9.5	99	7.4	104
				3	17.4	9.5	99	7.3	104
				4	17.3	9.5	99	7.4	103
				5	17.3	9.5	99	7.3	103
				6	17.3	9.5	99	7.4	103
				7	17.2	9.6	99	7.4	103
				8	16.6	9.5	98	7.4	102
				9	14.5	9.8	97	7.3	96
				10	11.5	10.0	93	7.3	92
				11	9.5	10.4	91	7.2	90
				12	8.0	10.5	88	7.1	90
				13	7.2	10.4	86	7.0	90
				14	6.7	10.2	84	7.0	90
				15	6.2	9.6	78	6.9	90
				16	5.9	9.2	74	6.7	90
				17	5.7	8.8	70	6.7	90
				18	5.6	8.8	70	6.6	90
				19	5.5	8.8	70	6.6	90
				20	5.3	8.8	70	6.5	90
				21	5.2	9.0	71	6.5	90
				22	5.2	8.8	70	6.5	90
				23	5.1	8.7	68	6.4	90
				24	5.1	8.5	67	6.4	90
				25	5.0	8.4	66	6.4	90
				26	5.0	8.5	66	6.3	90
				27	5.0	8.5	66	6.3	90
				28	5.0	8.4	66	6.3	90
				29	5.0	8.4	66	6.3	90

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	12-Sep-12	-	5.5	0.3	11.7	10.5	97	6.7	107
				1	11.7	10.5	97	6.7	109
				2	11.7	10.5	97	6.8	109
				3	11.7	10.5	97	6.7	109
				4	11.7	10.5	97	6.8	109
				5	11.7	10.5	97	6.7	109
				6	11.7	10.5	97	6.7	109
				7	11.7	10.5	97	6.8	109
				8	11.7	10.5	97	6.8	109
				9	11.7	10.5	97	6.8	109
				10	11.7	10.5	97	6.8	109
				11	11.7	10.5	97	6.8	109
				12	11.7	10.5	97	6.8	109
				13	11.7	10.5	97	6.8	109
				14	11.6	10.4	95	6.7	109
				15	6.4	8.5	69	6.6	91
				16	5.8	8.0	64	6.4	91
				17	5.6	7.8	62	6.4	91
				18	5.5	7.6	61	6.3	92
				19	5.4	7.9	62	6.2	91
				20	5.3	7.9	62	6.2	91
				21	5.3	7.8	62	6.0	91
				22	5.2	7.6	60	6.0	91
				23	5.2	7.6	60	6.0	91
				24	5.1	7.6	60	6.0	91
				25	5.0	7.5	59	5.9	91
				26	5.0	7.4	58	5.9	92
				27	5.0	7.4	58	5.9	91
				28	4.9	7.3	57	5.9	92
				29	4.9	7.2	56	5.9	92
SNAP23	13-Jan-12	1.1	-	1.5	0.9	17.8	125	5.9	240
				2	1.1	17.4	123	6.0	243
				3	1.4	15.4	109	6.1	242
				4	1.7	14.7	106	6.1	236
				5	2.0	13.6	98	6.1	235
				6	2.2	11.5	84	6.2	255
				7	2.6	10.9	80	6.2	264
				8	2.7	10.3	76	6.2	276
				9	2.9	8.3	62	6.2	279
				10	3.2	7.5	56	6.2	280
				11	3.4	6.2	47	6.2	279
				12	3.6	5.0	38	6.2	278
	20-Feb-12	1.3	-	1.5	0.6	16.2	113	6.6	256
				2	1.0	15.4	109	6.6	265
				3	1.3	15.1	107	6.6	263
				4	1.7	14.5	104	6.6	261
				5	2.1	10.5	76	6.6	263
				6	2.4	9.8	72	6.6	270
				7	2.7	9.0	67	6.6	280
				8	2.9	7.4	55	6.5	287
				9	3.2	5.9	44	6.5	290
				10	3.4	5.6	42	6.5	291
				11	3.6	4.0	31	6.4	289
				12	3.8	1.0	28	6.3	289
	16-Mar-12	1.4	-	1.5	0.5	15.3	107	6.9	264
				2	1.1	14.9	105	6.8	273
				3	1.5	14.6	104	6.8	271
				4	2.0	13.8	100	6.7	268
				5	2.3	12.3	90	6.7	270
				6	2.8	10.1	76	6.7	267
				7	3.1	7.8	58	6.8	269
				8	3.4	5.2	40	6.7	276
				9	3.6	4.5	34	6.6	276
				10	3.7	4.5	35	6.6	277
				11	3.7	4.9	37	6.6	279

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Apr-12	1.6	-	2	1.0	15.6	109	6.2	270
				3	1.6	15.4	110	6.2	274
				4	2.0	14.1	102	6.2	274
				5	2.5	12.0	88	6.2	271
				6	2.8	10.0	75	6.2	269
				7	3.2	6.7	50	6.2	274
				8	3.4	5.9	44	6.1	276
				9	3.5	6.5	48	6.1	280
				10	3.5	7.3	55	6.1	285
				11	3.5	9.0	68	6.1	288
				12	3.5	9.6	72	6.1	291
	15-May-12	1.5	-	2	3.4	12.8	93	6.5	186
				3	3.4	13.2	99	6.4	269
				4	3.6	12.0	91	6.4	272
				5	4.0	12.5	95	6.4	279
				6	4.0	10.5	80	6.4	284
				7	3.9	12.9	98	6.4	296
				8	3.9	12.7	97	6.4	299
				9	4.1	12.6	97	6.4	301
				10	4.1	12.2	94	6.4	301
				11	4.2	11.9	91	6.4	301
				12	4.2	11.5	88	6.4	301
	6-Jul-12	-	-	0.3	15.4	11.3	113	6.4	191
				1	15.3	11.3	113	6.4	191
				2	15.3	11.3	112	6.4	191
				3	15.2	11.2	112	6.5	191
				4	14.5	11.4	112	6.5	191
				5	14.4	11.4	112	6.5	190
				6	14.3	11.4	111	6.5	187
				7	14.2	11.4	111	6.5	190
				8	14.1	11.4	111	6.6	189
				9	14.0	11.4	111	6.6	186
				10	13.9	11.4	111	6.6	187
				11	13.8	11.3	109	6.6	188
	11-Aug-12	-	-	0.5	17.6	9.4	98	7.2	204
				1	17.6	9.4	98	7.2	204
				2	17.6	9.4	98	7.2	204
				3	17.6	9.4	98	7.2	204
				4	17.5	9.4	98	7.3	204
				5	17.5	9.4	99	7.3	204
				6	17.5	9.4	99	7.3	204
				7	17.3	9.4	98	7.3	202
				8	17.1	9.5	99	7.3	199
				9	17.1	9.5	98	7.3	199
				10	17.0	9.4	97	7.3	198
				11	16.9	9.3	96	7.3	198
				12	16.8	9.1	94	7.3	200
	12-Sep-12	-	-	0.3	10.8	10.9	99	6.8	212
				1	10.8	11.0	99	6.9	212
				2	10.8	10.9	99	6.9	212
				3	10.8	10.9	99	6.9	212
				4	10.8	11.0	99	6.9	212
				5	10.8	10.9	99	6.9	213
				6	10.8	11.0	99	6.9	213
				7	10.8	11.0	99	6.9	213
				8	10.8	11.0	99	7.0	212
				9	10.8	10.9	99	7.0	213
				10	10.8	11.0	99	6.9	212
				11	10.8	11.0	99	7.0	213
				12	10.8	10.8	97	6.9	212
SNAP29	13-Jan-12	0.8	-	1	0.2	18.2	126	6.4	267
				2	0.6	18.1	126	6.4	288
				3	0.9	17.6	124	6.5	290
				4	1.4	16.8	119	6.5	272
				5	1.6	16.2	116	6.5	276
				6	2.2	13.0	95	6.5	288

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	20-Feb-12	1.0	-	1.5	1.2	16.0	113	6.9	302
				2	0.8	16.2	113	6.8	317
				3	1.0	15.8	112	6.8	329
				4	1.5	15.1	108	6.9	299
				5	1.8	14.6	105	6.8	296
				6	2.2	12.4	91	6.8	308
				7	2.9	9.0	67	6.7	301
	16-Mar-12	1.2	-	1.5	0.2	16.0	110	6.6	301
				2	0.4	15.6	107	6.6	320
				3	1.0	15.0	106	6.6	322
				4	1.6	14.3	103	6.6	292
				5	2.0	13.1	95	6.6	288
				6	2.5	10.7	79	6.6	295
				7	3.4	7.2	55	6.5	288
	13-Apr-12	1.2	-	1.5	0.4	16.8	116	6.4	295
				2	0.8	16.4	115	6.4	285
				3	1.5	15.9	114	6.4	292
				4	1.9	15.4	111	6.4	285
				5	2.1	14.9	108	6.4	292
				6	2.7	12.5	92	6.3	298
				7	3.2	10.6	81	6.3	297
	15-May-12	1.3	-	1.5	1.6	13.2	94	6.8	229
				2	2.8	13.0	96	6.7	243
				3	3.0	13.1	98	6.7	276
				4	3.0	14.1	105	6.7	289
				5	3.7	14.4	109	6.7	284
				6	4.3	14.6	113	6.7	299
				7	4.1	13.7	104	6.6	302
	7-Jul-2012[h]	-	7.3	0.3	16.1	9.5	97	6.9	232
				1	15.2	9.6	96	7.0	198
				2	15.1	9.6	95	7.0	197
				3	14.8	9.6	95	7.0	196
				4	14.8	9.6	95	7.0	198
				5	14.7	9.6	95	7.0	198
				6	14.5	9.6	94	7.0	204
				7	14.3	9.5	93	7.0	229
	12-Sep-12	-	4.5	0.3	10.9	10.9	99	6.9	212
				1	10.9	10.9	99	6.9	211
				2	10.9	11.0	99	7.0	211
				3	10.8	11.0	100	7.0	211
				4	10.9	10.9	99	7.0	212
				5	10.9	11.0	99	7.0	212
				6	10.9	11.0	99	7.0	212
NEL01	21-Feb-12	1.3	-	1.5	1.4	16.0	114	6.0	29
				2	0.8	15.8	111	6.0	27
				3	0.8	15.1	106	6.1	26
				4	0.9	14.4	101	6.1	26
				5	1.0	14.0	99	6.1	25
				6	1.0	13.9	98	6.1	26
				7	1.1	14.2	100	6.1	27
				8	1.1	14.4	102	6.2	28
				9	1.2	14.3	101	6.2	28
				10	1.9	9.5	68	6.1	28
				11	2.5	7.6	56	6.1	30
	14-Apr-12	1.5	-	2	1.3	15.1	107	6.9	28
				3	1.2	14.6	103	6.9	26
				4	1.2	14.0	99	6.9	25
				5	1.2	13.8	98	6.8	26
				6	1.2	13.9	99	6.8	27
				7	1.3	14.1	100	6.7	27
				8	1.4	14.4	102	6.7	28
				9	1.5	14.6	104	6.6	29
				10	2.0	11.9	86	6.6	29
				11	2.6	6.0	44	6.4	28

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	10-Jul-12	-	7.5	0.3	16.0	10.3	105	6.5	22
				1	15.6	10.4	105	6.5	22
				2	15.3	10.5	104	6.4	22
				3	14.7	10.6	104	6.4	22
				4	14.2	10.7	104	6.5	22
				5	13.8	10.7	104	6.5	22
				6	13.3	10.8	103	6.4	22
				7	13.0	10.8	103	6.5	22
				8	12.5	10.8	102	6.5	22
				9	12.3	10.9	101	6.5	22
				10	12.1	10.9	101	6.5	22
				11	12.0	10.9	101	6.5	22
				12	11.8	7.6	74	6.4	24
	15-Aug-2012[h]	-	7.5	0.5	15.4	9.6	*96*	7.6	22
				1	15.4	9.6	*96*	7.5	22
				2	15.5	9.6	*96*	7.5	22
				3	15.5	9.6	*96*	7.4	22
				4	15.4	9.6	*96*	7.4	22
				5	15.4	9.6	*96*	7.4	22
				6	15.4	9.6	*96*	7.4	22
				7	15.4	9.6	*96*	7.4	22
				8	15.4	9.6	*96*	7.4	22
				9	15.4	9.6	*96*	7.3	22
				10	15.4	9.6	*96*	7.3	22
				11	15.3	9.6	*96*	7.3	22
				12	15.3	7.0	*70*	7.0	23
	8-Sep-12	-	4.5	0.3	13.1	9.8	94	7.0	20
				1	13.1	9.8	94	6.9	20
				2	13.1	9.8	93	6.9	20
				3	13.1	9.8	93	6.9	20
				4	13.1	9.8	94	6.9	20
				5	13.1	9.8	94	6.9	20
				6	13.1	9.9	94	6.8	20
				7	13.1	9.8	94	6.8	20
				8	13.1	9.9	94	6.8	20
				9	13.0	9.9	94	6.8	20
				10	13.0	9.9	94	6.8	20
				11	13.0	9.9	94	6.8	20
NEL02	21-Feb-12	1.3	-	1.5	0.5	15.5	108	6.4	28
				2	0.5	14.9	104	6.5	25
				3	0.6	14.7	103	6.5	25
				4	0.7	14.1	98	6.5	24
				5	0.8	13.7	96	6.5	24
				6	0.9	13.3	93	6.5	23
				7	1.0	12.9	91	6.5	23
				8	1.1	12.5	88	6.4	24
				9	1.2	12.5	88	6.4	24
				10	1.2	12.3	88	6.4	24
				11	1.4	12.5	86	6.4	24
				12	1.6	5.1	41	6.2	27
	14-Apr-12	> 1.6	-	2	0.4	15.4	107	6.2	25
				3	0.7	14.8	103	6.2	24
				4	0.9	14.2	100	6.2	24
				5	1.0	13.9	98	6.2	24
				6	1.1	13.7	97	6.2	24
				7	1.2	13.3	94	6.2	24
				8	1.3	13.1	93	6.2	24
				9	1.4	12.8	91	6.2	24
				10	1.5	12.7	90	6.2	25
				11	1.7	12.3	88	6.2	24
				12	1.8	11.9	86	6.1	24
	10-Jul-12	-	6.5	0.3	18.1	10.0	106	6.2	22
				1	18.0	10.1	106	6.2	22
				2	17.6	10.1	106	6.2	22
				3	17.3	10.2	106	6.2	22
				4	13.7	10.9	105	6.3	22
				5	13.1	10.9	104	6.2	22
				6	13.0	10.9	104	6.2	22
				7	12.7	10.9	103	6.3	22
				8	12.3	11.0	103	6.2	22
				9	12.1	11.0	102	6.3	22
				10	12.0	11.0	102	6.2	22

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	15-Aug-2012[h]	-	8.5	0.5	15.8	9.6	*97*	7.0	22
				1	15.8	9.6	*97*	7.0	22
				2	15.8	9.6	*97*	7.0	22
				3	15.7	9.6	*97*	7.0	22
				4	15.7	9.6	*97*	6.9	22
				5	15.7	9.7	*97*	7.0	22
				6	15.7	9.6	*97*	7.0	22
				7	15.7	9.6	*97*	6.9	22
				8	15.7	9.6	*97*	6.9	22
				9	15.7	9.6	*97*	6.9	22
				10	15.7	9.6	*97*	6.9	22
				11	15.7	9.7	*97*	6.9	22
	8-Sep-12	-	4.5	0.3	13.2	9.9	94	6.7	19
				1	13.2	9.9	94	6.7	19
				2	13.2	9.9	94	6.7	19
				3	13.2	9.9	94	6.7	19
				4	13.2	9.8	94	6.6	19
				5	13.2	9.9	94	6.7	19
				6	13.2	9.9	94	6.6	20
				7	13.2	9.9	94	6.6	20
				8	13.2	9.8	94	6.6	20
				9	13.2	9.9	94	6.6	20
				10	13.2	9.9	94	6.6	20
NEL03	21-Feb-12	1.3	-	1.5	0.5	16.1	112	6.4	28
				2	0.5	15.6	108	6.4	26
				3	0.6	15.3	106	6.4	25
				4	0.7	14.6	102	6.4	24
				5	0.8	14.1	99	6.4	24
				6	0.9	13.8	97	6.4	24
				7	1.0	13.4	94	6.4	24
				8	1.1	13.3	94	6.4	25
				9	1.2	13.2	94	6.4	25
	14-Apr-12	1.6	-	2.0	0.5	15.7	109	6.2	26
				3	0.7	14.7	102	6.2	25
				4	0.9	14.2	100	6.2	24
				5	1.0	13.9	98	6.2	25
				6	1.1	13.5	96	6.2	24
				7	1.3	13.2	94	6.2	24
				8	1.3	13.2	93	6.2	25
				9	1.4	13.5	96	6.2	26
	10-Jul-12	-	6.0	0.3	17.8	10.0	106	6.2	22
				1	17.7	10.1	106	6.2	22
				2	17.5	10.1	105	6.2	22
				3	17.2	10.1	105	6.3	22
				4	15.8	10.4	105	6.2	22
				5	13.3	10.9	104	6.2	22
				6	12.6	10.9	103	6.2	22
				7	12.4	10.9	102	6.2	22
				8	12.3	11.0	102	6.2	22
				9	12.2	10.9	102	6.2	22
				10	12.1	9.8	90	6.2	22
	15-Aug-2012[h]	-	9.5	0.5	15.7	9.6	*97*	7.0	22
				1	15.7	9.6	*97*	7.0	22
				2	15.7	9.6	*97*	7.0	22
				3	15.7	9.6	*97*	7.0	22
				4	15.7	9.6	*97*	7.0	22
				5	15.6	9.6	*97*	7.0	22
				6	15.6	9.7	*97*	7.0	22
				7	15.5	9.7	*97*	7.0	22
				8	15.5	9.7	*97*	7.0	22
				9	15.5	9.7	*97*	7.0	22
				10	15.4	9.7	*97*	7.0	22
	8-Sep-12	-	4.5	0	13.1	9.8	94	6.6	19
				1	13.1	9.8	93	6.6	19
				2	13.1	9.8	94	6.6	19
				3	13.1	9.8	93	6.6	19
				4	13.1	9.8	94	6.6	20
				5	13.1	9.7	94	6.6	20
				6	13.1	9.9	94	6.6	20
				7	13.1	9.9	94	6.6	20
				8	13.1	9.9	94	6.6	20

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
NEL04	21-Feb-12	1.3	-	1.5	0.5	16.2	112	6.3	29
				2	0.5	15.7	109	6.3	26
				3	0.7	15.3	107	6.3	24
				4	0.8	15.0	105	6.3	26
				5	0.9	15.0	105	6.3	26
				6	0.9	14.9	105	6.3	26
				7	1.0	14.7	104	6.3	26
				8	1.1	13.8	97	6.3	25
				9	1.2	13.1	92	6.3	24
				10	1.3	12.6	89	6.3	24
				11	1.3	12.4	88	6.3	25
				12	1.4	12.2	87	6.3	25
	14-Apr-12	1.5	-	2.0	0.8	16.1	113	6.5	29
				3	1.0	15.2	107	6.5	26
				4	1.2	14.1	100	6.5	25
				5	1.2	14.0	99	6.5	26
				6	1.2	14.7	104	6.4	27
				7	1.2	14.7	104	6.4	27
				8	1.3	14.4	102	6.4	27
				9	1.4	12.8	91	6.4	25
				10	1.5	12.3	88	6.4	25
				11	1.6	12.1	86	6.3	25
				12	1.6	12.0	86	6.3	25
				13[b]	1.7[b]	8.5[b]	61[b]	6.2[b]	34[b]
	10-Jul-12	-	7.0	0.3	17.1	10.1	104	6.2	22
				1	16.9	10.1	104	6.3	22
				2	16.7	10.1	104	6.3	22
				3	15.8	10.3	104	6.3	22
				4	14.4	10.7	104	6.3	22
				5	13.2	10.8	103	6.2	22
				6	12.6	10.9	102	6.3	22
				7	12.3	10.9	101	6.2	22
				8	12.2	10.9	101	6.3	22
				9	12.0	10.9	101	6.3	22
				10	11.8	10.8	100	6.3	22
				11	11.8	10.8	100	6.3	22
				12	11.6	10.9	100	6.2	22
	15-Aug-2012[h]	-	7.5	0.5	15.6	9.6	*97*	7.0	22
				1	15.6	9.6	*97*	7.1	22
				2	15.6	9.6	*97*	7.1	22
				3	15.6	9.6	*97*	7.1	22
				4	15.6	9.6	*97*	7.1	22
				5	15.6	9.6	*97*	7.1	22
				6	15.6	9.6	*97*	7.1	22
				7	15.6	9.6	*97*	7.1	22
				8	15.6	9.6	*97*	7.0	22
				9	15.6	9.6	*97*	7.0	22
				10	15.6	9.6	*97*	7.1	22
				11	15.5	9.6	*97*	7.0	22
				12	15.5	9.6	*96*	7.0	22
				13	15.5	8.8	*88*	6.9	22
	8-Sep-12	-	5.5	0.3	13.2	9.9	94	6.6	20
				1	13.2	9.8	93	6.6	20
				2	13.2	9.8	93	6.6	20
				3	13.2	9.8	93	6.6	20
				4	13.2	9.8	93	6.6	20
				5	13.2	9.8	93	6.6	20
				6	13.2	9.8	94	6.6	20
				7	13.2	9.8	94	6.6	19
				8	13.2	9.8	93	6.6	19
				9	13.2	9.8	93	6.6	19
				10	13.2	9.8	94	6.6	20
				11	13.2	9.8	93	6.6	19
				11.5	13.2	9.8	94	6.6	19

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
NEL05	21-Feb-12	1.3	-	1.5	0.6	16.0	111	6.3	28
				2	0.6	15.0	105	6.3	24
				3	0.7	14.7	103	6.3	24
				4	0.8	14.3	100	6.3	23
				5	0.9	14.0	98	6.3	23
				6	0.9	13.7	96	6.3	23
				7	1.0	13.4	94	6.3	23
				8	1.0	13.1	93	6.3	23
				9	1.1	12.9	91	6.3	23
				10	1.1	12.7	90	6.3	23
	14-Apr-12	1.5	-	2	0.5	16.2	113	6.3	28
				3	0.9	15.2	107	6.4	25
				4	1.0	14.3	100	6.3	24
				5	1.1	13.4	95	6.3	24
				6	1.2	12.9	91	6.3	24
				7	1.3	12.8	91	6.3	24
				8	1.3	12.6	90	6.3	24
				9	1.4	12.5	89	6.3	24
				10	1.4	12.5	89	6.3	24
				11	1.4	12.4	89	6.3	24
	10-Jul-12	-	5.5	0.3	18.1	10.0	105	6.2	22
				1	17.9	10.0	105	6.2	22
				2	17.1	10.1	105	6.2	22
				3	16.5	10.2	105	6.2	22
				4	14.7	10.7	106	6.2	22
				5	13.2	10.9	104	6.2	22
				6	12.5	11.0	103	6.2	22
				7	12.2	10.9	102	6.2	22
				8	12.1	10.9	102	6.2	22
				9	12.0	10.5	98	6.2	22
	15-Aug-2012[(h)]	-	8.5	0.5	15.5	9.7	*97*	7.0	22
				1	15.5	9.7	*97*	7.0	22
				2	15.5	9.7	*97*	7.0	22
				3	15.5	9.7	*97*	7.0	22
				4	15.5	9.7	*97*	7.0	22
				5	15.5	9.7	*97*	7.0	22
				6	15.5	9.7	*97*	7.0	22
				7	15.5	9.7	*97*	7.0	22
				8	15.4	9.7	*97*	7.0	22
				9	15.4	9.7	*97*	7.0	22
				10	15.4	9.7	*97*	7.0	22
				11	15.4	9.7	*97*	7.0	22
	8-Sep-12	-	7.5	0.3	13.1	9.8	94	6.6	19
				1	13.1	9.8	94	6.6	19
				2	13.1	9.8	94	6.6	19
				3	13.1	9.9	94	6.6	19
				4	13.1	9.8	94	6.6	20
				5	13.1	9.9	94	6.6	20
				6	13.1	9.8	94	6.6	20
				7	13.1	9.8	94	6.6	20
				8	13.1	9.9	94	6.6	20
				9	13.1	9.9	94	6.6	20
				9.5	13.1	9.8	94	6.6	20

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
NEL06	21-Feb-12	1.3	-	1.5	0.5	16.5	115	6.5	29
				2	0.5	16.2	113	6.4	27
				3	0.6	15.2	106	6.5	25
				4	0.7	14.4	101	6.5	24
				5	0.8	13.9	97	6.5	25
				6	0.9	13.5	95	6.4	24
				7	1.0	13.2	93	6.4	24
				8	1.1	12.9	91	6.4	24
				9	1.1	12.7	90	6.4	24
				10	1.1	12.6	89	6.4	24
				11	1.2	12.4	87	6.4	24
				12	1.2	12.1	85	6.4	24
				13	1.2	11.9	85	6.4	24
				14	1.2	11.7	83	6.4	24
				15	1.2	11.7	82	6.3	24
				16	1.3	11.7	83	6.3	24
				17	1.3	11.6	83	6.3	24
				18	1.3	11.5	82	6.3	24
				19	1.3	11.5	82	6.3	24
				20	1.4	11.5	82	6.3	24
				21	1.4	11.3	80	6.3	24
				22	1.4	11.0	79	6.3	24
				23	1.5	10.7	77	6.2	24
				24	1.6	10.5	75	6.2	24
				25	1.6	10.1	73	6.2	24
				26	1.7	9.2	66	6.2	24
				27	1.7	8.6	62	6.1	24
	14-Apr-12	1.5	-	2	0.5	16.8	116	6.4	28
				3	0.8	16.2	114	6.4	26
				4	1.0	14.9	105	6.4	25
				5	1.1	14.4	101	6.4	24
				6	1.2	13.8	97	6.3	24
				7	1.3	13.8	98	6.3	25
				8	1.3	13.2	94	6.3	24
				9	1.4	12.4	88	6.3	24
				10	1.4	11.8	84	6.3	23
				11	1.4	11.4	81	6.2	23
				12	1.4	11.3	80	6.2	23
				13	1.5	11.2	80	6.2	24
				14	1.5	11.2	80	6.2	24
				15	1.5	11.2	80	6.1	24
				16	1.5	11.3	80	6.1	24
				17	1.5	11.3	81	6.1	24
				18	1.6	11.3	81	6.1	24
				19	1.6	11.4	81	6.1	24
				20	1.6	11.3	81	6.1	24
				21	1.6	11.0	79	6.1	24
				22	1.7	10.5	75	6.1	24
				23	1.7	10.1	73	6.0	24
				24	1.8	10.0	72	6.0	24
				25	1.8	10.0	72	6.0	24
				26	1.8	9.7	70	6.0	24
				27	2.0	7.8	57	5.9	24
	10-Jul-12	-	7.0	0.3	17.8	10.1	106	6.3	22
				1	17.7	10.1	106	6.2	22
				2	17.2	10.2	106	6.3	22
				3	16.8	10.2	105	6.2	22
				4	15.9	10.4	105	6.2	22
				5	14.0	11.0	106	6.2	22
				6	13.0	11.0	104	6.2	22
				7	12.6	11.0	103	6.3	22
				8	12.4	11.0	103	6.2	22
				9	12.3	11.0	103	6.2	22
				10	12.1	11.0	102	6.2	22
				11	11.9	11.0	102	6.2	22
				12	11.6	11.0	101	6.2	22
				13	11.6	11.0	101	6.2	22
				14	11.4	10.9	100	6.2	22
				15	11.4	11.0	100	6.2	22

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	8-Sep-12	-	-	0.3	13.3	10.0	95	6.4	20
				1	13.2	9.9	95	6.4	20
				2	13.2	9.9	95	6.5	20
				3	13.2	9.9	95	6.4	20
				4	13.2	9.9	94	6.4	20
				5	13.2	9.9	94	6.4	20
				6	13.2	9.9	95	6.4	20
				7	13.2	9.9	94	6.5	20
				8	13.2	9.8	94	6.4	20
				9	13.2	9.8	94	6.4	20
				10	13.2	9.8	94	6.5	20
				11	13.2	9.8	94	6.4	20
				12	13.2	9.8	94	6.4	20
				13	13.2	9.8	94	6.4	20
				14	13.2	9.8	94	6.4	20
				15	13.2	9.8	94	6.4	20
				16	13.2	9.8	94	6.4	20
				17	13.2	9.8	94	6.4	20
				18	13.2	9.8	94	6.4	20
				19	13.2	9.8	94	6.4	20
				20	13.2	9.8	94	6.4	20
				21	13.2	9.8	94	6.4	20
				22	13.2	9.8	94	6.4	20
				23	13.1	9.8	93	6.4	20
				24	9.2	8.4	73	6.2	20
				25	7.9	7.8	65	6.0	20
				26	7.4	7.5	63	6.0	20
				27	7.3	7.3	60	5.9	20
KING01	14-Jan-12	-	-	<0.3	0.4	16.2	114	6.3	28
	17-Apr-12	-	-	0.5	0.7	15.8	110	7.3	30
	13-Jul-12	-	-	0.2	16.8	9.5	98	7.6	23
	10-Sep-12	-	-	0.3	11.9	10.5	97	7.0	23
IL3	14-Jul-12	-	-	<0.3	15.6	8.7	88	6.6	19
	15-Sep-12	-	-	0.3	3.8	12.0	*91*	6.6	24
IL4	14-Jul-12	-	-	0.1	14.4	9.3	91	6.4	21
	15-Sep-12	-	-	0.2	1.0	13.0	91	6.4	24
IL5	14-Jul-12	-	-	0.1	16.9	9.2	95	6.5	41
	15-Sep-12	-	-	0.3	5.5	11.2	89	6.4	48
S1	22-May-12	-	-	<0.3	0.9	12.1	85	5.3	18
	11-Jul-12	-	-	<0.3	20.1	7.7	85	6.2	24
	7-Sep-12	-	-	0.2	11.2	11.0	100	7.1	27
S27	22-May-12	-	-	0.3	3.0	12.7	95	5.7	23
LK13-01	18-Aug-12	-	5.3	0.3	15.2	9.4	94	6.4	20
				1	15.2	9.5	95	6.5	20
				2	15.2	9.5	95	6.6	20
				3	15.2	9.5	95	6.6	20
				4	15.2	9.6	95	6.6	20
				5	15.2	9.6	95	6.6	20
				6	15.2	9.6	95	6.6	20
				7	15.2	9.6	95	6.6	20
				8	15.2	9.6	95	6.6	20
				9	15.2	9.6	96	6.7	20
				10	15.2	9.6	96	6.7	20
				11	15.2	9.6	95	6.7	20
				12	15.2	9.6	95	6.7	20
LK13-02	19-Aug-12	-	6.0	0.3	15.3	9.8	98	6.6	19
				1	15.2	9.8	98	6.6	19
				2	15.2	9.8	98	6.6	19
				3	15.2	9.8	98	6.6	19
				4	15.2	9.9	98	6.6	19
				5	15.2	9.9	98	6.7	19
				6	15.2	9.9	98	6.7	19
				7	15.2	9.9	98	6.7	19
				8	15.1	9.9	98	6.7	19
				9	15.1	9.9	98	6.7	19
				10	15.1	9.9	98	6.8	19

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
LK13-03	19-Aug-12	-	6.0	0.3	15.5	9.5	95	6.6	19
				1	15.5	9.6	96	6.6	19
				2	15.5	9.7	97	6.6	19
				3	15.4	9.7	97	6.6	19
				4	15.4	9.7	97	6.6	19
				5	15.4	9.8	98	6.7	19
				6	15.4	9.8	98	6.7	19
				7	15.4	9.8	98	6.7	19
				8	15.4	9.8	98	6.7	19
				9	15.4	9.8	98	6.7	19
				10	15.4	9.8	98	6.7	19
				11	15.4	9.8	98	6.8	19
				12	15.4	9.6	96	6.7	19
LK13-04	20-Aug-12	-	6.0	0.3	15.5	9.9	100	6.2	19
				1	15.5	10.0	100	6.1	19
				2	15.4	10.0	100	6.1	19
				3	15.4	10.1	101	6.1	19
				4	15.4	10.1	101	6.1	19
				5	15.3	10.1	101	6.2	19
				6	15.3	10.1	101	6.2	19
				7	15.3	10.1	101	6.2	19
				8	15.3	10.1	101	6.2	19
				9	15.3	10.1	101	6.2	19
				10	15.3	10.1	101	6.3	19
LK13-05	20-Aug-12	-	6.0	0.3	15.5	9.9	99	6.7	19
				1	15.5	10.0	100	6.7	19
				2	15.4	10.0	101	6.8	19
				3	15.4	10.1	101	6.8	19
				4	15.4	10.1	101	6.8	19
				5	15.4	10.1	101	6.8	19
				6	15.4	10.1	101	6.8	19
				7	15.4	10.1	101	6.8	19
				8	15.3	10.1	101	6.8	19
				9	15.3	10.1	101	6.8	19
				10	15.3	10.2	101	6.8	19
				11	15.3	10.2	101	6.8	19
				12	15.3	10.2	101	6.8	19
				13	15.3	10.2	101	6.8	19
				14	15.2	10.1	101	6.8	19
LK13-06	21-Aug-12	-	-	0.3	15.7	9.4	94	6.3	19
				1	15.7	9.4	95	6.3	19
				2	15.6	9.5	95	6.2	19
				3	15.6	9.5	95	6.2	19
				4	15.5	9.5	96	6.2	19
				5	15.5	9.6	96	6.2	19
				6	15.4	9.6	96	6.2	19
				7	15.4	9.6	96	6.2	19
				8	15.4	9.6	96	6.2	19
				9	15.4	9.6	96	6.3	19
				10	15.4	9.6	96	6.3	19
				11	15.4	9.6	96	6.3	19
				12	15.4	9.6	96	6.4	19
				13	15.4	9.6	96	6.4	19
				14	15.3	9.7	96	6.5	19
				15	15.3	9.6	96	6.5	19
				16	15.3	9.6	96	6.5	19
				17	14.2	9.2	90	6.5	19
				18	9.7	7.1	71	5.9	19
				19	9.0	7.9	69	5.8	19
				20	8.5	7.6	65	5.7	19
				21	8.3	7.0	59	5.6	19
				22	8.2	6.7	57	5.5	19

Notes:

- = data not available, m = metre, ^{o}C = degree Celsius, mg/L = milligrams per litre, % Sat = percent saturation, µS/cm = microSiemens per centimetre.

Values in *italics* indicate that the value was calculated.

Grey shading cells identifies questionable values due to calibration error, a faulty sensor, near-bottom readings impacted by sediment conditions or near surface readings impacted by air water interface based on other monthly profiles collected at the station during the same year.

(a) Some pH values are reported as a range due to faulty pH sensor.

(b) The probe was assumed to be near the sediment boundary, or submerged in sediment, based on the inconsistent readings relative to the water column profile. Data were excluded from the assessment.

(c) Water quality samples were not collected when this profile was collected.

(d) The probe was assumed to submerged in turbulent water near the air-water interface, based on inconsistent readings relative to the water column profile. Data were excluded from the assessment.

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)

(e) The dissolved oxygen saturation (%) value is inconsistent with the measured dissolved oxygen (mg/L) value. This was assumed to be a transcription error, so the data were excluded from the assessment.

(f) The boat drifted during sample collection. Data were excluded from the assessment.

(g) The pH meter froze prior to measurement. Data were excluded from assessment.

(h) Profile data were recorded when toxicity and plankton samples were collected.

(i) The pH values were unstable and questionable due to difficulties with the pH measurement equipment.

(j) Profile data were recorded when benthic samples were collected.

(k) Profiles were performed during reconnaissance visits to determine a deep water dissolved oxygen reference location.

(l) Dissolved oxygen values were higher than expected. The DO membrane was changed at the end of the day.

(m) Profiles were completed as part of the plume characterization program.

(n) Data were excluded from assessment; suspected calibration error as described in Appendix 3A.

(o) Data were excluded from assessment; incomplete profile collected and/or possible location error.

(p) Value was assumed to be a transcription error, so the data was excluded from the assessment.

(q) The GPS was not working properly due to low temperatures; the station was 60 m off the target waypoint.

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
WQ1	24-Mar-99	-	-	1	0	16.2	-	7.6	6
				3	0.1	13.9	-	7.1	3
				5	1.1	13	-	7.7	4
				7	1.4	13	-	6.8	5
				9	1.9	10.5	-	6.7	3
				11	2.2	8.6	-	6.4	3
				13	2.3	8.3	-	6.3	4
				15	2.3	7.9	-	6.2	4
				17	2.4	7.6	-	6.2	4
				18	2.4	7.4	-	6.2	4
	9-Jul-99	-	-	1	13.7	10.8	-	6.8	-
				2	13.7	10.8	-	6.8	-
				3	13.7	10.7	-	6.8	-
				4	13.7	10.6	-	6.7	-
				5	13.6	10.7	-	6.7	-
				6	13.6	10.6	-	6.7	-
				7	13.6	10.6	-	6.7	-
				8	13.5	10.6	-	6.7	-
				9	13.4	10.6	-	6.7	-
				10	13.4	10.5	-	6.6	-
				11	13.4	10.6	-	6.6	-
				12	13.4	10.6	-	6.6	-
				13	13.3	10.5	-	6.6	-
				14	13.3	10.5	-	6.6	-
				15	13.3	10.6	-	6.6	-
WQ2	24-Mar-99	-	-	1	-0.1	17.5	-	6.7	7
				2	0.4	17	-	6.5	7
				3	1.1	16.1	-	6.4	5
				4	2.4	12.4	-	6.3	5
				5	3.1	9.2	-	6.1	5
				6	3.1	6.6	-	6	6
				6.5	3.3	4.8	-	5.9	7
	29-Mar-99	-	-	1	-0.1	17.5	-	6.7	-
				2	0.4	17	-	6.5	-
				3	1.1	16.1	-	6.4	-
				4	2.4	12.4	-	6.3	-
				5	3.1	9.2	-	6.1	-
				6	3.1	6.6	-	6	-
				6.5	3.3	4.8	-	5.9	-
	12-Aug-99	-	-	1	14.1	10.7	-	6.7	-
				2	13.9	10.6	-	6.7	-
				3	13.9	10.6	-	6.7	-
				4	13.9	10.6	-	6.7	-
				5	13.9	10.6	-	6.7	-
WQ3	24-Mar-99	-	-	1	0.6	17.8	-	6.8	6
				2	0.6	16.2	-	6.7	4
				2.5	0.8	14.7	-	6.6	4
	29-Mar-99	-	-	1	0.6	17.8	-	6.8	-
				2	0.6	16.2	-	6.7	-
				3	0.8	14.7	-	6.6	-
	9-Jul-99	-	-	<0.3	12.9	14.5	-	-	-
				1	12.9	14.2	-	-	-
				2	12.8	14.2	-	-	-
				3	12.5	14.1	-	-	-
				4	12.1	14.6	-	-	-
				5	11.8	14.9	-	-	-
				6	11.5	14.8	-	-	-
	12-Aug-99	-	-	1	13.9	10.7	-	-	-
				2	13.8	10.7	-	-	-
				3	13.8	10.7	-	-	-
				4	13.8	10.7	-	-	-
				5	13.8	10.7	-	-	-
				6	13.8	10.6	-	-	-
				7	13.8	10.7	-	-	-
				8	13.8	10.7	-	-	-
				9	13.7	10.6	-	-	-
				10	13.7	10.6	-	-	-
				11	13.6	10.5	-	-	-
WQ4	24-Mar-99	-	-	1	-0.1	16.9	-	6.6	6
				2	0.8	15.2	-	6.5	4
				3	2	11.7	-	6.3	4
				4	3	6.6	-	6	5

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	29-Mar-99	-	-	1	-0.1	16.9	-	-	-
				2	0.8	15.2	-	-	-
				3	2	11.7	-	-	-
				4	3	6.6[b]	-	-	-
	12-Aug-99	-	-	1	10.7	10.8	-	6.8	-
				2	10.7	10.7	-	6.8	-
				3	10.7	10.7	-	6.7	-
				4	10.7	10.7	-	6.7	-
				5	10.6	-	-	6.7	-
				6	10.6	-	-	6.7	-
				7	10.5	-	-	6.7	-
				8	10.5	-	-	6.7	-
WQ6	24-Mar-99	-	-	1	0.1	11.9	-	7.9	20
				2	-	-	-	7.7	-
	29-Mar-99	-	-	1	-	-	-	6.6	-
				2	-	-	-	6.5	-
				3	-	-	-	6.3	-
				4	-	-	-	6	-
	12-Aug-99	-	-	1	-	13.9	-	6.7	
				2	-	13.9	-	6.7	-
				3	-	13.9	-	6.7	-
				4	-	13.8	-	6.7	-
				5	-	13.8	-	-	-
				6	-	13.8	-	-	-
WQ7	24-Mar-99	-	-	1	-0.1	10.7	-	6.5	0
				2	0.2	15.2	-	6.8	5
				3	0.8	13.8	-	6.6	4
				4	1.3	12.5	-	6.5	4
				5	1.7	11.2	-	6.3	5
				6	2	10.3	-	6.2	5
	29-Mar-99	-	-	1	-0.1	10.7	-	6.6	-
				2	0.3	15.2	-	6.8	-
				3	0.8	13.8	-	6.6	-
				4	1.3	12.5	-	6.5	-
				5	1.7	11.2	-	6.3	-
				6	2	10.3	-	6.2	-
	8-Jul-99	-	-	<0.3	14.7	12.8	-	-	-
				1	14.7	13.2	-	-	-
				2	14.6	13.6	-	-	-
				3	14	13.8	-	-	-
				4	13.2	14.2	-	-	-
				5	12.3	14.1	-	-	-
				6	11.8	14.6	-	-	-
	12-Aug-99	-	-	1	13.8	10.7	-	6.8	
				2	13.8	10.7	-	6.7	-
				3	13.8	10.6	-	6.7	-
				4	13.8	10.6	-	6.7	-
				5	13.8	10.6	-	6.7	-
				6	13.8	10.5	-	6.7	-
				7	13.7	10.5	-	6.6	-
				8	13.5	10.4	-	-	-
1	15-Feb-03	-	-	<0.3	1.2	14.8	-	-	-
				1	1.2	14.5	-	-	-
				2	2.1	12.9	-	-	-
				3	3.1	10.9	-	-	-
				4	3.9	7.3	-	-	-
				5	4.3	3.4	-	-	-
				5.5	4.4	2.8	-	-	-
2	15-Feb-03	-	-	<0.3	0.7	15.9	-	-	-
				1	0.8	16.1	-	-	-
				2	1.7	13.7	-	-	-
				3	2.2	12.5	-	-	-
				4	2.5	11.8	-	-	-
				6	3.1	10.7	-	-	-
				8	3.7	8.6	-	-	-
				10	3.9	6.5	-	-	-
				11	4.2	5.5	-	-	-
				11.5	4.2	4.7	-	-	-

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
3	15-Feb-03	-	-	<0.3	0	17	-	-	-
				1	0	16.7	-	-	-
				2	0.8	14.4	-	-	-
				3	1.3	13	-	-	-
				4	1.6	12.1	-	-	-
				5	1.8	11.5	-	-	-
				6	2	11.2	-	-	-
				7	2.1	10.8	-	-	-
				7.5	2.5	7.2	-	-	-
4	15-Feb-03	-	-	<0.3	0.2	15.6	-	-	-
				1	0.1	16.2	-	-	-
				2	0.9	15	-	-	-
				3	1.3	14.7	-	-	-
				4	1.6	14.3	-	-	-
				5	1.8	14	-	-	-
				6	2	13.2	-	-	-
				6.5	2	12.4	-	-	-
5	14-Feb-03	-	-	<0.3	0	14.8	-	-	-
				1	0	14.8	-	-	-
				2	0.9	12.4	-	-	-
				3	1.3	11.5	-	-	-
				4	1.5	11.2	-	-	-
				6	1.8	10.8	-	-	-
				8	2	10.3	-	-	-
				9	2.1	10	-	-	-
				10	2.2	9.5	-	-	-
				11	2.2	9	-	-	-
				12	2.3	8.7	-	-	-
6	14-Feb-03	-	-	<0.3	0.1	16.5	-	-	-
				1	0.2	17.1	-	-	-
				2	1	15.8	-	-	-
				3	1.5	15.2	-	-	-
				4	1.7	14.7	-	-	-
				5	1.9	13.8	-	-	-
				5.5	2.1	12.7	-	-	-
7	14-Feb-03	-	-	<0.3	0	15.7	-	-	-
				1	0	15.7	-	-	-
				2	1.1	12.4	-	-	-
				3	1.4	11.7	-	-	-
				4	1.6	11.4	-	-	-
				6	1.8	10.9	-	-	-
				8	2	10.4	-	-	-
				10	2.2	9.9	-	-	-
				12	2.4	8.9	-	-	-
				14	2.6	7.7	-	-	-
				14.5	2.7	5.3	-	-	-
8	15-Feb-03	-	-	<0.3	0.1	17.8	-	-	-
				0.5	0.1	17.6	-	-	-
				1	0.1	17.7	-	-	-
				1.5	0.5	16.8	-	-	-
				2	0.9	16.2	-	-	-
				2.5	1.2	15.6	-	-	-
				3	1.7	14.1	-	-	-
				3.3	2.4	8.4	-	-	-
				3.5	2.6	5.2	-	-	-
				4	3	2.5	-	-	-
				4.5	3.4	1.1	-	-	-
9	15-Feb-03	-	-	<0.3	0.1	15.7	-	-	-
				0.5	0.1	16.1	-	-	-
				1	0.1	16.3	-	-	-
				1.5	0.5	15.8	-	-	-
				2	0.9	15.3	-	-	-
				3	1.5	13.9	-	-	-
				4	1.6	13.7	-	-	-
				5	2.1	11.6	-	-	-
				5.3	2.4	8	-	-	-
				5.5	2.6	5.7	-	-	-

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
10	15-Feb-03	-	-	<0.3	0.1	18	-	-	-
				1	0.1	17.7	-	-	-
				2	0.9	14.5	-	-	-
				3	1.3	13.2	-	-	-
				4	1.6	12.6	-	-	-
				6	2.1	11.8	-	-	-
				8	2.6	10.2	-	-	-
				10	2.9	8.2	-	-	-
				11	3.1	7.3	-	-	-
				12	3.2	6.5	-	-	-
				13	3.3	4.9	-	-	-
				13.5	3.4	4.4	-	-	-
11	14-Feb-03	-	-	<0.3	0.1	18	-	-	-
				0.5	0.1	17.5	-	-	-
				1	0.1	17.3	-	-	-
				2	0.7	15.8	-	-	-
				3	1.4	13.6	-	-	-
				4	1.7	12.8	-	-	-
				6	2	12.1	-	-	-
				8	2.2	11.5	-	-	-
				10	2.3	10.9	-	-	-
				12	2.5	9.8	-	-	-
				13	2.7	9.3	-	-	-
				13.5	2.7	7.7	-	-	-
12	14-Feb-03	-	-	<0.3	0.1	18.7	-	-	-
				1	0.2	18.6	-	-	-
				2	1.2	13.7	-	-	-
				3	1.6	13	-	-	-
				4	1.7	12.7	-	-	-
				6	2	12.3	-	-	-
				8	2.2	11.6	-	-	-
				10	2.3	11.2	-	-	-
				12	2.5	10	-	-	-
				14	2.8	8.6	-	-	-
				15	3	6.6	-	-	-
13	14-Feb-03	-	-	<0.3	0.1	14.8	-	-	-
				1	0.1	14.6	-	-	-
				2	0.9	12.3	-	-	-
				3	1.3	11.8	-	-	-
				4	1.6	10.8	-	-	-
				5	1.9	10.4	-	-	-
				6	2	9.6	-	-	-
				6.5	2.2	8.9	-	-	-
14	14-Feb-03	-	-	<0.3	0	14.6	-	-	-
				1	0	15	-	-	-
				2	0.9	12.7	-	-	-
				3	1.4	12	-	-	-
				4	1.7	11.5	-	-	-
				5	2.1	10.1	-	-	-
				6	3.1	7.1	-	-	-
				6.5	3.3	3.3	-	-	-
				7	3.6	2.2	-	-	-
				7.5	3.9	1.2	-	-	-
15	14-Feb-03	-	-	<0.3	0	13.8	-	-	-
				1	0	14.1	-	-	-
				2	0.9	13.2	-	-	-
				3	1.4	12.7	-	-	-
				4	1.6	11.5	-	-	-
				5	2	9.9	-	-	-
				6	2.5	6.9	-	-	-
				7	3.3	3.7	-	-	-
				7.5	3.5	3.3	-	-	-
16	14-Feb-03	-	-	<0.3	0.2	16.2	-	-	-
				1	0	15.9	-	-	-
				2	0.8	14.7	-	-	-
				3	1.3	13.3	-	-	-
				4	1.5	12	-	-	-
				5	1.6	11.8	-	-	-
				6	2.1	9.8	-	-	-
				6.5	2.5	8.4	-	-	-

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
17	13-Feb-03	-	-	<0.3	0	17.3	-	-	-
				0.5	0.1	17.4	-	-	-
				1	0.2	17.3	-	-	-
				1.5	0.6	15.8	-	-	-
				2	1.1	14.8	-	-	-
				2.5	1.2	14.5	-	-	-
				3	1.5	14.3	-	-	-
				3.5	1.6	13.7	-	-	-
				4	1.8	13.3	-	-	-
				4.5	1.9	12.8	-	-	-
				5	2	12.6	-	-	-
				5.5	2	12.2	-	-	-
				6	2.1	12	-	-	-
18	13-Feb-03	-	-	<0.3	0	16.2	-	-	-
				0.5	0.1	17.2	-	-	-
				1	0.2	16.9	-	-	-
				1.5	0.6	15.5	-	-	-
				2	1	14.7	-	-	-
				2.5	1.3	13.9	-	-	-
				3	1.4	13.6	-	-	-
				3.5	1.6	13	-	-	-
				4	1.8	12.6	-	-	-
				4.5	1.8	12.5	-	-	-
				5	1.8	12.4	-	-	-
				5.5	1.9	12.1	-	-	-
19	13-Feb-03	-	-	<0.3	0	16.7	-	-	-
				1	0	16.9	-	-	-
				1.5	0.4	15.8	-	-	-
				2	0.8	14.7	-	-	-
				2.5	1.1	14.3	-	-	-
				3	1.3	13.9	-	-	-
				3.5	1.5	13.5	-	-	-
				4	1.5	13.1	-	-	-
				4.5	1.6	12.8	-	-	-
				5	1.7	12.2	-	-	-
				5.5	1.8	11.9	-	-	-
20	13-Feb-03	-	-	<0.3	0.1	19.4	-	-	-
				0.5	0.1	18.2	-	-	-
				1	0.2	18	-	-	-
				1.5	0.5	16.2	-	-	-
				2	1	15.4	-	-	-
				2.5	1.2	15.3	-	-	-
				3	1.4	14.4	-	-	-
				3.5	1.6	14.3	-	-	-
				4	1.7	14.1	-	-	-
				4.5	1.9	12.9	-	-	-
21	12-Feb-03	-	-	<0.3	0	18.4	-	-	-
				1	0.1	17.6	-	-	-
				2	0.9	14.1	-	-	-
				3	1.4	12.9	-	-	-
				4	1.6	12.6	-	-	-
				5	1.7	12.4	-	-	-
				6	1.9	11.8	-	-	-
				7	2.2	11.1	-	-	-
				8	2.4	10.8	-	-	-
				9	2.6	9.5	-	-	-
				10	3	8	-	-	-
				11	3.2	6.6	-	-	-
				12	3.4	4.7	-	-	-
				12.5	3.5	4.3	-	-	-
22	12-Feb-03	-	-	<0.3	0	18	-	-	-
				1	0	17.6	-	-	-
				2	0.8	14.2	-	-	-
				3	1.3	13.1	-	-	-
				4	1.5	12.6	-	-	-
				5	1.7	12.1	-	-	-
				6	1.9	11.7	-	-	-
				7	2	11.3	-	-	-

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
23	12-Feb-03	-	-	<0.3	0.2	15.1	-	-	-
				0.5	0	15.9	-	-	-
				1	0.1	15.7	-	-	-
				1.5	0.6	14.2	-	-	-
				2	0.9	13.8	-	-	-
				2.5	1.2	13.2	-	-	-
				3	1.4	13.1	-	-	-
				3.5	1.4	13	-	-	-
				4	1.6	13	-	-	-
				4.5	1.8	12.7	-	-	-
				5	1.9	12.4	-	-	-
				5.5	2	9.9	-	-	-
24	16-Feb-03	-	-	<0.3	0	14.9	-	-	-
				0.5	0.1	15.2	-	-	-
				1	0.2	15	-	-	-
				1.5	0.7	14	-	-	-
				2	1.1	13.4	-	-	-
				2.5	1.4	12.9	-	-	-
				3	1.7	11.8	-	-	-
				3.5	2.2	10.5	-	-	-
25	16-Feb-03	-	-	<0.3	0.1	15.2	-	-	-
				1	0.2	16.1	-	-	-
				2	1.3	13.5	-	-	-
				3	1.8	11.9	-	-	-
				4	2.5	8.4	-	-	-
				5	3	5.7	-	-	-
				6	3.5	2.5	-	-	-
26	12-Feb-03	-	-	<0.3	0.2	17	-	-	-
				1	0.1	17.4	-	-	-
				2	1	14	-	-	-
				3	1.2	13.2	-	-	-
				4	1.6	12.8	-	-	-
				5	1.7	12.2	-	-	-
				6	1.9	12	-	-	-
				7	2.1	11.5	-	-	-
				8	2.4	10.4	-	-	-
				9	2.8	8.5	-	-	-
				10	3.1	6.3	-	-	-
				11	3.4	3	-	-	-
				12	3.5	1.5	-	-	-
27	12-Feb-03	-	-	<0.3	0	15.8	-	-	-
				0.5	0	16	-	-	-
				1	0.2	15.9	-	-	-
				1.5	0.5	15.2	-	-	-
				2	0.8	14.9	-	-	-
				2.5	1.3	13.4	-	-	-
				3	1.4	12.7	-	-	-
				3.5	1.5	12.1	-	-	-
				4	1.6	11.9	-	-	-
				4.5	1.7	11.5	-	-	-
				5	1.9	11.3	-	-	-
				5.5	1.9	11.1	-	-	-
				6	2	10.8	-	-	-
28	13-Feb-03	-	-	<0.3	0	14.4	-	-	-
				0.5	0	14.5	-	-	-
				1	0.2	15.3	-	-	-
				1.5	0.5	15.2	-	-	-
				2	0.8	14.9	-	-	-
				2.5	1.1	14.3	-	-	-
				3	1.3	14	-	-	-
				3.5	1.4	13.9	-	-	-
				4	1.4	13.6	-	-	-
				4.5	1.5	13.4	-	-	-
				5	1.7	12.5	-	-	-

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
29	13-Feb-03	-	-	<0.3	0	19.2	-	-	-
				0.5	0	18.9	-	-	-
				1	0	19.1	-	-	-
				1.5	0.4	18.2	-	-	-
				2	0.9	17.1	-	-	-
				2.5	1.3	15.9	-	-	-
				3	2	12.2	-	-	-
				3.5	2.4	8.8	-	-	-
				4	2.8	5.7	-	-	-
30	12-Feb-03	-	-	<0.3	0	16.3	-	-	-
				1	0.1	16.2	-	-	-
				2	0.9	13.3	-	-	-
				3	1.3	12.5	-	-	-
				4	1.6	12	-	-	-
				5	1.8	11.3	-	-	-
				6	2	10.7	-	-	-
				7	2.2	10.4	-	-	-
				8	2.4	9.9	-	-	-
				9	2.5	9.2	-	-	-
				9.5	2.6	9	-	-	-
31	11-Feb-03	-	-	<0.3	0.1	18.8	-	-	-
				1	0.1	19.1	-	-	-
				2	0.9	15.6	-	-	-
				3	1.4	14.7	-	-	-
				4	1.6	13.6	-	-	-
				5	1.8	13	-	-	-
				6	1.9	12.4	-	-	-
				7	2.1	11.3	-	-	-
				8	2.3	11.1	-	-	-
				10	2.7	10.1	-	-	-
				11	2.8	9.4	-	-	-
				12	3	6.3	-	-	-
				13	3.3	3.1	-	-	-
				13.5	3.3	2.3	-	-	-
				14	3.6	1	-	-	-
				14.5	3.7	0.4	-	-	-
32	11-Feb-03	-	-	<0.3	0	16.4	-	-	-
				1	0.1	17	-	-	-
				2	0.5	13.5	-	-	-
				3	1.1	12.6	-	-	-
				4	1.6	12	-	-	-
				5	1.8	11.5	-	-	-
				6	2	10.9	-	-	-
				7	2.2	10.4	-	-	-
				8	2.4	9.7	-	-	-
				9	2.8	7.6	-	-	-
33	11-Feb-03	-	-	<0.3	0.2	17.7	-	-	-
				1	0.2	18.3	-	-	-
				2	0.9	14.6	-	-	-
				3	1.4	13.1	-	-	-
				4	1.7	12.6	-	-	-
				5	1.9	12.3	-	-	-
				6	2	11.8	-	-	-
				7	2.2	10.9	-	-	-
				8	2.5	10.4	-	-	-
				9	2.6	9.9	-	-	-
				9.5	2.7	9.7	-	-	-

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
34	17-Feb-03	-	-	<0.3	0	16.6	-	-	-
				1	0.9	16.9	-	-	-
				2	1.4	15.3	-	-	-
				4	1.6	13.4	-	-	-
				6	1.9	12.8	-	-	-
				8	2.3	11	-	-	-
				10	2.6	9.3	-	-	-
				12	2.7	8.5	-	-	-
				14	2.7	6.7	-	-	-
				16	2.8	5.5	-	-	-
				18	2.8	4.8	-	-	-
				20	2.8	4.5	-	-	-
				22	-	2.8	-	-	-
				24	-	2	-	-	-
				25	-	1.3	-	-	-
				25.5	-	0.7	-	-	-
35	13-Feb-03	-	-	<0.3	0.1	16.6	-	-	-
				1	0.1	16.5	-	-	-
				2	1	14.3	-	-	-
				3	1.4	13.3	-	-	-
				4	1.6	12.8	-	-	-
				6	2	11.8	-	-	-
				8	2.4	10.2	-	-	-
				10	2.7	9	-	-	-
				12	2.8	7.7	-	-	-
				14	2.9	7.4	-	-	-
				16	2.9	7.1	-	-	-
				17	3	6.6	-	-	-
				17.5	3	6.2	-	-	-
36	13-Feb-03	-	-	<0.3	0	19	-	-	-
				0.5	0	19.3	-	-	-
				1	0	19.3	-	-	-
				1.5	0.5	16.7	-	-	-
				2	0.9	15.7	-	-	-
				2.5	1.2	13.9	-	-	-
				3	1.4	13.8	-	-	-
				3.5	1.5	13.4	-	-	-
				4	1.7	12.3	-	-	-
				4.5	1.9	11.8	-	-	-
				5	2.5	8.2	-	-	-
37	12-Feb-03	-	-	<0.3	0.1	16.7	-	-	-
				1	0.1	16.9	-	-	-
				1.5	0.6	14.2	-	-	-
				2	0.9	13	-	-	-
				2.5	1.3	12.5	-	-	-
				3	1.4	12	-	-	-
				3.5	1.5	11.9	-	-	-
				4	1.6	11.8	-	-	-
				4.5	1.7	12	-	-	-
				5	1.8	12	-	-	-
				5.5	1.9	11.9	-	-	-
38	15-Feb-03	-	-	<0.3	0.1	15.6	-	-	-
				1	0.1	16.4	-	-	-
				2	1	13.9	-	-	-
				3	1.4	12.9	-	-	-
				4	1.8	11.7	-	-	-
				5	2.1	10	-	-	-
				6	2.4	8.7	-	-	-
				7	2.8	6.4	-	-	-
				8	3	4.9	-	-	-
				8.5	3.2	3.1	-	-	-

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
39	16-Feb-03	-	-	<0.3	0.1	16.7	-	-	-
				1	0.2	18.1	-	-	-
				2	1.2	15	-	-	-
				3	1.8	12.9	-	-	-
				4	1.9	11.8	-	-	-
				6	2.1	11.3	-	-	-
				8	2.2	10.7	-	-	-
				10	2.2	10.5	-	-	-
				12	2.3	10.3	-	-	-
				14	2.3	9.8	-	-	-
				16	2.4	9.1	-	-	-
				18	2.5	7.3	-	-	-
				19	2.6	4.4	-	-	-
40	16-Feb-03	-	-	<0.3	0.1	13.6	-	-	-
				0.5	0.1	13.8	-	-	-
				1	0.1	14	-	-	-
				1.5	0.7	13.2	-	-	-
				2	1	13.1	-	-	-
				2.5	1.4	12.7	-	-	-
				3	1.9	11.6	-	-	-
				3.5	2.2	10.5	-	-	-
				4	2.4	10	-	-	-
				4.5	2.7	7.2[(b)]	-	-	-
41	16-Feb-03	-	-	<0.3	0	15.1	-	-	-
				0.5	0	14.9	-	-	-
				1	0.1	14.9	-	-	-
				1.5	0.5	14.1	-	-	-
				2	0.9	13.8	-	-	-
				2.5	1.4	13.5	-	-	-
				3	1.8	12.8	-	-	-
				3.5	2	11	-	-	-
				4	2.1	10.4	-	-	-
42	17-Feb-03	-	-	<0.3	0	16.9	-	-	-
				1	0	16.3	-	-	-
				2	1	14.3	-	-	-
				3	1.8	12.7	-	-	-
				4	2.3	10.4	-	-	-
				5	2.7	7.3	-	-	-
				6	2.9	4.6	-	-	-
				7	3.1	3.3	-	-	-
				8	3.3	2.4	-	-	-
				9	3.4	1.9	-	-	-
43	13-Feb-03	-	-	<0.3	0	18.5	-	-	-
				0.5	0	19.5	-	-	-
				1	0	19.3	-	-	-
				1.5	0.4	17.4	-	-	-
				2	0.8	16.6	-	-	-
				2.5	1	15.6	-	-	-
				3	1.6	15.2	-	-	-
				3.5	2.2	11.6	-	-	-
44	15-Feb-03	-	-	<0.3	0.2	16.1	-	-	-
				1	0.2	16.4	-	-	-
				2	0.8	15.4	-	-	-
				3	1.5	13.9	-	-	-
				4	1.6	13.5	-	-	-
				5	1.9	12.5	-	-	-
				6	2.1	11.5	-	-	-
				7	2.3	11	-	-	-
				8	2.5	9.8	-	-	-
				8.5	2.6	9.5	-	-	-
45	15-Feb-03	-	-	<0.3	0.1	15.8	-	-	-
				0.5	0.1	16	-	-	-
				1	0.1	16.7	-	-	-
				1.5	0.5	15.8	-	-	-
				2	1	14.4	-	-	-
				2.5	1.3	14.2	-	-	-
				3.5	1.6	13.3	-	-	-
				4.5	1.8	12.7	-	-	-
				5.5	2	12	-	-	-
				6	2.1	11.7	-	-	-

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
46	14-Feb-03	-	-	<0.3	0.1	11.4	-	-	-
				0.5	0	11.3	-	-	-
				1	0.1	11.4	-	-	-
				1.5	0.6	10.9	-	-	-
				2	0.9	10.8	-	-	-
				2.5	1.2	10.7	-	-	-
				3	1.6	10	-	-	-
47	16-Feb-03	-	-	<0.3	0.1	16.7	-	-	-
				1	0.2	15.7	-	-	-
				2	1.1	13.7	-	-	-
				3	1.8	12.8	-	-	-
				4	2.5	10.2	-	-	-
				4.5	2.7	8.1	-	-	-
				5	3.2	2.6[b]	-	-	-
				5.5	3.4	1.6[b]	-	-	-
48	15-Feb-03	-	-	<0.3	1.4	17.6	-	-	-
				1	1.4	17	-	-	-
				2	2.4	13.9	-	-	-
				3	3.4	11.2	-	-	-
				4	4	8	-	-	-
				5	4.2	6.9	-	-	-
				6	4.3	5.7	-	-	-
				6.5	4.4	3.8	-	-	-
49	15-Feb-03	-	-	<0.3	0	15.7	-	-	-
				1	0	16	-	-	-
				2	0.8	14.6	-	-	-
				3	1.4	13.2	-	-	-
				4	1.6	12.3	-	-	-
				5	1.8	11.8	-	-	-
				6	1.9	11.3	-	-	-
				7	2.2	10.1	-	-	-
				8	2.4	9.7	-	-	-
				9	2.5	9.2	-	-	-
50	14-Feb-03	-	-	<0.3	0	14.6	-	-	-
				0.5	0	14.8	-	-	-
				1	0	15.1	-	-	-
				1.5	0.5	14.7	-	-	-
				2	0.8	13.8	-	-	-
				2.5	1.1	13.5	-	-	-
				3	1.4	12.9	-	-	-
				3.5	1.7	12	-	-	-
				4	2.4	9.7	-	-	-
				4.5	2.7	7.3	-	-	-
				5	2.9	2.7[b]	-	-	-
SNAP01	8-May-04	-	-	<0.3	2.8	16.7	-	5.7	28
				1	1.4	18.6	-	5.9	28
				2	2.1	15.9	-	6	27
				3	3	12.4	-	6	27
				4	3.6	6.3[b]	-	6	27
				5	4.1	1[b]	-	5.9	28
SNAP02	8-May-04	-	-	<0.3	0.4	15.8	-	6	29
				1	0.6	15.7	-	6.1	29
				2	2.1	13.3	-	6.2	26
				3	2.9	8.7	-	6.2	24
				4	3.1	6.9	-	6.1	26
				5	3.3	10.3	-	6.1	29
				6	3.4	7.3	-	6.1	30
				7	3.4	8.6	-	6.1	31
				8	3.5	11.3[b]	-	6.1	33
	31-Jul-04	-	-	<0.3	12.6	10.1	-	6.9	17
SNAP03	8-May-04	-	-	<0.3	0.1	16.9	-	6.2	23
				1	0.1	17.1	-	6.2	23
				2	1.3	15.4	-	6.2	21
				3	1.5	14.7	-	6.3	21
				4	1.7	14.3	-	6.3	22
				5	1.9	14.8	-	6.3	23
				6	2	13.7	-	6.3	23
				7	2.3	11.3	-	6.3	22
				8	2.6	9	-	6.3	23
				9	2.9	5[b]	-	6.2	24
				10	3.3	2[b]	-	6.1	25
	30-Jul-04	-	-	<0.3	14.3	10	-	7	21

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP04	30-Jul-04	-	-	<0.3	15.6	9.8	-	7	19
				1	15.6	9.6	-	7	19
				2	15.6	9.6	-	7	19
				3	15.6	9.6	-	7	19
				4	15.6	9.6	-	7	19
				5	15.5	9.6	-	7	19
	1-Sep-04	-	-	<0.3	10.6	11.4	-	6.8	20
				1	10.3	11.3	-	6.8	20
				2	10	11.3	-	6.8	20
				3	9.9	11.3	-	6.8	20
				4	9.9	11.3	-	6.8	19
SNAP05	11-May-04	-	-	<0.3	0.4	17.6	-	5.6	25
				1	0.7	20.2	-	5.7	26
				2	1.5	18.1	-	5.9	23
				3	1.7	17	-	5.9	23
				4	1.8	17.6	-	6	24
				5	1.9	17.8	-	6	24
				6	2.1	17.2	-	6.1	24
				7	2.3	17.3	-	6.1	26
				8	2.4	18.1	-	6.1	26
				9	2.7	12.3	-	6.1	24
				10	3	6.4	-	6.1	22
				11	3.3	4.2	-	6.1	23
	30-Jul-04	-	-	<0.3	14.2	10.3	-	6.9	21
SNAP06	10-May-04	-	-	<0.3	0.2	21.2	-	5	33
				1	1	22	-	5.3	29
				2	1.5	18.8	-	5.5	23
				3	1.7	17.8	-	5.6	24
				4	1.8	18.4	-	5.7	25
				5	1.9	19.1	-	5.7	25
				6	2.1	19.3	-	5.8	25
				7	2.4	18.4	-	5.9	26
				8	2.5	17.9	-	5.9	26
				9	2.7	0.8[(b)]	-	5.8	47
	30-Jul-04	-	-	<0.3	14.9	10.3	-	6.9	21
SNAP07	7-May-04	-	-	<0.3	0.7	18.9	-	5.4	27
				1	0.5	19.4	-	5.5	27
				2	1.2	18.5	-	5.5	25
				3	1.6	18.4	-	5.6	26
				4	1.8	17.1	-	5.7	26
				5	2.2	14.4	-	5.8	26
				6	2.5	11.7	-	5.8	25
				7	2.7	13.4	-	5.9	26
				8	2.9	14.6	-	5.9	26
				9	3	15.1	-	6	26
				10	3.1	0.4[(b)]	-	5.8	27
	30-Jul-04	-	-	<0.3	14.4	9.8	-	7.1	18
SNAP08	6-May-04	-	-	<0.3	0.7	18.5	-	6.2	28
				1	0.6	19.6	-	6.2	27
				2	4	14.5	-	6.2	25
				3	4	14.4	-	6.1	24
				4	4	14.1	-	6.2	24
				5	4	13.6	-	6.2	24
	30-Jul-04	-	-	<0.3	15.6	9.6	-	7.3	17
SNAP09	8-May-04	-	-	<0.3	0.2	16	-	6.3	22
				1	0.2	16.8	-	6.3	23
				2	1.3	14.8	-	6.3	20
				3	1.5	14.5	-	6.3	21
				4	1.6	14.3	-	6.3	21
				5	1.7	14.2	-	6.3	22
				6	1.8	14.1	-	6.3	23
				7	1.9	14.9	-	6.3	24
				8	1.9	14.4	-	6.3	23
				9	2	13.1	-	6.3	23
				10	2.1	12.8	-	6.3	23
				11	2.2	11.2	-	6.3	23
				12	2.4	9.8	-	6.3	23
				13	2.5	8.3	-	6.3	23
	30-Jul-04	-	-	<0.3	12.7	10.9	-	6.9	19

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP10	30-Jul-04	-	-	<0.3	14.4	10.1	-	6.9	18
				1	14.3	10	-	6.9	18
				2	14.3	10	-	6.9	18
				3	14.3	10	-	6.9	18
				4	14.2	10.1	-	7	18
				4.5	14	10.3	-	7	18
	31-Aug-04	-	-	<0.3	10.1	11.4	-	6.7	19
				1	10.1	11.2	-	6.7	19
				2	10.1	11.2	-	6.7	19
				3	10.1	11.2	-	6.7	19
				4	10	11.2	-	6.7	19
SNAP11	8-May-04	-	-	<0.3	0	16.6	-	6.3	22
				1	0.2	16.8	-	6.2	22
				2	1.3	14.8	-	6.3	20
				3	1.6	14.4	-	6.2	21
				4	1.7	14.3	-	6.2	22
				5	1.7	14.1	-	6.3	22
				6	1.8	15	-	6.3	23
				7	1.9	14.7	-	6.3	24
				8	1.9	14.8	-	6.3	24
				9	2	14.5	-	6.3	24
				10	2.1	12.7	-	6.3	23
				11	2.2	11.6	-	6.3	23
				12	2.3	12.5	-	6.3	24
				13	2.5	9.6	-	6.3	23
				14	2.8	5.8	-	6.2	23
				15	3	0.7[(b)]	-	6.1	31
	30-Jul-04	-	-	<0.3	14.3	10.5	-	6.9	19
SNAP12	11-May-04	-	-	<0.3	0.3	18.4	-	6.2	24
				1	0.1	18.7	-	6.2	23
				2	1.2	17.5	-	6.3	22
				3	1.6	17	-	6.3	22
				4	1.7	16.2	-	6.3	22
				5	1.9	15.2	-	6.3	22
				6	2.2	1.2[(b)]	-	6.2	24
SNAP13	9-May-04	-	-	<0.3	0	19.7	-	6.1	28
				1	0.1	21	-	6.3	28
				2	1.3	18.5	-	6.4	22
				3	1.6	16.9	-	6.4	22
				4	1.8	15.9	-	6.4	23
				5	1.9	15.1	-	6.4	23
				6	2.1	14	-	6.5	23
				7	2.3	12.3	-	6.4	22
				8	2.4	9.8	-	6.4	21
				9	2.5	9.3	-	6.4	22
				10	2.6	8.7	-	6.4	22
				11	2.6	8.6	-	6.4	22
				12	2.6	8.4	-	6.4	22
				13	2.6	8.1	-	6.3	22
				14	2.7	7.7	-	6.3	23
				15	2.7	7.6	-	6.3	23
				16	2.7	7.6	-	6.3	23
				17	2.7	7.6	-	6.3	23
				18	2.7	7.4	-	6.3	23
				19	2.7	7.3	-	6.2	23
				20	2.7	7.2	-	6.2	24
				21	2.7	6.9	-	6.2	23
				22	2.8	1.5[(b)]	-	6	32
SNAP14	5-May-04	-	-	<0.3	-0.1	17.7	-	6.2	21
				1	0	17.1	-	6.2	22
				2	1.3	14.5	-	6.2	19
				3	1.5	13.6	-	6.1	19
				4	1.7	13.2	-	6.1	20
				5	1.9	15.2	-	6.1	23
				6	2.1	14.6	-	6.1	23
				7	2.3	12.1	-	6	22
				8	2.5	11.3	-	6	25
				9	2.5	10.1	-	6	21
				10	2.6	0.7[(b)]	-	5.9	34

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNP 02-20a	31-Jul-04	-	-	<0.3	12.5	10	-	6.9	26
				1	12.4	10	-	6.9	26
				2	12.2	10	-	7	26
				3	12.1	10.1	-	7	26
				4	12.1	10.1	-	7	26
				4.5	12.2	10.1	-	7	26
	1-Sep-04	-	-	<0.3	9.8	11.3	-	6.8	35
				1	9.9	11.2	-	6.8	35
				2	9.9	11.2	-	6.8	36
				3	9.9	11.2	-	6.8	37
				4	9.9	11.2	-	6.8	39
SNP 02-20b	31-Jul-04	-	-	<0.3	12.4	10.2	-	7	26
				1	12.3	10.1	-	7	26
				2	12.3	10.1	-	7	26
				3	12.2	10.1	-	7	26
				4	12.2	10.1	-	7	26
				5	12.2	10.1	-	7	26
				6	12.3	9.2	-	6.8	27
	18-Aug-04	-	-	<0.3	10.3	11.5	-	7.6	21
	1-Sep-04	-	-	<0.3	10	11.6	-	6.8	38
				1	10	11.3	-	6.9	39
				2	9.9	11.2	-	6.8	39
				3	9.9	11.2	-	6.9	39
				4	9.9	11.2	-	6.9	39
				5	9.9	11.2	-	6.9	39
SNP 02-20c	31-Jul-04	-	-	<0.3	12.7	10.5	-	7	27
				1	12.6	10.2	-	7	27
				2	12.4	10.4	-	7	29
	1-Sep-04	-	-	<0.3	10.2	11.4	-	6.9	36
				1	10.2	11.2	-	6.8	36
SNAP01	19-Jan-05	0.8	-	0.9	0.6	15.8	-	6.8	36
				1	0.6	15.4	-	6.8	35
				2	1.4	14.6	-	6.8	28
				3.1	2.4	13.1	-	6.8	24
				4	3	10.3	-	6.7	25
	17-Feb-05	1.2	-	1.4	2.5	13.4	-	6.7	26
				2.4	3	10.8	-	6.1	22
				3.4	4.8	9.5	-	6.5	21
	15-Mar-05	1.2	-	1.2	0.5	14.2	-	5.9	30
				2.1	1.3	14.1	-	5.9	25
				3.2	2.5	12.3	-	5.9	23
				4	3	9.3	-	5.8	24
	16-Apr-05	1.4	-	1.7	1.3	11.8	-	5.4	27
				2	1.7	12	-	5.4	25
				3	2.6	11.3	-	5.4	23
				4	3.3	9.5	-	5.4	23
	17-May-05	1.2	-	1.5	1.6	13.3	-	5.8	27
				2.2	3.1	12.6	-	5.8	23
				3	3.9	12.2	-	5.8	25
				4	4.1	12.3	-	5.7	27
	20-Jul-05	no ice	-	1	15	8.9	-	5.9	18
				2	15.1	9.1	-	5.9	18
				3	15.1	9.3	-	5.9	18
	13-Sep-05	no ice	-	1	8.7	10.4	-	7.6	17
				2	8.5	10.4	-	7.5	17
				3	8.4	10.2	-	7.5	17
				4	8.2	10.2	-	7.4	17
SNAP02	19-Jan-05	0.9	-	1	0.8	13.9	-	6.3	36
				2	1.9	11.5	-	6.3	28
				3	2.9	9.7	-	6.3	24
				4	3.2	8.6	-	6.3	24
				5	3.4	6.8	-	6.2	25
				6	3.6	5.5	-	6.2	27
				7	3.7	5	-	6.3	29
	17-Feb-05	1.3	-	<0.3	0.4	16.2	-	6.5	34
				1	0.7	15.1	-	6.5	33
				2	2.4	11.4	-	6.5	23
				3	3	9.7	-	6.5	22
				4	3.4	6	-	6.5	21
				5	3.8	4.8	-	6.5	22
				6	4	3.2	-	6.5	24

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	15-Mar-05	1.3	-	1.3	0.2	14.5	-	6	31
				2.1	1	14	-	5.9	27
				3	2.2	13	-	6	24
				4	2.8	12.3	-	6	23
				5	3.3	11.5	-	5.9	23
				6.1	3.6	7.8	-	5.9	25
				7	3.8	6.3	-	5.8	26
	16-Apr-05	1.4	-	1.5	1.1	12.9	-	5.7	31
				2	1.6	12.8	-	5.7	27
				3	2.5	12.2	-	5.8	24
				4.1	3.2	11.3	-	5.8	23
				5	3.5	10.3	-	5.7	24
				6	3.7	8.2	-	5.7	26
				7	3.9	7.6	-	5.6	27
	17-May-05	0.7	-	0.9	0.2	13.7	-	5.8	25
				2	2.3	13.5	-	5.8	26
				3	3.6	13.5	-	5.8	26
				3.9	4	13.3	-	5.9	27
				5	4.1	12.7	-	5.8	27
				6.1	4.1	11.4	-	5.8	27
				7.3	4.1	9.6	-	5.8	29
				8.3	4.1	8.9	-	5.8	30
				9.3	4.1	7.2	-	5.8	31
	21-Jul-05	no ice	-	1	13.8	9.2	-	6.2	18
				2	13.9	9.3	-	6.2	18
				3.1	13.9	9.4	-	6.2	18
				4	14	9.4	-	6.3	18
				5.1	14	9.4	-	6.2	18
				6.2	14	9.4	-	6.3	18
				7.1	14	9.5	-	6.3	18
	13-Sep-05	no ice	-	1.1	8.3	10.8	-	7.2	18
				2	8.5	10.3	-	7.4	18
				3	8.5	10.3	-	7.3	18
				4	8.5	10.3	-	7.3	18
				5	8.5	10.3	-	7.4	18
				6	8.5	10.2	-	7.3	18
				7.1	8.5	10.2	-	7.3	18
				8.1	8.5	10.1	-	7.3	18
				9	8.3	10.2	-	7.4	18
SNAP03	19-Jan-05	0.9	-	1.1	0.4	13.8	-	6.4	37
				2	1	12.8	-	6.5	32
				4	1.4	11.9	-	6.4	30
				5.1	1.6	11.4	-	6.4	30
				6	1.8	10.6	-	6.4	30
				7	2.1	8.8	-	6.3	31
				8	2.4	7.4	-	6.3	30
				9	2.7	5.9	-	6.3	32
				10	2.8	5.5	-	6.3	43
				11	2.8	5.5	-	6.3	54
				12	2.8	4.6	-	6.3	73
				12.5	2.7	4.1	-	6.2	96
	16-Feb-05	1.2	-	<0.3	0.2	15.5	-	6.2	32
				0.7	0.3	14.2	-	6.2	31
				1.7	0.9	13.4	-	6.2	27
				2.7	1.3	12.2	-	6.2	25
				3.7	1.5	11.8	-	6.2	24
				4.7	1.7	11.2	-	6.2	24
				5.7	1.9	10.5	-	6.2	23
				6.7	2.2	9.2	-	6.2	23
				7.7	2.5	7.4	-	6.2	24
				8.7	2.7	7.4	-	6.2	34
				9.7	2.8	7.1	-	6.1	56
				10.7	2.9	6.7	-	6.1	63
				11.7	2.9	6.2	-	6.1	84

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	15-Mar-05	1.3	-	1.4	0.2	15.5	-	6	32
				2.2	0.6	15.1	-	6.1	29
				3.1	1.1	14.4	-	6.1	27
				4	1.3	13.7	-	6.1	26
				5.1	1.6	12.7	-	6.1	25
				6.1	1.8	12.2	-	6.1	25
				7.1	2.1	11.9	-	6.1	25
				8	2.5	8.2	-	5.9	46
				8.9	2.6	13.6	-	5.9	64
				9.9	2.6	11.5	-	5.9	105
				11.2	2.7	8.5	-	5.9	114
				12	2.7	8.3	-	5.9	133
	18-Apr-05	1.3	-	1.5	0.6	13.4	-	6	31
				2	0.9	13.3	-	5.9	29
				3	1.3	13	-	5.9	27
				4.1	1.5	12.6	-	5.9	26
				5	1.7	12	-	5.9	27
				6	2	11.4	-	5.9	28
				7	2.2	10.3	-	5.9	40
				8	2.4	8.9	-	5.8	71
				9	2.5	8.8	-	5.8	101
				10	2.6	9.1	-	5.8	119
				11.1	2.6	9	-	5.8	144
				12	2.6	8.7	-	5.8	162
	17-May-05	1.3	-	1.6	0.5	15.7	-	6.4	29
				2.1	1.1	15.3	-	6.4	27
				3	1.6	14.8	-	6.4	27
				4	1.7	14.3	-	6.4	28
				5.1	1.9	13.5	-	6.3	32
				6.1	2.1	13	-	6.2	59
				7.1	2.2	11.4	-	6.1	88
				8	2.4	10.9	-	6.1	99
				9	2.5	10.9	-	6.2	118
				10.1	2.6	11	-	6.1	137
				11.2	2.8	11.3	-	6.2	154
				12.1	3	9.9	-	6	158
	19-Jul-05	no ice	-	1.2	15.4	9.5	-	6.3	41
				2	15.5	9.8	-	6.5	41
				3	15.5	9.9	-	6.5	41
				4	15.4	10	-	6.5	40
				5	13.5	10.3	-	6.6	38
				6	13.4	10.4	-	6.6	38
				7	12.4	10.5	-	6.6	37
				8	11.9	10.6	-	6.6	38
				9	11.6	10.6	-	6.6	40
				10	11.2	10.6	-	6.6	42
				11	11	10.6	-	6.6	42
				12.1	10.8	10.5	-	6.6	42
				13	10.7	10.2	-	6.5	48
	13-Sep-05	no ice	-	1.1	8.9	11	-	7.4	41
				2	9.1	10.6	-	7.5	41
				3	9.1	10.5	-	7.5	41
				4	9.2	10.5	-	7.5	41
				5	9.2	10.4	-	7.5	41
				6	9.2	10.3	-	7.5	41
				7.1	9.2	10.4	-	7.5	41
				8	9.2	10.4	-	7.5	41
				9.1	9.2	10.4	-	7.5	41
				10	9.2	10.3	-	7.5	41
				11	9.1	10.2	-	7.5	41
				12	9.1	10.3	-	7.5	41
SNAP04	19-Jan-05	0.9	-	1	0.4	16	-	6.4	48
				2	1.3	13	-	6.4	36
				3	2.2	10.9	-	6.4	32
				4	2.8	9.2	-	6.4	30
	16-Feb-05	-	-	<0.3	0.3	16.5	-	6.2	41
				0.8	0.5	15.8	-	6.2	41
				1.8	1.5	11.5	-	6.2	32
				2.8	2.2	8.9	-	6.2	28
				3.8	3	5[(b)]	-	6.2	25

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	15-Mar-05	1.5	-	2	0.8	15.5	-	6	37
				3.1	1.9	14.5	-	6	32
				4.1	2.9	13.3	-	6	29
	18-Apr-05	1.4	-	1.5	1.7	13.1	-	5.9	38
				2	1.6	13.2	-	6	36
				3	2.4	12.7	-	6	34
				4	3.8	10.5[b]	-	5.9	29
	17-May-05	1.4	-	1.6	0.5	14.7	-	6.1	36
				2	1.8	14.6	-	6.1	35
				3	3.7	13.8	-	6	34
				4	4	12.8	-	6	34
	19-Jul-05	no ice	-	1.1	16.1	9.3	-	6.5	32
				2.1	16.1	9.6	-	6.5	32
				3	16.1	9.7	-	6.5	32
	13-Sep-05	no ice	-	1	7.5	11.2	-	7.3	34
				2.1	7.7	10.9	-	7.4	34
				3	7.7	10.7	-	7.4	33
				4.1	7.8	10.5	-	7.5	33
SNAP05	19-Jan-05	0.9	-	1	0.3	14.6	-	6.3	40
				2	0.9	12.9	-	6.3	33
				3	1.2	12.3	-	6.3	31
				4	1.4	11.6	-	6.3	29
				5	1.5	10.9	-	6.3	31
				6	1.7	10.2	-	6.4	31
				7	1.9	10.3	-	6.4	36
				8	1.9	10.6	-	6.3	82
				9	1.9	10.1	-	6.3	125
				10	2.1	9.8	-	6.3	121
				11	2.4	9.5	-	6.3	119
				12	2.5	9.2	-	6.3	117
				13	2.7	8.6	-	6.3	112
				14.1	2.9	8.5	-	6.3	118
	16-Feb-05	1.2	-	0.5	0.2	15.5	-	6.2	32
				1.5	0.7	14.4	-	6.2	29
				2.5	1.2	13.1	-	6.3	25
				3.5	1.4	12.4	-	6.3	24
				4.5	1.5	11.3	-	6.3	24
				5.5	1.7	10.4	-	6.3	25
				6.5	2	9.9	-	6.2	30
				7.5	2	10.8	-	6.3	46
				8.5	1.9	10.5	-	6.2	98
				9.5	2	10.3	-	6.1	130
				10.5	2.3	9.9	-	6.1	128
				11.5	2.6	9.5	-	6.1	123
				12.5	2.8	9.4	-	6.1	120
				13.5	3.1	9.5	-	6.1	115
	15-Mar-05	1.2	-	1.3	0.9	14.4	-	6	32
				2	1	14.4	-	6.1	30
				3	1.3	14.1	-	6.1	27
				4.1	1.5	13.5	-	6.1	27
				5	1.7	12.9	-	6.1	26
				6	1.9	12.1	-	6.1	29
				6.9	2	10.7	-	6	48
				7.8	2	10.2	-	5.9	77
				9	1.9	11	-	5.9	155
				9.9	2.1	10.9	-	5.9	159
				11	2.4	10.4	-	6	155
				12	2.6	10	-	6	152
				13	2.9	9.7	-	6	149

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	19-Apr-05	1.2	-	1.5	0.5	14	-	6.1	31
				2.1	0.9	14	-	6.1	29
				3	1.3	13.7	-	6.1	28
				4	1.5	13.2	-	6.1	27
				5	1.8	12.8	-	6.1	27
				6.1	1.9	12.3	-	6	30
				7	1.8	12.1	-	5.9	92
				8.1	1.9	12.1	-	5.9	119
				9	2	11.7	-	5.9	165
				10	2.2	11.4	-	5.9	170
				11	2.5	10.9	-	6	169
				12	2.7	10.5	-	6	166
				13	2.9	10	-	6	164
				14.1	3.2	9.5	-	6	163
	17-May-05	1.2	-	1.5	0.5	15.4	-	6.6	30
				2.1	1.2	15.1	-	6.6	28
				3	1.6	14.8	-	6.6	27
				4.3	1.9	14	-	6.5	28
				5.1	2.1	13.1	-	6.5	31
				6	2.1	13.2	-	6.4	37
				6.9	2.1	14.1	-	6.3	89
				8	2	13.8	-	6.2	139
				9.1	2	13.1	-	6.2	174
				10	2.3	12.7	-	6.2	176
				11.1	2.6	12	-	6.2	174
				12	2.8	11.3	-	6.2	172
				13.1	3	10.8	-	6.2	171
				14	3.3	10.2	-	6.2	170
	21-Jul-05	no ice	-	1	12.5	9.8	-	6.1	37
				2.1	12.6	9.9	-	6.2	36
				3	12.6	9.9	-	6.2	36
				4	12.7	9.9	-	6.3	36
				5	12.7	9.9	-	6.3	37
				6	12.7	10	-	6.4	37
				7.1	12.7	10	-	6.4	37
				8.1	12.7	10	-	6.4	37
				9	12.7	10	-	6.4	38
				10	12.7	10	-	6.4	38
				11	12.7	10	-	6.4	38
				12.1	12.7	10	-	6.4	38
				13.1	12.7	10	-	6.5	38
	13-Sep-05	no ice	-	1	9.2	10.4	-	7.3	40
				2.9	9.1	10.4	-	7.3	40
				2.1	9.2	10.4	-	7.4	40
				5	9	10.3	-	7.4	39
				4	9	10.3	-	7.4	39
				6	8.9	10.3	-	7.4	39
				7	8.9	10.3	-	7.4	39
				8	8.9	10.3	-	7.4	39
				9	8.8	10.3	-	7.4	38
				10	8.8	10.3	-	7.4	38
				10.9	8.8	10.2	-	7.4	38
				12	8.8	10.3	-	7.4	38
				13	8.7	10.2	-	7.4	38
SNAP06	19-Jan-05	0.9	-	1	0.3	14.4	-	6.3	39
				2	0.8	13	-	6.3	33
				3	1.2	12.2	-	6.3	30
				4	1.3	11.9	-	6.2	30
				5	1.5	10.8	-	6.2	30
				6	1.8	10.2	-	6.2	31
				7	2.1	8.5	-	6.1	32
				8	2.3	7.9	-	6.2	33
				9	2.4	6.9	-	6.2	36
				10	2.5	6.2	-	6.1	51
				11	2.5	5.7	-	6.2	58
				12	2.6	5.1	-	6.2	54
				13	2.9	5.5	-	6.2	56

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Feb-05	1.4	-	<0.3	0.2	15.8	-	6.1	32
				0.8	0.3	14.9	-	6.1	31
				1.8	1	13.1	-	6.1	26
				2.8	1.3	12.4	-	6.1	24
				3.8	1.5	11.8	-	6.1	24
				4.8	1.6	10.8	-	6.1	24
				5.8	1.9	9	-	6.1	25
				6.8	2.3	7.8	-	6.1	28
				7.8	2.4	8	-	6	40
				8.8	2.5	8.2	-	6	65
				9.8	2.5	8.2	-	6	80
				10.8	2.6	8.1	-	6	82
				11.8	2.6	5.5	-	6	83
	16-Mar-05	1.3	-	1.5	0.7	14.6	-	5.8	31
				2	0.8	14.3	-	5.9	29
				3	1.3	13.9	-	6	27
				4.1	1.5	13.1	-	6	26
				5.1	1.7	12.8	-	6	28
				6.1	1.9	12.4	-	6	28
				7	2.2	11.5	-	5.9	36
				7.9	2.3	9.5	-	5.9	69
				9.1	2.4	8.8	-	5.8	96
				10.1	2.4	8.8	-	5.8	116
				11	2.6	8.5	-	5.9	116
				11.9	2.8	8.3	-	5.8	118
	19-Apr-05	1.4	-	1.5	0.6	14.3	-	6	33
				2	0.5	14.4	-	6	30
				3	0.6	14.3	-	6	28
				4	1.5	13.6	-	6	27
				5	1.8	13	-	5.9	28
				6	2	12.5	-	6	31
				7.1	2.1	11.7	-	5.8	69
				8	2.3	10.7	-	5.8	96
				9.1	2.4	9.8	-	5.7	126
				10.1	2.5	9.4	-	5.8	139
				11	2.6	9.1	-	5.8	139
				12	2.8	8.8	-	5.8	139
	17-May-05	1.4	-	2	0.7	15.5	-	6.4	30
				3	1.7	14.8	-	6.3	27
				4	1.9	14.1	-	6.3	27
				5	2	13.9	-	6.3	29
				6.1	2.3	14.6	-	6.3	35
				7.1	2.2	14.7	-	6.1	86
				8	2.3	11.6	-	6.1	114
				9	2.4	9.8	-	6	140
				10.1	2.5	9.6	-	6	151
				11.2	2.7	9.2	-	6	151
				12.2	3	8.7	-	6	149
				13.2	3.3	7.5	-	6	148
	21-Jul-05	no ice	-	1.1	12.7	9.6	-	6.5	35
				2.1	12.7	9.6	-	6.4	35
				3	12.7	9.6	-	6.5	35
				4	12.7	9.7	-	6.5	35
				5	12.7	9.7	-	6.5	35
				5.9	12.7	9.7	-	6.5	35
				7	12.8	9.7	-	6.6	35
				8.1	12.8	9.7	-	6.5	35
				9	12.8	9.7	-	6.6	35
	13-Sep-05	no ice	-	1	9.1	10.5	-	7.3	38
				2	9.2	10.3	-	7.3	38
				3.1	9.2	10.3	-	7.4	38
				4	9.2	10.4	-	7.4	38
				5	9.2	10.3	-	7.4	38
				6	9.2	10.2	-	7.4	38
				7	9.2	10.3	-	7.4	38
				9	9.2	10.2	-	7.4	38
				8	9.2	10.2	-	7.4	38
				10	9.2	10.3	-	7.4	38
				11	9.2	10.2	-	7.4	38
				12	9.1	10.3	-	7.4	38
				13	9.1	10.2	-	7.3	38

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP07	20-Jan-05	0.9	-	1	0.3	14.7	-	6.2	41
				2	1	13.5	-	6.2	34
				3	1.1	13.1	-	6.2	33
				4	1.4	12.5	-	6.2	33
				5	1.7	10.9	-	6.1	36
				6	2.3	10.3	-	6.1	32
				7	2.8	9.6	-	6.1	30
				8	3.4	10.1	-	6.1	29
	15-Feb-05	1.6	-	<0.3	0.2	15.9	-	6.4	32
				1.1	0.3	15.4	-	6.4	31
				2.1	1	13.7	-	6.4	27
				3.1	1.3	13	-	6.4	27
				4.1	1.5	12.2	-	6.4	27
				5.1	1.8	11.4	-	6.4	27
				6.1	2.3	10.2	-	6.4	25
				7.1	2.7	9.1	-	6.4	24
				8.1	3	7.1	-	6.4	23
				9.1	3.2	7.3	-	6.4	24
	16-Mar-05	1.3	-	1.5	1.1	14	-	6.2	36
				2.1	1	14.1	-	6.1	31
				3	1.3	13.9	-	6.1	30
				4	1.4	13.7	-	6.1	31
				5	1.7	13.3	-	6.1	31
				6	2.2	12.1	-	6.1	30
				7	2.7	11.4	-	6	29
				8	3	10.6	-	6	25
	22-Apr-05	1.6	-	1.7	0.6	15.3	-	6.1	34
				2	0.8	15.4	-	6.1	33
				3	1.3	15.1	-	6.1	30
				4	1.6	14.6	-	6.1	32
				5	1.8	14.2	-	6.1	32
				6	2.3	13	-	6.1	30
				7	2.8	11.2	-	6	29
				8	3.1	7.7	-	6	28
	19-May-05	1.5	-	1.6	1.3	14.3	-	5.9	34
				2	1.8	14.3	-	5.9	31
				3	2.1	14.3	-	5.9	30
	22-Jul-05	no ice	-	1	11.5	9.4	-	6.2	32
				2	11.5	9.5	-	6.2	32
				3.1	11.5	9.5	-	6.2	32
				4.1	11.6	9.6	-	6.2	32
				5.1	11.6	9.6	-	6.3	32
				6	11.6	9.6	-	6.3	32
				7.1	11.6	9.6	-	6.3	32
				8.1	11.6	9.6	-	6.3	32
				9.1	11.6	9.6	-	6.3	32
				10	11.6	9.6	-	6.3	32
	13-Sep-05	no ice	-	1.1	8.1	11.2	-	7.2	36
				2	8.2	11	-	7.3	36
				3	8.3	10.7	-	7.4	36
				4	8.4	10.6	-	7.4	36
				5	8.4	10.5	-	7.4	36
				6	8.4	10.6	-	7.4	36
				7	8.3	10.4	-	7.4	36
				8.1	8.3	10.5	-	7.4	36
				9	8.2	10.5	-	7.4	35
				10	8.3	10.4	-	7.2	39
SNAP08	20-Jan-05	0.9	-	1	0.7	12.1	-	5.8	41
				2	2.1	9.8	-	5.8	31
				2.9	3.3	7	-	5.8	30
				4	4	5.6	-	5.7	31
				5	4.2	4.5	-	5.7	32
				6	4.3	4.6	-	5.7	33
				7	4.3	5.1	-	5.7	35

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	15-Feb-05	1.3	-	<0.3	0.3	15.2	-	6.5	35
				1	0.6	14.3	-	6.5	34
				2	1.7	9.2	-	6.5	27
				3	3.3	4.6	-	6.5	24
				4	3.8	3.1	-	6.5	25
				5	3.9	2.4	-	6.5	25
				6	3.9	2.2	-	6.5	26
				7	4	2	-	6.5	27
				8	3.9	1.9	-	6.6	29
	16-Mar-05	1.1	-	1.2	1.8	13	-	6.1	35
				1.5	1.1	13.2	-	6	35
				1.8	1.4	13	-	6	35
	21-Apr-05	1.4	-	1.5	1.6	13.4	-	5.8	33
				2.1	2.1	13.6	-	5.9	30
				3	3.5	12	-	5.9	26
				4	4.2	9.8	-	5.8	26
				5	4.2	7.9	-	5.8	27
				6	4.3	5.3	-	5.7	28
				7	4.3	3.5	-	5.7	31
				8	4.4	2.2	-	5.6	52
	17-May-05	1.4	-	1.5	2.8	14.5	-	6.2	29
				2	4	13.1	-	6.2	28
				3.3	4	12.3	-	6.2	28
				4.1	4.1	14.2	-	6.2	28
				5	4.1	12.1	-	6.2	28
				6.1	4.4	8.6	-	6.1	28
				7.1	4.5	4.2	-	6	30
				8.3	4.5	2.1	-	5.9	55
	22-Jul-05	no ice	-	1	11.8	9	-	6.2	29
				2	11.8	9.1	-	6.1	29
				3	11.8	9.2	-	6.1	29
				4.1	11.7	9.2	-	6.1	29
				5.1	11.4	9.3	-	6.2	29
				6	11.4	9.3	-	6.2	30
				7.1	11.4	9.4	-	6.2	30
				8	11.4	9.4	-	6.2	30
				9	11.4	9.4	-	6.2	30
	13-Sep-05	no ice	-	1	7.5	11.2	-	7.3	35
				2	7.6	10.9	-	7.4	35
				3	7.6	10.7	-	7.4	35
				4	7.6	10.6	-	7.5	34
				5	7.7	10.7	-	7.5	34
				6	7.7	10.4	-	7.4	35
SNAP09	20-Jan-05	1	-	1	0.4	13.1	-	6.3	36
				2	1	12.4	-	6.4	29
				2.9	1.2	12.2	-	6.3	29
				4	1.3	12	-	6.3	29
				5	1.4	11.9	-	6.3	29
				6	1.5	11.7	-	6.3	29
				7.1	1.6	11.2	-	6.3	29
				8	1.7	11.1	-	6.3	30
				9	1.8	10.5	-	6.3	30
				10	1.8	9.8	-	6.2	30
				11	1.9	8.8	-	6.2	29
				12	2	6.7	-	6.2	29
				13	2.1	4.9	-	6.2	29
				14	2.2	2.8	-	6.9	30

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Feb-05	1.3	-	<0.3	0.3	14.9	-	6.3	30
				0.9	0.5	13.8	-	6.3	29
				1.9	1.1	12.7	-	6.3	24
				2.9	1.4	12.2	-	6.3	22
				3.9	1.5	12	-	6.3	22
				4.9	1.6	11.8	-	6.3	22
				5.9	1.8	11.6	-	6.2	23
				6.9	1.9	11.3	-	6.3	23
				7.9	1.9	11.1	-	6.3	23
				8.9	2	10.8	-	6.3	23
				9.9	2.1	10.9	-	6.3	23
				10.9	2.4	8.6	-	6.3	23
				11.9	2.5	7.6	-	6.2	23
				12.9	2.8	5.7	-	6.3	23
				13.9	3	3	-	6.3	23
	17-Mar-05	1.2	-	1.3	1.6	12.5	-	6	29
				2	1.7	12.7	-	6	26
				3	2	12.2	-	6	25
				4	1.9	12	-	5.9	24
				5	1.9	11.6	-	5.9	24
				6	1.9	11.3	-	5.9	25
				7	2	11.1	-	5.8	25
				8.1	2.1	10.8	-	5.9	26
				9	2.1	10.6	-	5.8	26
				10	2.2	10.3	-	5.8	26
				11	2.2	10.1	-	5.8	27
				12	2.3	9.6	-	5.8	26
				13	2.4	8.9	-	5.8	26
				14	2.5	7.6	-	5.8	27
				14.9	2.7	5.1	-	5.6	30
	22-Apr-05	1.3	-	1.5	0.5	13.6	-	6	29
				2	1	13.4	-	6.1	26
				3	1.3	13.1	-	6.1	25
				4	1.6	12.6	-	6.1	24
				5.1	1.7	12.1	-	6.1	25
				6.1	1.8	11.7	-	6.1	26
				7.2	1.9	11.5	-	6.1	26
				8	2	11.3	-	6.1	26
				9	2.1	11	-	6	27
				10	2.2	10.5	-	6	26
				11.1	2.3	9.9	-	6	25
				12	2.3	8.8	-	6	26
				13.2	2.5	8	-	5.9	26
				14	2.6	6.7	-	5.9	27
	19-May-05	1.4	-	1.7	1.7	12.5	-	6.2	26
				2.1	1.9	12.6	-	6.2	24
				3.1	2.1	12.5	-	6.2	25
				4.1	2.1	12.1	-	6.2	25
				4.9	2.2	11.8	-	6.2	26
				6.1	2.2	11.6	-	6.2	26
				7	2.3	11.4	-	6.1	28
				7.7	2.3	11.5	-	6.1	28
				9.1	2.4	11.7	-	6.1	29
				10.3	2.4	11	-	6.1	29
				11.1	2.5	10.5	-	6	29
				12	2.6	9.5	-	6.1	28
				13	2.7	8.5	-	6	29
				14	2.8	8.5	-	5.9	29
	23-Jul-05	no ice	-	1.1	12	8.6	-	6.5	35
				2	12	8.8	-	6.5	35
				3.1	12	8.9	-	6.5	35
				4	12	9	-	6.5	35
				5.1	12	9.1	-	6.5	35
				6	12	9.1	-	6.5	35
				7.1	12	9.1	-	6.5	35
				8	12	9.2	-	6.5	35
				9	12	9.2	-	6.5	35
				10	12	9.2	-	6.5	35
				11	11.9	9.2	-	6.5	35
				12	11.9	9.3	-	6.5	35
				13	11.9	9.3	-	6.5	35

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Sep-05	no ice	-	1	9.6	10.4	-	7.3	36
				2	9.6	10.3	-	7.3	36
				3.1	9.6	10.2	-	7.2	36
				4	9.5	10.3	-	7.3	36
				5	9.6	10.2	-	7.3	36
				6	9.5	10.2	-	7.3	36
				7	9.5	10.2	-	7.3	36
				8	9.5	10.2	-	7.3	36
				9	9.5	10.1	-	7.3	36
				10	9.5	10.2	-	7.3	36
				11	9.5	10.2	-	7.3	36
				12	9.5	10.1	-	7.3	36
				13	9.5	10.2	-	7.3	36
				14	9.2	10	-	7.3	36
SNAP10	20-Jan-05	1	-	1	0.4	15.7	-	6.4	41
				2	1.2	13.7	-	6.4	35
				3	1.5	13.1	-	6.4	34
				4	1.8	12.8	-	6.4	34
				5	2.4	12	-	6.5	39
	16-Feb-05	1.4	-	<0.3	0.9	15.8	-	7.4	37
				1.5	1.1	14.9	-	7.5	32
				2.5	1.8	13.9	-	7.6	29
				3.5	2.1	13.4	-	7.6	26
				4.5	2.5	12.8	-	7.6	31
	17-Mar-05	1.3	-	1.4	0.8	14.7	-	5.5	35
				2.1	1	14.6	-	5.6	33
				3	1.3	14.4	-	5.5	30
				4	1.6	14	-	5.5	35
				5	2	13.8	-	5.5	40
	22-Apr-05	1.5	-	1.5	1.2	13.5	-	5.6	33
				2	1.2	14	-	5.7	32
				3	1.5	14	-	5.8	30
				4	1.7	13.8	-	5.8	33
	17-May-05	1.5	-	1.5	0.7	16.5	-	6.4	31
				2	1.2	16.3	-	6.4	29
				3.2	1.7	16.2	-	6.3	32
				4	2	16.8	-	6.4	32
				5	2.6	16.9	-	6.3	33
	22-Jul-05	no ice	-	1.1	12.2	9.7	-	6.4	31
				2	12.2	9.7	-	6.4	31
				3	12.2	9.7	-	6.4	31
	13-Sep-05	no ice	-	1	8.4	10.6	-	7.3	35
				2	8.4	10.4	-	7.3	35
				3.1	8.4	10.5	-	7.3	35
				4	8.4	10.5	-	7.3	35
				5	8.4	10.5	-	7.3	35
SNAP11	20-Jan-05	1.1	-	1	0.5	13.4	-	6.5	36
				2	1.1	12.4	-	6.4	31
				3	1.3	12	-	6.4	29
				4	1.5	11.8	-	6.4	29
				5	1.6	11.6	-	6.3	29
				6	1.7	11.6	-	6.3	29
				7	1.8	11.4	-	6.3	30
				8	1.9	11.2	-	6.2	30
				9	2	11	-	6.2	30
				10	2.1	10.6	-	6.2	31
				11	2.2	10.2	-	6.2	31
				12	2.3	9.4	-	6.2	30
				13	2.7	8.9	-	6.2	30
				14.6	2.9	7	-	6.1	30
				15	3.3	5.7	-	6.1	31
				16	4.1	4.9	-	6.2	32

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Feb-05	1.4	-	<0.3	0.3	14.4	-	6.5	29
				1.2	0.7	13.8	-	6.7	27
				2.2	1.2	12.7	-	6.5	23
				3.2	1.4	12.4	-	6.5	23
				4.2	1.6	12	-	6.5	23
				5.2	1.7	11.8	-	6.5	23
				6.2	1.8	11.7	-	6.5	23
				7.2	1.8	11.6	-	6.5	23
				8.2	2	11.5	-	6.5	24
				9.2	2.1	10.7	-	6.5	24
				10.2	2.3	10	-	6.5	24
				11.2	2.4	9.3	-	6.6	24
				12.2	2.6	8.3	-	6.6	24
				13.2	2.9	7.5	-	6.6	23
				14.2	3.1	6	-	6.7	23
				15.2	3.4	5.8	-	6.7	24
	17-Mar-05	1.2	-	1.3	0.7	15	-	5.9	30
				2	1	14	-	5.9	27
				3	1.3	13.4	-	5.9	25
				4	1.5	12.7	-	5.9	25
				5	1.6	12.2	-	5.9	25
				6.1	1.7	11.5	-	5.9	26
				6.9	1.8	11.3	-	5.9	26
				8	1.9	11.1	-	5.9	26
				9	1.9	10.9	-	5.9	27
				10	2	10.7	-	5.9	27
				11	2.1	10.6	-	5.9	28
				12	2.2	10.3	-	5.9	27
				13	2.3	9.7	-	5.9	27
				14	2.4	8.6	-	5.8	26
				15.1	2.6	7.4	-	5.8	27
	22-Apr-05	1.5	-	1.7	1	12.6	-	5.8	28
				2.1	1.1	12.7	-	5.8	27
				3	1.5	12.3	-	5.8	25
				4	1.7	11.9	-	5.8	24
				5	1.8	11.6	-	5.8	25
				6.1	1.9	11.4	-	5.8	27
				7	2	11.1	-	5.9	27
				8	2	10.9	-	5.9	27
				9	2.1	10.8	-	5.9	28
				10	2.2	10.6	-	5.9	28
				11	2.2	10.5	-	5.8	28
				12	2.3	10.1	-	5.9	28
				13	2.4	9.3	-	5.9	30
				13.9	2.6	8.7	-	5.8	29
				15	2.8	7.2	-	5.8	29
	18-May-05	1.6	-	1.7	1.3	13.4	-	6.1	27
				2.1	1.5	13.3	-	6.1	27
				3	1.9	13.2	-	6.2	25
				4	2.1	12.5	-	6.1	26
				5	2.1	12	-	6.1	26
				6	2.2	11.7	-	6.1	27
				7	2.3	11.3	-	6.1	28
				8	2.3	11	-	6.1	29
				9	2.4	10.9	-	6.1	30
				10.1	2.4	10.7	-	6.1	32
				11	2.4	10.7	-	6	35
				12	2.5	10.7	-	6	38
				13	2.6	10.2	-	6	36
				14.1	2.7	8.6	-	5.9	37
				15	2.8	7.3	-	5.9	42

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	22-Jul-05	no ice	-	1.1	12.2	9.8	-	6.4	33
				2	12.2	9.7	-	6.4	33
				3.1	12.2	9.7	-	6.4	33
				3.9	12.2	9.8	-	6.4	33
				5	12.2	9.8	-	6.4	33
				6	12.2	9.8	-	6.5	33
				7	12.2	9.8	-	6.5	33
				8	12.1	9.8	-	6.4	33
				9	12.1	9.9	-	6.5	33
				10	12	9.9	-	6.5	33
				11.1	11.8	9.9	-	6.5	33
				12	11.6	9.9	-	6.5	32
				13	11.6	9.9	-	6.5	32
				14.2	9.8	10.2	-	6.4	30
				15	9.6	10.2	-	6.4	30
	13-Sep-05	no ice	-	1	9.5	10.4	-	7.2	36
				2	9.5	10.4	-	7.3	36
				3	9.5	10.3	-	7.3	36
				4	9.5	10.2	-	7.3	36
				5	9.4	10.2	-	7.3	36
				6	9.3	10.4	-	7.3	36
				7	9.3	10.2	-	7.3	36
				8	9.3	10.3	-	7.3	36
				9.1	9.2	10.3	-	7.3	36
				10	9.2	10.3	-	7.3	36
				11	9.1	10.2	-	7.3	36
				12.1	9.1	10.2	-	7.3	36
				13	9	10.2	-	7.3	36
				14	9	10.2	-	7.3	36
				15	9	10.3	-	7.3	36
				16	9.1	9.3	-	7.2	36
SNAP12	15-Mar-05	1.3	-	1.4	0.2	16.6	-	6.3	34
				2	0.7	16.3	-	6.3	30
				3	1.1	15.6	-	6.3	28
				4	1.3	14.8	-	6.3	27
				5.1	1.6	14.1	-	6.3	27
				6	1.7	13.4	-	6.3	33
				7	1.8	12.1	-	6.2	61
	20-Apr-05	1.5	-	1.8	0.6	13.3	-	6.2	31
				2.1	0.9	13.8	-	6.2	30
				3	1.3	13.6	-	6.2	28
				4.1	1.6	13	-	6.2	27
				5	1.8	12.6	-	6.2	27
				6	1.8	11.6	-	6.1	42
				7.1	1.9	11.3	-	6	79
	18-May-05	1.4	-	1.4	0.7	16.2	-	6.1	32
				2	1.3	15.9	-	6.1	28
				3	1.7	15.5	-	6.2	28
				4	1.9	14.9	-	6.2	29
				5.1	2.1	13.7	-	6.1	34
				6	2.1	13.4	-	6	68
				7	2.2	13.7	-	6.1	83
	21-Jul-05	no ice	-	1.1	12.8	9.6	-	6.6	39
				2	12.9	9.6	-	6.6	39
				3.1	12.9	9.7	-	6.6	39
				4.1	12.9	9.7	-	6.6	39
				5	13	9.7	-	6.6	39
				6.1	13	9.8	-	6.6	39
				7	13	9.8	-	6.6	39
				8	13	9.7	-	6.6	40
	13-Sep-05	no ice	-	1.1	9.2	10.7	-	7.3	41
				2	9.2	10.5	-	7.3	41
				3	9.2	10.5	-	7.4	41
				4	9.2	10.5	-	7.4	41
				5	9.2	10.4	-	7.4	41
				6	9.2	10.5	-	7.4	41
				7	9.2	10.4	-	7.4	41

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP13	16-Mar-05	1.2	-	1.4	0.3	15.5	-	6.1	33
				2	0.7	15.1	-	6.1	30
				3.1	1.1	14.4	-	6.2	28
				4	1.4	13.5	-	6.2	27
				5	1.6	13	-	6.2	27
				6	1.7	12.1	-	6.1	45
				6.9	1.7	11.4	-	6	67
				8	1.6	11.5	-	5.9	125
SNAP13	16-Mar-05	1.2	-	9	1.7	11.9	-	5.9	191
				10	1.7	11.9	-	6	196
				11	1.9	11.7	-	6	194
				12.1	1.9	11.4	-	6	197
				13	1.9	11.3	-	6.1	198
				14.1	1.9	11.1	-	6.1	198
				15	2	11.1	-	6.1	198
				16	2	11	-	6.1	198
				17.1	2	10.9	-	6.1	200
				18	2	10.8	-	6.1	199
				19	2.1	10.6	-	6.1	197
				20	2.1	10.6	-	6.1	196
				21	2.1	10.4	-	6.2	194
	18-Apr-05	1.2	-	1.5	0.4	13.7	-	6.1	32
				2	0.6	13.6	-	6.2	30
				3	1.2	13.1	-	6.2	29
				4	1.5	12.8	-	6.2	27
				5	1.7	12.3	-	6.1	31
				6	1.7	11.7	-	6.1	53
				7	1.8	10.8	-	6	82
				8	1.7	10.8	-	6	145
				9	1.7	11.7	-	6	189
				10	1.9	11.7	-	6.1	194
				11	2	11.3	-	6.1	194
				12	2	11	-	6.1	194
				13.1	2.1	10.8	-	6.1	194
				14.1	2.1	10.5	-	6.1	194
				15	2.1	10.5	-	6.2	194
				16	2.2	10.4	-	6.2	193
				17	2.2	10.3	-	6.2	193
				18	2.2	10.2	-	6.2	193
				19	2.2	10.1	-	6.2	193
				20.1	2.2	10	-	6.2	193
				21.1	2.2	10	-	6.2	198
	18-May-05	1.3	-	1.5	1	14.8	-	5.9	31
				2.1	1.6	14.7	-	5.9	29
				3.1	2	13.8	-	5.9	28
				4	2.2	12.8	-	5.9	32
				5.1	2.2	12.3	-	5.9	33
				6.1	2.3	12.1	-	5.8	47
				7	2.3	11	-	5.8	67
				7.9	2.2	10.1	-	5.7	145
				8.9	2.1	12.5	-	5.8	173
				10.1	2.1	13.3	-	5.8	197
				11	2.2	12.6	-	5.9	197
				12	2.3	12.1	-	5.9	196
				13.2	2.3	11.7	-	6	196
				14.1	2.3	11.4	-	6	196
				15	2.3	11.1	-	6	196
				15.9	2.3	11	-	6	195
				17.1	2.3	11	-	6	195
				18.2	2.4	10.9	-	6	194
				19	2.4	10.8	-	6	194
				20	2.4	10.8	-	6.1	194
				20.9	2.5	5.6[(b)]	-	5.9	173

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	23-Jul-05	no ice	-	1	12.2	9.1	-	6.4	40
				2.1	12.2	9.2	-	6.4	40
				3.1	12.2	9.2	-	6.4	40
				4.1	12.2	9.3	-	6.5	40
				5	12.3	9.4	-	6.4	40
				6	12.3	9.4	-	6.5	40
				7.1	12.3	9.4	-	6.5	40
				8.1	12.3	9.4	-	6.5	40
				9.1	12.3	9.4	-	6.5	40
				10.1	12.2	9.4	-	6.5	40
				11	12.2	9.4	-	6.5	42
				12.2	12	9.5	-	6.5	49
				12.9	11.1	9.5	-	6.6	42
				14.1	10	9.8	-	6.6	43
				15	9.5	9.7	-	6.5	46
				16.1	8.7	9.7	-	6.5	59
				17	7.3	9.6	-	6.4	100
				18	5.6	9.2	-	6.3	143
				19	4.7	8.9	-	6.3	158
				20	4.3	8.6	-	6.3	166
				21.1	3.9	8.4	-	6.2	173
				22	3.8	8.4	-	6.2	176
	14-Sep-05	no ice	-	1	9	10.1	-	7.2	41
				2.1	9	10.1	-	7.2	41
				3	8.9	10	-	7.2	41
				4	8.9	10.1	-	7.2	41
				5.1	8.9	10	-	7.2	41
				6.3	8.9	10.1	-	7.2	41
				7	8.9	10.1	-	7.3	41
				8	8.9	10.1	-	7.3	41
				9	8.8	10.2	-	7.3	42
				10	8.8	10.3	-	7.3	42
				11	8.8	10	-	7.3	44
				11.9	8.7	10.1	-	7.3	46
				12.9	8.7	10.4	-	7.3	46
				14	8.6	10.1	-	7.3	47
				15	8.6	10	-	7.3	48
				16	8.6	10.1	-	7.3	48
				16.8	8.5	10.3	-	7.3	48
				17.8	8.5	10.3	-	7.3	49
				19.1	8.5	10.1	-	7.3	49
				19.9	8.4	10	-	7.3	50
				21	8.4	10.2	-	7.3	50
SNAP14	15-Mar-05	1.2	-	1.3	0.4	15.6	-	6.3	33
				2	0.7	15.5	-	6.3	29
				3.1	1.1	14.8	-	6.3	28
				4	1.4	14.1	-	6.3	29
				5.1	1.5	13.2	-	6.3	37
				6	1.7	12.3	-	6.2	39
				7.1	1.9	11	-	6.3	57
				8.1	1.7	11.1	-	6.1	104
				9	1.8	11.5	-	6.1	169
				10	2	11.2	-	6.1	172
				11	2.2	10.7	-	6.1	170
				12	2.5	10.2	-	6.1	169
				13.1	2.7	9.5	-	6.1	168
	17-Apr-05	1.4	-	1.6	0.7	13.5	-	6.2	30
				2	0.9	13.6	-	6.2	29
				3	1.3	13.4	-	6.2	27
				4	1.6	12.7	-	6.2	27
				5	1.7	12.1	-	6.2	31
				6	1.9	11.5	-	6.1	34
				7	2.1	10.8	-	6	55
				8	2.2	10.4	-	6	77
	17-May-05	1.4	-	1.6	0.1	15.7	-	6.6	30
				1.9	1	14.5	-	6.5	28
				2.9	1.5	14.3	-	6.5	27
				4.1	1.8	14.1	-	6.5	27
				4.1	1.9	13.5	-	6.4	35
				6.2	2.1	10.6	-	6.3	54
				7.2	2.3	10.6	-	6.2	91

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	23-Jul-05	no ice	-	1.1	12	9.2	-	6.6	38
				2	12	9.3	-	6.6	38
				3	12.1	9.4	-	6.6	38
				3.9	12.1	9.4	-	6.6	38
				5	12.1	9.5	-	6.6	38
				6.1	12.1	9.5	-	6.6	38
				7	12.1	9.5	-	6.6	38
				8.1	12.2	9.5	-	6.6	38
				9.1	12.2	9.5	-	6.7	38
				10	12.2	9.5	-	6.7	38
				11.1	12.2	9.5	-	6.7	38
				12	12.1	9.5	-	6.6	38
				13	12.1	9.5	-	6.6	40
	14-Sep-05	no ice	-	1	8.9	10.1	-	7.2	41
				2	8.9	10.2	-	7.2	41
				3	8.9	10.1	-	7.2	41
				4	8.9	10.2	-	7.2	41
				5.1	8.9	10.1	-	7.2	41
				6	8.9	10.1	-	7.2	41
				7	8.9	10	-	7.3	41
				8	8.9	10.1	-	7.2	41
				9	8.9	10.2	-	7.2	41
				10.1	8.9	10.1	-	7.2	41
				11	8.9	10.1	-	7.2	41
				12	8.9	10	-	7.2	41
				13	8.9	10.1	-	7.3	41
				14.1	8.9	10.1	-	7.2	41
SNAP16 (2of3)	19-Apr-05	1.3	-	1.3	0.4	14.8	-	6.4	33
				2.3	1.1	14.4	-	6.4	29
				3.3	1.4	14	-	6.4	27
				4.3	1.6	13.5	-	6.4	27
				5.3	1.8	12.9	-	6.4	28
				6.3	2	12.4	-	6.3	36
				7.3	2	11.6	-	6.1	85
				8.3	2.3	11.3	-	6.1	108
				9.3	2.3	10.2	-	6	136
				10.3	2.3	9.8	-	6	150
SNAP16 (3of3)	19-Apr-05	1.3	-	1.3	0.3	15.3	-	6.2	34
				2.3	0.9	15.1	-	6.2	29
				3.3	1.3	14.3	-	6.3	27
				4.3	1.6	13.6	-	6.3	27
				5.3	1.8	12.9	-	6.2	28
				6.3	1.9	12.2	-	6.2	36
				7.3	2	11.5	-	6	91
				8.3	2.3	10.6	-	6	116
				9.3	2.3	9.5	-	6	129
				10.3	2.3	9.4	-	6	153
SNP 02-20a	18-Jan-05	0.9	-	1	1.1	20.5	-	6.2	48
				2	1.1	19.7	-	6.2	37
				3.1	1.4	18.2	-	6.2	34
				3.5	1.4	17	-	6.2	43
	18-Feb-05	1.3	-	0.1	0.6	16.8	-	7.1	41
				1	0.8	15.7	-	7.1	40
				2	1.3	14.1	-	7.1	32
				3	1.7	13.9	-	7.1	31
	21-Mar-05	1.2	-	1.5	1.8	15.1	-	6.1	39
				2	1.5	14.5	-	6.1	33
				3	1.7	13.8	-	6.2	30
	17-Apr-05	1.3	-	1.5	0.6	14.2	-	6.2	36
				2	0.8	14.5	-	6.2	34
				3	1.3	14.3	-	6.2	30
	18-May-05	1.3	-	1.6	0.5	17.6	-	6.5	34
				2	1	17.4	-	6.5	35
				3.1	1.5	16.9	-	6.4	62
	24-Jul-05	no ice	-	1.1	11.7	9.2	-	5.4	51
				2.1	11.7	9.3	-	5.5	52
				3.1	11.5	9.5	-	5.6	54
				4	11.4	9.6	-	5.6	55
	17-Aug-05	no ice	-	1	11.8	10.3	-	7.1	42
				2	11.6	10.3	-	7.1	42
				3.1	11.4	10.5	-	7.1	44

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	14-Sep-05	no ice	-	1	8.2	10.4	-	7.2	44
				2	8.2	10.4	-	7.2	43
				3	8.2	10.4	-	7.2	43
				4	8.1	10.3	-	7.3	44
SNP 02-20b	18-Jan-05	1.1	-	1	0.1	20.8	-	6.4	41
				2	0.6	18.9	-	6.4	36
				3	0.9	17.8	-	6.4	35
				4.1	1.4	15.2	-	6.3	34
				5.1	1.6	15.4	-	6.4	42
	18-Feb-05	1.5	-	0.5	0.3	15	-	7.1	36
				1.5	0.8	14.3	-	7.2	35
				2.5	1.2	13.6	-	7.2	35
				3.5	1.5	13.2	-	7.1	142
				4.5	1.9	13	-	6.8	341
	22-Mar-05	1.4	-	1.5	0.8	13.9	-	6.4	36
				2	0.8	14	-	6.4	33
				3	1.1	13.9	-	6.3	36
				4	1.6	14	-	6.1	188
				5	1.9	13.1	-	6.2	307
	20-Apr-05	1.5	-	1.6	1	12.8	-	5.6	35
				2	0.9	13.8	-	5.7	35
				3	1.3	14.1	-	5.7	41
				4	1.6	14.3	-	5.5	191
				5	1.8	14	-	5.6	257
	18-May-05	1.3	-	1.5	0.2	15.1	-	6.5	31
				2.1	1	15.2	-	6.5	31
				3	1.4	15.6	-	6.3	96
				4.1	1.8	15.4	-	6.2	197
				5	2	15.1	-	6.2	220
	24-Jul-05	no ice	-	1	11.9	9.1	-	5.8	52
				2	11.9	9.2	-	5.9	52
				3	11.8	9.3	-	6	52
				4.1	11.8	9.3	-	6	53
				5	11.7	9.3	-	6	55
	17-Aug-05	no ice	-	1.1	12	10.5	-	7.3	43
				2.1	11.7	10.4	-	7.3	43
				3.1	11.4	10.5	-	7.3	45
				4.1	11.3	10.5	-	7.3	102
				5.3	11.2	10.3	-	7.4	158
	14-Sep-05	no ice	-	1	7.7	10.9	-	7.2	45
				2	7.7	10.6	-	7.3	45
				3	7.7	10.5	-	7.3	44
				4	7.7	10.5	-	7.3	44
			-	5	7.6	10.6	-	7.3	44
SNP 02-20c	18-Jan-05	1	-	1.2	0.3	20.8	-	6.6	47
				1.4	0.3	20.5	-	6.7	47
	17-Feb-05	1.4	-	0.5	0	16.1	-	6.6	47
	22-Mar-05	1.5	-	1.6	0.5	13.8	-	6.4	37
	20-Apr-05	1.5	-	1.7	1.2	13	-	5.4	36
				2	1	13.6	-	5.5	36
	18-May-05	1.3	-	1.5	0.6	15.4	-	6.5	34
				1.7	0.9	15.3	-	6.5	35
	24-Jul-05	no ice	-	0.5	12.2	9.7	-	6.3	66
				1	12.2	9.8	-	6.3	65
	17-Aug-05	no ice	-	0.5	11.8	10.4	-	7.3	44
				1	11.7	10.3	-	7.3	44
				1.5	11.6	10.4	-	7.3	44
				2	11.5	10.5	-	8.5	44
	14-Sep-05	no ice	-	0.5	7.7	10.7	-	7.4	63
				1	7.7	10.8	-	7.3	63
				1.5	7.7	10.5	-	7.4	57
				2	7.6	10.8	-	7.7	51
SNAP01	18-Jan-06	0.8	-	1	1.5	16.7	119	6.6	28
				2	1.7	14.5	104	6.5	22
				3	2.5	12.5	91	6.5	21
				4	3.2	9.9	74	6.3	22
	18-Feb-06	1	-	1.1	1.9	17.5	127	6.2	17
				2	2.2	14.9	108	6.1	14
				3	2.6	11.3	83	6	12
				4	3.2	8.5	63	6	13

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	17-Mar-06	1.2	-	1.1	0.9	18.6	130	6.1	16
				2	1.5	17.7	125	6.1	14
				3	2.3	15.4	111	6.1	13
				4.1	3.3	11.2	84	6.1	14
SNAP02	18-Jan-06	0.9	-	1	0.4	17.8	123	6	28
				2	1.7	15.2	110	5.9	23
				3	2.3	13.6	99	5.9	21
				4	2.9	11.9	88	5.9	21
				5	3.3	9.9	74	5.9	22
				6	3.6	8.4	63	5.9	23
				7	3.8	7.1	54	5.9	24
	18-Feb-06	1.1	-	1.3	1.1	18.1	128	6.1	17
				2	1.6	16	114	6	14
				3	2.6	13.4	98	6.1	12
				4	3	11.5	86	6	12
				5	3.5	8.5	64	5.9	13
				6	3.8	5.9	45	6	14
				7	3.9	5.7	43	5.8	15
				8	4	3.8	29	5.8	16
	17-Mar-06	1.3	-	1.4	0.5	18.9	131	6.3	17
				2	1.4	17.9	127	6.3	15
				3	2.2	16.9	123	6.2	14
				4	3.1	14.3	106	6.3	13
				5	3.5	11.4	84	6.2	14
				5.1	3.8	6.5	48	6.1	15
				7	4	4.7	35	6	16
				8.1	4.1	3.1	24	5.9	17
SNAP02A	16-Apr-06	1.3	-	1.5	1.1	16.9	119	6.4	16
				2	1.6	16.1	116	6.4	15
				3	2.5	14.3	107	6.4	14
				4	3.3	12.9	96	6.4	14
				5	3.7	9.3	73	6.3	14
				6	4	6	47	6.3	15
				7	4.2	4.1	31	6.2	16
				8	4.1	3.1	24	6.2	17
				9	4.1	2.7	21	6.2	18
				10	4.2	2.4	18	6.2	18
	14-Sep-06	no ice	-	1	8.9	10.9	100	6.6	17
				2	8.9	10.8	98	6.6	17
				3	8.9	10.8	98	6.6	17
				4	8.9	10.7	98	6.6	17
				5	8.9	10.7	98	6.6	17
				6	8.9	10.7	98	6.7	17
				7	8.9	10.7	98	6.6	17
				8	8.9	10.7	98	6.7	17
				8	8.9	10.7	98	6.7	17
				10	8.9	10.7	97	6.7	17
SNAP03	14-Jan-06	0.8	-	1	0.3	16.2	111	6.7	51
				2	0.7	15.2	106	6.6	47
				3	1	14.6	102	6.6	45
				4	1.2	14	99	6.6	44
				5	1.4	13.4	96	6.7	42
				6	1.7	13.2	95	6.6	41
				7	2	10.9	79	6.4	57
				8	2.1	10.5	76	6.3	89
				9	2.2	9.4	68	6.2	118
				10	2.3	6.8	53	6.2	147
				11	2.2	8.7	63	6	162
				12	2.2	8.7	63	6	181
SNAP03	18-Feb-06	1	-	1.1	0.1	15.6	107	6.6	28
				2	0.7	14.7	102	6.6	48
				3	0.9	14.1	99	6.5	46
				4	1.2	13.8	98	6.5	45
				5	1.5	13.3	95	6.5	44
				6	1.8	11.2	81	5.4	46
				7	2.1	10.4	75	6.1	88
				8	2.1	9.9	72	6	132
				9	2.2	8.3	61	5.9	156
				10	2.2	8.8	64	5.9	190
				11	2.3	7.9	57	5.8	205

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	17-Mar-06	1.1	-	1.2	0.7	17.4	122	7	29
				2.1	0.9	16.8	118	6.9	28
				3	1.4	15.6	111	6.8	26
				4.1	1.5	15.1	108	6.7	26
				5	1.7	14.7	106	6.7	26
				7.1	2.1	12.9	96	6.5	61
				6.1	2	11.3	82	6.6	30
				8	2.2	10.7	78	6.4	82
				9	2.3	9.9	73	6.3	102
				10	2.4	9.8	68	6.3	112
				11.1	2.4	8.2	61	6.3	126
				12	2.3	8.2	60	6.3	140
	8-Apr-06	1.2	-	1.3	0.5	16.2	113	6.5	29
				2	1	15.8	111	6.5	27
				3	1.3	14.8	105	6.5	26
				4	1.5	14.1	101	6.5	26
				5	1.7	13.5	97	6.5	27
				6	1.9	11.9	86	6.4	32
				7	2.2	9.5	69	6.3	65
				8	2.3	9.1	66	6.2	97
				9	2.3	8.4	62	6.2	115
				10	2.4	7.6	56	6.2	123
				11	2.3	7.1	52	6.2	138
				12	2.4	7.3	53	6.2	147
	13-Jul-06	no ice	-	1	14.3	11.5	118	7	73
				2	14.4	11.5	120	7	73
				3	14.4	11.5	120	7.1	73
				4	14.4	11.5	120	7.1	73
				5	14.4	11.5	120	7.1	73
				6	14.4	11.5	120	7.1	73
				7	14.4	11.5	120	7.1	73
				8	14.4	11.5	120	7.1	73
				9	14.4	11.5	120	7.1	73
				10	14.4	11.5	120	7.1	73
				11	14.4	11.5	120	7.1	73
				12	14.4	11.5	120	7.1	73
	13-Sep-06	no ice	-	1.1	10.3	12.1	110	7.1	71
				2	10.4	11.9	113	7.1	71
				3	10.4	11.9	113	7.1	71
				4.1	10.4	11.9	113	7.1	71
				5.1	10.4	11.9	113	7.1	71
				6.1	10.4	11.9	113	7.2	71
				7	10.4	11.9	112	7.1	71
				8.1	10.5	11.9	112	7.1	71
				9.1	10.5	12	114	7.2	72
				10.2	10.5	11.9	112	7.2	71
				11	10.5	11.8	112	7.2	72
				12.1	10.5	11.8	112	7.2	72
SNAP04	17-Jan-06	0.8	-	1	0.4	17.1	118	6.7	55
				2	1.1	15.3	108	6.7	50
				3	2.1	12.5	91	6.6	45
				4	3.2	9.2	69	6.5	42
	19-Feb-06	1	-	1	0.4	18.1	125	6.2	33
				2	1.1	17.3	122	6.2	29
				3	2.1	14.9	107	6.2	27
				4	3	9.7	72	6.2	26
				4.4	3.4	7.4	56	6.1	26
	17-Mar-06	1	-	1.2	0.7	18.4	128	6.4	34
				2.1	1	17.6	123	6.4	31
				3.1	2.1	15.3	109	6.4	28
				4	3	11.2	85	6.4	27
	13-Apr-06	1.1	-	1.3	0.4	16.5	114	6.3	32
				2	1.1	15.6	110	6.3	31
				3	1.8	14.1	102	6.3	30
	19-Jul-06	no ice	-	1	16	9.6	103	6.6	53
				2	15.9	9.6	103	6.7	53
				3	15.9	9.6	103	6.7	53
				4	15.9	6.6	71	6.7	53

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	14-Sep-06	no ice	-	1	8.5	11.3	102	6.5	48
				2	8.6	11	100	6.5	48
				1.5	8.7	11	100	6.6	48
				2.5	8.7	10.9	99	6.6	48
				3	8.7	10.9	99	6.7	48
				3.5	8.7	10.9	99	6.7	48
				4	8.8	10.9	99	6.7	48
SNAP05	14-Jan-06	0.8	-	1	0	16.3	112	6.5	51
				2	0.6	15.7	109	6.6	47
				3	0.9	14.9	105	6.5	45
				4	1.1	14	99	6.5	45
				5	1.3	13.7	97	6.5	45
				6	1.5	12.9	92	6.5	48
				7	1.6	12.3	88	6.3	100
				8	1.6	12.1	87	6.2	133
				9	1.6	11.8	84	6.2	202
				10	1.8	11.3	81	6.2	207
				11	2.1	9.8	66	6.1	204
				12	2.2	9.7	70	6.1	203
				13	2.4	9.7	71	6	189
	18-Feb-06	1	-	1.1	0.2	16.1	111	6.6	54
				2	0.7	15	107	6.6	49
				3	1	14.7	104	6.5	48
				4	1.3	14	100	6.5	47
				5	1.4	13	93	6.5	46
				6	1.6	11.6	83	6.4	54
				7	1.6	11.8	84	6.1	130
				8	1.7	11	79	6.1	162
				9	1.7	10.6	76	6	234
				10	1.9	10.1	73	6	242
				11	2.1	9.5	69	6	239
				12	2.4	8.9	65	6	235
				13	2.6	8.2	60	6	233
	16-Mar-06	1.2	-	1	0.1	18	123	6.6	31
				2	0.7	16.9	117	6.6	28
				3	1.1	15.8	112	6.6	27
				4	1.4	15	106	6.6	27
				5	1.6	14.1	100	6.5	28
				6	1.7	13.3	94	6.4	51
				7	1.7	12.5	89	6.4	84
				8	1.8	11.7	83	6.4	112
				9	1.8	11.1	79	6.3	144
				10	2	10.2	83	6.4	147
				11	2.3	9.3	68	6.4	147
				12	2.5	8.7	64	6.4	146
				13	2.8	8.2	60	6.3	145
				14	3.1	6.6	48	6.3	145
	8-Apr-06	1.2	-	1.5	0.8	16.5	115	6.4	28
				2	0.9	15.7	111	6.4	27
				3.1	1.3	15.1	107	6.4	27
				4.1	1.6	14.2	102	6.4	26
				4.9	1.7	12.8	93	6.4	28
				6.1	1.8	11.7	83	6.2	58
				7	1.8	11.6	84	6.2	89
				8.1	1.9	11	80	6.1	122
				9.1	1.9	10	72	6.2	148
				10.1	2.1	9.4	68	6.2	149
				11	2.3	8.7	64	6.2	148
				12.1	2.6	8.1	60	6.2	147
				13	2.7	7.6	56	6.2	147
				14.1	3.1	5.4	40	6.2	147
	13-Jul-06	no ice	-	6	14.2	11.5	118	7	65
				7	14.3	11.5	119	7	65
				8	14.2	11.5	118	7	64
				9	14.2	11.5	118	7	64
				10	14.2	11.5	118	7	64
				11	14.1	11.5	118	7	64
				12	14	11.5	118	7	62
				13	14	11.5	118	7	62

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Sep-06	no ice	-	1.1	10.3	11.9	107	7.1	66
				2	10.3	11.9	111	7.1	66
				3	10.4	11.9	110	7.1	66
				4	10.4	11.9	110	7.1	66
				5.1	10.4	11.8	110	7.1	67
				6	10.4	11.8	110	7.1	66
				7.1	10.4	11.8	112	7.1	66
				8	10.4	11.9	110	7.1	66
				9.1	10.4	11.8	110	7.1	66
				10.1	10.4	11.8	110	7.1	66
				11	10.4	11.8	110	7.1	66
				12	10.4	11.8	106	7.1	66
				13	10.3	11.8	106	7.1	66
SNAP06	15-Jan-06	0.9	-	1	0.5	15.8	110	6.7	50
				2	0.9	14.3	100	6.6	46
				3	1.1	13.8	97	6.6	44
				4	1.2	13.3	94	6.6	45
				5	1.4	13.1	83	6.5	46
				6	1.6	12	86	6.4	49
				7	1.8	10.9	79	6.3	99
				8	2	10.1	73	6.2	116
				9	2	9.4	68	6.1	149
				10	2.3	8	59	6	165
				11	2.3	8.2	60	5.9	165
	19-Feb-06	1.2	-	1.3	0.4	17	118	6.4	28
				2	0.8	15.6	109	6.4	26
				3	1.1	14.8	104	6.4	25
				4	1.3	16.3	97	6.4	25
				5	1.5	13.9	99	6.3	27
				6	1.7	13	93	6.3	29
				7	1.8	11.4	82	6.2	63
				8	2	9.3	67	6.2	84
				9	2.1	9	66	6.2	102
				10	2.2	8.4	61	6.2	114
				11	2.3	8.2	60	6.2	117
				12	2.4	8	59	6.2	119
	16-Mar-06	1.4	-	1.5	0.3	17.2	119	6.5	29
				2.1	0.8	16.4	114	6.6	28
				3	1.1	15.8	111	6.5	27
				4.1	1.4	14.8	105	6.5	26
				5.1	1.6	14.2	102	6.5	30
				6.1	1.7	13.4	96	6.4	33
				7	1.8	12.5	89	6.3	88
				8.2	2	10.8	77	6.3	101
				9.1	2.2	8.8	64	6.3	120
				10.1	2.2	8.3	60	6.3	128
				11.1	2.4	7.8	57	6.3	129
				12.1	2.5	7.4	54	6.3	131
	8-Apr-06	1.4	-	1.4	0.9	16.3	115	5.9	30
				2	1.1	16	113	6	28
				3	1.4	15.1	108	6	27
				4	1.7	13.8	100	6	26
				5	1.9	12.2	89	6.1	27
				6	2	12	86	6	35
				7	1.9	10.9	79	5.9	95
				8	2.2	9.1	67	6	107
				9	2.3	7.9	58	6	124
				10	2.4	7.1	52	6.1	132
				10.9	2.5	6.6	48	6.1	133
				11.9	2.7	6	44	6.2	134

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Jul-06	no ice	-	1	14.2	11.5	119	7	64
				2	14.3	11.5	119	7	64
				3	14.3	11.5	119	7	64
				4	14.3	11.5	119	7	64
				5	14.3	11.5	119	7	63
				6	14.3	11.5	119	7.1	63
				7	14.3	11.5	119	7	63
				8	14.3	11.5	119	7.1	63
				9	14.3	11.5	119	7	63
				10	14.2	11.5	119	7	62
				11	14.2	11.5	119	7.1	62
				12	14.2	11.5	119	7	62
				13	14.2	11.5	119	7.1	61
	13-Sep-06	no ice	-	1.1	10.3	11.8	107	6.5	62
				2	10.4	11.7	111	6.5	62
				3.1	10.5	11.7	110	6.5	62
				4.1	10.5	11.6	110	6.6	62
				5	10.5	11.6	110	6.6	62
				6	10.5	11.6	110	6.6	62
				7	10.5	11.8	112	6.6	62
				8.1	10.5	11.6	110	6.7	63
				9.1	10.5	11.6	110	6.7	63
				10	10.5	11.6	110	6.7	63
				11.1	10.4	11.6	110	6.7	64
				12	10.3	11.6	106	6.7	64
				13.1	10.3	11.6	106	6.7	64
SNAP07	16-Jan-06	0.9	-	1	0.6	16.8	117	6.9	55
				2	1	15.8	111	6.9	50
				3	1.1	15.3	108	6.9	51
				4	1.3	14.8	105	6.8	50
				5	1.5	13.9	99	6.7	50
				6	2	12.6	91	6.7	47
				7	2.4	11.6	84	6.7	45
	19-Feb-06	1.1	-	1.2	0.3	17.5	121	6.5	30
				2	0.7	16	112	6.5	28
				3	1	14.9	105	6.4	28
				4	1.3	14.8	105	6.4	29
				5	1.4	13.8	98	6.3	29
				6	1.9	11.4	82	6.3	28
				7	2.4	10.4	76	6.2	27
				8	2.7	9.3	69	6.2	26
	17-Mar-06	1.3	-	1.3	0.5	18.3	127	6.9	31
				2.1	0.9	17.7	124	6.8	30
				3	1.1	17	120	6.7	29
				4	1.3	16.3	116	6.7	29
				5	1.6	14.8	106	6.6	30
				6.1	2.1	12.2	89	6.6	29
				7	2.5	11	80	6.5	28
				8	2.8	9.6	71	6.4	28
	10-Apr-06	1.3	-	1.3	0.6	16	112	6.4	32
				2.1	1	16	112	6.4	30
				3	1.3	16	113	6.3	29
				4	1.6	15.5	111	6.3	31
				5	1.8	14.9	108	6.3	30
				5.9	2.2	12.8	93	6.2	30
				7	2.6	11.6	86	6.2	29
				8	2.9	9.6	70	6.2	29
				9.1	3	6[(b)]	45	6	29
	14-Jul-06	no ice	-	1	14	11.6	119	6.6	54
				2	14	11.6	119	6.7	54
				3	14	11.6	119	6.7	54
				4	14	11.6	119	6.8	54
				5	14	11.6	119	6.8	54
				6	14	11.6	119	6.8	54
				7	13.94	11.6	119	6.8	54
				8	13.9	11.6	119	6.8	54
				9	13.9	11.6	119	6.8	54

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	15-Sep-06	no ice	-	1	9	11.6	106	6.3	57
				2	9	11.4	104	6.4	57
				3	8.9	11.3	103	6.5	57
				4	8.9	11.3	103	6.5	56
				5	8.8	11.3	102	6.5	56
				6	8.7	11.2	112	6.6	55
				7	8.7	11.2	112	6.6	55
				8	8.6	11.3	102	6.6	55
				9	8.5	11.3	102	6.8	55
SNAP08	16-Jan-06	0.8	-	1	1.6	15.7	112	7.6	54
				2	2.5	13.9	102	7.4	46
				3	3.5	12.4	93	7.4	43
				4	4.2	8.4	64	7.1	43
				5	4.1	8	61	7	43
				6	4.3	5.7	44	6.8	44
				7	4.3	3.9	30	6.6	44
				8	4.2	4.4	34	6.6	46
	19-Feb-06	1.1	-	1.2	0.2	17.1	118	6.4	31
				2	1.4	14.5	104	6.4	27
				3	3	10.7	79	6.4	25
				4	3.8	6.9	52	6.3	25
				5	4	6.6	50	6.1	26
				6	4	6.2	47	6.1	27
				7	4.1	4.8	46	6	27
				8	4.3	2.2	17	6	29
	17-Mar-06	1.1	-	1.1	0.3	17.5	121	6.5	33
				2.1	1	16.9	119	6.5	29
				3.1	2.8	13.8	103	6.4	26
				4	3.9	10.6	83	6.4	26
				5.1	4.1	7	54	6.3	27
				6	4.1	5.5	43	6.2	27
				7.1	4.2	4	32	6.1	28
				8.1	4.4	1.9	16	6.1	31
				9.1	4.6	0.6	5	6.1	69
	10-Apr-06	1.2	-	1.3	0.9	16.1	113	6.3	32
				2	2.1	13.7	100	6.2	30
				3.1	3.3	12	92	6.2	28
				4	4	8.2	65	6.1	27
				5	4.1	6.1	48	6.1	27
				6	4.2	4.7	38	6	28
				7.1	4.2	3.8	30	6	29
				8	4.5	1.6	13	6	39
	14-Jul-06	no ice	-	1	14.1	11.5	118	6.4	52
				2	14.1	11.5	118	6.5	52
				3	14	11.5	118	6.5	52
				4	14	11.5	118	6.5	52
				5	14	11.5	118	6.5	52
				6	14	11.5	118	6.6	52
				7	14	11.5	118	6.6	52
				8	14	11.5	118	6.6	52
				1	14.2	11.6	120	6.8	52
				2	14.1	11.6	119	6.8	52
				3	14.1	11.6	119	6.9	52
				4	14.1	11.7	120	6.9	52
	15-Sep-06	no ice	-	1	8.6	11.3	102	6.3	52
				2	8.4	11.3	102	6.3	52
				3	8.4	11.3	102	6.3	52
				4	8.3	11.3	102	6.3	51
				5	8.3	11.3	102	6.4	51
				6	8.2	11.3	102	6.4	51
				7	8.2	11.3	102	6.4	51

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP09	16-Jan-06	0.8	-	1	0.4	14.4	100	6.8	48
				2	0.8	13.9	97	6.8	44
				3	1	13.4	94	6.7	43
				4	1.1	13.1	92	6.7	43
				5	1.3	12.8	91	6.6	43
				6	1.4	12.7	90	6.6	44
				7	1.5	12.4	88	6.5	44
				8	1.6	12.1	86	6.5	44
				9	1.7	11.9	85	6.4	45
				10	1.8	11.7	84	6.3	45
				11	1.9	11.3	81	6.3	45
				12	1.9	10.4	75	6.2	44
				13	2	9.8	71	6.1	44
				14	2.2	8.9	64	6	44
	19-Feb-06	1	-	1.2	0.6	15.3	107	6.3	27
				2	0.9	13.8	97	6.2	24
				3	1.2	13	92	6.3	23
				4	1.4	12.6	89	6.3	23
				5	1.5	12.3	88	6.3	24
				6	1.6	12	86	6.3	24
				7	1.7	11.7	84	6.3	25
				8	1.8	11.5	83	6.2	25
				9	1.9	10.8	78	6.2	25
				10	2	10.4	75	6.2	25
				11	2.1	9.6	70	6.2	25
				12	2.2	8.7	63	6.1	25
				13	2.3	7.9	58	6.1	25
				14	2.4	6.9	51	6	26
	17-Mar-06	1.2	-	1.2	0.2	16.8	116	6.5	28
				2	0.8	15.7	110	6.5	25
				3	1.2	14.7	104	6.5	24
				4.1	1.4	13.4	96	6.5	24
				5.1	1.6	12.9	92	6.5	25
				6.1	1.7	12.4	89	6.4	25
				7.1	1.8	12	87	6.4	26
				8.1	1.9	11.6	4	6.4	26
				9.1	2	10.9	79	6.4	28
				10	2.1	10.4	76	6.4	28
				11	2.2	9.3	68	6.3	29
				12.1	2.3	8.4	61	6.2	30
				13	2.4	7.5	55	6.5	31
				14.1	2.4	6.6	49	6.1	35
	11-Apr-06	1.2	-	1.3	0.7	15.2	106	6.6	28
				2	1	14.9	105	6.6	26
				3	1.4	13.7	98	6.6	25
				4	1.7	12.8	92	6.6	25
				5.1	1.8	12	87	6.6	26
				6	1.9	11.5	83	6.5	26
				7	2	11	80	6.5	27
				8	2.1	10.4	77	6.5	28
				9	2.2	8.7	63	6.4	30
				10	2.3	8.3	60	6.3	32
				11	2.3	7.8	57	6.3	35
				11.9	2.4	7.3	54	6.3	36
				13	2.4	6.9	50	6.2	41
				14	2.4	6.9	50	6.2	49
				15	2.5	4.8	33	6.2	52
	14-Jul-06	no ice	-	1	14.4	11.6	121	6.9	56
				2	14.4	11.6	121	6.9	56
				3	14.3	11.6	119	6.9	56
				4	14.3	11.6	120	6.9	56
				5	14.3	11.6	120	6.9	56
				6	14.3	11.6	120	6.9	56
				7	14.3	11.6	120	7	56
				8	14.2	11.6	120	7	56
				9	14.2	11.6	120	6.9	55
				10	14.1	11.6	119	6.9	55
				11	14.1	11.6	119	6.9	55
				12	14.1	11.6	119	7	55
				13	14	11.6	119	6.7	55

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	15-Sep-06	no ice	-	1	9.8	11.4	107	6.8	58
				2	9.8	11.2	105	6.9	58
				3	9.8	11.2	104	6.9	58
				4	9.7	11.2	104	6.9	58
				5	9.7	11.2	104	6.9	58
				6	9.7	11.2	104	6.9	58
				7	9.7	11.1	104	6.9	58
				8	9.7	11.1	104	6.9	58
				9	9.7	11.1	103	6.9	58
				10	9.7	11.1	103	7	58
				11	9.7	11.1	103	7	58
				12	9.6	11.1	103	7	58
				13	9.6	11.1	103	7	57
				14	9.5	11.1	103	7	57
SNAP10	17-Jan-06	0.8	-	1	0.9	16.4	115	7.9	54
				2	1	15.7	110	7.8	51
				3	1.2	14.8	105	7.7	53
				4	1.3	14.6	104	7.6	54
	19-Feb-06	1	-	1.1	0.5	17.3	120	6.3	30
				2	0.9	16	112	6.3	27
				3	1.1	14.9	106	6.3	27
				4	1.3	14.5	103	6.3	27
	17-Mar-06	1.1	-	1	0.1	18.2	125	6.6	31
				2	0.6	17	118	6.6	29
				3	1.1	16	112	6.5	29
				4	1.4	15.4	110	6.5	29
				5	1.9	15.1	101	6.4	35
	11-Apr-06	1.2	-	1.3	0.5	16.3	113	6.5	31
				2.1	0.7	16	112	6.1	30
				3	1.1	15.3	108	6.5	29
				4	1.5	14.9	106	6.5	29
				5	2	13.9	102	6.4	35
	15-Sep-06	no ice	-	1	8.6	11.7	106	6.6	53
				2	8.6	11.5	104	6.7	53
				3	8.6	11.4	104	6.7	53
				4	8.5	11.4	103	6.7	53
SNAP11	17-Jan-06	0.8	-	1	0.5	14.8	103	7.3	48
				2	0.9	13.8	96	7.2	44
				3	1	13.4	94	7.2	44
				4	1.2	13.1	93	7.2	44
				5	1.3	12.9	92	7.2	44
				6	1.4	12.8	91	7.1	46
				7	1.5	12.6	90	7.1	46
				8	1.6	12.4	89	7.1	46
				9	1.6	12.1	86	7	46
				10	1.7	11.7	84	7	46
				11	1.8	11.1	80	6.8	48
				12	1.9	10.6	77	6.7	50
				13	2	10.2	73	6.5	54
				14	2.1	9.6	69	6.5	53
				15	2.3	8.2	60	6.4	53
	19-Feb-06	1	-	1.2	0.5	15.9	110	6.3	27
				2	0.9	14.2	100	6.3	25
				3	1.2	13.3	94	6.3	24
				4	1.4	12.8	91	6.3	24
				5	1.5	12.7	91	6.3	25
				6	1.6	12.4	89	6.3	25
				7	1.7	11.9	85	6.3	25
				8	1.8	11.6	83	6.3	26
				9	1.9	10.9	79	6.2	27
				10	1.9	10.7	77	6.2	28
				11	2	10.5	75	6.2	29
				12	2.1	9.5	69	6.2	31
				13	2.1	9.2	67	6.1	35
				14	2.2	8.3	60	6.1	36
				15	2.4	7.4	54	6	39

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	17-Mar-06	1.2	-	1	0.1	16.8	115	6.4	29
				2	0.8	16	111	6.4	26
				3	1.2	14.5	102	6.4	25
				4	1.4	13.7	97	6.4	25
				5	1.6	12.9	92	6.4	26
				6	1.7	12.2	88	6.4	26
				7	1.8	11.9	85	6.4	27
				8	1.9	11.5	83	6.4	27
				9	2	11	79	6.3	30
				10	2	10.3	75	6.3	31
				11	2.1	10	72	6.2	35
				12	2.2	9.5	69	6.2	38
				13	2.2	8.9	95	6.2	41
				14	2.3	8.2	59	6.2	43
				15	2.5	7.4	54	6.1	46
				16	2.8	6	43	6.1	47
SNAP11A	12-Apr-06	1.3	-	1.5	0.4	15	104	6.4	28
				2	0.8	14.5	101	6.4	27
				3.1	1.3	13.4	96	6.4	25
				4.1	1.6	12	86	6.4	26
				5	1.8	11.4	82	6.4	26
				6	1.9	10.8	78	6.3	28
				7	2	10.3	75	6.3	29
				8	2	10	72	6.2	25
				9	2	9.7	70	6.2	41
				10	2	9.5	69	6.2	44
				11	2.1	9.4	68	6.2	46
				12	2.1	9.2	67	6.2	48
				13	2.3	8.4	61	6.2	49
	14-Jul-06	no ice	-	1	14.4	11.5	120	6.9	56
				2	14.4	11.5	121	6.9	56
				3	14.3	11.6	121	6.9	56
				4	14.2	11.6	121	6.9	56
				5	14.2	11.6	119	6.9	56
				6	14.2	11.6	119	6.9	56
				7	14.2	11.6	119	6.9	57
				8	14.2	11.6	119	6.9	57
				9	14.2	11.6	119	6.9	57
				10.1	14.2	11.5	119	6.9	57
				11	14.2	11.5	119	6.9	58
				12	14.2	11.5	119	6.9	58
				13	14.2	11.6	119	6.9	58
SNAP12	15-Jan-06	0.7	-	1	1.1	15.7	110	7.6	53
				2	1.4	14.6	104	7.5	48
				3	1.3	14	99	7.5	47
				4	1.5	13.2	94	7.5	45
				5	1.6	12.8	91	7.5	45
				6	1.7	12	86	7.4	56
				7	1.8	11.1	80	7.2	80
	18-Feb-06	0.9	-	1	0.3	16.6	115	6.7	55
				2	0.7	15.7	110	6.7	50
				3	1.1	14.3	101	6.6	48
				4	1.3	13.4	95	6.5	47
				5	1.5	12.3	88	6.5	47
				6	1.7	11.1	80	6.3	62
	16-Mar-06	1.1	-	1	0.1	17.6	121	6.7	30
				2	0.6	16.8	116	6.7	27
				3	1.1	15.8	110	6.7	28
				4	1.4	14.9	105	6.7	27
				5	1.6	13	93	6.7	27
				6	1.7	12.1	86	6.5	52
				7	1.9	11.3	81	6.5	68
	9-Apr-06	1	-	1.2	0.2	17	117	6.7	29
				2	0.7	16.1	113	6.7	27
				3	1.2	15.2	108	6.7	27
				4	1.4	14	100	6.7	27
				4.9	1.7	12.9	92	6.6	28
				5.9	1.8	12	88	6.5	52
				7	2	11.7	80	6.4	75

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Jul-06	no ice	-	1	14.3	11.5	120	6.8	70
				2	14.3	11.5	120	6.8	70
				3	14.4	11.5	120	6.8	70
				4	14.4	11.5	120	6.9	70
				5	14.4	11.5	120	6.9	70
				6	14.4	11.5	120	6.9	70
				7	14.4	11.5	120	6.9	70
	13-Sep-06	no ice	-	1.1	10.2	12.3	116	6.8	72
				2.1	10.4	11.9	112	6.8	73
				3.1	10.4	11.8	112	6.8	73
				4	10.5	11.8	112	6.9	72
				5	10.5	11.8	112	6.9	73
				6	10.5	11.8	112	6.9	72
				7	10.5	11.8	112	6.9	73
SNAP13	15-Jan-06	0.8	-	1	0.5	16.2	112	6.9	52
				2	0.8	14.9	104	6.9	48
				3	1.1	14	99	6.9	45
				4	1.2	13.4	95	6.9	44
				5	1.4	12.7	90	6.9	44
				6	1.6	11.4	81	6.6	52
				7	1.5	11.6	83	6.3	115
				8	1.5	12.1	86	6.2	161
				9	1.6	11.7	84	6.2	238
				10	1.6	11.5	82	6.2	256
				11	1.6	11.4	82	6.2	261
				12	1.7	11.2	80	6.2	261
				13	1.7	11.2	80	6.2	265
				14	1.7	11.2	80	6.2	265
				15	1.7	11.1	80	6.2	267
				16	1.7	11.1	80	6.2	267
				17	1.7	11	79	6.2	267
				18	1.8	10.9	79	6.2	267
				19	1.8	10.8	78	6.2	265
				20	1.8	10.8	77	6.2	264
	17-Feb-06	-	-	1.2	0.3	17.6	121	6.8	51
				2	0.6	17	118	6.8	50
				3	1	15.4	108	6.7	48
				4	1.3	14.5	103	6.7	46
				5	1.4	13.8	98	6.6	47
				6	1.6	12.8	91	6.6	70
				7.1	1.7	11.9	85	6.4	119
				8	1.6	11.9	85	6.3	189
				9	1.6	12.2	87	6.2	264
				10	1.7	12	86	6.2	272
				11	1.8	11.6	83	6.2	271
				12	1.8	11.4	82	6.2	271
				13	1.9	11.2	81	6.2	272
				14	1.9	11.2	81	6.1	272
				15	1.9	11	80	6.1	272
				16	1.9	10.9	79	6.1	271
				17	1.9	10.8	78	6.1	272
				18	2	10.7	77	6.1	272
				19	2	10.6	77	6.1	270
				20	2	10.5	76	6.1	270
				21	2	10.2	74	6.1	269

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Mar-06	-	-	1.2	-0.1	17.1	117	6.7	2
				2	0.8	15.4	108	6.6	28
				3	1.1	15.3	107	6.6	28
				4	1.3	14.5	103	6.6	28
				5.1	1.5	13.8	98	6.6	28
				6.1	1.6	12.6	90	6.5	53
				7	1.6	12	86	6.4	89
				7.1	1.6	11.9	85	6.4	128
				9.1	1.6	11.9	85	6.3	158
				10	1.7	11.5	83	6.4	161
				11	1.8	11	79	6.4	159
				12	1.9	10.7	77	6.4	160
				13.1	2	10.4	75	6.4	160
				14.2	2	10.2	74	6.4	160
				15.1	2	10.1	73	6.4	160
				16	2.1	9.8	71	6.4	160
				17.3	2.1	9.7	70	6.4	160
				18	2.1	9.6	70	6.4	161
				19.1	2.1	9.5	69	6.4	160
				20	2.1	9.4	68	6.4	160
				21.1	2.2	9.1	66	6.4	159
	9-Apr-06	1.2	-	1.3	0.6	17.1	119	6.3	30
				2.1	0.9	16.3	115	6.4	28
				3.1	1.3	15.3	108	6.4	27
				4	1.6	13.8	99	6.4	26
				5	1.7	12.1	87	6.4	28
				6	1.7	11.8	84	6.2	54
	9-Apr-06	1.2	-	7.1	1.8	11	79	6.2	87
				8.1	1.7	11.5	82	6.2	133
				9.1	1.8	11.1	80	6.2	157
				10	1.9	10.5	76	6.3	158
				11.1	1.9	10.3	74	6.3	162
				12	2	9.8	71	6.3	160
				13	2.1	9.7	70	6.3	161
				14	2.1	9.6	70	6.3	161
				15.1	2.1	9.5	69	6.3	162
				16.1	2.1	9.5	69	6.3	163
				17	2.1	9.4	69	6.3	164
				18	2.1	9.5	69	6.4	165
				19	2.1	9.4	69	6.4	165
				20	2.1	9.4	68	6.4	165
SNAP14	15-Jan-06	0.9	-	1	0.4	15.2	105	6.7	50
				2	0.8	14.5	102	6.7	46
				3	1	14	98	6.7	45
				4	1.3	12.9	92	6.8	44
				5	1.4	12.6	89	6.6	46
				6	1.5	12	89	6.5	54
				7	1.6	11.7	84	6.3	98
				8	1.5	11.8	84	6.2	177
				9	1.6	11.7	83	6.1	231
				10	1.8	11	79	6.1	232
				11	2.1	10.5	76	6.1	226
				12	2.3	10	72	6.1	244
	18-Feb-06	1	-	1.1	0.3	15.7	108	6.5	52
				2	0.8	14.7	103	6.5	49
				3	1.1	14.2	99	6.5	46
				4	1.3	13.7	97	6.5	45
				5	1.5	13	93	6.4	46
				6	1.5	11.7	83	6.2	59
				7	1.5	11.8	84	6	129
				8	1.6	11.8	84	5.9	164
				9	1.6	11.2	81	5.8	266
				10	1.7	10.7	77	5.9	266
				11	1.9	10.2	74	5.9	262
				12	2.3	9.9	73	5.9	258

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Mar-06	1.2	-	1.1	0.1	16.8	115	6.6	29
				2	0.6	16.4	114	6.5	28
				3	1	15.8	110	6.5	27
				4	1.3	15.1	107	6.5	26
				5.1	1.5	13.7	97	6.5	28
				6	1.6	12.8	91	6.4	46
				7.1	1.6	12.3	88	6.3	83
				8.1	1.6	12.2	87	6.3	121
				9.1	1.7	11.9	85	6.3	156
				10.1	1.8	11.2	80	6.3	157
				11	2	10.4	75	6.4	156
				12	2.3	10	73	6.4	155
				13	2.6	8.6	65	6.4	155
	10-Apr-06	1.2	-	1.3	0.7	15.8	111	6.3	28
				2	0.9	15.4	108	6.3	28
				3	1.3	14.8	105	6.3	27
				4	1.5	14.1	101	6.3	27
				5	1.7	12.3	89	6.2	29
				6	1.7	11.7	83	6.1	56
				7	1.7	11.2	81	6.1	90
				8	1.8	11	79	6	126
				9	1.9	10.8	78	6	157
				10	2	9.9	72	6.1	158
				11.1	2.2	9.2	67	6.1	157
				12	2.4	8.6	63	6.1	158
				13.1	2.7	8	59	6.1	158
	13-Jul-06	no ice	-	1	14.5	11.4	118	6.5	71
				2	14.5	14.4	150	6.5	71
				3	14.4	11.4	120	6.6	71
				4	14.4	11.4	120	6.6	71
				5	14.4	11.5	120	6.6	71
				6	14.4	11.5	120	6.6	71
				7	14.4	11.5	120	6.6	71
				8	14.4	11.5	120	6.7	71
				9	14.4	11.4	120	6.7	71
				10	14.4	11.5	120	6.7	71
				11	14.4	11.5	120	6.7	71
				12	14.4	11.5	120	6.8	71
				13	14.4	11.4	120	6.8	71
	13-Sep-06	no ice	-	1	10.3	12	109	6.9	71
				2	10.4	11.9	112	7	71
				3	10.4	11.9	112	7	71
				4.1	10.4	11.8	112	7	71
				5	10.4	11.8	112	7	71
				6	10.4	11.8	112	7	71
				7	10.4	11.8	112	7	71
				8	10.4	11.9	112	7	71
				9.1	10.4	11.8	112	7	73
				10	10.4	11.8	111	7	71
				11.1	10.4	11.8	111	7	71
				12.1	10.4	11.7	111	7	71
				13.1	10.4	11.8	111	7	71
SNAP15	9-Apr-06	1.3	-	1.5	0.5	16.9	117	6.5	29
				2	0.7	16.3	114	6.6	28
				3	1.3	15.3	109	6.6	27
				4	1.4	14.6	104	6.5	27
				5	1.6	12.8	92	6.5	32
				6.1	1.7	11.6	83	6.4	60
				7	1.7	11.5	82	6.3	98
				8	1.7	11.5	83	6.3	133
				9	1.8	11	80	6.3	155
				10	1.9	10.4	75	6.3	158
SNAP17	13-Apr-06	1.2	-	1.5	0.5	15.3	107	5.9	28
				2	0.9	14.9	105	6	26
				3	1.3	14	99	6	25
				4.1	1.6	13.1	94	6	26
				5	1.7	12.2	88	6	26
				6	1.9	11.6	84	6	27
				7	2	10.9	79	6	29
				8	2.1	10.5	76	6	29
				9.1	2.1	9.4	68	6	37

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP18	12-Apr-06	1.2	-	1.3	0.5	15.7	109	6.3	29
				2	0.8	15.2	106	6.3	28
				3	1.2	14.3	102	6.3	27
				4	1.6	13.2	95	6.3	26
				5	1.8	11.9	86	6.3	27
				6	1.9	10.5	76	6.2	28
				7	2	10.2	74	6.2	29
				8	2.1	9.7	70	6.2	34
				9	2.1	9	65	6.1	36
				10	2.2	8.7	63	6.1	40
				11	2.2	8.5	62	6.1	41
SNAP19	13-Apr-06	1.3	-	1.5	0.4	15.5	108	6.3	28
				2	0.9	15	105	6.3	26
				3	1.4	13.9	99	6.3	25
				4	1.6	12.6	90	6.3	25
				5	1.7	12.3	88	6.3	26
				6	1.9	11.6	84	6.3	27
				7	2	11.1	80	6.2	27
				8	2.1	10.6	77	6.2	29
				9	2.2	9.7	71	6.2	31
				10	2.3	8.9	65	6.2	33
				11	2.4	8.1	59	6.2	33
SNAP20	13-Apr-06	1.3	-	1.5	0.8	15	105	6.3	13
				2	1.1	14.3	101	6.3	12
				3	1.8	12.9	93	6.3	11
				4	2	12	87	6.3	11
				5	2	11.4	83	6.3	11
				6	2.1	11.2	81	6.3	11
				7	2.1	11.1	81	6.3	11
				8	2.1	11.1	81	6.3	11
				9	2.1	11.1	81	6.3	11
				10	2.1	11.1	81	6.3	11
				11	2.1	11.1	80	6.3	11
				12	2.1	11.1	80	6.2	11
	18-Jul-06	no ice	-	1	15.4	10	106	6.6	15
				2	15.4	9.9	105	6.7	15
				3	15.4	9.9	105	6.7	15
				4	15.3	10	105	6.6	15
				5	15.3	9.9	105	6.7	15
				6	15.3	9.9	105	6.7	15
				7	15.3	9.9	105	6.7	15
				8	14.7	10	104	6.7	14
				9	11.4	10.8	105	6.7	13
				10	8.5	11.5	112	6.6	12
				11	6.8	11.7	113	6.5	11
				12	6.3	11.5	112	6.4	11
	14-Sep-06	no ice	-	1	9.7	10.4	97	6.5	14
				2	9.8	10.4	97	6.5	14
				3.1	9.8	10.3	96	6.5	14
				4	9.8	10.3	96	6.4	14
				5	9.7	10.4	96	6.5	14
				6	9.7	10.3	96	6.5	14
				7	9.7	10.4	96	6.5	14
				8	9.7	10.4	96	6.5	14
				9	9.6	10.4	96	6.5	14
				10	9.6	10.4	96	6.5	14
				11.1	9.6	10.4	96	6.5	14
				12	9.6	10.4	96	6.5	14
				13	9.5	10.4	96	6.5	14
SNAP23	16-Apr-06	1.2	-	1.5	1.1	16	113	6.7	19
				2.1	1.4	15.9	112	6.7	19
				3	2.1	14.6	106	6.7	17
				4	2.9	13.3	99	6.7	18
				5	3.3	10.8	82	6.6	18
				6	3.7	7.2	56	6.6	18
				7	4	4.5	36	6.5	20
				8.1	4.2	3	24	6.4	24
				9	4.3	1.5	12	6.4	25
				10	4.3	0.8	6	6.4	29
				11	4.4	0.3	3	6.5	38
				12	4.6	0.2	2	6.6	56

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNP 02-20a	13-Jan-06	0.8	-	1	0.2	17.8	122	7.6	57
				2	0.6	16.2	113	7.4	51
				3	0.9	15.3	107	7.4	47
	17-Feb-06	1	-	1	0.1	18.9	130	6.6	63
				2	0.6	18.4	128	6.6	55
				3	1	17.2	120	6.6	56
				3.7	1.3	15.3	108	6.2	156
	16-Mar-06	1.1	-	1	-0.3	16	109	6.8	4
				2	0	14.4	98	6.6	3
				3	0.5	12.6	87	6.5	3
				4	1.1	11.2	78	6.3	4
	7-Apr-06	1.2	-	1.2	2.2	15.8	115	6.6	33
				2	1.3	16.3	116	6.6	32
				3	1.6	15.4	110	6.5	31
				3.4	1.7	13.7	98	6.4	96
				3.7	1.7	13.4	96	6.3	115
SNP02-20b	14-Jan-06	0.9	-	1	0.9	16.8	118	6.9	56
				2	1	16.1	113	6.8	51
				3	1.2	15.3	108	6.8	51
				4	1.6	13.7	98	6.3	320
	17-Feb-06	1.1	-	1	0.1	18.9	130	6.5	48
				2	0.6	18.7	129	6.5	44
				3	0.9	17.2	120	6.5	55
				4	1.4	15.4	106	6.1	349
				5	1.5	12.4	88	6.1	440
				5.4	1.7	11.6	82	6.1	438
	16-Mar-06	1.3	-	1.1	0.9	18.7	131	6.4	36
				2	1	18.2	128	6.4	31
				3	1.3	17.1	121	6.3	33
				4.1	1.7	14.8	104	6.1	200
				5.1	1.8	13.1	94	6.2	246
	7-Apr-06	1	-	1.3	0.4	17.1	118	6.7	32
				2	0.7	16.5	115	6.7	30
				3	1.1	16	113	6.6	33
				4.1	1.6	14.4	106	6.3	209
				5.1	1.9	11.9	87	6.4	265
SNP 02-20c	13-Jan-06	0.7	-	1	0.3	17.6	122	7.9	60
				1.7	0.5	16.6	115	7.6	63
	17-Feb-06	0.8	-	0.2	0.8	17.9	125	7	66
				0.4	0.3	18.6	128	6.6	64
				0.6	0.2	18.8	129	6.6	64
				0.8	0.2	18.8	130	6.5	64
				1	0.2	18.8	129	6.5	64
				1.2	0.3	18.7	129	6.5	64
				1.4	0.3	18.2	126	6.4	64
				1.6	0.4	17.9	124	6.4	65
				1.8	0.5	16.7	116	6.4	68
				2	0.6	16.2	112	6.3	75
	14-Mar-06	1	-	1	0.3	18.9	131	6.9	34
				1.5	0.3	18.8	130	6.8	34
	7-Apr-06	1	-	1	0.3	17.4	120	6.4	34
				1.3	0.4	17.4	120	6.4	34
				1.5	0.4	17.1	119	6.4	35
				1.8	0.5	16.3	113	6.4	35
SNP 02-20d	12-Jul-06	no ice	-	1	14.9	9.8	103	6.5	72
				2	15	9.3	98	6.6	72
				3	14.9	9.9	104	6.7	72
				4	14.9	9.6	101	6.8	72
				5	14.9	9.8	103	6.8	72
				6	15	-	-	6.8	72
				7	14.9	-	-	6.8	72
				8	14.9	-	-	6.8	72
				9	14.8	-	-	6.8	73
				10	14.8	-	-	6.8	95
				11	14.8	-	-	6.8	110

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	19-Jul-06	no ice	-	1	15.7	9.8	104	7	72
				2.1	15.5	9.8	104	7.1	70
				3.1	15.3	9.8	104	7	71
				4	15.3	9.8	103	7	72
				5.1	15.3	9.8	104	7.1	73
				6	15.3	9.8	103	7.1	72
				7	15.2	9.8	103	7.1	72
				8	15.2	9.8	103	7.1	71
				9	15.2	9.8	103	7.1	71
				10	15.2	9.8	103	7.1	74
				11	15	9.7	102	7	102
				12.1	14.8	9.3	98	7	101
	13-Aug-06	no ice	-	<0.3	16.1	9.5	103	6.4	74
				1	16.1	9.5	103	6.4	74
				2	16.1	9.5	103	6.5	74
				3	16.1	9.5	103	6.5	74
				4	16.1	9.5	102	6.5	74
				5	16.1	9.5	103	6.6	74
				6	16.1	9.5	103	6.6	74
				7	16.1	9.5	102	6.6	75
				8	16.1	9.5	102	6.6	75
				9	16	9.6	102	6.6	74
				10	15.7	9.4	101	6.6	100
				11	15.5	9.4	100	6.6	138
				12	15.4	9.2	98	6.6	139
	20-Sep-06	no ice	-	<0.3	9.1	12	110	6.3	71
				1.1	9.1	11.7	108	6.4	72
				2	9.1	11.7	107	6.4	72
				3.1	9.1	11.7	107	6.5	72
				4	9.1	11.7	107	6.5	72
				5	9.1	11.6	107	6.5	72
				6.1	9.1	11.6	107	6.5	72
				7	9.1	11.6	107	6.5	72
				8	9	11.6	106	6.5	73
				9	9	11.6	106	6.6	73
				10.1	9	11.6	106	6.6	72
				11	9.1	11.6	106	6.6	76
SNP 02-20e	11-Jul-06	no ice	-	1	15.4	9.9	104	6.6	69
				2	15.3	9.8	104	6.6	69
				3	15.3	9.8	104	6.7	68
				4	15.2	9.7	102	6.7	68
				5	15.1	9.7	103	6.8	67
				6	14.9	9.7	102	6.8	68
				7	14.8	9.8	102	6.8	69
				8	14.7	10.2	106	6.8	71
				9	14.5	9.7	102	6.9	72
				10	14.5	9.9	103	6.9	79
				11	14.5	10.1	104	6.9	108
				12	14.4	10.1	106	7	109
				13	14.3	10	103	6.9	103
				14	14.3	9.9	102	7	105
				15	14.2	10.2	105	7	112
				16	12.2	9.8	101	6.9	97
				17	6.3	10.3	88	6.7	145
				18	4.6	10.3	85	6.6	155
				19	4	10.2	82	6.6	164
				20	3.7	10.1	81	6.5	169
				21	3.5	10	80	6.5	162
				22	3.4	9.9	78	6.5	174
				23	3.4	9.8	78	6.4	175
				24	3.3	9.3	74	6.4	176
				25	3.3	9.6	76	6.4	176

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	20-Jul-06	no ice	-	1	15.6	9.8	104	6.2	70
				2	15.4	9.8	104	6.4	70
				3	15.3	9.8	104	6.5	70
				4	15.3	9.8	103	6.5	69
				5	15.3	9.8	104	6.5	69
				6	15.2	9.8	104	6.6	68
				7	15.2	9.8	104	6.6	70
				8	15.2	9.8	104	6.6	70
				9	15.2	9.8	103	6.6	78
				10	15.2	9.8	103	6.7	80
				11	15.1	9.7	102	6.6	106
				12	14.9	9.7	102	6.7	102
				13	14.9	9.7	101	6.7	110
				14	14.7	9.6	101	6.7	100
				15	14.4	9.7	100	6.8	92
				16	14.1	9.6	99	6.8	91
	20-Jul-06	no ice	-	17	10	9.5	89	6.6	122
				18	6.5	9.5	82	6.5	153
				19	4.8	9.5	78	6.4	163
				20	4.2	9.4	76	6.4	166
				21	3.8	9.3	75	6.4	169
				22	3.6	8.6	69	6.3	171
				23	3.5	8.7	69	6.3	173
				24	3.4	8.3	66	6.3	175
				25	3.4	7.9	63	6.3	175
				26	3.3	7.6	60	6.3	175
				27	3.3	7.2	57	6.3	176
	13-Aug-06	no ice	-	<0.3	16.5	9.9	107	7	76
				1	16.4	9.6	104	7	76
				2	16.3	9.6	88	7	76
				3	16.3	9.6	88	7.1	76
				4	16.3	9.6	88	7.1	76
				5	16.3	9.6	88	7.1	76
				6	16.2	9.6	103	7.1	76
				7	16	9.6	103	7.1	80
				8	15.9	9.5	102	7.1	75
				9	15.9	9.5	102	7.1	75
				10	15.9	9.5	102	7.1	76
				11	15.6	9.5	102	7.1	109
				12	15.5	9.4	101	7.1	134
				13	15.5	9.4	100	7.1	132
				14	15.3	9.4	99	7.1	122
				15	15	9.3	98	7.1	105
				16	14.7	9	95	7.1	93
				17	14.5	8.7	90	7.1	89
				18	12.5	8.4	83	6.9	87
				19	8.3	7.6	65	6.7	152
				20	6.3	7.3	62	6.6	165
				21	4.9	7.1	58	6.6	171
				22	4.1	7	57	6.5	174
				23	3.9	6.9	56	6.5	174
				24	3.8	6.8	55	6.5	174
				25	3.7	6.8	54	6.4	174

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	19-Sep-06	no ice	-	<0.3	9.5	11.4	106	6.1	72
				1	9.2	11.5	106	6.2	71
				2	9.1	11.5	105	6.3	71
				3.1	9.1	11.5	105	6.3	71
				4.1	9.1	11.5	105	6.4	71
				5	9.1	11.5	105	6.4	71
				6	9	11.5	105	6.4	70
				7	9	11.6	107	6.5	70
				7.9	9	11.5	106	6.5	70
				9.1	9	11.5	105	6.5	71
				10.1	9	11.5	105	6.5	73
				11	9	11.4	105	6.6	75
				12.1	9	11.4	115	6.5	83
				13	9	11.3	114	6.6	83
				14	9	11.3	114	6.6	82
				14.9	9	11.3	114	6.6	82
				16.1	9	11.4	114	6.6	80
				17.2	9	11.3	114	6.6	78
				17.9	8.9	11.3	114	6.7	72
				19	8.9	11.3	114	6.7	71
				20.1	8.9	11.3	114	6.7	71
				21.1	8.9	11.3	114	6.7	71
				22	8.9	11.3	114	6.7	74
				23.1	8.9	11.2	113	6.7	75
				24	8.9	11.2	113	6.7	78
				25	8.9	11.3	113	6.7	80
				26.1	8.9	11.2	113	6.7	81
				27	8.9	11.1	111	6.7	86
				28	8.9	11	111	6.7	86
SNAP02-20f	12-Jul-06	no ice	-	1	14.9	-	-	6.8	74
				2	14.9	-	-	6.9	74
				3	15	-	-	6.9	74
				4	15	-	-	6.9	74
				5	15	-	-	6.9	74
				6	15	-	-	6.9	74
				7	15	-	-	7	74
				8	15	-	-	7	75
				9	15	-	-	6.2	75
				10	14.9	-	-	7	85
				11	14.8	-	-	6.9	112
				12	14.6	-	-	6.9	118
				13	14.4	-	-	6.9	122
	19-Jul-06	no ice	-	1	15.9	9.7	104	7	72
				2	15.5	9.8	104	7	71
				3	15.5	9.8	104	7	70
				4.1	15.4	9.8	104	7	70
				5	15.4	9.8	103	7	71
				6	15.3	9.8	103	7	71
				7	15.3	9.8	103	7	72
				8	15.2	9.8	103	7	71
				9.1	15.2	9.8	103	7	73
				10.1	15.1	9.7	102	7	79
				11.1	15.1	9.7	102	7	87
				12.1	14.9	9.6	101	7	120
				13.1	14.8	9.6	101	7	112
				14	14.5	6.5	68	7	105
	13-Aug-06	no ice	-	<0.3	16.1	9.8	106	7	75
				1	16.1	9.6	103	7	75
				2	16.2	9.6	103	7	75
				3	16.2	9.6	103	7.1	75
				4	16.2	9.6	103	7.1	75
				5	16.3	9.6	103	7.1	75
				6	16.2	9.6	103	7.2	75
				7	16.1	9.6	102	7.2	73
				8	15.9	9.6	103	7.2	78
				9	15.9	9.5	102	7.2	84
				10	15.8	9.5	102	7.1	115
				11	15.6	9.4	100	7.1	147
				12	15.5	9.4	100	7.1	144
				13	15.4	9.4	99	7.1	136

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	19-Sep-06	no ice	-	<0.3	9.4	11.5	106	6.8	71
				1	9.3	11.5	106	6.8	71
				2	9.3	11.5	106	6.9	71
				3	9.2	11.5	105	6.9	72
				3.9	9.2	11.5	106	6.9	72
				5.1	9.1	11.5	106	6.9	73
				6.1	9.1	11.5	106	6.9	72
				7.1	9.1	11.5	105	6.9	72
				8.1	9.1	11.5	105	6.9	72
				9.1	9	11.5	105	6.9	72
				10	9	11.5	105	7	73
				11	9	11.4	104	7	73
				12	9.1	11.3	104	6.9	88
				13	9.1	11.3	104	6.9	93
				14	9	11.4	114	7	91
SNAP25	19-Jul-06	no ice	-	1	15.6	9.7	104	6.7	71
				2	15.6	9.7	103	6.8	71
				3	15.6	9.7	103	6.9	71
	18-Sep-06	no ice	-	0.5	8.8	14.1	128	6.6	65
				1	8.9	13.8	126	6.6	66
				1.5	8.9	13.7	126	6.6	65
				2	8.9	13.7	126	6.7	67
				2.5	8.9	13.7	125	6.7	66
SNAP26	19-Jul-06	no ice	-	1	15.8	9.7	104	6.9	70
				2	15.6	9.8	104	6.9	71
				3.1	15.6	9.8	104	7	71
				4	15.6	9.7	103	7	71
				5	15.4	9.7	103	7	74
	18-Sep-06	no ice	-	0.5	8.8	14	141	6.3	66
				1	8.8	13.8	139	6.4	66
				1.5	8.8	13.7	138	6.5	66
				2	8.8	13.6	137	6.5	66
				2.5	8.8	13.6	137	6.5	66
				3	8.8	13.6	137	6.5	66
				3.5	8.8	13.6	137	6.5	66
				4	8.7	13.6	124	6.5	66
				4.5	8.6	13.6	124	6.6	65
				5	8.4	13.7	124	6.6	65
SNAP27	19-Jul-06	no ice	-	0.3	15.6	9.7	104	7	72
				0.5	15.7	9.7	103	7	71
				0.8	15.6	9.7	103	7	72
				1	15.6	9.7	103	7	72
				1.2	15.6	9.7	103	7	72
	18-Sep-06	no ice	-	0.3	8.8	13.6	124	6.1	66
				0.5	8.8	13.5	123	6.2	66
				0.7	8.8	13.5	123	6.3	66
				1	8.8	13.5	123	6.3	66
				1.3	8.7	13.5	123	6.3	66
				1.5	8.7	13.5	123	6.3	66
				1.7	8.5	13.4	122	6.4	66
SNAP28	13-Jul-06	no ice	-	1	14.3	11.4	118	6.8	77
				2	14.4	11.4	118	6.8	73
				3	14.4	11.5	118	6.9	75
				4	14.4	11.5	118	6.9	75
				5	14.4	11.5	119	6.9	75
				6	14.4	11.5	119	6.9	75
				7	14.4	11.5	119	6.9	74
	19-Jul-06	no ice	-	1	15.5	9.8	104	7	70
				2	15.4	9.7	103	7	70
				3	15.4	9.7	103	7	70
				4	15.4	9.7	103	7	70
				5	15.3	9.7	103	7	70
				6	15.3	9.7	103	7	70

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Sep-06	no ice	-	0.5	10.2	12.4	116	7	71
				1.1	10.3	12	114	7.1	72
				1.5	0.4	12	113	7.1	72
				2.1	10.4	11.9	113	7.1	72
				2.6	10.4	11.9	113	7.1	71
				3.1	10.4	11.9	112	7.1	71
				3.5	10.4	11.9	112	7.1	71
				4.1	10.4	11.9	112	7.1	71
				4.5	10.4	11.9	112	7.1	71
				5	10.4	12	114	7.1	71
SNAP29	18-Jul-06	no ice	-	1	15.8	9.8	105	6.5	17
				2	15.8	9.9	105	6.5	17
				3	15.8	9.9	105	6.5	17
				4	15.7	9.9	105	6.6	17
				5	15.7	9.9	105	6.6	17
				6	15.7	9.9	105	6.6	17
				7	15.7	9.9	105	6.6	17
				8	15.7	9.9	105	6.6	17
				9	15.7	9.8	105	6.6	17
				10	15.6	9.8	105	6.7	17
	19-Jul-06	no ice	-	1	16.1	9.7	104	7.2	36
				2	16	9.7	104	7.2	36
				3	16	9.7	104	7.2	36
				4	15.9	6.7	72	7.1	36
				5	15.9	9.7	104	7.2	34
				6	15.8	9.7	104	7.1	37
	14-Sep-06	no ice	-	1	8.9	11	101	6.8	30
				2	8.9	10.9	99	6.8	30
				3	8.9	10.8	99	6.8	30
				4	9	10.8	99	6.8	30
				5	9	10.8	99	6.8	30
SNAP02A	1-Mar-07	1.3	-	<0.3	0.1	17.4	120	6.9	46
				1	0.2	18	124	6.8	49
				2	1.2	16.8	118	6.7	40
				3	2.4	14.7	107	6.7	35
				4	2.9	12.6	92	6.6	32
				5	3.3	10.1	75	6.5	34
				6	3.6	8.5	64	6.4	36
				7	3.7	8.6	65	6.4	39
				8	3.8	7.9	60	6.3	40
				9	3.8	7.2	54	6.3	41
				10	3.8	6.8	52	6.2	44
	18-Mar-07	1.4	-	0.3	0.7	16.4	115	6.1	45
				1	0.6	16.6	116	6.1	43
				2	1.4	15.1	109	6.1	38
				3	2.4	14.1	103	6.1	33
				4	3	13	96	6	31
				5	3.3	10.2	76	6	31
				6	3.7	8.8	61	5.7	33
				7	3.8	7.7	59	5.7	36
				8	3.9	6.7	51	5.7	37
				9	3.9	6.4	48	5.7	38
				10	3.9	6.1	47	5.7	41
	25-Apr-07	1.7	-	0.3	0.6	14.5	101	6.5	45
				1	0.6	14.5	102	6.5	45
				2	1.9	14.1	101	6.5	40
				3	2.8	13.3	98	6.5	36
				4	3.4	12.2	91	6.5	35
				5	3.9	8	61	6.4	36
				6	4.1	7.3	56	6.4	39
				7	4	7.9	60	6.4	41
				8	4	7.6	58	6.4	43
				9	4	7.4	56	6.4	43

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	24-Jul-07	no ice	-	<0.3	18.3	9.1	96	6.1	25
				1	17.9	9.1	95	5.9	25
				2	17.5	9	95	5.9	24
				3	17.5	9	94	5.9	24
				4	17.3	9	94	6	24
				5	17.3	9	94	6	24
				6	17.3	9	94	6	24
				7	17.2	9	94	6	24
				8	17.2	9	94	6	24
				9	17.1	9	93	6	24
				10	13.8	9.4	91	6.1	23
	16-Sep-07	no ice	-	0.3	4.7	13.3	103	6.7	29
				1	4.7	13.2	103	6.7	29
				2	4.8	13.2	103	6.7	29
				3	4.8	13.2	103	6.6	29
				4	4.7	13.2	103	6.6	29
				5	4.8	13.2	103	6.6	29
				6	4.8	13.2	103	6.6	29
				7	4.8	13.2	103	6.7	29
				8	4.8	13.2	103	6.6	29
				9	4.8	13.2	103	6.6	29
				10	4.8	13.1	102	6.6	29
SNAP03	24-Feb-07	1	-	0.3	0.8	15.2	106	6.7	138
				1	0.8	15.2	106	6.7	129
				2	1.7	14.3	103	6.7	119
				3	2	13.8	100	6.7	117
				4	2.2	13.2	96	6.7	118
				5	2.3	11.8	86	6.7	137
				6	2.2	11	80	6.5	244
				7	2.2	10.7	77	6.5	279
				8	2.3	10.8	79	6.5	293
				9	2.6	10.5	77	6.5	292
				10	2.8	9.8	72	6.5	291
				11	3.1	8.8	63	6.5	290
				12	3.3	6.7	48	6.5	289
	19-Mar-07	1.4	-	0.3	0.1	16.6	114	6.5	136
				1	0.3	16.4	113	6.5	132
				2	1.3	15.1	106	6.5	118
				3	1.9	13.9	100	6.5	114
				4	2.1	13.2	95	6.5	114
				5	2.2	12	88	6.5	138
				6	2.1	11.1	80	6.4	239
				7	2.1	10.8	78	6.4	266
				8	2.3	10.6	78	6.4	278
				9	2.5	10.4	76	6.4	279
				10	2.8	8.8	64	6.4	278
				11	3.1	7.8	58	6.4	276
				12	3.4	5.8	44	6.4	273
	13-Apr-07	1.3	-	0.3	0.2	13.5	93	6.3	130
				1	0.6	13.4	93	6.3	127
				2	1.7	12.8	91	6.2	117
				3	2	12.3	88	6.2	115
				4	2.2	11.4	82	6.2	130
				5	2.1	10.8	78	6.1	191
				6	2.1	10.5	76	6.1	255
				7.1	2.1	10.8	79	6.2	280
				8	2.3	10.7	78	6.2	281
				9	2.6	9.1	67	6.2	280
				10	2.9	7.7	57	6.2	278
				11	3.2	6.5	48	6.2	276
				12	3.5	4.5	32	6.1	274
				11.5	3.3	4.7	3.5	6.2	275

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	23-Jul-07	no ice	-	0.3	16.5	10	102	6.8	123
				1	16.5	10	102	6.7	123
				2	16.5	10	102	6.6	123
				3	16.5	10	102	6.6	124
				4	16.5	10	102	6.7	124
				5	16.5	10	102	6.7	123
				6	16.5	10	102	6.6	123
				7	16.4	10	102	6.6	124
				8.1	16.3	10	102	6.6	124
				9.1	11.3	12.9	118	6.6	130
				10	8.4	14.2	121	6.5	135
				11	7.8	13.8	116	6.4	136
	22-Sep-07	no ice	-	0.3	4.3	13.6	104	7.1	156
				1	4.3	13.6	104	7.1	156
				2	4.3	13.6	104	7.1	156
				3	4.2	13.6	104	7.1	157
				4	4.2	13.6	104	7.1	157
				5	4.2	13.6	104	7.1	157
				6	4.2	13.6	104	7.1	157
				7	4.2	13.6	104	7.1	157
				8	4.2	13.5	104	7.1	153
				9	4.2	13.5	104	7.1	157
				10	4.2	13.5	104	7.1	157
				11	4.2	13.5	104	7.1	157
				12	4.2	13.5	104	7.1	157
SNAP04	27-Feb-07	1.3	-	0.3	1.4	14.3	102	5.1	145
				1	0.9	14.7	103	5.2	143
				2	1.8	14.1	101	5.2	130
				3	2.6	13.3	98	5.3	124
				4	3.2	12.9	97	5.4	121
	19-Mar-07	1.3	-	0.3	0.4	15.2	105	6.4	152
				1	0.4	15.7	109	6.5	140
				2	1.4	15.3	109	6.5	128
				3	2.6	14.2	104	6.5	119
				4	3.2	12.9	96	6.5	117
	23-Apr-07	no ice	-	0.3	0.3	15.6	107	6.5	140
				1	0.3	14.1	97	6.4	139
				2	1.3	13.6	97	6.4	132
				3	2.7	12.8	93	6.5	125
				4	3.3	11.9	88	6.5	123
	22-Jul-07	no ice	-	0.3	17.3	9.4	98	6.7	109
				1	17.3	9.5	99	6.7	109
				2	17.3	9.5	99	6.6	109
				3	17.3	9.5	99	6.5	109
				4	17.3	9.5	99	6.5	109
	22-Sep-07	no ice	-	0.3	2.9	14.3	106	7	131
				1	2.9	14.3	106	7	131
				2	2.9	14.3	106	7	131
				3	2.9	14.2	105	7	131
				4	2.9	14.2	105	7	131
SNAP05	24-Feb-07	1.2	-	0.3	0.2	15.1	104	6.7	135
				1	0.2	15.5	107	6.7	134
				2	1.5	14.3	102	6.8	111
				3	2	13.8	100	6.8	118
				4	2.2	12.5	91	6.7	119
				5	2.2	11.8	86	6.7	136
				6.1	1.8	12.6	91	6.6	279
				7	1.8	12.6	91	6.6	300
				8	2	12.1	88	6.6	296
				9	2.4	11.2	82	6.6	291
				10	2.8	10.9	80	6.6	294
				11	3.1	9.8	73	6.6	293
				12	3.3	9.4	69	6.6	292
				13	3.6	6.8	51	6.5	291

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	19-Mar-07	1.3	-	0.3	0	16.6	113	6.5	126
				1	0	16.6	114	6.5	126
				2	0.9	15.7	110	6.5	116
				3	1.1	14.3	100	6.5	119
				4	2.1	12.9	93	6.5	113
				5	2.1	12.4	90	6.4	168
				6	1.9	12.6	90	6.4	262
				7	1.9	12.6	91	6.4	284
				8	2	12.3	89	6.4	280
				9	2.5	11.3	82	6.4	274
				10	2.9	9.8	72	6.4	277
				11	3.1	8.4	63	6.4	276
				12	3.4	7.6	56	6.4	276
	14-Apr-07	1.5	-	0.3	0.5	13.5	93	6.4	133
				1	0.6	13.7	95	6.4	131
				2	1.6	13	93	6.4	120
				3	2.2	12.3	89	6.3	119
				4	2.4	10.9	79	6.3	122
				5	2.1	11.4	83	6.2	183
				6	1.9	11.9	86	6.3	276
				7	1.9	11.8	85	6.3	284
				8	2.2	11.4	83	6.3	279
				9	2.5	10.7	78	6.3	275
				10	3	9.1	66	6.3	279
				11	3.2	7.8	58	6.3	277
				12	3.5	7.1	54	6.2	278
				13	3.5	5.8	51	6.2	278
				13.2	3.6	5.8	44	6.2	278
	23-Jul-07	no ice	-	0.3	16.4	10	102	6.7	123
				1	16.4	10	102	6.6	123
				2	16.4	10	102	6.5	123
				3	16.4	10	102	6.5	123
				4.1	16.4	10	102	6.5	122
				5	16.4	10	102	6.5	122
				6	16.4	10	102	6.5	122
				7	16.3	10	102	6.5	121
				8	16.3	10	102	6.5	122
				9	16.4	10	102	6.5	122
				10	16.3	10	102	6.5	122
				11	16.3	10	102	6.5	122
				12	16.3	10	102	6.5	121
	16-Aug-07	no ice	-	0.3	12.3	10.6	99	6.2	156
				1	12.3	10.6	99	6.2	155
				2	12.3	10.6	99	6.3	156
				3	12.3	10.6	99	6.3	155
				4	12.3	10.6	99	6.3	155
				5	12.3	10.6	98	6.3	154
				6.1	12.3	10.5	98	6.4	154
				7	12.3	10.5	98	6.4	155
				8.1	12.2	10.5	98	6.4	154
				9.1	12.2	10.5	98	6.4	154
				10.1	12.2	10.5	98	6.5	154
				11	12.2	10.5	98	6.5	154
				12	12.2	10.5	98	6.5	154
				13.1	12.2	10.5	98	6.5	154
				14.1	12.1	9.4	84	6.4	156
	21-Sep-07	no ice	-	0.3	4.3	13.6	104	7.1	154
				1	4.3	13.5	104	7.1	154
				2	4.3	13.5	104	7.1	154
				3	4.3	13.5	104	7.1	154
				4	4.3	13.5	104	7.1	154
				5	4.3	13.5	104	7.1	154
				6	4.3	13.5	104	7.1	154
				7	4.3	13.5	104	7.1	154
				8	4.3	13.5	104	7	154
				9	4.3	13.5	104	7	154
				10	4.3	13.5	104	7	154
				11	4.3	13.5	104	7	154
				12	4.3	13.5	104	7	154
				13	4.3	13.5	104	7	154
				14	4.3	13.3	103	6.9	154

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP06	27-Feb-07	1.3	-	0.3	0.9	15.5	109	6.1	134
				1	0.5	15.9	110	6.1	132
				2	0.7	15.1	105	6.2	122
				3	2.2	13.7	99	6.2	114
				4	2.4	12.5	91	6.2	116
				5	2.6	11.1	82	6.3	115
				6	2	12.2	88	6.2	249
				7	2	12.1	88	6.2	299
				8	2.2	11.5	83	6.3	292
				9	2.5	10.9	80	6.3	289
				10	2.7	10.2	75	6.4	286
				11	3	9.7	72	6.4	284
				12	3.1	9.2	68	6.4	283
	19-Mar-07	1.3	-	0.3	0	16.4	113	6.4	110
				1	0	17	116	6.4	107
				2	0	16.5	113	6.4	99
				3	0.1	15.8	108	6.5	96
				4	0.3	14.4	99	6.4	97
				5	0.6	12.5	87	6.4	134
				6	1.8	12.4	89	6.3	242
				7	1.9	12.7	92	6.3	278
				8	2.2	12.3	89	6.4	275
				9	2.5	11.2	82	6.4	273
				10	2.8	10.1	75	6.4	270
				11	3	9.6	72	6.4	269
				12	3.3	8.7	65	6.4	267
	18-Apr-07	1.6	-	0.3	0.2	13.7	94	6.4	120
				1	0.2	13.8	95	6.4	126
				2	1.4	13.2	94	6.3	117
				3	2.3	12.2	89	6.4	112
				4.1	2.7	9.7	71	6.3	115
				5	2.5	9.7	71	6.3	150
				6	2	11.1	80	6.2	264
				7.1	2	11.6	84	6.3	282
				8	2.2	11.4	83	6.3	280
				9	2.5	11	80	6.3	278
				10.1	2.8	9.6	70	6.3	275
				11	3.1	8.6	64	6.3	273
				12.1	3.4	7.8	58	6.3	273
				12.1	3.4	7.3	55	6.3	277
	23-Jul-07	no ice	-	0.3	16.4	9.8	100	6.6	120
				1	16.4	9.9	101	6.5	120
				2	16.4	9.9	101	6.4	120
				3	16.4	9.9	101	6.4	120
				4.1	16.4	9.9	101	6.4	120
				5	16.4	9.9	101	6.4	120
				6	16.4	9.9	101	6.5	120
				7	16.4	9.9	101	6.5	120
				8.1	16.3	9.9	101	6.5	119
				9	16.3	9.9	101	6.4	119
				10.1	16.3	9.9	101	6.5	119
				11	12.8	11.1	106	6.4	117
				12.1	10.8	9.6	79	6.3	127
	21-Sep-07	no ice	-	0.3	4.4	13.6	105	7.1	153
				1	4.4	13.5	105	7.1	153
				2	4.4	13.5	104	7.1	153
				3	4.4	13.5	104	7.1	153
				4	4.4	13.5	104	7.1	153
				5	4.4	13.5	104	7.1	153
				6	4.4	13.5	104	7.1	154
				7	4.4	13.5	104	7.1	153
				8	4.4	13.5	104	7.1	153
				9	4.4	13.5	104	7.1	153
				10	4.4	13.5	104	7.1	154
				11.1	4.4	13.5	104	7.1	153
				12	4.4	13.5	104	7.1	154
				13	4.4	13.5	104	7.1	154

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP07	27-Feb-07	1.3	-	0.3	2.1	15.2	109	6	136
				1	1.1	15.5	110	6	133
				2	1.9	14.8	106	6	121
				3	2.3	14.1	102	6	119
				4	2.5	13.4	95	6	120
				5	2.7	12.3	91	6	121
				6	2.9	11.4	84	6	121
				7	3.1	10.4	78	6.1	119
				8	3.2	9.6	72	6.1	120
				9	3.3	9.1	67	6.1	121
				10	3.4	7.9	56	6	126
	19-Mar-07	1.4	-	0.3	0.1	16.9	115	6.6	126
				1	0.2	16.9	116	6.5	126
				2	1.2	16.4	116	6.5	117
				3	2	14.8	107	6.5	114
				4	2.3	14.2	104	6.5	113
				5	2.7	13	96	6.5	112
				6	2.9	11.4	84	6.5	111
				7	3.1	10.4	77	6.4	113
				8	3.2	9	67	6.4	114
				9	3.2	8.6	64	6.4	116
				10	3.3	4.9	37	6.3	121
	27-Apr-07	1.5	-	0.3	1.2	14.2	101	6.7	132
				1	0.7	14.6	102	6.6	132
				2	1.7	13.7	98	6.5	127
				3	2.4	12.8	93	6.5	125
				4	2.8	12	89	6.4	123
				5	3.1	10.2	75	6.4	123
				6	3.3	9.5	71	6.3	125
				7	3.3	7.9	59	6.3	126
				8	3.3	7.6	57	6.3	127
				9	3.4	7.4	56	6.3	129
				9	3.4	7.1	53	6.3	128
	20-Jul-07	no ice	-	0.3	17.5	9.7	101	6.7	123
				1	17.4	9.8	103	6.4	123
				2.1	17.3	9.8	103	6.5	123
				3	17.3	9.9	103	6.4	123
				4	17.2	9.9	103	6.5	123
				5	16.7	11.1	112	6.5	117
				6	13.5	12	115	6.5	114
				7	11.5	12.6	116	6.5	114
				8	11.2	12	110	6.5	115
	20-Sep-07	no ice	-	0.3	3.6	13.7	104	6.5	143
				1	3.6	13.7	104	6.6	143
				2	3.6	13.7	104	6.6	143
				3	3.6	13.7	104	6.7	143
				4	3.6	13.7	104	6.7	143
				5	3.6	13.7	104	6.7	143
				6	3.6	13.7	104	6.8	143
				7	3.5	13.7	103	6.8	143
				8	3.5	14	105	6.8	143
				9	3.5	13.8	104	6.8	143
				10	3.5	13.8	104	6.8	143
SNAP08	27-Feb-07	1.2	-	0.3	0.8	15.2	106	5	146
				1	0.5	15.2	106	5.2	143
				2.1	1.8	14.1	100	5.4	126
				3	3	12.2	90	5.6	118
				4	3.9	9.5	72	5.8	115
				5	3.9	8.9	68	5.9	116
				6	4	8.4	64	5.9	117
				7	4	7	53	6	120
				8	4	6.8	52	6	126
	19-Mar-07	1.3	-	0.3	0.3	16.1	111	6.5	140
				1	0.1	16.6	114	6.5	137
				2	1.5	15.6	110	6.5	120
				3	3.2	12.1	91	6.5	112
				4	3.8	10.1	76	6.5	110
				5	3.7	9.6	73	6.4	113
				6	4.1	7.9	59	6.4	112
				7	4.1	4.4	34	6.3	112
				8	4.1	3	24	6.3	117

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	27-Apr-07	1.4	-	0.3	0.1	14.4	99	6.4	144
				1	0.2	14.5	100	6.4	141
				2	2.3	12.4	90	6.3	128
				3	3.6	10.9	82	6.3	125
				4	3.8	10.5	80	6.2	124
				5	3.9	10	76	6.2	125
				6	4	9.5	72	6.2	125
				7	4.1	5.6	42	6.1	125
				8	4.2	3	22	6.1	126
	20-Jul-07	no ice	-	0.3	17.7	9.6	100	6.8	128
				1	17.8	9.6	101	6.4	128
				2.1	17.8	9.6	101	6.4	128
				3	17.8	9.6	101	6.4	128
				4	17.8	9.6	101	6.3	128
				5	17.8	9.6	101	6.4	128
				6	17.7	9.6	101	6.4	128
				7	13.3	11.1	106	6.6	124
	18-Sep-07	no ice	-	0.3	3	13.9	103	7.1	140
				1	2.9	13.9	103	7.1	140
				2	2.9	13.9	103	7.1	140
				3	2.9	13.9	103	7.1	140
				4	2.9	13.9	103	7.1	140
				5	2.9	13.9	103	7.1	140
				6	2.9	13.9	103	7.1	140
				7	2.9	13.9	103	7.1	141
				7	2.9	13.9	103	7.1	140
				9	3	13.1	98	6.9	140
SNAP09	27-Feb-07	1.3	-	0.3	0.4	15.5	107	6.5	127
				1.1	0.5	15.3	106	6.4	123
				2	2	13.4	99	6.5	107
				3	2.3	12.8	93	6.5	105
				4	2.5	11.7	86	6.5	105
				5	2.6	11.3	83	6.5	108
				6	2.7	10.5	77	6.5	117
				7	2.7	10.2	75	6.4	142
				8	2.7	10.1	74	6.4	158
				9	2.6	10.1	75	6.4	177
				10	2.6	10.1	74	6.3	185
				11	2.7	9.7	72	6.3	192
				12	2.9	9	66	6.3	191
				13	2.8	8.9	66	6.3	204
				14	2.9	8.5	62	6.3	210
	19-Mar-07	1.4	-	0.3	0.1	15.2	105	6.6	120
				1	0.3	15.2	105	6.6	115
				2	1.4	14.4	102	6.6	105
				3	2.1	13.6	99	6.5	101
				4	2.3	12.1	87	6.5	102
				5	2.5	11.1	81	6.5	108
				6	2.5	10.4	76	6.4	134
				7	2.5	10.2	75	6.4	157
				8	2.5	9.9	72	6.4	170
				9	2.5	9.7	71	6.4	184
				10	2.7	9.5	70	6.4	185
				11	2.6	9.3	69	6.4	198
				12	2.7	9.1	67	6.4	204
				13	2.7	9.1	67	6.3	217
				14	2.8	8.4	62	6.3	218
	20-Apr-07	1.5	-	0.3	0.1	13	89	6.4	117
				1	0.1	13	89	6.3	116
				2	1.6	12.3	88	6.3	107
				3	2.4	11.6	85	6.3	104
				4	2.6	10.4	76	6.3	115
				5.1	2.6	9.8	72	6.3	145
				6	2.6	9.5	70	6.3	166
				7	2.6	9.4	69	6.3	182
				8	2.6	9.3	69	6.3	195
				9	2.6	9.3	68	6.3	202
				10	2.6	9.1	67	6.3	213
				11.1	2.7	8.8	65	6.3	216
				12	2.6	9	66	6.3	228
				13	2.7	8.9	65	6.3	231
				14	2.8	8.6	64	6.3	238

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	23-Jul-07	no ice	-	0.3	16.2	10	101	6.5	119
				1	16.2	9.9	101	6.4	119
				2	16.2	9.9	101	6.4	119
				3	16.2	10	101	6.3	119
				4	16.2	9.9	101	6.3	119
				5.1	16.2	10	101	6.3	119
				6	16.2	10	101	6.3	119
				7	16.2	10	101	6.3	119
				8.1	16.1	10	101	6.3	118
				9	14.7	10.6	104	6.4	117
				10.1	11.5	12	109	6.3	115
				11	9.1	12.5	109	6.3	114
				12	8.7	12.5	108	6.2	112
				13.1	8.2	11.8	101	6.2	112
	21-Sep-07	no ice	-	0.3	5.1	13.2	104	7.1	145
				1	5	13.2	104	7.1	145
				2	5	13.2	104	7.1	146
				3.1	4.9	13.2	104	7.1	145
				4	4.9	13.2	103	7.1	145
				5	4.9	13.2	103	7.1	145
				6	4.9	13.2	103	7.1	146
				7	4.9	13.2	103	7.1	146
				8	4.9	13.2	103	7.1	145
				9	4.9	13.2	103	7.1	146
				10	4.9	13.2	103	7.1	146
				11	4.9	13.2	103	7.1	146
				12	4.9	13.2	103	7.1	146
				13	4.9	13.2	103	7.1	146
				14	4.9	12.8	100	7.1	146
SNAP10	28-Feb-07	1.3	-	0.3	0.3	15.1	104	4.8	137
				1	0.3	15.7	108	5	137
				2	1.3	15.6	111	5.2	128
				3	1.9	15.5	112	5.4	124
				4	2.2	15.2	111	5.4	123
				5	2.7	13.7	101	5.6	135
	17-Mar-07	no ice	-	0.3	0	16.3	111	6.6	68
				1	0	16.6	114	6.5	68
				2	0.5	16.3	113	6.5	67
				3	1.7	15.8	114	6.5	118
				4	2.2	15.2	111	6.5	116
				5	2.6	13.9	102	6.5	129
	20-Apr-07	1.5	-	0.3	0.1	13.5	93	6.4	133
				1	0.1	13.8	95	6.4	132
				2	1.3	13.6	96	6.4	127
				3	2	13.4	97	6.4	125
				4	2.5	12.5	91	6.4	123
				5	2.9	10.7	79	6.3	136
	22-Jul-07	no ice	-	0.3	16.1	9.8	99	6.6	118
				1	16.1	9.8	100	6.6	118
				2	16.1	9.9	100	6.6	118
				3	16.1	9.8	100	6.5	118
				4	16.1	9.8	100	6.5	118
				5	16.1	9.8	100	6.5	118
	19-Sep-07	no ice	-	0.3	3.9	13.7	104	7.2	141
				1	3.8	13.7	104	7.1	141
				2	3.8	13.7	104	7.1	141
				3	3.8	13.8	105	7.1	141
				4	3.8	13.8	105	7.1	141
				5	3.8	13.8	105	7.1	142

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP11A	28-Feb-07	1.3	-	0.3	0.8	15.9	111	5.9	127
				1	0.7	15.9	111	5.9	124
				2	1.7	14.5	104	6	111
				3	2.2	14.1	103	6.1	105
				4	2.4	13	94	6.1	106
				5	2.6	12.2	90	6.1	110
				6	2.8	11.2	82	6.1	114
				7	2.8	10.5	78	6.1	141
				8	2.6	10.5	77	6.1	171
				9	2.5	10.6	78	6.1	189
				10	2.4	11	81	6.2	204
				11	2.3	11.4	83	6.2	217
				12	2.4	11.3	83	6.2	220
				13	2.5	11.2	81	6.2	223
	17-Mar-07	1.4	-	0.3	0	16.2	110	6.5	84
				1	0	14.3	98	6.5	79
				2	0.3	13.1	90	6.5	74
				3	1.9	13.8	101	6.4	101
				4	2.3	13.7	100	6.4	103
				5	2.6	11.5	83	6.4	110
				6	2.5	10.7	79	6.4	144
				7	2.4	10.8	79	6.4	165
				8	2.4	10.5	77	6.3	176
				9	2.3	11	80	6.3	193
				10	2.3	11.3	83	6.3	201
				11	2.4	11.2	82	6.3	202
				12	2.4	11	81	6.3	214
				13	2.4	10.6	77	6.3	224
	21-Apr-07	1.2	-	0.3	0.2	13.7	94	6.5	126
				1	0.3	13.6	94	6.5	124
				2	1.5	13	93	6.5	113
				3	2.3	11.5	83	6.5	109
				4	2.5	9.9	73	6.4	122
				5	2.5	10	73	6.4	161
				6	2.5	9.8	71	6.4	184
				7	2.4	9.9	72	6.4	200
				8	2.4	10	73	6.4	212
				9	2.3	10	73	6.4	223
				10	2.4	9.9	73	6.4	229
				11	2.3	10.6	77	6.4	245
				12	2.2	11	80	6.4	258
				13	2.4	10.6	77	6.4	255
				14	2.6	9.9	72	6.4	250
				15	2.9	9.2	68	6.4	246
				16	3	8.6	44	6.4	248
				16.9	3	8.2	60	6.4	248
	23-Jul-07	no ice	-	0.3	16.2	9.8	99	6.2	119
				1	16.2	10	101	6	119
				2	16.1	10	101	6	119
				3.1	16.1	10	102	6	118
				4	15.9	10.1	102	6.2	118
				5	15.8	10.1	102	6.1	118
				6	15.4	10.3	104	6.1	118
				7	12	11	107	6.1	117
				8.1	10.4	12.3	110	6.2	113
				9	9.6	12.6	111	6.1	112
				10.1	8.9	12.5	108	6.1	113
				11.1	8.6	12.4	106	6	113
				12	8.3	12.3	104	6	112
				13.1	8.2	12.3	104	6	112
				14.1	8.2	12.2	104	6	112
				15	8	11.8	100	6	112
				16	7.8	12	97	5.9	114

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	19-Sep-07	no ice	-	0.3	5.2	13.4	105	7	145
				1	5.3	13.1	103	7	145
				2	5.3	13	103	7	145
				3	5.3	13	103	7	145
				4	5.3	13	103	7	145
				5	5.3	13	103	7	145
				6	5.3	13	103	7	145
				7	5.2	13	103	7	145
				8	5.2	13	103	7	145
				9	5.2	13	102	7	145
				10	5.2	13	102	7	145
				11	5.2	13	102	7	145
				12	5.2	13	102	7	145
				13	5.2	13	102	7	145
				14	5.1	13	102	7	145
				15	5.1	13	102	7	145
				16	5.1	13	102	7	145
SNAP12	24-Feb-07	1	-	0.3	0.5	15.9	110	6.4	142
				1	1.8	15.7	109	6.5	129
				2	1.7	14.5	105	6.6	121
				3	1.9	14.2	103	6.6	119
				4	2.2	12.9	93	6.6	117
				5	1.8	12.8	92	6.5	219
				6	1.8	12.8	92	6.5	279
				7	2	12.1	87	6.5	292
	19-Mar-07	1.2	-	0.3	0.2	17.4	119	6.5	138
				1	0.2	17	116	6.5	132
				2	1.4	15.6	111	6.5	115
				3	2	14.6	105	6.5	112
				4	2.1	13.9	99	6.5	111
				5	2	13.2	96	6.4	207
				6	1.8	13.1	94	6.5	264
				7	2	12.7	91	6.5	274
	11-Apr-07	1.2	-	0.3	0.2	14	96	6.4	132
				1	0.5	14	97	6.4	125
				2	1.5	13.5	96	6.4	117
				3	1.9	13	94	6.2	114
				4	2.1	11.8	86	6.1	142
				5	1.8	12.5	90	6.1	245
				6	1.8	12.4	89	6.2	260
SNAP12	11-Apr-07	1.2	-	7	2	11.3	82	6.2	273
	23-Jul-07	no ice	-	0.3	16.5	9.8	101	6.9	124
				1	16.5	10	102	6.9	124
				2	16.5	10	102	6.8	124
				3	16.5	10	102	6.8	124
				4	16.5	10	102	6.8	124
				5	16.5	10	102	6.8	124
				6.1	16.5	10	102	6.7	124
	16-Aug-07	no ice	-	0.3	12.4	10.6	99	6.6	156
				1	12.4	10.6	99	6.6	156
				2	12.4	10.6	99	6.6	156
				3	12.4	10.6	99	6.6	156
				4.1	12.4	10.5	99	6.6	156
				5	12.4	10.6	99	6.6	156
				6	12.4	10.6	99	6.7	156
				7.1	12.4	10.5	99	6.7	156
	17-Sep-07	no ice	-	0.3	5.5	12.8	102	7	158
				1	5.5	12.6	100	7.1	157
				2	5.6	12.6	100	7.1	157
				3	5.6	12.6	100	7.1	157
				4	5.6	12.6	100	7.1	157
				5	5.6	12.6	100	7	157
				6	5.6	12.6	100	7	157
				7	5.6	12.6	100	7	157

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP13	19-Mar-07	1.1	-	0.3	0.3	16	111	6.5	127
				1	0.7	15.6	109	6.5	115
				2	1.3	14.7	104	6.4	143
				3	1.7	14.3	102	6.5	134
				4	1.9	13.6	98	6.5	130
				5	1.9	13.6	98	6.4	197
				6	1.8	13.3	96	6.3	249
				7	1.8	13	93	6.3	283
				8	1.8	12.8	92	6.4	289
				9	1.8	12.7	92	6.4	291
				10	1.9	12.5	90	6.4	288
				11	1.9	12.4	90	6.4	293
				12	1.9	12.4	90	6.4	294
				13	2	12.3	89	6.4	292
				14	2	12.2	88	6.4	294
				15	2.1	11.9	86	6.4	290
				16	2.2	11.2	81	6.4	294
				17	2.2	10.6	77	6.4	319
				18	2.2	10.3	75	6.4	319
				19	2.2	10.2	74	6.4	319
				20	2.3	4.1	29	6.3	318
				21	2.3	5.4	37	6.3	317
SNAP14	24-Feb-07	1.1	-	0.3	0.3	15.4	107	6.5	145
				1	1	15	105	6.6	130
				2	1.7	14.2	102	6.6	121
				3	2	13.2	95	6.6	117
				4	2.1	11.7	85	6.6	126
				5	1.9	11.9	86	6.5	179
				6	1.8	12.4	89	6.5	263
				7	1.8	12.6	90	6.5	297
				8	1.8	12.5	90	6.5	305
				9	1.9	12	87	6.5	303
				10	2.1	11.7	84	6.6	296
				11	2.3	10.8	79	6.6	294
				12	2.6	9.3	68	6.5	296
				13	3.2	6.1	42	6.5	302
	19-Mar-07	-	-	0.3	0.1	17.5	120	6.5	142
				1	0.2	17.2	118	6.5	135
				2	0.8	16.2	113	6.5	120
				3	2	13.9	100	6.6	113
				4	2.1	13.5	97	6.6	114
				5	1.9	13.1	95	6.5	192
				6	1.8	13.4	96	6.4	264
				7	1.8	13.3	96	6.5	280
				8	1.9	13.2	95	6.5	285
				9	1.9	13	94	6.5	287
				10	2.1	12.7	92	6.5	284
				11	2.3	12.2	89	6.5	280
				12	2.6	10.3	75	6.5	279
				13	3	7.2	50	6.5	288
	12-Apr-07	1.2	-	0.3	0.2	14.2	98	6.2	139
				1	0.5	14.2	98	6.2	130
				2	1.6	13.4	95	6.3	116
				3	1.9	12.5	90	6.3	116
				4	1.9	11.4	82	6.3	146
				5.1	1.8	11.9	86	6.2	254
				6	1.8	12	86	6.3	265
				7	1.8	11.9	86	6.3	281
				8	1.9	11.8	85	6.3	285
				9	1.9	11.7	85	6.3	284
				10	2.1	11.4	83	6.3	280
				11	2.3	10.7	78	6.3	279
				12	2.7	7.4	55	6.3	280
				13	3.2	4	25	6.2	278

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	25-Jul-07	no ice	-	0.3	16.5	9.9	102	6.2	122
				1	16.5	10	102	6	122
				2	16.5	10	102	6	122
				3	16.5	10	102	6	122
				4	16.5	10	102	6.1	122
				5	16.5	10	102	6.1	122
				6	16.5	10	102	6.1	122
				7	16.4	10	102	6.2	123
				8	16.2	10.1	103	6.1	134
				9	15.5	10.5	106	6.2	153
				10	14.9	10.8	107	6.2	163
				11	14.5	11	108	6.3	166
				12	13	11.4	109	6.3	168
	16-Sep-07	no ice	-	0.3	5.8	13.1	105	6.9	158
				1	5.9	12.9	103	7	158
				2	5.9	12.8	103	7	157
				3	5.9	12	103	7	157
				4	5.9	12.8	103	7	157
				5	5.9	12.8	103	7	157
				6	5.9	12.8	103	7	157
				7.1	5.9	12.8	103	7	158
				8	5.9	12.8	103	7	157
				9	5.9	12.8	103	7	158
				10	5.9	12.8	103	7	157
				11	5.9	12.8	103	7	157
				12	5.9	12.8	103	7	158
				13.1	5.9	12.8	103	6.9	158
SNAP17	22-Apr-07	-	-	0.3	0.4	13.1	91	6.3	121
				1	0.3	13.2	91	6.4	123
				2	1.6	12.6	90	6.4	115
				3	2.3	12	87	6.4	111
				4	2.6	9.4	68	6.3	114
				5	2.7	9.3	69	6.3	152
				6	2.6	9.2	68	6.3	185
				7	2.5	9.7	71	6.3	206
				8	2.4	9.7	71	6.3	219
				9	2.4	9.9	73	6.4	228
				10	2.5	8.2	58	6.3	211
SNAP18	28-Apr-07	1.4	-	0.3	0.4	14.4	100	6.4	124
				1	0.6	14.5	101	6.4	124
				2	1.8	13.9	100	6.4	115
				3	2.4	13.2	97	6.4	114
				4	2.6	10.3	75	6.4	117
				5	2.7	9.5	70	6.3	164
				6	2.6	9.6	70	6.3	190
				7	2.5	9.8	72	6.3	213
				8	2.4	10.1	74	6.4	224
				9	2.4	9.9	73	6.4	231
				10	2.4	9.9	73	6.4	241
				11	2.4	9.9	72	6.4	249
SNAP19	29-Apr-07	1.7	-	0.3	0.6	13.2	92	6.5	113
				1	0.8	13.1	93	6.5	115
				2	2	12.8	92	6.4	111
				3	2.6	11.9	87	6.4	108
				4	2.7	10.5	77	6.3	127
				5	2.7	9.9	74	6.2	162
				6	2.7	9.4	69	6.3	178
				7	2.6	9.4	68	6.3	195
				8	2.6	9.3	68	6.3	211
				9	2.7	9.2	68	6.2	219
				10	2.7	9.1	67	6.2	222
				11	2.8	8.8	65	6.3	222

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP20	26-Feb-07	1.3	-	0.3	2.7	14.6	107	5	33
				1	1.4	14.9	106	5.2	32
				2	2	14	100	5.4	27
				3	2.4	12.7	93	5.6	25
				4	2.6	12.1	89	5.7	25
				5	2.7	11.8	87	5.9	26
				6	2.7	11.6	85	6	26
				7	2.8	11.5	85	6.1	26
				8	2.8	11.5	85	6.2	26
				9	2.8	11.4	84	6.3	26
				10	2.8	11.3	84	6.3	26
				11	2.9	11.2	83	6.3	26
				12	2.9	11.1	82	6.4	25
				13	2.9	11	81	6.4	26
	18-Mar-07	1.4	-	0.3	0.5	16.2	112	6	32
				1	0.3	16.6	114	5.9	32
				2	0.8	15.7	109	5.9	26
				3	2.1	14.1	102	6	24
				4	2.4	13.5	98	6	24
				5	2.5	12.9	94	6	24
				6	2.6	12.3	91	6	25
				7	2.7	12.2	90	6	24
				8	2.7	12	89	6.1	24
				9	2.8	11.9	88	6	24
				10	2.8	11.8	87	6.1	24
				11	2.9	11.7	87	6.1	24
				12	2.9	11.5	85	6.1	24
				13	2.9	11.1	82	6.1	24
	25-Apr-07	1.4	-	0.3	0.5	14.6	101	6.6	32
				1	0.5	15	104	6.5	31
				2	1.6	14.2	102	6.5	27
				3	2.3	13.4	97	6.5	26
				4	2.5	12.6	92	6.5	25
				5	2.6	12.1	89	6.5	25
				6	2.7	11.6	86	6.5	26
				7	2.8	11.4	84	6.5	25
				8	2.8	11.2	83	6.5	25
				9	2.9	11.1	82	6.5	25
				10	2.9	11	82	6.5	25
				11	2.9	10.9	81	6.5	25
				12	2.9	10.8	80	6.5	25
				13	2.9	9	67	6.4	34
SNAP20B	24-Jul-07	no ice	-	0.3	17.4	9	94	6.4	21
				1	17.3	9.1	95	6	21
				2	17.2	9.2	95	6	20
				3.1	17.1	9.2	95	5.9	20
				4	17.1	9.2	95	5.9	20
				5.1	17.1	9.2	95	6	20
				6	16.9	9.2	95	5.9	20
				7	12	10.4	101	5.9	18
				8.1	7.7	11.9	99	5.9	15
				9	6.7	11.9	97	5.8	14
				10	6.3	11.8	96	5.8	14
				11	6	11.7	94	5.8	14
				12	5.8	11.4	91	5.8	14

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Aug-07	no ice	-	0.3	12.3	10.6	99	6.2	25
				1	12.2	10.5	98	6.3	25
				2	12.2	10.5	98	6.3	25
				3.1	12.2	10.5	98	6.3	25
				4	12.2	10.5	97	6.2	25
				5	12.1	10.5	97	6.2	25
				6	12.1	10.4	97	6.2	25
				7	12.1	10.4	97	6.2	25
				8	12.1	10.4	97	6.3	25
				9	9.4	11.5	100	6.2	23
				10.1	6.3	11.6	94	6.1	23
				11	5.9	11.5	92	6.1	23
				12	5.6	11.1	88	6	23
				12	5.3	10.8	85	6	23
				14	5	10.6	83	6	23
				15	4.8	10.3	80	5.9	23
				16.1	4.7	10.2	79	5.9	23
				17	4.6	10.1	78	5.9	23
				18	4.5	10.2	79	5.9	24
				19	4.5	10.1	78	5.9	24
				20.1	4.4	10	77	5.9	24
				21.1	4.3	10	77	5.8	24
				22	4.3	10	77	5.9	24
				23	4.3	9.8	75	5.8	24
				24.1	4.2	9.6	74	5.8	24
				25.1	4.2	9.6	73	5.8	25
				26	4.2	9.5	73	5.8	25
				27.1	4.2	9.5	73	5.8	25
				28	4.2	9.6	73	5.8	25
				29.1	4.2	9.5	72	5.8	25
	16-Sep-07	no ice	-	0.3	6.6	12.3	101	6.7	24
				1	6.5	12.3	100	6.7	24
				2	6.5	12.3	100	6.7	24
				3	6.5	12.3	100	6.6	24
				4	6.5	12.3	100	6.6	24
				5	6.5	12.3	100	6.6	24
				6	6.4	12.3	100	6.6	24
				7.1	6.4	12.3	100	6.6	24
				8	6.4	12.3	100	6.6	24
				9	6.4	12.3	100	6.6	24
				10	6.4	12.3	100	6.6	24
				11.1	6.4	12.3	100	6.6	24
				12	6.4	12.3	100	6.6	24
				13	6.4	12.3	100	6.6	24
				14.1	6.3	12.2	99	6.6	24
				15	6	12.1	97	6.5	24
				16	5.9	12.1	97	6.4	24
				17	5.9	12.1	97	6.4	24
				18	5.8	12.1	97	6.4	24
				19	5.5	12	95	6.3	24
				20.1	5.1	10.5	82	5.9	22
				21	4.6	9.9	77	5.8	22
				22	4.4	9.9	77	5.8	23
				23.1	4.4	9.9	77	5.8	23
				24	4.3	9.8	76	5.8	23
				25	4.3	9.8	75	5.8	23
				26	4.3	9.6	74	5.8	23
				27	4.2	9.3	72	5.7	23
				28.1	4.2	9.3	72	5.7	23
				29	4.2	9.4	72	5.7	23
				30.1	4.2	9.4	72	5.7	23

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP23	24-Apr-07	1.1	-	0.3	1.3	15.4	108	5.8	62
				1	0.6	15.3	106	5.8	61
				2	1.5	15.2	108	5.8	60
				3	2.4	14	102	6	62
				4	2.9	12.9	96	6.2	61
				5	3.3	11.2	83	6.2	61
				6	3.8	8.5	64	6.3	62
				7	4	5.4	39	6.2	65
				8	4	3.6	27	6.2	73
				9	4	2.2	17	6.2	79
				10	4.1	1.3	10	6.3	81
				11	4.2	0.7	5.3	6.3	83
				12	4.5	0.5	3.5	6.3	133
				11.5	4.4	0.3	2.1	6.6	100
	24-Jul-07	no ice	-	0.3	18	9.1	96	6.4	46
				1	17.9	9.2	97	6.3	46
				2	17.5	9.3	97	6.2	45
				3	17.2	9.3	96	6.2	46
				4	17.1	9.3	96	6.1	44
				5	17	9.3	96	6.1	42
				6	16.9	9.3	96	6.1	43
				7	16.8	9.3	96	6.2	40
				8	16.4	9.4	95	6.1	40
				9	11.1	10.9	99	6.1	33
				10	9.5	11.2	97	6	30
				11	8.7	10.8	93	6	30
				12	8.4	9.2	78	5.9	30
	14-Sep-07	no ice	-	0.3	6.3	12.7	103	6.8	55
				1	6.4	12.4	101	6.8	55
				2	6.4	12.4	101	6.8	55
				3	6.4	12.4	101	6.8	55
				4.1	6.4	12.4	100	6.8	55
				5	6.4	12.4	100	6.8	55
				6.1	6.4	12.3	100	6.8	55
				7	6.4	12.3	100	6.8	55
				8	6.4	12.3	100	6.8	55
				9	6.4	12.3	100	6.8	55
				10	6.3	12.3	100	6.8	55
				11.1	6.4	12.3	100	6.8	55
				12	6.3	12.1	99	6.8	55
SNAP25	23-Feb-07	1.5	-	0.3	2.5	15.1	111	5.6	134
				1	1.4	15.2	108	5.6	135
				2	2	14.8	107	5.7	126
				3	2.3	14.4	105	5.8	124
	17-Mar-07	1.4	-	0.3	0	16.9	116	6.5	76
				1	0	16.2	110	6.5	78
				2	0	15.9	109	6.5	79
				3	0	15.8	108	6.5	81
SNAP26	24-Feb-07	1.2	-	0.3	0.2	14.4	99	6.2	138
			-	1	0.6	14.4	100	6.4	130
				2	1.6	14	100	6.4	119
				3	1.9	13.6	98	6.4	122
				4	2.3	13.1	95	6.4	136
				5	3.3	7.9	58	6.3	180
	10-Apr-07	1.2	-	0.3	0.7	13.5	94	6.2	131
				1	0.5	13.6	94	6.3	130
				2	1.8	13.2	94	6.3	117
				3	2.2	12.4	90	6.4	122
				4	2.5	12.1	88	6.3	136
				5	3.4	5.9	42	6.3	197
	22-Jul-07	no ice	-	0.3	16.7	9.6	99	6.7	127
				1.1	16.7	9.8	101	6.7	128
				2	16.7	9.8	101	6.6	128
				3	16.7	9.8	101	6.6	128
				4	16.7	9.8	101	6.8	128
				5.1	16.7	9.8	101	6.6	128
	15-Sep-07	no ice	-	0.3	5.1	13.5	105	7	155
				1	5.1	13.1	103	7	155
				2	5.2	13	103	7.1	155
				3	5.2	13	102	7	155
				4	5.1	13	102	7.1	155
				5	5.2	13	102	7	155

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP27	24-Feb-07	1.5	-	0.3	0.5	15.4	107	6.3	148
				0.3	0.3	15.3	106	6.4	147
				0.5	0.2	15.3	105	6.4	147
				0.8	0.2	15.3	105	6.5	146
				1	0.4	15.2	104	6.5	151
				1.2	0.6	12.7	87	6.5	162
				1.6	0.8	7	49	6.3	207
	17-Mar-07	1.1	-	0.3	0	16.6	114	6.4	136
				0.3	0	16.7	114	6.4	136
				0.5	0	16.8	115	6.4	135
				0.8	0	16.8	115	6.4	135
				1	0.1	16.8	115	6.5	134
				1.3	0	16.7	114	6.4	135
SNAP28	23-Feb-06	1.2	-	0.3	4.5	13.8	107	4.4	127
				1	3.3	13.7	103	4.3	127
				2	2.3	13.5	98	4.3	119
				3	2.6	12.6	98	4.3	124
				4	2.3	12.6	92	5.2	158
				5	2	12.7	92	5.5	213
				6	2	12.5	90	5.6	273
	17-Mar-07	1.2	-	0.3	0	15.6	107	6.3	116
				1	0.4	15.6	108	6.3	116
				2	0.8	15.1	105	6.3	142
				3	1.1	14.4	101	6.3	126
				4	1.7	13.7	99	6.3	122
				5	1.6	14	100	6.2	220
				6	1.6	13.8	99	6.3	269
	22-Jul-07	no ice	-	0.3	16.8	9.6	99	6.5	125
				1	16.8	9.7	100	6.4	126
				2	16.7	9.8	101	6.4	127
				3	16.6	9.9	102	6.3	127
				4	16.6	9.9	102	6.3	131
				5	16.4	9.7	100	6.4	134
				6	16.2	8.9	90	6.4	137
	15-Aug-07	no ice	-	0.3	12.5	10.8	102	6.8	153
				1.1	12.4	10.8	101	6.8	153
				2	12.4	10.8	101	6.8	153
				3.1	12.4	10.7	101	6.8	153
				4	12.4	10.7	100	6.8	153
				5	12.4	10.7	100	6.8	154
				6	12.4	8.5	80	6.7	153
	15-Sep-07	no ice	-	0.3	6.5	12.8	104	7	158
				1	6.5	12.7	103	7	158
				2	6.5	12.6	103	7	157
				3	6.5	12.6	103	7	157
				4	6.5	12.7	103	7	158
				5	6.5	12.7	103	7	158
				6	6.4	12.7	103	7	158
SNAP29	25-Feb-07	1.3	-	0.3	0.3	15.4	107	5.6	83
				1	0.3	16	111	5.5	80
				2	0.8	16	112	5.4	75
				3	1.6	15.2	108	5.5	66
				4	2.4	13.2	96	5.6	64
				5.1	2.8	11.8	87	5.8	64
				6	3	10.6	78	5.8	67
	19-Mar-07	1.4	-	0.3	0.4	15.9	109	6.6	83
				1	1	16.1	114	6.6	79
				2	0.9	15.9	112	6.5	66
				3	1.5	15.6	111	6.5	66
				4	2.4	14.4	105	6.5	62
				5	2.9	12.5	92	6.4	64
				6	3.3	10.3	75	6.3	67
	24-Apr-07	-	-	0.3	0.6	16.1	112	6.7	83
				1	0.4	16.3	113	6.6	80
				2	1.2	15.2	108	6.6	78
				3	2.1	13.8	100	6.6	68
				4	2.7	12	88	6.6	65
				5	3.1	9.1	68	6.5	66
				6	3.5	4.9	37	6.4	68

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	19-Jul-07	no ice	-	0.3	17.3	9.7	101	6.7	115
				1	17.3	9.7	101	6.7	115
				2	17.3	9.7	101	6.6	115
				3	17.3	9.7	101	6.6	115
				4	17.3	9.7	101	6.6	115
				5	17.2	9.9	102	6.6	115
				6	14.7	11	109	6.6	160
				7	13.6	11.4	111	6.6	153
				8	13.1	11.6	110	6.6	164
				9	12.7	11.7	111	6.6	147
				10	12.1	12	112	6.6	152
				11	10.6	11.5	104	6.6	149
	20-Jul-07	no ice	-	0.3	18.7	9.9	103	6.6	46
				1	18.5	9.4	101	6.3	46
				2	18.3	9.5	101	6.2	47
				3	18.3	9.5	101	6.2	47
				4	18.2	9.5	101	6.3	45
				5	16.8	10	102	6.3	44
				6	15.1	10.3	102	6.2	41
	15-Aug-07	no ice	-	0.3	12.3	10.6	99	6.4	154
				1	12.3	10.6	99	6.3	154
				2	12.3	10.6	99	6.4	154
				3.1	12.3	10.6	99	6.4	154
				4	12.3	10.6	99	6.4	154
				5.1	12.3	10.6	99	6.4	154
				6	12.3	10.6	99	6.4	154
				7.1	12.3	10.6	99	6.4	154
				8	12.2	10.6	99	6.5	155
				9.1	12.2	10.6	99	6.5	154
				10.1	12.2	10.6	99	6.5	154
				11	12.2	10.6	99	6.5	155
	16-Aug-07	no ice	-	0.3	12.1	10.8	100	6.7	54
				1	12.1	10.7	100	6.7	58
				2.1	12.1	10.7	99	6.7	58
				3.1	12.1	10.7	99	6.7	58
				4.1	12.1	10.7	99	6.7	58
				5	12.1	10.7	99	6.8	58
				6	12.1	10.6	99	6.7	58
	17-Sep-07	no ice	-	0.3	5.4	13	103	7.2	157
				1	5.5	12.7	100	7.1	156
				2	5.5	12.6	100	7.1	156
				3	5.5	12.5	100	7.1	156
				4	5.6	12.5	100	7.1	157
				5	5.6	12.5	100	7.1	157
				6	5.6	12.5	100	7.1	156
				7	5.6	12.5	99	7.1	156
				8	5.6	12.5	99	7.1	156
				9	5.6	12.5	100	7.1	157
				10	5.6	12.5	99	7.1	156
				11	5.5	12.5	99	7.1	156
	21-Sep-07	no ice	-	0.3	3.5	14	105	7	57
				1	3.5	14	105	6.9	57
				2	3.5	13.9	105	6.9	57
				3	3.5	13.9	105	6.9	57
				4	3.5	13.9	105	6.9	57
				5	3.5	13.9	105	6.8	57
				6	3.5	13.9	105	6.9	57
				7	3.5	13.7	103	6.8	57
SNP02-20D	21-Feb-07	1	-	0.3	0.9	15.3	107	5.1	131
				1	1.1	14.9	105	5.5	123
				2	1.8	13.8	99	5.8	112
				3	2.2	13.1	95	6.1	109
				4	2.2	11.9	86	6.1	114
				5	1.9	12.5	90	6.1	190
				6	1.8	12.7	91	6.2	258
				7	1.8	12.5	90	6.3	276
				8	1.8	12.5	90	6.3	278
				9	1.8	12.4	89	6.4	283
				10	1.9	12.2	88	6.4	285
				11	2.3	10.6	77	6.4	280

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	14-Mar-07	1.1	-	0.3	0.1	15.7	108	6.2	140
				1	0.4	16.1	112	6.2	129
				2	1.4	16	113	6.2	115
				3	1.9	16.1	116	6.2	111
				4	2.2	15.2	111	6.2	112
				5	1.9	15.1	109	6.1	215
				6	1.8	15.1	109	6.2	256
				7	1.8	15.1	109	6.2	275
				8	1.8	14.6	105	6.2	282
				9	1.9	14.4	104	6.2	286
				10	1.9	13.6	98	6.3	287
				11	2.4	12	88	6.3	278
	16-Apr-07	1.3	-	0.3	0.4	13.8	95	6.2	140
				1	0.6	13.5	94	6.3	134
				2	1.9	12.8	92	6.3	116
				3	2	11	80	6.3	141
				4	1.9	11.3	82	6.3	179
				5	1.9	12	86	6.3	220
				6	1.9	11.9	86	6.3	253
				7	1.9	11.9	86	6.4	257
				8	1.9	11.8	85	6.4	266
				9	1.9	11.9	86	6.4	266
				10	1.9	11.8	85	6.4	266
				11	2.4	9.9	73	6.4	276
				11.1	2.5	9.6	71	6.4	276
SNPe02-20e	21-Feb-07	1	-	0.3	0.9	15.5	109	6.6	135
				1	1.1	14.4	102	6.5	119
				2	1.7	13.5	97	6.5	112
				3	2.1	13.1	95	6.5	105
				4	2.2	12.4	90	6.5	109
				5	1.9	12.8	93	6.4	191
				6	1.7	12.8	92	6.4	269
				7	1.8	12.6	90	6.5	274
				8	1.7	12.6	90	6.5	287
				9	1.8	12.4	89	6.5	288
				10	1.8	12.2	88	6.6	286
				11	2	12.1	87	6.6	283
				12	2	12	87	6.6	282
				13	2	11.9	86	6.6	287
				14	2.1	11.7	85	6.6	289
				15	2.2	11.3	82	6.6	288
				16	2.2	11.1	81	6.6	294
				17	2.1	11.1	80	6.6	314
				18	2.1	10.9	79	6.6	314
				19	2.2	10.5	76	6.6	313
				20	2.2	10.2	74	6.6	313
				21	2.2	9.9	72	6.6	313
				22	2.2	9.6	70	6.6	313
				23.1	2.2	9.3	67	6.6	313
				24	2.2	9	66	6.6	312
				25	2.3	8.8	64	6.6	312
				26	2.3	7.7	56	6.5	314
				27	2.4	5.3	38	6.5	316

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	15-Mar-07	1.1		0.3	0.1	16.3	112	6.1	133
				1	0.5	16.3	113	6.1	127
				2	1.4	15.5	110	6.1	118
				3	2	14.9	107	6.1	110
				4	2	13.9	100	6.1	126
				5	1.7	14.1	102	6	210
				6	1.8	14.1	102	6	261
				7	1.8	14	101	6.1	282
				8	1.8	14.4	104	6.1	288
				9	1.82	13.7	99	6.1	288
				10	1.8	13.5	97	6.2	290
				11	1.9	13.3	96	6.2	290
				12	1.9	13	94	6.2	288
				13	2	13	95	6.2	287
				14	2.1	12.8	93	6.3	287
				15	2.1	12.4	90	6.3	286
				16	2.2	11.9	86	6.3	291
				17	2.2	11.5	83	6.3	316
				18	2.2	11	80	6.3	316
				19	2.2	10.5	77	6.3	315
				20	2.2	10.3	75	6.3	315
				21	2.3	9.5	69	6.2	315
				22	2.3	9.2	68	6.2	315
				23	2.3	9.1	67	6.2	315
				24	2.3	8.9	65	6.2	314
				25	2.3	8.3	60	6.2	314
				26	2.4	6.6	48	6.2	315
				27	2.5	4.6	32	6.1	318
				28	2.5	1.6	11	6.1	311
	15-Apr-07	1.2	-	0.3	0.2	13.5	93	6.3	131
				1	0.8	13.3	93	6.2	124
				2	2	12.2	88	6.2	115
				3	1.9	12.2	88	6.1	165
				4	1.8	12.2	88	6.2	200
				5	1.8	12.2	88	6.2	248
				6	1.8	12.1	87	6.2	259
				7	1.8	12	87	6.3	264
				8	1.8	12.1	87	6.3	277
				9	1.9	12	87	6.3	278
				10	1.9	12	86	6.3	284
				11	1.9	11.9	86	6.3	287
				12	2	11.6	84	6.3	293
				13	2.1	11.4	83	6.3	298
				14	2.1	11.2	81	6.4	297
				15	2.1	11.3	82	6.4	304
				16	2.2	11.2	82	6.3	317
				17	2.2	10.3	74	6.3	321
				18	2.3	9.5	69	6.3	321
				19	2.3	9	66	6.3	320
				20	2.3	8.6	62	6.3	320
				21	2.3	8.4	61	6.3	320
				22	2.3	8.3	60	6.3	319
				23	2.4	8	59	6.3	319
				24	2.4	7.8	57	6.3	319
				25	2.4	7.2	52	6.3	319
				26	2.5	4.3	32	6.2	320
				27	2.5	1.1	8.2	6.2	322
				28	2.5	0.7	5.3	6.3	322

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	22-Apr-07	1.1	-	0.3	0.3	13.7	94	6.7	130
				1	0.5	13.5	94	6.7	129
				2	1.5	12.8	92	6.6	135
				3	1.8	12.5	89	6.7	132
				4	2	12	86	6.7	165
				5	1.9	11.7	85	6.6	211
				6	1.9	11.8	85	6.6	257
				7	1.8	11.8	85	6.6	269
				8	1.9	11.8	85	6.7	274
				9	1.9	11.7	85	6.7	278
				10	1.9	11.7	85	6.7	283
				11	2	11.7	84	6.7	286
				12	2	11.4	83	6.7	288
				13	2.1	10.8	79	6.7	286
				14	2.2	10.7	78	6.7	291
				15	2.2	10.6	77	6.7	299
				16	2.2	10.8	78	6.7	311
				17	2.2	10.3	74	6.7	323
				18	2.3	9.5	69	6.7	323
				19	2.3	9.1	67	6.7	323
				20	2.3	8.9	65	6.6	323
				21	2.3	8.5	62	6.6	323
				22	2.3	8.4	61	6.6	322
				23	2.4	7.8	57	6.6	322
				24	2.4	7.5	55	6.6	322
				25	2.4	6.8	49	6.6	322
				26	2.5	5.3	39	6.5	323
	22-Jul-07	no ice	-	0.3	16.9	9.6	99	6.3	124
				1	16.8	9.6	99	6	124
				2	16.8	9.6	99	6	124
				3	16.8	9.6	99	6	124
				4	16.8	9.6	99	6	124
				5	16.8	9.6	99	6	125
				6	16.2	10.1	103	6	131
				7	15.7	10.5	106	6.1	141
				8	14.9	10.9	108	6.1	148
				9	14.2	11.5	112	6.1	149
				10	13.4	11.8	113	6.1	156
				11	12.8	12	113	6.2	165
				12	12.5	12	113	6.2	173
				13	12.1	12.1	112	6.2	170
				14.1	11.7	12.1	111	6.3	161
				15	10.7	12	108	6.3	157
				16	7.1	11.8	97	6.2	152
				17	5.4	11.3	89	6.1	155
				18	4.7	10.9	85	6	162
				19	4.6	10.6	82	6	163
				20	4.4	10.5	81	6	166
				21	4.2	10.1	77	5.9	168
				22	4.2	9.9	76	5.9	169
				23.3	4.1	9.8	75	5.9	169
				24	4.1	9.7	74	5.9	169
				25	4.1	9.6	74	5.9	170
				26	4	9.4	72	5.9	170
				27.1	4	9.3	71	5.8	170
				28	4	8.8	67	5.8	170

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	14-Aug-07	no ice	-	0.3	12.6	10.2	96	6.4	149
				1	12.5	10.2	95	6.4	150
				2	12.5	10.1	95	6.4	150
				3	12.5	10.1	95	6.4	149
				4	12.5	10.1	95	6.5	149
				5	12.4	10.1	95	6.5	149
				6	12.4	10.1	95	6.5	149
				7	12.4	10.1	95	6.5	149
				8	12.4	10.1	95	6.5	149
				9	12.4	10.1	94	6.6	149
				10	12.3	10.1	95	6.6	149
				11	12.4	10.1	94	6.7	149
				12	12.4	10.1	94	6.7	149
				13	12.3	10.1	95	6.7	149
				14	12.3	10.1	95	6.7	149
				15	12.3	10.1	95	6.7	150
				16	12.3	10.1	95	6.7	150
				17	12.3	10.2	95	6.7	150
				18	11.4	9.9	90	6.7	162
				19	5.9	8.5	68	6.6	246
				20	4.7	8.3	65	6.5	260
				21	4.4	8	67	6.4	264
				22	4.2	7.6	58	6.4	265
				23	4.1	7.4	57	6.4	267
				24	4.1	7.3	56	6.3	268
				25	4.1	6.8	52	6.3	268
				26	4	6.5	49	6.3	269
				26.5	4	6.2	47	6.2	269
	13-Sep-07	no ice	-	0.3	7.6	12	100	7	160
				1	7.6	11.9	100	7	160
				2	7.5	12	100	7	160
				3.1	7.5	11.9	100	7	160
				4	7.5	11.9	100	7	160
				5	7.5	11.9	100	7	160
				6.1	7.5	11.9	99	7	160
				7	7.5	11.9	99	7	160
				8	7.5	11.9	100	7	160
				9	7.5	11.9	99	7	160
				10	7.5	11.9	99	7	160
				11	7.5	11.9	99	7	160
				12	7.5	11.9	99	7	160
				13	7.4	11.9	99	6.9	160
				14.1	7.4	11.9	99	6.9	160
				15.1	7.4	11.9	99	6.9	160
				16.1	7.4	11.9	99	6.9	160
				17	7.4	11.9	99	6.9	160
				18	7.4	11.9	99	6.9	160
				19	7.4	11.9	99	6.9	160
				20.1	7.4	11.9	99	6.9	160
				21	7.4	11.9	99	6.9	160
				22	7.4	11.9	99	6.9	160
				23	7.3	11.9	99	6.9	161
				24	7.3	11.9	99	6.9	161
				25	7.3	11.9	99	6.9	162
				26	7.1	12	99	6.9	159

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	19-Sep-07	no ice	-	0.3	4.5	13.5	105	7.1	156
				1	4.5	13.4	104	7.1	156
				2	4.5	13.4	103	7.1	156
				3	4.5	13.4	104	7	156
				4	4.5	13.4	104	7	156
				5	4.5	13.4	103	7	156
				6	4.5	13.4	103	7	156
				7	4.5	13.3	103	7	156
				8	4.5	13.4	103	7	156
				9	4.5	13.4	103	7	156
				10.1	4.5	13.4	103	7	156
				11	4.4	13.4	103	7	156
				12	4.4	13.4	103	7	156
				13	4.4	13.4	103	7	156
				14	4.4	13.4	103	7	156
				15	4.4	13.4	103	7	156
				16	4.4	13.4	103	7	156
				17	4.4	13.4	103	7	156
				18	4.4	13.4	103	7	156
				19	4.4	13.4	103	7	156
				20	4.4	13.4	103	7	156
				21	4.4	13.4	103	7	156
				22	4.4	13.4	103	7	156
				23	4.4	13.4	103	6.9	156
				24	4.4	13.4	103	6.9	156
				25	4.4	13.4	103	6.9	156
				26	4.4	13.4	103	6.9	156
				27	4.4	13.4	103	6.9	156
				28	4.4	13.4	95	6.5	157
SNP 02-20f	22-Feb-07	1.1	-	0.3	0.4	14.6	101	6	132
				1	0.8	14.8	104	6.1	135
				2	1.6	14.4	102	6.1	118
				3	2	13.8	100	6.2	116
				4	2.1	12.9	94	6.2	117
				5	1.9	12.5	90	6.2	194
				6	1.8	12.6	91	6.3	257
				7	1.8	12.5	90	6.3	291
				8	1.8	12.5	90	6.3	294
				9	1.8	12.4	89	6.4	300
				10	1.8	12.4	89	6.4	303
				11	1.9	12.3	88	6.4	302
				12	2.1	11.8	86	6.5	295
				13	2.2	11.4	83	6.5	292
				14	2.6	8.5	59	6.4	306
	17-Mar-07	1.2	-	0.3	0.1	16.1	110	6.3	132
				1	0.3	16.4	113	6.2	127
				2	1.5	15.5	110	6.3	111
				3	1.9	15.2	110	6.2	108
				4	2.1	13.9	101	6.3	114
				5	1.9	14.1	102	6.1	221
				6	1.8	14	101	6.2	257
				7	1.8	14.4	104	6.2	270
				8	1.9	14.4	104	6.2	275
				9	1.9	14.1	101	6.3	279
				10	1.9	13.4	97	6.3	283
	17-Apr-07	1.4	-	0.3	0.2	13.4	92	6.3	131
				1	0.6	13.5	94	6.3	130
				2	1.7	12.8	92	6.3	119
				3	2.1	11.5	83	6.2	117
				4.1	1.8	11.8	85	6.1	197
				5	1.8	12	86	6.1	247
				6	1.8	12	86	6.2	258
				7	1.8	12	86	6.2	262
				8	1.9	11.9	86	6.2	268
				9	1.9	11.9	86	6.2	270
				10	1.9	11.8	85	6.2	277
				11	2.1	11.4	82	6.2	283
				12	2.1	11.1	80	6.2	284
				13	2.2	10.9	79	6.3	284
				14	2.4	7.8	57	6.2	287

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	19-Jul-07	no ice	-	0.3	17.3	9.7	101	6.9	115
				1	17.3	9.7	101	6.8	115
				2	17.3	9.7	101	6.7	115
				3	17.3	9.7	101	6.6	115
				4	17.3	9.7	101	6.6	115
				5	17.3	9.7	101	6.6	115
				6	15.2	10.8	107	6.6	134
				7	14	11.6	113	6.6	162
				8	13.1	11.6	110	6.6	176
				9	12.5	11.8	110	6.6	170
				10	12.3	11.8	110	6.6	159
				11	11.9	11.8	110	6.6	161
				12	11.5	11.9	109	6.6	155
				13	10.7	12.4	110	6.6	151
				11	1.9	13.2	95	6.3	284
				12	2	13.1	95	6.3	282
				13	2.2	12.6	91	6.3	273
				14	2.5	8	56	6.2	278
	15-Aug-07	no ice	-	0.3	12.3	10.6	99	6.6	156
				1.1	12.3	10.6	99	6.6	156
				2	12.3	10.6	99	6.6	156
				3	12.3	10.6	99	6.7	157
				4	12.3	10.6	99	6.7	157
				5	12.3	10.6	99	6.7	156
				6	12.3	10.6	99	6.7	156
				7.1	12.3	10.6	99	6.7	155
				8	12.3	10.6	99	6.7	155
				9	12.3	10.6	99	6.7	155
				10	12.3	10.6	99	6.7	155
				11	12.3	10.6	99	6.7	155
				12.1	12.2	10.6	99	6.8	157
				13	12.2	10.6	99	6.7	156
	17-Sep-07	no ice	-	0.3	5.4	12.9	102	7.1	157
				1	5.5	12.6	100	7.1	157
				2	5.5	12.6	100	7.1	157
				3	5.5	12.6	100	7.1	157
				4	5.5	12.6	100	7.1	157
				5	5.5	12.6	100	7	157
				6	5.5	12.6	100	7	157
				7	5.5	12.6	100	7	157
				8	5.5	12.6	100	7	157
				9	5.5	12.5	100	7	157
				10	5.5	12.5	100	7	157
				11	5.5	12.5	100	7	157
				12	5.5	12.5	100	7	157
				13	5.5	12.5	100	7	157
NEL01	18-Jul-07	-	-	0.3	16.8	9.5	98	6.3	17
				1	16.8	9.5	98	6.2	17
				2	16.8	9.5	98	6.2	17
				3	16.8	9.5	98	6.1	17
				4	16.7	9.6	99	6.6	17
				5	12.5	11.2	105	6	15
				6	10.9	11.6	105	6	15
				7	10.5	11.6	104	6	15
				8	10.2	11.7	104	6	14
				9	10	12.9	114	5.9	14
				10	9.8	11.8	104	6	14
	12-Sep-07	-	-	0.3	7.7	11.9	100	6.6	19
				1	7.7	11.8	99	6.6	19
				2	7.7	11.8	99	6.6	19
				3	7.7	11.8	99	6.5	19
				4	7.7	11.8	99	6.5	19
				5.1	7.7	11.8	99	6.5	19
				6	7.7	11.8	99	6.5	19
				7.1	7.7	11.8	99	6.5	19
				8	7.7	11.8	99	6.5	19
				9	7.7	11.8	99	6.5	19
				10	7.6	11.8	98	6.5	19
				11	7.5	11.8	99	6.5	19

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
NEL02	17-Jul-07	-	-	0.3	15.7	7.7	77	6.4	16
				1	15.6	7.7	77	6.5	16
				2	15.5	7.7	77	6.3	16
				3	15.5	7.7	77	6.3	16
				4	15.4	7.7	77	6.1	16
				5	13.2	8.3	79	6.1	15
				6	12.2	8.6	80	6.1	15
				7	11	8.8	80	6.1	14
				8	10.5	8.9	79	6.1	14
				9	10.2	8.9	79	6.1	14
				10	9.8	8.9	78	6.1	14
				11	9.6	8.9	78	6.1	14
	12-Sep-07	-	-	0.3	8	11.9	100	6.6	19
				1	8	11.6	98	6.6	19
				2	8	11.6	98	6.6	19
				3.1	8	11.6	98	6.6	19
				4	8	11.6	98	6.6	19
				5.1	8	11.6	98	6.6	19
				6	8	11.6	98	6.6	19
				7	8	11.6	98	6.6	19
				8.1	8	11.6	98	6.6	19
				9	8	11.6	98	6.6	19
				10	8	11.6	98	6.6	19
				11	8	11.6	98	6.6	19
NEL03	17-Jul-07	-	-	0.3	15.3	7.8	78	6.5	16
				1	15.2	7.7	77	6.5	16
				2	15.2	7.7	77	6.4	16
				3	15.1	7.7	77	6.3	16
				4	15.1	7.8	77	6.2	16
				5	13.1	8.3	80	6.1	15
				6	11.2	8.8	80	6	15
				7	11.1	8.8	80	6	15
				8	10.8	9.2	82	6	14
				9	10.3	8.9	80	6	14
	12-Sep-07	-	-	0.3	8.5	11.6	99	6.8	19
				1	8.5	11.5	98	6.8	19
				2	8.4	11.5	98	6.7	19
				3	8.4	11.5	98	6.7	19
				4.1	8.4	11.5	98	6.7	19
				5	8.4	11.5	98	6.7	19
				6	8.4	11.5	98	6.7	19
				7	8.4	11.5	98	6.7	19
				8	8.4	11.5	98	6.7	19
				9	8.4	11.5	98	6.7	19
				10	8.3	9.8	84	6.4	19
NEL04	18-Jul-07	-	-	0.3	15.9	9.8	100	6.3	17
				1	15.9	9.8	99	6.2	17
				2	15.9	10.1	102	6.1	17
				3	15.8	9.9	100	6.1	17
				4	15.9	9.8	99	6	17
				5	15.8	9.9	99	6	17
				6	13.1	11	105	5.9	16
				7	11.8	11.4	105	5.9	15
				8	10.9	11.6	105	5.9	15
				9	10.4	11.7	104	5.9	15
				10	9.8	11.8	104	5.9	14
				11	9.2	10.4	90	5.9	14
				12	8.8	7.4	64	5.7	18
	11-Sep-07	-	-	0.3	8.3	11.8	101	6.6	20
				1	8.3	11.8	101	6.6	20
				2	8.3	11.8	101	6.5	20
				3	8.4	11.8	100	6.5	20
				4	8.4	11.8	100	6.5	20
				5	8.4	11.8	100	6.5	20
				6	8.4	11.8	100	6.5	20
				7	8.3	11.8	100	6.5	20
				8	8.4	11.8	100	6.5	20
				9	8.4	11.8	100	6.5	20
				10	8.3	11.8	100	6.6	20
				11	8.2	11.8	100	6.6	20
				12	8.2	11.8	100	6.6	20
				13	8.2	11.8	100	6.6	20

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
NEL05	18-Jul-07	-	-	0.3	15	10.1	100	5.9	16
				1.1	15	10.1	100	5.8	16
				2	14.9	10.1	100	5.8	16
				3	14.9	10.1	100	5.8	16
				4	14.6	11	105	5.8	16
				5	13.1	10.9	104	5.8	16
				6	12.1	11.3	105	5.8	15
				7	11.7	11.4	105	5.8	15
				8	11	11.6	105	5.8	15
				9	10.6	11.6	104	5.8	15
	11-Sep-07	-	-	0.3	8.6	11.8	101	6.5	20
				1	8.6	11.7	100	6.6	19
				2.1	8.6	11.7	100	6.6	19
				3	8.6	11.7	100	6.6	19
				4	8.6	11.7	100	6.6	19
				5	8.6	11.7	100	6.6	19
				6	8.6	11.7	100	6.6	19
				7.1	8.6	11.7	100	6.6	19
				8	8.6	11.7	100	6.6	19
				9	8.6	11.7	100	6.6	19
				10	8.6	11.7	100	6.6	19
SNP 02-20d	23-Jan-08	1.1	-	1.4	0.6	15.7	109	7	198
				2	0.9	15.4	108	7	190
				3	0.9	15.4	108	6.9	235
				4	0.9	15.5	109	6.9	239
				5.1	1	15.5	109	6.9	241
				6	1	15.5	109	6.9	247
				7	1	15.4	108	6.9	248
				8	1	15.1	106	6.9	248
				9	1	15	106	6.9	249
				10	1	15	106	6.9	249
				11	1.1	14.9	105	6.9	249
	19-Feb-08	1.4	-	1.3	0.7	16.2	113	6.8	227
				1.4	0.9	15.5	109	6.7	226
				1.4	1.4	18.1	129	6.8	223
				2	1	15.3	108	6.7	207
				3	1	14.8	105	6.7	255
				3	1	14.9	105	6.7	255
				4	1	14.9	105	6.7	260
				5	1	14.9	105	6.7	264
				6	1.1	14.9	105	6.7	268
				7	1.1	14.8	105	6.7	271
				8	1.1	14.8	105	6.7	272
				9	1.1	14.8	104	6.6	272
				10	1.1	14.8	104	6.6	272
				11	1.2	14.5	103	6.6	271
	13-Mar-08	1.4	-	0.2	0.1	14.9	102	6.4	125
				1	0.1	14.9	102	6.3	124
				2	1	14	98	6.4	116
				3	1.1	14.2	101	6.4	146
				4	1.1	14.3	101	6.3	147
				5	1.1	14.3	101	6.4	148
				6	1.1	14.3	101	6.3	149
				7	1.1	14.2	101	6.2	152
				8	1.2	13.9	98	6.5	153
				9	1.2	13.9	98	6.4	154
				10	1.2	13.9	98	6.5	154
				11	1.2	13.9	98	6.3	154
	6-Apr-08	1.6	-	1.6	0.6	14.8	103	6.2	248
				2	1	14.4	101	6.1	230
				3	1.2	14.6	103	6.3	288
				4	1.2	14.7	104	6.3	291
				5	1.2	14.7	104	6.3	291
				6	1.2	14.6	103	6.4	293
				7	1.2	14.5	103	6.4	297
				8	1.2	14.4	102	6.4	298
				9	1.2	14.4	102	6.4	299
				10	1.2	14.4	102	6.4	299
				11	1.2	14.4	102	6.4	300

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	9-May-08	1.6	-	1.6	1	15.5	109	-	252
				2	1.7	14.6	104	-	248
				3	1.6	14.7	106	-	315
				4	1.5	15.1	108	-	314
				5	1.5	15.1	108	-	318
				6	1.5	15.1	107	-	319
				7	1.5	15	107	-	322
				8	1.5	15	107	-	322
				9	1.5	15	107	-	323
				10	1.5	14.9	107	-	323
				11	1.5	14.9	107	-	322
				12	1.6	5.6[b]	37[b]	-	294[b]
	14-Jul-08	no ice	7	0.3	13.4	10.5	101	7.2	203
				2.1	13.4	10.3	99	7.2	203
				3	13.4	10.3	99	7.2	203
				5.1	13.4	10.3	99	7.2	204
				6	13.4	10.4	99	7.2	204
				7.1	13.4	10.4	99	7.2	205
				8.1	13.4	10.4	99	7.2	205
				9	13.3	10.4	99	7.2	205
				10.3	13.2	10.5	100	7.2	209
				11	13.1	10.6	101	7.2	214
				12.1	11.9	11.2	104	7.2	204
	14-Aug-08	no ice	-	<0.3	16.56	9.3	95	7	216
				1	16.56	9.3	95	7	215
				2	16.56	9.3	95	7	216
				3	16.56	9.3	95	7	216
				4	16.56	9.3	95	7	216
				5	16.56	9.3	95	7	216
				6	16.55	9.3	95	6.9	218
				7	16.54	9.3	95	6.9	218
				8	16.55	9.3	95	6.9	218
				9	16.54	9.3	95	6.9	220
				10	16.53	9.3	95	6.9	221
				11	16.52	9.3	95	6.8	215
	15-Sep-08	no ice	4.3	0.2	6.6	11.8	97	7.2	222
				1.1	6.6	11.8	96	7.2	222
				2	6.7	11.8	96	7.3	222
				3.1	6.7	11.7	96	7.3	222
				4.1	6.6	11.7	96	7.3	221
				5	6.6	11.7	95	7.3	221
				6.1	6.6	11.7	95	7.3	220
				7.1	6.6	11.7	95	7.3	220
				8	6.6	11.6	95	7.3	220
				9	6.6	11.6	95	7.3	220
				10.1	6.6	11.6	95	7.3	220
				11	6.6	11.6	95	7.3	220
SNP 02-20d[c]	8-May-08	1.6	-	1.6	0.5	15	111	-	-
				2	1	15.4	107	-	-
				3	1.4	15	107	-	-
				4	1.4	15.1	108	-	-
				5	1.4	15.1	108	-	-
				6	1.4	15.1	108	-	-
				7	1.5	15.1	107	-	-
				8	1.5	15	107	-	-
				9	1.5	14.9	107	-	-
				10	1.5	14.9	107	-	-
				11	1.5	15	107	-	-

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNP 02-20e	22-Jan-08	0.98	-	1	1.4	16.8	119	7.1	208
				2	1.3	16.4	117	7.1	194
				3	1.2	16.1	114	7	213
				4	1.1	16	113	7	229
				5	1.2	16	113	7	241
				6	1.1	16	113	7	246
				7	1.1	15.9	112	7	247
				8	1.1	15.7	111	7	246
				9	1.1	15.6	110	7	245
				10	1.1	15.5	110	7	247
				11	1.1	15.4	108	6.9	245
				12	1.1	15.1	106	6.9	240
				13	1.2	14.7	105	6.9	237
				14	1.3	14.1	100	6.8	236
				15	1.3	13.9	98	6.8	237
				16	1.3	13.8	98	6.8	242
				17	1.3	13.7	98	6.8	244
				18	1.3	13.5	96	6.8	244
				19	1.3	13.4	95	6.8	244
				20	1.4	13.2	94	6.7	244
				21	1.4	13.1	93	6.7	245
				22	1.4	12.9	91	6.7	245
				23	1.4	12.8	91	6.7	245
				24	1.4	12.5	89	6.7	246
				25	1.4	12.1	86	6.6	247
				26	1.5	11.4	81	6.6	247
				27	1.5	10.2	73	6.5	247
				28	1.5	8.7	69	6.5	249
				29	1.6	6.7	46	6.3	240
	17-Feb-08	1.1	-	1.1	0.5	15.6	108	6.4	234
				2	0.9	15.5	109	6.6	222
				3	1	14.9	105	6.6	245
				4	1	14.7	104	6.5	254
				5	1	14.7	103	6.5	266
				6	1.1	14.6	103	6.5	267
				7	1.1	14.6	103	6.5	268
				8	1.1	14.5	102	6.5	267
				9	1.1	14.5	102	6.5	268
				10	1.1	14.4	102	6.5	269
				11	1.1	14.4	102	6.5	269
				11.7	1.1	15.2	107	6.5	269
				12	1.1	14.4	102	6.6	269
				13	1.2	14.2	101	6.6	259
				14	1.3	13.9	99	6.5	262
				15	1.3	13.7	97	6.5	266
				16	1.3	13.5	96	6.5	272
				17	1.3	13.4	95	6.5	273
				18	1.3	13.4	95	6.5	273
				19	1.3	13.3	94	6.5	271
				20	1.4	13.1	93	6.5	271
				21	1.4	12.8	91	6.5	270
				22	1.4	12.6	90	6.4	270
				23	1.4	12.3	88	6.4	269
				24	1.5	12.1	86	6.4	268
				25	1.5	11.7	83	6.3	268
				26	1.5	11.2	80	6.3	268
				27	1.6	10.6	76	6.2	269
				28	1.6	10.2	73	6.2	271

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Mar-08	1.3	-	0.2	0.5	13.8	96	6.4	130
				1	0.2	14.5	100	6.4	132
				2	0.8	14.9	104	6.3	123
				3	1.1	14.9	105	6.4	141
				4	1.1	14.9	105	6.2	145
				5	1.1	15	106	6.2	150
				6	1.1	15.1	106	6.3	151
				7	1.2	14.9	106	6.4	151
				8	1.2	14.8	105	6.3	152
				9	1.2	14.7	104	6.4	152
				10	1.2	14.4	102	6.3	152
				11	1.2	14.3	101	6.3	153
				12	1.2	14.1	100	6.3	152
				13	1.3	13.8	97	6.3	149
				14	1.4	13.3	95	6.3	147
				15	1.3	13.1	93	6.3	154
				16	1.3	13	92	6.2	154
				17	1.4	12.8	91	6.2	154
				18	1.3	13	92	6.2	156
				19	1.4	12.9	92	6.2	155
				20	1.4	12.9	91	6.2	155
				21	1.4	12.6	90	6.2	154
				22	1.4	12.3	88	6.2	153
				23	1.5	11.9	85	6.2	153
				24	1.5	11.3	81	6.1	152
				25	1.5	11	78	6.1	153
				26	1.5	10.8	77	6	153
				27	1.6	10.1	72	6.1	153
				28	1.6	9.8	70	6	154
	7-Apr-08	1.3	-	1.3	2.1	14.3	104	6.5	266
				2	1.4	14.5	104	6.4	250
				3	1.4	14.4	102	6.3	262
				4	1.4	14.6	104	6.4	284
				5	1.3	14.5	103	6.4	287
				6	1.3	14.4	102	6.4	297
				7	1.3	14.2	101	6.4	297
				8	1.3	14	99	6.4	297
				9	1.3	13.9	99	6.4	298
				10	1.3	13.9	99	6.4	299
				11	1.3	13.9	99	6.4	300
				12	1.3	13.8	98	6.4	295
				13	1.4	13.3	95	6.4	287
				14	1.4	13.2	94	6.3	294
				15	1.4	13.4	95	6.4	301
				16	1.4	13.3	95	6.4	300
				17	1.4	13.3	95	6.4	301
				18	1.4	13.4	95	6.4	303
				19	1.4	13.2	94	6.4	302
				20	1.4	13.1	93	6.3	301
				21	1.4	13.1	93	6.3	301
				22	1.4	13.1	93	6.3	303
				23	1.4	13	93	6.4	302
				24	1.5	12.7	91	6.3	301
				25	1.5	12.6	90	6.3	300
				26	1.5	11.7	83	6.3	298
				27	1.5	11.3	81	6.2	297
				28	1.6	9.8	70	6.1	297

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	11-May-08	1.4	-	1.4	1.1	15.2	107	-	248
				2	1.3	15.1	107	-	261
				3	1.7	14.5	104	-	284
				4	1.5	14.6	104	-	316
				5	1.6	14.8	106	-	318
				6	1.5	14.9	107	-	318
				7	1.6	15	107	-	317
				8	1.6	15	107	-	317
				9	1.6	14.9	107	-	315
				10	1.7	14.9	107	-	310
				11	1.8	14.9	107	-	308
				12	1.8	14.9	107	-	304
				13	1.9	14.8	107	-	303
				14	1.8	14.9	107	-	316
				15	1.8	14.8	107	-	314
				16	1.9	14.7	106	-	312
				17	1.9	14.7	106	-	312
				18	1.9	14.7	106	-	313
				19	1.9	14.7	106	-	312
				20	1.9	14.6	105	-	313
				21	1.9	14.5	105	-	315
				22	1.9	14.5	104	-	315
				23	1.9	14.5	104	-	314
				24	1.9	14.5	104	-	313
				25	1.9	14.5	105	-	314
				26	1.9	14.5	104	-	316
				27	1.9	14.4	104	-	317
				28	1.9	1.1[b]	8.2[b]	-	318[b]
	15-Jul-08	no ice	7.5	1	13.6	10.3	100	7.4	207
				2	13.5	10.3	99	7.3	205
				3	13.4	10.3	99	7.3	207
				4.1	13.4	10.3	99	7.3	207
				5.1	13.4	10.3	99	7.3	207
				6.1	13.3	10.3	99	7.3	207
				7	13.3	10.3	99	7.2	209
				8.1	13.3	10.4	99	7.2	213
				9	13.3	10.4	99	7.2	215
				10.1	13.3	10.4	99	7.2	218
				11.1	13.2	10.4	99	7.2	219
				12.1	13.2	10.4	99	7.2	218
				13	13.2	10.4	99	7.2	219
				14.1	12.5	10.9	103	7.2	211
				15.1	11.4	11.1	102	7.2	206
				16	9.3	11.4	100	7.2	206
				17	8.1	11.6	98	7.1	204
				18.1	7.4	11.6	97	7	204
				19.1	6.9	11.6	95	7	207
				20.1	6.6	11.5	94	6.9	211
				21	6.4	11.4	93	6.8	215
				22	6	11.2	90	6.7	225
				23	5.6	11.1	88	6.6	236
				24.1	5.4	11	87	6.5	240
				25	5.4	10.9	86	6.5	241
				26	5.4	10.8	86	6.6	244
				27.1	5.3	10.7	84	6.5	245
				28.1	5.2	9.9	78	6.4	245

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	12-Aug-08	no ice	-	1	17.33	9.4	98	6.9	202
				2	17.45	9.3	97	7.1	202
				3	17.46	9.2	97	7.1	202
				4	17.47	9.2	97	7.2	202
				5	17.46	9.2	96	7.1	202
				6	17.46	9.2	96	7.1	202
				7	17.46	9.2	96	7.2	202
				8	17.46	9.2	96	7.2	202
				9	17.46	9.2	96	7.2	202
				10	17.46	9.2	96	7.2	202
				11	17.44	9.2	96	7.2	202
				12	17.44	9.2	96	7.2	202
				13	17.43	9.2	96	7.2	202
				14	17.43	9.2	96	7.2	203
				15	17.4	9.2	96	7.2	203
				16	17.37	9.2	96	7.2	203
				17	13	9.7	90	7.1	202
				18	8.12	10.3	90	7	198
				19	7.47	10.2	85	6.7	201
				20	6.68	10.2	83	6.5	206
				21	6.26	9.8	80	6.5	212
				22	5.99	9.3	75	6.4	217
				23	5.82	8.8	70	6.3	219
				24	5.76	8.6	69	6.3	220
				25	5.73	8.4	67	6.3	220
				26	5.66	7.6	59	6.1	238
				27	5.85	8.8	70	6.6	220
				28	5.72	7.1	60	6.3	262
	15-Sep-08	no ice	4.3	0.1	6.7	11.8	97	7.1	221
				1.1	6.7	11.7	96	7.1	222
				2	6.7	11.7	96	7.1	222
				3	6.7	11.7	96	7.1	222
				4	6.7	11.7	96	7.1	222
				5.1	6.7	11.7	96	7.2	223
				6	6.7	11.7	95	7.2	224
				7.1	6.7	11.7	95	7.2	224
				8.1	6.6	11.7	95	7.2	223
				9	6.7	11.6	95	7.2	224
				10	6.6	11.6	95	7.2	225
				11	6.6	11.6	95	7.2	224
				12	6.6	11.6	95	7.2	225
				13.1	6.7	11.6	95	7.2	226
				14.1	6.6	11.6	95	7.2	225
				15	6.6	11.6	95	7.2	227
				16	6.6	11.6	95	7.2	227
				17	6.6	11.6	95	7.2	228
				18	6.6	11.6	95	7.2	228
				19	6.6	11.6	95	7.2	225
				20.1	6.5	11.6	95	7.2	222
				21.1	6.5	11.6	95	7.2	222
				22.1	6.5	11.6	94	7.2	221
				23.1	6.5	11.6	94	7.2	222
				24.1	6.3	11.6	94	7.3	216
				25.1	6.3	11.6	94	7.2	216
				26.1	6.3	11.6	94	7.2	216
				27.1	6.3	11.6	94	7.2	216
				28.1	6.3	11.6	94	7.2	216
SNP 02-20f	24-Jan-08	1.1	-	1.1	0.3	16.8	116	6.8	208
				2	0.7	16.5	115	6.8	196
				3	0.9	16.5	116	6.8	227
				4	0.9	16.8	118	6.8	243
				5	0.9	16.8	118	6.8	248
				6	1	16.8	118	6.8	254
				7	1	16.4	115	6.8	255
				8	1	15.9	112	6.8	256
				9	1	15.7	110	6.8	258
				10	1	15.9	112	6.8	260
				11	1	15.5	109	6.8	261
				12	1.1	15	106	6.8	259
				13	1.2	14.7	104	6.8	256
				14	1.4	13.5	96	6.7	248

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	20-Feb-08	1.3	-	1.3	0.5	17.4	121	6.4	243
				1.3	0.5	17.5	121	6.4	238
				2	1	16.6	117	6.4	221
				3	1	15.9	112	6.4	234
				4	1.1	15.8	111	6.4	274
				5	1.1	15.7	111	6.4	279
				6	1.1	15.6	110	6.4	284
				7	1.1	15.5	110	6.4	287
				8	1.1	15.5	109	6.4	287
				9	1.1	15.5	109	6.4	287
				10	1.1	15.4	109	6.4	287
				11	1.1	15.4	109	6.4	288
				12	1.2	15.3	109	6.3	285
				13	1.3	14.9	106	6.3	280
				14	1.5	14.1	101	6.2	275
	16-Mar-08	no ice	-	0.3	0.1	15	103	6.1	127
				1	0.1	15.6	107	6	125
				2	0.3	15.5	107	6	115
				3	0.5	15.4	107	5.9	140
				4	1.1	15	106	6	148
				5	1.1	15.1	107	6	151
				6	1.1	15.2	107	5.9	152
				7	1.1	15.1	107	6	153
				8	1.2	14.7	104	6	153
				9	1.2	14.3	101	6	153
				10	1.2	14.1	100	6	154
				11	1.2	14	99	5.6	154
				12	1.2	14	99	5.9	155
				13	1.3	13.7	97	5.9	153
				14	1.5	12.9	92	5.8	150
	13-Apr-08	1.5	-	1.5	0.7	15.4	108	6.0 - 6.6	241
				2	0.9	15.3	107	6.0 - 6.6	236
				3	1.2	15.3	108	5.9 - 6.7	282
				4	1.2	15.4	109	5.9 - 6.7	295
				5	1.2	15.3	108	5.9 - 6.7	302
				6	1.2	15.3	108	5.9 - 6.8	303
				7	1.3	15.2	108	5.9 - 6.8	305
				7.5	1.3	15.2	108	5.9 - 6.8	307
				8	1.3	15.2	108	5.9 - 6.8	307
				9	1.3	15.2	108	5.9 - 6.8	309
				10	1.3	15.2	107	5.9 - 6.8	311
				11	1.3	15.1	107	5.9 - 6.8	312
				12	1.3	15	106	5.9 - 6.8	309
				13	1.3	14.9	106	5.9 - 6.8	309
				14	1.4	14.3	102	5.9 - 6.8	307
	9-May-08	no ice	-	1.6	0.8	13.5	95	-	259
				2	1	13.4	94	-	256
				3	1.4	13.3	95	-	317
				4	1.5	13.4	95	-	322
				5	1.5	13.4	96	-	327
				6	1.5	13.4	96	-	328
				7	1.6	13.4	96	-	328
				8	1.6	13.3	95	-	328
				9	1.6	13.3	95	-	328
				10	1.6	13.3	95	-	329
				11	1.5	13.3	95	-	329
				12	1.5	13.3	95	-	330
				13	1.5	13.3	95	-	330
				14	1.6	13.3	95	-	330

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Jul-08	no ice	8	0.1	17.3	9.3	97	7.1	18
				0.3	13.9	10.3	100	6.9	183
				1	13.9	10.2	99	7	183
				2	13.7	10.2	99	7.1	182
				3	13.7	10.3	99	7.1	182
				4	13.7	10.3	99	7.1	182
				5.1	13.6	10.3	99	7.1	182
				6.1	13.6	10.3	99	7.1	183
				7	13.5	10.3	99	7.1	182
				8.1	13.4	10.3	99	7.1	182
				9	13.4	10.3	99	7.1	183
				10.1	13.4	10.4	99	7.1	183
				11.1	13.4	10.4	99	7.1	184
				12.1	13.3	10.4	100	7.1	186
				13.1	13.3	10.4	99	7.1	188
				14	12	10.7	100	7.1	190
	14-Aug-08	no ice	-	<0.3	16.5	9.2	94	7	215
				1	16.5	9.2	94	7	215
				2	16.5	9.2	94	7	215
				3	16.5	9.2	94	7	215
				4	16.5	9.2	94	7	215
				5	16.5	9.2	94	7	215
				6	16.5	9.2	94	7	215
				7	16.5	9.2	94	7	214
				8	16.5	9.2	94	7	215
				9	16.47	9.2	94	7	214
				10	16.45	9.2	94	7	216
				11	16.45	9.2	94	7	215
				12	16.45	9.2	94	7	213
				13	16.44	9.2	94	7	213
	14-Sep-08	no ice	4.25	0.3	6.9	11.8	97	7	219
				1.1	6.9	11.8	97	7.1	219
				2	6.9	11.8	97	7.1	219
				3.1	6.9	11.6	95	7.2	221
				4	6.9	11.5	95	7.2	221
				5.1	6.9	11.5	95	7.2	221
				6.1	6.9	11.5	94	7.2	220
				7	6.9	11.5	94	7.2	220
				8.1	6.9	11.4	94	7.2	221
				9.1	6.9	11.4	94	7.2	221
				10	6.9	11.4	94	7.2	221
				11.1	6.9	11.4	94	7.2	221
				12	6.9	11.4	94	7.2	221
				13	6.8	11.4	94	7.2	221
				14.1	6.8	11.3	93	7.2	221
SNP 02-20f[(c)]	8-May-08	1.6	-	1.6	1.6	14.8	105	-	-
				2	1.5	14.2	102	-	-
				3	1.5	14.7	105	-	-
				4	1.5	14.8	106	-	-
				5	1.4	15	107	-	-
				6	1.4	15	107	-	-
				7	1.5	15	107	-	-
				8	1.5	14.9	107	-	-
				9	1.5	15	107	-	-
				10	1.5	14.9	107	-	-
				11	1.5	15	107	-	-
				12	1.5	15	107	-	-
				13	1.5	14.9	107	-	-
				14	1.5	14.9	107	-	-
	13-Aug-08	no ice	-	<0.3	16.96	9.2	95	6.9	214
				1	16.95	9.2	95	6.9	214
				2	16.96	9.2	95	6.9	214
				3	16.96	9.2	95	6.9	214
				4	16.96	9.2	95	6.8	214
				5	16.96	9.2	95	6.8	214
				6	16.94	9.2	95	6.7	214
				7	16.95	9.2	95	6.7	214
				8	16.94	9.2	95	6.7	214
				9	16.93	9.2	95	6.7	214
				10	16.93	9.2	95	6.6	214
				11	16.92	9.2	95	6.5	214

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP03	11-Apr-08	1.3	-	1.3	0.1	16.8	115	6.0 - 6.7	246
				2	0.7	16.3	114	6.0 - 6.7	236
				3	1.1	16.1	114	6.0 - 6.6	263
				4	1.2	15.9	112	6.1 - 6.6	291
				5	1.2	15.7	111	6.0 - 6.6	295
				6	1.2	15.5	110	6.1 - 6.7	301
				7	1.2	15.3	109	6.0 - 6.7	300
				8	1.3	15.2	108	6.0 - 6.7	299
				9	1.5	14.6	104	5.6 - 6.7	289
				10	1.8	14.1	101	5.9 - 6.6	285
				11	2	13.6	98	5.9 - 6.6	281
				12	2.2	12.8	92	5.8 - 6.5	279
	9-May-08	1.5	-	1.5	0.6	15.7	109	6.0 - 6.6	250
				2	1.1	15	105	6.0 - 6.5	240
				3	1.4	14.8	106	5.9 - 6.6	302
				4	1.5	15	107	5.9 - 6.6	315
				5	1.5	15	107	6.0 - 6.6	321
				6	1.5	14.9	106	6.0 - 6.6	319
				7	1.5	14.8	106	6.0 - 6.6	319
				8	1.5	14.8	105	6.0 - 6.4	319
				9	1.8	14.4	104	6.0 - 6.6	310
				10	2	14	101	6.0 - 6.6	303
				11	2.2	13.4	97	5.9 - 6.6	298
				12	2.3	13	95	5.9 - 6.5	296
	20-Jul-08	no ice	7.5	0.3	15.9	9.6	97	7.1	193
				1.1	15.8	9.5	96	7.1	193
				2.1	15.8	9.5	96	7.1	193
				3.1	15.8	9.5	96	7.2	193
				4	15.8	9.5	96	7.2	193
				5	15.8	9.5	95	7.2	193
				6	15.7	9.5	95	7.2	193
				7	15.6	9.5	95	7.2	194
				8.1	15.5	9.5	95	7.2	194
				8.9	15.4	9.5	95	7.2	196
				10.1	15.1	9.6	95	7.2	196
				10.9	15	9.6	95	7.2	195
				12.1	13.1	10.3	98	7.2	193
	16-Sep-08	no ice	4	0.2	6.1	12.1	98	6.9	218
				1	6.1	12.1	98	6.9	219
				2.1	6.1	12	97	6.9	219
				3.1	6.1	12	97	7	219
				4.1	6.1	12	97	7	218
				5	6.1	12	97	7	218
				6	6.1	12	97	7	218
				7	6.1	12	97	7	218
				8.1	6.1	12	97	7	218
				9	6.1	12	97	7	218
				10.1	6.1	12	97	7	218
				11	6.1	12	96	7	219
				12.1	6.1	12	96	7	218
SNAP05	26-Jan-08	1.09	-	1.2	0.2	17.8	123	6.9	201
				2	0.7	17.4	121	6.9	192
				3	0.9	17.1	119	6.9	189
				4	0.9	16.9	119	6.9	202
				5	0.9	16.6	116	6.8	236
				6	0.9	16.5	116	6.8	245
				7	1	16.1	113	6.8	244
				8	1.2	15.5	109	6.8	236
				9	1.5	14.6	104	6.8	232
				10	1.7	14.1	101	6.7	229
				11	1.9	13.4	97	6.7	226
				12	2.1	12.5	91	6.6	225
				13	2.3	10.9	79	6.5	226

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	22-Feb-08	1.3	-	1.3	0.3	16.2	112	6.4	240
				2	0.8	15.9	111	6.3	225
				3	1.1	15.5	109	6.4	221
				4	1.1	15.1	107	6.4	238
				5	1.1	14.9	105	6.2	269
				6	1.1	14.6	103	6.3	279
				7	1.2	14.3	102	6.3	274
				8	1.4	13.5	96	6.2	267
				9	1.7	12.8	92	6.3	264
				10	2	12.4	89	6.1	260
				11	2.2	11.5	84	6.2	258
				12	2.4	11.1	81	6.1	256
				13	2.5	10	74	6	256
	8-Apr-08	1.7	-	1.8	1	15.6	109	6.6	235
				2	0.9	15.7	110	6.6	227
				3	1.2	15	107	6.6	223
				4	1.1	15.5	109	6.6	275
				5	1.2	15.6	111	6.6	278
				6	1.2	15.5	110	6.6	283
				7	1.3	15.2	108	6.6	279
				8	1.5	14.5	104	6.6	274
				9	1.8	13.6	99	6.6	269
				10	2	13.3	96	6.6	266
				11	2.2	12.7	92	6.6	264
				12	2.4	12	88	6.5	262
				13	2.6	10.9	80	6.5	261
				14	2.8	9.3	98	6.4	260
	8-May-08	1.4	-	1.4	0.2	15.8	108	6.0 - 6.6	246
				2	1.1	14.9	105	5.9 - 6.6	239
				3	1.7	14.6	105	5.8 - 6.5	242
				4	1.5	15	107	5.7 - 6.6	303
				5	1.6	15.4	110	5.7 - 6.6	301
				6	1.6	15.3	109	5.7 - 6.7	307
				7	1.8	15	108	5.7 - 6.7	295
				8	2	14.8	107	5.7 - 6.6	289
				9	2.1	14.1	101	6.0 - 6.5	294
				10	2.3	12.7	93	5.9 - 6.6	290
				11	2.5	12.2	89	5.6 - 6.5	288
				12	2.6	12	88	5.5 - 6.5	288
				13	2.8	11.4	84	5.5 - 6.5	286
				14	3	8.9	65	5.4 - 6.4	283
	21-Jul-08	no ice	7.3	0.3	15.8	9.8	99	7	195
				1	15.8	9.8	99	7	195
				2.1	15.8	9.8	99	7.1	195
				3	15.8	9.7	98	7.1	195
				4.1	15.8	9.7	98	7.2	195
				5	15.8	9.7	98	7.2	195
				6	15.8	9.7	98	7.2	196
				7.1	15.8	9.7	98	7.2	195
				8	15.8	9.7	98	7.2	195
				9	15.7	9.7	97	7.2	195
				10.1	15.7	9.7	97	7.2	195
				11	15.6	9.7	97	7.2	195
				12	15.6	9.7	97	7.2	195
				13	15.5	9.7	97	7.2	195
	13-Sep-08	no ice	-	0.2	7.2	11.5	95	7.2	215
				1	7.2	11.5	95	7.2	215
				2.1	7.2	11.4	95	7.2	215
				3	7.2	11.4	94	7.2	215
				4	7.2	11.4	94	7.3	215
				5.1	7.2	11.4	94	7.3	215
				6	7.2	11.4	94	7.3	214
				7	7.2	11.4	94	7.3	215
				8.1	7.2	11.4	94	7.3	215
				9.1	7.2	11.4	94	7.3	214
				10.1	7.2	11.4	94	7.3	214
				11	7.2	11.4	94	7.3	214
				12.1	7.2	11.4	94	7.3	214
				13.1	7.2	11.4	94	7.3	214

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP06	11-Apr-08	1.3	-	1.3	0.2	16.6	114	5.8 - 6.5	248
				2	0.6	16.3	113	5.8 - 6.5	233
				3	1.4	14.7	104	5.8 - 6.5	223
				4	1.5	14	100	5.9 - 6.8	226
				5	1.5	14.4	104	5.7 - 6.5	260
				6	1.4	14.8	105	5.9 - 6.5	273
				7	1.6	14.4	103	5.7 - 6.5	269
				8	1.9	14.5	105	5.7 - 6.5	261
				9	2.1	15.2	110	5.7 - 6.5	253
				10	2.2	13.1	95	6.0 - 6.4	255
				11	2.3	11.9	87	5.8 - 6.4	254
	9-May-08	1.6	-	1.6	0.4	15.9	110	6.0 - 6.8	247
				2	0.7	15.7	110	5.9 - 6.7	246
				3	1.8	13.8	99	5.8 - 6.7	245
				4	2	13.7	99	5.8 - 6.6	246
				5	2.3	14.1	104	5.8 - 6.6	238
				6	2.1	14.6	106	5.7 - 6.6	279
				7	2.2	14.6	106	5.7 - 6.6	272
				8	2.8	14.8	110	5.7 - 6.6	251
				9	3	15.3	114	5.7 - 6.6	246
				10	3	15.5	115	5.7 - 6.6	249
				11	2.8	14.4	106	6.0 - 6.7	260
				12	2.7	12.2	89	5.6 - 6.5	268
	19-Jul-08	no ice	8	0.3	15.4	10.2	102	7	190
				1.1	15.4	10.1	101	7.1	190
				2	15.4	10.1	101	7.1	191
				3	15.4	10.1	101	7.1	191
				4.1	15.4	10.1	101	7.1	190
				5	15.3	10.1	100	7.2	191
				6.1	15.3	10.1	101	7.2	191
				7.1	15.2	10.1	100	7.2	191
				8	15.2	10.1	100	7.2	191
				9.1	15.1	10.1	101	7.2	192
				10	14.9	10.2	101	7.2	192
				11.1	14.7	10.2	100	7.2	192
				12.1	14.6	10.2	100	7.2	192
				13.1	14.2	10.3	100	7.2	190
	13-Sep-08	no ice	4.25	0.2	7.2	11.6	96	7.1	206
				1.1	7.2	11.5	95	7.2	207
				2	7.2	11.4	95	7.2	207
				2.1	7.2	11.4	95	7.2	207
				3	7.2	11.4	95	7.2	206
				4	7.2	11.4	94	7.2	207
				5.1	7.2	11.4	94	7.2	207
				6.1	7.2	11.4	94	7.2	207
				7.1	7.2	11.4	95	7.2	207
				8	7.2	11.4	95	7.2	207
				9.1	7.2	11.4	95	7.2	207
				10.1	7.1	11.4	95	7.2	207
				11.2	7.1	11.5	95	7.2	207
				12	7.1	11.5	95	7.2	207
SNAP06[(c)]	10-Apr-08	1.3	-	1.3	0.2	15.4	106	-	249
				2	0.7	15.1	105	-	236
				3	1.4	12.8	91	-	228
				4	1.5	13.4	96	-	231
				5	1.6	14.6	105	-	235
				6	1.4	14.5	103	-	270
				7	1.5	13.8	99	-	276
				8	1.8	14	101	-	266
				9	2	14.7	107	-	256
				10	2.1	13.2	95	-	261
				11	2.2	10.7	78	-	260
SNAP12	22-Jan-08	1.1	-	1.1	0.1	16.8	116	6.9	206
				2	0.4	15.8	109	6.9	191
				3	0.6	15	104	6.9	191
				4	0.8	15.2	106	6.9	225
				5	0.9	15.2	106	6.9	233
				6	0.9	15.1	106	6.9	241
				7	1	15.2	107	6.9	247

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	22-Feb-08	1.4	-	1.4	0.8	15.3	107	6.5	238
				2	1	15	105	6.5	220
				3	1.1	14.5	102	6.5	233
				4	1.1	14.2	101	6.5	267
				5	1.1	14.3	101	6.4	274
				6	1.1	14.2	100	6.4	281
				7	1.2	14.3	101	6.4	286
	27-Mar-08	1.6	-	1.6	0.4	14.3	99	6.2	238
				2	1.1	13.5	95	6.3	229
				3	1.2	13.5	95	6.3	254
				4	1.2	13.5	96	6.1	277
				5	1.2	13.5	96	6.1	283
				6	1.2	13.5	96	6.2	287
				7	1.2	13.5	96	6.1	291
	9-May-08	1.7	-	1.7	0.9	13.5	95	-	248
				2	1.7	12.8	91	-	248
				3	1.5	12.9	92	-	308
				4	1.5	13.2	94	-	317
				5	1.5	13.2	94	-	320
				6	1.6	13.2	94	-	324
				7	1.7	13.1	94	-	324
				8	2.4	11.5	84	-	318
	21-Jul-08	no ice	7.8	0.4	15.7	9.7	97	7.2	197
				1	15.7	9.6	97	7.2	197
				2	15.7	9.6	97	7.2	197
				3.1	15.7	9.6	97	7.2	197
				4.1	15.7	9.6	97	7.2	198
				5	15.7	9.6	97	7.3	197
				6	15.7	9.6	97	7.2	197
				7.1	15.7	9.6	97	7.2	198
	12-Sep-08	no ice	4.3	0.3	7.6	11.6	97	7	216
				1	7.6	11.6	97	7.1	217
				2.1	7.6	11.6	97	7.1	217
				3	7.6	11.6	97	7.1	217
				4	7.6	11.5	97	7.1	217
				5	7.6	11.5	97	7.1	217
				6	7.6	11.5	96	7.2	217
				7	7.6	11.5	96	7.2	217
SNAP14	24-Jan-08	1	-	1	0.1	16.8	115	6.8	210
				2	0.2	16.5	114	6.8	198
				3	0.9	15.7	110	6.8	239
				4	0.9	15.4	108	6.8	244
				5	1	15.2	107	6.8	249
				6	1	15.1	106	6.8	254
				7	1	15.1	106	6.8	257
				8	1	15.1	106	6.8	258
				9	1	15.1	106	6.8	258
				10	1	15	106	6.8	259
				11	1.3	14	99	6.8	249
				12	1.5	13.2	94	6.7	245
				13	1.8	10.6	76	6.4	239
	20-Feb-08	1.25	-	1.3	0.4	17.1	118	6.4	245
				2	0.9	16.3	115	6.4	223
				3	1.1	16.1	113	6.4	264
				4	1.1	16	112	6.4	273
				5	1.1	15.9	112	6.4	280
				6	1.1	15.9	112	6.4	286
				7	1.1	15.8	112	6.4	287
				8	1.1	15.7	111	6.4	287
				9	1.1	15.5	109	6.4	287
				10	1.1	15.5	109	6.3	288
				11	1.4	14.9	106	6.3	277
				12	1.6	13.8	99	6.1	272
				13	2	12.1	88	6	264
				13	2	10.8	78	6	264

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	9-Apr-08	1.4	-	1.4	0.2	17.1	118	6.7	262
				2	0.2	16.2	113	6.7	240
				3	1	15.9	112	6.7	289
				4	1.1	15.9	112	6.7	298
				5	1.1	15.8	112	6.7	301
				6	1.2	15.8	111	6.7	308
				6.5	1.2	15.1	107	6.7	310
				7	1.1	15.7	111	6.8	310
				8	1.1	15.6	110	6.8	310
				9	1.1	15.6	110	6.8	310
				10	1.1	15.6	110	6.8	310
				11	1.4	14.5	103	6.8	300
				12	1.6	13.8	99	6.8	293
	9-May-08	1.7	-	1.7	0.8	13.3	93	-	250
				2	1.4	13	92	-	253
				3	1.5	13	93	-	317
				4	1.5	13.2	94	-	319
				5	1.5	13.3	95	-	321
				6	1.5	13.3	95	-	325
				7	1.6	13.3	95	-	326
				8	1.6	13.3	95	-	327
				9	1.6	13.3	95	-	327
				10	1.6	13.3	95	-	328
				11	1.6	13.3	95	-	328
				12	1.7	12.8	99	-	324
				13	2.2	11.9	86	-	306
	18-Jul-08	no ice	8	0.3	14.9	10	99	6.7	183
				1	14.8	10	99	6.8	184
				2	14.7	10	99	6.9	184
				3	14.7	10	99	7	184
				4.1	14.7	10	98	7.1	184
				5	14.7	10	98	7.1	184
				6	14.6	10	98	7.1	184
				7.1	14.6	10	98	7.1	183
				8.1	14.6	10	98	7.1	184
				8.8	14.6	10	98	7.2	184
				10.1	14.4	10.1	99	7.2	184
				11	14.4	10.1	99	7.2	184
				12	13.8	10.3	99	7.2	190
	16-Sep-08	no ice	4.25	0.2	6.1	12.1	98	6.9	218
				0.2	6.1	12.1	97	6.8	219
				1	6.1	12	97	6.8	219
				2.1	6.1	12	97	6.8	219
				3	6.1	12	97	6.8	219
				4	6.2	12	97	6.8	219
				5.1	6.2	12	97	6.9	219
				6	6.2	12	97	6.9	219
				7	6.2	12	97	6.9	219
				8.1	6.2	12	97	6.9	219
				9.1	6.2	11.9	96	6.9	220
				10	6.2	11.9	96	6.9	220
				11	6.2	11.9	96	6.9	220
				12.1	6.2	11.9	96	7	220
				13.1	6.2	11.9	96	7	220
SNAP26	23-Jan-08	1	-	1	0.7	17	118	6.9	216
				2	0.9	16.7	117	6.9	207
				3	1.1	15.6	110	6.9	205
				4	1.5	14.6	104	6.7	212
				5	2.4	5.7[(b)]	41[(b)]	6.4[(b)]	217[(b)]
	16-Apr-08	1.5	-	1.5	0.4	16.9	117	-	272
				2	0.8	16.7	117	-	264
				3	1.2	15.7	111	-	260
				4	1.6	15.1	109	-	263
				5	2.5	10.9	77	-	254
	9-May-08	no ice	-	1	0.5	13.8	96	-	271
				2	1.5	13.4	96	-	275
				3	1.9	13.2	95	-	285
				4	2.8	12.8	95	-	275
				5	3.5	12.6	95	-	283

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	15-Jul-08	no ice	6.1	0.4	14.2	10.2	99	7	208
				1	14.1	10.2	99	7.1	207
				2.1	13.8	10.2	98	7.2	206
				3.1	13.6	10.2	98	7.2	205
				4.1	13.6	10.2	98	7.2	206
				5	13.6	10.2	98	7.2	206
	19-Sep-08	no ice	-	1.1	3.9	13	99	7	216
				1.1	3.9	13	99	7	216
				2.1	3.9	13	99	7	216
				3.1	3.9	13	99	7	215
				4.1	3.9	13	99	7	216
				5.1	3.9	13	99	7	216
SNAP28	5-Apr-08	1.2	-	1.3	0.9	15.1	106	6.6	241
				2.1	1	15.2	107	6.4	244
				3	1.3	15	106	6.3	276
				4	1.3	15.2	108	6.3	299
				5.1	1.3	15.3	109	6.3	301
				6.1	1.3	15.6	110	6.3	302
	14-Jul-08	no ice	7	0.3	13.4	10.6	102	7.1	208
				1	13.4	10.4	99	7.2	208
				2	13.4	10.3	99	7.2	208
				3	13.4	10.3	99	7.2	208
				4	13.4	10.3	99	7.2	208
				6.1	13.4	10.4	99	7.2	216
	12-Sep-08	no ice	4.25	0.3	7.6	11.7	98	6.6	223
				0.3	7.6	11.7	98	6.5	222
				1	7.6	11.6	97	6.8	223
				2.1	7.6	11.6	97	6.9	223
				3	7.6	11.6	97	6.9	223
				4.1	7.6	11.6	97	7	223
				5.1	7.6	11.6	97	7	223
				6	7.5	11.6	97	7.1	221
SNAP09	26-Jan-08	1.2	-	1.2	0.1	17.9	123	-	206
				2	0.6	17.1	118	-	193
				3.1	0.9	16.1	112	-	187
				4	1	15.1	106	-	191
				5	1.1	14.8	105	-	195
				6	1.1	14.8	105	-	200
				7	1.2	14.7	104	-	200
				8	1.2	14.8	105	-	205
				9	1.3	14.5	103	-	202
				10	1.3	14.4	102	-	201
				11	1.4	14.1	100	-	202
				12	1.5	13.5	96	-	198
				13	1.6	13.1	94	-	198
				14	1.7	12.6	91	-	198
	22-Feb-08	1.4	-	1.4	0.7	15.2	106	6.5	237
				2	0.9	14.7	103	6.4	223
				3	1.3	14	99	6.4	212
				4	1.3	13.1	93	6.4	215
				5	1.4	12.7	90	6.2	221
				6	1.4	12.5	89	6.2	224
				7	1.4	12.5	89	6.2	228
				8	1.3	12.7	90	6.2	244
				9	1.4	12.6	90	6.2	237
				10	1.6	12.3	87	6.2	226
				11	1.6	11.8	84	6.1	224
				12	1.7	11.4	82	6.1	222
				13	1.8	11	79	6.1	221
				14	1.9	10.5	75	6.1	220

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	4-Apr-08	1.7	-	1.7	1.1	14.4	102	5.7	248
				2	1.4	13.3	95	6.2	232
				3	1.5	12.4	89	5.9	228
				4.1	1.5	12.5	89	6.1	231
				5.1	1.5	12.4	89	6	231
				6.1	1.6	12.2	87	5.9	230
				7.1	1.6	12	86	6.1	229
				8.1	1.6	12.1	87	6	235
				9	1.7	12	86	5.9	234
				10	1.7	11.6	84	5.9	232
				11.1	1.8	11.2	81	5.9	229
				12	1.9	11.1	80	5.9	228
				13.1	2	10.9	79	6	229
				14	2.1	10.5	76	5.9	228
	10-May-08	1.65	-	1.7	0.9	13.7	96	-	243
				2	1.8	13.3	95	-	233
				3	1.9	13	94	-	237
				4	1.9	12.7	92	-	237
				5	1.9	12.7	92	-	238
				6	1.9	12.7	91	-	235
				7	1.9	12.7	92	-	245
				8	2	12.8	92	-	247
				9	2	12.6	91	-	247
				10	2.1	12.2	89	-	248
				11	2.1	12.2	88	-	248
				12	2.1	12	87	-	252
				13	2.3	11.7	85	-	246
				14	2.4	11.5	84	-	246
	19-Jul-08	no ice	8.1	0.2	15.2	10.2	101	7	188
				1.1	15.1	10.1	101	7	188
				2	15.1	10.1	101	7	188
				3	15	10.1	100	7.1	189
				4	15.1	10.1	100	7.1	188
				5.1	15	10.1	100	7.1	189
				6.1	15	10.1	100	7.1	189
				7.1	14.9	10.1	100	7.1	189
				8.1	14.7	10.2	100	7.1	189
				9.1	14.7	10.2	101	7.1	189
				10	12.3	11.4	106	7.2	188
				11.2	10.6	12.1	109	7.1	189
				12	9.9	12.3	109	7.1	189
				13.1	9.7	12.3	108	7.1	189
				14	9.4	12.2	107	7	189
	19-Sep-08	no ice	4.5	0.2	5.1	12.7	100	7	204
				1.1	5.1	12.7	100	7	204
				2.1	5.1	12.7	100	7	204
				3	5.1	12.7	100	7	204
				4.1	5.2	12.7	100	7	204
				5.1	5.2	12.7	100	7	204
				6	5.2	12.7	100	7	204
				7	5.2	12.7	100	7.1	204
				8.1	5.1	12.7	100	7.1	204
				9	5.2	12.6	99	7.1	204
				10.1	5.2	12.6	99	7.1	204
				11.1	5.2	12.6	99	7.1	204
				12	5.2	12.6	99	7.1	204
				13	5.2	12.6	99	7.1	204
				14.1	5.2	12.6	99	7.1	204
				15.1	5.2	12.6	99	7.1	204
SNAP11A	24-Feb-08	1.4	-	1.4	0.5	15.3	106	6.3	221
				2	0.9	14.9	105	6.4	208
				3	1.2	14.5	103	6.3	204
				4	1.3	13.8	98	6.3	202
				5	1.3	13.5	96	6.1	205
				6	1.4	12.9	92	6.1	210
				7	1.4	12.8	91	6.1	210
				8	1.5	12.6	90	6	212
				9	1.5	12.5	89	6.1	215
				10	1.6	12.4	89	6.1	215
				11	1.6	12.1	87	6	215
				12	1.7	11.6	84	6	216
				13	1.8	11.4	82	6	217

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	5-Apr-08	1.4	-	1.5	0.5	13.9	97	6.5	233
				2	1.1	13.5	95	6.3	216
				3	1.4	12.5	89	6.3	213
				4	1.5	11.9	85	6.2	220
				5	1.5	11.9	85	6.1	228
				6	1.5	12.1	87	6.2	240
				7	1.5	12.4	88	6.2	245
				8	1.5	12.5	89	6.2	249
				9	1.5	12.8	91	6.2	252
				10	1.6	12.6	90	6.2	246
				11	1.7	12.2	88	6.2	240
				12	1.8	12.2	88	6.2	244
				13	1.7	12.6	90	6.2	258
	9-May-08	1.8	-	1.8	1.6	12.4	89	-	236
				2	1.6	12.4	89	-	234
				3	1.9	12.3	89	-	234
				4	1.9	12.1	87	-	245
				5	1.9	12	86	-	257
				6	1.9	11.9	86	-	257
				7	2	11.9	86	-	255
				8	2	11.9	86	-	254
				9	2	11.9	86	-	260
				10	2.1	11.8	86	-	253
				11	2.3	11.6	84	-	248
				12	2.1	11.4	83	-	266
				13	2.2	11.4	83	-	269
				14	2.3	11.4	83	-	265
				15	2.3	10.4	76	-	266
				16	2.4	9.6	70	-	266
	19-Jul-08	no ice	7.9	0.3	14.9	10.2	101	6.8	188
				1	14.8	10.2	100	6.9	188
				2.1	14.8	10.1	100	7	188
				3.1	14.8	10.1	100	7	188
				4.1	14.8	10.1	100	7	188
				5	14.8	10.1	100	7.1	188
				6	14.7	10.1	100	7.1	188
				7.1	14.7	10.1	100	7.1	188
				8	14.7	10.1	100	7.1	188
				9.1	14.7	10.1	100	7.1	188
				10	13	10.9	104	7.1	190
				11	10.4	12.1	108	7.2	189
				12	9.9	12.2	107	7.1	189
				13	9.6	12.1	106	7.1	189
				14.1	9.5	12	105	7	190
				15.1	9.4	12	105	7	189
				16	9.3	12	104	7	189
	19-Sep-08	no ice	4.8	0.2	5.1	12.7	100	7	204
				0.2	3.9	13.1	100	6.9	216
				1.1	5.1	12.7	100	7.1	204
				2	5.1	12.7	100	7.1	204
				3.1	5.1	12.7	100	7.1	204
				4.1	5.1	12.7	100	7.1	204
				5.1	5.1	12.6	99	7.1	204
				6.1	5.1	12.7	99	7.1	204
				7.1	5.1	12.6	99	7.1	204
				8	5.1	12.6	99	7.1	204
				9.1	5.1	12.6	99	7.1	204
				10.1	5.1	12.6	99	7.1	204
				11	5.1	12.6	99	7.1	204
				12.1	5.1	12.6	99	7.1	204
				13	5.1	12.6	99	7.1	204
				14.1	5.1	12.5	98	7.1	204
				15	5	12.5	98	7.1	204
				16	5.1	4.2	33	6.7	203

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
SNAP17	5-Apr-08	1.7	-	1.7	0.9	13.4	94	6.5	226
				2.1	1.2	13.3	94	6.4	217
				3	1.5	12.2	87	6.3	213
				4.1	1.5	12	86	6.5	227
				5	1.5	12.1	86	6.2	235
				6	1.5	12.4	88	6.2	246
				7.1	1.5	12.4	89	6.2	247
				8.1	1.5	12.4	89	6.2	246
				9	1.6	12.4	89	6.2	244
SNAP18	7-Apr-08	1.7	-	1.9	1.2	13.6	96	7.1	230
				3	1.5	12.8	92	6.4	216
				4.1	1.6	11.8	84	6.2	224
				5.1	1.6	11.8	84	6.3	232
				6	1.6	11.9	85	6.6	235
				7.1	1.6	11.8	84	6.2	236
				8	1.7	11.7	84	6.3	235
				9	1.8	11.9	85	6.3	236
				11.1	1.9	11.7	84	6.3	238
				12	2	2.6[b]	19[b]	6.1[b]	229[b]
SNAP19	7-Apr-08	1.9	-	1.9	1.2	13.1	93	6.0 - 6.5	236
				2.1	1.3	13	92	6.0 - 6.5	225
				3	1.5	12.2	87	6.0 - 6.5	223
				4.1	1.5	12.1	86	6.0 - 6.5	228
				5	1.5	11.9	85	6.0 - 6.5	227
				6	1.6	11.7	84	6.0 - 6.5	227
				8.1	1.7	12.2	88	6.0 - 6.5	231
				9	1.7	11.5	83	6.0 - 6.5	232
				10.1	1.8	11.2	81	6.0 - 6.5	232
SNAP04	20-Feb-08	1.3	-	1.3	0.3	17.3	120	6.2	252
				2	1.5	14.4	103	6.2	235
				3	2.3	14.5	105	6.2	226
				4	2.8	13.4	99	6.1	222
	3-Apr-08	1.3	-	1.3	0.6	14.2	99	6.5	261
				1.3	0.8	14	98	6.5	259
				1.5	0.4	14.3	99	6.2	255
				2	1	13.9	98	6.2	246
				2.5	1.9	13	94	6.3	239
				3	2.5	12.4	91	6.1	234
				3.5	2.9	11.6	86	6.2	232
	10-May-08	1.4	-	1.4	0.7	13.5	94	-	264
				2	2.9	12.5	92	-	249
				3	3.9	11.5	87	-	245
				4	3.9	10.9	83	-	246
	20-Jul-08	no ice	4.9	0.3	17.1	9.2	95	7.1	162
				1.1	17	9.2	95	7.2	162
				2.1	17	9.1	95	7.2	162
				3	17	9.1	95	7.2	162
				4	17	9.2	95	7.2	162
	12-Sep-08	no ice	4.5	0.2	5.8	12.2	97	7	185
				1.1	5.8	12.1	97	7.1	185
				2	5.8	12.1	97	7.1	185
				3	5.8	12.1	97	7.1	185
				4	5.8	12.1	96	7.1	185
SNAP07	25-Jan-08	1.15	-	1.3	0.3	18.2	126	6.9	204
				2	0.7	17.6	123	6.9	193
				3	0.9	17.5	122	6.9	191
				4	1	16.9	119	6.9	191
				5.1	1.1	16.4	115	6.8	193
				6	1.4	15.7	112	6.8	190
				7	1.7	14.8	106	6.7	187
				8	1.8	13.5	97	6.6	185
				9	1.8	13.1	94	6.6	192
				10	1.9	12.7	91	6.5	191
	10-Apr-08	1.61	-	1.6	0.1	17.5	120	6.7	233
				2	0.7	17.1	119	6.8	221
				3	1.4	16.6	118	6.7	214
				4	1.7	16.4	118	6.7	211
				5	1.9	16.2	117	6.7	208
				6	2.1	15.5	112	6.7	207
				7	2.2	14.9	108	6.7	210

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	10-May-08	1.7	-	1.7	0.4	14	97	-	251
				2	1.3	13.5	96	-	243
				3	2.2	13.2	96	-	235
				4	2.4	13.7	101	-	234
				5	2.8	13.7	102	-	236
				6	2.9	13.6	101	-	238
				7	3	13.7	102	-	238
				8	3	14	104	-	237
				9	3.1	14.1	105	-	237
				10	3.1	13.4	101	-	237
	17-Jul-08	no ice	8	0.3	14.9	10.1	100	7.2	177
				0.3	16.4	12.8	131	7.2	75
				1	14.9	10	99	7.2	177
				2	14.9	10	99	7.2	177
				3	14.8	10	99	7.2	177
				4	14.6	10	98	7.2	177
				5.1	14.4	10	98	7.2	177
				6	14.3	10	98	7.2	178
				7	14.2	10.1	98	7.2	177
				8	12.8	11.1	105	7.3	178
				9	11.2	12.2	111	7.3	178
				10	10.6	12	108	7.3	178
	13-Sep-08	no ice	4.5	0.2	6.1	12	96	6.9	201
				1	6.2	11.9	96	7	201
				2	6.1	11.9	96	7	201
				3	6.1	11.9	96	7	201
				4	6.1	11.8	95	7.1	201
				5	6.1	11.8	95	7.1	201
				6	6.1	11.8	95	7.1	201
				7.1	6.1	11.8	95	7.1	201
				8.1	6.1	11.8	95	7.1	201
				9.1	6.1	11.8	95	7.1	201
				9.9	6.1	11.3	91	7	201
SNAP08	25-Jan-08	1.2	-	1.3	0.9	17.7	124	7.1	213
				2	1.7	16.7	119	7	194
				3	3	14.3	106	6.9	184
				4	3.6	13	98	6.8	180
				5	3.6	11.8	89	6.6	184
				6	3.8	11.1	84	6.5	185
				7	3.9	9	67	6.4	188
				8	3.9	9.4	71	6.3	193
	24-Feb-08	1.5	-	1.5	1.1	16.2	114	5.9	234
				2	1.6	15.1	108	5.8	223
				3	2.8	13.6	100	5.9	206
				4	3.7	12.4	94	5.8	198
				5	3.8	11.5	87	6	200
				6	3.8	11.7	89	6	204
				7	3.8	11.4	85	5.7	206
				8	3.8	11.1	85	5.8	212
	10-Apr-08	1.8	-	1.8	0.2	17.4	120	6.8	230
				2	1.2	17	120	6.7	223
				3	3.6	15.9	120	6.7	210
				4	3.8	15.9	121	6.7	210
				5	3.9	16	122	6.7	210
				6	4	16	123	6.7	211
				7	4.1	15.7	120	6.7	212
				8	4	15.6	119	6.7	215
	10-May-08	1.9	-	1.9	3.4	16	120	-	230
				2	3.7	16.1	122	-	230
				3	4	16	122	-	230
				4	4	16.1	123	-	230
				5	4	16.2	124	-	230
				6	4	16.2	123	-	230
				7	4.1	16.2	124	-	230
				8	4.1	16.2	124	-	230
				9	4.1	16.1	123	-	229

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	17-Jul-08	no ice	7.9	0.3	15.4	9.8	98	7.1	174
				1	15.4	9.8	98	7.1	174
				2.1	15.3	9.8	98	7.2	174
				3.1	15.2	9.8	98	7.2	174
				4.1	15.2	9.8	98	7.2	174
				5	15.2	9.8	98	7.2	174
				6.1	14.7	9.8	97	7.3	174
				7	14.5	9.9	97	7.3	174
				8	14.3	9.9	97	7.3	174
	13-Sep-08	no ice	4.5	0.3	5.2	12.2	96	6.9	192
				1	5.2	12.2	96	6.9	192
				2.1	5.2	12.2	96	7	192
				3.1	5.2	12.1	96	7	188
				4	5.2	12.1	95	7	188
				5	5.2	12.1	95	7	192
				6.1	5.2	12.1	95	7	192
				7	5.2	12.1	95	7.1	192
				8.1	5.2	12.1	95	7.1	192
				9	5.2	11.8	93	6.9	192
SNAP10	26-Jan-08	1.2	-	1.2	0.2	19.3	133	-	215
				2.2	0.5	18.7	130	-	206
				3.2	0.8	18	126	-	200
				4.2	1	17.7	125	-	211
	3-Apr-08	1.6	-	1.6	0.5	15.1	105	6.5	229
				2	0.9	15	105	6.6	221
				2.5	1.2	14.9	105	6.6	218
				3	1.4	14.8	106	6.4	216
				3.5	1.5	14.8	105	6.4	217
				3.5	1.5	14.8	105	6.4	217
				3.5	1.5	14.8	105	6.4	217
				4	1.5	15.2	108	6.8	231
				4	1.5	15.2	108	6.8	231
				4.5	1.6	15.1	108	6.6	243
	9-May-08	1.9	-	1.9	1.3	17.8	119	-	227
				2	1.4	16.5	118	-	226
				3	1.8	16.3	117	-	226
				4	2.1	16.9	123	-	240
				5	2.7	16.6	123	-	242
	19-Jul-08	no ice	5.5	0.4	15.3	10.1	101	6.4	186
				1	15.2	10.1	101	6.6	186
				2.1	15.2	10	100	6.7	186
				3.1	15.2	10	100	6.8	186
				4.1	15.2	10	100	6.8	186
				4.5	15.2	10	100	6.9	186
	12-Sep-08	no ice	4.5	0.4	6.6	12	98	7.1	196
				1	6.6	11.9	97	7.1	196
				2	6.6	11.9	97	7.1	197
				3.1	6.6	11.9	97	7.1	197
				4.1	6.6	11.9	97	7.2	197
				5	6.6	11.8	97	7.2	197
SNAP02A	16-Apr-08	1.7	-	1.7	0.7	18.3	128	6.2	53
				2	1.1	18.3	129	6.2	50
				3	2	17.2	124	6.2	48
				4	2.5	16.2	119	6.2	47
				5	2.9	11.5	85	6	45
				6	3.1	9.9	74	5.9	50
				7	3.2	9.6	71	5.9	51
				8	3.2	10.9	82	5.9	56
				9	3.3	11.5	86	5.9	57
	11-May-08	1.65	-	1.7	0.5	16.9	117	-	46
				2	2	16.1	116	-	45
				3	3.2	16.2	121	-	50
				4	3.5	13.9	104	-	50
				5	3.6	15	115	-	54
				6	3.8	16	122	-	56
				7	3.7	18.4	139	-	61
				8	3.7	17.1	129	-	63
				9	3.7	16.4	124	-	64

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	18-Jul-08	-	7.5	0.2	-	9.5	-	-	-
				1.1	-	9.5	-	-	-
				2	-	9.5	-	-	-
				3.1	-	9.5	-	-	-
				4.1	-	9.5	-	-	-
				5.1	-	9.5	-	-	-
				6.1	-	9.5	-	-	-
				7.1	-	9.5	-	-	-
				8.1	-	9.5	-	-	-
				9.1	-	9.5	-	-	-
				10.2	-	9.4	-	-	-
	10-Sep-08	-	4.5	0.3	7.2	11.8	98	6.4	43
				0.4	7.2	11.6	96	6.5	43
				1	7.2	11.5	95	6.5	43
				2.1	7.1	11.5	95	6.6	44
				3	7.1	11.5	95	6.6	44
				4.1	7.1	11.5	95	6.7	44
				5	7.1	11.5	95	6.7	44
				6.1	7.1	11.5	95	6.7	44
				7	7.1	11.5	95	6.7	44
				8	7.1	11.5	95	6.7	43
				9	7.1	11.5	95	6.8	45
				9.6	7.1	6	50	6.5	45
SNAP20	15-Apr-08	1.7	-	1.7	0.1	17.1	117	6.6	39
				2	0.7	16.2	113	6.5	37
				3	1.2	14.9	105	6.4	33
				4	1.3	13.8	98	6.4	34
				5	1.4	13.6	96	6.3	34
				6	1.4	13.4	96	6.3	34
				7	1.4	13.5	96	6.3	34
				8	1.4	13.5	96	6.3	34
				9	1.4	13.5	96	6.2	34
				10	1.4	13.6	97	6.2	34
				11	1.5	13.7	97	6.2	34
				12	1.5	13.6	97	6.2	34
				13	1.5	13.6	97	6.2	34
SNAP20B	19-Feb-08	1.04	-	1	1	18	126	6.5	44
				2	0.8	15.8	111	6.5	35
				3	1.1	14.7	104	6.5	32
				4	1.2	13.6	96	6.4	32
				5	1.2	13.3	94	6.4	32
				6	1.2	13.1	93	6.3	32
				8	1.3	13	92	6.3	32
				9	1.3	13	92	6.3	32
				11	1.3	13	92	6.3	33
				12	1.3	13.1	93	6.3	33
				14	1.3	13	92	6.4	33
				15	1.3	12.9	92	6.3	33
				16	1.3	12.9	91	6.3	33
				16	1.3	12.8	91	6.3	33
				17	1.3	12.8	91	6.2	33
				18	1.4	12.8	91	6.2	33
				19	1.4	12.6	90	6.2	33
				20	1.4	12.5	89	6.1	33
				21	1.4	12.5	89	6.1	33
				22	1.4	12.4	88	6.1	32
				23	1.4	12.1	86	6.1	32
				24	1.4	12	85	6.1	32
				25	1.4	11.9	85	6.1	33
				26	1.4	12.1	86	6.1	33
				27	1.4	11.9	85	6	32
				28	1.4	11.7	83	6	32
				29	1.4	11.5	82	6	32

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	12-Apr-08	1.27	-	1.3	0.5	18.7	130	6.6	43
				2	0.8	18.3	128	6.5	38
				3	1.3	15.3	108	6.4	33
				4	1.4	14.4	102	6.4	34
				5	1.4	14	99	6.4	34
				6	1.4	13.9	99	6.3	34
				7	1.4	13.9	99	6.3	34
				8	1.4	13.8	98	6.3	34
				9	1.4	13.9	99	6.3	34
				10	1.4	14.1	100	6.3	34
				11	1.4	14	99	6.3	35
				12	1.5	14	99	6.3	34
				13	1.5	14	100	6.3	35
				14	1.5	13.9	99	6.3	35
				15	1.5	13.8	98	6.2	34
				16	1.5	13.6	97	6.2	34
				17	1.5	13.5	96	6.2	35
				18	1.5	13.7	98	6.2	35
				19	1.5	13.8	98	6.2	35
				20	1.5	13.9	99	6.2	35
				21	1.5	13.7	98	6.2	35
				22	1.5	13.8	98	6.2	35
				23	1.5	13.4	96	6.2	35
				24	1.5	13.5	96	6.2	35
				25	1.5	13.2	94	6.2	35
				26	1.5	13.2	94	6.2	35
				27	1.5	13.3	95	6.2	35
				28	1.5	13.3	95	6.2	35
				29	1.5	13.1	94	6.2	35
				30	1.5	13	93	6.2	35
	10-May-08	1.3	-	1.3	0.6	16.6	115	-	39
				2	1.4	14.6	103	-	35
				3	1.6	13.9	99	-	34
				4	1.6	13.7	98	-	35
				5	1.7	13.7	98	-	35
				6	1.7	13.7	98	-	35
				7	1.7	13.6	98	-	35
				8	1.7	13.4	96	-	35
				9	1.7	13.4	96	-	35
				10	1.7	13.5	97	-	35
				11	1.7	13.4	96	-	35
				12	1.7	13.5	97	-	35
				13	1.7	13.5	96	-	35
				14	1.7	13.5	97	-	35
				15	1.7	13.6	98	-	35
				16	1.7	13.5	97	-	35
				17	1.7	13.5	97	-	35
				18	1.8	13.6	97	-	35
				19	1.8	13.5	97	-	35
				20	1.8	13.5	97	-	35
				21	1.8	13.5	97	-	35
				22	1.8	13.5	97	-	35
				23	1.8	13.5	97	-	35
				24	1.8	13.5	97	-	35
				25	1.8	13.5	97	-	35
				26	1.8	13.5	97	-	34
				27	1.8	13.5	97	-	34
				28	1.8	13.5	97	-	34
				29	1.8	13.5	97	-	35
				30	1.8	13.4	97	-	34
				31	1.8	13.4	96	-	34

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	18-Jul-08	no ice	7.5	0.2	15.5	9.8	98	7	27
				2.1	15.5	9.8	98	6.9	27
				3.1	15.5	9.8	98	6.9	27
				4.1	15.4	9.8	98	6.8	27
				5	14.8	9.9	98	6.8	27
				6	14.6	10	98	6.8	27
				7	13.4	10.4	100	6.7	27
				8.1	10.5	11.6	104	6.7	26
				9	8.9	11.8	102	6.7	28
				10	8.1	11.7	99	6.6	26
				11	7.9	11.7	98	6.6	26
				12.1	7.6	11.6	97	6.5	26
				13.2	7.4	11.6	96	6.5	26
				14	6.8	11.5	94	6.4	26
				15	6.4	11.5	93	6.4	26
				16.1	5.8	11.4	91	6.3	27
				17	5.4	11.4	91	6.3	27
				18.1	5.2	11.4	90	6.2	27
				19.1	5.1	11.4	90	6.2	27
				20.1	5.1	11.5	90	6.2	27
				21	5	11.5	90	6.2	27
				22.2	4.8	11.5	90	6.2	27
				23.1	4.8	11.4	89	6.2	27
				24	4.7	11.4	89	6.2	27
				25	4.6	11.4	88	6.1	27
				26	4.6	11.4	88	6.2	27
				27.1	4.5	11.4	88	6.1	24
				28.1	4.5	11.4	88	6.1	27
				29.1	4.5	11.3	87	6.1	27
				30.1	4.4	11.3	87	6.1	28
	10-Sep-08	no ice	4.5	0.2	8.7	11.3	97	7	34
				0.2	8.7	11.3	97	6.9	34
				1.1	8.6	11	94	6.9	34
				2.1	8.6	10.9	94	6.8	34
				3	8.6	10.9	94	6.8	34
				4	8.6	10.9	93	6.8	34
				5.1	8.6	10.9	93	6.8	34
				6	8.6	10.9	93	6.8	34
				7	8.6	10.9	93	6.8	34
				8.1	8.6	10.9	93	6.8	34
				9	8.6	10.8	93	6.8	34
				10	8.5	10.8	92	6.7	34
				10	8.5	10.8	92	6.7	34
				11.1	8.5	10.8	92	6.7	35
				12	8.3	10.9	93	6.7	35
				13.1	8.3	10.9	93	6.7	35
				14	8.3	10.9	92	6.7	35
				15.1	8.2	10.9	92	6.7	35
				16.1	7.8	10.8	91	6.7	34
				17	7.7	10.7	90	6.6	34
				18	5.9	10.6	85	6.5	30
				19.1	5.4	10.5	83	6.4	30
				20	5.2	10.4	82	6.2	30
				21	5	10.5	82	6.1	30
				22	4.9	10.6	83	6.1	30
				23	4.9	10.5	82	6.1	30
				24	4.8	10.4	81	6.1	30
				25	4.8	10.2	80	6.1	30
				26	4.7	10.1	79	6	30
				27.1	4.6	10.1	78	6	30
				28.1	4.6	10.1	78	6	30
				29	4.5	10.1	78	6	30
				30.1	4.5	10	77	6	31

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP23	12-Apr-08	1.95	-	1.8	0.3	18.9	131	6.0 - 6.1	100
				2	0.8	18.6	130	6.1 - 6.4	98
				3	2.1	18.1	125	6.2 - 4.5	92
				4	2.4	17	124	6.1 - 6.4	90
				5	2.6	14.3	106	5.9 - 6.3	89
				6	2.9	12.2	89	5.9 - 6.3	90
				7	3	6.5	47	5.8 - 6.0	95
				8	3.1	5.6	43	5.6 - 6.0	97
				9	3.2	6.3	48	5.6 - 6.0	101
				10	3.3	7.9	55	5.6 - 6.0	105
				11	3.3	8.8	67	5.6 - 6.1	109
	10-May-08	1.9	-	1.9	2	15.2	110	-	82
				2	2.7	14.7	108	-	89
				3	3.7	14.4	109	-	94
				4	6.8	14.3	108	-	96
				5	4	14.2	109	-	95
				6	3.9	12.9	97	-	102
				7	3.7	11.7	89	-	107
				8	3.8	11.1	83	-	110
				9	3.7	10.3	78	-	112
				10	3.8	10.3	78	-	113
				11	3.8	10.1	76	-	113
				12	3.8	8.3	62	-	112
				13	3.9	11.2[(b)]	84[(b)]	-	215[(b)]
	13-Jul-08	no ice	6	0.2	13.5	10.2	98	7.2	202
				0.3	14.8	9.9	98	6.9	72
				1	14.8	9.9	97	6.9	72
				2	14.8	9.8	97	7	72
				3	14.8	9.8	97	7	72
				4.1	14.8	9.9	97	7	72
				5	14.8	9.9	97	6.9	72
				6	14.8	9.9	97	7	72
				7.3	14.8	9.9	97	7	72
				8	14.8	9.9	97	7	72
				9.1	14.6	9.9	97	7	72
				10	13.9	9.9	96	6.9	70
				11.1	13.2	9.4	89	6.8	70
	10-Sep-08	no ice	4	0.3	7.6	11.7	98	6.5	88
				0.3	7.6	11.4	95	6.6	88
				1	7.6	11.3	95	6.7	88
				2.1	7.6	11.3	95	6.8	88
				3.1	7.6	11.3	95	6.8	88
				4.1	7.6	11.3	94	6.8	88
				5.1	7.6	11.3	94	6.9	88
				6	7.6	11.3	94	6.9	88
				7.1	7.5	11.3	94	6.9	88
				8.1	7.5	11.3	94	6.9	88
				9.1	7.5	11.3	94	6.9	88
				10.1	7.5	11.3	94	6.9	88
				11	7.5	11.3	94	6.9	88
				12	7.5	11.3	94	6.9	89
SNAP29	21-Jan-08	1.05	-	1.1	0.8	18.1	127	6.7	96
				2.1	1.1	18	127	6.7	85
				3.1	1.4	16.1	125	6.7	82
				4.1	1.5	14.2	120	6.6	84
				5.1	1.8	14.2	117	6.5	87
				6.1	2.2	14.5	82	6.3	94
				6.5	2.4	6.8	50	6.1	94
	20-Feb-08	1.33	-	1.3	0.2	19.6	134	6.5	119
				2	0.7	18.7	130	6.4	103
				3	1.2	17.8	126	6.4	97
				4	1.6	15.1	108	6.2	100
				5	1.9	14.5	105	6.1	96
				6	2.3	8.8	64	5.9	100
				6	2.3	8.9	65	5.9	100
	29-Mar-08	1.5	-	1.5	0.4	17.5	121	6.6	120
				2	0.9	16.8	118	6.4	108
				3	1.6	15.8	113	6.3	108
				4	1.9	14.4	104	6.2	104
				5	2.2	14.1	103	5.8	101
				6	2.7	7.2	53	5.8	100

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	10-May-08	1.75	-	1.8	1.2	15.9	112	-	116
				2	2.1	15.5	113	-	109
				3	3.1	15.2	116	-	103
				4	3.5	15.9	120	-	101
				5	3.8	16.2	123	-	100
				6	3.7	14.1	107	-	103
				7	3.6	9.8	74	-	111
	17-Jul-08	no ice	6.5	0.3	16	9.8	99	7.1	79
				1	16	9.7	99	7.1	76
				2	15.9	9.7	98	7.1	76
				3.1	15.9	9.7	98	7.1	75
				4	15.7	9.9	100	7.1	79
				5	15.7	9.9	99	7.1	79
				6.1	15.7	9.8	99	7.1	84
	9-Sep-08	no ice	-	0.3	7.6	11.6	97	6.6	89
				0.3	7.6	12.1	101	6.4	89
				1	7.6	11.5	96	6.6	89
				2	7.6	11.5	96	6.7	89
				3	7.6	11.5	96	6.7	89
				4	7.6	11.5	96	6.7	89
				5	7.6	11.5	96	6.8	89
				6.1	7.6	11.5	96	6.8	89
				7	7.6	11.5	96	6.8	89
NEL01	21-Feb-08	1.35	-	1.4	0.2	17.6	122	6.6	31
				2	0.4	17.8	123	6.5	28
				3	0.6	16.6	115	6.3	25
				4	0.7	15.8	110	6.2	25
				5	0.8	15.4	108	5.9	25
				6	0.9	15.3	107	5.8	26
				7	0.9	15.4	108	5.8	26
				8	1	15.3	108	5.7	27
				9	1.1	15.3	108	5.6	27
				10	1.6	11.7	84	5.5	27
				11	2.3	7.4	54	5.2	29
	1-Apr-08	1.65	-	1.6	1.1	17.7	125	6.7	31
				2	0.7	17	119	7.1	29
				3.1	1	15.5	109	6.4	26
				4.1	0.9	14.8	104	6.6	25
				5	1	14.7	103	6	25
				6	1.1	14.7	104	6.5	26
				7	1.1	15.1	106	6.6	27
				8.1	1.2	14.9	105	6.3	27
				11	2.5[b]	3.2[b]	24[b]	5.5[b]	28[b]
	12-Jul-08	no ice	7.5	0.3	12	10.9	101	6.6	21
				1.1	11.9	10.9	101	6.6	21
				2.2	11.8	10.9	101	6.6	21
				3.1	11.8	10.9	101	6.7	21
				4	11.6	10.9	101	6.6	21
				5.1	11.4	11.1	101	6.7	21
				6.1	10.3	11.5	102	6.7	21
				7.2	9.7	11.6	102	6.7	21
				8.4	9.6	11.7	102	6.6	21
				8.8	9.4	11.7	102	6.6	21
				10.1	9.4	11.7	102	6.7	21
				11.1	9.3	11.7	102	6.6	21
	17-Sep-08	no ice	6.25	0.1	6.2	12	97	6.7	20
				1	6.2	12	97	6.7	20
				2	6.2	12	97	6.7	20
				3	6.2	11.9	96	6.7	20
				4.2	6.2	11.9	96	6.8	20
				5.1	6.2	11.9	96	6.8	20
				5.9	6.2	11.9	96	6.8	20
				7	6.2	11.9	96	6.7	20
				8.1	6.2	11.9	96	6.8	20
				9.1	6.2	11.9	96	6.8	20
				10.1	6.2	11.9	96	6.8	20
				10.9	6.2	11.9	96	6.8	20

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
NEL02	21-Feb-08	1.4	-	1.4	0.2	16.9	116	6.5	27
				2	0.4	16.7	115	6.4	24
				3	0.6	16.2	113	6.3	22
				4	0.7	15.9	111	6.1	23
				5	0.8	15.7	110	6	24
				6	0.9	15.3	108	5.8	24
				6	0.9	15.3	107	5.8	24
				7	0.9	15.1	106	5.7	24
				8	1	14.5	102	5.7	24
				9	1.1	14.1	99	5.6	24
				10	1.2	13.5	96	5.7	24
				11	1.3	13.3	95	5.6	24
	30-Mar-08	1.5	-	1.5	0.8	15.7	110	7.2	28
				3	0.8	14	98	6.6	24
				4	0.9	13.7	96	6	23
				5	1	13.3	94	5.9	23
				6.2	1	13.5	95	5.2	24
				7	1.1	13.2	93	5.8	23
				8.1	1.2	13	92	5.5	24
				9	1.3	12.5	88	5.8	23
				10.1	1.4	12.4	88	5.6	23
	12-Jul-08	no ice	7.5	<0.3	14.4	10.7	104	6.7	21
				0.4	12.7	10.5	99	6.7	21
				1.1	12.7	10.5	99	6.7	21
				2.1	12.7	10.5	99	6.7	21
				3.1	12.7	10.5	99	6.7	21
				4.1	12.7	10.5	99	6.7	21
				5.1	12.6	10.5	99	6.7	21
				6.1	11.4	11.2	102	6.7	21
				7	10.6	11.4	102	6.7	21
				8	10.1	11.5	102	6.7	21
				9.1	9.9	11.6	102	6.7	21
				10.1	9.5	11.6	102	6.7	21
				11.1	9.4	11.6	102	6.7	21
	17-Sep-08	no ice	6.5	0.3	6.3	12	98	6.8	20
				1	6.3	12	97	6.8	20
				2	6.4	12	97	6.8	20
				3	6.4	12	97	6.8	20
				4.1	6.4	12	97	6.8	20
				5.1	6.3	12	97	6.8	20
				6.1	6.3	12	97	6.8	20
				7.1	6.3	12	97	6.8	20
				8.1	6.3	12	97	6.8	20
				9.1	6.3	12	97	6.8	20
				10.1	6.3	11.9	97	6.8	20
				11.1	6.3	11.9	97	6.8	20
				12.1	6.3	11.9	97	6.8	20
NEL03	31-Mar-08	1.5	-	1.5	0.3	14	96	6.3	30
				2.1	0.3	16.1	111	5.9	27
				3.1	0.6	15	105	6.1	24
				4.1	0.9	14.3	100	5.8	23
				5.1	1	13.9	98	6.3	23
				6.1	1	13.4	95	5.8	23
				7	1.1	13.2	93	6.2	23
				8.1	1.2	13.2	93	5.7	24
				9.1	1.3	13.3	94	6.1	24
				10	1.4	12.8	91	5.7	23
	12-Jul-08	no ice	7.5	3.1	12.7	10.6	99	6.8	21
				5	12.3	10.7	100	6.7	21
				6	11.3	11.2	102	6.7	21
				7.1	10.1	11.5	102	6.7	21
				8	9.9	11.6	102	6.7	21
				8.9	9.7	11.6	102	6.6	21
				10	9.4	11.3	98	6.6	21

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	17-Sep-08	no ice	6.75	0.3	6.2	12.1	97	6.7	20
				1.1	6.2	12	97	6.7	20
				2	6.2	12	97	6.7	20
				3	6.2	12	97	6.7	20
				4.1	6.2	12	97	6.8	20
				5.1	6.2	12	97	6.8	20
				6.1	6.2	12	97	6.8	20
				7.3	6.2	12	97	6.8	21
				8.1	6.2	11.9	96	6.8	21
				9	6.2	11.9	96	6.8	21
NEL04	31-Mar-08	1.8	-	1.8	0.3	18.3	127	6.8	30
				2	0.4	18.1	125	6.6	29
				3	0.8	15.9	111	6.7	24
				4	0.9	14.8	103	6.1	24
				5	1	14.8	104	6.5	25
				6	1	14.8	104	6.3	26
				7	1.1	14.3	101	6.5	25
				8	1.2	13.8	97	6.1	24
				9	1.3	13.3	94	5.9	24
				10	1.3	12.8	91	6.1	23
				11	1.4	12.4	88	6	24
				12	1.4	12.2	87	6	24
	11-Jul-08	no ice	8.5	0.3	12	11.2	104	6.7	22
				1.1	12.2	11	103	6.7	20
				2.1	12.2	11	102	6.7	20
				3	12.2	11	102	6.7	20
				4.1	12	11.1	103	6.7	20
				5	11.5	11.2	103	6.7	20
				6	11	11.4	103	6.7	20
				7	10.7	11.5	104	6.7	21
				8.3	10.5	11.6	104	6.7	20
				9	10.1	11.7	104	6.7	20
				10.1	9.9	11.7	104	6.7	20
				11	9.5	11.8	103	6.7	20
				12	9.1	11.8	102	6.6	20
				13.1	8.9	11.8	102	6.6	21
	17-Sep-08	no ice	6.75	1.1	6.5	12	98	6.8	20
				2	6.5	12	98	6.8	20
				3	6.5	12	98	6.8	20
				4	6.5	12	97	6.8	20
				5	6.5	12	97	6.8	20
				6	6.5	11.9	97	6.8	20
				7.1	6.5	11.9	97	6.8	20
				8.1	6.5	11.9	97	6.8	20
				9.1	6.5	11.9	97	6.8	20
				10.1	6.5	11.9	97	6.8	20
				11.1	6.5	11.9	97	6.8	20
				12.1	6.5	11.9	97	6.8	20
NEL05	23-Feb-08	1.7	-	1.7	0.8	16.7	117	6.4	27
				2	0.6	16.7	116	6.3	25
				3	0.7	16.5	114	6	22
				4	0.8	15.9	111	5.7	22
				5	0.9	15.1	106	5.9	22
				6	0.9	14.7	103	5.7	22
				7	1	14.5	102	5.6	22
				8	1	14.3	101	5.8	23
				9	1.1	14.2	100	5.5	23
	28-Mar-08	1.7	-	1.6	0.5	17.1	118	6.7	31
				1.7	0.5	17.1	119	6.6	31
				2	0.5	16.9	118	6.2	28
				3	0.8	14.8	103	6.6	24
				4	0.9	13.6	95	5.9	23
				5	1	13.1	92	6.3	23
				6	1.1	12.9	91	5.8	23
				7	1.1	12.8	90	5.5	23
				8	1.2	12.6	89	5.5	23
				9	1.2	12.6	89	5.2	23
				10	1.2	12.5	89	5.2	23

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	10-Jul-08	no ice	7.5	0.3	13	10.6	100	6.5	20
				0.4	13.1	10.6	101	6.6	20
				1.1	12.9	10.5	100	6.6	19
				2.1	12.9	10.5	100	6.7	20
				3	12.7	10.6	100	6.7	20
				4	12.4	10.7	100	6.7	20
				5.1	11.9	10.8	100	6.7	20
				6	11.8	10.8	100	6.7	20
				7	11.3	11	100	6.7	20
				8.1	10.1	11.3	100	6.7	19
				9.1	9.5	11.5	101	6.7	20
				10.1	9.3	11.5	101	6.7	20
	17-Sep-08	no ice	7	<0.3	6.1	12.3	99	7	20
				1.1	6.1	12.3	99	7	20
				2	6.1	12.2	99	7	20
				3	6.1	12.2	98	7	20
				4.1	6.1	12.2	98	7	20
				5	6.1	12.2	98	7	18
				6.1	6.1	12.2	98	6.9	20
				7.1	6.1	12.1	98	6.9	20
				8.1	6.1	12.1	98	6.9	18
				9	6.1	12.1	97	6.9	20
				10.1	6	12.1	97	6.9	20
				11	6	12.1	97	6.9	20
SNP02-20d	12-Feb-09	1.1	-	1.1	0.1	16.4	113	6.8	259
				2	0.3	15.9	109	6.8	250
				3	0.6	15.6	109	6.8	290
				4	0.2	16.1	111	6.8	304
				5	0.7	15.8	110	6.8	300
				6	0.9	15.7	110	6.8	299
				7	0.9	15.6	110	6.7	300
				8	1	15.6	110	6.7	302
				9	1	15.6	109	6.7	303
				10	1	15.5	109	6.7	303
				11	1	15.4	108	6.7	302
	19-Mar-09	1.3	-	<0.3	0.2	16.9	117	6.8	246
				1	0.2	17.1	117	6.8	273
				2	0.7	16.3	114	6.8	254
				3	1	16.1	113	6.8	293
				4	1	16.1	114	6.8	298
				5	1	16.1	113	6.8	299
				6	1	16.1	113	6.8	300
				7	1	16	113	6.8	301
				8	1.1	16	113	6.8	302
				9	1.1	15.9	112	6.8	302
				10	1.1	16	113	6.8	302
				11	1.1	16	113	6.8	302
	3-May-09	1.4	-	1.5	0.7	14.6	102	6.8	285
				2	0.9	14.3	101	6.7	283
				3	1.2	14	99	6.7	330
				4	1.3	14.2	101	6.7	339
				5	1.3	14.3	101	6.7	341
				6	1.3	14.3	101	6.7	342
				7	1.3	14.3	101	6.7	342
				8	1.3	14.2	101	6.7	343
				9	1.3	14.2	101	6.7	345
				10	1.3	14.1	100	6.7	346
				11	1.3	14.1	100	6.7	347
	7-Jun-09	1.5	-	1.5	1.5	13.9	99	5.8	225
				1.5	1.1	15	106	5.8	151
				2	1.7	13.8	99	5.8	315
				3	1.7	13.9	100	5.8	341
				4	1.7	14	100	5.9	341
				5	1.6	14	100	6	341
				6	1.6	14	100	6	344
				7	1.6	14	100	6	344
				8	1.6	14	100	6	345
				9	1.7	14	100	6	347
				10	1.7	14	100	6	348
				11	1.7	14	100	6	348

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	7-Jul-09	-	6.5	<0.3	8.6	12.7	109	5.8	227
				1	8.5	12.9	110	6	227
				2	8.4	12.9	110	6.1	228
				3	8.4	13	111	6.2	228
				4	8.3	13	111	6.2	228
				5	8.2	13	111	6.3	229
				6	7.8	13.2	111	6.3	237
				7	7	13.3	109	6.3	239
				8	6.7	13.3	109	6.3	238
				9	6.5	13.4	109	6.4	236
				10	6.3	13.4	109	6.4	235
				11	6	13.5	108	6.4	232
				12	5.5	13.5	107	6.4	231
	18-Aug-09	-	-	1	13.2	12.4	118	6.5	243
				2	13.2	12.4	118	6.6	243
				3	13.1	12.4	118	6.6	243
				4	13.1	12.4	118	6.6	243
				5	13.1	12.4	118	6.6	243
				6	13.1	12.4	118	6.7	243
				7	13.1	12.4	118	6.7	243
				8	13.1	12.4	118	6.7	244
				9	13.1	12.4	118	6.7	244
				10	13.1	12.4	118	6.7	244
				11	13	12.4	118	6.7	247
	16-Sep-09	-	5.5	<0.3	10.9	11.1	100	6.1	259
				1	10.9	11.1	100	6.1	259
				2	10.9	11.1	100	6.2	259
				3	10.9	11.1	100	6.2	260
				4	10.9	11.1	100	6.3	260
				5	10.9	11.1	100	6.3	260
				6	10.9	11.1	100	6.3	260
				7	10.9	11	100	6.4	260
				8	10.9	11.1	100	6.4	260
				9	10.9	11.1	100	6.4	260
				10	10.9	11.1	100	6.4	260
				11	10.9	11	100	6.5	260
				12	10.9	11	100	6.5	260
SNP02-20e	12-Feb-09	1.3	-	1.3	0.4	16.7	115	6.7	258
				2	0.6	16.1	112	6.7	262
				3	0.8	15.8	110	6.7	287
				4	0.9	15.7	110	6.7	295
				5	0.9	15.6	110	6.7	297
				6	0.9	15.6	110	6.6	299
				7	0.9	15.6	109	6.6	301
				8	1	15.5	109	6.6	303
				9	1	15.5	109	6.6	303
				10	1	15.4	109	6.6	303
				11	1.1	15.4	108	6.6	303
				12	1.8	15.3	108	6.6	302
				13	1	15.3	107	6.6	301
				14	1.1	15.2	107	6.6	300
				15	1.1	15	106	6.6	300
				16	1.1	14.9	105	6.6	298
				17	1.1	14.8	104	6.6	297
				18	1.1	14.6	103	6.6	297
				19	1.2	14.5	103	6.6	295
				20	1.2	14.2	101	6.6	293
				21	1.2	13.9	98	6.5	293
				22	1.3	13.5	98	6.5	289
				23	1.3	13	92	6.5	288
				24	1.3	12.9	91	6.5	287
				25	1.3	12.6	89	6.5	287
				26	1.4	12.3	87	6.4	286
				27	1.4	11.9	85	6.4	286

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	18-Mar-09	1.2	-	0.2	2.1	15.5	112	6.2	293
				1	1.1	16	113	6.2	287
				2	0.6	16.3	114	6.3	268
				3	0.6	16.3	114	6.2	295
				4	1.1	16.1	114	6.2	294
				5	1.2	16.6	118	6.3	301
				6	1.1	16.5	116	6.3	301
				7	1.1	16.4	116	6.3	302
				8	1.2	15.9	112	6.3	302
				9	1.1	15.2	107	6.3	301
				10	1.1	15	106	6.3	300
				11	1.1	14.9	105	6.4	300
				12	1.1	14.8	105	6.4	299
				13	1.1	14.8	105	6.4	300
				14	1.1	14.8	105	6.4	300
				15	1.1	14.9	105	6.4	300
				16	1.1	14.9	105	6.4	300
				17	1.2	14.8	104	6.4	298
				18	1.2	14.8	105	6.4	297
				19	1.2	14.8	104	6.4	297
				20	1.2	14.8	105	6.4	297
				21	1.2	14.7	104	6.4	296
				22	1.2	14.4	102	6.4	294
				23	1.3	14.2	101	6.4	293
				24	1.3	14.2	101	6.4	293
				25	1.3	14	99	6.4	292
				26	1.3	13.9	98	6.4	292
				27	1.3	13.6	97	6.4	292
				28	1.3	13.2	94	6.4	293
	3-May-09	1.4	-	1.5	1.9	14	101	6.4	283
				2	1.4	14.1	100	6.3	280
				3	1.5	14.1	101	6.3	297
				4	1.4	14.1	101	6.3	328
				5	1.5	14.1	101	6.3	333
				6	1.5	14.1	101	6.3	342
				7	1.4	14.1	101	6.4	341
				8	1.4	14.2	101	6.4	342
				9	1.4	14.1	100	6.4	342
				10	1.4	14.1	100	6.4	343
				11	1.4	14.1	100	6.4	344
				12	1.4	14.1	100	6.4	344
				13	1.3	14	100	6.4	344
				14	1.3	14	100	6.5	344
				15	1.6	13.9	100	6.8	343
				16	1.5	14	100	6.7	345
				17	1.4	14	100	6.7	345
				18	1.4	14	99	6.7	345
				19	1.4	14	99	6.7	346
				20	1.4	13.9	99	6.7	346
				21	1.4	13.9	99	6.7	346
				22	1.4	13.9	99	6.7	346
				23	1.4	13.9	99	6.7	346
				24	1.4	13.9	99	6.7	345
				25	1.4	13.9	99	6.7	346
				26	1.4	13.8	98	6.7	346
				27	1.4	13.8	98	6.7	346
				28	1.4	13.7	97	6.7	345

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	6-Jun-09	1.5	-	1.5	1.2	14.8	105	6.7	281
				2	1.5	14.4	103	6.6	309
				3	1.7	14.1	101	6.4	334
				4	1.7	14	100	6.2	335
				5	1.7	14	100	6.2	337
				6	1.6	14	100	6.2	339
				7	1.6	13.9	100	6.2	343
				8	1.6	13.9	100	6.2	342
				9	1.6	14	100	6.2	343
				10	1.6	14	100	6.2	344
				11	1.6	14	100	6.2	344
				12	1.6	14	100	6.2	345
				13	1.6	14	100	6.2	345
				14	1.6	14	100	6.2	345
				15	1.6	14	100	6.2	345
				16	1.7	13.8	99	6.2	346
				17	1.6	13.9	99	6.2	345
				18	1.7	13.9	100	6.2	345
				19	1.7	13.9	100	6.2	344
				20	1.7	13.9	100	6.2	345
				21	1.7	13.9	100	6.2	344
				22	1.7	13.9	100	6.2	344
				23	1.7	13.9	100	6.2	344
				24	1.7	13.9	100	6.2	343
				25	1.7	14	100	6.2	342
				26	1.7	13.9	100	6.2	342
				27	1.7	13.9	100	6.2	341
				28	1.7	9.8	63	6.1	331
	9-Jul-09	-	6.3	1	7.8	12.5	105	6.8	228
				2	7.8	12.5	105	6.8	228
				3	7.7	12.5	105	6.8	229
				4	7.7	12.5	105	6.8	229
				5	7.7	12.6	105	6.8	229
				6	7.7	12.6	106	6.8	229
				7	7.7	12.6	106	6.8	229
				8	7.7	12.6	106	6.8	229
				9	7.6	12.6	106	6.9	230
				10	7.6	12.6	106	6.8	229
				11	7.6	12.6	106	6.8	229
				12	7.5	12.7	106	6.8	229
				13	7.5	12.7	106	6.8	230
				14	7.5	12.7	106	6.9	230
				15	7.5	12.7	106	6.9	230
				16	7.5	12.7	106	6.9	230
				17	7.4	12.7	106	6.9	230
				18	7.4	12.7	106	6.9	231
				19	7.4	12.7	106	6.9	231
				20	7.4	12.7	106	6.8	231
				21	7.4	12.7	106	6.8	231
				22	7.4	12.7	106	6.9	231
				23	7.4	12.7	106	6.9	231
				24	7.4	12.8	106	6.9	231
				25	7.3	12.8	106	6.9	231
				26	7.3	12.8	106	6.9	231

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	18-Aug-09	-	-	1	13.4	11.8	113	6.6	245
				2	13.3	11.9	114	6.7	245
				3	13.3	11.9	114	6.7	245
				4	13.3	11.9	114	6.7	245
				5	13.3	11.9	114	6.7	245
				6	13.3	11.9	114	6.7	245
				7	13.3	11.9	114	6.7	245
				8	13.3	11.9	114	6.8	245
				9	13.2	12	114	6.8	245
				10	13.2	12	114	6.8	246
				11	13.2	12	114	6.8	246
				12	13.2	12	114	6.8	246
				13	13.1	12	114	6.8	246
				14	13.1	12	114	6.8	246
				15	13.1	12	114	6.8	246
				16	13.1	12	114	6.8	246
				17	12.9	12	113	6.8	247
				18	12.6	12	112	6.8	249
				19	12.5	11.9	112	6.8	250
				20	12.3	11.8	111	6.8	250
				21	11.9	11.5	107	6.8	249
				22	10.7	11	99	6.7	244
				23	8.6	10.3	88	6.6	240
				24	8	9.9	83	6.6	239
				25	7.2	9.5	79	6.5	239
				26	6.9	8.6	70	6.4	239
				27	6.8	8.3	68	6.3	240
				28	6.8	7.9	65	6.2	240
				29	6.6	0.9	6.1	6.1	270
	15-Sep-09	-	5	<0.3	11	11.2	101	6.4	260
				1	11	11.2	101	6.4	260
				2	11	11.2	101	6.4	260
				3	11	11.2	101	6.5	260
				4	11	11.2	101	6.5	260
				5	11	11.2	101	6.5	260
				6	11	11.2	101	6.6	260
				7	11	11.2	101	6.6	260
				8	11	11.2	101	6.6	260
				9	11	11.2	101	6.6	260
				10	11	11.2	101	6.6	260
				11	11	11.2	101	6.7	260
				12	11	11.2	101	6.7	260
				13	11	11.2	101	6.7	261
				14	11	11.1	101	6.8	261
				15	11	11.1	101	6.8	261
				16	10.9	11.2	101	6.8	269
				17	10.8	11.1	100	6.9	268
				18	10.7	11.1	100	6.9	274
				19	10.7	11.1	100	6.9	274
				20	10.6	11.1	99	6.9	273
				21	10.6	11	100	6.9	272
				22	10.6	11	99	7	269
				23	10.6	11	98	7	268
				24	10.5	10.9	98	7	267
				25	10.5	10.9	97	7	266
				26	10.4	10.7	96	7	265
				27	10.4	10.6	95	6.9	264
				28	10.4	10.4	93	6.7	265
SNP02-20f	9-Feb-09	0.9	-	0.9	0.5	19.3	135	6.5	233
				2	0.9	17.6	124	6.5	239
				3	1	16.7	118	6.4	275
				4	1	16.6	117	6.4	286
				5	1	16.6	116	6.4	290
				6	1	16.5	116	6.5	291
				7	1	16.5	116	6.4	291
				8	1	16.4	116	6.4	291
				9	1	16.4	115	6.5	292
				10	1	16.4	115	6.5	292
				11	1	16.4	115	6.5	292
				12	1	16.4	115	6.5	292
				13	1.1	16.2	114	6.5	289
				14	1.4	15.1	107	6.5	280

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	19-Mar-09	1.3	-	0.1	1.5	17	121	6.9	275
				1	0.7	18	126	6.9	266
				2	1.1	17.5	122	6.8	253
				3	1.2	16.5	117	6.8	270
				4	1.2	16.7	118	6.8	299
				5	1.2	16.7	119	6.8	301
				6	1.2	16.6	117	6.8	304
				7	1.1	16.3	115	6.8	302
				9	1.1	16	113	6.8	303
				10	1.1	15.9	112	6.8	303
				11	1.1	15.9	112	6.8	304
				12	1.1	15.8	112	6.8	305
				13	1.1	15.8	111	6.8	301
				14	1.3	15	107	6.8	294
	5-May-09	1.7	-	2	1.8	14.3	103	7.1	281
				3	1.8	13.8	100	6.9	329
				4	1.6	14	100	6.7	341
				5	1.5	14	100	6.6	344
				6	1.4	14	100	6.5	344
				7	1.4	14	99	6.5	344
				8	1.4	14	100	6.5	345
				8.9	1.3	14	100	6.5	344
				10	1.3	14	100	6.5	343
				11	1.3	14	100	6.5	344
				12	1.3	14	99	6.5	345
				13	1.3	14	99	6.5	345
				14	1.4	13.6	97	6.5	342
	7-Jun-09	1.5	-	1.5	1.6	14.3	102	5.7	270
				2	1.7	13.9	100	5.6	318
				3	1.7	13.9	100	5.7	334
				4	1.7	13.9	100	5.7	343
				5	1.7	13.9	100	5.7	344
				6	1.7	14	100	5.7	345
				7	1.7	14	100	5.7	346
				8	1.7	13.9	100	5.8	346
				9	1.7	13.9	100	5.8	347
				10	1.6	13.9	100	5.8	347
				11	1.6	13.9	100	5.8	347
				12	1.6	13.9	100	5.8	347
				13	1.6	13.9	100	5.8	347
				14	1.7	13.9	100	5.9	347
				<0.3	8.9	12.8	111	6.5	227
				1	8.8	12.8	111	6.6	228
				2	8.7	12.9	111	6.6	228
				3	8.4	13	111	6.6	229
				4	7.7	13.1	110	6.6	238
				5	7.2	13.2	109	6.6	242
				6	6.8	13.3	109	6.7	241
				7	6.6	13.3	109	6.7	239
				8	6.5	13.3	109	6.7	236
				9	6.3	13.4	108	6.7	235
				10	6	13.4	108	6.7	233
				11	5.8	13.5	108	6.7	232
				12	5.8	13.5	108	6.7	231
				13	5.7	13.5	108	6.7	232
				14	5.6	13.5	107	6.7	231
				15	5.5	13.5	107	6.7	230
	18-Aug-09	-	7	1	13.1	12.2	116	6.7	245
				2	13.1	12.2	116	6.7	245
				3	13.1	12.2	116	6.7	245
				4	13.1	12.2	116	6.8	245
				5	13.1	12.2	116	6.8	245
				6	13.1	12.2	116	6.8	246
				7	13.1	12.2	116	6.8	246
				8	13.1	12.2	116	6.8	249
				9	13.1	12.2	116	6.8	250
				10	13.1	12.2	116	6.8	249
				11	13.1	12.2	116	6.8	250
				12	13.1	12.2	116	6.8	250
				13	13.1	12.2	116	6.9	249
				14	12.7	1.7	15	6.6	252

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Sep-09	-	5.3	<0.3	10.9	11.1	100	6.7	261
				1	10.9	11.1	100	6.7	261
				2	10.9	11.1	100	6.8	261
				3	10.9	11.1	100	6.8	260
				4	10.9	11.1	100	6.8	261
				5	10.9	11.1	100	6.8	262
				6	10.8	11.1	100	6.8	263
				7	10.8	11.1	100	6.9	263
				8	10.8	11.1	100	6.9	265
				9	10.8	11.1	100	6.9	267
				10	10.8	11.1	100	6.9	267
				11	10.8	11.1	100	6.9	267
				12	10.8	11.1	100	6.9	267
				13	10.8	11.1	100	6.9	268
				14	10.8	11.1	100	6.9	268
SNAP03	6-Feb-09	1.3	-	1.3	0.3	18	124	6.6	263
				2	0.5	17.7	123	6.6	257
				3	0.8	17.2	120	6.7	256
				4	0.9	16.3	114	6.6	276
				5.1	0.9	16	112	6.6	287
				6	0.9	15.7	110	6.6	288
				7	0.9	15.5	109	6.6	287
				8	1	15.4	108	6.5	287
				9	1.2	15	106	6.5	279
				10	1.5	14.2	101	6.3	274
				11	1.9	13.7	99	6.3	269
				12	2.1	13.1	95	6.2	266
	16-Mar-09	1.2	-	0.2	0	13.8	94	6.6	268
				1	0	13.7	94	6.6	264
				2	0.4	13.5	93	6.6	254
				3	0.3	13.5	94	6.6	260
				4	0.5	13.3	92	6.6	290
				5	0.8	12.9	90	6.6	294
				6	0.9	12.7	89	6.6	297
				7	0.8	12.7	89	6.6	300
				8	1	12.5	88	6.6	298
				9	1.3	12.2	87	6.6	290
				10	1.6	11.8	84	6.6	285
				11	1.8	11.5	82	6.6	282
				12	2.1	11.1	80	6.6	279
				13	2.4	7.2	49	6.4	266
	7-May-09	1.4	-	1.5	1.4	14.1	101	6.1	298
				2	1.3	14.2	100	6.1	287
				3	1.4	13.8	98	6.1	294
				4	1.4	14.2	101	6.2	342
				4	1.4	14.2	101	6.2	341
				5	1.4	14.3	102	6.2	342
				6	1.3	14.2	101	6.2	345
				7	1.4	14.1	100	6.2	344
				8	1.4	14	100	6.3	346
				9	1.5	13.8	99	6.3	341
				10	1.7	13.4	96	6.3	337
				11	1.9	12.9	93	6.3	334
				12	2.1	12.4	90	6.3	331
	5-Jun-09	1.42	-	1.4	0.6	15	104	5.8	281
				1.4	0.7	15	105	5.8	281
				2	1.3	14.1	100	5.8	278
				3	1.5	13.9	99	5.7	328
				4	1.5	14.2	102	5.7	342
				5	1.5	14.3	103	5.6	342
				6	1.5	14.4	103	5.7	343
				7	1.5	14.4	103	5.7	343
				8	1.6	14.4	103	5.7	342
				9	1.6	14.3	102	5.8	341
				10	1.8	14.1	101	5.8	337
				11	1.9	13.6	98	5.8	335
				12	2.1	13.1	95	5.8	332

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Jul-09	-	6.8	1	9.3	12.1	108	6.9	238
				2	9.2	12.4	108	6.9	238
				3	9	12.5	108	6.9	238
				4	8.9	12.4	108	6.9	238
				5	8.9	12.4	107	6.9	238
				6	8.8	12.4	107	7	238
				7	8.8	12.4	107	7	238
				8	8.8	12.4	107	7	238
				9	8.7	12.4	107	7	238
				10	8.5	12.5	107	7	238
				11	8.4	12.5	106	7	238
				12	8.3	12.5	106	7	239
				13	8.3	12.5	106	7	238
	12-Sep-09	-	5.5	<0.3	10.6	11.2	100	6.5	251
				1	10.6	11.1	100	6.6	251
				2	10.6	11.1	100	6.6	251
				3	10.6	11.1	100	6.6	251
				4	10.6	11.1	100	6.7	251
				5	10.6	11.1	100	6.7	251
				6	10.6	11.1	100	6.7	251
				7	10.6	11.1	100	6.7	251
				8	10.6	11.1	100	6.7	251
				9	10.6	11.1	100	6.7	251
				10	10.6	11.1	100	6.7	251
				11	10.6	11.1	100	6.7	251
				12	10.6	11.1	100	6.7	251
SNAP05	8-Feb-09	1.4	-	1.4	0.5	16.7	116	6.4	248
				2	0.7	16.7	116	6.4	245
				3	0.8	16.7	117	6.4	249
				4	0.8	16.5	116	6.4	269
				5	0.9	16.1	113	6.5	279
				6	1	15.9	112	6.5	285
				7	1.1	15.5	109	6.5	280
				8	1.3	14.8	105	6.5	272
				9	1.5	13.9	99	6.4	268
				10	1.9	13	94	6.4	262
				11	2.2	12.1	88	6.4	260
				12	2.3	11.2	81	6.3	259
				13	2.5	9.9	72	6.2	253
	16-Mar-09	1.3	-	0.1	0.1	15	103	6.7	260
				1	0.2	14.6	100	6.6	255
				2	0.8	14.1	98	6.7	245
				2.9	1	13.6	96	6.7	242
				3.9	1	14	98	6.7	275
				5.1	1	13.9	98	6.7	290
				6.1	1.1	13.8	97	6.7	293
				7	1.2	13.5	96	6.7	289
				8	1.3	13	92	6.7	283
				9	1.6	12.5	89	6.6	278
				10	2	11.8	85	6.6	273
				11	2.3	11.2	81	6.6	271
				12	2.4	10.2	75	6.5	269
				13	2.6	9.2	67	6.5	267
				14	2.9	6.7	50	6.4	266
	4-May-09	1.5	-	1.5	0.7	15	104	6.9	280
				2	1.2	14.1	99	6.9	275
				3	1.4	13.1	93	6.9	282
				4	1.3	13.7	97	6.8	323
				5	1.3	14.1	100	6.8	334
				6	1.3	14.1	100	6.8	336
				7	1.3	14	100	6.8	336
				8	1.5	13.6	97	6.8	331
				9	1.8	13	93	6.8	323
				10	2.2	11.9	86	6.8	318
				11	2.4	10.9	79	6.8	315
				12	2.6	10.3	76	6.7	314
				13	2.7	10	73	6.7	312

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	5-Jun-09	1.5	-	1.5	1.1	14.6	103	6.2	272
				2	1.5	13.7	98	6.1	277
				3	1.6	13.4	96	6.1	297
				4	1.5	13.7	98	6	336
				5	1.5	14.3	102	6.1	341
				6	1.5	14.3	102	6.1	340
				7	1.6	14.3	102	6.1	341
				8	1.7	13.6	98	6.1	337
				9	2	13.2	96	6.1	331
				10	2.3	12	87	6.1	327
				11	2.5	11.6	85	6.1	326
				12	2.7	10.6	78	6.1	323
				13	2.8	10	74	6.1	322
	11-Jul-09	-	6.3	1	8.2	12.6	107	5.9	238
				2	8.1	12.7	107	6	238
				3	8.1	12.7	107	6.1	238
				4	8	12.7	107	6.1	238
				5	8	12.7	107	6.2	238
				6	8	12.7	107	6.3	238
				7	8	12.7	107	6.3	238
				8	8	12.7	107	6.3	238
				9	8	12.7	107	6.4	238
				10	8	12.7	107	6.4	238
				11	8	12.7	107	6.4	238
				12	8	12.7	107	6.5	238
				13	8	12.7	107	6.5	238
	14-Sep-09	-	6	<0.3	11.3	11	101	6.1	258
				1	11.2	11	101	6.1	258
				2	11	11.1	101	6.1	258
				3	10.9	11.1	101	6.2	258
				4	10.9	11.1	101	6.2	259
				5	10.9	11.1	101	6.2	258
				6	10.8	11.1	100	6.3	259
				7	10.8	11.1	100	6.3	259
				8	10.8	11.1	100	6.3	259
				9	10.8	11.1	100	6.3	259
				10	10.8	11.1	100	6.4	259
				11	10.8	11.1	100	6.4	259
				12	10.8	11	100	6.4	259
				13	10.7	11.1	100	6.4	259
				14	10.7	11.1	100	6.4	259
SNAP06	8-Feb-09	1.1	-	1.1	0.4	16.1	112	6.8	244
				2	0.8	15.6	109	6.8	235
				3	1	15.1	106	6.8	233
				4	1	15	106	6.8	256
				5	0.9	15.2	107	6.8	269
				6	1	15.4	109	6.8	280
				7	1.2	14.7	104	6.8	269
				8	1.5	15.5	96	6.8	260
				9	1.7	12.3	88	6.7	255
				10	1.9	11.5	83	6.7	252
				11	2.1	10.6	77	6.6	249
				12	2.3	10.2	74	6.6	246
	16-Mar-09	1.2	-	0.2	-	14.8	108	6.9	269
				1	0.7	15.5	108	6.9	263
				2	1.1	15.1	106	6.9	250
				3	1.4	14.4	103	6.8	245
				4	1.4	13.9	99	6.8	248
				5	1.3	13.9	98	6.8	282
				6	1.2	14.2	100	6.8	293
				7	1.3	14	100	6.7	289
				8	1.5	13.5	97	6.7	278
				9	1.8	12.6	90	6.7	271
				10	2	11.5	83	6.6	267
				11	2.2	10.8	79	6.6	264
				12	2.5	10.2	75	6.6	261

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	4-May-09	1.4	-	1.5	0.8	14.8	103	6.8	289
				2	1	14.2	100	6.7	280
				3	1.5	13.3	94	6.7	282
				4	1.4	13.2	94	6.7	296
				5	1.3	13.3	95	6.7	330
				6	1.3	13.6	97	6.7	336
				7	1.4	13.4	96	6.7	332
				8	1.6	13.1	94	6.7	322
				9	1.9	12.3	88	6.7	316
				10	2.2	11.5	83	6.7	311
				11	2.4	10.1	79	6.7	309
				12	2.6	10.1	73	6.6	307
	5-Jun-09	1.5	-	1.5	0.7	15.1	105	6	276
				2	1.2	14.3	101	6	280
				3	1.7	13.6	98	6	293
				4	1.7	13.4	96	6	299
				5	1.6	13.8	99	6	335
				6	1.5	14.3	102	6	338
				7	1.7	13.9	100	6.1	334
				8	1.9	13.2	95	6.1	328
				9	2.1	12.4	90	6.1	323
				10	2.3	11.7	85	6.1	320
				11	2.5	11	81	6	318
				12	2.7	10.2	75	6	316
	13-Jul-09	-	6	1	9.8	12.1	107	6.9	238
				2	9.7	12.2	108	6.9	238
				3	9.4	12.3	108	6.9	238
				4	9.3	12.3	107	7	238
				5	9.2	12.3	107	7	238
				6	9	12.4	107	7	239
				7	9	12.4	107	7	238
				8	8.7	12.4	107	7	241
				9	8.6	12.4	107	7	241
				10	8.6	12.4	106	7	241
				11	8.5	12.4	106	7	241
				12	8.5	12.3	105	7	241
	13-Sep-09	-	6	<0.3	11	11.2	102	6.9	247
				1	11	11.2	102	6.9	247
				2	11	11.2	102	6.9	247
				3	10.9	11.2	102	6.9	247
				4	10.9	11.2	102	7	247
				5	10.9	11.2	102	7	247
				6	10.9	11.2	102	7	247
				7	10.9	11.2	102	7	247
				8	10.9	11.2	102	7	247
				9	10.9	11.2	102	7	247
				10	10.9	11.2	102	7	247
				11	10.9	11.2	102	7	247
				12	10.9	11.2	101	7	247
SNAP12	12-Feb-09	1.1	-	1.1	0.3	16.1	111	6.5	255
				2	0.8	15.7	110	6.5	245
				3	0.9	15.5	108	6.4	266
				4	0.9	15.4	108	6.4	289
				5	0.9	15.5	109	6.4	293
				6	0.9	15.5	109	6.4	295
				7	1	15.5	109	6.4	298
	18-Mar-09	1.2	-	0.1	0.2	18.7	128	6.5	274
				1	0.1	18.7	129	6.5	270
				2	0.4	18.4	127	6.5	253
				3	1	17.9	126	6.5	278
				4	1	18.2	128	6.5	289
				5	1	18	127	6.5	292
				6	1.1	17.8	125	6.5	294
				7	1.1	17.7	125	6.5	298
	5-May-09	1.38	-	1.5	1.8	14.1	101	6.9	290
				2	1.4	14	99	6.8	283
				3	1.6	13.8	99	6.7	314
				4.1	1.5	14	100	6.7	335
				5.1	1.4	14.1	101	6.7	339
				6	1.4	14.1	101	6.7	342
				7	1.4	14	100	6.6	343

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	5-Jun-09	1.3	-	1.3	0.8	16.4	115	6	275
				2	1.5	14.7	105	6	297
				3	1.5	14.1	101	6	333
				4	1.5	14.5	103	6	341
				5	1.5	14.5	104	6	343
				6	1.5	14.5	103	6	343
				7	1.6	14.4	103	6	344
	13-Jul-09	-	8	1	9.9	12.3	109	6.9	237
				2	9.4	12.4	109	6.9	237
				3	9.2	12.5	108	6.9	239
				4	9	12.5	108	6.9	242
				5	9	12.5	108	7	240
				6	8.9	12.5	108	7	239
				7	8.8	12.5	107	7	242
				8	8.7	12.4	106	7	241
	14-Sep-09	-	6	<0.3	11.4	11.1	102	6.5	259
				1	11	11.2	102	6.5	261
				2	10.9	11.2	101	6.5	262
				3	10.9	11.2	101	6.6	262
				4	10.8	11.2	101	6.6	262
				5	10.8	11.2	101	6.6	262
				6	10.8	11.2	101	6.6	262
				7	10.8	11.2	101	6.6	262
SNAP14	12-Feb-09	1.1	-	1.1	0.9	16.6	116	7.1	275
				2	0.9	16.1	113	7.1	248
				3	1.1	15.6	110	7.1	274
				4	1	15.6	110	7	296
				5	1.1	15.6	110	7	300
				6	1.1	15.5	110	7	301
				7	1.1	15.4	109	7	305
				8	1.1	15.5	109	7	303
				9	1.1	15.4	109	7	304
				10	1	15.4	109	7	304
				11	1.3	14.7	104	7	292
				12	1.6	13.8	99	6.9	285
	16-Mar-09	1.2	-	0.3	0	15.7	108	6.7	269
				1	0	15.2	104	6.8	264
				2	0.6	14.3	99	6.8	247
				3	0.6	14.3	99	6.8	263
				4	0.9	14.3	100	6.8	294
				5	1	14.6	103	6.9	299
				6	1	14.2	100	6.9	300
				7	1	14.1	99	6.9	301
				8	1	14.1	99	6.9	301
				9	1	14	98	6.9	301
				10	1.1	13.9	98	6.9	301
				11	1.3	13.4	95	6.9	293
				12	1.6	12.7	91	6.9	287
				13	2	12	86	6.8	280
	9-May-09	-	-	1.5	0.8	14.6	102	6.3	290
				2	1.3	13.7	97	6.3	287
				3	1.5	13.9	99	6.4	337
				4	1.4	14.3	102	6.4	344
				5	1.4	14.4	102	6.4	344
				6	1.3	14.4	102	6.5	345
				7	1.3	14.4	102	6.5	346
				8	1.3	14.4	102	6.5	347
				9	1.3	14.3	102	6.5	347
				10	1.3	14.3	102	6.5	347
				11	1.6	13.7	98	6.5	343
				12	1.7	12.8	92	6.5	337
SNAP26	12-Feb-09	1.3	-	1.3	0.3	17.5	121	6.5	281
				2	0.6	17.1	119	6.5	277
				3	0.9	16.9	118	6.5	271
				4	1.2	16	114	6.5	266
				5	2.1	14.3	102	6.5	269

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Mar-09	1.3	-	0.1	0	15.5	107	6.7	300
				0.5	0	14.9	102	6.7	297
				1.1	0	14.7	101	6.7	292
				1.5	0.3	14.6	101	6.7	284
				2	0.7	14.3	100	6.7	279
				2.5	0.8	14	98	6.6	277
				3	1	13.5	95	6.6	274
				3.5	1.1	13.1	92	6.6	276
				4	1.3	12.7	91	6.6	271
				4.5	1.6	12.2	88	6.5	269
				4.9	2.1	11.3	82	6.5	266
				5.5	2.6	4.5	32	6.4	277
	30-Apr-09	1.4	-	0.6	0.1	16.1	111	6.8	331
				0.6	0.1	16.1	110	6.8	332
				0.6	0.1	16.1	110	6.8	332
				0.6	0.1	16.1	110	6.8	332
				0.6	0.1	16.1	110	6.8	332
				0.6	0.1	16.1	110	6.8	332
				0.6	0.1	16.1	110	6.8	331
				0.6	0.1	16.1	110	6.8	331
				0.6	0.1	16.1	110	6.8	331
				1.5	0.2	16.1	111	6.8	327
				2.4	0.9	15	105	6.8	320
				3.4	1.2	14.5	102	6.8	319
				4.5	1.7	13.3	95	6.8	313
				5.4	2.4	9.8	72	6.7	308
	9-Jul-09	-	to bottom	1	8.2	12.5	106	6.5	217
				2	8.2	12.5	106	6.5	217
				3	8.2	12.5	106	6.6	218
				4	8.2	12.5	106	6.6	218
				5	8.1	12.5	106	6.6	219
				6	8	12.7	107	6.7	219
	12-Sep-09	-	5.5	<0.3	10.5	11.2	101	6.8	251
				1	10.5	11.2	101	6.8	251
				2	10.4	11.2	101	6.8	251
				3	10.4	11.2	100	6.8	251
				4	10.4	11.2	100	6.8	251
				5	10.4	11.2	100	6.8	251
SNAP28	12-Feb-09	0.9	-	0.9	0.5	16.8	116	6.5	244
				1	0.5	16.8	116	6.5	254
				2	0.6	16.8	117	6.5	257
				3	0.8	16.8	117	6.4	283
				4	0.9	16.4	115	6.5	303
				5	0.9	16.2	114	6.5	303
				6	1	16	113	6.5	304
	30-Apr-09	1	-	0.1	0.8	14.1	99	6.5	279
				1	1.1	14	99	6.5	307
				2	1.3	14	99	6.5	340
				3	1.3	14	99	6.6	341
				4	1.3	14	99	6.6	340
				5	1.3	12.3	99	6.6	341
	9-Jul-09	-	to bottom	1	7.7	12.9	108	6.7	236
				2	7.6	12.8	107	6.7	237
				3	7.6	12.8	107	6.8	237
				4	7.6	12.8	107	6.8	237
				5	7.6	12.8	107	6.8	237
	14-Sep-09	-	-	<0.3	11.3	11.1	101	6.6	260
				1	11.1	11.2	101	6.7	258
				2	11.1	11.2	101	6.7	257
				3	11	11.2	101	6.7	257
				4	11	11.2	101	6.7	259
				5	11	11.2	101	6.7	260
				6	10.9	11.2	101	6.7	269

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP09	9-Feb-09	1.2	-	1.2	0.7	15.3	107	6.6	233
				2	1	15	104	6.6	228
				3	1.1	14.6	103	6.6	230
				4	1.1	14.3	101	6.6	230
				5	1.2	14.1	99	6.6	234
				6	1.2	13.9	98	6.6	234
				7	1.3	13.7	97	6.5	236
				8	1.3	13.7	98	6.5	242
				9	1.3	13.7	97	6.5	241
				10	1.4	13.4	96	6.5	240
				11	1.5	13.1	93	6.5	237
				12	1.6	12.6	90	6.4	235
				13	1.8	12.2	87	6.4	233
				14	1.9	11.5	83	6.4	231
	17-Mar-09	1.3	-	0.3	0.1	4.3	29	7	250
				1	0	4.7	32	7	248
				2	0.1	5.6	38	7.1	238
				3	1.1	6.8	41	7	233
				4	1.2	5.9	42	7	238
				5	1.3	5.8	42	7	241
				6	1.3	5.9	42	7	247
				7	1.3	5.9	42	7	252
				8	1.4	6	42	7	258
				9	1.4	6	43	7	256
				10.1	1.5	6	43	7	256
				11	1.6	5.9	42	7	255
				12	1.7	5.8	42	7	252
				13.1	1.8	5.7	41	7	25
				14	1.9	5.5	40	7	246
	7-May-09	1.4	-	1.5	1.1	14	99	6.8	272
				2	1.5	13.2	94	6.7	273
				3	1.6	12.7	91	6.6	284
				4	1.6	12.4	89	6.6	291
				5	1.6	12.3	88	6.5	292
				6	1.6	12.1	87	6.5	296
				7	1.6	11.9	85	6.5	298
				8	1.7	11.9	85	6.5	301
				9	1.7	11.8	85	6.5	304
				10	1.7	11.7	84	6.5	305
				11	1.8	11.6	84	6.5	305
				12	1.9	11.2	81	6.4	302
				13	1.9	11	80	6.4	301
				14	2.1	10.6	77	6.4	298
	5-Jun-09	1.4	-	1.4	0.6	15.9	111	5.9	222
				2	1.5	14.4	103	5.9	283
				3	1.7	13.5	97	5.8	292
				4	1.7	13.3	95	5.8	297
				5	1.7	13.1	94	5.8	298
				6	1.7	12.7	91	5.8	304
				7	1.7	12.5	90	5.8	307
				8	1.8	12.3	88	5.8	307
				9	1.7	12.3	89	5.9	315
				10	1.8	12.5	90	5.9	313
				11	1.8	12.5	90	5.9	312
				12	1.9	12.3	89	5.9	310
				13	2	11.9	86	6	308
				14	2.1	11.5	84	6	306
	10-Jul-09	-	6.8	1	8.1	12.6	107	6.8	233
				2	8	12.6	107	6.8	233
				3	8	12.6	107	6.8	233
				4	8	12.6	107	6.8	233
				5	8	12.6	106	6.8	233
				6	8	12.6	106	6.9	233
				7	7.9	12.6	106	6.9	233
				8	7.9	12.6	106	6.9	233
				9	7.9	12.6	106	6.9	233
				10	7.9	12.6	106	6.9	233
				11	7.9	12.6	106	6.9	233
				12	7.8	12.6	106	6.9	233

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Sep-09	-	-	<0.3	11	11.1	101	6.8	242
				1	11	11.1	101	6.8	242
				2	11	11.1	101	6.8	242
				3	11	11.1	101	6.9	242
				4	11	11.1	101	6.9	242
				5	10.9	11.1	101	6.9	242
				6	10.9	11.1	101	6.9	242
				7	10.9	11.1	101	6.9	242
				8	10.9	11.1	100	6.9	242
				9	10.9	11.1	101	6.9	242
				10	10.9	11.1	100	6.9	242
				11	10.8	11.1	100	6.9	243
				12	10.8	11.1	100	6.9	243
				13	10.8	11.1	100	6.9	243
				14	10.8	11.1	100	6.9	243
SNAP11	12-Jul-09	-	6.3	1	9.1	12.2	-	6.7	236
				2	9	12.2	-	6.7	236
				3	8.9	12.3	-	6.8	236
				4	8.8	12.3	-	6.8	237
				5	8.6	12.3	-	6.8	237
				6	8.4	12.3	-	6.8	238
				7	8.4	12.3	-	6.8	238
				8	8.3	12.3	-	6.8	238
				9	8.2	12.3	-	6.8	238
				10	8.2	12.3	-	6.8	238
				11	8.2	12.3	-	6.8	238
				12	8.2	12.3	-	6.8	238
				13	8.1	12.3	-	6.8	238
				14	8.1	12.3	-	6.9	239
				15	8.1	12.3	-	6.9	238
				16	7.86[(b)]	11.1[(b)]	-	6.8[(b)]	261[(b)]
	14-Aug-09	-	6	1	12.4	12.1	-	6.7	237
				2	12.5	11.9	-	6.7	239
				3	12.5	11.9	-	6.7	239
				4	12.5	11.9	-	6.8	238
				5	12.5	11.9	-	6.8	238
				6	12.5	11.9	-	6.7	238
				7	12.5	11.9	-	6.7	238
				8	12.5	11.9	-	6.8	238
				9	12.5	11.9	-	6.8	239
				10	12.5	11.9	-	6.8	238
				11	12.5	11.9	-	6.8	238
				12	12.5	11.9	-	6.8	238
				13	12.5	11.9	-	6.8	238
				14	12.4	11.9	-	6.8	238
				15	12.4	11.8	-	6.8	238
				16	12.4	11.8	-	6.8	238
	13-Sep-09	-	6.3	<0.3	11	10.6	-	6.9	246
				1	10.9	10.7	-	6.9	247
				2	10.9	10.7	-	6.9	246
				3	10.8	10.7	-	6.9	247
				4	10.9	10.7	-	6.9	247
				5	10.9	10.7	-	6.9	247
				6	10.9	10.7	-	6.9	247
				7	10.8	10.7	-	6.9	247
				8	10.8	10.7	-	7	247
				9	10.8	10.7	-	6.9	247
				10	10.8	10.7	-	6.9	247
				11	10.8	10.7	-	6.9	247
				12	10.8	10.7	-	6.9	247
				13	10.8	10.7	-	7	247
				14	10.8	10.6	-	7	247
				15	10.8	10.6	-	6.9	247

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP11A	9-Feb-09	1.1	-	1.1	0.8	15.5	109	6.8	245
				2	1	15.2	107	6.8	232
				3	1.1	14.9	105	6.8	232
				4	1.1	14.6	103	6.7	237
				5	1.1	14.4	102	6.7	240
				6	1.2	14.3	101	6.7	244
				7	1.2	14.2	101	6.7	246
				8	1.2	14.3	102	6.7	259
				9	1.2	14.6	110	6.7	259
				10	1.3	14.3	102	6.6	254
				11	1.4	14	99	6.7	249
				12	1.5	13	96	6.7	245
				13	1.7	13	93	6.6	239
	17-Mar-09	1.3	-	0.2	0	3.8	26	6.9	200
				1	0.1	4.2	29	6.9	186
				2	0.6	4.4	31	6.9	175
				3	0.8	4.4	31	6.9	197
				4	1.1	4.3	31	6.9	240
				5	1.1	4.3	30	6.9	252
				6	1.2	4.2	30	6.9	254
				7	1.2	4.3	30	6.9	268
				8	1.2	4.4	31	6.9	277
				9	1.2	4.5	32	6.9	277
				10	1.3	4.4	32	6.9	272
				11	1.4	4.4	31	6.8	267
				12	1.5	4.3	31	6.8	264
				13	1.5	4.2	30	6.8	258
				14	1.8	4	29	6.8	254
	7-May-09	1.4	-	1.5	1.6	13.9	100	6.7	286
				2	1.6	13.6	97	6.6	280
				3	1.7	13	93	6.6	294
				4	1.6	12.8	91	6.6	299
				5	1.6	12.7	91	6.6	305
				5	1.6	12.7	91	6.6	307
				6	1.5	12.6	90	6.5	306
				7	1.5	12.6	90	6.5	317
				8	1.5	12.7	90	6.5	317
				9	1.5	12.7	90	6.5	316
				10	1.6	12.4	89	6.5	312
				11	1.7	12.2	88	6.5	310
				12	1.7	11.9	85	6.5	309
				13	1.8	11.6	84	6.5	308
	5-Jun-09	1.3	-	1.4	0.5	16.4	114	6	271
				2	1.3	14.7	104	6	292
				3	1.6	13.9	97	6	308
				4	1.6	13.6	97	6	308
				5	1.6	13.3	95	6	310
				6	1.6	13.2	94	6	316
				7	1.6	13.1	94	6	317
				8	1.6	13.1	94	6	326
				9	1.6	13.5	96	6.1	327
				10	1.6	13.5	97	6.1	328
				11	1.6	13.6	97	6.1	328
				12	1.7	13.3	96	6.1	325
				13	1.9	13	94	6.1	317
	10-Jul-09	-	6.5	1	7.7	12.7	106	6.8	231
				2	7.8	12.6	106	6.9	231
				3	7.7	12.6	106	6.9	231
				4	7.7	12.6	106	6.9	231
				5	7.7	12.6	106	6.8	231
				6	7.6	12.6	106	6.9	231
				7	7.6	12.6	106	6.9	231
				8	7.6	12.6	106	6.9	232
				9	7.6	12.6	106	6.9	232
				10	7.6	12.6	105	6.9	232
				11	7.2	12.7	105	6.9	234
				12	7.1	12.6	104	6.8	235
				13	6.5	12.8	104	6.9	235
				14	6.4	12.8	104	6.8	236
				15	6.3	12.8	104	6.8	236
				16	6.2	12.8	103	6.8	236

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Sep-09	-	6	<0.3	11.1	11.1	101	6.9	242
				1	11.1	11.1	101	6.9	242
				2	11	11.1	101	6.9	242
				3	11	11.1	101	6.9	242
				4	11	11.1	101	6.9	242
				5	11	11.1	101	6.9	242
				6	11	11.1	101	6.9	242
				7	11	11.1	101	6.9	242
				8	11	11.1	101	6.9	242
				9	11	11.1	101	6.9	242
				10	11	11.1	101	6.9	242
				11	10.9	11.1	101	6.9	242
				12	10.9	11.1	101	6.9	242
				13	10.9	11.1	101	6.9	242
				14	10.9	11.1	101	6.9	242
SNAP17	10-Sep-09	-	-	1	11	13.5	122	6.3	246
				2	11	13.6	123	6.3	246
				3	11	13.6	123	6.3	246
				4	11	13.5	123	6.3	246
				5	11	13.5	123	6.4	246
				6	11	13.5	123	6.4	246
				7	11	13.5	123	6.4	246
				8	11.1	13.2	121	6.4	246
SNAP18	10-Sep-09	-	-	1	10.9	13	117	6.7	247
				2	10.9	12.8	116	6.7	247
				3	10.9	12.8	116	6.7	247
				4	10.9	12.7	115	6.7	247
				5	11	12.6	115	6.7	247
				6	11	12.6	114	6.7	247
				7	11	12.6	114	6.7	247
				8	11	12.6	114	6.7	247
				9	11	12.6	114	6.7	247
				10	11	12.6	114	6.7	247
				11	11	12.6	114	6.7	247
SNAP19	10-Sep-09	-	-	1	10.9	12.4	112	6.7	247
				2	10.9	12.2	111	6.8	247
				3	11	12.2	111	6.8	247
				4	11	12.1	110	6.8	247
				5	11	12.1	110	6.8	247
				6	11	12.1	110	6.8	246
				7	11	12	109	6.8	246
				8	11	12	109	6.8	246
				9	11	12	109	6.8	246
				10	11.1	12	109	6.8	246
SNAP04	8-Feb-09	1	-	1	0.4	16.7	116	6.4	242
				1.5	0.7	16.4	114	6.4	235
				2	0.9	15.7	110	6.4	231
				2.5	1.3	15.4	109	6.4	227
				3	1.6	15.1	108	6.4	225
				3.5	1.9	14.7	106	6.4	223
	17-Mar-09	1	-	1	0.8	6.1	43	7.6	259
				1.5	0.7	6.5	45	7.3	252
				2	1	7.1	50	7.4	245
				2.5	1.2	7.6	54	7.2	240
				3	1.6	8	57	7.2	237
				3.5	1.9	8.3	60	7.1	234
				4	2.2	8.4	61	7.1	232
				4.5	2.5	8.1	59	7	231
	4-May-09	1.2	-	1.5	0.7	15.1	104	7.3	272
				2	1.2	13.7	96	7.2	273
				2.5	1.5	13.1	93	7.1	272
				3	1.5	12.6	91	7.1	270
				3.5	2.2	12.3	89	7	267
	10-Jul-09	-	to bottom	0.5	10.4	10.1	108	6.9	188
				1	10.3	12.1	108	6.9	188
				1.5	10.3	12.1	108	6.9	188
				2	10.3	12.1	108	7	188
				2.5	10.3	12.1	108	7	188
				3	10.3	12	107	7	188
				3.5	10.3	12	107	7	188
				4	10.3	12	107	7	188

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	14-Sep-09	-	to bottom	<0.3	10.6	11.3	102	5.7	227
				0.5	10.6	11.3	102	5.7	227
				1	10.5	11.4	102	5.8	227
				1.5	10.5	11.4	102	5.9	227
				2	10.5	11.4	102	5.9	227
				2.5	10.5	11.4	102	5.9	227
				3	10.5	11.4	102	6	227
				3.5	10.5	11.4	102	6	227
				4	10.5	11.3	102	6	227
				4.5	10.5	10.3[b]	92[b]	6	228
SNAP07	8-Feb-09	1.3	-	1.3	0.9	15.7	110	6.8	252
				2	1	15.5	109	6.8	241
				3	1.1	15.2	107	6.8	243
				4	1	15.3	107	6.8	241
				5	1.2	14.8	104	6.8	241
				6	1.5	14	100	6.7	237
				7	1.8	13.4	96	6.7	235
				8	1.9	12.8	92	6.7	235
				9	2	12.4	89	6.7	234
				10	2.1	11.6	84	6.7	237
	17-Mar-09	1.1	-	0.3	0	5.9	40	7	262
				1.1	0	6.1	42	7.1	257
				1.9	0.6	6.5	45	7.1	245
				3.1	1.1	6.4	45	7	243
				4	1.2	6.8	48	7	242
				5	1.3	6.9	49	7	245
				6	1.6	6.8	49	7	242
				7	1.9	6.8	49	7	239
				8	2	6.6	48	7	237
				9	2.1	6.3	45	6.9	239
				10	2.2	6	44	6.9	241
	4-May-09	1.4	-	1.5	1.4	13.7	97	6.7	280
				2	1.3	13.2	94	6.7	275
				3	1.6	13	93	6.7	271
				4	1.6	13	93	6.7	277
				5	1.7	12.7	91	6.6	279
				6	2	12.1	88	6.6	278
				7	2.1	11.3	82	6.6	277
				8	2.3	10.8	79	6.6	275
				9	2.3	9.9	72	6.5	275
				10	2.4	9.5	69	6.5	276
	5-Jun-09	1.4	-	1.4	0.8	15.9	111	5.9	261
				1.4	0.5	15.6	108	6	205
				2	1.6	15	108	5.9	273
				3	1.9	14.6	105	5.9	275
				4	2.1	14.4	105	5.9	274
				5	2.3	14.2	104	5.9	275
				6	2.4	13.8	101	5.8	274
				7	2.5	12.8	93	5.8	275
				8	2.5	12.3	90	5.8	276
				9	2.6	12.1	89	5.8	277
				10	2.6	11.8	87	5.8	276
	10-Jul-09	-	6.3	1	8.3	12.7	108	6.8	241
				2	8.2	12.7	108	6.9	241
				3	8.2	12.7	107	6.9	241
				4	8.2	12.6	107	6.9	241
				5	8.2	12.6	107	6.9	241
				6	8.2	12.6	107	6.9	241
				7	8.2	12.6	107	6.9	241
				8	8.1	12.6	107	6.9	241
				9	8.1	12.6	107	6.9	241
				10	8.1	12.6	107	6.9	241

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Sep-09	-	-	<0.3	10.5	11.3	101	6.7	240
				1	10.5	11.3	101	6.8	241
				2	10.5	11.3	101	6.8	241
				3	10.5	11.3	101	6.8	240
				4	10.5	11.3	101	6.8	240
				5	10.5	11.3	101	6.8	240
				6	10.5	11.3	101	6.8	241
				7	10.5	11.3	101	6.8	240
				8	10.5	11.3	101	6.8	241
				9	10.5	11.3	101	6.8	240
				10	10.5	11.3	101	6.9	240
SNAP08	8-Feb-09	1	-	1	0.5	15.2	106	7.3	253
				2	0.9	14.8	104	7.3	244
				3	1.7	13.7	98	7.2	236
				4	2.4	12.1	89	7.1	230
				5	2.8	10.8	80	7	229
				6	3	8	59	6.8	229
				7	3.1	7.2	53	6.7	232
				8	3.2	7	53	6.7	240
	17-Mar-09	1.4	-	0.3	0.3	7.4	51	7.1	276
				1	0.1	8	55	7	274
				2	0.9	8.2	58	7	252
				3	1.5	8.3	59	7	244
				4	2.5	8.2	60	7	237
				5	3	7.6	56	6.9	235
				6.1	3.1	7.1	52	6.9	238
				7	3.2	6.2	46	6.8	240
				8.1	3.4	5.5	41	6.8	244
				8.9	3.4	4.5	34	6.8	254
	4-May-09	1.4	-	1.5	2.3	13.4	98	6.6	290
				2	1.7	13.4	96	6.5	284
				3	2.4	12.4	90	6.4	278
				4	3.2	10.9	81	6.4	269
				5	3.4	9.6	73	6.3	272
				6	3.5	8.7	65	6.3	273
				7	3.6	7.2	55	6.2	274
				8	3.6	6.9	52	6.2	277
	5-Jun-09	1.4	-	1.4	0.9	15.5	109	5.9	272
				2	1.7	14.5	104	5.9	275
				3	3.1	13.5	101	5.9	271
				4	3.6	12.9	98	5.9	269
				5	3.8	12.6	96	5.9	269
				6	3.8	11.4	87	5.9	271
				7	3.8	10	76	5.8	272
				8	3.8	7.6	58	5.8	273
	12-Jul-09	-	6.8	1	10.8	11.8	107	6.8	241
				2	10.8	11.8	107	6.9	241
				3	10.7	11.8	106	6.9	241
				4	10.7	11.8	106	6.9	241
				5	10.7	11.7	106	6.9	241
				6	10.7	11.7	106	6.9	242
				7	10.6	11.7	105	7	241
				8	10.5	11.7	105	7	242
				9	10.4	11.7	105	7	242
	13-Sep-09	-	-	<0.3	10.2	11.4	102	6.6	239
				1	10.2	11.4	102	6.7	239
				2	10.2	11.4	102	6.7	239
				3	10.2	11.4	102	6.7	239
				4	10.2	11.4	102	6.7	239
				5	10.1	11.4	102	6.7	239
				6	10.1	11.4	102	6.7	239
				7	10.1	11.4	102	6.7	239
				8	10	11.4	101	6.8	238
				9	10	11.2	92	6.7	239
SNAP10	9-Feb-09	1	-	1.1	1	17	119	7.6	255
				1.5	1	16.9	119	7.5	256
				2	1	16.7	117	7.5	249
				2.5	1	16.5	116	7.4	245
				3	1.1	16.3	115	7.4	242
				3.5	1.1	16	113	7.3	240
				4	1.2	15.5	109	7.3	241
				4.5	1.3	14.9	105	7.2	250

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	17-Mar-09	1.4	-	0.1	0	3.9	27	7	241
				1	0	4.4	30	7	220
				1.5	0.1	4.5	31	7	213
				2	0.5	4.7	33	7	233
				2.5	0.7	4.8	34	7	249
				3	0.9	4.8	34	7	252
				3.5	1	4.8	34	7	252
				4	1.1	4.9	34	7	251
				4.5	1.2	4.8	34	6.9	257
				5	1.4	4.7	34	6.9	261
	7-May-09	1.4	-	1.5	0.6	15.1	105	6.7	289
				2	1	14.8	104	6.6	288
				2.5	1.3	14.5	103	6.6	286
				3	1.4	14.3	102	6.6	286
				3.5	1.5	14	100	6.6	285
				4	1.6	13.9	100	6.5	291
				4.5	1.7	13.9	100	6.5	301
	10-Jul-09	-	to bottom	0.5	9.5	12	105	6.6	213
				1	9.4	12	105	6.7	213
				1.5	9.4	12	105	6.7	213
				2	9.4	12	105	6.8	213
				2.5	9.4	12	105	6.8	213
				3	9.3	12	105	6.8	213
				3.5	9.3	12	105	6.8	213
				4	9.3	12.1	105	6.8	214
	13-Sep-09	-	to bottom	<0.3	10.9	11.4	103	6.9	236
				0.5	10.8	11.4	103	6.9	237
				1	10.7	11.4	103	6.9	237
				1.5	10.8	11.4	103	6.9	237
				2	10.7	11.4	103	6.9	237
				2.5	10.7	11.4	102	6.9	237
				3	10.7	11.4	102	7	238
				3.5	10.7	11.4	102	7	238
				4	10.7	11.4	102	7	238
				4.5	10.7	11.4	102	6.9	238
				5	10.7	11.4	102	7	238
SNAP23	11-Feb-09	1.2	-	1.2	0.4	16.7	116	6.4	92
				2	0.9	16	112	6.4	95
				3	1.3	13.6	96	6.4	102
				4	1.6	12.9	92	6.3	101
				5	1.8	12.2	88	6.2	111
				6	2.2	10.5	76	6.2	108
				7	2.5	8.8	63	6.1	112
				8	2.7	6.2	45	6	117
				9	2.8	4.5	33	6	119
				10	3	2.9	21	5.8	120
				11	3.1	1.6	11	5.8	121
	15-Mar-09	1.3	-	<0.3	0.2	16.7	115	6.7	103
				1	0.2	16.4	113	6.6	98
				2	0.9	16.3	114	6.6	92
				3	1.3	15.6	111	6.6	102
				4	1.6	14.9	117	6.6	109
				5	1.9	13.8	100	6.6	110
				6	2.4	12.8	98	6.5	107
				7	2.7	11.1	82	6.5	109
				8	2.9	8.9	67	6.4	114
				9	3	5	38	6.4	114
				10	3.2	1.7	14	6.4	115
				11	3.3	0.8	6.5	6.4	119
	6-May-09	1.4	-	1.5	0.7	16	112	6.9	95
				2	1.4	15.8	113	6.8	104
				3	2	15.5	112	6.7	111
				4	2.3	14.7	107	6.7	114
				5	2.6	12.3	90	6.6	119
				6	2.9	10	74	6.5	119
				7	3.2	7.5	56	6.4	122
				8	3.3	5.3	40	6.4	124
				9	3.4	2.9	22	6.3	126
				10	3.5	1.7	13	6.2	129
				11	3.6	0.8	5.9	6.2	137

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	5-Jun-09	1.3	-	1.1	0.4	16.3	113	5.8	90
				1.1	0.3	16.3	113	5.6	90
				2	1.8	16.1	116	5.7	104
				3	2.5	14.7	108	5.8	113
				4	2.8	13.5	100	5.9	115
				5	3	10.5	78	5.9	120
				6	3.2	6.2	46	5.8	121
				7	3.3	4.1	31	5.8	123
				8	3.3	3.4	26	5.7	130
				9	3.4	3.7	28	5.7	131
				10	3.6	3.5	26	5.7	133
				11	3.7	2.4	18	5.7	145
				12	4	1	7.6	5.8	168
	11-Jul-09	-	4.8	1	10.2	12.1	108	6.4	86
				2	10.2	12.1	108	6.4	85
				3	10.2	12.1	108	6.4	85
				4	10.1	12.1	108	6.5	85
				5	10.1	12.1	107	6.5	85
				6	10.1	12.1	107	6.5	85
				7	10	12.1	107	6.6	85
				8	10	12	107	6.6	85
				9	10	12	106	6.6	85
				10	9.9	12	106	6.6	84
				11	9.8	12	106	6.7	83
				12	9.2	12	104	6.7	84
	10-Sep-09	-	-	<0.3	10.5	10.9	97	5.8	105
				1	10.5	10.8	97	5.9	104
				2	10.5	10.8	97	6	105
				3	10.5	10.8	97	6.1	104
				4	10.5	10.8	97	6.1	104
				5	10.5	10.8	97	6.2	104
				6	10.5	10.8	97	6.3	104
				7	10.5	10.8	97	6.3	104
				8	10.5	10.8	94	6.3	104
				9	10.5	10.8	97	6.4	104
				10	10.5	10.8	97	6.4	104
				11	10.5	10.8	97	6.5	103
				12	10.5	10.8	97	6.5	103
SNAP02A	7-Feb-09	1.4	-	1.4	0.7	19.1	133	6.3	60
				2	1	18.5	130	6.3	56
				3	1.4	16.7	118	6.2	54
				4	1.9	14.4	104	6.3	51
				5	2.3	14.5	97	6.2	49
				6	2.6	10.7	78	6.1	51
				7	2.8	9.1	67	6.1	54
				8	2.8	8.4	62	6.1	58
				9	2.9	8.1	60	6	59
	15-Mar-09	1.5	-	1	0.7	17.2	120	6.1	65
				2	1.1	16.8	119	6.1	60
				3	1.7	16.1	115	6.2	54
				4	2.3	12.7	93	6.2	51
				5	2.6	9.1	67	6.1	50
				6	2.9	7.3	54	6.1	53
				7	2.9	8.3	62	6.1	59
				8	3.1	7	52	6.1	59
				9	3.1	7.7	57	6.1	63
				10	3.1	6.6	49	6.1	64
	2-May-09	1.4	-	1.5	1.1	16.7	118	6.6	64
				2	1.3	16.6	118	6.6	62
				3	1.8	16.2	116	6.5	61
				4	2.4	15.3	112	6.5	59
				5	2.8	12.4	92	6.4	59
				6	3.1	9.2	68	6.4	62
				7	3.1	8.1	60	6.4	72
				8	3.2	8.7	65	6.3	73
				9	3.2	8.7	65	6.3	75

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	5-Jun-09	1.2	-	1.3	0.6	18.6	130	5.8	52
				2	2	17.5	126	5.7	61
				3	2.6	15.8	116	5.8	61
				4	2.8	14.5	107	5.8	67
				5	3.1	13	97	5.7	67
				6	3.2	11.7	88	5.7	71
				7	3.3	12	90	5.7	77
				8	3.3	12.8	96	5.6	78
				9	3.3	13.2	99	5.6	81
	11-Jul-09	-	5.3	1	10.9	11.8	107	6.4	46
				2	10.9	11.7	106	6.4	45
				3	10.9	11.7	106	6.4	45
				4	10.9	11.7	106	6.5	44
				5	10.9	11.7	105	6.5	44
				6	10.9	11.6	105	6.5	45
				7	10.9	11.6	105	6.5	44
				8	10.8	11.6	105	6.5	44
				9	10.8	11.6	105	6.6	44
	11-Sep-09	-	3.8	<0.3	10.3	11.1	99	6.2	54
				1	10.2	11.1	99	6.3	55
				2	10.2	11.1	99	6.3	54
				3	10.2	11.1	99	6.4	55
				4	10.2	11.1	99	6.4	55
				5	10.1	11.1	99	6.4	55
				6	10.1	11.1	99	6.4	55
				7	10.1	11.1	99	6.4	55
				8	10.1	11.1	99	6.4	55
				9	10.1	11.1	99	6.5	55
SNAP20	13-Sep-09	-	-	1	10.8	10.6	96	7.1	45
				2	10.7	10.6	96	7	45
				3	10.7	10.6	96	6.9	45
				4	10.7	10.6	96	6.9	45
				5	10.6	10.6	96	6.8	45
				6	10.6	10.6	96	6.8	45
				7	10.6	10.6	95	6.8	45
				8	10.5	10.6	95	6.8	45
				9	10.5	10.6	95	6.7	45
				10	10.5	10.6	95	6.7	45
				11	10.4	10.5	94	6.7	45
				12	10.4	10.5	94	6.7	45
				13	10.3	10.5	94	6.7	45
				14	10	10.5	93	6.7	44

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP20B	7-Feb-09	1.3	-	1.3	0.7	16.5	115	7.6	47
				2	1	15.7	110	7.5	43
				3	1.1	14.8	104	7.4	41
				4	1.2	14.3	101	7.4	41
				5	1.2	14.1	100	7.3	41
				6	1.2	14	99	7.2	42
				7	1.2	13.9	98	7.2	42
				8	1.2	13.8	98	7.1	42
				9.1	1.2	13.7	97	7.1	42
				10.1	1.3	13.6	96	7	42
				11	1.3	13.6	96	7	42
				12	1.3	13.6	96	6.9	42
				13	1.3	13.5	96	6.9	42
				14	1.3	13.5	95	6.5	42
				15	1.3	13.3	94	6.4	41
				16	1.4	13	93	6.4	41
				17	1.4	12.8	91	6.4	40
				18	1.5	12.7	90	6.3	41
				19	1.6	12	86	6.3	40
				20	1.9	12	86	6.3	38
				21	2.2	12.1	88	6.3	37
				22	2.5	12.4	91	6.4	36
				23	2.8	12.5	92	6.3	35
				24	2.9	12.6	93	6.4	35
				25	3	12.5	93	6.3	35
				26	3.1	12.4	92	6.4	35
				27	3.1	12.1	90	6.4	35
				28	3.1	11.9	89	6.4	35
				29	3.2	11.8	88	6.4	35
				30	3.2	11.5	86	6.3	35
				31	3.2	11.2	83	6.2	36
				31.3	3.2	10.9	81	6.2	36
	16-Mar-09	1.2	-	0.1	0	12.6	85	6.6	54
				1	0.1	12.1	83	6.5	52
				2	0.8	11.9	83	6.5	44
				3	1.1	11.4	80	6.5	41
				4	1.2	11	78	6.5	41
				5	1.2	10.7	76	6.5	42
				6.1	1.3	10.3	73	6.4	42
				7	1.3	9.9	70	6.4	42
				8	1.3	9.7	69	6.4	42
				9	1.3	9.6	68	6.4	42
				10	1.3	9.5	67	6.4	42
				11	1.4	9.4	67	6.4	43
				12	1.4	9.3	66	6.4	43
				13	1.4	9.3	66	6.3	43
				14	1.4	9.2	66	6.3	43
				15	1.4	9.1	65	6.3	42
				16.1	1.4	8.9	63	6.3	42
				17.1	1.5	8.8	63	6.3	42
				18.1	1.6	8.5	61	6.3	41
				19.1	1.7	8.5	61	6.3	40
				20	1.9	8.5	61	6.3	38
				21.1	2.2	8.5	62	6.3	37
				22	2.5	8.5	62	6.3	36
				23	2.7	8.6	63	6.3	36
				24	2.9	8.6	64	6.3	35
				25	3	8.7	64	6.3	35
				26.1	3.1	8.6	64	6.3	35
				27.1	3.1	8.5	63	6.3	35
				28.1	3.2	8.4	63	6.2	35

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	2-May-09	1.3	-	1.4	1.2	15.8	112	6.7	50
				2	1.3	15.6	111	6.7	49
				3	1.6	14.9	107	6.6	45
				4	1.7	13.7	98	6.6	46
				5	1.6	13	93	6.6	46
				6	1.6	12.7	91	6.6	46
				7	1.6	12.6	90	6.5	46
				8	1.6	12.6	90	6.5	47
				9	1.6	12.6	90	6.5	47
				10	1.6	12.5	89	6.5	47
				11	1.6	12.5	89	6.5	47
				12	1.6	12.5	89	6.5	47
				13	1.6	12.4	89	6.5	47
				14	1.6	12.4	88	6.5	47
				15	1.6	12.3	88	6.4	47
				16	1.6	12.1	87	6.5	47
				17	1.6	12	86	6.5	46
				18	1.7	11.7	84	6.5	45
				19	1.9	11.4	82	6.5	43
				20	2.1	11.1	81	6.4	42
				21	2.3	10.9	80	6.5	41
				22	2.5	10.8	79	6.4	40
				23	2.7	10.9	80	6.4	39
				24	2.9	11	82	6.5	39
				25	3	11	82	6.4	39
				26	3.1	11	82	6.4	38
				27	3.1	10.8	81	6.4	38
				28	3.1	10.4	78	6.4	38
				29	3.2	9.9	74	6.3	38
				30	3.2	8.5	63	6.3	39
	5-Jun-09	1.1	-	1.1	0.7	15.9	111	6.4	51
				1.6	1.7	15.2	109	6.4	48
				2	1.6	15.3	110	6.4	47
				3	1.7	14.1	101	6.4	47
				4	1.7	13.5	97	6.3	47
				5	1.7	13.4	96	6.3	47
				6	1.7	13.3	95	6.2	47
				7	1.7	13.3	95	6.2	47
				8	1.7	13.1	94	6.1	47
				9	1.8	13	94	6.1	47
				10	1.8	13	93	6.1	47
				11	1.8	13.1	94	6	47
				12	1.8	13.2	95	5.6	47
				13	1.8	13.2	95	5.6	47
				14	1.8	13	93	5.5	47
				15	1.8	12.9	93	5.4	47
				16	1.9	13.3	96	5.2	47
				17	1.9	13.5	97	5.3	47
				18	1.9	13.4	96	5.3	47
				19	1.9	13.2	95	5.3	47
				20	2.1	12.6	91	5.3	46
				21	2.3	10.9	80	5.3	43
				22	2.5	10.2	75	5.3	41
				23	2.7	10.3	76	5.3	40
				24	2.9	10.6	78	5.3	40
				25	3	10.7	79	5.3	39
				26	3	10.4	77	5.3	41
				27	3.1	9.7	72	5.3	40
				28	3.1	8.7	65	5.3	40
				29	3.1	8	60	5.3	40
				30	3.1	7	52	5.2	40

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	11-Jul-09	-	5.3	1	10.1	12	106	6.4	39
				2	10	12	106	6.5	39
				3	9.9	12	106	6.5	39
				4	9.8	12	106	6.5	39
				5	9	12.3	106	6.6	39
				6	8.7	12.4	106	6.5	39
				7	8	12.6	106	6.6	39
				8	7.3	12.6	105	6.5	39
				9	7	12.7	104	6.6	39
				10	6.6	12.6	103	6.5	39
				11	6.4	12.4	101	6.5	39
				12	6.4	12.4	101	6.5	39
				13	6.2	12.4	100	6.5	39
				14	6.2	12.4	99	6.4	39
				15	6.1	12.3	99	6.4	39
				16	6	12.3	98	6.5	39
				17	6	12.2	98	6.5	39
				18	5.8	12.2	98	6.4	39
				19	5.8	12.2	97	6.4	39
				20	5.7	12.2	97	6.4	39
				21	5.7	12.2	97	6.4	39
				22	5.7	12.1	97	6.4	39
				23	5.6	12.2	97	6.3	39
				24	5.6	12.1	96	6.3	39
				25	5.6	12.1	96	6.3	39
				26	5.6	12.1	96	6.3	39
				27	5.5	12.1	96	6.3	39
				28	5.5	12.1	96	6.3	39
				29	5.4	12.1	96	6.3	39
	11-Sep-09	-	4.4	<0.3	10.6	10.7	96	6.3	44
				1	10.6	10.7	96	6.3	44
				2	10.6	10.7	96	6.3	44
				3	10.6	10.7	96	6.3	44
				4	10.6	10.7	96	6.3	44
				5	10.6	10.7	96	6.3	44
				6	10.6	10.7	96	6.4	44
				7	10.6	10.7	96	6.3	44
				8	10.6	10.7	96	6.4	44
				9	10.6	10.7	96	6.3	44
				10	10.6	10.7	96	6.3	44
				11	10.6	10.7	96	6.3	44
				12	10.6	10.7	96	6.4	44
				13	10.6	10.7	96	6.4	44
				14	7.2	10.8	89	6.4	39
				15	6.3	10.6	86	6.2	39
				16	6.1	10.3	82	6.2	39
				17	5.9	10.2	82	6.1	39
				18	5.8	10	80	6.1	39
				19	5.7	10.1	80	6	39
				20	5.7	10	80	6	39
				21	5.6	9.8	78	5.9	39
				22	5.6	9.9	79	6	39
				23	5.6	9.8	78	5.9	40
				24	5.5	9.8	77	5.9	40
				25	5.5	9.7	77	5.9	40
				26	5.5	9.6	76	5.9	40
				27	5.5	9.5	75	5.8	40
				28	5.5	9.4	74	5.8	40
				29	5.4	9.2	73	5.8	40
SNAP29	11-Feb-09	1.3	-	1.3	0.6	18.3	128	6.1	112
				2	0.7	18.2	127	6.1	128
				2.5	0.9	17.4	122	6.1	121
				3	1	17	120	6.1	125
				3.5	1.2	16.7	118	6.1	127
				4	1.4	16.1	114	6.2	123
				4.5	1.6	15.2	108	6.2	125
				5	1.8	14	100	6.1	123
				5.5	1.9	13.4	96	6.1	123
				6	2.1	12.2	87	6.1	123
				6.5	2.3	10.3	75	6	123

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	16-Mar-09	1	-	0.2	0.1	13.9	95	6.6	129
				1	0.1	13.8	95	6.5	125
				2	0.6	13.5	94	6.5	121
				3	1.2	12.8	90	6.5	116
				4.1	1.5	12.1	86	6.5	116
				5	1.9	11.3	82	6.4	119
				6	2.3	8.8	64	6.3	118
				1.2	0.7	15.6	109	6.6	125
				2	1.1	15.4	109	6.6	120
				3	1.6	15.2	109	6.5	135
				4	2.1	14.8	107	6.5	129
				5	2.4	14	103	6.4	128
				6	2.7	12.3	91	6.4	129
	6-May-09	1.1	-	1.2	0.7	15.6	109	6.6	127
				2	1.3	15.4	109	6.6	118
				3	1.6	15.2	108	6.5	136
				4	2.1	14.5	105	6.5	130
				5	2.4	13.5	98	6.4	128
				6	2.7	11.6	83	6.6	130
	11-Jul-09	-	-	1	10.4	11.9	107	6.6	88
				2	10.5	11.9	107	6.6	87
				3	10.5	11.9	106	6.6	86
				4	10.4	11.8	106	6.7	89
				5	10.4	11.8	106	6.7	88
				6	10.3	11.8	106	6.7	100
				7	10.3	11.8	105	6.8	103
	12-Sep-09	-	4.5	<0.3	10.6	11.3	102	6.5	110
				1	10.5	11.3	102	6.5	110
				2	10.5	11.3	102	6.5	110
				3	10.5	11.3	102	6.6	109
				4	10.5	11.3	102	6.6	109
				5	10.5	11.3	101	6.6	109
				6	10.5	11.3	101	6.5	110
SNAP01	12-Jul-09	-	4.5	1	10.8	11.3	-	6.7	42
				2	10.7	11.3	-	6.6	42
				3	10.6	11.3	-	6.6	41
				4	10.6	11.3	-	6.6	41
				4.8	10.3[b]	5.3[b]	-	6.4[b]	54[b]
	14-Aug-09	-	5	1	12.7	11.6	-	6.8	45
				2	12.7	11.6	-	6.7	45
				3	12.7	11.6	-	6.7	45
				4	12.7	11.6	-	6.7	45
				5	12.7	11.6	-	6.7	45
	11-Sep-09	-	-	<0.3	10.1	11.1	-	6.2	51
				1	10.1	11.1	-	6.2	51
				2	10.1	11.1	-	6.3	51
				3	10.1	11.1	-	6.3	51
				4	10.1	11.1	-	6.3	51
				5	10.1	10.5	-	6.3	51
SNAP30	12-Jul-09	-	5.5	1	11.3	11.1	-	6.4	40
				2	11.2	11.2	-	6.4	40
				3	11.1	11.2	-	6.5	40
				4	11.1	11.2	-	6.5	40
				5	11.1	11.2	-	6.5	40
				6	11	11.2	-	6.5	40
				7	10.8	11.2	-	6.5	40
				8	10.4	11.2	-	6.6	40
				9	8.7	11.5	-	6.7	40
	14-Aug-08	-	5	1	12.8	11.4	-	6.9	44
				2	12.8	11.4	-	6.9	44
				3	12.8	11.3	-	6.8	44
				4	12.8	11.4	-	6.9	44
				5	12.8	11.3	-	6.9	44
				6	12.7	11.3	-	6.8	44

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	12-Sep-09	-	4.7	<0.3	10.4	11.3	-	6.5	48
				1	10.3	11.3	-	6.6	48
				2	10.3	11.3	-	6.6	48
				3	10.3	11.3	-	6.6	48
				4	10.3	11.3	-	6.6	48
				5	10.3	11.3	-	6.6	48
				6	10.2	11.3	-	6.6	48
				7	10.2	11.3	-	6.6	48
				8	10.2	11.3	-	6.6	48
				9	10.2	11.3	-	6.6	48
SNAP31	12-Jul-09	-	bottom	1	10.5	11.5	-	6.5	86
				2	10.4	11.7	-	6.5	86
				3	10.4	11.7	-	6.6	86
	14-Aug-09	-	bottom	0.5	12.8	12.1	-	7.1	106
				1	12.8	12.1	-	7.1	106
				1.5	12.8	12.1	-	7.1	106
				2	12.8	12.1	-	7.1	105
				2.5	12.9	12.1	-	7	106
				3	12.9	12.1	-	7	105
				3.5	12.8	12.1	-	7.1	105
	12-Sep-09	-	bottom	<0.3	10.7	11.4	-	6.6	104
				1	10.7	11.4	-	6.6	105
				2	10.7	11.4	-	6.7	105
				3	10.7	11.4	-	6.7	105
IL3	15-Jul-09	-	-	<0.3	12.6	10.1	95	6.2	19
	16-Aug-09	-	-	0.2	11.8	10.8	100	5.6	20
	14-Sep-09	-	-	0.2	11.4	10.9	100	6.8	22
IL4	15-Jul-09	-	-	<0.3	13.1	10.1	96	6.5	16
	16-Aug-09	-	-	0.5	11.4	9.9	91	5.4	17
	14-Sep-09	-	-	<0.3	17.2	9.8	102	6.7	20
IL5	15-Jul-09	-	-	<0.3	12.9	10.5	99	6.3	50
	16-Aug-09	-	-	0.2	12.5	11.7	110	6	50
	14-Sep-09	-	-	0.3	13.3	11.2	107	6.9	55
S1	9-Jul-09	-	-	0.2	9.6	10.5	92	6.5	19
	16-Aug-09	-	-	0.1	13.9	10.1	97	5.9	20
	12-Sep-09	-	-	0.1	9.9	11.3	100	6.3	23
KING01	15-Jul-09	-	-	0.8	10.5	10.9	98	6.7	19
	17-Sep-09	-	-	0.2	10.1	14.5	128	6.4	21
NEL01	10-Feb-09	1.4	-	1.4	0.4	18	124	7.4	26
				2	0.5	17.8	123	7.3	25
				3	0.6	17.1	119	7.3	23
				4	0.7	16.5	116	7.3	23
				5	0.8	16.1	113	7.2	23
				6	0.9	15.9	111	7.2	24
				7	0.9	15.8	111	7.2	25
				8	1	15.8	111	7.1	25
				9	1.1	15.8	111	7.1	25
				10	1.7	13.7	98	7	25
				11	2.4	11.4	81	6.9	27
	1-May-09	1.4	-	0.8	1	17.2	121	7.5	28
				1.5	0.8	18.1	126	7.3	28
				2	0.7	18.5	129	7	26
				3	0.9	18.1	127	7	25
				4	1	17.4	123	6.9	25
				5	1.1	17.1	120	6.9	26
				6	1.2	16.8	119	6.8	27
				7	1.3	16.7	118	6.8	28
				8	1.3	16.7	119	6.8	28
				9	1.5	16.6	118	6.7	28
				10	2.1	14	102	6.7	28
				11	2.8[(b)]	7.2[(b)]	53[(b)]	6.5[(b)]	30[(b)]

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	14-Jul-09	-	6.8	1	8.9	11.5	100	7.1	21
				2	8.7	11.9	102	7	21
				3	8.7	12	103	7	21
				4	8.6	12.1	104	6.9	21
				5	8.5	12.2	104	6.9	21
				6	8.3	12.2	104	6.8	21
				7	8.1	12.2	104	6.8	21
				8	7.9	12.3	103	6.8	21
				9	7.7	12.3	103	6.8	21
				10	7.6	12.3	103	6.7	21
				11	7.5	12.3	103	6.7	21
				12	7.5	12.3	103	6.7	23
	19-Sep-09	-	6	<0.3	10.4	11.2	100	6.6	20
				1	10.3	11.2	100	6.5	20
				2	10.3	11.2	100	6.5	20
				3	10.3	11.2	100	6.6	20
				4	10.3	11.3	100	6.6	20
				5	10.3	11.3	100	6.6	20
				6	10.3	11.3	100	6.6	20
				7	10.3	11.2	100	6.7	20
				8	10.3	11.2	100	6.6	20
				9	10.3	11.2	100	6.6	20
				10	10.3	11.2	100	6.6	20
				11	10.3	11.3	100	6.7	20
NEL02	10-Feb-09	1.4	-	1.4	0.3	16.7	115	6.4	28
				2	0.5	16.2	112	6.4	22
				3	0.5	15.8	110	6.4	22
				4	0.7	15.3	107	6.5	22
				5	0.7	15.1	106	6.4	22
				6	0.8	14.9	104	6.5	22
				7	0.9	14.8	104	6.4	22
				8	1	14.6	103	6.4	22
				9	1.1	14.5	101	6.4	22
				10	1.2	14.3	101	6.3	22
				11	1.3	14	99	6.3	22
	1-May-09	1.4	-	1.5	0.5	16.7	116	6.7	26
				2.4	0.8	16.2	113	6.7	23
				3.5	0.9	15.2	106	6.7	23
				4.5	1	14.7	103	6.6	24
				5.5	1.1	14.5	102	6.6	24
				6.4	1.2	14.2	100	6.6	24
				7.5	1.3	14	100	6.6	24
				8.5	1.4	13.8	98	6.6	24
				9.5	1.5	13.3	95	6.6	24
				10.5	1.6	12.8	91	6.5	24
				11.3	1.7	12.2	88	6.4	24
	14-Jul-09	-	4.3	1	8.7	12.4	106	6.3	21
				2	8.7	12.4	106	6.4	21
				3	8.7	12.4	106	6.4	21
				4	8.6	12.4	106	6.4	21
				5	8.6	12.4	106	6.4	21
				6	8.5	12.4	106	6.4	21
				7	8.4	12.4	105	6.4	21
				8	8.2	12.4	105	6.4	21
				9	7.8	12.4	105	6.4	21
				10	7.8	12.4	104	6.5	21
				11	7.8	12.4	104	6.4	21
				12	7.7	11.6	97	6.5	22
	19-Sep-09	-	6	<0.3	10.4	11.2	100	6.6	20
				1	10.4	11.2	100	6.6	20
				2	10.4	11.2	100	6.5	20
				3	10.4	11.2	100	6.5	20
				4	10.4	11.2	100	6.5	20
				5	10.4	11.2	100	6.6	20
				6	10.4	11.2	100	6.6	20
				7	10.4	11.2	100	6.6	20
				8	10.4	11.2	100	6.6	20
				9	10.4	11.2	100	6.6	20
				10	10.4	11.2	100	6.6	20
				11	10.4	11.2	100	6.6	20
				12	10.4	11.2	100	6.6	20

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
NEL03	10-Feb-09	1.2	-	1.2	0.3	18.2	126	6.5	26
				2	0.6	17.4	121	6.6	24
				3	0.7	16.4	114	6.6	23
				4	0.7	15.7	109	6.6	22
				5	0.8	15.2	106	6.5	22
				6	0.9	14.9	105	6.5	22
				7	1	14.7	103	6.5	22
				8	1	14.5	102	6.5	22
				9	1.1	14.4	102	6.5	23
	1-May-09	1.4	-	1.5	0.6	18.4	128	6.8	28
				2	0.8	17.8	125	6.8	26
				3	0.9	17.4	122	6.7	24
				4	1.1	16.5	116	6.7	24
				5	1.1	15.3	108	6.6	23
				6	1.2	14.7	104	6.6	23
				7	1.3	14	99	6.5	23
				8	1.4	13.6	97	6.5	24
				9	1.5	13.6	97	6.5	24
	14-Jul-09	-	5.5	1	8.3	12.5	106	6.4	21
				2	8.3	12.5	106	6.4	21
				3	8.2	12.4	106	6.4	21
				4	8.2	12.4	106	6.4	21
				5	8.2	12.4	105	6.5	21
				6	8.2	12.4	105	6.5	21
				7	7.9	12.4	105	6.5	21
				8	7.8	12.4	105	6.5	21
				9	7.7	12.4	104	6.5	21
				10	7.6	12.4	104	6.5	21
	18-Sep-09	-	6.5	<0.3	10.6	11	99	6.4	20
				1	10.6	11	99	6.4	20
				2	10.6	11	99	6.4	20
				3	10.6	11	99	6.5	20
				4	10.6	11	99	6.5	20
				5	10.6	11	99	6.5	20
				6	-	-	-	-	-
				7	10.6	11	99	6.6	20
				8	10.6	11	99	6.6	20
				9	10.5	11	99	6.6	20
				10	10.5	11	99	6.7	21
NEL04	10-Feb-09	1.2	-	1.2	0.3	19	131	6.8	27
				2	0.4	18.8	129	6.8	25
				3	0.6	17.9	124	6.8	22
				4	0.7	16.7	117	6.8	22
				5	0.8	15.9	111	6.8	22
				6	0.9	15.4	108	6.7	22
				7	1	15.1	106	6.7	22
				8	1.1	14.8	104	6.7	22
				9	1.1	14.6	103	6.7	22
				10	1.2	14.2	100	6.7	22
				11	1.2	13.9	98	6.7	22
				12	1.3	13.6	97	6.7	22
	1-May-09	1.4	-	1.5	1.2	17.6	124	6.8	28
				2	0.8	17.7	124	6.8	26
				3	1	16.8	118	6.8	25
				4	1.1	16.4	116	6.7	24
				5	1.2	16.1	113	6.7	25
				6	1.2	15.9	112	6.7	25
				7	1.3	15.6	111	6.7	26
				8	1.4	15.1	107	6.7	25
				9	1.4	14.6	104	6.7	25
				10	1.5	13.9	99	6.7	24
				11	1.6	13.2	95	6.6	24
				12	1.6	12.8	92	6.6	24

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	14-Jul-09	-	6.3	1	8.9	12.1	104	6.5	21
				2	8.8	12.2	105	6.5	21
				3	8.8	12.2	105	6.5	21
				4	8.8	12.3	106	6.5	21
				5	8.8	12.2	106	6.5	21
				6	8.8	12.3	106	6.5	21
				7	8.8	12.3	106	6.5	21
				8	8.7	12.3	105	6.5	21
				9	8.7	12.3	105	6.5	21
				10	8.7	12.3	105	6.5	21
				11	8.6	12.2	105	6.5	21
				12	8.5	12.2	104	6.5	21
	19-Sep-09	-	6.5	<0.3	10.5	11.2	101	6.3	20
				1	10.4	11.3	101	6.3	20
				2	10.4	11.2	101	6.4	20
				3	10.4	11.3	101	6.3	20
				4	10.4	11.3	101	6.4	20
				5	10.4	11.2	101	6.4	20
				6	10.4	11.3	101	6.4	20
				7	10.4	11.3	101	6.4	20
				8	10.4	11.2	101	6.5	20
				9	10.4	11.2	101	6.5	20
				10	10.4	11.3	101	6.5	20
				11	10.3	11.2	100	6.5	20
				12	10.3	11.3	100	6.5	20
NEL05	11-Feb-09	1.1	-	1.1	1.2	18.8	133	7.1	29
				2	0.7	18.6	129	7	24
				3	0.8	17	118	7	22
				4	0.9	16	111	7	22
				5	0.9	15.4	108	7	22
				6	1	15	105	6.9	21
				7	1	14.7	103	6.9	22
				8	1.1	14.5	102	6.9	22
				9	1.1	14.3	100	6.8	22
				10	1.1	14.1	100	6.8	22
				11	1.1	14	99	6.8	22
	1-May-09	1.5	-	1.5	0.5	15.4	108	6.6	27
				1.5	0.5	15	104	6.6	27
				2	0.7	17.8	124	6.7	27
				3	0.9	17.2	120	6.7	24
				4	1.1	15.2	107	6.6	23
				5	1.1	14.5	102	6.6	23
				5.9	1.2	14.2	100	6.6	23
				7	1.3	13.7	97	6.7	23
				8	1.3	13.5	96	6.6	23
				9.1	1.4	13.2	94	6.6	23
				10	1.4	13	92	6.5	23
				11	1.6[(b)]	8.5[(b)]	60[(b)]	6.5[(b)]	41[(b)]
	14-Jul-09	-	5.8	1	8.4	12.2	105	6.3	21
				2	8.4	12.4	106	6.3	21
				3	8.4	12.4	106	6.4	21
				4	8.4	12.4	106	6.4	21
				5	8.4	12.4	106	6.4	21
				6	8.4	12.4	106	6.4	21
				7	8.4	12.4	106	6.4	21
				8	8.4	12.4	106	6.4	21
				9	8.4	12.4	106	6.4	21
				10	8.4	12.4	106	6.4	21
	18-Sep-09	-	6	<0.3	10.6	11	99	6.4	20
				1	10.6	11	99	6.4	20
				2	10.6	11	99	6.4	20
				3	10.6	11	99	6.4	20
				4	10.6	11	99	6.4	20
				5	10.6	11	99	6.5	20
				6	10.6	11	99	6.5	20
				7	10.5	11	99	6.5	20
				8	10.5	11	99	6.5	20
				9	10.5	11	99	6.5	20
				10	10.5	11	98	6.5	20

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNP02-20d	24-Jan-10	0.87	-	1	0.9	16.0	113	6.8	335
				2	1.6	15.5	111	6.6	317
				3	1.6	15.2	109	6.5	353
				4	1.6	15.0	107	6.5	360
				5	1.5	14.9	107	6.5	361
				6	1.5	14.9	106	6.5	363
				7	1.5	14.8	106	6.5	365
				8	1.5	14.8	106	6.5	366
				9	1.5	14.8	106	6.5	368
				10	1.5	14.7	105	6.5	367
				11	1.9	14.3	104	6.5	356
	21-Feb-10	0.75	-	1	1.6	15.1	108	7.0	325
				2	2.0	13.7	100	7.0	330
				3	1.9	13.5	97	6.9	359
				4	1.8	13.4	97	6.9	358
				5	1.7	13.4	96	6.9	360
				6	1.7	13.1	94	6.9	363
				7	1.7	13.1	94	6.9	364
				8	1.6	13.1	94	6.9	365
				9	1.7	13.1	94	6.9	367
				10	1.7	13.1	94	6.9	367
				11	1.7	13.1	94	6.8	367
				12	2.4	6.7	43	6.8	329
	17-Mar-10	0.97	-	1	0.8	13.2	93	6.7	313
				2	1.6	13.0	93	6.6	345
				3	1.7	13.0	93	6.6	361
				4	1.7	13.0	93	6.6	363
				5	1.7	13.0	93	6.6	363
				6	1.7	13.0	93	6.6	366
				7	1.7	12.9	93	6.6	367
				8	1.7	12.9	93	6.6	369
				9	1.7	12.9	93	6.6	371
				10	1.7	12.9	93	6.6	374
				11	1.9	12.8	92	6.6	366
	11-Apr-10	1.09	-	1.5	0.6	13.2	92	6.6	293
				2	1.4	12.6	90	6.6	282
				3	1.7	12.5	90	6.5	316
				4	1.7	12.7	91	6.5	336
				5	1.7	12.6	91	6.6	344
				6	1.7	12.6	90	6.6	344
				7	1.7	12.6	90	6.6	345
				8	1.7	12.5	90	6.6	346
				9	1.7	12.5	90	6.6	348
				10	1.8	12.5	90	6.6	348
				11	2.2	11.8	87	6.6	339
	4-May-10	1.07	-	1	2.4	12.3	90	7.1	251
				2	1.8	12.5	90	6.9	360
				3	2.0	12.4	90	6.9	378
				4	2.0	12.4	90	6.9	380
				5	2.0	12.4	90	6.8	381
				6	2.0	12.4	90	6.8	382
				7	2.0	12.4	90	6.8	382
				8	2.0	12.3	89	6.8	381
				9	2.0	12.2	89	6.8	380
				10	2.2	12.1	88	6.8	376
				11	2.3	11.9	87	6.8	375
	16-Jul-10	-	6.2	0.2	16.7	10.6	109	7.2	284
				1	16.7	10.4	107	7.2	284
				2	16.7	10.3	106	7.2	284
				3	16.6	10.3	106	7.2	284
				4	16.5	10.3	105	7.2	284
				5	15.9	10.3	104	7.2	293
				6	14.8	10.4	103	7.2	297
				7	14.4	10.4	102	7.2	295
				8	14.1	10.4	101	7.2	296
				9	13.8	10.3	100	7.1	292
				10	13.5	10.2	98	7.1	290
				11	13.3	10.2	97	7.0	291
				12	13.1	10.1	96	6.9	293

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	11-Aug-10	-	6	0.2	17.5	9.1	95	6.3	296
				1	17.5	9.3	97	6.3	296
				2	17.5	9.1	95	6.4	296
				3	17.3	9.1	95	6.4	297
				4	17.2	9.1	94	6.4	299
				5	17.2	9.1	94	6.4	299
				6	17.2	9.1	94	6.5	299
				7	17.1	9.1	94	6.5	299
				8	17.0	9.1	94	6.5	305
				9	17.0	9.1	94	6.5	306
				10	16.9	9.1	94	6.5	307
				11	16.9	10.1	94	6.5	305
				12	16.8	9.0	93	6.4	307
	8-Sep-10	-	6	0.2	12.3	10.5	98	6.9	303
				1	12.3	10.4	97	6.9	303
				2	12.3	10.4	97	6.9	302
				3	12.3	10.4	97	6.9	303
				4	12.3	10.4	97	7.0	302
				5	12.3	10.4	97	7.0	303
				6	12.3	10.4	97	7.0	303
				7	12.3	10.4	97	7.0	303
				8	12.3	10.4	97	7.0	304
				9	12.3	10.4	97	7.0	304
				10	12.3	10.4	97	7.0	305
				11	12.3	10.4	97	7.0	304
				12[b]	12.3[b]	6.3[b]	61[b]	6.9[b]	303[b]
SNP02-20e	23-Jan-10	1.11	-	1	0.9	15.2	107	6.8	331
				2	1.5	14.8	106	6.7	342
				3	1.4	14.7	105	6.6	361
				4	1.4	14.7	105	6.5	363
				5	1.4	14.7	105	6.5	363
				6	1.4	14.7	105	6.5	364
				7	1.4	14.7	105	6.5	365
				8	1.4	14.7	105	6.5	366
				9	1.5	14.7	110	6.5	365
				10	1.5	14.6	104	6.5	361
				11	1.5	14.6	104	6.5	367
				12	1.5	14.6	104	6.5	367
				13	1.5	14.6	104	6.5	367
				14	1.5	14.6	104	6.5	368
				15	1.5	14.6	104	6.5	368
				16	1.5	14.6	104	6.5	367
				17	1.5	14.6	104	6.5	367
				18	1.5	14.5	104	6.5	367
				19	1.5	14.5	104	6.5	367
				20	1.5	14.5	104	6.5	366
				21	1.6	14.4	103	6.5	362
				22	1.8	13.9	100	6.5	354
				23	2.0	13.4	97	6.5	346
				24	2.3	12.5	92	6.5	338
				25	2.4	11.8	86	6.4	335
				26	2.5	10.9	81	6.4	333
				27	2.6	9.6	71	6.4	333
				28	2.6	8.2	60	6.4	334

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	17-Feb-10	1.22	-	2	2.2	12.7	92	7.0	328
				3	2.0	13.0	94	7.0	346
				4	1.8	13.1	94	6.9	351
				5	1.7	13.1	94	6.9	354
				6	1.6	13.1	94	6.9	359
				7	1.6	13.1	94	6.9	360
				8	1.6	13.1	94	6.9	360
				9	1.6	13.1	94	6.9	360
				10	1.6	13.1	94	6.9	360
				11	1.6	13.1	94	6.9	360
				12	1.6	13.0	93	6.9	359
				13	1.6	13.0	93	6.9	357
				14	1.7	13.0	93	6.9	357
				15	1.6	13.0	93	6.9	357
				16	1.6	13.0	93	6.8	358
				17	1.6	13.0	93	6.8	358
				18	1.6	13.0	93	6.8	359
				19	1.6	12.7	93	6.8	359
				20	1.6	12.9	93	6.8	359
				21	1.7	12.8	92	6.8	356
				22	1.8	12.3	89	6.8	351
				23	1.9	11.8	86	6.8	347
				24	2.1	11.2	82	6.8	342
				25	2.3	10.5	77	6.8	336
				26	2.5	9.6	71	6.7	333
				27	2.6	8.3	61	6.7	332
				28	2.7	6.4	47	6.6	326
	16-Mar-10	1.21	-	0.1	0.8	12.9	91	6.2	330
				1	0.3	13.5	93	6.1	318
				2	1.5	13.0	93	6.1	350
				3	1.6	13.1	93	6.2	355
				4	1.6	13.2	94	6.2	363
				5	1.6	13.2	94	6.2	365
				6	1.6	13.2	94	6.2	366
				7	1.6	13.2	94	6.3	367
				8	1.6	13.2	94	6.3	369
				9	1.6	13.2	94	6.3	369
				10	1.6	13.2	94	6.3	369
				11	1.6	13.2	94	6.3	370
				12	1.6	13.2	94	6.4	370
				13	1.7	13.2	94	6.4	371
				14	1.7	13.1	94	6.4	371
				15	1.7	13.1	94	6.4	371
				16	1.7	13.1	94	6.4	371
				17	1.7	13.1	94	6.4	371
				18	1.7	13.1	94	6.4	370
				19	1.7	13.0	93	6.4	370
				20	1.7	12.9	93	6.5	369
				21	1.8	12.8	92	6.5	368
				22	1.8	12.7	91	6.5	367
				23	1.8	12.6	91	6.5	367
				24	1.8	12.5	90	6.5	366
				25	2.0	12.2	89	6.5	362
				26	2.1	11.8	86	6.5	359
				27	2.3	10.6	78	6.5	353
				28	2.4	9.7	71	6.4	344

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	6-Apr-10	1.29	-	1.5[d]	3.3[d]	12.4[d]	93[d]	6.2[d]	346[d]
				2	1.8	12.9	93	6.2	343
				3	1.7	12.9	92	6.2	345
				4	1.7	12.9	92	6.2	346
				5	1.7	12.9	92	6.3	348
				6	1.7	12.8	92	6.3	350
				7	1.7	12.8	92	6.3	350
				8	1.7	12.8	92	6.3	352
				9	1.7	12.8	92	6.4	352
				10	1.8	12.8	92	6.4	353
				11	1.8	12.7	91	6.4	354
				12	1.7	12.7	91	6.4	353
				13	1.8	12.7	91	6.4	352
				14	1.8	12.6	91	6.4	351
				15	1.8	12.5	90	6.4	351
				16	1.8	12.5	90	6.4	351
				17	1.8	12.4	89	6.4	350
				18	1.8	12.4	89	6.4	350
				19	1.8	12.3	89	6.4	349
				20	1.9	12.1	88	6.5	348
				21	1.9	12.1	87	6.5	348
				22	1.9	12.0	86	6.4	347
				23	1.9	11.8	85	6.5	347
				24	1.9	11.7	85	6.5	346
				25	2.0	11.4	83	6.5	345
				26	2.0	11.0	79	6.5	344
				27	2.1	10.6	77	6.5	342
				28	2.2	6.7[b]	46[b]	6.4	329[b]
	5-May-10	1.28	-	2	2.9	12.0	89	7.0	385
				3	2.3	12.3	90	7.0	378
				4	2.1	12.4	90	7.0	380
				5	2.2	12.4	90	7.0	387
				6	2.0	12.5	90	7.0	380
				7	2.0	12.5	91	7.0	380
				8	2.0	12.5	91	6.9	384
				9	1.9	12.5	90	6.9	385
				10	1.9	12.5	90	6.9	384
				11	1.9	12.6	91	6.9	385
				12	1.9	12.6	91	6.9	384
				13	2.0	12.6	91	6.9	384
				14	2.0	12.6	91	6.9	385
				15	2.0	12.5	91	6.9	385
				16	2.0	12.5	91	6.9	386
				17	1.9	12.6	91	6.9	387
				18	1.9	12.6	91	6.9	388
				19	1.9	12.6	91	6.9	387
				20	1.9	12.6	91	6.9	388
				21	1.9	12.6	91	6.9	387
				22	1.9	12.6	91	6.9	388
				23	1.9	12.6	91	6.9	389
				24	1.9	12.7	91	6.9	389
				25	1.9	12.7	92	6.9	389
				26	1.9	12.7	92	6.8	389
				27	1.9	12.7	92	6.8	389

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	14-Jul-10	-	6	0.1	17.0	10.0	130[(e)]	6.4	283
				1	16.9	9.8	101	6.5	283
				2	15.9	9.8	99	6.5	287
				3	15.7	9.8	98	6.5	292
				4	15.3	9.7	97	6.5	287
				5	14.7	9.8	96	6.5	304
				6	14.1	9.8	95	6.3	295
				7	13.8	9.7	94	6.4	288
				8	13.6	9.7	93	6.4	290
				9	13.4	9.7	93	6.4	289
				10	13.3	9.6	92	6.5	290
				11	13.2	9.6	91	6.5	292
				12	13.0	9.5	91	6.5	293
				13	12.9	9.5	90	6.5	295
				14	12.8	9.5	90	6.5	292
				15	12.7	9.5	89	6.5	291
				16	12.5	9.4	89	6.5	290
				17	12.4	9.4	88	6.5	291
				18	12.2	9.4	88	6.5	293
				19	12.0	9.3	87	6.5	293
				20	11.6	9.2	85	6.5	291
				21	9.2	9.1	79	6.5	291
				22	7.6	9.1	76	6.4	296
				23[(f)]	6.4[(f)]	9.2[(f)]	74[(f)]	6.4[(f)]	300[(f)]
				24[(f)]	6.0[(f)]	10.1[(f)]	81[(f)]	6.3[(f)]	302[(f)]
				25[(f)]	5.8[(f)]	9.5[(f)]	76[(f)]	6.3[(f)]	303[(f)]
				26[(f)]	6.0[(f)]	5.6[(f)]	46[(f)]	6.3[(f)]	306[(f)]
	15-Aug-10	-	6.5	0.5	16.5	9.3	96	5.5	286
				1	16.5	9.4	96	5.7	286
				2	16.5	9.4	96	5.8	286
				3	16.5	9.3	96	5.8	286
				4	16.5	9.3	96	5.9	286
				5	16.5	9.3	95	5.9	286
				6	16.5	9.3	95	6.0	286
				7	16.5	9.3	95	6.0	286
				8	16.5	9.3	95	6.1	286
				9	16.5	9.3	95	6.1	286
				10	16.5	9.3	95	6.1	286
				11	16.5	9.3	95	6.1	287
				12	16.5	9.2	94	6.2	287
				13	16.5	9.2	95	6.2	288
				14	16.4	9.2	94	6.2	287
				15	16.4	9.2	94	6.2	286
				16	16.4	9.2	94	6.2	286
				17	16.3	9.3	94	6.3	286
				18	16.2	9.2	93	6.3	286
				19	14.1	8.0	77	6.2	282
				20	10.4	7.7	69	6.2	289
				21	9.1	6.9	60	5.9	288
				22	8.3	6.8	58	5.8	290
				23	7.8	6.6	56	5.8	291
				24	7.2	6.6	52	5.7	292
				25	6.6	6.2	51	5.7	293
				26	6.4	5.7	46	5.6	294

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	7-Sep-10	-	6	0.5	12.7	10.3	97	5.7	302
				1	12.7	10.3	97	5.8	302
				2	12.7	10.3	97	5.9	302
				3	12.7	10.3	97	5.9	302
				4	12.7	10.2	97	6.0	302
				5	12.7	10.2	97	6.0	302
				6	12.7	10.2	96	6.0	302
				7	12.7	10.2	96	6.1	302
				8	12.7	10.2	96	6.1	302
				9	12.7	10.2	96	6.1	302
				10	12.7	10.2	96	6.1	302
				11	12.6	10.2	96	6.2	302
				12	12.6	10.2	96	6.2	302
				13	12.6	10.2	96	6.2	302
				14	12.6	10.2	96	6.2	302
				15	12.6	10.2	96	6.3	302
				16	12.6	10.2	96	6.3	302
				17	12.6	10.2	96	6.3	302
				18	12.6	10.2	96	6.3	302
				19	12.6	10.2	96	6.3	302
				20	12.6	10.2	96	6.4	302
				21	12.6	10.2	96	6.4	302
				22	12.6	10.2	96	6.4	302
				23	12.6	10.2	96	6.4	302
				24	12.6	10.2	96	6.5	302
				25	12.1[(b)]	3.5[(b)]	36[(b)]	6.2[(b)]	306[(b)]
SNP02-20f	24-Jan-10	0.89	-	1	0.6	17.5	122	6.6	303
				2	1.4	16.6	118	6.5	321
				3	1.5	16.2	115	6.4	351
				4	1.5	15.9	114	6.4	356
				5	1.5	15.8	113	6.4	361
				6	1.5	15.7	112	6.4	365
				7	1.5	15.4	110	6.4	367
				8	1.5	15.2	108	6.4	371
				9	1.5	15.1	107	6.4	370
				10	1.5	14.9	107	6.4	372
				11	1.5	14.9	106	6.4	374
				12	1.5	14.8	106	6.4	374
				13	1.5	14.7	106	6.4	372
				14	2.0	14.4	103	6.4	355
	16-Feb-10	1.07	-	1	1.2	13.1	93	6.7	302
				2	1.6	13.0	93	6.7	330
				3	1.6	13.0	93	6.7	349
				4	1.6	13.0	93	6.7	352
				5	1.6	12.9	93	6.7	355
				6	1.7	12.9	93	6.6	357
				7	1.7	12.9	93	6.7	357
				8	1.7	12.9	93	6.7	358
				9	1.7	12.8	92	6.7	359
				10	1.8	12.8	92	6.6	360
				11	1.9	12.8	92	6.6	361
				12	2.1	12.7	92	6.7	364
				13	2.1	12.4	90	6.7	362
				14	2.6	11.9	87	6.7	346
	17-Mar-10	1.13	-	1.5	1.9	12.8	93	6.5	313
				2	1.7	12.8	92	6.5	346
				3	1.9	12.9	93	6.5	373
				4	1.8	12.9	93	6.5	373
				5	1.6	13.0	93	6.6	370
				6	1.7	12.9	93	6.6	376
				7	1.6	13.0	93	6.6	374
				8	1.6	13.0	93	6.6	375
				9	1.6	13.0	93	6.6	375
				10	1.6	13.0	93	6.6	376
				11	1.6	13.0	94	6.6	373
				12	1.7	12.9	96	6.6	370
				13	1.8	12.9	93	6.6	370
				14	2.1	12.3	90	6.6	360

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	7-Apr-10	1.21	-	1.5	1.5	12.5	89	6.8	284
				2	1.8	12.1	87	6.8	285
				3	1.7	12.5	90	6.7	340
				4	1.6	12.6	90	6.7	342
				5	1.6	12.6	90	6.7	345
				6	1.6	12.6	90	6.7	347
				7	1.6	12.6	90	6.7	349
				8	1.7	12.6	90	6.7	349
				9	1.7	12.6	90	6.7	350
				10	1.7	12.5	90	6.7	350
				11	1.7	12.5	90	6.7	350
				12	1.7	12.5	90	6.7	350
				13	1.8	12.4	89	6.7	348
				14	1.9	12.2	88	6.7	346
	11-Apr-10	1.21	-	1.5	1.1	12.8	90	6.7	287
				2	1.6	12.3	88	6.7	286
				3	1.6	12.4	89	6.7	336
				4	1.7	12.5	90	6.7	340
				5	1.7	12.5	90	6.7	342
				6	1.7	12.4	89	6.7	343
				7	1.8	12.4	89	6.7	344
				8	1.8	12.4	89	6.6	345
				9	1.8	12.4	89	6.7	345
				10	1.8	12.3	89	6.7	344
				11	1.8	12.3	89	6.7	344
				12	1.9	12.3	89	6.7	344
				13	1.9	12.2	88	6.7	344
				14	2.0	12.1	88	6.7	343
	4-May-10	1.17	-	1	0.5	13.1	91	6.8	249
				2	1.6	12.8	91	6.7	371
				3	1.8	12.7	91	6.7	375
				4	1.8	12.7	91	6.7	376
				5	1.8	12.7	91	6.7	377
				6	1.8	12.7	91	6.7	378
				7	1.9	12.6	91	6.7	378
				8	1.9	12.6	91	6.7	379
				9	1.9	12.6	91	6.7	381
				10	2.0	12.5	90	6.7	379
				11	2.0	12.5	90	6.7	377
				12	2.0	12.4	90	6.7	377
				13	2.1	12.4	90	6.7	377
				14	2.1	12.3	89	6.7	376
	14-Jul-10	-	6	0.2	16.9	10.7	111	7.1	284
				1	16.6	10.5	108	7.0	284
				2	16.2	10.2	104	7.0	283
				3	15.5	10.1	101	7.0	282
				4	15.5	10.0	100	7.0	283
				5	15.2	9.9	99	6.9	284
				6	14.8	9.9	98	6.9	299
				7	13.9	9.8	95	6.8	288
				8	13.6	9.8	94	6.9	287
				9	13.5	9.7	93	6.9	288
				10	13.3	9.6	92	6.9	290
				11	13.2	9.6	92	6.9	294
				12	13.1	9.6	91	6.9	294
				13	12.9	9.5	90	6.9	295
				14	12.8	8.3	79	6.8	295

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	12-Aug-10	-	-	0.5	17.6	9.3	97	7.0	292
				1	17.6	9.3	97	7.0	293
				2	17.5	9.3	97	7.0	293
				3	17.4	9.3	97	7.1	296
				4	17.4	9.3	97	7.1	297
				5	17.4	9.3	97	7.1	297
				5	17.4	9.3	97	7.0	298
				6	17.3	9.3	97	6.9	298
				7	17.2	9.3	97	7.0	301
				8	17.1	9.3	97	7.0	308
				9	17.1	9.3	96	7.0	311
				10	17.0	9.3	96	7.0	309
				11	16.9	9.3	96	7.0	306
				12	16.9	9.2	95	7.0	307
				13	16.8	9.2	94	7.0	308
				14	16.6	8.1	83	6.9	310
	8-Sep-10	-	6	0.1	12.3	10.4	97	6.7	303
				1	12.4	10.4	97	6.6	303
				2	12.4	10.4	97	6.6	302
				3	12.3	10.4	97	6.6	302
				4	12.3	10.4	97	6.6	302
				5	12.3	10.3	97	6.6	302
				6	12.3	10.3	97	6.6	302
				7	12.3	10.3	97	6.7	302
				8	12.3	10.3	97	6.7	302
				9	12.3	10.3	97	6.7	302
				10	12.3	10.3	97	6.7	302
				11	12.3	10.3	97	6.8	302
				12	12.3	10.3	96	6.8	302
				12.7	12.4[b]	0.6[b]	6[b]	6.4[b]	290[b]
SNAP03	10-Jan-10	0.87	-	1	0.3	15.6	106	6.5	323
				2	1.1	15.2	107	6.4	316
				3	1.4	14.6	104	6.4	319
				4	1.4	14.3	102	6.4	344
				5	1.4	14.3	102	6.3	356
				6	1.5	14.2	102	6.3	356
				7	1.5	14.2	101	6.3	355
				8	1.6	14.0	100	6.3	350
				9	2.1	13.6	99	6.3	339
				10	2.6	12.8	95	6.3	330
				11	2.9	12.3	91	6.3	328
				12	3.1	11.4	85	6.3	326
	18-Feb-10	0.98	-	1	0.5	14.6	101	6.3	338
				2	1.2	14.0	99	6.4	321
				3	1.6	13.7	98	6.4	320
				4	1.6	13.3	95	6.4	338
				5	1.6	13.1	94	6.4	352
				6	1.7	12.9	93	6.5	352
				7	1.7	12.8	92	6.5	349
				8	1.9	12.6	90	6.5	347
				9	2.1	12.1	88	6.5	341
				10	2.5	11.8	87	6.5	337
				11	2.8	11.4	84	6.5	333
				12	3.1	10.9	81	6.5	331
				13	3.2	3.6	25	6.4	330
	17-Mar-10	1.07	-	1.5	2.0	14.6	106	6.0	311
				2	1.7	14.5	105	5.9	305
				3	1.7	14.5	104	5.9	342
				4	1.7	14.4	104	5.8	366
				5	1.7	14.3	103	5.9	370
				6	1.7	14.3	103	5.9	372
				7	1.7	14.3	102	5.9	373
				8	1.8	14.2	102	5.9	369
				9	2.1	13.8	100	5.9	363
				10	2.4	13.4	98	5.9	359
				11	2.7	13.0	96	5.9	356
				12	2.9	12.6	94	5.9	354

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	8-Apr-10	1.14	-	1.5	1.4	12.9	92	6.7	298
				2	1.7	12.7	91	6.7	291
				3	2.0	12.5	90	6.7	294
				4	1.8	12.5	90	6.7	339
				5	1.8	12.6	91	6.7	346
				6	1.8	12.6	91	6.7	348
				7	1.8	12.6	91	6.7	347
				8	1.9	12.4	90	6.7	346
				9	2.1	12.1	88	6.7	341
				10	2.3	11.8	86	6.7	338
				11	2.6	11.5	84	6.7	335
				12	2.9	11.1	82	6.7	333
	3-May-10	1.12	-	1	0.7	11.8	83	6.2	308
				2	1.8	11.9	86	6.2	335
				3	1.9	12.2	88	6.2	373
				4	1.9	12.3	88	6.2	376
				5	1.8	12.3	89	6.2	379
				6	1.8	12.3	89	6.3	381
				7	1.9	12.3	88	6.3	381
				8	1.9	12.2	88	6.3	380
				9	2.1	12.0	87	6.3	374
				10	2.4	11.8	86	6.3	369
				11	2.6	11.3	83	6.3	365
				12	2.9	10.6	78	6.3	363
	17-Jul-10	-	5	0.2	17.2	10.1	105	6.2	280
				1	17.2	10.1	105	6.3	280
				2	17.2	10.1	104	6.3	280
				3	17.1	10.1	104	6.3	280
				4	17.1	10.1	104	6.3	280
				5	16.9	10.1	104	6.4	281
				6	14.9	10.6	105	6.4	290
				7	14.2	10.9	106	6.5	286
				8	14.0	10.9	106	6.5	287
				9	13.7	11.0	106	6.4	286
				10	13.5	10.9	105	6.3	284
				11	13.4	10.9	104	6.2	284
				12	13.2	10.9	104	6.2	284
				13	12.7[b]	2.8[b]	28[b]	6.0[b]	291[b]
	13-Aug-10	-	-	0.5	16.5	10.1	104	6.7	300
				1	17.0	9.4	97	6.8	298
				2	17.0	9.4	97	6.8	297
				3	17.1	9.4	97	6.8	297
				4	17.1	9.4	97	6.9	297
				5	17.1	9.3	97	6.9	297
				6	17.1	9.3	97	6.9	297
				6	17.1	9.3	97	6.9	297
				8	17.1	9.3	97	6.9	297
				9	17.1	9.3	97	7.0	297
				10	17.1	9.3	97	7.0	297
				11	17.1	9.3	97	7.0	298
				12	17.0	8.8	91	7.0	298
	11-Sep-10	-	6	0.5	12.3	10.5	98	5.8	303
				1	12.2	10.5	98	5.8	303
				2	12.2	10.5	98	5.7	303
				3	12.2	10.5	98	5.7	303
				4	12.2	10.5	98	5.6	303
				5	12.2	10.5	97	5.7	303
				6	12.2	10.4	97	5.8	303
				7	12.2	10.4	97	5.8	303
				8	12.2	10.4	97	5.8	303
				9	12.2	10.4	97	5.9	303
				10	12.1	10.4	97	5.9	303
				11	12.1	10.4	97	6.0	303
				12	12.1	10.4	97	6.0	303

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP05	20-Jan-10	0.9	-	1	0.3	15.7	109	6.6	323
				2	1.2	15.7	111	6.6	310
				3	1.5	14.5	104	6.5	309
				4	1.6	13.7	100	6.5	311
				5	1.6	13.7	98	6.5	330
				6	1.7	13.6	98	6.5	335
				7	1.8	13.5	97	6.4	337
				8	1.9	13.3	96	6.4	335
				9	2.3	12.8	94	6.4	332
				10	2.7	12.3	91	6.4	326
				11	3.0	11.9	89	6.4	324
				12	3.1	11.7	87	6.3	324
				13	3.2	11.3	85	6.3	325
	20-Feb-10	1.06	-	2	2.3	13.1	95	6.8	298
				3	2.0	12.9	94	6.8	320
				4	1.8	13.0	94	6.8	348
				5	1.8	13.0	93	6.8	358
				6	1.7	13.0	93	6.8	359
				7	1.8	12.8	92	6.8	356
				8	2.0	12.5	91	6.8	348
				9	2.4	11.7	86	6.8	342
				10	2.8	11.5	85	6.8	336
				11	3.1	11.1	83	6.8	334
				12	3.2	10.8	81	6.8	333
				13	3.3	10.5	78	6.8	333
				14	3.4	9.4	71	6.8	335
	17-Mar-10	1.06	-	1.5	1.2	14.2	100	6.1	299
				2	1.6	14.0	100	6.1	295
				3	1.8	13.9	100	6.0	299
				4	1.6	13.6	97	6.0	361
				5	1.6	14.0	99	6.0	370
				6	1.6	14.0	100	6.0	368
				7	1.7	13.8	99	6.0	366
				8	1.9	13.5	98	6.0	361
				9	2.3	13.2	96	6.0	355
				10	2.7	12.7	94	6.0	350
				11	2.9	12.3	91	6.0	348
				12	3.1	11.7	88	6.0	346
				13	3.1	11.3	84	6.0	346
	8-Apr-10	1.15	-	1.5	1.2	12.4	88	6.8	287
				2	1.9	12.1	88	6.8	280
				3	2.1	11.1	80	6.8	287
				4	1.7	12.4	89	6.7	342
				5	1.7	12.5	90	6.7	348
				6	1.7	12.7	91	6.7	348
				7	1.7	12.6	90	6.7	349
				8	1.9	12.4	90	6.7	342
				9	2.3	11.9	87	6.7	335
				10	2.8	11.0	82	6.7	330
				11	3.1	10.3	77	6.7	326
				12	3.2	10.1	76	6.7	325
				13	3.4	9.9	74	6.6	325
				14	3.5	9.1	69	6.6	325
	6-May-10	1.2	-	2	2.9	14.9	112	5.9	294
				3	2.6	13.4	99	5.8	325
				4	2.4	13.2	96	5.8	362
				5	2.2	13.6	99	5.8	363
				6	2.2	13.6	99	5.8	363
				7	2.3	13.5	98	5.8	362
				8	2.4	13.4	98	5.8	359
				9	2.5	13.2	97	5.8	358
				10	2.8	12.4	92	5.8	355
				11	3.1	11.8	88	5.8	353
				12	3.3	11.0	83	5.8	352
				13	3.4	10.6	80	5.8	351

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	17-Jul-10	-	5.5	0.2	17.1	9.8	103	6.4	282
				1	17.0	10.1	105	6.5	282
				2	17.0	10.1	105	6.5	282
				3	17.0	10.1	105	6.5	282
				4	16.9	10.1	104	6.5	282
				5	15.9	10.4	106	6.6	289
				6	15.3	10.6	106	6.6	297
				7	14.8	10.7	106	6.6	298
				8	14.0	10.8	105	6.6	288
				9	13.8	10.8	105	6.7	288
				10	13.7	10.8	104	6.7	287
				11	13.5	10.8	104	6.7	286
				12	13.3	10.8	103	6.7	286
				13	13.2	10.6	101	6.7	287
				14	12.9[b]	6.0[b]	5.5[b]	6.4[b]	291[b]
	11-Sep-10	-	6	0.5[d]	11.9[d]	11.8[d]	110[d]	8.3[d]	300[d]
				1	12.0	10.7	99	8.0[g]	300
				2	12.0	10.7	99	7.9[g]	300
				3	12.0	10.7	100	7.9[g]	300
				4	12.0	10.8	100	7.9[g]	300
				5	12.0	10.8	100	7.9[g]	300
				6	12.0	10.9	101	7.8[g]	300
				7	12.0	11.0	102	7.8[g]	300
				8	12.0	11.0	102	7.8[g]	300
				9	12.0	11.0	102	7.8[g]	300
				10	12.0	11.0	102	7.8[g]	300
				11	12.0	11.0	102	7.8[g]	299
				12	12.0	11.1	103	7.5[g]	300
				13	12.0	11.1	103	7.6[g]	300
				14	12.0	11.1	103	7.5[g]	299
SNAP06	22-Jan-10	0.91	-	1	0.7	15.5	108	6.3	317
				2	2.2	13.8	101	6.3	309
				3	2.0	13.6	99	6.3	293
				4	1.9	13.4	98	6.2	310
				5	1.8	13.3	96	6.2	323
				6	1.7	13.5	97	6.3	337
				7	1.9	13.3	96	6.3	331
				8	2.3	12.6	72	6.3	321
				9	2.7	12.0	89	6.3	312
				10	2.9	11.3	84	6.3	309
				11	3.1	10.9	81	6.3	307
				12	3.2	10.3	77	6.3	306
	19-Feb-10	1.15	-	2	2.5	12.5	91	6.3	300
				3	2.3	11.8	86	6.4	290
				4	2.1	12.0	87	6.4	295
				5	1.9	12.6	91	6.4	340
				6	1.8	12.7	92	6.4	353
				7	1.9	12.6	91	6.5	347
				8	2.3	11.9	87	6.5	335
				9	2.6	11.4	84	6.5	330
				10	2.9	11.0	82	6.5	325
				11	3.0	10.5	78	6.5	323
				12	3.2	10.2	76	6.5	321
	16-Mar-10	1.14	-	1.5	0.9	16.3	115	6.0	301
				2	1.5	15.8	113	5.9	295
				3	1.9	14.9	108	5.8	293
				4	1.9	14.2	103	5.7	302
				5	1.7	14.6	104	5.7	355
				6	1.6	15.3	109	5.7	361
				7	1.8	15.2	110	5.7	357
				8	2.0	14.9	108	5.8	350
				9	2.4	14.3	105	5.8	344
				10	2.7	13.7	101	5.8	341
				11	2.9	13.3	99	5.8	340
				12	3.0	12.8	95	5.8	338

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	9-Apr-10	1.24	-	1.5	1.7	12.4	89	6.6	282
				2	1.8	12.3	88	6.6	279
				3	1.9	11.3	81	6.5	297
				4	1.7	12.3	88	6.5	339
				5	1.8	12.5	90	6.5	339
				6	1.8	12.4	89	6.6	339
				7	1.9	12.1	88	6.6	335
				8	2.2	11.7	85	6.6	329
				9	2.5	11.2	83	6.6	323
				10	2.9	10.5	78	6.5	320
				11	3.0	10.1	76	6.5	319
				12	3.2	9.8	72	6.5	318
	6-May-10	1.22	-	2	2.4	12.2	89	6.6	301
				3	2.5	11.7	86	6.6	330
				4	2.4	11.6	85	6.6	334
				5	2.7	11.7	86	6.6	326
				6	2.4	12.2	89	6.6	354
				7	2.5	12.4	91	6.6	356
				8	2.6	12.4	91	6.6	354
				9	2.7	12.5	92	6.6	352
				10	3.0	11.5	86	6.6	350
				11	3.2	11.0	82	6.6	350
				12	3.3	10.2	77	6.6	348
	17-Jul-10	-	5.5	0.2	17.0	10.0	104	6.6	278
				1	17.0	10.1	104	6.7	278
				2	16.9	10.1	104	6.7	278
				3	16.9	10.1	104	6.7	278
				4	16.7	10.1	104	6.7	278
				5	15.2	10.2	104	6.8	288
				6	14.7	10.7	106	6.7	288
				7	14.3	10.8	105	6.8	286
				8	14.0	10.8	105	6.8	283
				9	13.7	10.8	105	6.8	283
				10	13.5	10.8	104	6.8	283
				11	13.2	10.7	103	6.8	283
				12	13.1	10.7	101	6.8	282
	14-Aug-10	-	-	0.5	17.2	9.4	97	7.6	290
				1	16.9	9.4	97	7.6	290
				1	16.9	9.4	97	7.5	292
				2	16.8	9.4	96	7.5	290
				3	16.7	9.3	96	7.5	290
				3	16.7	9.3	96	7.5	290
				4	16.6	9.3	95	7.5	290
				5	16.5	9.3	95	7.4	290
				6	16.5	9.3	95	7.3	290
				7	16.4	9.3	95	7.2	289
				8	16.4	9.3	95	7.2	289
				9	16.3	9.3	95	7.2	289
				10	16.3	9.3	95	7.2	289
				10	16.3	9.3	94	7.2	290
				11	16.2	9.3	95	7.2	290
				12	16.2	9.3	95	7.2	291
				12	16.2	9.3	95	7.2	291
				13.1	16.1	9.3	95	7.2	291
	9-Sep-10	-	7	0.5	12.2	10.4	97	7.0	297
				1	12.2	10.4	97	7.0	297
				2	12.2	10.3	96	7.0	297
				3	12.2	10.3	96	7.0	297
				4	12.2	10.3	96	7.0	297
				5	12.2	10.3	96	7.1	297
				6	12.2	10.3	96	7.1	297
				7	12.2	10.3	96	7.1	297
				8	12.2	10.3	96	7.1	297
				9	12.2	10.3	96	7.1	297
				10	12.2	10.3	96	7.1	297
				11	12.2	10.3	96	7.1	297
				12	12.2	10.3	96	7.1	297

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP12	23-Jan-10	0.8	-	1	0.5	15.2	106	6.5	321
				2	1.3	14.9	106	6.4	310
				3	1.4	14.8	105	6.3	332
				4	1.5	14.6	104	6.3	347
				5	1.5	14.5	104	6.3	351
				6	1.5	14.5	104	6.3	357
				7	1.5	14.5	104	6.3	363
	20-Feb-10	0.9	-	1	0.5	13.1	92	6.8	316
				2	1.7	12.7	91	6.8	293
				3	1.7	12.8	92	6.8	335
				4	1.7	13.0	93	6.8	347
				5	1.7	13.0	93	6.8	358
				6	1.7	13.0	93	6.8	358
				7	1.7	13.0	93	6.8	359
	17-Mar-10	0.86	-	1	0.1	12.9	89	6.0	317
				2	1.1	12.0	84	5.9	298
				3	1.4	11.5	82	5.8	344
				4	1.3	12.1	85	5.8	367
				5	1.4	13.2	94	5.9	369
				6	1.5	13.4	96	5.9	370
				7	1.5	13.4	96	5.9	372
	8-Apr-10	1.08	-	1.5	1.7	12.5	90	7.1	299
				2	1.8	12.3	89	7.0	286
				3	1.8	12.4	89	6.9	340
				4	1.7	12.6	90	6.9	345
				5	1.7	12.7	91	6.8	347
				6	1.7	12.6	91	6.8	349
	5-May-10	0.99	-	1	0.8	12.5	87	6.8	298
				2	1.7	12.4	89	6.7	370
				3	1.8	12.6	91	6.7	378
				4	1.8	12.7	91	6.7	379
				5	1.8	12.7	91	6.7	380
				6	1.8	12.7	92	6.7	380
				7	1.9	12.7	92	6.7	379
	17-Jul-10	-	5	0.2	16.8	10.0	103	6.9	283
				1	16.8	10.0	103	6.9	283
				2	16.8	9.9	103	6.9	282
				3	16.8	9.9	102	7.0	283
				4	16.5	10.0	103	7.0	285
				5	16.1	10.1	103	7.0	289
				6	15.8	10.2	103	7.0	291
				7	15.1	10.5	104	7.0	292
	14-Aug-10	-	-	0.5	17.7	9.5	100	7.7	295
				0.5	17.1	9.3	97	7.5	298
				1	17.0	9.3	96	7.3	298
				2	16.9	9.3	96	7.3	298
				3	16.8	9.3	96	7.2	298
				4	16.8	9.3	96	7.2	298
				5	16.7	9.3	95	7.2	298
				6	16.7	9.3	95	7.2	298
				7	16.7	9.3	95	7.2	298
	11-Sep-10	-	6	0.5	12.0	10.5	98	6.2	311
				1	12.0	10.5	98	6.3	310
				2	12.1	10.5	97	6.3	310
				3	12.1	10.5	97	6.3	310
				4	12.1	10.5	97	6.3	310
				5	12.1	10.4	97	6.4	310
				6	12.1	10.4	97	6.4	310
				7	12.1	10.4	97	6.4	310

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP13	20-Jul-10	-	8.0	0.2	17.8	9.9	104	7.3	286
				1	17.3	9.9	103	7.3	284
				2	17.0	9.9	103	7.3	285
				3	16.7	10.0	103	7.2	289
				4	16.5	10.1	103	7.1	292
				5	16.1	10.2	103	7.1	294
				6	15.9	10.3	104	7.0	299
				7	15.4	10.4	105	6.9	301
				8	15.3	10.4	104	6.9	302
				9	15.2	10.5	104	7.0	302
				10	14.9	10.6	105	7.0	300
				11	14.6	10.6	105	7.0	294
				12	14.3	10.7	105	7.0	291
				13	14.1	10.7	104	7.0	292
				14	13.9	10.7	103	6.9	292
				15	13.4	10.6	102	7.0	291
				16	13.0	10.6	101	6.9	291
				17	12.5	10.4	97	6.9	290
				18	12.3	10.2	96	6.9	290
				19	11.8	10.0	93	6.8	290
	14-Aug-10	-	-	0.5	17.2	9.3	-	7.2	297
				1	17.1	9.3	-	7.2	297
				2	16.9	9.3	-	7.2	297
				3	16.8	9.3	-	7.2	297
				4	16.8	9.3	-	7.2	297
				5	16.7	9.2	-	7.2	297
				6	16.7	9.2	-	7.2	297
				7	16.7	9.2	-	7.2	297
				8	16.7	9.2	-	7.2	297
				9	16.6	9.2	-	7.2	297
				10	16.6	9.2	-	7.2	297
				11	16.6	9.2	-	7.2	297
				12	16.6	9.2	-	7.2	297
				13	16.6	9.2	-	7.2	297
				14	16.6	9.2	-	7.2	296
				15	16.4	9.3	-	7.2	297
				16	16.4	9.3	-	7.2	297
				17	16.3	9.2	-	7.2	297
				18	16.2	9.2	-	7.2	297
				19	12.1	8.6	-	7.2	303
				20	10.2	7.8	-	7.0	296
				21	9.3	7.1	-	6.8	298
	7-Sep-10	-	-	0.5	12.5	10.3	-	6.4	303
				1	12.5	10.3	-	6.5	302
				2	12.6	10.4	-	6.5	302
				3	12.6	10.2	-	6.5	302
				4	12.6	10.2	-	6.6	302
				5	12.6	10.2	-	6.6	302
				6	12.6	10.2	-	6.6	302
				7	12.6	10.2	-	6.6	302
				8	12.6	10.2	-	6.6	302
				9	12.6	10.2	-	6.8	302
				10	12.6	10.2	-	6.8	302
				11	12.6	10.2	-	6.8	302
				12	12.6	10.2	-	6.8	302
				13	12.6	10.2	-	6.8	302
				14	12.6	10.2	-	6.8	302
				15	12.6	10.2	-	6.8	302
				16	12.6	10.2	-	6.8	302
				17	12.6	10.2	-	6.8	302

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP14	6-May-10	1.2	-	2	1.8	12.4	89	6.3	375
				3	1.9	12.4	90	6.4	377
				4	1.9	12.4	90	6.4	380
				5	1.9	12.5	90	6.4	380
				6	1.9	12.5	90	6.4	381
				7	1.9	12.5	90	6.4	381
				8	2.0	12.4	90	6.5	380
				9	2.1	12.4	90	6.5	377
				10	2.2	12.1	88	6.5	373
				11	2.3	11.9	87	6.5	371
				12	2.4	11.8	86	6.5	369
				13	2.6	11.1	82	6.5	368
	12-Sep-10	-	6	0.5	12.1	10.5	98	7.2	305
				1	12.0	10.5	97	7.0	305
				2	11.9	10.4	97	6.8	305
				3	11.9	10.4	97	6.7	306
				4	11.9	10.4	96	6.7	306
				5	11.9	10.4	96	6.7	306
				6	11.9	10.4	96	6.7	306
				7	11.9	10.4	96	6.7	306
				8	11.9	10.4	96	6.7	306
				9	11.8	10.4	96	6.7	306
				10	11.8	10.4	96	6.7	306
				11	11.8	10.3	96	6.7	306
				12	11.8	10.3	96	6.7	306
				13	11.8	10.3	96	6.7	306
SNAP15	12-Sep-10	-	6	0.5	11.7	10.7	99	6.3	309
				1	11.8	10.4	96	6.8	309
				2	11.8	10.4	96	6.8	309
				3	11.8	10.4	96	6.9	309
				4	11.8	10.4	96	6.9	308
				5	11.8	10.4	96	6.9	308
				6	11.8	10.4	96	6.9	308
				7	11.8	10.4	96	7.0	308
				8	11.8	10.4	96	7.0	308
				9	11.8	10.4	96	7.0	308
				10	11.8	10.3	96	7.0	308
SNAP26	23-Jan-10	1.02	-	1	0.7	14.9	104	6.6	359
				2	1.6	14.5	104	6.5	340
				3	1.7	14.4	104	6.5	341
				4	2.1	14.0	101	6.4	332
				5	2.9	12.3	91	6.4	325
	20-Feb-10	1.22	-	2	1.7	13.1	94	6.7	347
				3	1.8	13.0	93	6.7	350
				4	2.1	12.3	89	6.7	342
				5	2.8	10.9	80	6.7	340
	17-Mar-10	1.24	-	1.5	0.8	13.3	94	6.2	358
				2	1.2	13.0	92	6.0	361
				3	1.4	12.9	91	6.0	360
				4	1.7	12.7	92	5.9	355
				5	2.7	12.2	91	5.9	348
	9-Apr-10	1.27	-	1.5	1.0	12.8	90	6.3	337
				2	1.4	12.8	91	6.4	337
				3	1.6	12.7	91	6.3	337
				4	2.0	12.3	89	6.4	332
				5	2.8	11.3	85	6.4	325
	5-May-10	1.2	-	2	2.2	12.4	90	6.8	385
				3	2.0	12.5	90	6.8	374
				4	2.5	12.4	91	6.8	365
				5	3.2	11.4	86	6.7	361
	20-Jul-10	-	5.5	0.2	17.4	10.1	106	7.1	287
				1	17.1	10.0	103	7.1	288
				2	16.9	10.0	103	7.1	290
				3	16.7	10.1	104	7.1	292
				4	16.6	10.2	105	7.2	294
				5	16.5	10.2	105	7.2	297
	11-Sep-10	-	-	0.5	11.7	10.6	98	6.4	307
				1	11.7	10.6	98	6.4	307
				2	11.7	10.5	97	6.4	307
				3	11.7	10.5	97	6.4	306
				4	11.7	10.5	97	6.4	307
				5	11.8	10.5	97	6.5	307

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP09	22-Jan-10	0.71	-	1	0.7	14.3	100	6.7	298
				2	1.7	13.8	99	6.6	282
				3	1.8	13.6	98	6.5	281
				4	2.0	13.5	97	6.5	280
				5	2.1	13.2	96	6.4	279
				6	2.2	12.6	92	6.4	280
				7	2.2	12.2	98	6.4	283
				8	2.3	11.9	87	6.3	282
				9	2.4	11.7	85	6.3	283
				10	2.4	11.5	84	6.3	283
				11	2.5	11.2	82	6.3	281
				12	2.7	10.9	80	6.3	280
				13	2.8	10.6	78	6.3	279
				14	2.9	9.4	69	6.3	279
	19-Feb-10	0.94	-	1	0.5	13.2	92	6.6	299
				2	1.8	12.3	89	6.6	282
				3	2.2	12.0	87	6.6	279
				4	2.3	11.8	86	6.7	277
				5	2.4	11.3	82	6.7	277
				6	2.5	10.9	80	6.7	276
				7	2.5	10.5	77	6.7	279
				8	2.6	10.1	74	6.6	282
				9	2.6	10.1	74	6.6	288
				10	2.6	9.9	72	6.6	287
				11	2.7	9.4	69	6.6	286
				12	2.7	9.2	68	6.6	292
				13	2.8	9.2	68	6.6	292
				14	2.9	8.9	65	6.6	290
	16-Mar-10	0.99	-	1	0.4	15.7	109	6.1	298
				2	1.9	14.6	105	5.9	284
				3	2.2	14.1	103	5.9	282
				4	2.3	13.8	101	5.7	282
				5	2.2	13.1	96	5.7	298
				6	2.1	12.7	92	5.7	310
				7	2.3	12.5	91	5.6	310
				8	2.2	12.8	93	5.6	323
				9	2.2	13.0	94	5.6	323
				10	2.3	12.9	94	5.6	323
				11	2.3	12.8	94	5.6	324
				12	2.5	12.7	93	5.6	321
				13	2.6	12.3	90	5.6	317
				14	2.8	11.7	87	5.6	314
	9-Apr-10	1.09	-	1.5	1.6	12.0	86	6.5	270
				2	2.1	11.7	85	6.5	268
				3	2.4	11.3	83	6.5	268
				4	2.4	11.1	82	6.5	271
				5	2.4	10.6	77	6.5	288
				6	2.3	10.5	76	6.5	298
				7	2.2	10.6	77	6.5	305
				8	2.1	11.5	83	6.5	327
				9	2.0	11.8	84	6.5	326
				10	2.3	11.5	84	6.5	317
				11	2.5	10.9	80	6.5	310
				12	2.7	10.5	77	6.5	305
				13	2.7	10.3	77	6.5	304
				14	2.8	10.0	74	6.5	304
	7-May-10	1.2	-	2	2.4	11.6	85	6.1	288
				3	2.4	11.5	84	6.1	312
				4	2.4	11.6	85	6.1	318
				5	2.3	11.8	86	6.1	333
				6	2.3	11.8	86	6.1	335
				7	2.3	11.8	86	6.1	334
				8	2.4	11.7	86	6.1	333
				9	2.5	11.7	85	6.1	332
				10	2.6	11.5	85	6.1	330
				11	2.5	11.4	83	6.1	334
				12	2.6	11.1	82	6.1	333
				13	2.7	11.0	81	6.0	331
				14	2.9	10.6	79	6.0	329

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	17-Jul-10	-	5.5	0.2	16.7	10.1	104	7.0	277
				1	16.7	10.0	103	7.0	277
				2	16.6	10.0	103	7.0	277
				3	16.6	10.0	103	7.0	277
				4	16.4	10.1	103	7.0	279
				5	14.8	10.6	105	7.1	283
				6	14.7	10.6	105	7.1	280
				7	14.2	10.7	104	7.1	278
				8	13.9	10.7	104	7.1	278
				9	13.5	10.7	103	7.1	277
				10	13.3	10.6	102	7.1	277
				11	12.9	10.6	100	7.1	277
				12	12.8	10.5	99	7.1	277
				13	12.7	10.5	99	7.1	277
				14	12.5	10.5	98	7.1	276
				15	12.3[b]	8.0[b]	78[b]	6.8[b]	277[b]
	9-Sep-10	-	7.5	0.5	12.4	10.3	97	7.1	288
				1	12.4	10.3	96	7.1	288
				2	12.4	10.3	96	7.1	288
				3	12.4	10.3	96	7.1	288
				4	12.4	10.3	96	7.1	288
				5	12.3	10.3	96	7.1	288
				6	12.3	10.3	96	7.1	288
				7	12.3	10.3	96	7.1	288
				8	12.3	10.3	96	7.1	288
				9	12.3	10.2	96	7.1	288
				10	12.3	10.2	96	7.1	288
				11	12.3	10.2	96	7.1	288
				12	12.3	10.2	96	7.1	288
				13	12.3	10.2	95	7.1	288
				14	12.3	10.2	95	7.1	288
SNAP11	20-Jul-10	-	8.0	0.2	17.0	9.7	101	7.1	279
				1	16.9	9.9	102	7.1	279
				2	16.4	9.9	101	7.1	279
				3	16.3	9.9	101	7.1	278
				4	16.2	9.9	101	7.1	278
				5	16.0	10.0	101	7.1	278
				6	15.8	10.0	101	7.1	276
				7	15.7	10.0	101	7.1	277
				8	15.0	10.3	102	7.1	279
				9	14.0	10.6	103	7.1	279
				10	13.5	10.7	103	7.1	277
				11	13.0	10.7	102	7.1	276
				12	12.5	10.4	98	6.8	277
				13	12.4	10.4	98	6.9	277
				14	12.4	10.3	97	6.9	277
				15	12.3	10.3	96	6.9	277
	14-Aug-10	-	-	0.5	16.5	9.3	-	7.0	287
				1	16.5	9.3	-	7.0	287
				2	16.5	9.3	-	7.0	287
				3	16.5	9.3	-	7.0	287
				4	16.5	9.3	-	7.0	287
				5	16.5	9.3	-	7.0	287
				6	16.5	9.2	-	7.0	287
				7	16.5	9.2	-	7.0	287
				8	16.4	9.2	-	7.0	287
				9	16.4	9.2	-	7.0	287
				10	16.4	9.2	-	7.0	287
				11	16.3	9.2	-	7.1	287
				12	16.1	9.2	-	7.0	286
				13	15.6	9.1	-	7.0	284
				14	13.3	9.3	-	7.1	280
				15	12.8	9.1	-	7.0	280

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	9-Sep-10	-	7.5	0.5	12.6	10.3	-	7.2	289
				1	12.5	10.3	-	7.2	288
				2	12.5	10.3	-	7.2	288
				3	12.5	10.3	-	7.2	289
				4	12.4	10.3	-	7.2	289
				5	12.4	10.2	-	7.2	289
				6	12.4	10.2	-	7.2	289
				7	12.4	10.2	-	7.2	289
				8	12.4	10.2	-	7.2	289
				9	12.4	10.2	-	7.2	289
				10	12.3	10.2	-	7.2	289
				11	12.3	10.2	-	7.2	289
				12	12.3	10.2	-	7.2	289
				13	12.3	10.2	-	7.2	289
				14	12.3	10.2	-	7.2	289
				15	12.2	10.2	-	7.2	289
SNAP11A	22-Jan-10	0.92	-	1	0.8	14.9	104	6.7	298
				2	1.7	13.9	100	6.6	282
				3	1.9	13.7	99	6.6	281
				4	2.0	13.5	98	6.5	280
				5	2.1	13.2	96	6.4	281
				6	2.1	12.7	92	6.4	283
				7	2.2	12.4	90	6.4	289
				8	2.2	12.3	89	6.3	298
				9	2.1	12.2	89	6.3	302
				10	2.2	12.1	88	6.3	299
				11	2.4	11.7	86	6.3	292
				12	2.4	11.4	84	6.3	290
				13	2.3	11.5	84	6.3	305
	20-Feb-10	0.93	-	1	1.3	12.9	91	6.9	303
				2	2.2	12.4	90	6.9	293
				3	2.2	12.5	91	6.9	281
				4	2.3	12.2	89	6.9	283
				5	2.4	11.7	85	6.9	285
				6	2.4	10.9	80	6.9	289
				7	2.3	11.0	80	6.9	308
				8	2.2	11.2	82	6.9	317
				9	2.2	11.4	83	6.8	318
				10	2.2	11.4	83	6.8	321
				11	2.2	11.5	83	6.8	320
				12	2.2	11.4	83	6.8	321
				13	2.4	11.0	81	6.8	315
				14	2.7	10.3	76	6.8	309
				15	2.8	9.9	73	6.8	314
				16	2.9	8.8	65	6.7	312
	16-Mar-10	1.03	-	1	0.2	18.2	125	6.1	304
				2	1.6	17.2	123	5.9	292
				3	2.0	16.7	121	5.7	289
				4	2.1	15.6	113	5.7	292
				5	2.2	14.5	107	5.7	300
				6	2.2	14.4	105	5.7	315
				7	2.0	15.0	108	5.7	339
				8	1.9	15.5	112	5.7	349
				9	1.9	15.8	114	5.7	348
				10	1.9	15.9	115	5.7	346
				11	2.1	15.6	114	5.7	336
				12	2.3	15.1	111	5.7	329
				13	2.3	15.0	109	5.7	336

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	9-Apr-10	1.12	-	1.5	1.5	12.7	91	6.5	282
				2	1.9	12.3	98	6.5	275
				3	2.3	12.1	88	6.5	272
				4	2.3	11.2	82	6.5	285
				5	2.3	10.9	80	6.5	293
				6	2.3	10.9	80	6.5	303
				7	2.3	10.9	80	6.5	306
				8	2.3	10.9	80	6.5	310
				9	2.3	11.0	80	6.5	312
				10	2.4	11.0	81	6.5	312
				11	2.4	11.1	81	6.5	313
				12	2.5	10.9	80	6.5	311
				13	2.6	10.6	78	6.5	310
				14	2.7	10.1	74	6.5	310
				15	2.9	9.5	71	6.5	308
	6-May-10	1.11	-	2	2.3	11.9	87	6.5	297
				3	2.4	11.6	85	6.5	317
				4	2.4	11.4	84	6.5	329
				5	2.4	11.4	83	6.5	334
				6	2.4	11.3	83	6.5	337
				7	2.4	11.3	83	6.5	340
				8	2.5	11.2	82	6.5	341
				9	2.5	11.2	82	6.5	344
				10	2.4	11.3	83	6.5	347
				11	2.5	11.4	84	6.5	349
				12	2.6	11.4	84	6.5	345
				13	2.6	11.1	82	6.5	344
				14	2.8	10.8	80	6.5	342
				15	2.9	10.4	77	6.5	340
				16	3.2	9.6	72	6.4	337
	17-Jul-10	-	5	0.2	16.7	10.0	103	7.0	277
				1	16.7	10.0	103	7.0	277
				2	16.7	10.0	103	7.0	277
				3	16.7	10.0	102	7.1	276
				4	16.7	9.9	102	7.0	277
				5	16.6	10.0	102	7.1	277
				6	14.4	10.4	102	7.1	276
				7	13.8	10.6	103	7.1	276
				8	13.4	10.7	102	7.2	276
				9	13.2	10.6	101	7.2	276
				10	12.8	10.5	100	7.2	276
				11	12.6	10.4	99	7.1	276
				12	12.5	10.5	98	7.1	276
				13	12.4	10.4	97	7.1	276
				14	12.3	10.3	97	7.0	276
				15	12.2	10.2	95	7.0	276
	14-Aug-10	-	-	0.3	16.3	9.3	95	6.9	288
				0.5	16.5	9.3	95	7.0	287
				1.1	16.5	9.3	95	7.0	287
				2.0	16.5	9.3	95	7.0	287
				3.1	16.5	9.3	95	7.0	287
				3.3	16.5	9.3	95	7.0	287
				4.0	16.5	9.3	95	7.0	287
				5.1	16.5	9.3	95	7.0	287
				5.0	16.5	9.3	95	7.0	287
				6.0	16.5	9.2	95	7.0	287
				7.0	16.5	9.2	94	7.0	287
				8.1	16.4	9.2	94	7.0	287
				8.0	16.4	9.2	94	7.0	287
				9.1	16.4	9.2	94	7.0	286
				9.2	16.4	9.2	94	7.0	287
				10.2	16.4	9.2	94	7.0	287
				10.3	16.3	9.2	94	7.0	287
				11.1	16.3	9.2	94	7.0	287
				12.0	16.1	9.2	93	7.0	286
				13.0	15.6	9.2	93	7.1	284
				13.1	15.5	9.2	92	7.0	284
				14.1	13.8	9.5	92	7.1	278
				15.0	12.8	9.1	86	7.0	280

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	9-Sep-10	-	7.5	0.5	12.6	10.3	97	7.1	289
				1	12.5	10.3	97	7.1	289
				2	12.5	10.3	96	7.2	289
				3	12.5	10.3	96	7.2	290
				4	12.4	10.3	96	7.2	290
				5	12.4	10.3	96	7.2	290
				6	12.4	10.2	96	7.2	290
				7	12.4	10.2	96	7.2	290
				8	12.4	10.2	96	7.2	290
				9	12.3	10.2	96	7.2	290
				10	12.3	10.2	95	7.2	290
				11	12.3	10.2	95	7.2	290
				12	12.3	10.2	95	7.2	290
				13	12.3	10.2	95	7.2	290
SNAP17	10-Apr-10	1.15	-	1.5	1.4	12.1	86	6.4	277
				2	2.0	12.0	87	6.5	272
				3	2.2	11.7	85	6.5	277
				4	2.3	11.3	82	6.5	282
				5	2.2	11.1	81	6.5	297
				6	2.1	11.1	81	6.5	308
				7	2.1	11.2	82	6.5	315
				8	2.2	11.3	82	6.5	314
				9	2.3	11.1	81	6.5	312
	10-Sep-10	-	-	0.2	12.6	10.6	100	7.0	292
				1	12.5	10.6	100	6.9	292
				2	12.5	10.7	100	6.8	292
				3	12.4	10.7	101	6.8	292
				4	12.4	10.7	101	6.9	292
				5	12.3	10.8	101	6.9	292
				6	12.3	10.8	101	6.9	292
				7	12.3	10.8	101	6.9	292
				8	12.2	10.8	101	6.9	292
				9	12.1	10.9	101	6.9	291
				9.5	12.1[b]	4.8[b]	42[b]	6.7[b]	290[b]
SNAP18	10-Sep-10	-	-	0.2	12.3	10.6	99	6.8	292
				1	12.3	10.6	99	6.7	291
				2	12.3	10.7	100	6.6	292
				3	12.3	10.8	100	6.7	292
				4	12.3	10.8	100	6.7	292
				5	12.2	10.8	101	6.7	292
				6	12.2	10.8	101	6.7	292
				7	12.2	10.8	101	6.8	292
				8	12.2	10.8	101	6.7	292
				9	12.2	10.8	101	6.8	292
				10	12.2	10.8	101	6.8	292
				11	12.2	10.8	101	6.8	292
				12	12.2	6.3[b]	65[b]	6.7	295
SNAP19	10-Apr-10	1.15	-	1.5	1.4	12.7	91	6.6	276
				2	1.9	12.3	89	6.6	273
				3	2.2	12.0	87	6.6	272
				4	2.2	11.4	84	6.6	279
				5	2.1	11.1	80	6.5	302
				6	2.1	11.0	80	6.5	304
				7	2.1	11.0	80	6.5	316
				8	2.3	11.1	81	6.5	313
				9	2.5	10.9	80	6.5	307
				10	2.6	10.6	78	6.5	304
				11	2.6	10.4	76	6.5	304
	10-Sep-10	-	-	0.1	12.2	10.8	102	6.6	291
				1	12.2	10.5	98	6.5	291
				2	12.3	10.6	99	6.4	291
				3	12.3	10.6	98	6.4	291
				4	12.3	10.7	100	6.4	291
				5	12.2	10.7	100	6.4	291
				6	12.2	10.7	100	6.4	290
				7	12.2	10.7	100	6.5	291
				8	12.2	10.8	100	6.5	291
				9	12.2	10.8	100	6.5	290
				10	12.2	10.7	100	6.6	291
				11	12.1	10.6	99	6.6	290
				11.5	12.1	9.1[b]	83[b]	6.6	290

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP04	20-Jan-10	0.86	-	1.0	0.2	14.6	100	6.6	319
				1.5	0.9	14.2	100	6.6	305
				2.0	1.3	13.9	98	6.6	299
				2.5	1.7	13.6	97	6.5	296
				3.0	2.2	13.3	97	6.5	291
				3.5	2.5	13.0	95	6.5	288
				4.0	2.8	12.5	92	6.5	287
	19-Feb-10	1.05	-	1.5	2.2	12.5	91	6.5	317
				2.0	2.0	12.6	91	6.4	310
				2.5	2.3	12.5	91	6.4	307
				3.0	2.6	12.5	92	6.3	301
				3.5	2.9	12.4	92	6.3	300
				4.0	3.1	12.2	91	6.3	298
				4.5	3.2	8.5	64	6.3	298
	16-Mar-10	1.22	-	1.5	0.6	16.1	112	6.0	323
				2.0	1.2	15.7	111	5.9	316
				2.5	1.8	15.3	110	5.8	312
				3.0	2.1	15.0	109	5.8	308
				3.5	2.5	14.7	108	5.8	307
	10-Apr-10	1.2	-	1.5	0.8	12.4	87	6.5	301
				2.0	1.6	12.0	86	6.5	295
				2.5	1.9	11.8	85	6.5	293
				3.0	2.4	11.7	85	6.5	292
				3.5	2.7	11.6	85	6.5	292
				4.0	2.8	11.5	85	6.5	292
	3-May-10	1.23	-	0.5	0.7	11.7	82	6.4	318
				1.0	0.6	11.7	82	6.4	318
				1.5	1.6	11.5	82	6.3	316
				2.0	2.0	11.4	83	6.3	314
				2.5	2.5	11.3	83	6.3	312
				3.0	2.9	11.2	83	6.3	310
	16-Jul-10	-	4	0.2	18.3	9.7	103	7.2	248
				1.0	18.2	9.4	100	7.2	248
				2.0	17.9	9.2	97	7.2	248
				3.0	17.7	9.2	96	7.1	253
				4.0	17.1	9.2	95	7.1	262
	9-Sep-10	-	-	0.5	11.8	10.5	97	7.2	269
				1.0	11.7	10.5	97	7.2	270
				1.5	11.7	10.5	97	7.2	270
				2.0	11.7	10.4	96	7.2	270
				2.5	11.7	10.4	96	7.2	270
				3.0	11.7	10.4	96	7.2	270
				3.5	11.7	10.4	96	7.2	270
SNAP07	22-Jan-10	0.85	-	1	1.3	14.5	103	6.5	314
				2	1.7	14.2	102	6.4	300
				3	1.9	14.1	102	6.4	300
				4	1.9	13.9	100	6.3	302
				5	2.1	13.3	97	6.3	298
				6	2.6	12.5	93	6.3	292
				7	2.9	11.9	88	6.2	288
				8	3.0	11.5	86	6.2	287
				9	3.0	11.0	82	6.2	291
				10	3.0	10.6	79	6.2	294
	19-Feb-10	0.97	-	1	1.1	13.1	92	6.6	304
				2	1.8	12.6	90	6.6	295
				3	2.0	12.2	89	6.6	294
				4	2.1	11.9	87	6.6	295
				5	2.2	11.4	83	6.6	301
				6	2.6	11.1	81	6.6	296
				7	2.9	10.7	80	6.6	293
				8	3.0	10.1	75	6.6	294
				9	3.0	9.6	71	6.5	297
				10	3.1	9.0	67	6.5	298

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Mar-10	1.11	-	1.5	1.7	14.4	104	6.1	304
				2	1.9	14.2	102	6.0	297
				3	2.1	13.8	100	5.9	300
				4	3.1	13.6	99	5.8	303
				5	2.3	12.9	94	5.8	309
				6	2.6	12.4	91	5.8	306
				7	2.9	12.1	90	5.7	304
				8	3.0	11.7	87	5.7	305
				9	3.0	11.1	83	5.7	307
				10	3.0	10.0	75	5.7	309
	11-Apr-10	1.17	-	1.5	1.2	11.9	84	6.7	281
				2	1.7	11.8	85	6.7	277
				3	2.1	11.6	85	6.7	276
				4	2.3	11.3	82	6.7	283
				5	2.4	11.0	80	6.7	288
				6	2.7	10.6	78	6.6	286
				7	2.9	10.2	75	6.6	286
				8	3.0	9.2	69	6.6	285
				9	3.1	8.5	64	6.6	287
				10	3.2	7.7	58	6.7	287
	6-May-10	1.15	-	2	2.5	12.4	91	6.7	299
				3	2.8	11.7	87	6.7	306
				4	3.0	11.3	84	6.6	308
				5	3.1	10.9	81	6.7	310
				6	3.2	10.9	81	6.6	311
				7	3.3	11.2	84	6.6	311
				8	3.3	11.3	85	6.6	314
				9	3.3	11.3	85	6.6	316
				10	3.4	11.2	84	6.6	317
	20-Jul-10	-	6.5	0.2	17.5	9.6	101	7.0	275
				1	17.3	9.7	101	7.0	276
				2	17.0	9.7	101	7.0	276
				3	16.7	9.8	100	7.0	277
				4	16.4	9.9	101	7.0	278
				5	16.2	9.9	101	7.0	277
				6	15.8	10.1	101	7.0	277
				7	14.6	10.5	103	7.1	276
	9-Sep-10	-	8	0.5	11.8	10.4	97	7.0	286
				1	11.8	10.4	96	7.0	285
				2	11.8	10.4	96	7.0	285
				3	11.8	10.4	96	7.0	285
				4	11.8	10.4	96	7.0	285
				5	11.8	10.4	96	7.0	285
				6	11.8	10.4	96	7.0	285
				7	11.7	10.4	96	7.0	285
				8	11.7	10.4	96	7.0	285
				9	11.7	10.4	96	7.0	285
				10	11.7	10.3	95	7.0	285
SNAP08	22-Jan-10	1.11	-	1	0.3	14.8	103	6.7	318
				2	1.5	13.7	98	6.6	308
				3	2.3	13.1	96	6.5	301
				4	2.9	12.4	92	6.5	296
				5	3.2	11.7	89	6.4	295
				6	3.3	11.0	83	6.3	296
				7	3.5	9.8	75	6.2	300
				8	3.6	9.0	68	6.2	307
	19-Feb-10	1.27	-	2	1.9	12.2	88	6.5	310
				3	2.5	11.5	85	6.5	306
				4	3.2	10.9	82	6.5	300
				5	3.5	9.1	74	6.5	298
				6	3.6	8.7	66	6.5	299
				7	3.7	8.2	62	6.5	306
				8	3.8	7.4	56	6.5	308
				9	3.7	6.3	48	6.4	320
	16-Mar-10	1.37	-	1.5	2.9	12.7	94	6.3	328
				2	1.7	13.0	94	6.3	314
				3	2.7	12.4	91	6.2	308
				4	3.3	11.4	86	6.2	305
				5	3.5	9.9	75	6.2	309
				6	3.6	8.7	66	6.1	311
				7	3.7	8.0	61	6.0	314
				8	3.6	7.1	54	6.0	319

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	11-Apr-10	1.22	-	1.5	1.3	11.7	83	6.5	298
				2	1.5	11.6	83	6.5	294
				3	2.5	10.9	80	6.5	290
				4	3.2	10.9	77	6.5	287
				5	3.5	9.1	69	6.5	289
				6	3.6	8.3	63	6.5	290
				7	3.6	7.2	54	6.6	294
				8	3.7	5.7	44	6.5	296
	6-May-10	1.31	-	2	2.7	12.5	92	6.6	311
				3	3.7	12.2	93	6.6	310
				4	3.8	12.2	93	6.6	310
				5	3.7	11.6	89	6.6	312
				6	3.8	10.1	77	6.5	313
				7	3.9	8.4	64	6.5	314
				8	3.8	6.9	53	6.5	319
	20-Jul-10	-	7.5	0.2	17.7	9.4	99	6.7	270
				1	17.7	9.4	99	6.7	270
				2	17.6	9.4	99	6.7	269
				3	17.5	9.4	98	6.8	270
				4	17.5	9.4	98	6.8	269
				5	17.5	9.4	98	6.8	269
				6	16.6	9.9	101	6.8	267
				7	15.4	10.1	101	6.8	265
				8	14.9	10.1	100	6.8	265
				9	14.8	8.5	84	6.7	266
	14-Aug-10	-	-	0.5	16.1	9.2	94	7.1	284
				1	16.3	9.3	94	7.1	283
				2	16.3	9.2	94	7.1	283
				3	16.3	9.3	94	7.1	283
				3	16.3	9.2	94	7.1	282
				4	16.3	9.2	94	7.1	282
				5	16.3	9.2	94	7.1	283
				6	16.2	9.2	93	7.1	283
				7	16.1	9.2	93	7.1	283
				8	16.0	9.2	93	7.1	283
	9-Sep-10	-	7	0.5	11.5	10.5	96	6.6	283
				1	11.5	10.4	96	6.6	283
				2	11.5	10.4	96	6.6	283
				3	11.5	10.4	96	6.6	283
				4	11.5	10.4	96	6.7	283
				5	11.5	10.4	96	6.7	283
				6	11.5	10.4	96	6.7	283
				7	11.5	10.4	96	6.7	283
SNAP10	22-Jan-10	0.99	-	1	0.8	15.3	108	6.6	305
				2	1.4	14.5	104	6.6	299
				3	1.7	14.1	102	6.5	298
				4	1.9	13.6	98	6.4	300
				5	2.3	13.0	95	6.4	306
	19-Feb-10	1.04	-	1.5	1.1	13.3	94	6.5	305
				2	1.5	12.8	92	6.6	304
				2.5	1.8	12.7	91	6.6	301
				3	1.9	12.5	90	6.6	299
				3.5	2.0	12.2	88	6.6	305
				4	2.0	12.0	87	6.6	304
				4.5	2.2	11.5	83	6.6	306
				5	2.3	11.1	80	6.6	308
	16-Mar-10	0.99	-	1	0.9	16.0	113	6.0	316
				2	1.6	15.5	111	5.9	303
				3	1.9	15.2	110	5.8	310
				4	2.2	14.7	107	5.8	309
				5	2.5	12.9	95	5.7	318
	9-Apr-10	1.21	-	1.5	1.0	12.4	87	6.4	292
				2	1.4	12.3	88	6.4	286
				2.5	1.8	12.2	88	6.4	283
				3	2.1	12.1	88	6.4	287
				3.5	2.2	11.9	87	6.4	288
				4	2.3	11.7	85	6.4	289
				4.5	2.4	11.5	84	6.4	291
				5	2.6	10.5	78	6.4	297

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	6-May-10	1.19	-	2	2.0	13.1	95	6.5	312
				3	2.5	13.2	97	6.5	311
				4	2.7	13.5	100	6.5	319
				5	3.2	13.5	101	6.5	320
	16-Jul-10	-	5	0.2	16.2	9.5	97	7.4	276
				1	16.1	9.3	94	7.4	276
				2	16.0	9.1	93	7.4	276
				3	16.0	9.0	91	7.4	276
				4	15.0	8.7	89	7.4	276
				5	14.2	8.8	86	7.3	276
	9-Sep-10	-	-	0.5	12.1	10.4	97	7.2	285
				1	12.1	10.4	97	7.2	285
				1.5	12.1	10.4	97	7.2	285
				2	12.0	10.4	96	7.2	285
				2.5	12.0	10.4	96	7.2	285
				3	12.0	10.4	96	7.2	285
				3.5	11.9	10.4	96	7.2	285
				4	11.9	10.3	96	7.2	285
				4.5	11.9	10.3	96	7.2	285
SNAP23	20-Jan-10	0.91	-	1	0.4	17.6	122	6.4	123
				2	1.3	15.5	110	6.4	123
				3	2.0	13.1	95	6.3	126
				4	2.2	12.3	89	6.2	145
				5	2.4	11.2	81	6.1	157
				6	2.6	10.6	78	6.1	179
				7	2.8	10.2	75	6.0	189
				8	3.0	9.6	71	6.0	198
				9	3.3	7.9	57	6.0	197
				10	3.5	6.9	51	5.8	198
				11	3.6	5.7	42	5.9	199
	18-Feb-10	1.02	-	1	0.5	14.9	104	6.4	122
				2	1.5	13.6	97	6.4	125
				3	2.0	12.5	90	6.4	124
				4	2.4	10.7	78	6.4	142
				5	2.7	9.6	71	6.4	155
				6	2.8	9.2	68	6.3	173
				7	3.1	8.4	62	6.3	186
				8	3.3	7.4	55	6.3	191
				9	3.5	5.9	45	6.3	191
				10	3.7	4.0	31	6.2	190
				11	3.8	3.3	25	6.2	191
				12	4.0	1.7	13	6.2	191
	18-Mar-10	1.09	-	1.5	1.3	13.4	95	6.8	117
				2	1.6	13.2	95	6.7	139
				3	2.2	12.6	92	6.7	141
				4	2.7	12.1	89	6.7	148
				5	2.9	11.2	84	6.6	157
				6	3.2	9.9	75	6.6	175
				7	3.3	9.0	67	6.5	183
				8	3.5	7.5	58	6.5	192
				9	3.7	6.2	49	6.5	192
				10	3.9	4.1	32	6.4	194
				11	4.0	3.1	25	6.4	194
	10-Apr-10	1.33	-	1.5	1.1	12.2	86	6.3	109
				2	1.4	12.5	88	6.3	122
				3	2.1	12.0	87	6.3	136
				4	2.4	11.2	82	6.3	144
				5	2.9	9.9	73	6.3	151
				6	3.1	8.6	65	6.3	163
				7	3.3	7.1	55	6.2	172
				8	3.5	5.5	42	6.2	179
				9	3.7	3.8	29	6.2	180
				10	3.9	2.1	17	6.2	181
				11	4.0	1.0	8	6.2	181
				12	4.1	0.6	5	6.2	185

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	3-May-10	1.16	-	1	0.7	11.3	79	6.0	106
				2	2.8	11.1	82	6.0	130
				3	3.1	10.9	82	6.0	145
				4	3.2	10.3	78	6.0	161
				5	3.4	9.3	71	5.9	171
				6	3.4	8.1	62	6.0	179
				7	3.6	6.9	53	6.0	185
				8	3.7	5.5	42	5.9	190
				9	3.9	3.5	26	5.9	192
				10	4.0	2.3	17	5.9	194
				11	4.1	1.3	10	5.9	195
	18-Jul-10	-	5	0.2	17.6	9.5	100	7.4	131
				1	17.6	9.5	100	7.4	131
				2	17.6	9.5	99	7.3	131
				3	17.5	9.5	99	7.3	132
				4	17.4	9.6	100	7.3	134
				5	16.2	10.1	102	7.3	141
				6	15.5	10.2	103	7.4	136
				7	15.2	10.3	102	7.4	134
				8	14.9	10.2	101	7.4	131
				9	14.7	10.1	100	7.3	131
				10	14.3	9.5	96	7.3	130
				11	14.1	9.6	94	7.2	129
				12	13.9	9.4	92	7.1	129
	10-Sep-10	-	5.5	0.5	11.9	10.4	97	6.3	145
				1	11.9	10.4	96	6.3	145
				2	11.9	10.4	96	6.3	145
				3	11.8	10.4	96	6.4	145
				4	11.8	10.4	96	6.4	145
				5	11.8	10.4	96	6.4	145
				6	11.8	10.3	96	6.4	145
				7	11.8	10.3	95	6.4	145
				8	11.8	10.3	95	6.5	145
				9	11.8	10.3	95	6.5	144
				10	11.8	10.3	95	6.5	144
				11	11.8	10.3	95	6.5	143
SNAP02A	20-Jan-10	0.97	-	1	2.3	16.4	120	6.4	83
				2	2.1	15.7	113	6.4	75
				3	2.6	14.2	104	6.3	71
				4	2.9	12.7	94	6.2	70
				5	3.1	11.2	82	6.1	70
				6	3.3	9.4	70	6.0	78
				7	3.4	8.3	63	6.0	83
				8	3.5	7.5	56	5.9	81
				9	3.5	6.4	49	5.8	82
				10	3.6	5.2	38	5.7	86
	18-Feb-10	0.96	-	1	0.9	15.1	105	6.6	85
				2	1.7	14.6	104	6.7	74
				3	2.3	13.3	96	6.7	70
				4	2.8	11.8	87	6.6	69
				5	3.2	8.4	63	6.6	69
				6	3.3	7.7	58	6.5	77
				7	3.5	6.0	45	6.4	79
				8	3.6	5.1	39	6.4	81
				9	3.7	4.7	36	6.3	81
	16-Mar-10	0.95	-	1	0.3	19.3	132[(d)]	5.6	85
				2	1.3	17.1	122	5.4	79
				3	2.2	15.4	112	5.3	73
				4	2.8	14.2	106	5.2	72
				5	3.1	12.1	92	5.1	77
				6	3.4	9.5	74	5.0	80
				7	3.4	7.2	55	5.0	83
				8	3.4	6.9	52	4.9	87
				9	3.5	7.0	53	4.9	89

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	12-Apr-10	0.89	-	1	0.8	14.1	99	7.0	78
				2	1.5	13.6	97	6.9	77
				3	2.4	12.6	92	6.9	72
				4	3.1	11.1	84	6.9	70
				5	3.4	8.7	65	6.8	74
				6	3.7	7.0	54	6.7	76
				7	3.7	6.0	45	6.6	81
				8	3.7	5.6	43	6.6	84
				9	3.7	4.7	36	6.5	84
	6-May-10	1.2	-	2	3.3	13.1	99	5.9	73
				3	3.4	12.9	97	5.6	76
				4	3.6	11.0	85	5.7	78
				5	3.8	10.2	77	5.5	82
				6	3.8	9.2	70	5.5	86
				7	3.6	9.9	75	5.4	93
				8	3.6	11.4	86	5.5	94
				9	3.6	11.2	86	5.5	95
	18-Jul-10	-	4.5	<0.3	17.6	9.3	98	7.2	64
				1	17.6	9.4	99	7.2	65
				2	17.6	9.4	99	7.2	65
				3	17.6	9.4	99	7.2	64
				4	17.6	9.4	99	7.2	65
				5	16.9	9.6	99	7.2	64
				6	15.9	9.9	100	7.1	61
				7	15.5	9.9	99	7.2	59
				8	15.0	9.8	97	7.1	59
				9	14.7	9.6	95	7.1	59
				10	13.7	9.0	97	7.1	60
	10-Sep-10	-	5.5	0.5	11.8	10.5	96	6.2	74
				1	11.7	10.4	96	6.3	74
				2	11.7	10.4	96	6.3	74
				3	11.7	10.4	96	6.3	74
				4	11.7	10.4	96	6.3	74
				5	11.7	10.4	96	6.3	74
				6	11.7	10.4	96	6.3	73
				7	11.7	10.4	96	6.3	73
				8	11.7	10.4	95	6.3	73
				9	11.6	10.2	94	6.3	75
SNAP01	18-Jul-10	-	4.5	0.2	17.9	9.4	99	6.7	59
				1	17.9	9.4	99	6.7	58
				2	17.9	9.3	98	6.7	58
				3	17.9	9.3	98	6.7	58
				4	17.7	9.4	98	6.8	58
				5	16.5[b]	6.9[b]	71[b]	6.5[b]	70[b]
	13-Aug-10	-	5.0	0.5	17.2	9.2	-	7.4	65
				1	17.2	9.2	-	7.4	65
				2	17.2	9.2	-	7.4	65
				3	17.1	9.2	-	7.4	69
				4	17.1	9.2	-	7.3	66
				5	17.0	9.2	-	7.3	66
	10-Sep-10	-	5.0	0.5	11.6	10.5	-	5.8	71
				1	11.6	10.5	-	5.8	71
				1.5	11.6	10.5	-	5.9	71
				2	11.6	10.5	-	5.9	71
				2.5	11.6	10.5	-	5.9	71
				3	11.6	10.5	-	5.9	71
				3.5	11.6	10.4	-	5.9	71
				4	11.6	10.4	-	5.9	71
				4.5	11.6	10.4	-	6.0	70
				5	11.6[b]	8.9[b]	-	5.8[b]	86[b]
SNAP20	10-Apr-10	1.33	-	1.5	1.2	12.7	90	6.7	55
				2	1.5	12.4	89	6.7	53
				3	2.0	11.9	87	6.6	50
				4	2.2	11.3	83	6.6	49
				5	2.2	10.9	80	6.6	50
				6	2.2	10.7	78	6.6	50
				7	2.3	10.5	77	6.6	51
				8	2.3	10.5	76	6.5	51
				9	2.3	10.4	76	6.5	51
				10	2.3	10.4	76	6.5	52
				11	2.3	10.4	76	6.5	52
				12	2.3	10.3	75	6.5	52

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	9-Sep-10	-	-	0.2	12.2	11.2	105	6.3	54
				1	12.1	10.4	97	5.9	54
				2	12.0	10.4	96	5.9	54
				3	11.9	10.5	97	5.9	54
				4	11.9	10.6	98	5.9	54
				5	11.9	10.6	98	5.9	54
				6	11.9	10.7	99	6.0	54
				7	11.8	10.8	100	6.0	54
				8	11.8	10.8	100	6.0	54
				9	11.8	10.8	100	6.0	54
				10	11.8	10.8	100	6.0	54
				11	11.8	10.8	100	6.0	54
				12	9.9	10.7	94	6.0	51
				13	7.5	9.3	82	5.8	56
SNAP20B	19-Jan-10	0.75	-	1	1.5	15.7	112	6.3	66
				2	1.8	14.1	102	6.2	55
				3	1.9	12.9	93	6.2	52
				4	2.0	12.3	89	6.2	52
				5	2.0	12.1	88	6.1	52
				6	2.0	12.0	87	6.2	53
				7	2.0	11.9	86	6.1	53
				8	2.0	11.9	86	6.0	53
				9	2.0	11.8	85	6.0	53
				10	2.1	11.7	85	6.0	53
				11	2.1	11.7	85	6.1	54
				12	2.1	11.6	84	6.0	54
				13	2.1	11.5	83	6.0	53
				14	2.1	11.4	82	5.9	53
				15	2.1	11.3	82	5.9	53
				16	2.1	11.1	81	5.8	53
				17	2.2	11.1	80	5.9	53
				18	2.2	10.9	79	5.8	52
				19	2.2	10.7	78	5.8	53
				20	2.2	10.3	75	5.8	53
				21	2.3	10.1	74	5.7	52
				22	2.5	10.1	74	5.7	51
				23	2.7	10.2	75	5.7	50
				24	2.9	10.4	77	5.7	49
				25	3.1	10.4	77	5.7	49
				26	3.3	10.5	78	5.7	48
				27	3.4	10.6	80	5.7	48
				28	3.5	10.7	81	5.7	48
				29	3.5	10.8	81	5.7	48
				30	3.5	10.3	78	5.7	48

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	18-Feb-10	0.8	-	1	2.9	13.7	102	8.0	65
				2	2.5	12.8	94	7.9	57
				3	2.5	11.6	85	7.8	52
				4	2.5	11.1	81	7.7	52
				5	2.4	10.8	79	7.6	52
				6	2.3	10.8	79	7.5	52
				7	2.3	10.6	77	7.4	53
				8	2.2	10.6	77	7.4	52
				9	2.3	10.5	77	7.4	53
				10	2.2	10.5	76	7.3	52
				11	2.3	10.4	76	7.3	52
				12	2.3	10.3	75	7.3	52
				13	2.3	10.2	74	7.2	52
				14	2.3	10.1	74	7.2	53
				15	2.3	10.0	73	7.2	52
				16	2.3	9.9	72	7.1	52
				17	2.3	9.9	72	7.1	53
				18	2.3	9.8	72	7.1	53
				19	2.3	9.6	70	7.0	52
				20	2.4	9.3	68	7.0	52
				21	2.5	9.2	68	7.0	50
				22	2.6	9.2	68	7.0	49
				23	2.8	9.2	68	7.0	49
				24	3.0	9.2	69	6.9	48
				25	3.2	9.4	70	6.9	48
				26	3.4	9.5	71	6.9	47
				27	3.5	9.5	72	6.9	47
				28	3.6	9.6	72	6.8	47
				29	3.6	9.1	68	6.8	47
				30	3.6	8.6	64	6.8	47
	16-Mar-10	0.96	-	1	1.1	17.5	123	6.7	64
				2	1.6	16.8	120	6.1	57
				3	2.1	15.4	112	5.9	53
				4	2.1	14.4	105	5.7	53
				5	2.2	13.9	101	5.6	53
				6	2.2	13.5	98	5.6	54
				7	2.2	13.3	97	5.5	54
				8	2.2	13.2	99	5.5	54
				9	2.2	13.1	95	5.4	54
				10	2.2	13.0	94	5.4	54
				11	2.2	12.8	93	5.3	54
				12	2.2	12.7	93	5.3	54
				13	2.2	12.6	92	5.3	54
				14	2.2	12.5	91	5.3	54
				15	2.2	12.5	91	5.2	54
				16	2.2	12.4	90	5.2	55
				17	2.2	12.3	90	5.2	55
				18	2.3	12.2	89	5.1	54
				19	2.3	12.0	87	5.1	55
				20	2.3	11.4	84	5.1	54
				21	2.4	11.2	81	5.1	54
				22	2.5	10.9	80	5.0	52
				23	2.7	11.0	81	5.0	51
				24	2.9	11.2	83	5.0	50
				25	3.1	11.3	84	5.0	50
				26	3.3	11.4	86	5.0	49
				27	3.4	11.5	86	5.0	48
				28	3.4	11.5	86	5.0	49
				29	3.5	10.7	81	5.0	48
				30	3.5	10.1	77	4.9	48

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	10-Apr-10	0.93	-	1	0.6	14.0	97	6.9	61
				2	1.7	12.6	90	6.9	53
				3	2.1	11.5	83	6.9	50
				4	2.2	11.0	80	6.9	50
				5	2.3	10.7	78	6.8	50
				6	2.3	10.5	76	6.8	50
				7	2.3	10.4	76	6.8	51
				8	2.3	10.3	74	6.8	51
				9	2.3	10.2	75	6.8	51
				10	2.3	10.1	74	6.7	51
				11	2.3	10.0	73	6.7	51
				12	2.3	9.9	73	6.7	51
				13	2.3	9.9	72	6.7	51
				14	2.3	9.8	71	6.7	51
				15	2.4	9.7	71	6.6	51
				16	2.4	9.7	70	6.6	51
				17	2.4	9.6	70	6.6	52
				18	2.4	9.5	69	6.6	51
				19	2.4	9.2	68	6.6	51
				20	2.5	9.0	66	6.5	50
				21	2.5	8.6	63	6.5	50
				22	2.7	8.2	60	6.5	49
				23	2.8	8.2	60	6.5	48
				24	3.1	8.5	63	6.5	47
				25	3.2	8.6	64	6.5	47
				26	3.4	8.7	65	6.5	46
				27	3.4	8.7	65	6.4	46
				28	3.5	8.5	64	6.4	46
				29	3.5	7.6	57	6.4	45
				30	3.5	6.8	52	6.4	46
	6-May-10	0.92	-	1	1.6	12.0	86	7.4	59
				2	2.5	11.4	84	7.3	54
				3	2.5	10.8	80	7.3	54
				4	2.5	10.4	77	7.2	55
				5	2.5	10.2	75	7.2	55
				6	2.5	10.1	74	7.1	55
				7	2.5	10.1	74	7.1	55
				8	2.5	10.0	73	7.1	55
				9	2.4	9.8	72	7.1	55
				10	2.4	9.6	70	7.0	54
				11	2.4	9.6	70	7.0	56
				12	2.5	9.9	73	7.0	56
				13	2.5	10.2	75	7.0	56
				14	2.5	10.3	76	7.0	56
				15	2.5	10.3	76	6.9	56
				16	2.5	10.3	76	6.9	56
				17	2.5	10.4	76	6.9	56
				18	2.5	10.4	76	6.9	56
				19	2.5	10.2	75	6.9	56
				20	2.5	10.2	75	6.8	56
				21	2.5	10.0	73	6.8	56
				22	2.7	9.6	71	6.8	54
				23	2.8	9.0	66	6.8	52
				24	3.1	8.7	65	6.7	50
				25	3.2	8.6	64	6.7	50
				26	3.3	8.5	64	6.7	50
				27	3.4	8.4	63	6.7	50
				28	3.5	8.0	60	6.6	50
				29	3.5	7.1	54	6.6	49
				30	3.5	6.1	46	6.5	50

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	18-Jul-10	-	5	0.2	17.8	9.3	98	7.2	52
				1	17.8	9.4	99	7.2	52
				2	17.8	9.4	99	7.2	52
				3	17.7	9.5	99	7.2	52
				4	16.7	9.9	102	7.2	51
				5	14.7	10.4	102	7.2	50
				6	13.9	10.5	101	7.2	50
				7	13.2	10.5	100	7.2	50
				8	12.3	10.5	98	7.2	50
				9	10.2	10.5	94	7.1	49
				10	7.8	10.4	88	6.6	49
				11	6.9	10.5	86	6.6	49
				12	6.5	10.4	84	6.6	49
				13	6.1	10.4	84	6.5	49
				14	5.8	10.3	82	6.5	49
				15	5.6	10.2	81	6.5	49
				16	5.4	10.0	79	6.4	49
				17	5.3	9.8	77	6.4	49
				18	5.2	9.6	76	6.4	50
				19	5.1	9.5	75	6.4	50
				20	5.1	9.4	74	6.3	50
				21	5.0	9.3	73	6.4	50
				22	5.0	9.3	73	6.3	50
				23	5.0	9.4	73	6.3	50
				24	4.9	9.3	73	6.2	50
				25	4.9	9.3	73	6.2	50
				26	4.9	9.3	72	6.2	50
				27	4.8	9.2	72	6.2	50
				28	4.8	9.2	72	6.2	50
				29	4.8	9.1	71	6.2	50
				30	4.8	9.1	71	6.2	50
	10-Sep-10	-	6	0.5	12.0	10.4	97	5.3[(g)]	58
				1	12.0	10.3	96	5.3[(g)]	58
				2	12.0	10.3	96	5.3[(g)]	58
				3	12.0	10.3	95	5.4[(g)]	58
				4	12.0	10.3	95	5.4[(g)]	58
				5	12.0	10.3	95	5.4[(g)]	58
				6	12.0	10.3	95	5.5[(g)]	58
				7	11.9	10.3	95	5.5[(g)]	58
				8	11.9	10.3	95	5.6[(g)]	58
				9	11.9	10.2	95	5.6[(g)]	58
				10	11.9	10.2	95	5.6[(g)]	58
				11	11.7	10.2	94	5.7[(g)]	59
				12	11.1	10.2	93	5.7[(g)]	59
				13	7.7	10.0	84	5.6[(g)]	50
				14	6.3	9.4	77	5.6[(g)]	50
				15	5.8	8.8	70	5.5[(g)]	50
				16	5.5	9.3	66	5.5[(g)]	50
				17	5.4	9.1	64	5.5[(g)]	50
				18	5.3	8.0	63	5.5[(g)]	50
				19	5.2	7.9	62	5.5[(g)]	50
				20	5.1	8.0	63	5.5[(g)]	50
				21	5.0	8.0	63	5.5[(g)]	50
				22	5.0	8.0	62	5.5[(g)]	51
				23	5.0	7.9	62	5.5[(g)]	51
				24	4.9	7.8	61	5.5[(g)]	51
				25	4.9	7.6	59	5.5[(g)]	51
				26	4.8	7.4	58	5.5[(g)]	51
				27	4.8	7.4	57	5.4[(g)]	51
				28	4.8	7.2	56	5.4[(g)]	51
				29	4.8	7.2	56	5.4[(g)]	51
				30	4.8	7.1	55	5.4[(g)]	51
SNAP29	20-Jan-10	0.94	-	1	0.3	15.9	109	6.4	148
				2	0.8	16.6	117	6.3	177
				3	1.5	14.9	108	6.3	167
				4	1.8	13.9	100	6.3	168
				5	2.0	13.2	96	6.2	184
				6	2.3	11.9	88	6.1	193

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	18-Feb-10	1.08	-	1	0.4	15.7	108	6.4	152
				2	1.0	14.7	103	6.4	171
				3	1.7	13.9	99	6.4	159
				4	2.1	12.8	92	6.4	163
				5	2.3	11.8	86	6.4	171
				6	2.6	10.2	75	6.4	178
				7	3.2	7.3	53	6.3	193
	18-Mar-10	1.16	-	1.5	0.8	14.3	100	6.6	144
				2	1.0	14.1	99	6.5	167
				3	1.7	13.5	97	6.5	165
				4	2.0	13.0	95	6.5	178
				5	2.4	11.7	86	6.5	175
				6	2.7	10.6	79	6.5	183
	8-Apr-10	1.15	-	1.5	0.6	14.7	102	6.8	143
				2	1.0	14.2	100	6.7	172
				3	1.6	13.3	95	6.7	172
				4	2.1	12.3	90	6.7	159
				5	2.5	11.3	83	6.7	167
				6	2.9	9.4	71	6.6	170
	3-May-10	1.06	-	1	1.6	12.8	92	6.1	130
				2	2.6	12.9	95	6.1	145
				3	2.8	12.8	95	6.1	163
				4	3.0	12.5	93	6.1	169
				5	3.3	12.3	92	6.1	175
				6	3.5	11.9	90	6.1	177
	16-Jul-10	-	5	0.2	18.2	9.7	103	7.4	141
				1	17.7	9.5	99	7.4	142
				2	17.5	9.3	97	7.4	140
				3	17.3	9.2	95	7.4	142
				4	16.6	9.2	94	7.4	175
				5	15.7	9.0	91	7.4	148
				6	15.3	8.9	89	7.4	149
	10-Sep-10	-	6	0.5	12.0	10.7	99	6.4	150
				1	12.0	10.4	97	6.4	150
				2	11.9	10.4	96	6.4	150
				3	11.9	10.4	96	6.5	148
				4	11.9	10.4	96	6.5	147
				5	11.9	10.4	96	6.5	147
				6	11.9	10.4	96	6.5	146
SNAP30	18-Jul-10	-	5.0	0.2	18.1	9.2	97	6.7	55
				1	18.1	9.2	98	6.7	55
				2	18.1	9.2	98	6.7	55
				3	18.1	9.2	97	6.7	55
				4	17.0	9.7	103	6.7	55
				5	15.9	9.9	102	6.7	54
				6	15.3	10.0	99	6.8	54
				7	14.8	9.8	97	6.7	54
	13-Aug-10	-	4.5	0.5	17.1	9.1	-	7.2	62
				1	17.1	9.1	-	7.2	62
				2	17.1	9.1	-	7.2	62
				3	17.1	9.1	-	7.2	62
				4	17.1	9.1	-	7.2	62
				5	17.1	9.1	-	7.1	62
				6	17.1	9.1	-	7.2	62
				7	17.1	9.1	-	7.2	62
				8	17.0	9.1	-	7.1	63
				9	16.9	9.1	-	7.2	63
	10-Sep-10	-	6.0	0.5	11.8	10.4	-	6.0	66
				1	11.7	10.4	-	6.0	66
				2	11.7	10.4	-	6.0	66
				3	11.7	10.4	-	6.0	66
				4	11.7	10.4	-	6.0	66
				5	11.7	10.4	-	6.1	66
				6	11.6	10.4	-	6.1	66
				7	11.6	10.4	-	6.1	66
				8	11.6	10.4	-	6.1	66
				9	11.5	10.3	-	6.1	67
SNAP31	18-Jul-10	-	3.4	0.2	17.5	9.4	99	6.6	143
				1	17.5	9.5	99	6.6	143
				2	17.6	9.5	100	6.7	143
				3	17.5	9.5	100	6.7	142

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	13-Aug-10	-	2.0	0.1	16.8	9.2	-	6.9	146
				0.5	17.0	9.2	-	6.9	146
				1	17.1	9.2	-	6.9	146
				1.5	17.2	9.2	-	6.9	146
				2	17.2	9.2	-	6.9	146
	10-Sep-10	-	3.0	0.5	12.1	10.4	-	6.5	148
				1	12.1	10.4	-	6.5	148
				1.5	12.1	10.4	-	6.6	148
				2	12.1	10.4	-	6.6	148
				2.5	12.1	10.4	-	6.6	148
NEL01	21-Jan-10	1.04	-	1	1.1	17.6	124	6.4	31
				2	1.0	16.6	116	6.4	26
				3	1.1	15.2	107	6.4	24
				4	1.2	14.5	102	6.3	23
				5	1.3	13.8	98	6.3	23
				6	1.4	13.6	96	6.2	24
				7	1.4	13.5	96	6.2	24
				8	1.5	13.3	95	6.3	25
				9	1.6	13.2	95	6.2	25
				10	2.2	12.5	91	6.1	25
				11	3.1	7.2	59	6.0	29
	14-Apr-10	1.24	-	1.5	0.6	15.0	104	6.3	26
				2	0.8	14.6	102	6.5	24
				3	1.1	13.8	98	6.5	23
				4	1.4	13.0	92	6.5	22
				5	1.5	12.6	90	6.5	23
				6	1.6	12.5	89	6.4	24
				7	1.7	12.5	90	6.4	25
				8	1.8	12.5	90	6.4	25
				9	1.9	12.1	88	6.4	27
				10	2.6	9.8	73	6.3	28
				11	3.2[b]	5.2[b]	42[b]	6.3[b]	29[b]
	19-Jul-10	-	8.5	0.2	15.9	9.7	99	6.6	21
				1	15.9	9.7	98	6.7	21
				2	15.8	9.7	98	6.7	21
				3	15.6	9.8	98	6.7	21
				4	15.4	9.9	98	6.9	21
				5	14.3	10.2	100	6.7	21
				6	13.6	10.4	100	6.7	20
				7	13.5	10.4	99	6.7	21
				8	13.2	10.4	99	6.7	21
				9	13.0	10.4	99	6.6	21
				10	12.8	10.4	98	6.6	21
				11	12.6	10.4	98	6.6	21
	14-Sep-10	-		0.13	11.3	10.3	94	6.0	21
				1	11.3	10.3	94	6.1	21
				2	11.3	10.3	94	6.1	21
				3	11.3	10.3	94	6.2	21
				4	11.3	10.3	94	6.2	21
				5	11.3	10.3	94	6.2	21
				6	11.3	10.3	94	6.3	21
				7	11.3	10.3	94	6.3	21
				8	11.3	10.3	94	6.3	21
				9	11.2	10.3	94	6.4	21
NEL02	21-Jan-10	1.04	-	1	0.3	15.3	113	6.5	27
				2	0.7	15.3	106	6.5	23
				3	0.9	14.2	99	6.4	22
				4	1.0	13.6	96	6.3	22
				5	1.1	13.4	94	6.2	22
				6	1.2	13.2	93	6.2	22
				7	1.3	13.1	93	6.1	22
				8	1.4	13.0	92	6.1	22
				9	1.6	12.7	90	6.1	22
				10	1.7	12.5	90	6.0	22
				11	1.8	12.1	87	6.0	22

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	13-Apr-10	1.38	-	1.5	1.0	14.4	101	5.9	25
				2	1.1	13.8	98	5.9	24
				3	1.3	13.0	92	6.0	22
				4	1.5	11.9	85	6.0	21
				5	1.6	11.7	84	6.0	22
				6	1.7	11.6	83	6.0	22
				7	1.8	11.3	81	6.0	22
				8	1.8	11.2	81	6.0	22
				9	1.9	11.0	80	6.0	22
				10	2.1	10.7	78	6.0	22
				11	2.2	10.3	75	6.0	22
	19-Jul-10	-	7	0.2	15.5	9.8	98	6.9	20
				1	15.5	9.7	98	6.9	20
				2	15.5	9.8	98	6.9	20
				3	15.5	9.8	98	6.9	20
				4	15.5	9.8	98	6.9	20
				5	15.5	9.8	98	6.9	20
				6	15.5	9.8	98	6.9	20
				7	14.5	10.0	99	6.9	21
				8	13.6	10.3	99	6.9	20
				9	13.4	10.4	99	6.9	20
				10	12.8	10.4	99	6.9	20
				11	12.7	10.4	98	6.9	20
	15-Sep-10	-	-	0.3	10.7	10.2	91	6.4	21
				1	10.6	10.3	93	6.4	21
				2	10.6	10.6	92	6.4	21
				3	10.6	10.3	92	6.4	21
				4	10.6	10.3	92	6.4	21
				5	10.6	10.3	92	6.4	21
				6	10.6	10.3	92	6.4	21
				7	10.6	10.3	92	6.4	21
				8	10.5	10.3	92	6.4	21
				9	10.4	10.3	92	6.5	21
NEL03	21-Jan-10	0.99	-	1	0.3	16.8	116	6.5	29
				2	0.7	16.5	115	6.5	25
				3	0.9	15.2	107	6.5	22
				4	1.1	14.0	99	6.4	22
				5	1.2	13.6	96	6.3	22
				6	1.3	13.2	93	6.2	22
				7	1.4	12.9	92	6.2	22
				8	1.5	12.8	91	6.1	22
				9	1.6	12.7	91	6.0	22
	14-Apr-10	1.18	-	1.5	1.5	14.3	102	6.7	28
				2	1.2	14.4	102	6.7	24
				3	1.2	13.8	98	6.6	23
				4	1.4	13.0	93	6.6	22
				5	1.6	12.1	87	6.6	22
				6	1.7	11.8	85	6.6	22
				7	1.8	11.4	82	6.6	22
				8	1.9	11.2	81	6.5	22
				9	2.0	11.2	81	6.5	23
	19-Jul-10	-	7.5	0.2	15.5	9.8	98	7.1	21
				1	15.5	9.8	99	7.1	21
				2	15.5	9.8	98	7.1	21
				3	15.5	9.8	98	7.0	21
				4	15.5	9.8	98	7.0	21
				5	15.5	9.8	98	7.0	21
				6	15.5	9.8	98	7.0	21
				7	15.4	9.8	98	7.0	21
				8	15.5	10.1	98	7.0	21
				9	13.3	10.4	99	7.0	20
	16-Sep-10	-	6.5	0.2	9.7	10.7	95	8.1[g]	21
				1	9.8	10.4	91	8.0[g]	21
				2	9.8	10.3	91	7.8[g]	21
				3	9.9	10.5	92	7.6[g]	21
				4	9.9	10.5	93	7.6[g]	21
				5	9.9	10.5	92	7.5[g]	21
				6	9.9	10.5	92	7.5[g]	21
				7	9.8	10.4	92	7.4[g]	21
				8	9.8	10.3	91	7.3[g]	21
				9	9.8	10.3	91	7.3[g]	21
				10	9.8[b]	9.1[b]	85[b]	7.1[g]	34[b]

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
NEL04	21-Jan-10	0.61	-	1	0.5	17.6	122	6.5	30
				2	0.6	16.7	116	6.4	25
				3	1.0	15.1	106	6.3	23
				4	1.1	14.0	98	6.3	23
				5	1.2	13.7	97	6.1	23
				6	1.3	13.5	95	6.1	23
				7	1.4	13.1	93	6.1	23
				8	1.5	12.9	92	6.1	23
				9	1.6	12.8	91	6.1	23
				10	1.7	12.6	90	6.1	23
				11	1.7	12.4	89	6.1	22
				12	1.8	12.2	88	6.0	23
	14-Apr-10	1.07	-	1.5	0.4	15.2	105	6.5	27
				2	0.7	14.5	101	6.5	25
				3	1.1	13.2	94	6.5	23
				4	1.4	12.6	89	6.5	22
				5	1.5	12.1	87	6.5	22
				6	1.6	11.9	85	6.5	23
				7	1.7	11.6	83	6.5	23
				8	1.8	11.4	82	6.5	23
				9	1.9	11.2	81	6.5	22
				10	2.0	10.7	78	6.4	23
				11	2.1	10.4	76	6.4	23
				12	2.1	10.3	75	6.4	23
	19-Jul-10	-	8.5	0.2	16.1	10.0	102	6.9	21
				1	15.9	9.8	99	6.9	21
				2	15.9	9.8	99	6.9	21
				3	15.7	9.9	99	6.8	21
				4	15.6	9.9	99	6.5	21
				5	15.1	10.0	99	6.5	21
				6	14.6	10.1	100	6.8	21
				7	14.1	10.4	101	6.8	21
				8	13.6	10.4	100	6.8	21
				9	13.2	10.5	100	6.8	21
				10	12.6	10.5	99	6.8	20
				11	13.3	10.5	98	6.8	20
				12	12.2	10.5	98	6.8	20
	14-Sep-10	-	-	0.3	11.4	10.3	94	6.3	21
				1	11.4	10.3	94	6.4	21
				2	11.4	10.2	94	6.4	21
				3	11.4	10.2	94	6.4	21
				4	11.4	10.2	94	6.4	21
				5	11.4	10.2	93	6.4	21
				6	11.4	10.2	93	6.5	21
				7	11.4	10.2	93	6.5	21
				8	11.4	10.2	93	6.5	21
				9	11.4	10.2	93	6.5	21
				10	11.4	10.2	93	6.6	20
				11	11.4	10.2	93	6.6	21
				12	11.4	10.2	93	6.6	21
				12.5	11.4[b]	2.5[b]	25[b]	6.3[b]	44[b]
NEL05	21-Jan-10	0.62	-	1	0.1	17.9	122	6.4	30
				2	0.6	16.9	118	6.4	25
				3	0.9	15.7	109	6.4	23
				4	1.1	14.7	103	6.4	22
				5	1.2	14.1	99	6.2	22
				6	1.3	13.7	97	6.1	22
				7	1.4	13.4	95	6.1	22
				8	1.4	13.2	94	6.0	22
				9	1.5	12.9	92	6.0	22
				10	1.5	12.8	91	6.0	22
	14-Apr-10	1.12	-	1.5	0.5	14.8	102	6.5	26
				2	0.8	14.3	100	6.5	25
				3	1.1	13.6	96	6.5	23
				4	1.4	12.7	90	6.5	22
				5	1.5	11.9	85	6.5	21
				6	1.7	11.5	82	6.5	21
				7	1.7	11.1	80	6.5	22
				8	1.8	10.9	79	6.5	22
				9	1.8	10.9	78	6.5	22
				10	1.9	10.8	78	6.4	22

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	19-Jul-10	-	9	0.2	15.8	10.1	102	6.9	20
				1	15.8	9.9	100	6.9	20
				2	15.7	9.8	99	8.9	20
				3	15.7	9.8	99	6.8	20
				4	15.7	9.8	98	6.9	20
				5	15.6	9.8	98	6.8	20
				6	15.5	9.8	98	6.8	20
				7	15.2	9.9	98	6.9	20
				8	14.0	10.2	99	6.8	20
				9	13.2	10.4	99	6.9	20
				10	12.6	10.5	98	6.8	20
				11	12.3[b]	5.8[b]	54[b]	6.6[b]	28[b]
	12-Sep-10	-	6.5	0.2	9.6	10.5	93	7.2	21
				1	9.6	10.1	89	7.0	21
				2	9.7	10.1	89	6.7	21
				3	9.7	10.1	89	6.7	21
				4	9.7	10.1	89	6.7	21
				5	9.7	10.1	89	6.7	21
				6	9.7	10.1	89	6.7	21
				7	9.7	10.1	89	6.7	21
				8	9.7	10.1	89	6.7	21
				9	9.7	9.5	88	6.6	21
KING01	27-Jan-10	-	-	0.1	1.1	15.6	109	8.7	25
	12-Apr-10	-	-	0.1	0.7	14.1	98	7.3	25
	19-Jul-10	-	-	0.2	17.2	9.7	101	7.0	20
	13-Sep-10	-	-	0.2	10.7	11.0	99	5.7	21
SNP02-20d	20-Feb-11	0.97	-	1.3	1.2	13.2	93	7.1	369
				2	1.4	13.2	94	7.1	369
				3	1.3	13.2	94	7.1	402
				4	1.3	13.4	95	7.0	417
				5	1.3	13.4	95	7.0	418
				6	1.3	13.4	95	7.0	420
				7	1.3	13.4	95	7.0	421
				8	1.3	13.4	95	7.4	424
				9	1.3	13.4	95	7.4	425
				10	1.3	13.2	94	7.4	426
	21-Mar-11	0.95	-	1.5	1.5	13.2	94	6.8	381
				2.0	1.4	13.7	97	6.8	397
				3	1.3	13.9	99	6.8	427
				4	1.3	14.0	99	6.8	430
				5	1.3	13.9	99	6.9	433
				6	1.3	14.0	99	6.9	434
				7	1.3	14.0	99	6.9	435
				8	1.3	14.0	99	6.9	435
				9	1.3	14.0	99	6.9	435
				10	1.3	13.9	99	6.9	436
				11	1.9	12.7	93	6.9	417
				11.6 [b]	2.0 [b]	7.1 [b]	51 [b]	6.8 [b]	392 [b]
	12-Apr-11	0.95	-	1.3	0.4	13.8	95	6.9	388
				2	1.2	13.6	96	6.9	388
				3	1.3	13.7	98	6.8	430
				4	1.3	13.8	98	6.8	431
				5	1.3	13.8	98	6.8	434
				6	1.3	13.8	98	6.9	434
				7	1.4	13.8	98	6.8	436
				8	1.4	13.8	98	6.9	438
				9	1.4	13.8	98	6.9	438
				10	1.4	13.8	98	6.9	438
				11	1.4	13.7	98	6.9	439
				12 [b]	2.0 [b]	1.9 [b]	14 [b]	6.6 [b]	424 [b]
	26-Apr-11 [h]	1.00	-	1.3	0.4	15.0	106	6.9	415
				2	1.4	13.7	98	6.8	391
				3	1.5	13.8	98	6.9	447
				4	1.4	13.9	99	6.9	448
				5	1.5	14.0	100	6.9	449
				6	1.5	14.0	100	6.9	453
				7	1.5	14.0	100	6.9	456
				8	1.5	14.0	100	6.9	454
				9	1.5	14.0	100	6.9	454
				10	1.5	14.0	100	6.6	454
				11	1.5	13.9	100	6.9	455
				12	2.1	6.9	53	6.5	424

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	8-May-11	1.00	-	1.5	1.2	14.3	101	6.9	413
				2	1.7	13.3	96	6.9	401
				3	1.6	14.2	102	6.9	444
				4	1.5	14.3	102	6.9	453
				5	1.5	14.3	102	6.9	455
				6	1.5	14.3	103	6.9	455
				7	1.6	14.3	103	6.9	457
				8	1.6	14.3	102	6.9	459
				9	1.6	14.3	103	6.9	457
				10	1.6	14.3	102	6.9	457
				11	1.7	14.0	101	6.9	456
				12	2.2	12.4	91	6.8	444
	5-Jul-11	-	7.5	0.1	12.4	11.1	105	7.0	324
				1	12.3	10.9	102	7.1	325
				2	12.3	10.9	102	7.1	325
				3	12.3	10.9	102	7.1	325
				4	12.3	10.9	102	7.2	325
				5	12.3	10.9	101	7.2	325
				6	12.3	10.9	101	7.2	325
				7	12.2	10.9	101	7.2	325
				8	12.2	10.9	101	7.2	325
				9	12.2	10.9	101	7.2	325
				10	12.2	10.9	101	7.2	325
				11	12.2	10.9	101	7.2	325
	9-Aug-11	-	n/a	0.1	17.5	9.8	102	6.4	354
				1	17.5	9.7	102	6.6	354
				2	17.5	9.7	102	6.7	354
				3	17.5	9.7	102	6.8	354
				4	17.4	9.7	102	6.8	355
				5	17.4	9.7	102	6.9	355
				6	17.3	9.8	102	7.0	356
				7	17.3	9.9	103	7.1	359
				8	17.3	9.9	103	7.1	357
				9	17.1	9.9	103	7.2	358
				10	17.1	9.9	103	7.2	363
				11	17.0	9.9	102	7.2	363
				12	16.9	9.8	102	7.2	363
				13	16.6	4.9	53	7.0	365
	11-Sep-11	-	11.0	0.3	11.3	10.5	96	6.9	358
				1	11.3	10.5	96	6.9	356
				2	11.2	10.5	96	7.0	356
				3	11.2	10.5	96	7.0	357
				4	11.1	10.5	96	7.1	357
				5	11.1	10.5	96	7.1	357
				6	11.1	10.5	96	7.1	357
				7	11.1	10.5	96	7.2	357
				8	11.1	10.5	96	7.2	357
				9	11.1	10.5	96	7.2	357
				10	11.1	10.5	96	7.2	357
				11	11.1	10.5	96	7.2	357
				12	11.1	10.5	95	7.2	357

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNP02-20e	20-Feb-11	1.20	-	1.5	1.2	13.9	99	6.8	403
				2	1.2	13.5	96	6.8	405
				3	1.3	13.4	95	6.8	404
				4	1.3	13.4	95	6.8	417
				5	1.2	13.4	95	6.8	421
				6	1.3	13.5	96	6.8	423
				7	1.2	13.5	96	7.0	424
				8	1.2	13.5	96	7.0	424
				9	1.2	13.5	96	7.0	424
				10	1.2	13.5	96	7.1	424
				11	1.2	13.5	96	7.2	425
				12	1.2	13.5	96	7.3	425
				13	1.3	13.5	96	7.5	425
				14	1.3	13.4	95	7.6	424
				15	1.3	13.4	95	7.7	424
				16	1.3	13.4	95	7.8	423
				17	1.3	13.4	95	7.8	425
				18	1.3	13.4	95	7.8	423
				19	1.3	13.4	95	7.8	424
				20	1.3	13.4	95	7.8	425
				21	1.3	13.4	95	7.8	425
				22	1.3	13.3	94	7.8	423
				23	1.4	13.1	93	7.8	420
				24	1.4	13.0	93	7.8	419
				25 [(b)]	1.4 [(b)]	0.8 [(b)]	6.1 [(b)]	7.5 [(b)]	398 [(b)]
	20-Mar-11	1.05	-	1.5	1.9	14.0	101	6.2	425
				2	1.6	14.2	101	6.3	427
				3	1.4	14.5	103	6.3	434
				4	1.4	14.5	104	6.4	434
				5	1.3	14.4	103	6.4	435
				6	1.3	14.3	101	6.4	435
				7	1.3	14.2	101	6.5	433
				8	1.3	14.0	100	6.5	434
				9	1.3	14.0	99	6.5	434
				10	1.3	13.9	99	6.5	434
				11	1.3	13.9	99	6.6	434
				12	1.3	13.9	99	6.6	434
				13	1.3	13.9	99	6.6	435
				14	1.3	13.1	98	6.6	433
				15	1.3	13.8	98	6.6	433
				16	1.3	13.8	98	6.6	433
				17	1.3	13.8	98	6.6	432
				18	1.3	13.8	98	6.6	434
				19	1.3	13.7	97	6.6	433
				20	1.3	13.7	97	6.7	432
				21	1.3	13.6	97	6.7	431
				22	1.4	13.5	96	6.7	430
				23	1.4	13.5	96	6.7	430
				24	1.4	13.3	95	6.7	428
				25	1.4	13.1	94	6.7	428
				26	1.4	12.9	92	6.7	427
				26.8 [(b)]	1.6 [(b)]	3.3 [(b)]	25 [(b)]	6.5 [(b)]	377 [(b)]

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	10-Apr-11	1.05	-	1.4	1.6	13.7	98	6.3	442
				2	1.5	13.6	97	6.3	443
				3	1.3	13.7	97	6.4	442
				4	1.3	13.7	98	6.5	443
				5	1.3	13.7	97	6.5	442
				6	1.3	13.7	98	6.5	441
				7	1.3	13.7	97	6.6	441
				8	1.3	13.7	97	6.6	440
				9	1.3	13.7	98	6.6	440
				10	1.3	13.7	97	6.6	441
				11	1.4	13.6	97	6.7	443
				12	1.4	13.6	97	6.7	443
				13	1.4	13.6	97	6.7	443
				14	1.4	13.6	97	6.7	444
				15	1.4	13.6	97	6.7	444
				16	1.4	13.6	97	6.7	443
				17	1.4	13.6	97	6.7	444
				18	1.4	13.6	97	6.7	444
				19	1.4	13.6	97	6.7	444
				20	1.4	13.6	98	6.7	444
				21	1.4	13.6	97	6.7	444
				22	1.4	13.6	97	6.7	444
				23	1.4	13.6	97	6.7	444
				24	1.4	13.6	97	6.8	444
				25	1.4	13.6	97	6.8	444
				26	1.4	13.5	96	6.8	444
				27	1.4	13.2	94	6.8	444
	7-May-11	0.98	-	1.5	0.9	15.1	105	6.9	446
				2	1.3	14.5	103	6.9	445
				3	1.4	14.4	102	6.9	448
				4	1.4	14.4	102	6.9	449
				5	1.5	14.4	103	6.9	455
				6	1.5	14.3	102	6.9	455
				7	1.5	14.4	103	6.9	455
				8	1.5	14.4	103	6.9	456
				9	1.5	14.4	103	6.9	458
				10	1.6	14.3	103	6.9	458
				11	1.6	14.3	103	6.9	459
				12	1.6	14.3	103	6.9	459
				13	1.6	14.3	102	6.9	459
				14	1.6	14.3	102	6.9	459
				15	1.6	14.3	102	6.9	459
				16	1.6	14.3	102	6.9	459
				17	1.6	14.3	102	6.9	459
				18	1.6	14.3	102	6.9	459
				19	1.6	14.3	102	6.9	460
				20	1.6	14.1	101	6.9	460
				21	1.6	14.2	101	6.9	460
				22	1.6	14.2	102	6.9	460
				23	1.6	14.2	102	6.9	460
				24	1.6	14.1	101	6.9	460
				25	1.6	14.1	101	6.9	460
				26	1.6	14.1	101	6.9	459
				27	1.6	14.1	101	6.9	459

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	5-Jul-11	-	7.0	0.1	12.6	10.9	102	7.1	322
				1	12.6	10.9	102	7.2	322
				2	12.6	10.9	102	7.2	322
				3	12.6	10.9	102	7.2	322
				4	12.6	10.9	102	7.2	322
				5	12.5	10.9	102	7.2	324
				6	12.5	10.9	102	7.2	324
				7	12.5	10.9	102	7.2	324
				8	12.5	10.9	102	7.2	325
				9	12.5	10.9	102	7.2	325
				10	12.4	10.9	102	7.2	326
				11	12.5	10.9	102	7.2	326
				12	12.4	10.9	102	7.2	332
				13	12.3	10.9	102	7.2	332
				14	12.2	11.0	102	7.2	331
				15	11.9	11.0	102	7.2	330
				16	11.8	11.0	102	7.2	330
				17	11.6	11.0	101	7.2	330
				18	11.3	11.0	101	7.2	329
				19	10.3	11.3	101	7.1	336
				20	6.3	12.7	102	7.0	377
				21	5.2	13.3	105	6.9	385
				22	4.7	13.4	105	6.8	389
				23	4.6	13.3	103	6.7	391
				24	4.6	13.1	101	6.7	391
				25	4.5	12.7	99	6.5	392
				26	4.5	12.7	99	6.5	392
				27	4.4	12.2	94	6.5	392
				28	4.4	11.0	84	6.3	392
	10-Aug-11	-	n/a	0.3	17.3	9.6	101	7.4	355
				1	17.3	9.6	100	7.5	355
				2	17.3	9.6	100	7.5	356
				3	17.3	9.6	100	7.6	356
				4	17.3	9.6	100	7.6	356
				5	17.3	9.6	100	7.6	357
				6	17.3	9.6	100	7.6	358
				7	17.3	9.6	100	7.6	358
				8	17.3	9.6	100	7.6	361
				9	17.3	9.7	101	7.6	363
				10	17.3	9.7	101	7.6	364
				11	17.3	9.7	101	7.6	363
				12	17.2	9.7	101	7.6	364
				13	17.2	9.7	101	7.6	365
				14	17.1	9.7	101	7.6	366
				15	17.1	9.7	101	7.6	366
				16	16.7	9.8	101	7.6	359
				17	16.4	9.7	99	7.6	354
				18	16.2	9.6	97	7.6	353
				19	15.4	9.5	95	7.6	353
				20	11.1	10.2	94	7.4	382
				21	8.0	10.9	92	7.3	410
				22	7.1	10.9	90	7.2	410
				23	6.3	10.9	89	7.2	408
				24	5.5	10.8	87	7.1	414
				25	5.2	10.0	81	7.0	409

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	11-Sep-11	-	10.0	0.3	11.2	10.9	99	6.6	362
				1	11.2	10.9	99	6.6	360
				2	11.2	10.8	99	6.7	360
				3	11.2	10.8	99	6.7	361
				4	11.2	10.8	99	6.8	360
				5	11.2	10.8	99	6.8	360
				6	11.2	10.8	99	6.8	360
				7	11.2	10.8	99	6.9	361
				8	11.2	10.8	99	6.9	360
				9	11.2	10.8	99	6.9	361
				10	11.2	10.8	99	6.9	360
				11	11.2	10.8	99	6.9	360
				12	11.2	10.8	99	7.0	360
				13	11.2	10.8	98	7.0	359
				14	11.2	10.8	98	7.0	359
				15	11.2	10.8	98	7.0	359
				16	11.2	10.8	98	7.0	359
				17	11.2	10.8	98	7.0	359
				18	11.2	10.8	98	7.1	359
				19	11.2	10.8	98	7.1	359
				20	11.2	10.8	98	7.1	359
				21	11.2	10.8	98	7.1	359
				22	11.2	10.8	98	7.1	359
				23	11.2	10.8	98	7.1	359
				24	11.2	10.8	99	7.1	359
				25	11.2	10.8	98	7.1	359
				26	11.2	10.8	98	7.2	359
				27	11.2	10.8	98	7.2	359
				28	11.1	10.8	98	7.2	358
SNP02-20f	20-Feb-11	0.85	-	1.1	2.0	13.9	100	6.8	380
				2	1.8	13.3	96	6.8	358
				3	1.7	13.2	95	6.8	397
				4	1.6	13.3	95	6.8	407
				5	1.5	13.4	96	6.8	416
				6	1.5	13.4	96	6.8	418
				7	1.4	13.4	96	6.8	420
				8	1.4	13.4	96	6.8	421
				9	1.4	13.4	96	7.0	420
				10	1.3	13.4	95	7.0	421
				11	1.3	13.4	95	7.0	421
				12	1.3	13.4	95	7.1	422
				13	1.4	13.3	96	7.1	420
				14	1.6	11.9	85	7.6	413
	21-Mar-11	1.11	-	1.5	1.2	13.8	98	7.0	373
				2	1.3	14.3	101	7.0	394
				3	1.3	14.6	103	7.0	426
				4	1.3	14.8	105	7.0	430
				5	1.3	15.0	107	7.0	433
				6	1.3	15.0	107	7.0	433
				7	1.3	15.1	107	7.0	433
				8	1.3	15.1	107	7.0	433
				9	1.3	15.2	108	7.0	433
				10	1.3	14.5	103	7.0	434
				11	1.3	14.3	102	7.0	434
				12	1.3	14.0	100	7.0	434
				13	1.5	13.3	95	7.0	427
				14	1.7	11.9	85	7.0	421
	10-Apr-11	1.15	-	1.5	1.3	13.4	95	6.6	381
				2	1.5	13.3	95	6.6	397
				3	1.5	13.7	97	6.6	434
				4	1.4	13.7	98	6.7	435
				5	1.4	13.7	98	6.7	435
				6	1.4	13.7	98	6.7	436
				7	1.4	13.7	97	6.8	438
				8	1.4	13.6	97	6.8	438
				9	1.4	13.7	97	6.8	439
				10	1.4	13.7	97	6.8	439
				11	1.4	13.7	97	6.8	440
				12	1.4	13.7	97	6.8	440
				13	1.4	13.7	97	6.8	440
				14	1.4	13.6	97	6.8	441

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	8-May-11	1.14	-	1.5	1.2	14.1	100	6.9	403
				2	1.5	14.0	100	6.9	422
				3	1.6	14.1	101	6.9	445
				4	1.6	14.2	102	6.9	456
				5	1.6	14.3	102	6.9	456
				6	1.6	14.3	102	6.9	460
				7	1.6	14.2	102	6.9	464
				8	1.6	14.3	102	6.9	460
				9	1.6	14.3	102	6.9	458
				10	1.6	14.3	103	6.9	459
				11	1.6	14.3	103	6.9	459
				12	1.6	14.3	103	6.9	459
				13	1.6	14.3	102	6.9	460
				14	1.7	13.8	99	6.9	456
	5-Jul-11	-	6.5	0.1	12.4	11.0	103	6.9	324
				1	12.4	10.8	102	7.0	324
				2	12.3	10.8	101	7.0	325
				3	12.3	10.8	101	7.1	325
				4	12.3	10.8	101	7.1	325
				5	12.3	10.8	101	7.1	325
				6	12.3	10.8	101	7.1	325
				7	12.3	10.8	101	7.1	326
				8	12.3	10.8	101	7.1	327
				9	12.3	10.8	101	7.1	328
				10	12.2	10.8	101	7.1	330
				11	12.2	10.8	101	7.1	328
				12	12.1	10.8	101	7.1	328
				13	12.0	10.8	101	7.1	330
				14	11.9	10.9	101	7.1	330
	9-Aug-11	-	n/a	0.1	17.5	9.8	103	7.4	354
				1	17.5	9.8	103	7.5	354
				2	17.5	9.8	102	7.5	354
				3	17.5	9.8	102	7.6	354
				4	17.4	9.8	103	7.6	356
				5	17.3	9.8	103	7.6	357
				6	17.3	9.9	103	7.6	364
				7	17.2	9.9	103	7.6	365
				8	17.1	9.9	103	7.6	368
				9	17.1	9.9	103	7.6	369
				10	17.1	9.9	103	7.6	369
				11	17.1	9.9	103	7.6	368
				12	17.0	9.9	103	7.6	362
				13	17.0	9.9	103	7.6	361
				14	16.7	6.7	75	7.3	360
	11-Sep-11	-	11.0	0.3	10.9	10.6	97	7.3	359
				1	11.0	10.6	96	7.4	357
				2	11.0	10.6	96	7.4	357
				3	11.0	10.6	96	7.4	357
				4	11.0	10.6	96	7.4	357
				5	11.0	10.6	96	7.4	357
				6	11.0	10.6	96	7.4	357
				7	11.0	10.6	96	7.4	357
				8	11.0	10.6	96	7.4	357
				9	11.0	10.6	96	7.4	357
				10	11.0	10.6	97	7.4	361
				11	11.0	10.6	97	7.4	361
				12	11.0	10.7	97	7.4	360
				13	11.0	10.7	97	7.4	362
SNAP03	19-Feb-11	1.00	-	1.3	0.5	15.5	107	7.2 [(i)]	397
				2	0.8	15.3	107	7.2 [(i)]	391
				3	1.0	15.1	107	7.2 [(i)]	388
				4	1.1	14.8	105	7.2 [(i)]	398
				5	1.2	14.4	102	7.1 [(i)]	406
				6	1.2	14.1	100	7.1 [(i)]	414
				7	1.3	13.8	98	7.1 [(i)]	413
				8	1.4	13.5	97	7.2 [(i)]	411
				9	1.6	13.3	96	7.2 [(i)]	407
				10	1.9	12.9	93	7.2 [(i)]	403
				11	2.2	12.4	91	7.2 [(i)]	398
				12	2.4	12.0	88	7.2 [(i)]	394

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	19-Mar-11	1.15	-	1.5	1.2	13.8	98	6.8	387
				2	1.2	13.8	98	6.8	385
				3	1.2	13.8	98	6.8	414
				4	1.2	13.9	98	6.8	426
				5	1.3	13.8	98	6.8	429
				6	1.3	13.8	98	6.8	431
				7	1.3	13.7	97	6.8	431
				8	1.3	13.5	96	6.8	430
				9	1.6	13.0	93	6.8	420
				10	1.9	12.6	91	6.8	416
				11	2.1	12.3	90	6.8	413
				12	2.4	11.0	80	6.8	410
				12.3	2.5	7.8	57	6.7	403
	11-Apr-11	1.30	-	1.6	0.7	13.4	93	6.8	380
				2	1.1	13.2	93	6.8	375
				3	1.3	13.2	98	6.8	408
				4	1.3	13.8	98	6.8	428
				5	1.4	13.8	98	6.9	431
				6	1.4	13.6	97	6.9	436
				7	1.4	13.6	97	6.9	436
				8	1.4	13.5	96	6.9	435
				9	1.6	13.3	95	6.9	431
				10	1.8	12.9	93	6.8	426
				11	2.0	12.6	91	6.9	423
				12	2.2	12.1	88	6.8	420
				13 [b]	2.5 [b]	4.4 [b]	38 [b]	6.7 [b]	395 [b]
	6-May-11	1.31	-	1.5	1.0	14.1	99	6.8	393
				2	1.4	13.9	99	6.8	385
				3	1.5	14.5	104	6.9	431
				4	1.5	14.7	105	6.9	448
				5	1.5	14.6	104	6.9	452
				6	1.5	14.5	104	6.9	453
				7	1.5	14.5	104	6.9	454
				8	1.5	14.5	104	6.9	457
				9	1.7	14.3	103	6.9	452
				10	1.9	14.0	101	6.8	446
				11	2.1	13.7	99	6.8	443
				12	2.3	12.9	95	6.7	442
	7-Jul-11	-	7.5	0.1	13.7	10.8	105	7.1	325
				1	13.6	10.9	105	7.1	325
				2	13.3	10.9	104	7.1	324
				3	13.1	10.9	104	7.1	324
				4	13.1	10.9	104	7.2	323
				5	13.1	10.9	104	7.2	323
				6	13.1	10.9	104	7.2	323
				7	13.1	10.9	104	7.2	323
				8	13.1	10.9	104	7.2	323
				9	13.0	10.9	104	7.1	324
				10	13.0	10.9	104	7.2	324
				11	13.0	10.9	104	7.2	324
				12	13.0	10.9	103	7.2	324
				13	13.0	10.6	101	7.1	324
	11-Aug-11	-	7.5	0.1	17.1	9.7	*101*	7.6	355
				1	17.2	9.7	*101*	7.6	355
				2	17.2	9.6	*100*	7.6	355
				3	17.2	9.6	*100*	7.6	355
				4	17.2	9.6	*100*	7.6	355
				5	17.2	9.6	*100*	7.6	355
				6	17.2	9.7	*101*	7.6	355
				7	17.1	9.7	*101*	7.6	355
				8	17.1	9.7	*101*	7.6	355
				9	17.1	9.7	*101*	7.6	354
				10	17.1	9.7	*101*	7.6	354
				11	17.1	9.7	*101*	7.6	354
				12	17.1	9.7	*101*	7.7	354
				13	16.6	4.6	*47*	6.8	354

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	9-Sep-11	-	11.5	0.3	11.4	10.7	98	7.4	340
				1	11.4	10.7	98	7.4	340
				2	11.3	10.7	98	7.5	341
				3	11.3	10.7	98	7.5	340
				4	11.3	10.7	98	7.5	340
				5	11.3	10.7	98	7.5	340
				6	11.3	10.7	98	7.5	340
				7	11.3	10.7	98	7.5	340
				8	11.2	10.7	98	7.5	340
				9	11.2	10.7	98	7.5	340
				10	11.2	10.8	98	7.5	340
				11	11.2	10.7	98	7.5	340
				12	11.2	10.7	97	7.5	340
				13	11.2	7.4	72	7.1	340
	8-Sept-11 [j]	-	-	0.3	12.1	10.8	100	7.5	341
				1	11.9	10.7	98	7.5	341
				2	11.4	10.7	98	7.5	343
				3	11.3	10.8	99	7.5	341
				4	11.2	10.8	99	7.5	340
				5	11.2	10.8	95	7.5	341
				6	11.2	10.8	96	7.5	340
				7	11.2	10.8	96	7.5	340
				8	11.2	10.8	96	7.5	340
				9	11.1	10.8	98	7.5	339
				10	11.1	10.8	99	7.5	339
				11	11.1	10.9	99	7.5	340
				12	11.1	10.9	98	7.5	340
SNAP05	18-Feb-11	1.00	-	1.3	1.1	13.8	*98*	6.8	376
				2	1.2	13.7	*97*	6.8	367
				3	1.3	13.7	*97*	6.8	368
				4	1.5	13.6	*97*	6.8	371
				5	1.4	13.4	*96*	6.7	388
				6	1.5	13.1	*94*	6.7	397
				7	1.5	12.9	*93*	6.6	399
				8	1.6	12.8	*92*	6.6	395
				9	1.9	12.4	*90*	6.6	389
				10	2.3	12.0	*87*	6.6	385
				11	2.6	11.6	*85*	6.6	382
				12	2.8	11.2	*83*	6.6	380
				13	2.9	10.4	*77*	6.6	378
	19-Mar-11	1.00	-	1.5	1.3	13.1	93	6.5	374
				2	1.3	13.1	93	6.5	370
				3	1.3	13.4	95	6.6	391
				4	1.3	13.7	97	6.6	411
				5	1.3	13.7	97	6.6	425
				6	1.4	13.5	96	6.6	425
				7	1.5	13.1	94	6.7	416
				8	1.8	12.5	90	6.7	407
				9	2.2	12.1	88	6.7	403
				10	2.5	11.7	86	6.7	399
				11	2.7	11.3	83	6.7	396
				12	2.8	10.6	79	6.7	396
				13	3.1	9.8	73	6.7	396
				13.8 [b]	3.3 [b]	4.4 [b]	35 [b]	6.6 [b]	374 [b]
	11-Apr-11	1.18	-	1.5	0.8	12.9	90	6.9	373
				2	1.2	12.8	91	6.9	369
				3	1.5	12.5	90	6.9	367
				4	1.4	13.9	99	6.8	414
				5	1.4	13.9	99	6.8	430
				6	1.4	13.7	97	6.9	432
				7	1.5	13.3	95	6.8	428
				8	1.7	12.9	93	6.8	422
				9	2.0	12.3	89	6.8	416
				10	2.4	12.0	88	6.8	413
				11	2.7	11.6	85	6.8	410
				12	2.8	11.3	84	6.8	408
				13	3.0	10.7	80	6.8	407

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	7-May-11	1.25	-	1.5	1.3	13.8	98	6.9	401
				2	1.4	13.7	97	6.9	389
				3	1.7	13.0	93	6.8	395
				4	1.5	14.6	105	6.9	444
				5	1.5	14.4	103	6.9	451
				6	1.5	14.3	102	6.9	453
				7	1.6	14.1	101	6.9	453
				8	1.8	13.7	99	6.9	447
				9	2.2	13.3	96	6.8	440
				10	2.6	12.8	94	6.8	435
				11	2.8	12.2	90	6.7	432
				12	2.9	12.0	89	6.7	431
				13	3.1	11.2	84	6.7	429
				14	3.2	10.5	79	6.6	429
	12-Jul-11	-	10.0	0.1	16.3	10.2	104	6.8	335
				1	16.3	10.2	104	7.0	335
				2	16.2	10.2	104	7.1	335
				3	16.1	10.2	104	7.1	335
				4	15.8	10.3	104	7.2	336
				5	15.2	10.5	106	7.2	337
				6	14.6	10.9	107	7.3	336
				7	14.5	10.9	107	7.3	337
				8	14.3	10.9	106	7.4	336
				9	14.1	11.0	107	7.4	335
				10	14.1	11.0	107	7.4	335
				11	13.9	11.0	107	7.5	335
				12	13.9	11.0	106	7.5	335
				13	13.7	11.0	106	7.5	333
				14	13.3	10.8	104	7.5	334
	9-Sep-11	-	9.0	0.3	11.2	10.8	98	7.4	340
				1	11.2	10.7	98	7.4	340
				2	11.2	10.7	98	7.4	340
				3	11.2	10.7	98	7.4	340
				4	11.2	10.7	98	7.5	339
				5	11.2	10.7	98	7.5	340
				6	11.2	10.7	98	7.5	340
				7	11.2	10.7	98	7.5	340
				8	11.2	10.7	98	7.5	340
				9	11.2	10.7	98	7.5	340
				10	11.2	10.7	98	7.5	340
				11	11.2	10.7	98	7.5	340
				12	11.2	10.7	98	7.5	340
				13	11.2	10.7	98	7.5	339
	11-Sept-11 [j]	-	-	0.3	11.1	10.8	98	7.2	349
				1	11.1	10.8	98	7.2	349
				2	11.1	10.8	98	7.2	349
				3	11.1	10.8	99	7.3	349
				4	11.1	10.8	98	7.3	349
				5	11.1	10.8	98	7.3	350
				6	11.1	10.8	98	7.3	350
				7	11.1	10.8	98	7.3	350
				8	11.1	10.8	98	7.3	351
				9	11.1	10.8	98	7.3	351
				10	11.1	10.8	98	7.3	351
				11	11.1	10.8	98	7.3	351
				12	11.1	10.8	98	7.3	351
				13	11.1	10.8	98	7.3	351
SNAP06	19-Feb-11	1.25	-	1.5	1.2	13.7	97	7.3 [i]	370
				2	1.2	13.5	96	7.2 [i]	359
				3	1.5	13.2	95	7.2 [i]	354
				4	1.4	13.1	93	7.1 [i]	383
				5	1.3	13.3	95	7.1 [i]	395
				6	1.3	13.3	95	7.1 [i]	406
				7	1.5	13.1	94	7.1 [i]	401
				8	1.9	12.5	90	7.2 [i]	389
				9	2.1	12.0	87	7.1 [i]	383
				10	2.4	11.5	84	7.1 [i]	378
				11	2.7	11.0	81	7.1 [i]	373
				12	2.8	10.7	80	7.1 [i]	371

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	18-Mar-11	1.24	-	1.5	1.1	13.4	95	6.6	370
				2	1.3	13.2	94	6.6	368
				3	1.4	13.0	93	6.7	368
				4	1.4	13.2	94	6.6	399
				5	1.3	13.3	95	6.6	412
				6	1.5	13.3	95	6.6	416
				7	1.7	12.8	92	6.7	407
				8	1.9	12.6	91	6.7	401
				9	2.2	12.0	88	6.7	397
				10	2.5	11.6	85	6.7	392
				11	2.7	11.2	83	6.7	389
				12	2.9	10.8	81	6.7	387
	7-Apr-11	1.40	-	1.7	1.2	12.8	91	6.8	375
				2	1.2	12.8	91	6.8	368
				3	1.7	12.4	89	6.8	364
				4	1.6	12.5	90	6.8	383
				5	1.5	13.2	94	6.8	417
				6	1.5	13.3	95	6.8	423
				7	1.6	13.1	94	6.8	420
				8	1.8	12.2	92	6.8	411
				9	2.1	12.0	87	6.8	406
				10	2.4	11.5	84	6.8	401
				11	2.7	11.2	83	6.8	398
				12	2.8	10.7	79	6.8	396
	6-May-11	1.40	-	1.5	0.7	14.4	100	6.8	397
				2	1.3	14.2	101	6.8	386
				3	1.8	13.2	95	6.8	389
				4	1.7	13.3	95	6.8	410
				5	1.6	14.2	102	6.9	442
				6	1.7	14.1	101	6.8	445
				7	2.0	13.6	99	6.8	437
				8	2.2	13.0	95	6.7	430
				9	2.6	12.6	93	6.7	425
				10	2.8	12.2	90	6.7	422
				11	3.0	11.8	88	6.7	420
				12	3.4	10.8	82	6.6	417
				13	3.4	5.9	42	6.6	417
	12-Jul-11	-	11.0	0.1	16.8	10.1	104	7.4	335
				1	16.6	10.1	104	7.4	335
				2	16.5	10.2	104	7.5	334
				3	16.5	10.2	104	7.5	334
				4	16.4	10.2	104	7.5	334
				5	16.2	10.2	104	7.5	333
				6	15.7	10.4	104	7.5	334
				7	14.5	10.7	105	7.5	333
				8	14.2	10.9	106	7.5	332
				9	13.7	11.0	107	7.5	332
				10	13.5	11.2	107	7.5	332
				11	13.4	11.2	107	7.6	332
				12	13.1	11.2	107	7.6	332
				13	13.0	10.1	98	7.6	333
	11-Aug-11	-	5.5	0.1	17.3	9.6	*101*	7.3	346
				1	17.3	9.6	*100*	7.4	346
				2	17.3	9.6	*100*	7.4	346
				3	17.3	9.6	*100*	7.5	347
				4	17.3	9.6	*100*	7.5	347
				5	17.3	9.6	*100*	7.5	347
				6	17.2	9.6	*100*	7.5	347
				7	17.2	9.6	*100*	7.5	347
				8	17.2	9.6	*100*	7.6	347
				9	17.2	9.6	*100*	7.6	347
				10	17.2	9.6	*100*	7.6	348
				11	17.2	9.6	*100*	7.6	348
				12	17.2	9.6	*100*	7.6	348
				13	17.1	8.1	*84*	7.5	351

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	8-Sep-11	-	8.0	0.3	11.7	10.7	99	7.4	334
				1	11.4	10.8	99	7.4	332
				2	11.3	10.8	99	7.4	332
				3	11.3	10.8	98	7.4	332
				4	11.3	10.8	98	7.5	332
				5	11.2	10.8	98	7.5	334
				6	11.2	10.8	98	7.5	333
				7	11.2	10.8	98	7.5	333
				8	11.2	10.8	98	7.5	334
				9	11.2	10.8	98	7.5	336
				10	11.2	10.8	98	7.5	336
				11	11.1	10.8	98	7.5	337
				12	11.1	10.8	99	7.5	338
				13	11.1	10.6	97	7.4	338
SNAP12	19-Feb-11	1.00	-	1.3	0.8	13.9	97	6.8 [(i)]	371
				2	1.1	13.6	97	6.8 [(i)]	364
				3	1.2	13.6	96	6.8 [(i)]	383
				4	1.2	13.7	97	6.8 [(i)]	406
				5	1.3	13.7	98	6.8 [(i)]	409
				6	1.3	13.7	98	6.8 [(i)]	411
				7	1.3	13.7	98	6.8 [(i)]	421
	19-Mar-11	1.24	-	1.5	1.4	13.1	94	6.5	385
				2	1.5	13.2	94	6.6	378
				3	1.3	13.6	97	6.6	420
				4	1.3	13.7	97	6.6	425
				5	1.3	13.7	97	6.7	426
				6	1.3	13.6	97	6.7	430
				7	1.5	11.1	82	6.7	430
	11-Apr-11	1.25	-	1.6	1.4	13.0	93	6.8	384
				2	1.5	12.8	92	6.8	374
				3	1.6	13.5	96	6.8	420
				4	1.5	13.8	99	6.8	430
				5	1.4	13.8	99	6.9	432
				6	1.5	13.6	97	6.9	436
				7	1.5	13.5	96	6.9	438
	7-May-11	1.33	-	1.5	2.4	13.6	100	6.9	403
				2	1.5	13.9	99	6.9	404
				3	1.6	14.0	100	6.9	448
				4	1.5	14.2	101	6.9	448
				5	1.6	14.3	102	6.9	453
				6	1.6	14.2	102	6.9	454
				7	1.6	14.2	102	6.9	457
	8-Jul-11	-	7.5	0.1	14.5	10.7	105	7.5	332
				1	14.5	10.6	104	7.5	332
				2	14.2	10.7	104	7.5	332
				3	13.9	10.8	104	7.5	335
				4	13.7	10.8	104	7.5	331
				5	13.6	10.8	104	7.5	335
				6	13.5	10.9	105	7.5	339
				7	13.5	10.9	105	7.5	331
	10-Aug-11	-	7.5	0.1	17.3	9.6	*100*	7.1	351
				1	17.3	9.6	*100*	7.1	351
				2	17.3	9.6	*100*	7.2	351
				3	17.3	9.7	*102*	7.3	351
				4	17.3	9.6	*100*	7.4	351
				5	17.3	9.6	*100*	7.4	351
				6	17.3	9.6	*100*	7.4	351
				7	17.3	9.6	*100*	7.4	352
	9-Sep-11	-	9.0	0.3	11.2	10.8	98	7.4	341
				1	11.2	10.8	98	7.4	341
				2	11.2	10.8	98	7.4	341
				3	11.2	10.8	98	7.4	341
				4	11.2	10.8	98	7.4	341
				5	11.2	10.8	98	7.4	341
				6	11.1	10.8	98	7.5	342
				7	11.2	10.1	94	7.4	342

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP13	8-Jul-11	-	8.0	0.1	14.8	10.5	*104*	7.4	327
				1	14.7	10.5	*104*	7.4	327
				2	14.3	10.6	*104*	7.5	326
				3	14.3	10.6	*104*	7.5	330
				4	14.0	10.7	*104*	7.5	337
				5	13.8	10.7	*104*	7.5	338
				6	13.5	10.8	*104*	7.5	329
				7	13.4	10.8	*104*	7.4	337
				8	13.3	10.8	*104*	7.5	332
				9	13.3	10.8	*103*	7.5	334
				10	13.2	10.8	*103*	7.5	331
				11	13.2	10.8	*103*	7.5	333
				12	13.1	10.9	*103*	7.5	333
				13	13.0	10.9	*103*	7.5	330
				14	12.9	10.9	*103*	7.5	331
				15	12.8	10.9	*103*	7.5	332
				16	12.3	11.0	*103*	7.5	334
				17	11.5	11.0	*102*	7.5	335
				18	11.2	11.0	*101*	7.5	335
				19	9.8	11.4	*101*	7.4	346
				20	5.9	12.8	*103*	7.2	388
	10-Aug-11	-	6.0	0.1	17.3	9.7	*101*	7.3	355
				1	17.3	9.7	*101*	7.4	356
				2	17.3	9.8	*103*	7.4	356
				3	17.3	9.7	*101*	7.5	356
				4	17.3	9.7	*101*	7.5	357
				5	17.3	9.7	*101*	7.5	360
				6	17.3	9.8	*103*	7.5	362
				7	17.3	9.7	*102*	7.6	363
				8	17.3	9.7	*101*	7.6	363
				9	17.3	9.7	*101*	7.6	362
				10	17.3	9.7	*101*	7.6	363
				11	17.2	9.7	*101*	7.6	365
				12	17.2	9.7	*101*	7.6	366
				13	17.2	9.7	*101*	7.6	366
				14	17.2	9.7	*101*	7.6	366
				15	17.1	9.7	*101*	7.6	365
				16	16.6	9.8	*101*	7.6	358
				17	16.5	9.7	*100*	7.6	357
				18	16.2	9.6	*98*	7.6	353
				19	15.3	9.5	*95*	7.5	354
				20	9.9	10.6	*94*	7.0	390
	9-Sep-11	-	10.5	0.3	11.3	10.8	*99*	7.4	340
				1	11.3	10.7	*98*	7.4	340
				2	11.3	10.7	*98*	7.4	340
				3	11.3	10.7	*98*	7.4	340
				4	11.3	10.7	*98*	7.4	340
				5	11.3	10.7	*98*	7.4	341
				6	11.3	10.7	*98*	7.4	341
				7	11.3	10.7	*98*	7.4	341
				8	11.2	10.8	*98*	7.5	343
				9	11.2	10.8	*98*	7.5	344
				10	11.2	10.7	*98*	7.5	346
				11	11.2	10.8	*98*	7.5	346
				12	11.2	10.8	*98*	7.4	354
				13	11.2	10.8	*98*	7.4	348
				14	11.1	10.8	*98*	7.5	344
				15	11.1	10.7	*97*	7.5	344
				16	11.1	10.7	*97*	7.4	346
				17	11.1	10.7	*97*	7.4	348
				18	11.1	10.7	*97*	7.4	348
				19	11.0	10.6	*97*	7.4	347

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
SNAP14	11-Sep-11	-	10.0	0.3	11.2	10.9	99	7.3	362
				1	11.2	10.8	99	7.3	362
				2	11.2	10.9	99	7.3	362
				3	11.2	10.8	99	7.3	362
				4	11.2	10.8	99	7.3	362
				5	11.2	10.8	99	7.3	362
				6	11.2	10.8	99	7.4	362
				7	11.2	10.8	99	7.4	362
				8	11.2	10.8	99	7.4	361
				9	11.2	10.8	99	7.4	360
				10	11.2	10.8	99	7.4	359
				11	11.2	10.8	99	7.4	359
				12	11.1	10.8	99	7.4	358
				13	11.1	10.8	98	7.4	358
	9-Apr-11	1.10	-	1.4	0.8	13.4	94	6.8	378
				2	1.3	13.3	95	6.8	377
				3	1.3	14.0	100	6.8	420
				4	1.3	14.1	100	6.8	425
				5	1.3	14.0	100	6.8	426
				6	1.3	14.0	99	6.8	429
				7	1.4	13.9	99	6.8	430
				8	1.4	13.9	99	6.8	431
				9	1.4	13.9	99	6.8	432
				10 [b]	1.5 [b]	3.8 [b]	28 [b]	6.7 [b]	397 [b]
	11-Sep-11	-	10.0	0.3	11.1	10.8	99	7.3	357
				1	11.1	10.8	99	7.3	357
				2	11.1	10.8	99	7.3	357
				3	11.1	10.8	99	7.3	358
				4	11.1	10.8	99	7.3	358
				5	11.1	10.8	99	7.4	358
				6	11.1	10.8	99	7.4	358
				7	11.1	10.8	98	7.4	358
				8	11.1	10.8	98	7.4	357
				9	11.1	10.8	99	7.4	358
				10	11.1	10.8	98	7.4	357
SNAP26	19-Feb-11	0.80	-	1.1	0.6	14.6	102	7.0 [i]	414
				2	1.0	14.4	101	7.0 [i]	408
				3	1.1	14.1	101	7.0 [i]	404
				4	1.6	13.5	97	7.0 [i]	395
				5	2.4	11.0	81	7.0 [i]	387
	19-Mar-11	1.05	-	1.5	2.1	13.7	100	6.7	425
				2	1.5	13.9	99	6.7	421
				2.5	1.4	13.6	97	6.7	418
				3	1.4	13.6	97	6.7	418
				3.5	1.7	13.0	94	6.7	415
				4	2.0	12.1	88	6.7	411
				4.5	2.6	10.7	79	6.7	405
				5.0	2.9	5.3	41	6.6	400
	9-Apr-11	1.13	-	1.5	0.8	14.6	102	6.8	430
				2	1.1	14.4	102	6.8	426
				3	1.3	14.2	101	6.8	425
				4	1.6	13.9	99	6.8	423
				5	2.6	12.1	89	6.8	420
	7-May-11	1.15	-	1.5	2.1	14.7	107	7.0	529 [d]
				2	1.4	14.8	106	7.0	465
				3	1.5	14.6	105	7.0	453
				4	1.8	14.0	101	6.9	450
				5	2.8	12.3	91	6.7	441
	8-Jul-11	-	bottom	0.1	15.3	10.3	103	7.1	325
				1	15.2	10.3	103	7.2	325
				2	15.2	10.3	103	7.2	325
				3	14.3	10.6	103	7.2	329
				4	14.0	10.8	104	7.3	329
				5	13.7	10.7	104	7.3	329
	9-Sep-11	-	-	0.3	11.3	10.9	100	7.4	342
				1	11.3	10.9	100	7.5	342
				2	11.3	11.0	100	7.5	342
				3	11.3	11.0	100	7.5	342
				4	11.3	10.9	100	7.5	342
				5	11.3	10.9	99	7.5	342

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP28	8-Jul-11	-	to bottom	0.1	15.2	10.6	106	7.4	328
				1	14.9	10.6	105	7.5	326
				2	14.7	10.7	105	7.5	323
				3	14.6	10.7	105	7.5	325
				4	14.3	10.7	104	7.5	331
				5	13.7	10.8	104	7.5	341
				6	13.6	10.9	105	7.5	342
	11-Sep-11	-	to bottom	0.3	10.9	10.8	98	7.1	363
				1	10.9	10.6	96	7.2	363
				1.5	11.0	10.6	96	7.2	363
				2	11.0	10.6	96	7.2	363
				2.5	11.0	10.6	96	7.3	363
				3	11.0	10.6	96	7.3	363
				3.5	11.0	10.6	96	7.3	363
				4	11.0	10.6	97	7.3	363
				4.5	11.0	10.6	96	7.3	363
SNAP09	19-Feb-11	0.96	-	1.3	1.2	12.6	89	6.8 [(i)]	351
				2	1.4	12.5	89	6.8 [(i)]	347
				3	1.5	12.5	89	6.8 [(i)]	346
				4	1.6	12.2	87	6.8 [(i)]	345
				5	1.6	11.9	85	6.8 [(i)]	351
				6	1.6	11.9	85	6.8 [(i)]	356
				7	1.7	11.9	85	6.8 [(i)]	354
				8	1.8	11.7	85	6.7 [(i)]	352
				9	1.8	11.6	84	6.7 [(i)]	355
				10	1.9	11.6	84	6.8 [(i)]	357
				11	2.0	11.3	82	6.8 [(i)]	356
				12	2.2	11.0	80	6.8 [(i)]	350
				13	2.3	10.6	78	6.8 [(i)]	346
				14	2.5	10.3	75	6.8 [(i)]	344
	18-Mar-11	1.07	-	1.5	0.5	13.3	92	6.5	365
				2	1.4	12.7	91	6.5	359
				3	1.5	12.5	90	6.5	357
				4	1.6	12.1	87	6.5	356
				5	1.6	11.9	85	6.6	363
				6	1.6	11.8	84	6.6	368
				7	1.7	11.6	83	6.6	367
				8	1.8	11.5	83	6.6	370
				9	1.9	11.4	82	6.6	370
				10	2.0	11.1	81	6.6	367
				11	2.1	10.9	79	6.6	365
				12	2.3	10.6	78	6.6	363
				13	2.4	10.3	76	6.6	361
				14	2.5	7.2	53	6.5	358
	7-Apr-11	1.15	-	1.5	0.8	12.5	88	6.7	366
				2	1.4	12.2	87	6.7	359
				3	1.7	11.8	85	6.8	358
				4	1.7	11.6	83	6.8	362
				5	1.8	11.5	83	6.8	370
				6	1.8	11.4	82	6.8	372
				7	1.8	11.4	82	6.8	371
				8	1.8	11.6	84	6.7	385
				9	1.8	11.7	84	6.7	386
				10	2.0	11.4	83	6.7	384
				11	2.0	11.3	82	6.7	384
				12	2.1	11.1	80	6.7	380
				13	2.3	10.6	78	6.7	375
				14	2.5	10.3	76	6.7	373
	6-May-11	0.35	-	1.5	1.5	13.3	95	6.8	393
				2	1.7	13.1	94	6.8	382
				3	1.9	12.7	92	6.7	383
				4	1.8	12.6	91	6.7	390
				5	1.9	12.6	91	6.7	398
				6	1.9	12.6	91	6.7	402
				7	1.9	12.5	91	6.7	407
				8	2.0	12.4	90	6.7	407
				9	2.0	12.5	90	6.7	410
				10	2.1	12.4	90	6.7	407
				11	2.3	12.1	89	6.7	405
				12	2.4	11.9	87	6.7	404
				13	2.5	11.5	85	6.6	401
				14	2.6	11.3	83	6.6	399

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	10-Jul-11	-	10.6	0.1	16.9	10.4	108	7.5	326
				1	15.7	10.6	107	7.5	323
				2	15.0	10.7	106	7.5	324
				3	14.7	10.7	106	7.5	325
				4	14.6	10.7	106	7.5	324
				5	13.9	10.9	105	7.5	324
				6	13.2	11.0	105	7.5	324
				7	12.9	11.1	105	7.5	323
				8	12.8	11.1	105	7.5	323
				9	12.6	11.1	105	7.5	323
				10	12.5	11.1	105	7.5	322
				11	12.4	11.2	105	7.5	322
				12	12.4	11.2	105	7.5	322
				13	12.3	11.2	105	7.5	322
				14	12.3	11.2	105	7.5	323
	8-Sep-11	-	8.0	0.3	11.3	10.8	98	7.4	330
				1	11.3	10.8	98	7.4	330
				2	11.3	10.7	98	7.4	330
				3	11.3	10.7	98	7.4	330
				4	11.3	10.7	98	7.4	330
				5	11.3	10.7	98	7.4	330
				6	11.3	10.7	98	7.4	330
				7	11.3	10.7	98	7.4	330
				8	11.3	10.7	98	7.4	330
				9	11.2	10.7	98	7.4	330
				10	11.2	10.7	98	7.4	330
				11	11.2	10.7	98	7.4	330
				12	11.2	10.7	98	7.4	330
				13	11.2	10.7	98	7.4	330
				14	11.2	10.7	98	7.4	330
SNAP11	10-Jul-11	-	10.5	0.1	16.1	10.4	*106*	7.4	323
				1	15.6	10.5	*106*	7.4	323
				2	15.3	10.5	*106*	7.4	322
				3	15.1	10.6	*106*	7.4	324
				4	14.3	10.8	*105*	7.4	325
				5	14.0	10.8	*105*	7.4	325
				6	13.3	11.0	*106*	7.5	324
				7	12.9	11.1	*105*	7.5	324
				8	12.8	11.0	*104*	7.5	324
				9	12.7	11.1	*104*	7.5	323
				10	12.5	11.1	*104*	7.5	323
				11	12.4	11.1	*104*	7.5	323
				12	12.4	11.1	*104*	7.5	323
				13	12.3	11.1	*104*	7.5	322
				14	12.3	11.1	*104*	7.5	322
				15	12.2	11.1	*104*	7.5	322
	11-Aug-11	-	8.5	0.1	17.1	9.6	*100*	7.6	343
				1	17.1	9.6	*100*	7.6	343
				2	17.1	9.6	*100*	7.6	343
				3	17.1	9.6	*100*	7.6	343
				4	17.1	9.6	*100*	7.6	343
				5	17.1	9.6	*100*	7.6	343
				6	17.1	9.6	*100*	7.6	343
				7	17.1	9.6	*100*	7.6	343
				8	17.1	9.6	*100*	7.6	343
				9	17.1	9.6	*100*	7.6	343
				10	17.1	9.6	*100*	7.6	343
				11	17.1	9.6	*100*	7.6	343
				12	17.0	9.6	*100*	7.6	343
				13	16.7	9.7	*100*	7.6	342
				14	16.5	9.7	*100*	7.6	341
				15	16.4	9.7	*100*	7.6	341

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	8-Sep-11	-	8.0	0.3	11.4	10.7	*98*	7.4	330
				1	11.4	10.8	*98*	7.4	330
				2	11.3	10.8	*98*	7.4	330
				3	11.3	10.7	*98*	7.4	330
				4	11.3	10.7	*98*	7.4	330
				5	11.3	10.7	*98*	7.4	330
				6	11.3	10.7	*98*	7.4	330
				7	11.3	10.8	*98*	7.4	330
				8	11.3	10.7	*98*	7.4	330
				9	11.3	10.7	*98*	7.5	330
				10	11.3	10.7	*98*	7.5	330
				11	11.3	10.7	*98*	7.5	330
				12	11.3	10.7	*98*	7.5	330
				13	11.3	10.7	*98*	7.5	330
				14	11.3	10.7	*98*	7.5	330
SNAP11A	21-Feb-11	1.10	-	1.4	1.4	13.8	98	6.9	356
				2	1.5	13.8	98	6.9	353
				3	1.6	13.3	96	6.9	352
				4	1.6	13.1	94	6.9	357
				5	1.6	12.5	90	6.9	357
				6	1.7	12.5	90	6.9	359
				7	1.7	12.4	89	6.9	366
				8	1.8	12.3	88	7.3	366
				9	1.8	12.3	88	7.3	373
				10	1.8	12.4	89	7.4	375
				11	1.9	12.3	89	7.4	371
				12	1.9	12.1	88	7.8	369
				13	2.0	11.7	85	7.6	371
				14	2.3	11.2	82	7.7	364
	18-Mar-11	1.00	-	1.5	1.0	13.4	94	6.6	348
				2	1.3	13.2	94	6.6	360
				3	1.5	13.1	93	6.6	358
				4	1.6	12.5	90	6.6	362
				5	1.7	12.3	88	6.6	366
				6	1.7	12.2	87	6.6	374
				7	1.7	12.2	87	6.6	382
				8	1.6	12.5	89	6.6	392
				9	1.6	12.7	91	6.6	397
				10	1.6	12.7	91	6.7	396
				11	1.8	12.4	90	6.7	388
				12	1.9	12.2	88	6.7	385
				13	2.1	11.7	85	6.7	381
				14	2.3	10.8	79	6.6	378
				15	2.6	10.4	77	6.6	377
				16	2.7	6.9	54	6.6	349
	7-Apr-11	1.05	-	1.4	1.3	13.0	92	6.8	383
				2	1.8	12.8	92	6.8	362
				3	2.0	12.5	91	6.8	361
				4	1.9	11.7	85	6.8	365
				5	1.8	11.8	85	6.8	372
				6	1.8	11.9	85	6.8	383
				7	1.8	11.9	85	6.8	386
				8	1.7	12.4	89	6.8	399
				9	1.7	12.4	89	6.8	400
				10	1.8	12.3	89	6.8	397
				11	1.7	12.5	90	6.8	403
				12	1.8	12.3	89	6.8	397
				13	2.0	11.9	86	6.8	396
				14	2.2	11.5	84	6.8	394

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	6-May-11	1.22	-	1.5	1.1	14.2	100	6.9	395
				2	1.6	13.8	99	6.8	384
				3	1.8	13.3	96	6.8	383
				4	1.8	12.9	93	6.8	396
				5	1.8	12.9	93	6.8	403
				6	1.9	13.1	94	6.8	411
				7	1.9	13.2	95	6.8	416
				8	1.9	13.1	95	6.8	416
				9	2.0	13.0	94	6.7	415
				10	2.1	12.8	93	6.7	414
				11	2.1	12.7	92	6.7	416
				12	2.2	12.1	88	6.7	414
				13	2.3	11.7	86	6.7	412
				14	2.5	11.6	85	6.7	410
				15	2.6	11.1	82	6.6	414
				16	2.9	10.4	78	6.6	409
	10-Jul-11	-	10.5	0.1	16.2	10.4	106	7.5	324
				1	15.7	10.5	106	7.5	321
				2	15.3	10.6	105	7.5	323
				3	14.9	10.7	106	7.5	323
				4	14.4	10.8	106	7.5	324
				5	14.0	10.9	105	7.5	325
				6	13.6	11.0	105	7.5	324
				7	13.0	11.1	105	7.5	323
				8	12.9	11.1	105	7.5	324
				9	12.7	11.1	105	7.5	323
				10	12.6	11.1	105	7.5	323
				11	12.5	11.1	104	7.5	323
				12	12.4	11.1	104	7.5	323
				13	12.4	11.1	104	7.5	323
				14	12.3	11.2	104	7.5	323
				15	12.2	11.2	104	7.5	323
				16	12.1	11.1	104	7.5	322
	8-Sep-11	-	-	0.3	11.4	10.7	98	7.4	331
				1	11.3	10.7	98	7.4	330
				2	11.3	10.7	98	7.4	330
				3	11.3	10.7	98	7.4	330
				4	11.3	10.7	98	7.4	330
				5	11.3	10.7	98	7.4	330
				6	11.3	10.7	98	7.4	330
				7	11.3	10.7	98	7.4	330
				8	11.3	10.7	98	7.4	330
				9	11.3	10.7	98	7.5	330
				10	11.3	10.7	98	7.5	330
				11	11.3	10.7	98	7.5	330
				12	11.3	10.7	98	7.4	330
				13	11.3	10.7	98	7.4	330
SNAP17	9-Apr-11	1.06	-	1.1	0.4	13.4	93	5.5	373
				2	1.4	12.8	91	5.7	364
				3	1.6	12.5	90	5.8	362
				4	1.7	12.2	87	5.9	371
				5	1.7	12.1	87	6.0	377
				6	1.6	12.3	88	6.1	389
				7	1.7	12.3	88	6.2	390
				8	1.7	12.3	89	6.2	393
				9	1.8	12.2	88	6.2	392
				10	1.9	4.0	32	6.2	368
	9-Sep-11	-	8.0	0.3	11.5	10.9	100	7.1	327
				1	11.5	10.8	99	7.1	327
				2	11.5	10.8	99	7.1	326
				3	11.5	10.8	99	7.1	326
				4	11.5	10.8	99	7.1	326
				5	11.5	10.8	99	7.1	326
				6	11.5	10.7	99	7.1	326
				7	11.5	10.7	98	7.1	327
				8	11.5	10.7	99	7.1	326
				9	11.4	10.7	98	7.1	326

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
SNAP18	9-Apr-11	1.15	-	1.2	0.3	13.7	95	6.5	376
				2	1.1	13.3	94	6.5	366
				3	1.5	13.0	93	6.6	365
				4	1.6	12.5	90	6.6	367
				5	1.7	12.1	87	6.6	372
				6	1.7	12.1	87	6.6	385
				7	1.7	12.1	87	6.6	389
				8	1.7	12.4	89	6.6	402
				9	1.7	12.6	90	6.6	400
				10	1.8	12.2	88	6.6	395
				11	2.0	11.6	84	6.6	388
				12 [b]	2.1 [b]	0.4 [b]	3 [b]	6.4 [b]	369 [b]
	9-Sep-11	-	9.0	0.3	11.4	11.2	103	7.0	326
				1	11.4	10.9	100	7.0	326
				2	11.4	10.8	100	7.0	326
				3	11.4	10.8	99	7.0	326
				4	11.4	10.8	99	7.0	326
				5	11.4	10.8	99	7.0	326
				6	11.4	10.8	99	7.0	326
				7	11.4	10.8	99	7.0	325
				8	11.4	10.8	99	7.1	325
				9	11.3	10.8	99	7.1	325
				10	11.3	10.5	98	7.1	325
				11	11.3	10.8	98	7.1	325
SNAP19	9-Apr-11	1.20	-	1.3	0.2	13.2	91	6.7	373
				2	1.4	12.6	90	6.7	360
				3	1.6	12.3	88	6.7	360
				4	1.7	11.9	86	6.7	363
				5	1.7	11.7	84	6.7	375
				6	1.7	11.6	83	6.7	374
				7	1.7	11.5	83	6.7	376
				8	1.9	11.8	85	6.7	387
				9	1.9	12.1	87	6.7	385
				10	2.0	11.6	84	6.7	381
				11	2.1	11.2	82	6.7	380
	9-Sep-11	-	10.5	0.3	11.4	10.8	99	7.1	326
				1	11.4	10.8	99	7.1	326
				2	11.4	10.8	99	7.1	326
				3	11.4	10.8	99	7.1	326
				4	11.4	10.8	99	7.1	326
				5	11.4	10.8	99	7.1	326
				6	11.4	10.8	99	7.1	326
				7	11.4	10.8	99	7.1	326
				8	11.3	10.8	98	7.1	326
				9	11.3	10.8	98	7.1	326
				10	11.3	10.8	98	7.1	326
				11	11.3	10.8	98	7.1	326
SNAP04	25-Feb-11	0.80	-	1	1.9	16.6	119	5.7	415
				1.5	1.5	16.8	120	5.6	383
				2	1.9	16.3	118	5.5	376
				2.5	2.1	16.1	117	5.5	373
				3	2.2	15.8	115	5.5	369
				3.5	2.4	15.7	115	5.4	367
				4	2.7	15.6	116	5.5	363
	19-Mar-11	0.95	-	1.5	1.8	12.2	88	6.4	386
				2	1.7	12.3	88	6.5	378
				2.5	2.1	12.0	87	6.5	376
				3	2.3	11.7	86	6.6	374
				3.5	2.6	11.3	83	6.6	370
				3.9	2.9	10.7	80	6.6	369
	6-Apr-11	0.95	-	1.3	0.8	12.5	87	6.2	381
				1.5	0.9	12.2	86	6.2	382
				2	1.3	12.1	86	6.3	380
				2.5	2.2	11.9	86	6.3	376
				3	2.3	11.8	86	6.3	376
				3.5	2.5	11.7	86	6.3	375
				4	2.8	11.3	84	6.4	373

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	6-May-11	1.15	-	1.5	1.1	13.1	92	6.6	407
				2	1.6	12.9	92	6.6	396
				2.5	1.9	12.8	92	6.6	395
				3	2.3	12.8	93	6.6	393
				3.5	2.8	12.5	95	6.6	391
				4	3.1	12.1	91	6.6	390
	7-Jul-11	-	to bottom	0.1	14.6	10.6	104	7.2	300
				1	14.6	10.5	104	7.2	301
				2	14.6	10.5	104	7.2	301
				3	14.6	10.6	104	7.2	301
				4	14.5	10.6	104	7.2	303
	9-Sep-11	-	-	0.3	10.9	11.0	99	7.3	316
				1	10.9	10.9	98	7.4	316
				1.5	10.9	10.8	98	7.4	316
				2	10.9	10.9	98	7.4	316
				2.5	10.9	10.8	98	7.4	316
				3	10.9	10.8	98	7.4	316
				3.5	10.9	10.5	95	7.3	316
				4	10.9	10.9	98	7.4	316
SNAP07	21-Feb-11	0.90	-	1.2	0.8	14.1	99	6.9	366
				2	1.1	13.9	98	6.9	362
				3	1.3	13.8	98	6.9	360
				4	1.4	13.7	97	6.9	365
				5	1.6	13.3	96	6.8	362
				6	2.2	12.2	89	6.8	358
				7	2.7	11.6	86	6.8	353
				8	2.9	11.1	83	7.1	353
				9	3.0	10.8	81	7.2	351
				10	3.0	10.3	77	7.2	355
	18-Mar-11	1.10	-	1.5	1.1	13.4	95	6.4	373
				2	1.3	13.4	95	6.5	371
				3	1.4	13.2	94	6.5	369
				4	1.5	12.6	90	6.5	374
				5	1.9	11.9	86	6.5	370
				6	2.5	11.0	81	6.5	359
				7	2.8	10.5	78	6.5	359
				8	2.9	10.2	76	6.5	359
				9	2.9	9.9	73	6.5	363
				10	3.0	5.4	42	6.4	364
	7-Apr-11	1.05	-	1.4	0.5	13.2	92	6.6	378
				2	1.0	13.0	91	6.7	371
				3	1.5	12.9	92	6.7	368
				4	1.6	12.3	88	6.7	373
				5	1.7	12.1	87	6.7	384
				6	2.2	11.6	84	6.7	377
				7	2.7	11.0	81	6.7	371
				8	2.8	10.8	80	6.7	372
				9	2.9	10.4	77	6.7	373
				10	2.9	10.2	76	6.7	372
	6-May-11	1.22	-	1.5	0.9	13.8	97	6.8	391
				2	1.4	13.6	97	6.8	385
				3	1.8	13.4	96	6.8	382
				4	1.9	13.2	96	6.7	391
				5	2.0	12.7	92	6.7	396
				6	2.5	12.2	90	6.6	392
				7	2.9	11.8	88	6.6	389
				8	3.1	11.6	86	6.6	390
				9	3.1	11.0	82	6.6	392
				10	3.1	10.1	76	6.5	393
	12-Jul-11	-	to bottom	0.1	16.8	10.2	105	7.5	334
				1	16.6	10.2	104	7.5	334
				2	16.4	10.2	105	7.5	333
				3	16.4	10.2	104	7.5	334
				4	16.3	10.2	104	7.5	333
				5	16.0	10.3	104	7.5	334
				6	14.0	11.2	108	7.6	333
				7	13.5	11.2	108	7.6	330
				8	13.3	11.2	107	7.6	331
				9	13.1	11.2	107	7.6	331
				10	13.6	3.7	30	7.1	331

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	8-Sep-11	-	-	0.3	10.9	10.9	98	7.4	328
				1	10.9	10.9	98	7.4	328
				2	10.9	10.9	99	7.4	328
				3	11.0	10.9	98	7.4	328
				4	10.9	10.8	98	7.4	328
				5	10.9	10.9	98	7.4	328
				6	10.9	10.9	98	7.4	328
				7	10.9	10.9	98	7.4	328
				8	10.9	10.8	98	7.4	328
				9	10.9	10.8	98	7.4	328
				10	10.9	10.8	98	7.4	328
				11	10.9	10.8	98	7.4	328
SNAP08	21-Feb-11	1.05	-	1.3	1.0	13.1	92	6.7	390
				2	1.3	13.2	94	6.7	387
				3	2.2	12.5	91	6.7	378
				4	3.0	11.2	84	6.7	370
				5	3.2	10.0	75	6.7	367
				6	3.3	9.5	71	6.7	369
				7	3.4	9.0	68	6.6	370
				8	3.5	8.4	63	7.0	376
	18-Mar-11	1.15	-	1.5	0.5	13.0	90	6.3	420
				2	1.7	12.5	90	6.3	354
				3	2.5	12.1	89	6.4	392
				4	2.9	11.5	85	6.4	387
				5	3.1	10.4	78	6.4	386
				6	3.3	10.0	75	6.4	386
				7	3.3	9.0	68	6.4	392
				8	3.3	8.5	64	6.4	401
				8.7 [(b)]	3.3 [(b)]	4.5 [(b)]	36 [(b)]	6.3 [(b)]	366 [(b)]
	7-Apr-11	1.30	-	1.6	1.5	11.7	83	6.7	411
				2	1.3	11.8	84	6.7	409
				3	2.3	11.4	84	6.7	398
				4	3.0	11.0	82	6.7	393
				5	3.2	10.5	78	6.7	395
				6	3.3	10.1	75	6.7	398
				7	3.3	9.7	73	6.6	401
				8	3.3	9.5	71	6.6	409
	6-May-11	1.22	-	1.5	1.0	13.0	91	6.7	438
				2	1.5	12.9	92	6.6	424
				3	2.7	12.3	91	6.6	416
				4	3.4	11.7	88	6.6	412
				5	3.5	11.0	83	6.6	414
				6	3.6	10.5	80	6.5	416
				7	3.6	10.0	76	6.5	419
	12-Jul-11	-	to bottom	0.1	18.1	9.9	104	7.5	334
				1	17.7	9.9	104	7.5	335
				2	17.6	10.0	105	7.5	335
				3	17.6	9.9	104	7.5	335
				4	17.2	9.9	104	7.6	335
				5	17.0	10.1	104	7.6	336
				6	16.3	10.5	107	7.6	335
				7	15.7	10.5	106	7.6	335
				8	15.5	10.4	104	7.5	335
	11-Aug-11	-	5.0	0.1	17.4	9.5	*100*	7.2	341
				1	17.4	9.5	*100*	7.3	341
				2	17.4	9.5	*99*	7.3	342
				3	17.4	9.5	*99*	7.4	342
				4	17.4	9.5	*99*	7.4	341
				5	17.4	9.5	*99*	7.5	341
				6	17.4	9.5	*99*	7.5	341
				7	17.3	9.5	*99*	7.5	341
				8	17.3	9.5	*99*	7.5	341
				9	17.0	8.3	*86*	6.8	346
	8-Sep-11	-	8.0	0.3	10.6	10.9	98	7.4	320
				1	10.5	10.9	98	7.4	319
				2	10.5	10.9	98	7.4	319
				3	10.5	10.9	98	7.4	320
				4	10.5	10.9	98	7.4	320
				5	10.5	10.9	98	7.4	319
				6	10.5	10.9	98	7.4	319
				7	10.5	10.9	98	7.4	319
				8	10.5	10.9	98	7.4	319

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
SNAP10	21-Feb-11	0.88	-	1.2	0.6	14.2	99	7.0	372
				1.5	0.8	14.1	98	7.0	369
				2	1.0	14.0	99	7.0	366
				2.5	1.2	13.9	98	7.0	364
				3	1.4	13.7	98	7.0	364
				3.5	1.5	13.5	96	7.0	364
				4	1.5	13.2	94	6.9	366
				4.5	1.6	12.3	90	6.9	375
				5	1.9	12.1	87	6.9	376
	18-Mar-11	0.95	-	1	0.7	13.7	95	6.5	383
				1.5	0.9	13.6	96	6.6	379
				2	1.1	13.6	96	6.6	377
				2.5	1.2	13.4	95	6.6	375
				3	1.4	13.2	94	6.6	373
				3.5	1.5	13.0	93	6.6	373
				4	1.6	12.3	89	6.6	386
				4.5	1.9	11.4	82	6.6	388
	7-Apr-11	0.90	-	1	0.3	13.6	94	6.8	385
				1.5	0.6	13.7	95	6.8	384
				2	0.9	13.6	95	6.8	382
				2.5	1.2	13.4	95	6.8	379
				3	1.5	13.0	93	6.8	376
				3.5	1.6	12.8	92	6.8	375
				4	1.6	12.5	89	6.8	384
				4.5	1.7	11.9	86	6.7	390
				5	1.9	11.2	81	6.7	396
	6-May-11	1.01	-	1.5	1.1	14.4	102	6.8	407
				2	1.1	14.4	102	6.8	400
				2.5	1.4	14.3	102	6.8	397
				3	1.7	14.0	101	6.7	397
				3.5	1.8	13.7	99	6.7	396
				4	1.9	13.6	98	6.7	397
				4.5	2.1	12.7	92	6.6	405
				5	2.4	11.9	88	6.6	406
	10-Jul-11	-	to bottom	0.1	15.9	10.3	104	7.1	319
				0.5	15.8	10.3	104	7.2	318
				1	15.8	10.3	104	7.2	318
				1.5	15.7	10.3	104	7.2	318
				2	15.5	10.4	104	7.2	318
				2.5	15.4	10.4	104	7.3	318
				3	15.4	10.3	104	7.3	318
				3.5	15.4	10.3	103	7.3	319
				4	15.3	10.3	103	7.3	319
				4.5	14.4	10.5	103	7.4	322
				5	14.3	10.8	106	7.4	321
				5.5	14.3	10.5	103	7.2	322
	8-Sep-11	-	-	0.3	11.2	10.8	99	7.4	328
				1	11.1	10.9	99	7.4	328
				1.5	10.9	10.9	99	7.4	327
				2	10.9	10.9	99	7.4	327
				2.5	10.9	10.9	99	7.4	327
				3	10.8	10.9	99	7.5	327
				3.5	10.8	10.9	99	7.5	327
				4	10.8	10.9	99	7.5	327
				4.5	10.8	10.9	99	7.5	327
				5	10.8	11.0	99	7.4	327
SNAP02A	23-Feb-11	0.82	-	1.1	0.5	16.1	112	6.6	120
				2	1.2	14.5	103	6.6	119
				3	1.8	13.8	99	6.6	114
				4	2.4	12.7	93	6.6	109
				5	2.9	11.6	87	6.6	106
				6	3.2	9.2	70	6.5	113
				7	3.3	7.7	58	6.5	117
				8	3.5	7.1	54	6.4	116
				9	3.6	4.8	36	6.6	116
				10	3.6	4.9	37	6.5	117
				11	3.7	4.1	32	6.5	120

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	18-Mar-11	1.07	-	1.5	1.3	13.5	96	6.2	128
				2	1.8	12.7	92	6.3	120
				3	2.3	12.2	89	6.3	115
				4	2.7	11.7	86	6.3	112
				5	3.2	9.4	72	6.2	113
				6	3.3	7.6	57	6.2	118
				7	3.5	6.3	47	6.2	119
				8	3.5	5.5	42	6.2	120
				9	3.6	5.3	40	6.1	120
				9.6	3.7	1.4	11	6.0	127
	6-Apr-11	1.05	-	1.3	0.7	14.9	104	6.1	118
				2	1.4	13.7	100	6.2	114
				3	2.1	12.5	91	6.2	111
				4	2.7	11.1	82	6.2	112
				5	3.0	9.0	68	6.2	117
				6	3.4	7.8	60	6.2	117
				7	3.5	7.1	54	6.2	121
				8	3.5	5.8	44	6.1	121
				9	3.5	6.0	45	6.1	124
				10	3.5	6.7	50	6.1	129
	6-May-11	1.25	-	1.5	0.4	15.6	108	6.5	122
				2	1.3	14.8	106	6.5	118
				3	2.5	13.7	100	6.5	115
				4	3.1	12.4	93	6.4	115
				5	3.4	9.3	71	6.2	118
				6	3.7	7.6	58	6.2	122
				7	3.6	8.3	63	6.2	128
				8	3.6	8.0	60	6.2	132
				9	3.6	7.9	60	6.2	135
	7-Jul-11	-	6.5	0.1	14.6	10.3	101	6.4	80
				1	14.6	10.3	101	6.5	80
				2	14.5	10.3	102	6.5	80
				3	14.5	10.3	101	6.6	80
				4	14.5	10.3	101	6.6	81
				5	14.5	10.3	101	6.6	81
				6	14.5	10.3	101	6.6	81
				7	14.5	10.3	101	6.6	81
				8	14.5	10.2	100	6.6	81
				9	14.4	10.2	100	6.7	80
	12-Sep-11	-	7.0	0.3	10.2	10.8	96	7.4	107
				1	10.2	10.8	96	7.3	107
				2	10.2	10.8	96	7.3	107
				3	10.2	10.8	96	7.3	107
				4	10.2	10.8	96	7.3	107
				5	10.2	10.8	96	7.3	107
				6	10.2	10.8	96	7.3	107
				7	10.2	10.8	96	7.3	107
				8	10.2	10.8	96	7.3	107
				9	10.2	10.8	96	7.3	107
SNAP 02A SHORE	7-Jul-11	-	to bottom	0.1	14.7	10.4	102	6.7	79
				1	14.6	10.4	102	6.7	80
				2	14.5	10.4	102	6.8	79
				3	14.5	10.4	102	6.7	80
				4	14.5	10.4	102	6.7	80
SNAP 02A MID	7-Jul-11	-	6.5	0.1	14.6	10.4	102	6.6	80
				1	14.6	10.4	102	6.7	80
				2	14.6	10.4	102	6.7	81
				3	14.5	10.3	102	6.7	82
				4	14.6	10.3	101	6.7	82
				5	14.5	10.3	102	6.7	82
				6	14.5	10.3	101	6.7	81
				7	14.5	10.3	101	6.7	81
				8	14.4	10.3	101	6.7	82
				9	14.4	10.3	101	6.7	82
SNAP01	6-Jul-11	-	to bottom	0.1	14.7	10.3	*101*	6.5	78
				1	14.8	10.2	*101*	6.5	78
				2	14.7	10.2	*101*	6.6	78
				3	14.7	10.3	*102*	6.6	77
				4	14.7	10.2	*101*	6.6	77

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	11-Aug-11	-	4.0	0.1	17.5	9.8	*103*	7.5	93
				1	17.5	9.8	*102*	7.5	93
				2	17.5	9.8	*102*	7.6	93
				3	17.5	9.8	*102*	7.6	92
				4	17.4	9.8	*102*	7.6	92
	12-Sep-11	-	-	0.3	9.5	11.0	*97*	7.1	96
				1	9.6	10.9	*96*	7.1	96
				2	9.7	10.9	*95*	7.1	96
				3	9.7	10.8	*95*	7.1	96
				4	9.7	10.9	*95*	7.1	96
				5	9.7	10.9	*95*	7.1	96
SNAP20	9-Apr-11	1.10	-	1.2	0.9	14.4	101	6.8	85
				2	1.6	13.0	93	6.9	76
				3	2.0	12.4	90	6.9	73
				4	2.1	11.8	86	6.9	72
				5	2.2	11.1	81	6.8	72
				6	2.2	10.9	80	6.8	72
				7	2.2	10.9	80	6.8	73
				8	2.2	11.0	80	6.8	73
				9	2.2	11.1	81	6.7	74
				10	2.2	11.1	81	6.7	74
				11	2.2	11.1	81	6.7	74
	12-Sep-11	-	-	0.3	10.6	11.0	98	7.3	86
				1	10.6	10.9	98	7.2	86
				2	10.6	11.0	98	7.2	86
				3	10.6	10.9	98	7.2	86
				4	10.6	10.9	98	7.2	86
				5	10.6	10.9	98	7.1	86
				6	10.6	10.9	98	7.1	86
				7	10.5	10.9	98	7.1	86
				8	10.5	10.9	98	7.1	86
				9	10.5	10.9	98	7.1	86
				10	10.5	10.9	98	7.1	86
				11	10.5	10.9	98	7.1	86
				12	10.5	10.9	98	7.1	86
SNAP20B	23-Feb-11	0.80	-	1.2	1.2	14.8	105	7.4	86
				2	1.7	14.2	103	7.3	77
				3	2.1	12.1	88	7.3	71
				4	2.2	11.8	86	7.2	70
				5	2.2	11.6	85	7.2	70
				6	2.2	11.4	83	7.2	71
				7	2.2	11.3	82	7.1	71
				8	2.2	11.3	82	7.1	71
				9	2.2	11.2	81	7.1	72
				10	2.2	11.1	81	7.3	72
				11	2.2	11.0	80	7.2	71
				12	2.2	10.9	79	7.2	71
				13	2.2	10.8	79	7.2	71
				14	2.2	10.8	79	7.2	71
				15	2.2	10.7	78	7.3	71
				16	2.2	10.8	79	7.5	73
				17	2.2	10.8	79	7.5	73
				18	2.2	10.6	77	7.5	72
				19	2.3	10.4	76	7.4	71
				20	2.3	10.3	75	7.4	71
				21	2.3	10.2	74	7.4	70
				22	2.3	10.0	73	7.4	70
				23	2.3	9.9	72	7.4	70
				24	2.3	9.6	70	7.3	70
				25	2.3	9.5	69	7.3	71
				26	2.4	9.4	68	7.3	71
				27	2.4	9.3	68	7.3	71
				28	2.4	9.0	66	7.2	70
				29	2.4	8.9	65	7.2	70
				30	2.4	8.7	64	7.2	70

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	18-Mar-11	1.05	-	1.5	2.9	12.4	92	5.8	80
				2	2.5	12.1	89	6.0	76
				3	2.4	11.7	86	6.0	73
				4	2.3	11.4	84	6.1	72
				5	2.3	11.1	81	6.1	72
				6	2.3	10.9	80	6.1	72
				7	2.2	10.9	80	6.2	73
				8	2.3	10.8	78	6.2	73
				9	2.2	10.6	77	6.2	73
				10	2.2	10.5	76	6.2	72
				11	2.2	10.5	76	6.2	72
				12	2.2	10.4	76	6.2	72
				13	2.2	10.4	76	6.2	72
				14	2.2	10.2	75	6.2	72
				15	2.2	10.2	74	6.2	73
				16	2.2	10.2	74	6.2	73
				17	2.2	10.2	74	6.2	73
				18	2.3	10.1	73	6.2	73
				19	2.3	9.9	72	6.2	73
				20	2.3	9.8	71	6.2	72
				21	2.3	9.4	68	6.2	72
				22	2.3	9.2	67	6.2	71
				23	2.3	9.1	66	6.2	71
				24	2.3	8.8	64	6.2	71
				25	2.3	8.9	65	6.2	73
				26	2.3	8.7	64	6.2	71
				27	2.4	8.5	62	6.2	71
				28	2.4	8.3	61	6.2	70
				29.5	2.4	7.9	58	6.2	71
	6-Apr-11	1.03	-	1	1.0	14.2	100	5.8	87
				2	1.6	13.1	94	5.9	76
				3	2.0	12.2	89	5.9	72
				4	2.1	11.5	84	5.9	72
				5	2.2	11.0	80	6.0	72
				6	2.2	10.8	78	6.0	72
				7	2.2	10.6	77	6.0	72
				8	2.2	10.5	76	6.0	73
				9	2.2	10.4	76	6.0	73
				10	2.2	10.4	75	6.1	73
				11	2.2	10.3	75	6.1	73
				12	2.2	10.2	74	6.1	73
				13	2.2	10.1	74	6.1	73
				14	2.2	10.1	74	6.1	73
				15	2.3	10.0	73	6.1	73
				16	2.3	10.0	73	6.1	73
				17	2.3	9.9	72	6.1	72
				18	2.3	9.7	71	6.1	72
				19	2.3	9.7	71	6.1	74
				20	2.3	9.5	69	6.1	72
				21	2.3	9.3	68	6.1	72
				22	2.3	9.1	66	6.1	72
				23	2.3	9.0	66	6.1	73
				24	2.3	8.9	65	6.1	73
				25	2.3	8.7	64	6.1	72
				26	2.3	8.6	63	6.1	73
				27	2.3	8.6	63	6.1	73
				28	2.4	8.5	62	6.1	73
				29	2.4	8.4	61	6.1	73
				30	2.4	7.8	57	6.1	72
				30.5	2.4	7.7	56	6.1	72

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	6-May-11	1.10	-	1.5	1.3	12.1	107	6.8	90
				2	1.7	14.0	101	6.7	80
				3	2.2	12.7	92	6.6	75
				4	2.3	12.1	88	6.6	74
				5	2.3	11.7	85	6.5	75
				6	2.3	11.2	82	6.5	75
				7	2.3	11.1	81	6.5	76
				8	2.3	11.0	81	6.4	76
				9	2.3	11.0	80	6.4	76
				10	2.3	10.9	80	6.4	76
				11	2.3	10.9	80	6.4	77
				12	2.3	10.9	79	6.4	77
				13	2.3	10.8	79	6.4	76
				14	2.3	10.9	79	6.4	77
				15	2.4	10.8	79	6.4	77
				16	2.4	10.7	78	6.4	77
				17	2.4	10.5	76	6.3	77
				18	2.4	10.3	76	6.3	77
				19	2.4	10.2	75	6.3	76
				20	2.4	10.0	74	6.3	76
				21	2.4	9.8	72	6.3	76
				22	2.4	9.5	70	6.2	75
				23	2.4	9.7	71	6.3	77
				24	2.4	6.7	71	6.3	78
				25	2.4	9.7	71	6.3	77
				26	2.4	9.6	70	6.3	77
				27	2.4	9.6	70	6.3	77
				28	2.4	9.3	68	6.2	76
				29	2.4	9.0	66	6.2	76
				30	2.5	8.8	64	6.2	76
				30.5	2.5	8.6	63	6.2	77
	6-Jul-11	-	6.5	0.1	14.0	10.2	99	6.5	68
				1	14.0	10.2	99	6.5	68
				2	14.0	10.2	99	6.5	68
				3	14.0	10.2	99	6.6	68
				4	14.0	10.2	99	6.6	68
				5	14.0	10.2	99	6.6	68
				6	14.0	10.2	99	6.7	68
				7	14.0	10.2	99	6.6	68
				8	13.9	10.2	99	6.7	68
				9	10.4	11.0	98	6.7	67
				10	6.0	12.2	98	6.7	64
				11	5.6	12.2	97	6.6	64
				12	5.3	12.1	96	6.5	64
				13	5.2	11.9	94	6.4	64
				14	5.1	11.7	92	6.4	64
				15	4.8	11.3	89	6.3	65
				16	4.7	11.0	85	6.1	65
				17	4.6	10.9	84	6.1	65
				18	4.5	10.8	84	6.1	65
				19	4.5	10.7	83	6.0	65
				20	4.5	10.5	82	6.0	65
				21	4.4	10.5	81	5.9	65
				22	4.4	10.5	81	5.9	65
				23	4.4	10.5	81	5.9	66
				24	4.3	10.5	81	5.9	66
				25	4.3	10.4	80	5.9	66
				26	4.3	10.3	79	5.9	66
				27	4.2	10.3	79	5.9	67
				28	4.2	10.2	79	5.9	67
				29	4.2	10.2	78	5.8	67

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	12-Sep-11	-	7.0	0.3	10.3	10.8	96	7.0	85
				1	10.4	10.7	96	7.1	85
				2	10.4	10.7	96	7.1	85
				3	10.5	10.7	96	7.1	85
				4	10.5	10.7	95	7.1	85
				5	10.5	10.7	96	7.1	85
				6	10.5	10.7	96	7.1	85
				7	10.5	10.7	96	7.1	85
				8	10.5	10.7	96	7.1	85
				9	10.5	10.7	96	7.1	85
				10	10.5	10.7	96	7.1	85
				11	10.5	10.7	95	7.1	85
				12	10.4	10.6	95	7.1	85
				13	10.3	10.6	95	7.1	85
				14	10.1	10.6	94	7.0	84
				15	7.5	10.1	85	6.8	72
				16	5.4	9.2	74	6.5	69
				17	5.0	8.8	69	6.4	69
				18	4.8	8.8	68	6.3	69
				19	4.7	8.8	68	6.3	69
				20	4.5	8.8	68	6.3	69
				21	4.5	8.8	68	6.3	69
				22	4.4	8.4	65	6.2	69
				23	4.4	8.2	63	6.2	70
				24	4.3	8.0	62	6.2	70
				25	4.3	7.9	60	6.2	70
				26	4.2	7.7	59	6.1	70
				27	4.2	7.6	59	6.1	70
SNAP23	14-Jan-11	0.72	-	1.0	2.6	15.3	112	6.8	153
				2	1.8	13.5	97	6.3	169
				3	2.1	12.6	92	6.2	166
				4	2.5	11.3	83	6.2	170
				5	2.7	10.5	78	6.2	176
				6	3.0	10.0	74	6.1	189
				7	3.1	9.8	73	6.1	205
				8	3.2	9.5	71	6.1	214
				9	3.4	8.3	62	6.1	223
				10	3.7	6.4	49	6.0	223
				11	3.9	5.2	40	6.0	222
	23-Feb-11	1.00	-	1.3	0.4	15.3	105	6.5	164
				2	1.1	14.7	104	6.5	159
				3	1.7	13.8	99	6.5	180
				4	2.2	12.3	90	6.5	184
				5	2.5	11.1	82	6.5	194
				6	3.0	9.8	73	6.5	191
				7	3.3	9.0	68	6.4	206
				8	3.4	7.8	58	6.4	214
				9	3.6	6.2	47	6.5	217
				10	3.7	5.4	41	6.5	217
				11	3.9	4.8	38	6.5	217
				12	4.0	3.5	27	6.4	217
	18-Mar-11	1.10	-	1.5	0.6	14.2	101	6.2	184
				2	1.1	13.7	97	6.2	183
				3	2.0	12.8	93	6.2	197
				4	2.5	11.7	86	6.3	202
				5	2.9	10.4	77	6.3	202
				6	3.2	8.8	66	6.3	209
				7	0.4	7.5	57	6.3	215
				8	3.6	5.8	45	6.2	218
				9	3.8	4.3	36	6.2	218
				10	3.9	3.1	24	6.2	217
				11	4.0	2.7	21	6.1	217
				12	4.0	1.4	12	6.1	217

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	6-Apr-11	1.15	-	1.5	1.1	12.2	93	6.2	177
				2	1.5	12.8	91	6.2	181
				3	2.2	12.0	88	6.3	198
				4	2.6	11.8	87	6.3	199
				5	3.0	10.6	79	6.3	198
				6	3.3	8.5	64	6.3	203
				7	3.5	6.9	52	6.3	120
				8	3.9	4.8	37	6.3	211
				9	3.9	4.8	37	6.2	213
				10	4.0	4.1	31	6.2	213
				11	4.0	3.2	25	6.2	213
	6-May-11	1.30	-	1.5	1.1	14.5	102	6.6	194
				2	1.4	14.3	102	6.6	191
				3	2.2	13.9	101	6.6	207
				4	2.8	12.4	92	6.5	208
				5	3.2	9.9	74	6.4	213
				6	4.0	8.0	61	6.3	211
				7	4.1	5.9	46	6.3	217
				8	4.0	5.4	41	6.2	220
				9	3.9	7.2	54	6.3	225
				10	3.9	8.1	61	6.3	227
				11	3.9	8.2	62	6.3	229
	7-Jul-11	-	8.5	0.1	14.5	10.5	103	6.8	150
				1	14.5	10.5	103	6.8	150
				2	14.4	10.5	103	6.8	153
				3	14.3	10.5	103	6.8	153
				4	14.3	10.5	103	6.9	153
				5	14.2	10.6	103	6.9	153
				6	14.2	10.5	102	6.9	154
				7	14.2	10.5	102	6.9	154
				8	14.1	10.4	102	6.9	155
				9	14.1	10.4	101	6.9	155
				10	14.1	10.4	101	6.9	154
				11	14.1	10.3	101	6.9	155
	12-Sep-11	-	7.0	0.1	9.9	10.9	96	6.9	194
				1	9.9	10.8	96	7.0	194
				2	10.0	10.8	96	7.0	194
				3	10.0	10.8	96	7.1	194
				4	10.0	10.8	96	7.1	194
				5	10.0	10.8	96	7.1	192
				6	10.0	10.8	96	7.1	192
				7	10.0	10.8	96	7.1	192
				8	10.0	10.8	96	7.1	192
				9	10.0	10.8	96	7.2	192
				10	10.0	10.8	96	7.2	192
				11	10.0	10.8	96	7.2	192
				12	10.0	10.8	96	7.2	192
SNAP29	21-Feb-11	0.70	-	1	0.5	16.9	117	6.9	188
				2	1.2	15.3	109	6.9	199
				3	1.6	14.0	104	6.8	215
				4	2.0	13.4	97	6.8	214
				5	2.3	12.4	91	6.8	220
				6	2.8	9.4	69	6.7	226
	18-Mar-11	0.92	-	1.5	1.0	14.3	100	6.3	229
				2	1.3	14.2	101	6.3	224
				3	1.7	13.8	99	6.3	223
				4	2.0	13.1	95	6.3	231
				5	2.3	12.2	89	6.4	232
				6	3.1	6.9	53	6.3	222
	11-Apr-11	1.10	-	1.4	0.7	15.0	105	6.8	212
				2	0.7	14.9	104	6.8	256
				3	1.4	14.3	102	6.8	235
				4	2.1	13.4	97	6.8	220
				5	2.3	12.8	93	6.8	237
				6	2.6	10.8	80	6.7	233
				7	3.4	3.5	26	6.5	226

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	6-May-11	1.08	-	1.4	0.7	15.8	110	6.7	236
				2	0.7	15.9	111	6.7	266
				3	1.8	15.5	111	6.6	236
				4	2.4	14.9	109	6.6	230
				5	2.6	13.7	101	6.6	240
				6	3.1	12.1	90	6.4	237
				7	3.6	9.1	69	6.3	239
	7-Jul-11	-	6.5	0.1	14.3	10.6	104	7.0	155
				1	14.2	10.6	104	7.0	155
				2	14.1	10.6	103	7.0	155
				3	14.0	10.6	103	7.0	155
				4	14.0	10.6	103	7.0	154
				5	14.0	10.6	103	7.0	154
				6	13.9	10.6	103	7.0	155
	12-Sep-11	-	6.0	0.3	9.7	10.9	96	7.3	197
				1	9.7	10.9	96	7.3	197
				2	9.7	10.9	96	7.3	197
				3	9.7	10.9	96	7.3	197
				4	9.7	10.9	96	7.3	197
				5	9.7	10.9	96	7.3	197
				6	9.7	10.9	96	7.3	197
				7	9.8	10.3	91	7.2	197
SNAP30	6-Jul-11	-	6.5	0.1	14.8	10.2	*101*	6.6	72
				1	14.8	10.2	*101*	6.6	72
				2	14.7	10.2	*100*	6.7	72
				3	14.7	10.4	*102*	6.7	72
				4	14.7	10.2	*100*	6.7	72
				5	14.7	10.1	*100*	6.7	72
				6	14.6	10.1	*100*	6.7	72
				7	14.3	8.3	*81*	6.6	73
	11-Aug-11	-	4.0	0.1	17.5	9.6	*101*	7.2	86
				1	17.5	9.6	*101*	7.2	86
				2	17.5	9.7	*101*	7.2	86
				3	17.5	9.7	*102*	7.3	86
				4	17.5	9.7	*102*	7.3	86
				5	17.5	9.6	*100*	7.3	86
				6	17.4	9.6	*100*	7.3	86
				7	16.7	9.4	*97*	7.3	85
	12-Sep-11	-	7.0	0.3	9.8	10.9	*96*	7.2	94
				1	9.8	10.8	*96*	7.2	94
				2	9.9	10.8	*96*	7.2	94
				3	9.9	10.8	*96*	7.2	94
				4	9.9	10.8	*96*	7.2	94
				5	9.9	10.8	*96*	7.2	94
				6	9.7	10.8	*95*	7.2	95
				7	9.7	10.8	*95*	7.2	95
				8	9.7	10.8	*95*	7.2	95
SNAP31	7-Jul-11	-	to bottom	0.1	14.3	10.6	*104*	6.9	156
				1	14.3	10.6	*104*	6.9	157
				2	14.0	10.0	*97*	7.0	157
				3	14.0	10.6	*103*	6.9	157
	11-Aug-11	-	to bottom	0.1	17.5	9.8	*103*	7.2	191
				1	17.5	9.7	*102*	7.3	191
				2	17.4	9.7	*101*	7.3	191
				3	17.4	9.7	*102*	7.3	191
	12-Sep-11	-	-	0.3	9.7	11.3	*99*	7.1	195
				1	9.8	11.0	*97*	7.2	195
				1.5	9.9	10.5	*93*	7.2	195
				2	9.8	10.9	*96*	7.2	195
				2.5	9.9	9.8	*87*	7.1	195
				3	9.9	10.9	*96*	7.2	195
NEL01	22-Feb-11	0.98	-	1.3	0.5	16.1	112	7.0	29
				2	0.7	15.4	108	7.0	27
				3	1.0	14.6	103	7.1	24
				4	1.2	13.9	99	7.1	23
				5	1.3	13.1	93	7.1	23
				6	1.4	12.9	92	7.0	24
				7	1.5	12.8	91	7.0	25
				8	1.6	12.6	90	7.0	25
				9	1.7	12.2	87	7.2	25
				10	2.5	6.0	44	6.9	26
				11 [(b)]	3.2 [(b)]	1.4 [(b)]	10 [(b)]	6.7 [(b)]	28 [(b)]

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	8-Apr-11	1.20	-	1.5	0.9	16.5	115	7.4	28
				2	1.0	15.8	111	7.4	26
				3	1.2	14.6	103	7.4	25
				4	1.3	13.9	99	7.4	24
				5	1.5	13.5	96	7.3	24
				6	1.6	13.2	94	7.3	25
				7	1.7	13.0	93	7.3	26
				8	1.7	13.0	94	7.2	26
				9	1.9	13.0	94	7.2	26
				10	2.7	3.3	24	6.8	26
				11 [b]	3.5 [b]	0.4 [b]	3 [b]	6.6 [b]	36 [b]
	9-Jul-11 [c]	-	11.5	0.1	15.7	10.4	105	7.1	20
				1	15.1	10.6	105	7.1	20
				2	14.9	10.6	105	7.1	20
				3	14.7	10.6	105	7.1	20
				4	13.8	10.9	105	7.1	20
				5	13.0	11.1	105	7.1	20
				6	12.5	11.1	104	7.1	20
				7	12.4	11.0	103	7.1	20
				8	12.3	11.0	103	7.0	20
				9	12.2	11.0	103	7.0	20
				10	12.2	11.0	103	7.0	20
				11	12.1	11.0	103	7.0	20
	11-Jul-11	-	9.5	0.1	16.9	10.0	104	7.0	21
				1	16.9	10.1	104	7.0	21
				2	14.6	10.6	105	7.0	21
				3	13.7	11.0	106	7.0	20
				4	13.0	11.1	105	7.0	21
				5	12.7	11.1	105	7.0	20
				6	12.6	11.1	104	7.0	20
				7	12.5	11.1	104	6.9	20
				8	12.5	11.0	104	6.9	20
				9	12.5	11.0	104	7.0	20
				10	12.4	11.0	103	6.9	20
				11	12.4	11.0	103	6.9	20
	12-Aug-11	-	7.5	0.1	16.7	9.5	*97*	7.3	22
				1	16.7	9.4	*97*	7.3	22
				2	16.7	9.4	*97*	7.2	22
				3	16.7	9.4	*97*	7.2	22
				4	16.7	9.4	*97*	7.2	22
				5	16.7	9.4	*97*	7.2	22
				6	16.7	9.4	*97*	7.1	22
				7	16.7	9.4	*97*	7.1	22
				8	16.7	9.4	*97*	7.1	22
				9	16.6	9.4	*96*	7.1	22
				10	16.6	9.4	*96*	7.1	22
				11	16.6	9.4	*96*	7.1	22
				12	16.5	6.7	*69*	6.8	39
	6-Sep-11	-	6.0	0.3	11.4	10.3	94	6.6	20
				1	11.4	10.3	94	6.6	20
				2	11.4	10.2	94	6.6	20
				3	11.4	10.2	94	6.6	20
				4	11.4	10.3	94	6.6	20
				5	11.4	10.2	94	6.6	20
				6	11.4	10.3	94	6.6	20
				7	11.4	10.3	94	6.6	20
				8	11.4	10.3	94	6.6	20
				9	11.4	10.3	94	6.6	20
				10	11.4	10.3	94	6.6	20
				11	11.4	10.2	94	6.6	20
NEL02	22-Feb-11	0.90	-	1.2	0.2	16.3	112	6.7	29
				2	0.7	15.7	110	6.7	24
				3	1.0	14.4	102	6.7	22
				4	1.1	13.6	96	6.8	22
				5	1.2	12.9	91	6.7	22
				6	1.3	12.6	89	6.7	23
				7	1.4	12.3	88	6.7	22
				8	1.5	12.1	86	6.7	22
				9	1.6	11.7	84	6.7	22
				10	1.8	11.5	83	6.8	23
				11	1.9	11.0	79	6.8	23

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	8-Apr-11	1.10	-	1.4	0.7	16.2	113	6.8	27
				2	0.9	15.4	108	6.8	25
				3	1.1	14.7	104	6.8	23
				4	1.3	13.4	95	6.8	23
				5	1.4	13.0	92	6.8	22
				6	1.5	12.5	90	6.8	22
				7	1.6	12.3	88	6.8	23
				8	1.7	11.9	86	6.8	22
				9	1.8	11.5	82	6.7	23
				10	1.9	11.0	79	6.7	23
				11	2.1	10.7	77	6.7	23
	9-Jul-11 [c]	-	10.5	0.1	14.6	10.7	105	6.7	20
				1	14.5	10.7	105	6.8	20
				2	14.1	10.8	105	6.8	20
				3	13.9	10.8	104	6.8	20
				4	13.5	10.8	104	6.8	20
				5	13.1	10.9	104	6.8	20
				6	12.9	11.0	104	6.8	20
				7	12.6	11.0	104	6.8	20
				8	12.4	11.0	103	6.8	20
				9	12.1	11.1	103	6.8	20
				10	12.0	11.0	103	6.8	20
				11	12.0	5.1	53	6.4	23
	11-Jul-11	-	10.0	0.1	16.1	10.3	105	6.9	21
				1	16.1	10.3	105	6.9	21
				2	16.0	10.3	105	6.9	21
				3	15.8	10.4	105	6.9	21
				4	14.8	10.6	105	6.9	21
				5	14.1	10.8	105	6.9	21
				6	13.3	10.9	105	6.9	21
				7	12.9	11.1	104	6.9	21
				8	12.7	11.0	104	6.9	21
				9	12.7	11.0	104	6.9	21
				10	12.6	11.0	104	6.9	21
				11	12.4	11.0	103	6.9	21
	12-Aug-11	-	7.0	0.1	16.8	9.4	*98*	6.8	21
				1	16.8	9.4	*97*	6.8	21
				2	16.9	9.4	*97*	6.8	21
				3	16.8	9.4	*97*	6.9	21
				4	16.8	9.4	*97*	6.8	21
				5	16.8	9.4	*97*	6.8	21
				6	16.8	9.4	*97*	6.9	21
				7	16.8	9.4	*97*	6.9	21
				8	16.8	9.4	*97*	6.9	21
				9	16.8	9.4	*97*	6.9	21
				10	16.8	9.4	*97*	6.9	21
				11 [b]	16.7 [b]	4.3 [b]	-	6.6 [b]	27 [b]
	6-Sep-11	-	6.0	0.3	11.7	10.3	95	6.5	20
				1	11.7	10.2	94	6.6	20
				2	11.7	10.2	94	6.5	20
				3	11.7	10.2	94	6.5	20
				4	11.7	10.2	94	6.5	20
				5	11.7	10.2	94	6.5	20
				6	11.7	10.2	94	6.5	20
				7	11.7	10.2	94	6.5	20
				8	11.7	10.2	94	6.5	20
				9	11.7	10.2	94	6.5	20
				10	11.7	10.2	94	6.5	20
				11	11.7	10.2	94	6.5	20
				12	11.7	10.2	94	6.5	20
				13	11.7	10.2	94	6.5	20
NEL03	22-Feb-11	0.90	-	1.2	0.2	15.9	110	6.7	28
				2	0.6	15.0	105	6.7	25
				3	0.9	13.9	98	6.7	23
				4	1.1	12.9	91	6.7	22
				5	1.2	12.6	89	6.7	22
				6	1.4	12.2	87	6.7	22
				7	1.5	12.0	85	6.7	22
				8	1.6	11.8	85	6.7	23
				9	1.7	11.7	84	6.7	23
				10	1.8	10.7	77	6.8	23

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	8-Apr-11	1.10	-	1.5	0.5	16.1	111	6.8	27
				2	0.7	15.5	108	6.8	25
				3	1.0	14.3	101	6.8	24
				4	1.2	13.5	96	6.8	23
				5	1.4	12.7	90	6.8	22
				6	1.6	12.3	88	6.8	23
				7	1.7	12.0	86	6.8	22
				8	1.7	11.9	85	6.8	23
				9	1.8	11.8	85	6.7	23
	9-Jul-11 [(c)]	-	9.5	0.1	14.4	10.7	105	6.7	20
				1	14.3	10.8	105	6.7	20
				2	14.3	10.8	105	6.7	20
				3	14.2	10.8	105	6.7	20
				4	13.8	10.8	105	6.7	20
				5	13.2	11.0	104	6.7	20
				6	12.7	11.0	104	6.8	20
				7	12.4	11.1	104	6.8	20
				8	12.1	11.1	103	6.8	20
				9	12.0	11.1	103	6.8	20
				10	12.0	11.1	103	6.8	20
	11-Jul-11	-	8.5	0.1	16.0	10.4	105	6.8	20
				1	16.0	10.4	105	6.8	20
				2	16.0	10.4	105	6.8	20
				3	15.9	10.4	105	6.8	20
				4	15.8	10.4	105	6.8	20
				5	14.2	10.8	105	6.8	20
				6	13.9	10.8	105	6.8	20
				7	12.9	11.0	105	6.8	20
				8	12.7	11.0	104	6.8	20
				9	12.3	11.1	104	6.8	20
				10	12.3	10.9	102	6.7	20
	12-Aug-11	-	7.5	0.1	16.9	9.4	*97*	6.7	22
				1	16.9	9.4	*97*	6.8	21
				2	16.9	9.4	*97*	6.8	21
				3	16.9	9.4	*97*	6.8	22
				4	16.9	9.3	*97*	6.8	21
				5	16.9	9.4	*97*	6.8	22
				6	16.8	9.4	*97*	6.8	22
				7	16.8	9.4	*97*	6.8	21
				8	16.8	9.4	*97*	6.8	22
				9	16.8	9.4	*97*	6.9	21
	6-Sep-11	-	6.0	0.1	11.6	10.3	94	6.5	20
				1	11.6	10.3	94	6.5	20
				2	11.6	10.2	94	6.5	20
				3	11.6	10.2	94	6.5	20
				4	11.6	10.2	94	6.5	20
				5	11.6	10.2	94	6.5	20
				6	11.6	10.3	94	6.5	20
				7	11.6	10.3	94	6.5	20
				8	11.6	10.3	94	6.5	20
				9	11.4	10.3	94	6.5	20
NEL04	22-Feb-11	0.85	-	1.2	0.3	16.6	114	6.7	30
				2	0.7	15.7	110	6.7	25
				3	1.0	14.5	102	6.7	23
				4	1.1	13.2	94	6.8	23
				5	1.2	12.9	91	6.7	23
				6	1.4	12.5	89	6.7	23
				7	1.5	12.3	88	6.7	23
				8	1.6	12.0	86	6.7	23
				9	1.7	11.8	85	6.7	23
				10	1.8	11.4	82	6.7	23
				11	1.8	11.2	81	6.9	23
				12	1.8	11.2	80	6.9	23
				13	2.0	7.9	56	6.8	24

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	8-Apr-11	1.20	-	1.5	0.5	17.1	119	6.9	28
				2	0.8	15.7	110	6.9	26
				3	1.1	14.5	102	6.9	24
				4	1.3	13.6	97	6.9	23
				5	1.4	12.9	92	6.9	23
				6	1.5	12.5	89	6.9	23
				7	1.7	12.2	88	6.9	23
				8	1.8	11.7	84	6.8	23
				9	1.9	11.2	81	6.8	23
				10	1.9	10.8	78	6.8	23
				11	2.0	10.5	76	6.7	23
				12	2.0	10.4	75	6.7	23
	9-Jul-11 [(c)]	-	9.5	0.1	15.3	10.7	106	6.8	21
				2	15.2	10.7	106	6.8	21
				2	15.0	10.7	106	6.8	21
				3	14.9	10.7	106	6.8	21
				4	14.8	10.7	106	6.8	21
				5	13.8	10.9	105	6.8	21
				6	12.8	11.1	105	6.8	21
				7	12.6	11.1	105	6.8	20
				8	12.5	11.1	104	6.8	20
				9	12.4	11.1	104	6.8	20
				10	12.2	11.2	104	6.8	20
				11	12.2	11.1	104	6.8	20
				12	12.0	11.1	103	6.8	20
	11-Jul-11	-	10.0	0.1	15.6	10.5	106	6.7	21
				1	15.5	10.5	105	6.7	21
				2	15.2	10.6	106	6.8	21
				3	14.1	10.9	106	6.8	20
				4	13.8	11.0	106	6.8	20
				5	13.7	11.0	106	6.8	20
				6	13.4	11.0	106	6.8	20
				7	12.9	11.1	105	6.8	20
				8	12.8	11.1	105	6.8	20
				9	12.5	11.1	105	6.8	20
				10	12.4	11.1	104	6.8	20
				11	12.1	11.1	103	6.8	20
				12	11.8	8.5	78	6.5	25
	12-Aug-11	-	7.5	0.1	16.8	9.4	*97*	6.8	21
				1	16.8	9.4	*97*	6.9	21
				2	16.8	9.4	*97*	6.9	21
				3	16.8	9.4	*97*	6.9	21
				4	16.8	9.4	*97*	6.8	21
				5	16.8	9.4	*97*	6.8	21
				6	16.8	9.4	*97*	6.9	21
				7	16.8	9.4	*96*	6.9	21
				8	16.7	9.4	*96*	6.9	21
				9	16.7	9.4	*96*	6.9	21
				10	16.7	9.4	*96*	6.9	21
				11	16.5	9.4	*96*	6.9	21
	6-Sep-11	-	6.0	0.3	11.6	10.2	94	6.4	20
				1	11.6	10.2	94	6.4	20
				2	11.6	10.2	94	6.5	20
				3	11.6	10.2	94	6.4	20
				4	11.6	10.2	94	6.5	20
				5	11.6	10.2	94	6.5	20
				6	11.6	10.2	94	6.5	20
				7	11.6	10.2	94	6.5	20
				8	11.6	10.2	94	6.5	20
				9	11.6	10.2	94	6.5	20
				10	11.6	10.2	94	6.5	20
				11	11.6	10.2	94	6.5	20
				12	11.6	10.2	94	6.5	20
NEL05	22-Feb-11	0.90	-	1.2	0.3	16.2	111	6.7	29
				2	0.7	15.4	108	6.7	25
				3	1.0	14.1	101	6.7	25
				4	1.1	13.1	93	6.8	22
				5	1.3	12.7	90	6.7	22
				6	1.4	12.4	88	6.7	22
				7	1.5	12.2	87	6.7	22
				8	1.5	12.0	86	6.7	22
				9	1.6	11.7	84	6.7	22

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	8-Apr-11	1.20	-	1.5	0.4	16.9	117	6.8	29
				2	0.7	16.4	114	6.8	26
				3	1.1	15.4	108	6.8	24
				4	1.3	14.5	103	6.8	22
				5	1.4	13.6	97	6.8	22
				6	1.5	13.0	93	6.8	22
				7	1.6	12.6	90	6.8	22
				8	1.7	12.3	88	6.8	22
				9	1.8	11.9	86	6.8	22
				10	1.8	11.7	84	6.8	22
	9-Jul-11 [(c)]	-	9.5	0.1	14.2	10.8	105	6.7	21
				1	14.1	10.8	105	6.7	21
				2	14.0	10.8	105	6.7	21
				3	13.9	10.8	105	6.7	21
				4	13.5	10.9	105	6.8	21
				5	13.2	11.0	104	6.8	21
				6	12.6	11.1	104	6.8	20
				7	12.4	11.1	104	6.8	20
				8	12.3	11.1	104	6.8	20
				9	12.2	11.1	104	6.8	20
				10	12.1	11.1	104	6.8	20
				11	12.0	9.8	94	6.7	21
	11-Jul-11	-	to bottom	0.1	15.1	10.6	105	6.8	21
				1	15.1	10.5	105	6.8	21
				2	15.1	10.5	105	6.8	21
				3	15.1	10.5	105	6.8	21
				4	15.1	10.5	105	6.8	21
				5	13.8	10.8	105	6.8	20
				6	13.7	10.9	105	6.8	20
				7	13.4	10.9	105	6.8	20
				8	13.1	11.0	105	6.8	20
				9	12.9	11.0	105	6.8	20
				10	12.4	6.9	69	6.4	26
	12-Aug-11	-	7.5	0.1	16.8	9.4	*97*	6.8	21
				1	16.8	9.4	*97*	6.8	21
				2	16.8	9.4	*97*	6.8	21
				3	16.8	9.4	*97*	6.8	21
				4	16.8	9.4	*97*	6.9	21
				5	16.8	9.4	*97*	6.9	21
				6	16.8	9.4	*97*	6.9	21
				7	16.8	9.4	*97*	6.9	21
				8	16.8	9.4	*97*	6.9	21
				9	16.8	9.2	*95*	6.9	21
				10	16.7	9.4	*96*	6.9	22
	9-Sep-11	-	7.0	0.3	11.7	10.3	94	6.5	20
				1	11.7	10.2	94	6.5	20
				2	11.7	10.2	94	6.5	20
				3	11.7	10.2	94	6.5	20
				4	11.7	10.2	94	6.5	20
				5	11.6	10.2	94	6.5	20
				6	11.6	10.2	94	6.5	20
				7	10.6	10.2	94	6.5	20
				8	10.6	10.2	94	6.5	20
				9	11.6	10.2	94	6.5	20
				10	11.6	10.2	94	6.5	20
KING01	18-Jan-11	-	-	0.1	0.9	13.3	93	-	26
	9-Apr-11	-	-	0.2	0.8	15.8	110	6.7	29
	11-Jul-11	-	-	0.1	18.7	9.9	106	6.7	21
	6-Sep-11	-	-	0.1	10.0	10.8	96	6.3	21
IL3	4-Jul-11	-	-	0.3	15.6	10.4	104	6.4	17
	11-Aug-11	-	-	0.3	15.3	8.8	88	7.3	23
	7-Sep-11	-	-	0.3	11.9	10.8	100	6.6	22
IL4	4-Jul-11	-	-	0.1	18.9	9.8	106	6.3	18
	11-Aug-11	-	-	0.3	13.2	8.1	80	7.0	11
	7-Sep-11	-	-	0.3	17.0	9.7	101	6.9	16
IL5	4-Jul-11	-	-	0.3	15.8	10.3	104	6.3	38
	11-Aug-11	-	-	0.3	16.1	9.8	100	6.8	43
	7-Sep-11	-	-	0.3	12.4	10.8	101	6.5	32
S1	8-Jul-11	-	-	0.1	17.0	8.6	89	6.0	20
	10-Aug-11	-	-	0.1	15.6	7.6	76	6.7	27
	9-Sep-11	-	-	0.3	10.6	10.4	94	7.1	29

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
K28 [k]	9-Jul-11	-	10.5	0.1	14.7	10.6	105	6.8	21
				1	14.7	10.6	105	6.9	21
				2	14.1	10.7	104	6.8	21
				3	13.7	10.8	104	6.8	21
				4	13.6	10.8	104	6.9	21
				5	12.9	10.9	104	6.8	20
				6	12.7	11.0	103	6.8	20
				7	12.5	11.0	103	6.9	20
				8	12.4	11.0	103	6.9	20
				9	12.4	11.0	103	6.9	20
				10	12.3	11.0	103	6.8	20
				11	12.2	11.0	103	6.8	20
				12	12.1	11.0	102	6.8	20
				13	11.8	11.1	102	6.8	20
				14	11.7	11.0	102	6.8	20
				15	11.5	11.1	102	6.8	20
				16	11.3	11.1	101	6.8	20
				17	11.0	11.1	101	6.8	20
				18	10.7	11.2	100	6.8	21
				19	10.5	11.2	100	6.8	20
				20	10.3	11.2	100	6.8	21
				21	10.0	11.2	99	6.8	21
				22	6.9	12.0	99	6.8	21
(30 (new NEL06) [	9-Jul-11	-	9.5	0.1	14.5	10.8	105	6.7	21
				1	14.0	10.8	105	6.8	21
				2	13.9	10.8	105	6.8	21
				3	13.4	10.9	103	6.8	21
				4	13.3	10.9	104	6.8	21
				5	13.2	10.9	104	6.8	21
				6	12.8	11.0	104	6.8	21
				7	12.2	11.1	104	6.8	21
				8	12.1	11.1	103	6.8	20
				9	12.0	11.1	103	6.7	21
				10	11.9	11.1	103	6.8	21
				11	11.8	11.1	103	6.8	21
				12	11.8	11.1	103	6.8	20
				13	11.8	11.1	103	6.7	20
				14	11.7	11.1	102	6.8	20
				15	11.6	11.1	102	6.7	20
				16	11.6	11.1	102	6.7	20
				17	11.4	11.1	102	6.8	20
				18	11.3	11.1	101	6.7	20
				19	10.9	11.2	101	6.7	20
				20	10.7	11.2	101	6.7	20
				21	10.6	11.8	100	6.7	20
				22	10.1	11.2	100	6.7	20
				23	9.6	11.3	99	6.7	21
				24	8.4	11.5	98	6.6	21
				25	7.6	11.7	98	6.6	21
				26	7.2	11.7	97	6.4	21
				27	7.0	11.1	93	6.4	21

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
NE ARM NEL [k]	11-Jul-11	-	10.0	0.1	16.0	10.4	105	6.8	20
				1	16.0	10.4	105	6.8	20
				2	15.9	10.4	105	6.8	20
				3	15.9	10.4	105	6.8	20
				4	15.1	10.6	105	6.8	20
				5	13.5	11.0	105	6.9	20
				6	13.2	11.0	105	6.8	20
				7	12.9	11.1	105	6.8	20
				8	12.8	11.1	105	6.8	20
				9	12.7	11.1	104	6.8	20
				10	12.6	11.1	104	6.8	20
				11	12.5	11.1	104	6.8	20
				12	12.4	11.1	104	6.8	20
				13	12.3	11.1	103	6.8	20
				14	12.2	11.1	103	6.8	20
				15	12.2	11.1	103	6.8	20
				16	12.1	11.1	103	6.8	20
				17	12.1	11.0	103	6.8	20
				18	12.1	11.0	102	6.8	20
				19	12.0	11.0	102	6.7	20
				20	11.9	11.0	102	6.8	20
				21	11.8	10.9	101	6.7	20
				22	11.8	10.9	101	6.7	20
				23	11.2	11.0	100	6.7	20
				24	9.8	11.0	98	6.6	20
				25	7.5	11.6	97	6.7	20
				26	7.0	11.6	95	6.5	20
SNP02-20d	19-Feb-12	1.2	-	1.5	0.7	14.1	98	6.9	455
				2	1.1	13.9	98	6.9	448
				3	1.1	14.2	100	6.9	495
				4	1.1	14.3	101	6.9	511
				5	1.1	14.4	102	7.0	513
				6	1.1	14.5	102	7.0	516
				7	1.1	14.5	102	7.0	516
				8	1.1	14.5	102	7.0	516
				9	1.1	14.5	102	7.0	517
				10	1.1	14.5	102	7.0	518
				11	1.2	14.5	102	7.0	518
	18-Mar-12	1.5	-	1.8	1.2	14.7	104	7.0	455
				2	1.3	14.6	104	7.0	448
				3	1.4	14.9	106	7.0	495
				4	1.4	15.0	107	7.0	503
				5	1.4	14.9	106	7.0	510
				6	1.4	15.0	106	7.0	509
				7	1.4	15.0	106	7.0	512
				8	1.4	14.9	106	7.0	512
				9	1.4	14.9	106	7.0	513
				10	1.4	14.9	106	7.0	513
				11	1.4	14.9	106	7.0	513
	15-Apr-12	1.5	-	2	1.6	19.1[l]	137[l]	6.6	462
				3	1.5	20.0 [l]	143[l]	6.6	512
				4	1.4	20.1[l]	143[l]	6.6	520
				5	1.4	20.2[l]	144[l]	6.6	522
				6	1.4	20.2[l]	144[l]	6.6	522
				7	1.4	20.2[l]	144[l]	6.6	524
				8	1.4	20.2[l]	144[l]	6.6	524
				9	1.4	20.2[l]	144[l]	6.7	524
				10	1.4	20.2[l]	144[l]	6.7	526
				11	1.4	20.2[l]	144[l]	6.7	526
	17-Apr-12 [h]	1.5	-	2	1.4	14.0	100	6.9	460
				3	1.5	14.3	102	6.9	501
				4	1.5	14.5	103	6.9	527
				5	1.5	14.5	104	6.9	528
				6	1.5	14.5	103	6.9	528
				7	1.5	14.5	103	6.9	529
				8	1.5	14.5	103	6.9	529
				9	1.5	14.5	103	6.9	530
				10	1.5	14.4	103	6.9	530
				11	1.5	14.4	103	6.9	530

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	13-May-12	1.5	-	2	2.3	12.9	95	6.8	516
				3	2.1	13.1	95	6.8	527
				4	2.1	13.1	95	6.8	529
				5	2.1	13.1	95	6.8	531
				6	2.1	13.1	95	6.8	533
				7	2.1	13.1	95	6.8	534
				8	2.1	13.2	95	6.8	534
				9	2.1	13.2	95	6.8	534
				10	2.1	13.1	95	6.8	536
				11	2.1	13.1	95	6.8	536
				12	2.1	12.2	92	6.8	530
	8-Jul-12	-	-	0	15.4	10.1	102	7.3	392
				1	15.0	10.2	101	7.3	392
				2	14.9	10.2	100	7.3	392
				3	14.6	10.2	101	7.3	395
				4	14.3	10.3	101	7.4	399
				5	14.0	10.3	100	7.4	397
				6	13.8	10.4	100	7.4	400
				7	13.6	10.4	100	7.4	400
				8	13.5	10.4	100	7.4	398
				9	13.5	10.4	100	7.4	396
				10	13.5	10.4	100	7.4	396
				11	13.3	10.4	100	7.4	386
				12	13.2	10.4	100	7.4	387
				13	13.1	10.4	99	7.4	388
	10-Aug-12[h]	-	-	0.5	17.1	9.7	100	7.4	396
				1	17.1	9.7	101	7.4	396
				2	17.2	9.7	101	7.4	396
				3	17.1	9.7	101	7.4	396
				4	17.1	9.8	101	7.4	396
				5	17.1	9.8	101	7.5	396
				6	17.1	9.8	101	7.5	396
				7	17.1	9.8	102	7.5	395
				8	17.1	9.8	102	7.5	396
				9	17.1	9.8	102	7.5	396
				10	17.1	9.8	102	7.5	396
				11	17.1	9.8	102	7.5	396
				12	17.0	9.9	102	7.5	398
				13[b]	16.4[b]	7.3[b]	74[b]	7.2[b]	387[b]
	11-Aug-12[m]	-	-	0.5	16.9	9.5	98	7.4	395
				1	16.9	9.5	99	7.4	397
				2	17.0	9.6	99	7.5	397
				3	17.0	9.6	99	7.5	397
				4	17.0	9.6	99	7.5	398
				5	17.0	9.6	100	7.5	398
				6	17.0	9.6	100	7.6	398
				7	17.0	9.6	100	7.6	398
				8	16.9	9.7	100	7.6	400
				9	16.9	9.7	100	7.6	402
				10	16.9	9.7	100	7.6	402
				11	16.8	9.7	100	7.6	403
				12	16.8	8.0	92	7.5	404
	12-Aug-12	-	-	0.5	16.9	10.0	103	7.5	400
				1	16.9	10.0	103	7.5	400
				2	16.9	10.0	103	7.6	399
				3	16.9	10.0	103	7.6	399
				4	16.9	10.0	103	7.6	400
				5	16.9	10.0	104	7.6	399
				6	16.9	10.0	104	7.6	399
				7	16.9	10.0	104	7.6	400
				8	16.9	10.0	104	7.6	401
				9	16.9	10.0	104	7.6	401
				10	16.9	10.1	104	7.6	405
				11	16.9	10.1	104	7.7	406
				12	16.9	10.1	104	7.7	407

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	9-Sep-12	-	-	0.3	12.9	10.1	96	7.1	371[(n)]
				1	12.9	10.1	96	7.1	371[(n)]
				2	12.9	10.0	95	7.1	371[(n)]
				3	12.9	10.1	95	7.1	371[(n)]
				4	12.9	10.1	95	7.2	371[(n)]
				5	12.9	10.1	95	7.2	371[(n)]
				6	12.9	10.1	96	7.2	371[(n)]
				7	12.9	10.1	96	7.2	371[(n)]
				8	12.9	10.1	96	7.2	371[(n)]
				9	12.9	10.1	96	7.2	372[(n)]
				10	12.9	10.1	96	7.2	373[(n)]
				11	12.9	10.1	96	7.2	372[(n)]
				12	12.8	10.1	96	7.2	375[(n)]
SNP02-20e	19-Feb-12	1.1	-	1.5	1.7	14.4	104	7.0	485
				2	1.2	14.6	103	7.0	476
				3	1.2	14.7	104	7.0	488
				4	1.2	14.7	104	7.0	493
				5	1.3	14.5	103	7.0	513
				6	1.3	14.4	102	7.0	515
				7	1.3	14.2	101	7.0	516
				8	1.2	14.2	101	7.1	514
				9	1.2	14.2	101	7.1	514
				10	1.2	14.3	101	7.1	514
				11	1.2	14.2	101	7.1	513
				12	1.2	14.2	101	7.1	513
				13	1.2	14.2	101	7.1	513
				14	1.2	14.2	101	7.1	513
				15	1.2	14.2	101	7.1	514
				16	1.3	14.1	100	7.1	513
				17	1.3	14.1	100	7.1	513
				18	1.3	14.0	100	7.1	513
				19	1.3	14.0	100	7.1	514
				20	1.3	14.0	99	7.1	513
				21	1.3	13.9	99	7.1	511
				22	1.4	13.5	96	6.9	511
				23	1.4	13.5	96	6.9	510
				24	1.4	13.5	96	6.9	509
				25	1.4	13.3	95	6.9	506
				26	1.5	12.2	87	6.9	503
				27	1.8	11.3	82	6.9	493
	18-Mar-12	1.3	-	1.5	1.1	15.0	106	7.1	470
				2	1.1	15.0	106	7.1	452
				3	1.3	14.9	106	7.1	493
				4	1.3	15.1	107	7.1	503
				5	1.4	15.1	107	7.1	505
				6	1.4	15.0	106	7.1	505
				7	1.4	14.9	106	7.1	505
				8	1.4	15.0	107	7.1	504
				9	1.4	14.9	106	7.1	504
				10	1.4	14.8	106	7.1	506
				11	1.4	14.8	105	7.1	507
				12	1.4	14.8	105	7.1	507
				13	1.4	14.8	106	7.1	508
				14	1.4	14.8	105	7.1	507
				15	1.4	14.7	108	7.1	506
				16	1.4	14.6	104	7.1	505
				17	1.5	14.5	103	7.1	504
				18	1.5	14.4	103	7.1	503
				19	1.5	14.4	103	7.1	502
				20	1.5	14.3	103	7.1	503
				21	1.5	14.3	102	7.1	502
				22	1.5	14.2	101	7.1	502
				23	1.5	14.1	101	7.0	502
				24	1.5	13.8	99	7.0	500
				25	1.6	13.7	98	7.0	498
				26	1.6	13.2	95	7.0	497
				27	1.7	12.2	88	7.0	491

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	15-Apr-12	1.3	-	1.6	1.9	18.9[(l)]	137[(l)]	6.5	472
				2	1.4	19.4[(l)]	138[(l)]	6.5	466
				3	1.4	19.5[(l)]	139[(l)]	6.5	487
				4	1.4	19.7[(l)]	141[(l)]	6.5	497
				5	1.3	19.8[(l)]	141[(l)]	6.6	506
				6	1.3	19.9[(l)]	141[(l)]	6.6	518
				7	1.3	19.9[(l)]	142[(l)]	6.5	520
				8	1.4	19.9[(l)]	142[(l)]	6.6	524
				9	1.4	20.0[(l)]	142[(l)]	6.6	524
				10	1.4	20.0[(l)]	142[(l)]	6.6	525
				11	1.4	20.0[(l)]	143[(l)]	6.6	525
				12	1.4	20.0[(l)]	142[(l)]	6.6	526
				13	1.4	20.0[(l)]	143[(l)]	6.6	526
				14	1.4	20.0[(l)]	143[(l)]	6.6	527
				15	1.4	20.0[(l)]	142[(l)]	6.7	529
				16	1.4	20.0[(l)]	142[(l)]	6.7	531
				17	1.4	19.9[(l)]	142[(l)]	6.7	533
				18	1.4	19.9[(l)]	142[(l)]	6.7	534
				19	1.4	19.8[(l)]	141[(l)]	6.6	536
				20	1.4	19.8[(l)]	141[(l)]	6.6	539
				21	1.3	19.8[(l)]	141[(l)]	6.6	542
				22	1.3	19.7[(l)]	140[(l)]	6.6	545
				23	1.3	19.6[(l)]	139[(l)]	6.6	549
				24	1.3	19.5[(l)]	139[(l)]	6.6	549
				25	1.4	19.1[(l)]	136[(l)]	6.6	550
				26	1.4	19.0[(l)]	136[(l)]	6.6	553
	17-Apr-12	1.4	-	2	1.3	14.1	100	7.0	469
				3	1.4	14.2	101	7.0	494
				4	1.4	14.4	102	7.0	508
				5	1.4	14.4	103	7.0	519
				6	1.4	14.5	103	7.0	525
				7	1.4	14.5	103	7.0	528
				8	1.4	14.5	103	7.0	530
				9	1.5	14.5	103	7.0	532
				10	1.5	14.5	103	7.0	532
				11	1.5	14.4	103	7.0	533
				12	1.5	14.4	103	7.0	533
				13	1.5	14.4	103	7.0	534
				14	1.5	14.4	103	7.0	535
				15	1.5	14.4	103	7.0	536
				16	1.5	14.4	103	7.0	537
				17	1.5	14.3	102	7.0	538
				18	1.5	14.3	102	7.0	540
				19	1.5	14.2	102	7.0	542
				20	1.5	14.2	101	7.0	543
				21	1.5	14.2	101	6.9	550
				22	1.5	14.1	101	6.9	553
				23	1.5	14.0	100	6.9	556
				24	1.5	13.9	99	6.9	557
				25	1.5	13.7	98	6.9	558
				26	1.5	13.6	97	6.9	558

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-May-12	1.3	-	1.5	3.4	12.5	94	6.0	494
				2	2.9	12.7	94	6.1	485
				3	2.4	13.0	95	6.2	526
				4	2.2	13.1	96	6.2	534
				5	2.2	13.1	96	6.3	535
				6	2.1	13.2	96	6.4	532
				7	2.1	13.2	95	6.4	534
				8	2.1	13.1	95	6.4	532
				9	2.1	13.2	96	6.4	531
				10	2.1	13.2	96	6.5	532
				11	2.1	13.2	96	6.5	531
				12	2.1	13.2	96	6.5	531
				13	2.1	13.2	96	6.5	535
				14	2.1	13.2	96	6.5	535
				15	2.1	13.2	96	6.5	537
				16	2.1	13.2	96	6.6	537
				17	2.1	13.2	96	6.6	537
				18	2.1	13.2	96	6.6	537
				19	2.2	13.2	96	6.6	537
				20	2.2	13.2	96	6.6	537
				21	2.2	13.2	96	6.6	537
				22	2.2	13.1	96	6.6	538
				23	2.2	13.1	95	6.6	539
				24	2.2	13.1	95	6.6	539
				25	2.2	13.0	95	6.6	540
				26	2.2	13.0	95	6.6	541
				27	2.2	13.0	94	6.6	541
				28	2.2	12.9	94	6.6	543
	8-Jul-12	-	6.0	0.3	14.8	10.2	101	7.3	391
				1	14.5	10.2	100	7.3	394
				2	14.1	10.3	100	7.3	400
				3	13.9	10.4	100	7.3	400
				4	13.8	10.4	100	7.3	400
				5	13.8	10.3	100	7.3	399
				6	13.7	10.3	100	7.4	399
				7	13.6	10.4	100	7.4	396
				8	13.6	10.4	100	7.4	397
				9	13.6	10.4	100	7.4	396
				10	13.5	10.4	100	7.4	395
				11	13.4	10.3	99	7.4	394
				12	13.4	10.3	99	7.4	394
				13	13.3	10.3	98	7.4	395
				14	13.2	10.3	98	7.4	393
				15	13.1	10.2	98	7.4	391
				16	13.1	10.2	97	7.4	390
				17	13.0	10.2	96	7.4	391
				18	12.9	10.1	96	7.4	391
				19	12.6	10.0	95	7.4	392
				20	11.0	10.3	94	7.4	409
				21	7.2	11.4	95	7.3	463
				22	5.3	12.1	96	7.3	490
				23	4.7	12.4	97	7.3	497
				24	4.1	12.6	97	7.2	506
				25	3.9	12.6	96	7.2	508
				26	3.8	12.3	94	7.2	509

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	10-Aug-12[h]	-	7.0	0.5	17.0	9.7	101	6.4	407
				1	17.0	9.9	102	6.4	407
				2	17.0	10.1	105	6.6	407
				3	17.0	9.8	102	6.7	407
				4	16.9	9.8	102	6.7	407
				5	16.9	9.8	102	6.8	408
				6	16.9	9.8	102	6.8	407
				7	16.9	9.8	102	6.9	407
				8	16.9	9.8	102	6.9	407
				9	16.8	9.9	102	7.0	412
				10	16.8	9.9	102	7.0	416
				11	16.8	9.9	102	7.0	414
				12	16.8	9.9	102	7.1	416
				13	16.8	9.9	102	7.1	416
				14	16.8	9.9	102	7.1	415
				15	16.8	9.8	101	7.1	414
				16	16.7	9.8	101	7.1	407
				17	16.6	9.8	101	7.2	406
				18	16.6	9.8	100	7.1	406
				19	16.5	9.7	99	7.1	405
				20	15.7	9.4	94	7.3	401
				21	8.5	9.3	80	7.2	448
				22	7.8	7.3	64	7.0	450
	11-Aug-12[m]	-	6.5	0.5	17.0	9.5	98	7.3	400
				1	17.0	9.5	98	7.3	400
				2	17.0	9.5	99	7.4	401
				3	17.0	9.5	99	7.4	401
				4	16.9	9.5	99	7.4	401
				5	16.9	9.6	99	7.4	402
				6	16.9	9.6	99	7.4	401
				7	16.9	9.6	99	7.4	401
				8	16.9	9.6	99	7.4	401
				9	16.9	9.6	99	7.4	401
				10	16.9	9.6	99	7.4	402
				11	16.9	9.6	99	7.4	402
				12	16.9	9.6	100	7.5	402
				13	16.8	9.7	100	7.5	403
				14	16.8	9.6	100	7.5	402
				15	16.8	9.6	99	7.5	402
				16	16.8	9.6	100	7.5	403
				17	16.8	9.7	100	7.5	404
				18	16.7	9.6	99	7.5	404
				19	16.5	9.6	98	7.5	404
				20	14.1	9.3	91	7.5	408
				21	9.8	9.4	84	7.4	447
				22	8.1	9.0	77	7.3	456
				23	7.5	8.7	73	7.3	459
				24	6.6	8.6	71	7.2	469
				25	5.8	8.5	68	7.1	476
				26 [b]	5.52 [b]	6.93 [b]	57.6 [b]	6.89 [b]	445 [b]

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	12-Aug-12	-	-	0.5	16.9	9.9	103	7.6	398
				1	16.9	10.0	103	7.6	398
				2	16.9	10.0	103	7.6	398
				3	16.9	10.0	103	7.6	398
				4	16.9	10.0	103	7.6	397
				5	16.9	10.0	103	7.6	397
				6	16.9	10.0	103	7.6	397
				7	16.9	10.0	103	7.6	397
				8	16.9	10.0	103	7.6	397
				9	16.9	10.0	103	7.6	396
				10	16.9	10.0	103	7.6	397
				11	16.9	10.0	103	7.6	397
				12	16.9	10.0	103	7.6	396
				13	16.9	10.0	103	7.6	398
				14	16.9	10.0	104	7.6	402
				15	16.9	10.0	104	7.6	401
				16	16.9	10.0	104	7.6	401
				17	16.8	10.0	104	7.6	400
				18	16.8	10.0	104	7.6	399
				19	16.6	10.0	103	7.6	399
				20	15.3	9.8	100	7.6	403
				21	8.7	9.3	81	7.5	449
				22	7.7	9.0	76	7.4	456
				23	7.0	8.9	73	7.3	460
				24	6.5	8.9	72	7.2	465
				25	6.0	8.8	71	7.2	471
	9-Sep-12	-	6.5	0.3	12.9	10.0	94	6.6	364[(n)]
				1	12.9	10.0	95	6.7	365[(n)]
				2	12.9	10.0	95	6.8	365[(n)]
				3	12.9	10.0	95	6.8	365[(n)]
				4	12.9	10.0	95	6.8	365[(n)]
				5	12.9	10.0	95	6.9	365[(n)]
				6	12.9	10.1	96	7.0	365[(n)]
				7	12.9	10.0	95	7.0	365[(n)]
				8	12.9	10.0	95	7.0	365[(n)]
				9	12.9	10.1	95	7.1	365[(n)]
				10	12.8	10.0	95	7.1	365[(n)]
				11	12.9	10.1	96	7.1	365[(n)]
				12	12.8	10.0	95	7.1	365[(n)]
				13	12.8	10.0	95	7.1	364[(n)]
				14	12.8	10.0	95	7.1	364[(n)]
				15	12.8	10.0	95	7.1	364[(n)]
				16	12.8	10.1	95	7.2	365[(n)]
				17	12.8	10.0	95	7.2	365[(n)]
				18	12.8	10.0	95	7.2	365[(n)]
				19	12.8	10.0	95	7.2	366[(n)]
				20	12.8	10.0	95	7.2	365[(n)]
				21	12.8	10.0	95	7.2	367[(n)]
				22	12.7	10.0	95	7.2	368[(n)]
				23	12.7	10.0	95	7.2	368[(n)]
				24	12.7	10.0	94	7.1	368[(n)]
SNP02-20f	19-Feb-12	1.1	-	1.5	0.7	14.4	101	7.0	463
				2	0.9	14.1	99	7.0	452
				3	1.1	14.1	99	7.0	473
				4	1.1	14.3	101	7.0	510
				5	1.1	14.4	102	7.0	512
				6	1.1	14.5	102	7.0	515
				7	1.2	14.5	103	7.0	516
				8	1.2	14.5	103	7.0	517
				9	1.2	14.5	103	7.0	518
				10	1.2	14.5	103	7.0	517
				11	1.2	14.5	103	7.0	518
				12	1.2	14.5	102	7.0	518
				13	1.2	14.5	102	7.0	518

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	21-Mar-12	1.4	-	1.7	0.8	14.9	104	6.5	480
				2	1.2	14.4	102	6.5	466
				3	1.4	14.6	104	6.6	498
				4	1.3	14.7	105	6.6	517
				5	1.3	14.7	105	6.6	521
				6	1.3	14.8	105	6.6	523
				7	1.3	14.7	105	6.7	524
				8	1.3	14.7	105	6.7	523
				9	1.4	14.7	105	6.7	524
				10	1.4	14.7	105	6.7	524
				11	1.4	14.7	105	6.8	524
				12	1.4	14.7	105	6.8	524
				13	1.4	14.6	104	6.8	525
				14	1.4	14.7	105	6.8	525
	15-Apr-12	1.5	-	2	1.4	19.3[(I)]	138[(I)]	6.7	458
				3	1.4	19.8[(I)]	141[(I)]	6.7	514
				4	1.4	20.0[(I)]	142[(I)]	6.7	524
				5	1.4	20.1[(I)]	143[(I)]	6.7	524
				6	1.4	20.2[(I)]	143[(I)]	6.7	523
				7	1.4	20.2[(I)]	144[(I)]	6.7	523
				8	1.4	20.2[(I)]	144[(I)]	6.7	524
				9	1.4	20.2[(I)]	144[(I)]	6.7	523
				10	1.4	20.2[(I)]	144[(I)]	6.7	524
				11	1.4	20.2[(I)]	144[(I)]	6.7	524
				12	1.4	20.2[(I)]	144[(I)]	6.7	525
				13	1.4	20.2[(I)]	144[(I)]	6.7	525
	17-Apr-12	1.5	-	2	1.0	14.2	100	7.0	480
				3	1.5	14.2	101	7.0	500
				4	1.5	14.4	103	7.0	526
				5	1.5	14.4	103	7.0	531
				6	1.5	14.5	103	6.9	530
				7	1.5	14.5	103	7.0	530
				8	1.5	14.5	103	7.0	529
				9	1.5	14.4	103	7.0	530
				10	1.5	14.5	103	7.0	529
				11	1.5	14.5	103	7.0	530
				12	1.5	14.4	103	7.0	530
				13	1.5	14.4	103	7.0	530
	13-May-12	1.3	-	1.5	1.7	12.8	92	6.8	456
				2	2.0	12.9	93	6.7	523
				3	2.0	13.0	94	6.7	530
				4	2.0	13.1	95	6.8	532
				5	2.0	13.1	95	6.8	534
				6	2.0	13.1	95	6.8	535
				7	2.1	13.1	95	6.8	535
				8	2.1	13.1	95	6.8	535
				9	2.1	13.1	95	6.8	535
				10	2.1	13.1	95	6.8	535
				11	2.1	13.1	95	6.8	535
				12	2.1	13.1	95	6.8	535
				13	2.1	13.1	95	6.8	535
				14	2.1	11.7	81	6.8	529
	8-Jul-12	-	-	0.3	15.7	10.1	102	7.3	392
				1	15.3	10.1	101	7.4	391
				2	15.1	10.2	101	7.4	391
				3	14.8	10.2	101	7.4	393
				4	14.5	10.2	101	7.4	397
				5	14.3	10.3	101	7.4	405
				6	14.1	10.4	101	7.4	408
				7	13.8	10.4	101	7.4	405
				8	13.6	10.4	100	7.4	401
				9	13.5	10.5	100	7.4	398
				10	13.4	10.4	100	7.4	393
				11	13.4	10.4	100	7.4	391
				12	13.3	10.5	100	7.4	387
				13	13.2	10.4	100	7.5	387
				14	13.2	10.4	100	7.5	387

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	10-Aug-12[h]	-	-	0.5	17.1	9.7	100	7.4	401
				1	17.1	9.7	101	7.4	401
				2	17.1	9.7	101	7.4	402
				3	17.1	9.7	101	7.4	401
				4	17.1	9.8	101	7.5	402
				5	17.1	9.8	101	7.5	402
				6	17.1	9.8	102	7.5	402
				7	17.1	9.8	102	7.5	402
				8	17.1	9.8	102	7.5	402
				9	17.0	9.8	102	7.5	402
				10	17.0	9.8	102	7.5	403
				11	17.0	9.9	102	7.5	403
				12	16.9	9.9	102	7.5	404
				13	16.9	9.9	102	7.5	406
				14	16.7	5.2	55	7.2	409
	11-Aug-12[m]	-	-	0.5	17.1	9.6	99	7.7	393
				1	17.1	9.6	99	7.7	394
				2	17.1	9.6	99	7.7	394
				3	17.0	9.6	99	7.7	398
				4	17.0	9.6	100	7.7	398
				5	17.0	9.6	100	7.6	399
				6	17.0	9.6	100	7.7	399
				7	17.0	9.7	100	7.7	399
				8	16.9	9.7	100	7.7	401
				9	16.9	9.7	100	7.7	404
				10	16.9	9.7	100	7.7	406
				11	16.9	9.7	100	7.7	406
				12	16.9	9.7	100	7.7	407
				13	16.8	9.7	100	7.6	406
	12-Aug-12	-	-	0.5	16.9	10.0	103	7.6	399
				1	16.9	10.0	103	7.6	398
				2	16.9	10.0	103	7.7	399
				3	16.9	10.0	103	7.7	399
				4	16.9	10.0	103	7.7	399
				5	16.9	10.0	103	7.7	399
				6	16.9	10.0	103	7.7	399
				7	16.9	10.0	103	7.6	401
				8	16.9	10.0	103	7.6	400
				9	16.9	10.0	103	7.6	401
				10	16.9	10.0	103	7.6	403
				11	16.9	10.0	103	7.6	404
				12	16.9	10.0	103	7.6	404
				13	16.9	10.0	103	7.6	404
	9-Sep-12	-	-	0.3	12.9	10.1	95	7.3	372[n]
				1	12.9	10.1	96	7.3	372[n]
				2	12.9	10.1	96	7.3	372[n]
				3	12.9	10.1	96	7.3	373[n]
				4	12.9	10.1	96	7.3	373[n]
				5	12.9	10.1	96	7.3	373[n]
				6	12.9	10.1	96	7.3	373[n]
				7	12.9	10.1	96	7.3	373[n]
				8	12.9	10.1	96	7.3	373[n]
				9	12.9	10.1	96	7.3	373[n]
				10	12.9	10.1	96	7.3	374[n]
				11	12.9	10.1	96	7.3	375[n]
				12	12.9	10.1	96	7.3	375[n]
				13	12.9	10.1	96	7.3	375[n]
				14	12.9	10.1	96	7.3	375[n]
SNAP03	14-Jan-12	0.9	-	1	0.3	16.6	115	6.4	437
				2	0.7	16.5	116	6.4	425
				3	0.9	16.1	113	6.5	428
				4	1.0	15.7	111	6.5	454
				5	1.0	15.6	110	6.5	463
				6	1.1	15.4	109	6.6	465
				7	1.1	15.3	108	6.6	467
				8	1.1	15.2	107	6.6	467
				9	1.3	14.8	105	6.7	459
				10	1.7	14.5	104	6.7	447
				11	2.0	13.8	100	6.7	440
				12	2.3	13.5	98	6.7	437
				13[b]	2.5[b]	1.9[b]	15[b]	6.5[b]	420[b]

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	18-Feb-12	1.2	-	1.5	0.7	14.5	101	6.8	465
				2	0.9	14.3	104	6.9	454
				3	1.0	14.8	104	6.9	477
				4	1.1	14.6	103	6.9	497
				5	1.1	14.4	102	6.9	506
				6	1.1	14.3	101	7.0	511
				7	1.1	14.3	101	7.0	513
				8	1.2	14.2	101	7.0	512
				9	1.3	14.1	100	7.0	508
				10	1.5	13.7	98	7.0	502
				11	1.8	13.0	94	7.0	495
				12	2.0	12.7	92	7.0	493
				13	2.3	10.8	80	6.9	493
	16-Mar-12	1.5	-	1.8	1.0	14.0	98	6.6	457
				2	1.1	14.0	98	6.6	455
				3	1.3	13.9	99	6.6	468
				4	1.3	13.8	98	6.6	496
				5	1.3	13.8	98	6.7	500
				6	1.3	13.7	98	6.7	502
				7	1.3	13.7	98	6.7	504
				8	1.4	13.7	97	6.7	504
				9	1.4	13.6	97	6.7	505
				10	1.7	13.2	95	6.7	493
				11	1.9	12.6	91	6.7	488
				12	2.1	12.3	89	6.7	485
	17-Apr-12	1.4	-	2	1.0	14.9	105	6.6	470
				3	1.4	14.8	105	6.6	488
				4	1.4	14.8	106	6.6	516
				5	1.5	14.6	104	6.6	522
				6	1.5	14.6	104	6.6	526
				7	1.5	14.5	104	6.6	527
				8	1.5	14.5	104	6.7	529
				9	1.5	14.5	103	6.7	529
				10	1.4	14.4	103	6.7	524
				11	1.9	14.0	101	6.7	518
				12	2.0	13.6	99	6.7	516
				13[b]	2.25[b]	9.95[b]	75.6[b]	6.68[b]	487[b]
	15-May-12	1.7	-	2	3.0	13.5	100	6.5	509
				3	2.6	13.7	101	6.6	538
				4	2.3	13.9	102	6.5	537
				5	2.3	13.9	102	6.6	532
				6	2.3	13.9	101	6.6	542
				7	2.3	13.9	101	6.6	533
				8	2.3	13.8	101	6.6	531
				9	2.3	13.9	101	6.6	530
				10	3.0	14.1	104	6.7	516
				11	3.2	14.5	108	6.7	513
				12	3.3	14.8	111	6.7	513
				13	3.3	7.4	59	6.6	510
	7-Jul-12	-	6.0	0.3	15.7	9.9	106	7.1	384
				1	15.1	10.1	100	7.1	384
				2	14.9	10.0	100	7.1	386
				3	14.7	10.0	99	7.3	386
				4	14.1	10.1	99	7.1	394
				5	13.7	10.2	99	7.2	394
				6	13.6	10.2	99	7.2	388
				7	13.5	10.2	98	7.2	387
				8	13.4	10.3	98	7.2	390
				9	13.3	10.3	98	7.2	387
				10	13.2	10.3	98	7.2	387
				11	13.2	10.3	98	7.2	388
				12	13.2	10.2	97	7.3	388
				13	13.0	5.8	63	7.2	386

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	13-Aug-12[h]	-	6.0	0.5	16.6	9.5	98	7.3	403
				1	16.6	9.5	98	7.3	403
				2	16.6	9.5	98	7.3	403
				3	16.6	9.5	98	7.3	403
				4	16.6	9.5	98	7.3	403
				5	16.6	9.5	98	7.3	403
				6	16.6	9.5	98	7.3	402
				7	16.6	9.5	98	7.3	402
				8	16.6	9.5	98	7.3	402
				9	16.6	9.5	98	7.4	402
				10	16.6	9.5	98	7.4	402
				11	16.6	9.5	98	7.4	402
				12	16.5	9.5	98	7.4	400
	7-Sep-12	-	7.0	0.3	13.5	11.0	106	7.1	362[n]
				1	13.4	11.0	105	7.2	363[n]
				2	13.3	11.0	105	7.1	363[n]
				3	13.3	11.0	105	7.2	363[n]
				4	13.3	11.0	105	7.2	363[n]
				5	13.3	11.0	105	7.3	363[n]
				6	13.3	11.0	105	7.3	363[n]
				7	13.3	11.0	105	7.3	363[n]
				8	13.3	11.0	105	7.3	363[n]
				9	13.3	11.0	105	7.3	363[n]
				10	13.3	11.0	105	7.3	363[n]
				11	13.3	11.0	105	7.3	363[n]
				12	13.3	11.0	105	7.3	363[n]
				13	13.5[b]	0.9[b]	10[b]	6.7[b]	347[b]
SNAP05	18-Feb-12	1.2	-	1.5	0.6	14.1	98	6.8	451
				2	1.0	13.9	98	6.9	441
				3	1.1	14.0	99	6.9	443
				4	1.0	14.4	101	6.9	489
				5	1.1	14.2	101	6.9	502
				6	1.2	14.2	100	6.9	506
				7	1.3	13.9	98	7.0	503
				8	1.4	13.4	95	7.0	498
				9	1.7	13.2	95	7.0	492
				10	2.2	12.4	90	6.9	481
				11	2.4	12.1	88	6.9	478
				12	2.6	11.9	88	6.9	477
				13	2.7	10.9	82	6.9	472
				14	3.0	6.9	74	6.8	481
	16-Mar-12	1.5	-	1.5	0.8	13.4	94	6.8	447
				2	1.2	13.2	93	6.8	441
				3	1.4	13.0	92	6.8	437
				4	1.3	13.6	97	6.8	479
				5	1.4	13.6	97	6.7	493
				6	1.4	13.5	96	6.8	499
				7	1.5	13.5	96	6.8	496
				8	1.7	13.1	94	6.8	489
				9	2.0	12.3	89	6.8	480
				10	2.3	12.0	88	6.8	477
				11	2.7	11.6	86	6.8	474
				12	2.8	11.2	83	6.8	471
				13	3.0	10.8	81	6.8	471
	17-Apr-12	1.5	-	2	0.3	14.5	100	6.8	468
				3	1.4	14.2	101	6.8	461
				4	1.4	15.1	107	6.8	504
				5	1.5	14.7	105	6.8	516
				6	1.5	14.3	102	6.8	523
				7	1.6	14.3	102	6.8	519
				8	1.8	13.7	99	6.8	515
				9	2.1	13.2	96	6.8	509
				10	2.4	12.7	93	6.8	502
				11	2.7	12.4	92	6.8	497
				12	2.8	12.1	90	6.8	495
				13	2.9	11.5	86	6.8	497
				14	3.1	11.0	83	6.8	500

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	14-May-12	1.4	-	2	2.4	13.5	99	6.6	264
				3	2.5	13.2	97	6.6	268
				4	2.6	13.9	102	6.6	280
				5	2.2	14.0	102	6.6	295
				6	2.9	14.0	104	6.6	290
				7	2.9	13.9	103	6.7	290
				8	2.7	13.5	100	6.6	297
				9	2.9	13.0	97	6.6	297
				10	3.1	13.1	98	6.6	297
				11	3.1	13.0	97	6.6	299
				12	3.2	13.1	98	6.6	300
				13	3.3	13.5	101	6.6	302
				14	3.6	12.6	96	6.6	303
	7-Jul-12	-	-	0.3	15.5	9.9	100	7.2	389
				1	15.3	9.9	99	7.2	388
				2	14.5	10.1	99	7.2	385
				3	14.5	10.1	99	7.3	384
				4	14.3	10.1	99	7.3	386
				5	14.0	10.1	99	7.3	386
				6	13.6	10.2	98	7.3	389
				7	13.5	10.2	98	7.3	391
				8	13.4	10.3	98	7.3	387
				9	13.3	10.3	98	7.3	387
				10	13.1	10.3	98	7.3	386
				11	13.0	10.3	98	7.3	385
				12	13.0	10.3	97	7.4	385
				13	12.8	10.3	98	7.4	384
	10-Aug-12[(m)]	-	-	0.5	17.2	9.8	101	7.6	394
				1	17.2	9.8	102	7.6	395
				2	17.2	9.8	102	7.6	395
				3	17.2	9.8	102	7.6	395
				4	17.2	9.8	102	7.7	395
				5	17.2	9.8	102	7.6	395
				6	17.2	9.8	102	7.7	395
				7	17.2	9.8	102	7.7	394
				8	17.2	9.8	102	7.7	395
				9	17.2	9.8	102	7.6	395
				10	17.2	9.8	102	7.6	395
				11	17.2	9.9	102	7.6	394
	11-Aug-12	-	-	0.5	17.1	9.6	99	7.6	397
				1	17.1	9.6	99	7.7	397
				2	17.0	9.6	100	7.7	397
				3	17.0	9.6	100	7.7	397
				4	17.0	9.6	100	7.7	397
				5	17.0	9.6	100	7.7	397
				6	17.0	9.6	100	7.7	396
				7	17.0	9.6	100	7.7	396
				8	17.0	9.6	100	7.7	396
				9	17.0	9.6	100	7.7	396
				10	17.0	9.6	99	7.6	396
				11	17.0	9.6	99	7.7	396
				12	17.0	9.6	99	7.7	396
				13	17.0	9.6	100	7.7	396
				14	17.0	9.6	100	7.7	396
	12-Aug-12	-	-	0.5	16.8	9.8	101	7.3	398
				1	16.8	9.8	102	7.4	398
				2	16.8	9.9	102	7.4	397
				3	16.8	9.9	102	7.5	398
				4	16.8	9.9	102	7.5	398
				5	16.8	9.9	102	7.5	398
				6	16.8	9.9	102	7.5	398
				7	16.8	9.9	102	7.5	398
				8	16.8	9.9	102	7.5	399
				9	16.8	9.9	102	7.5	399
				10	16.8	9.9	102	7.5	399
				11	16.8	9.9	102	7.5	399
				12	16.8	9.9	102	7.5	399
				13	16.8	9.9	102	7.5	400
				14	16.8	9.9	102	7.5	399

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	11-Sep-12	-	6.5	0.3	12.0	10.6	99	7.2	401
				1	12.0	10.6	99	7.2	401
				2	12.0	10.6	99	7.2	401
				3	12.0	10.6	99	7.2	401
				4	12.0	10.6	99	7.2	401
				5	12.0	10.6	99	7.2	401
				6	12.0	10.6	99	7.2	401
				7	12.0	10.7	99	7.2	401
				8	12.0	10.7	99	7.2	402
				9	12.0	10.7	99	7.3	402
				10	12.0	10.7	99	7.3	402
				11	12.0	10.7	99	7.3	402
				12	12.0	10.7	99	7.3	402
SNAP06	17-Feb-12	1.3	-	1.5	0.2	12.2	84	6.9	453
				2	0.7	12.1	85	6.9	438
				3	1.2	11.8	83	6.9	438
				4	1.2	12.0	85	6.9	456
				5	1.3	12.2	86	6.9	484
				6	1.4	11.8	84	6.9	481
				7	1.5	11.5	82	6.9	486
				8	1.7	11.4	82	6.9	485
				9	1.9	11.1	80	6.9	478
				10	2.1	10.6	77	6.9	473
				11	2.3	10.3	75	6.9	470
				12	2.5	9.8	72	6.9	467
	17-Mar-12	1.6	-	1.9	0.7	14.5	101	6.8	459
				2	0.9	14.4	101	6.8	454
				3	1.5	13.9	99	6.8	444
				4	1.5	14.0	100	6.8	458
				5	1.4	14.0	100	6.8	483
				6	1.5	13.9	99	6.8	493
				7	1.7	13.4	96	6.8	488
				8	1.8	13.2	95	6.8	482
				9	2.1	12.7	92	6.8	475
				10	2.4	12.2	90	6.8	470
				11	2.6	11.8	88	6.8	470
				12	2.8	11.4	84	6.8	465
	16-Apr-12	1.5	-	2	0.9	13.8	97	6.7	473
				3	1.4	13.6	97	6.7	477
				4	1.5	13.9	99	6.7	491
				5	1.4	14.0	100	6.7	516
				6	1.4	13.9	99	6.6	529
				7	1.5	13.7	98	6.7	525
				8	1.8	13.3	96	6.7	509
				9	2.0	12.9	93	6.7	506
				10	2.3	12.4	90	6.6	500
				11	2.5	12.0	88	6.6	497
				12	2.7	11.6	86	6.6	496
				13	3.0	11.1	83	6.6	493
	14-May-12	1.6	-	2	1.6	13.2	95	6.6	439
				3	2.4	12.8	94	6.6	474
				4	3.1	13.0	97	6.6	465
				5	3.7	13.3	101	6.6	462
				6	3.5	13.6	102	6.5	468
				7	2.9	13.4	100	6.6	505
				8	2.8	12.7	94	6.6	506
				9	3.0	12.7	94	6.6	502
				10	3.1	19.5[e]	93	6.6	502
				11	3.2	12.5	93	6.6	503
				12	3.5	12.9	97	6.6	502

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Jul-12	-	7.0	0.3	16.4	9.6	98	6.5	382
				1	16.5	9.6	98	6.6	382
				2	16.5	9.6	98	6.6	382
				3	16.5	9.6	98	6.7	382
				4	16.5	9.5	98	6.7	382
				5	16.4	9.6	98	6.8	382
				6	16.4	9.6	98	6.8	382
				7	16.4	9.6	98	6.8	382
				8	15.9	9.8	99	6.8	383
				9	15.3	10.1	101	6.9	384
				10	15.1	10.2	101	6.9	384
				11	15.0	10.2	101	6.9	384
				12	14.8	10.3	101	6.9	384
				13	14.6	10.3	101	6.9	383
	10-Aug-12[(m)]	-	6.5	0.5	17.4	9.8	102	7.7	385
				1	17.4	9.8	102	7.7	385
				2	17.4	9.8	102	7.7	385
				3	17.4	9.8	102	7.7	385
				4	17.4	9.8	102	7.7	385
				5	17.4	9.8	103	7.7	386
				6	17.3	9.8	103	7.7	386
				7	17.3	9.8	103	7.7	386
				8	17.3	9.8	102	7.7	386
				9	17.2	9.8	102	7.7	386
				10	17.2	9.8	102	7.7	386
				11	17.2	9.8	102	7.7	386
				12	17.2	9.9	103	7.7	386
				13	17.1	7.9	81	7.5	386
	11-Sep-12	-	5.5	0.3	12.1	10.1	94	7.0	406
				1	12.1	10.1	94	7.0	405
				2	12.1	10.1	94	7.0	405
				3	12.2	10.1	94	7.1	405
				4	12.1	10.1	94	7.1	405
				5	12.1	10.1	94	7.1	406
				6	12.2	10.1	94	7.1	405
				7	12.2	10.1	94	7.1	405
				8	12.2	10.1	94	7.1	405
				9	12.2	10.1	94	7.1	405
				10	12.2	10.1	94	7.1	405
				11	12.2	10.1	94	7.2	406
				12	12.2	10.0	94	7.1	405
SNAP12	18-Feb-12	1.0	-	1.5	0.7	14.3	100	6.9	453
				2	1.1	14.1	99	6.9	444
				3	1.2	13.8	98	6.9	447
				4	1.1	14.1	100	6.9	498
				5	1.1	14.4	102	6.9	510
				6	1.2	14.4	102	6.9	515
				7	1.2	14.2	101	6.9	515
	16-Mar-12	1.2	-	1.5	0.7	13.7	96	6.8	457
				2	1.2	13.4	95	6.8	446
				3	1.3	13.7	97	6.8	476
				4	1.3	13.7	98	6.8	497
				5	1.4	13.7	97	6.8	501
				6	1.4	13.7	97	6.8	508
				7	1.4	13.6	97	6.8	508
	17-Apr-12	1.3	-	1.5	0.8	14.4	101	6.9	476
				2	1.3	14.0	96	6.9	461
				3	1.5	14.3	102	6.9	495
				4	1.5	14.4	103	6.8	522
				5	1.5	14.4	103	6.9	525
				6	1.5	14.4	103	6.9	529
				7	1.5	14.4	103	6.9	529
	15-May-12	1.3	-	1.5	1.7	13.4	97	6.7	459
				2	2.4	13.3	98	6.7	472
				3	2.2	13.7	99	6.7	525
				4	2.2	13.8	100	6.7	525
				5	2.2	13.8	100	6.7	525
				6	2.3	13.8	100	6.7	528
				7	2.3	13.8	100	6.7	529

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	13-Jul-12	-	7.5	0.3	16.1	9.8	99	6.1	387
				1	16.1	9.8	99	6.2	387
				2	16.1	9.7	99	6.3	387
				3	16.1	9.7	99	6.3	387
				4	16.1	9.7	99	6.4	387
				5	16.1	9.7	99	6.4	387
				6	16.0	9.7	99	6.5	387
				7	16.0	9.8	99	6.5	387
	10-Aug-12[m]	-	-	0.5	17.2	9.7	101	7.5	397
				1	17.2	9.7	101	7.5	397
				2	17.2	9.7	101	7.6	398
				3	17.2	9.8	102	7.6	398
				4	17.2	9.8	102	7.6	398
				5	17.2	9.8	102	7.6	398
				6	17.2	9.8	102	7.6	398
				7	17.2	9.8	102	7.6	398
	11-Aug-12	-	-	0.5	17.0	9.5	99	7.5	399
				1	17.0	9.5	99	7.5	399
				2	17.0	9.5	99	7.6	399
				3	17.0	9.6	99	7.6	398
				4	17.0	9.6	99	7.6	398
				5	17.0	9.6	99	7.6	397
				6	17.0	9.6	100	7.6	397
				7	17.0	9.6	100	7.6	397
	12-Aug-12	-	-	0.5	16.8	9.9	102	7.6	399
				1	16.8	9.9	102	7.6	399
				2	16.9	9.9	102	7.6	399
				3	16.9	9.9	102	7.6	399
				4	16.9	9.9	102	7.6	399
				5	16.9	9.9	102	7.6	399
				6	16.9	9.9	102	7.6	399
				7	16.9	9.9	102	7.6	399
	7-Sep-12	-	6.2	0.3	13.4	11.1	106	6.9	363[n]
				1	13.3	11.0	106	7.0	363[n]
				2	13.3	11.0	105	7.0	363[n]
				3	13.3	11.0	105	7.1	364[n]
				4	13.3	11.2	108	7.1	363[n]
				5	13.3	11.0	105	7.1	363[n]
				6	13.3	11.4	105	7.2	363[n]
				7	13.3	11.0	106	7.2	364[n]
				7.5	13.3	11.0	106	7.2	364[n]
SNAP26	18-Feb-12	1.1	-	1.5	0.2	15.4	106	6.9	481
				2	0.7	15.2	106	6.9	479
				3	1.0	15.0	106	6.9	478
				4	1.4	13.8	98	6.9	471
				5	2.5	11.5	84	6.9	470
	16-Mar-12	1.3	-	1.5	0.1	15.0	103	6.9	507
				2	0.5	14.8	103	6.9	500
				3	1.2	14.2	101	6.9	488
				4	1.6	13.7	98	6.9	487
				5	2.8	11.9	88	6.8	470
	17-Apr-12	1.3	-	1.5	0.5	15.5	108	6.9	515
				2	0.9	15.3	108	6.9	506
				3	1.3	15.0	107	7.0	508
				4	1.6	14.6	105	6.9	511
				5	2.7	13.4	100	6.9	501
	14-May-12	1.3	-	1.5	1.5	13.0	93	6.6	231
				2	2.3	13.0	97	6.5	476
				3	2.3	13.7	100	6.5	509
				4	3.1	13.6	101	6.5	513
				5	3.6	13.4	101	6.5	513
	11-Jul-12	-	-	0.3	17.4	10.0	105	6.3	391
				1	17.4	10.0	105	6.5	392
				2	17.2	10.1	105	6.5	392
				3	16.0	10.7	108	6.6	397
				4	15.4	10.8	108	6.7	399
				5	14.9	10.8	107	6.7	401

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	16-Aug-12[m]	-	-	0.5	14.9	9.9	98	7.2	401
				1	14.9	9.9	98	7.3	401
				2	14.9	9.9	98	7.4	401
				3	14.9	9.9	98	7.4	401
				4	14.8	9.9	98	7.4	401
				5	14.6	10.0	99	7.4	400
	7-Sep-12	-	6.0	0.3	13.0	11.0	104	6.9	369[n]
				1	12.9	10.9	104	7.0	370[n]
				2	12.9	10.9	104	7.0	370[n]
				3	12.9	11.0	104	7.0	370[n]
				4	12.9	11.0	104	7.1	369[n]
				5	12.9	11.0	104	7.1	369[n]
				5.5	12.9	11.0	104	7.1	369[n]
SNAP28	18-Feb-12	0.9	-	1.5	0.7	15.3	107	6.9	458
				2	0.7	15.6	109	6.9	466
				3	1.0	15.0	106	6.9	481
				4	1.1	14.6	103	6.9	502
				5	1.1	14.5	103	6.9	505
				6	1.1	14.5	102	7.0	508
	16-Mar-12	1.2	-	1.5	1.0	14.2	100	6.9	458
				2	1.2	14.1	100	6.9	460
				3	1.3	13.8	98	6.9	495
				4	1.3	13.7	98	6.9	504
				5	1.3	13.7	98	6.9	505
				6	1.3	13.7	98	6.9	506
	17-Apr-12	1.1	-	1.5	1.2	14.3	102	7.0	460
				2	1.3	14.3	102	7.0	459
				3	1.4	14.3	102	7.0	513
				4	1.5	14.4	103	7.0	525
				5	1.5	14.4	103	7.0	528
				6	1.5	14.4	103	7.0	529
				7	1.5	14.3	102	7.0	529
	11-Jul-12		-	0.3	16.2	10.4	106	6.9	400
				1	15.6	10.5	106	7.0	403
				2	15.0	10.6	106	7.0	404
				3	14.8	10.7	106	7.1	405
				4	14.7	10.7	106	7.2	405
				5	14.5	10.8	106	7.2	404
				6	14.3	10.8	106	7.2	402
				7	14.2	10.8	106	7.2	401
	16-Aug-12[m]	-	-	0.5	15.3[o]	9.9[o]	98[o]	7.5[o]	401[o]
				1	15.3[o]	9.9[o]	99[o]	7.5[o]	401[o]
				2	15.3[o]	9.9[o]	99[o]	7.5[o]	401[o]
				3	15.3[o]	9.9[o]	99[o]	7.5[o]	402[o]
	7-Sep-12	-	5.5	0.3	13.5	10.7	103	5.6	368[n]
				1	13.3	10.8	103	6.2	369[n]
				2	13.3	10.9	104	6.4	369[n]
				3	13.3	10.9	104	6.6	369[n]
				4	13.3	10.9	104	6.7	369[n]
				5	13.3	10.9	104	6.7	369[n]
				6	13.3	11.0	105	6.7	369[n]
				7	13.3	11.0	105	6.9	369[n]
SNAP09	17-Feb-12	1.2	-	1.5	1.2	11.4	82	6.7	439
				2	1.5	11.3	81	6.8	424
				3	1.5	11.1	80	6.8	423
				4	1.5	10.9	78	6.8	428
				5	1.6	10.8	77	6.8	434
				6	1.6	10.6	76	6.8	441
				7	1.6	10.6	76	6.8	444
				8	1.6	10.7	76	6.8	447
				9	1.6	10.6	76	6.8	452
				10	1.7	10.5	75	6.8	453
				11	1.8	10.3	74	6.8	450
				12	1.9	10.0	72	6.8	448
				13	2.0	9.8	71	6.8	445
				14	2.1	9.7	70	6.8	446

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	16-Mar-12	1.2	-	1.5	1.0	12.6	89	6.9	431
				2	1.5	12.3	88	6.9	424
				3	1.6	12.0	86	6.9	424
				4	1.6	11.8	85	6.9	428
				5	1.6	12.0	86	6.9	441
				6	1.6	12.0	86	6.9	445
				7	1.7	11.9	86	6.9	448
				8	1.7	12.0	86	6.8	454
				9	1.8	11.8	85	6.8	452
				10	1.8	11.8	85	6.8	453
				11	1.9	11.7	84	6.8	455
				12	2.1	11.3	82	6.8	449
				13	2.2	10.9	79	6.8	445
				14	2.4	10.6	78	6.8	444
	16-Apr-12	1.4	-	2	1.5	12.6	90	6.7	458
				3	1.7	12.5	90	6.7	459
				4	1.7	12.5	89	6.7	464
				5	1.7	12.5	89	6.7	472
				6	1.7	12.4	89	6.7	475
				7	1.7	12.4	89	6.7	481
				8	1.7	12.4	89	6.6	483
				9	1.8	12.3	89	6.6	484
				10	1.8	12.2	88	6.6	485
				11	1.9	11.9	86	6.6	479
				12	2.0	11.6	84	6.6	478
				13	2.2	11.4	83	6.6	475
				14	2.3	11.0	81	6.6	473
	14-May-12	1.4	-	1.5	1.0	12.3	86	6.4	295
				2	2.4	12.1	89	6.3	460
				3	2.5	12.5	92	6.4	467
				4	2.5	12.5	92	6.4	467
				5	2.5	12.5	92	6.4	469
				6	2.4	12.5	92	6.4	478
				7	2.3	12.4	91	6.4	482
				8	2.3	12.7	93	6.4	486
				9	2.3	12.5	91	6.4	485
				10	2.6	12.3	91	6.4	481
				11	2.8	12.3	91	6.4	479
				12	2.9	12.0	89	6.4	478
				13	3.0	11.6	86	6.4	481
				14	3.1	11.7	87	6.4	480
				15	3.2	11.1	84	6.4	475
	12-Jul-12	-	-	0.3	16.9	9.7	101	7.2	386
				1	16.9	9.7	100	7.2	386
				2	16.9	9.7	100	7.2	386
				3	16.9	9.7	100	7.3	386
				4	16.9	9.7	100	7.3	386
				5	16.9	9.7	100	7.3	386
				6	16.9	9.7	100	7.3	386
				7	16.8	9.7	100	7.3	386
				8	16.1	10.1	102	7.3	386
				9	14.2	10.6	103	7.4	385
				10	14.1	10.6	103	7.4	385
				11	13.8	10.7	103	7.4	386
				12	13.5	10.7	103	7.4	385
				13	13.3	10.7	103	7.4	385
				14	13.0	10.7	102	7.4	385
				15	12.6	3.0	34	7.3	384
	14-Aug-12[(m)]	-	-	0.5	16.1	9.8	100	7.5	385
				1	16.1	9.8	100	7.5	385
				2	16.2	9.8	100	7.6	385
				3	16.2	9.8	100	7.6	385
				4	16.2	9.8	100	7.6	385
				5	16.2	9.8	100	7.6	385
				6	16.2	9.8	100	7.6	385
				7	16.2	9.8	100	7.6	385
				8	16.2	9.8	100	7.6	385
				9	16.2	9.8	100	7.6	385
				10	16.2	9.8	100	7.6	385
				11	16.2	9.8	100	7.6	385
				12	16.1	9.8	100	7.6	385
				13	16.1	9.8	100	7.6	385

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Sep-12	-	5.3	0.3	11.3	10.8	99	7.2	396
				1	11.3	10.8	99	7.2	396
				2	11.3	10.8	99	7.2	396
				3	11.3	10.8	99	7.2	396
				4	11.3	10.8	99	7.3	396
				5	11.3	10.9	99	7.2	396
				6	11.3	10.8	99	7.3	396
				7	11.3	10.8	99	7.2	396
				8	11.3	10.8	99	7.2	396
				9	11.3	10.8	99	7.2	396
				10	11.3	10.8	99	7.3	396
				11	11.3	10.8	99	7.3	397
				12	11.3	10.8	99	7.3	397
				13	11.3	10.8	99	7.3	397
				14	11.3	10.8	99	7.3	397
SNAP11A	17-Feb-12	1.2	-	1.5	1.2	12.0	85	6.8	450
				2	1.2	12.0	85	6.9	439
				3	1.3	11.8	84	6.9	439
				4	1.3	11.5	82	6.9	444
				5	1.3	11.5	82	6.9	457
				6	1.3	11.5	82	6.9	466
				7	1.3	11.6	82	6.9	469
				8	1.4	11.5	82	6.9	472
				9	1.3	11.6	83	6.9	482
				10	1.3	11.7	83	6.9	481
				11	1.4	11.5	82	6.9	476
				12	1.5	11.4	82	6.9	475
				13	1.5	11.4	82	6.9	484
				14	1.8	11.1	80	6.9	474
				15	2.0	10.6	77	6.9	469
				16	2.4	9.9	73	6.9	463
	16-Mar-12	1.6	-	1.9	1.2	13.3	94	6.9	445
				2	1.3	13.2	94	6.9	443
				3	1.4	13.0	92	6.9	443
				4	1.5	12.8	91	6.9	448
				5	1.5	12.7	91	6.9	456
				6	1.5	12.6	90	6.9	460
				7	1.6	12.6	90	6.9	462
				8	1.6	12.6	90	6.9	467
				9	1.7	12.5	90	6.9	466
				10	1.7	12.5	90	6.9	469
				11	1.6	12.8	91	6.9	480
				12	1.6	12.7	91	6.9	478
				13	1.8	12.5	90	7.9[(p)]	475
	16-Apr-12	1.6	-	2	1.3	13.7	97	6.6	470
				3	1.5	13.3	95	6.6	473
				4	1.5	13.2	94	6.6	479
				5	1.5	13.1	94	6.6	486
				6	1.5	13.1	94	6.6	491
				7	1.6	13.1	93	6.6	491
				8	1.6	13.0	93	6.6	496
				9	1.6	12.9	93	6.6	498
				10	1.6	13.2	94	6.6	506
				11	1.5	13.3	95	6.6	514
				12	1.6	13.4	96	6.6	513
				13	1.7	13.3	95	6.6	512
				14	1.9	12.7	92	6.6	502
				15	2.2	12.0	88	6.6	497
				16	2.5	11.3	83	6.6	492

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	14-May-12	1.5	-	1.5	1.4	13.0	93	6.5	430
				2	2.2	13.1	95	6.5	475
				3	2.3	13.1	96	6.5	483
				4	2.3	13.1	96	6.5	484
				5	2.2	13.1	95	6.5	491
				6	2.2	13.0	95	6.5	491
				7	2.1	13.0	95	6.5	502
				8	2.1	12.9	93	6.5	503
				9	2.3	12.7	93	6.5	494
				10	2.4	12.3	92	6.5	490
				11	2.9	12.5	93	6.5	483
				12	2.8	12.5	93	6.5	489
				13	2.8	12.4	92	6.5	494
				14	3.0	12.7	94	6.5	492
				15	3.0	12.9	96	6.5	492
				16	3.0	13.0	97	6.5	495
	12-Jul-12	-	7.0	0.3	16.7	9.8	101	7.4	384
				1	16.7	9.8	101	7.4	385
				2	16.7	9.8	101	7.4	384
				3	16.6	9.8	101	7.4	384
				4	16.6	9.8	101	7.4	384
				5	16.6	9.8	101	7.4	384
				6	15.2	10.4	100	7.5	385
				7	14.8	10.5	100	7.5	385
				8	14.2	10.6	103	7.5	385
				9	13.5	10.7	103	7.5	385
				10	13.2	10.8	103	7.5	384
				11	12.9	10.7	101	7.5	384
				12	12.8	10.7	101	7.5	384
				13	12.7	10.7	101	7.5	384
				14	12.7	10.7	101	7.5	384
				15	12.7	10.7	101	7.5	384
	13-Aug-12[(m)]	-	8.0	0.5	16.6	9.5	97	7.0	386
				1	16.6	9.4	97	7.0	386
				2	16.6	9.4	97	7.0	386
				3	16.6	9.4	97	7.0	386
				4	16.6	9.4	97	7.1	386
				5	16.6	9.4	97	7.1	386
				6	16.6	9.4	97	7.1	385
				7	16.6	9.4	97	7.1	386
				8	16.6	9.4	97	7.1	386
				9	16.6	9.4	97	7.1	386
				10	16.6	9.4	97	7.1	386
				11	16.6	9.4	97	7.1	386
				12	16.6	9.4	97	7.1	386
				13	16.5	9.4	97	7.1	386
				14	16.5	9.4	97	7.2	386
				15	16.5	9.4	97	7.2	386
				16	16.5	9.4	97	7.2	385
	13-Sep-12	-	4.8	0.3	11.4	10.7	98	7.0	397
				1	11.4	10.7	98	7.0	397
				2	11.4	10.7	98	7.1	396
				3	11.4	10.7	98	7.1	396
				4	11.4	10.7	98	7.1	396
				5	11.4	10.7	98	7.2	396
				6	11.4	10.7	98	7.2	396
				7	11.4	10.7	98	7.2	396
				8	11.4	10.7	98	7.2	396
				9	11.4	10.7	98	7.2	396
				10	11.4	10.7	98	7.2	396
				11	11.4	10.9	100	7.2	396
				12	11.4	10.7	99	7.2	396
				13	11.4	10.8	98	7.2	396
				14	11.3	10.8	98	7.2	396
				15	11.3	10.8	98	7.2	395
				16	11.3	10.8	98	7.2	395
SNAP04	18-Feb-12	1.2	-	1.5	0.7	14.3	100	7.0	469
				2	1.1	14.1	100	7.0	460
				2.5	1.5	13.9	99	7.0	453
				3	1.7	13.8	99	6.9	452
				3.5	2.0	13.7	99	6.9	451
				4	2.2	13.7	100	6.9	450

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	17-Mar-12	1.5	-	1.8	0.3	14.8	102	6.8	475
				2	0.9	14.4	101	6.8	464
				3	2.1	13.9	101	6.8	452
				4	2.5	13.8	101	6.8	451
	17-Apr-12	1.4	-	1.5	0.4	15.0	104	6.5	495
				2	1.1	14.6	104	6.5	482
				2.5	1.9	14.4	104	6.5	468
				3	2.3	14.1	103	6.5	462
				3.5	2.8	14.0	103	6.5	458
				4	2.9	13.9	103	6.5	459
	14-May-12	1.6	-	2	3.6	12.7	96	6.6	439
				2.5	4.4	12.9	99	6.6	451
				3	4.5	13.3	103	6.6	457
				3.5	4.4	13.4	103	6.6	457
				4	4.1	13.4	103	6.6	459
	12-Jul-12	-	-	0.3	18.1	9.6	102	6.8	361
				0.5	18.1	9.6	102	6.9	362
				1	18.1	9.6	101	7.0	362
				1.5	18.1	9.6	101	7.0	362
				2	18.1	9.6	101	7.1	362
				2.5	18.1	9.5	101	7.1	362
				3	18.1	9.5	101	7.1	362
				3.5	18.1	9.5	101	7.2	362
				4	18.1	9.6	101	7.2	362
	14-Aug-12[m]	-	-	0.5	16.0	9.7	99	7.5	366
				1	16.1	9.7	99	7.5	366
				1.5	16.1	9.7	99	7.5	366
				2	16.1	9.7	99	7.5	366
				2.5	16.1	9.7	99	7.5	366
				3	16.1	9.7	99	7.5	366
				3.5	16.1	9.8	99	7.6	366
				4	16.1	9.8	100	7.6	366
				4.5	16.1	9.1	95	7.5	365
	11-Sep-12	-	4.5	0.3	10.9	11.1	100	7.2	377
				1	10.9	11.0	100	7.2	377
				2	10.9	11.0	99	7.2	377
				3	10.9	11.0	99	7.2	377
				4	10.9	11.0	99	7.2	377
SNAP07	17-Feb-12	1.3	-	1.5	0.9	12.1	85	6.7	456
				2	1.0	12.1	85	6.7	445
				3	1.1	12.1	86	6.7	454
				4	1.2	12.1	86	6.8	459
				5	1.2	12.1	86	6.8	471
				6	1.6	11.7	84	6.8	463
				7	1.9	11.3	82	6.8	455
				8	2.1	11.0	80	6.8	453
				9	2.2	10.3	75	6.7	456
				10	2.2	10.2	74	6.7	462
	17-Mar-12	1.4	-	1.5	0.5	14.0	97	6.7	455
				2	1.1	13.7	97	6.7	441
				3	1.4	13.7	98	6.7	444
				4	1.5	13.7	98	6.7	454
				5	1.6	13.8	99	6.7	460
				6	1.9	13.6	98	6.7	456
				7	2.2	12.8	93	6.7	448
				8	2.4	12.3	92	6.7	449
				9	2.4	11.7	86	6.7	450
				10[b]	2.6[b]	6[b]	45[b]	6.6[b]	442[b]
	16-Apr-12	1.5	-	2	1.3	13.2	94	6.7	462
				3	1.6	13.2	94	6.7	461
				4	1.6	13.4	96	6.6	470
				5	1.8	13.0	94	6.6	472
				6	2.0	12.6	91	6.6	478
				7	2.3	12.3	90	6.6	471
				8	2.4	11.9	87	6.6	474
				9	2.4	10.9	80	6.5	478

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	14-May-12	1.4	-	1.5	0.4	13.3	92	6.2	198
				2	0.5	13.8	96	6.2	249
				3.0	3.1	13.1	97	6.2	265
				4	3.8	13.3	101	6.2	271
				5	4.0	13.6	102	6.3	276
				6	3.9	13.7	104	6.3	276
				7	4.0	13.6	104	6.3	278
				8	3.9	13.8	105	6.3	279
				9	3.9	13.9	106	6.3	280
				10	3.9	13.9	105	6.3	281
				11	4.0	12.6	99	6.3	282
	13-Jul-12	-	-	0.3	16.8	9.5	98	6.8	384
				1	16.8	9.5	98	6.9	384
				2	16.8	9.5	98	6.9	384
				3	16.8	9.5	98	6.9	384
				4	16.8	9.5	98	7.0	384
				5	16.8	9.5	98	7.0	384
				6	16.7	9.5	98	7.0	384
				7	14.3	11.0	107	7.1	381
				8	13.8	11.1	107	7.1	381
				9	13.6	10.9	104	7.1	381
	14-Aug-12[m]	-	-	0.5	16.0	9.8	100	7.5	385
				1	16.0	9.8	100	7.5	385
				2	16.0	9.8	100	7.5	385
				3	16.0	9.8	100	7.6	385
				4	16.0	9.8	100	7.6	385
				5	16.0	9.9	100	7.6	385
				6	16.0	9.8	100	7.6	385
				7	16.0	9.8	100	7.6	384
				8	16.0	9.8	100	7.6	385
				9	16.0	9.8	100	7.6	384
				10	16.0	9.8	100	7.6	385
	11-Sep-12	-	5.5	0.3	11.4	10.2	93	6.6	392
				1	11.4	10.2	93	6.6	392
				2	11.4	10.2	93	6.7	392
				3	11.4	10.2	93	6.7	392
				4	11.4	10.2	93	6.7	392
				5	11.4	10.2	93	6.8	392
				6	11.4	10.2	93	6.8	392
				7	11.4	10.2	93	6.8	392
				8	11.4	10.2	93	6.9	392
				9	11.4	10.1	93	6.9	392
				10	11.4	10.1	93	6.9	392
SNAP08	17-Feb-12	1.1	-	1.5	1.1	12.0	85	6.4	474
				2	1.5	11.7	84	6.5	472
				3	2.4	11.2	82	6.5	459
				4	2.9	10.1	75	6.5	456
				5	3.0	8.9	66	6.5	459
				6	3.1	8.4	62	6.5	465
				7	3.1	9.6	77	6.5	479
				8	3.3	7.6	57	6.5	483
	12-Mar-12 [q]	1.5	-	1.8	0.9	14.3	100	6.6	466
				2	1.2	14.1	100	6.6	463
				3	2.5	13.2	97	6.6	450
				4	3.2	12.3	92	6.6	448
				5	3.2	12.2	92	6.6	455
	16-Apr-12	1.3	-	1.5	1.5	13.2	94	6.5	488
				2	1.2	13.4	95	6.5	477
				3	2.5	12.8	94	6.5	474
				4	3.3	12.4	93	6.5	470
				5	3.5	11.7	88	6.5	473
				6	3.5	11.1	84	6.5	476
				7	3.5	11.2	84	6.5	480
				8	3.6	10.1	77	6.5	482
				9[b]	3.7[b]	8.53[b]	66.6[b]	6.4[b]	453[b]

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	14-May-12	1.3	-	1.5	1.9	12.8	92	5.8	157
				2	4.7	12.9	101	5.8	273
				3	4.8	13.6	106	5.9	281
				4	4.8	13.9	108	6.0	281
				5	4.6	13.7	107	6.0	281
				6	4.4	13.1	101	6.1	281
				7	4.3	11.3	88	6.1	282
				8	4.3	10.4	80	6.1	283
				9	4.3	8.8	70	6.1	277
	13-Jul-12	-	6.0	0.3	17.6	9.3	99	7.0	387
				1	17.7	9.3	98	7.0	387
				2	17.7	9.3	98	7.1	387
				3	17.7	9.3	98	7.1	387
				4	17.7	9.3	98	7.1	387
				5	17.7	9.4	98	7.1	387
				6	15.8	10.8	109	7.2	386
				7	15.2	11.1	111	7.3	386
	13-Aug-12[(m)]	-	7.5	0.5	16.5	9.3	95	6.3	383
				1	16.5	9.3	95	6.3	383
				2	16.4	9.4	96	6.7	383
				3	16.4	9.4	96	6.7	383
				4	16.4	9.4	96	6.7	383
				5	16.3	9.4	96	6.7	383
				6	16.3	9.4	96	6.8	382
				7	16.2	9.4	96	6.8	382
				8	16.1	9.4	96	6.8	382
				9	16.1	9.4	96	6.8	385
	11-Sep-12	-	5.0	0.3	11.1	10.2	93	6.0	387
				1	11.1	10.2	93	6.2	387
				2	11.1	10.2	93	6.2	388
				3	11.0	10.3	93	6.3	387
				4	11.0	10.2	93	6.3	387
				5	11.0	10.2	93	6.4	387
				6	11.0	10.2	93	6.4	387
				7	11.0	10.2	93	6.5	387
				8	11.0	10.2	93	6.5	387
SNAP10	17-Feb-12	1.1	-	1.5	0.8	12.4	87	6.9	454
				2	0.9	12.2	86	6.9	451
				3	1.2	12.0	85	6.9	447
				4	1.4	11.8	84	6.8	448
				5	1.7	11.2	81	6.8	465
	16-Mar-12	1.0	-	1.5	0.3	14.1	97	6.9	430
				2	0.9	13.9	97	6.9	417
				3	1.2	13.3	94	6.9	448
				4	1.6	13.2	94	6.9	451
	16-Apr-12	1.2	-	1.5	0.4	14.6	101	6.8	479
				2	0.8	14.4	101	6.8	475
				3	1.3	14.1	100	6.7	468
				4	1.5	13.9	99	6.7	473
				5	1.8	13.5	97	6.7	493
	14-May-12	1.0	-	1.5	1.2	13.2	93	6.6	347
				2	2.1	13.4	95	6.5	452
				2.5	2.5	13.4	98	6.6	455
				3	2.6	13.4	99	6.5	459
				3.5	2.9	13.6	101	6.5	459
				4	3.2	13.8	103	6.5	457
				4.5	3.7	14.4	110	6.6	457
				5	4.2	14.9	114	6.6	464
	12-Jul-12	-	-	0.3	16.6	9.9	102	7.3	382
				0.5	16.6	9.9	102	7.3	382
				1	16.6	9.9	102	7.3	382
				1.5	16.6	9.9	102	7.4	382
				2	16.6	9.9	102	7.4	382
				2.5	16.6	9.9	102	7.4	382
				3	16.6	9.9	102	7.4	382
				3.5	16.5	9.9	102	7.4	382
				4	15.5	10.7	108	7.5	383
				4.5	15.3	10.8	108	7.5	383
				5	15.2	3.3	33	7.4	383

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	14-Aug-12[m]	-	-	0.5	15.8	9.9	100	7.6	383
				1	15.8	9.9	100	7.6	383
				1.5	15.8	9.9	100	7.7	383
				2	15.8	9.9	100	7.6	383
				2.5	15.8	9.9	100	7.7	383
				3	15.8	9.9	100	7.6	383
				3.5	15.8	9.9	100	7.7	383
				4	15.8	9.9	100	7.6	383
				4.5	15.8	9.9	100	7.6	383
	13-Sep-12	-	4.3	0.3	10.3	11.2	100	7.2	390
				1	10.3	11.2	100	7.2	390
				2	10.3	11.2	100	7.3	390
				3	10.3	11.2	100	7.3	390
				4	10.3	11.2	100	7.3	390
SNAP02A	14-Jan-12	1.1	-	1.5	0.9	17.1	120	6.6	157
				2	1.2	16.1	114	6.6	153
				3	1.6	14.8	106	6.6	149
				4	2.1	13.1	98	6.6	145
				5	2.4	11.2	82	6.5	148
				6	2.7	12.1	90	6.5	152
				7	2.8	10.2	75	6.5	158
				8	3.0	8.4	62	6.4	156
				9	3.0	7.1	53	6.4	157
	20-Feb-12	1.3	-	1.5	0.9	15.8	111	6.6	167
				2	1.2	15.4	109	6.6	167
				3	1.6	13.4	103	6.6	165
				4	2.1	13.3	97	6.6	162
				5	2.5	11.6	86	6.6	160
				6	2.8	10.5	79	6.5	164
				7	2.8	9.0	67	6.5	146
				8	2.9	7.8	59	6.5	174
				9	3.0	6.8	51	6.4	172
	17-Mar-12	>1.5	-	2	0.3	15.6	108	7.1	171
				3	1.9	14.3	103	7.0	163
				4	2.4	13.3	97	7.0	160
				5	2.8	12.0	88	7.0	157
				6	3.1	7.7	58	6.8	162
				7	3.1	7.8	57	6.8	171
				8	3.2	7.0	52	6.7	170
				9	3.2	6.8	51	6.8	172
				10	3.3	6.7	51	6.7	175
	13-Apr-12	1.5	-	2	1.1	15.6	110	6.2	162
				3	1.9	15.0	108	6.2	164
				4	2.5	13.7	100	6.2	163
				5	2.9	11.6	86	6.2	163
				6	3.1	7.5	56	6.1	165
				7	3.1	8.3	62	6.1	172
				8	3.1	9.2	69	6.0	179
				9	3.1	9.3	70	6.0	183
	12-May-12	1.4	-	1.5	1.9	13.0	94	6.1	124
				2	3.3	12.3	92	6.1	135
				3	3.6	12.9	98	6.1	164
				4	3.6	12.6	95	6.1	171
				5	3.6	11.9	90	6.1	177
				6	3.9	14.7	112	6.1	184
				7	4.0	15.0	114	6.1	187
				8	4.0	15.3	117	6.1	193
				9	3.9	13.1	100	6.1	194
	7-Jul-12	-	5.5	0.3	15.7	9.6	97	6.8	116
				1	15.6	9.6	96	6.9	115
				2	15.5	9.6	96	6.9	114
				3	15.3	9.6	96	7.0	112
				4	14.6	9.7	95	7.0	110
				5	14.5	9.7	95	7.0	113
				6	14.3	9.6	94	7.0	111
				7	14.3	9.6	94	7.0	111
				8	14.2	9.6	93	7.0	111
				9[b]	13.4[b]	1.2[b]	13[b]	6.5[b]	138[b]

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	11-Aug-12	-	5.5	0.5	17.8	9.3	98	7.0	125
				1	17.8	9.3	98	7.0	125
				2	17.7	9.3	98	7.0	125
				3	17.6	9.4	98	7.1	125
				4	17.5	9.4	98	7.1	123
				5	17.4	9.4	98	7.1	122
				6	17.4	9.4	98	7.1	122
				7	17.4	9.4	98	7.1	122
				8	17.3	9.4	98	7.1	121
				9	17.2	9.4	98	7.1	121
	12-Sep-12	-	4.3	0.3	10.7	10.9	98	6.6	133
				1	10.7	11.0	99	6.6	133
				2	10.7	11.0	99	6.7	132
				3	10.7	11.0	99	6.7	133
				4	10.7	10.9	99	6.7	133
				5	10.7	11.0	99	6.7	133
				6	10.7	11.0	99	6.7	132
				7	10.7	11.0	99	6.7	132
				8	10.7	10.8	99	6.7	133
SNAP02A MID	14-Jan-12	1.0	-	1	0.2	17.4	120	6.5	163
				2	1.1	17.1	121	6.5	151
				3	1.6	15.9	114	6.5	149
				4	2.0	14.7	107	6.5	144
				5	2.4	13.1	96	6.5	141
				6	2.6	11.3	83	6.5	150
				7	2.9	9.9	74	6.4	153
				8	3.0	8.5	63	6.4	155
				9	3.1	4.6	35	6.3	157
	20-Feb-12	1.2	-	1	0.8	15.2	110	6.6	179
				2	1.1	15.2	107	6.6	172
				3	1.5	14.9	107	6.6	167
				4	2.0	14.5	105	6.6	163
				5	2.5	12.7	93	6.6	160
				6	2.8	9.5	72	6.5	160
				7	2.8	8.0	60	6.5	172
				8	3.0	7.0	52	6.4	171
	17-Mar-12	1.5	-	1.8	0.9	15.1	106	6.7	171
				2	1.3	14.8	105	6.7	169
				3	2.0	14.3	103	6.7	162
				4	2.5	13.7	100	6.7	159
				5	2.8	12.3	91	6.7	157
				6	3.1	8.5	64	6.6	160
				7	3.3	5.5	41	6.6	164
				8	3.3	5.1	39	6.5	165
				9	3.4	4.2	32	6.4	166
	13-Apr-12	1.5	-	2	1.4	15.1	107	6.2	170
				3	2.0	14.7	106	6.2	165
				4	2.6	14.0	103	6.2	162
				5	2.9	11.9	89	6.2	162
				6	3.1	8.5	65	6.2	164
				7	3.2	7.9	59	6.1	173
				8	3.2	8.1	60	6.1	178
				9	3.3	5.3	41	6.0	175
	15-May-12	1.4	-	1.5	2.2	12.8	93	6.5	86
				2	3.9	10.2	78	6.4	126
				3	3.8	12.0	91	6.4	149
				4	3.8	12.6	96	6.4	165
				5	3.7	11.5	87	6.3	175
				6	4.0	8.9	68	6.3	176
				7	3.9	11.9	90	6.3	186
				8	3.9	10.7	82	6.3	189
				9	3.8	11.1	84	6.2	192

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	7-Jul-12	-	-	0.3	15.9	9.7	98	6.8	115
				1	15.8	9.7	98	6.8	115
				2	15.6	9.7	97	6.8	115
				3	15.2	9.8	97	6.8	110
				4	14.6	9.9	97	6.8	110
				5	14.5	9.8	96	6.8	109
				6	14.4	9.8	96	6.9	110
				7	14.3	9.7	95	6.9	112
				8	14.2	9.7	94	6.9	111
				9	14.2	9.6	94	6.9	111
				10	14.1	9.6	93	6.9	111
	11-Aug-12	-	5.5	0.5	17.7	9.4	98	7.1	125
				1	17.7	9.4	98	7.1	125
				2	17.7	9.4	98	7.1	125
				3	17.7	9.4	98	7.1	125
				4	17.7	9.4	99	7.1	125
				5	17.4	9.4	98	7.2	122
				6	17.4	9.4	98	7.2	122
				7	17.3	9.4	98	7.2	121
				8	17.3	9.4	98	7.2	121
				9	17.0	6.1	69	6.9	128
	12-Sep-12	-	4.3	0.3	10.7	11.0	99	6.8	128
				1	10.7	11.0	99	6.8	128
				2	10.7	11.0	99	6.8	128
				3	10.7	10.9	99	6.8	128
				4	10.7	11.0	99	6.8	129
				5	10.7	11.0	99	6.8	130
				6	10.7	11.0	99	6.8	130
				7	10.7	11.0	99	6.8	129
				8	10.7	11.0	99	6.8	131
				9	10.7	11.0	99	6.8	129
				10	10.7	11.0	99	6.9	129
SNAP20B	14-Jan-12	0.9	-	1.0	1.2	15.6	110	6.9	123
				2	1.8	14.8	106	7.0	110
				3	2.0	13.8	100	6.9	105
				4	1.8	13.7	99	6.9	101
				5	1.9	13.3	96	6.9	100
				6	1.9	13.0	94	6.9	99
				7	1.9	12.8	93	6.9	99
				8	2.0	12.7	92	6.9	100
				9	2.0	12.6	91	6.8	100
				10	2.1	12.5	91	6.8	102
				11	2.1	12.5	81	6.8	105
				12	2.2	12.3	90	6.8	103
				13	2.4	12.2	89	6.8	100
				14	2.6	12.0	88	6.8	97
				15	2.7	12.0	88	6.7	95
				16	2.9	11.9	88	6.7	94
				17	3.0	11.8	88	6.7	93
				18	3.1	11.8	88	6.7	92
				19	3.2	11.7	88	6.7	92
				20	3.2	11.7	87	6.7	91
				21	3.2	11.6	87	6.7	91
				22	3.2	11.5	86	6.7	91
				23	3.2	10.5	79	6.6	91
				24	3.2	10.4	78	6.6	91
				25	3.2	10.1	76	6.6	92
				26	3.2	9.9	74	6.5	92
				27	3.2	9.7	73	6.5	92
				28	3.2	9.5	71	6.5	92
				29	3.2	9.3	70	6.5	92

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	20-Feb-12	1.2	-	1.5	1.1	13.4	95	7.0	117
				2	1.5	13.0	92	7.0	112
				3	1.7	12.6	90	7.0	109
				4	1.8	12.2	88	7.0	108
				5	1.9	11.6	85	7.0	108
				6	1.9	11.6	84	6.9	109
				7	1.9	11.3	82	6.9	109
				8	2.0	11.3	82	6.9	109
				9	2.0	11.2	81	6.8	109
				10	2.1	11.1	81	6.8	109
				11	2.1	11.0	80	6.8	108
				12	2.2	10.9	79	6.8	107
				13	2.3	10.8	79	6.8	106
				14	2.5	10.8	79	6.7	106
				15	2.6	10.6	78	6.7	104
				16	2.8	10.5	78	6.7	103
				17	2.9	10.5	78	6.7	101
				18	2.9	10.4	77	6.7	101
				19	3.0	10.4	77	6.7	101
				20	3.0	10.3	77	6.7	100
				21	3.0	10.1	75	6.7	100
				22	3.0	9.1	68	6.6	99
				23	3.0	8.8	66	6.6	99
				24	3.0	8.7	67	6.5	100
				25	3.0	8.7	65	6.5	101
				26	3.0	8.6	64	6.5	101
				27	3.0	8.5	63	6.5	100
				28	3.1	8.2	61	6.4	100
				29	3.1	7.7	58	6.4	100
	17-Mar-12	1.2	-	1.5	0.9	13.1	92	6.7	115
				2	1.5	12.7	90	6.7	110
				3	2.0	12.1	87	6.7	106
				4	2.0	11.7	85	6.6	106
				5	2.1	11.5	83	6.6	105
				6	2.1	11.1	81	6.6	105
				7	2.1	10.9	79	6.6	106
				8	2.2	10.8	78	6.6	106
				9	2.2	10.6	77	6.6	105
				10	2.3	10.6	77	6.6	105
				11	2.3	10.5	77	6.5	105
				12	2.4	10.4	76	6.5	105
				13	2.5	10.2	75	6.5	104
				14	2.6	10.0	74	6.5	102
				15	2.8	9.9	73	6.5	101
				16	2.9	9.8	72	6.5	100
				17	3.0	9.6	72	6.5	99
				18	3.1	9.6	71	6.5	98
				19	3.1	9.5	71	6.4	98
				20	3.1	9.4	70	6.5	98
				21	3.1	9.2	69	6.5	97
				22	3.1	8.8	66	6.5	97
				23	3.1	8.3	62	6.4	97
				24	3.1	8.2	61	6.4	98
				25	3.1	7.9	59	6.4	98
				26	3.1	7.9	59	6.4	98
				27	3.1	7.7	58	6.3	98
				28	3.1	7.2	54	6.3	98
				29	3.1	6.7	50	6.3	98

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Apr-12	1.5	-	2	2.3	12.3	90	6.2	113
				3	2.2	12.1	88	6.3	107
				4	2.2	11.7	85	6.3	107
				5	2.2	11.4	83	6.3	106
				6	2.2	11.3	82	6.3	106
				7	2.2	11.1	80	6.3	106
				8	2.2	10.9	80	6.3	106
				9	2.2	10.9	80	6.2	107
				10	2.3	10.9	80	6.2	106
				11	2.3	10.9	79	6.2	106
				12	2.3	10.7	78	6.2	106
				13	2.4	10.4	76	6.2	104
				14	2.6	10.3	76	6.2	103
				15	2.7	10.2	75	6.2	103
				16	2.8	10.1	75	6.2	101
				17	2.9	10.0	74	6.2	100
				18	2.9	9.8	73	6.2	100
				19	2.9	9.6	71	6.2	100
				20	3.0	9.4	70	6.1	99
				21	3.0	9.0	67	6.1	99
				22	3.0	6.6[(e)]	64	6.1	99
				23	3.0	8.2	61	6.1	99
				24	3.0	8.0	60	6.1	99
				25	3.0	8.0	59	6.1	99
				26	3.0	7.9	59	6.0	99
				27	3.0	7.8	58	6.0	100
				28	3.0	8.0	60	6.0	102
				29	3.0	8.0	60	6.0	102
	12-May-12	1.3	-	1.5	3.3	11.0	82	6.1	113
				2	2.6	10.7	79	6.1	109
				3	2.7	10.8	80	6.1	110
				4	2.7	10.9	80	6.1	110
				5	2.7	10.9	80	6.1	110
				6	2.7	10.9	80	6.1	110
				7	2.7	10.9	80	6.2	110
				8	2.7	10.9	80	6.2	110
				9	2.7	10.9	80	6.2	110
				10	2.8	10.7	79	6.2	110
				11	2.8	10.5	78	6.2	110
				12	2.9	10.4	77	6.2	109
				13	2.9	10.4	77	6.1	109
				14	2.9	10.5	78	6.1	110
				15	3.0	10.5	78	6.1	108
				16	3.0	9.6	72	6.1	105
				17	3.0	10.0	74	6.1	105
				18	3.0	10.2	76	6.1	106
				19	3.0	9.5	71	6.1	105
				20	3.0	8.0	60	6.1	106
				21	3.1	7.7	57	6.1	106
				22	3.1	7.2	54	6.1	102
				23	3.1	7.2	54	6.1	106
				24	3.0	8.0	60	6.1	109
				25	3.0	9.5	71	6.1	107
				26	3.0	9.9	74	6.1	107
				27	3.0	10.1	75	6.1	107
				28	3.1	9.5	71	6.1	105
				29	3.1	8.8	66	6.1	105

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	6-Jul-12	-	6.0	0.3	15.0	11.7	116	6.3	95
				1	14.9	11.7	116	6.4	95
				2	14.9	11.7	116	6.4	95
				3	14.5	11.8	115	6.5	95
				4	14.2	11.8	115	6.5	95
				5	14.1	11.8	115	6.5	95
				6	13.7	11.8	114	6.5	95
				7	13.5	11.8	113	6.5	94
				8	13.4	11.7	112	6.5	95
				9	13.3	11.7	112	6.5	95
				10	12.4	11.7	110	6.5	94
				11	8.0	12.9	109	6.5	92
				12	7.0	13.0	107	6.5	91
				13	6.4	12.9	105	6.5	91
				14	6.2	12.9	104	6.5	91
				15	6.0	12.8	103	6.5	91
				16	5.7	12.7	101	6.5	91
				17	5.7	12.5	100	6.5	91
				18	5.6	12.4	99	6.5	91
				19	5.5	12.2	97	6.4	91
				20	5.4	12.1	96	6.4	91
				21	5.4	12.2	96	6.4	91
				22	5.3	12.3	97	6.4	91
				23	5.3	12.2	96	6.4	91
				24	5.2	12.1	96	6.4	91
				25	5.1	12.1	94	6.4	91
				26	5.1	12.0	94	6.3	91
				27	5.0	11.9	93	6.3	91
				28	5.0	11.9	93	6.3	91
				29	5.0	11.8	93	6.3	91
	10-Aug-12	-	7.5	0.5	17.5	9.5	99	7.4	104
				1	17.4	9.5	99	7.4	104
				2	17.4	9.5	99	7.4	104
				3	17.4	9.5	99	7.3	104
				4	17.3	9.5	99	7.4	103
				5	17.3	9.5	99	7.3	103
				6	17.3	9.5	99	7.4	103
				7	17.2	9.6	99	7.4	103
				8	16.6	9.5	98	7.4	102
				9	14.5	9.8	97	7.3	96
				10	11.5	10.0	93	7.3	92
				11	9.5	10.4	91	7.2	90
				12	8.0	10.5	88	7.1	90
				13	7.2	10.4	86	7.0	90
				14	6.7	10.2	84	7.0	90
				15	6.2	9.6	78	6.9	90
				16	5.9	9.2	74	6.7	90
				17	5.7	8.8	70	6.7	90
				18	5.6	8.8	70	6.6	90
				19	5.5	8.8	70	6.6	90
				20	5.3	8.8	70	6.5	90
				21	5.2	9.0	71	6.5	90
				22	5.2	8.8	70	6.5	90
				23	5.1	8.7	68	6.4	90
				24	5.1	8.5	67	6.4	90
				25	5.0	8.4	66	6.4	90
				26	5.0	8.5	66	6.3	90
				27	5.0	8.5	66	6.3	90
				28	5.0	8.4	66	6.3	90
				29	5.0	8.4	66	6.3	90

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	12-Sep-12	-	5.5	0.3	11.7	10.5	97	6.7	107
				1	11.7	10.5	97	6.7	109
				2	11.7	10.5	97	6.8	109
				3	11.7	10.5	97	6.7	109
				4	11.7	10.5	97	6.8	109
				5	11.7	10.5	97	6.7	109
				6	11.7	10.5	97	6.7	109
				7	11.7	10.5	97	6.8	109
				8	11.7	10.5	97	6.8	109
				9	11.7	10.5	97	6.8	109
				10	11.7	10.5	97	6.8	109
				11	11.7	10.5	97	6.8	109
				12	11.7	10.5	97	6.8	109
				13	11.7	10.5	97	6.8	109
				14	11.6	10.4	95	6.7	109
				15	6.4	8.5	69	6.6	91
				16	5.8	8.0	64	6.4	91
				17	5.6	7.8	62	6.4	91
				18	5.5	7.6	61	6.3	92
				19	5.4	7.9	62	6.2	91
				20	5.3	7.9	62	6.2	91
				21	5.3	7.8	62	6.0	91
				22	5.2	7.6	60	6.0	91
				23	5.2	7.6	60	6.0	91
				24	5.1	7.6	60	6.0	91
				25	5.0	7.5	59	5.9	91
				26	5.0	7.4	58	5.9	92
				27	5.0	7.4	58	5.9	91
				28	4.9	7.3	57	5.9	92
				29	4.9	7.2	56	5.9	92
SNAP23	13-Jan-12	1.1	-	1.5	0.9	17.8	125	5.9	240
				2	1.1	17.4	123	6.0	243
				3	1.4	15.4	109	6.1	242
				4	1.7	14.7	106	6.1	236
				5	2.0	13.6	98	6.1	235
				6	2.2	11.5	84	6.2	255
				7	2.6	10.9	80	6.2	264
				8	2.7	10.3	76	6.2	276
				9	2.9	8.3	62	6.2	279
				10	3.2	7.5	56	6.2	280
				11	3.4	6.2	47	6.2	279
				12	3.6	5.0	38	6.2	278
	20-Feb-12	1.3	-	1.5	0.6	16.2	113	6.6	256
				2	1.0	15.4	109	6.6	265
				3	1.3	15.1	107	6.6	263
				4	1.7	14.5	104	6.6	261
				5	2.1	10.5	76	6.6	263
				6	2.4	9.8	72	6.6	270
				7	2.7	9.0	67	6.6	280
				8	2.9	7.4	55	6.5	287
				9	3.2	5.9	44	6.5	290
				10	3.4	5.6	42	6.5	291
				11	3.6	4.0	31	6.4	289
				12	3.8	1.0	28	6.3	289
	16-Mar-12	1.4	-	1.5	0.5	15.3	107	6.9	264
				2	1.1	14.9	105	6.8	273
				3	1.5	14.6	104	6.8	271
				4	2.0	13.8	100	6.7	268
				5	2.3	12.3	90	6.7	270
				6	2.8	10.1	76	6.7	267
				7	3.1	7.8	58	6.8	269
				8	3.4	5.2	40	6.7	276
				9	3.6	4.5	34	6.6	276
				10	3.7	4.5	35	6.6	277
				11	3.7	4.9	37	6.6	279

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	13-Apr-12	1.6	-	2	1.0	15.6	109	6.2	270
				3	1.6	15.4	110	6.2	274
				4	2.0	14.1	102	6.2	274
				5	2.5	12.0	88	6.2	271
				6	2.8	10.0	75	6.2	269
				7	3.2	6.7	50	6.2	274
				8	3.4	5.9	44	6.1	276
				9	3.5	6.5	48	6.1	280
				10	3.5	7.3	55	6.1	285
				11	3.5	9.0	68	6.1	288
				12	3.5	9.6	72	6.1	291
	15-May-12	1.5	-	2	3.4	12.8	93	6.5	186
				3	3.4	13.2	99	6.4	269
				4	3.6	12.0	91	6.4	272
				5	4.0	12.5	95	6.4	279
				6	4.0	10.5	80	6.4	284
				7	3.9	12.9	98	6.4	296
				8	3.9	12.7	97	6.4	299
				9	4.1	12.6	97	6.4	301
				10	4.1	12.2	94	6.4	301
				11	4.2	11.9	91	6.4	301
				12	4.2	11.5	88	6.4	301
	6-Jul-12	-	-	0.3	15.4	11.3	113	6.4	191
				1	15.3	11.3	113	6.4	191
				2	15.3	11.3	112	6.4	191
				3	15.2	11.2	112	6.5	191
				4	14.5	11.4	112	6.5	191
				5	14.4	11.4	112	6.5	190
				6	14.3	11.4	111	6.5	187
				7	14.2	11.4	111	6.5	190
				8	14.1	11.4	111	6.6	189
				9	14.0	11.4	111	6.6	186
				10	13.9	11.4	111	6.6	187
				11	13.8	11.3	109	6.6	188
	11-Aug-12	-	-	0.5	17.6	9.4	98	7.2	204
				1	17.6	9.4	98	7.2	204
				2	17.6	9.4	98	7.2	204
				3	17.6	9.4	98	7.2	204
				4	17.5	9.4	98	7.3	204
				5	17.5	9.4	99	7.3	204
				6	17.5	9.4	99	7.3	204
				7	17.3	9.4	98	7.3	202
				8	17.1	9.5	99	7.3	199
				9	17.1	9.5	98	7.3	199
				10	17.0	9.4	97	7.3	198
				11	16.9	9.3	96	7.3	198
				12	16.8	9.1	94	7.3	200
	12-Sep-12	-	-	0.3	10.8	10.9	99	6.8	212
				1	10.8	11.0	99	6.9	212
				2	10.8	10.9	99	6.9	212
				3	10.8	10.9	99	6.9	212
				4	10.8	11.0	99	6.9	212
				5	10.8	10.9	99	6.9	213
				6	10.8	11.0	99	6.9	213
				7	10.8	11.0	99	6.9	213
				8	10.8	11.0	99	7.0	212
				9	10.8	10.9	99	7.0	213
				10	10.8	11.0	99	6.9	212
				11	10.8	11.0	99	7.0	213
				12	10.8	10.8	97	6.9	212
SNAP29	13-Jan-12	0.8	-	1	0.2	18.2	126	6.4	267
				2	0.6	18.1	126	6.4	288
				3	0.9	17.6	124	6.5	290
				4	1.4	16.8	119	6.5	272
				5	1.6	16.2	116	6.5	276
				6	2.2	13.0	95	6.5	288

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	20-Feb-12	1.0	-	1.5	1.2	16.0	113	6.9	302
				2	0.8	16.2	113	6.8	317
				3	1.0	15.8	112	6.8	329
				4	1.5	15.1	108	6.9	299
				5	1.8	14.6	105	6.8	296
				6	2.2	12.4	91	6.8	308
				7	2.9	9.0	67	6.7	301
	16-Mar-12	1.2	-	1.5	0.2	16.0	110	6.6	301
				2	0.4	15.6	107	6.6	320
				3	1.0	15.0	106	6.6	322
				4	1.6	14.3	103	6.6	292
				5	2.0	13.1	95	6.6	288
				6	2.5	10.7	79	6.6	295
				7	3.4	7.2	55	6.5	288
	13-Apr-12	1.2	-	1.5	0.4	16.8	116	6.4	295
				2	0.8	16.4	115	6.4	285
				3	1.5	15.9	114	6.4	292
				4	1.9	15.4	111	6.4	285
				5	2.1	14.9	108	6.4	292
				6	2.7	12.5	92	6.3	298
				7	3.2	10.6	81	6.3	297
	15-May-12	1.3	-	1.5	1.6	13.2	94	6.8	229
				2	2.8	13.0	96	6.7	243
				3	3.0	13.1	98	6.7	276
				4	3.0	14.1	105	6.7	289
				5	3.7	14.4	109	6.7	284
				6	4.3	14.6	113	6.7	299
				7	4.1	13.7	104	6.6	302
	7-Jul-2012[h]	-	7.3	0.3	16.1	9.5	97	6.9	232
				1	15.2	9.6	96	7.0	198
				2	15.1	9.6	95	7.0	197
				3	14.8	9.6	95	7.0	196
				4	14.8	9.6	95	7.0	198
				5	14.7	9.6	95	7.0	198
				6	14.5	9.6	94	7.0	204
				7	14.3	9.5	93	7.0	229
	12-Sep-12	-	4.5	0.3	10.9	10.9	99	6.9	212
				1	10.9	10.9	99	6.9	211
				2	10.9	11.0	99	7.0	211
				3	10.8	11.0	100	7.0	211
				4	10.9	10.9	99	7.0	212
				5	10.9	11.0	99	7.0	212
				6	10.9	11.0	99	7.0	212
NEL01	21-Feb-12	1.3	-	1.5	1.4	16.0	114	6.0	29
				2	0.8	15.8	111	6.0	27
				3	0.8	15.1	106	6.1	26
				4	0.9	14.4	101	6.1	26
				5	1.0	14.0	99	6.1	25
				6	1.0	13.9	98	6.1	26
				7	1.1	14.2	100	6.1	27
				8	1.1	14.4	102	6.2	28
				9	1.2	14.3	101	6.2	28
				10	1.9	9.5	68	6.1	28
				11	2.5	7.6	56	6.1	30
	14-Apr-12	1.5	-	2	1.3	15.1	107	6.9	28
				3	1.2	14.6	103	6.9	26
				4	1.2	14.0	99	6.9	25
				5	1.2	13.8	98	6.8	26
				6	1.2	13.9	99	6.8	27
				7	1.3	14.1	100	6.7	27
				8	1.4	14.4	102	6.7	28
				9	1.5	14.6	104	6.6	29
				10	2.0	11.9	86	6.6	29
				11	2.6	6.0	44	6.4	28

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	10-Jul-12	-	7.5	0.3	16.0	10.3	105	6.5	22
				1	15.6	10.4	105	6.5	22
				2	15.3	10.5	104	6.4	22
				3	14.7	10.6	104	6.4	22
				4	14.2	10.7	104	6.5	22
				5	13.8	10.7	104	6.5	22
				6	13.3	10.8	103	6.4	22
				7	13.0	10.8	103	6.5	22
				8	12.5	10.8	102	6.5	22
				9	12.3	10.9	101	6.5	22
				10	12.1	10.9	101	6.5	22
				11	12.0	10.9	101	6.5	22
				12	11.8	7.6	74	6.4	24
	15-Aug-2012[h]	-	7.5	0.5	15.4	9.6	*96*	7.6	22
				1	15.4	9.6	*96*	7.5	22
				2	15.5	9.6	*96*	7.5	22
				3	15.5	9.6	*96*	7.4	22
				4	15.4	9.6	*96*	7.4	22
				5	15.4	9.6	*96*	7.4	22
				6	15.4	9.6	*96*	7.4	22
				7	15.4	9.6	*96*	7.4	22
				8	15.4	9.6	*96*	7.4	22
				9	15.4	9.6	*96*	7.3	22
				10	15.4	9.6	*96*	7.3	22
				11	15.3	9.6	*96*	7.3	22
				12	15.3	7.0	*70*	7.0	23
	8-Sep-12	-	4.5	0.3	13.1	9.8	94	7.0	20
				1	13.1	9.8	94	6.9	20
				2	13.1	9.8	93	6.9	20
				3	13.1	9.8	93	6.9	20
				4	13.1	9.8	94	6.9	20
				5	13.1	9.8	94	6.9	20
				6	13.1	9.9	94	6.8	20
				7	13.1	9.8	94	6.8	20
				8	13.1	9.9	94	6.8	20
				9	13.0	9.9	94	6.8	20
				10	13.0	9.9	94	6.8	20
				11	13.0	9.9	94	6.8	20
NEL02	21-Feb-12	1.3	-	1.5	0.5	15.5	108	6.4	28
				2	0.5	14.9	104	6.5	25
				3	0.6	14.7	103	6.5	25
				4	0.7	14.1	98	6.5	24
				5	0.8	13.7	96	6.5	24
				6	0.9	13.3	93	6.5	23
				7	1.0	12.9	91	6.5	23
				8	1.1	12.5	88	6.4	24
				9	1.2	12.5	88	6.4	24
				10	1.2	12.3	88	6.4	24
				11	1.4	12.5	86	6.4	24
				12	1.6	5.1	41	6.2	27
	14-Apr-12	> 1.6	-	2	0.4	15.4	107	6.2	25
				3	0.7	14.8	103	6.2	24
				4	0.9	14.2	100	6.2	24
				5	1.0	13.9	98	6.2	24
				6	1.1	13.7	97	6.2	24
				7	1.2	13.3	94	6.2	24
				8	1.3	13.1	93	6.2	24
				9	1.4	12.8	91	6.2	24
				10	1.5	12.7	90	6.2	25
				11	1.7	12.3	88	6.2	24
				12	1.8	11.9	86	6.1	24
	10-Jul-12	-	6.5	0.3	18.1	10.0	106	6.2	22
				1	18.0	10.1	106	6.2	22
				2	17.6	10.1	106	6.2	22
				3	17.3	10.2	106	6.2	22
				4	13.7	10.9	105	6.3	22
				5	13.1	10.9	104	6.2	22
				6	13.0	10.9	104	6.2	22
				7	12.7	10.9	103	6.3	22
				8	12.3	11.0	103	6.2	22
				9	12.1	11.0	102	6.3	22
				10	12.0	11.0	102	6.2	22

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
	15-Aug-2012[h]	-	8.5	0.5	15.8	9.6	*97*	7.0	22
				1	15.8	9.6	*97*	7.0	22
				2	15.8	9.6	*97*	7.0	22
				3	15.7	9.6	*97*	7.0	22
				4	15.7	9.6	*97*	6.9	22
				5	15.7	9.7	*97*	7.0	22
				6	15.7	9.6	*97*	7.0	22
				7	15.7	9.6	*97*	6.9	22
				8	15.7	9.6	*97*	6.9	22
				9	15.7	9.6	*97*	6.9	22
				10	15.7	9.6	*97*	6.9	22
				11	15.7	9.7	*97*	6.9	22
	8-Sep-12	-	4.5	0.3	13.2	9.9	94	6.7	19
				1	13.2	9.9	94	6.7	19
				2	13.2	9.9	94	6.7	19
				3	13.2	9.9	94	6.7	19
				4	13.2	9.8	94	6.6	19
				5	13.2	9.9	94	6.7	19
				6	13.2	9.9	94	6.6	20
				7	13.2	9.9	94	6.6	20
				8	13.2	9.8	94	6.6	20
				9	13.2	9.9	94	6.6	20
				10	13.2	9.9	94	6.6	20
NEL03	21-Feb-12	1.3	-	1.5	0.5	16.1	112	6.4	28
				2	0.5	15.6	108	6.4	26
				3	0.6	15.3	106	6.4	25
				4	0.7	14.6	102	6.4	24
				5	0.8	14.1	99	6.4	24
				6	0.9	13.8	97	6.4	24
				7	1.0	13.4	94	6.4	24
				8	1.1	13.3	94	6.4	25
				9	1.2	13.2	94	6.4	25
	14-Apr-12	1.6	-	2.0	0.5	15.7	109	6.2	26
				3	0.7	14.7	102	6.2	25
				4	0.9	14.2	100	6.2	24
				5	1.0	13.9	98	6.2	25
				6	1.1	13.5	96	6.2	24
				7	1.3	13.2	94	6.2	24
				8	1.3	13.2	93	6.2	25
				9	1.4	13.5	96	6.2	26
	10-Jul-12	-	6.0	0.3	17.8	10.0	106	6.2	22
				1	17.7	10.1	106	6.2	22
				2	17.5	10.1	105	6.2	22
				3	17.2	10.1	105	6.3	22
				4	15.8	10.4	105	6.2	22
				5	13.3	10.9	104	6.2	22
				6	12.6	10.9	103	6.2	22
				7	12.4	10.9	102	6.2	22
				8	12.3	11.0	102	6.2	22
				9	12.2	10.9	102	6.2	22
				10	12.1	9.8	90	6.2	22
	15-Aug-2012[h]	-	9.5	0.5	15.7	9.6	*97*	7.0	22
				1	15.7	9.6	*97*	7.0	22
				2	15.7	9.6	*97*	7.0	22
				3	15.7	9.6	*97*	7.0	22
				4	15.7	9.6	*97*	7.0	22
				5	15.6	9.6	*97*	7.0	22
				6	15.6	9.7	*97*	7.0	22
				7	15.5	9.7	*97*	7.0	22
				8	15.5	9.7	*97*	7.0	22
				9	15.5	9.7	*97*	7.0	22
				10	15.4	9.7	*97*	7.0	22
	8-Sep-12	-	4.5	0	13.1	9.8	94	6.6	19
				1	13.1	9.8	93	6.6	19
				2	13.1	9.8	94	6.6	19
				3	13.1	9.8	93	6.6	19
				4	13.1	9.8	94	6.6	20
				5	13.1	9.7	94	6.6	20
				6	13.1	9.9	94	6.6	20
				7	13.1	9.9	94	6.6	20
				8	13.1	9.9	94	6.6	20

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[a]	Specific Conductivity (µS/cm)
NEL04	21-Feb-12	1.3	-	1.5	0.5	16.2	112	6.3	29
				2	0.5	15.7	109	6.3	26
				3	0.7	15.3	107	6.3	24
				4	0.8	15.0	105	6.3	26
				5	0.9	15.0	105	6.3	26
				6	0.9	14.9	105	6.3	26
				7	1.0	14.7	104	6.3	26
				8	1.1	13.8	97	6.3	25
				9	1.2	13.1	92	6.3	24
				10	1.3	12.6	89	6.3	24
				11	1.3	12.4	88	6.3	25
				12	1.4	12.2	87	6.3	25
	14-Apr-12	1.5	-	2.0	0.8	16.1	113	6.5	29
				3	1.0	15.2	107	6.5	26
				4	1.2	14.1	100	6.5	25
				5	1.2	14.0	99	6.5	26
				6	1.2	14.7	104	6.4	27
				7	1.2	14.7	104	6.4	27
				8	1.3	14.4	102	6.4	27
				9	1.4	12.8	91	6.4	25
				10	1.5	12.3	88	6.4	25
				11	1.6	12.1	86	6.3	25
				12	1.6	12.0	86	6.3	25
				13[b]	1.7[b]	8.5[b]	61[b]	6.2[b]	34[b]
	10-Jul-12	-	7.0	0.3	17.1	10.1	104	6.2	22
				1	16.9	10.1	104	6.3	22
				2	16.7	10.1	104	6.3	22
				3	15.8	10.3	104	6.3	22
				4	14.4	10.7	104	6.3	22
				5	13.2	10.8	103	6.2	22
				6	12.6	10.9	102	6.3	22
				7	12.3	10.9	101	6.2	22
				8	12.2	10.9	101	6.3	22
				9	12.0	10.9	101	6.3	22
				10	11.8	10.8	100	6.3	22
				11	11.8	10.8	100	6.3	22
				12	11.6	10.9	100	6.2	22
	15-Aug-2012[h]	-	7.5	0.5	15.6	9.6	*97*	7.0	22
				1	15.6	9.6	*97*	7.1	22
				2	15.6	9.6	*97*	7.1	22
				3	15.6	9.6	*97*	7.1	22
				4	15.6	9.6	*97*	7.1	22
				5	15.6	9.6	*97*	7.1	22
				6	15.6	9.6	*97*	7.1	22
				7	15.6	9.6	*97*	7.1	22
				8	15.6	9.6	*97*	7.0	22
				9	15.6	9.6	*97*	7.0	22
				10	15.6	9.6	*97*	7.1	22
				11	15.5	9.6	*97*	7.0	22
				12	15.5	9.6	*96*	7.0	22
				13	15.5	8.8	*88*	6.9	22
	8-Sep-12	-	5.5	0.3	13.2	9.9	94	6.6	20
				1	13.2	9.8	93	6.6	20
				2	13.2	9.8	93	6.6	20
				3	13.2	9.8	93	6.6	20
				4	13.2	9.8	93	6.6	20
				5	13.2	9.8	93	6.6	20
				6	13.2	9.8	94	6.6	20
				7	13.2	9.8	94	6.6	19
				8	13.2	9.8	93	6.6	19
				9	13.2	9.8	93	6.6	19
				10	13.2	9.8	94	6.6	20
				11	13.2	9.8	93	6.6	19
				11.5	13.2	9.8	94	6.6	19

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
NEL05	21-Feb-12	1.3	-	1.5	0.6	16.0	111	6.3	28
				2	0.6	15.0	105	6.3	24
				3	0.7	14.7	103	6.3	24
				4	0.8	14.3	100	6.3	23
				5	0.9	14.0	98	6.3	23
				6	0.9	13.7	96	6.3	23
				7	1.0	13.4	94	6.3	23
				8	1.0	13.1	93	6.3	23
				9	1.1	12.9	91	6.3	23
				10	1.1	12.7	90	6.3	23
	14-Apr-12	1.5	-	2	0.5	16.2	113	6.3	28
				3	0.9	15.2	107	6.4	25
				4	1.0	14.3	100	6.3	24
				5	1.1	13.4	95	6.3	24
				6	1.2	12.9	91	6.3	24
				7	1.3	12.8	91	6.3	24
				8	1.3	12.6	90	6.3	24
				9	1.4	12.5	89	6.3	24
				10	1.4	12.5	89	6.3	24
				11	1.4	12.4	89	6.3	24
	10-Jul-12	-	5.5	0.3	18.1	10.0	105	6.2	22
				1	17.9	10.0	105	6.2	22
				2	17.1	10.1	105	6.2	22
				3	16.5	10.2	105	6.2	22
				4	14.7	10.7	106	6.2	22
				5	13.2	10.9	104	6.2	22
				6	12.5	11.0	103	6.2	22
				7	12.2	10.9	102	6.2	22
				8	12.1	10.9	102	6.2	22
				9	12.0	10.5	98	6.2	22
	15-Aug-2012[(h)]	-	8.5	0.5	15.5	9.7	*97*	7.0	22
				1	15.5	9.7	*97*	7.0	22
				2	15.5	9.7	*97*	7.0	22
				3	15.5	9.7	*97*	7.0	22
				4	15.5	9.7	*97*	7.0	22
				5	15.5	9.7	*97*	7.0	22
				6	15.5	9.7	*97*	7.0	22
				7	15.5	9.7	*97*	7.0	22
				8	15.4	9.7	*97*	7.0	22
				9	15.4	9.7	*97*	7.0	22
				10	15.4	9.7	*97*	7.0	22
				11	15.4	9.7	*97*	7.0	22
	8-Sep-12	-	7.5	0.3	13.1	9.8	94	6.6	19
				1	13.1	9.8	94	6.6	19
				2	13.1	9.8	94	6.6	19
				3	13.1	9.9	94	6.6	19
				4	13.1	9.8	94	6.6	20
				5	13.1	9.9	94	6.6	20
				6	13.1	9.8	94	6.6	20
				7	13.1	9.8	94	6.6	20
				8	13.1	9.9	94	6.6	20
				9	13.1	9.9	94	6.6	20
				9.5	13.1	9.8	94	6.6	20

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
NEL06	21-Feb-12	1.3	-	1.5	0.5	16.5	115	6.5	29
				2	0.5	16.2	113	6.4	27
				3	0.6	15.2	106	6.5	25
				4	0.7	14.4	101	6.5	24
				5	0.8	13.9	97	6.5	25
				6	0.9	13.5	95	6.4	24
				7	1.0	13.2	93	6.4	24
				8	1.1	12.9	91	6.4	24
				9	1.1	12.7	90	6.4	24
				10	1.1	12.6	89	6.4	24
				11	1.2	12.4	87	6.4	24
				12	1.2	12.1	85	6.4	24
				13	1.2	11.9	85	6.4	24
				14	1.2	11.7	83	6.4	24
				15	1.2	11.7	82	6.3	24
				16	1.3	11.7	83	6.3	24
				17	1.3	11.6	83	6.3	24
				18	1.3	11.5	82	6.3	24
				19	1.3	11.5	82	6.3	24
				20	1.4	11.5	82	6.3	24
				21	1.4	11.3	80	6.3	24
				22	1.4	11.0	79	6.3	24
				23	1.5	10.7	77	6.2	24
				24	1.6	10.5	75	6.2	24
				25	1.6	10.1	73	6.2	24
				26	1.7	9.2	66	6.2	24
				27	1.7	8.6	62	6.1	24
	14-Apr-12	1.5	-	2	0.5	16.8	116	6.4	28
				3	0.8	16.2	114	6.4	26
				4	1.0	14.9	105	6.4	25
				5	1.1	14.4	101	6.4	24
				6	1.2	13.8	97	6.3	24
				7	1.3	13.8	98	6.3	25
				8	1.3	13.2	94	6.3	24
				9	1.4	12.4	88	6.3	24
				10	1.4	11.8	84	6.3	23
				11	1.4	11.4	81	6.2	23
				12	1.4	11.3	80	6.2	23
				13	1.5	11.2	80	6.2	24
				14	1.5	11.2	80	6.2	24
				15	1.5	11.2	80	6.1	24
				16	1.5	11.3	80	6.1	24
				17	1.5	11.3	81	6.1	24
				18	1.6	11.3	81	6.1	24
				19	1.6	11.4	81	6.1	24
				20	1.6	11.3	81	6.1	24
				21	1.6	11.0	79	6.1	24
				22	1.7	10.5	75	6.1	24
				23	1.7	10.1	73	6.0	24
				24	1.8	10.0	72	6.0	24
				25	1.8	10.0	72	6.0	24
				26	1.8	9.7	70	6.0	24
				27	2.0	7.8	57	5.9	24
	10-Jul-12	-	7.0	0.3	17.8	10.1	106	6.3	22
				1	17.7	10.1	106	6.2	22
				2	17.2	10.2	106	6.3	22
				3	16.8	10.2	105	6.2	22
				4	15.9	10.4	105	6.2	22
				5	14.0	11.0	106	6.2	22
				6	13.0	11.0	104	6.2	22
				7	12.6	11.0	103	6.3	22
				8	12.4	11.0	103	6.2	22
				9	12.3	11.0	103	6.2	22
				10	12.1	11.0	102	6.2	22
				11	11.9	11.0	102	6.2	22
				12	11.6	11.0	101	6.2	22
				13	11.6	11.0	101	6.2	22
				14	11.4	10.9	100	6.2	22
				15	11.4	11.0	100	6.2	22

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
	8-Sep-12	-	-	0.3	13.3	10.0	95	6.4	20
				1	13.2	9.9	95	6.4	20
				2	13.2	9.9	95	6.5	20
				3	13.2	9.9	95	6.4	20
				4	13.2	9.9	94	6.4	20
				5	13.2	9.9	94	6.4	20
				6	13.2	9.9	95	6.4	20
				7	13.2	9.9	94	6.5	20
				8	13.2	9.8	94	6.4	20
				9	13.2	9.8	94	6.4	20
				10	13.2	9.8	94	6.5	20
				11	13.2	9.8	94	6.4	20
				12	13.2	9.8	94	6.4	20
				13	13.2	9.8	94	6.4	20
				14	13.2	9.8	94	6.4	20
				15	13.2	9.8	94	6.4	20
				16	13.2	9.8	94	6.4	20
				17	13.2	9.8	94	6.4	20
				18	13.2	9.8	94	6.4	20
				19	13.2	9.8	94	6.4	20
				20	13.2	9.8	94	6.4	20
				21	13.2	9.8	94	6.4	20
				22	13.2	9.8	94	6.4	20
				23	13.1	9.8	93	6.4	20
				24	9.2	8.4	73	6.2	20
				25	7.9	7.8	65	6.0	20
				26	7.4	7.5	63	6.0	20
				27	7.3	7.3	60	5.9	20
KING01	14-Jan-12	-	-	<0.3	0.4	16.2	114	6.3	28
	17-Apr-12	-	-	0.5	0.7	15.8	110	7.3	30
	13-Jul-12	-	-	0.2	16.8	9.5	98	7.6	23
	10-Sep-12	-	-	0.3	11.9	10.5	97	7.0	23
IL3	14-Jul-12	-	-	<0.3	15.6	8.7	88	6.6	19
	15-Sep-12	-	-	0.3	3.8	12.0	*91*	6.6	24
IL4	14-Jul-12	-	-	0.1	14.4	9.3	91	6.4	21
	15-Sep-12	-	-	0.2	1.0	13.0	91	6.4	24
IL5	14-Jul-12	-	-	0.1	16.9	9.2	95	6.5	41
	15-Sep-12	-	-	0.3	5.5	11.2	89	6.4	48
S1	22-May-12	-	-	<0.3	0.9	12.1	85	5.3	18
	11-Jul-12	-	-	<0.3	20.1	7.7	85	6.2	24
	7-Sep-12	-	-	0.2	11.2	11.0	100	7.1	27
S27	22-May-12	-	-	0.3	3.0	12.7	95	5.7	23
LK13-01	18-Aug-12	-	5.3	0.3	15.2	9.4	94	6.4	20
				1	15.2	9.5	95	6.5	20
				2	15.2	9.5	95	6.6	20
				3	15.2	9.5	95	6.6	20
				4	15.2	9.6	95	6.6	20
				5	15.2	9.6	95	6.6	20
				6	15.2	9.6	95	6.6	20
				7	15.2	9.6	95	6.6	20
				8	15.2	9.6	95	6.6	20
				9	15.2	9.6	96	6.7	20
				10	15.2	9.6	96	6.7	20
				11	15.2	9.6	95	6.7	20
				12	15.2	9.6	95	6.7	20
LK13-02	19-Aug-12	-	6.0	0.3	15.3	9.8	98	6.6	19
				1	15.2	9.8	98	6.6	19
				2	15.2	9.8	98	6.6	19
				3	15.2	9.8	98	6.6	19
				4	15.2	9.9	98	6.6	19
				5	15.2	9.9	98	6.7	19
				6	15.2	9.9	98	6.7	19
				7	15.2	9.9	98	6.7	19
				8	15.1	9.9	98	6.7	19
				9	15.1	9.9	98	6.7	19
				10	15.1	9.9	98	6.8	19

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)
LK13-03	19-Aug-12	-	6.0	0.3	15.5	9.5	95	6.6	19
				1	15.5	9.6	96	6.6	19
				2	15.5	9.7	97	6.6	19
				3	15.4	9.7	97	6.6	19
				4	15.4	9.7	97	6.6	19
				5	15.4	9.8	98	6.7	19
				6	15.4	9.8	98	6.7	19
				7	15.4	9.8	98	6.7	19
				8	15.4	9.8	98	6.7	19
				9	15.4	9.8	98	6.7	19
				10	15.4	9.8	98	6.7	19
				11	15.4	9.8	98	6.8	19
				12	15.4	9.6	96	6.7	19
LK13-04	20-Aug-12	-	6.0	0.3	15.5	9.9	100	6.2	19
				1	15.5	10.0	100	6.1	19
				2	15.4	10.0	100	6.1	19
				3	15.4	10.1	101	6.1	19
				4	15.4	10.1	101	6.1	19
				5	15.3	10.1	101	6.2	19
				6	15.3	10.1	101	6.2	19
				7	15.3	10.1	101	6.2	19
				8	15.3	10.1	101	6.2	19
				9	15.3	10.1	101	6.2	19
				10	15.3	10.1	101	6.3	19
LK13-05	20-Aug-12	-	6.0	0.3	15.5	9.9	99	6.7	19
				1	15.5	10.0	100	6.7	19
				2	15.4	10.0	101	6.8	19
				3	15.4	10.1	101	6.8	19
				4	15.4	10.1	101	6.8	19
				5	15.4	10.1	101	6.8	19
				6	15.4	10.1	101	6.8	19
				7	15.4	10.1	101	6.8	19
				8	15.3	10.1	101	6.8	19
				9	15.3	10.1	101	6.8	19
				10	15.3	10.2	101	6.8	19
				11	15.3	10.2	101	6.8	19
				12	15.3	10.2	101	6.8	19
				13	15.3	10.2	101	6.8	19
				14	15.2	10.1	101	6.8	19
LK13-06	21-Aug-12	-	-	0.3	15.7	9.4	94	6.3	19
				1	15.7	9.4	95	6.3	19
				2	15.6	9.5	95	6.2	19
				3	15.6	9.5	95	6.2	19
				4	15.5	9.5	96	6.2	19
				5	15.5	9.6	96	6.2	19
				6	15.4	9.6	96	6.2	19
				7	15.4	9.6	96	6.2	19
				8	15.4	9.6	96	6.2	19
				9	15.4	9.6	96	6.3	19
				10	15.4	9.6	96	6.3	19
				11	15.4	9.6	96	6.3	19
				12	15.4	9.6	96	6.4	19
				13	15.4	9.6	96	6.4	19
				14	15.3	9.7	96	6.5	19
				15	15.3	9.6	96	6.5	19
				16	15.3	9.6	96	6.5	19
				17	14.2	9.2	90	6.5	19
				18	9.7	7.1	71	5.9	19
				19	9.0	7.9	69	5.8	19
				20	8.5	7.6	65	5.7	19
				21	8.3	7.0	59	5.6	19
				22	8.2	6.7	57	5.5	19

Notes:

- = data not available, m = metre, ^{o}C = degree Celsius, mg/L = milligrams per litre, % Sat = percent saturation, µS/cm = microSiemens per centimetre.

Values in *italics* indicate that the value was calculated.

Grey shading cells identifies questionable values due to calibration error, a faulty sensor, near-bottom readings impacted by sediment conditions or near surface readings impacted by air water interface based on other monthly profiles collected at the station during the same year.

(a) Some pH values are reported as a range due to faulty pH sensor.

(b) The probe was assumed to be near the sediment boundary, or submerged in sediment, based on the inconsistent readings relative to the water column profile. Data were excluded from the assessment.

(c) Water quality samples were not collected when this profile was collected.

(d) The probe was assumed to submerged in turbulent water near the air-water interface, based on inconsistent readings relative to the water column profile. Data were excluded from the assessment.

Table 3B-1 Snap Lake and Northeast Lake Profile Data for 1999-2012

Station	Date	Ice Thickness (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH[(a)]	Specific Conductivity (µS/cm)

(e) The dissolved oxygen saturation (%) value is inconsistent with the measured dissolved oxygen (mg/L) value. This was assumed to be a transcription error, so the data were excluded from the assessment.

(f) The boat drifted during sample collection. Data were excluded from the assessment.

(g) The pH meter froze prior to measurement. Data were excluded from assessment.

(h) Profile data were recorded when toxicity and plankton samples were collected.

(i) The pH values were unstable and questionable due to difficulties with the pH measurement equipment.

(j) Profile data were recorded when benthic samples were collected.

(k) Profiles were performed during reconnaissance visits to determine a deep water dissolved oxygen reference location.

(l) Dissolved oxygen values were higher than expected. The DO membrane was changed at the end of the day.

(m) Profiles were completed as part of the plume characterization program.

(n) Data were excluded from assessment; suspected calibration error as described in Appendix 3A.

(o) Data were excluded from assessment; incomplete profile collected and/or possible location error.

(p) Value was assumed to be a transcription error, so the data was excluded from the assessment.

(q) The GPS was not working properly due to low temperatures; the station was 60 m off the target waypoint.

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**
Date Sampled (yyyy-mm-dd):		**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**
Sample Control Number:		**2012-5043**	**2012-5044**	**2012-5045**	**2012-5038**	**2012-5039**	**2012-5040**	**2012-5048**	**2012-5049**	**2012-5050**
Field Parameters										
pH	unitless	6.9	7.0	7.0	7.0	7.1	6.9	7.0	7.0	7.0
Specific Conductivity	µS/cm	448	513	518	476	513	503	452	515	518
Water Temperature	°C	1.1	1.1	1.1	1.2	1.2	1.5	0.9	1.1	1.2
Dissolved Oxygen	mg/L	13.9	14.4	14.5	14.6	14.2	12.2	14.1	14.5	14.5
Conventional Parameters										
Laboratory pH	unitless	7.5 WH	7.6 WH	7.6 WH	7.6 WH	7.6 WH	7.5 WH	7.5 WH	7.5 WH	7.6 WH
Laboratory Specific Conductivity	µS/cm	431	476	483	454	482	481	426	461	482
Total Dissolved Solids, measured	mg/L	206	296	296	275	217 WH	289	228	280	290
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	210 QP	234 QP	236 QP	228 QP	243 QP	241 QP	212 QP	222 QP	250 QP
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	206 QP	230 QP	232 QP	224 QP	239 QP	237 QP	208 QP	218 QP	245 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3
Turbidity	NTU	0.15 WH	0.12 WH	0.12 WH	0.13 WH	0.13 WH	0.13 WH	0.13 WH	0.14 WH	0.15 WH
Ions										
Bicarbonate, as HCO_3	mg/L	26	27	29	26	29	27	25	27	29
Calcium	mg/L	41.5	46.6	46.2	47.0	50.1	50.1	43.6	42.8	53.4
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	95.0	105	106	101	106	105	93.6	101	106
Fluoride	mg/L	0.14	0.15	0.15	0.15	0.15	0.15	0.14	0.15	0.15
Hardness, as $CaCO_3$	mg/L	125	140	138	141	150	151	131	129	161
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	5.1	5.9	5.5	5.8	6.1	6.2	5.4	5.4	6.7
Potassium	mg/L	1.99 QP	2.21 QP	2.16 QP	2.34 QP	2.43 QP	2.58 QP	2.17 QP	2.21 QP	2.80 QP
Reactive Silica, as SiO_2	mg/L	0.88 NP	1.35 NP	1.39 NP	0.94 NP	1.52 NP	1.53 NP	0.89 NP	1.24 NP	1.45 NP
Sodium	mg/L	22	24	24	24	27	27	23	23	28
Sulphate	mg/L	18.4	20.6	20.9	19.7	20.7	20.6	18.4	19.7	20.9
Total Alkalinity, as $CaCO_3$	mg/L	21	23	24	22	24	22	20	22	24
Nutrients										
BOD (5-day)	mg/L	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014
Nitrate, as N, calculated	mg-N/L	1.89 WH	2.35 WH	2.33 WH	2.08 WH	2.46 WH	2.37 WH	1.83 WH	2.15 WH	2.37 WH
Nitrate/Nitrite, as N	mg-N/L	1.90 WH	2.38 WH	2.36 WH	2.10 WH	2.49 WH	2.40 WH	1.85 WH	2.17 WH	2.40 WH
Nitrite, as N	mg-N/L	0.013 WH	0.025 WH	0.026 WH	0.013 WH	0.025 WH	0.022 WH	0.013 WH	0.021 WH	0.026 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	0.130	0.263	0.243	0.139	0.277	0.238	0.127	0.264	0.273
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0019	<0.001
Total Kjeldahl Nitrogen	mg-N/L	0.442	0.537	0.575	0.480	0.589	0.545	0.490	0.530	0.540
Total Organic Carbon	mg/L	3.9 NP	3.9 NP	3.7 NP	3.9 NP	3.6 NP	4.1 NP	4.1 NP	3.8 NP	4.1 NP
Total Organic Phosphorus, calculated	mg-P/L	0.0015	0.0019	<0.0014	0.0022	<0.0014	0.0021	0.0020	<0.0014	0.0020
Total Phosphorus	mg-P/L	0.002	0.002	<0.001	0.002	<0.001	0.002	0.002	0.002	0.002
Total Metals and Metalloids										
Aluminum	µg/L	4.17 NP	2.93 NP	3.27 NP	2.83 NP	2.42 NP	3.37 NP	2.87 NP	3.29 NP	3.35 NP
Antimony	µg/L	2.94 NP	0.40 NP	0.36 NP	1.11 NP	0.18 NP	0.17 NP	1.21 NP	0.16 NP	0.17 NP
Arsenic	µg/L	0.10	0.11	0.10	0.12	0.10	0.10	0.11	0.10	0.10
Barium	µg/L	21.4	22.0	22.5	22.5	21.8	21.8	21.3	21.8	22.1
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	38.4 NP	43.9 NP	44.7 NP	40.3 NP	44.9 NP	43.7 NP	38.7 NP	43.4 NP	43.8 NP
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	0.009 NP	0.007 NP	0.002 NP	0.004 NP	0.003 NP	0.005 NP	0.005 NP	0.003 NP	0.004 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	<0.06	0.10	0.08	<0.06	0.09	0.07	0.06	<0.06	0.08
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	0.021 QP	0.038 QP	0.043 QP	0.019 QP	0.050 QP	0.043 QP	0.016 QP	0.047 QP	0.038 QP
Copper	µg/L	0.44 NP	0.41 NP	0.40 NP	0.46 NP	0.41 NP	0.42 NP	0.42 NP	0.38 NP	0.40 NP
Iron	µg/L	4	4	4	4	5	5	3	4	4
Lead	µg/L	0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP
Lithium	µg/L	7.9	8.6	8.8	8.8	9.5	9.4	7.4	9.5	9.4
Manganese	µg/L	4.65	7.75	8.92	4.68	8.83	8.26	4.50	8.12	8.23
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Methyl Mercury, as Hg	µg/L	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
Molybdenum	µg/L	0.97	1.28	1.38	1.01	1.30	1.24	0.98	1.29	1.30
Nickel	µg/L	1.08	1.59	1.79	1.18	1.69	1.59	1.04	1.63	1.61
Rubidium	µg/L	4	4	4	4	4	4	4	4	4
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**
Date Sampled (yyyy-mm-dd):		**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**
Sample Control Number:		**2012-5043**	**2012-5044**	**2012-5045**	**2012-5038**	**2012-5039**	**2012-5040**	**2012-5048**	**2012-5049**	**2012-5050**
Strontium	µg/L	610	674	680	643	668	663	609	665	664
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	0.2	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.1	<0.1
Uranium	µg/L	0.12	0.15	0.17	0.12	0.16	0.15	0.12	0.16	0.17
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	<0.8 NP	<0.8 NP	1.1 NP	<0.8 NP	<0.8 NP	<0.8 NP	<0.8 NP	<0.8 NP	<0.8 NP
Dissolved Metals and Metalloids										
Aluminum	µg/L	2.25 NP	2.52 NP	2.81 NP	2.03 NP	2.33 NP	2.57 NP	2.48 NP	2.48 NP	2.69 NP
Antimony	µg/L	0.45 NP	0.12 NP	0.11 NP	0.16 NP	0.07 NP	0.08 NP	0.19 NP	0.09 NP	0.08 NP
Arsenic	µg/L	0.10	0.11	0.09	0.11	0.10	0.11	0.11	0.09	0.10
Barium	µg/L	20.8	21.5	22.0	21.8	21.8	21.9	20.8	21.7	21.7
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	39.5 NP	42.7 NP	44.6 NP	39.9 NP	44.5 NP	43.6 NP	38.4 NP	43 NP	43.6 NP
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.07	0.07	0.10	0.06	0.07	0.06	<0.06	0.06	0.08
Cobalt	µg/L	0.02	0.03	0.04	0.02	0.04	0.03	0.01	0.04	0.04
Copper	µg/L	0.47 NP	0.44 NP	0.45 NP	0.47 NP	0.41 NP	0.40 NP	0.42 NP	0.39 NP	0.39 NP
Iron	µg/L	2	2	2	2	2	2	1	2	2
Lead	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	µg/L	8.6	9.0	9.6	9.1	9.7	9.3	8.4	9.3	9.4
Manganese	µg/L	3.96 QP	6.72 QP	7.82 QP	3.97 QP	7.99 QP	7.36 QP	3.86 QP	7.47 QP	7.49 QP
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	0.95	1.22	1.37	0.95	1.31	1.27	0.92	1.28	1.29
Nickel	µg/L	1.08	1.48	1.68	1.06	1.72	1.61	1.02	1.65	1.60
Rubidium	µg/L	4	4	4	4	4	4	4	4	4
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	601	645	675	629	668	655	590	663	663
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.12	0.16	0.17	0.13	0.17	0.15	0.12	0.17	0.17
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	1.8 NP	1.7 NP	0.8 NP	<0.8 NP	0.8 NP	<0.8 NP	<0.8 NP	<0.8 NP	<0.8 NP
Organics-General										
F2 (>C_{10}-C_{16})	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Oil & Grease	mg/L	<1 QP	1.3 QP	<1 QP	1.2 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP
Organics-Volatiles										
Benzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BTEX, calculated	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
Ethylbenzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
F1-BTEX	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
F1 (C_6-C_{10})	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
m&p-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Microbiology										
E. coli	MPN/100mL	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency;

· XG = data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Hg = mercury; Alberta Innovates = Alberta Innovates Technology Futures.

BTEX = benzene, toluene, ethylbenzene, and xylene; *E. coli* = *Escherichia coli;* F1 (C_6 – C_{10}) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > C_{10} to C_{16}.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres.

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued)

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**
Date Sampled (yyyy-mm-dd):		**2012-03-18**	**2012-03-18**	**2012-03-18**	**2012-03-18**	**2012-03-18**	**2012-03-18**	**2012-03-21**	**2012-03-21**	**2012-03-21**
Sample Control Number:		**2012-5064**	**2012-5066**	**2012-5067**	**2012-5060**	**2012-5062**	**2012-5063**	**2012-5068**	**2012-5069**	**2012-5070**
Field Parameters										
pH	unitless	7.0	7.0	7.0	7.1	7.1	7.1	6.5	6.7	6.8
Specific Conductivity	µS/cm	448	509	513	452	507	497	466	524	525
Water Temperature	°C	1.3	1.4	1.4	1.1	1.4	1.6	1.2	1.3	1.4
Dissolved Oxygen	mg/L	14.6	15.0	14.9	15.0	14.8	13.2	14.4	14.7	14.6
Conventional Parameters										
Laboratory pH	unitless	7.2 WH	7.4 WH	7.4 WH	7.3 WH	7.2 WH	7.3 WH	7.2 WH	7.3 WH	7.3 WH
Laboratory Specific Conductivity	µS/cm	453	481	509	458	499	492	454	506	470
Total Dissolved Solids, measured	mg/L	258	272	292	262	290	299	270	295	276
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	226 QP	231 QP	254 QP	217 QP	247 QP	239 QP	227 QP	248 QP	242 QP
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	221 QP	226 QP	249 QP	213 QP	243 QP	234 QP	223 QP	243 QP	237 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3
Turbidity	NTU	0.13 WH	0.14 WH	0.15 WH	0.13 WH	0.18 WH	0.14 WH	0.21 WH	0.23 WH	0.20 WH
Ions										
Bicarbonate, as HCO_3	mg/L	30	31	33	30	32	31	30	33	31
Calcium	mg/L	45.2	43.1	50.8	40.8	49.0	44.7	45.2	46.8	50.0
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	99.4	105	111	97.7	110	108	98.6	111	103
Fluoride	mg/L	0.14	0.15	0.15	0.14	0.15	0.15	0.14	0.16	0.15
Hardness, as $CaCO_3$	mg/L	136	129	152	123	147	134	137	141	150
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	5.7	5.2	6.2	5.1	6.0	5.4	5.8	5.8	6.2
Potassium	mg/L	2.13 QP	1.99 QP	2.63 QP	2.00 QP	2.3	2.13 QP	1.80 QP	1.78 QP	2.61 QP
Reactive Silica, as SiO_2	mg/L	1.06 NP	1.35 NP	1.59 NP	1.28 NP	1.91	2.02 NP	2.35 NP	2.58 NP	2.15 NP
Sodium	mg/L	23	22	27	22	25	23	25	25	27
Sulphate	mg/L	19.2	20.4	21.6	19.4	21.3	21.1	19.3	21.8	20.3
Total Alkalinity, as $CaCO_3$	mg/L	24	26	27	24	26	26	25	27	25
Nutrients										
BOD (5-day)	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014
Nitrate, as N, calculated	mg-N/L	2.34 WH	2.55 WH	2.75 WH	2.16 WH	2.55 WH	2.60 WH	2.22 WH	2.47 WH	2.33 WH
Nitrate/Nitrite, as N	mg-N/L	2.35 WH	2.57 WH	2.78 WH	2.18 WH	2.57 WH	2.62 WH	2.23 WH	2.49 WH	2.35 WH
Nitrite, as N	mg-N/L	0.014 WH	0.021 WH	0.025 WH	0.013 WH	0.023 WH	0.021 WH	0.016 WH	0.024 WH	0.020 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	0.150	0.263	0.273	0.144	0.249	0.220	0.150	0.251	0.259
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	0.413	0.490	0.519	0.43	0.48	0.43	0.49	0.53	0.52
Total Organic Carbon	mg/L	4 NP	3.9 NP	3.8 NP	4.1 NP	3.9 NP	3.9 NP	4.1 NP	3.8 NP	3.8 NP
Total Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014
Total Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Metals and Metalloids										
Aluminum	µg/L	2.58 NP	3.33 NP	3.15 NP	2.94 NP	3.05 NP	4.47 NP	2.46 NP	2.9 NP	2.78 NP
Antimony	µg/L	1.49 NP	0.40 NP	0.23 NP	1.57 NP	0.60 NP	0.35 NP	1.59 NP	0.23 NP	0.45 NP
Arsenic	µg/L	0.11	0.09	0.10	0.10	0.10	0.10	0.11	0.09	0.09
Barium	µg/L	22.3	22.0	22.3	22.2	22.3	22.5	21.0	21.9	21.8
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	41.8 NP	42.2 NP	44.4 NP	40.5 NP	43.7 NP	44.5 NP	41.5 NP	46.7 NP	45.7 NP
Cadmium	µg/L	0.071	<0.005	0.005	0.030	0.033	<0.005	<0.005	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	0.069 NP	0.007 NP	0.007 NP	0.034 NP	0.007 NP	0.006 NP	0.005 NP	0.006 NP	0.006 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	<0.06	0.09	0.09	0.07	0.10	0.12	0.06	0.09	0.08
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	0.018 QP	0.047 QP	0.048 QP	0.018 QP	0.049 QP	0.046 QP	0.022 QP	0.041 QP	0.038 QP
Copper	µg/L	0.50 NP	0.35 NP	0.35 NP	0.46 NP	0.36 NP	0.37 NP	0.40 NP	0.37 NP	0.41 NP
Iron	µg/L	3	5	5	4	5	7	3	4	4
Lead	µg/L	0.01 QP	<0.01 QP	<0.01 QP	0.04 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP
Lithium	µg/L	10.7	10.4	10.8	10.0	10.6	10.9	9.1	10.2	10.1
Manganese	µg/L	5.57	8.97	9.42	5.25	8.85	8.64	5.36	8.80	8.64
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Methyl Mercury, as Hg	µg/L	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008
Molybdenum	µg/L	1.05	1.30	1.32	1.04	1.28	1.29	1.01	1.26	1.24
Nickel	µg/L	1.19	1.80	1.90	1.21	1.82	1.73	1.17	1.67	1.69
Rubidium	µg/L	4	4	4	4	4	4	4	4	4
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued)

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		surface	mid	bottom	surface	mid	bottom	surface	mid	bottom
Date Sampled (yyyy-mm-dd):		2012-03-18	2012-03-18	2012-03-18	2012-03-18	2012-03-18	2012-03-18	2012-03-21	2012-03-21	2012-03-21
Sample Control Number:		2012-5064	2012-5066	2012-5067	2012-5060	2012-5062	2012-5063	2012-5068	2012-5069	2012-5070
Strontium	µg/L	623	663	669	611	654	668	587	656	652
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	0.1	<0.1	0.2	0.1	<0.1	0.1	<0.1
Uranium	µg/L	0.12	0.16	0.16	0.12	0.16	0.15	0.12	0.16	0.16
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	1.5 NP	<0.8 NP	<0.8 NP	2.2 NP	0.9 NP	1.0 NP	<0.8 NP	<0.8 NP	<0.8 NP
Dissolved Metals and Metalloids										
Aluminum	µg/L	2.13 NP	2.45 NP	2.56 NP	1.8 NP	2.45 NP	2.19 NP	2.54 NP	1.99 NP	2.42 NP
Antimony	µg/L	0.36 NP	0.11 NP	0.09 NP	0.66 NP	0.23 NP	0.12 NP	0.42 NP	0.11 NP	0.14 NP
Arsenic	µg/L	0.11	0.09	0.10	0.11	0.11	0.10	0.10	0.10	0.10
Barium	µg/L	22.6	22.2	22.6	22.1	22.4	22.4	21.2	21.9	21.7
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02
Boron	µg/L	40.5 NP	44.8 NP	44.8 NP	41.6 NP	43.9 NP	42.1 NP	40.9 NP	46.7 NP	45.6 NP
Cadmium	µg/L	0.066	<0.005	<0.005	0.030	<0.005	<0.005	<0.005	<0.005	<0.005
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.06	0.10	0.10	0.06	0.09	0.06	<0.06	0.08	0.09
Cobalt	µg/L	0.01	0.03	0.04	0.01	0.03	0.03	0.01	0.03	0.03
Copper	µg/L	0.48 NP	0.44 NP	0.35 NP	0.43 NP	0.75 NP XG	0.36 NP	0.49 NP	0.37 NP	0.40 NP
Iron	µg/L	1	2	2	1	2	3	1	1	2
Lead	µg/L	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.01	<0.01	<0.01
Lithium	µg/L	10.2	10.9	10.8	10.5	10.7	10.1	9.1	10.3	10.1
Manganese	µg/L	4.38 QP	7.82 QP	8.22 QP	4.07 QP	7.51 QP	7.59 QP	3.83 QP	7.60 QP	7.05 QP
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	1.03	1.32	1.34	1.04	1.31	1.25	1.04	1.28	1.25
Nickel	µg/L	1.22	1.89	1.89	1.19	1.74	1.65	1.17	1.72	1.66
Rubidium	µg/L	4	4	4	4	4	4	4	4	4
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	617	659	673	613	658	652	598	668	651
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.12	0.16	0.17	0.12	0.16	0.15	0.12	0.16	0.15
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	1.7 NP	<0.8 NP	0.9 NP	2.4 NP	1.1 NP	0.9 NP	1.2 NP	0.9 NP	<0.8 NP
Organics-General										
F2 (>C_{10}-C_{16})	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Oil & Grease	mg/L	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP
Organics-Volatiles										
Benzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BTEX, calculated	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
Ethylbenzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
F1-BTEX	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
F1 (C_6-C_{10})	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
m&p-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Microbiology										
E. coli	MPN/100mL	<1	<1	<1	<1	<1	<1	<1 WH	<1 WH	<1 WH

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency;

· XG = data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Hg = mercury; Alberta Innovates = Alberta Innovates Technology Futures.

BTEX = benzene, toluene, ethylbenzene, and xylene; *E. coli = Escherichia coli;* F1 ($C_6 - C_{10}$) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > C_{10} to C_{16}.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres.

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued)

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		**surface**	**mid**	**mid**	**bottom**	**surface**	**mid**	**bottom**	**bottom**	**surface**	**mid**	**mid**	**bottom**
Date Sampled (yyyy-mm-dd):		**2012-04-15**	**2012-04-15**	**2012-04-17**	**2012-04-15**	**2012-04-15**	**2012-04-15**	**2012-04-15**	**2012-04-17**	**2012-04-15**	**2012-04-15**	**2012-04-17**	**2012-04-15**
Sample Control Number:		**2012-5089**	**2012-5090**	**2012-5118**	**2012-5091**	**2012-5093**	**2012-5094**	**2012-5095**	**2012-5119**	**2012-5097**	**2012-5098**	**2012-5120**	**2012-5099**
Field Parameters													
pH	unitless	6.6	6.6	6.9	6.7	6.5	6.6	6.6	6.9	6.7	6.7	7.0	6.7
Specific Conductivity	µS/cm	462	522	530	526	466	526	549	558	458	523	531	525
Water Temperature	°C	1.6	1.4	1.5	1.4	1.4	1.4	1.3	1.5	1.4	1.4	1.5	1.4
Dissolved Oxygen	mg/L	19.1	20.2	14.5	20.2	19.4	20.0	19.5	13.7	19.3	20.2	14.4	20.2
Conventional Parameters													
Laboratory pH	unitless	7.3 WH	7.4 WH	7.4 WH	7.4 WH	7.4 WH	7.4 WH	7.4 WH	7.3 WH	7.4 WH	7.4 WH	7.4 WH	7.4 WH
Laboratory Specific Conductivity	µS/cm	458	490	518	519	464	520	515	542	452	515	506	518
Total Dissolved Solids, measured	mg/L	310	327	366	347	312	360	361	383	325	382	362	366
Total Dissolved Solids, calculated (Lab)[a]	mg/L	230 QP	241 QP	260 QP	258 QP	236 QP	259 QP	261 QP	262 QP	227 QP	246 QP	244 QP	254 QP
Total Dissolved Solids, calculated (Standard Methods)[a]	mg/L	226 QP	237 QP	256 QP	253 QP	232 QP	254 QP	256 QP	266 QP	223 QP	247 QP	240 QP	249 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Turbidity	NTU	0.18 WH	0.22 WH	0.20 WH	0.19 WH	0.29 WH	0.23 WH	0.18 WH	0.16 WH	0.21 WH	0.18 WH	0.18 WH	0.21 WH
Ions													
Bicarbonate, as HCO_3	mg/L	29	30	32	32	29	31	30	31	29	32	31	32
Calcium	mg/L	45.1	46.8	53.0	50.6	48.3	51.6	53.7	52.2	46.4	48.4	46.2	48.4
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	102	108	114	114	102	115	114	121	99.3	114	111	114
Fluoride	mg/L	0.14	0.14	0.15	0.15	0.14	0.15	0.14	0.15	0.14	0.15	0.15	0.15
Hardness, as $CaCO_3$	mg/L	136	141	160	152	146	156	163	158	141	146	139	146
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	5.7	5.8	6.8	6.3	6.3	6.5	6.9	6.7	6.0	6.1	5.8	6.2
Potassium	mg/L	2.21 QP	2.01 QP	2.73 QP	2.34 QP	2.41 QP	2.41 QP	2.59 QP	2.58 QP	2.34 QP	2.27 QP	2.16 QP	2.57 QP
Reactive Silica, as SiO_2	mg/L	1.00 NP	1.32 NP	1.59 NP	1.62 NP	1.05 NP	1.64 NP	1.72 NP	1.95 NP	0.97 NP	1.57 NP	1.51 NP	1.63 NP
Sodium	mg/L	24	24	27	26	26	27	28	28	24	25	24	25
Sulphate	mg/L	19.60	20.90	22.70	22.50	19.60	22.70	22.4	24.5	19.1	22.2	22.2	22.5
Total Alkalinity, as $CaCO_3$	mg/L	24	25	26	26	24	25	25	25	23	26	26	26
Nutrients													
BOD (5-day)	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	0.002	<0.0014	<0.0014	0.0023	0.0023	0.0021	<0.0014	<0.0014	0.0024	<0.0014
Nitrate, as N, calculated	mg-N/L	2.57 WH	2.84 WH	2.61 WH	3.13 WH	2.58 WH	2.65 WH	2.73 WH	2.97 WH	2.2 WH	2.63 WH	2.57 WH	2.73 WH
Nitrate/Nitrite, as N	mg-N/L	2.59 WH	2.86 WH	2.64 WH	3.16 WH	2.59 WH	2.68 WH	2.76 WH	3.00 WH	2.22 WH	2.66 WH	2.6 WH	2.76 WH
Nitrite, as N	mg-N/L	0.014 WH	0.022 WH	0.027 WH	0.029 WH	0.015 WH	0.026 WH	0.024 WH	0.026 WH	0.015 WH	0.028 WH	0.026 WH	0.029 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	0.169	0.239	0.292	0.299	0.179	0.277	0.292	0.299	0.170	0.288	0.279	0.252
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	0.002	<0.001	<0.001	0.002	0.002	0.002	<0.001	<0.001	0.002	<0.001
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	0.201	0.567	0.449	0.543	0.573	0.456	0.50	0.67	0.33	0.46	0.92	0.41
Total Organic Carbon	mg/L	3.9 NP	4.0 NP	3.7 NP	4.2 NP	3.8 NP	4.1 NP	4.3 NP	3.2 NP	4.4 NP	3.9 NP	3.7 NP	4.0 NP
Total Organic Phosphorus, calculated	mg-P/L	0.0021	0.0020	0.0035	0.0021	<0.0014	0.0033	0.0038	0.0034	0.0031	0.0020	0.0183	0.0020
Total Phosphorus	mg-P/L	0.002	0.002	0.004	0.002	0.003	0.003	0.004	0.003	0.003	0.002	0.018	0.002
Total Metals and Metalloids													
Aluminum	µg/L	2.51 NP	3.67 NP	4.36 NP	3.49 NP	2.23 NP	4.28 NP	7.52 NP	9.9 NP	4.08 NP	3.03 NP	4.69 NP	3.23 NP
Antimony	µg/L	3.09 NP	0.80 NP	1.22 NP	0.31 NP	1.08 NP	0.2 NP	0.43 NP	0.56 NP	16.70 NP	1.24 NP	6.55 NP	0.54 NP
Arsenic	µg/L	0.12	0.10	0.09	0.09	0.11	0.11	0.10	0.10	0.18	0.11	0.13	0.11
Barium	µg/L	20.6	21.2	23.5	21.6	21.1	22.4	24.9	28.6	20.3	21.5	23.1	21.7
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	41.3 NP	44.7 NP	49.4 NP	47.2 NP	42.2 NP	46.9 NP	48.6 NP	53.4 NP	42.9 NP	46.2 NP	48.7 NP	47.2 NP
Cadmium	µg/L	0.009	<0.005	<0.005	0.005	0.011	0.007	0.014	0.019	0.012	<0.005	0.010	0.005
Cadmium (Alberta Innovates)	µg/L	0.018 NP	0.010 NP	0.007 NP	0.008 NP	0.012 NP	0.011 NP	0.019 NP	0.025 NP	0.049 NP	0.024 NP	0.012 NP	0.006 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.10	0.17	0.12	0.22	0.12	0.20	0.15	0.18	0.18	0.16	0.17	0.17
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	0.018 QP	0.037 QP	0.046 QP	0.046 QP	0.018 QP	0.078 QP	0.222 QP	0.269 QP	0.023 QP	0.041 QP	0.051 QP	0.048 QP
Copper	µg/L	0.43 NP	0.41 NP	0.43 NP	0.41 NP	0.46 NP	0.41 NP	0.46 NP	0.49 NP	0.51 NP	0.42 NP	0.49 NP	0.41 NP
Iron	µg/L	3	4	5	5	2	6	7	8	6	5	11	5
Lead	µg/L	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	0.03 QP	<0.01 QP	0.02 QP	<0.01 QP
Lithium	µg/L	8.5	9.2	10.1	9.7	9.1	10.0	10.4	10.6	9.3	9.8	9.9	10.1
Manganese	µg/L	4.86	7.89	9.89	9.03	4.73	9.52	12.8	14.9	5.45	8.54	8.94	9.46
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	0.0012	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	0.0005	<0.0005
Methyl Mercury, as Hg	µg/L	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
Molybdenum	µg/L	1.01	1.27	1.40	1.44	1.00	1.36	1.29	1.29	1.02	1.32	1.27	1.43
Nickel	µg/L	1.20	1.74	2.10	1.89	1.25	1.92	1.97	2.13	1.24	1.81	1.86	1.99
Rubidium	µg/L	4	4	4	4	4	4	4	5	4	4	4	4
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	619	675	694	703	635	704	710	714	616	685	668	697
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	0.6	<0.1	0.2	0.1	<0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1
Uranium	µg/L	0.12	0.15	0.16	0.17	0.12	0.17	0.15	0.14	0.12	0.16	0.15	0.17
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	1.2 NP	0.9 NP	1.3 NP	0.9 NP	1.0 NP	2.2 NP	2.7 NP	3.8 NP	1.7 NP	1.3 NP	2.8 NP	1.0 NP
Dissolved Metals and Metalloids													

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued)

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		**surface**	**mid**	**mid**	**bottom**	**surface**	**mid**	**bottom**	**bottom**	**surface**	**mid**	**mid**	**bottom**
Date Sampled (yyyy-mm-dd):		**2012-04-15**	**2012-04-15**	**2012-04-17**	**2012-04-15**	**2012-04-15**	**2012-04-15**	**2012-04-15**	**2012-04-17**	**2012-04-15**	**2012-04-15**	**2012-04-17**	**2012-04-15**
Sample Control Number:		**2012-5089**	**2012-5090**	**2012-5118**	**2012-5091**	**2012-5093**	**2012-5094**	**2012-5095**	**2012-5119**	**2012-5097**	**2012-5098**	**2012-5120**	**2012-5099**
Aluminum	µg/L	1.70 NP	2.05 NP	2.16 NP	2.03 NP	1.77 NP	2.61 NP	6.31 NP	9.0 NP	2.03 NP	1.84 NP	2.09 NP	1.93 NP
Antimony	µg/L	0.29 NP	0.15 NP	0.11 NP	0.10 NP	0.28 NP	0.09 NP	0.10 NP	0.12 NP	1.11 NP	0.38 NP	0.52 NP	0.16 NP
Arsenic	µg/L	0.11	0.10	0.11	0.10	0.11	0.10	0.10	0.10	0.15	0.11	0.10	0.10
Barium	µg/L	20.3	21.4	23.7	21.7	21.0	22.2	24.9	28.4	20.3	21.3	23.1	21.8
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	41.5 NP	45.7 NP	50.2 NP	47.6 NP	42.3 NP	46.2 NP	47.9 NP	53.7 NP	41.9 NP	47.1 NP	49.2 NP	47.5 NP
Cadmium	µg/L	0.009	0.005	<0.005	<0.005	0.009	0.006	0.014	0.016	0.011	<0.005	0.008	<0.005
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.12	0.17	0.14	0.19	0.13	0.16	0.12	0.19	0.14	0.16	0.17	0.18
Cobalt	µg/L	0.01	0.02	0.03	0.03	0.01	0.06	0.20	0.26	<0.01	0.02	0.03	0.03
Copper	µg/L	0.43 NP	0.38 NP	0.38 NP	0.39 NP	0.44 NP	0.38 NP	0.44 NP	0.45 NP	0.45 NP	0.38 NP	0.43 NP	0.41 NP
Iron	µg/L	<1	1	3	1	<1	1	3	4	<1	1	2	1
Lead	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	µg/L	8.6	9.5	10.2	9.7	8.8	9.9	10.1	10.7	9.2	10.1	10.2	10.1
Manganese	µg/L	3.15 QP	5.84 QP	7.87 QP	7.20 QP	3.20 QP	7.77 QP	11.40 QP	13.70 QP	3.61 QP	6.66 QP	6.91 QP	7.50 QP
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	1.00	1.25	1.42	1.38	1.01	1.35	1.28	1.28	0.99	1.34	1.30	1.46
Nickel	µg/L	1.18	1.65	2.05	1.90	1.23	1.93	1.93	2.12	1.18	1.81	1.87	1.98
Rubidium	µg/L	4	4	4	4	4	4	4	5	4	4	4	4
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	628	673	705	700	637	697	703	717	609	683	671	705
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.12	0.15	0.16	0.17	0.12	0.17	0.15	0.14	0.12	0.17	0.15	0.17
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	1.6 NP	1.2 NP	1.4 NP	1.5 NP	1.9 NP	1.7 NP	3.1 NP	4 NP	1.5 NP	1.2 NP	2.9 NP	1.2 NP
Organics-General													
F2 (>C_{10}-C_{16})	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Oil & Grease	mg/L	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP
Organics-Volatiles													
Benzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BTEX, calculated	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
Ethylbenzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
F1-BTEX	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
F1 (C_6-C_{10})	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
m&p-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Microbiology													
E. coli	MPN/100mL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated the using formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Hg = mercury; Alberta Innovates = Alberta Innovates Technology Futures.

BTEX = benzene, toluene, ethylbenzene, and xylene; *E. coli* = *Escherichia coli;* F1 (C_6 – C_{10}) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > C_{10} to C_{16}.

< = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued)

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**
Date Sampled (yyyy-mm-dd):		**2012-05-13**	**2012-05-13**	**2012-05-13**	**2012-05-13**	**2012-05-13**	**2012-05-13**	**2012-05-13**	**2012-05-13**	**2012-05-13**
Sample Control Number:		**2012-5124**	**2012-5125**	**2012-5126**	**2012-5128**	**2012-5129**	**2012-5130**	**2012-5131**	**2012-5132**	**2012-5133**
Field Parameters										
pH	unitless	6.8	6.8	6.8	6.1	6.5	6.6	6.7	6.8	6.8
Specific Conductivity	µS/cm	516	533	536	485	535	541	523	535	535
Water Temperature	°C	2.3	2.1	2.1	2.9	2.1	2.2	2.0	2.1	2.1
Dissolved Oxygen	mg/L	12.9	13.1	13.1	12.7	13.2	13.0	12.9	13.1	13.1
Conventional Parameters										
Laboratory pH	unitless	7.3 WH	7.4 WH	7.4 WH	7.4 WH	7.5 WH	7.3 WH	7.4 WH	7.4 WH	7.5 WH
Laboratory Specific Conductivity	µS/cm	455	511	523	464	511	530	386	432	517
Total Dissolved Solids, measured	mg/L	340 WH	387 WH	396 WH	367 WH	405 WH	424 WH	315 WH	288 WH	353 WH
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	228 QP	267 QP	268 QP	238 QP	262 QP	265 QP	194 QP	227 QP	279 QP
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	230 QP	264 QP	264 QP	226 QP	258 QP	261 QP	201 QP	223 QP	279 QP
Total Suspended Solids	mg/L	<3 WH	<3 WH	<3 WH	<3 WH	<3 WH	<3 WH	<3 WH	<3 WH	<3 WH
Turbidity	NTU	<0.10 WH	0.31 WH	0.31 WH	0.38 WH	0.22 WH	0.52 WH	0.32 WH	0.64 WH	0.68 WH
Ions										
Bicarbonate, as HCO_3	mg/L	28	32	34	31	31	31	26	25	32
Calcium	mg/L	42.4	47.9	50.2	40.4	50.2	48.0	38.5	46.6	62.2
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	101	114	116	97.0	113	117	83.5	94.4	114
Fluoride	mg/L	0.16	0.18	0.18	0.17	0.16	0.16	0.13	0.14	0.17
Hardness, as $CaCO_3$	mg/L	127	144	152	122	151	145	116	140	186
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	5.1	5.9	6.5	5.1	6.2	6.0	4.9	5.8	7.5
Potassium	mg/L	1.85 QP	2.38 QP	2.44 QP	2.03 QP	2.36 QP	2.18 QP	1.77 QP	2.27 QP	2.85 QP
Reactive Silica, as SiO_2	mg/L	11.90 NP,X	14.50 NP,X	7.55 NP,X	12.00 NP,X	7.33 NP,X	8.57 NP,X	11.00 NP,X	7.24 NP,X	7.85 NP,X
Sodium	mg/L	21	25	27	22	28	26	20	24	31
Sulphate	mg/L	19.8	22.3	23.0	19.1	21.8	22.7	16.7	18.9	22.6
Total Alkalinity, as $CaCO_3$	mg/L	23	26	28	26	26	25	22	21	26
Nutrients										
BOD (5-day)	mg/L	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	0.0017	0.0019	0.0023	<0.0014	<0.0014	0.0020	0.0022	0.0023	0.0019
Nitrate, as N, calculated	mg-N/L	2.21 WH	2.65 WH	2.81 WH	2.25 WH	2.59 WH	2.85 WH	2.05 WH	2.28 WH	2.75 WH
Nitrate/Nitrite, as N	mg-N/L	2.23 WH	2.67 WH	2.84 WH	2.27 WH	2.62 WH	2.87 WH	2.07 WH	2.3 WH	2.78 WH
Nitrite, as N	mg-N/L	0.018 WH	0.025 WH	0.027 WH	0.017 WH	0.022 WH	0.022 WH	0.016 WH	0.020 WH	0.026 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	0.203	0.301	0.324	0.192	0.277	0.280	0.181	0.226	0.280
Total Dissolved Phosphorus	mg-P/L	0.002	0.002	0.002	<0.001	<0.001	0.002	0.002	0.002	0.002
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.010	<0.001	<0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	0.455	0.540	0.568	0.394	0.608	0.549	0.729	0.591	0.635
Total Organic Carbon	mg/L	3.9 NP	3.7 NP	3.9 NP	3.4 NP	4 NP	4.4 NP	<1 NP	3.9 NP	<1 NP
Total Organic Phosphorus, calculated	mg-P/L	0.0026	0.0029	0.0040	0.0033	0.0026	<0.0014	0.0035	0.0031	0.0030
Total Phosphorus	mg-P/L	0.003	0.003	0.004	0.003	0.003	0.005	0.004	0.003	0.003
Total Metals and Metalloids										
Aluminum	µg/L	6.65 NP	4.28 NP	5.15 NP	3.35 NP	5.25 NP	7.09 NP	10.5 NP	5.89 NP	14.7 NP
Antimony	µg/L	16.80 NP	1.02 NP	0.94 NP	1.94 NP	0.59 NP	0.56 NP	12.30 NP	1.57 NP	1.04 NP
Arsenic	µg/L	0.13	0.11	0.11	0.11	0.10	0.10	0.14	0.09	0.09
Barium	µg/L	21.6	23.7	24.3	21.6	24.6	26.0	21.0	24.2	24.2
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	42.5 NP	49.9 NP	52.5 NP	41.2 NP	49.4 NP	51.7 NP	38.3 NP	50.2 NP	52 NP
Cadmium	µg/L	0.007	<0.005	<0.005	0.006	0.007	0.009	0.007	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	0.010 NP	0.005 NP	0.008 NP	0.009 NP	0.007 NP	0.009 NP	0.009 NP	0.007 NP	0.014 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.12	0.13	0.12	0.07	0.11	0.12	0.11	0.12	0.14
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	0.059 QP	0.055 QP	0.071 QP	0.021 QP	0.110 QP	0.196 QP	0.061 QP	0.067 QP	0.078 QP
Copper	µg/L	0.52 NP	0.46 NP	0.44 NP	0.7 NP	0.48 NP	0.56 NP	0.53 NP	0.42 NP	0.49 NP
Iron	µg/L	11	6	9	4	10	19	7	8	17
Lead	µg/L	0.04 QP	<0.01 QP	<0.01 QP	0.01 QP	<0.01 QP	0.01 QP	0.05 QP	0.01 QP	0.01 QP
Lithium	µg/L	8.7	9.8	10.0	8.2	9.6	9.9	7.2	9.6	10.2
Manganese	µg/L	6.41	9.54	10.5	4.65	10.8	14.1	6.63	10.2	10.8
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	0.0007	<0.0005	<0.0005	0.0005	<0.0005	<0.0005
Methyl Mercury, as Hg	µg/L	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008
Molybdenum	µg/L	1.10	1.44	1.54	0.99	1.43	1.46	1.14	1.47	1.45
Nickel	µg/L	1.47	2.05	2.16	1.24	2.01	2.01	1.49	2.12	2.17
Rubidium	µg/L	4	4	4	4	4	4	4	4	4
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	605	699	707	589	699	703	509	689	716

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued)

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		surface	mid	bottom	surface	mid	bottom	surface	mid	bottom
Date Sampled (yyyy-mm-dd):		2012-05-13	2012-05-13	2012-05-13	2012-05-13	2012-05-13	2012-05-13	2012-05-13	2012-05-13	2012-05-13
Sample Control Number:		2012-5124	2012-5125	2012-5126	2012-5128	2012-5129	2012-5130	2012-5131	2012-5132	2012-5133
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	0.4	<0.1	0.1	0.1	0.2	0.2	0.4	0.2	0.7
Uranium	µg/L	0.14	0.18	0.19	0.12	0.18	0.17	0.11	0.19	0.20
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	2.7 NP	1.0 NP	<0.8 NP	1.7 NP	1.6 NP	2.1 NP	2.3 NP	<0.8 NP	<0.8 NP
Dissolved Metals and Metalloids										
Aluminum	µg/L	1.97 NP	2.31 NP	2.72 NP	1.78 NP	3.06 NP	4.26 NP	4.41 NP	2.08 NP	2.67 NP
Antimony	µg/L	0.86 NP	0.25 NP	0.15 NP	0.43 NP	0.12 NP	0.10 NP	0.61 NP	0.21 NP	0.12 NP
Arsenic	µg/L	0.11	0.09	0.09	0.10	0.10	0.10	0.10	0.10	0.10
Barium	µg/L	21.3	23.4	24.1	21.6	24.6	26.3	20.8	24.4	24.3
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	42.6 NP	47.8 NP	51.9 NP	41.3 NP	50.5 NP	51.4 NP	38.7 NP	50.7 NP	49.5 NP
Cadmium	µg/L	0.006	<0.005	<0.005	0.008	0.005	0.010	0.006	<0.005	0.005
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.07	0.11	0.11	<0.06	0.10	0.10	0.08	0.09	0.12
Cobalt	µg/L	0.04	0.05	0.05	0.02	0.09	0.17	0.04	0.05	0.05
Copper	µg/L	0.47 NP	0.45 NP	0.43 NP	0.72 NP	0.55 NP	0.50 NP	0.48 NP	0.44 NP	0.43 NP
Iron	µg/L	1	1	2	1	5	11	3	2	3
Lead	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	µg/L	9.0	9.6	9.9	8.2	9.8	9.7	7.1	9.6	10.1
Manganese	µg/L	5.71 QP	8.48 QP	9.39 QP	4.45 QP	9.66 QP	13.1 QP	5.67 QP	9.01 QP	9.41 QP
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	1.09	1.37	1.53	0.99	1.43	1.44	0.97	1.49	1.46
Nickel	µg/L	1.45	1.99	2.15	1.24	1.91	1.95	1.35	2.06	2.09
Rubidium	µg/L	4	4	4	4	4	4	4	4	4
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	603	680	710	591	705	704	519	694	689
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1
Uranium	µg/L	0.13	0.17	0.19	0.12	0.18	0.17	0.12	0.19	0.19
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	2.7 NP	2.1 NP	0.9 NP	1.9 NP	1.2 NP	3.4 NP	2.0 NP	1.4 NP	2.4 NP
Organics-General										
F2 (>C_{10}-C_{16})	mg/L	<0.25 WH	<0.25 WH	<0.25 WH	<0.25 WH	<0.25 WH	<0.25 WH	<0.25 WH	<0.25 WH	<0.25 WH
Oil & Grease	mg/L	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP
Organics-Volatiles										
Benzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005 Q
BTEX, calculated	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
Ethylbenzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005 Q
F1-BTEX	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 Q
F1 (C_6-C_{10})	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 Q
Toluene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005 Q
Xylene	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071 Q
m&p-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005 Q
o-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005 Q
Microbiology										
E. coli	MPN/100mL	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency;

· Q = headspace in sample;

· X = data invalidated due to an internal review; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Hg = mercury; Alberta Innovates = Alberta Innovates Technology Futures.

BTEX = benzene, toluene, ethylbenzene, and xylene; *E. coli* = *Escherichia coli;* F1 (C_6 – C_{10}) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > C_{10} to C_{16}.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres.

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued)

Sample Point:	Units	SNP 02-20d[a]	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**
Date Sampled (yyyy-mm-dd):		**2012-07-09**	**2012-07-09**	**2012-07-09**	**2012-07-09**	**2012-07-09**	**2012-07-09**	**2012-07-09**	**2012-07-09**	**2012-07-09**
Sample Control Number:		**2012-5154**	**2012-5155**	**2012-5156**	**2012-5157**	**2012-5158**	**2012-5159**	**2012-5160**	**2012-5161**	**2012-5162**
Field Parameters										
pH	unitless	7.3	7.4	7.4	7.3	7.4	7.2	7.4	7.4	7.5
Specific Conductivity	µS/cm	392	400	387	394	395	508	391	405	387
Water Temperature	°C	15.0	13.8	13.2	14.5	13.3	3.9	15.3	13.8	13.2
Dissolved Oxygen	mg/L	10.2	10.4	10.4	10.2	10.3	12.6	10.1	10.4	10.4
Conventional Parameters										
Laboratory pH	unitless	7.3 WH	7.6 WH	7.6 WH	7.6 WH	7.6 WH	7.7 WH	7.6 WH	7.6 WH	7.7 WH
Laboratory Specific Conductivity	µS/cm	394	402	390	397	398	471	392	408	407
Total Dissolved Solids, measured	mg/L	278	284	278	294	283	352	293	259	251
Total Dissolved Solids, calculated (Lab)[b]	mg/L	198 QP	191 QP	186 QP	189 QP	190 QP	230 QP	186 QP	195 QP	192 QP
Total Dissolved Solids, calculated (Standard Methods)[b]	mg/L	194 QP	188 QP	183 QP	186 QP	187 QP	226 QP	183 QP	192 QP	188 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3
Turbidity	NTU	0.34 WH	0.46 WH	0.38 WH	0.33 WH	0.38 WH	0.49 WH	0.45 WH	0.38 WH	0.35 WH
Ions										
Bicarbonate, as HCO_3	mg/L	27	25	25	25	25	29	22	26	25
Calcium	mg/L	40.4	37.0	36.7	37.4	38.0	46.4	37.1	38.4	36.6
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	84.3	85.6	83.2	84.6	84.9	101	83.5	87.7	86.9
Fluoride	mg/L	0.10	0.11	0.11	0.11	0.11	0.13	0.11	0.11	0.11
Hardness, as $CaCO_3$	mg/L	122	111	109	111	113	138	111	114	109
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	5.2	4.4	4.3	4.4	4.5	5.5	4.4	4.4	4.3
Potassium	mg/L	2.14 QP	1.92 QP	1.90 QP	1.94 QP	1.84 QP	2.42 QP	1.90 QP	1.99 QP	1.81 QP
Reactive Silica, as SiO_2	mg/L	0.94 NP	1.07 NP	0.93 NP	0.95 NP	0.96 NP	1.59 NP	0.94 NP	1.08 NP	1.09 NP
Sodium	mg/L	22	19	18	18	18	23	19	19	18
Sulphate	mg/L	17.0	17.2	16.6	16.9	17.0	20.4	16.7	17.6	17.4
Total Alkalinity, as $CaCO_3$	mg/L	22	21	20	21	20	24	18	21	21
Nutrients										
BOD (5-day)	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	0.0017	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014
Nitrate, as N, calculated	mg-N/L	1.97 WH	2.04 WH	1.91 WH	1.97 WH	1.98 WH	2.54 WH	1.96 WH	2.06 WH	2.14 WH
Nitrate/Nitrite, as N	mg-N/L	1.98	2.06	1.93	1.98	1.99	2.56	1.98	2.08	2.16
Nitrite, as N	mg-N/L	0.017	0.019	0.015	0.018	0.018	0.020	0.018	0.021	0.021
ortho-Phosphate, as P	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Ammonia, as N	mg-N/L	0.128	0.151	0.115	0.133	0.135	0.233	0.134	0.158	0.111
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	0.449	0.565	0.386	0.49	0.41	0.58	0.48	0.46	0.40
Total Organic Carbon	mg/L	3.3 NP	3.2 NP	3.5 NP	3.3 NP	3.1 NP	3.5 NP	3.2 NP	3.1 NP	3.2 NP
Total Organic Phosphorus, calculated	mg-P/L	0.0015	0.0021	0.0028	0.0087	0.0025	0.0048	<0.0014	0.0016	<0.0014
Total Phosphorus	mg-P/L	0.002	0.002	0.003	0.009	0.003	0.005	0.001	0.002	<0.001
Total Metals and Metalloids										
Aluminum	µg/L	4.95 NP	6.05 NP	5.56 NP	5.83 NP	5.04 NP	6.12 NP	5.95 NP	6.46 NP	5.96 NP
Antimony	µg/L	0.14 NP	0.06 NP	0.07 NP	0.31 NP	0.08 NP	0.07 NP	0.08 NP	0.10 NP	0.05 NP
Arsenic	µg/L	0.08	0.09	0.08	0.07	0.09	0.10	0.08	0.08	0.08
Barium	µg/L	17.6	18.0	17.7	17.7	17.9	22.4	17.3	17.8	17.6
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	36.0 NP	39.2 NP	38.2 NP	38.0 NP	36.4 NP	47.0 NP	37.4 NP	37.5 NP	37.5 NP
Cadmium	µg/L	0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	0.008 NP	0.005 NP	0.008 NP	0.020 NP	0.015 NP	0.008 NP	0.007 NP	0.009 NP	0.005 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.16	0.08	<0.06	0.07	<0.06	0.10	0.08	0.06	0.07
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	0.027 QP	0.037 QP	0.031 QP	0.033 QP	0.028 QP	0.070 QP	0.025 QP	0.035 QP	0.031 QP
Copper	µg/L	0.48 NP	0.41 NP	0.43 NP	0.48 NP	0.42 NP	0.46 NP	0.42 NP	0.44 NP	0.39 NP
Iron	µg/L	7	10	8	8	5	13	8	10	8
Lead	µg/L	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP
Lithium	µg/L	7.3	7.9	8.0	8.1	8.1	9.8	7.9	7.9	8.0
Manganese	µg/L	4.33	5.53	4.71	4.84	3.01	9.93	4.42	5.65	4.97
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Methyl Mercury, as Hg	µg/L	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
Molybdenum	µg/L	0.84	0.88	0.79	0.83	0.93	1.05	0.82	0.86	0.79
Nickel	µg/L	1.28	1.35	1.17	1.20	1.25	1.92	1.23	1.41	1.23
Rubidium	µg/L	3	3	3	3	3	4	3	3	3
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	507	523	505	511	523	644	505	524	510

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued)

Sample Point:	Units	SNP 02-20d[(a)]	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		surface	mid	bottom	surface	mid	bottom	surface	mid	bottom
Date Sampled (yyyy-mm-dd):		2012-07-09	2012-07-09	2012-07-09	2012-07-09	2012-07-09	2012-07-09	2012-07-09	2012-07-09	2012-07-09
Sample Control Number:		2012-5154	2012-5155	2012-5156	2012-5157	2012-5158	2012-5159	2012-5160	2012-5161	2012-5162
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	0.2	0.2	0.2	0.1	<0.1	0.1	0.1	0.3	0.2
Uranium	µg/L	0.14	0.14	0.14	0.14	0.16	0.16	0.14	0.15	0.14
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	1.6 NP	<0.8 NP	0.9 NP	0.8 NP	1.0 NP	0.9 NP	1.2 NP	<0.8 NP	<0.8 NP
Dissolved Metals and Metalloids										
Aluminum	µg/L	-	4.16 NP	3.8 NP	4.33 NP	4.51 NP	4.12 NP	4.35 NP	4.13 NP	4.58 NP
Antimony	µg/L	-	0.06 NP	0.07 NP	0.11 NP	0.07 NP	0.07 NP	0.07 NP	0.06 NP	0.05 NP
Arsenic	µg/L	-	0.09	0.08	0.08	0.07	0.10	0.08	0.08	0.08
Barium	µg/L	-	17.4	17.7	17.6	17.6	22.6	17.5	18.0	17.3
Beryllium	µg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	-	37.5 NP	37.7 NP	38.2 NP	37.8 NP	45.4 NP	38.1 NP	38.6 NP	36.5 NP
Cadmium	µg/L	-	<0.005	0.006	0.005	<0.005	0.006	<0.005	<0.005	<0.005
Cesium	µg/L	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	-	0.07	<0.06	<0.06	0.07	0.09	<0.06	0.06	<0.06
Cobalt	µg/L	-	0.02	0.01	0.01	0.01	0.05	0.01	0.02	<0.01
Copper	µg/L	-	0.39 NP	0.40 NP	0.45 NP	0.41 NP	0.44 NP	0.40 NP	0.38 NP	0.36 NP
Iron	µg/L	-	3	2	2	2	4	2	2	2
Lead	µg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	µg/L	-	7.5	7.9	8.0	8.0	9.7	8.1	8.3	7.9
Manganese	µg/L	-	1.92 QP	1.57 QP	2 QP	1.77 QP	8.22 QP	2 QP	2.78 QP	1.47 QP
Mercury	µg/L	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	-	0.79	0.79	0.83	0.80	1.04	0.82	0.87	0.78
Nickel	µg/L	-	1.17	1.17	1.21	1.19	1.85	1.16	1.41	1.14
Rubidium	µg/L	-	3	3	3	3	4	3	3	3
Selenium	µg/L	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	-	507	512	510	517	647	515	534	502
Thallium	µg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	-	0.14	0.14	0.14	0.14	0.15	0.14	0.15	0.14
Vanadium	µg/L	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	-	1.7 NP	1.6 NP	0.8 NP	1.9 NP	0.9 NP	0.9 NP	0.8 NP	<0.8 NP
Organics-General										
F2 (>C_{10}-C_{16})	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Oil & Grease	mg/L	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP
Organics-Volatiles										
Benzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BTEX, calculated	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
Ethylbenzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
F1-BTEX	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
F1 (C_6-C_{10})	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
m&p-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Microbiology										
E. coli	MPN/100mL	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency;

· Q = headspace in sample;

· X = data invalidated due to an internal review; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) Dissolved metals bottle was not received at ALS Canada Ltd. for this sample.

(b) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Hg = mercury; Alberta Innovates = Alberta Innovates Technology Futures.

BTEX = benzene, toluene, ethylbenzene, and xylene; *E. coli= Escherichia coli;* F1 ($C_6 - C_{10}$) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > C_{10} to C_{16}.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres.

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued)

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		surface	mid	bottom	surface	mid	bottom	surface	mid	bottom
Date Sampled (yyyy-mm-dd):		2012-08-12	2012-08-12	2012-08-12	2012-08-12	2012-08-12	2012-08-12	2012-08-12	2012-08-12	2012-08-12
Sample Control Number:		2012-5207	2012-5208	2012-5209	2012-5210	2012-5211	2012-5212	2012-5213	2012-5214	2012-5215
Field Parameters										
pH	unitless	7.5	7.6	7.7	7.6	7.6	7.2	7.6	7.7	7.6
Specific Conductivity	µS/cm	400	399	406	398	396	465	398	399	404
Water Temperature	°C	16.9	16.9	16.9	16.9	16.9	6.5	16.9	16.9	16.9
Dissolved Oxygen	mg/L	10.0	10.0	10.1	10.0	10.0	8.9	10.0	10.0	10.0
Conventional Parameters										
Laboratory pH	unitless	7.6 WH	7.6 WH	7.6 WH	7.6 WH	7.6 WH	7.2 WH	7.6 WH	7.6 WH	7.6 WH
Laboratory Specific Conductivity	µS/cm	411	408	410	409	409	473	409	413	411
Total Dissolved Solids, measured	mg/L	342 WH	354 WH	328 WH	315 WH	306 WH	364 WH	339 WH	312 WH	297 WH
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	205 QP	203 QP	203 QP	208 QP	206 QP	242 QP	203 QP	202 QP	210 QP
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	202 QP	199 QP	200 QP	205 QP	202 QP	239 QP	200 QP	199 QP	207 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	3	<3	<3	<3	<3
Turbidity	NTU	0.45 WH	0.53 WH	0.40 WH	0.51 WH	0.48 WH	0.59 WH	0.44 WH	0.42 WH	0.43 WH
Ions										
Bicarbonate, as HCO_3	mg/L	26	26	27	26	26	29	26	26	27
Calcium	mg/L	42.3	42.9	42.7	44.4	43.5	50.6	40.7	41.3	45.4
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	88.8	86.9	86.5	88.5	88.2	103.0	89.3	87.6	88.5
Fluoride	mg/L	0.14	0.14	0.13	0.14	0.14	0.15	0.14	0.13	0.14
Hardness, as $CaCO_3$	mg/L	127	128	128	134	131	154	123	125	137
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	5.3	5.2	5.2	5.6	5.5	6.6	5.1	5.3	5.7
Potassium	mg/L	2.12 QP	2.04 QP	2.13 QP	2.23 QP	2.07 QP	2.52 QP	2.04 QP	1.94 QP	2.25 QP
Reactive Silica, as SiO_2	mg/L	0.93 NP	0.87 NP	0.95 NP	0.90 NP	0.90 NP	1.25 NP	0.93 NP	0.90 NP	0.93 NP
Sodium	mg/L	22	22	23	24	23	28	22	22	24
Sulphate	mg/L	18.20	17.70	17.50	17.90	17.90	21.20	18.20	17.70	18.00
Total Alkalinity, as $CaCO_3$	mg/L	21	22	22	21	21	24	21	21	22
Nutrients										
BOD (5-day)	mg/L	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	0.0022	0.0020	0.0023	0.0024	0.0018	0.0033	0.0033	0.0031	0.0023
Nitrate, as N, calculated	mg-N/L	1.92 WH	1.93 WH	1.95 WH	1.94 WH	1.89 WH	2.44 WH	1.99 WH	1.99 WH	1.99 WH
Nitrate/Nitrite, as N	mg-N/L	1.94 WH	1.95 WH	1.97 WH	1.96 WH	1.91 WH	2.47 WH	2.01 WH	2.02 WH	2.01 WH
Nitrite, as N	mg-N/L	0.020 WH	0.020 WH	0.021 WH	0.020 WH	0.020 WH	0.029 WH	0.021 WH	0.021 WH	0.021 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	0.110	0.107	0.118	0.107	0.104	0.205	0.112	0.114	0.110
Total Dissolved Phosphorus	mg-P/L	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002
Total Inorganic Phosphorus	mg-P/L	0.002	0.001	0.001	0.001	<0.001	0.006	<0.001	<0.001	0.001
Total Kjeldahl Nitrogen	mg-N/L	0.418	0.340	0.460	0.406	0.414	0.541	0.381	0.348	0.338
Total Organic Carbon	mg/L	3.1 NP	3 NP	3 NP	3.1 NP	3.1 NP	3 NP	3 NP	3 NP	3.2 NP
Total Organic Phosphorus, calculated	mg-P/L	0.0016	0.0023	0.0037	0.0026	0.0041	0.0057	0.0036	0.0038	0.0030
Total Phosphorus	mg-P/L	0.003	0.003	0.005	0.004	0.004	0.012	0.004	0.004	0.004
Total Metals and Metalloids										
Aluminum	µg/L	6.47 NP	6.96 NP	6.47 NP	5.80 NP	6.59 NP	4.71 NP	6.30 NP	7.38 NP	7.05 NP
Antimony	µg/L	0.06 NP	0.08 NP	0.15 NP	0.06 NP	0.06 NP	0.07 NP	0.14 NP	0.09 NP	0.18 NP
Arsenic	µg/L	0.09	0.08	0.08	0.10	0.08	0.11	0.09	0.09	0.09
Barium	µg/L	17.7	17.6	17.6	17.5	17.7	22.7	17.8	17.7	17.8
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	38.8 NP	38.8 NP	40.4 NP	40.4 NP	40.1 NP	47.1 NP	40.8 NP	41.8 NP	41.5 NP
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	0.004 NP	0.004 NP	0.004 NP	0.004 NP	0.003 NP	0.006 NP	0.005 NP	0.004 NP	0.005 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	<0.06	0.08	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	0.023 QP	0.025 QP	0.022 QP	0.022 QP	0.021 QP	0.032 QP	0.021 QP	0.023 QP	0.025 QP
Copper	µg/L	0.49 NP	0.47 NP	0.55 NP	0.46 NP	0.48 NP	0.56 NP	0.81 NP	0.6 NP	0.7 NP
Iron	µg/L	6	6	6	5	6	8	6	6	9
Lead	µg/L	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	0.01 QP	<0.01 QP
Lithium	µg/L	7.7	7.7	7.9	8.1	7.8	9.1	7.8	8.1	8.0
Manganese	µg/L	4.66	4.73	4.56	4.57	4.68	8.20	4.62	4.72	4.95
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	0.0006	<0.0005
Methyl Mercury, as Hg	µg/L	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008
Molybdenum	µg/L	0.98	0.99	1.10	1.01	0.98	1.01	0.99	0.99	0.99
Nickel	µg/L	1.10	1.12	1.10	1.08	1.10	1.71	1.14	1.12	1.13
Rubidium	µg/L	4	4	3	3	3	4	3	3	4
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued)

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**
Date Sampled (yyyy-mm-dd):		**2012-08-12**	**2012-08-12**	**2012-08-12**	**2012-08-12**	**2012-08-12**	**2012-08-12**	**2012-08-12**	**2012-08-12**	**2012-08-12**
Sample Control Number:		**2012-5207**	**2012-5208**	**2012-5209**	**2012-5210**	**2012-5211**	**2012-5212**	**2012-5213**	**2012-5214**	**2012-5215**
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	550	547	546	543	541	635	546	543	549
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.15	0.15	0.16	0.15	0.15	0.10	0.15	0.15	0.15
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	<0.8 NP	1.3 NP	1.3 NP	<0.8 NP	<0.8 NP	0.9 NP	<0.8 NP	<0.8 NP	<0.8 NP
Dissolved Metals and Metalloids										
Aluminum	µg/L	5.07 NP	5.27 NP	4.71 NP	4.74 NP	5.48 NP	4 NP	5.36 NP	5.19 NP	5.63 NP
Antimony	µg/L	0.06 NP	0.04 NP	0.08 NP	0.05 NP	0.06 NP	0.06 NP	0.07 NP	0.06 NP	0.06 NP
Arsenic	µg/L	0.09	0.09	0.06	0.08	0.09	0.09	0.08	0.08	0.09
Barium	µg/L	17.2	17.4	17.6	17.7	17.9	22.9	17.5	17.8	17.4
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	38.7 NP	38.1 NP	39.7 NP	39.6 NP	40.8 NP	48.8 NP	42.3 NP	42.1 NP	42.3 NP
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.010	<0.005	<0.005	<0.005
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Cobalt	µg/L	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02
Copper	µg/L	0.45 NP	0.45 NP	0.48 NP	0.45 NP	0.44 NP	0.49 NP	0.51 NP	0.5 NP	0.49 NP
Iron	µg/L	1	1	1	1	1	2	1	1	1
Lead	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	µg/L	7.9	7.8	7.8	8.1	7.8	9.0	8.1	8.2	8.1
Manganese	µg/L	1.37 QP	1.33 QP	1.36 QP	1.33 QP	1.33 QP	2.04 QP	1.43 QP	1.35 QP	1.47 QP
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	0.97	0.99	1.03	1.01	1.01	1.01	1.00	1.02	1.00
Nickel	µg/L	1.06	1.06	1.07	1.09	1.04	1.69	1.12	1.06	1.12
Rubidium	µg/L	3	3	3	3	3	4	3	3	3
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	549	547	548	547	547	637	549	547	547
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.16	0.15	0.16	0.16	0.16	0.10	0.16	0.16	0.16
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	1.4 NP	<0.8 NP	0.9 NP	<0.8 NP	<0.8 NP	3.3 NP	1 NP	<0.8 NP	<0.8 NP
Organics-General										
F2 (>C_{10}-C_{16})	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Oil & Grease	mg/L	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP
Organics-Volatiles										
Benzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BTEX, calculated	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
Ethylbenzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
F1-BTEX	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
F1 (C_6-C_{10})	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
m&p-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Microbiology										
E. coli	MPN/100mL	<1	<1	<1	<1	<1	<1	1	1	<1

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency;

· XG = data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Hg = mercury; Alberta Innovates = Alberta Innovates Technology Futures.

BTEX = benzene, toluene, ethylbenzene, and xylene; *E. coli* = *Escherichia coli;* F1 ($C_6 - C_{10}$) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > C_{10} to C_{16}.

< = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

*C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres.

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued)

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**
Date Sampled (yyyy-mm-dd):		**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**
Sample Control Number:		**2012-5903**	**2012-5904**	**2012-5905**	**2012-5900**	**2012-5901**	**2012-5902**	**2012-5906**	**2012-5907**	**2012-5908**
Field Parameters										
pH	unitless	7.1	7.2	7.2	6.6	7.1	7.2	7.3	7.3	7.3
Specific Conductivity	µS/cm	371	371	372	364	365	368	372	373	365
Water Temperature	°C	12.9	12.9	12.8	12.9	12.8	12.7	12.9	12.9	12.9
Dissolved Oxygen	mg/L	10.1	10.1	10.1	10.0	10.3	10.0	10.1	10.1	10.1
Conventional Parameters										
Laboratory pH	unitless	7.4 WH	7.4 WH	7.4 WH	7.5 WH	7.4 WH	7.5 WH	7.5 WH	7.5 WH	7.5 WH
Laboratory Specific Conductivity	µS/cm	419	421	421	417	412	413	419	421	430
Total Dissolved Solids, measured	mg/L	305	303	309	302	306	310	311	307	318
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	203 QP	209 QP	203 QP	200 QP	203 QP	201 QP	205 QP	203 QP	204 QP
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	203 QP	205 QP	203 QP	200 QP	203 QP	197 QP	202 QP	203 QP	203 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3
Turbidity	NTU	0.35 WH	0.33 WH	0.38 WH	0.32 WH	0.35 WH	0.78 WH	0.40 WH	0.32 WH	0.33 WH
Ions										
Bicarbonate, as HCO_3	mg/L	27	27	28	28	27	27	28	27	28
Calcium	mg/L	40.1	42.1	40.3	39.2	41.5	39.4	40.0	40.2	39.8
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	91.0	90.1	91.2	90.1	89.5	88.7	90.8	90.6	92.0
Fluoride	mg/L	0.11	0.11	0.10	0.10	0.10	0.11	0.10	0.10	0.10
Hardness, as $CaCO_3$	mg/L	121	127	121	118	124	118	121	121	120
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	5.0	5.2	5.0	4.9	5.1	4.8	5.1	5.1	5.0
Potassium	mg/L	1.90 QP	2.01 QP	1.85 QP	1.95 QP	1.95 QP	1.91 QP	1.87 QP	1.99 QP	1.91 QP
Reactive Silica, as SiO_2	mg/L	1.00 NP	1.02 NP	1.02 NP	0.98 NP	0.94 NP	0.99 NP	1.02 NP	1.05 NP	1.02 NP
Sodium	mg/L	23	24	22	23	24	22	22	23	22
Sulphate	mg/L	17.90	17.60	17.90	17.6	17.4	17.4	17.8	17.9	18.1
Total Alkalinity, as $CaCO_3$	mg/L	22	22	23	23	22	22	23	22	23
Nutrients										
BOD (5-day)	mg/L	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	0.0018	<0.0014	<0.0014	0.0014	0.0017	0.0015	0.0021
Nitrate, as N, calculated	mg-N/L	2.15 WH	2.16 WH	2.16 WH	2.06 WH	2.05 WH	2.01 WH	2.13 WH	2.10 WH	2.13 WH
Nitrate/Nitrite, as N	mg-N/L	2.17 WH	2.18 WH	2.18 WH	2.08 WH	2.07 WH	2.03 WH	2.16 WH	2.12 WH	2.14 WH
Nitrite, as N	mg-N/L	0.019 WH	0.019 WH	0.019 WH	0.017 WH	0.017 WH	0.017 WH	0.022 WH	0.017 WH	0.017 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	0.091	0.093	0.092	0.082	0.076	0.076	0.094	0.096	0.097
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	0.002	<0.001	<0.001	0.001	0.002	0.002	0.002
Total Inorganic Phosphorus	mg-P/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Total Kjeldahl Nitrogen	mg-N/L	0.357	0.340	0.315	0.35	0.32	0.29	0.29	0.34	0.36
Total Organic Carbon	mg/L	4.6 NP	3.4 NP	3.4 NP	3.5 NP	3.3 NP	3.4 NP	3.3 NP	3.3 NP	3.9 NP
Total Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	0.0018	0.0021	0.0022	0.0023
Total Phosphorus	mg-P/L	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.004
Total Metals and Metalloids										
Aluminum	µg/L	5.49 NP	5.64 NP	6.17 NP	5.72 NP	5.21 NP	5.60 NP	4.65 NP	5.23 NP	5.99 NP
Antimony	µg/L	0.05 NP	0.07 NP	0.07 NP	0.08 NP	0.06 NP	0.05 NP	0.05 NP	0.07 NP	0.06 NP
Arsenic	µg/L	0.09	0.08	0.09	0.07	0.08	0.07	0.08	0.08	0.08
Barium	µg/L	17.2	17.3	17.9	17.7	17.6	17.7	16.9	17.6	17.6
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	40.2 NP	40.3 NP	41.3 NP	41.5 NP	41.6 NP	39.8 NP	38.2 NP	40.9 NP	39.1 NP
Cadmium	µg/L	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	0.006 NP	0.004 NP	0.004 NP	0.009 NP	0.006 NP	0.005 NP	0.004 NP	0.006 NP	0.005 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Hexavalent Chromium	µg/L	<1	<1	1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	0.023 QP	0.029 QP	0.026 QP	0.019 QP	0.018 QP	0.020 QP	0.024 QP	0.020 QP	0.028 QP
Copper	µg/L	0.41 NP	0.41 NP	0.46 NP	0.42 NP	0.4 NP	0.45 NP	0.4 NP	0.4 NP	0.4 NP
Iron	µg/L	6	6	6	6	5	5	6	6	6
Lead	µg/L	<0.01 QP	0.01 QP	0.01 QP	0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP
Lithium	µg/L	7.5	7.9	7.9	7.8	7.9	7.9	6.9	7.7	7.9
Manganese	µg/L	5.45	5.50	5.62	4.99	4.84	4.93	5.49	5.59	5.68
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Methyl Mercury, as Hg	µg/L	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008
Molybdenum	µg/L	0.79	1.21	1.23	1.18	1.17	1.17	1.22	1.25	1.19
Nickel	µg/L	0.96	0.94	0.99	0.82	0.84	0.82	0.93	1.00	0.93
Rubidium	µg/L	3	3	3	3	3	3	3	3	3

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued)

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**
Date Sampled (yyyy-mm-dd):		**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**
Sample Control Number:		**2012-5903**	**2012-5904**	**2012-5905**	**2012-5900**	**2012-5901**	**2012-5902**	**2012-5906**	**2012-5907**	**2012-5908**
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	565	568	567	554	557	554	574	582	575
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1
Uranium	µg/L	0.16	0.16	0.15	0.15	0.14	0.14	0.15	0.16	0.16
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	0.9 NP	<0.8 NP	1.8 NP	2.0 NP	2.4 NP	<0.8 NP	1.2 NP	<0.8 NP	<0.8 NP
Dissolved Metals and Metalloids										
Aluminum	µg/L	3.51 NP	3.72 NP	3.51 NP	4.02 NP	3.57 NP	4.65 NP	3.72 NP	3.33 NP	3.26 NP
Antimony	µg/L	0.05 NP	0.08 NP	0.05 NP	0.06 NP	0.09 NP	0.10 NP XG	0.09 NP	0.08 NP	0.05 NP
Arsenic	µg/L	0.07	0.09	0.08	0.08	0.07	0.09	0.08	0.09	0.09
Barium	µg/L	16.9	17.2	17.6	17.6	17.6	17.5	18.3	17.3	17.5
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	40.2 NP	39.8 NP	40.1 NP	40 NP	38.9 NP	40.7 NP	40 NP	39.2 NP	39.1 NP
Cadmium	µg/L	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Cobalt	µg/L	0.01	0.01	0.01	<0.01	<0.01	<0.01	0.02	0.01	0.01
Copper	µg/L	0.38 NP	0.69 NP XG	0.36 NP	0.43 NP	0.36 NP	0.35 NP	0.39 NP	0.39 NP	0.38 NP
Iron	µg/L	1	2	1	1	2	<1	1	1	1
Lead	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.089 XG	<0.01	<0.01	<0.01
Lithium	µg/L	7.6	7.8	7.7	7.8	7.7	8.0	7.6	7.3	7.3
Manganese	µg/L	1.93 QP	2.05 QP	2.14 QP	1.54 QP	1.3 QP	1.47 QP	2.15 QP	2.18 QP	2.36 QP
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	0.82	1.20	1.21	1.16	1.14	1.22	1.12	1.20	1.21
Nickel	µg/L	0.88	1.06	0.88	0.78	0.77	0.76	1.05	1.01	0.90
Rubidium	µg/L	3	3	3	3	3	3	3	3	3
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	577	569	563	562	545	563	565	564	566
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.16	0.16	0.16	0.15	0.15	0.15	0.16	0.16	0.16
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	1.2 NP	1.2 NP	<0.8 NP	1.3 NP	1.2 NP	1.1 NP	<0.8 NP	1.1 NP	0.9 NP
Organics-General										
F2 (>C_{10}-C_{16})	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Oil & Grease	mg/L	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 WH,QP	<1 WH,QP
Organics-Volatiles										
Benzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BTEX, calculated	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
Ethylbenzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
F1-BTEX	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
F1 (C_6-C_{10})	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
m&p-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Microbiology										
E. coli	MPN/100mL	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency;

· XG = data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Hg = mercury; Alberta Innovates = Alberta Innovates Technology Futures.

BTEX = benzene, toluene, ethylbenzene, and xylene; *E. coli* = *Escherichia coli;* F1 (C_6 – C_{10}) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > C_{10} to C_{16}.

< = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

Table 3C-2 Snap Lake Water Quality Results for Samples Collected from the Near-Field Stations, 2012

Sample Point:	Units	SNAP03	SNAP03	SNAP05	SNAP06	SNAP12	SNAP26	SNAP28	SNAP03	SNAP05	SNAP06	SNAP12	SNAP26	SNAP28
Depth:		**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**
Date Sampled (yyyy-mm-dd):		**2012-01-14**	**2012-02-18**	**2012-02-18**	**2012-02-17**	**2012-02-18**	**2012-02-18**	**2012-02-18**	**2012-04-17**	**2012-04-17**	**2012-04-16**	**2012-04-17**	**2012-04-17**	**2012-04-17**
Sample Control Number:		**2012-5008**	**2012-5032**	**2012-5034**	**2012-5024**	**2012-5035**	**2012-5037**	**2012-5036**	**2012-5109**	**2012-5111**	**2012-5102**	**2012-5112**	**2012-5113**	**2012-5114**
Field Parameters														
pH	unitless	6.6	7.0	7.0	6.9	6.9	6.9	6.9	6.6	6.8	6.7	6.8	7.0	7.0
Specific Conductivity	µS/cm	465	511	503	481	498	478	481	527	519	525	522	508	525
Water Temperature	°C	1.1	1.1	1.3	1.4	1.1	1.0	1.0	1.5	1.6	1.5	1.5	1.3	1.5
Dissolved Oxygen	mg/L	15.4	14.3	13.9	11.8	14.1	15.0	15.0	14.5	14.3	13.7	14.4	15.0	14.4
Conventional Parameters														
Laboratory pH	unitless	7.5 WH	7.5 WH	7.5 WH	7.6 WH	7.5 WH	7.5 WH	7.5 WH	7.4 WH	7.3 WH	7.3 WH	7.3 WH	7.4 WH	7.4 WH
Laboratory Specific Conductivity	µS/cm	455	471	471	447	434	449	452	513	505	501	454	494	495
Total Dissolved Solids, measured	mg/L	254	278	280	264	261	208	271	325	350	371	314	334	331
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	212 QP	236 QP	239 QP	222 QP	209 QP	227 QP	227 QP	252 QP	245 QP	248 QP	222 QP	242 QP	235 QP
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	214 QP	231 QP	235 QP	218 QP	209 QP	222 QP	227 QP	248 QP	248 QP	253 QP	227 QP	238 QP	246 QP
Total Suspended Solids	mg/L	<3	<3	3	<3	-	<3	-	<3	<3	<3	-	<3	-
Turbidity	NTU	0.15 WH	0.20 WH	0.19 WH	0.14 WH	-	0.14 WH	-	0.17 WH	0.21 WH	0.17 WH	-	0.16 WH	-
Ions														
Bicarbonate, as HCO_3	mg/L	25	28	29	26	25	28	27	32	32	31	39	31	31
Calcium	mg/L	41.7	47.5	48.9	46.5	42.0	47.0	48.7	47.0	48.4	50.9	44.6	45.6	51.4
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	98.5	104	105	97.5	96.2	99.3	100	113	113	113	101	110	109
Fluoride	mg/L	0.12	0.15	0.15	0.14	0.14	0.14	0.15	0.15	0.15	0.15	0.13	0.15	0.16
Hardness, as $CaCO_3$	mg/L	126	143	147	140	126	141	147	142	146	153	134	138	155
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	5.2	5.9	6.0	5.7	5.1	5.9	6.2	6.0	6.1	6.3	5.6	5.8	6.4
Potassium	mg/L	2.04 QP	2.31 QP	2.33 QP	2.25 QP	1.93 QP	2.38 QP	2.29 QP	2.31 QP	2.26 QP	2.47 QP	2.01 QP	2.12 QP	2.43 QP
Reactive Silica, as SiO_2	mg/L	1.18 NP	1.33 NP	1.39 NP	1.00 NP	1.06 NP	1.02 NP	1.18 NP	1.59 NP	1.58 NP	1.57 NP	1.02 NP	1.28 NP	1.43 NP
Sodium	mg/L	23	25	26	25	22	25	25	25	25	27	23	24	27
Sulphate	mg/L	19.4	20.5	20.5	18.9	18.8	19.3	19.6	22.6	22.2	22.3	19.5	21.3	21.8
Total Alkalinity, as $CaCO_3$	mg/L	21	23	24	21	21	23	22	26	26	25	32	25	25
Nutrients														
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	-	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	-
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014	-	<0.0014	-	0.0019	0.0019	<0.0014	-	0.0031	-
Nitrate, as N, calculated	mg-N/L	2.36 WH	2.27 WH	2.31 WH	1.97 WH	1.98 WH	1.84 WH	2.13 WH	3.22 WH	2.90 WH	3.07 WH	2.48 WH	2.78 WH	2.51 WH
Nitrate/Nitrite, as N	mg-N/L	2.38 WH	2.29 WH	2.34 WH	1.99 WH	1.99 WH	1.85 WH	2.15 WH	3.24 WH	2.93 WH	3.09 WH	2.50 WH	2.80 WH	2.54 WH
Nitrite, as N	mg-N/L	0.025 WH	0.024 WH	0.024 WH	0.015 WH	0.016 WH	0.012 WH	0.019 WH	0.027 WH	0.023 WH	0.022 WH	0.016 WH	0.018 WH	0.024 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	-	<0.001 WH	-	<0.001 WH	<0.001 WH	<0.001 WH	-	<0.001 WH	-
Total Ammonia, as N	mg-N/L	0.253	0.255	0.261	0.168	-	0.140	-	0.298	0.260	0.259	-	0.219	-
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	-	<0.001	-	0.002	0.002	<0.001	-	0.003	-
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	-	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	-
Total Kjeldahl Nitrogen	mg-N/L	0.506	0.526	0.491	0.459	-	0.426	-	0.458	0.650	0.621	-	0.370	-
Total Organic Carbon	mg/L	3.5 NP	3.7 NP	3.7 NP	3.7 NP	-	4.1 NP	-	3.7 NP	3.7 NP	3.8 NP	-	4 NP	-
Total Organic Phosphorus, calculated	mg-P/L	0.0020	0.0021	0.0024	0.0017	-	0.0015	-	0.0125	0.0024	0.0020	-	0.0036	-
Total Phosphorus	mg-P/L	0.002	0.002	0.002	0.002	-	0.002	-	0.013	0.002	0.002	-	0.004	-
Total Metals and Metalloids														
Aluminum	µg/L	3.43 NP	3.07 NP	2.86 NP	2.66 NP	-	3.2 NP	-	3.46 NP	3.17 NP	3.16 NP	-	2.99 NP	-
Antimony	µg/L	1.24 NP	0.66 NP	1.74 NP	1.46 NP	-	3.27 NP	-	0.28 NP	0.26 NP	0.77 NP	-	1.57 NP	-
Arsenic	µg/L	0.10	0.10	0.12	0.10	-	0.11	-	0.11	0.10	0.10	-	0.11	-
Barium	µg/L	19.3	21.2	21.3	21.1	-	22.9	-	23.3	23.3	23.4	-	23.8	-
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	-
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	-
Boron	µg/L	40.2 NP	41.3 NP	41.9 NP	41 NP	-	40.9 NP	-	49.8 NP	50 NP	48 NP	-	49.5 NP	-
Cadmium	µg/L	<0.005	<0.005	0.005	<0.005	-	<0.005	-	0.008	<0.005	<0.005	-	0.005	-
Cadmium (Alberta Innovates)	µg/L	0.007 NP	0.004 NP	0.009 NP	0.006 NP	-	0.006 NP	-	0.026 NP	0.041 NP	0.007 NP	-	0.027 NP	-
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	-
Chromium	µg/L	0.17	0.19	0.06	0.22	-	0.09	-	0.16	0.19	0.14	-	0.14	-
Hexavalent Chromium	µg/L	<1	<1	<1	<1	-	<1	-	<1	<1	<1	-	<1	-
Cobalt	µg/L	0.041 QP	0.036 QP	0.030 QP	0.037 QP	-	0.020 QP	-	0.045 QP	0.045 QP	0.036 QP	-	0.026 QP	-
Copper	µg/L	0.38 NP	0.45 NP	0.47 NP	0.40 NP	-	0.50 NP	-	0.40 NP	0.38 NP	0.40 NP	-	0.44 NP	-
Iron	µg/L	6	4	4	4	-	5	-	4	4	4	-	4	-
Lead	µg/L	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	-	<0.01 QP	-	<0.01 QP	<0.01 QP	<0.01 QP	-	<0.01 QP	-
Lithium	µg/L	8.1	8.9	8.9	8.8	-	7.9	-	10.0	10.2	9.9	-	10.2	-
Manganese	µg/L	6.79	6.70	6.68	6.67	-	4.72	-	8.94	8.02	8.25	-	6.74	-
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	-	<0.02	-	<0.02	<0.02	<0.02	-	<0.02	-
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	-	0.0006	-	<0.0005	<0.0005	<0.0005	-	<0.0005	-
Molybdenum	µg/L	1.26	1.15	1.14	1.04	-	1.00	-	1.32	1.25	1.22	-	1.14	-
Nickel	µg/L	1.42	1.41	1.39	1.37	-	1.08	-	1.92	1.82	1.78	-	1.54	-
Rubidium	µg/L	4	4	4	4	-	4	-	4	4	4	-	4	-
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	-	<0.04	-	<0.04	<0.04	<0.04	-	<0.04	-
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	-	<0.005	-	<0.005	<0.005	<0.005	-	<0.005	-
Strontium	µg/L	611	635	631	620	-	636	-	688	680	672	-	673	-
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	-
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	0.2	<0.1	<0.1	-	0.1	-
Uranium	µg/L	0.15	0.15	0.14	0.13	-	0.12	-	0.15	0.14	0.14	-	0.13	-
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-
Zinc	µg/L	<0.8 NP	<0.8 NP	1.3 NP	<0.8 NP	-	0.9 NP	-	1.4 NP	1.0 NP	<0.8 NP	-	1.3 NP	-

Notes:

SNAP12 and SNAP28 are TDS stations, so a reduced parameter suite was analyzed.

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates Technology Futures.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams as per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre.

Table 3C-2 Snap Lake Water Quality Results for Samples Collected from the Near-Field Stations, 2012 (continued)

Sample Point:	Units	SNAP03	SNAP05	SNAP06	SNAP12	SNAP26	SNAP28	SNAP03	SNAP05	SNAP06	SNAP12	SNAP26	SNAP28
Depth:		mid	mid	mid	mid	mid	mid	mid	mid	mid	mid	mid	mid
Date Sampled (yyyy-mm-dd):		2012-07-07	2012-07-07	2012-07-13	2012-07-13	2012-07-11	2012-07-11	2012-09-07	2012-09-11	2012-09-11	2012-09-07	2012-09-07	2012-09-07
Sample Control Number:		2012-5150	2012-5152	2012-5172	2012-5192	2012-5188	2012-5187	2012-5238	2012-5240	2012-5241	2012-5247	2012-5248	2012-5249
Field Parameters													
pH	unitless	7.2	7.3	6.8	6.4	6.6	7.2	7.3	7.3	7.1	7.1	7.0	6.6
Specific Conductivity	µS/cm	388	391	382	387	397	405	363	401	405	363	370	369
Water Temperature	°C	13.6	13.5	16.4	16.1	16.0	14.7	13.3	12.0	12.1	13.3	12.9	13.3
Dissolved Oxygen	mg/L	10.2	10.2	9.6	9.7	10.7	10.7	11.0	10.7	10.1	11.2	11.0	10.9
Conventional Parameters													
Laboratory pH	unitless	7.6 WH	7.6 WH	7.1 WH	7.4 WH	7.6 WH	7.5 WH	7.4 WH	7.6 WH	7.6 WH	7.4 WH	7.4 WH	7.5 WH
Laboratory Specific Conductivity	µS/cm	396	393	387	391	394	403	408	411	414	411	417	416
Total Dissolved Solids, measured	mg/L	271	274	309	310	288	300	289	268	284	290	289	295
Total Dissolved Solids, calculated (Lab)[a]	mg/L	184 QP	185 QP	187 QP	184 QP	196 QP	194 QP	196 QP	195 QP	196 QP	196 QP	198 QP	200 QP
Total Dissolved Solids, calculated (Standard Methods)[a]	mg/L	183 QP	185 QP	183 QP	184 QP	192 QP	194 QP	196 QP	191 QP	193 QP	196 QP	198 QP	200 QP
Total Suspended Solids	mg/L	<3	<3	<3	-	<3	-	<3	<3	<3	-	<3	-
Turbidity	NTU	0.38 WH	0.52 WH	0.26 WH	-	0.30 WH	-	0.32 WH	0.46 WH	0.43 WH	-	0.32 WH	-
Ions													
Bicarbonate, as HCO_3	mg/L	25	24	27	25	25	25	26	26	27	27	27	27
Calcium	mg/L	36.5	36.6	36.8	37.3	40.2	40.0	39.7	36.8	36.6	38.9	40.2	41.0
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	84.1	84.7	83.4	83.2	85.2	87.5	90.7	89.1	90.3	91.3	90.8	91.0
Fluoride	mg/L	0.11	0.12	0.10	0.11	0.13	0.13	0.11	0.10	0.10	0.10	0.10	0.09
Hardness, as $CaCO_3$	mg/L	109	109	111	112	121	120	120	110	110	117	121	124
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	4.3	4.3	4.6	4.7	5.1	5.0	5.0	4.5	4.4	4.8	4.9	5.2
Potassium	mg/L	1.84 QP	1.91 QP	1.58 QP	1.71 QP	1.90 QP	1.85 QP	1.94 QP	2.10 QP	2.02 QP	1.91 QP	1.91 QP	2.01 QP
Reactive Silica, as SiO_2	mg/L	0.95 NP	0.99 NP	0.82 NP	0.92 NP	0.96 NP	1.07 NP	0.93 NP	0.89 NP	0.93 NP	0.96 NP	1.01 NP	1.00 NP
Sodium	mg/L	18	18	18	18	20	20	19	20	21	19	20	21
Sulphate	mg/L	16.8	17.7	16.6	16.5	16.9	17.1	17.3	16.4	16.6	17.3	17.3	17.3
Total Alkalinity, as $CaCO_3$	mg/L	21	20	22	21	21	21	22	22	22	22	22	22
Nutrients													
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	-	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	-
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	0.0015	<0.0014	-	<0.0014	-	<0.0014	<0.0014	<0.0014	-	<0.0014	-
Nitrate, as N, calculated	mg-N/L	1.94 WH	1.92 WH	1.90 WH	2.03 WH	2.09 WH	2.09 WH	1.85 WH	1.77 WH	1.83 WH	1.86 WH	1.96 WH	1.97 WH
Nitrate/Nitrite, as N	mg-N/L	1.96 WH	1.93 WH	1.91 WH	2.05 WH	2.11 WH	2.11 WH	1.86 WH	1.78 WH	1.85 WH	1.88 WH	1.98 WH	1.99 WH
Nitrite, as N	mg-N/L	0.018 WH	0.017 WH	0.017 WH	0.019 WH	0.021 WH	0.022 WH	0.016 WH	0.011 WH	0.013 WH	0.017 WH	0.019 WH	0.019 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	-	<0.001 WH	-	<0.001 WH	<0.001 WH	<0.001 WH	-	<0.001 WH	-
Total Ammonia, as N	mg-N/L	0.128	0.126	0.104	-	0.132	-	0.074	0.064	0.070	-	0.091	-
Total Dissolved Phosphorus	mg-P/L	0.001	0.002	<0.001	-	<0.001	-	<0.001	<0.001	0.001	-	<0.001	-
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	-	0.001	-	0.001	<0.001	0.003	-	0.002	-
Total Kjeldahl Nitrogen	mg-N/L	0.422	0.480	0.233	-	0.399	-	0.10	0.37	0.34	-	0.35	-
Total Organic Carbon	mg/L	3.3 NP	3.2 NP	3.4 NP	-	3.3 NP	-	5.7 NP	3.8 NP	3.3 NP	-	4.6 NP	-
Total Organic Phosphorus, calculated	mg-P/L	0.0025	0.0024	<0.0014	-	<0.0014	-	<0.0014	0.0019	<0.0014	-	<0.0014	-
Total Phosphorus	mg-P/L	0.003	0.002	<0.001	-	0.001	-	0.001	0.002	0.002	-	0.002	-
Total Metals and Metalloids													
Aluminum	µg/L	5.35 NP	5.32 NP	5.72 NP	-	5.95 NP	-	5.37 NP	5.11 NP	6.16 NP	-	4.83 NP	-
Antimony	µg/L	0.08 NP	0.1 NP	0.09 NP	-	0.09 NP	-	0.1 NP	0.05 NP	0.05 NP	-	0.09 NP	-
Arsenic	µg/L	0.09	0.09	0.09	-	0.09	-	0.08	0.10	0.10	-	0.09	-
Barium	µg/L	17.4	17.4	17.7	-	17.5	-	16.6	19.4	19.5	-	16.8	-
Beryllium	µg/L	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	-
Bismuth	µg/L	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	-
Boron	µg/L	38 NP	37.8 NP	36.8 NP	-	35.8 NP	-	39.1 NP	38.8 NP	41 NP	-	38.5 NP	-
Cadmium	µg/L	0.006	0.006	<0.005	-	<0.005	-	<0.005	<0.005	<0.005	-	<0.005	-
Cadmium (Alberta Innovates)	µg/L	0.009 NP	0.010 NP	0.004 NP	-	0.004 NP	-	_[b]	0.005 NP	0.006 NP	-	_[b]	-
Cesium	µg/L	<0.1	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	-
Chromium	µg/L	0.12	0.12	<0.06	-	<0.06	-	<0.06	0.08	<0.06	-	<0.06	-
Hexavalent Chromium	µg/L	<1	<1	<1	-	<1	-	<1	<1	<1	-	<1	-
Cobalt	µg/L	0.091 QP	0.030 QP	0.017 QP	-	0.022 QP	-	0.017 QP	0.016 QP	0.019 QP	-	0.025 QP	-
Copper	µg/L	0.43 NP	0.41 NP	0.41 NP	-	0.41 NP	-	0.72 NP	0.44 NP	0.45 NP	-	0.45 NP	-
Iron	µg/L	9	9	6	-	7	-	8	6	5	-	7	-
Lead	µg/L	0.01 QP	<0.01 QP	<0.01 QP	-	<0.01 QP	-	0.02 QP	0.01 QP	<0.01 QP	-	0.02 QP	-
Lithium	µg/L	8.2	7.9	8.0	-	7.2	-	7.6	7.2	7.4	-	7.1	-
Manganese	µg/L	5.04	4.82	3.55	-	4.16	-	4.72	5.23	5.47	-	4.74	-
Mercury	µg/L	<0.02	<0.02	<0.02	-	<0.02	-	<0.02	<0.02	<0.02	-	<0.02	-
Mercury (Flett)	µg/L	0.0007	<0.0005	0.0008	-	<0.0005	-	<0.0005	<0.0005	<0.0005	-	<0.0005	-
Molybdenum	µg/L	0.79	0.79	0.72	-	0.79	-	0.77	0.99	1.06	-	0.79	-
Nickel	µg/L	1.31	1.16	0.99	-	1.15	-	0.97	0.96	0.98	-	0.85	-
Rubidium	µg/L	3	3	3	-	3	-	3	4	4	-	3	-
Selenium	µg/L	<0.04	<0.04	<0.04	-	<0.04	-	0.04	<0.04	<0.04	-	<0.04	-
Silver	µg/L	<0.005	<0.005	<0.005	-	<0.005	-	<0.005	<0.005	<0.005	-	<0.005	-
Strontium	µg/L	511	508	505	-	508	-	562	548	560	-	570	-
Thallium	µg/L	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	-
Titanium	µg/L	<0.1	0.1	<0.1	-	<0.1	-	<0.1	<0.1	0.1	-	<0.1	-
Uranium	µg/L	0.14	0.14	0.11	-	0.13	-	0.16	0.14	0.14	-	0.15	-
Vanadium	µg/L	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-
Zinc	µg/L	0.9 NP	1.9 NP	<0.8 NP	-	9.4 NP	-	2.1 NP	1.5 NP	1.0 NP	-	1.9 NP	-

Notes:

SNAP12 and SNAP28 are TDS stations, so a reduced parameter suite was analyzed.

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

(b) Cadmium sample was not received at Alberta Innovates Technology Futures.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates Technology Futures.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

Table 3C-3 Snap Lake Water Quality Results for Samples Collected from the Mid-Field Stations, 2012

Sample Point:	Units	SNAP09	SNAP11A	SNAP09	SNAP11A	SNAP09	SNAP11A	SNAP09	SNAP11A
Depth:		mid	mid	mid	mid	mid	mid	mid	mid
Date Sampled (yyyy-mm-dd):		2012-02-17	2012-02-17	2012-04-16	2012-04-16	2012-07-12	2012-07-12	2012-09-13	2012-09-13
Sample Control Number:		2012-5021	2012-5022	2012-5105	2012-5107	2012-5190	2012-5195	2012-5244	2012-5246
Field Parameters									
pH	unitless	6.8	6.9	6.7	6.6	7.3	7.5	7.2	7.2
Specific Conductivity	µS/cm	444	472	481	496	386	385	396	396
Water Temperature	°C	1.6	1.4	1.7	1.6	16.8	14.8	11.3	11.4
Dissolved Oxygen	mg/L	10.6	11.5	12.4	13.0	9.7	10.5	10.8	10.7
Conventional Parameters									
Laboratory pH	unitless	7.5 WH	7.5 WH	7.2 WH	7.3 WH	7.2 WH	7.4 WH	7.6 WH	7.6 WH
Laboratory Specific Conductivity	µS/cm	417	444	449	466	386	385	402	403
Total Dissolved Solids, measured	mg/L	251	253	337	351	297 WH	297 WH	271 WH	271 WH
Total Dissolved Solids, calculated (Lab)[a]	mg/L	208 QP	214 QP	216 QP	225 QP	184 QP	186 QP	193 QP	192 QP
Total Dissolved Solids, calculated (Standard Methods)[a]	mg/L	204 QP	210 QP	220 QP	229 QP	180 QP	182 QP	190 QP	191 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3 WH	<3 WH
Turbidity	NTU	0.19 WH	0.18 WH	0.13 WH	0.13 WH	0.25 WH	0.23 WH	0.35 WH	0.35 WH
Ions									
Bicarbonate, as HCO_3	mg/L	25	26	29	30	28	25	27	27
Calcium	mg/L	44.3	42.1	44.5	46.9	36.2	37.3	35.8	37.4
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	90.3	96.2	99.7	102	81.8	82.2	89.1	88.8
Fluoride	mg/L	0.13	0.14	0.14	0.14	0.10	0.08	0.16	0.15
Hardness, as $CaCO_3$	mg/L	133	126	134	141	109	113	110	112
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	5.4	5.2	5.6	5.9	4.6	4.8	4.9	4.6
Potassium	mg/L	2.14 QP	2.14 QP	1.99 QP	2.27 QP	1.62 QP	1.77 QP	1.78 QP	1.87 QP
Reactive Silica, as SiO_2	mg/L	1.09 NP	1.15 NP	1.19 NP	1.25 NP	0.78 NP	0.82 NP	0.66 NP	0.68 NP
Sodium	mg/L	23	22	22	24	17	19	19	19
Sulphate	mg/L	17.6	18.8	19.3	19.8	15.2	16.1	18.1	17.8
Total Alkalinity, as $CaCO_3$	mg/L	20	21	23	24	23	20	22	22
Nutrients									
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014
Nitrate, as N, calculated	mg-N/L	1.78 WH	2.03 WH	2.52 WH	2.69 WH	1.83 WH	1.79 WH	1.68 WH	1.66 WH
Nitrate/Nitrite, as N	mg-N/L	1.79 WH	2.05 WH	2.54 WH	2.71 WH	1.85 WH	1.81 WH	1.69 WH	1.67 WH
Nitrite, as N	mg-N/L	0.012 WH	0.017 WH	0.016 WH	0.018 WH	0.016 WH	0.016 WH	0.012 WH	0.012 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	0.159	0.205	0.202	0.217	0.103	0.099	0.054	0.058
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	0.002	0.002	<0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	0.37	0.51	0.36	0.45	0.26	0.31	0.46	0.46
Total Organic Carbon	mg/L	3.5 NP	3.6 NP	3.7 NP	3.3 NP	3.6 NP	3.5 NP	3.1 NP	3.1 NP
Total Organic Phosphorus, calculated	mg-P/L	<0.0014	0.0018	0.0021	0.0030	<0.0014	<0.0014	0.0027	0.0023
Total Phosphorus	mg-P/L	<0.001	0.002	0.002	0.003	<0.001	<0.001	0.003	0.002
Total Metals and Metalloids									
Aluminum	µg/L	2.44 NP	3.54 NP	2.67 NP	2.83 NP	5.93 NP	4.96 NP	5.38 NP	7.08 NP
Antimony	µg/L	0.95 NP	1.83 NP	0.36 NP	0.25 NP	0.08 NP	0.07 NP	0.05 NP	0.11 NP
Arsenic	µg/L	0.09	0.10	0.10	0.11	0.09	0.08	0.09	0.09
Barium	µg/L	19.7	20.7	21.8	22.5	17.4	17.1	19.8	19.7
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	36.0 NP	39.4 NP	44.9 NP	46.6 NP	38.3 NP	36 NP	37.3 NP	38.7 NP
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	0.008
Cadmium (Alberta Innovates)	µg/L	0.008 NP	0.006 NP	0.007 NP	0.009 NP	0.004 NP	0.004 NP	0.006 NP	0.005 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.13	0.25	0.13	0.13	0.06	<0.06	<0.06	0.07
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	0.021 QP	0.035 QP	0.025 QP	0.030 QP	0.020 QP	0.018 QP	0.014 QP	0.018 QP
Copper	µg/L	0.44 NP	0.40 NP	0.40 NP	0.41 NP	0.42 NP	0.41 NP	0.45 NP	0.48 NP
Iron	µg/L	4	4	3	3	6	5	5	7
Lead	µg/L	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	0.03 QP
Lithium	µg/L	7.8	8.7	8.9	9.4	8.0	7.9	7.0	7.0
Manganese	µg/L	6.73	6.98	6.70	7.41	3.58	3.30	5.08	5.15
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Molybdenum	µg/L	0.87	1.04	1.04	1.13	0.84	0.78	0.96	0.96
Nickel	µg/L	1.06	1.30	1.40	1.60	1.06	0.95	0.86	0.88
Rubidium	µg/L	4	4	4	4	3	3	4	4
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	556	602	618	641	500	499	537	537
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.11	0.13	0.11	0.12	0.12	0.11	0.13	0.13
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	<0.8 NP	<0.8 NP	1.3 NP	1.3 NP	2.4 NP	<0.8 NP	<0.8 NP	2.6 NP

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates Technology Futures.

< = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams as per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre.

Table 3C-4 Snap Lake Water Quality Results for Samples Collected from the Far-Field Stations, 2012

Sample Point:	Units	SNAP04	SNAP07	SNAP08	SNAP10	SNAP04	SNAP07	SNAP08	SNAP10	SNAP04	SNAP07	SNAP08	SNAP10	SNAP04	SNAP07	SNAP08	SNAP10
Depth:		**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**
Date Sampled (yyyy-mm-dd):		**2012-02-18**	**2012-02-17**	**2012-02-17**	**2012-02-17**	**2012-04-17**	**2012-04-16**	**2012-04-16**	**2012-04-16**	**2012-07-12**	**2012-07-13**	**2012-07-13**	**2012-07-12**	**2012-09-11**	**2012-09-11**	**2012-09-11**	**2012-09-13**
Sample Control Number:		**2012-5033**	**2012-5020**	**2012-5019**	**2012-5023**	**2012-5110**	**2012-5103**	**2012-5104**	**2012-5106**	**2012-5170**	**2012-5200**	**2012-5197**	**2012-5171**	**2012-5239**	**2012-5242**	**2012-5243**	**2012-5245**
Field Parameters																	
pH	unitless	7.0	6.8	6.5	6.9	6.5	6.6	6.5	6.7	7.1	7.0	7.1	7.3	7.2	6.8	6.3	7.2
Specific Conductivity	µS/cm	460	463	456	447	482	472	473	468	362	384	387	382	377	392	387	390
Water Temperature	°C	1.1	1.6	2.9	1.2	1.1	1.8	3.5	1.3	18.1	16.8	17.7	16.6	10.9	11.4	11.0	10.3
Dissolved Oxygen	mg/L	14.1	11.7	10.1	12.0	14.6	13.0	11.7	14.1	9.6	9.5	9.3	9.9	11.0	10.2	10.2	11.2
Conventional Parameters																	
Laboratory pH	unitless	7.5 WH	7.5 WH	7.5 WH	7.6 WH	7.3 WH	7.2 WH	7.2 WH	7.2 WH	7.4 WH	7.4 WH	7.7 WH	7.4 WH	7.5 WH	7.5 WH	7.6 WH	7.6 WH
Laboratory Specific Conductivity	µS/cm	441	448	463	426	463	450	456	453	360	389	388	382	384	400	396	396
Total Dissolved Solids, measured	mg/L	257	267	270	254	304	330	341	335	288 WH	310	296	292 WH	254	261	261	265 WH
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	214 QP	227 QP	235 QP	203 QP	232 QP	226 QP	221 QP	213 QP	167 QP	185 QP	184 QP	179 QP	178 QP	189 QP	188 QP	193 QP
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	214 QP	223 QP	231 QP	203 QP	232 QP	222 QP	223 QP	219 QP	167 QP	181 QP	179 QP	179 QP	178 QP	185 QP	185 QP	193 QP
Total Suspended Solids	mg/L	-	<3	<3	-	-	<3	<3	-	-	<3	<3	-	-	<3	<3	-
Turbidity	NTU	-	0.17 WH	0.29 WH	-	-	0.14 WH	0.17 WH	-	-	0.31 WH	0.39 WH	-	-	0.50 WH	0.48 WH	-
Ions																	
Bicarbonate, as HCO_3	mg/L	27	28	28	26	31	29	30	30	21	25	25	25	26	26	27	25
Calcium	mg/L	45.3	49.3	52.1	40.9	48.8	45.2	45.3	43.8	34.5	36.4	36.2	36.6	33.7	35.0	35.0	39.0
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	97.8	98.1	101	94.0	103	100	101	101	76.6	83.1	83.1	81.2	84.0	87.3	86.4	87.6
Fluoride	mg/L	0.13	0.14	0.14	0.14	0.13	0.14	0.14	0.13	0.11	0.10	0.10	0.11	0.10	0.10	0.09	0.15
Hardness, as $CaCO_3$	mg/L	136	148	155	122	148	137	137	132	104	110	109	110	101	105	105	120
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	5.5	6.0	6.2	4.9	6.3	5.9	5.7	5.5	4.3	4.6	4.6	4.6	4.1	4.3	4.3	5.5
Potassium	mg/L	2.29 QP	2.26 QP	2.65 QP	1.94 QP	2.63 QP	2.37 QP	2.22 QP	2.07 QP	1.59 QP	1.61 QP	1.66 QP	1.73 QP	1.93 QP	1.81 QP	2.25 QP	1.97 QP
Reactive Silica, as SiO_2	mg/L	0.84 NP	0.81 NP	0.91 NP	0.78 NP	0.88 NP	0.84 NP	0.84 NP	0.81 NP	0.69 NP	0.85 NP	0.79 NP	0.89 NP	0.98 NP	0.86 NP	0.94 NP	0.64 NP
Sodium	mg/L	24	27	27	21	26	24	24	22	17	18	18	18	19	20	20	21
Sulphate	mg/L	18.3	18.9	19.4	18.2	19.4	19.3	19.5	19.1	14.8	16.3	16.1	15.9	15.1	15.5	15.4	17.5
Total Alkalinity, as $CaCO_3$	mg/L	22	23	23	22	25	24	25	24	17	20	21	20	21	22	23	21
Nutrients																	
BOD (5-day)	mg/L	-	-	<2 WH	-	-	-	<2 WH	-	-	-	<2 WH	-	-	-	<2 WH	-
Dissolved Inorganic Phosphorus	mg-P/L	-	<0.001	<0.001	-	-	<0.001	<0.001	-	-	<0.001	<0.001	-	-	<0.001	0.002	-
Dissolved Organic Phosphorus, calculated	mg-P/L	-	<0.0014	<0.0014	-	-	<0.0014	<0.0014	-	-	<0.0014	<0.0014	-	-	<0.0014	<0.0014	-
Nitrate, as N, calculated	mg-N/L	1.51 WH	1.59 WH	1.63 WH	1.65 WH	2.06 WH	2.21 WH	2.17 WH	2.20 WH	1.54 WH	1.88 WH	1.42 WH	1.73 WH	1.36 WH	1.61 WH	1.49 WH	1.61 WH
Nitrate/Nitrite, as N	mg-N/L	1.52 WH	1.60 WH	1.64 WH	1.66 WH	2.06 WH	2.22 WH	2.18 WH	2.21 WH	1.55 WH	1.90 WH	1.45 WH	1.75 WH	1.37 WH	1.62 WH	1.5 WH	1.62 WH
Nitrite, as N	mg-N/L	0.006 WH	0.007 WH	0.007 WH	0.008 WH	0.005 WH	0.008 WH	0.008 WH	0.008 WH	0.016 WH	0.018 WH	0.022 WH	0.016 WH	0.008 WH	0.011 WH	0.012 WH	0.010 WH
ortho-Phosphate, as P	mg-P/L	-	<0.001 WH	<0.001 WH	-	-	<0.001 WH	<0.001 WH	-	-	<0.001 WH	<0.001 WH	-	-	<0.001 WH	<0.001 WH	-
Total Ammonia, as N	mg-N/L	-	0.125	0.154	-	-	0.139	0.160	-	-	0.094	0.090	-	-	0.059	0.073	-
Total Dissolved Phosphorus	mg-P/L	-	<0.001	<0.001	-	-	<0.001	<0.001	-	-	<0.001	<0.001	-	-	<0.001	<0.001	-
Total Inorganic Phosphorus	mg-P/L	-	<0.001	<0.001	-	-	<0.001	<0.001	-	-	0.002	0.001	-	-	<0.001	0.002	-
Total Kjeldahl Nitrogen	mg-N/L	-	0.34	0.43	-	-	0.43	0.54	-	-	0.33	0.38	-	-	0.35	0.41	-
Total Organic Carbon	mg/L	-	3.9 NP	4.1 NP	-	-	4 NP	3.8 NP	-	-	3.7 NP	3.9 NP	-	-	3.4 NP	3.5 NP	-
Total Organic Phosphorus, calculated	mg-P/L	-	<0.0014	0.0020	-	-	0.0025	0.0023	-	-	<0.0014	0.0097	-	-	0.0018	<0.0014	-
Total Phosphorus	mg-P/L	-	<0.001	0.002	-	-	0.003	0.002	-	-	<0.001	0.011	-	-	0.002	0.003	-
Total Metals and Metalloids																	
Aluminum	µg/L	-	2.41 NP	2.63 NP	-	-	2.4 NP	2.38 NP	-	-	6.3 NP	6.96 NP	-	-	5.44 NP	5.53 NP	-
Antimony	µg/L	-	1.39 NP	1.26 NP	-	-	1.07 NP	0.98 NP	-	-	0.07 NP	0.05 NP	-	-	0.08 NP	0.05 NP	-
Arsenic	µg/L	-	0.11	0.11	-	-	0.11	0.11	-	-	0.09	0.10	-	-	0.09	0.10	-
Barium	µg/L	-	22.0	23.2	-	-	23.0	24.7	-	-	17.4	17.4	-	-	19.0	18.8	-
Beryllium	µg/L	-	<0.01	<0.01	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-
Bismuth	µg/L	-	<0.01	<0.01	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-
Boron	µg/L	-	37.3 NP	37.6 NP	-	-	43.7 NP	43.1 NP	-	-	35.5 NP	38.8 NP	-	-	38.2 NP	38.5 NP	-
Cadmium	µg/L	-	<0.005	0.005	-	-	0.010	0.005	-	-	<0.005	<0.005	-	-	0.005	<0.005	-
Cadmium (Alberta Innovates)	µg/L	-	0.005 NP	0.007 NP	-	-	0.022 NP	0.013 NP	-	-	0.004 NP	0.003 NP	-	-	0.005 NP	0.005 NP	-
Cesium	µg/L	-	<0.1	<0.1	-	-	<0.1	<0.1	-	-	<0.1	<0.1	-	-	<0.1	<0.1	-
Chromium	µg/L	-	0.21	0.25	-	-	0.10	0.13	-	-	<0.06	<0.06	-	-	<0.06	<0.06	-
Hexavalent Chromium	µg/L	-	<1	<1	-	-	<1	<1	-	-	<1	<1	-	-	<1	<1	-
Cobalt	µg/L	-	0.013 QP	0.017 QP	-	-	0.014 QP	0.012 QP	-	-	0.023 QP	0.025 QP	-	-	0.016 QP	0.021 QP	-
Copper	µg/L	-	0.47 NP	0.70 NP	-	-	0.43 NP	0.40 NP	-	-	0.46 NP	0.49 NP	-	-	0.54 NP	0.43 NP	-
Iron	µg/L	-	5	5	-	-	3	4	-	-	7	12	-	-	8	14	-
Lead	µg/L	-	<0.01 QP	<0.01 QP	-	-	<0.01 QP	<0.01 QP	-	-	<0.01 QP	<0.01 QP	-	-	0.07 QP	<0.01 QP	-
Lithium	µg/L	-	8.4	8.5	-	-	8.8	8.9	-	-	7.8	8.1	-	-	6.8	6.7	-
Manganese	µg/L	-	4.25	4.34	-	-	4.80	4.34	-	-	4.20	5.45	-	-	4.83	5.63	-
Mercury	µg/L	-	<0.02	<0.02	-	-	<0.02	<0.02	-	-	<0.02	<0.02	-	-	<0.02	<0.02	-
Mercury (Flett)	µg/L	-	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	-	<0.0005	0.0006	-	-	0.0006	<0.0005	-
Molybdenum	µg/L	-	0.78	0.75	-	-	0.83	0.68	-	-	0.76	0.85	-	-	1.03	0.92	-
Nickel	µg/L	-	0.82	0.81	-	-	1.03	0.90	-	-	0.85	0.76	-	-	0.75	0.62	-
Rubidium	µg/L	-	4	4	-	-	4	4	-	-	3	3	-	-	4	4	-
Selenium	µg/L	-	<0.04	<0.04	-	-	<0.04	<0.04	-	-	<0.04	<0.04	-	-	<0.04	<0.04	-
Silver	µg/L	-	<0.005	<0.005	-	-	<0.005	<0.005	-	-	<0.005	<0.005	-	-	<0.005	<0.005	-
Strontium	µg/L	-	595	606	-	-	608	616	-	-	501	509	-	-	532	521	-
Thallium	µg/L	-	<0.01	<0.01	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-
Titanium	µg/L	-	1.0 X	<0.1	-	-	0.1	<0.1	-	-	<0.1	<0.1	-	-	<0.1	<0.1	-
Uranium	µg/L	-	0.09	0.09	-	-	0.09	0.07	-	-	0.11	0.12	-	-	0.14	0.14	-
Vanadium	µg/L	-	<0.05	<0.05	-	-	<0.05	<0.05	-	-	<0.05	<0.05	-	-	<0.05	<0.05	-
Zinc	µg/L	-	<0.8 NP	<0.8 NP	-	-	1.0 NP	1.4 NP	-	-	2.3 NP	1.3 NP	-	-	1.1 NP	4.9 NP	-

Notes:

SNAP04 and SNAP10 are TDS stations, so a reduced parameter suite was analyzed.

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

- NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;
- QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency;
- X = data invalidated due to an internal review; and,
- WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates Technology Futures.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams as per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre.

Table 3C-5 Snap Lake Water Quality Results for Samples Collected from the Northwest Arm Stations, 2012

Sample Point:	Units	SNAP20B	SNAP02A	SNAP23	SNAP29	SNAP20B	SNAP02A	SNAP23	SNAP29	SNAP20B	SNAP02A	SNAP23	SNAP29	SNAP20B	SNAP02A	SNAP23	SNAP29	SNAP20B	SNAP02A	SNAP23	SNAP29
Depth:		**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**
Date Sampled (yyyy-mm-dd):		**2012-01-14**	**2012-01-14**	**2012-01-13**	**2012-01-13**	**2012-02-20**	**2012-02-20**	**2012-02-20**	**2012-02-20**	**2012-04-13**	**2012-04-13**	**2012-04-13**	**2012-04-13**	**2012-07-06**	**2012-07-07**	**2012-07-06**	**2012-07-07**	**2012-09-12**	**2012-09-12**	**2012-09-12**	**2012-09-12**
Sample Control Number:		**2012-5006**	**2012-5007**	**2012-5003**	**2012-5002**	**2012-5052**	**2012-5053**	**2012-5054**	**2012-5055**	**2012-5083**	**2012-5082**	**2012-5084**	**2012-5085**	**2012-5142**	**2012-5143**	**2012-5144**	**2012-5153**	**2012-5252**	**2012-5251**	**2012-5253**	**2012-5250**
Field Parameters																					
pH	unitless	6.8	6.5	6.2	6.5	6.7	6.6	6.6	6.9	6.2	6.2	6.2	6.4	6.5	7.0	6.5	7.0	6.4	6.7	6.9	7.0
Specific Conductivity	µS/cm	105	148	255	290	104	160	270	299	103	163	269	292	91	110	187	196	91	133	212	211
Water Temperature	°C	2.1	2.4	2.2	0.9	2.6	2.5	2.4	1.5	2.7	2.9	2.8	1.5	6.2	14.6	14.3	14.8	5.6	6.7	6.9	10.8
Dissolved Oxygen	mg/L	12.5	11.2	11.5	17.6	10.6	11.6	9.8	15.1	10.2	11.6	10.0	15.9	12.9	9.7	11.4	9.6	7.8	11.0	11.0	11.0
Conventional Parameters																					
Laboratory pH	unitless	7.1 WH	7.2 WH	7.3 WH	7.4 WH	7.1 WH	7.3 WH	7.3 WH	7.4 WH	7.0 WH	6.8 WH	7.2 WH	7.2 WH	7.2 WH	7.3 WH	7.4 WH	7.4 WH	7.1 WH	7.2 WH	7.3 WH	7.3 WH
Laboratory Specific Conductivity	µS/cm	104	153	244	294	102	157	253	288	104	163	272	294	94.3	112	192	199	115	141	222	219
Total Dissolved Solids, measured	mg/L	69	97	134	176	69	95	145	170	77	95	184	196	64	83	127	137	83	102	162	154
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	45.4 QP	68.8 QP	112 QP	136 QP	49.2 QP	75.3 QP	120 QP	134 QP	50.6 QP	78.6 QP	131 QP	138 QP	45.1 QP	49.4 QP	88.7 QP	88.4 QP	52.8 QP	65.4 QP	113 QP	106 QP
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	45.6 QP	69.1 QP	113 QP	137 QP	45.1 QP	70.4 QP	116 QP	134 QP	46.3 QP	72.9 QP	127 QP	138 QP	40.6 QP	49.4 QP	84.7 QP	88.3 QP	48.8 QP	60.9 QP	109 QP	98.2 QP
Total Suspended Solids	mg/L	<3	<3	<3	-	<3	<3	<3	-	<3	<3	<3	-	<3	<3	<3	-	<3	<3	<3	-
Turbidity	NTU	0.28 WH	0.27 WH	0.19 WH	-	0.15 WH	0.46 WH	0.20 WH	-	0.35 WH	0.34 WH	0.19 WH	-	0.58 WH	0.48 WH	0.38 WH	-	0.45 WH	0.44 WH	0.48 WH	-
Ions																					
Bicarbonate, as HCO_3	mg/L	9	14	15	18	9	14	16	18	10	15	18	20	8	11	13	14	12	13	16	15
Calcium	mg/L	8.8	13.5	22.4	26.5	8.7	13.5	22.5	26.4	9.0	13.7	25.2	26.9	7.9	9.6	16.7	17.3	9.3	11.1	21.8	20.6
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	19.6	29.4	48.5	60.0	19.4	30.2	51.0	58.3	19.9	31.8	55.9	59.9	18.2	21.5	38.1	39.6	22.0	27.6	51.1	44.1
Fluoride	mg/L	<0.05	<0.05	0.06	0.08	<0.05	0.05	0.08	0.09	<0.05	0.05	0.08	0.09	<0.05	<0.05	0.06	0.07	0.07	0.06	0.07	0.11
Hardness, as $CaCO_3$	mg/L	29	44	71	83	29	44	71	84	30	45	79	86	26	31	52	54	31	36	68	64
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	1.7	2.5	3.6	4.1	1.7	2.5	3.6	4.3	1.8	2.6	3.9	4.5	1.4	1.7	2.5	2.5	1.8	1.9	3.3	3.1
Potassium	mg/L	0.81 QP	1.09 QP	1.46 QP	1.74 QP	0.79 QP	0.98 QP	1.45 QP	1.77 QP	0.51 QP	0.75 QP	1.21 QP	1.47 QP	0.72 QP	0.73 QP	1.06 QP	1.10 QP	0.66 QP	0.91 QP	1.30 QP	1.05 QP
Reactive Silica, as SiO_2	mg/L	0.20 NP	0.23 NP	0.34 NP	0.44 NP	0.21 NP	0.22 NP	0.42 NP	0.35 NP	0.33 NP	0.10 NP	0.61 NP	0.45 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP
Sodium	mg/L	5	7	12	15	5	8	13	15	5	8	14	15	4	5	8	8	4	7	11	10
Sulphate	mg/L	4.3	6.5	10.8	12.9	4.1	6.6	11.0	12.7	4.1	6.7	11.8	12.8	4.3	4.9	8.3	8.7	4.6	5.8	10.2	8.6
Total Alkalinity, as $CaCO_3$	mg/L	7	11	12	15	8	11	13	15	8	13	14	16	7	9	11	11	9	10	13	12
Nutrients																					
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	-	<0.0014	<0.0014	<0.0014	-	0.0019	<0.0014	<0.0014	-	<0.0014	0.0015	<0.0014	-	0.0023	<0.0014	0.0016	-
Nitrate, as N, calculated	mg-N/L	0.126 WH	0.445 WH	1.40 WH	1.60 WH	0.103 WH	0.490 WH	1.24 WH	1.58 WH	0.130 WH	0.484 WH	1.40 WH	1.69 WH	0.098 WH	0.197 WH	0.724 WH	0.893 WH	0.075 WH	0.163 WH	0.640 WH	0.710 WH
Nitrate/Nitrite, as N	mg-N/L	0.130 WH	0.452 WH	1.41 WH	1.61 WH	0.103 WH	0.494 WH	1.25 WH	1.59 WH	0.130 WH	0.487 WH	1.40 WH	1.70 WH	0.098 WH	0.199 WH	0.729 WH	0.899 WH	0.075 WH	0.166 WH	0.645 WH	0.715 WH
Nitrite, as N	mg-N/L	0.004 WH	0.008 WH	0.012 WH	0.012 WH	<0.002 WH	0.004 WH	0.008 WH	0.012 WH	<0.002 WH	0.003 WH	0.007 WH	0.009 WH	<0.002 WH	0.002 WH	0.005 WH	0.006 WH	<0.002 WH	0.002 WH	0.005 WH	0.005 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	-	<0.001 WH	<0.001 WH	<0.001 WH	-	<0.001 WH	<0.001 WH	<0.001 WH	-	<0.001 WH	<0.001 WH	<0.001 WH	-	<0.001 WH	<0.001 WH	<0.001 WH	-
Total Ammonia, as N	mg-N/L	0.039	0.075	0.095	-	0.040	0.095	0.097	-	0.043	0.123	0.083	-	0.016	0.009	0.016	-	0.049	0.006	0.009	-
Total Dissolved Phosphorus	mg-P/L	0.001	0.001	0.001	-	<0.001	<0.001	<0.001	-	0.002	0.001	0.001	-	<0.001	0.002	<0.001	-	0.002	0.001	0.002	-
Total Inorganic Phosphorus	mg-P/L	0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	0.002	0.002	0.003	-	0.003	0.003	0.001	-	0.002	0.002	0.002	-
Total Kjeldahl Nitrogen	mg-N/L	0.20	0.29	0.29	-	0.20	0.31	0.31	-	0.20	0.28	0.28	-	0.09	0.22	0.11	-	0.24	0.28	0.23	-
Total Organic Carbon	mg/L	4.2 NP	4.8 NP	4.3 NP	-	4.1 NP	4.8 NP	4.1 NP	-	4.3 NP	5.6 NP	3.9 NP	-	4.3 NP	4.3 NP	4 NP	-	4 NP	4.4 NP	4 NP	-
Total Organic Phosphorus, calculated	mg-P/L	0.0026	0.0063	0.0026	-	0.0027	0.0028	0.0023	-	0.0021	0.0019	<0.0014	-	<0.0014	<0.0014	<0.0014	-	0.0039	0.0016	<0.0014	-
Total Phosphorus	mg-P/L	0.004	0.006	0.003	-	0.003	0.003	0.002	-	0.004	0.003	0.004	-	0.002	0.004	0.002	-	0.006	0.004	0.003	-
Total Metals and Metalloids																					
Aluminium	µg/L	5.37 NP	5.14 NP	3.76 NP	-	5 NP	5.17 NP	3.39 NP	-	4.12 NP	4.59 NP	2.53 NP	-	11 NP	11.4 NP	10.2 NP	-	8.33 NP	9.71 NP	7.81 NP	-
Antimony	µg/L	0.51 NP	1.75 NP	0.54 NP	-	0.47 NP	1 NP	0.45 NP	-	0.39 NP	0.2 NP	0.16 NP	-	0.09 NP	0.09 NP	0.08 NP	-	0.03 NP	0.04 NP	0.04 NP	-
Arsenic	µg/L	0.10	0.13	0.09	-	0.09	0.11	0.10	-	0.10	0.12	0.10	-	0.09	0.09	0.11	-	0.10	0.11	0.11	-
Barium	µg/L	8.4	11.9	14.3	-	9.4	14.0	17.3	-	9.4	14.5	17.9	-	8.6	9.2	12.1	-	9.8	10.6	12.6	-
Beryllium	µg/L	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-
Bismuth	µg/L	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-
Boron	µg/L	7.7 NP	13.3 NP	25.0 NP	-	7.7 NP	14.0 NP	27.2 NP	-	8.0 NP	14.8 NP	29.1 NP	-	7.6 NP	10.0 NP	18.3 NP	-	7.2 NP	11.8 NP	19.9 NP	-
Cadmium	µg/L	<0.005	0.006	<0.005	-	<0.005	<0.005	<0.005	-	<0.005	0.005	<0.005	-	<0.005	<0.005	0.006	-	<0.005	<0.005	<0.005	-
Cadmium (Alberta Innovates)	µg/L	-	0.006 NP	0.004 NP	-	0.002 NP	0.004 NP	0.004 NP	-	0.003 NP	<0.002 NP	0.005 NP	-	<0.002 NP	0.004 NP	0.004 NP	-	0.003 NP	0.005 NP	0.004 NP	-
Cesium	µg/L	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	-
Chromium	µg/L	0.13	0.29	0.30	-	0.12	0.21	0.22	-	0.06	<0.06	0.08	-	0.12	0.09	0.09	-	<0.06	0.08	<0.06	-
Hexavalent Chromium	µg/L	<1	<1	<1	-	<1	<1	<1	-	<1	<1	<1	-	<1	<1	<1	-	<1	<1	<1	-
Cobalt	µg/L	0.032 QP	0.033 QP	0.026 QP	-	0.032 QP	0.025 QP	0.018 QP	-	0.023 QP	0.021 QP	0.015 QP	-	0.024 QP	0.151 QP	0.022 QP	-	0.024 QP	0.031 QP	0.029 QP	-
Copper	µg/L	0.55 NP	0.83 NP	0.48 NP	-	0.56 NP	0.64 NP	0.52 NP	-	0.58 NP	0.77 NP	0.5 NP	-	0.77 NP	0.63 NP	0.63 NP	-	0.55 NP	0.56 NP	0.52 NP	-
Iron	µg/L	15	16	7	-	15	14	6	-	10	7	3	-	19	13	10	-	10	17	12	-
Lead	µg/L	<0.01 QP	0.03 QP	0.01 QP	-	<0.01 QP	<0.01 QP	<0.01 QP	-	<0.01 QP	<0.01 QP	<0.01 QP	-	<0.01 QP	<0.01 QP	<0.01 QP	-	<0.01 QP	0.03 QP	0.01 QP	-
Lithium	µg/L	2.1	2.9	4.2	-	2.2	3.4	5.1	-	2.3	3.4	5.2	-	2.0	2.5	4.0	-	2.0	2.3	3.9	-
Manganese	µg/L	18.3	10.5	4.04	-	29.7	10.2	3.94	-	39.0	7.92	3.64	-	14.0	6.67	4.21	-	31.2	9.76	7.63	-
Mercury	µg/L	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	-
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	-	<0.0005	0.0007	0.0006	-	0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	-
Molybdenum	µg/L	0.10	0.20	0.45	-	0.09	0.19	0.43	-	0.08	0.15	0.36	-	0.05	0.09	0.24	-	0.07	0.17	0.39	-
Nickel	µg/L	0.40	0.59	0.59	-	0.38	0.49	0.64	-	0.41	0.59	0.64	-	0.38	0.40	0.51	-	0.37	0.41	0.43	-
Rubidium	µg/L	2	3	3	-	2	3	3	-	2	3	3	-	2	2	2	-	2	2	3	-
Selenium	µg/L	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	-
Silver	µg/L	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	-
Strontium	µg/L	102	162	288	-	91	151	275	-	104	173	329	-	88	113	220	-	100	143	266	-
Thallium	µg/L	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-
Titanium	µg/L	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	0.1	<0.1	0.1	-	<0.1	<0.1	<0.1	-
Uranium	µg/L	0.01	0.01	0.03	-	0.01	0.02	0.03	-	<0.01	0.01	0.03	-	0.01	0.02	0.04	-	0.01	0.02	0.04	-
Vanadium	µg/L	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-
Zinc	µg/L	1.5 NP	4.2 NP	1.2 NP	-	<0.8 NP	<0.8 NP	<0.8 NP	-	2.5 NP	2.6 NP	1 NP	-	1.2 NP	1.1 NP	1.0 NP	-	<0.8 NP	1.2 NP	2.5 NP	-

Notes:

SNAP29 is a TDS station, so a reduced parameter suite was analyzed.

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

- NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;
- QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency; and,
- WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates Technology Futures.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams phosphorus per litre; mg-N/L = milligrams nitrogen per litre; µg/L = micrograms per litre.

Table 3C-6 Snap Lake Water Quality Results for Samples Collected from the Inland Lake Stations, 2012

Sample Point:	Units	IL3	IL4	IL5	IL3	IL4	IL5	IL3	IL4	IL5
Depth:		mid	mid	mid	mid	mid	mid	mid	mid	mid
Date Sampled (yyyy-mm-dd):		2012-07-14	2012-07-14	2012-07-14	2012-08-28	2012-08-28	2012-08-28	2012-09-15	2012-09-15	2012-09-15
Sample Control Number:		2012-5147	2012-5148	2012-5149	2012-5233	2012-5234	2012-5235	2012-5259	2012-5260	2012-5261
Field Parameters										
pH	unitless	6.6	6.4	6.5	-[a]	-[a]	-[a]	6.4	6.4	6.6
Specific Conductivity	µS/cm	19	21	41	-[a]	-[a]	-[a]	48	24	24
Water Temperature	°C	15.6	14.4	16.9	-[a]	-[a]	-[a]	5.5	1.0	3.8
Dissolved Oxygen	mg/L	8.7	9.3	9.2	-[a]	-[a]	-[a]	11.2	13.0	12.0
Conventional Parameters										
Laboratory pH	unitless	6.7 WH	6.8 WH	7.3 WH	6.9	6.3	7.0	6.6 WH	6.7 WH	7.1 WH
Laboratory Specific Conductivity	µS/cm	16.8	20.0	39.5	20.7	19.8	46.8	20.3	21.5	48.0
Total Dissolved Solids, measured	mg/L	31	53	37	51	71	49	33	47	34
Total Dissolved Solids, calculated (Lab)[b]	mg/L	3.6 QP	7.8 QP	18.4 QP	15.5 QP	6.0 QP	22.0 QP	6.6 QP	8.4 QP	25.2 QP
Total Dissolved Solids, calculated (Standard Methods)[b]	mg/L	3.6 QP	7.7 QP	18.3 QP	8.4 QP	5.9 QP	21.9 QP	6.6 QP	8.3 QP	25.2 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	395 X	13	<3	<3	<3
Turbidity	NTU	1.65 WH	3.85 WH	1.18 WH	2.28	25.20 X	3.08	1.87 WH	4.37 WH	0.93 WH
Ions										
Bicarbonate, as HCO_3	mg/L	6	8	11	7	<5	12	6	7	13
Calcium	mg/L	1.1	1.7	3.0	1.0	1.6	3.3	1.0	2.0	3.7
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	<0.5	<0.5	1.3	<0.5	0.9	2.0	0.5	<0.5	1.8
Fluoride	mg/L	<0.05	<0.05	<0.05	0.08	0.06	0.06	0.07	<0.05	0.07
Hardness, as $CaCO_3$	mg/L	7	8	14	7	7	16	8	9	18
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	1.0	0.9	1.7	1.1	0.8	1.8	1.4	1.0	2.1
Potassium	mg/L	0.73 QP	1.03 QP	0.75 QP	0.86 QP	1.05 QP	0.95 QP	0.78 QP	0.64 QP	0.83 QP
Reactive Silica, as SiO_2	mg/L	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	0.6 NP	<0.5 NP	1.6 NP
Sodium	mg/L	<1	<1	1	<1	1	2	<1	1	2
Sulphate	mg/L	0.8	0.3	5.0	1.7	0.4	6.5	1.8	<0.05	6.8
Total Alkalinity, as $CaCO_3$	mg/L	<5	6	9	6	<5	10	<5	5	11
Nutrients										
Nitrate, as N, calculated	mg-N/L	<0.006 WH	<0.006 WH	<0.006 WH	<0.006	0.011	0.015	0.060 WH	0.055 WH	0.031 WH
Nitrate/Nitrite, as N	mg-N/L	<0.006 WH	0.007 WH	<0.006 WH	<0.006	0.016	0.015	0.062 WH	0.059 WH	0.031 WH
Nitrite, as N	mg-N/L	0.004 WH	0.006 WH	0.002 WH	0.002	0.006	<0.002	0.003 WH	0.005 WH	<0.002 WH
Total Ammonia, as N	mg-N/L	<0.005	0.011	0.009	0.023	0.029	0.012	0.016	0.119	<0.005
Total Kjeldahl Nitrogen	mg-N/L	0.42	1.12	0.28	0.66	2.33	0.57	0.59	1.15	0.41

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency;

· X = data invalidated due to an internal review; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) Field measurements were not collected in the Inland Lakes during the August AEMP program due to a communication error occurred.

(b) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre.

Table 3C-7 Snap Lake Water Quality Results for Samples Collected from the Stream 1 and Stream 27 Stations, 2012

Sample Point:	Units	Stream 1[a]	Stream 27[a]	Stream 1[a]	Stream 27[a]	Stream 1[a]	Stream 27[a]	Stream 1[a]	Stream 27[a]	Stream 1[a]	Stream 27[a]	Stream 1	Stream 1	Stream 1
Date Sampled (yyyy-mm-dd):		2012-05-14	2012-05-15	2012-05-18	2012-05-18	2012-05-22	2012-05-22	2012-05-25	2012-05-25	2012-05-28	2012-05-28	2012-07-11	2012-09-01	2012-09-07
Sample Control Number:		2012-0889	2012-0941	2012-0950	2012-0951	2012-1005	2012-1006	2012-1038	2012-1039	2012-1053	2012-1054	2012-5189	2012-5236	2012-5276
Field Parameters														
pH	unitless	5.7	6.0	7.0	7.4	5.3	5.7	5.8	6.4	6.7	6.6	6.2	-[b]	7.1
Specific Conductivity	µS/cm	2	31	18	29	18	23	17	20	17	23	24	-[b]	27
Water Temperature	°C	0.1	2.3	0.2	1.3	0.9	3.0	3.5	5.1	5.6	7.0	20.1	-[b]	11.2
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	7.7	-[b]	11.0
Conventional Parameters														
Laboratory pH	unitless	6.1	6.9	6.9	6.4	6.7	6.8	6.4	6.5	6.8	7.0	7.2 WH	7.1 WH	7.1
Laboratory Specific Conductivity	µS/cm	20	31	31	18	18	23	17	20	17	24	21	32	29
Total Dissolved Solids, measured	mg/L	40	44	46	44	32	35	37	45	18	26	29	39 WH	48
Total Dissolved Solids, calculated (Lab)[c]	mg/L	21.1	28.2	31.8	28.6	5.7	12.1	14.3	15.1	5.9	12.1	19 QP	17.5 QP	17.5 QP
Total Dissolved Solids, calculated (Standard Methods)[c]	mg/L	7.7	16.3	20.9	17.0	5.7	12.1	5.6	6.5	5.9	12.2	10.8 QP	17.5 QP	17.4 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3 WH	<3
Turbidity	NTU	0.94	1.46	0.81	0.75	0.54	0.57	0.49	0.60	0.56	0.64	0.89 WH	1.79 WH	1.63
Ions														
Acidity to pH 4.5, as $CaCO_3$	mg/L	8	5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-
Bicarbonate, as HCO_3	mg/L	<5	7	10	<5	5	7	<5	6	5	8	9	15	13
Calcium	mg/L	1.4	2.0	2.2	1.4	1.5	1.8	1.5	1.6	1.5	1.9	2.4	3.0	2.8
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	0.8	<0.5	3.0	2.2	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	0.5	2.0	2.6
Fluoride	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06
Hardness, as $CaCO_3$	mg/L	6.3	9.3	10.3	6.1	6.2	8	6	8	6	8	10	12	11
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	0.7	1.1	1.2	0.6	0.6	0.9	0.6	0.8	0.6	0.9	0.9	1.1	1.0
Potassium	mg/L	0.9	0.7	0.9	0.9	0.6	0.6	0.6	0.4	0.6	0.6	0.43 QP	0.47 QP	0.46 QP
Reactive Silica, as SiO_2	mg/L	1.62	2.02	1.48	7.55	1.38	1.29	1.31	1.09	1.22	1.22	0.70 NP	1.03 NP	1.38 NP
Sodium	mg/L	<1	1	2	<1	<1	1	<1	<1	<1	1	<1	1	1
Sulphate	mg/L	1.9	1.0	2.2	2.3	1.3	0.7	1.3	0.6	1.2	0.8	1.0	1.2	1.4
Total Alkalinity, as $CaCO_3$	mg/L	<5	6	8	<5	<5	6	<5	<5	<5	7	8	12	11
Nutrients														
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.003	<0.001	<0.001	0.001	0.001	0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	0.0051	0.0055	0.0095	0.0085	<0.0014	<0.0014	<0.0014	0.0024	0.0024	0.0015	0.0020	<0.0014	0.0019
Nitrate, as N, calculated	mg-N/L	0.018	0.912	0.711	0.013	0.009	0.438	<0.006	0.372	<0.006	0.313	0.015 WH	0.022 WH	<0.006
Nitrate/Nitrite, as N	mg-N/L	0.020	0.916	0.714	0.013	0.009	0.441	<0.006	0.375	<0.006	0.316	0.018 WH	0.022 WH	0.008
Nitrite, as N	mg-N/L	0.002	0.004	0.004	<0.002	<0.002	0.003	<0.002	0.003	<0.002	0.003	0.003 WH	<0.002 WH	0.003
ortho-Phosphate, as P	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001 WH	<0.001 WH	<0.001
Total Ammonia, as N	mg-N/L	0.008	0.139	0.072	<0.005	0.005	0.070	0.009	0.064	0.020	0.030	0.016	0.016	0.011
Total Dissolved Phosphorus	mg-P/L	0.005	0.006	0.010	0.009	<0.001	<0.001	0.003	0.005	0.002	0.002	0.003	0.002	0.003
Total Inorganic Phosphorus	mg-P/L	0.005	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.004	0.004	0.005	0.005
Total Kjeldahl Nitrogen	mg-N/L	0.42	1.06	0.52	0.37	0.20	0.31	0.32	0.37	0.24	0.28	0.35	0.44	0.50
Total Organic Carbon	mg/L	13.1	11.4	10.9	11.8	10.0	10.0	8.7	8.5	8.1	9.1	8.2 NP	7.2 NP	9.9 NP
Total Organic Phosphorus, calculated	mg-P/L	0.0106	0.0113	0.0028	0.0041	0.0034	0.0052	0.0069	0.0060	0.0045	0.0029	0.0031	0.0034	0.0033
Total Phosphorus	mg-P/L	0.016	0.017	0.008	0.009	0.007	0.010	0.011	0.010	0.007	0.006	0.007	0.009	0.008
Total Metals and Metalloids														
Aluminum	µg/L	-	100	83.0	61.7	68.3	105	58.4	86.7	52.5	61.8	59.0 NP	66.5 NP	71.1 NP
Antimony	µg/L	-	0.18	0.02	0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02 NP	<0.02 NP	<0.02 NP
Arsenic	µg/L	-	0.13	0.10	0.12	0.09	0.09	0.09	0.08	0.08	0.08	0.11	0.11	0.13
Barium	µg/L	-	5.4	5.2	2.8	3.2	5.0	3.1	4.3	2.8	4.1	4.6	4.6	4.5
Beryllium	µg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	-	3	3	4	3	2	2	3	3	3	4.4 NP	10.3 NP	4 NP
Cadmium	µg/L	-	0.017	0.005	0.007	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	0.007	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	-	-	-	-	-	-	-	-	-	-	0.003 NP	0.004 NP	0.003 NP
Cesium	µg/L	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	-	0.16	0.19	0.16	0.13	0.18	0.11	0.12	0.34	0.14	0.19	0.17	0.16
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1
Cobalt	µg/L	-	0.24	0.14	0.20	0.35	0.15	0.18	0.17	0.11	0.11	0.19 QP	0.21 QP	0.18 QP
Copper	µg/L	-	1.2	1.0	1.0	1.1	1.2	1.0	1.0	1.0	2.6	1.3 NP	1.2 NP	1.2 NP
Iron	µg/L	-	269	190	274	263	282	215	280	214	176	387	664	725
Lead	µg/L	-	0.02	0.01	0.01	0.02	0.02	0.01	0.02	<0.01	<0.01	0.04 QP	0.02 QP	0.03 QP
Lithium	µg/L	-	1.5	1.5	1.3	1.0	0.9	1.2	1.2	0.9	1.1	1.3	1.7	1.7
Manganese	µg/L	-	15.9	9.69	11.1	16.3	9.15	7.23	10.4	3.4	7.27	8.29	8.23	7.64
Mercury	µg/L	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	-	-	-	-	-	-	-	-	-	-	0.0021	0.0018	0.0017
Molybdenum	µg/L	-	0.07	0.06	0.09	0.10	0.06	0.11	0.05	0.08	<0.05	0.14	0.35	0.24
Nickel	µg/L	-	0.46	0.43	0.63	0.48	0.34	0.54	0.47	0.36	0.23	0.75	0.78	0.62
Rubidium	µg/L	-	3	2	2	2	2	1	2	1	2	1	1	1
Selenium	µg/L	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	-	14	12	6	7	10	7	9	6	9	12	16	14
Thallium	µg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	-	1.4	1.0	0.7	0.7	1.2	0.5	1.0	0.3	0.7	0.5	0.6	1.0
Uranium	µg/L	-	0.05	0.04	0.03	0.03	0.04	0.03	0.04	0.02	0.03	0.03	0.04	0.04
Vanadium	µg/L	-	0.15	0.13	0.10	0.11	0.15	0.11	0.14	0.09	0.10	0.14	0.19	0.26
Zinc	µg/L	-	2.3	2.0	2.0	2.4	1.2	1.8	1.9	1.6	1.0	6.8 NP	1.1 NP	1.2 NP
Dissolved Metals and Metalloids														
Aluminum	µg/L	97.0	92.5	76.2	62.1	62.6	97.7	54.3	80.7	46.9	57.1	-	-	-
Antimony	µg/L	0.03	0.08	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	-	-	-
Arsenic	µg/L	0.09	0.11	0.09	0.09	0.10	0.10	0.08	0.10	0.08	0.09	-	-	-
Barium	µg/L	3.8	5.2	4.9	2.9	3.1	4.7	3.0	4.2	2.7	3.8	-	-	-

Table 3C-7 Snap Lake Water Quality Results for Samples Collected from the Stream 1 and Stream 27 Stations, 2012

Sample Point:	Units	Stream 1[a]	Stream 27[a]	Stream 1[a]	Stream 27[a]	Stream 1[a]	Stream 27[a]	Stream 1[a]	Stream 27[a]	Stream 1[a]	Stream 27[a]	Stream 1	Stream 1	Stream 1
Date Sampled (yyyy-mm-dd):		2012-05-14	2012-05-15	2012-05-18	2012-05-18	2012-05-22	2012-05-22	2012-05-25	2012-05-25	2012-05-28	2012-05-28	2012-07-11	2012-09-01	2012-09-07
Sample Control Number:		2012-0889	2012-0941	2012-0950	2012-0951	2012-1005	2012-1006	2012-1038	2012-1039	2012-1053	2012-1054	2012-5189	2012-5236	2012-5276
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
Boron	µg/L	4	3	3	3	3	3	2	2	3	3	-	-	-
Cadmium	µg/L	0.011	0.048 XG	0.005	0.009	<0.005	0.006 XG	<0.005	0.007	<0.005	<0.005	-	-	-
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
Chromium	µg/L	0.47	0.16	0.13	0.13	0.13	0.15	0.11	0.14	0.13	0.12	-	-	-
Cobalt	µg/L	0.44	0.22	0.13	0.20	0.34	0.15	0.18	0.17	0.10	0.10	-	-	-
Copper	µg/L	1.4	1.2	1.0	1.0	1.9 XG	2.6 XG	1.0	1.1	0.9	1.0	-	-	-
Iron	µg/L	181	197	139	247	236	231	189	227	172	124	209[d]	360[d]	354[d]
Lead	µg/L	0.04	0.02	<0.01	0.01	0.02	0.03 XG	0.01	0.01	<0.01	<0.01	-	-	-
Lithium	µg/L	0.9	1.3	1.5	1.3	1.1	1.0	1.1	1.2	1.0	1.0	-	-	-
Manganese	µg/L	29.3	14.4	8.23	10.7	16.0	8.70	6.64	9.44	2.99	5.57	-	-	-
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	-	-
Molybdenum	µg/L	0.09	0.06	0.06	0.08	0.10	0.09 XG	0.09	<0.05	0.08	<0.05	-	-	-
Nickel	µg/L	0.94	0.40	0.39	0.66	0.47	0.61 XG	0.67	0.44	0.44	0.17	-	-	-
Rubidium	µg/L	2	3	2	2	2	2	1	2	1	2	-	-	-
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	-	-	-
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-
Strontium	µg/L	7	12	12	6	7	10	7	9	6	9	-	-	-
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
Titanium	µg/L	1.0	1.1	0.9	0.7	0.4	0.8	0.4	0.7	0.4	0.4	-	-	-
Uranium	µg/L	0.03	0.04	0.04	0.03	0.03	0.04	0.03	0.04	0.02	0.03	-	-	-
Vanadium	µg/L	0.13	0.13	0.11	0.09	0.09	0.13	0.08	0.12	0.07	0.09	-	-	-
Zinc	µg/L	6.4	2.7	1.6	3.3 XG	1.8	1.6	2.3	3.2 XG	2.2 XG	1.6 XG	-	-	-

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency;

· XG = data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) Analytical parameter list varied from standard list because the samples were collected as part of the Surveillance Network Program and lab requests were made for the extended analytical parameters list; total metals were not analyzed for the sample collected on May 14, 2012 from Stream 1.

(b) Field measurements were not collected during the August AEMP program.

(c) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

(d) Dissolved iron was analyzed because the total iron concentration was above the CCME (CCME 1999 with updates to 2012) aquatic life guideline of 300 µg/L (Section 3.2.1)

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates Technology Futures.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre.

Table 3C-8 Snap Lake Water Quality Results for Samples Collected from the Northeast Lake Stations, 2012

Sample Point:	Units	NEL01	NEL02	NEL03	NEL04	NEL05	NEL01	NEL02	NEL03	NEL04	NEL05
Depth:		mid	mid	mid	mid	mid	mid	mid	mid	mid	mid
Date Sampled (yyyy-mm-dd):		2012-02-21	2012-02-21	2012-02-21	2012-02-21	2012-02-21	2012-04-14	2012-04-14	2012-04-14	2012-04-14	2012-04-14
Sample Control Number:		2012-5026	2012-5027	2012-5028	2012-5029	2012-5030	2012-5076	2012-5077	2012-5078	2012-5079	2012-5080
Field Parameters											
pH	unitless	6.1	6.5	6.4	6.3	6.3	6.8	6.2	6.2	6.4	6.3
Specific Conductivity	µS/cm	26	23	24	26	23	27	24	25	27	24
Water Temperature	°C	1.0	0.9	0.8	0.9	0.9	1.2	1.1	1.0	1.2	1.2
Dissolved Oxygen	mg/L	13.9	13.3	14.1	14.9	14.0	13.9	13.7	13.9	14.7	12.9
Conventional Parameters											
Laboratory pH	unitless	7.2 WH	7.2 WH	7.1 WH	7.1 WH	7.1 WH	7.0 WH	7.0 WH	6.8 WH	7.0 WH	6.8 WH
Laboratory Specific Conductivity	µS/cm	26.1	23.9	24.1	25.8	23.6	26.3	24.2	24.3	27.0	24.3
Total Dissolved Solids, measured	mg/L	17 WH	16	20	22	15	24	25	20	17	24
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	15.3 QP	14.0 QP	14.2 QP	14.9 QP	14.9 QP	15.8 QP	14.5 QP	14.1 QP	16.2 QP	14.3 QP
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	11.4 QP	10.5 QP	10.6 QP	11.4 QP	10.9 QP	11.1 QP	10.2 QP	10.4 QP	11.9 QP	10.8 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Turbidity	NTU	0.28	0.40	0.17	0.29	0.31	0.22 WH	0.20 WH	0.21 WH	0.23 WH	0.19 WH
Ions											
Bicarbonate, as HCO_3	mg/L	9	9	8	9	8	9	8	9	10	9
Calcium	mg/L	1.9	1.7	2.0	2.0	1.9	1.9	1.8	1.8	2.1	1.9
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	0.8	0.7	0.7	0.8	0.7	0.7	0.6	0.6	0.7	0.6
Fluoride	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hardness, as $CaCO_3$	mg/L	8	8	9	9	9	9	8	8	9	9
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	0.9	0.9	1.0	1.0	1.0	0.9	0.9	0.9	1.0	0.9
Potassium	mg/L	0.63 QP	0.53 QP	0.79 QP	0.92 QP	0.9 QP	0.63 QP	0.72 QP	0.47 QP	0.85 QP	0.74 QP
Reactive Silica, as SiO_2	mg/L	0.28 NP	0.31 NP	0.3 NP	0.26 NP	0.32 NP	0.26 NP	0.24 NP	0.25 NP	0.26 NP	0.26 NP
Sodium	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sulphate	mg/L	2.2	2.0	2.0	2.2	1.9	2.1	2.0	2.0	2.2	2.0
Total Alkalinity, as $CaCO_3$	mg/L	8	7	6	7	7	8	7	7	8	7
Nutrients											
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	0.0020	<0.0014	<0.0014
Nitrate, as N, calculated	mg-N/L	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH
Nitrate/Nitrite, as N	mg-N/L	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH
Nitrite, as N	mg-N/L	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	0.010	0.011	0.010	0.010	0.011	<0.005	<0.005	<0.005	<0.005	<0.005
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	0.150	0.136	0.131	0.134	0.134	<0.05	0.083	0.068	0.101	<0.05
Total Organic Carbon	mg/L	3.9 NP	3.5 NP	3.5 NP	3.5 NP	4.0 NP	4.7 NP	4.3 NP	3.6 NP	4.4 NP	3.5 NP
Total Organic Phosphorus, calculated	mg-P/L	0.0030	0.0019	0.0021	0.0019	0.0041	0.0028	0.0025	0.0021	0.0024	0.0025
Total Phosphorus	mg-P/L	0.003	0.002	0.002	0.002	0.004	0.003	0.003	0.002	0.002	0.003
Total Metals and Metalloids											
Aluminum	µg/L	3.62 NP	3.68 NP	3.37 NP	4.08 NP	4.13 NP	3.67 NP	3.44 NP	3.47 NP	3.41 NP	3.45 NP
Antimony	µg/L	0.39 NP	0.45 NP	0.89 NP	0.37 NP	0.51 NP	0.87 NP	0.64 NP	0.28 NP	0.41 NP	0.28 NP
Arsenic	µg/L	0.09	0.08	0.09	0.10	0.09	0.08	0.09	0.09	0.09	0.09
Barium	µg/L	3.6	3.2	3.4	3.5	3.3	3.5	3.3	3.2	3.6	3.2
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	3.7 NP	2.8 NP	4.6 NP	3.5 NP	2.1 NP	3.1 NP	3.0 NP	2.9 NP	2.7 NP	2.7 NP
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	0.003 NP	0.002 NP	0.003 NP	0.002 NP	<0.002 NP	0.006 NP	0.014 NP	0.005 NP	0.002 NP	0.005 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.27	<0.06	0.16	0.19	0.06	<0.06	<0.06	0.07	0.06	0.07
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	0.01 QP	0.01 QP	<0.01	0.01 QP	0.01 QP	0.01 QP	<0.01	<0.01	<0.01	0.01 QP
Copper	µg/L	0.53 NP	0.52 NP	0.54 NP	0.56 NP	0.55 NP	0.65 NP	0.58 NP	0.55 NP	0.58 NP	0.59 NP
Iron	µg/L	7	6	5	9	6	5	5	5	5	5
Lead	µg/L	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP
Lithium	µg/L	1.6	1.5	1.6	1.5	1.4	1.5	1.4	1.3	1.5	1.4
Manganese	µg/L	1.92	1.90	1.74	2.05	1.84	1.85	1.83	1.80	1.98	1.74
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005
Molybdenum	µg/L	0.06	0.06	0.06	0.06	0.06	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	0.34	0.29	0.30	0.34	0.32	0.33	0.31	0.28	0.34	0.33
Rubidium	µg/L	2	2	2	2	2	2	2	1	2	1
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	11	11	11	12	11	13	12	12	13	12
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1
Uranium	µg/L	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	3.9 NP	<0.8 NP	<0.8 NP	1.2 NP	<0.8 NP	0.8 NP	0.9 NP	<0.8 NP	1.7 NP	2.0 NP

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

(b) Hexavalent chromium sample was not received at ALS Canada Ltd.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates Technology Futures.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre.

Table 3C-8 Snap Lake Water Quality Results for Samples Collected from the Northeast Lake Stations, 2012 (continued)

Sample Point:	Units	NEL01	NEL02	NEL03	NEL04	NEL05	NEL01	NEL02	NEL03	NEL04	NEL05
Depth:		**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**
Date Sampled (yyyy-mm-dd):		**2012-07-10**	**2012-07-10**	**2012-07-10**	**2012-07-10**	**2012-07-10**	**2012-09-08**	**2012-09-08**	**2012-09-08**	**2012-09-08**	**2012-09-08**
Sample Control Number:		**2012-5176**	**2012-5177**	**2012-5178**	**2012-5179**	**2012-5180**	**2012-5254**	**2012-5255**	**2012-5256**	**2012-5257**	**2012-5258**
Field Parameters											
pH	unitless	6.5	6.2	6.2	6.3	6.2	7.0	6.7	6.6	6.6	6.6
Specific Conductivity	µS/cm	22	22	22	22	22	20	19	20	20	20
Water Temperature	°C	13.8	13.1	13.3	12.6	13.2	13.1	13.2	13.1	13.3	13.1
Dissolved Oxygen	mg/L	10.7	10.9	10.1	10.9	10.9	9.8	9.9	9.8	9.8	9.9
Conventional Parameters											
Laboratory pH	unitless	7.3 WH	7.1 WH	7.1 WH	7.1 WH	7.1 WH	7.0 WH	7.0 WH	7.0 WH	7.0 WH	7.0 WH
Laboratory Specific Conductivity	µS/cm	20.2	20	20	20	20	19	19	19	20	19
Total Dissolved Solids, measured	mg/L	15 WH	24 WH	16 WH	18 WH	17 WH	13	14	20	10	16
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	13.6 QP	13.3 QP	13.3 QP	13.3 QP	12.8 QP	14.3 QP	12.8 QP	14.2 QP	13.1 QP	13.1 QP
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	10.2 QP	10.0 QP	9.9 QP	10.0 QP	9.6 QP	10.4 QP	9.2 QP	9.4 QP	9.6 QP	9.6 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Turbidity	NTU	0.22 WH	0.31 WH	0.21 WH	0.22 WH	0.44 WH	0.38 WH	0.42 WH	0.39 WH	0.37 WH	0.39 WH
Ions											
Bicarbonate, as HCO_3	mg/L	8	8	8	8	8	8	7	8	8	8
Calcium	mg/L	1.8	1.9	1.8	1.9	1.7	1.7	1.6	1.6	1.7	1.7
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.7	0.7
Fluoride	mg/L	0.06	0.06	0.06	0.05	<0.05	0.08	<0.05	<0.05	<0.05	<0.05
Hardness, as $CaCO_3$	mg/L	8	8	8	8	8	8	7	7	8	8
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8
Potassium	mg/L	0.63 QP	0.72 QP	0.64 QP	0.72 QP	0.68 QP	0.66 QP	0.55 QP	0.66 QP	0.65 QP	0.64 QP
Reactive Silica, as SiO_2	mg/L	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP
Sodium	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sulphate	mg/L	2.1	2.0	2.0	2.0	2.0	2.1	2.0	1.9	1.9	1.9
Total Alkalinity, as $CaCO_3$	mg/L	7	6	6	6	6	7	6	6	6	6
Nutrients											
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	0.0019	0.0017	0.0068	0.0015	0.0026	<0.0014	<0.0014	<0.0014
Nitrate, as N, calculated	mg-N/L	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	0.014 WH	0.026 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH
Nitrate/Nitrite, as N	mg-N/L	0.010 WH	<0.006 WH	<0.006 WH	<0.006 WH	0.029 WH	0.026 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH
Nitrite, as N	mg-N/L	0.007 WH	<0.002 WH	<0.002 WH	<0.002 WH	0.0147 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Dissolved Phosphorus	mg-P/L	<0.001	0.001	0.002	0.002	0.007	0.002	0.003	0.001	0.001	0.001
Total Inorganic Phosphorus	mg-P/L	0.001	0.003	0.002	0.002	0.005	0.001	0.002	0.001	0.001	0.001
Total Kjeldahl Nitrogen	mg-N/L	0.100	<0.05	0.101	0.145	0.14	0.15	0.13	0.15	0.10	0.12
Total Organic Carbon	mg/L	3.4 NP	3.3 NP	3.4 NP	3.3 NP	3.2 NP	4.0 NP	3.6 NP	4.8 NP	3.5 NP	3.5 NP
Total Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	0.0020	0.0016	0.0020	0.0019	<0.0014
Total Phosphorus	mg-P/L	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003
Total Metals and Metalloids											
Aluminum	µg/L	6.56 NP	5.65 NP	6.11 NP	6.29 NP	6.4 NP	6.35 NP	6.1 NP	5.99 NP	6.74 NP	7.35 NP
Antimony	µg/L	0.07 NP	0.04 NP	0.05 NP	0.04 NP	0.05 NP	0.07 NP	0.03 NP	0.03 NP	<0.02	0.02 NP
Arsenic	µg/L	0.08	0.08	0.07	0.07	0.07	0.08	0.08	0.07	0.08	0.07
Barium	µg/L	2.9	3.0	2.9	3.0	3.0	2.8	2.9	2.8	3.2	2.8
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	3.0 NP	2.3 NP	3.4 NP	2.3 NP	2.3 NP	1.7 NP	1.7 NP	1.6 NP	1.6 NP	1.9 NP
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	<0.002 NP	<0.002 NP	<0.002 NP	<0.002 NP	0.002 NP	<0.002 NP	0.002 NP	<0.002 NP	0.004 NP	<0.002 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	-[(b)]	-[(b)]	<1	<1	<1
Cobalt	µg/L	0.02 QP	0.02 QP	0.01 QP	0.03 QP	0.02 QP	0.02 QP	0.02 QP	0.02 QP	0.02 QP	0.02 QP
Copper	µg/L	0.51 NP	0.49 NP	0.51 NP	0.51 NP	0.5 NP	0.51 NP	0.48 NP	0.45 NP	0.48 NP	0.58 NP
Iron	µg/L	10	9	9	10	9	10	10	11	11	12
Lead	µg/L	<0.01 QP	0.02 QP	<0.01 QP	0.03 QP	<0.01 QP	0.03 QP	<0.01 QP	0.01 QP	<0.01 QP	0.03 QP
Lithium	µg/L	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	3.3
Manganese	µg/L	2.49	2.44	2.39	2.44	2.44	4.22	4.32	4.39	4.48	5.12
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Molybdenum	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	0.31	0.32	0.30	0.36	0.32	0.24	0.22	0.19	0.23	0.23
Rubidium	µg/L	1	1	1	1	1	1	1	1	1	1
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	10	10	10	10	10	11	10	10	10	10
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	0.1	<0.1	0.2	<0.1	0.1	<0.1	<0.1
Uranium	µg/L	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	1.0 NP	<0.8 NP	1.3 NP	2.0 NP	1.0 NP	1.4 NP	<0.8 NP	<0.8 NP	2.0 NP	1.5 NP

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

(b) Hexavalent chromium sample was not received at ALS Canada Ltd.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates Technology Futures.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre.

Table 3C-9 Snap Lake Water Quality Results for Samples Collected from the King Lake Stations, 2012

Sample Point:	Units	KING01	KING01	KING01	KING01
Depth:		mid	mid	mid	mid
Date Sampled (yyyy-mm-dd):		2012-01-14	2012-04-17	2012-07-13	2012-09-10
Sample Control Number:		2012-5001	2012-5115	2012-5198	2012-5275
Field Parameters					
pH	unitless	6.3	7.3	7.6	7.0
Specific Conductivity	µS/cm	28	30	23	23
Water Temperature	°C	0.4	0.7	16.8	11.9
Dissolved Oxygen	mg/L	16.2	15.8	9.5	10.5
Conventional Parameters					
Laboratory pH	unitless	7.1 WH	7.0 WH	7.0 WH	7.1 XH
Laboratory Specific Conductivity	µS/cm	28	29	21	22
Total Dissolved Solids, measured	mg/L	27	19	23	15 WH
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	13.1 QP	17.7 QP	12.9 QP	13.3 QP
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	13.6 QP	14.0 QP	9.3 QP	10.2 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3 WH
Turbidity	NTU	0.22 WH	0.15 WH	0.31 WH	0.38 WH
Ions					
Bicarbonate, as HCO_3	mg/L	8	9	7	7
Calcium	mg/L	2.5	2.3	1.8	1.7
Carbonate, as CO_3	mg/L	<5	<5	<5	<5
Chloride	mg/L	2.0	2.5	1.3	1.7
Fluoride	mg/L	<0.05	0.06	<0.05	0.05
Hardness, as $CaCO_3$	mg/L	10	9	7	8
Hydroxide, as OH	mg/L	<5	<5	<5	<5
Magnesium	mg/L	0.9	0.8	0.7	0.8
Potassium	mg/L	0.61 QP	0.64 QP	0.55 QP	0.55 QP
Reactive Silica, as SiO_2	mg/L	0.41 NP	0.42 NP	<0.5 NP	<0.5 NP
Sodium	mg/L	1	1	<1	<1
Sulphate	mg/L	1.9	1.9	1.4	1.6
Total Alkalinity, as $CaCO_3$	mg/L	7	7	6	6
Nutrients					
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014
Nitrate, as N, calculated	mg-N/L	0.008 WH	<0.006 WH	<0.006 WH	<0.006 WH
Nitrate/Nitrite, as N	mg-N/L	0.008 WH	<0.006 WH	<0.006 WH	<0.006 WH
Nitrite, as N	mg-N/L	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	<0.005	<0.005	<0.005	<0.005
Total Dissolved Phosphorus	mg-P/L	0.001	<0.001	<0.001	0.001
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	0.09	<0.05	0.06	0.18
Total Organic Carbon	mg/L	3.5 NP	3.7 NP	3.6 NP	3.2 NP
Total Organic Phosphorus, calculated	mg-P/L	0.0021	0.0025	0.0016	0.0033
Total Phosphorus	mg-P/L	0.002	0.003	0.003	0.003
Total Metals and Metalloids					
Aluminum	µg/L	3.61 NP	2.80 NP	11.80 NP	8.25 NP
Antimony	µg/L	<0.02 NP	0.02 NP	<0.02 NP	0.05 NP
Arsenic	µg/L	0.07	0.10	0.09	0.09
Barium	µg/L	3.0	3.6	3.1	3.4

Table 3C-9 Snap Lake Water Quality Results for Samples Collected from the King Lake Stations, 2012

Sample Point:	Units	KING01	KING01	KING01	KING01
Depth:		mid	mid	mid	mid
Date Sampled (yyyy-mm-dd):		2012-01-14	2012-04-17	2012-07-13	2012-09-10
Sample Control Number:		2012-5001	2012-5115	2012-5198	2012-5275
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	3.5 NP	3.2 NP	4.0 NP	2.6 NP
Cadmium	µg/L	<0.005	<0.005	<0.005	0.010
Cadmium (Alberta Innovates)	µg/L	<0.002 NP	0.044 NP	0.001 NP	0.005 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.12	0.10	<0.06	0.06
Hexavalent Chromium	µg/L	<1	<1	<1	<1
Cobalt	µg/L	0.01 QP	<0.01	0.03 QP	0.04 QP
Copper	µg/L	0.55 NP	0.58 NP	0.69 NP	0.71 NP
Iron	µg/L	5	4	15	19
Lead	µg/L	<0.01 QP	<0.01 QP	<0.01 QP	0.01 QP
Lithium	µg/L	1.1	1.3	1.2	1.2
Manganese	µg/L	1.63	1.42	2.92	6.85
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005
Molybdenum	µg/L	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	0.32	0.35	0.44	0.47
Rubidium	µg/L	1	2	1	1
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	16	17	13	13
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	0.2	0.1
Uranium	µg/L	0.02	0.02	0.02	0.02
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	<0.8 NP	0.9 NP	<0.8 NP	2.3 NP

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency;

· XH = data invalidated because holding time was exceeded; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates Technology Futures.

< = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre.

Table 3C-10 Snap Lake Water Quality Results for Samples Collected from the Lake 13 Stations, 2012

Sample Point:	Units	LK13[a]			LK13[b]	LK13-01	LK13-02	LK13-03	LK13-04	LK13-05
Depth:					mid	mid	mid	mid	mid	mid
Date Sampled (yyyy-mm-dd):		July 2005			2012-07-10	2012-08-18	2012-08-19	2012-08-19	2012-08-20	2012-08-20
Sample Control Number:		mean	min	max	2012-5186	2012-9001	2012-9002	2012-9003	2012-9004	2012-9005
Field Parameters										
pH	unitless	-	-	-	6.7	6.6	6.7	6.7	6.2	6.8
Specific Conductivity	µS/cm	-	-	-	18	20	19	19	19	19
Water Temperature	°C	-	-	-	17.6	15.2	15.2	15.4	15.3	15.4
Dissolved Oxygen	mg/L	-	-	-	8.6	9.6	9.9	9.8	10.1	10.1
Conventional Parameters										
Laboratory pH	unitless	6.3	6.3	6.4	7.1 WH	7.1 WH	7.1 WH	7.1 WH	7.2 WH	7.1 WH
Laboratory Specific Conductivity	µS/cm	18	18	19	17	19	18	18	18	18
Total Dissolved Solids, measured	mg/L	13	<10	20	<10 WH	<10	<10	<10	16	20
Total Dissolved Solids, calculated (Lab)[c]	mg/L	7.3	7.0	8.0	10.9	9.0	8.0	9.0	13.2	8.3
Total Dissolved Solids, calculated (Standard Methods)[c]	mg/L	-	-	-	7.9	9.0	8.0	9.0	13.2	8.4
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3
Turbidity	NTU	0.23	0.20	0.30	0.23 WH	0.37 WH	0.37 WH	0.35 WH	0.42 WH	0.47 WH
Ions										
Bicarbonate, as HCO_3	mg/L	7	7	8	8	9	7	8	8	8
Calcium	mg/L	1.6	1.5	1.7	1.7	2.1	2.0	2.2	1.8	1.9
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	<1	<1	<1	<0.5	<0.5	<0.5	<0.5	4.7	<0.5
Fluoride	mg/L	-	-	-	<0.05	0.05	0.05	0.05	0.05	0.05
Hardness, as $CaCO_3$	mg/L	6	6	7	7	9	8	9	7	8
Hydroxide, as OH	mg/L	-	-	-	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	0.6	0.6	0.6	0.7	0.8	0.8	0.9	0.6	0.7
Potassium	mg/L	0.5	0.5	0.5	0.6	0.6	0.5	0.6	0.6	0.6
Reactive Silica, as SiO_2	mg/L	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sodium	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sulphate	mg/L	1.2	1.2	1.3	1.0	1.2	1.1	1.2	1.7	1.1
Total Alkalinity, as $CaCO_3$	mg/L	6	5	7	7	7	6	7	6	7
Nutrients										
Dissolved Inorganic Phosphorus	mg-P/L	-	-	-	<0.001	<0.001	<0.001	<0.001	0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	-	-	-	<0.0014	0.0015	0.0018	0.0017	<0.0014	0.0015
Nitrate, as N, calculated	mg-N/L	<0.006	<0.006	<0.006	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH
Nitrate/Nitrite, as N	mg-N/L	<0.006	<0.006	<0.006	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH
Nitrite, as N	mg-N/L	<0.002	<0.002	<0.002	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH
ortho-Phosphate, as P	mg-P/L	<0.001	<0.001	<0.001	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Dissolved Phosphorus	mg-P/L	-	-	-	<0.001	0.002	0.002	0.002	<0.001	0.002
Total Inorganic Phosphorus	mg-P/L	-	-	-	<0.001	0.002	0.002	0.003	0.003	0.002
Total Kjeldahl Nitrogen	mg-N/L	0.15	0.12	0.21	0.13	0.08	0.07	0.11	0.15	0.14
Total Organic Carbon	mg/L	3.5	3.0	4.0	3	3.5	3.8	3.5	4.2	3.4
Total Organic Phosphorus, calculated	mg-P/L	-	-	-	0.0018	0.0021	0.0020	0.0015	<0.0014	<0.0014
Total Phosphorus	mg-P/L	0.003	0.002	0.003	0.002	0.004	0.004	0.005	0.003	0.003
Total Metals and Metalloids										
Aluminum	µg/L	7.22	5.60	8.30	9.84	7.09	7.09	6.46	7.06	7.6
Antimony	µg/L	-	-	-	<0.02	0.02	0.02	0.02	<0.02	<0.02
Arsenic	µg/L	0.12	0.11	0.12	0.11	0.13	0.12	0.12	0.13	0.12
Barium	µg/L	1.9	1.8	2.0	1.8	1.9	1.6	1.5	1.5	1.6
Beryllium	µg/L	<0.2	<0.2	<0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.03	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	1.0	1.0	1.0	2	9.8	2.6	2.4	2.3	2.5
Cadmium	µg/L	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	-	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.08	<0.06	0.13	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Hexavalent Chromium	µg/L	<0.001	<0.001	<0.001	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	<0.1	<0.1	<0.1	0.01	0.02	0.02	0.02	0.02	0.02
Copper	µg/L	<0.6	<0.6	<0.6	0.4	0.5	0.4	0.4	0.4	0.4
Iron	µg/L	13	11	15	10	19	14	12	13	14
Lead	µg/L	0.05	<0.05	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	µg/L	1.1	1.0	1.2	1.3	1.2	1.2	1.3	1.2	1.3
Manganese	µg/L	2.37	2.20	2.50	1.92	5.34	5.09	4.22	4.54	4.51
Mercury	µg/L	0.01	0.01	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Molybdenum	µg/L	<0.06	<0.06	<0.06	<0.05	0.14	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	0.25	0.23	0.27	0.17	0.27	0.17	0.19	0.17	0.17
Rubidium	µg/L	1	1	1	1	1	1	1	1	1
Selenium	µg/L	<0.4	<0.4	<0.4	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	0.010	0.009	0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	8	8	9	9	10	9	9	9	9
Thallium	µg/L	<0.03	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	0.1	<0.1	0.2	<0.1	<0.1	<0.1	0.1	<0.1	0.1
Uranium	µg/L	<0.05	<0.05	<0.05	0.01	0.04	0.01	0.01	0.01	0.02
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	0.9	<0.8	1.0	<0.8	<0.8	1.4	<0.8	<0.8	1.9

Notes:

Water samples LK13-01 to LK13-05 were collected as pat of the Suitability of Provisional Reference Lake 13 as a Reference Lake Special Study (Section 12.3). Therefore, the collected data were validated under the quality assurance and quality control criteria developed for the program, and no flags were assigned.

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) 2005 summary statistics for Lake 13 were obtained from the Field Investigation and Reference Lake Selection Study completed in 2005 (Golder 2005).

(b) Sample was collected for the fish health component (Section 7) as part of 2012 AEMP.

(c) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated the using formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates Technology Futures.

Table 3C-3 Snap Lake Water Quality Results for Samples Collected from the Mid-Field Stations, 2012

Sample Point:	Units	SNAP09	SNAP11A	SNAP09	SNAP11A	SNAP09	SNAP11A	SNAP09	SNAP11A
Depth:		mid	mid	mid	mid	mid	mid	mid	mid
Date Sampled (yyyy-mm-dd):		2012-02-17	2012-02-17	2012-04-16	2012-04-16	2012-07-12	2012-07-12	2012-09-13	2012-09-13
Sample Control Number:		2012-5021	2012-5022	2012-5105	2012-5107	2012-5190	2012-5195	2012-5244	2012-5246
Field Parameters									
pH	unitless	6.8	6.9	6.7	6.6	7.3	7.5	7.2	7.2
Specific Conductivity	µS/cm	444	472	481	496	386	385	396	396
Water Temperature	°C	1.6	1.4	1.7	1.6	16.8	14.8	11.3	11.4
Dissolved Oxygen	mg/L	10.6	11.5	12.4	13.0	9.7	10.5	10.8	10.7
Conventional Parameters									
Laboratory pH	unitless	7.5 WH	7.5 WH	7.2 WH	7.3 WH	7.2 WH	7.4 WH	7.6 WH	7.6 WH
Laboratory Specific Conductivity	µS/cm	417	444	449	466	386	385	402	403
Total Dissolved Solids, measured	mg/L	251	253	337	351	297 WH	297 WH	271 WH	271 WH
Total Dissolved Solids, calculated (Lab) [a]	mg/L	208 QP	214 QP	216 QP	225 QP	184 QP	186 QP	193 QP	192 QP
Total Dissolved Solids, calculated (Standard Methods) [a]	mg/L	204 QP	210 QP	220 QP	229 QP	180 QP	182 QP	190 QP	191 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3 WH	<3 WH
Turbidity	NTU	0.19 WH	0.18 WH	0.13 WH	0.13 WH	0.25 WH	0.23 WH	0.35 WH	0.35 WH
Ions									
Bicarbonate, as HCO_3	mg/L	25	26	29	30	28	25	27	27
Calcium	mg/L	44.3	42.1	44.5	46.9	36.2	37.3	35.8	37.4
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	90.3	96.2	99.7	102	81.8	82.2	89.1	88.8
Fluoride	mg/L	0.13	0.14	0.14	0.14	0.10	0.08	0.16	0.15
Hardness, as $CaCO_3$	mg/L	133	126	134	141	109	113	110	112
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	5.4	5.2	5.6	5.9	4.6	4.8	4.9	4.6
Potassium	mg/L	2.14 QP	2.14 QP	1.99 QP	2.27 QP	1.62 QP	1.77 QP	1.78 QP	1.87 QP
Reactive Silica, as SiO_2	mg/L	1.09 NP	1.15 NP	1.19 NP	1.25 NP	0.78 NP	0.82 NP	0.66 NP	0.68 NP
Sodium	mg/L	23	22	22	24	17	19	19	19
Sulphate	mg/L	17.6	18.8	19.3	19.8	15.2	16.1	18.1	17.8
Total Alkalinity, as $CaCO_3$	mg/L	20	21	23	24	23	20	22	22
Nutrients									
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014
Nitrate, as N, calculated	mg-N/L	1.78 WH	2.03 WH	2.52 WH	2.69 WH	1.83 WH	1.79 WH	1.68 WH	1.66 WH
Nitrate/Nitrite, as N	mg-N/L	1.79 WH	2.05 WH	2.54 WH	2.71 WH	1.85 WH	1.81 WH	1.69 WH	1.67 WH
Nitrite, as N	mg-N/L	0.012 WH	0.017 WH	0.016 WH	0.018 WH	0.016 WH	0.016 WH	0.012 WH	0.012 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	0.159	0.205	0.202	0.217	0.103	0.099	0.054	0.058
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	0.002	0.002	<0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	0.37	0.51	0.36	0.45	0.26	0.31	0.46	0.46
Total Organic Carbon	mg/L	3.5 NP	3.6 NP	3.7 NP	3.3 NP	3.6 NP	3.5 NP	3.1 NP	3.1 NP
Total Organic Phosphorus, calculated	mg-P/L	<0.0014	0.0018	0.0021	0.0030	<0.0014	<0.0014	0.0027	0.0023
Total Phosphorus	mg-P/L	<0.001	0.002	0.002	0.003	<0.001	<0.001	0.003	0.002
Total Metals and Metalloids									
Aluminum	µg/L	2.44 NP	3.54 NP	2.67 NP	2.83 NP	5.93 NP	4.96 NP	5.38 NP	7.08 NP
Antimony	µg/L	0.95 NP	1.83 NP	0.36 NP	0.25 NP	0.08 NP	0.07 NP	0.05 NP	0.11 NP
Arsenic	µg/L	0.09	0.10	0.10	0.11	0.09	0.08	0.09	0.09
Barium	µg/L	19.7	20.7	21.8	22.5	17.4	17.1	19.8	19.7
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	36.0 NP	39.4 NP	44.9 NP	46.6 NP	38.3 NP	36 NP	37.3 NP	38.7 NP
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	0.008
Cadmium (Alberta Innovates)	µg/L	0.008 NP	0.006 NP	0.007 NP	0.009 NP	0.004 NP	0.004 NP	0.006 NP	0.005 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.13	0.25	0.13	0.13	0.06	<0.06	<0.06	0.07
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	0.021 QP	0.035 QP	0.025 QP	0.030 QP	0.020 QP	0.018 QP	0.014 QP	0.018 QP
Copper	µg/L	0.44 NP	0.40 NP	0.40 NP	0.41 NP	0.42 NP	0.41 NP	0.45 NP	0.48 NP
Iron	µg/L	4	4	3	3	6	5	5	7
Lead	µg/L	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	0.03 QP
Lithium	µg/L	7.8	8.7	8.9	9.4	8.0	7.9	7.0	7.0
Manganese	µg/L	6.73	6.98	6.70	7.41	3.58	3.30	5.08	5.15
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Molybdenum	µg/L	0.87	1.04	1.04	1.13	0.84	0.78	0.96	0.96
Nickel	µg/L	1.06	1.30	1.40	1.60	1.06	0.95	0.86	0.88
Rubidium	µg/L	4	4	4	4	3	3	4	4
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	556	602	618	641	500	499	537	537
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.11	0.13	0.11	0.12	0.12	0.11	0.13	0.13
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	<0.8 NP	<0.8 NP	1.3 NP	1.3 NP	2.4 NP	<0.8 NP	<0.8 NP	2.6 NP

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates Technology Futures.

< = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams as per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre.

Table 3C-2 Snap Lake Water Quality Results for Samples Collected from the Near-Field Stations, 2012 (continued)

Sample Point:	Units	SNAP03	SNAP05	SNAP06	SNAP12	SNAP26	SNAP28	SNAP03	SNAP05	SNAP06	SNAP12	SNAP26	SNAP28
Depth:		mid	mid	mid	mid	mid	mid	mid	mid	mid	mid	mid	mid
Date Sampled (yyyy-mm-dd):		2012-07-07	2012-07-07	2012-07-13	2012-07-13	2012-07-11	2012-07-11	2012-09-07	2012-09-11	2012-09-11	2012-09-07	2012-09-07	2012-09-07
Sample Control Number:		2012-5150	2012-5152	2012-5172	2012-5192	2012-5188	2012-5187	2012-5238	2012-5240	2012-5241	2012-5247	2012-5248	2012-5249
Field Parameters													
pH	unitless	7.2	7.3	6.8	6.4	6.6	7.2	7.3	7.3	7.1	7.1	7.0	6.6
Specific Conductivity	µS/cm	388	391	382	387	397	405	363	401	405	363	370	369
Water Temperature	°C	13.6	13.5	16.4	16.1	16.0	14.7	13.3	12.0	12.1	13.3	12.9	13.3
Dissolved Oxygen	mg/L	10.2	10.2	9.6	9.7	10.7	10.7	11.0	10.7	10.1	11.2	11.0	10.9
Conventional Parameters													
Laboratory pH	unitless	7.6 WH	7.6 WH	7.1 WH	7.4 WH	7.6 WH	7.5 WH	7.4 WH	7.6 WH	7.6 WH	7.4 WH	7.4 WH	7.5 WH
Laboratory Specific Conductivity	µS/cm	396	393	387	391	394	403	408	411	414	411	417	416
Total Dissolved Solids, measured	mg/L	271	274	309	310	288	300	289	268	284	290	289	295
Total Dissolved Solids, calculated (Lab) [(a)]	mg/L	184 QP	185 QP	187 QP	184 QP	196 QP	194 QP	196 QP	195 QP	196 QP	196 QP	198 QP	200 QP
Total Dissolved Solids, calculated (Standard Methods) [(a)]	mg/L	183 QP	185 QP	183 QP	184 QP	192 QP	194 QP	196 QP	191 QP	193 QP	196 QP	198 QP	200 QP
Total Suspended Solids	mg/L	<3	<3	<3	-	<3	-	<3	<3	<3	-	<3	-
Turbidity	NTU	0.38 WH	0.52 WH	0.26 WH	-	0.30 WH	-	0.32 WH	0.46 WH	0.43 WH	-	0.32 WH	-
Ions													
Bicarbonate, as HCO_3	mg/L	25	24	27	25	25	25	26	26	27	27	27	27
Calcium	mg/L	36.5	36.6	36.8	37.3	40.2	40.0	39.7	36.8	36.6	38.9	40.2	41.0
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	84.1	84.7	83.4	83.2	85.2	87.5	90.7	89.1	90.3	91.3	90.8	91.0
Fluoride	mg/L	0.11	0.12	0.10	0.11	0.13	0.13	0.11	0.10	0.10	0.10	0.10	0.09
Hardness, as $CaCO_3$	mg/L	109	109	111	112	121	120	120	110	110	117	121	124
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	4.3	4.3	4.6	4.7	5.1	5.0	5.0	4.5	4.4	4.8	4.9	5.2
Potassium	mg/L	1.84 QP	1.91 QP	1.58 QP	1.71 QP	1.90 QP	1.85 QP	1.94 QP	2.10 QP	2.02 QP	1.91 QP	1.91 QP	2.01 QP
Reactive Silica, as SiO_2	mg/L	0.95 NP	0.99 NP	0.82 NP	0.92 NP	0.96 NP	1.07 NP	0.93 NP	0.89 NP	0.93 NP	0.96 NP	1.01 NP	1.00 NP
Sodium	mg/L	18	18	18	18	20	20	19	20	21	19	20	21
Sulphate	mg/L	16.8	17.7	16.6	16.5	16.9	17.1	17.3	16.4	16.6	17.3	17.3	17.3
Total Alkalinity, as $CaCO_3$	mg/L	21	20	22	21	21	21	22	22	22	22	22	22
Nutrients													
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	-	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	-
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	0.0015	<0.0014	-	<0.0014	-	<0.0014	<0.0014	<0.0014	-	<0.0014	-
Nitrate, as N, calculated	mg-N/L	1.94 WH	1.92 WH	1.90 WH	2.03 WH	2.09 WH	2.09 WH	1.85 WH	1.77 WH	1.83 WH	1.86 WH	1.96 WH	1.97 WH
Nitrate/Nitrite, as N	mg-N/L	1.96 WH	1.93 WH	1.91 WH	2.05 WH	2.11 WH	2.11 WH	1.86 WH	1.78 WH	1.85 WH	1.88 WH	1.98 WH	1.99 WH
Nitrite, as N	mg-N/L	0.018 WH	0.017 WH	0.017 WH	0.019 WH	0.021 WH	0.022 WH	0.016 WH	0.011 WH	0.013 WH	0.017 WH	0.019 WH	0.019 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	-	<0.001 WH	-	<0.001 WH	<0.001 WH	<0.001 WH	-	<0.001 WH	-
Total Ammonia, as N	mg-N/L	0.128	0.126	0.104	-	0.132	-	0.074	0.064	0.070	-	0.091	-
Total Dissolved Phosphorus	mg-P/L	0.001	0.002	<0.001	-	<0.001	-	<0.001	<0.001	0.001	-	<0.001	-
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	-	0.001	-	0.001	<0.001	0.003	-	0.002	-
Total Kjeldahl Nitrogen	mg-N/L	0.422	0.480	0.233	-	0.399	-	0.10	0.37	0.34	-	0.35	-
Total Organic Carbon	mg/L	3.3 NP	3.2 NP	3.4 NP	-	3.3 NP	-	5.7 NP	3.8 NP	3.3 NP	-	4.6 NP	-
Total Organic Phosphorus, calculated	mg-P/L	0.0025	0.0024	<0.0014	-	<0.0014	-	<0.0014	0.0019	<0.0014	-	<0.0014	-
Total Phosphorus	mg-P/L	0.003	0.002	<0.001	-	0.001	-	0.001	0.002	0.002	-	0.002	-
Total Metals and Metalloids													
Aluminum	µg/L	5.35 NP	5.32 NP	5.72 NP	-	5.95 NP	-	5.37 NP	5.11 NP	6.16 NP	-	4.83 NP	-
Antimony	µg/L	0.08 NP	0.1 NP	0.09 NP	-	0.09 NP	-	0.1 NP	0.05 NP	0.05 NP	-	0.09 NP	-
Arsenic	µg/L	0.09	0.09	0.09	-	0.09	-	0.08	0.10	0.10	-	0.09	-
Barium	µg/L	17.4	17.4	17.7	-	17.5	-	16.6	19.4	19.5	-	16.8	-
Beryllium	µg/L	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	-
Bismuth	µg/L	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	-
Boron	µg/L	38 NP	37.8 NP	36.8 NP	-	35.8 NP	-	39.1 NP	38.8 NP	41 NP	-	38.5 NP	-
Cadmium	µg/L	0.006	0.006	<0.005	-	<0.005	-	<0.005	<0.005	<0.005	-	<0.005	-
Cadmium (Alberta Innovates)	µg/L	0.009 NP	0.010 NP	0.004 NP	-	0.004 NP	-	_[(b)]	0.005 NP	0.006 NP	-	_[(b)]	-
Cesium	µg/L	<0.1	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	-
Chromium	µg/L	0.12	0.12	<0.06	-	<0.06	-	<0.06	0.08	<0.06	-	<0.06	-
Hexavalent Chromium	µg/L	<1	<1	<1	-	<1	-	<1	<1	<1	-	<1	-
Cobalt	µg/L	0.091 QP	0.030 QP	0.017 QP	-	0.022 QP	-	0.017 QP	0.016 QP	0.019 QP	-	0.025 QP	-
Copper	µg/L	0.43 NP	0.41 NP	0.41 NP	-	0.41 NP	-	0.72 NP	0.44 NP	0.45 NP	-	0.45 NP	-
Iron	µg/L	9	9	6	-	7	-	8	6	5	-	7	-
Lead	µg/L	0.01 QP	<0.01 QP	<0.01 QP	-	<0.01 QP	-	0.02 QP	0.01 QP	<0.01 QP	-	0.02 QP	-
Lithium	µg/L	8.2	7.9	8.0	-	7.2	-	7.6	7.2	7.4	-	7.1	-
Manganese	µg/L	5.04	4.82	3.55	-	4.16	-	4.72	5.23	5.47	-	4.74	-
Mercury	µg/L	<0.02	<0.02	<0.02	-	<0.02	-	<0.02	<0.02	<0.02	-	<0.02	-
Mercury (Flett)	µg/L	0.0007	<0.0005	0.0008	-	<0.0005	-	<0.0005	<0.0005	<0.0005	-	<0.0005	-
Molybdenum	µg/L	0.79	0.79	0.72	-	0.79	-	0.77	0.99	1.06	-	0.79	-
Nickel	µg/L	1.31	1.16	0.99	-	1.15	-	0.97	0.96	0.98	-	0.85	-
Rubidium	µg/L	3	3	3	-	3	-	3	4	4	-	3	-
Selenium	µg/L	<0.04	<0.04	<0.04	-	<0.04	-	0.04	<0.04	<0.04	-	<0.04	-
Silver	µg/L	<0.005	<0.005	<0.005	-	<0.005	-	<0.005	<0.005	<0.005	-	<0.005	-
Strontium	µg/L	511	508	505	-	508	-	562	548	560	-	570	-
Thallium	µg/L	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	-
Titanium	µg/L	<0.1	0.1	<0.1	-	<0.1	-	<0.1	<0.1	0.1	-	<0.1	-
Uranium	µg/L	0.14	0.14	0.11	-	0.13	-	0.16	0.14	0.14	-	0.15	-
Vanadium	µg/L	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-
Zinc	µg/L	0.9 NP	1.9 NP	<0.8 NP	-	9.4 NP	-	2.1 NP	1.5 NP	1.0 NP	-	1.9 NP	-

Notes:

SNAP12 and SNAP28 are TDS stations, so a reduced parameter suite was analyzed.

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

- NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;
- QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency; and,
- WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

(b) Cadmium sample was not received at Alberta Innovates Technology Futures.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates Technology Futures.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

Table 3C-2 Snap Lake Water Quality Results for Samples Collected from the Near-Field Stations, 2012

Sample Point:	Units	SNAP03	SNAP03	SNAP05	SNAP06	SNAP12	SNAP26	SNAP28	SNAP03	SNAP05	SNAP06	SNAP12	SNAP26	SNAP28
Depth:		**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**
Date Sampled (yyyy-mm-dd):		**2012-01-14**	**2012-02-18**	**2012-02-18**	**2012-02-17**	**2012-02-18**	**2012-02-18**	**2012-02-18**	**2012-04-17**	**2012-04-17**	**2012-04-16**	**2012-04-17**	**2012-04-17**	**2012-04-17**
Sample Control Number:		**2012-5008**	**2012-5032**	**2012-5034**	**2012-5024**	**2012-5035**	**2012-5037**	**2012-5036**	**2012-5109**	**2012-5111**	**2012-5102**	**2012-5112**	**2012-5113**	**2012-5114**
Field Parameters														
pH	unitless	6.6	7.0	7.0	6.9	6.9	6.9	6.9	6.6	6.8	6.7	6.8	7.0	7.0
Specific Conductivity	µS/cm	465	511	503	481	498	478	481	527	519	525	522	508	525
Water Temperature	°C	1.1	1.1	1.3	1.4	1.1	1.0	1.0	1.5	1.6	1.5	1.5	1.3	1.5
Dissolved Oxygen	mg/L	15.4	14.3	13.9	11.8	14.1	15.0	15.0	14.5	14.3	13.7	14.4	15.0	14.4
Conventional Parameters														
Laboratory pH	unitless	7.5 WH	7.5 WH	7.5 WH	7.6 WH	7.5 WH	7.5 WH	7.5 WH	7.4 WH	7.3 WH	7.3 WH	7.3 WH	7.4 WH	7.4 WH
Laboratory Specific Conductivity	µS/cm	455	471	471	447	434	449	452	513	505	501	454	494	495
Total Dissolved Solids, measured	mg/L	254	278	280	264	261	208	271	325	350	371	314	334	331
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	212 QP	236 QP	239 QP	222 QP	209 QP	227 QP	227 QP	252 QP	245 QP	248 QP	222 QP	242 QP	235 QP
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	214 QP	231 QP	235 QP	218 QP	209 QP	222 QP	227 QP	248 QP	248 QP	253 QP	227 QP	238 QP	246 QP
Total Suspended Solids	mg/L	<3	<3	3	<3	-	<3	-	<3	<3	<3	-	<3	-
Turbidity	NTU	0.15 WH	0.20 WH	0.19 WH	0.14 WH	-	0.14 WH	-	0.17 WH	0.21 WH	0.17 WH	-	0.16 WH	-
Ions														
Bicarbonate, as HCO_3	mg/L	25	28	29	26	25	28	27	32	32	31	39	31	31
Calcium	mg/L	41.7	47.5	48.9	46.5	42.0	47.0	48.7	47.0	48.4	50.9	44.6	45.6	51.4
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	98.5	104	105	97.5	96.2	99.3	100	113	113	113	101	110	109
Fluoride	mg/L	0.12	0.15	0.15	0.14	0.14	0.14	0.15	0.15	0.15	0.15	0.13	0.15	0.16
Hardness, as $CaCO_3$	mg/L	126	143	147	140	126	141	147	142	146	153	134	138	155
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	5.2	5.9	6.0	5.7	5.1	5.9	6.2	6.0	6.1	6.3	5.6	5.8	6.4
Potassium	mg/L	2.04 QP	2.31 QP	2.33 QP	2.25 QP	1.93 QP	2.38 QP	2.29 QP	2.31 QP	2.26 QP	2.47 QP	2.01 QP	2.12 QP	2.43 QP
Reactive Silica, as SiO_2	mg/L	1.18 NP	1.33 NP	1.39 NP	1.00 NP	1.06 NP	1.02 NP	1.18 NP	1.59 NP	1.58 NP	1.57 NP	1.02 NP	1.28 NP	1.43 NP
Sodium	mg/L	23	25	26	25	22	25	25	25	25	27	23	24	27
Sulphate	mg/L	19.4	20.5	20.5	18.9	18.8	19.3	19.6	22.6	22.2	22.3	19.5	21.3	21.8
Total Alkalinity, as $CaCO_3$	mg/L	21	23	24	21	21	23	22	26	26	25	32	25	25
Nutrients														
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	-	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	-
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014	-	<0.0014	-	0.0019	0.0019	<0.0014	-	0.0031	-
Nitrate, as N, calculated	mg-N/L	2.36 WH	2.27 WH	2.31 WH	1.97 WH	1.98 WH	1.84 WH	2.13 WH	3.22 WH	2.90 WH	3.07 WH	2.48 WH	2.78 WH	2.51 WH
Nitrate/Nitrite, as N	mg-N/L	2.38 WH	2.29 WH	2.34 WH	1.99 WH	1.99 WH	1.85 WH	2.15 WH	3.24 WH	2.93 WH	3.09 WH	2.50 WH	2.80 WH	2.54 WH
Nitrite, as N	mg-N/L	0.025 WH	0.024 WH	0.024 WH	0.015 WH	0.016 WH	0.012 WH	0.019 WH	0.027 WH	0.023 WH	0.022 WH	0.016 WH	0.018 WH	0.024 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	-	<0.001 WH	-	<0.001 WH	<0.001 WH	<0.001 WH	-	<0.001 WH	-
Total Ammonia, as N	mg-N/L	0.253	0.255	0.261	0.168	-	0.140	-	0.298	0.260	0.259	-	0.219	-
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	-	<0.001	-	0.002	0.002	<0.001	-	0.003	-
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	-	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	-
Total Kjeldahl Nitrogen	mg-N/L	0.506	0.526	0.491	0.459	-	0.426	-	0.458	0.650	0.621	-	0.370	-
Total Organic Carbon	mg/L	3.5 NP	3.7 NP	3.7 NP	3.7 NP	-	4.1 NP	-	3.7 NP	3.7 NP	3.8 NP	-	4 NP	-
Total Organic Phosphorus, calculated	mg-P/L	0.0020	0.0021	0.0024	0.0017	-	0.0015	-	0.0125	0.0024	0.0020	-	0.0036	-
Total Phosphorus	mg-P/L	0.002	0.002	0.002	0.002	-	0.002	-	0.013	0.002	0.002	-	0.004	-
Total Metals and Metalloids														
Aluminum	µg/L	3.43 NP	3.07 NP	2.86 NP	2.66 NP	-	3.2 NP	-	3.46 NP	3.17 NP	3.16 NP	-	2.99 NP	-
Antimony	µg/L	1.24 NP	0.66 NP	1.74 NP	1.46 NP	-	3.27 NP	-	0.28 NP	0.26 NP	0.77 NP	-	1.57 NP	-
Arsenic	µg/L	0.10	0.10	0.12	0.10	-	0.11	-	0.11	0.10	0.10	-	0.11	-
Barium	µg/L	19.3	21.2	21.3	21.1	-	22.9	-	23.3	23.3	23.4	-	23.8	-
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	-
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	-
Boron	µg/L	40.2 NP	41.3 NP	41.9 NP	41 NP	-	40.9 NP	-	49.8 NP	50 NP	48 NP	-	49.5 NP	-
Cadmium	µg/L	<0.005	<0.005	0.005	<0.005	-	<0.005	-	0.008	<0.005	<0.005	-	0.005	-
Cadmium (Alberta Innovates)	µg/L	0.007 NP	0.004 NP	0.009 NP	0.006 NP	-	0.006 NP	-	0.026 NP	0.041 NP	0.007 NP	-	0.027 NP	-
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	-
Chromium	µg/L	0.17	0.19	0.06	0.22	-	0.09	-	0.16	0.19	0.14	-	0.14	-
Hexavalent Chromium	µg/L	<1	<1	<1	<1	-	<1	-	<1	<1	<1	-	<1	-
Cobalt	µg/L	0.041 QP	0.036 QP	0.030 QP	0.037 QP	-	0.020 QP	-	0.045 QP	0.045 QP	0.036 QP	-	0.026 QP	-
Copper	µg/L	0.38 NP	0.45 NP	0.47 NP	0.40 NP	-	0.50 NP	-	0.40 NP	0.38 NP	0.40 NP	-	0.44 NP	-
Iron	µg/L	6	4	4	4	-	5	-	4	4	4	-	4	-
Lead	µg/L	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	-	<0.01 QP	-	<0.01 QP	<0.01 QP	<0.01 QP	-	<0.01 QP	-
Lithium	µg/L	8.1	8.9	8.9	8.8	-	7.9	-	10.0	10.2	9.9	-	10.2	-
Manganese	µg/L	6.79	6.70	6.68	6.67	-	4.72	-	8.94	8.02	8.25	-	6.74	-
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	-	<0.02	-	<0.02	<0.02	<0.02	-	<0.02	-
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	-	0.0006	-	<0.0005	<0.0005	<0.0005	-	<0.0005	-
Molybdenum	µg/L	1.26	1.15	1.14	1.04	-	1.00	-	1.32	1.25	1.22	-	1.14	-
Nickel	µg/L	1.42	1.41	1.39	1.37	-	1.08	-	1.92	1.82	1.78	-	1.54	-
Rubidium	µg/L	4	4	4	4	-	4	-	4	4	4	-	4	-
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	-	<0.04	-	<0.04	<0.04	<0.04	-	<0.04	-
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	-	<0.005	-	<0.005	<0.005	<0.005	-	<0.005	-
Strontium	µg/L	611	635	631	620	-	636	-	688	680	672	-	673	-
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	-	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	-
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	0.2	<0.1	<0.1	-	0.1	-
Uranium	µg/L	0.15	0.15	0.14	0.13	-	0.12	-	0.15	0.14	0.14	-	0.13	-
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	-
Zinc	µg/L	<0.8 NP	<0.8 NP	1.3 NP	<0.8 NP	-	0.9 NP	-	1.4 NP	1.0 NP	<0.8 NP	-	1.3 NP	-

Notes:

SNAP12 and SNAP28 are TDS stations, so a reduced parameter suite was analyzed.

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates Technology Futures.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams as per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre.

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued)

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**
Date Sampled (yyyy-mm-dd):		**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**
Sample Control Number:		**2012-5903**	**2012-5904**	**2012-5905**	**2012-5900**	**2012-5901**	**2012-5902**	**2012-5906**	**2012-5907**	**2012-5908**
Field Parameters										
pH	unitless	7.1	7.2	7.2	6.6	7.1	7.2	7.3	7.3	7.3
Specific Conductivity	µS/cm	371	371	372	364	365	368	372	373	365
Water Temperature	°C	12.9	12.9	12.8	12.9	12.8	12.7	12.9	12.9	12.9
Dissolved Oxygen	mg/L	10.1	10.1	10.1	10.0	10.3	10.0	10.1	10.1	10.1
Conventional Parameters										
Laboratory pH	unitless	7.4 WH	7.4 WH	7.4 WH	7.5 WH	7.4 WH	7.5 WH	7.5 WH	7.5 WH	7.5 WH
Laboratory Specific Conductivity	µS/cm	419	421	421	417	412	413	419	421	430
Total Dissolved Solids, measured	mg/L	305	303	309	302	306	310	311	307	318
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	203 QP	209 QP	203 QP	200 QP	203 QP	201 QP	205 QP	203 QP	204 QP
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	203 QP	205 QP	203 QP	200 QP	203 QP	197 QP	202 QP	203 QP	203 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3
Turbidity	NTU	0.35 WH	0.33 WH	0.38 WH	0.32 WH	0.35 WH	0.78 WH	0.40 WH	0.32 WH	0.33 WH
Ions										
Bicarbonate, as HCO_3	mg/L	27	27	28	28	27	27	28	27	28
Calcium	mg/L	40.1	42.1	40.3	39.2	41.5	39.4	40.0	40.2	39.8
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	91.0	90.1	91.2	90.1	89.5	88.7	90.8	90.6	92.0
Fluoride	mg/L	0.11	0.11	0.10	0.10	0.10	0.11	0.10	0.10	0.10
Hardness, as $CaCO_3$	mg/L	121	127	121	118	124	118	121	121	120
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	5.0	5.2	5.0	4.9	5.1	4.8	5.1	5.1	5.0
Potassium	mg/L	1.90 QP	2.01 QP	1.85 QP	1.95 QP	1.95 QP	1.91 QP	1.87 QP	1.99 QP	1.91 QP
Reactive Silica, as SiO_2	mg/L	1.00 NP	1.02 NP	1.02 NP	0.98 NP	0.94 NP	0.99 NP	1.02 NP	1.05 NP	1.02 NP
Sodium	mg/L	23	24	22	23	24	22	22	23	22
Sulphate	mg/L	17.90	17.60	17.90	17.6	17.4	17.4	17.8	17.9	18.1
Total Alkalinity, as $CaCO_3$	mg/L	22	22	23	23	22	22	23	22	23
Nutrients										
BOD (5-day)	mg/L	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	0.0018	<0.0014	<0.0014	0.0014	0.0017	0.0015	0.0021
Nitrate, as N, calculated	mg-N/L	2.15 WH	2.16 WH	2.16 WH	2.06 WH	2.05 WH	2.01 WH	2.13 WH	2.10 WH	2.13 WH
Nitrate/Nitrite, as N	mg-N/L	2.17 WH	2.18 WH	2.18 WH	2.08 WH	2.07 WH	2.03 WH	2.16 WH	2.12 WH	2.14 WH
Nitrite, as N	mg-N/L	0.019 WH	0.019 WH	0.019 WH	0.017 WH	0.017 WH	0.017 WH	0.022 WH	0.017 WH	0.017 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	0.091	0.093	0.092	0.082	0.076	0.076	0.094	0.096	0.097
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	0.002	<0.001	<0.001	0.001	0.002	0.002	0.002
Total Inorganic Phosphorus	mg-P/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Total Kjeldahl Nitrogen	mg-N/L	0.357	0.340	0.315	0.35	0.32	0.29	0.29	0.34	0.36
Total Organic Carbon	mg/L	4.6 NP	3.4 NP	3.4 NP	3.5 NP	3.3 NP	3.4 NP	3.3 NP	3.3 NP	3.9 NP
Total Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	0.0018	0.0021	0.0022	0.0023
Total Phosphorus	mg-P/L	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.004
Total Metals and Metalloids										
Aluminum	µg/L	5.49 NP	5.64 NP	6.17 NP	5.72 NP	5.21 NP	5.60 NP	4.65 NP	5.23 NP	5.99 NP
Antimony	µg/L	0.05 NP	0.07 NP	0.07 NP	0.08 NP	0.06 NP	0.05 NP	0.05 NP	0.07 NP	0.06 NP
Arsenic	µg/L	0.09	0.08	0.09	0.07	0.08	0.07	0.08	0.08	0.08
Barium	µg/L	17.2	17.3	17.9	17.7	17.6	17.7	16.9	17.6	17.6
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	40.2 NP	40.3 NP	41.3 NP	41.5 NP	41.6 NP	39.8 NP	38.2 NP	40.9 NP	39.1 NP
Cadmium	µg/L	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	0.006 NP	0.004 NP	0.004 NP	0.009 NP	0.006 NP	0.005 NP	0.004 NP	0.006 NP	0.005 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Hexavalent Chromium	µg/L	<1	<1	1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	0.023 QP	0.029 QP	0.026 QP	0.019 QP	0.018 QP	0.020 QP	0.024 QP	0.020 QP	0.028 QP
Copper	µg/L	0.41 NP	0.41 NP	0.46 NP	0.42 NP	0.4 NP	0.45 NP	0.4 NP	0.4 NP	0.4 NP
Iron	µg/L	6	6	6	6	5	5	6	6	6
Lead	µg/L	<0.01 QP	0.01 QP	0.01 QP	0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP
Lithium	µg/L	7.5	7.9	7.9	7.8	7.9	7.9	6.9	7.7	7.9
Manganese	µg/L	5.45	5.50	5.62	4.99	4.84	4.93	5.49	5.59	5.68
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Methyl Mercury, as Hg	µg/L	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008
Molybdenum	µg/L	0.79	1.21	1.23	1.18	1.17	1.17	1.22	1.25	1.19
Nickel	µg/L	0.96	0.94	0.99	0.82	0.84	0.82	0.93	1.00	0.93
Rubidium	µg/L	3	3	3	3	3	3	3	3	3

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued)

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**
Date Sampled (yyyy-mm-dd):		**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**	**2012-09-09**
Sample Control Number:		**2012-5903**	**2012-5904**	**2012-5905**	**2012-5900**	**2012-5901**	**2012-5902**	**2012-5906**	**2012-5907**	**2012-5908**
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	565	568	567	554	557	554	574	582	575
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1
Uranium	µg/L	0.16	0.16	0.15	0.15	0.14	0.14	0.15	0.16	0.16
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	0.9 NP	<0.8 NP	1.8 NP	2.0 NP	2.4 NP	<0.8 NP	1.2 NP	<0.8 NP	<0.8 NP
Dissolved Metals and Metalloids										
Aluminum	µg/L	3.51 NP	3.72 NP	3.51 NP	4.02 NP	3.57 NP	4.65 NP	3.72 NP	3.33 NP	3.26 NP
Antimony	µg/L	0.05 NP	0.08 NP	0.05 NP	0.06 NP	0.09 NP	0.10 NP XG	0.09 NP	0.08 NP	0.05 NP
Arsenic	µg/L	0.07	0.09	0.08	0.08	0.07	0.09	0.08	0.09	0.09
Barium	µg/L	16.9	17.2	17.6	17.6	17.6	17.5	18.3	17.3	17.5
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	40.2 NP	39.8 NP	40.1 NP	40 NP	38.9 NP	40.7 NP	40 NP	39.2 NP	39.1 NP
Cadmium	µg/L	<0.005	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Cobalt	µg/L	0.01	0.01	0.01	<0.01	<0.01	<0.01	0.02	0.01	0.01
Copper	µg/L	0.38 NP	0.69 NP XG	0.36 NP	0.43 NP	0.36 NP	0.35 NP	0.39 NP	0.39 NP	0.38 NP
Iron	µg/L	1	2	1	1	2	<1	1	1	1
Lead	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.089 XG	<0.01	<0.01	<0.01
Lithium	µg/L	7.6	7.8	7.7	7.8	7.7	8.0	7.6	7.3	7.3
Manganese	µg/L	1.93 QP	2.05 QP	2.14 QP	1.54 QP	1.3 QP	1.47 QP	2.15 QP	2.18 QP	2.36 QP
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	0.82	1.20	1.21	1.16	1.14	1.22	1.12	1.20	1.21
Nickel	µg/L	0.88	1.06	0.88	0.78	0.77	0.76	1.05	1.01	0.90
Rubidium	µg/L	3	3	3	3	3	3	3	3	3
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	577	569	563	562	545	563	565	564	566
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.16	0.16	0.16	0.15	0.15	0.15	0.16	0.16	0.16
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	1.2 NP	1.2 NP	<0.8 NP	1.3 NP	1.2 NP	1.1 NP	<0.8 NP	1.1 NP	0.9 NP
Organics-General										
F2 (>C_{10}-C_{16})	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Oil & Grease	mg/L	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 WH,QP	<1 WH,QP
Organics-Volatiles										
Benzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BTEX, calculated	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
Ethylbenzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
F1-BTEX	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
F1 (C_6-C_{10})	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
m&p-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Microbiology										
E. coli	MPN/100mL	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency;

· XG = data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Hg = mercury; Alberta Innovates = Alberta Innovates Technology Futures.

BTEX = benzene, toluene, ethylbenzene, and xylene; *E. coli = Escherichia coli;* F1 ($C_6 - C_{10}$) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > C_{10} to C_{16}.

< = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued)

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		surface	mid	bottom	surface	mid	bottom	surface	mid	bottom
Date Sampled (yyyy-mm-dd):		2012-08-12	2012-08-12	2012-08-12	2012-08-12	2012-08-12	2012-08-12	2012-08-12	2012-08-12	2012-08-12
Sample Control Number:		2012-5207	2012-5208	2012-5209	2012-5210	2012-5211	2012-5212	2012-5213	2012-5214	2012-5215
Field Parameters										
pH	unitless	7.5	7.6	7.7	7.6	7.6	7.2	7.6	7.7	7.6
Specific Conductivity	µS/cm	400	399	406	398	396	465	398	399	404
Water Temperature	°C	16.9	16.9	16.9	16.9	16.9	6.5	16.9	16.9	16.9
Dissolved Oxygen	mg/L	10.0	10.0	10.1	10.0	10.0	8.9	10.0	10.0	10.0
Conventional Parameters										
Laboratory pH	unitless	7.6 WH	7.6 WH	7.6 WH	7.6 WH	7.6 WH	7.2 WH	7.6 WH	7.6 WH	7.6 WH
Laboratory Specific Conductivity	µS/cm	411	408	410	409	409	473	409	413	411
Total Dissolved Solids, measured	mg/L	342 WH	354 WH	328 WH	315 WH	306 WH	364 WH	339 WH	312 WH	297 WH
Total Dissolved Solids, calculated (Lab)[a]	mg/L	205 QP	203 QP	203 QP	208 QP	206 QP	242 QP	203 QP	202 QP	210 QP
Total Dissolved Solids, calculated (Standard Methods)[a]	mg/L	202 QP	199 QP	200 QP	205 QP	202 QP	239 QP	200 QP	199 QP	207 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	3	<3	<3	<3	<3
Turbidity	NTU	0.45 WH	0.53 WH	0.40 WH	0.51 WH	0.48 WH	0.59 WH	0.44 WH	0.42 WH	0.43 WH
Ions										
Bicarbonate, as HCO_3	mg/L	26	26	27	26	26	29	26	26	27
Calcium	mg/L	42.3	42.9	42.7	44.4	43.5	50.6	40.7	41.3	45.4
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	88.8	86.9	86.5	88.5	88.2	103.0	89.3	87.6	88.5
Fluoride	mg/L	0.14	0.14	0.13	0.14	0.14	0.15	0.14	0.13	0.14
Hardness, as $CaCO_3$	mg/L	127	128	128	134	131	154	123	125	137
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	5.3	5.2	5.2	5.6	5.5	6.6	5.1	5.3	5.7
Potassium	mg/L	2.12 QP	2.04 QP	2.13 QP	2.23 QP	2.07 QP	2.52 QP	2.04 QP	1.94 QP	2.25 QP
Reactive Silica, as SiO_2	mg/L	0.93 NP	0.87 NP	0.95 NP	0.90 NP	0.90 NP	1.25 NP	0.93 NP	0.90 NP	0.93 NP
Sodium	mg/L	22	22	23	24	23	28	22	22	24
Sulphate	mg/L	18.20	17.70	17.50	17.90	17.90	21.20	18.20	17.70	18.00
Total Alkalinity, as $CaCO_3$	mg/L	21	22	22	21	21	24	21	21	22
Nutrients										
BOD (5-day)	mg/L	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	0.0022	0.0020	0.0023	0.0024	0.0018	0.0033	0.0033	0.0031	0.0023
Nitrate, as N, calculated	mg-N/L	1.92 WH	1.93 WH	1.95 WH	1.94 WH	1.89 WH	2.44 WH	1.99 WH	1.99 WH	1.99 WH
Nitrate/Nitrite, as N	mg-N/L	1.94 WH	1.95 WH	1.97 WH	1.96 WH	1.91 WH	2.47 WH	2.01 WH	2.02 WH	2.01 WH
Nitrite, as N	mg-N/L	0.020 WH	0.020 WH	0.021 WH	0.020 WH	0.020 WH	0.029 WH	0.021 WH	0.021 WH	0.021 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	0.110	0.107	0.118	0.107	0.104	0.205	0.112	0.114	0.110
Total Dissolved Phosphorus	mg-P/L	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.002
Total Inorganic Phosphorus	mg-P/L	0.002	0.001	0.001	0.001	<0.001	0.006	<0.001	<0.001	0.001
Total Kjeldahl Nitrogen	mg-N/L	0.418	0.340	0.460	0.406	0.414	0.541	0.381	0.348	0.338
Total Organic Carbon	mg/L	3.1 NP	3 NP	3 NP	3.1 NP	3.1 NP	3 NP	3 NP	3 NP	3.2 NP
Total Organic Phosphorus, calculated	mg-P/L	0.0016	0.0023	0.0037	0.0026	0.0041	0.0057	0.0036	0.0038	0.0030
Total Phosphorus	mg-P/L	0.003	0.003	0.005	0.004	0.004	0.012	0.004	0.004	0.004
Total Metals and Metalloids										
Aluminum	µg/L	6.47 NP	6.96 NP	6.47 NP	5.80 NP	6.59 NP	4.71 NP	6.30 NP	7.38 NP	7.05 NP
Antimony	µg/L	0.06 NP	0.08 NP	0.15 NP	0.06 NP	0.06 NP	0.07 NP	0.14 NP	0.09 NP	0.18 NP
Arsenic	µg/L	0.09	0.08	0.08	0.10	0.08	0.11	0.09	0.09	0.09
Barium	µg/L	17.7	17.6	17.6	17.5	17.7	22.7	17.8	17.7	17.8
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	38.8 NP	38.8 NP	40.4 NP	40.4 NP	40.1 NP	47.1 NP	40.8 NP	41.8 NP	41.5 NP
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	0.004 NP	0.004 NP	0.004 NP	0.004 NP	0.003 NP	0.006 NP	0.005 NP	0.004 NP	0.005 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	<0.06	0.08	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	0.023 QP	0.025 QP	0.022 QP	0.022 QP	0.021 QP	0.032 QP	0.021 QP	0.023 QP	0.025 QP
Copper	µg/L	0.49 NP	0.47 NP	0.55 NP	0.46 NP	0.48 NP	0.56 NP	0.81 NP	0.6 NP	0.7 NP
Iron	µg/L	6	6	6	5	6	8	6	6	9
Lead	µg/L	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	0.01 QP	<0.01 QP
Lithium	µg/L	7.7	7.7	7.9	8.1	7.8	9.1	7.8	8.1	8.0
Manganese	µg/L	4.66	4.73	4.56	4.57	4.68	8.20	4.62	4.72	4.95
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	0.0006	<0.0005
Methyl Mercury, as Hg	µg/L	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008
Molybdenum	µg/L	0.98	0.99	1.10	1.01	0.98	1.01	0.99	0.99	0.99
Nickel	µg/L	1.10	1.12	1.10	1.08	1.10	1.71	1.14	1.12	1.13
Rubidium	µg/L	4	4	3	3	3	4	3	3	4
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued)

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		surface	mid	bottom	surface	mid	bottom	surface	mid	bottom
Date Sampled (yyyy-mm-dd):		2012-08-12	2012-08-12	2012-08-12	2012-08-12	2012-08-12	2012-08-12	2012-08-12	2012-08-12	2012-08-12
Sample Control Number:		2012-5207	2012-5208	2012-5209	2012-5210	2012-5211	2012-5212	2012-5213	2012-5214	2012-5215
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	550	547	546	543	541	635	546	543	549
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.15	0.15	0.16	0.15	0.15	0.10	0.15	0.15	0.15
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	<0.8 NP	1.3 NP	1.3 NP	<0.8 NP	<0.8 NP	0.9 NP	<0.8 NP	<0.8 NP	<0.8 NP
Dissolved Metals and Metalloids										
Aluminum	µg/L	5.07 NP	5.27 NP	4.71 NP	4.74 NP	5.48 NP	4 NP	5.36 NP	5.19 NP	5.63 NP
Antimony	µg/L	0.06 NP	0.04 NP	0.08 NP	0.05 NP	0.06 NP	0.06 NP	0.07 NP	0.06 NP	0.06 NP
Arsenic	µg/L	0.09	0.09	0.06	0.08	0.09	0.09	0.08	0.08	0.09
Barium	µg/L	17.2	17.4	17.6	17.7	17.9	22.9	17.5	17.8	17.4
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	38.7 NP	38.1 NP	39.7 NP	39.6 NP	40.8 NP	48.8 NP	42.3 NP	42.1 NP	42.3 NP
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.010	<0.005	<0.005	<0.005
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Cobalt	µg/L	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02
Copper	µg/L	0.45 NP	0.45 NP	0.48 NP	0.45 NP	0.44 NP	0.49 NP	0.51 NP	0.5 NP	0.49 NP
Iron	µg/L	1	1	1	1	1	2	1	1	1
Lead	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	µg/L	7.9	7.8	7.8	8.1	7.8	9.0	8.1	8.2	8.1
Manganese	µg/L	1.37 QP	1.33 QP	1.36 QP	1.33 QP	1.33 QP	2.04 QP	1.43 QP	1.35 QP	1.47 QP
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	0.97	0.99	1.03	1.01	1.01	1.01	1.00	1.02	1.00
Nickel	µg/L	1.06	1.06	1.07	1.09	1.04	1.69	1.12	1.06	1.12
Rubidium	µg/L	3	3	3	3	3	4	3	3	3
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	549	547	548	547	547	637	549	547	547
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.16	0.15	0.16	0.16	0.16	0.10	0.16	0.16	0.16
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	1.4 NP	<0.8 NP	0.9 NP	<0.8 NP	<0.8 NP	3.3 NP	1 NP	<0.8 NP	<0.8 NP
Organics-General										
F2 (>C_{10}-C_{16})	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Oil & Grease	mg/L	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP
Organics-Volatiles										
Benzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BTEX, calculated	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
Ethylbenzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
F1-BTEX	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
F1 (C_6-C_{10})	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
m&p-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Microbiology										
E. coli	MPN/100mL	<1	<1	<1	<1	<1	<1	1	1	<1

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency;

· XG = data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Hg = mercury; Alberta Innovates = Alberta Innovates Technology Futures.

BTEX = benzene, toluene, ethylbenzene, and xylene; *E. coli = Escherichia coli;* F1 ($C_6 - C_{10}$) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > C_{10} to C_{16}.

< = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres.

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued

Sample Point:	Units	SNP 02-20d[a]	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		surface	mid	bottom	surface	mid	bottom	surface	mid	bottom
Date Sampled (yyyy-mm-dd):		2012-07-09	2012-07-09	2012-07-09	2012-07-09	2012-07-09	2012-07-09	2012-07-09	2012-07-09	2012-07-09
Sample Control Number:		2012-5154	2012-5155	2012-5156	2012-5157	2012-5158	2012-5159	2012-5160	2012-5161	2012-5162
Field Parameters										
pH	unitless	7.3	7.4	7.4	7.3	7.4	7.2	7.4	7.4	7.5
Specific Conductivity	µS/cm	392	400	387	394	395	508	391	405	387
Water Temperature	°C	15.0	13.8	13.2	14.5	13.3	3.9	15.3	13.8	13.2
Dissolved Oxygen	mg/L	10.2	10.4	10.4	10.2	10.3	12.6	10.1	10.4	10.4
Conventional Parameters										
Laboratory pH	unitless	7.3 WH	7.6 WH	7.6 WH	7.6 WH	7.6 WH	7.7 WH	7.6 WH	7.6 WH	7.7 WH
Laboratory Specific Conductivity	µS/cm	394	402	390	397	398	471	392	408	407
Total Dissolved Solids, measured	mg/L	278	284	278	294	283	352	293	259	251
Total Dissolved Solids, calculated (Lab)[b]	mg/L	198 QP	191 QP	186 QP	189 QP	190 QP	230 QP	186 QP	195 QP	192 QP
Total Dissolved Solids, calculated (Standard Methods)[b]	mg/L	194 QP	188 QP	183 QP	186 QP	187 QP	226 QP	183 QP	192 QP	188 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3
Turbidity	NTU	0.34 WH	0.46 WH	0.38 WH	0.33 WH	0.38 WH	0.49 WH	0.45 WH	0.38 WH	0.35 WH
Ions										
Bicarbonate, as HCO_3	mg/L	27	25	25	25	25	29	22	26	25
Calcium	mg/L	40.4	37.0	36.7	37.4	38.0	46.4	37.1	38.4	36.6
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	84.3	85.6	83.2	84.6	84.9	101	83.5	87.7	86.9
Fluoride	mg/L	0.10	0.11	0.11	0.11	0.11	0.13	0.11	0.11	0.11
Hardness, as $CaCO_3$	mg/L	122	111	109	111	113	138	111	114	109
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	5.2	4.4	4.3	4.4	4.5	5.5	4.4	4.4	4.3
Potassium	mg/L	2.14 QP	1.92 QP	1.90 QP	1.94 QP	1.84 QP	2.42 QP	1.90 QP	1.99 QP	1.81 QP
Reactive Silica, as SiO_2	mg/L	0.94 NP	1.07 NP	0.93 NP	0.95 NP	0.96 NP	1.59 NP	0.94 NP	1.08 NP	1.09 NP
Sodium	mg/L	22	19	18	18	18	23	19	19	18
Sulphate	mg/L	17.0	17.2	16.6	16.9	17.0	20.4	16.7	17.6	17.4
Total Alkalinity, as $CaCO_3$	mg/L	22	21	20	21	20	24	18	21	21
Nutrients										
BOD (5-day)	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	0.0017	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014
Nitrate, as N, calculated	mg-N/L	1.97 WH	2.04 WH	1.91 WH	1.97 WH	1.98 WH	2.54 WH	1.96 WH	2.06 WH	2.14 WH
Nitrate/Nitrite, as N	mg-N/L	1.98	2.06	1.93	1.98	1.99	2.56	1.98	2.08	2.16
Nitrite, as N	mg-N/L	0.017	0.019	0.015	0.018	0.018	0.020	0.018	0.021	0.021
ortho-Phosphate, as P	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Ammonia, as N	mg-N/L	0.128	0.151	0.115	0.133	0.135	0.233	0.134	0.158	0.111
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	0.449	0.565	0.386	0.49	0.41	0.58	0.48	0.46	0.40
Total Organic Carbon	mg/L	3.3 NP	3.2 NP	3.5 NP	3.3 NP	3.1 NP	3.5 NP	3.2 NP	3.1 NP	3.2 NP
Total Organic Phosphorus, calculated	mg-P/L	0.0015	0.0021	0.0028	0.0087	0.0025	0.0048	<0.0014	0.0016	<0.0014
Total Phosphorus	mg-P/L	0.002	0.002	0.003	0.009	0.003	0.005	0.001	0.002	<0.001
Total Metals and Metalloids										
Aluminum	µg/L	4.95 NP	6.05 NP	5.56 NP	5.83 NP	5.04 NP	6.12 NP	5.95 NP	6.46 NP	5.96 NP
Antimony	µg/L	0.14 NP	0.06 NP	0.07 NP	0.31 NP	0.08 NP	0.07 NP	0.08 NP	0.10 NP	0.05 NP
Arsenic	µg/L	0.08	0.09	0.08	0.07	0.09	0.10	0.08	0.08	0.08
Barium	µg/L	17.6	18.0	17.7	17.7	17.9	22.4	17.3	17.8	17.6
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	36.0 NP	39.2 NP	38.2 NP	38.0 NP	36.4 NP	47.0 NP	37.4 NP	37.5 NP	37.5 NP
Cadmium	µg/L	0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	0.008 NP	0.005 NP	0.008 NP	0.020 NP	0.015 NP	0.008 NP	0.007 NP	0.009 NP	0.005 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.16	0.08	<0.06	0.07	<0.06	0.10	0.08	0.06	0.07
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	0.027 QP	0.037 QP	0.031 QP	0.033 QP	0.028 QP	0.070 QP	0.025 QP	0.035 QP	0.031 QP
Copper	µg/L	0.48 NP	0.41 NP	0.43 NP	0.48 NP	0.42 NP	0.46 NP	0.42 NP	0.44 NP	0.39 NP
Iron	µg/L	7	10	8	8	5	13	8	10	8
Lead	µg/L	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP
Lithium	µg/L	7.3	7.9	8.0	8.1	8.1	9.8	7.9	7.9	8.0
Manganese	µg/L	4.33	5.53	4.71	4.84	3.01	9.93	4.42	5.65	4.97
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Methyl Mercury, as Hg	µg/L	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
Molybdenum	µg/L	0.84	0.88	0.79	0.83	0.93	1.05	0.82	0.86	0.79
Nickel	µg/L	1.28	1.35	1.17	1.20	1.25	1.92	1.23	1.41	1.23
Rubidium	µg/L	3	3	3	3	3	4	3	3	3
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	507	523	505	511	523	644	505	524	510

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued

Sample Point:	Units	SNP 02-20d[(a)]	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		surface	mid	bottom	surface	mid	bottom	surface	mid	bottom
Date Sampled (yyyy-mm-dd):		2012-07-09	2012-07-09	2012-07-09	2012-07-09	2012-07-09	2012-07-09	2012-07-09	2012-07-09	2012-07-09
Sample Control Number:		2012-5154	2012-5155	2012-5156	2012-5157	2012-5158	2012-5159	2012-5160	2012-5161	2012-5162
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	0.2	0.2	0.2	0.1	<0.1	0.1	0.1	0.3	0.2
Uranium	µg/L	0.14	0.14	0.14	0.14	0.16	0.16	0.14	0.15	0.14
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	1.6 NP	<0.8 NP	0.9 NP	0.8 NP	1.0 NP	0.9 NP	1.2 NP	<0.8 NP	<0.8 NP
Dissolved Metals and Metalloids										
Aluminum	µg/L	-	4.16 NP	3.8 NP	4.33 NP	4.51 NP	4.12 NP	4.35 NP	4.13 NP	4.58 NP
Antimony	µg/L	-	0.06 NP	0.07 NP	0.11 NP	0.07 NP	0.07 NP	0.07 NP	0.06 NP	0.05 NP
Arsenic	µg/L	-	0.09	0.08	0.08	0.07	0.10	0.08	0.08	0.08
Barium	µg/L	-	17.4	17.7	17.6	17.6	22.6	17.5	18.0	17.3
Beryllium	µg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	-	37.5 NP	37.7 NP	38.2 NP	37.8 NP	45.4 NP	38.1 NP	38.6 NP	36.5 NP
Cadmium	µg/L	-	<0.005	0.006	0.005	<0.005	0.006	<0.005	<0.005	<0.005
Cesium	µg/L	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	-	0.07	<0.06	<0.06	0.07	0.09	<0.06	0.06	<0.06
Cobalt	µg/L	-	0.02	0.01	0.01	0.01	0.05	0.01	0.02	<0.01
Copper	µg/L	-	0.39 NP	0.40 NP	0.45 NP	0.41 NP	0.44 NP	0.40 NP	0.38 NP	0.36 NP
Iron	µg/L	-	3	2	2	2	4	2	2	2
Lead	µg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	µg/L	-	7.5	7.9	8.0	8.0	9.7	8.1	8.3	7.9
Manganese	µg/L	-	1.92 QP	1.57 QP	2 QP	1.77 QP	8.22 QP	2 QP	2.78 QP	1.47 QP
Mercury	µg/L	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	-	0.79	0.79	0.83	0.80	1.04	0.82	0.87	0.78
Nickel	µg/L	-	1.17	1.17	1.21	1.19	1.85	1.16	1.41	1.14
Rubidium	µg/L	-	3	3	3	3	4	3	3	3
Selenium	µg/L	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	-	507	512	510	517	647	515	534	502
Thallium	µg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	-	0.14	0.14	0.14	0.14	0.15	0.14	0.15	0.14
Vanadium	µg/L	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	-	1.7 NP	1.6 NP	0.8 NP	1.9 NP	0.9 NP	0.9 NP	0.8 NP	<0.8 NP
Organics-General										
F2 (>C_{10}-C_{16})	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Oil & Grease	mg/L	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP
Organics-Volatiles										
Benzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BTEX, calculated	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
Ethylbenzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
F1-BTEX	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
F1 (C_6-C_{10})	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
m&p-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Microbiology										
E. coli	MPN/100mL	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency;

· Q = headspace in sample;

· X = data invalidated due to an internal review; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) Dissolved metals bottle was not received at ALS Canada Ltd. for this sample.

(b) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater(APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Hg = mercury; Alberta Innovates = Alberta Innovates Technology Futures.

BTEX = benzene, toluene, ethylbenzene, and xylene; *E. coli= Escherichia coli;* F1 ($C_6 - C_{10}$) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > C_{10} to C_{16}.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres.

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		surface	mid	bottom	surface	mid	bottom	surface	mid	bottom
Date Sampled (yyyy-mm-dd):		2012-05-13	2012-05-13	2012-05-13	2012-05-13	2012-05-13	2012-05-13	2012-05-13	2012-05-13	2012-05-13
Sample Control Number:		2012-5124	2012-5125	2012-5126	2012-5128	2012-5129	2012-5130	2012-5131	2012-5132	2012-5133
Field Parameters										
pH	unitless	6.8	6.8	6.8	6.1	6.5	6.6	6.7	6.8	6.8
Specific Conductivity	µS/cm	516	533	536	485	535	541	523	535	535
Water Temperature	°C	2.3	2.1	2.1	2.9	2.1	2.2	2.0	2.1	2.1
Dissolved Oxygen	mg/L	12.9	13.1	13.1	12.7	13.2	13.0	12.9	13.1	13.1
Conventional Parameters										
Laboratory pH	unitless	7.3 WH	7.4 WH	7.4 WH	7.4 WH	7.5 WH	7.3 WH	7.4 WH	7.4 WH	7.5 WH
Laboratory Specific Conductivity	µS/cm	455	511	523	464	511	530	386	432	517
Total Dissolved Solids, measured	mg/L	340 WH	387 WH	396 WH	367 WH	405 WH	424 WH	315 WH	288 WH	353 WH
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	228 QP	267 QP	268 QP	238 QP	262 QP	265 QP	194 QP	227 QP	279 QP
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	230 QP	264 QP	264 QP	226 QP	258 QP	261 QP	201 QP	223 QP	279 QP
Total Suspended Solids	mg/L	<3 WH	<3 WH	<3 WH	<3 WH	<3 WH	<3 WH	<3 WH	<3 WH	<3 WH
Turbidity	NTU	<0.10 WH	0.31 WH	0.31 WH	0.38 WH	0.22 WH	0.52 WH	0.32 WH	0.64 WH	0.68 WH
Ions										
Bicarbonate, as HCO_3	mg/L	28	32	34	31	31	31	26	25	32
Calcium	mg/L	42.4	47.9	50.2	40.4	50.2	48.0	38.5	46.6	62.2
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	101	114	116	97.0	113	117	83.5	94.4	114
Fluoride	mg/L	0.16	0.18	0.18	0.17	0.16	0.16	0.13	0.14	0.17
Hardness, as $CaCO_3$	mg/L	127	144	152	122	151	145	116	140	186
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	5.1	5.9	6.5	5.1	6.2	6.0	4.9	5.8	7.5
Potassium	mg/L	1.85 QP	2.38 QP	2.44 QP	2.03 QP	2.36 QP	2.18 QP	1.77 QP	2.27 QP	2.85 QP
Reactive Silica, as SiO_2	mg/L	11.90 NP,X	14.50 NP,X	7.55 NP,X	12.00 NP,X	7.33 NP,X	8.57 NP,X	11.00 NP,X	7.24 NP,X	7.85 NP,X
Sodium	mg/L	21	25	27	22	28	26	20	24	31
Sulphate	mg/L	19.8	22.3	23.0	19.1	21.8	22.7	16.7	18.9	22.6
Total Alkalinity, as $CaCO_3$	mg/L	23	26	28	26	26	25	22	21	26
Nutrients										
BOD (5-day)	mg/L	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	0.0017	0.0019	0.0023	<0.0014	<0.0014	0.0020	0.0022	0.0023	0.0019
Nitrate, as N, calculated	mg-N/L	2.21 WH	2.65 WH	2.81 WH	2.25 WH	2.59 WH	2.85 WH	2.05 WH	2.28 WH	2.75 WH
Nitrate/Nitrite, as N	mg-N/L	2.23 WH	2.67 WH	2.84 WH	2.27 WH	2.62 WH	2.87 WH	2.07 WH	2.3 WH	2.78 WH
Nitrite, as N	mg-N/L	0.018 WH	0.025 WH	0.027 WH	0.017 WH	0.022 WH	0.022 WH	0.016 WH	0.020 WH	0.026 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	0.203	0.301	0.324	0.192	0.277	0.280	0.181	0.226	0.280
Total Dissolved Phosphorus	mg-P/L	0.002	0.002	0.002	<0.001	<0.001	0.002	0.002	0.002	0.002
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.010	<0.001	<0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	0.455	0.540	0.568	0.394	0.608	0.549	0.729	0.591	0.635
Total Organic Carbon	mg/L	3.9 NP	3.7 NP	3.9 NP	3.4 NP	4 NP	4.4 NP	<1 NP	3.9 NP	<1 NP
Total Organic Phosphorus, calculated	mg-P/L	0.0026	0.0029	0.0040	0.0033	0.0026	<0.0014	0.0035	0.0031	0.0030
Total Phosphorus	mg-P/L	0.003	0.003	0.004	0.003	0.003	0.005	0.004	0.003	0.003
Total Metals and Metalloids										
Aluminum	µg/L	6.65 NP	4.28 NP	5.15 NP	3.35 NP	5.25 NP	7.09 NP	10.5 NP	5.89 NP	14.7 NP
Antimony	µg/L	16.80 NP	1.02 NP	0.94 NP	1.94 NP	0.59 NP	0.56 NP	12.30 NP	1.57 NP	1.04 NP
Arsenic	µg/L	0.13	0.11	0.11	0.11	0.10	0.10	0.14	0.09	0.09
Barium	µg/L	21.6	23.7	24.3	21.6	24.6	26.0	21.0	24.2	24.2
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	42.5 NP	49.9 NP	52.5 NP	41.2 NP	49.4 NP	51.7 NP	38.3 NP	50.2 NP	52 NP
Cadmium	µg/L	0.007	<0.005	<0.005	0.006	0.007	0.009	0.007	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	0.010 NP	0.005 NP	0.008 NP	0.009 NP	0.007 NP	0.009 NP	0.009 NP	0.007 NP	0.014 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.12	0.13	0.12	0.07	0.11	0.12	0.11	0.12	0.14
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	0.059 QP	0.055 QP	0.071 QP	0.021 QP	0.110 QP	0.196 QP	0.061 QP	0.067 QP	0.078 QP
Copper	µg/L	0.52 NP	0.46 NP	0.44 NP	0.7 NP	0.48 NP	0.56 NP	0.53 NP	0.42 NP	0.49 NP
Iron	µg/L	11	6	9	4	10	19	7	8	17
Lead	µg/L	0.04 QP	<0.01 QP	<0.01 QP	0.01 QP	<0.01 QP	0.01 QP	0.05 QP	0.01 QP	0.01 QP
Lithium	µg/L	8.7	9.8	10.0	8.2	9.6	9.9	7.2	9.6	10.2
Manganese	µg/L	6.41	9.54	10.5	4.65	10.8	14.1	6.63	10.2	10.8
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	0.0007	<0.0005	<0.0005	0.0005	<0.0005	<0.0005
Methyl Mercury, as Hg	µg/L	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008
Molybdenum	µg/L	1.10	1.44	1.54	0.99	1.43	1.46	1.14	1.47	1.45
Nickel	µg/L	1.47	2.05	2.16	1.24	2.01	2.01	1.49	2.12	2.17
Rubidium	µg/L	4	4	4	4	4	4	4	4	4
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	605	699	707	589	699	703	509	689	716

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		surface	mid	bottom	surface	mid	bottom	surface	mid	bottom
Date Sampled (yyyy-mm-dd):		2012-05-13	2012-05-13	2012-05-13	2012-05-13	2012-05-13	2012-05-13	2012-05-13	2012-05-13	2012-05-13
Sample Control Number:		2012-5124	2012-5125	2012-5126	2012-5128	2012-5129	2012-5130	2012-5131	2012-5132	2012-5133
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	0.4	<0.1	0.1	0.1	0.2	0.2	0.4	0.2	0.7
Uranium	µg/L	0.14	0.18	0.19	0.12	0.18	0.17	0.11	0.19	0.20
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	2.7 NP	1.0 NP	<0.8 NP	1.7 NP	1.6 NP	2.1 NP	2.3 NP	<0.8 NP	<0.8 NP
Dissolved Metals and Metalloids										
Aluminum	µg/L	1.97 NP	2.31 NP	2.72 NP	1.78 NP	3.06 NP	4.26 NP	4.41 NP	2.08 NP	2.67 NP
Antimony	µg/L	0.86 NP	0.25 NP	0.15 NP	0.43 NP	0.12 NP	0.10 NP	0.61 NP	0.21 NP	0.12 NP
Arsenic	µg/L	0.11	0.09	0.09	0.10	0.10	0.10	0.10	0.10	0.10
Barium	µg/L	21.3	23.4	24.1	21.6	24.6	26.3	20.8	24.4	24.3
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	42.6 NP	47.8 NP	51.9 NP	41.3 NP	50.5 NP	51.4 NP	38.7 NP	50.7 NP	49.5 NP
Cadmium	µg/L	0.006	<0.005	<0.005	0.008	0.005	0.010	0.006	<0.005	0.005
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.07	0.11	0.11	<0.06	0.10	0.10	0.08	0.09	0.12
Cobalt	µg/L	0.04	0.05	0.05	0.02	0.09	0.17	0.04	0.05	0.05
Copper	µg/L	0.47 NP	0.45 NP	0.43 NP	0.72 NP	0.55 NP	0.50 NP	0.48 NP	0.44 NP	0.43 NP
Iron	µg/L	1	1	2	1	5	11	3	2	3
Lead	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	µg/L	9.0	9.6	9.9	8.2	9.8	9.7	7.1	9.6	10.1
Manganese	µg/L	5.71 QP	8.48 QP	9.39 QP	4.45 QP	9.66 QP	13.1 QP	5.67 QP	9.01 QP	9.41 QP
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	1.09	1.37	1.53	0.99	1.43	1.44	0.97	1.49	1.46
Nickel	µg/L	1.45	1.99	2.15	1.24	1.91	1.95	1.35	2.06	2.09
Rubidium	µg/L	4	4	4	4	4	4	4	4	4
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	603	680	710	591	705	704	519	694	689
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1
Uranium	µg/L	0.13	0.17	0.19	0.12	0.18	0.17	0.12	0.19	0.19
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	2.7 NP	2.1 NP	0.9 NP	1.9 NP	1.2 NP	3.4 NP	2.0 NP	1.4 NP	2.4 NP
Organics-General										
F2 (>C_{10}-C_{16})	mg/L	<0.25 WH	<0.25 WH	<0.25 WH	<0.25 WH	<0.25 WH	<0.25 WH	<0.25 WH	<0.25 WH	<0.25 WH
Oil & Grease	mg/L	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP
Organics-Volatiles										
Benzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005 Q
BTEX, calculated	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
Ethylbenzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005 Q
F1-BTEX	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 Q
F1 (C_6-C_{10})	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1 Q
Toluene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005 Q
Xylene	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071 Q
m&p-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005 Q
o-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005 Q
Microbiology										
E. coli	MPN/100mL	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency;

· Q = headspace in sample;

· X = data invalidated due to an internal review; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater(APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Hg = mercury; Alberta Innovates = Alberta Innovates Technology Futures.

BTEX = benzene, toluene, ethylbenzene, and xylene; *E. coli* = *Escherichia coli;* F1 ($C_6 - C_{10}$) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > C_{10} to C_{16}.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres.

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued)

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		**surface**	**mid**	**mid**	**bottom**	**surface**	**mid**	**bottom**	**bottom**	**surface**	**mid**	**mid**	**bottom**
Date Sampled (yyyy-mm-dd):		**2012-04-15**	**2012-04-15**	**2012-04-17**	**2012-04-15**	**2012-04-15**	**2012-04-15**	**2012-04-15**	**2012-04-17**	**2012-04-15**	**2012-04-15**	**2012-04-17**	**2012-04-15**
Sample Control Number:		**2012-5089**	**2012-5090**	**2012-5118**	**2012-5091**	**2012-5093**	**2012-5094**	**2012-5095**	**2012-5119**	**2012-5097**	**2012-5098**	**2012-5120**	**2012-5099**
Field Parameters													
pH	unitless	6.6	6.6	6.9	6.7	6.5	6.6	6.6	6.9	6.7	6.7	7.0	6.7
Specific Conductivity	µS/cm	462	522	530	526	466	526	549	558	458	523	531	525
Water Temperature	°C	1.6	1.4	1.5	1.4	1.4	1.4	1.3	1.5	1.4	1.4	1.5	1.4
Dissolved Oxygen	mg/L	19.1	20.2	14.5	20.2	19.4	20.0	19.5	13.7	19.3	20.2	14.4	20.2
Conventional Parameters													
Laboratory pH	unitless	7.3 WH	7.4 WH	7.4 WH	7.4 WH	7.4 WH	7.4 WH	7.4 WH	7.3 WH	7.4 WH	7.4 WH	7.4 WH	7.4 WH
Laboratory Specific Conductivity	µS/cm	458	490	518	519	464	520	515	542	452	515	506	518
Total Dissolved Solids, measured	mg/L	310	327	366	347	312	360	361	383	325	382	362	366
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	230 QP	241 QP	260 QP	258 QP	236 QP	259 QP	261 QP	262 QP	227 QP	246 QP	244 QP	254 QP
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	226 QP	237 QP	256 QP	253 QP	232 QP	254 QP	256 QP	266 QP	223 QP	247 QP	240 QP	249 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Turbidity	NTU	0.18 WH	0.22 WH	0.20 WH	0.19 WH	0.29 WH	0.23 WH	0.18 WH	0.16 WH	0.21 WH	0.18 WH	0.18 WH	0.21 WH
Ions													
Bicarbonate, as HCO_3	mg/L	29	30	32	32	29	31	30	31	29	32	31	32
Calcium	mg/L	45.1	46.8	53.0	50.6	48.3	51.6	53.7	52.2	46.4	48.4	46.2	48.4
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	102	108	114	114	102	115	114	121	99.3	114	111	114
Fluoride	mg/L	0.14	0.14	0.15	0.15	0.14	0.15	0.14	0.15	0.14	0.15	0.15	0.15
Hardness, as $CaCO_3$	mg/L	136	141	160	152	146	156	163	158	141	146	139	146
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	5.7	5.8	6.8	6.3	6.3	6.5	6.9	6.7	6.0	6.1	5.8	6.2
Potassium	mg/L	2.21 QP	2.01 QP	2.73 QP	2.34 QP	2.41 QP	2.41 QP	2.59 QP	2.58 QP	2.34 QP	2.27 QP	2.16 QP	2.57 QP
Reactive Silica, as SiO_2	mg/L	1.00 NP	1.32 NP	1.59 NP	1.62 NP	1.05 NP	1.64 NP	1.72 NP	1.95 NP	0.97 NP	1.57 NP	1.51 NP	1.63 NP
Sodium	mg/L	24	24	27	26	26	27	28	28	24	25	24	25
Sulphate	mg/L	19.60	20.90	22.70	22.50	19.60	22.70	22.4	24.5	19.1	22.2	22.2	22.5
Total Alkalinity, as $CaCO_3$	mg/L	24	25	26	26	24	25	25	25	23	26	26	26
Nutrients													
BOD (5-day)	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	0.002	<0.0014	<0.0014	0.0023	0.0023	0.0021	<0.0014	<0.0014	0.0024	<0.0014
Nitrate, as N, calculated	mg-N/L	2.57 WH	2.84 WH	2.61 WH	3.13 WH	2.58 WH	2.65 WH	2.73 WH	2.97 WH	2.2 WH	2.63 WH	2.57 WH	2.73 WH
Nitrate/Nitrite, as N	mg-N/L	2.59 WH	2.86 WH	2.64 WH	3.16 WH	2.59 WH	2.68 WH	2.76 WH	3.00 WH	2.22 WH	2.66 WH	2.6 WH	2.76 WH
Nitrite, as N	mg-N/L	0.014 WH	0.022 WH	0.027 WH	0.029 WH	0.015 WH	0.026 WH	0.024 WH	0.026 WH	0.015 WH	0.028 WH	0.026 WH	0.029 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	0.169	0.239	0.292	0.299	0.179	0.277	0.292	0.299	0.170	0.288	0.279	0.252
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	0.002	<0.001	<0.001	0.002	0.002	0.002	<0.001	<0.001	0.002	<0.001
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	0.201	0.567	0.449	0.543	0.573	0.456	0.50	0.67	0.33	0.46	0.92	0.41
Total Organic Carbon	mg/L	3.9 NP	4.0 NP	3.7 NP	4.2 NP	3.8 NP	4.1 NP	4.3 NP	3.2 NP	4.4 NP	3.9 NP	3.7 NP	4.0 NP
Total Organic Phosphorus, calculated	mg-P/L	0.0021	0.0020	0.0035	0.0021	<0.0014	0.0033	0.0038	0.0034	0.0031	0.0020	0.0183	0.0020
Total Phosphorus	mg-P/L	0.002	0.002	0.004	0.002	0.003	0.003	0.004	0.003	0.003	0.002	0.018	0.002
Total Metals and Metalloids													
Aluminum	µg/L	2.51 NP	3.67 NP	4.36 NP	3.49 NP	2.23 NP	4.28 NP	7.52 NP	9.9 NP	4.08 NP	3.03 NP	4.69 NP	3.23 NP
Antimony	µg/L	3.09 NP	0.80 NP	1.22 NP	0.31 NP	1.08 NP	0.2 NP	0.43 NP	0.56 NP	16.70 NP	1.24 NP	6.55 NP	0.54 NP
Arsenic	µg/L	0.12	0.10	0.09	0.09	0.11	0.11	0.10	0.10	0.18	0.11	0.13	0.11
Barium	µg/L	20.6	21.2	23.5	21.6	21.1	22.4	24.9	28.6	20.3	21.5	23.1	21.7
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	41.3 NP	44.7 NP	49.4 NP	47.2 NP	42.2 NP	46.9 NP	48.6 NP	53.4 NP	42.9 NP	46.2 NP	48.7 NP	47.2 NP
Cadmium	µg/L	0.009	<0.005	<0.005	0.005	0.011	0.007	0.014	0.019	0.012	<0.005	0.010	0.005
Cadmium (Alberta Innovates)	µg/L	0.018 NP	0.010 NP	0.007 NP	0.008 NP	0.012 NP	0.011 NP	0.019 NP	0.025 NP	0.049 NP	0.024 NP	0.012 NP	0.006 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.10	0.17	0.12	0.22	0.12	0.20	0.15	0.18	0.18	0.16	0.17	0.17
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	0.018 QP	0.037 QP	0.046 QP	0.046 QP	0.018 QP	0.078 QP	0.222 QP	0.269 QP	0.023 QP	0.041 QP	0.051 QP	0.048 QP
Copper	µg/L	0.43 NP	0.41 NP	0.43 NP	0.41 NP	0.46 NP	0.41 NP	0.46 NP	0.49 NP	0.51 NP	0.42 NP	0.49 NP	0.41 NP
Iron	µg/L	3	4	5	5	2	6	7	8	6	5	11	5
Lead	µg/L	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	0.03 QP	<0.01 QP	0.02 QP	<0.01 QP
Lithium	µg/L	8.5	9.2	10.1	9.7	9.1	10.0	10.4	10.6	9.3	9.8	9.9	10.1
Manganese	µg/L	4.86	7.89	9.89	9.03	4.73	9.52	12.8	14.9	5.45	8.54	8.94	9.46
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	0.0012	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	0.0005	<0.0005
Methyl Mercury, as Hg	µg/L	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
Molybdenum	µg/L	1.01	1.27	1.40	1.44	1.00	1.36	1.29	1.29	1.02	1.32	1.27	1.43
Nickel	µg/L	1.20	1.74	2.10	1.89	1.25	1.92	1.97	2.13	1.24	1.81	1.86	1.99
Rubidium	µg/L	4	4	4	4	4	4	4	5	4	4	4	4
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	619	675	694	703	635	704	710	714	616	685	668	697
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	0.6	<0.1	0.2	0.1	<0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1
Uranium	µg/L	0.12	0.15	0.16	0.17	0.12	0.17	0.15	0.14	0.12	0.16	0.15	0.17
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued)

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		**surface**	**mid**	**mid**	**bottom**	**surface**	**mid**	**bottom**	**bottom**	**surface**	**mid**	**mid**	**bottom**
Date Sampled (yyyy-mm-dd):		**2012-04-15**	**2012-04-15**	**2012-04-17**	**2012-04-15**	**2012-04-15**	**2012-04-15**	**2012-04-15**	**2012-04-17**	**2012-04-15**	**2012-04-15**	**2012-04-17**	**2012-04-15**
Sample Control Number:		**2012-5089**	**2012-5090**	**2012-5118**	**2012-5091**	**2012-5093**	**2012-5094**	**2012-5095**	**2012-5119**	**2012-5097**	**2012-5098**	**2012-5120**	**2012-5099**
Zinc	µg/L	1.2 NP	0.9 NP	1.3 NP	0.9 NP	1.0 NP	2.2 NP	2.7 NP	3.8 NP	1.7 NP	1.3 NP	2.8 NP	1.0 NP
Dissolved Metals and Metalloids													
Aluminum	µg/L	1.70 NP	2.05 NP	2.16 NP	2.03 NP	1.77 NP	2.61 NP	6.31 NP	9.0 NP	2.03 NP	1.84 NP	2.09 NP	1.93 NP
Antimony	µg/L	0.29 NP	0.15 NP	0.11 NP	0.10 NP	0.28 NP	0.09 NP	0.10 NP	0.12 NP	1.11 NP	0.38 NP	0.52 NP	0.16 NP
Arsenic	µg/L	0.11	0.10	0.11	0.10	0.11	0.10	0.10	0.10	0.15	0.11	0.10	0.10
Barium	µg/L	20.3	21.4	23.7	21.7	21.0	22.2	24.9	28.4	20.3	21.3	23.1	21.8
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	41.5 NP	45.7 NP	50.2 NP	47.6 NP	42.3 NP	46.2 NP	47.9 NP	53.7 NP	41.9 NP	47.1 NP	49.2 NP	47.5 NP
Cadmium	µg/L	0.009	0.005	<0.005	<0.005	0.009	0.006	0.014	0.016	0.011	<0.005	0.008	<0.005
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.12	0.17	0.14	0.19	0.13	0.16	0.12	0.19	0.14	0.16	0.17	0.18
Cobalt	µg/L	0.01	0.02	0.03	0.03	0.01	0.06	0.20	0.26	<0.01	0.02	0.03	0.03
Copper	µg/L	0.43 NP	0.38 NP	0.38 NP	0.39 NP	0.44 NP	0.38 NP	0.44 NP	0.45 NP	0.45 NP	0.38 NP	0.43 NP	0.41 NP
Iron	µg/L	<1	1	3	1	<1	1	3	4	<1	1	2	1
Lead	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	µg/L	8.6	9.5	10.2	9.7	8.8	9.9	10.1	10.7	9.2	10.1	10.2	10.1
Manganese	µg/L	3.15 QP	5.84 QP	7.87 QP	7.20 QP	3.20 QP	7.77 QP	11.40 QP	13.70 QP	3.61 QP	6.66 QP	6.91 QP	7.50 QP
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	1.00	1.25	1.42	1.38	1.01	1.35	1.28	1.28	0.99	1.34	1.30	1.46
Nickel	µg/L	1.18	1.65	2.05	1.90	1.23	1.93	1.93	2.12	1.18	1.81	1.87	1.98
Rubidium	µg/L	4	4	4	4	4	4	4	5	4	4	4	4
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	628	673	705	700	637	697	703	717	609	683	671	705
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.12	0.15	0.16	0.17	0.12	0.17	0.15	0.14	0.12	0.17	0.15	0.17
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	1.6 NP	1.2 NP	1.4 NP	1.5 NP	1.9 NP	1.7 NP	3.1 NP	4 NP	1.5 NP	1.2 NP	2.9 NP	1.2 NP
Organics-General													
F2 (>C_{10}-C_{16})	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Oil & Grease	mg/L	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP
Organics-Volatiles													
Benzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BTEX, calculated	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
Ethylbenzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
F1-BTEX	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
F1 (C_6-C_{10})	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
m&p-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Microbiology													
E. coli	MPN/100mL	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated the using formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Hg = mercury; Alberta Innovates = Alberta Innovates Technology Futures.

BTEX = benzene, toluene, ethylbenzene, and xylene; *E. coli* = *Escherichia coli;* F1 (C_6 – C_{10}) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > C_{10} to C_{16}.

< = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued)

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		surface	mid	bottom	surface	mid	bottom	surface	mid	bottom
Date Sampled (yyyy-mm-dd):		2012-03-18	2012-03-18	2012-03-18	2012-03-18	2012-03-18	2012-03-18	2012-03-21	2012-03-21	2012-03-21
Sample Control Number:		2012-5064	2012-5066	2012-5067	2012-5060	2012-5062	2012-5063	2012-5068	2012-5069	2012-5070
Field Parameters										
pH	unitless	7.0	7.0	7.0	7.1	7.1	7.1	6.5	6.7	6.8
Specific Conductivity	µS/cm	448	509	513	452	507	497	466	524	525
Water Temperature	°C	1.3	1.4	1.4	1.1	1.4	1.6	1.2	1.3	1.4
Dissolved Oxygen	mg/L	14.6	15.0	14.9	15.0	14.8	13.2	14.4	14.7	14.6
Conventional Parameters										
Laboratory pH	unitless	7.2 WH	7.4 WH	7.4 WH	7.3 WH	7.2 WH	7.3 WH	7.2 WH	7.3 WH	7.3 WH
Laboratory Specific Conductivity	µS/cm	453	481	509	458	499	492	454	506	470
Total Dissolved Solids, measured	mg/L	258	272	292	262	290	299	270	295	276
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	226 QP	231 QP	254 QP	217 QP	247 QP	239 QP	227 QP	248 QP	242 QP
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	221 QP	226 QP	249 QP	213 QP	243 QP	234 QP	223 QP	243 QP	237 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3
Turbidity	NTU	0.13 WH	0.14 WH	0.15 WH	0.13 WH	0.18 WH	0.14 WH	0.21 WH	0.23 WH	0.20 WH
Ions										
Bicarbonate, as HCO_3	mg/L	30	31	33	30	32	31	30	33	31
Calcium	mg/L	45.2	43.1	50.8	40.8	49.0	44.7	45.2	46.8	50.0
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	99.4	105	111	97.7	110	108	98.6	111	103
Fluoride	mg/L	0.14	0.15	0.15	0.14	0.15	0.15	0.14	0.16	0.15
Hardness, as $CaCO_3$	mg/L	136	129	152	123	147	134	137	141	150
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	5.7	5.2	6.2	5.1	6.0	5.4	5.8	5.8	6.2
Potassium	mg/L	2.13 QP	1.99 QP	2.63 QP	2.00 QP	2.3	2.13 QP	1.80 QP	1.78 QP	2.61 QP
Reactive Silica, as SiO_2	mg/L	1.06 NP	1.35 NP	1.59 NP	1.28 NP	1.91	2.02 NP	2.35 NP	2.58 NP	2.15 NP
Sodium	mg/L	23	22	27	22	25	23	25	25	27
Sulphate	mg/L	19.2	20.4	21.6	19.4	21.3	21.1	19.3	21.8	20.3
Total Alkalinity, as $CaCO_3$	mg/L	24	26	27	24	26	26	25	27	25
Nutrients										
BOD (5-day)	mg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014
Nitrate, as N, calculated	mg-N/L	2.34 WH	2.55 WH	2.75 WH	2.16 WH	2.55 WH	2.60 WH	2.22 WH	2.47 WH	2.33 WH
Nitrate/Nitrite, as N	mg-N/L	2.35 WH	2.57 WH	2.78 WH	2.18 WH	2.57 WH	2.62 WH	2.23 WH	2.49 WH	2.35 WH
Nitrite, as N	mg-N/L	0.014 WH	0.021 WH	0.025 WH	0.013 WH	0.023 WH	0.021 WH	0.016 WH	0.024 WH	0.020 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	0.150	0.263	0.273	0.144	0.249	0.220	0.150	0.251	0.259
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	0.413	0.490	0.519	0.43	0.48	0.43	0.49	0.53	0.52
Total Organic Carbon	mg/L	4 NP	3.9 NP	3.8 NP	4.1 NP	3.9 NP	3.9 NP	4.1 NP	3.8 NP	3.8 NP
Total Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014
Total Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Metals and Metalloids										
Aluminum	µg/L	2.58 NP	3.33 NP	3.15 NP	2.94 NP	3.05 NP	4.47 NP	2.46 NP	2.9 NP	2.78 NP
Antimony	µg/L	1.49 NP	0.40 NP	0.23 NP	1.57 NP	0.60 NP	0.35 NP	1.59 NP	0.23 NP	0.45 NP
Arsenic	µg/L	0.11	0.09	0.10	0.10	0.10	0.10	0.11	0.09	0.09
Barium	µg/L	22.3	22.0	22.3	22.2	22.3	22.5	21.0	21.9	21.8
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	41.8 NP	42.2 NP	44.4 NP	40.5 NP	43.7 NP	44.5 NP	41.5 NP	46.7 NP	45.7 NP
Cadmium	µg/L	0.071	<0.005	0.005	0.030	0.033	<0.005	<0.005	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	0.069 NP	0.007 NP	0.007 NP	0.034 NP	0.007 NP	0.006 NP	0.005 NP	0.006 NP	0.006 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	<0.06	0.09	0.09	0.07	0.10	0.12	0.06	0.09	0.08
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	0.018 QP	0.047 QP	0.048 QP	0.018 QP	0.049 QP	0.046 QP	0.022 QP	0.041 QP	0.038 QP
Copper	µg/L	0.50 NP	0.35 NP	0.35 NP	0.46 NP	0.36 NP	0.37 NP	0.40 NP	0.37 NP	0.41 NP
Iron	µg/L	3	5	5	4	5	7	3	4	4
Lead	µg/L	0.01 QP	<0.01 QP	<0.01 QP	0.04 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP
Lithium	µg/L	10.7	10.4	10.8	10.0	10.6	10.9	9.1	10.2	10.1
Manganese	µg/L	5.57	8.97	9.42	5.25	8.85	8.64	5.36	8.80	8.64
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Methyl Mercury, as Hg	µg/L	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008	<0.00008
Molybdenum	µg/L	1.05	1.30	1.32	1.04	1.28	1.29	1.01	1.26	1.24
Nickel	µg/L	1.19	1.80	1.90	1.21	1.82	1.73	1.17	1.67	1.69
Rubidium	µg/L	4	4	4	4	4	4	4	4	4
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012 (continued)

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		surface	mid	bottom	surface	mid	bottom	surface	mid	bottom
Date Sampled (yyyy-mm-dd):		2012-03-18	2012-03-18	2012-03-18	2012-03-18	2012-03-18	2012-03-18	2012-03-21	2012-03-21	2012-03-21
Sample Control Number:		2012-5064	2012-5066	2012-5067	2012-5060	2012-5062	2012-5063	2012-5068	2012-5069	2012-5070
Strontium	µg/L	623	663	669	611	654	668	587	656	652
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	0.1	<0.1	0.2	0.1	<0.1	0.1	<0.1
Uranium	µg/L	0.12	0.16	0.16	0.12	0.16	0.15	0.12	0.16	0.16
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	1.5 NP	<0.8 NP	<0.8 NP	2.2 NP	0.9 NP	1.0 NP	<0.8 NP	<0.8 NP	<0.8 NP
Dissolved Metals and Metalloids										
Aluminum	µg/L	2.13 NP	2.45 NP	2.56 NP	1.8 NP	2.45 NP	2.19 NP	2.54 NP	1.99 NP	2.42 NP
Antimony	µg/L	0.36 NP	0.11 NP	0.09 NP	0.66 NP	0.23 NP	0.12 NP	0.42 NP	0.11 NP	0.14 NP
Arsenic	µg/L	0.11	0.09	0.10	0.11	0.11	0.10	0.10	0.10	0.10
Barium	µg/L	22.6	22.2	22.6	22.1	22.4	22.4	21.2	21.9	21.7
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02
Boron	µg/L	40.5 NP	44.8 NP	44.8 NP	41.6 NP	43.9 NP	42.1 NP	40.9 NP	46.7 NP	45.6 NP
Cadmium	µg/L	0.066	<0.005	<0.005	0.030	<0.005	<0.005	<0.005	<0.005	<0.005
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.06	0.10	0.10	0.06	0.09	0.06	<0.06	0.08	0.09
Cobalt	µg/L	0.01	0.03	0.04	0.01	0.03	0.03	0.01	0.03	0.03
Copper	µg/L	0.48 NP	0.44 NP	0.35 NP	0.43 NP	0.75 NP XG	0.36 NP	0.49 NP	0.37 NP	0.40 NP
Iron	µg/L	1	2	2	1	2	3	1	1	2
Lead	µg/L	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.01	<0.01	<0.01
Lithium	µg/L	10.2	10.9	10.8	10.5	10.7	10.1	9.1	10.3	10.1
Manganese	µg/L	4.38 QP	7.82 QP	8.22 QP	4.07 QP	7.51 QP	7.59 QP	3.83 QP	7.60 QP	7.05 QP
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	1.03	1.32	1.34	1.04	1.31	1.25	1.04	1.28	1.25
Nickel	µg/L	1.22	1.89	1.89	1.19	1.74	1.65	1.17	1.72	1.66
Rubidium	µg/L	4	4	4	4	4	4	4	4	4
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	617	659	673	613	658	652	598	668	651
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.12	0.16	0.17	0.12	0.16	0.15	0.12	0.16	0.15
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	1.7 NP	<0.8 NP	0.9 NP	2.4 NP	1.1 NP	0.9 NP	1.2 NP	0.9 NP	<0.8 NP
Organics-General										
F2 (>C_{10}-C_{16})	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Oil & Grease	mg/L	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP
Organics-Volatiles										
Benzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BTEX, calculated	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
Ethylbenzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
F1-BTEX	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
F1 (C_6-C_{10})	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
m&p-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Microbiology										
E. coli	MPN/100mL	<1	<1	<1	<1	<1	<1	<1 WH	<1 WH	<1 WH

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency;

· XG = data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater(APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Hg = mercury; Alberta Innovates = Alberta Innovates Technology Futures.

BTEX = benzene, toluene, ethylbenzene, and xylene;*E. coli= Escherichia coli;* F1 (C_6 – C_{10}) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > C_{10} to C_{16}.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres.

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**
Date Sampled (yyyy-mm-dd):		**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**
Sample Control Number:		**2012-5043**	**2012-5044**	**2012-5045**	**2012-5038**	**2012-5039**	**2012-5040**	**2012-5048**	**2012-5049**	**2012-5050**
Field Parameters										
pH	unitless	6.9	7.0	7.0	7.0	7.1	6.9	7.0	7.0	7.0
Specific Conductivity	µS/cm	448	513	518	476	513	503	452	515	518
Water Temperature	°C	1.1	1.1	1.1	1.2	1.2	1.5	0.9	1.1	1.2
Dissolved Oxygen	mg/L	13.9	14.4	14.5	14.6	14.2	12.2	14.1	14.5	14.5
Conventional Parameters										
Laboratory pH	unitless	7.5 WH	7.6 WH	7.6 WH	7.6 WH	7.6 WH	7.5 WH	7.5 WH	7.5 WH	7.6 WH
Laboratory Specific Conductivity	µS/cm	431	476	483	454	482	481	426	461	482
Total Dissolved Solids, measured	mg/L	206	296	296	275	217 WH	289	228	280	290
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	210 QP	234 QP	236 QP	228 QP	243 QP	241 QP	212 QP	222 QP	250 QP
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	206 QP	230 QP	232 QP	224 QP	239 QP	237 QP	208 QP	218 QP	245 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3
Turbidity	NTU	0.15 WH	0.12 WH	0.12 WH	0.13 WH	0.13 WH	0.13 WH	0.13 WH	0.14 WH	0.15 WH
Ions										
Bicarbonate, as HCO_3	mg/L	26	27	29	26	29	27	25	27	29
Calcium	mg/L	41.5	46.6	46.2	47.0	50.1	50.1	43.6	42.8	53.4
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	95.0	105	106	101	106	105	93.6	101	106
Fluoride	mg/L	0.14	0.15	0.15	0.15	0.15	0.15	0.14	0.15	0.15
Hardness, as $CaCO_3$	mg/L	125	140	138	141	150	151	131	129	161
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	5.1	5.9	5.5	5.8	6.1	6.2	5.4	5.4	6.7
Potassium	mg/L	1.99 QP	2.21 QP	2.16 QP	2.34 QP	2.43 QP	2.58 QP	2.17 QP	2.21 QP	2.80 QP
Reactive Silica, as SiO_2	mg/L	0.88 NP	1.35 NP	1.39 NP	0.94 NP	1.52 NP	1.53 NP	0.89 NP	1.24 NP	1.45 NP
Sodium	mg/L	22	24	24	24	27	27	23	23	28
Sulphate	mg/L	18.4	20.6	20.9	19.7	20.7	20.6	18.4	19.7	20.9
Total Alkalinity, as $CaCO_3$	mg/L	21	23	24	22	24	22	20	22	24
Nutrients										
BOD (5-day)	mg/L	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH	<2 WH
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014
Nitrate, as N, calculated	mg-N/L	1.89 WH	2.35 WH	2.33 WH	2.08 WH	2.46 WH	2.37 WH	1.83 WH	2.15 WH	2.37 WH
Nitrate/Nitrite, as N	mg-N/L	1.90 WH	2.38 WH	2.36 WH	2.10 WH	2.49 WH	2.40 WH	1.85 WH	2.17 WH	2.40 WH
Nitrite, as N	mg-N/L	0.013 WH	0.025 WH	0.026 WH	0.013 WH	0.025 WH	0.022 WH	0.013 WH	0.021 WH	0.026 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	0.130	0.263	0.243	0.139	0.277	0.238	0.127	0.264	0.273
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0019	<0.001
Total Kjeldahl Nitrogen	mg-N/L	0.442	0.537	0.575	0.480	0.589	0.545	0.490	0.530	0.540
Total Organic Carbon	mg/L	3.9 NP	3.9 NP	3.7 NP	3.9 NP	3.6 NP	4.1 NP	4.1 NP	3.8 NP	4.1 NP
Total Organic Phosphorus, calculated	mg-P/L	0.0015	0.0019	<0.0014	0.0022	<0.0014	0.0021	0.0020	<0.0014	0.0020
Total Phosphorus	mg-P/L	0.002	0.002	<0.001	0.002	<0.001	0.002	0.002	0.002	0.002
Total Metals and Metalloids										
Aluminum	µg/L	4.17 NP	2.93 NP	3.27 NP	2.83 NP	2.42 NP	3.37 NP	2.87 NP	3.29 NP	3.35 NP
Antimony	µg/L	2.94 NP	0.40 NP	0.36 NP	1.11 NP	0.18 NP	0.17 NP	1.21 NP	0.16 NP	0.17 NP
Arsenic	µg/L	0.10	0.11	0.10	0.12	0.10	0.10	0.11	0.10	0.10
Barium	µg/L	21.4	22.0	22.5	22.5	21.8	21.8	21.3	21.8	22.1
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	38.4 NP	43.9 NP	44.7 NP	40.3 NP	44.9 NP	43.7 NP	38.7 NP	43.4 NP	43.8 NP
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	0.009 NP	0.007 NP	0.002 NP	0.004 NP	0.003 NP	0.005 NP	0.005 NP	0.003 NP	0.004 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	<0.06	0.10	0.08	<0.06	0.09	0.07	0.06	<0.06	0.08
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	0.021 QP	0.038 QP	0.043 QP	0.019 QP	0.050 QP	0.043 QP	0.016 QP	0.047 QP	0.038 QP
Copper	µg/L	0.44 NP	0.41 NP	0.40 NP	0.46 NP	0.41 NP	0.42 NP	0.42 NP	0.38 NP	0.40 NP
Iron	µg/L	4	4	4	4	5	5	3	4	4
Lead	µg/L	0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP
Lithium	µg/L	7.9	8.6	8.8	8.8	9.5	9.4	7.4	9.5	9.4
Manganese	µg/L	4.65	7.75	8.92	4.68	8.83	8.26	4.50	8.12	8.23
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Methyl Mercury, as Hg	µg/L	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
Molybdenum	µg/L	0.97	1.28	1.38	1.01	1.30	1.24	0.98	1.29	1.30
Nickel	µg/L	1.08	1.59	1.79	1.18	1.69	1.59	1.04	1.63	1.61
Rubidium	µg/L	4	4	4	4	4	4	4	4	4
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Table 3C-1 Snap Lake Water Quality Results for Samples Collected from the Diffuser Stations, 2012

Sample Point:	Units	SNP 02-20d	SNP 02-20d	SNP 02-20d	SNP 02-20e	SNP 02-20e	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20f
Depth:		**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**	**surface**	**mid**	**bottom**
Date Sampled (yyyy-mm-dd):		**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**	**2012-02-19**
Sample Control Number:		**2012-5043**	**2012-5044**	**2012-5045**	**2012-5038**	**2012-5039**	**2012-5040**	**2012-5048**	**2012-5049**	**2012-5050**
Strontium	µg/L	610	674	680	643	668	663	609	665	664
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	0.2	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.1	<0.1
Uranium	µg/L	0.12	0.15	0.17	0.12	0.16	0.15	0.12	0.16	0.17
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	<0.8 NP	<0.8 NP	1.1 NP	<0.8 NP	<0.8 NP	<0.8 NP	<0.8 NP	<0.8 NP	<0.8 NP
Dissolved Metals and Metalloids										
Aluminum	µg/L	2.25 NP	2.52 NP	2.81 NP	2.03 NP	2.33 NP	2.57 NP	2.48 NP	2.48 NP	2.69 NP
Antimony	µg/L	0.45 NP	0.12 NP	0.11 NP	0.16 NP	0.07 NP	0.08 NP	0.19 NP	0.09 NP	0.08 NP
Arsenic	µg/L	0.10	0.11	0.09	0.11	0.10	0.11	0.11	0.09	0.10
Barium	µg/L	20.8	21.5	22.0	21.8	21.8	21.9	20.8	21.7	21.7
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	39.5 NP	42.7 NP	44.6 NP	39.9 NP	44.5 NP	43.6 NP	38.4 NP	43 NP	43.6 NP
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.07	0.07	0.10	0.06	0.07	0.06	<0.06	0.06	0.08
Cobalt	µg/L	0.02	0.03	0.04	0.02	0.04	0.03	0.01	0.04	0.04
Copper	µg/L	0.47 NP	0.44 NP	0.45 NP	0.47 NP	0.41 NP	0.40 NP	0.42 NP	0.39 NP	0.39 NP
Iron	µg/L	2	2	2	2	2	2	1	2	2
Lead	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	µg/L	8.6	9.0	9.6	9.1	9.7	9.3	8.4	9.3	9.4
Manganese	µg/L	3.96 QP	6.72 QP	7.82 QP	3.97 QP	7.99 QP	7.36 QP	3.86 QP	7.47 QP	7.49 QP
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	0.95	1.22	1.37	0.95	1.31	1.27	0.92	1.28	1.29
Nickel	µg/L	1.08	1.48	1.68	1.06	1.72	1.61	1.02	1.65	1.60
Rubidium	µg/L	4	4	4	4	4	4	4	4	4
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	601	645	675	629	668	655	590	663	663
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.12	0.16	0.17	0.13	0.17	0.15	0.12	0.17	0.17
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	1.8 NP	1.7 NP	0.8 NP	<0.8 NP	0.8 NP	<0.8 NP	<0.8 NP	<0.8 NP	<0.8 NP
Organics-General										
F2 (>C_{10}-C_{16})	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Oil & Grease	mg/L	<1 QP	1.3 QP	<1 QP	1.2 QP	<1 QP	<1 QP	<1 QP	<1 QP	<1 QP
Organics-Volatiles										
Benzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BTEX, calculated	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
Ethylbenzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
F1-BTEX	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
F1 (C_6-C_{10})	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
m&p-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Microbiology										
E. coli	MPN/100mL	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency;

· XG = data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater(APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Hg = mercury; Alberta Innovates = Alberta Innovates Technology Futures.

BTEX = benzene, toluene, ethylbenzene, and xylene;*E. coli= Escherichia coli;* F1 (C_6 – C_{10}) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > C_{10} to C_{16}.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres.

Table 3C-10 Snap Lake Water Quality Results for Samples Collected from the Lake 13 Stations, 201

Sample Point:	Units	LK13[a]			LK13[b]	LK13-01	LK13-02	LK13-03	LK13-04	LK13-05
Depth:					mid	mid	mid	mid	mid	mid
Date Sampled (yyyy-mm-dd):		July 2005			2012-07-10	2012-08-18	2012-08-19	2012-08-19	2012-08-20	2012-08-20
Sample Control Number:		mean	min	max	2012-5186	2012-9001	2012-9002	2012-9003	2012-9004	2012-9005
Field Parameters										
pH	unitless	-	-	-	6.7	6.6	6.7	6.7	6.2	6.8
Specific Conductivity	µS/cm	-	-	-	18	20	19	19	19	19
Water Temperature	°C	-	-	-	17.6	15.2	15.2	15.4	15.3	15.4
Dissolved Oxygen	mg/L	-	-	-	8.6	9.6	9.9	9.8	10.1	10.1
Conventional Parameters										
Laboratory pH	unitless	6.3	6.3	6.4	7.1 WH	7.1 WH	7.1 WH	7.1 WH	7.2 WH	7.1 WH
Laboratory Specific Conductivity	µS/cm	18	18	19	17	19	18	18	18	18
Total Dissolved Solids, measured	mg/L	13	<10	20	<10 WH	<10	<10	<10	16	20
Total Dissolved Solids, calculated (Lab)[c]	mg/L	7.3	7.0	8.0	10.9	9.0	8.0	9.0	13.2	8.3
Total Dissolved Solids, calculated (Standard Methods)[c]	mg/L	-	-	-	7.9	9.0	8.0	9.0	13.2	8.4
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3
Turbidity	NTU	0.23	0.20	0.30	0.23 WH	0.37 WH	0.37 WH	0.35 WH	0.42 WH	0.47 WH
Ions										
Bicarbonate, as HCO_3	mg/L	7	7	8	8	9	7	8	8	8
Calcium	mg/L	1.6	1.5	1.7	1.7	2.1	2.0	2.2	1.8	1.9
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	<1	<1	<1	<0.5	<0.5	<0.5	<0.5	4.7	<0.5
Fluoride	mg/L	-	-	-	<0.05	0.05	0.05	0.05	0.05	0.05
Hardness, as $CaCO_3$	mg/L	6	6	7	7	9	8	9	7	8
Hydroxide, as OH	mg/L	-	-	-	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	0.6	0.6	0.6	0.7	0.8	0.8	0.9	0.6	0.7
Potassium	mg/L	0.5	0.5	0.5	0.6	0.6	0.5	0.6	0.6	0.6
Reactive Silica, as SiO_2	mg/L	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sodium	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sulphate	mg/L	1.2	1.2	1.3	1.0	1.2	1.1	1.2	1.7	1.1
Total Alkalinity, as $CaCO_3$	mg/L	6	5	7	7	7	6	7	6	7
Nutrients										
Dissolved Inorganic Phosphorus	mg-P/L	-	-	-	<0.001	<0.001	<0.001	<0.001	0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	-	-	-	<0.0014	0.0015	0.0018	0.0017	<0.0014	0.0015
Nitrate, as N, calculated	mg-N/L	<0.006	<0.006	<0.006	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH
Nitrate/Nitrite, as N	mg-N/L	<0.006	<0.006	<0.006	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH
Nitrite, as N	mg-N/L	<0.002	<0.002	<0.002	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH
ortho-Phosphate, as P	mg-P/L	<0.001	<0.001	<0.001	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Dissolved Phosphorus	mg-P/L	-	-	-	<0.001	0.002	0.002	0.002	<0.001	0.002
Total Inorganic Phosphorus	mg-P/L	-	-	-	<0.001	0.002	0.002	0.003	0.003	0.002
Total Kjeldahl Nitrogen	mg-N/L	0.15	0.12	0.21	0.13	0.08	0.07	0.11	0.15	0.14
Total Organic Carbon	mg/L	3.5	3.0	4.0	3	3.5	3.8	3.5	4.2	3.4
Total Organic Phosphorus, calculated	mg-P/L	-	-	-	0.0018	0.0021	0.0020	0.0015	<0.0014	<0.0014
Total Phosphorus	mg-P/L	0.003	0.002	0.003	0.002	0.004	0.004	0.005	0.003	0.003
Total Metals and Metalloids										
Aluminum	µg/L	7.22	5.60	8.30	9.84	7.09	7.09	6.46	7.06	7.6
Antimony	µg/L	-	-	-	<0.02	0.02	0.02	0.02	<0.02	<0.02
Arsenic	µg/L	0.12	0.11	0.12	0.11	0.13	0.12	0.12	0.13	0.12
Barium	µg/L	1.9	1.8	2.0	1.8	1.9	1.6	1.5	1.5	1.6
Beryllium	µg/L	<0.2	<0.2	<0.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.03	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	1.0	1.0	1.0	2	9.8	2.6	2.4	2.3	2.5
Cadmium	µg/L	<0.002	<0.002	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	-	-	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.08	<0.06	0.13	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Hexavalent Chromium	µg/L	<0.001	<0.001	<0.001	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	<0.1	<0.1	<0.1	0.01	0.02	0.02	0.02	0.02	0.02
Copper	µg/L	<0.6	<0.6	<0.6	0.4	0.5	0.4	0.4	0.4	0.4
Iron	µg/L	13	11	15	10	19	14	12	13	14
Lead	µg/L	0.05	<0.05	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lithium	µg/L	1.1	1.0	1.2	1.3	1.2	1.2	1.3	1.2	1.3
Manganese	µg/L	2.37	2.20	2.50	1.92	5.34	5.09	4.22	4.54	4.51
Mercury	µg/L	0.01	0.01	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	-	-	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Molybdenum	µg/L	<0.06	<0.06	<0.06	<0.05	0.14	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	0.25	0.23	0.27	0.17	0.27	0.17	0.19	0.17	0.17
Rubidium	µg/L	1	1	1	1	1	1	1	1	1
Selenium	µg/L	<0.4	<0.4	<0.4	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	0.010	0.009	0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	8	8	9	9	10	9	9	9	9
Thallium	µg/L	<0.03	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	0.1	<0.1	0.2	<0.1	<0.1	<0.1	0.1	<0.1	0.1
Uranium	µg/L	<0.05	<0.05	<0.05	0.01	0.04	0.01	0.01	0.01	0.02
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	0.9	<0.8	1.0	<0.8	<0.8	1.4	<0.8	<0.8	1.9

Notes:

Water samples LK13-01 to LK13-05 were collected as pat of the Suitability of Provisional Reference Lake 13 as a Reference Lake Special Study (Section 12.3). Therefore, the collected data were validated under the quality assurance and quality control criteria developed for the program, and no flags were assigned.

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) 2005 summary statistics for Lake 13 were obtained from the Field Investigation and Reference Lake Selection Study completed in 2005 (Golder 2005).

(b) Sample was collected for the fish health component (Section 7) as part of 2012 AEMP.

(c) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated the using formula outlined in (APHA 2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO = silicate; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates Technology Futures.

Table 3C-9 Snap Lake Water Quality Results for Samples Collected from the King Lake Stations, 2012

Sample Point:	Units	KING01	KING01	KING01	KING01
Depth:		mid	mid	mid	mid
Date Sampled (yyyy-mm-dd):		2012-01-14	2012-04-17	2012-07-13	2012-09-10
Sample Control Number:		2012-5001	2012-5115	2012-5198	2012-5275
Field Parameters					
pH	unitless	6.3	7.3	7.6	7.0
Specific Conductivity	µS/cm	28	30	23	23
Water Temperature	°C	0.4	0.7	16.8	11.9
Dissolved Oxygen	mg/L	16.2	15.8	9.5	10.5
Conventional Parameters					
Laboratory pH	unitless	7.1 WH	7.0 WH	7.0 WH	7.1 XH
Laboratory Specific Conductivity	µS/cm	28	29	21	22
Total Dissolved Solids, measured	mg/L	27	19	23	15 WH
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	13.1 QP	17.7 QP	12.9 QP	13.3 QP
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	13.6 QP	14.0 QP	9.3 QP	10.2 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3 WH
Turbidity	NTU	0.22 WH	0.15 WH	0.31 WH	0.38 WH
Ions					
Bicarbonate, as HCO_3	mg/L	8	9	7	7
Calcium	mg/L	2.5	2.3	1.8	1.7
Carbonate, as CO_3	mg/L	<5	<5	<5	<5
Chloride	mg/L	2.0	2.5	1.3	1.7
Fluoride	mg/L	<0.05	0.06	<0.05	0.05
Hardness, as $CaCO_3$	mg/L	10	9	7	8
Hydroxide, as OH	mg/L	<5	<5	<5	<5
Magnesium	mg/L	0.9	0.8	0.7	0.8
Potassium	mg/L	0.61 QP	0.64 QP	0.55 QP	0.55 QP
Reactive Silica, as SiO_2	mg/L	0.41 NP	0.42 NP	<0.5 NP	<0.5 NP
Sodium	mg/L	1	1	<1	<1
Sulphate	mg/L	1.9	1.9	1.4	1.6
Total Alkalinity, as $CaCO_3$	mg/L	7	7	6	6
Nutrients					
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014
Nitrate, as N, calculated	mg-N/L	0.008 WH	<0.006 WH	<0.006 WH	<0.006 WH
Nitrate/Nitrite, as N	mg-N/L	0.008 WH	<0.006 WH	<0.006 WH	<0.006 WH
Nitrite, as N	mg-N/L	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	<0.005	<0.005	<0.005	<0.005
Total Dissolved Phosphorus	mg-P/L	0.001	<0.001	<0.001	0.001
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	0.09	<0.05	0.06	0.18
Total Organic Carbon	mg/L	3.5 NP	3.7 NP	3.6 NP	3.2 NP
Total Organic Phosphorus, calculated	mg-P/L	0.0021	0.0025	0.0016	0.0033
Total Phosphorus	mg-P/L	0.002	0.003	0.003	0.003
Total Metals and Metalloids					
Aluminum	µg/L	3.61 NP	2.80 NP	11.80 NP	8.25 NP
Antimony	µg/L	<0.02 NP	0.02 NP	<0.02 NP	0.05 NP
Arsenic	µg/L	0.07	0.10	0.09	0.09
Barium	µg/L	3.0	3.6	3.1	3.4

Table 3C-9 Snap Lake Water Quality Results for Samples Collected from the King Lake Stations, 2012

Sample Point:	Units	KING01	KING01	KING01	KING01
Depth:		mid	mid	mid	mid
Date Sampled (yyyy-mm-dd):		2012-01-14	2012-04-17	2012-07-13	2012-09-10
Sample Control Number:		2012-5001	2012-5115	2012-5198	2012-5275
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	3.5 NP	3.2 NP	4.0 NP	2.6 NP
Cadmium	µg/L	<0.005	<0.005	<0.005	0.010
Cadmium (Alberta Innovates)	µg/L	<0.002 NP	0.044 NP	0.001 NP	0.005 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.12	0.10	<0.06	0.06
Hexavalent Chromium	µg/L	<1	<1	<1	<1
Cobalt	µg/L	0.01 QP	<0.01	0.03 QP	0.04 QP
Copper	µg/L	0.55 NP	0.58 NP	0.69 NP	0.71 NP
Iron	µg/L	5	4	15	19
Lead	µg/L	<0.01 QP	<0.01 QP	<0.01 QP	0.01 QP
Lithium	µg/L	1.1	1.3	1.2	1.2
Manganese	µg/L	1.63	1.42	2.92	6.85
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005
Molybdenum	µg/L	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	0.32	0.35	0.44	0.47
Rubidium	µg/L	1	2	1	1
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	16	17	13	13
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	0.2	0.1
Uranium	µg/L	0.02	0.02	0.02	0.02
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	<0.8 NP	0.9 NP	<0.8 NP	2.3 NP

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency;

· XH = data invalidated because holding time was exceeded; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates Technology Futures.

< = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre.

Table 3C-8 Snap Lake Water Quality Results for Samples Collected from the Northeast Lake Stations, 2012 (continued)

Sample Point:	Units	NEL01	NEL02	NEL03	NEL04	NEL05	NEL01	NEL02	NEL03	NEL04	NEL05
Depth:		mid	mid	mid	mid	mid	mid	mid	mid	mid	mid
Date Sampled (yyyy-mm-dd):		2012-07-10	2012-07-10	2012-07-10	2012-07-10	2012-07-10	2012-09-08	2012-09-08	2012-09-08	2012-09-08	2012-09-08
Sample Control Number:		2012-5176	2012-5177	2012-5178	2012-5179	2012-5180	2012-5254	2012-5255	2012-5256	2012-5257	2012-5258
Field Parameters											
pH	unitless	6.5	6.2	6.2	6.3	6.2	7.0	6.7	6.6	6.6	6.6
Specific Conductivity	µS/cm	22	22	22	22	22	20	19	20	20	20
Water Temperature	°C	13.8	13.1	13.3	12.6	13.2	13.1	13.2	13.1	13.3	13.1
Dissolved Oxygen	mg/L	10.7	10.9	10.1	10.9	10.9	9.8	9.9	9.8	9.8	9.9
Conventional Parameters											
Laboratory pH	unitless	7.3 WH	7.1 WH	7.1 WH	7.1 WH	7.1 WH	7.0 WH	7.0 WH	7.0 WH	7.0 WH	7.0 WH
Laboratory Specific Conductivity	µS/cm	20.2	20	20	20	20	19	19	19	20	19
Total Dissolved Solids, measured	mg/L	15 WH	24 WH	16 WH	18 WH	17 WH	13	14	20	10	16
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	13.6 QP	13.3 QP	13.3 QP	13.3 QP	12.8 QP	14.3 QP	12.8 QP	14.2 QP	13.1 QP	13.1 QP
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	10.2 QP	10.0 QP	9.9 QP	10.0 QP	9.6 QP	10.4 QP	9.2 QP	9.4 QP	9.6 QP	9.6 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Turbidity	NTU	0.22 WH	0.31 WH	0.21 WH	0.22 WH	0.44 WH	0.38 WH	0.42 WH	0.39 WH	0.37 WH	0.39 WH
Ions											
Bicarbonate, as HCO_3	mg/L	8	8	8	8	8	8	7	8	8	8
Calcium	mg/L	1.8	1.9	1.8	1.9	1.7	1.7	1.6	1.6	1.7	1.7
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.7	0.7	0.7
Fluoride	mg/L	0.06	0.06	0.06	0.05	<0.05	0.08	<0.05	<0.05	<0.05	<0.05
Hardness, as $CaCO_3$	mg/L	8	8	8	8	8	8	7	7	8	8
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8
Potassium	mg/L	0.63 QP	0.72 QP	0.64 QP	0.72 QP	0.68 QP	0.66 QP	0.55 QP	0.66 QP	0.65 QP	0.64 QP
Reactive Silica, as SiO_2	mg/L	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP
Sodium	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sulphate	mg/L	2.1	2.0	2.0	2.0	2.0	2.1	2.0	1.9	1.9	1.9
Total Alkalinity, as $CaCO_3$	mg/L	7	6	6	6	6	7	6	6	6	6
Nutrients											
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	0.0019	0.0017	0.0068	0.0015	0.0026	<0.0014	<0.0014	<0.0014
Nitrate, as N, calculated	mg-N/L	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	0.014 WH	0.026 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH
Nitrate/Nitrite, as N	mg-N/L	0.010 WH	<0.006 WH	<0.006 WH	<0.006 WH	0.029 WH	0.026 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH
Nitrite, as N	mg-N/L	0.007 WH	<0.002 WH	<0.002 WH	<0.002 WH	0.0147 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Dissolved Phosphorus	mg-P/L	<0.001	0.001	0.002	0.002	0.007	0.002	0.003	0.001	0.001	0.001
Total Inorganic Phosphorus	mg-P/L	0.001	0.003	0.002	0.002	0.005	0.001	0.002	0.001	0.001	0.001
Total Kjeldahl Nitrogen	mg-N/L	0.100	<0.05	0.101	0.145	0.14	0.15	0.13	0.15	0.10	0.12
Total Organic Carbon	mg/L	3.4 NP	3.3 NP	3.4 NP	3.3 NP	3.2 NP	4.0 NP	3.6 NP	4.8 NP	3.5 NP	3.5 NP
Total Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	0.0020	0.0016	0.0020	0.0019	<0.0014
Total Phosphorus	mg-P/L	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003
Total Metals and Metalloids											
Aluminum	µg/L	6.56 NP	5.65 NP	6.11 NP	6.29 NP	6.4 NP	6.35 NP	6.1 NP	5.99 NP	6.74 NP	7.35 NP
Antimony	µg/L	0.07 NP	0.04 NP	0.05 NP	0.04 NP	0.05 NP	0.07 NP	0.03 NP	0.03 NP	<0.02	0.02 NP
Arsenic	µg/L	0.08	0.08	0.07	0.07	0.07	0.08	0.08	0.07	0.08	0.07
Barium	µg/L	2.9	3.0	2.9	3.0	3.0	2.8	2.9	2.8	3.2	2.8
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	3.0 NP	2.3 NP	3.4 NP	2.3 NP	2.3 NP	1.7 NP	1.7 NP	1.6 NP	1.6 NP	1.9 NP
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	<0.002 NP	<0.002 NP	<0.002 NP	<0.002 NP	0.002 NP	<0.002 NP	0.002 NP	<0.002 NP	0.004 NP	<0.002 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	-[(b)]	-[(b)]	<1	<1	<1
Cobalt	µg/L	0.02 QP	0.02 QP	0.01 QP	0.03 QP	0.02 QP	0.02 QP	0.02 QP	0.02 QP	0.02 QP	0.02 QP
Copper	µg/L	0.51 NP	0.49 NP	0.51 NP	0.51 NP	0.5 NP	0.51 NP	0.48 NP	0.45 NP	0.48 NP	0.58 NP
Iron	µg/L	10	9	9	10	9	10	10	11	11	12
Lead	µg/L	<0.01 QP	0.02 QP	<0.01 QP	0.03 QP	<0.01 QP	0.03 QP	<0.01 QP	0.01 QP	<0.01 QP	0.03 QP
Lithium	µg/L	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	3.3
Manganese	µg/L	2.49	2.44	2.39	2.44	2.44	4.22	4.32	4.39	4.48	5.12
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Molybdenum	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	0.31	0.32	0.30	0.36	0.32	0.24	0.22	0.19	0.23	0.23
Rubidium	µg/L	1	1	1	1	1	1	1	1	1	1
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	10	10	10	10	10	11	10	10	10	10
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1	<0.1	0.1	<0.1	0.2	<0.1	0.1	<0.1	<0.1
Uranium	µg/L	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	1.0 NP	<0.8 NP	1.3 NP	2.0 NP	1.0 NP	1.4 NP	<0.8 NP	<0.8 NP	2.0 NP	1.5 NP

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

(b) Hexavalent chromium sample was not received at ALS Canada Ltd.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates Technology Futures.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre.

Table 3C-8 Snap Lake Water Quality Results for Samples Collected from the Northeast Lake Stations, 2012

Sample Point:	Units	NEL01	NEL02	NEL03	NEL04	NEL05	NEL01	NEL02	NEL03	NEL04	NEL05
Depth:		mid	mid	mid	mid	mid	mid	mid	mid	mid	mid
Date Sampled (yyyy-mm-dd):		2012-02-21	2012-02-21	2012-02-21	2012-02-21	2012-02-21	2012-04-14	2012-04-14	2012-04-14	2012-04-14	2012-04-14
Sample Control Number:		2012-5026	2012-5027	2012-5028	2012-5029	2012-5030	2012-5076	2012-5077	2012-5078	2012-5079	2012-5080
Field Parameters											
pH	unitless	6.1	6.5	6.4	6.3	6.3	6.8	6.2	6.2	6.4	6.3
Specific Conductivity	µS/cm	26	23	24	26	23	27	24	25	27	24
Water Temperature	°C	1.0	0.9	0.8	0.9	0.9	1.2	1.1	1.0	1.2	1.2
Dissolved Oxygen	mg/L	13.9	13.3	14.1	14.9	14.0	13.9	13.7	13.9	14.7	12.9
Conventional Parameters											
Laboratory pH	unitless	7.2 WH	7.2 WH	7.1 WH	7.1 WH	7.1 WH	7.0 WH	7.0 WH	6.8 WH	7.0 WH	6.8 WH
Laboratory Specific Conductivity	µS/cm	26.1	23.9	24.1	25.8	23.6	26.3	24.2	24.3	27.0	24.3
Total Dissolved Solids, measured	mg/L	17 WH	16	20	22	15	24	25	20	17	24
Total Dissolved Solids, calculated (Lab)[a]	mg/L	15.3 QP	14.0 QP	14.2 QP	14.9 QP	14.9 QP	15.8 QP	14.5 QP	14.1 QP	16.2 QP	14.3 QP
Total Dissolved Solids, calculated (Standard Methods)[a]	mg/L	11.4 QP	10.5 QP	10.6 QP	11.4 QP	10.9 QP	11.1 QP	10.2 QP	10.4 QP	11.9 QP	10.8 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Turbidity	NTU	0.28	0.40	0.17	0.29	0.31	0.22 WH	0.20 WH	0.21 WH	0.23 WH	0.19 WH
Ions											
Bicarbonate, as HCO_3	mg/L	9	9	8	9	8	9	8	9	10	9
Calcium	mg/L	1.9	1.7	2.0	2.0	1.9	1.9	1.8	1.8	2.1	1.9
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	0.8	0.7	0.7	0.8	0.7	0.7	0.6	0.6	0.7	0.6
Fluoride	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hardness, as $CaCO_3$	mg/L	8	8	9	9	9	9	8	8	9	9
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	0.9	0.9	1.0	1.0	1.0	0.9	0.9	0.9	1.0	0.9
Potassium	mg/L	0.63 QP	0.53 QP	0.79 QP	0.92 QP	0.9 QP	0.63 QP	0.72 QP	0.47 QP	0.85 QP	0.74 QP
Reactive Silica, as SiO_2	mg/L	0.28 NP	0.31 NP	0.3 NP	0.26 NP	0.32 NP	0.26 NP	0.24 NP	0.25 NP	0.26 NP	0.26 NP
Sodium	mg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sulphate	mg/L	2.2	2.0	2.0	2.2	1.9	2.1	2.0	2.0	2.2	2.0
Total Alkalinity, as $CaCO_3$	mg/L	8	7	6	7	7	8	7	7	8	7
Nutrients											
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	0.0020	<0.0014	<0.0014
Nitrate, as N, calculated	mg-N/L	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH
Nitrate/Nitrite, as N	mg-N/L	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH	<0.006 WH
Nitrite, as N	mg-N/L	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH	<0.002 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg-N/L	0.010	0.011	0.010	0.010	0.011	<0.005	<0.005	<0.005	<0.005	<0.005
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001
Total Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	0.150	0.136	0.131	0.134	0.134	<0.05	0.083	0.068	0.101	<0.05
Total Organic Carbon	mg/L	3.9 NP	3.5 NP	3.5 NP	3.5 NP	4.0 NP	4.7 NP	4.3 NP	3.6 NP	4.4 NP	3.5 NP
Total Organic Phosphorus, calculated	mg-P/L	0.0030	0.0019	0.0021	0.0019	0.0041	0.0028	0.0025	0.0021	0.0024	0.0025
Total Phosphorus	mg-P/L	0.003	0.002	0.002	0.002	0.004	0.003	0.003	0.002	0.002	0.003
Total Metals and Metalloids											
Aluminum	µg/L	3.62 NP	3.68 NP	3.37 NP	4.08 NP	4.13 NP	3.67 NP	3.44 NP	3.47 NP	3.41 NP	3.45 NP
Antimony	µg/L	0.39 NP	0.45 NP	0.89 NP	0.37 NP	0.51 NP	0.87 NP	0.64 NP	0.28 NP	0.41 NP	0.28 NP
Arsenic	µg/L	0.09	0.08	0.09	0.10	0.09	0.08	0.09	0.09	0.09	0.09
Barium	µg/L	3.6	3.2	3.4	3.5	3.3	3.5	3.3	3.2	3.6	3.2
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	3.7 NP	2.8 NP	4.6 NP	3.5 NP	2.1 NP	3.1 NP	3.0 NP	2.9 NP	2.7 NP	2.7 NP
Cadmium	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	0.003 NP	0.002 NP	0.003 NP	0.002 NP	<0.002 NP	0.006 NP	0.014 NP	0.005 NP	0.002 NP	0.005 NP
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	0.27	<0.06	0.16	0.19	0.06	<0.06	<0.06	0.07	0.06	0.07
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cobalt	µg/L	0.01 QP	0.01 QP	<0.01	0.01 QP	0.01 QP	0.01 QP	<0.01	<0.01	<0.01	0.01 QP
Copper	µg/L	0.53 NP	0.52 NP	0.54 NP	0.56 NP	0.55 NP	0.65 NP	0.58 NP	0.55 NP	0.58 NP	0.59 NP
Iron	µg/L	7	6	5	9	6	5	5	5	5	5
Lead	µg/L	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP	<0.01 QP
Lithium	µg/L	1.6	1.5	1.6	1.5	1.4	1.5	1.4	1.3	1.5	1.4
Manganese	µg/L	1.92	1.90	1.74	2.05	1.84	1.85	1.83	1.80	1.98	1.74
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005
Molybdenum	µg/L	0.06	0.06	0.06	0.06	0.06	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/L	0.34	0.29	0.30	0.34	0.32	0.33	0.31	0.28	0.34	0.33
Rubidium	µg/L	2	2	2	2	2	2	2	1	2	1
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	11	11	11	12	11	13	12	12	13	12
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1
Uranium	µg/L	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01
Vanadium	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	3.9 NP	<0.8 NP	<0.8 NP	1.2 NP	<0.8 NP	0.8 NP	0.9 NP	<0.8 NP	1.7 NP	2.0 NP

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

(b) Hexavalent chromium sample was not received at ALS Canada Ltd.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates Technology Futures.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre.

Table 3C-7 Snap Lake Water Quality Results for Samples Collected from the Stream 1 and Stream 27 Stations, 2012

Sample Point:	Units	Stream 1[a]	Stream 27[a]	Stream 1[a]	Stream 27[a]	Stream 1[a]	Stream 27[a]	Stream 1[a]	Stream 27[a]	Stream 1[a]	Stream 27[a]	Stream 1	Stream 1	Stream 1
Date Sampled (yyyy-mm-dd):		2012-05-14	2012-05-15	2012-05-18	2012-05-18	2012-05-22	2012-05-22	2012-05-25	2012-05-25	2012-05-28	2012-05-28	2012-07-11	2012-09-01	2012-09-07
Sample Control Number:		2012-0889	2012-0941	2012-0950	2012-0951	2012-1005	2012-1006	2012-1038	2012-1039	2012-1053	2012-1054	2012-5189	2012-5236	2012-5276
Field Parameters														
pH	unitless	5.7	6.0	7.0	7.4	5.3	5.7	5.8	6.4	6.7	6.6	6.2	-[b]	7.1
Specific Conductivity	µS/cm	2	31	18	29	18	23	17	20	17	23	24	-[b]	27
Water Temperature	°C	0.1	2.3	0.2	1.3	0.9	3.0	3.5	5.1	5.6	7.0	20.1	-[b]	11.2
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	7.7	-[b]	11.0
Conventional Parameters														
Laboratory pH	unitless	6.1	6.9	6.9	6.4	6.7	6.8	6.4	6.5	6.8	7.0	7.2 WH	7.1 WH	7.1
Laboratory Specific Conductivity	µS/cm	20	31	31	18	18	23	17	20	17	24	21	32	29
Total Dissolved Solids, measured	mg/L	40	44	46	44	32	35	37	45	18	26	29	39 WH	48
Total Dissolved Solids, calculated (Lab)[c]	mg/L	21.1	28.2	31.8	28.6	5.7	12.1	14.3	15.1	5.9	12.1	19 QP	17.5 QP	17.5 QP
Total Dissolved Solids, calculated (Standard Methods)[c]	mg/L	7.7	16.3	20.9	17.0	5.7	12.1	5.6	6.5	5.9	12.2	10.8 QP	17.5 QP	17.4 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3 WH	<3
Turbidity	NTU	0.94	1.46	0.81	0.75	0.54	0.57	0.49	0.60	0.56	0.64	0.89 WH	1.79 WH	1.63
Ions														
Acidity to pH 4.5, as $CaCO_3$	mg/L	8	5	<5	<5	<5	<5	<5	<5	<5	<5	-	-	-
Bicarbonate, as HCO_3	mg/L	<5	7	10	<5	5	7	<5	6	5	8	9	15	13
Calcium	mg/L	1.4	2.0	2.2	1.4	1.5	1.8	1.5	1.6	1.5	1.9	2.4	3.0	2.8
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	0.8	<0.5	3.0	2.2	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	0.5	2.0	2.6
Fluoride	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06
Hardness, as $CaCO_3$	mg/L	6.3	9.3	10.3	6.1	6.2	8	6	8	6	8	10	12	11
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	0.7	1.1	1.2	0.6	0.6	0.9	0.6	0.8	0.6	0.9	0.9	1.1	1.0
Potassium	mg/L	0.9	0.7	0.9	0.9	0.6	0.6	0.6	0.4	0.6	0.6	0.43 QP	0.47 QP	0.46 QP
Reactive Silica, as SiO_2	mg/L	1.62	2.02	1.48	7.55	1.38	1.29	1.31	1.09	1.22	1.22	0.70 NP	1.03 NP	1.38 NP
Sodium	mg/L	<1	1	2	<1	<1	1	<1	<1	<1	1	<1	1	1
Sulphate	mg/L	1.9	1.0	2.2	2.3	1.3	0.7	1.3	0.6	1.2	0.8	1.0	1.2	1.4
Total Alkalinity, as $CaCO_3$	mg/L	<5	6	8	<5	<5	6	<5	<5	<5	7	8	12	11
Nutrients														
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.003	<0.001	<0.001	0.001	0.001	0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	0.0051	0.0055	0.0095	0.0085	<0.0014	<0.0014	<0.0014	0.0024	0.0024	0.0015	0.0020	<0.0014	0.0019
Nitrate, as N, calculated	mg-N/L	0.018	0.912	0.711	0.013	0.009	0.438	<0.006	0.372	<0.006	0.313	0.015 WH	0.022 WH	<0.006
Nitrate/Nitrite, as N	mg-N/L	0.020	0.916	0.714	0.013	0.009	0.441	<0.006	0.375	<0.006	0.316	0.018 WH	0.022 WH	0.008
Nitrite, as N	mg-N/L	0.002	0.004	0.004	<0.002	<0.002	0.003	<0.002	0.003	<0.002	0.003	0.003 WH	<0.002 WH	0.003
ortho-Phosphate, as P	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001 WH	<0.001 WH	<0.001
Total Ammonia, as N	mg-N/L	0.008	0.139	0.072	<0.005	0.005	0.070	0.009	0.064	0.020	0.030	0.016	0.016	0.011
Total Dissolved Phosphorus	mg-P/L	0.005	0.006	0.010	0.009	<0.001	<0.001	0.003	0.005	0.002	0.002	0.003	0.002	0.003
Total Inorganic Phosphorus	mg-P/L	0.005	0.006	0.005	0.005	0.004	0.004	0.004	0.004	0.003	0.004	0.004	0.005	0.005
Total Kjeldahl Nitrogen	mg-N/L	0.42	1.06	0.52	0.37	0.20	0.31	0.32	0.37	0.24	0.28	0.35	0.44	0.50
Total Organic Carbon	mg/L	13.1	11.4	10.9	11.8	10.0	10.0	8.7	8.5	8.1	9.1	8.2 NP	7.2 NP	9.9 NP
Total Organic Phosphorus, calculated	mg-P/L	0.0106	0.0113	0.0028	0.0041	0.0034	0.0052	0.0069	0.0060	0.0045	0.0029	0.0031	0.0034	0.0033
Total Phosphorus	mg-P/L	0.016	0.017	0.008	0.009	0.007	0.010	0.011	0.010	0.007	0.006	0.007	0.009	0.008
Total Metals and Metalloids														
Aluminum	µg/L	-	100	83.0	61.7	68.3	105	58.4	86.7	52.5	61.8	59.0 NP	66.5 NP	71.1 NP
Antimony	µg/L	-	0.18	0.02	0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02 NP	<0.02 NP	<0.02 NP
Arsenic	µg/L	-	0.13	0.10	0.12	0.09	0.09	0.09	0.08	0.08	0.08	0.11	0.11	0.13
Barium	µg/L	-	5.4	5.2	2.8	3.2	5.0	3.1	4.3	2.8	4.1	4.6	4.6	4.5
Beryllium	µg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	-	3	3	4	3	2	2	3	3	3	4.4 NP	10.3 NP	4 NP
Cadmium	µg/L	-	0.017	0.005	0.007	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	0.007	<0.005	<0.005
Cadmium (Alberta Innovates)	µg/L	-	-	-	-	-	-	-	-	-	-	0.003 NP	0.004 NP	0.003 NP
Cesium	µg/L	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium	µg/L	-	0.16	0.19	0.16	0.13	0.18	0.11	0.12	0.34	0.14	0.19	0.17	0.16
Hexavalent Chromium	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1
Cobalt	µg/L	-	0.24	0.14	0.20	0.35	0.15	0.18	0.17	0.11	0.11	0.19 QP	0.21 QP	0.18 QP
Copper	µg/L	-	1.2	1.0	1.0	1.1	1.2	1.0	1.0	1.0	2.6	1.3 NP	1.2 NP	1.2 NP
Iron	µg/L	-	269	190	274	263	282	215	280	214	176	387	664	725
Lead	µg/L	-	0.02	0.01	0.01	0.02	0.02	0.01	0.02	<0.01	<0.01	0.04 QP	0.02 QP	0.03 QP
Lithium	µg/L	-	1.5	1.5	1.3	1.0	0.9	1.2	1.2	0.9	1.1	1.3	1.7	1.7
Manganese	µg/L	-	15.9	9.69	11.1	16.3	9.15	7.23	10.4	3.4	7.27	8.29	8.23	7.64
Mercury	µg/L	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Mercury (Flett)	µg/L	-	-	-	-	-	-	-	-	-	-	0.0021	0.0018	0.0017
Molybdenum	µg/L	-	0.07	0.06	0.09	0.10	0.06	0.11	0.05	0.08	<0.05	0.14	0.35	0.24
Nickel	µg/L	-	0.46	0.43	0.63	0.48	0.34	0.54	0.47	0.36	0.23	0.75	0.78	0.62
Rubidium	µg/L	-	3	2	2	2	2	1	2	1	2	1	1	1
Selenium	µg/L	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	-	14	12	6	7	10	7	9	6	9	12	16	14
Thallium	µg/L	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Titanium	µg/L	-	1.4	1.0	0.7	0.7	1.2	0.5	1.0	0.3	0.7	0.5	0.6	1.0
Uranium	µg/L	-	0.05	0.04	0.03	0.03	0.04	0.03	0.04	0.02	0.03	0.03	0.04	0.04
Vanadium	µg/L	-	0.15	0.13	0.10	0.11	0.15	0.11	0.14	0.09	0.10	0.14	0.19	0.26
Zinc	µg/L	-	2.3	2.0	2.0	2.4	1.2	1.8	1.9	1.6	1.0	6.8 NP	1.1 NP	1.2 NP
Dissolved Metals and Metalloids														
Aluminum	µg/L	97.0	92.5	76.2	62.1	62.6	97.7	54.3	80.7	46.9	57.1	-	-	-
Antimony	µg/L	0.03	0.08	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	-	-	-
Arsenic	µg/L	0.09	0.11	0.09	0.09	0.10	0.10	0.08	0.10	0.08	0.09	-	-	-
Barium	µg/L	3.8	5.2	4.9	2.9	3.1	4.7	3.0	4.2	2.7	3.8	-	-	-

Table 3C-7 Snap Lake Water Quality Results for Samples Collected from the Stream 1 and Stream 27 Stations, 2012

Sample Point:	Units	Stream 1[a]	Stream 27[a]	Stream 1[a]	Stream 27[a]	Stream 1[a]	Stream 27[a]	Stream 1[a]	Stream 27[a]	Stream 1[a]	Stream 27[a]	Stream 1	Stream 1	Stream 1
Date Sampled (yyyy-mm-dd):		2012-05-14	2012-05-15	2012-05-18	2012-05-18	2012-05-22	2012-05-22	2012-05-25	2012-05-25	2012-05-28	2012-05-28	2012-07-11	2012-09-01	2012-09-07
Sample Control Number:		2012-0889	2012-0941	2012-0950	2012-0951	2012-1005	2012-1006	2012-1038	2012-1039	2012-1053	2012-1054	2012-5189	2012-5236	2012-5276
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
Boron	µg/L	4	3	3	3	3	3	2	2	3	3	-	-	-
Cadmium	µg/L	0.011	0.048 XG	0.005	0.009	<0.005	0.006 XG	<0.005	0.007	<0.005	<0.005	-	-	-
Cesium	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	-	-
Chromium	µg/L	0.47	0.16	0.13	0.13	0.13	0.15	0.11	0.14	0.13	0.12	-	-	-
Cobalt	µg/L	0.44	0.22	0.13	0.20	0.34	0.15	0.18	0.17	0.10	0.10	-	-	-
Copper	µg/L	1.4	1.2	1.0	1.0	1.9 XG	2.6 XG	1.0	1.1	0.9	1.0	-	-	-
Iron	µg/L	181	197	139	247	236	231	189	227	172	124	209[d]	360[d]	354[d]
Lead	µg/L	0.04	0.02	<0.01	0.01	0.02	0.03 XG	0.01	0.01	<0.01	<0.01	-	-	-
Lithium	µg/L	0.9	1.3	1.5	1.3	1.1	1.0	1.1	1.2	1.0	1.0	-	-	-
Manganese	µg/L	29.3	14.4	8.23	10.7	16.0	8.70	6.64	9.44	2.99	5.57	-	-	-
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	-	-
Molybdenum	µg/L	0.09	0.06	0.06	0.08	0.10	0.09 XG	0.09	<0.05	0.08	<0.05	-	-	-
Nickel	µg/L	0.94	0.40	0.39	0.66	0.47	0.61 XG	0.67	0.44	0.44	0.17	-	-	-
Rubidium	µg/L	2	3	2	2	2	2	1	2	1	2	-	-	-
Selenium	µg/L	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	-	-	-
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-
Strontium	µg/L	7	12	12	6	7	10	7	9	6	9	-	-	-
Thallium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	-
Titanium	µg/L	1.0	1.1	0.9	0.7	0.4	0.8	0.4	0.7	0.4	0.4	-	-	-
Uranium	µg/L	0.03	0.04	0.04	0.03	0.03	0.04	0.03	0.04	0.02	0.03	-	-	-
Vanadium	µg/L	0.13	0.13	0.11	0.09	0.09	0.13	0.08	0.12	0.07	0.09	-	-	-
Zinc	µg/L	6.4	2.7	1.6	3.3 XG	1.8	1.6	2.3	3.2 XG	2.2 XG	1.6 XG	-	-	-

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency;

· XG = data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) Analytical parameter list varied from standard list because the samples were collected as part of the Surveillance Network Program and lab requests were made for the extended analytical parameters list; total metals were not analyzed for the sample collected on May 14, 2012 from Stream 1.

(b) Field measurements were not collected during the August AEMP program.

(c) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

(d) Dissolved iron was analyzed because the total iron concentration was above the CCME (CCME 1999 with updates to 2012) aquatic life guideline of 300 µg/L (Section 3.2.1)

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates Technology Futures.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre.

Table 3C-6 Snap Lake Water Quality Results for Samples Collected from the Inland Lake Stations, 2012

Sample Point:	Units	IL3	IL4	IL5	IL3	IL4	IL5	IL3	IL4	IL5
Depth:		mid	mid	mid	mid	mid	mid	mid	mid	mid
Date Sampled (yyyy-mm-dd):		2012-07-14	2012-07-14	2012-07-14	2012-08-28	2012-08-28	2012-08-28	2012-09-15	2012-09-15	2012-09-15
Sample Control Number:		2012-5147	2012-5148	2012-5149	2012-5233	2012-5234	2012-5235	2012-5259	2012-5260	2012-5261
Field Parameters										
pH	unitless	6.6	6.4	6.5	-[(a)]	-[(a)]	-[(a)]	6.4	6.4	6.6
Specific Conductivity	µS/cm	19	21	41	-[(a)]	-[(a)]	-[(a)]	48	24	24
Water Temperature	°C	15.6	14.4	16.9	-[(a)]	-[(a)]	-[(a)]	5.5	1.0	3.8
Dissolved Oxygen	mg/L	8.7	9.3	9.2	-[(a)]	-[(a)]	-[(a)]	11.2	13.0	12.0
Conventional Parameters										
Laboratory pH	unitless	6.7 WH	6.8 WH	7.3 WH	6.9	6.3	7.0	6.6 WH	6.7 WH	7.1 WH
Laboratory Specific Conductivity	µS/cm	16.8	20.0	39.5	20.7	19.8	46.8	20.3	21.5	48.0
Total Dissolved Solids, measured	mg/L	31	53	37	51	71	49	33	47	34
Total Dissolved Solids, calculated (Lab)[(b)]	mg/L	3.6 QP	7.8 QP	18.4 QP	15.5 QP	6.0 QP	22.0 QP	6.6 QP	8.4 QP	25.2 QP
Total Dissolved Solids, calculated (Standard Methods)[(b)]	mg/L	3.6 QP	7.7 QP	18.3 QP	8.4 QP	5.9 QP	21.9 QP	6.6 QP	8.3 QP	25.2 QP
Total Suspended Solids	mg/L	<3	<3	<3	<3	395 X	13	<3	<3	<3
Turbidity	NTU	1.65 WH	3.85 WH	1.18 WH	2.28	25.20 X	3.08	1.87 WH	4.37 WH	0.93 WH
Ions										
Bicarbonate, as HCO_3	mg/L	6	8	11	7	<5	12	6	7	13
Calcium	mg/L	1.1	1.7	3.0	1.0	1.6	3.3	1.0	2.0	3.7
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	<0.5	<0.5	1.3	<0.5	0.9	2.0	0.5	<0.5	1.8
Fluoride	mg/L	<0.05	<0.05	<0.05	0.08	0.06	0.06	0.07	<0.05	0.07
Hardness, as $CaCO_3$	mg/L	7	8	14	7	7	16	8	9	18
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	1.0	0.9	1.7	1.1	0.8	1.8	1.4	1.0	2.1
Potassium	mg/L	0.73 QP	1.03 QP	0.75 QP	0.86 QP	1.05 QP	0.95 QP	0.78 QP	0.64 QP	0.83 QP
Reactive Silica, as SiO_2	mg/L	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	0.6 NP	<0.5 NP	1.6 NP
Sodium	mg/L	<1	<1	1	<1	1	2	<1	1	2
Sulphate	mg/L	0.8	0.3	5.0	1.7	0.4	6.5	1.8	<0.05	6.8
Total Alkalinity, as $CaCO_3$	mg/L	<5	6	9	6	<5	10	<5	5	11
Nutrients										
Nitrate, as N, calculated	mg-N/L	<0.006 WH	<0.006 WH	<0.006 WH	<0.006	0.011	0.015	0.060 WH	0.055 WH	0.031 WH
Nitrate/Nitrite, as N	mg-N/L	<0.006 WH	0.007 WH	<0.006 WH	<0.006	0.016	0.015	0.062 WH	0.059 WH	0.031 WH
Nitrite, as N	mg-N/L	0.004 WH	0.006 WH	0.002 WH	0.002	0.006	<0.002	0.003 WH	0.005 WH	<0.002 WH
Total Ammonia, as N	mg-N/L	<0.005	0.011	0.009	0.023	0.029	0.012	0.016	0.119	<0.005
Total Kjeldahl Nitrogen	mg-N/L	0.42	1.12	0.28	0.66	2.33	0.57	0.59	1.15	0.41

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency;

· X = data invalidated due to an internal review; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) Field measurements were not collected in the Inland Lakes during the August AEMP program due to a communication error occurred.

(b) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre.

Table 3C-5 Snap Lake Water Quality Results for Samples Collected from the Northwest Arm Stations, 2012

Sample Point:	Units	SNAP20B	SNAP02A	SNAP23	SNAP29	SNAP20B	SNAP02A	SNAP23	SNAP29	SNAP20B	SNAP02A	SNAP23	SNAP29	SNAP20B	SNAP02A	SNAP23	SNAP29	SNAP20B	SNAP02A	SNAP23	SNAP29
Depth:		mid	mid	mid	mid	mid	mid	mid	mid	mid	mid	mid	mid	mid	mid	mid	mid	mid	mid	mid	mid
Date Sampled (yyyy-mm-dd):		2012-01-14	2012-01-14	2012-01-13	2012-01-13	2012-02-20	2012-02-20	2012-02-20	2012-02-20	2012-04-13	2012-04-13	2012-04-13	2012-04-13	2012-07-06	2012-07-07	2012-07-06	2012-07-07	2012-09-12	2012-09-12	2012-09-12	2012-09-12
Sample Control Number:		2012-5006	2012-5007	2012-5003	2012-5002	2012-5052	2012-5053	2012-5054	2012-5055	2012-5083	2012-5082	2012-5084	2012-5085	2012-5142	2012-5143	2012-5144	2012-5153	2012-5252	2012-5251	2012-5253	2012-5250
Field Parameters																					
pH	unitless	6.8	6.5	6.2	6.5	6.7	6.6	6.6	6.9	6.2	6.2	6.2	6.4	6.5	7.0	6.5	7.0	6.4	6.7	6.9	7.0
Specific Conductivity	µS/cm	105	148	255	290	104	160	270	299	103	163	269	292	91	110	187	196	91	133	212	211
Water Temperature	°C	2.1	2.4	2.2	0.9	2.6	2.5	2.4	1.5	2.7	2.9	2.8	1.5	6.2	14.6	14.3	14.8	5.6	6.7	6.9	10.8
Dissolved Oxygen	mg/L	12.5	11.2	11.5	17.6	10.6	11.6	9.8	15.1	10.2	11.6	10.0	15.9	12.9	9.7	11.4	9.6	7.8	11.0	11.0	11.0
Conventional Parameters																					
Laboratory pH	unitless	7.1 WH	7.2 WH	7.3 WH	7.4 WH	7.1 WH	7.3 WH	7.3 WH	7.4 WH	7.0 WH	6.8 WH	7.2 WH	7.2 WH	7.2 WH	7.3 WH	7.4 WH	7.4 WH	7.1 WH	7.2 WH	7.3 WH	7.3 WH
Laboratory Specific Conductivity	µS/cm	104	153	244	294	102	157	253	288	104	163	272	294	94.3	112	192	199	115	141	222	219
Total Dissolved Solids, measured	mg/L	69	97	134	176	69	95	145	170	77	95	184	196	64	83	127	137	83	102	162	154
Total Dissolved Solids, calculated (Lab)[a]	mg/L	45.4 QP	68.8 QP	112 QP	136 QP	49.2 QP	75.3 QP	120 QP	134 QP	50.6 QP	78.6 QP	131 QP	138 QP	45.1 QP	49.4 QP	88.7 QP	88.4 QP	52.8 QP	65.4 QP	113 QP	106 QP
Total Dissolved Solids, calculated (Standard Methods)[a]	mg/L	45.6 QP	69.1 QP	113 QP	137 QP	45.1 QP	70.4 QP	116 QP	134 QP	46.3 QP	72.9 QP	127 QP	138 QP	40.6 QP	49.4 QP	84.7 QP	88.3 QP	48.8 QP	60.9 QP	109 QP	98.2 QP
Total Suspended Solids	mg/L	<3	<3	<3	-	<3	<3	<3	-	<3	<3	<3	-	<3	<3	<3	-	<3	<3	<3	-
Turbidity	NTU	0.28 WH	0.27 WH	0.19 WH	-	0.15 WH	0.46 WH	0.20 WH	-	0.35 WH	0.34 WH	0.19 WH	-	0.58 WH	0.48 WH	0.38 WH	-	0.45 WH	0.44 WH	0.48 WH	-
Ions																					
Bicarbonate, as HCO_3	mg/L	9	14	15	18	9	14	16	18	10	15	18	20	8	11	13	14	12	13	16	15
Calcium	mg/L	8.8	13.5	22.4	26.5	8.7	13.5	22.5	26.4	9.0	13.7	25.2	26.9	7.9	9.6	16.7	17.3	9.3	11.1	21.8	20.6
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	19.6	29.4	48.5	60.0	19.4	30.2	51.0	58.3	19.9	31.8	55.9	59.9	18.2	21.5	38.1	39.6	22.0	27.6	51.1	44.1
Fluoride	mg/L	<0.05	<0.05	0.06	0.08	<0.05	0.05	0.08	0.09	<0.05	0.05	0.08	0.09	<0.05	<0.05	0.06	0.07	0.07	0.06	0.07	0.11
Hardness, as $CaCO_3$	mg/L	29	44	71	83	29	44	71	84	30	45	79	86	26	31	52	54	31	36	68	64
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	1.7	2.5	3.6	4.1	1.7	2.5	3.6	4.3	1.8	2.6	3.9	4.5	1.4	1.7	2.5	2.5	1.8	1.9	3.3	3.1
Potassium	mg/L	0.81 QP	1.09 QP	1.46 QP	1.74 QP	0.79 QP	0.98 QP	1.45 QP	1.77 QP	0.51 QP	0.75 QP	1.21 QP	1.47 QP	0.72 QP	0.73 QP	1.06 QP	1.10 QP	0.66 QP	0.91 QP	1.30 QP	1.05 QP
Reactive Silica, as SiO_2	mg/L	0.20 NP	0.23 NP	0.34 NP	0.44 NP	0.21 NP	0.22 NP	0.42 NP	0.35 NP	0.33 NP	0.10 NP	0.61 NP	0.45 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP	<0.5 NP
Sodium	mg/L	5	7	12	15	5	8	13	15	5	8	14	15	4	5	8	8	4	7	11	10
Sulphate	mg/L	4.3	6.5	10.8	12.9	4.1	6.6	11.0	12.7	4.1	6.7	11.8	12.8	4.3	4.9	8.3	8.7	4.6	5.8	10.2	8.6
Total Alkalinity, as $CaCO_3$	mg/L	7	11	12	15	8	11	13	15	8	13	14	16	7	9	11	11	9	10	13	12
Nutrients																					
Dissolved Inorganic Phosphorus	mg-P/L	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-
Dissolved Organic Phosphorus, calculated	mg-P/L	<0.0014	<0.0014	<0.0014	-	<0.0014	<0.0014	<0.0014	-	0.0019	<0.0014	<0.0014	-	<0.0014	0.0015	<0.0014	-	0.0023	<0.0014	0.0016	-
Nitrate, as N, calculated	mg-N/L	0.126 WH	0.445 WH	1.40 WH	1.60 WH	0.103 WH	0.490 WH	1.24 WH	1.58 WH	0.130 WH	0.484 WH	1.40 WH	1.69 WH	0.098 WH	0.197 WH	0.724 WH	0.893 WH	0.075 WH	0.163 WH	0.640 WH	0.710 WH
Nitrate/Nitrite, as N	mg-N/L	0.130 WH	0.452 WH	1.41 WH	1.61 WH	0.103 WH	0.494 WH	1.25 WH	1.59 WH	0.130 WH	0.487 WH	1.40 WH	1.70 WH	0.098 WH	0.199 WH	0.729 WH	0.899 WH	0.075 WH	0.166 WH	0.645 WH	0.715 WH
Nitrite, as N	mg-N/L	0.004 WH	0.008 WH	0.012 WH	0.012 WH	<0.002 WH	0.004 WH	0.008 WH	0.012 WH	<0.002 WH	0.003 WH	0.007 WH	0.009 WH	<0.002 WH	0.002 WH	0.005 WH	0.006 WH	<0.002 WH	0.002 WH	0.005 WH	0.005 WH
ortho-Phosphate, as P	mg-P/L	<0.001 WH	<0.001 WH	<0.001 WH	-	<0.001 WH	<0.001 WH	<0.001 WH	-	<0.001 WH	<0.001 WH	<0.001 WH	-	<0.001 WH	<0.001 WH	<0.001 WH	-	<0.001 WH	<0.001 WH	<0.001 WH	-
Total Ammonia, as N	mg-N/L	0.039	0.075	0.095	-	0.040	0.095	0.097	-	0.043	0.123	0.083	-	0.016	0.009	0.016	-	0.049	0.006	0.009	-
Total Dissolved Phosphorus	mg-P/L	0.001	0.001	0.001	-	<0.001	<0.001	<0.001	-	0.002	0.001	0.001	-	<0.001	0.002	<0.001	-	0.002	0.001	0.002	-
Total Inorganic Phosphorus	mg-P/L	0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	-	0.002	0.002	0.003	-	0.003	0.003	0.001	-	0.002	0.002	0.002	-
Total Kjeldahl Nitrogen	mg-N/L	0.20	0.29	0.29	-	0.20	0.31	0.31	-	0.20	0.28	0.28	-	0.09	0.22	0.11	-	0.24	0.28	0.23	-
Total Organic Carbon	mg/L	4.2 NP	4.8 NP	4.3 NP	-	4.1 NP	4.8 NP	4.1 NP	-	4.3 NP	5.6 NP	3.9 NP	-	4.3 NP	4.3 NP	4 NP	-	4 NP	4.4 NP	4 NP	-
Total Organic Phosphorus, calculated	mg-P/L	0.0026	0.0063	0.0026	-	0.0027	0.0028	0.0023	-	0.0021	0.0019	<0.0014	-	<0.0014	<0.0014	<0.0014	-	0.0039	0.0016	<0.0014	-
Total Phosphorus	mg-P/L	0.004	0.006	0.003	-	0.003	0.003	0.002	-	0.004	0.003	0.004	-	0.002	0.004	0.002	-	0.006	0.004	0.003	-
Total Metals and Metalloids																					
Aluminum	µg/L	5.37 NP	5.14 NP	3.76 NP	-	5 NP	5.17 NP	3.39 NP	-	4.12 NP	4.59 NP	2.53 NP	-	11 NP	11.4 NP	10.2 NP	-	8.33 NP	9.71 NP	7.81 NP	-
Antimony	µg/L	0.51 NP	1.75 NP	0.54 NP	-	0.47 NP	1 NP	0.45 NP	-	0.39 NP	0.2 NP	0.16 NP	-	0.09 NP	0.09 NP	0.08 NP	-	0.03 NP	0.04 NP	0.04 NP	-
Arsenic	µg/L	0.10	0.13	0.09	-	0.09	0.11	0.10	-	0.10	0.12	0.10	-	0.09	0.09	0.11	-	0.10	0.11	0.11	-
Barium	µg/L	8.4	11.9	14.3	-	9.4	14.0	17.3	-	9.4	14.5	17.9	-	8.6	9.2	12.1	-	9.8	10.6	12.6	-
Beryllium	µg/L	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-
Bismuth	µg/L	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-
Boron	µg/L	7.7 NP	13.3 NP	25.0 NP	-	7.7 NP	14.0 NP	27.2 NP	-	8.0 NP	14.8 NP	29.1 NP	-	7.6 NP	10.0 NP	18.3 NP	-	7.2 NP	11.8 NP	19.9 NP	-
Cadmium	µg/L	<0.005	0.006	<0.005	-	<0.005	<0.005	<0.005	-	<0.005	0.005	<0.005	-	<0.005	<0.005	0.006	-	<0.005	<0.005	<0.005	-
Cadmium (Alberta Innovates)	µg/L	-	0.006 NP	0.004 NP	-	0.002 NP	0.004 NP	0.004 NP	-	0.003 NP	<0.002 NP	0.005 NP	-	<0.002 NP	0.004 NP	0.004 NP	-	0.003 NP	0.005 NP	0.004 NP	-
Cesium	µg/L	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	-
Chromium	µg/L	0.13	0.29	0.30	-	0.12	0.21	0.22	-	0.06	<0.06	0.08	-	0.12	0.09	0.09	-	<0.06	0.08	<0.06	-
Hexavalent Chromium	µg/L	<1	<1	<1	-	<1	<1	<1	-	<1	<1	<1	-	<1	<1	<1	-	<1	<1	<1	-
Cobalt	µg/L	0.032 QP	0.033 QP	0.026 QP	-	0.032 QP	0.025 QP	0.018 QP	-	0.023 QP	0.021 QP	0.015 QP	-	0.024 QP	0.151 QP	0.022 QP	-	0.024 QP	0.031 QP	0.029 QP	-
Copper	µg/L	0.55 NP	0.83 NP	0.48 NP	-	0.56 NP	0.64 NP	0.52 NP	-	0.58 NP	0.77 NP	0.5 NP	-	0.77 NP	0.63 NP	0.63 NP	-	0.55 NP	0.56 NP	0.52 NP	-
Iron	µg/L	15	16	7	-	15	14	6	-	10	7	3	-	19	13	10	-	10	17	12	-
Lead	µg/L	<0.01 QP	0.03 QP	0.01 QP	-	<0.01 QP	<0.01 QP	<0.01 QP	-	<0.01 QP	<0.01 QP	<0.01 QP	-	<0.01 QP	<0.01 QP	<0.01 QP	-	<0.01 QP	0.03 QP	0.01 QP	-
Lithium	µg/L	2.1	2.9	4.2	-	2.2	3.4	5.1	-	2.3	3.4	5.2	-	2.0	2.5	4.0	-	2.0	2.3	3.9	-
Manganese	µg/L	18.3	10.5	4.04	-	29.7	10.2	3.94	-	39.0	7.92	3.64	-	14.0	6.67	4.21	-	31.2	9.76	7.63	-
Mercury	µg/L	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	-
Mercury (Flett)	µg/L	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	-	<0.0005	0.0007	0.0006	-	0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	-
Molybdenum	µg/L	0.10	0.20	0.45	-	0.09	0.19	0.43	-	0.08	0.15	0.36	-	0.05	0.09	0.24	-	0.07	0.17	0.39	-
Nickel	µg/L	0.40	0.59	0.59	-	0.38	0.49	0.64	-	0.41	0.59	0.64	-	0.38	0.40	0.51	-	0.37	0.41	0.43	-
Rubidium	µg/L	2	3	3	-	2	3	3	-	2	3	3	-	2	2	2	-	2	2	3	-
Selenium	µg/L	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	-	<0.04	<0.04	<0.04	-
Silver	µg/L	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	-
Strontium	µg/L	102	162	288	-	91	151	275	-	104	173	329	-	88	113	220	-	100	143	266	-
Thallium	µg/L	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	-
Titanium	µg/L	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	-	0.1	<0.1	0.1	-	<0.1	<0.1	<0.1	-
Uranium	µg/L	0.01	0.01	0.03	-	0.01	0.02	0.03	-	<0.01	0.01	0.03	-	0.01	0.02	0.04	-	0.01	0.02	0.04	-
Vanadium	µg/L	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	-
Zinc	µg/L	1.5 NP	4.2 NP	1.2 NP	-	<0.8 NP	<0.8 NP	<0.8 NP	-	2.5 NP	2.6 NP	1 NP	-	1.2 NP	1.1 NP	1.0 NP	-	<0.8 NP	1.2 NP	2.5 NP	-

Notes:

SNAP29 is a TDS station, so a reduced parameter suite was analyzed.

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;

· QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency; and,

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates Technology Futures.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams phosphorus per litre; mg-N/L = milligrams nitrogen per litre; µg/L = micrograms per litre.

Table 3C-4 Snap Lake Water Quality Results for Samples Collected from the Far-Field Stations, 2012

Sample Point:	Units	SNAP04	SNAP07	SNAP08	SNAP10	SNAP04	SNAP07	SNAP08	SNAP10	SNAP04	SNAP07	SNAP08	SNAP10	SNAP04	SNAP07	SNAP08	SNAP10
Depth:		**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**	**mid**
Date Sampled (yyyy-mm-dd):		**2012-02-18**	**2012-02-17**	**2012-02-17**	**2012-02-17**	**2012-04-17**	**2012-04-16**	**2012-04-16**	**2012-04-16**	**2012-07-12**	**2012-07-13**	**2012-07-13**	**2012-07-12**	**2012-09-11**	**2012-09-11**	**2012-09-11**	**2012-09-13**
Sample Control Number:		**2012-5033**	**2012-5020**	**2012-5019**	**2012-5023**	**2012-5110**	**2012-5103**	**2012-5104**	**2012-5106**	**2012-5170**	**2012-5200**	**2012-5197**	**2012-5171**	**2012-5239**	**2012-5242**	**2012-5243**	**2012-5245**
Field Parameters																	
pH	unitless	7.0	6.8	6.5	6.9	6.5	6.6	6.5	6.7	7.1	7.0	7.1	7.3	7.2	6.8	6.3	7.2
Specific Conductivity	µS/cm	460	463	456	447	482	472	473	468	362	384	387	382	377	392	387	390
Water Temperature	°C	1.1	1.6	2.9	1.2	1.1	1.8	3.5	1.3	18.1	16.8	17.7	16.6	10.9	11.4	11.0	10.3
Dissolved Oxygen	mg/L	14.1	11.7	10.1	12.0	14.6	13.0	11.7	14.1	9.6	9.5	9.3	9.9	11.0	10.2	10.2	11.2
Conventional Parameters																	
Laboratory pH	unitless	7.5 WH	7.5 WH	7.5 WH	7.6 WH	7.3 WH	7.2 WH	7.2 WH	7.2 WH	7.4 WH	7.4 WH	7.7 WH	7.4 WH	7.5 WH	7.5 WH	7.6 WH	7.6 WH
Laboratory Specific Conductivity	µS/cm	441	448	463	426	463	450	456	453	360	389	388	382	384	400	396	396
Total Dissolved Solids, measured	mg/L	257	267	270	254	304	330	341	335	288 WH	310	296	292 WH	254	261	261	265 WH
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	214 QP	227 QP	235 QP	203 QP	232 QP	226 QP	221 QP	213 QP	167 QP	185 QP	184 QP	179 QP	178 QP	189 QP	188 QP	193 QP
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	214 QP	223 QP	231 QP	203 QP	232 QP	222 QP	223 QP	219 QP	167 QP	181 QP	179 QP	179 QP	178 QP	185 QP	185 QP	193 QP
Total Suspended Solids	mg/L	-	<3	<3	-	-	<3	<3	-	-	<3	<3	-	-	<3	<3	-
Turbidity	NTU	-	0.17 WH	0.29 WH	-	-	0.14 WH	0.17 WH	-	-	0.31 WH	0.39 WH	-	-	0.50 WH	0.48 WH	-
Ions																	
Bicarbonate, as HCO_3	mg/L	27	28	28	26	31	29	30	30	21	25	25	25	26	26	27	25
Calcium	mg/L	45.3	49.3	52.1	40.9	48.8	45.2	45.3	43.8	34.5	36.4	36.2	36.6	33.7	35.0	35.0	39.0
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	97.8	98.1	101	94.0	103	100	101	101	76.6	83.1	83.1	81.2	84.0	87.3	86.4	87.6
Fluoride	mg/L	0.13	0.14	0.14	0.14	0.13	0.14	0.14	0.13	0.11	0.10	0.10	0.11	0.10	0.10	0.09	0.15
Hardness, as $CaCO_3$	mg/L	136	148	155	122	148	137	137	132	104	110	109	110	101	105	105	120
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Magnesium	mg/L	5.5	6.0	6.2	4.9	6.3	5.9	5.7	5.5	4.3	4.6	4.6	4.6	4.1	4.3	4.3	5.5
Potassium	mg/L	2.29 QP	2.26 QP	2.65 QP	1.94 QP	2.63 QP	2.37 QP	2.22 QP	2.07 QP	1.59 QP	1.61 QP	1.66 QP	1.73 QP	1.93 QP	1.81 QP	2.25 QP	1.97 QP
Reactive Silica, as SiO_2	mg/L	0.84 NP	0.81 NP	0.91 NP	0.78 NP	0.88 NP	0.84 NP	0.84 NP	0.81 NP	0.69 NP	0.85 NP	0.79 NP	0.89 NP	0.98 NP	0.86 NP	0.94 NP	0.64 NP
Sodium	mg/L	24	27	27	21	26	24	24	22	17	18	18	18	19	20	20	21
Sulphate	mg/L	18.3	18.9	19.4	18.2	19.4	19.3	19.5	19.1	14.8	16.3	16.1	15.9	15.1	15.5	15.4	17.5
Total Alkalinity, as $CaCO_3$	mg/L	22	23	23	22	25	24	25	24	17	20	21	20	21	22	23	21
Nutrients																	
BOD (5-day)	mg/L	-	-	<2 WH	-	-	-	<2 WH	-	-	-	<2 WH	-	-	-	<2 WH	-
Dissolved Inorganic Phosphorus	mg-P/L	-	<0.001	<0.001	-	-	<0.001	<0.001	-	-	<0.001	<0.001	-	-	<0.001	0.002	-
Dissolved Organic Phosphorus, calculated	mg-P/L	-	<0.0014	<0.0014	-	-	<0.0014	<0.0014	-	-	<0.0014	<0.0014	-	-	<0.0014	<0.0014	-
Nitrate, as N, calculated	mg-N/L	1.51 WH	1.59 WH	1.63 WH	1.65 WH	2.06 WH	2.21 WH	2.17 WH	2.20 WH	1.54 WH	1.88 WH	1.42 WH	1.73 WH	1.36 WH	1.61 WH	1.49 WH	1.61 WH
Nitrate/Nitrite, as N	mg-N/L	1.52 WH	1.60 WH	1.64 WH	1.66 WH	2.06 WH	2.22 WH	2.18 WH	2.21 WH	1.55 WH	1.90 WH	1.45 WH	1.75 WH	1.37 WH	1.62 WH	1.5 WH	1.62 WH
Nitrite, as N	mg-N/L	0.006 WH	0.007 WH	0.007 WH	0.008 WH	0.005 WH	0.008 WH	0.008 WH	0.008 WH	0.016 WH	0.018 WH	0.022 WH	0.016 WH	0.008 WH	0.011 WH	0.012 WH	0.010 WH
ortho-Phosphate, as P	mg-P/L	-	<0.001 WH	<0.001 WH	-	-	<0.001 WH	<0.001 WH	-	-	<0.001 WH	<0.001 WH	-	-	<0.001 WH	<0.001 WH	-
Total Ammonia, as N	mg-N/L	-	0.125	0.154	-	-	0.139	0.160	-	-	0.094	0.090	-	-	0.059	0.073	-
Total Dissolved Phosphorus	mg-P/L	-	<0.001	<0.001	-	-	<0.001	<0.001	-	-	<0.001	<0.001	-	-	<0.001	<0.001	-
Total Inorganic Phosphorus	mg-P/L	-	<0.001	<0.001	-	-	<0.001	<0.001	-	-	0.002	0.001	-	-	<0.001	0.002	-
Total Kjeldahl Nitrogen	mg-N/L	-	0.34	0.43	-	-	0.43	0.54	-	-	0.33	0.38	-	-	0.35	0.41	-
Total Organic Carbon	mg/L	-	3.9 NP	4.1 NP	-	-	4 NP	3.8 NP	-	-	3.7 NP	3.9 NP	-	-	3.4 NP	3.5 NP	-
Total Organic Phosphorus, calculated	mg-P/L	-	<0.0014	0.0020	-	-	0.0025	0.0023	-	-	<0.0014	0.0097	-	-	0.0018	<0.0014	-
Total Phosphorus	mg-P/L	-	<0.001	0.002	-	-	0.003	0.002	-	-	<0.001	0.011	-	-	0.002	0.003	-
Total Metals and Metalloids																	
Aluminum	µg/L	-	2.41 NP	2.63 NP	-	-	2.4 NP	2.38 NP	-	-	6.3 NP	6.96 NP	-	-	5.44 NP	5.53 NP	-
Antimony	µg/L	-	1.39 NP	1.26 NP	-	-	1.07 NP	0.98 NP	-	-	0.07 NP	0.05 NP	-	-	0.08 NP	0.05 NP	-
Arsenic	µg/L	-	0.11	0.11	-	-	0.11	0.11	-	-	0.09	0.10	-	-	0.09	0.10	-
Barium	µg/L	-	22.0	23.2	-	-	23.0	24.7	-	-	17.4	17.4	-	-	19.0	18.8	-
Beryllium	µg/L	-	<0.01	<0.01	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-
Bismuth	µg/L	-	<0.01	<0.01	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-
Boron	µg/L	-	37.3 NP	37.6 NP	-	-	43.7 NP	43.1 NP	-	-	35.5 NP	38.8 NP	-	-	38.2 NP	38.5 NP	-
Cadmium	µg/L	-	<0.005	0.005	-	-	0.010	0.005	-	-	<0.005	<0.005	-	-	0.005	<0.005	-
Cadmium (Alberta Innovates)	µg/L	-	0.005 NP	0.007 NP	-	-	0.022 NP	0.013 NP	-	-	0.004 NP	0.003 NP	-	-	0.005 NP	0.005 NP	-
Cesium	µg/L	-	<0.1	<0.1	-	-	<0.1	<0.1	-	-	<0.1	<0.1	-	-	<0.1	<0.1	-
Chromium	µg/L	-	0.21	0.25	-	-	0.10	0.13	-	-	<0.06	<0.06	-	-	<0.06	<0.06	-
Hexavalent Chromium	µg/L	-	<1	<1	-	-	<1	<1	-	-	<1	<1	-	-	<1	<1	-
Cobalt	µg/L	-	0.013 QP	0.017 QP	-	-	0.014 QP	0.012 QP	-	-	0.023 QP	0.025 QP	-	-	0.016 QP	0.021 QP	-
Copper	µg/L	-	0.47 NP	0.70 NP	-	-	0.43 NP	0.40 NP	-	-	0.46 NP	0.49 NP	-	-	0.54 NP	0.43 NP	-
Iron	µg/L	-	5	5	-	-	3	4	-	-	7	12	-	-	8	14	-
Lead	µg/L	-	<0.01 QP	<0.01 QP	-	-	<0.01 QP	<0.01 QP	-	-	<0.01 QP	<0.01 QP	-	-	0.07 QP	<0.01 QP	-
Lithium	µg/L	-	8.4	8.5	-	-	8.8	8.9	-	-	7.8	8.1	-	-	6.8	6.7	-
Manganese	µg/L	-	4.25	4.34	-	-	4.80	4.34	-	-	4.20	5.45	-	-	4.83	5.63	-
Mercury	µg/L	-	<0.02	<0.02	-	-	<0.02	<0.02	-	-	<0.02	<0.02	-	-	<0.02	<0.02	-
Mercury (Flett)	µg/L	-	<0.0005	<0.0005	-	-	<0.0005	<0.0005	-	-	<0.0005	0.0006	-	-	0.0006	<0.0005	-
Molybdenum	µg/L	-	0.78	0.75	-	-	0.83	0.68	-	-	0.76	0.85	-	-	1.03	0.92	-
Nickel	µg/L	-	0.82	0.81	-	-	1.03	0.90	-	-	0.85	0.76	-	-	0.75	0.62	-
Rubidium	µg/L	-	4	4	-	-	4	4	-	-	3	3	-	-	4	4	-
Selenium	µg/L	-	<0.04	<0.04	-	-	<0.04	<0.04	-	-	<0.04	<0.04	-	-	<0.04	<0.04	-
Silver	µg/L	-	<0.005	<0.005	-	-	<0.005	<0.005	-	-	<0.005	<0.005	-	-	<0.005	<0.005	-
Strontium	µg/L	-	595	606	-	-	608	616	-	-	501	509	-	-	532	521	-
Thallium	µg/L	-	<0.01	<0.01	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-	-	<0.01	<0.01	-
Titanium	µg/L	-	1.0 X	<0.1	-	-	0.1	<0.1	-	-	<0.1	<0.1	-	-	<0.1	<0.1	-
Uranium	µg/L	-	0.09	0.09	-	-	0.09	0.07	-	-	0.11	0.12	-	-	0.14	0.14	-
Vanadium	µg/L	-	<0.05	<0.05	-	-	<0.05	<0.05	-	-	<0.05	<0.05	-	-	<0.05	<0.05	-
Zinc	µg/L	-	<0.8 NP	<0.8 NP	-	-	1.0 NP	1.4 NP	-	-	2.3 NP	1.3 NP	-	-	1.1 NP	4.9 NP	-

Notes:

SNAP04 and SNAP10 are TDS stations, so a reduced parameter suite was analyzed.

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

- NP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a moderate to high frequency;
- QP = lake patterns using this result should be reviewed because the equipment, field or travel blank concentration of this parameter was measured above the detection limit, at concentrations consistent with the lake concentrations, and at a low to moderate frequency;
- X = data invalidated due to an internal review; and,
- WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates Technology Futures.

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; mid = mid-depth sample.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams as per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre.

APPENDIX 3D

TEMPORAL TRENDS IN TREATED EFFLUENT

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Invalidation of Specific Data

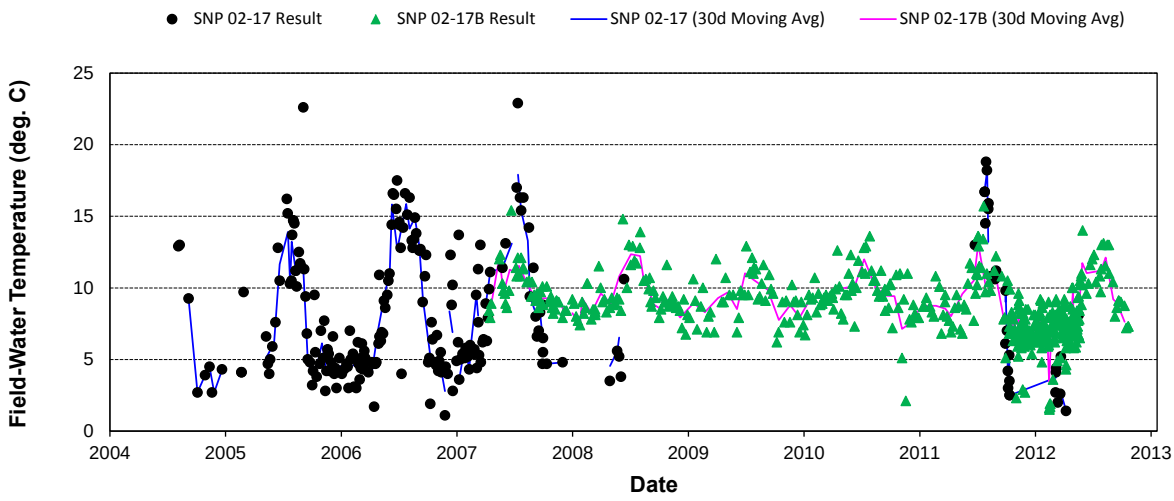
This appendix includes the figures referenced in Section 3. Historical data collected from the temporary and permanent water treatment plants between 2004 and 2012 were included in the temporal plots with some exceptions. Values that were well above other treated effluent results, or anomalous high detection limits, were removed from the dataset. Outliers and detection limit values removed from dataset are listed in Table 3D-1. Tables 3D-2 to 3D-4 (available on CD) provide flow-weighted average concentrations and raw data collected from the temporary (SNP 02-17) and permanent (SNP 02-17B) water treatment plants.

Table 3D-1 Outliers Removed from Dataset

Parameter	Units	Station	Results Removed	Sample Control Number
Total Organic Carbon	mg/L	SNP 02-17	830	2007-0532
Total Phosphorus	mg/L	SNP 02-17B	0.522	2008-2795
Total Cobalt	µg/L	SNP 02-17	11.3	2008-1274
Turbidity-Unfiltered	NTU	SNP 02-17B	120	2008-2795
Total Kjeldahl Nitrogen	mg/L	SNP 02-17B	34.6	2010-1073
Total Antimony	mg/L	SNP 02-17B	<20	2010-0168
Total Antimony	mg/L	SNP 02-17B	<20	2011-0115
Total Beryllium	mg/L	SNP 02-17B	<4	2010-0168
Total Beryllium	mg/L	SNP 02-17B	<4	2011-0115
Total Cadmium	mg/L	SNP 02-17B	<0.8	2010-0168
Total Cadmium	mg/L	SNP 02-17B	<0.8	2011-0115
Total Mercury	µg/L	SNP 02-17	1.5	2007-1924
Total Rubidium	mg/L	SNP 02-17B	<200	2010-0168
Total Rubidium	mg/L	SNP 02-17B	<200	2011-0115
Total Silver	mg/L	SNP 02-17B	<5	2007-0532
Total Silver	mg/L	SNP 02-17B	<1.6	2010-0168
Total Silver	mg/L	SNP 02-17B	<1.6	2011-0115
Total Thallium	mg/L	SNP 02-17B	<0.4	2010-0168
Total Thallium	mg/L	SNP 02-17B	<0.4	2011-0115
Dissolved Aluminum	mg/L	SNP 02-17B	129	2011-1418
Dissolved Cobalt	µg/L	SNP 02-17	10.7	2008-1274
Dissolved Iron	µg/L	SNP 02-17	1,550	2005-1395
Dissolved Iron	µg/L	SNP 02-17	563	2007-1193
Dissolved Rubidium	µg/L	SNP 02-17B	100	2011-0115
Dissolved Zinc	µg/L	SNP 02-17	157	2007-1193
Dissolved Zinc	µg/L	SNP 02-17	310	2008-1274

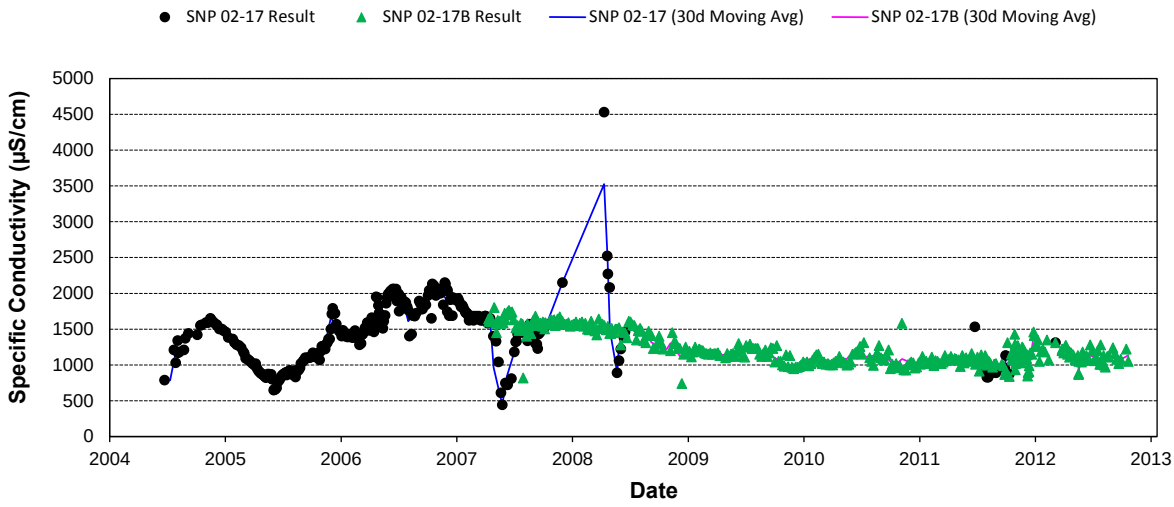
mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units; SNP = Surveillance Network Program.

Figure 3D-1 Water Temperature in the Treated Effluent, 2004 to 2012



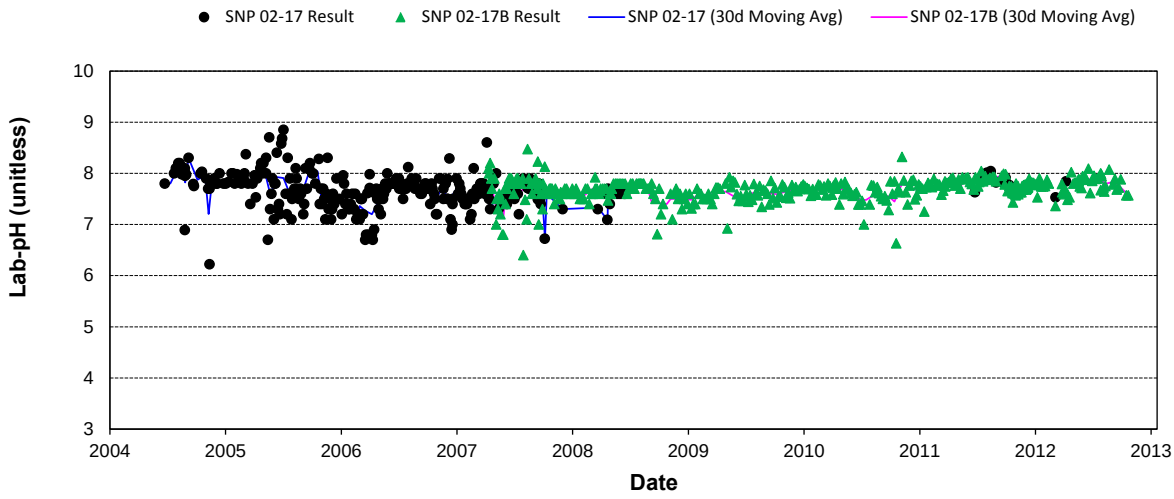
30d Moving Avg = 30-day moving average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; deg. C = degrees Celsius.

Figure 3D-2 Conductivity in the Treated Effluent, 2004 to 2012



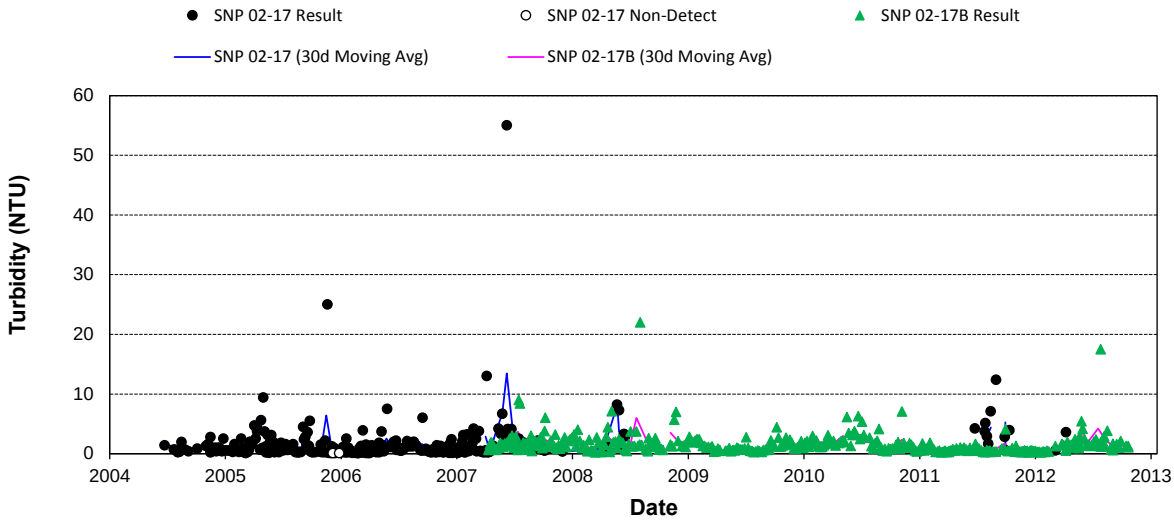
30d Moving Avg = 30-day moving average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; SNP = Surveillance Network Program; µS/cm = microSiemens per centimetre.

Figure 3D-3 pH in the Treated Effluent, 2004 to 2012



Moving Avg = 30-day moving average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program.

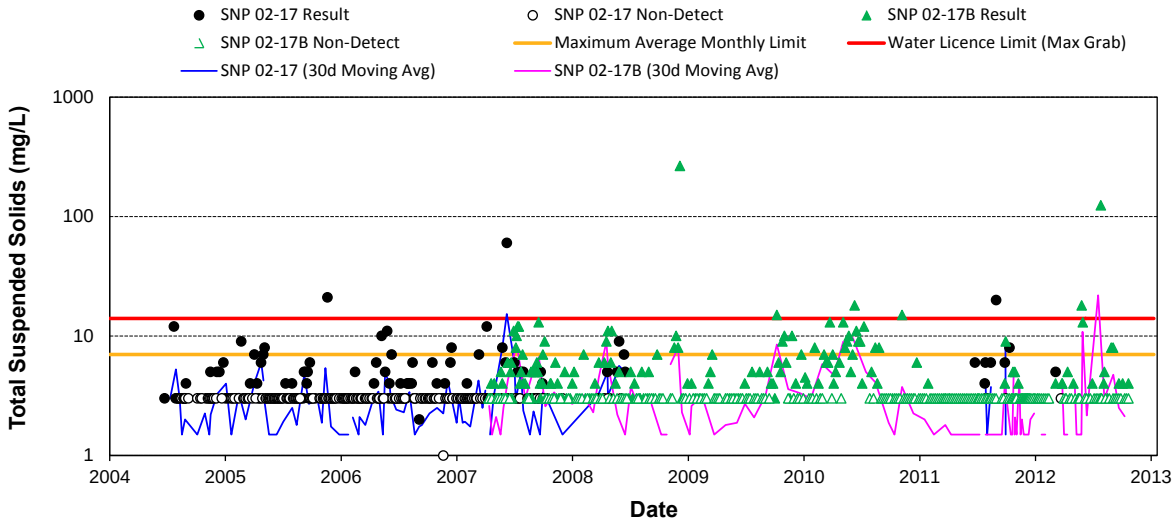
Figure 3D-4 Turbidity in the Treated Effluent, 2004 to 2012



Non-Detect = values reported as less than the method detection limit; 30d Moving Avg = 30-day moving average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; NTU = Nephelometric Turbidity Units.

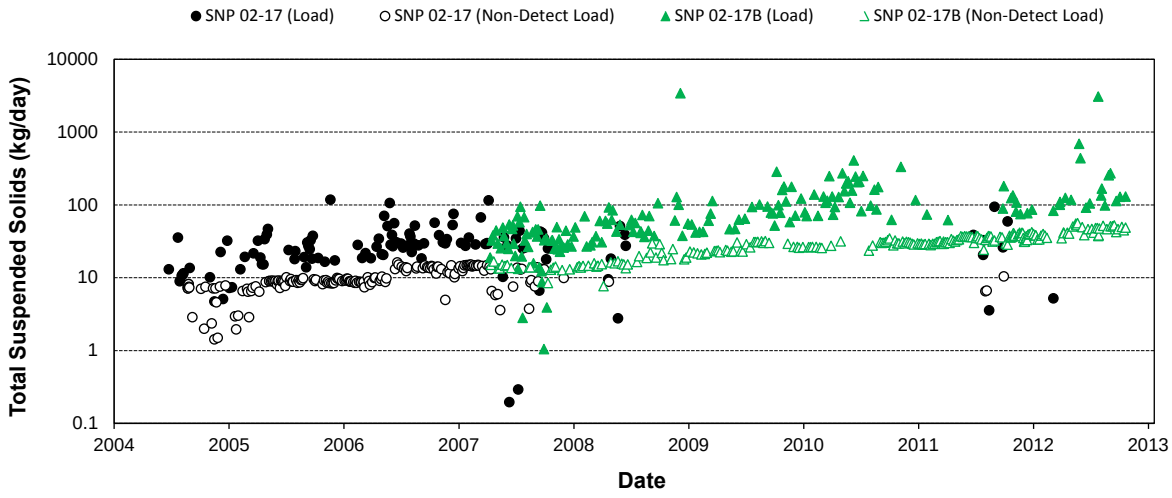
Figure 3D-5 Total Suspended Solids in the Treated Effluent, 2004 to 2012

a. Concentration and Moving Average



Non-Detect = values reported as less than the method detection limit; 30d Moving Avg = 30-day moving average; Max Grab = maximum allowable concentration in any grab sample; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; mg/L = milligrams per litre.

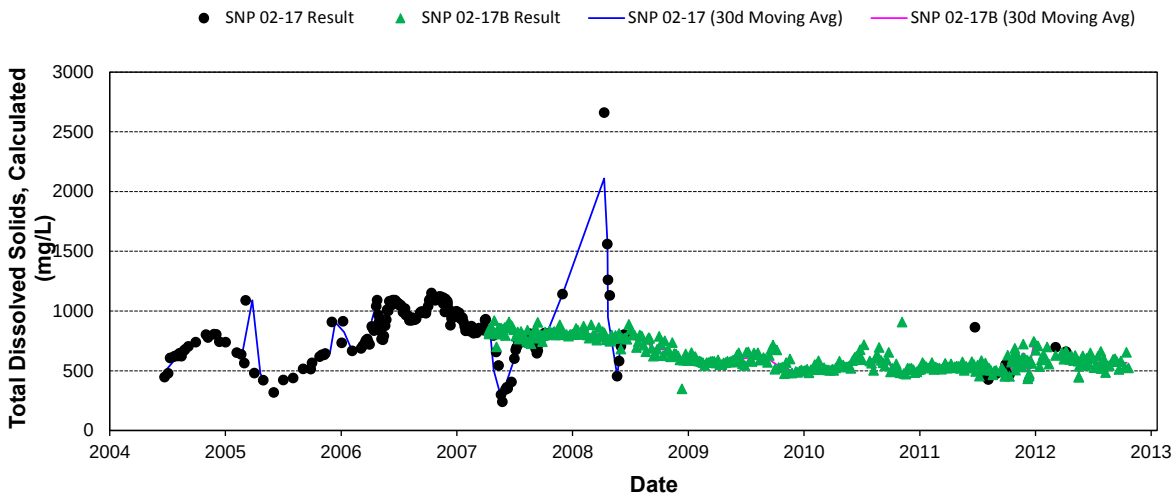
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; kg/day = kilograms per day.

Figure 3D-6 Total Dissolved Solids in the Treated Effluent, 2004 to 2012

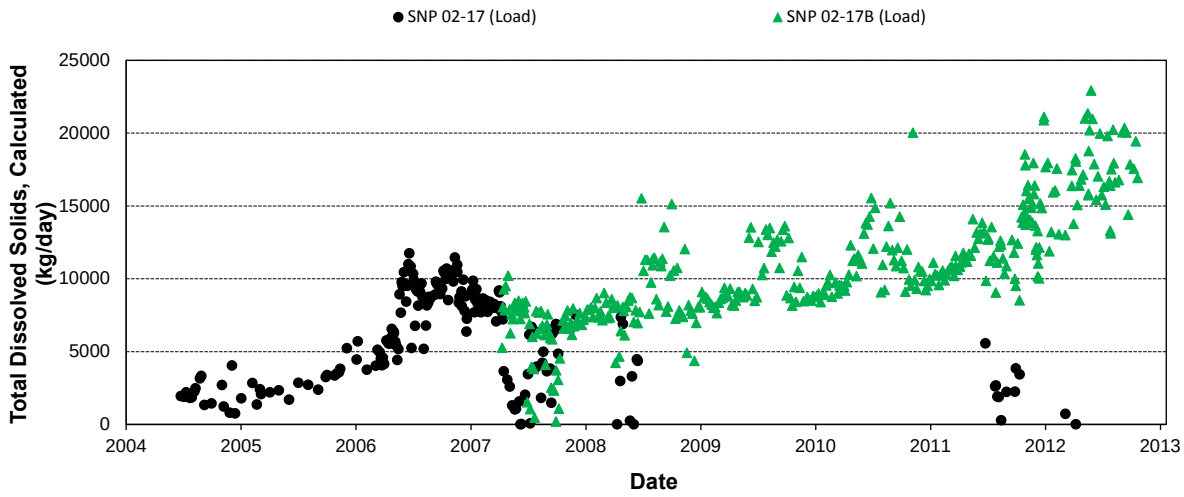
a. Concentration and Moving Average



Note: The 2012 total dissolved solids (TDS) concentrations were calculated based on the formula described in Part 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005).

30d Moving Avg = 30-day moving average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; mg/L = milligrams per litre.

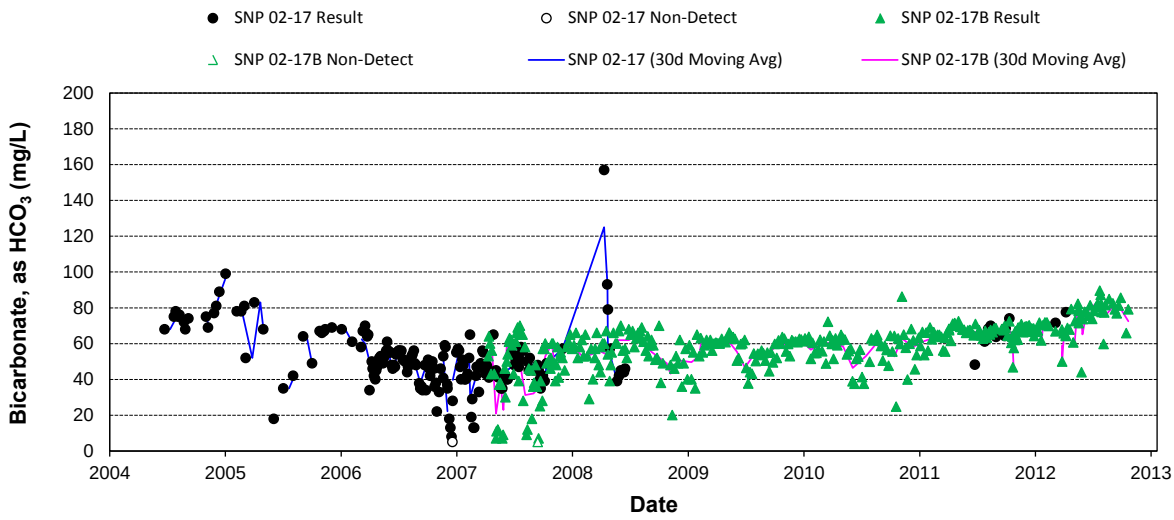
b. Loading



SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; kg/day = kilograms per day.

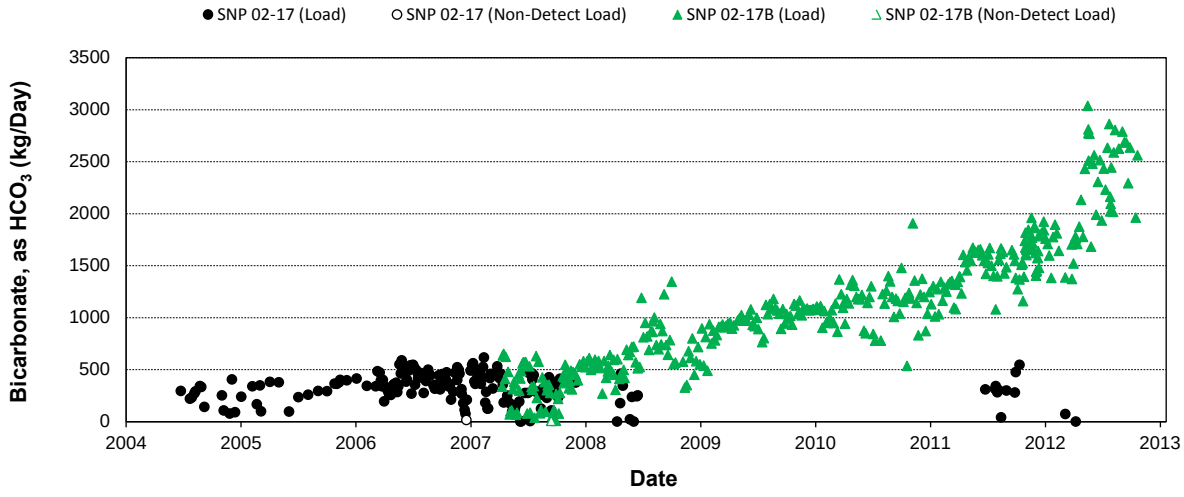
Figure 3D-7 Bicarbonate in the Treated Effluent, 2004 to 2012

a. Concentration and Moving Average



Non-Detect = values reported as less than the detection limit; 30d Moving Avg = 30-day moving average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; HCO_3 = bicarbonate; SNP = Surveillance Network Program; mg/L = milligrams per litre.

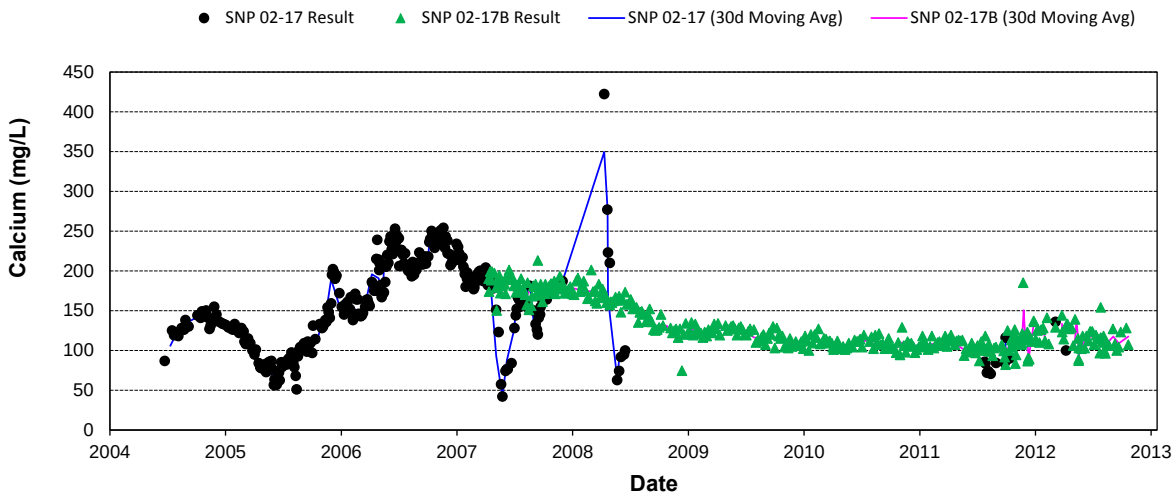
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Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; HCO_3 = bicarbonate; SNP = Surveillance Network Program; kg/day = kilograms per day.

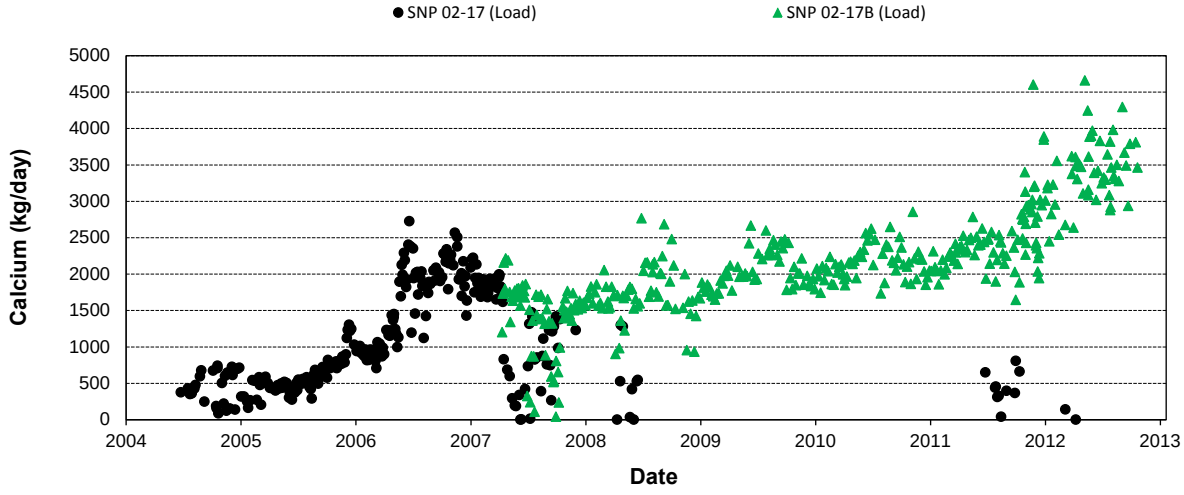
Figure 3D-8 Calcium in the Treated Effluent, 2004 to 2012

a. Concentration and Moving Average



30d Moving Avg = 30-day moving average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; mg/L = milligrams per litre.

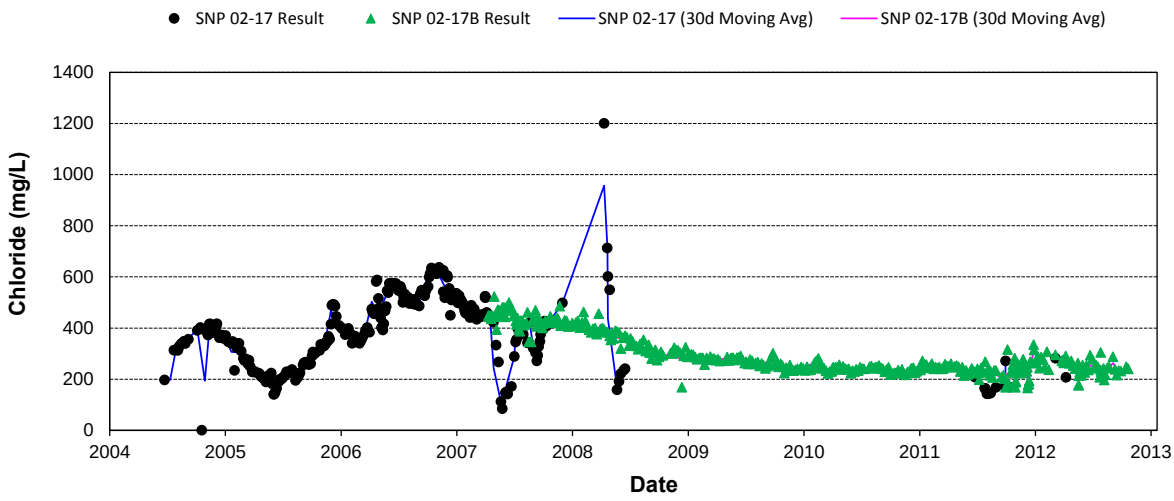
b. Loading



SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

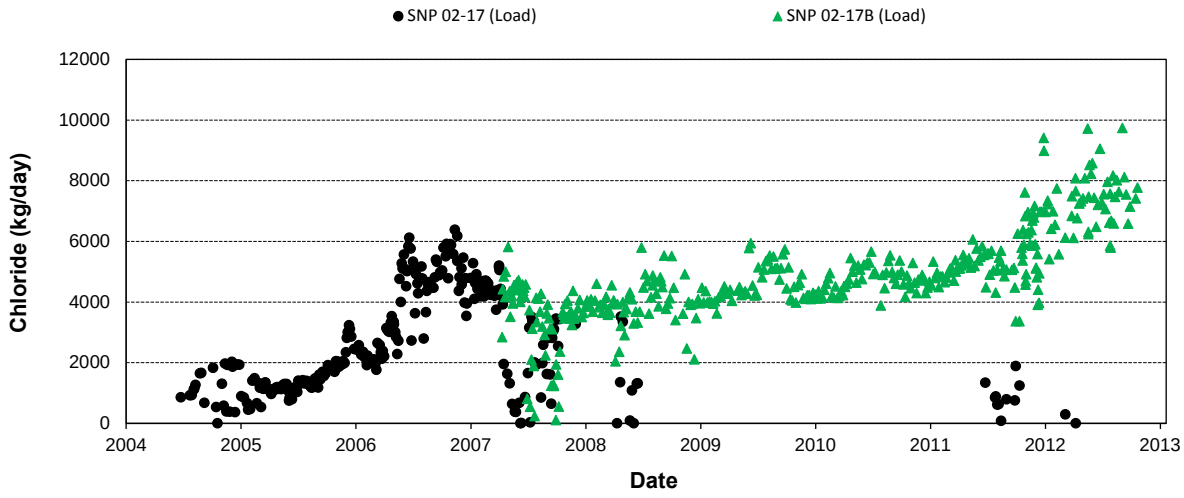
Figure 3D-9 Chloride in the Treated Effluent, 2004 to 2012

a. Concentration and Moving Average



30d Moving Avg = 30-day moving average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; mg/L = milligrams per litre.

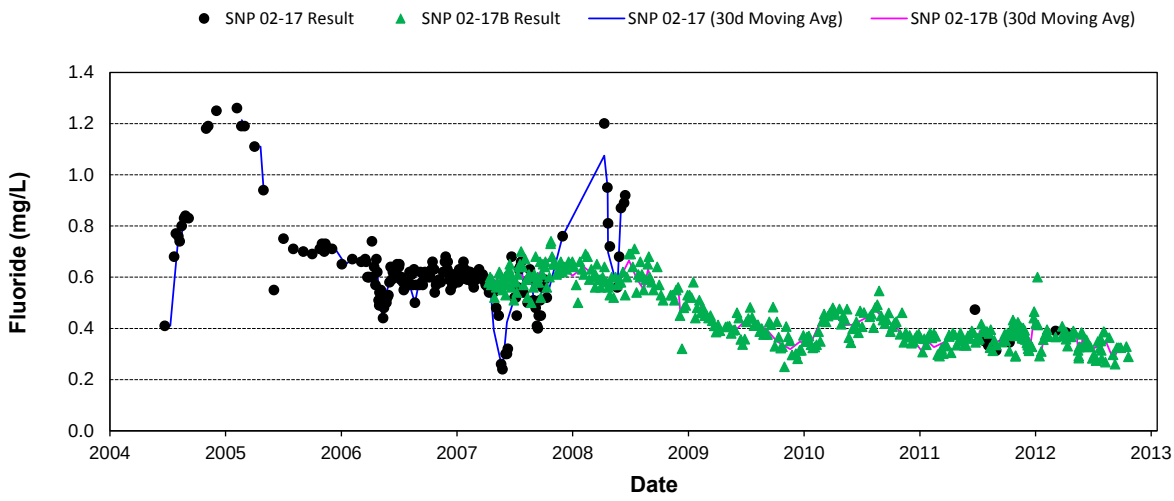
b. Loading



SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

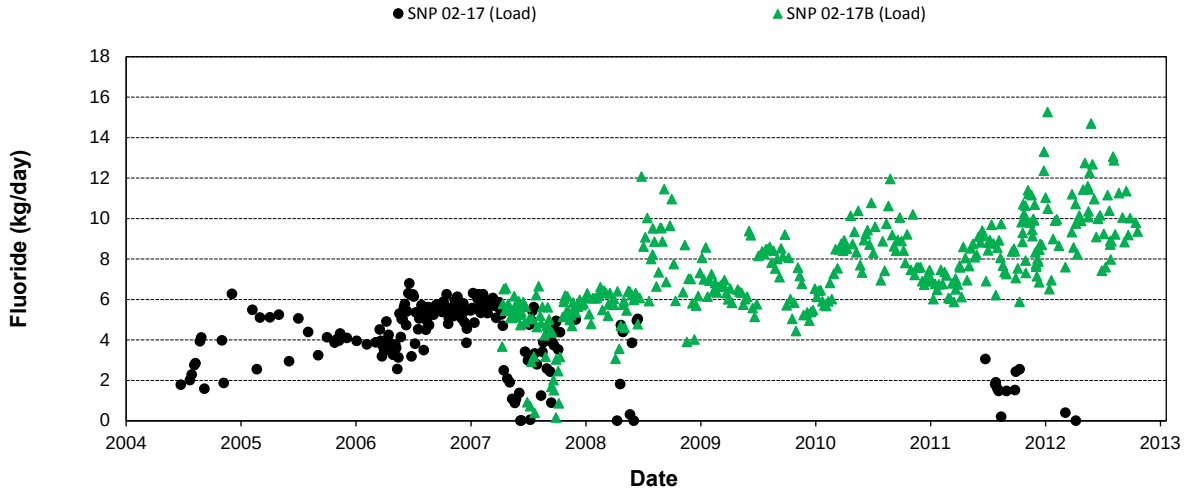
Figure 3D-10 Fluoride in the Treated Effluent, 2004 to 2012

a. Concentration and Moving Average



30d Moving Avg = 30-day moving average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; mg/L = milligrams per litre.

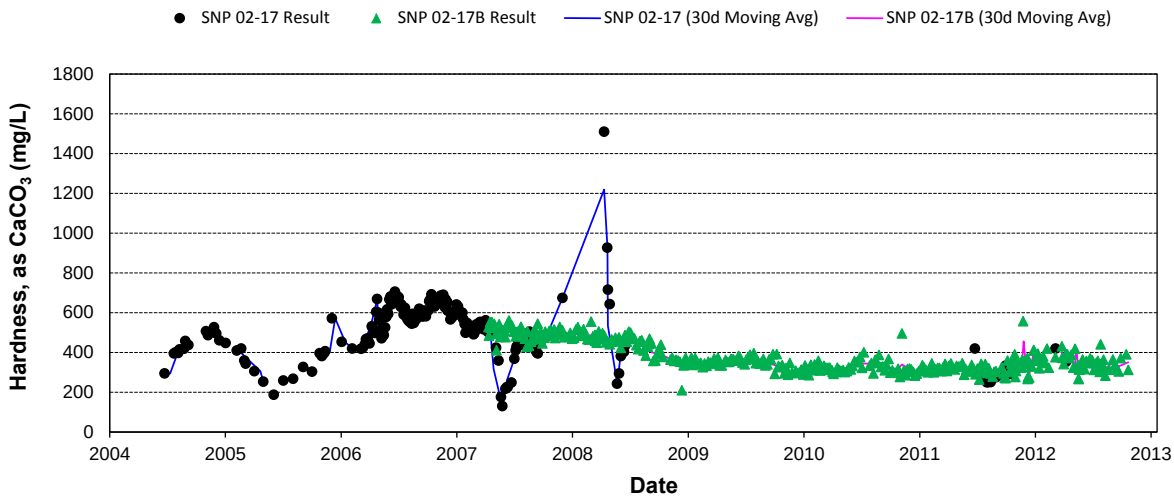
b. Loading



SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

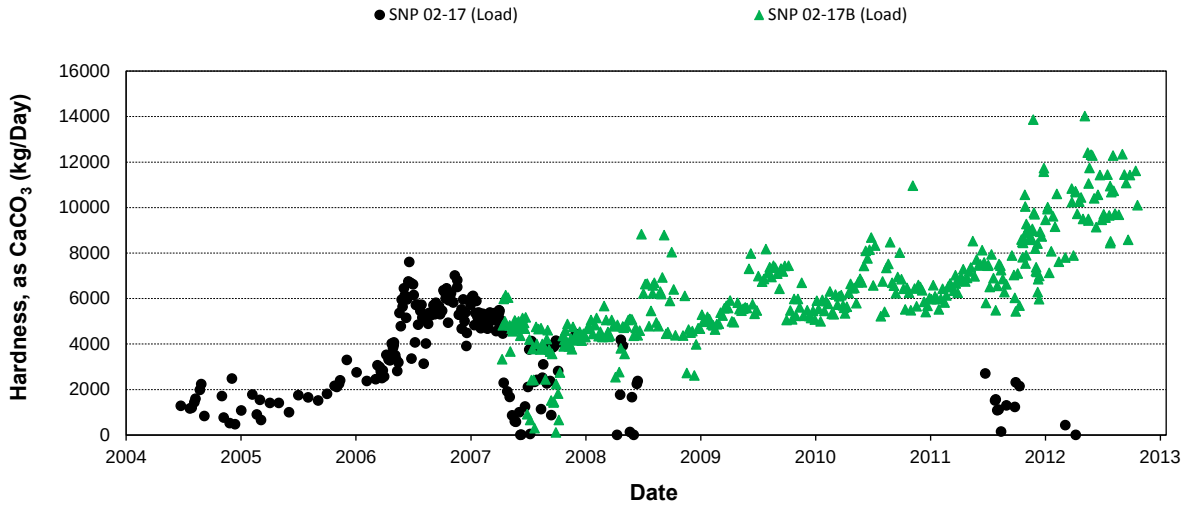
Figure 3D-11 Hardness (as Calcium Carbonate) in the Treated Effluent, 2004 to 2012

a. Concentration and Moving Average



30d Moving Avg = 30-day moving average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; $CaCO_3$ = calcium carbonate; SNP = Surveillance Network Program; mg/L = milligrams per litre.

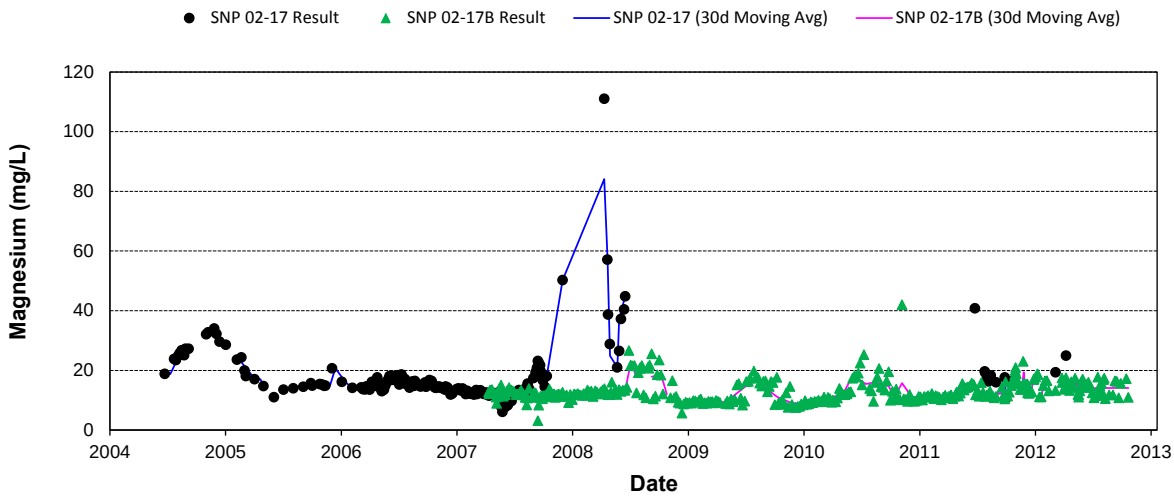
b. Loading



SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; $CaCO_3$ = calcium carbonate; SNP = Surveillance Network Program; kg/day = kilograms per day.

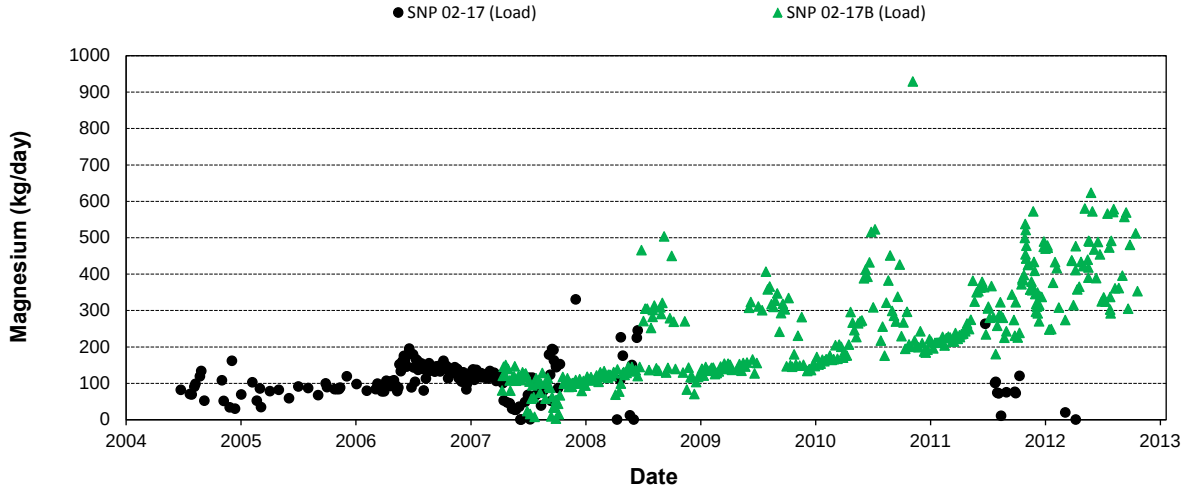
Figure 3D-12 Magnesium in the Treated Effluent, 2004 to 2012

a. Concentration and Moving Average



30d Moving Avg = 30-day moving average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; mg/L = milligrams per litre.

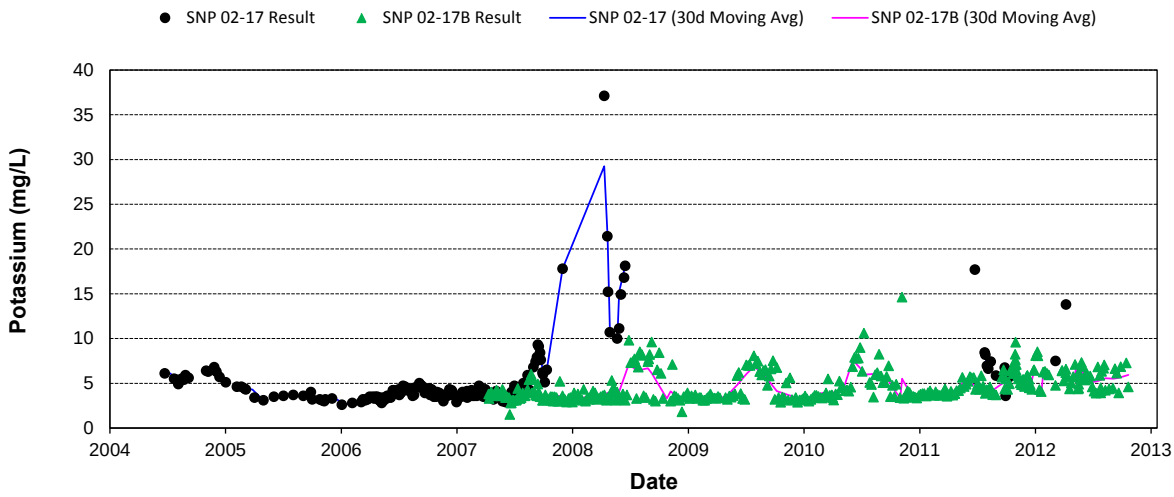
b. Loading



SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

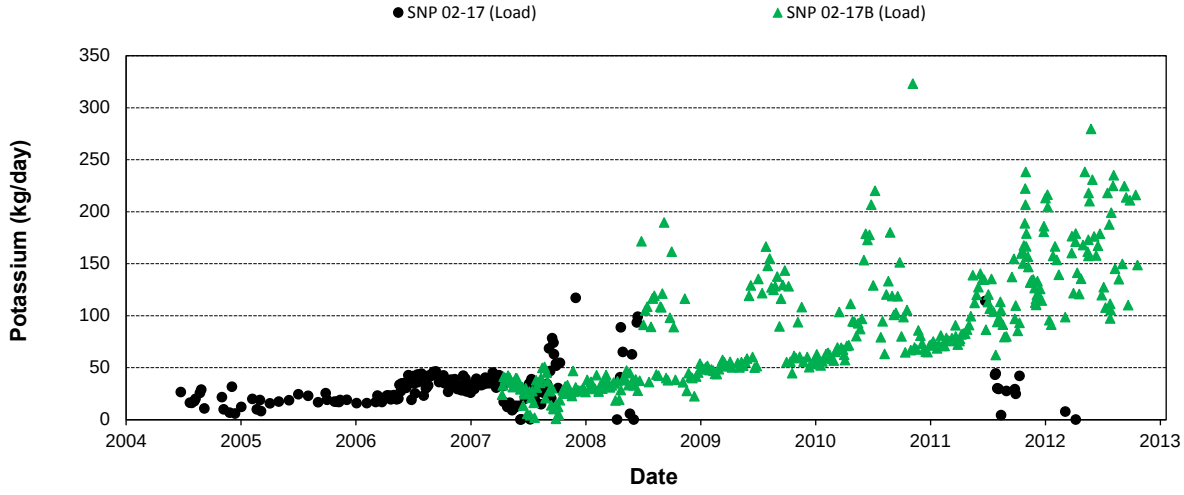
Figure 3D-13 Potassium in the Treated Effluent, 2004 to 2012

a. Concentration and Moving Average



30d Moving Avg = 30-day moving average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; mg/L = milligrams per litre.

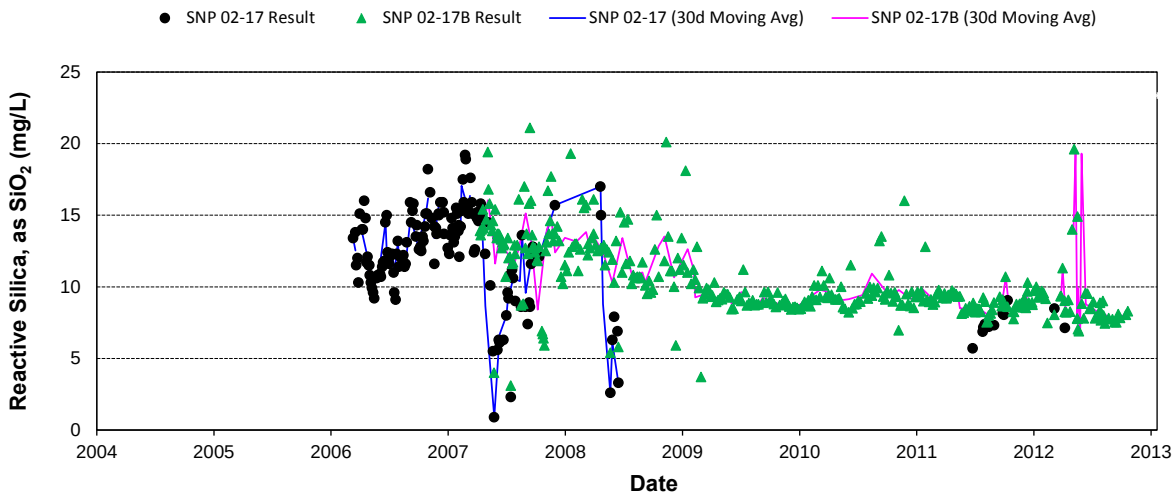
b. Loading



SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

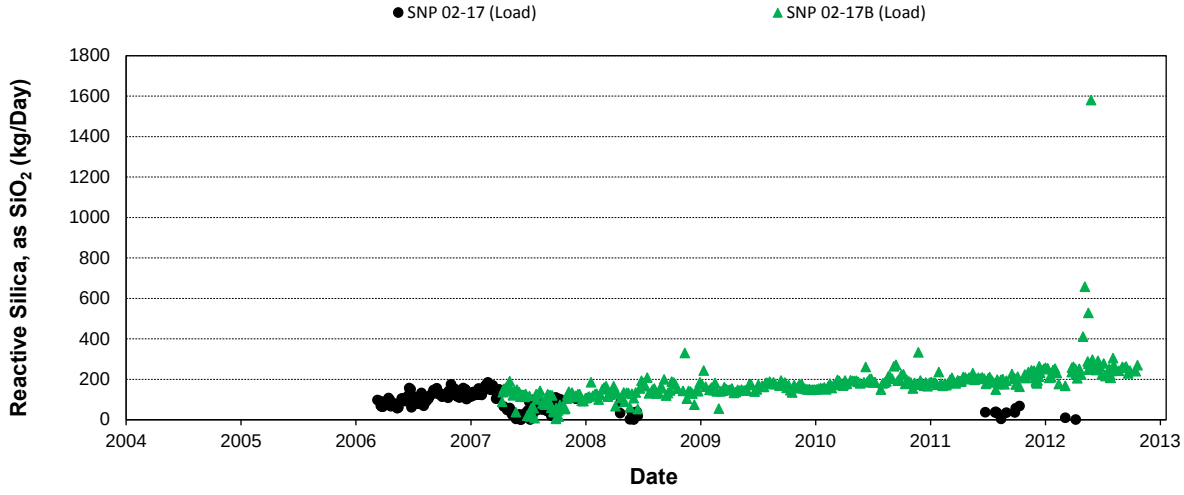
Figure 3D-14 Reactive Silica in the Treated Effluent, 2004 to 2012

a. Concentration and Moving Average



30d Moving Avg = 30-day moving average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SiO_2 = silicate; SNP = Surveillance Network Program; mg/L = milligrams per litre.

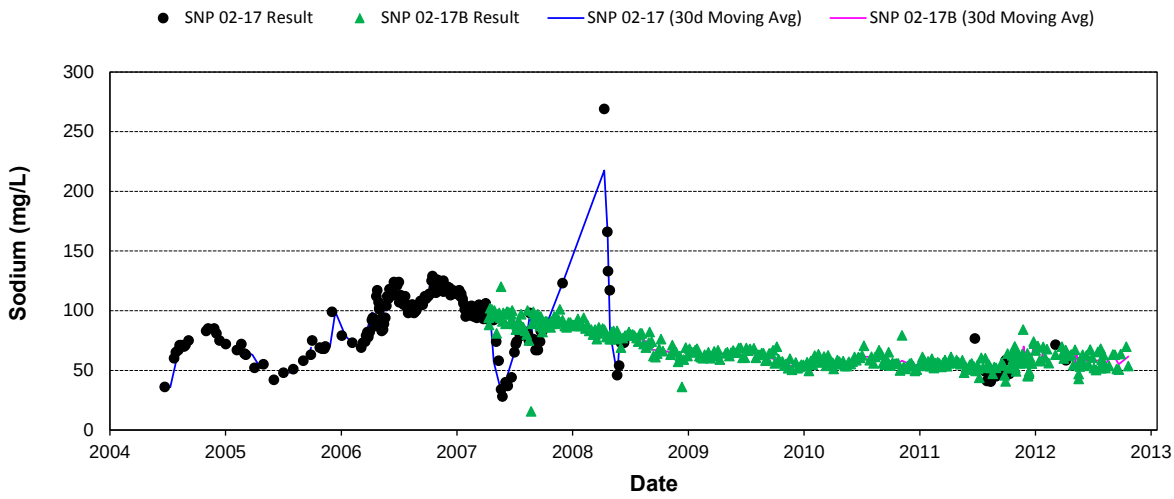
b. Loading



SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SiO_2 = silicate; SNP = Surveillance Network Program; kg/day = kilograms per day.

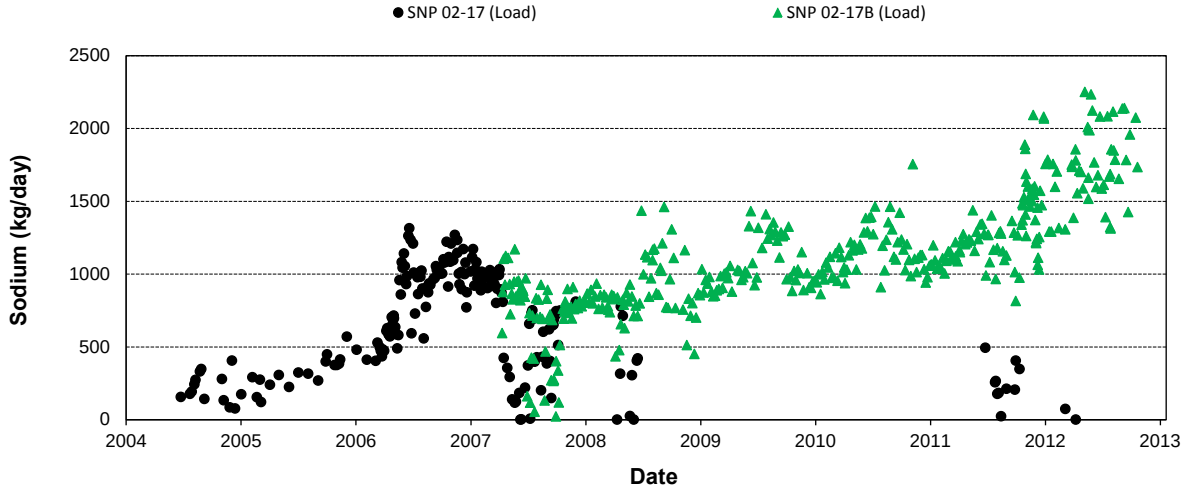
Figure 3D-15 Sodium in the Treated Effluent, 2004 to 2012

a. Concentration and Moving Average



30d Moving Avg = 30-day moving average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; mg/L = milligrams per litre.

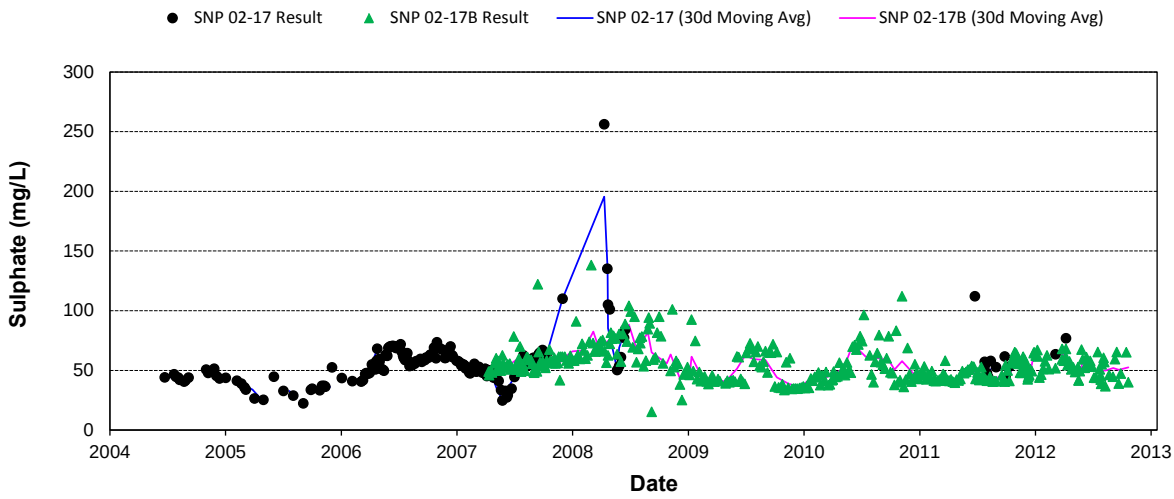
b. Loading



SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

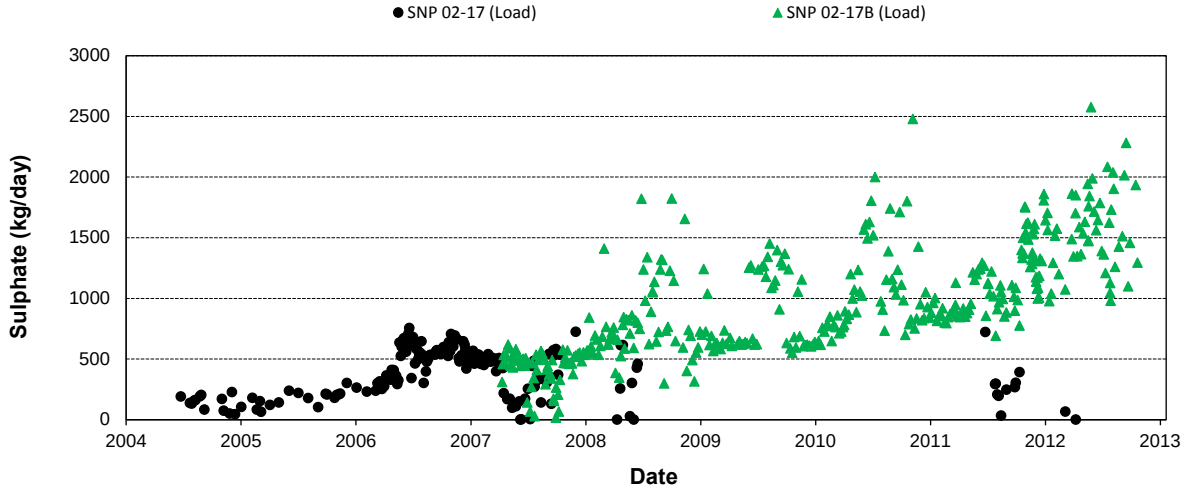
Figure 3D-16 Sulphate in the Treated Effluent, 2004 to 2012

a. Concentration and Moving Average



30d Moving Avg = 30-day moving average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; mg/L = milligrams per litre.

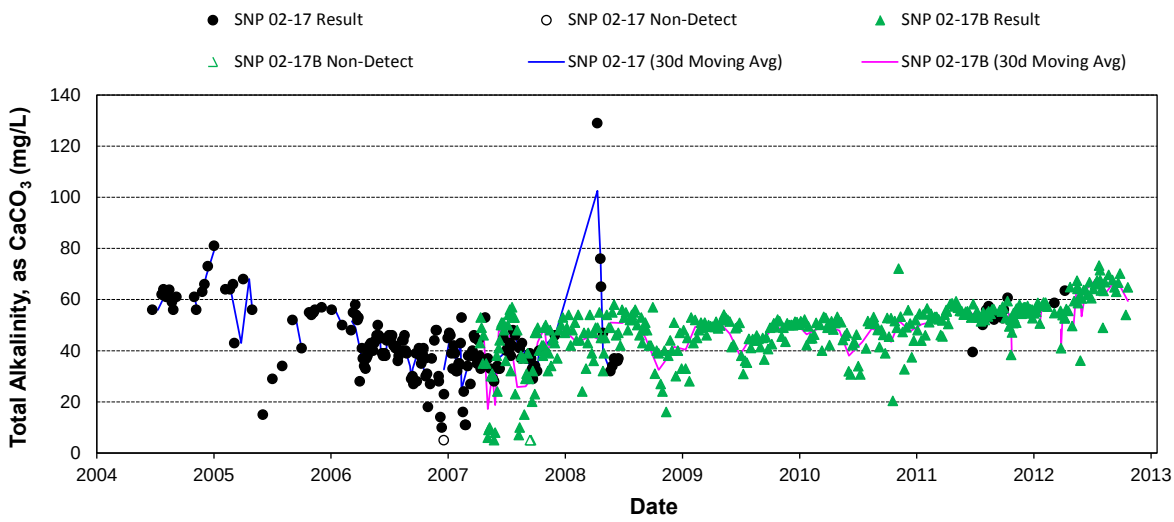
b. Loading



SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

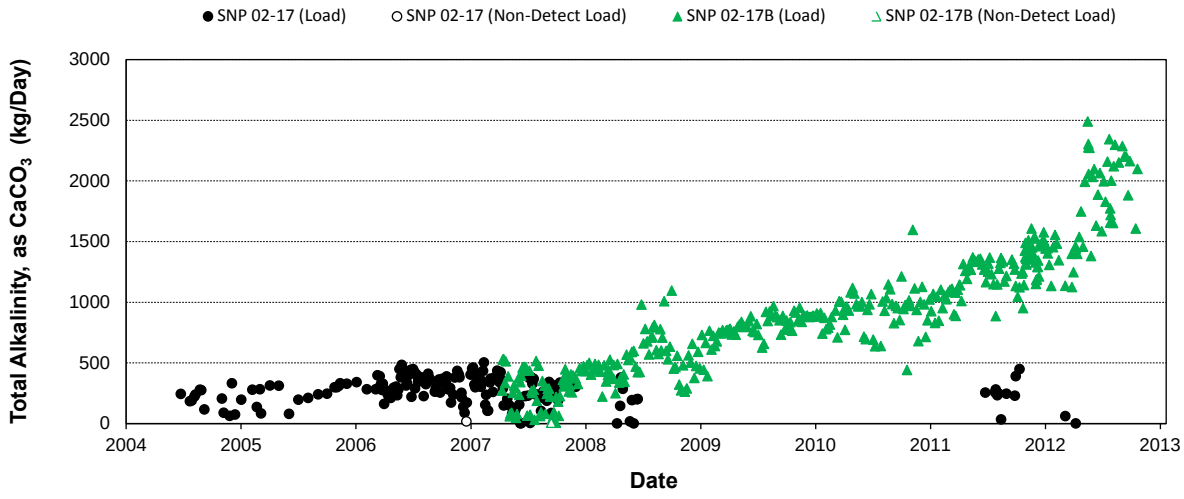
Figure 3D-17 Total Alkalinity (as Calcium Carbonate) in the Treated Effluent, 2004 to 2012

a. Concentration and Moving Average



Non-Detect = values reported as less than the method detection limit; 30d Moving Avg = 30-day moving average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; $CaCO_3$ = calcium carbonate; SNP = Surveillance Network Program; mg/L = milligrams per litre.

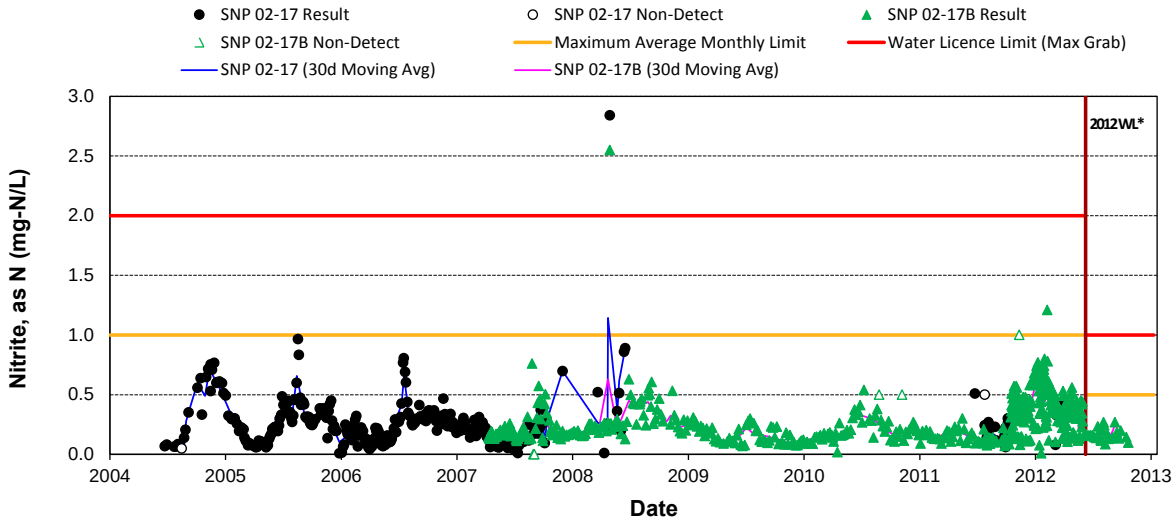
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Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; $CaCO_3$ = calcium carbonate; SNP = Surveillance Network Program; kg/day = kilograms per day.

Figure 3D-18 Nitrite, as Nitrogen in the Treated Effluent, 2004 to 2012

a. Concentration and Moving Average

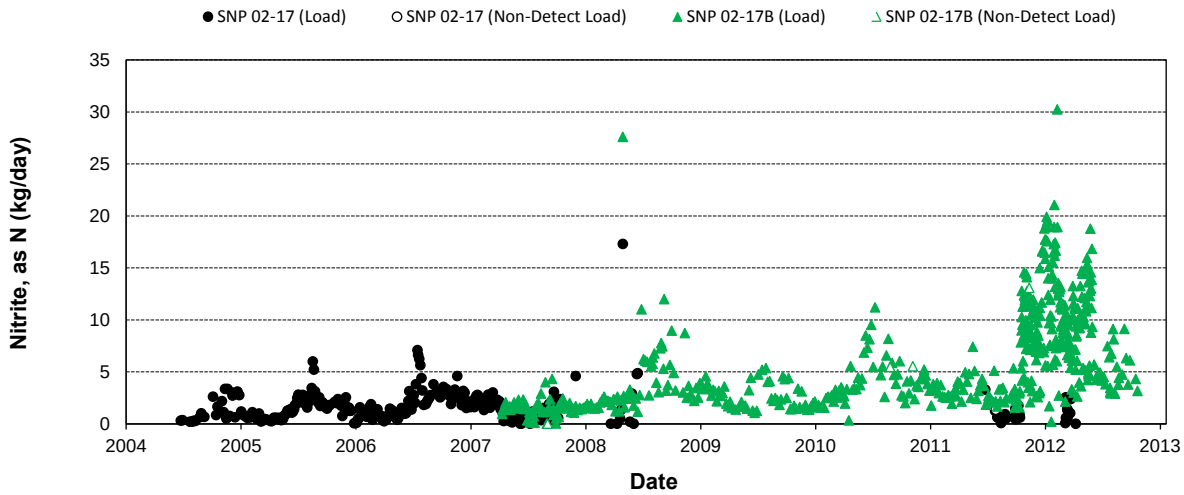


Note:

* The Water Licence limits (maximum concentration of any grab sample and maximum average monthly limit) for nitrite were lowered from 2.0 mg/L and 1.0 mg/L to 1.0 mg/L and 0.5 mg/L, respectively, when the new Water Licence came into effect on June 14, 2012: MV2011L2-0004 (MVLWB 2012).

Non-Detect = values reported as less than the method detection limit; 30d Moving Avg = 30-day moving average; Max Grab = maximum allowable concentration in any grab sample; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; N = Nitrogen; SNP = Surveillance Network Program; mg-N/L = milligrams as nitrogen per litre.

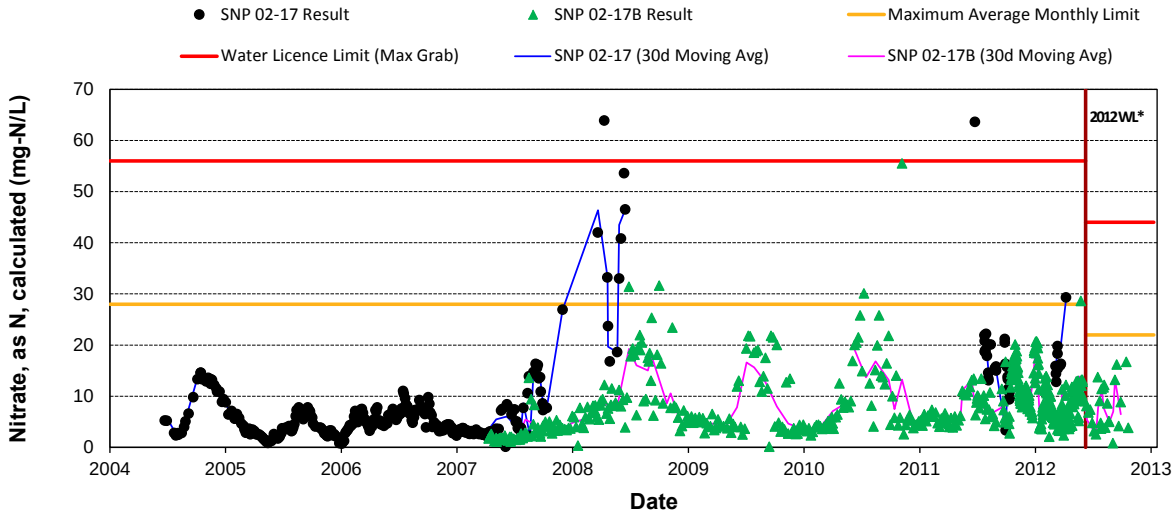
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; N = Nitrogen; SNP = Surveillance Network Program; kg/day = kilograms per day.

Figure 3D-19 Nitrate, as Nitrogen, Calculated in the Treated Effluent, 2004 to 2012

a. Concentration and Moving Average

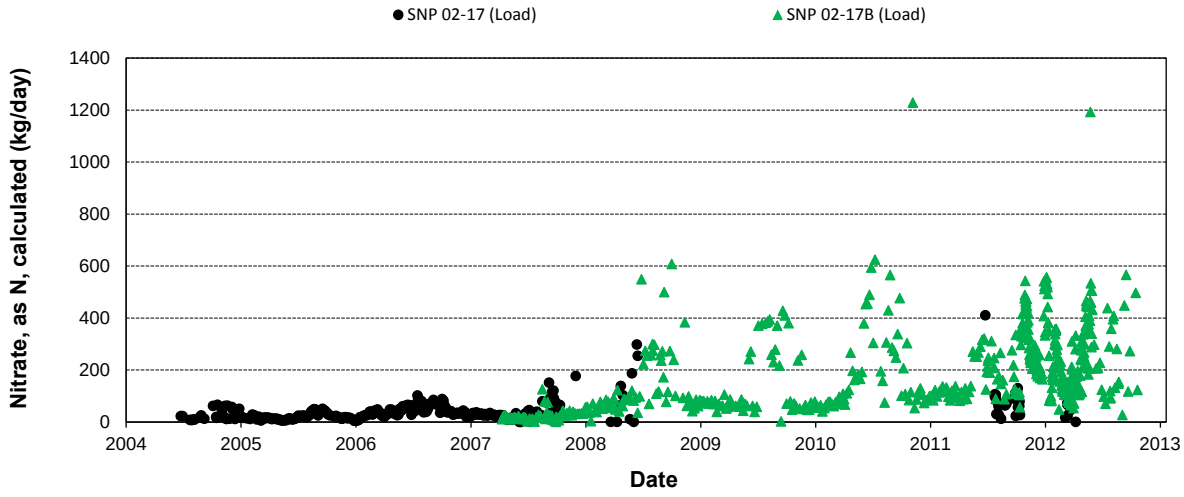


Note:

* The Water Licence limits (maximum concentration of any grab sample and maximum average monthly limit) for nitrate were lowered from 56 mg-N/L and 28 mg-N/L to 44 mg-N/L and 22 mg-N/L, respectively, when the new Water Licence came into effect on June 14, 2012: MV2011L2-0004 (MVLWB 2012).

30d Moving Avg = 30-day moving average; Max Grab = maximum allowable concentration in any grab sample; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; N = Nitrogen; SNP = Surveillance Network Program; mg-N/L = milligrams as nitrogen per litre.

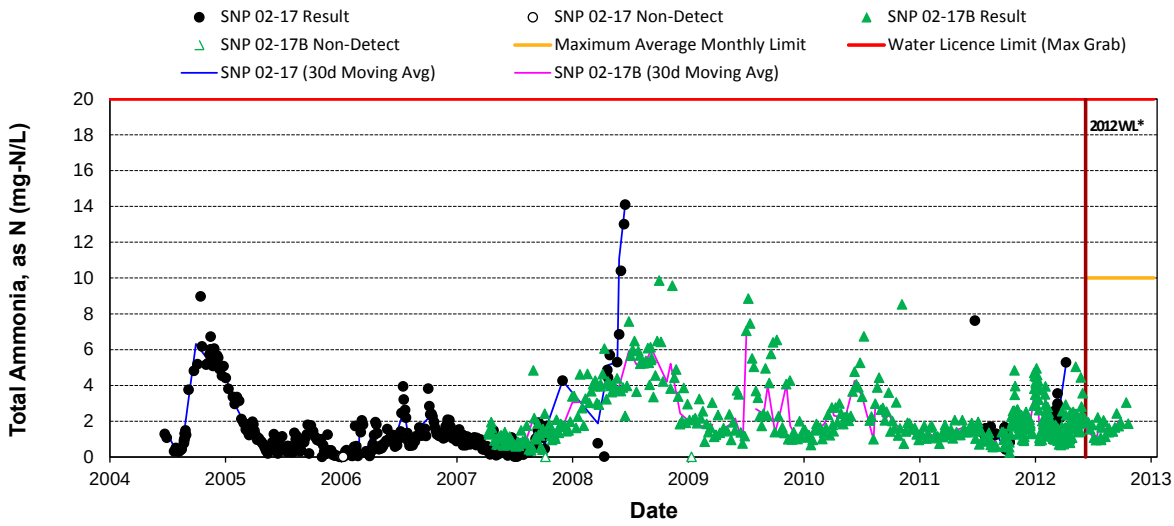
b. Loading



SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; N = Nitrogen; SNP = Surveillance Network Program; kg/day = kilograms per day.

Figure 3D-20 Total Ammonia, as Nitrogen, Calculated in the Treated Effluent, 2004 to 2012

a. Concentration and Moving Average

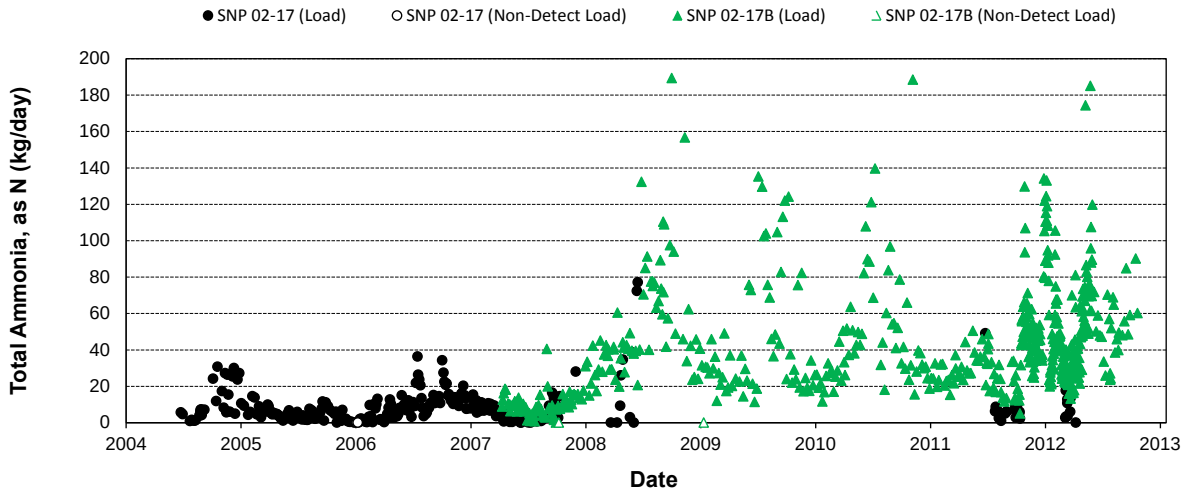


Note:

* The Water Licence limit (maximum average monthly limit) for total ammonia was lowered from 20 mg-N/L to 10 mg-N/L, when the new Water Licence came into effect on June 14, 2012: MV2011L2-0004 (MVLWB 2012).

Non-Detect = values reported as less than the method detection limit; 30d Moving Avg = 30-day moving average; Max Grab = maximum allowable concentration in any grab sample; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; N = Nitrogen; SNP = Surveillance Network Program; mg-N/L = milligrams as nitrogen per litre.

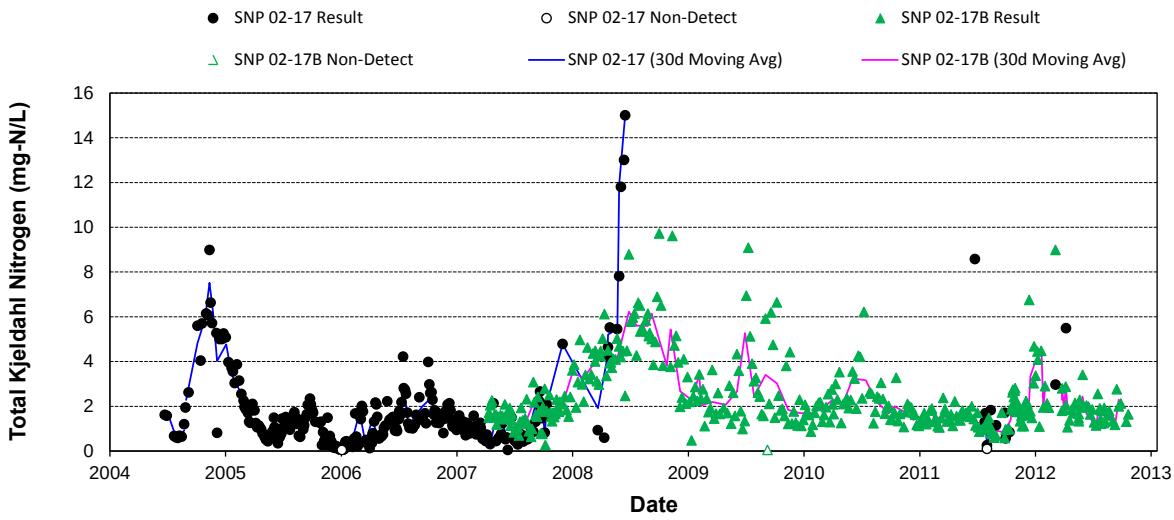
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Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; N = Nitrogen; SNP = Surveillance Network Program; kg/day = kilograms per day.

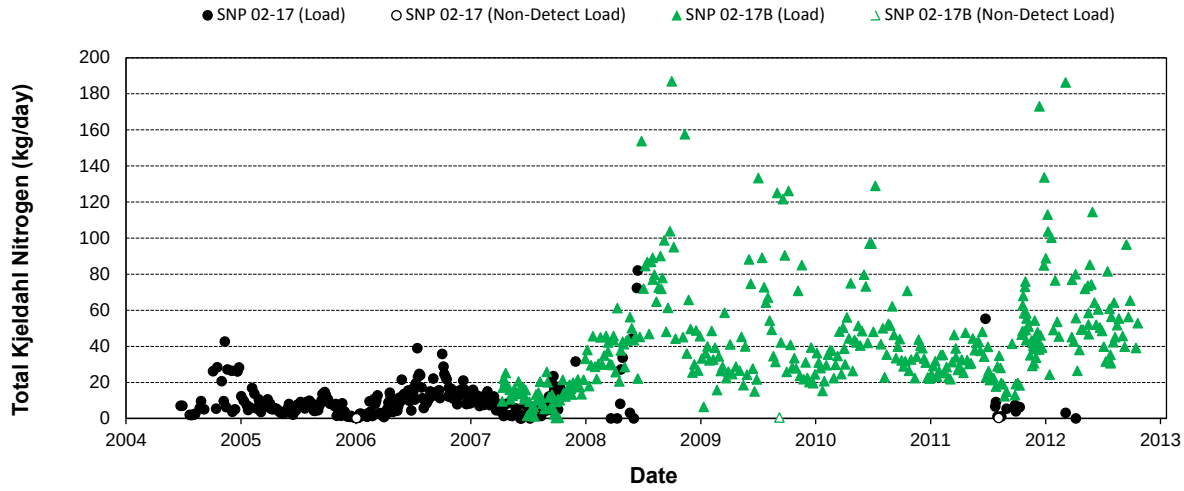
Figure 3D-21 Total Kjeldahl Nitrogen in the Treated Effluent, 2004 to 2012

a. Concentration and Moving Average



Non-Detect = values reported as less than the method detection limit; 30d Moving Avg = 30-day moving average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; N = Nitrogen; SNP = Surveillance Network Program; mg-N/L = milligrams as nitrogen per litre.

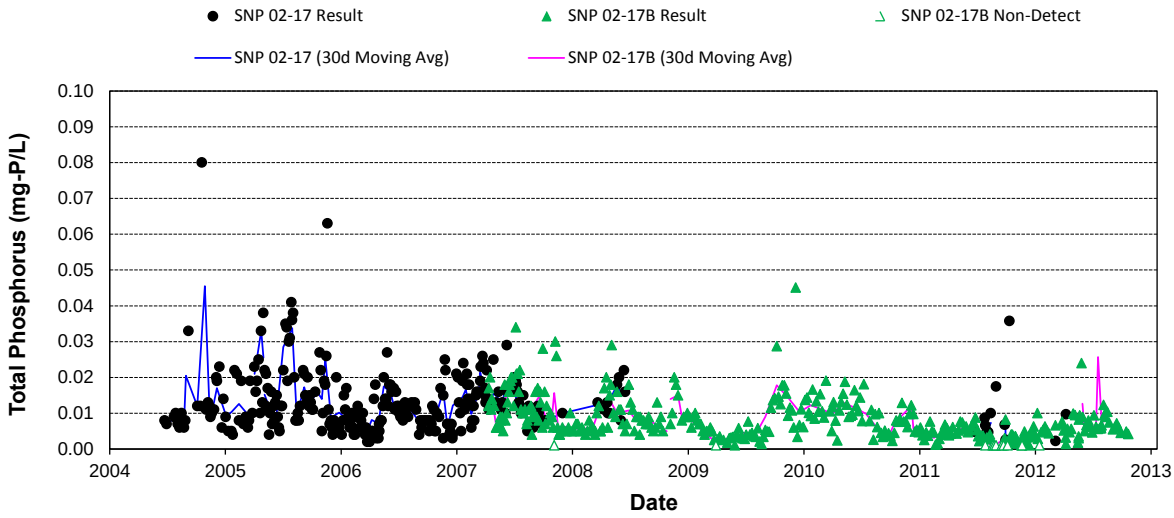
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Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

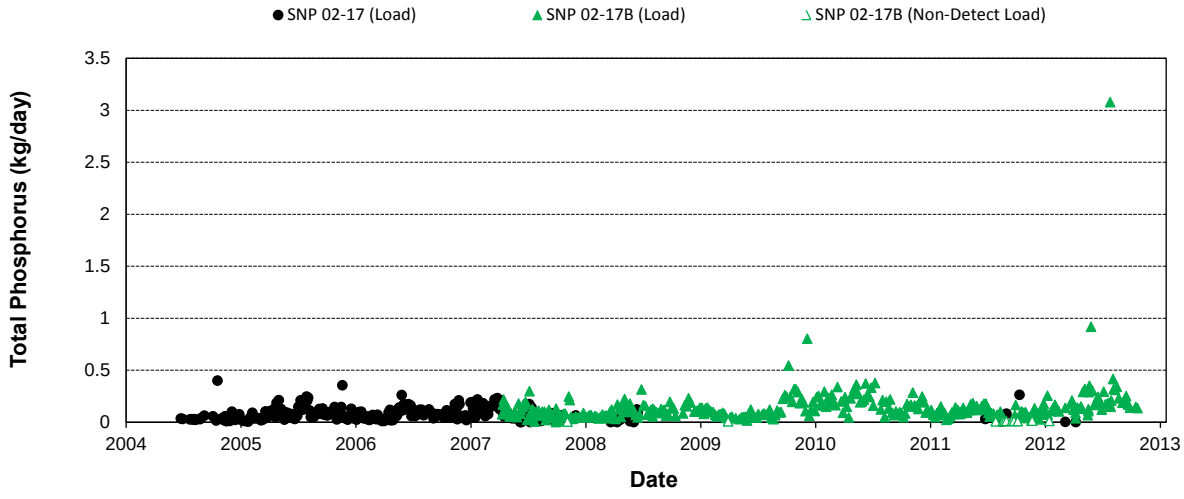
Figure 3D-22 Total Phosphorus in the Treated Effluent, 2004 to 2012

a. Concentration and Moving Average



Non-Detect = values reported as less than the method detection limit; 30d Moving Avg = 30-day moving average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; mg-P/L = milligrams as phosphorus per litre.

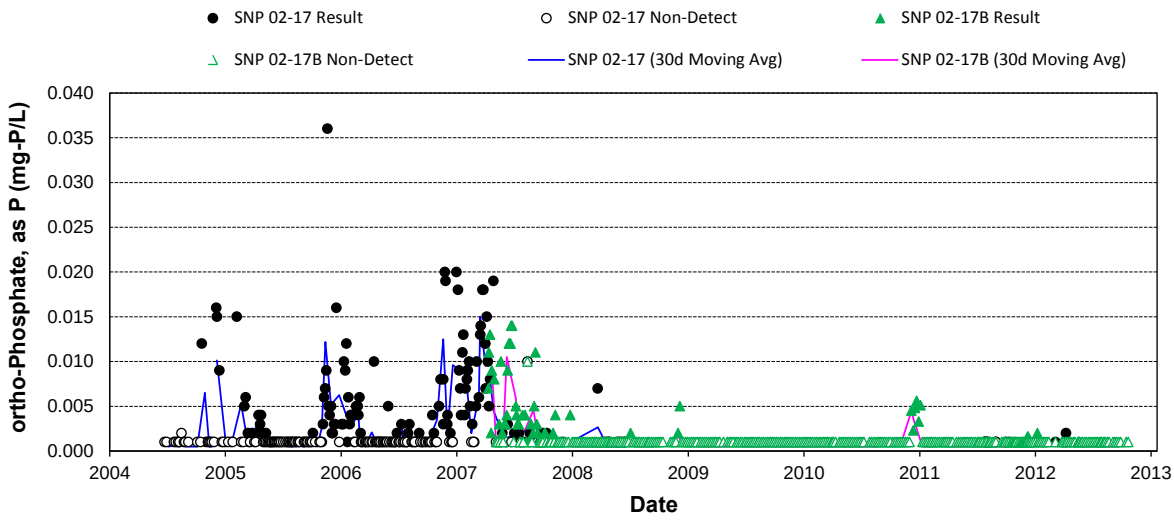
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

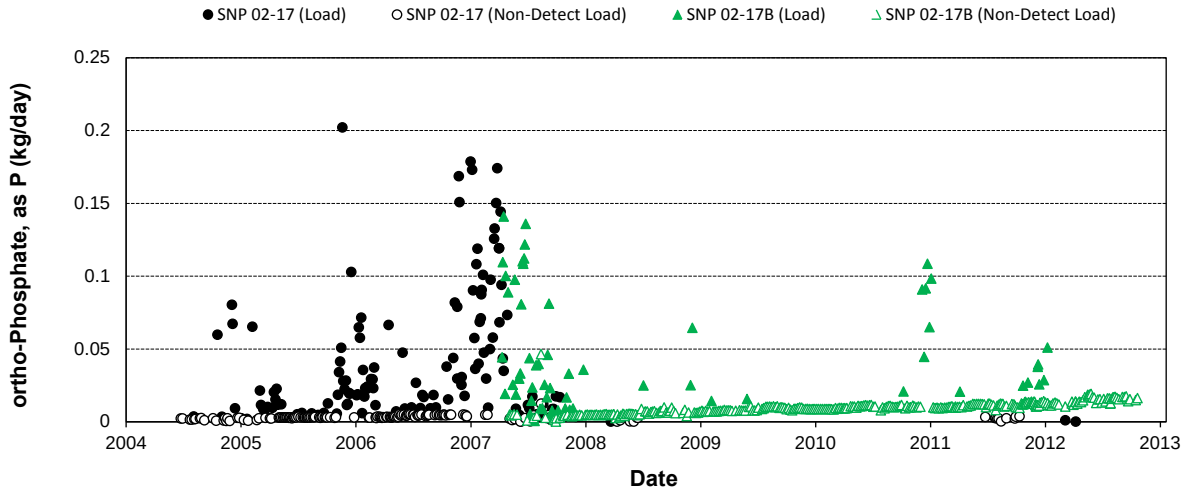
Figure 3D-23 Ortho-Phosphate (as Phosphorus) in the Treated Effluent, 2004 to 2012

a. Concentration and Moving Average



Non-Detect = values reported as less than the method detection limit; 30d Moving Avg = 30-day moving average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; P = Phosphorus; SNP = Surveillance Network Program; mg-P/L = milligrams as phosphorus per litre.

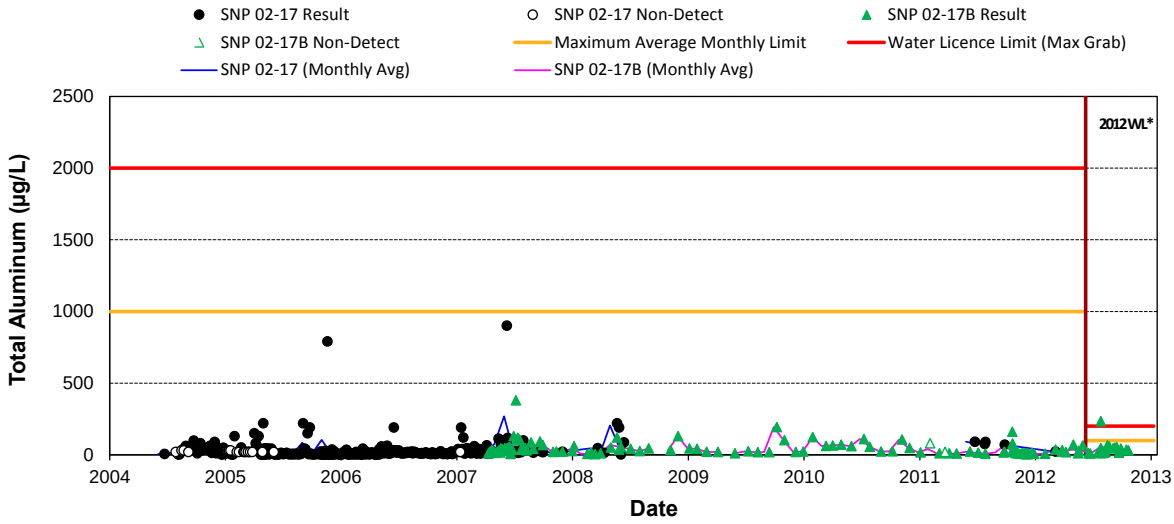
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; P = Phosphorus; kg/day = kilograms per day.

Figure 3D-24 Total Aluminum in the Treated Effluent, 2004 to 2011

a. Concentration and Monthly Average

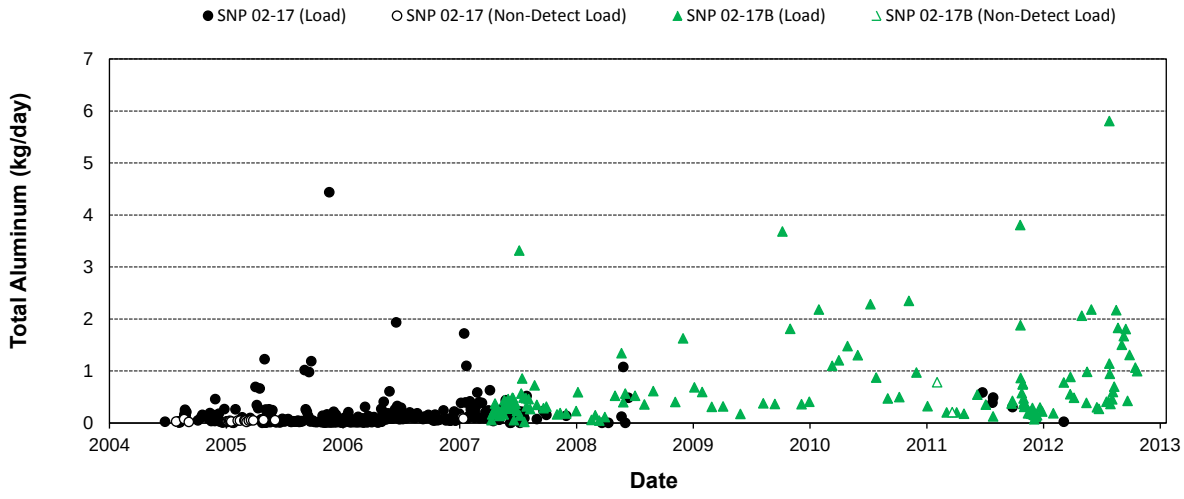


Note:

* The Water Licence limits (maximum concentration of any grab sample and maximum average monthly limit) for total aluminum were lowered from 2,000 µg/L and 1,000 µg/L to 200 µg/L and 100 µg/L, respectively, when the new Water Licence came into effect on June 14, 2012: MV2011L2-0004 (MVLWB 2012).

Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; Max Grab = maximum allowable concentration in any grab sample; µg/L = micrograms per litre.

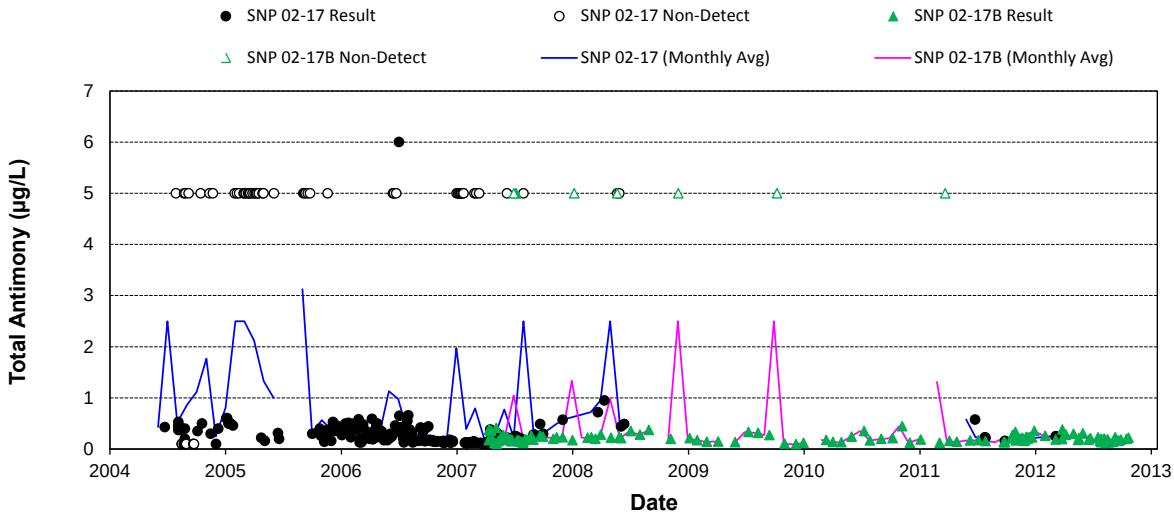
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

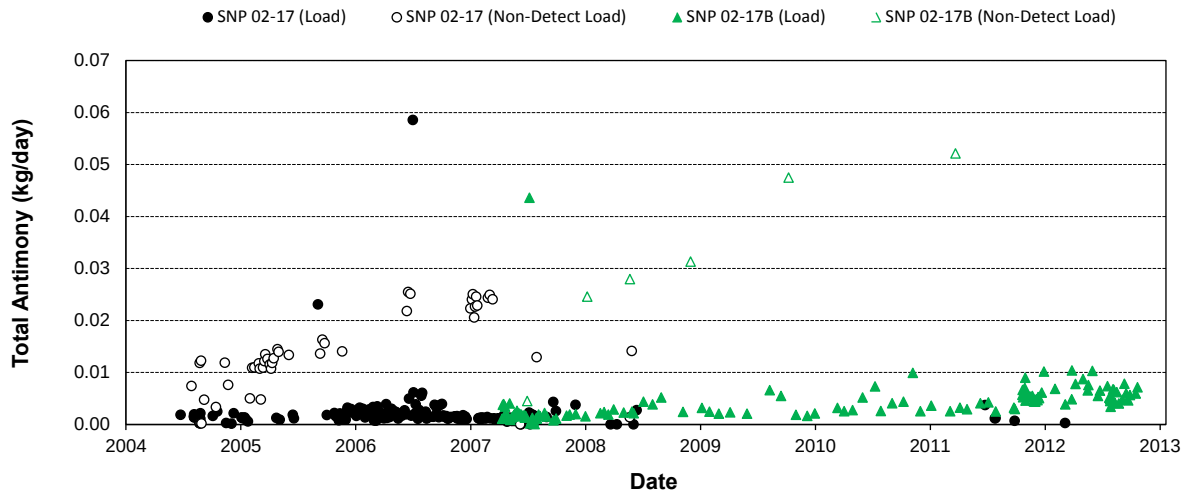
Figure 3D-25 Total Antimony in the Treated Effluent, 2004 to 2011

a. Concentration and Monthly Average



Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; µg/L = micrograms per litre.

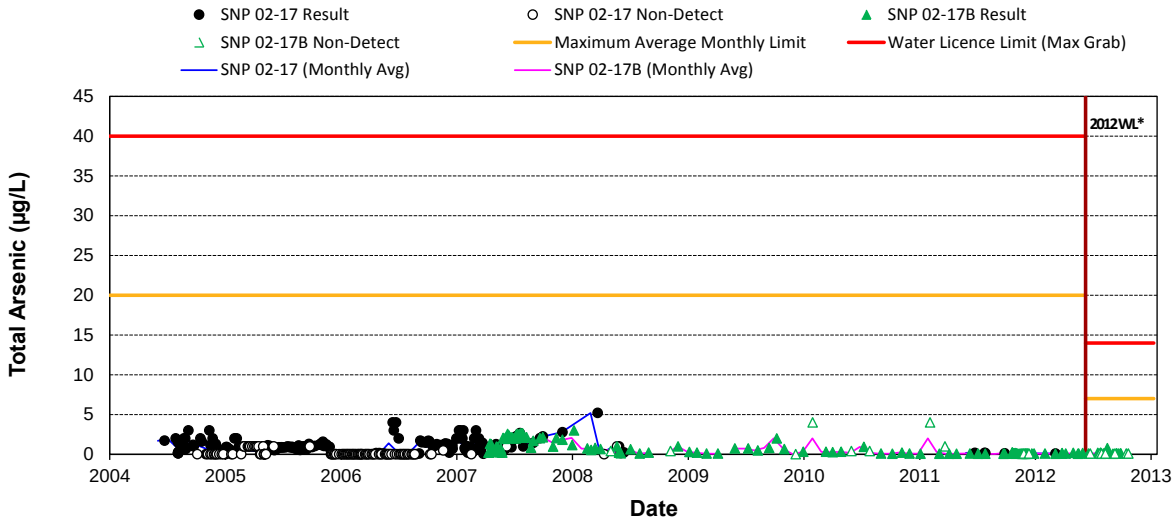
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

Figure 3D-26 Total Arsenic in the Treated Effluent, 2004 to 2011

a. Concentration and Monthly Average

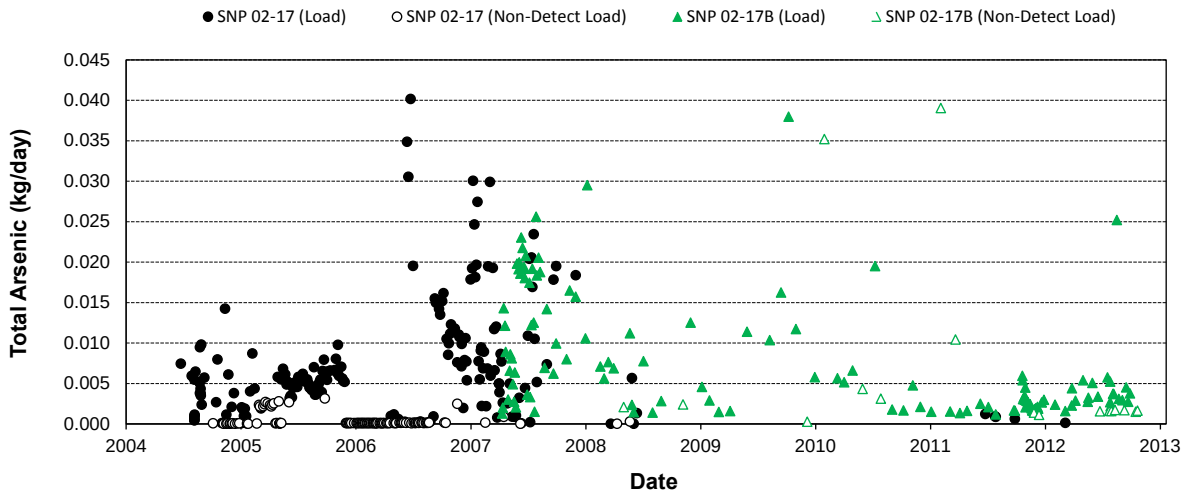


Note:

* The Water Licence limits (maximum concentration of any grab sample and maximum average monthly limit) for total arsenic were lowered from 40 µg/L and 20 µg/L to 14 µg/L and 7 µg/L, respectively, when the new Water Licence came into effect on June 14, 2012: MV2011L2-0004 (MVLWB 2012).

Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; Max Grab = maximum allowable concentration in any grab sample; SNP = Surveillance Network Program; µg/L = micrograms per litre.

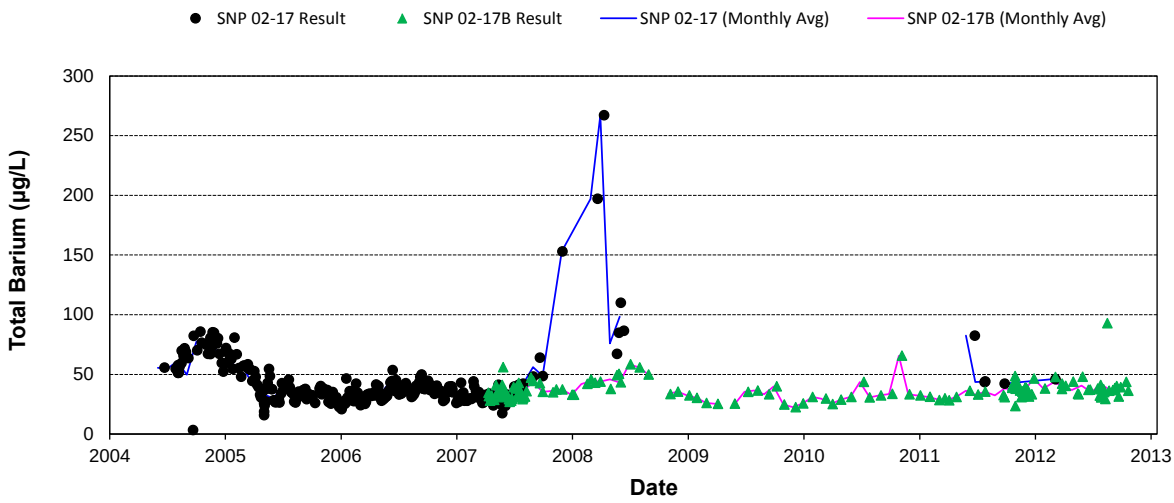
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

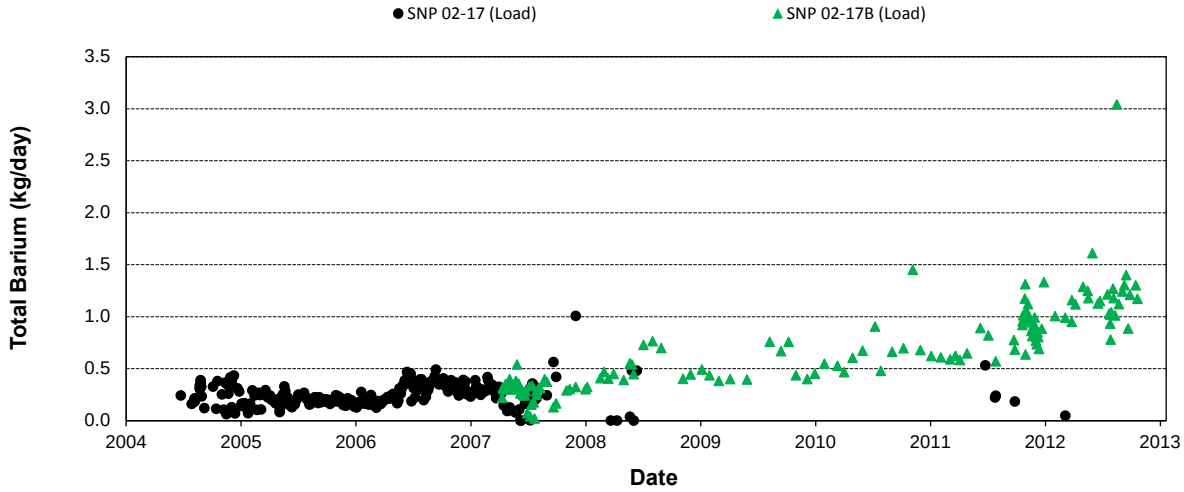
Figure 3D-27 Total Barium in the Treated Effluent, 2004 to 2012

a. Concentration and Monthly Average



Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; µg/L = micrograms per litre.

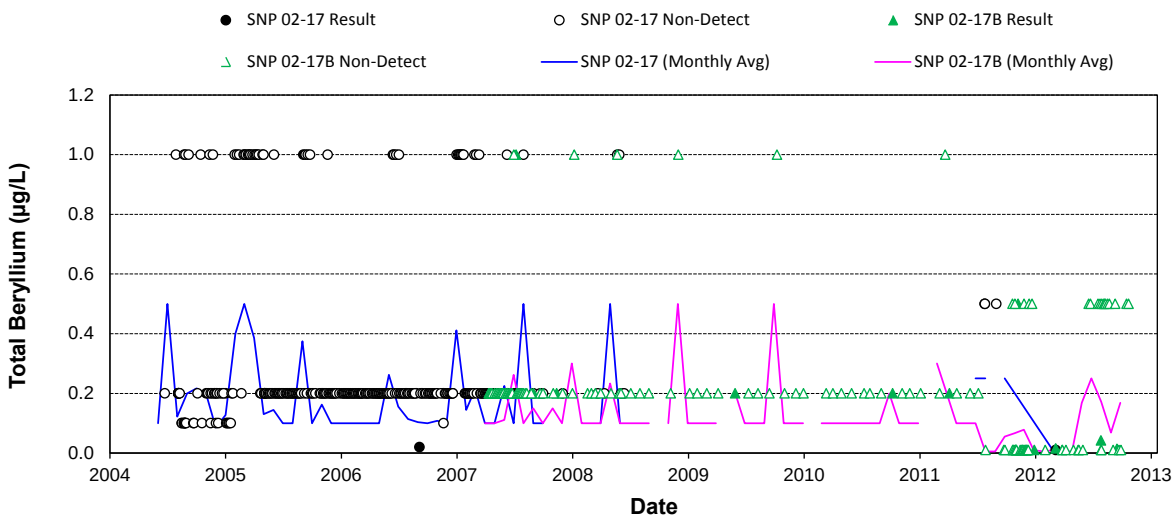
b. Loading



SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

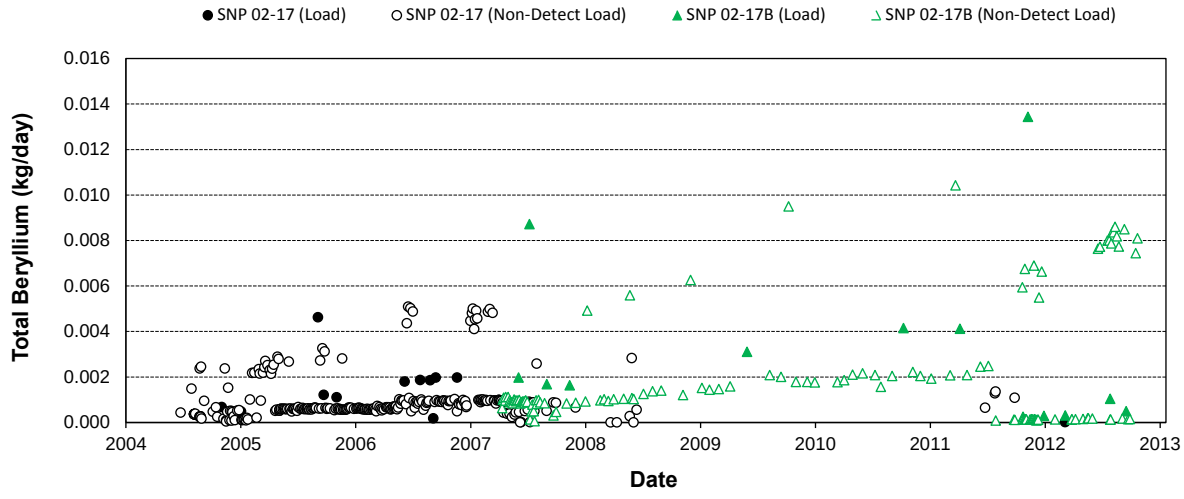
Figure 3D-28 Total Beryllium in the Treated Effluent, 2004 to 2012

a. Concentration and Monthly Average



Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; µg/L = micrograms per litre.

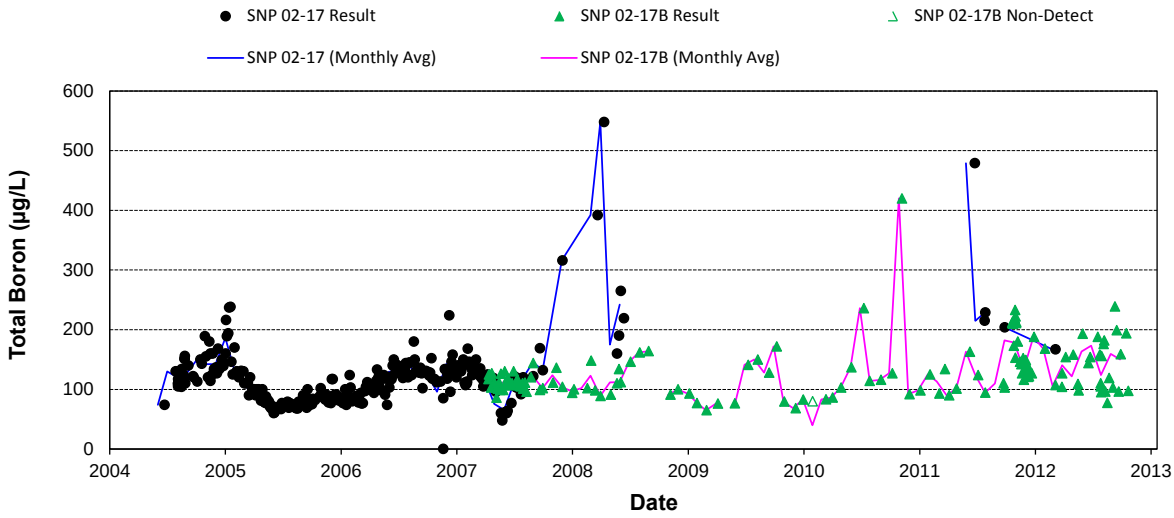
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

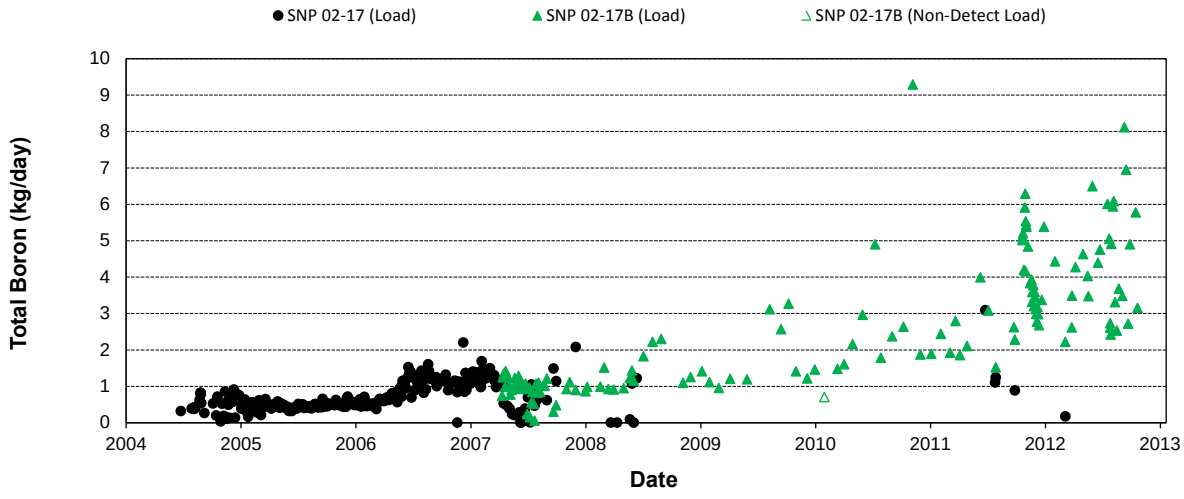
Figure 3D-29 Total Boron in the Treated Effluent, 2004 to 2012

a. Concentration and Monthly Average



Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; µg/L = micrograms per litre.

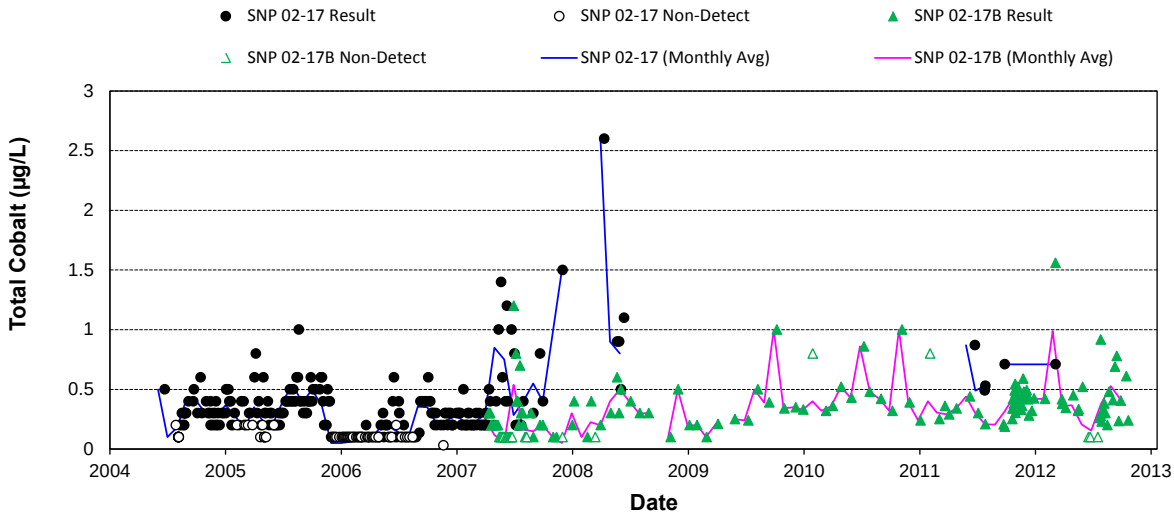
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

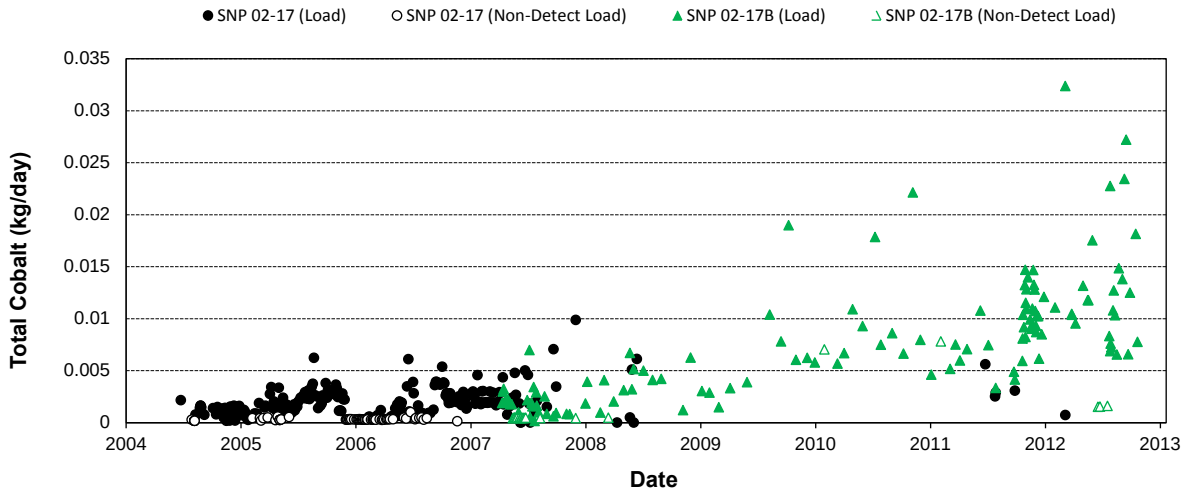
Figure 3D-30 Total Cobalt in the Treated Effluent, 2004 to 2012

a. Concentration and Monthly Average



Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; µg/L = micrograms per litre.

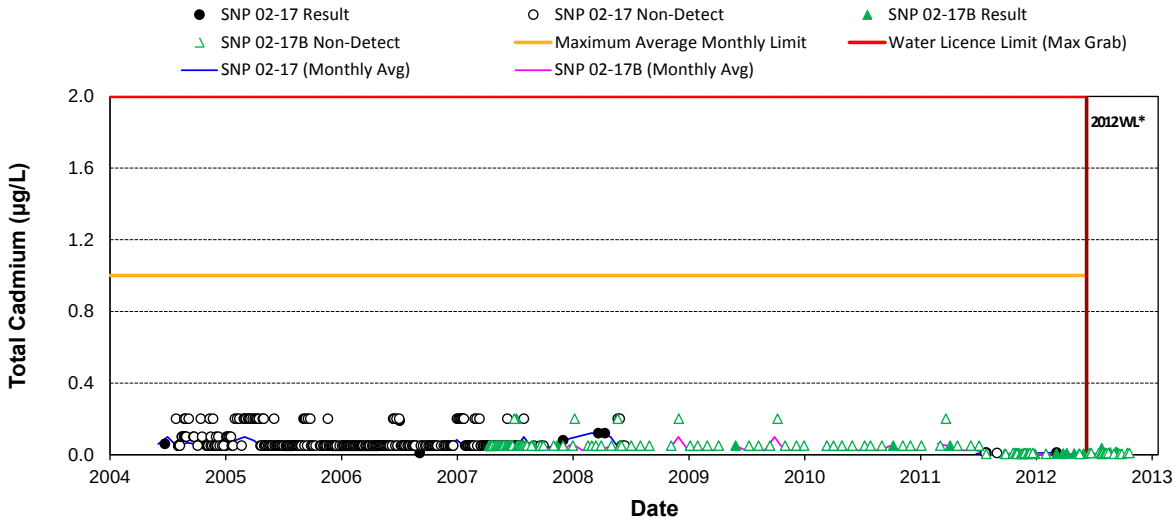
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

Figure 3D-31 Total Cadmium in the Treated Effluent, 2004 to 2012

a. Concentration and Monthly Average

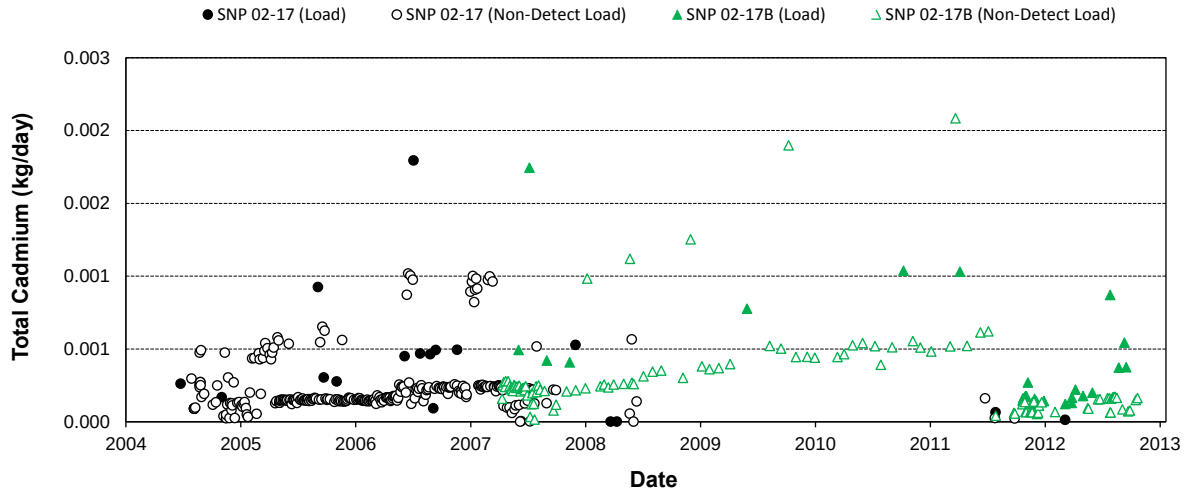


Note:

* The Water Licence limits (maximum concentration of any grab sample and maximum average monthly limit) for total cadmium of 2 µg/L and 1 µg/L were excluded from the new Water Licence that came into effect on June 14, 2012: MV2011L2-0004 (MVLWB 2012).

Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; Max Grab = maximum allowable concentration in any grab sample; SNP = Surveillance Network Program; µg/L = micrograms per litre.

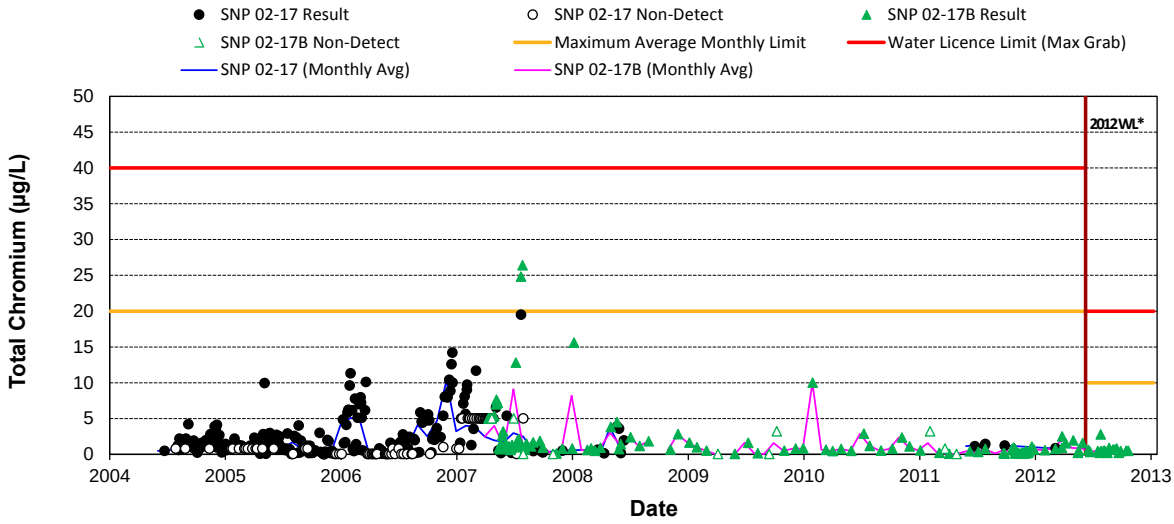
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

Figure 3D-32 Total Chromium in the Treated Effluent, 2004 to 2012

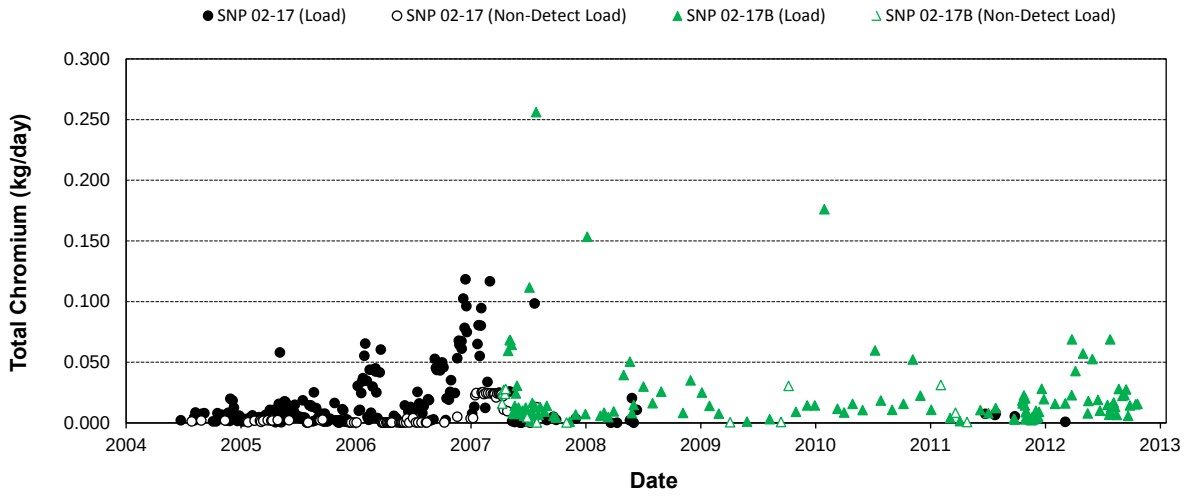
a. Concentration and Monthly Average



Note:
* The Water Licence limits (maximum concentration of any grab sample and maximum average monthly limit) for total chromium were lowered from 40 µg/L and 20 µg/L to 20 µg/L and 10 µg/L, respectively, when the new Water Licence came into effect on June 14, 2012: MV2011L2-0004 (MVLWB 2012).

Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; Max Grab = maximum allowable concentration in any grab sample; SNP = Surveillance Network Program; µg/L = micrograms per litre.

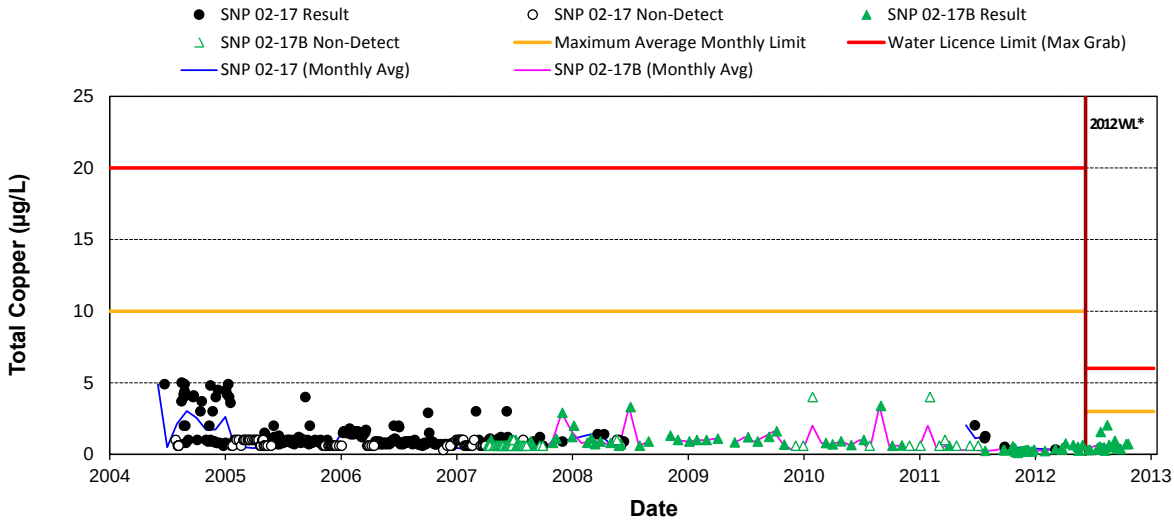
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

Figure 3D-33 Total Copper in the Treated Effluent, 2004 to 2012

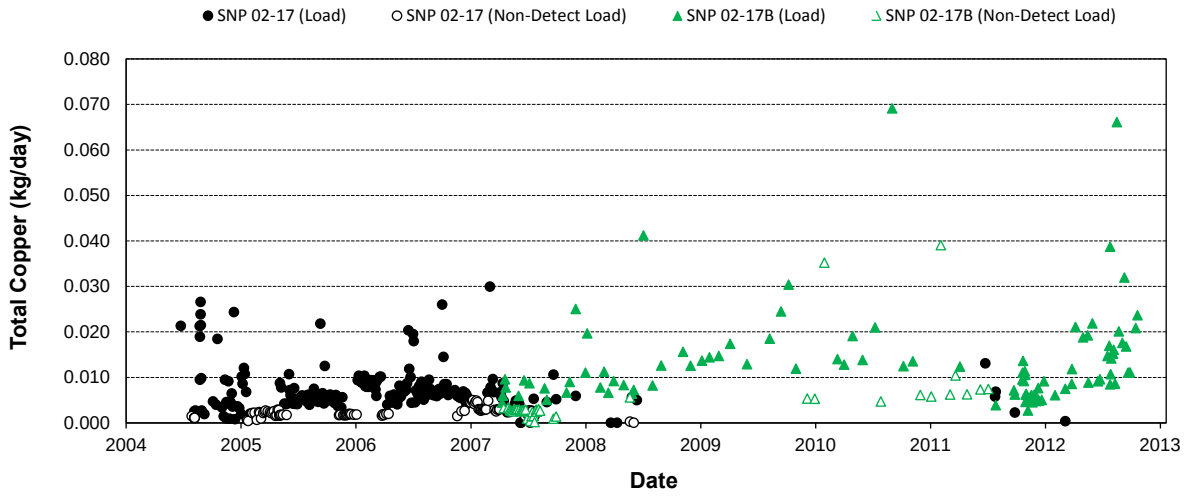
a. Concentration and Monthly Average



Note:
* The Water Licence limits (maximum concentration of any grab sample and maximum average monthly limit) for total copper were lowered from 20 µg/L and 10 µg/L to 6 µg/L and 3 µg/L, respectively, when the new Water Licence came into effect on June 14, 2012: MV2011L2-0004 (MVLWB 2012).

Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; Max Grab = maximum allowable concentration in any grab sample; SNP = Surveillance Network Program; µg/L = micrograms per litre.

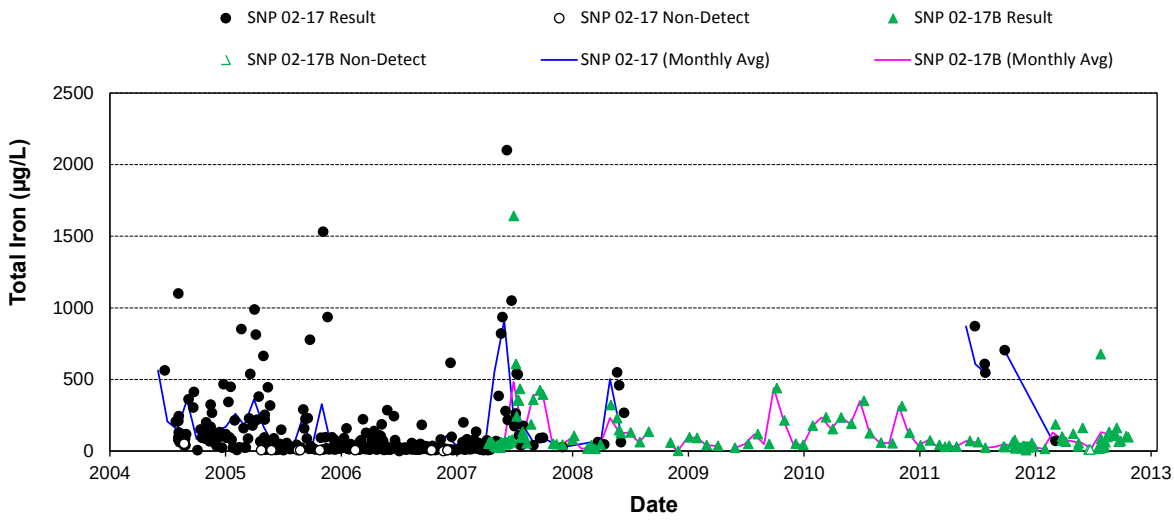
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

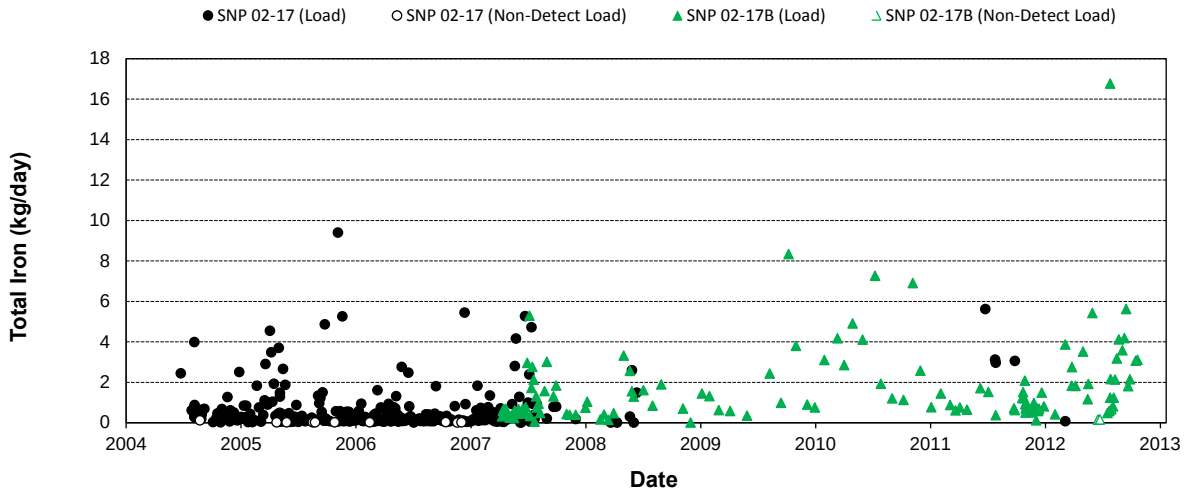
Figure 3D-34 Total Iron in the Treated Effluent, 2004 to 2012

a. Concentration and Monthly Average



Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; µg/L = micrograms per litre.

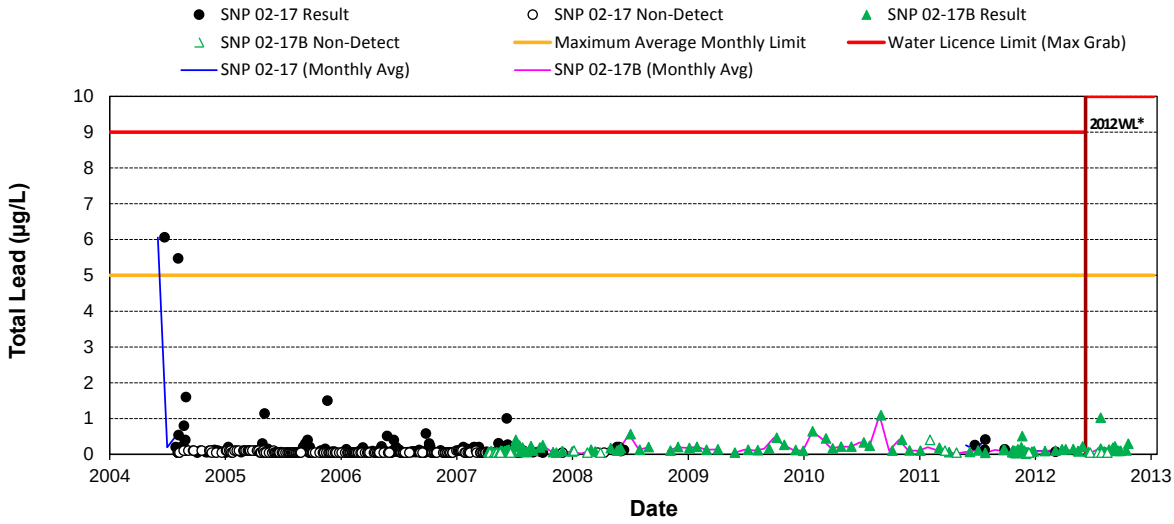
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

Figure 3D-35 Total Lead in the Treated Effluent, 2004 to 2012

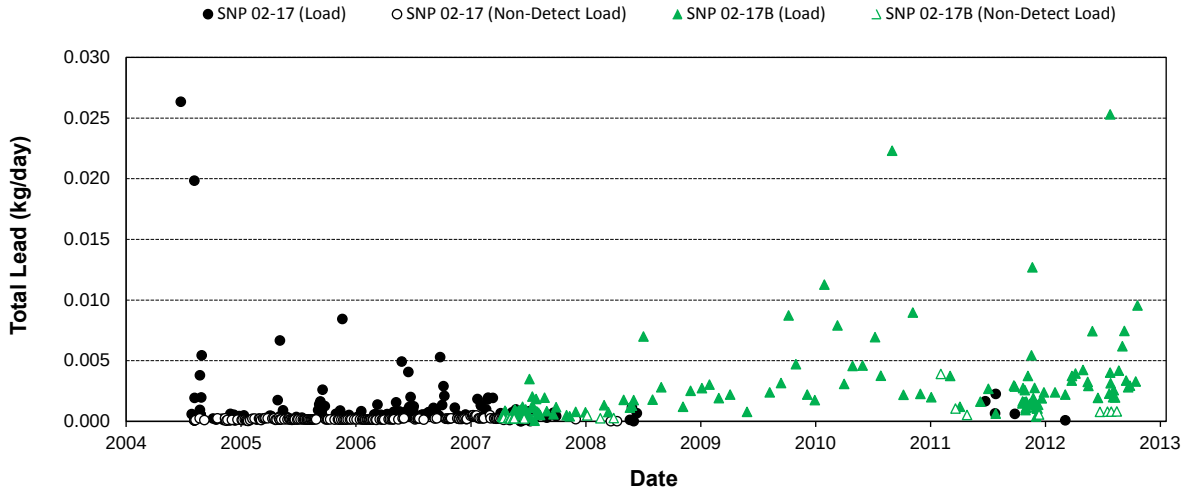
a. Concentration and Monthly Average



Note:
* The Water Licence limit (maximum concentration of any grab sample) for total lead was changed to 9 µg/L to 10 µg/L, when the new Water Licence came into effect on June 14, 2012: MV2011L2-0004 (MVLWB 2012).

Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; Max Grab = maximum allowable concentration in any grab sample; SNP = Surveillance Network Program; µg/L = micrograms per litre.

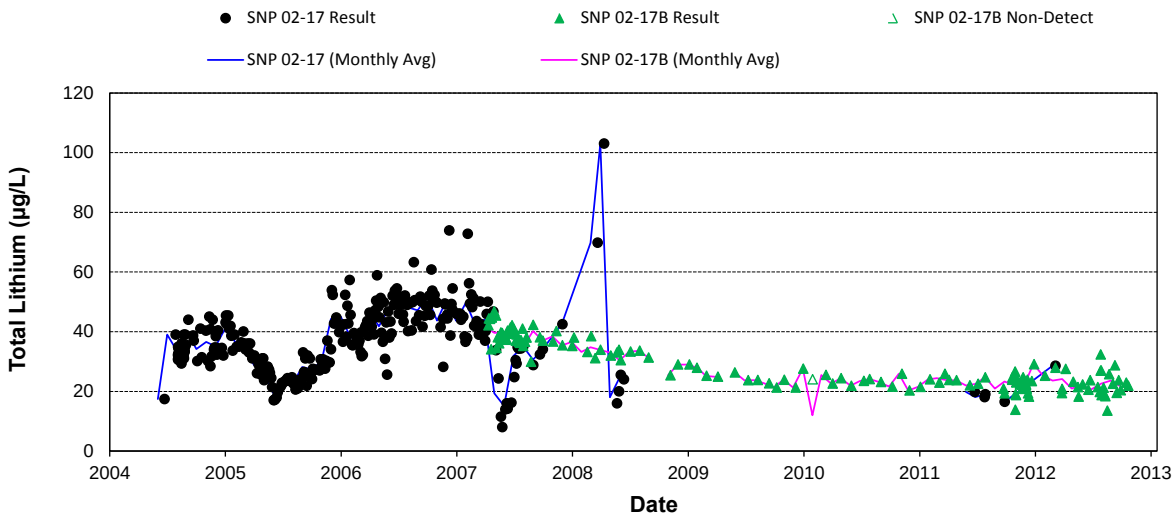
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

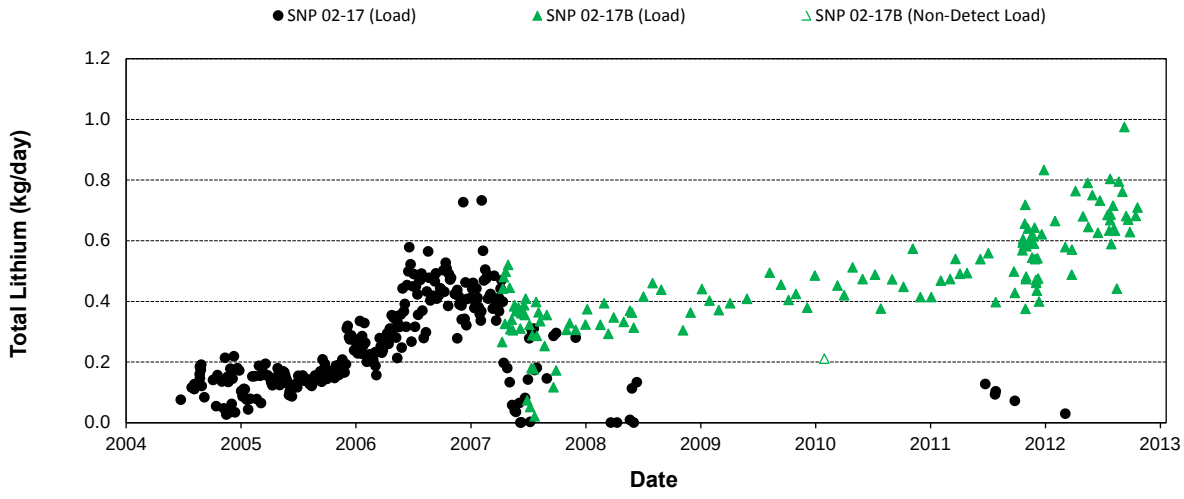
Figure 3D-36 Total Lithium in the Treated Effluent, 2004 to 2012

a. Concentration and Monthly Average



Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; µg/L = micrograms per litre.

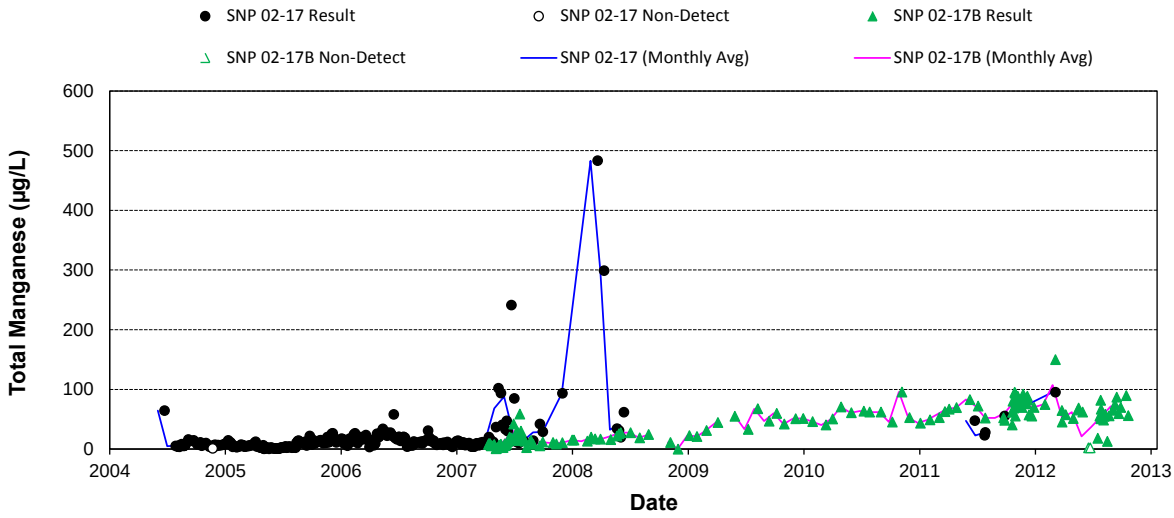
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Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

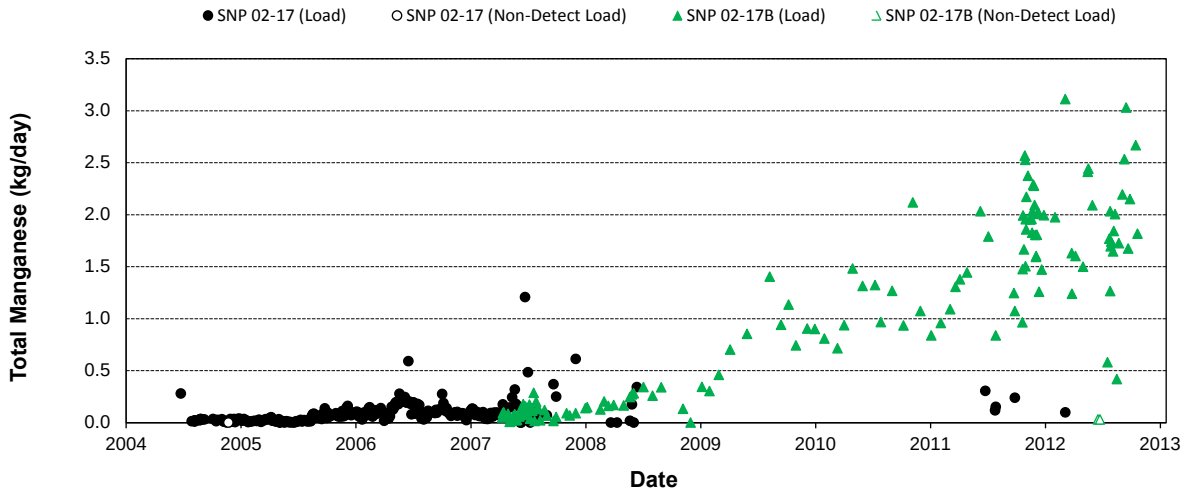
Figure 3D-37 Total Manganese in the Treated Effluent, 2004 to 2012

a. Concentration and Monthly Average



Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; µg/L = micrograms per litre.

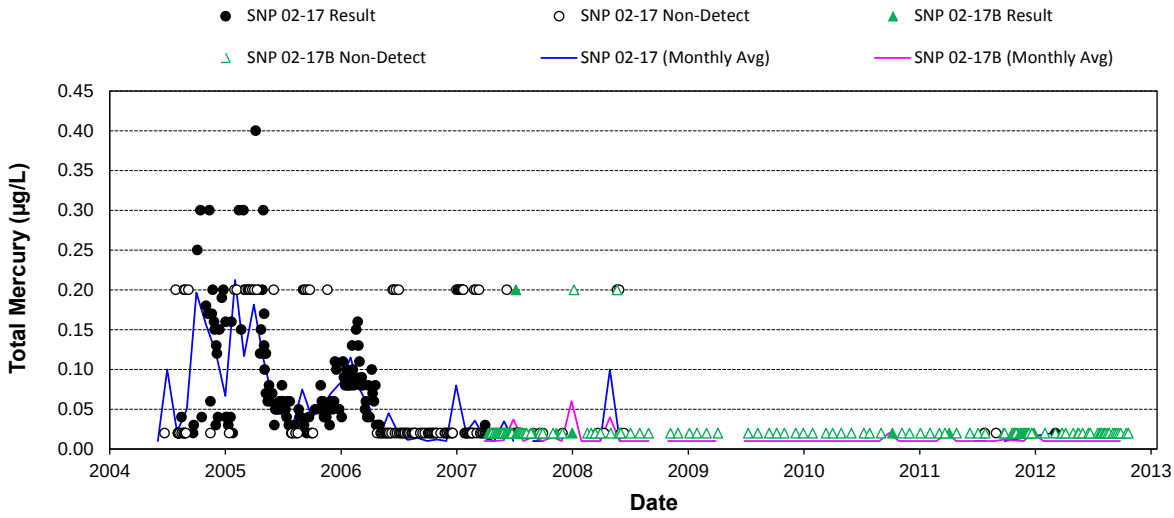
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

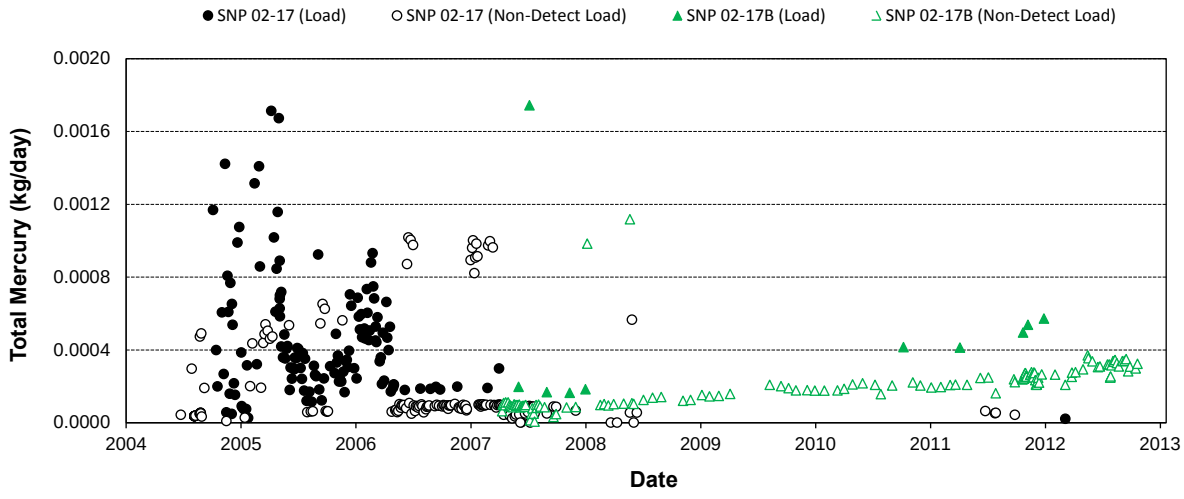
Figure 3D-38 Total Mercury in the Treated Effluent, 2004 to 2012

a. Concentration and Monthly Average



Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; µg/L = micrograms per litre.

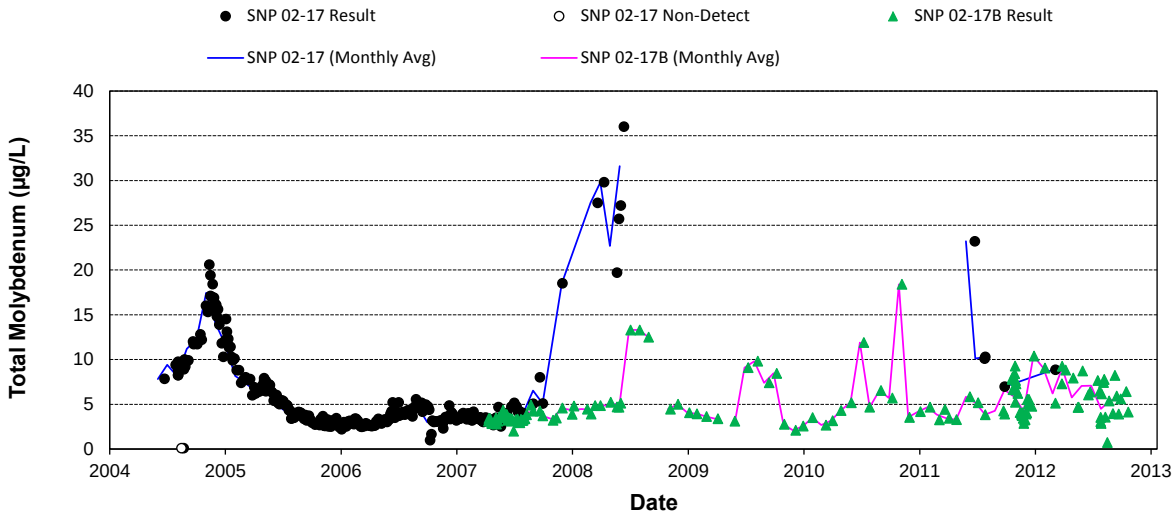
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

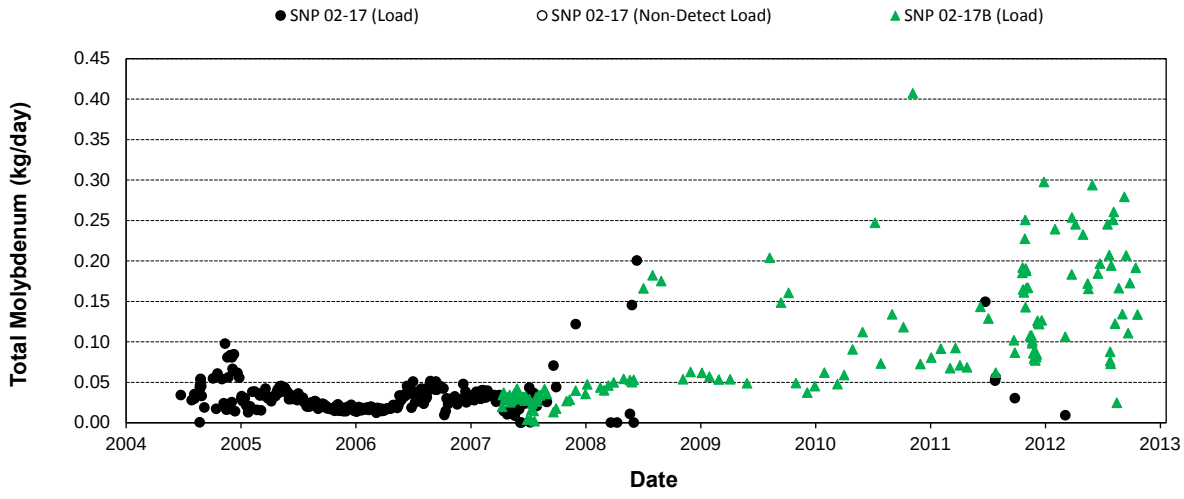
Figure 3D-39 Total Molybdenum in the Treated Effluent, 2004 to 2012

a. Concentration and Monthly Average



Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; µg/L = micrograms per litre.

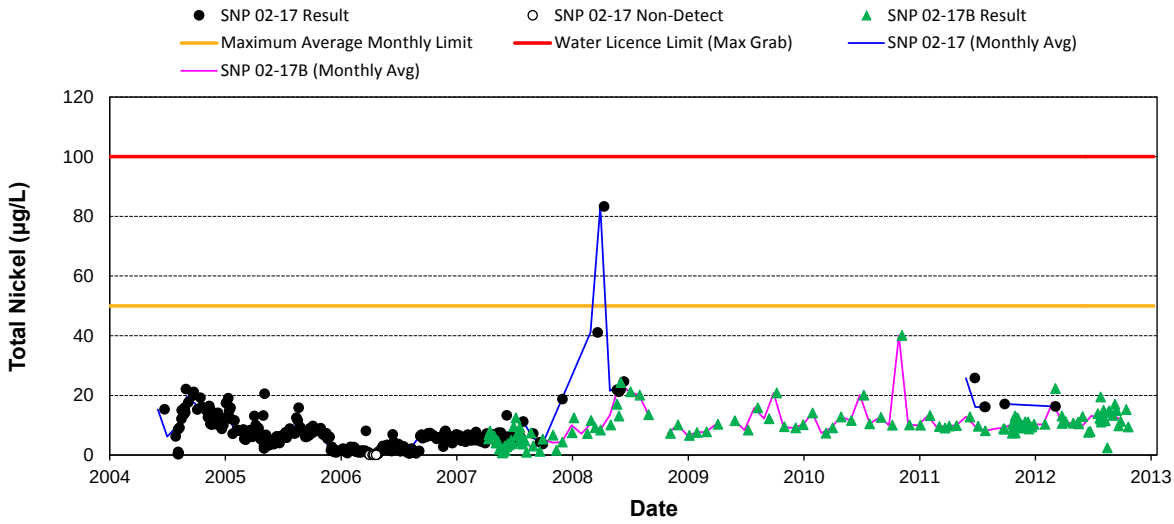
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Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

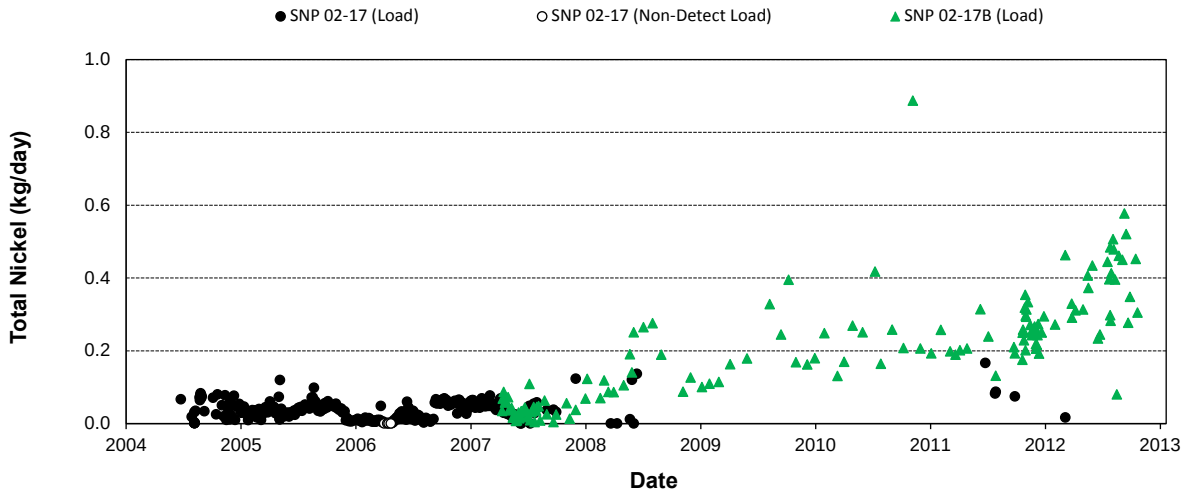
Figure 3D-40 Total Nickel in the Treated Effluent, 2004 to 2012

a. Concentration and Monthly Average



Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; Max Grab = maximum allowable concentration in any grab sample; SNP = Surveillance Network Program; µg/L = micrograms per litre

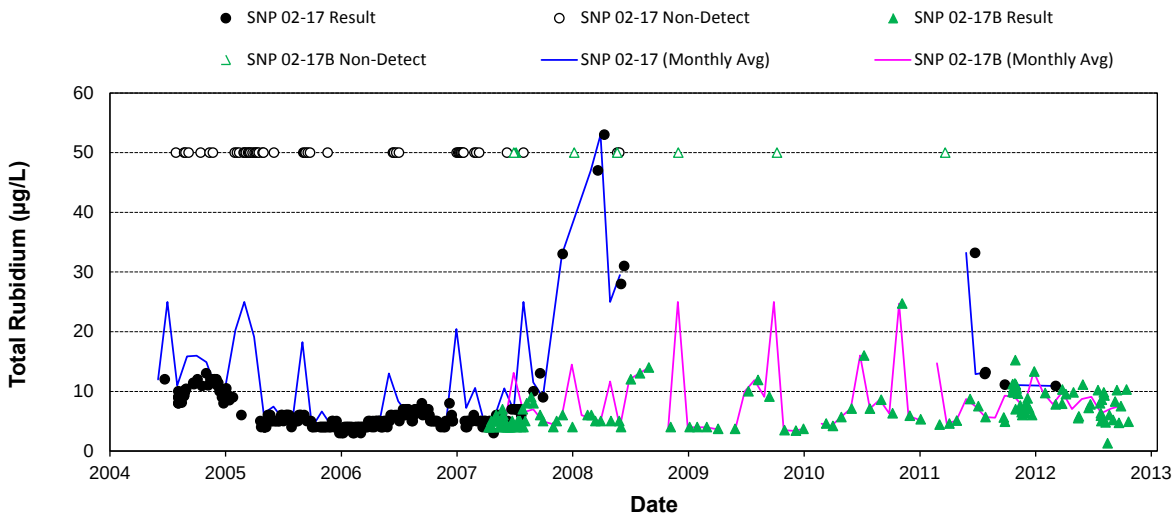
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

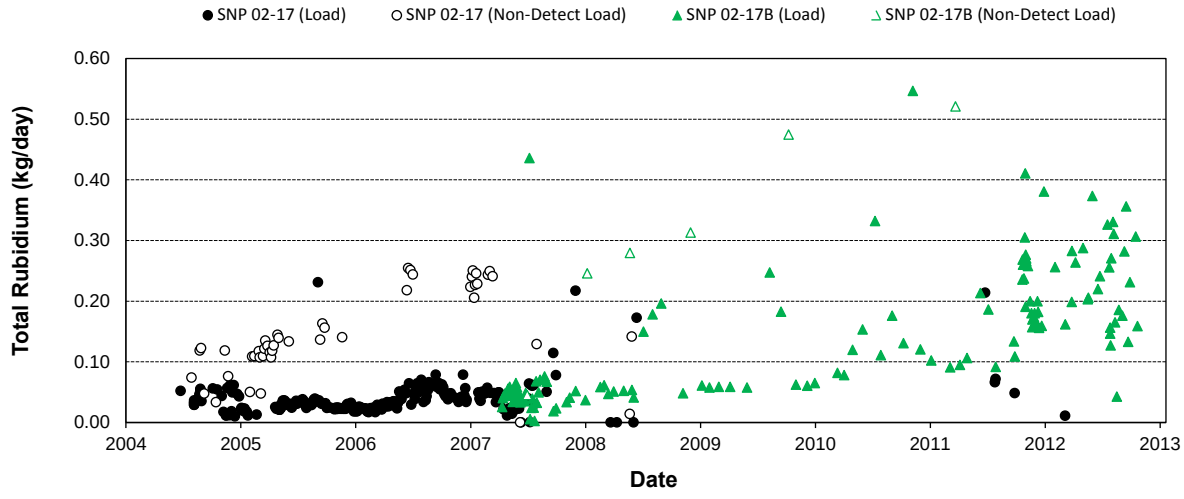
Figure 3D-41 Total Rubidium in the Treated Effluent, 2004 to 2012

a. Concentration and Monthly Average



Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; µg/L = micrograms per litre.

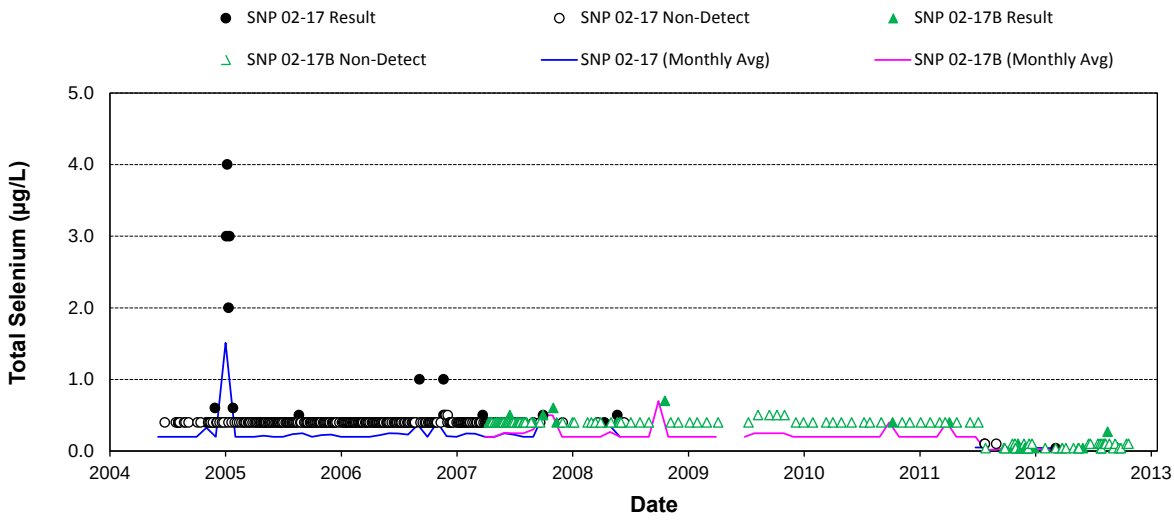
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

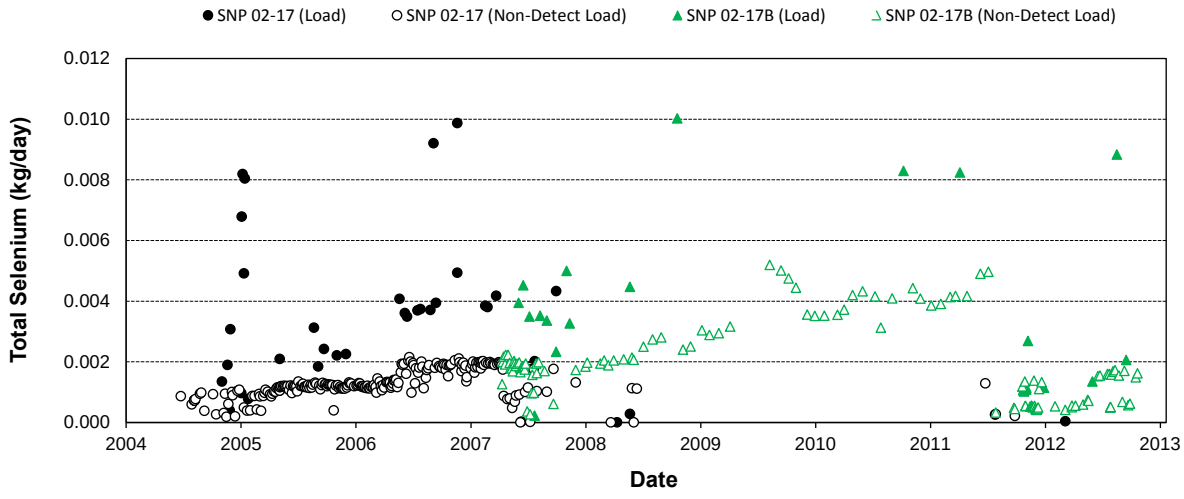
Figure 3D-42 Total Selenium in the Treated Effluent, 2004 to 2012

a. Concentration and Monthly Average



Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; µg/L = micrograms per litre.

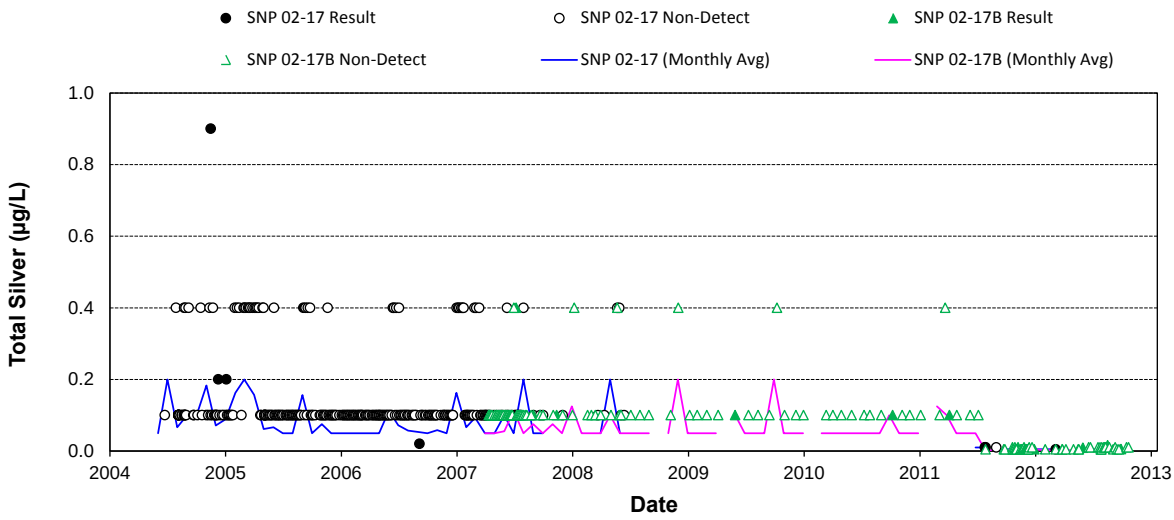
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

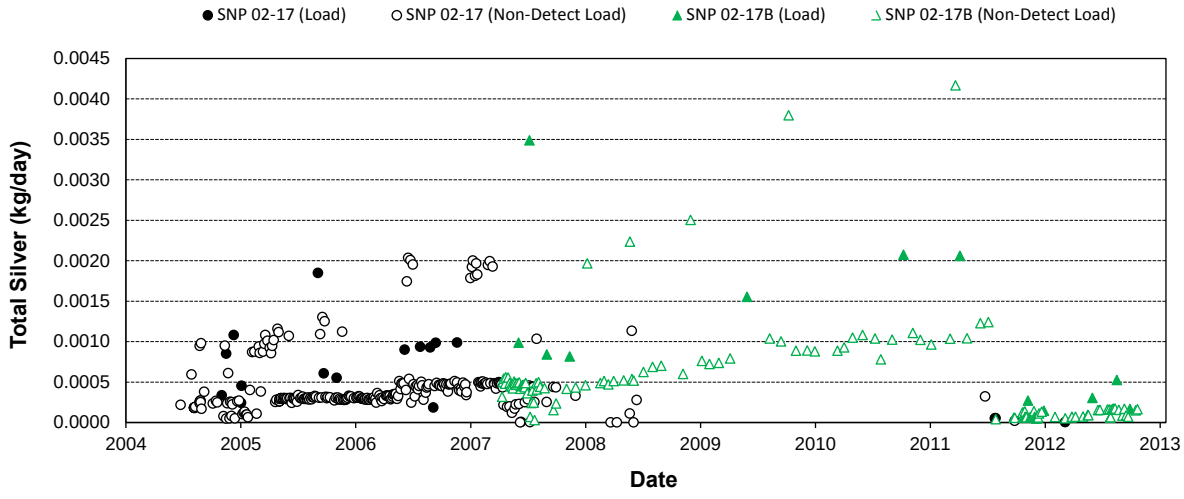
Figure 3D-43 Total Silver in the Treated Effluent, 2004 to 2012

a. Concentration and Monthly Average



Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; µg/L = micrograms per litre.

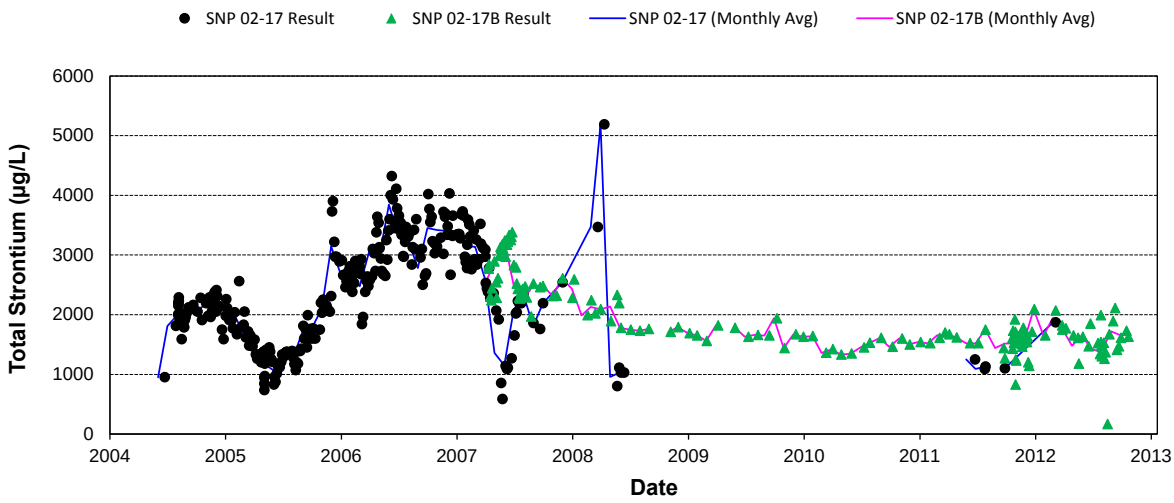
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

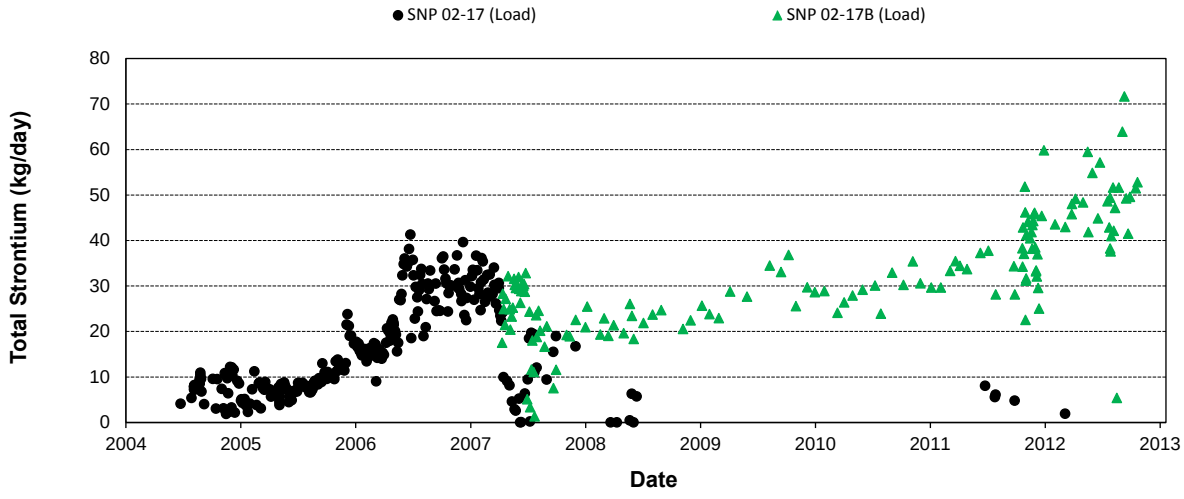
Figure 3D-44 Total Strontium in the Treated Effluent, 2004 to 2012

a. Concentration and Monthly Average



Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; µg/L = micrograms per litre.

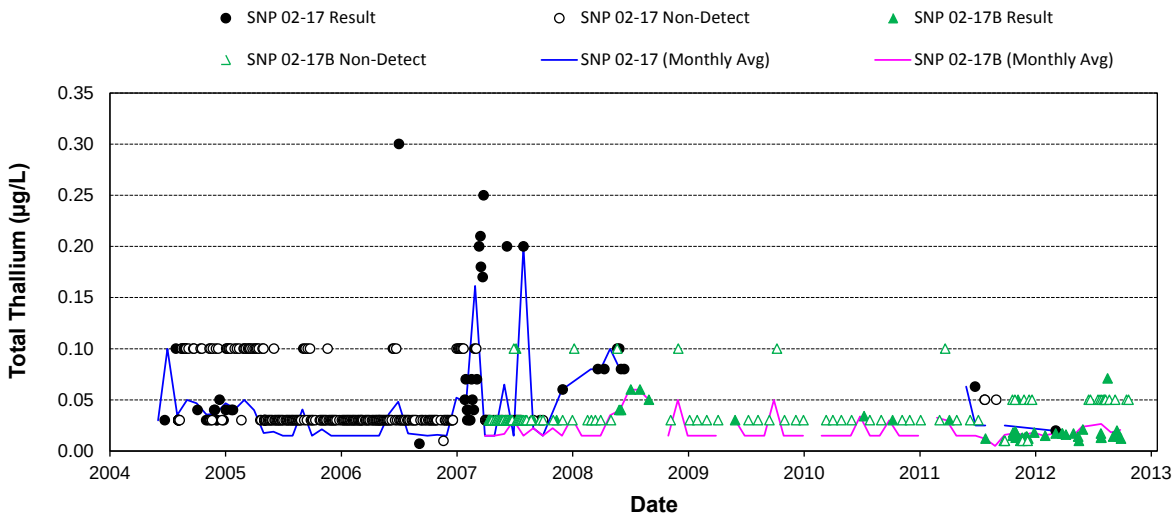
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

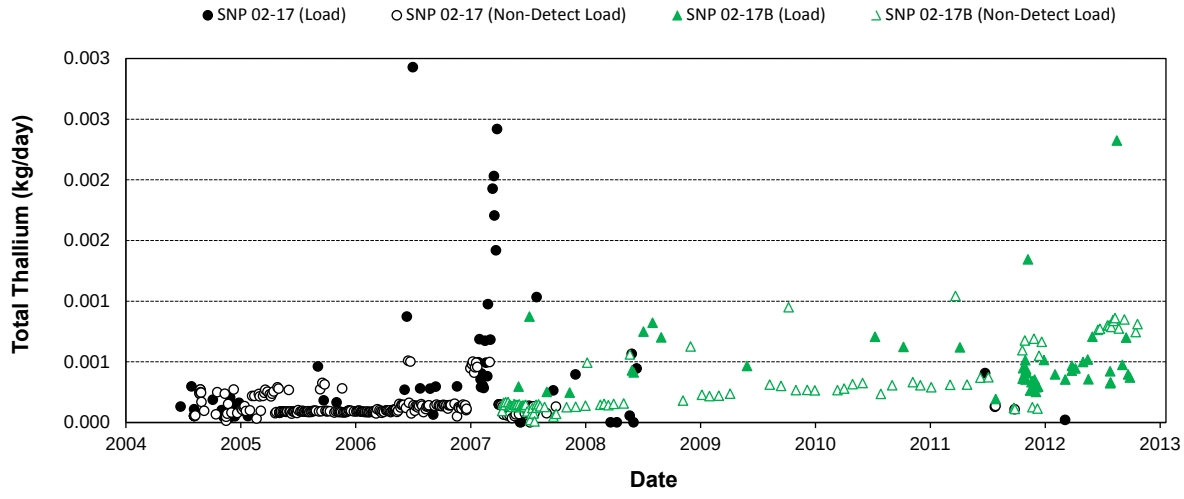
Figure 3D-45 Total Thallium in the Treated Effluent, 2004 to 2012

a. Concentration and Monthly Average



Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; µg/L = micrograms per litre.

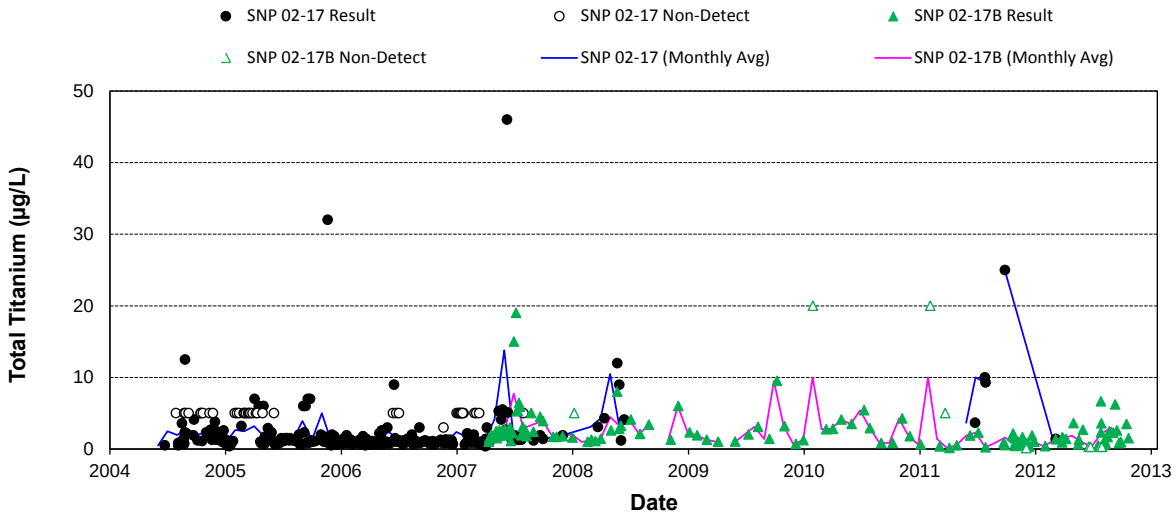
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

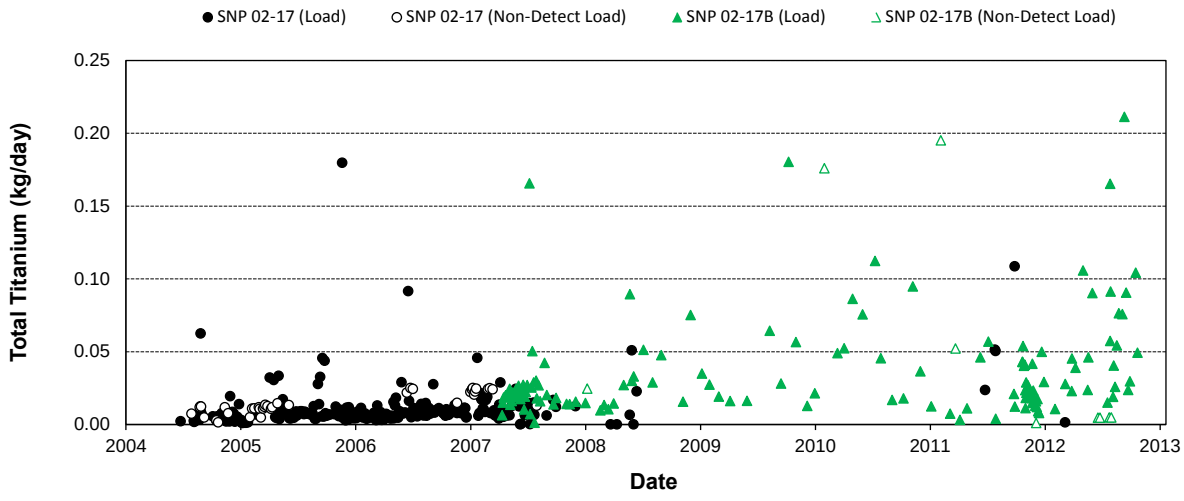
Figure 3D-46 Total Titanium in the Treated Effluent, 2004 to 2012

a. Concentration and Monthly Average



Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; µg/L = micrograms per litre.

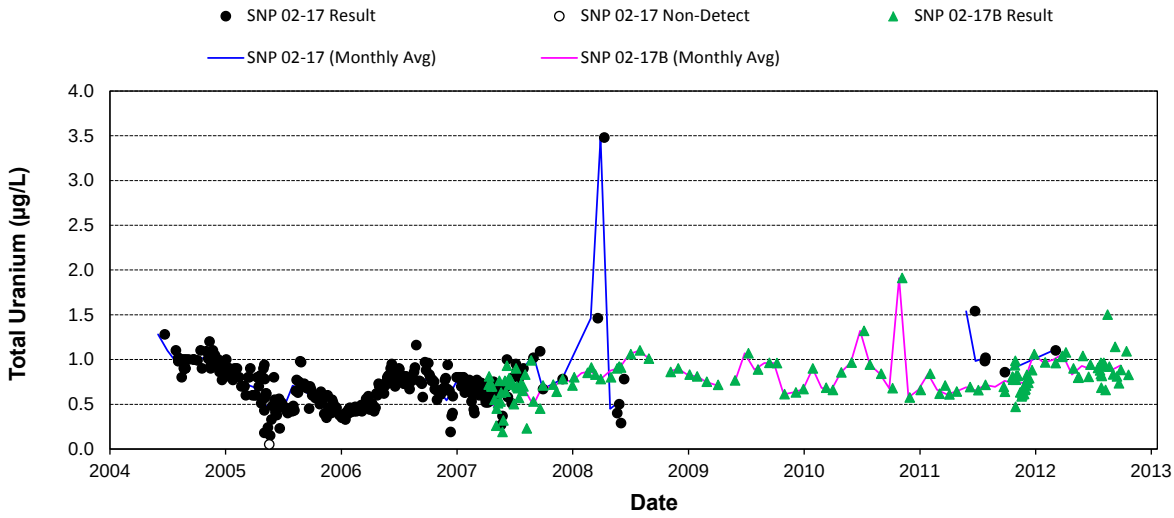
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

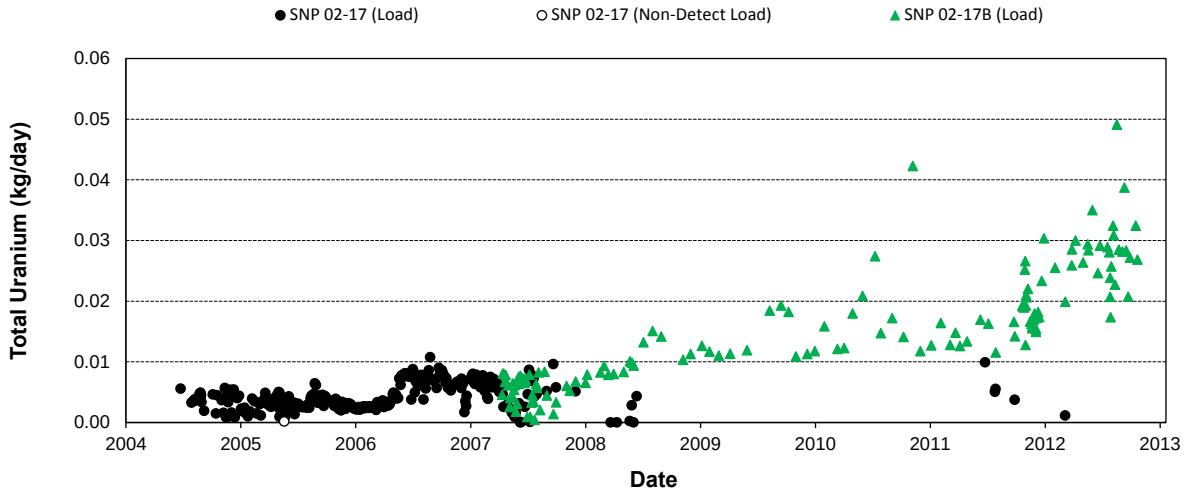
Figure 3D-47 Total Uranium in the Treated Effluent, 2004 to 2011

a. Concentration and Monthly Average



Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; µg/L = micrograms per litre.

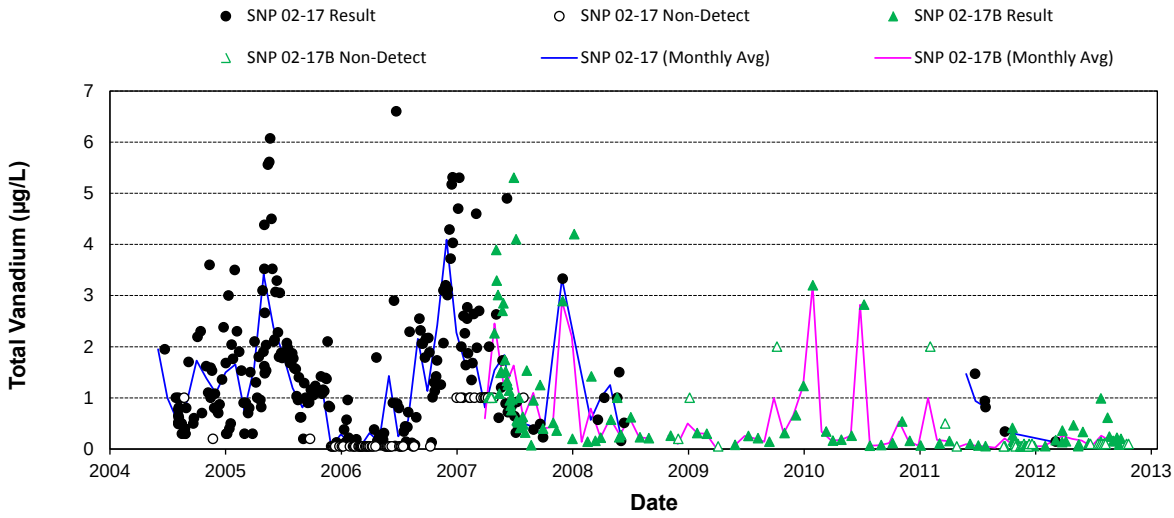
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

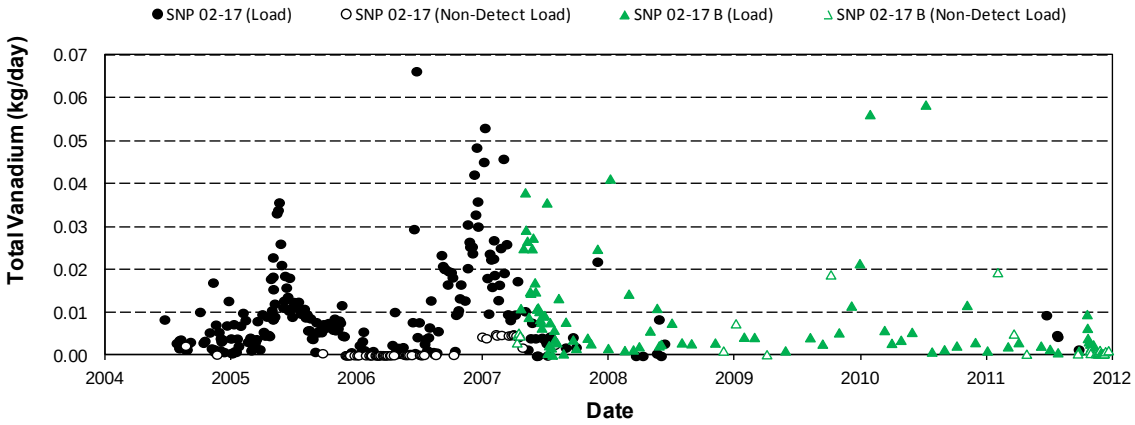
Figure 3D-48 Total Vanadium in the Treated Effluent, 2004 to 2012

a. Concentration and Monthly Average



Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; µg/L = micrograms per litre.

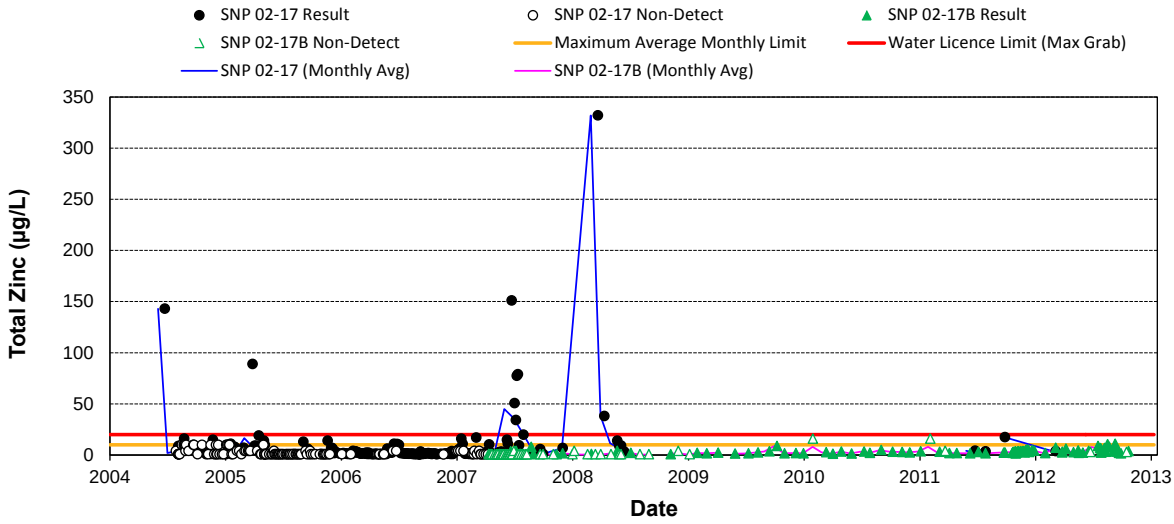
b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

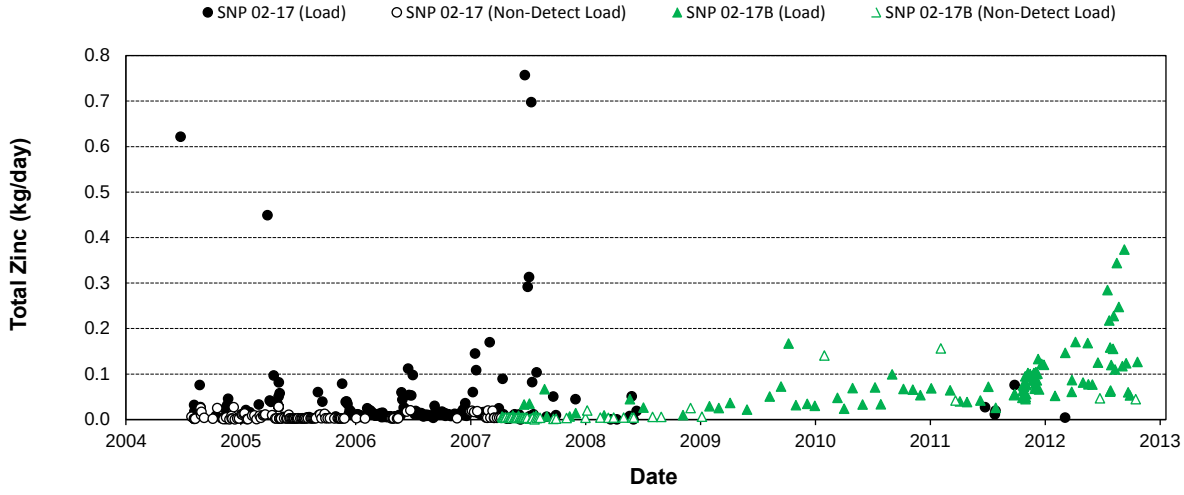
Figure 3D-49 Total Zinc in the Treated Effluent, 2004 to 2012

a. Concentration and Monthly Average



Non-Detect = values reported as less than the method detection limit; Monthly Avg = monthly average; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; Max Grab = maximum allowable concentration in any grab sample; SNP = Surveillance Network Program; µg/L = micrograms per litre.

b. Loading



Non-Detect = values reported as less than the method detection limit; SNP 02-17 = treated effluent from the temporary water treatment plant; SNP 02-17B = treated effluent from the permanent water treatment plant; SNP = Surveillance Network Program; kg/day = kilograms per day.

Table 3D-4: Discharge Data (Monthly and Six Day Samples) for SNP 02-17B from November 1, 2011 to October 31, 2012 (continued)

Sample Point:	Units	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B
Date Sampled (yyyy-mm-dd):		2011-Dec-02	2011-Dec-04	2011-Dec-06	2011-Dec-08	2011-Dec-09	2011-Dec-11	2011-Dec-13	2011-Dec-14	2011-Dec-15	2011-Dec-18	2011-Dec-19	2011-Dec-22	2011-Dec-27	2012-Jan-02	2012-Jan-03	2012-Jan-03	2012-Jan-03
Sample Control Number		2011-1693	2011-1701	2011-1715	2011-1724	2011-1728	2011-1738	2011-1748	2011-1752	2011-1755	2011-1781	2011-1786	2011-1804	2011-1809	2012-0006	2012-0012	2012-0013	2012-0014
Field Parameters																		
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	unitless	7.3	7.4	7.3	6.7	7.1	7.3	6.8	6.6	6.7	6.9	-	7.7	7.7	6.9	7.2	7.2	7.2
Specific Conductivity	µS/cm	1,122	1,225	1,164	1,110	1,164	1,109	1,160	827	901	914	-	1,196	1,189	1,472	1,429	1,429	1,429
Water Temperature	°C	7.2	5.9	7	8.5	6.5	7.2	6.6	7	8.5	6.2	-	6.5	5.38	8.1	7.4	7.4	7.4
Conventional Parameters																		
Laboratory pH	unitless	7.8	7.7	7.8	7.8	7.7	7.7	7.7	7.7	7.7	7.9	7.9	7.8	7.8	7.8	7.8	7.8	7.3
Laboratory Specific Conductivity	µS/cm	1,120	1,190	1,170	1,120	1,150	1,090	1,140	845	895	907	989	1,170	1,150	1,460	1,390	1,410	1,460
Total Dissolved Solids, measured	mg/L	694	730	707	691	712	690	707	540	579	532	595	631	639	869	868	823	1,020
Total Dissolved Solids, calculated (Lab)[a]	mg/L	573	602	585	571	586	558	585	432	449	457	474	583	560	733	733	728	-
Total Dissolved Solids, calculated (Standard Methods)[a]	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	743	744	738	-
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<1
Turbidity	NTU	0.4	0.5	0.4	0.3	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.5	0.5	0.4	0.3	0.3	1.0
Ions																		
Acidity to pH 4.5, as $CaCO_3$	mg/L	<5	<5	6	<5	<5	<5	<5	<5	<5	7.4	<5	<5	<5	<5	<5	5.4	<0.5
Bicarbonate, as HCO_3	mg/L	68	69	70	67	70	70	69	67	67	67	70	69	69	69	65	64	65
Calcium	mg/L	116	118	116	114	117	113	123	87	90	89	89	116	111	137	137	136	143
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
Chloride	mg/L	246	263	253	243	247	231	246	166	179	181	193	268	263	335	314	314	390
Fluoride	mg/L	0.36	0.39	0.36	0.37	0.37	0.34	0.35	0.33	0.32	0.31	0.33	0.34	0.33	0.44	0.47	0.47	0.53
Hardness, as $CaCO_3$	mg/L	354	356	351	343	355	344	371	267	278	272	273	343	329	412	415	410	434
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
Ion Balance	%	98	94	96	97	98	102	106	103	100	98	94	94	92	91	96	94	-
Magnesium	mg/L	16	15	15	14	15	15	15	12	13	12	12	13	13	17	18	17	19
Potassium	mg/L	4.8	4.6	4.8	5.5	5.3	5.8	5.9	5.0	4.8	5.4	4.5	4.8	4.3	6.4	6.9	6.5	8.1
Reactive Silica, as SiO_2	mg/L	8.8	8.6	8.9	9.2	8.9	8.6	8.5	-	-	9.7	10.3	8.9	-	8.9	9.3	8.7	8.7
Sodium	mg/L	56	59	59	58	58	60	64	45	45	47	49	60	56	74	76	72	78
Sulphate	mg/L	57	59	56	56	55	52	52	42	44	46	46	51	49	64	65	65	63
Total Alkalinity, as $CaCO_3$	mg/L	55	57	57	55	57	57	57	55	55	55	58	56	56	56	53	53	54
Nutrients								-	-	-	-	-	-	-				
BOD (5-day)	mg/L	-	-	-	2	-	-	-	-	-	-	-	3.9	-	-	2.9	3.1	4
Nitrate, as N, calculated	mg-N/L	9.78	11.1	10.6	10.5	12	10.6	9.81	9.12	8.88	9.75	10.1	7.93	6.59	14.5	18.8	18.9	19.5
Nitrate/Nitrite, as N	mg-N/L	9.86	11.2	10.7	10.6	12.2	10.7	9.97	9.23	8.98	9.85	10.2	8.06	6.72	14.8	19	19.2	19.8
Nitrite, as N	mg-N/L	0.08	0.11	0.09	0.10	0.13	0.12	0.15	0.11	0.11	0.11	0.12	0.12	0.12	0.26	0.24	0.24	0.28
Total Ammonia, as N	mg-N/L	1.0	1.8	1.7	1.6	2.4	2.1	2.1	1.9	1.7	1.6	1.8	1.9	1.5	2.9	4.7	4.7	4.5
Total Kjeldahl Nitrogen	mg-N/L	1.1	2.0	1.7	1.6	2.2	2.1	2.1	1.8	1.6	1.7	6.8	1.8	1.5	3.0	4.7	4.7	3.3
ortho-Phosphate, as P	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0016	0.0016	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Phosphorus	mg-P/L	0.0028	0.0049	0.0038	0.0033	0.0023	0.0017	0.0017	0.0033	0.0033	0.0037	<0.001	0.0035	0.0042	0.0063	0.0045	0.004	0.004
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	0.0015	0.0015	<0.001	<0.001	<0.001	0.0017	0.0017	0.0014	<0.001	0.0018	<0.001	0.0015	<0.001	<0.001	0.004
Total Organic Carbon	mg/L	2.2	2	2.1	2.2	2	2.5	1.9	2.2	2.4	1.9	2	2.2	1.7	2.6	2.4	2.6	1.7
Total Metals and Metalloids																		
Aluminum	µg/L	6.40	10.6	7.33	7.55	3.32	7.14	7.68	-	4.97	6.70	-	-	11.2	-	6.82	7.72	8.40
Antimony	µg/L	0.16	0.17	0.19	0.22	0.23	0.23	0.21	-	0.21	0.23	-	-	0.23	-	0.37	0.36	0.36
Arsenic	µg/L	<0.1	0.07	0.07	0.09	0.08	0.08	0.09	-	0.08	<0.1	-	-	0.10	-	0.10	0.10	0.12
Barium	µg/L	32.0	36.4	38.8	36.6	38.7	35.2	37.4	-	32.7	31.4	-	-	33.3	-	46.4	46.5	43.0
Beryllium	µg/L	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.5	-	-	<0.5	-	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.05	-	-	<0.05	-	<0.01	<0.01	0.01
Boron	µg/L	116	132	148	149	144	133	140	-	121	122	-	-	127	-	192	188	187
Cadmium	µg/L	<0.01	0.006	0.005	0.007	0.007	<0.005	<0.005	-	<0.005	<0.01	-	-	<0.01	-	<0.005	<0.005	0.005
Cesium	µg/L	<0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	0.1	0.1	-	-	0.1	-	0.2	0.2	-
Chromium	µg/L	0.13	0.14	0.19	0.48	0.18	0.22	0.21	-	0.21	0.41	-	-	1.06	-	0.70	0.68	0.60
Cobalt	µg/L	0.480	0.470	0.460	0.443	0.420	0.493	0.452	-	0.416	0.280	-	-	0.320	-	0.447	0.423	0.443
Copper	µg/L	0.22	0.22	0.25	0.25	0.23	0.27	0.22	-	0.31	0.22	-	-	0.19	-	0.27	0.32	6.45
Iron	µg/L	35.0	26.5	26.5	30.6	5.70	28.3	30.2	-	23.4	31.0	-	-	56.0	-	28.4	28.1	40.0
Lead	µg/L	0.06	0.10	0.06	0.06	0.02	0.05	0.05	-	0.06	<0.05	-	-	0.07	-	0.05	0.08	0.06
Lithium	µg/L	21.4	23.6	23.1	22.4	22.2	20.9	23.9	-	19.3	18.2	-	-	23.4	-	29.5	29.1	31.6
Manganese	µg/L	82.6	76.8	77.4	75.9	77.2	86.7	88.5	-	82.2	57.3	-	-	55.5	-	69.9	69.7	68.1
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	-	-	<0.02	-	<0.02	<0.02	<0.01
Molybdenum	µg/L	2.88	3.24	3.30	4.00	3.90	4.06	5.55	-	5.02	5.55	-	-	4.77	-	10.4	10.4	11.3
Nickel	µg/L	9.38	9.77	11.1	10.4	9.91	10.4	10.7	-	11.1	8.75	-	-	9.43	-	10.4	10.3	12.2
Rubidium	µg/L	6.30	6.60	7.10	7.60	7.90	7.80	8.80	-	7.40	7.10	-	-	6.00	-	13.4	13.3	-
Selenium	µg/L	<0.1	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.1	-	-	<0.1	-	<0.04	<0.04	0.13
Silver	µg/L	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	<0.01	-	-	<0.01	-	<0.005	<0.005	<0.005
Strontium	µg/L	1,660	1,690	1,650	1,580	1,610	1,540	1,630	-	1,200	1,140	-	-	1,710	-	2,070	2,090	2,020
Thallium	µg/L	<0.05	0.01	0.01	0.01	0.01	0.01	<0.01	-	0.01	<0.05	-	-	<0.05	-	0.02	0.02	0.02
Tin	µg/L	<0.1	-	-	-	-	-	-	-	-	<0.1	-	-	<0.1	-	-	-	-
Titanium	µg/L	0.6	0.6	0.6	0.8	<0.1	0.6	0.8	-	0.4	0.4	-	-	1.9	-	1.2	1.0	0.9
Uranium	µg/L	0.615	0.659	0.669	0.710	0.741	0.828	0.785	-	0.738	0.791	-	-	0.880	-	1.08	1.06	1.13
Vanadium	µg/L	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.1	-	-	<0.1	-	0.06	0.05	<0.2
Zinc	µg/L	3.7	2.5	3.4	5.0	4.8	4.1	4.4	-	5.4	3.0	-	-	4.6	-	4.4	4.2	2.7
Dissolved Metals and Metalloids																		
Aluminum	µg/L	3.00	2.12	3.47	4.03	6.15 XM	4.09	2.76	-	3.14	3.80	-	-	4.50	-	4.17	3.27	5.50
Antimony	µg/L	0.15	0.17	0.19	0.22	0.22	0.22	0.20	-	0.20	0.23	-	-	0.23	-	0.37	0.38	0.42
Arsenic	µg/L	<0.1	0.07	0.08	0.08	0.10	0.07	0.08	-	0.08	<0.1	-	-	<0.1	-	0.09	0.10	0.24 XM
Barium	µg/L	35.3	36.8	38.0	35.8	38.8	34.3	37.0	-	31.9	31.1	-	-	35.0	-	45.8	46.1	43.2
Beryllium	µg/L	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.5	-	-	<0.5	-	<0.01	<0.01	0.01 XM
Bismuth	µg/L	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.05	-	-	<0.05	-	<0.01	<0.01	<0.005
Boron	µg/L	123	132	147	147	147	132	144	-	120	115	-	-	128	-	193	193	189
Cadmium	µg/L	<0.01	0.009 XM	0.007	0.005	<0.005	<0.005	<0.005	-	<0.005	<0.01	-	-	<0.01	-	0.011 XM	0.010 XM	0.032 XM
Cesium	µg/L	<0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	0.1	0.1	-	-	0.1	-	0.2	0.2	-
Chromium	µg/L	0.15	0.11	0.14	0.41	0.17	0.25	0.24	-	0.18	0.35	-	-	1.14	-	0.81	0.65	0.70
Cobalt	µg/L	0.490	0.461	0.459	0.442	0.427	0.476	0.440	-	0.412	0.290	-	-	0.320	-	0.438	0.415	0.454
Copper	µg/L	1.73 XM	2.37 XM	2.45 XM	0.28	0.26	0.32	0.29	-	0.24	0.30 XM	-	-	3.74 XM	-	1.78 XM	2.35	5.38
Iron	µg/L	<10	5.5	8.1	5.6	21.5 XM	4.3	7.3	-	3.6	12	-	-	<10	-	2.3	2.2	3.0
Lead	µg/L	<0.05	0.03	0.02	0.02	0.06 XM	0.02	0.01	-	0.01	<0.05	-	-	<0.05	-	0.02	0.01	0.02
Lithium	µg/L	21.9	24.1	23.1	22.2	22.7	21.3	24.1	-	19.6	18.9	-	-	22.8	-	30.4	29.3	30.6

Table 3D-4: Discharge Data (Monthly and Six Day Samples) for SNP 02-17B from November 1, 2011 to October 31, 2012 (continued)

Sample Point:	Units	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B
Date Sampled (yyyy-mm-dd):		2011-Dec-02	2011-Dec-04	2011-Dec-06	2011-Dec-08	2011-Dec-09	2011-Dec-11	2011-Dec-13	2011-Dec-14	2011-Dec-15	2011-Dec-18	2011-Dec-19	2011-Dec-22	2011-Dec-27	2012-Jan-02	2012-Jan-03	2012-Jan-03	2012-Jan-03
Sample Control Number		2011-1693	2011-1701	2011-1715	2011-1724	2011-1728	2011-1738	2011-1748	2011-1752	2011-1755	2011-1781	2011-1786	2011-1804	2011-1809	2012-0006	2012-0012	2012-0013	2012-0014
Manganese	µg/L	77.3	75.8	75.5	74.9	78.1	83.8	87.0	-	80.9	54.5	-	-	55.5	-	70.5	69.3	68.5
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	-	-	<0.02	-	<0.02	<0.02	-
Molybdenum	µg/L	2.95	3.20	3.32	4.04	3.98	4.15	5.51	-	4.78	5.47	-	-	4.84	-	9.91	10.40	11.20
Nickel	µg/L	9.86	9.74	11.0	10.1	10.2	9.83	10.6	-	10.7	8.69	-	-	9.85	-	10.4	10.3	10.2
Rubidium	µg/L	6.10	6.60	6.90	7.60	8.00	7.70	8.70	-	7.30	7.00	-	-	6.30	-	13.3	13.5	12.8
Selenium	µg/L	<0.1	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	-	<0.04	<0.1	-	-	<0.1	-	<0.04	<0.04	0.14
Silver	µg/L	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	<0.01	-	-	<0.01	-	<0.005	<0.005	<0.005
Strontium	µg/L	1,580	1,690	1,640	1,550	1,650	1,510	1,630	-	1,170	1,120	-	-	1,690	-	2,040	2,100	2,020
Thallium	µg/L	<0.05	0.01	0.01	0.01	0.01	0.02	<0.01	-	0.01	<0.05	-	-	<0.05	-	0.02	0.02	0.02
Tin	µg/L	<0.1	-	-	-	-	-	-	-	-	<0.1	-	-	<0.1	-	-	-	-
Titanium	µg/L	<0.3	<0.1	<0.1	<0.1	0.58 XM	<0.1	<0.1	-	<0.1	<0.3	-	-	<0.3	-	<0.1	<0.1	<0.5
Uranium	µg/L	0.582	0.627	0.646	0.690	0.754	0.802	0.793	-	0.711	0.766	-	-	0.859	-	1.03	1.04	1.02
Vanadium	µg/L	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.1	-	-	<0.1	-	<0.05	<0.05	<0.2
Zinc	µg/L	5.2	5.3 XM	6.8 XM	3.9	3.6	5.0	5.0	-	4.0	3.9	-	-	9.3 XM	-	5.8	6.7 XM	9.2 XM
Organics-General																		
F2 ($>C_{10}$-C_{16})	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	<0.25	<0.25	-	-	<0.25	-	<0.25	<0.25	<0.2
F3 (C_{16}-C_{34})	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F4 (C_{34}-C_{50})	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oil and Grease	mg/L	<1	1.2	-	<1	1.2	<1	<1	-	<1	<1	-	-	<1	-	<1	<1	<2
Organics-Volatiles																		
Benzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	<0.0005	-	0.00503	0.00291	<0.0004
BTEX	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	-	<0.00075	0.00305	-	-	<0.00071	-	0.024	0.0147	<400
Ethylbenzene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	-	-	<0.0005	-	0.00094	0.00068	<0.0004
F1-BTEX	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	-	<0.1	<0.1	<0.3
F1 (C_6-C_{10})	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	-	-	<0.1	-	<0.1	<0.1	<0.3
Toluene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.00075	0.00051	-	-	<0.0005	-	0.0103	0.00612	<0.0004
Xylene	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	-	<0.00071	0.00254	-	-	<0.00071	-	0.00776	0.00496	<0.0004
m&p-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	0.00149	-	-	<0.0005	-	0.00552	0.0035	-
o-Xylene	mg/L	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	0.00105	-	-	<0.0005	-	0.00224	0.00146	-
Microbiology																		
E. coli	CFU/100mL	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E. coli	MPN/100m	-	-	-	-	-	-	-	-	-	-	-	-	<1	-	<1	<1	<1
Fecal Coliform	CFU/100m	-	5	-	-	-	-	-	-	-	-	-	-	<1	-	<1	<1	<1

Source: De Beers' Environmental Database (DSLEnvDbase) accessed on March 8, 2013.

Notes:

XM = qualifier flag assigned by De Beers; data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using the formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

SNP = Surveillance Network Program; HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; BTEX = benzene, toluene, ethylbenzene, and xylenes; *E.coli* = *Escherichia coli*; F1 (C_6 – C_{10}) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from >C_{10} to C_{16}; F3 (C_{16}-C_{34}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from C_{16} to C_{34}; F4 (C_{34}-C_{50}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from C_{34} to C_{50}.

- = no data; <= less than the detection limit; yyy-mm-dd = year-month-day.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres; CFU/100mL = coliform forming units per 100 millilitres.

Table 3D-4: Discharge Data (Monthly and Six Day Samples) for SNP 02-17B from November 1, 2011 to October 31, 2012

Sample Point:	Units	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B
Date Sampled (yyyy-mm-dd):		2011-Nov-01	2011-Nov-02	2011-Nov-03	2011-Nov-04	2011-Nov-05	2011-Nov-06	2011-Nov-07	2011-Nov-08	2011-Nov-13	2011-Nov-14	2011-Nov-20	2011-Nov-22	2011-Nov-24	2011-Nov-26	2011-Nov-27	2011-Nov-30
Sample Control Number		2011-1467	2011-1475	2011-1479	2011-1484	2011-1492	2011-1496	2011-1515	2011-1517	2011-1535	2011-1550	2011-1594	2011-1609	2011-1617	2011-1624	2011-1627	2011-1638
Field Parameters																	
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	unitless	7.3	7.3	7.2	7.1	7.1	7.3	7.0	7.1	7.8	6.9	6.6	6.1	7.2	7.2	7.1	6.9
Specific Conductivity	µS/cm	1,202	1,084	1,358	1,272	943	1,007	1,035	1,717	1,121	1,156	1,023	957	1,074	1,017	1,204	1,191
Water Temperature	°C	7.3	2.4	7.1	6.9	6.4	6.9	6.5	2.3	6.7	5.2	8.2	8.8	5.8	7.1	6.6	8.2
Conventional Parameters																	
Laboratory pH	unitless	7.5	7.7	7.6	7.7	7.6	7.6	7.8	7.7	7.8	7.6	7.6	7.7	7.6	7.7	7.8	7.7
Laboratory Specific Conductivity	µS/cm	1,210	1,150	1,430	1,290	934	1,020	1,080	1,260	1,270	1,150	1,110	1,010	1,030	1,070	1,250	1,230
Total Dissolved Solids, measured	mg/L	678	625	768	716	579	641	621	715	738	659	697	589	618	635	731	786
Total Dissolved Solids, calculated (Lab)[a]	mg/L	630	565	687	659	504	578	539	634	611	578	534	521	537	530	607	721
Total Dissolved Solids, calculated (Standard Methods)[a]	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Suspended Solids	mg/L	<3.0	<3	5	<3	<3	<3	<3	<3	<3	4	<3	<3	<3	<3	3	<3
Turbidity	NTU	0.5	0.5	0.4	0.4	0.4	0.5	1.3	0.5	0.4	0.3	0.3	0.5	0.3	0.4	0.4	0.3
Ions		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acidity to pH 4.5, as $CaCO_3$	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bicarbonate, as HCO_3	mg/L	49	67	64	62	67	65	64	63	62	69	68	68	71	68	69	66
Calcium	mg/L	118	98	126	116	83	108	94	116	109	110	110	103	107	109	121	185
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	263	210	282	253	168	188	191	247	259	235	225	215	230	224	268	278
Fluoride	mg/L	0.43	0.37	0.37	0.39	0.29	0.29	0.39	0.39	0.42	0.42	0.37	0.39	0.40	0.36	0.37	0.40
Hardness, as $CaCO_3$	mg/L	364	315	391	372	277	356	307	367	337	340	331	316	324	328	363	557
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ion Balance	%	99	94	95	98	96	115	94	98	90	95	101	100	98	102	97	136
Magnesium	mg/L	17	17	19	20	17	21	17	19	16	16	14	14	14	14	15	23
Potassium	mg/L	7.2	7.2	7.0	8.2	7.6	9.6	6.5	7.1	5.8	5.5	5.0	5.2	4.8	5.1	5.3	5.4
Reactive Silica, as SiO_2	mg/L	-	8.3	8.3	-	7.8	8.3	-	-	-	8.8	8.6	-	8.8	-	-	8.9
Sodium	mg/L	67	56	70	69	52	68	49	65	60	56	56	55	56	57	64	84
Sulphate	mg/L	60	59	65	65	57	60	60	64	60	55	48	48	48	49	55	61
Total Alkalinity, as $CaCO_3$	mg/L	40	55	53	51	55	53	53	52	51	56	56	56	58	56	57	54
Nutrients																	
BOD (5-day)	mg/L	-	3.2	-	-	-	3	-	-	-	-	-	-	-	-	-	-
Nitrate, as N, calculated	mg-N/L	16.4	19.1	19.4	21.7	19.5	20.5	19.9	19	15.7	14.6	9.58	10.5	9.4	8.66	10.1	11.4
Nitrate/Nitrite, as N	mg-N/L	16.6	19.3	19.6	22	19.6	20.7	20.2	19.2	15.8	14.7	9.66	10.6	9.49	8.74	10.2	11.5
Nitrite, as N	mg-N/L	0.23	0.18	0.21	0.27	0.13	0.13	0.24	0.25	0.15	0.13	0.08	0.16	0.09	0.08	0.10	0.10
Total Ammonia, as N	mg-N/L	2.7	2.4	2.5	3.0	1.7	1.9	2.4	2.2	2.2	1.9	1.3	1.7	1.6	1.1	1.6	1.7
Total Kjeldahl Nitrogen	mg-N/L	2.5	2.2	2.7	2.8	1.8	1.7	2.3	2.2	1.9	1.9	1.3	2.2	1.6	1.1	1.7	1.6
ortho-Phosphate, as P	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Phosphorus	mg-P/L	0.0029	0.0024	0.002	0.003	0.0036	0.0034	0.0018	0.0019	0.0015	0.0017	0.0019	<0.0010	<0.0010	<0.0010	0.0025	0.0033
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Organic Carbon	mg/L	2.6	2.6	2.7	3.2	3	3.1	3	2.4	2.3	2.2	1.6	1.5	2	2.3	2.4	2.5
Total Metals and Metalloids																	
Aluminum	µg/L	22.3	33.7	27.4	27.9	13.4	18.9	15.4	12.3	12.5	-	7.01	8.40	6.91	8.36	8.03	7.06
Antimony	µg/L	0.27	0.23	0.26	0.33	0.17	0.23	0.23	0.24	0.21	-	0.20	0.24	0.19	0.20	0.22	0.19
Arsenic	µg/L	0.13	0.12	0.11	0.17	0.08	0.13	0.12	0.11	<0.1	-	0.09	0.09	0.07	0.06	0.07	0.06
Barium	µg/L	40.2	41.3	43.5	48.6	23.4	37.9	39.2	41.8	41.7	-	36.5	34.6	31.1	31.1	35.5	35.9
Beryllium	µg/L	<0.01	<0.01	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.5	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	175	217	219	233	153	222	211	213	180	-	146	155	142	127	144	152
Cadmium	µg/L	0.007	0.007	<0.01	0.006	<0.005	0.007	<0.005	0.007	<0.01	-	<0.005	<0.005	<0.005	<0.005	0.005	0.005
Cesium	µg/L	0.2	0.1	0.2	0.2	<0.1	0.1	0.1	0.1	0.1	-	<0.1	0.1	0.1	<0.1	<0.1	0.1
Chromium	µg/L	1.74	0.48	0.53	0.75	0.10	0.35	0.37	0.22	0.20	-	0.10	0.16	0.07	0.11	0.19	0.11
Cobalt	µg/L	0.404	0.447	0.490	0.544	0.303	0.462	0.424	0.507	0.520	-	0.378	0.296	0.326	0.360	0.440	0.590
Copper	µg/L	0.31	0.35	0.42	0.39	0.17	0.25	0.24	0.25	<0.1	-	0.21	0.22	0.22	0.20	0.18	0.23
Iron	µg/L	59.2	56.4	77.0	33.7	18.5	27.9	38.2	35.0	27.0	-	23.1	19.9	18.9	19.3	24.5	33.2
Lead	µg/L	0.06	0.08	0.10	0.06	0.03	0.04	0.04	0.06	0.14	-	0.06	0.18	0.20	0.06	0.51	0.08
Lithium	µg/L	24.7	20.7	24.3	26.6	13.8	19.0	18.7	23.0	23.8	-	22.5	21.4	22.2	20.8	23.9	24.7
Manganese	µg/L	63.8	77.0	95.1	93.6	55.3	78.5	72.2	85.9	88.3	-	74.4	55.4	70.7	69.8	81.4	92.0
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	6.79	7.77	8.42	9.28	5.24	7.65	7.29	6.59	6.21	-	4.08	4.27	3.89	3.75	4.05	3.44
Nickel	µg/L	9.06	11.1	11.8	13.1	7.40	11.9	11.4	12.4	12.4	-	10.3	8.51	9.09	9.29	9.81	9.88
Rubidium	µg/L	10.6	11.6	11.3	15.2	7.00	11.1	10.5	10.5	9.60	-	7.60	7.30	6.50	6.00	6.80	6.90
Selenium	µg/L	0.04	0.04	<0.1	<0.04	<0.04	0.05	0.04	0.05	<0.1	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Strontium	µg/L	1,590	1,340	1,920	1,710	828	1,250	1,230	1,630	1,640	-	1,540	1,410	1,510	1,460	1,740	1,780
Thallium	µg/L	0.02	0.02	<0.05	0.02	0.01	0.02	0.02	0.02	<0.05	-	0.01	0.01	0.01	0.01	<0.01	0.01
Tin	µg/L	-	-	0.32	-	-	-	-	-	<0.1	-	-	-	-	-	-	-
Titanium	µg/L	1.6	1.4	1.5	0.9	0.4	0.7	1.1	0.9	1.0	-	0.8	0.6	0.7	0.6	1.7	0.9
Uranium	µg/L	0.766	0.892	0.934	0.985	0.470	0.774	0.815	0.816	0.819	-	0.632	0.634	0.587	0.602	0.622	0.684
Vanadium	µg/L	0.17	0.13	<0.1	0.11	<0.05	0.08	0.08	0.07	<0.1	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	2.9	3.7	3.0	3.5	1.6	2.0	2.2	3.0	3.8	-	3.8	3.2	3.4	3.3	3.8	3.9
Dissolved Metals and Metalloids																	
Aluminum	µg/L	15.9	24.0	17.1	16.7	11.3	13.9	8.70	7.02	7.20	-	2.77	4.62	3.05	2.77	3.17	2.36
Antimony	µg/L	0.29	0.24	0.26	0.29	0.19	0.22	0.22	0.23	0.20	-	0.20	0.24	0.18	0.19	0.22	0.18
Arsenic	µg/L	0.15	0.11	0.12	0.13	0.10	0.14	0.11	0.11	<0.1	-	0.07	0.09	0.07	0.07	0.08	0.06
Barium	µg/L	48.4	42.0	48.0	44.1	29.6	38.6	38.0	41.3	40.5	-	32.3	34.3	31.5	30.5	34.9	34.1
Beryllium	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.5	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boron	µg/L	177	217	222	200	179	212	208	201	177	-	145	156	139	125	145	143
Cadmium	µg/L	0.038	0.013 XM	0.024 XM	0.009	0.007 XM	0.007	0.017 XM	0.018 XM	<0.01	-	0.007 XM	0.006 XM	0.008 XM	0.010 XM	0.023 XM	0.012
Cesium	µg/L	0.2	0.1	0.2	0.2	<0.1	0.1	0.1	0.1	0.1	-	<0.1	0.1	0.1	<0.1	0.1 XM	0.1
Chromium	µg/L	1.92	0.52	0.49	0.73	0.15 XM	0.37	0.44	0.20	0.23	-	0.10	0.15	0.20 XM	0.22 XM	0.08	0.13

Table 3D-4: Discharge Data (Monthly and Six Day Samples) for SNP 02-17B from November 1, 2011 to October 31, 2012

Sample Point:		SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B	SNP 02-17 B
Date Sampled (yyyy-mm-dd):	**Units**	2011-Nov-01	2011-Nov-02	2011-Nov-03	2011-Nov-04	2011-Nov-05	2011-Nov-06	2011-Nov-07	2011-Nov-08	2011-Nov-13	2011-Nov-14	2011-Nov-20	2011-Nov-22	2011-Nov-24	2011-Nov-26	2011-Nov-27	2011-Nov-30
Sample Control Number		2011-1467	2011-1475	2011-1479	2011-1484	2011-1492	2011-1496	2011-1515	2011-1517	2011-1535	2011-1550	2011-1594	2011-1609	2011-1617	2011-1624	2011-1627	2011-1638
Cobalt	µg/L	0.444	0.459	0.512	0.506	0.371	0.452	0.425	0.501	0.510	-	0.335	0.290	0.329	0.363	0.446	0.560
Copper	µg/L	4.94 XM	2.74 XM	2.60 XM	1.43 XM	1.81 XM	1.41 XM	2.88 XM	4.98 XM	8.99 XM	-	9.95 XM	8.66 XM	3.97 XM	3.51 XM	3.60 XM	3.81
Iron	µg/L	4.5	7.1	6.1	7.2	4.5	6.4	5.5	5.3	<10	-	5.2	5.3	4.8	5.3	6.1	4.5
Lead	µg/L	0.03	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.11	-	0.03	0.12	0.17	0.03	0.06	0.03
Lithium	µg/L	25.1	20.7	25.7	24.2	16.0	18.5	18.5	21.7	22.0	-	22.1	21.6	21.9	21.5	23.7	24.7
Manganese	µg/L	75.0	78.8	89.0	86.6	70.0	78.9	71.1	84.9	77.8	-	67.7	55.1	70.3	69.4	80.9	85.2
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	6.65	7.51	7.21	8.38	6.05	7.47	7.18	7.06	6.22	-	3.96	4.31	3.78	3.74	4.01	3.27
Nickel	µg/L	10.5	11.2	12.7	11.4	9.38	11.8	11.4	12.5	12.3	-	9.17	8.53	8.96	9.13	9.94	9.19
Rubidium	µg/L	12.0	11.9	12.4	13.9	8.90	11.4	10.5	10.6	9.20	-	6.80	7.10	6.40	6.00	6.70	6.30
Selenium	µg/L	<0.04	0.04	0.04	0.05 XM	0.04 XM	0.05	0.05	0.04	<0.1	-	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Silver	µg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	-	<0.005	<0.005	<0.005	<0.005	0.0064 XM	<0.005
Strontium	µg/L	1,610	1,320	1,840	1,550	963	1,220	1,210	1,590	1,620	-	1,520	1,400	1,480	1,450	1,740	1,750
Thallium	µg/L	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	<0.05	-	0.01	0.01	0.01	0.01	<0.01	0.01
Tin	µg/L	-	-	-	-	-	-	-	-	<0.1	-	-	-	-	-	-	-
Titanium	µg/L	<0.1	<0.1	<0.1	<0.10	<0.1	<0.1	<0.1	<0.1	<0.3	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Uranium	µg/L	0.720	0.825	0.814	0.836	0.552	0.773	0.804	0.809	0.799	-	0.616	0.618	0.562	0.569	0.594	0.63
Vanadium	µg/L	0.10	0.08	0.05	0.07	<0.05	0.06	0.06	<0.05	<0.1	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Zinc	µg/L	6.2 XM	6.0 XM	6.8 XM	3.8	4.1 XM	2.8 XM	4.6 XM	5.7 XM	7.4 XM	-	5.9 XM	5.1 XM	6.5 XM	7.9 XM	13.9 XM	8.6
Organics-General																	
F2 (>C_{10}-C_{16})	mg/L	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
F3 (C_{16}-C_{34})	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F4 (C_{34}-C_{50})	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oil and Grease	mg/L	-	<1.0	-	-	-	<1	-	-	1.2	-	-	-	-	1	-	1
Organics-Volatiles																	
Benzene	mg/L	<0.00050	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BTEX	mg/L	<0.00071	<0.00071	<0.00071	0.00078	<0.00071	<0.00071	<0.00071	<0.00071	0.00722	-	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
Ethylbenzene	mg/L	<0.00050	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
F1-BTEX	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
F1 (C_6-C_{10})	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Toluene	mg/L	<0.00050	<0.00050	<0.00050	0.00078	<0.0005	<0.0005	<0.0005	<0.0005	0.00485	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene	mg/L	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	0.00237	-	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071
m&p-Xylene	mg/L	<0.00050	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00166	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L	<0.00050	<0.00050	<0.00050	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00071	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Microbiology																	
E. coli	CFU/100mL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E. coli	MPN/100m	-	-	-	-	-	4.1	-	-	-	-	-	-	-	-	-	-
Fecal Coliform	CFU/100m	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-

Source: De Beers' Environmental Database (DSLEnvDbase) accessed on March 8, 2013.

Notes:

XM = qualifier flag assigned by De Beers; data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using the formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using theformula outlined in APHA (2005). Refer to Appendix 3A for further details.

SNP = Surveillance Network Program; HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_3 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; BTEX = benzene, toluene, ethylbenzene, and xylenes; *E. coli* = *Escherichia coli* ; F1 (C_6 – C_{10}) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > C_{10} to C_{16}; F3 (C_{16}-C_{34}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from C_{16} to C_{34}; F4 (C_{34}-C_{50}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from C_{34} to C_{50}.

- = no data; <= less than the detection limit; yyy-mm-dd = year-month-day.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres; CFU/100mL = coliform forming units per 100 millilitres.

Table 3D-3: Discharge Data (Monthly and Six Day Samples) for SNP 02-17 from November 1, 2011 to October 31, 2012

Sample Point:	**Units**	SNP 02-17	SNP 02-17	SNP 02-17
Date Sampled (yyyy-mm-dd):		2012-Mar-11	2012-Mar-18	2012-Mar-26
Sample Control Number		2012-0492	2012-0560	2012-0605
Field Parameters				
pH	unitless	7.4	7.2	7.0
Specific Conductivity	µS/cm	1,262	1,247	1,448
Water Temperature	°C	3	2	3
Conventional Parameters				
Laboratory pH	unitless	7.5	7.6	7.6
Laboratory Specific Conductivity	µS/cm	1,310	1,320	1,320
Total Dissolved Solids	mg/L	841	775	802
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	686	671	692
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	696	681	701
Total Suspended Solids	mg/L	5	7	4
Turbidity	NTU	0.54	2.8	1.52
Ions				
Acidity to pH 4.5, as $CaCO_3$	mg/L	<5	<5	<5
Bicarbonate, as HCO_3	mg/L	72	64	68
Calcium	mg/L	136	119	132
Carbonate, as CO_3	mg/L	<5	<5	<5
Chloride	mg/L	282	281	279
Fluoride	mg/L	0.39	0.37	0.34
Hardness, as $CaCO_3$	mg/L	419	372	414
Hydroxide, as OH	mg/L	<5	<5	<5
Ion Balance	%	102	91	98
Magnesium	mg/L	19.3	18.2	20.4
Potassium	mg/L	7.5	7.0	7.5
Reactive Silica, as SiO_2	mg/L	8.5	8.2	7.4
Sodium	mg/L	71	66	68
Sulphate	mg/L	64	74	71
Total Alkalinity, as $CaCO_3$	mg/L	59	53	56
Nutrients				
BOD (5-day)	mg/L	<2	-	2
Nitrate, as N	mg-N/L	16	17	18
Nitrate/Nitrite, as N	mg-N/L	16	17	18
Nitrite, as N	mg-N/L	0.08	0.11	0.09
Total Ammonia, as N	mg-N/L	2.6	3.0	2.6
Total Kjeldahl Nitrogen	mg-N/L	3.0	3.5	2.4
ortho-Phosphate, as P	mg-P/L	<0.001	<0.001	<0.001
Total Phosphorus	mg-P/L	0.0023	0.0029	0.0038
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	<0.001
Total Organic Carbon	mg/L	2.9	2.6	2.3
Total Metals and Metalloids				
Aluminum	µg/L	23	-	13
Antimony	µg/L	0.25	-	0.21
Arsenic	µg/L	0.11	-	0.08
Barium	µg/L	46	-	44
Beryllium	µg/L	<0.01	-	<0.01
Bismuth	µg/L	<0.01	-	<0.01
Boron	µg/L	167	-	164
Cadmium	µg/L	0.012	-	0.012
Cesium	µg/L	0.14	-	0.14
Chromium	µg/L	0.85	-	0.63
Cobalt	µg/L	0.71	-	0.97
Copper	µg/L	0.34	-	0.29
Iron	µg/L	72	-	779
Lead	µg/L	0.07	-	0.10
Lithium	µg/L	29	-	25
Manganese	µg/L	95	-	104
Mercury	µg/L	<0.02	-	<0.02
Molybdenum	µg/L	8.8	-	7.6
Nickel	µg/L	16	-	17
Rubidium	µg/L	11	-	11
Selenium	µg/L	<0.04	-	<0.04
Silver	µg/L	<0.005	-	<0.005
Strontium	µg/L	1,870	-	1,720
Thallium	µg/L	0.02	-	0.02

Table 3D-3: Discharge Data (Monthly and Six Day Samples) for SNP 02-17 from November 1, 2011 to October 31, 2012

Sample Point:	**Units**	SNP 02-17	SNP 02-17	SNP 02-17
Date Sampled (yyyy-mm-dd):		2012-Mar-11	2012-Mar-18	2012-Mar-26
Sample Control Number		2012-0492	2012-0560	2012-0605
Titanium	µg/L	1.4	-	18.8
Uranium	µg/L	1.1	-	0.9
Vanadium	µg/L	0.14	-	0.21
Zinc	µg/L	3.8	-	6.2
Dissolved Metals and Metalloids		**-**	**-**	**-**
Aluminum	µg/L	4.7	-	0.6
Antimony	µg/L	0.25	-	0.23
Arsenic	µg/L	0.098	-	0.067
Barium	µg/L	45	-	44
Beryllium	µg/L	<0.01	-	<0.01
Bismuth	µg/L	<0.01	-	<0.01
Boron	µg/L	164	-	169
Cadmium	µg/L	0.012	-	0.014
Cesium	µg/L	0.14	-	0.14
Chromium	µg/L	0.55	-	0.36
Cobalt	µg/L	0.64	-	0.94
Copper	µg/L	2.02 XM	-	4.63 XM
Iron	µg/L	4.4	-	16.6
Lead	µg/L	<0.01	-	0.017
Lithium	µg/L	28	-	25
Manganese	µg/L	92	-	104
Mercury	µg/L	<0.02	-	<0.02
Molybdenum	µg/L	8.7	-	7.6
Nickel	µg/L	15.7	-	16.5
Rubidium	µg/L	10	-	11
Selenium	µg/L	<0.04	-	<0.04
Silver	µg/L	<0.005	-	<0.005
Strontium	µg/L	1,840	-	1,750
Thallium	µg/L	0.02	-	0.02
Titanium	µg/L	<0.1	-	0.3
Uranium	µg/L	1.1	-	0.9
Vanadium	µg/L	0.07	-	<0.05
Zinc	µg/L	5.83 XM	-	7.92
Organics-General				
F2 (>C_{10}-C_{16})	mg/L	<0.25	-	<0.25
Oil and Grease	mg/L	<1	-	<1
Organics-Volatiles				
Benzene	mg/L	<0.0005	-	<0.0005
BTEX	mg/L	<0.00071	-	<0.00071
Ethylbenzene	mg/L	<0.0005	-	<0.0005
F1-BTEX	mg/L	<0.1	-	<0.1
F1 (C_6-C_{10})	mg/L	<0.1	-	<0.1
Toluene	mg/L	<0.0005	-	<0.0005
Xylene	mg/L	<0.00071	-	<0.00071
m&p-Xylene	mg/L	<0.0005	-	<0.0005
o-Xylene	mg/L	<0.0005	-	<0.0005
Microbiology				
E. coli	MPN/100mL	<1	-	1
Fecal Coliform	CFU/100mL	<1	-	<1

Source: De Beers' Environmental Database (DSLEnvDbase) accessed on March 8, 2013.

Notes:

XM = qualifier flag assigned by De Beers; data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using the formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

SNP = Surveillance Network Program; HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; BTEX = benzene, toluene, ethylbenzene, and xylene; *E. coli* = *Escherichia coli* ; F1 (C_6 – C_{10}) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > C_{10} to C_{16}.

- = no data; < = less than the detection limit; yyy-mm-dd = year-month-day.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres; CFU/100mL = coliform forming units per 100 millilitres.

Table 3D-2: Discharge Data Compared to Environmental Impact Assessment Predictions

Parameters	Units	SNP 02-17				SNP 02-17B				Combined				Predictions		
		Min	Weighted Average[a]	Max	Count	Min	Weighted Average[a]	Max	Count	Min	Weighted Average[a]	Max	Count	Maximum Weekly	Maximum Average Annual	Average
Field Parameters																
Discharge Volume	m^3	1,038	-	2,772	3	18,957	-	38,257	93	1,038	-	38,257	96	-	-	-
pH	unitless	7.0	7.1	7.4	3	6.1	6.8	7.8	89	6.1	6.8	7.8	92	-	-	-
Specific Conductivity	µS/cm	1,247	1,355	1,448	3	11	1,079	1,717	89	11	1,080	1,717	92	-	-	-
Water Temperature	°C	2.0	2.5	2.7	3	2.3	7.7	14.0	88	2.0	7.7	14.0	91	-	-	-
Conventional Parameters																
Laboratory pH	unitless	7.5	7.6	7.6	3	7.4	7.8	8.1	92	7.4	7.8	8.1	95	-	-	-
Laboratory Specific Conductivity	µS/cm	1,310	1,318	1,320	3	845	1,135	1460	93	845	1,135	1,460	96	-	-	-
Total Dissolved Solids, measured	mg/L	775	802	841	3	532	715	966	91	532	715	966	94	-	-	-
Total Dissolved Solids, calculated[b]	mg/L	681	*685*	701	3	432	569	744	91	432	570	744	94	1,332	929	592
Total Suspended Solids	mg/L	4	***5***	7	3	<3	3	124	92	<3	3	124	95	5	5	5
Turbidity	NTU	0.5	1.7	2.8	3	0.2	1	17.5	89	0.2	1.4	17.5	92	-	-	-
Ions																
Acidity to pH 4.5, as $CaCO_3$	mg/L	<5	<5	<5	3	<5	3	9.4	81	<5	2.8	9.4	84	-	-	-
Bicarbonate, as HCO_3	mg/L	64	68	72	3	44	72	90	92	44	72	90	95	-	-	-
Calcium	mg/L	119	129	136	3	83	115	185	93	83	115	185	96	558	235	153
Carbonate, as CO_3	mg/L	<5	<5	<5	3	<5	<5	<5	91	<5	<5	<5	94	-	-	-
Chloride	mg/L	279	*280*	282	3	166	*246*	335	93	166	*246*	335	96	425	374	237
Fluoride	mg/L	0.34	0.36	0.39	3	0.26	0.35	0.60	92	0.26	0.35	0.60	95	-	-	-
Hardness, as $CaCO_3$	mg/L	372	403	419	3	266	347	557	92	266	347	557	95	-	-	-
Hydroxide, as OH	mg/L	<5	<5	<5	3	<0.1	<5	<5	92	<0.1	<5	<5	95	-	-	-
Magnesium	mg/L	18	*20*	20	3	11	15	23	92	11	15	23	95	25	21	16
Potassium	mg/L	7.0	7.3	7.5	3	3.9	5.7	9.6	92	3.9	5.7	9.6	95	17	16	12
Reactive Silica, as SiO_2	mg/L	7.4	7.8	8.5	3	6.9	9.4	41.3	79	6.9	9.4	41.3	82	-	-	-
Sodium	mg/L	66	*68*	71	3	43	*59*	84	92	43	*59*	84.1	95	78	69	38
Sulphate	mg/L	64	***70***	74	3	37	***54***	68	92	37	***54***	73.7	95	46	40	17
Total Alkalinity, as $CaCO_3$	mg/L	53	55	59	3	36	58	73	92	36	58	73.3	95	405	344	187
Nutrients																
BOD (5-day)	mg/L	<2	2	2	2	<2	2	4	17	<2	2	3.9	19	-	-	-
Nitrate, as N, calc'd	mg-N/L	15.9	***17.3***	18.2	3	0.8	*10.2*	21.7	93	0.8	*10.2*	21.7	96	15.8	13.3	5.8
Nitrate/Nitrite, as N	mg-N/L	15.9	17.4	18.3	3	0.9	10.2	22.0	91	0.9	10.2	22.0	94	-	-	-
Nitrite, as N	mg-N/L	0.08	0.09	0.11	3	0.01	0.16	0.69	93	0.01	0.16	0.69	96	-	-	-
ortho-phosphate, as P	mg-P/L	<0.001	<0.001	<0.001	3	<0.001	0.001	0.002	92	<0.001	0.001	0.002	95	0.023	0.011	0.008
Total Ammonia, as N	mg-N/L	2.6	2.7	3.0	3	0.9	2.0	4.7	93	0.9	2.0	4.7	96	15.4	12.9	5.4
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	<0.001	3	<0.001	0.0008	0.0033	92	<0.001	0.0008	0.0033	95	-	-	-
Total Kjeldahl Nitrogen	mg-N/L	2.4	2.8	3.5	3	1.1	2.2	9.0	93	1.1	2.2	9.0	96	9.3	8.6	6.8
Total Organic Carbon	mg/L	2.3	2.5	2.9	3	<1	2.4	10.8	93	<1	2.4	10.8	96	-	-	-
Total Phosphorus	mg-P/L	0.002	0.003	0.004	3	<0.001	0.006	0.124	93	<0.001	0.006	0.124	96	-	-	-
Total Metals and Metalloids																
Aluminum	µg/L	13	16	23	2	3	26	234	59	3	26	234	61	<100	<100	<100
Antimony	µg/L	0.2	0.2	0.3	2	0.1	0.2	0.4	59	0.1	0.2	0.4	61	-	-	-
Arsenic	µg/L	0.08	0.09	0.11	2	0.06	0.11	0.77	59	0.06	0.11	0.77	61	2.1	1.88	1.4
Barium	µg/L	44	45	46	2	23	39	93	59	23	39	93	61	437	416	337
Beryllium	µg/L	<0.01	<0.01	<0.01	2	0.04	0.09	<0.5	59	0.04	0.09	<0.5	61	1.78	0.16	0.12
Bismuth	µg/L	<0.01	<0.01	<0.01	2	<0.05	0.02	0.38	59	<0.05	0.02	0.38	61	-	-	-
Boron	µg/L	164	165	167	2	77	150	239	59	77	150	239	61	-	-	-
Cadmium	µg/L	0.012	0.012	0.012	2	0.005	0.005	0.035	59	0.005	0.005	0.035	61	1	0.1	0.07
Cesium	µg/L	0.14	0.14	0.14	2	<0.1	0.11	0.19	59	<0.1	0.11	0.19	61	-	-	-
Chromium	µg/L	0.63	0.69	0.85	2	0.07	0.57	2.77	59	0.07	0.57	2.77	61	7.51	7.49	7.46
Cobalt	µg/L	0.71	*0.90*	0.97	2	<0.1	0.41	1.56	59	<0.1	0.41	1.56	61	3.4	3.15	0.6
Copper	µg/L	0.29	0.30	0.34	2	<0.1	0.43	2.02	59	<0.1	0.43	2.02	61	7.83	4.46	3.12
Iron	µg/L	72	586	779	2	6	66	676	59	6	67	779	61	<300	<300	<300
Lead	µg/L	0.07	0.09	0.10	2	0.02	0.11	1.02	59	0.02	0.11	1.02	61	9.2	0.93	0.73
Lithium	µg/L	25	26	29	2	14	23	32	59	14	23	32	61	-	-	-
Manganese	µg/L	95	*102*	104	2	<2	*66*	150	59	<2	*66*	150	61	156	146	30
Mercury	µg/L	<0.02	<0.02	<0.02	2	<0.02	<0.02	<0.02	59	<0.02	<0.02	<0.02	61	<0.51	<0.09	<0.08
Molybdenum	µg/L	7.6	7.9	8.8	2	0.7	5.7	10.4	59	0.7	5.7	10.4	61	79.9	9.98	8.4
Nickel	µg/L	16.3	**16.7**	16.8	2	2.4	11.4	22.3	59	2.4	11.4	22.3	61	60.6	15.1	13.8
Rubidium	µg/L	10.9	11.0	11.1	2	1.3	8.0	15.2	59	1.3	8.0	15.2	61	-	-	-
Selenium	µg/L	<0.04	<0.04	<0.04	2	0.04	0.04	0.27	59	0.04	0.04	0.27	61	10.34	2	0.61
Silver	µg/L	<0.005	<0.005	<0.005	2	0.005	0.004	0.016	59	0.005	0.004	0.016	61	0.21	0.06	0.06
Strontium	µg/L	1,720	*1,761*	1,870	2	165	*1,563*	2,110	59	165	*1,563*	2,110	61	2,616	2,346	1,501
Thallium	µg/L	0.02	0.02	0.02	2	0.01	0.02	0.07	59	0.01	0.02	0.07	61	0.36	0.13	0.12
Tin	µg/L	-	-	-	-	<0.1	0.08	0.39	19	<0.1	0.08	0.39	19	-	-	-
Titanium	µg/L	1.4	14.1	18.8	2	<0.3	1.4	6.7	59	<0.3	1.4	18.8	61	-	-	-

Table 3D-2: Discharge Data Compared to Environmental Impact Assessment Predictions

Parameters	Units	SNP 02-17				SNP 02-17B				Combined				Predictions		
		Min	Weighted Average[a]	Max	Count	Min	Weighted Average[a]	Max	Count	Min	Weighted Average[a]	Max	Count	Maximum Weekly	Maximum Average Annual	Average
Uranium	µg/L	0.9	*1.0*	1.1	2	0.5	*0.9*	1.5	59	0.5	*0.9*	1.5	61	17.71	1.17	0.68
Vanadium	µg/L	0.14	0.19	0.21	2	0.05	0.12	0.99	59	0.05	0.12	0.99	61	43.9	3.12	2.3
Zinc	µg/L	3.8	5.5	6.2	2	1.6	4.0	11.0	59	1.6	4.0	11.0	61	22	16.7	14
Dissolved Metals and Metalloids																
Aluminum	µg/L	0.6	1.7	4.7	2	1.9	6.4	24.0	41	0.6	6.4	24.0	43	-	-	-
Antimony	µg/L	0.23	0.24	0.25	2	0.13	0.22	0.38	42	0.13	0.22	0.38	44	-	-	-
Arsenic	µg/L	0.07	0.08	0.10	2	0.06	0.09	0.15	42	0.06	0.09	0.15	44	-	-	-
Barium	µg/L	44	44	45	2	30	38	48	42	30	38	48	44	-	-	-
Beryllium	µg/L	<0.01	<0.01	<0.01	2	0.01	0.03	<0.5	42	0.01	0.03	<0.5	44	-	-	-
Bismuth	µg/L	<0.01	<0.01	<0.01	2	0.01	0.01	<0.05	42	0.01	0.01	<0.05	44	-	-	-
Boron	µg/L	164	168	169	2	95	150	222	42	95	150	222	44	-	-	-
Cadmium	µg/L	0.012	0.014	0.014	2	0.005	0.009	0.038	22	0.005	0.009	0.038	24	-	-	-
Cesium	µg/L	0.1	0.1	0.1	2	<0.1	0.1	0.2	41	<0.1	0.1	0.2	43	-	-	-
Chromium	µg/L	0.36	0.41	0.55	2	0.06	0.44	2.04	39	0.06	0.44	2.04	41	-	-	-
Cobalt	µg/L	0.64	0.86	0.94	2	0.25	0.42	1.52	42	0.25	0.43	1.52	44	-	-	-
Copper	µg/L	-	-	-	-	0.24	1.25	3.81	10	0.24	1.25	3.81	10	-	-	-
Iron	µg/L	4	13	17	2	1	7	90	41	1	7	90	43	-	-	-
Lead	µg/L	<0.01	0.014	0.017	2	0.01	0.03	0.17	41	0.01	0.03	0.17	43	-	-	-
Lithium	µg/L	25	26	28	2	16	23	32	42	16	23	32	44	-	-	-
Manganese	µg/L	92	101	104	2	43	72	148	42	43	72	148	44	-	-	-
Mercury	µg/L	<0.02	<0.02	<0.02	2	<0.02	<0.02	<0.02	42	<0.02	<0.02	<0.02	44	-	-	-
Molybdenum	µg/L	7.6	7.9	8.7	2	3.0	5.6	10.4	42	3.0	5.6	10.4	44	-	-	-
Nickel	µg/L	16	16	17	2	9	11	21	42	9	11	21	44	-	-	-
Rubidium	µg/L	10	11	11	2	5	8	14	42	5	8	14	44	-	-	-
Selenium	µg/L	<0.04	<0.04	<0.04	2	0.05	0.03	<0.1	40	0.05	0.03	<0.1	42	-	-	-
Silver	µg/L	<0.005	<0.005	<0.005	2	<0.005	<0.005	<0.01	41	<0.005	<0.005	<0.01	43	-	-	-
Strontium	µg/L	1,750	1,775	1,840	2	963	1,576	2,100	42	963	1,577	2,100	44	-	-	-
Thallium	µg/L	0.02	0.02	0.02	2	0.02	0.02	<0.05	42	0.02	0.02	<0.05	44	-	-	-
Tin	µg/L	-	-	-	-	<0.03	<0.03	<0.1	5	<0.03	<0.03	<0.1	5	-	-	-
Titanium	µg/L	<0.1	0.21	0.27	2	0.10	0.07	0.49	41	0.10	0.07	0.49	43	-	-	-
Uranium	µg/L	0.90	0.94	1.06	2	0.55	0.79	1.05	42	0.55	0.79	1.06	44	-	-	-
Vanadium	µg/L	<0.05	0.04	1.00	2	0.05	0.05	0.26	42	0.05	0.05	0.26	44	-	-	-
Zinc	µg/L	8	8	8	1	4	5	9	16	4	5	9	17	-	-	-
Organics-General																
F2 (>C_{10}-C_{16})	mg/L	<0.25	<0.25	<0.25	2	<0.25	<0.25	<0.25	38	<0.25	<0.25	<0.25	40	-	-	-
Oil and grease	mg/L	<1	<1	<1	2	<1	0.6	1.2	28	<1	0.6	1.2	30	-	-	-
Organics-Volatiles																
Benzene	mg/L	<0.0005	<0.0005	<0.0005	2	<0.0005	0.0005	0.0050	38	<0.0005	0.0005	0.0050	40	-	-	-
BTEX	mg/L	<0.00071	<0.00071	<0.00071	2	<0.00075	0.00169	0.02400	38	<0.00075	0.00168	0.02400	40	-	-	-
Ehtylbenzene	mg/L	<0.0005	<0.0005	<0.0005	2	<0.0005	0.0003	0.0009	38	<0.0005	0.0003	0.0009	40	-	-	-
F1 - BTEX	mg/L	<0.1	<0.1	<0.1	2	<0.1	<0.1	<0.1	38	<0.1	<0.1	<0.1	40	-	-	-
F1 (C_6-C_{10})	mg/L	<0.1	<0.1	<0.1	2	<0.1	<0.1	<0.1	38	<0.1	<0.1	<0.1	40	-	-	-
Toluene	mg/L	<0.0005	<0.0005	<0.0005	2	0.0005	0.0008	0.0103	38	0.0005	0.0008	0.0103	40	-	-	-
Xylene	mg/L	<0.00071	<0.00071	<0.00071	2	<0.00071	0.0008	0.0078	38	<0.00071	0.0008	0.0078	40	-	-	-
m- + p- Xylene	mg/L	<0.0005	<0.0005	<0.0005	2	<0.0005	0.0006	0.0055	38	<0.0005	0.0006	0.0055	40	-	-	-
o- Xylene	mg/L	<0.0005	<0.0005	<0.0005	2	<0.0005	0.0004	0.0022	38	<0.0005	0.0004	0.0022	40	-	-	-
Microbiology[c]																
E. coli	CFU/100ml	-	-	-	-	<1	1	5	4	<1	1	5	4	-	-	-
E. coli	MPN/100mL	<1	1	1	2	<1	1	8	10	<1	1	8	12	-	-	-
Fecal coliform	CFU/100mL	<1	<1	<1	2	<1	1	9	12	<1	1	9	14	-	-	-

Source: De Beers' Environmental Database (DSLEnvDbase) accessed on March 8, 2013.

Notes:

Italics indicates a concentration above the predicted average; **Bold** indicates a concentration that was above the predicted maximum annual average; **Bold** and *Italics* indicates a concentration that was above the predicted weekly maximum average.

(a) The flow-weighted average was calculated using the daily discharge for each sample; non-detectable results were set to half the detection limit.

(b) The 2012 total dissolved solids (TDS) concentrations were calculated based on the formula described in Part 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). Refer to Appendix 3A for further details.

(c) The flow-weighted average for microbiological was presented as a geometric mean.

SNP = Surveillance Network Program; HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; BTEX = benzene, toluene, ethylbenzene, and xylene; *E. coli* = *Escherichia coli*; F1 (C_6 – C_{10}) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > C_{10} to C_{16}.

- = no data; < = less than the detection limit; min = minimum; max = maximum.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres; CFU/100mL = coliform forming units per 100 millilitres.

Table 3D-4: Discharge Data (Monthly and Six Day Samples) for SNP 02-17B from November 1, 2011 to October 31, 2012 (continued)

Sample Point:	Units	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B
Date Sampled (yyyy-mm-dd):		2012-Aug-22	2012-Aug-28	2012-Sep-03	2012-Sep-09	2012-Sep-15	2012-09-21 XM	2012-Sep-27	2012-Oct-03	2012-Oct-09	2012-Oct-15	2012-Oct-21	2012-Oct-27
Sample Control Number		2012-1519	2012-1625	2012-1674	2012-1701	2012-1746	2012-1775	2012-1804	2012-1841	2012-1849	2012-1888	2012-1916	2012-1933
Field Parameters													
Dissolved Oxygen	mg/L	-	-	11.54	-	-	-	4.3	-	-	12.1	9.0	-
pH	unitless	6.5	7.3	7.1	6.8	7.3	7.5	7.4	7.1	7.1	6.5	7.0	7.0
Specific Conductivity	µS/cm	1,139	1,102	1,058	1,209	1,146	1,083	1,038	1,060	1,149	1,133	1,232	1,069
Water Temperature	°C	13	11	9.8	10.4	8	8.6	9.1	9	7.18	8.75	7.2	7.3
Conventional Parameters													
Laboratory pH	unitless	-	8.1	7.7	7.8	7.9	7.7	7.7	7.9	7.8	7.8	7.6	7.6
Laboratory Specific Conductivity	µS/cm	1,120	1,110	1,060	1,240	1,160	1,080	1,020	1,080	1,120	1,060	1,220	1,050
Total Dissolved Solids, measured	mg/L	765	917	650	895	770	741	633	756	688	606	728	629
Total Dissolved Solids, calculated (Lab)[6]	mg/L	-	547	534	596	606	583	515	583	563	535	660	527
Total Dissolved Solids, calculated (Standard Methods)[6]	mg/L	-	543	530	593	599	574	510	580	558	530	653	523
Total Suspended Solids	mg/L	3	<3	<3	<3	<3	<3	<3	-	<3	<3	<3	<3
Turbidity	NTU	3.8	-	-	1.7	1.2	1.6	1.1	-	0.8	0.9	1.3	1.3
Ions													
Acidity to pH 4.5, as $CaCO_3$	mg/L	-	-	-	<5	-	-	-	<5	<5	<5	<5	<5
Bicarbonate, as HCO_3	mg/L	-	85	81	83	79	77	81	86	83	80	66	79
Calcium	mg/L	107	106	99	127	108	100	104	123	112	102	128	107
Carbonate, as CO_3	mg/L	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	245	247	247	288	239	216	233	232	250	230	249	240
Fluoride	mg/L	-	0.36	0.26	0.30	0.26	0.33	0.33	0.33	0.29	0.33	0.33	0.29
Hardness, as $CaCO_3$	mg/L	-	313	292	365	337	317	304	371	326	306	390	312
Hydroxide, as OH	mg/L	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ion Balance	%	-	91	89	98	109	90	94	109	94	92	105	96
Magnesium	mg/L	-	12	11	12	16	16	11	16	11	13	17	11
Potassium	mg/L	-	4.4	4.5	4.4	6.6	6.1	3.9	6.9	4.7	4.4	7.3	4.6
Reactive Silica, as SiO_2	mg/L	-	7.8	7.5	7.7	7.5	7.5	8.1	7.8	8.0	8.5	8.0	8.3
Sodium	mg/L	-	54	56	63	63	51	51	64	56	51	70	54
Sulphate	mg/L	-	46	41	45	59	65	39	47	46	48	65	40
Total Alkalinity, as $CaCO_3$	mg/L	-	70	67	68	65	63	67	70	68	66	54	65
Nutrients													
BOD (5-day)	mg/L	-	<2	-	<2	-	-	-	2.1	-	3	-	-
Nitrate, as N, calculated	mg-N/L	8.58	4.97	5.13	0.799	13.2	16.2	4.15	8.84	6.08	7.31	16.7	3.8
Nitrate/Nitrite, as N	mg-N/L	8.74	5.11	5.24	0.939	13.5	16.4	4.28	9.03	6.23	7.44	16.8	3.9
Nitrite, as N	mg-N/L	0.17	0.14	0.10	0.14	0.27	0.18	0.13	0.20	0.16	0.13	0.15	0.10
Total Ammonia, as N	mg-N/L	1.4	1.6	1.4	1.4	1.6	2.4	1.7	1.9	1.9	1.8	3.0	1.9
Total Kjeldahl Nitrogen	mg-N/L	1.6	1.8	1.5	1.4	1.2	2.8	2.0	2.1	1.4	2.0	1.3	1.6
ortho-Phosphate, as P	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Phosphorus	mg-P/L	0.0104	0.0074	0.0043	0.0055	0.0062	0.0072	0.006	0.0045	0.0033	0.0049	0.0049	0.0042
Total Dissolved Phosphorus	mg-P/L	0.0013	<0.001	<0.001	0.0018	<0.001	0.0011	<0.001	<0.001	0.0017	<0.001	<0.001	0.002
Total Organic Carbon	mg/L	1.7	1.6	2.1	1.2	3.3	5.4	2.3	2	2	2.2	2.1	2
Total Metals and Metalloids													
Aluminum	µg/L	66.3	59.1	33.4	44.5	49.1	51.7	15.0	42.4	23.4	23.2	35.7	30.8
Antimony	µg/L	0.19	0.13	0.15	0.14	0.23	0.17	0.16	0.18	0.16	0.14	0.20	0.22
Arsenic	µg/L	0.77	0.10	0.07	0.09	<0.1	0.13	0.10	0.12	0.10	0.11	<0.1	<0.1
Barium	µg/L	92.9	36.2	33.7	36.7	38.4	40.1	31.4	39.3	39.5	36.2	43.7	36.2
Beryllium	µg/L	<0.5	<0.5	<0.01	<0.01	<0.5	0.01	<0.01	<0.01	<0.01	<0.01	<0.5	<0.5
Bismuth	µg/L	0.38	<0.05	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05
Boron	µg/L	77.3	119	110	103	239	199	96.4	159	125	122	194	97.3
Cadmium	µg/L	<0.01	0.012	0.009	<0.005	0.016	0.011	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01
Cesium	µg/L	<0.1	0.1	0.1	<0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Chromium	µg/L	0.20	0.90	0.39	0.66	0.68	0.79	0.21	0.47	0.39	0.46	0.51	0.48
Cobalt	µg/L	0.200	0.480	0.306	0.408	0.690	0.779	0.233	0.406	0.347	0.413	0.610	0.240
Copper	µg/L	2.02	0.65	0.56	0.52	0.94	0.48	0.39	0.36	0.54	0.39	0.70	0.73
Iron	µg/L	97.0	133	72.6	106	123	161	63.9	69.7	89.4	95.5	103	96.0
Lead	µg/L	<0.05	0.14	0.12	0.18	0.22	0.10	0.10	0.10	0.13	0.10	0.11	0.30
Lithium	µg/L	14	26	24	23	29	20	24	20	25	24	23	22
Manganese	µg/L	13	56	53	65	75	87	59	70	73	67	90	56
Mercury	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	0.7	5.4	4.4	4.0	8.2	5.9	3.9	5.6	4.2	4.0	6.4	4.1
Nickel	µg/L	2.44	14.9	11.4	13.3	17.0	14.9	9.8	11.3	12.1	11.2	15.2	9.41
Rubidium	µg/L	1.30	6.00	4.90	5.20	8.30	10.2	4.70	7.50	6.70	6.30	10.3	4.90
Selenium	µg/L	0.27	<0.1	<0.04	<0.04	<0.1	0.06	<0.04	<0.04	<0.04	<0.04	<0.1	<0.1
Silver	µg/L	0.016	<0.01	<0.005	<0.005	<0.01	<0.005	<0.005	0.005	<0.005	<0.005	<0.01	<0.01
Strontium	µg/L	165	1,670	1,620	1,890	2,110	1,410	1,470	1,610	1,740	1,550	1,730	1,630
Thallium	µg/L	0.07	<0.05	0.02	0.01	<0.05	0.02	0.01	0.01	0.01	0.01	<0.05	<0.05
Tin	µg/L	0.39	0.17	-	-	<0.1	-	-	<0.05	-	-	<0.1	<0.1
Titanium	µg/L	1.7	2.5	2.1	2.2	6.2	2.6	0.8	1.0	1.1	1.2	3.5	1.5
Uranium	µg/L	1.50	0.921	0.715	0.833	1.14	0.811	0.734	0.882	0.937	0.874	1.09	0.829
Vanadium	µg/L	0.61	0.24	0.11	0.16	0.15	0.22	0.09	0.20	0.12	0.14	<0.1	<0.1
Zinc	µg/L	10.5	8.0	2.9	3.5	11.0	3.5	2.1	1.7	5.2	<0.8	<3	3.9
Dissolved Metals and Metalloids													
Aluminum	µg/L	-	-	-	3.53	-	5.56	-	21.3	-	3.66	-	-
Antimony	µg/L	-	-	-	0.17	-	0.20	-	0.22	-	0.14	-	-
Arsenic	µg/L	-	-	-	0.09	-	0.11	-	0.12	-	0.10	-	-
Barium	µg/L	-	-	-	39.4	-	39.1	-	40.4	-	34.7	-	-
Beryllium	µg/L	-	-	-	<0.01	-	<0.01	-	<0.01	-	<0.01	-	-
Bismuth	µg/L	-	-	-	0.01	-	<0.01	-	<0.01	-	<0.01	-	-
Boron	µg/L	-	-	-	106	-	211	-	165	-	117	-	-
Cadmium	µg/L	-	-	-	0.007	-	0.013	-	0.008 XM	-	<0.005	-	-
Cesium	µg/L	-	-	-	0.1	-	0.1	-	0.1	-	0.1	-	-
Chromium	µg/L	-	-	-	0.17	-	0.28	-	0.25	-	0.14	-	-
Cobalt	µg/L	-	-	-	0.344	-	0.666	-	0.390	-	0.343	-	-
Copper	µg/L	-	-	-	2.81	-	0.38	-	2.78 XM	-	1.62 XM	-	-
Iron	µg/L	-	-	-	4.8	-	2.5	-	7.7	-	9.8	-	-
Lead	µg/L	-	-	-	0.04	-	0.02	-	0.03	-	0.04	-	-
Lithium	µg/L	-	-	-	22	-	22	-	21	-	23	-	-
Manganese	µg/L	-	-	-	72.9	-	80.5	-	69.6	-	63.7	-	-
Mercury	µg/L	-	-	-	<0.02	-	<0.02	-	<0.02	-	<0.02	-	-
Molybdenum	µg/L	-	-	-	3.84	-	6.48	-	5.85	-	3.91	-	-
Nickel	µg/L	-	-	-	14.5	-	14.6	-	11.1	-	10.5	-	-
Rubidium	µg/L	-	-	-	6.0	-	10.1	-	7.3	-	6.2	-	-
Selenium	µg/L	-	-	-	<0.04	-	0.051	-	<0.04	-	<0.04	-	-
Silver	µg/L	-	-	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	-
Strontium	µg/L	-	-	-	1,900	-	1,390	-	1,630	-	1,520	-	-
Thallium	µg/L	-	-	-	0.016	-	0.021	-	0.012	-	0.015	-	-
Tin	µg/L	-	-	-	-	-	-	-	<0.03	-	-	-	-
Titanium	µg/L	-	-	-	<0.1	-	<0.1	-	0.17	-	<0.1	-	-
Uranium	µg/L	-	-	-	0.849	-	0.895	-	0.918	-	0.848	-	-
Vanadium	µg/L	-	-	-	0.05	-	<0.05	-	0.12	-	0.07	-	-
Zinc	µg/L	-	-	-	6.62	-	7.94 XM	-	4.97 XM	-	4.15 XM	-	-
Organics-General													
F2 ($>C_{10}$-C_{16})	mg/L	-	-	-	<0.25	-	-	-	<0.25	-	<0.25	-	-
F3 (C_{16}-C_{34})	mg/L	-	-	-	-	-	-	-	<0.25	-	-	-	-
F4 (C_{34}-C_{50})	mg/L	-	-	-	-	-	-	-	<0.25	-	-	-	-

Table 3D-4: Discharge Data (Monthly and Six Day Samples) for SNP 02-17B from November 1, 2011 to October 31, 2012 (continued)

Sample Point:	**Units**	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B
Date Sampled (yyyy-mm-dd):		2012-Aug-22	2012-Aug-28	2012-Sep-03	2012-Sep-09	2012-Sep-15	2012-09-21 XM	2012-Sep-27	2012-Oct-03	2012-Oct-09	2012-Oct-15	2012-Oct-21	2012-Oct-27
Sample Control Number		2012-1519	2012-1625	2012-1674	2012-1701	2012-1746	2012-1775	2012-1804	2012-1841	2012-1849	2012-1888	2012-1916	2012-1933
Oil and Grease	mg/L	-	-	-	<1	-	-	-	<1	-	<1	-	-
Organics-Volatiles													
Benzene	mg/L	-	-	-	<0.0005	-	-	-	<0.0005	-	<0.0005	-	-
BTEX	mg/L	-	-	-	<0.00071	-	-	-	<0.00071	-	<0.00071	-	-
Ethylbenzene	mg/L	-	-	-	<0.0005	-	-	-	<0.0005	-	<0.0005	-	-
F1-BTEX	mg/L	-	-	-	<0.1	-	-	-	<0.1	-	<0.1	-	-
F1 (C_6-C_{10})	mg/L	-	-	-	<0.1	-	-	-	<0.1	-	<0.1	-	-
Toluene	mg/L	-	-	-	<0.0005	-	-	-	<0.0005	-	<0.0005	-	-
Xylene	mg/L	-	-	-	<0.00071	-	-	-	<0.00071	-	<0.00071	-	-
m&p-Xylene	mg/L	-	-	-	<0.0005	-	-	-	<0.0005	-	<0.0005	-	-
o-Xylene	mg/L	-	-	-	<0.0005	-	-	-	<0.0005	-	<0.0005	-	-
Microbiology													
E coli	CFU/100mL	-	-	-	<1	-	-	-	-	-	-	-	-
E coli	MPN/100m	-	-	-	-	-	-	-	-	-	1	-	-
Fecal Coliform	CFU/100m	-	-	-	-	-	-	-	-	-	-	-	-

Source: De Beers' Environmental Database (DSLEnvDbase) accessed on March 8, 2013.

Notes:

XM = qualifier flag assigned by De Beers; data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using the formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

SNP = Surveillance Network Program; HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; BTEX = benzene, toluene, ethylbenzene, and xylene; *E. coli* = *Escherichia coli* ; F1 (C_6 – C_{10}) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from $C_{>6}$ to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > C_{10} to C_{16}; F3 ($C_{>16}$-C_{34}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from $C_{>16}$ to C_{34}; F4 ($C_{>34}$-C_{50}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from $C_{>34}$ to C_{50}.

- = no data; <= less than the detection limit; yyy-mm-dd = year-month-day.

milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres; CFU/100mL = colliform forming units per 100 millilitres.

Table 3D-4: Discharge Data (Monthly and Six Day Samples) for SNP 02-17B from November 1, 2011 to October 31, 2012 (continued)

Sample Point:	Units	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B
Date Sampled (yyyy-mm-dd):		2012-Jun-01	2012-Jun-05	2012-Jun-11	2012-Jun-17	2012-Jun-23	2012-Jun-29	2012-Jul-05	2012-Jul-11	2012-Jul-17	2012-Jul-23	2012-Jul-29	2012-Aug-01	2012-Aug-01	2012-Aug-02	2012-Aug-04	2012-Aug-10	2012-Aug-12	2012-Aug-16
Sample Control Number		2012-1103	2012-1138	2012-1156	2012-1190	2012-1205	2012-1258	2012-1293	2012-1311	2012-1343	2012-1385	2012-1391	2012-1413	2012-1415	2012-1417	2012-1420	2012-1457	2012-1472	2012-1499
Field Parameters																			
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	unitless	7.2	7.5	-	7.5	6.2	7.1	6.5	6.5	6.7	-	7.6	-	7.1	7.0	7.3	6.6	7.4	6.4
Specific Conductivity	µS/cm	1,014	1,154	-	1,130	1,105	1,291	1,226	1,010	1,081	-	984	-	1,256	1,033	993	1,154	1,006	1,125
Water Temperature	°C	11	14	-	9.6	10.3	11.6	12	12.3	10.4	-	10.8	-	9.7	11.3	13	13.1	-	11.5
Conventional Parameters																			
Laboratory pH	unitless	7.7	7.9	7.9	7.9	8.1	7.6	7.9	8.0	7.9	7.9	8.0	8.0	7.7	8.0	7.9	7.7	7.6	7.8
Laboratory Specific Conductivity	µS/cm	1,040	1,180	1,070	1,130	1,090	1,280	1,200	1,060	1,110	1,200	1,010	1,050	1,280	1,010	1,030	1,130	998	969
Total Dissolved Solids, measured	mg/L	696	833	687	745	689	923	711	842	824	846	737	732	966	735	693	754	705	620
Total Dissolved Solids, calculated (Lab) [(a)]	mg/L	603	631	546	615	562	650	606	527	548	626	527	540	665	521	558	605	542	486
Total Dissolved Solids, calculated (Standard Methods) [(a)]	mg/L	599	624	543	602	558	646	601	525	544	619	522	536	661	517	557	600	536	483
Total Suspended Solids	mg/L	18	13	<3	<3	3	<3	4	<3	<3	<3	<3	124	<3	<3	<3	4	5	<3
Turbidity	NTU	5.4	4.2	2.4	1.3	1.5	1.3	1.5	2.0	2.4	1.7	1.3	17.5	1.7	2.0	1.2	2.7	2.9	1.3
Ions																			
Acidity to pH 4.5, as $CaCO_3$	mg/L	<5	<5	<5	<5	<5	5.1	<5	<5	<5	-	<5	<5	<5	<5	<5	-	-	-
Bicarbonate, as HCO_3	mg/L	44	74	78	78	76	81	74	78	81	82	90	82	87	82	78	60	77	82
Calcium	mg/L	102	118	103	118	112	124	124	107	119	114	96	116	154	115	110	118	100	96
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	215	255	226	253	236	293	278	243	255	249	207	236	305	228	212	242	197	217
Fluoride	mg/L	0.38	0.38	0.33	0.36	0.33	0.33	0.28	0.30	0.27	0.35	0.33	0.35	0.36	0.31	0.28	0.39	0.39	0.27
Hardness, as $CaCO_3$	mg/L	322	365	316	357	346	370	361	312	345	358	302	340	441	335	339	364	321	283
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ion Balance	%	102	99	95	99	100	93	96	93	96	96	95	101	106	103	104	104	102	95
Magnesium	mg/L	16	17	14	15	16	15	12	11	12	18	15	12	14	12	16	17	17	11
Potassium	mg/L	7.3	6.9	5.4	6.2	5.5	5.8	4.6	4.1	3.9	6.8	5.9	4.5	3.9	4.2	6.3	6.7	7.0	4.2
Reactive Silica, as SiO_2	mg/L	41.3	8.8	7.8	9.6	9.5	8.5	8.5	9.0	7.8	-	7.9	8.4	8.9	8.1	7.7	9.0	8.0	7.4
Sodium	mg/L	58	63	54	62	55	67	61	52	50	65	52	53	68	52	59	63	55	52
Sulphate	mg/L	67	59	52	61	54	58	53	44	44	65	51	42	45	39	55	60	57	37
Total Alkalinity, as $CaCO_3$	mg/L	36	60	64	64	62	67	61	64	66	68	73	67	72	68	64	49	63	67
Nutrients																			
BOD (5-day)	mg/L	-	<2	-	-	-	-	-	-	-	-	-	-	<2	<2	-	-	-	-
Nitrate, as N, calculated	mg-N/L	13.2	12.8	9.02	8.05	6.8	7.36	4.74	3.15	2.55	13.7	9.08	4.78	3.66	3.69	11.4	11.7	12.2	3.84
Nitrate/Nitrite, as N	mg-N/L	13.4	13.1	9.19	8.21	6.96	7.52	4.9	3.29	2.69	13.9	9.28	4.92	3.79	3.81	11.6	-	12.4	3.92
Nitrite, as N	mg-N/L	0.23	0.28	0.17	0.17	0.16	0.16	0.16	0.15	0.14	0.23	0.20	0.14	0.12	0.12	0.21	0.27	0.24	0.08
Total Ammonia, as N	mg-N/L	2.8	3.6	2.2	2.0	1.9	1.6	1.8	1.1	0.9	2.2	1.8	1.1	0.9	1.0	1.7	2.0	1.9	1.1
Total Kjeldahl Nitrogen	mg-N/L	1.9	3.4	2.0	2.0	2.0	1.6	1.9	1.3	1.1	2.6	1.9	1.4	1.2	1.2	1.8	1.3	1.9	1.3
ortho-Phosphate, as P	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001
Total Phosphorus	mg-P/L	0.024	0.009	0.005	0.0067	0.008	0.0062	0.0046	0.0094	0.0062	0.0056	0.0058	0.124	0.0062	0.0058	0.0066	0.0123	0.0095	0.009
Total Dissolved Phosphorus	mg-P/L	0.0015	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.001	<0.001	0.0012
Total Organic Carbon	mg/L	2.7	2.5	2.3	10.8	1.8	1.8	2.1	2.1	2.1	2.7	1.8	2.2	1.9	1.9	2.8	2.5	2.4	1.6
Total Metals and Metalloids																			
Aluminum	µg/L	-	64.8	-	-	9.90	8.80	-	-	-	12.7	12.8	234	46.0	37.1	11.6	13.4	17.8	20.3
Antimony	µg/L	-	0.31	-	-	0.18	0.21	-	-	-	0.23	0.16	0.18	0.20	0.13	0.17	0.20	0.20	0.12
Arsenic	µg/L	-	0.15	-	-	0.11	<0.1	-	-	-	0.18	<0.1	0.21	0.11	0.09	<0.1	0.11	0.11	<0.1
Barium	µg/L	-	47.9	-	-	36.9	37.2	-	-	-	38.0	32.2	37.6	41.1	30.7	33.1	37.6	35.2	29.4
Beryllium	µg/L	-	<0.01	-	-	<0.5	<0.5	-	-	-	<0.5	<0.5	0.04	<0.01	<0.01	<0.5	<0.5	<0.5	<0.5
Bismuth	µg/L	-	<0.01	-	-	<0.05	<0.05	-	-	-	<0.05	<0.05	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05
Boron	µg/L	-	193	-	-	144	154	-	-	-	188	158	105	110	95.2	156	176	182	96.2
Cadmium	µg/L	-	0.006	-	-	<0.01	<0.01	-	-	-	<0.01	<0.01	0.035	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
Cesium	µg/L	-	0.2	-	-	0.1	0.1	-	-	-	0.1	0.1	0.1	<0.1	<0.1	0.1	0.1	0.1	<0.1
Chromium	µg/L	-	1.56	-	-	0.62	0.32	-	-	-	0.46	0.21	2.77	0.40	0.29	0.41	0.45	0.50	0.38
Cobalt	µg/L	-	0.521	-	-	<0.1	<0.1	-	-	-	<0.1	0.260	0.917	0.277	0.299	0.230	0.320	0.380	0.300
Copper	µg/L	-	0.65	-	-	0.30	0.31	-	-	-	0.46	0.53	1.56	0.34	0.42	0.45	0.45	0.48	0.25
Iron	µg/L	-	161	-	-	<10	<10	-	-	-	15	18	676	50	85	21	24	37	62
Lead	µg/L	-	0.22	-	-	0.06	<0.05	-	-	-	<0.05	0.07	1.02	0.16	0.12	<0.05	0.06	0.08	0.06
Lithium	µg/L	-	22.3	-	-	20.5	23.7	-	-	-	21.4	19.8	26.9	32.4	27.0	18.7	21.2	19.1	18.4
Manganese	µg/L	-	62	-	-	<2	<2	-	-	-	18	55	82	51	67	55	49	55	58
Mercury	µg/L	-	<0.02	-	-	<0.02	<0.02	-	-	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Molybdenum	µg/L	-	8.7	-	-	6.04	6.37	-	-	-	7.67	6.48	3.08	3.53	2.86	6.17	7.43	7.79	3.56
Nickel	µg/L	-	12.9	-	-	7.65	7.91	-	-	-	13.9	12.4	19.5	12.0	11.1	13.1	15.0	14.3	11.5
Rubidium	µg/L	-	11.1	-	-	7.20	7.80	-	-	-	10.2	8.00	6.30	5.90	5.00	8.60	9.80	9.30	4.80
Selenium	µg/L	-	0.04	-	-	<0.1	<0.1	-	-	-	<0.1	<0.1	<0.04	<0.04	<0.04	<0.1	<0.1	<0.1	<0.1
Silver	µg/L	-	0.009	-	-	<0.01	<0.01	-	-	-	<0.01	<0.01	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01
Strontium	µg/L	-	1,630	-	-	1,470	1,850	-	-	-	1,520	1,340	1,540	1,990	1,480	1,300	1,530	1,260	1,370
Thallium	µg/L	-	0.021	-	-	<0.05	<0.05	-	-	-	<0.05	<0.05	0.017	0.013	0.013	<0.05	<0.05	<0.05	<0.05
Tin	µg/L	-	-	-	-	<0.1	<0.1	-	-	-	<0.1	<0.1	-	-	-	<0.1	<0.1	<0.1	<0.1
Titanium	µg/L	-	2.7	-	-	<0.3	<0.3	-	-	-	0.5	<0.3	6.7	2.3	3.6	<0.3	0.6	1.2	0.8
Uranium	µg/L	-	1.040	-	-	0.806	0.943	-	-	-	0.904	0.877	0.835	0.961	0.683	0.816	0.961	0.923	0.660
Vanadium	µg/L	-	0.33	-	-	0.11	<0.1	-	-	-	<0.1	<0.1	0.99	0.14	0.12	<0.1	<0.1	0.11	<0.1
Zinc	µg/L	-	2.3	-	-	4.1	<3	-	-	-	8.9	6.8	6.4	2.5	2.5	3.8	4.6	6.8	3.2
Dissolved Metals and Metalloids																			
Aluminum	µg/L	-	3.85	-	-	-	-	-	-	-	-	-	1.88	2.77	11.4	-	-	-	-
Antimony	µg/L	-	0.30	-	-	-	-	-	-	-	-	-	0.19	0.20	0.13	-	-	-	-
Arsenic	µg/L	-	0.14	-	-	-	-	-	-	-	-	-	0.10	0.09	0.07	-	-	-	-
Barium	µg/L	-	45	-	-	-	-	-	-	-	-	-	33	40	31	-	-	-	-
Beryllium	µg/L	-	<0.01	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.01	-	-	-	-
Bismuth	µg/L	-	<0.01	-	-	-	-	-	-	-	-	-	<0.01	<0.01	<0.01	-	-	-	-
Boron	µg/L	-	184	-	-	-	-	-	-	-	-	-	109	108	94.6	-	-	-	-
Cadmium	µg/L	-	0.011 XM	-	-	-	-	-	-	-	-	-	0.033	0.0123 XM	0.053 XM	-	-	-	-
Cesium	µg/L	-	0.2	-	-	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	-	-	-	-
Chromium	µg/L	-	0.63	-	-	-	-	-	-	-	-	-	0.06	0.17	0.12	-	-	-	-
Cobalt	µg/L	-	0.383	-	-	-	-	-	-	-	-	-	0.282	0.248	0.281	-	-	-	-

Table 3D-4: Discharge Data (Monthly and Six Day Samples) for SNP 02-17B from November 1, 2011 to October 31, 2012 (continued)

Sample Point:	Units	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B
Date Sampled (yyyy-mm-dd):		2012-Jun-01	2012-Jun-05	2012-Jun-11	2012-Jun-17	2012-Jun-23	2012-Jun-29	2012-Jul-05	2012-Jul-11	2012-Jul-17	2012-Jul-23	2012-Jul-29	2012-Aug-01	2012-Aug-01	2012-Aug-02	2012-Aug-04	2012-Aug-10	2012-Aug-12	2012-Aug-16
Sample Control Number		2012-1103	2012-1138	2012-1156	2012-1190	2012-1205	2012-1258	2012-1293	2012-1311	2012-1343	2012-1385	2012-1391	2012-1413	2012-1415	2012-1417	2012-1420	2012-1457	2012-1472	2012-1499
Copper	µg/L	-	3.97 XM	-	-	-	-	-	-	-	-	-	4.62 XM	3.20 XM	3.73 XM	-	-	-	-
Iron	µg/L	-	1.60	-	-	-	-	-	-	-	-	-	<1	1.30	19.2	-	-	-	-
Lead	µg/L	-	0.017	-	-	-	-	-	-	-	-	-	0.018	0.015	0.036	-	-	-	-
Lithium	µg/L	-	22	-	-	-	-	-	-	-	-	-	26	32	27	-	-	-	-
Manganese	µg/L	-	56.8	-	-	-	-	-	-	-	-	-	58.0	49.7	64.4	-	-	-	-
Mercury	µg/L	-	<0.02	-	-	-	-	-	-	-	-	-	<0.02	<0.02	<0.02	-	-	-	-
Molybdenum	µg/L	-	8.42	-	-	-	-	-	-	-	-	-	2.95	3.56	2.95	-	-	-	-
Nickel	µg/L	-	10.8	-	-	-	-	-	-	-	-	-	11.2	11.6	10.4	-	-	-	-
Rubidium	µg/L	-	10.6	-	-	-	-	-	-	-	-	-	5.60	6.00	5.00	-	-	-	-
Selenium	µg/L	-	<0.04	-	-	-	-	-	-	-	-	-	<0.04	<0.04	<0.04	-	-	-	-
Silver	µg/L	-	<0.005	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	-	-	-	-
Strontium	µg/L	-	1,590	-	-	-	-	-	-	-	-	-	1,480	1,960	1,450	-	-	-	-
Thallium	µg/L	-	0.021	-	-	-	-	-	-	-	-	-	0.015	0.011	0.012	-	-	-	-
Tin	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	µg/L	-	<0.1	-	-	-	-	-	-	-	-	-	<0.1	<0.1	0.49	-	-	-	-
Uranium	µg/L	-	0.997	-	-	-	-	-	-	-	-	-	0.734	0.948	0.660	-	-	-	-
Vanadium	µg/L	-	0.13	-	-	-	-	-	-	-	-	-	0.08	0.09	0.05	-	-	-	-
Zinc	µg/L	-	5.0 XM	-	-	-	-	-	-	-	-	-	5.5	3.7 XM	11.2 XM	-	-	-	-
Organics-General																			
F2 (>C_{10}-C_{16})	mg/L	-	<0.25	-	-	-	-	-	-	-	-	-	-	<0.25	<0.25	-	-	-	-
F3 (C_{16}-C_{34})	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F4 (C_{34}-C_{50})	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oil and Grease	mg/L	-	<1	-	-	-	-	-	-	-	-	-	-	<1	<1	-	-	-	-
Organics-Volatiles																			
Benzene	mg/L	-	<0.0005	-	-	-	-	-	-	-	-	-	-	<0.0005	<0.0005	-	-	-	-
BTEX	mg/L	-	<0.00071	-	-	-	-	-	-	-	-	-	-	<0.00071	<0.00071	-	-	-	-
Ethylbenzene	mg/L	-	<0.0005	-	-	-	-	-	-	-	-	-	-	<0.0005	<0.0005	-	-	-	-
F1-BTEX	mg/L	-	<0.1	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-
F1 (C_6-C_{10})	mg/L	-	<0.1	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	-
Toluene	mg/L	-	<0.0005	-	-	-	-	-	-	-	-	-	-	<0.0005	<0.0005	-	-	-	-
Xylene	mg/L	-	<0.00071	-	-	-	-	-	-	-	-	-	-	<0.00071	<0.00071	-	-	-	-
m&p-Xylene	mg/L	-	<0.0005	-	-	-	-	-	-	-	-	-	-	<0.0005	<0.0005	-	-	-	-
o-Xylene	mg/L	-	<0.0005	-	-	-	-	-	-	-	-	-	-	<0.0005	<0.0005	-	-	-	-
Microbiology																			
E coli	CFU/100mL	-	-	-	-	-	-	-	-	-	-	-	-	2	<1	-	-	-	-
E coli	MPN/100m	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fecal Coliform	CFU/100m	-	3	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-

Source: De Beers' Environmental Database (DSLEnvDbase) accessed on March 8, 2013.

Notes:

XM = qualifier flag assigned by De Beers; data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using the formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

SNP = Surveillance Network Program; HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; BTEX = benzene, toluene, ethylbenzene, and xylenes; *E.coli* = *Escherichia coli* ; F1 (C_6 – C_{10}) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from $_6$C to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > $_{10}$C to C_{16}; F3 (C_{16}-C_{34}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from C_{16} to C_{34}; F4 (C_{34}-C_{50}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from $_{34}$C to C_{50}.

- = no data; <= less than the detection limit; yyy-mm-dd = year-month-day.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres; CFU/100mL = coliform forming units per 100 millilitres.

Table 3D-4: Discharge Data (Monthly and Six Day Samples) for SNP 02-17B from November 1, 2011 to October 31, 2012 (continued)

Sample Point:	Units	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B
Date Sampled (yyyy-mm-dd):		2012-Apr-01	2012-Apr-06	2012-Apr-12	2012-Apr-18	2012-Apr-24	2012-Apr-30	2012-May-06	2012-May-12	2012-May-18	2012-May-21	2012-May-23	2012-May-23	2012-May-23	2012-May-24	2012-May-27	2012-May-30
Sample Control Number		2012-0636	2012-0662	2012-0680	2012-0723	2012-0747	2012-0777	2012-0821	2012-0856	2012-0949	2012-0961	2012-1011	2012-1012	2012-1013	2012-1020	2012-1046	2012-1078
Field Parameters																	
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	unitless	7.1	7.5	6.7	7.0	6.7	7.1	7.5	7.4	7.2	6.9	7.4	7.2	7.2	6.9	7.4	6.8
Specific Conductivity	µS/cm	1,226	1,178	1,180	1,169	1,137	1,166	1,122	1,108	1,072	11	1,028	869	869	1,239	1,047	1,023
Water Temperature	°C	7.9	8.1	5.8	6.5	6.2	6.8	8.1	8	8.4	9.3	9.4	6.7	6.7	8.5	6.5	10.2
Conventional Parameters																	
Laboratory pH	unitless	7.6	7.6	7.7	7.5	7.5	8.0	7.8	7.8	7.7	7.8	7.9	7.9	7.8	7.9	7.7	-
Laboratory Specific Conductivity	µS/cm	1,220	1,170	1,270	1,150	1,110	1,170	1,140	1,080	1,100	1,130	880	868	862	1,050	1,060	-
Total Dissolved Solids, measured	mg/L	762	-	-	830	706	735	659	781	703	775	549	571	770	671	699	-
Total Dissolved Solids, calculated (Lab) [a]	mg/L	642	597	663	610	595	628	591	629	578	583	449	446	-	538	543	-
Total Dissolved Solids, calculated (Standard Methods) [a]	mg/L	636	595	658	606	593	625	585	626	574	578	447	444	-	535	541	-
Total Suspended Solids	mg/L	4	<3	<3	5	<3	<3	4	<3	<3	<3	<3	<3	<1	<3	<3	-
Turbidity	NTU	1.6	1.4	0.7	2.0	1.2	1.5	0.9	2.4	2.6	1.8	1.0	0.9	0.7	1.8	2.9	-
Ions																	
Acidity to pH 4.5, as $CaCO_3$	mg/L	<5	-	<5	5.4	9.4	<5	<5	<5	<5	<5	<5	<5	<0.5	<5	<5	-
Bicarbonate, as HCO_3	mg/L	50	66	64	69	68	79	61	73	72	82	79	78	77	72	74	-
Calcium	mg/L	123	114	130	133	127	129	106	139	105	115	89	87	85	103	104	-
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5	<5	<5	-
Chloride	mg/L	273	264	291	272	262	272	253	241	230	263	178	176	170	213	228	-
Fluoride	mg/L	0.41	0.37	0.39	0.33	0.37	0.37	0.39	0.38	0.35	0.31	0.29	0.28	0.36	0.33	0.33	-
Hardness, as $CaCO_3$	mg/L	373	341	386	391	371	388	324	418	328	336	268	266	256	315	314	-
Hydroxide, as OH	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5	<5	<5	-
Ion Balance	%	98	94	97	105	102	101	91	117	94	91	100	99	-	101	95	-
Magnesium	mg/L	16	14	15	14	13	16	14	17	16	12	11	12	11	14	13	-
Potassium	mg/L	6.4	5.3	6.2	5.7	4.4	5.0	5.7	7.1	6.6	4.4	4.9	4.4	4.4	6.2	5.6	-
Reactive Silica, as SiO_2	mg/L	9.4	11.3	9.0	8.2	9.1	8.3	14.0	19.6	7.1	7.8	7.8	14.9	-	7.0	6.9	-
Sodium	mg/L	63	60	67	63	62	63	54	67	54	54	47	43	40	57	53	-
Sulphate	mg/L	68	58	61	54	57	51	52	49	59	53	42	42	41	50	49	-
Total Alkalinity, as $CaCO_3$	mg/L	41	54	53	56	56	65	50	59	59	67	65	64	63	59	61	-
Nutrients																	
BOD (5-day)	mg/L	3	-	-	-	-	-	<2	-	-	3	-	-	-	-	-	-
Nitrate, as N, calculated	mg-N/L	11.3	7.42	10.1	4.43	4.87	8.84	11.5	10.2	13.3	5.97	5.82	5.17	5.44	10.7	9.42	28.6
Nitrate/Nitrite, as N	mg-N/L	11.5	7.55	10.4	4.54	5.02	8.97	11.7	10.4	13.5	6.08	5.95	5.31	5.58	10.8	9.57	-
Nitrite, as N	mg-N/L	0.22	0.13	0.26	0.11	0.14	0.13	0.18	0.16	0.15	0.11	0.14	0.14	0.13	0.13	0.15	0.45
Total Ammonia, as N	mg-N/L	2.6	1.5	2.9	1.1	1.3	1.8	2.5	2.2	2.5	1.9	1.4	1.5	1.1	2.0	2.0	-
Total Kjeldahl Nitrogen	mg-N/L	2.8	1.8	2.9	1.1	1.4	1.8	1.7	2.1	2.4	2.0	1.5	1.7	1.0	1.3	2.3	-
ortho-Phosphate, as P	mg-P/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
Total Phosphorus	mg-P/L	0.0076	0.0052	0.0032	0.0056	0.0047	0.0056	0.0099	0.0095	0.0113	0.0018	0.0035	0.003	0.0052	0.0082	0.0094	-
Total Dissolved Phosphorus	mg-P/L	<0.001	<0.001	<0.001	<0.001	0.0018	<0.001	0.0018	0.0017	0.0031	<0.001	<0.001	<0.001	0.0023	<0.001	<0.001	-
Total Organic Carbon	mg/L	2.5	2.6	2.5	1.9	2.3	2.3	2.6	2.5	2.9	2.3	2.1	<1	1.58	2.5	3	-
Total Metals and Metalloids																	
Aluminum	µg/L	32.3	-	17.4	-	-	-	70.3	-	-	10.5	-	27.7	23.0	-	-	-
Antimony	µg/L	0.38	-	0.28	-	-	-	0.30	-	-	0.18	-	0.21	0.19	-	-	-
Arsenic	µg/L	0.16	-	0.10	-	-	-	0.18	-	-	0.07	-	0.09	0.14	-	-	-
Barium	µg/L	42.2	-	40.3	-	-	-	43.9	-	-	33.8	-	33.2	35.7	-	-	-
Beryllium	µg/L	<0.01	-	<0.01	-	-	-	<0.01	-	-	<0.01	-	<0.01	<0.01	-	-	-
Bismuth	µg/L	<0.01	-	<0.01	-	-	-	<0.01	-	-	<0.01	-	<0.01	<0.005	-	-	-
Boron	µg/L	127	-	154	-	-	-	158	-	-	109	-	98.0	110	-	-	-
Cadmium	µg/L	0.006	-	0.008	-	-	-	0.006	-	-	<0.005	-	<0.005	0.011	-	-	-
Cesium	µg/L	0.2	-	0.2	-	-	-	0.1	-	-	<0.1	-	<0.1	0.1	-	-	-
Chromium	µg/L	2.51	-	1.54	-	-	-	1.95	-	-	0.21	-	0.51	0.50	-	-	-
Cobalt	µg/L	0.378	-	0.344	-	-	-	0.449	-	-	0.319	-	0.332	0.337	-	-	-
Copper	µg/L	0.43	-	0.76	-	-	-	0.64	-	-	0.52	-	0.25	0.27	-	-	-
Iron	µg/L	100	-	65.3	-	-	-	120	-	-	31.2	-	54.0	57.2	-	-	-
Lead	µg/L	0.14	-	0.14	-	-	-	0.14	-	-	0.09	-	0.08	0.09	-	-	-
Lithium	µg/L	20.8	-	27.5	-	-	-	23.2	-	-	21.4	-	18.2	20.2	-	-	-
Manganese	µg/L	45.2	-	57.7	-	-	-	51.2	-	-	65.3	-	68.9	70.7	-	-	-
Mercury	µg/L	<0.02	-	<0.02	-	-	-	<0.02	-	-	<0.02	-	<0.02	-	-	-	-
Molybdenum	µg/L	9.24	-	8.83	-	-	-	7.93	-	-	4.66	-	4.67	4.83	-	-	-
Nickel	µg/L	10.6	-	11.2	-	-	-	10.7	-	-	11.0	-	10.5	10.1	-	-	-
Rubidium	µg/L	10.3	-	9.50	-	-	-	9.80	-	-	5.50	-	5.80	5.86	-	-	-
Selenium	µg/L	<0.04	-	<0.04	-	-	-	<0.04	-	-	<0.04	-	<0.04	0.13	-	-	-
Silver	µg/L	<0.005	-	<0.005	-	-	-	<0.005	-	-	<0.005	-	<0.005	<0.005	-	-	-
Strontium	µg/L	1,750	-	1,770	-	-	-	1,650	-	-	1,610	-	1,180	1,140	-	-	-
Thallium	µg/L	0.017	-	0.016	-	-	-	0.017	-	-	0.014	-	0.010	0.0106	-	-	-
Tin	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	µg/L	1.7	-	1.4	-	-	-	3.6	-	-	0.64	-	1.3	1.6	-	-	-
Uranium	µg/L	1.04	-	1.08	-	-	-	0.900	-	-	0.795	-	0.801	0.760	-	-	-
Vanadium	µg/L	0.36	-	0.15	-	-	-	0.46	-	-	0.05	-	0.09	<0.2	-	-	-
Zinc	µg/L	3.2	-	6.1	-	-	-	2.8	-	-	4.5	-	2.2	2.0	-	-	-
Dissolved Metals and Metalloids																	
Aluminum	µg/L	6.34	-	4.28	-	-	-	-	-	-	2.84	-	2.39	4.05	-	-	-
Antimony	µg/L	0.37	-	0.29	-	-	-	-	-	-	0.18	-	0.23	0.21	-	-	-
Arsenic	µg/L	0.13	-	0.09	-	-	-	-	-	-	0.08	-	0.09	0.12	-	-	-

Table 3D-4: Discharge Data (Monthly and Six Day Samples) for SNP 02-17B from November 1, 2011 to October 31, 2012 (continued)

Sample Point:	Units	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B
Date Sampled (yyyy-mm-dd):		2012-Apr-01	2012-Apr-06	2012-Apr-12	2012-Apr-18	2012-Apr-24	2012-Apr-30	2012-May-06	2012-May-12	2012-May-18	2012-May-21	2012-May-23	2012-May-23	2012-May-23	2012-May-24	2012-May-27	2012-May-30
Sample Control Number		2012-0636	2012-0662	2012-0680	2012-0723	2012-0747	2012-0777	2012-0821	2012-0856	2012-0949	2012-0961	2012-1011	2012-1012	2012-1013	2012-1020	2012-1046	2012-1078
Barium	µg/L	42	-	41	-	-	-	-	-	-	34	-	32	33	-	-	-
Beryllium	µg/L	<0.01	-	<0.01	-	-	-	-	-	-	<0.01	-	<0.01	<0.01	-	-	-
Bismuth	µg/L	<0.01	-	<0.01	-	-	-	-	-	-	<0.01	-	<0.01	<0.005	-	-	-
Boron	µg/L	120	-	151	-	-	-	-	-	-	105	-	95.3	90.0	-	-	-
Cadmium	µg/L	0.010 XM	-	0.008	-	-	-	-	-	-	0.008 XM	-	<0.005	0.021 XM	-	-	-
Cesium	µg/L	0.14	-	0.15	-	-	-	-	-	-	<0.1	-	<0.1	0.097	-	-	-
Chromium	µg/L	2.04	-	1.41	-	-	-	-	-	-	0.23	-	0.30	0.32	-	-	-
Cobalt	µg/L	0.332	-	0.317	-	-	-	-	-	-	0.318	-	0.311	0.295	-	-	-
Copper	µg/L	5.19 XM	-	1.57 XM	-	-	-	-	-	-	1.43 XM	-	0.44 XM	2.83 XM	-	-	-
Iron	µg/L	2.80	-	8.00	-	-	-	-	-	-	3.10	-	1.30	3.10	-	-	-
Lead	µg/L	0.01	-	0.01	-	-	-	-	-	-	<0.01	-	<0.01	0.01	-	-	-
Lithium	µg/L	20.0	-	28.4	-	-	-	-	-	-	21.0	-	17.5	19.3	-	-	-
Manganese	µg/L	43.2	-	57.1	-	-	-	-	-	-	66.0	-	67.2	65.9	-	-	-
Mercury	µg/L	<0.02	-	<0.02	-	-	-	-	-	-	<0.02	-	<0.02	<0.01	-	-	-
Molybdenum	µg/L	9.03	-	8.49	-	-	-	-	-	-	4.22	-	4.54	4.92	-	-	-
Nickel	µg/L	9.90	-	10.8	-	-	-	-	-	-	10.5	-	10.0	9.28	-	-	-
Rubidium	µg/L	9.70	-	9.50	-	-	-	-	-	-	5.40	-	5.70	5.86	-	-	-
Selenium	µg/L	<0.04	-	<0.04	-	-	-	-	-	-	<0.04	-	<0.04	0.135	-	-	-
Silver	µg/L	<0.005	-	<0.005	-	-	-	-	-	-	<0.005	-	<0.005	<0.005	-	-	-
Strontium	µg/L	1,730	-	1,780	-	-	-	-	-	-	1,580	-	1,150	1,150	-	-	-
Thallium	µg/L	0.017	-	0.018	-	-	-	-	-	-	0.014	-	0.012	0.010	-	-	-
Tin	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	µg/L	<0.1	-	<0.1	-	-	-	-	-	-	0.1	-	<0.1	<0.5	-	-	-
Uranium	µg/L	1.00	-	1.05	-	-	-	-	-	-	0.743	-	0.761	0.750	-	-	-
Vanadium	µg/L	0.255	-	0.083	-	-	-	-	-	-	<0.05	-	<0.05	<0.2	-	-	-
Zinc	µg/L	5.3 XM	-	5.0	-	-	-	-	-	-	5.8	-	3.5 XM	6.2 XM	-	-	-
Organics-General																	
F2 (>C_{10}-C_{16})	mg/L	<0.25	-	-	-	-	-	<0.25	-	-	<0.25	-	-	-	-	-	-
F3 (C_{16}-C_{34})	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F4 (C_{34}-C_{50})	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oil and Grease	mg/L	<1	-	-	-	-	-	<1	<1	-	<1	-	-	-	-	-	-
Organics-Volatiles																	
Benzene	mg/L	<0.0005	-	-	-	-	-	<0.0005	-	-	<0.0005	-	-	-	-	-	-
BTEX	mg/L	<0.00071	-	-	-	-	-	<0.00071	-	-	<0.00071	-	-	-	-	-	-
Ethylbenzene	mg/L	<0.0005	-	-	-	-	-	<0.0005	-	-	<0.0005	-	-	-	-	-	-
F1-BTEX	mg/L	<0.1	-	-	-	-	-	<0.1	-	-	<0.1	-	-	-	-	-	-
F1 (C_6-C_{10})	mg/L	<0.1	-	-	-	-	-	<0.1	-	-	<0.1	-	-	-	-	-	-
Toluene	mg/L	<0.0005	-	-	-	-	-	<0.0005	-	-	<0.0005	-	-	-	-	-	-
Xylene	mg/L	<0.00071	-	-	-	-	-	<0.00071	-	-	<0.00071	-	-	-	-	-	-
m&p-Xylene	mg/L	<0.0005	-	-	-	-	-	<0.0005	-	-	<0.0005	-	-	-	-	-	-
o-Xylene	mg/L	<0.0005	-	-	-	-	-	<0.0005	-	-	<0.0005	-	-	-	-	-	-
Microbiology																	
E. coli	CFU/100mL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E. coli	MPN/100m	<1	-	-	-	-	-	2	-	-	7.5	-	-	-	-	-	-
Fecal Coliform	CFU/100m	<1	-	-	-	-	-	1	-	-	9	-	-	-	-	-	-

Source: De Beers' Environmental Database (DSLEnvDbase) accessed on March 8, 2013.

Notes:

XM = qualifier flag assigned by De Beers; data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using the formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

SNP = Surveillance Network Program; HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; BTEX = benzene, toluene, ethylbenzene, and xylenes; *E. coli* = *Escherichia coli*; F1 (C_6 – C_{10}) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from $_6$C to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > $_{10}$C to C_{16}; F3 (C_{16}-C_{34}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from $_{16}$C to C_{34}; F4 (C_{34}-C_{50}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from $_{34}$C to C_{50}.

- = no data; <= less than the detection limit; yyy-mm-dd = year-month-day.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres; CFU/100mL = coliform forming units per 100 millilitres.

Table 3D-4: Discharge Data (Monthly and Six Day Samples) for SNP 02-17B from November 1, 2011 to October 31, 2012 (continued)

Sample Point:	Units	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B
Date Sampled (yyyy-mm-dd):		2012-Jan-08	2012-Jan-14	2012-Jan-15	2012-Jan-20	2012-Jan-26	2012-Feb-01	2012-Feb-07	2012-Feb-13	2012-Feb-19	2012-Feb-25	2012-Mar-02	2012-Mar-11	2012-Mar-14	2012-Mar-20	2012-Mar-26	2012-Mar-31
Sample Control Number		2012-0059	2012-0102	2012-0112	2012-0149	2012-0188	2012-0211	2012-0245	2012-0315	2012-0364	2012-0386	2012-0428	2012-0491	2012-0512	2012-0570	2012-0604	2012-0626
Sample Type		Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
Field Parameters																	
Dissolved Oxygen	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	unitless	7.3	7.1	7.0	7.0	7.0	7.4	7.1	7.5	6.8	7.4	6.9	7.0	7.0	7.0	7.0	6.6
Specific Conductivity	µS/cm	1,283	1,294	1,332	1,044	1,228	1,239	1,227	1,359	1,100	1,169	1,212	1,237	1,113	1,241	1,254	1,217
Water Temperature	°C	6.4	6.4	6.5	8.3	7.3	6.7	6.3	7.1	6	7.3	8.3	7.4	7.5	7.9	7.7	8.2
Conventional Parameters																	
Laboratory pH	unitless	7.8	7.5	7.8	7.9	7.7	7.7	7.8	7.9	7.8	7.8	7.5	7.4	8.0	7.6	7.7	7.8
Laboratory Specific Conductivity	µS/cm	1,270	1,260	1,350	1,050	1,190	1,210	1,180	1,350	1,070	1,170	1,240	1,310	1,140	1,250	1,240	1,200
Total Dissolved Solids, measured	mg/L	714	692	752	619	725	677	681	810	631	661	752	844	631	777	743	719
Total Dissolved Solids, calculated (Lab)[a]	mg/L	658	-	695	522	578	620	597	686	546	575	603	617	571	627	606	656
Total Dissolved Solids, calculated (Standard Methods)[a]	mg/L	669	-	707	534	590	631	608	697	555	584	611	627	583	643	616	652
Total Suspended Solids	mg/L	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	3	4	<3	<3	<3	4
Turbidity	NTU	0.4	0.26 I I	0.3	0.3	0.2	0.4	0.3	0.5	0.3	0.7	2.9	1.3	0.8	0.6	1.1	1.6
Ions																	
Acidity to pH 4.5, as $CaCO_3$	mg/L	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bicarbonate, as HCO_3	mg/L	67	57	67	72	62	70	72	72	70	67	58	67	72	57	71	68
Calcium	mg/L	114	125	127	110	126	128	112	141	108	111	142	129	127	138	123	144
Carbonate, as CO_3	mg/L	<5	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloride	mg/L	264	284	289	243	286	277	248	307	237	261	273	295	255	297	291	272
Fluoride	mg/L	0.42	0.60	0.41	0.29	0.31	0.36	0.38	0.40	0.37	0.35	0.37	0.37	0.34	0.31	0.28	0.37
Hardness, as $CaCO_3$	mg/L	358	390	394	320	360	381	347	420	324	330	415	376	373	401	354	431
Hydroxide, as OH	mg/L	<5	<0.1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Ion Balance	%	93	-	95	99	96	102	96	98	96	90	112	96	107	104	91	112
Magnesium	mg/L	18	19	19	11	11	15	16	17	13	13	15	13	14	14	11	17
Potassium	mg/L	8.1	8.5	8.1	4.3	4.1	6.2	6.3	6.1	5.9	5.1	5.1	4.8	5.3	5.7	4.2	6.4
Reactive Silica, as SiO_2	mg/L	9.7	-	10.0	9.3	9.4	9.7	9.6	9.2	7.5	7.6	7.1	8.1	9.8	13.1	7.8	9.4
Sodium	mg/L	67	69	70	58	58	70	61	68	56	55	65	63	64	69	61	70
Sulphate	mg/L	62	67	62	44	46	51	57	62	51	53	48	52	52	58	58	59
Total Alkalinity, as $CaCO_3$	mg/L	55	57	55	59	51	58	59	59	57	55	48	55	59	47	58	56
Nutrients																	
BOD (5-day)	mg/L	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-
Nitrate, as N, calculated	mg-N/L	20.6	20.4	19.4	3.7	3.59	8.42	13.5	11	8.98	9.77	5.79	6.01	3.97	3.67	5.06	8.42
Nitrate/Nitrite, as N	mg-N/L	20.9	-	19.6	3.78	3.6	8.65	13.7	11.2	9.09	9.94	5.91	6.11	4.09	3.78	5.13	8.55
Nitrite, as N	mg-N/L	0.21	0.69	0.22	0.08	0.01	0.23	0.24	0.24	0.12	0.17	0.12	0.10	0.12	0.12	0.07	0.13
Total Ammonia, as N	mg-N/L	4.2	4.3	3.7	1.1	0.9	1.8	3.5	2.3	1.7	2.2	1.5	1.8	1.2	1.2	1.3	1.7
Total Kjeldahl Nitrogen	mg-N/L	3.4	4.4	4.1	1.1	4.5	1.9	2.9	2.1	1.9	2.3	8.9	9.0	1.4	1.2	1.2	1.8
ortho-Phosphate, as P	mg-P/L	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Phosphorus	mg-P/L	0.0037	0.01	0.0028	<0.001	0.0047	0.0054	0.0063	0.0052	0.0044	0.0032	0.0119	0.0066	0.0046	0.0034	0.0034	0.0069
Total Dissolved Phosphorus	mg-P/L	<0.001	0.01	<0.001	<0.001	<0.001	0.0019	0.0033	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Organic Carbon	mg/L	2	1.5	2.5	2.1	2.3	2.2	2.5 XF	2.4	2.3	2.6	3.2	2.7	2.7	2.2	2.2	2.1
Total Metals and Metalloids																	
Aluminum	µg/L	-	-	-	-	-	-	7.03	-	-	-	-	37.4	-	-	-	22.0
Antimony	µg/L	-	-	-	-	-	-	0.26	-	-	-	-	0.19	-	-	-	0.19
Arsenic	µg/L	-	-	-	-	-	-	0.09	-	-	-	-	0.08	-	-	-	0.09
Barium	µg/L	-	-	-	-	-	-	38.1	-	-	-	-	47.7	-	-	-	37.8
Beryllium	µg/L	-	-	-	-	-	-	<0.01	-	-	-	-	0.02	-	-	-	<0.01
Bismuth	µg/L	-	-	-	-	-	-	<0.01	-	-	-	-	<0.01	-	-	-	<0.01
Boron	µg/L	-	-	-	-	-	-	168 XF	-	-	-	-	107	-	-	-	104
Cadmium	µg/L	-	-	-	-	-	-	<0.005	-	-	-	-	0.006	-	-	-	0.005
Cesium	µg/L	-	-	-	-	-	-	0.2	-	-	-	-	0.2	-	-	-	0.1
Chromium	µg/L	-	-	-	-	-	-	0.59 XF	-	-	-	-	0.77	-	-	-	0.90
Cobalt	µg/L	-	-	-	-	-	-	0.420	-	-	-	-	1.56	-	-	-	0.416
Copper	µg/L	-	-	-	-	-	-	0.23 XF	-	-	-	-	0.36	-	-	-	0.34
Iron	µg/L	-	-	-	-	-	-	15.5	-	-	-	-	186	-	-	-	72.5
Lead	µg/L	-	-	-	-	-	-	0.09	-	-	-	-	0.11	-	-	-	0.13
Lithium	µg/L	-	-	-	-	-	-	25	-	-	-	-	28	-	-	-	19
Manganese	µg/L	-	-	-	-	-	-	74.8 XF	-	-	-	-	150	-	-	-	64.8
Mercury	µg/L	-	-	-	-	-	-	<0.02	-	-	-	-	<0.02	-	-	-	<0.02
Molybdenum	µg/L	-	-	-	-	-	-	9.1	-	-	-	-	5.1	-	-	-	7.3
Nickel	µg/L	-	-	-	-	-	-	10.3	-	-	-	-	22.3	-	-	-	13.1
Rubidium	µg/L	-	-	-	-	-	-	9.7	-	-	-	-	7.8	-	-	-	7.9
Selenium	µg/L	-	-	-	-	-	-	<0.04	-	-	-	-	<0.04	-	-	-	<0.04
Silver	µg/L	-	-	-	-	-	-	<0.005	-	-	-	-	<0.005	-	-	-	<0.005
Strontium	µg/L	-	-	-	-	-	-	1,650	-	-	-	-	2,070	-	-	-	1,820
Thallium	µg/L	-	-	-	-	-	-	0.015	-	-	-	-	0.017	-	-	-	0.017
Tin	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	µg/L	-	-	-	-	-	-	0.4	-	-	-	-	1.3	-	-	-	0.9
Uranium	µg/L	-	-	-	-	-	-	0.966	-	-	-	-	0.959	-	-	-	1.030
Vanadium	µg/L	-	-	-	-	-	-	0.06	-	-	-	-	0.17	-	-	-	0.13
Zinc	µg/L	-	-	-	-	-	-	2.0	-	-	-	-	7.1	-	-	-	2.4
Dissolved Metals and Metalloids																	
Aluminum	µg/L	-	-	-	-	-	-	3.74 XF	-	-	-	-	7.57	-	-	-	2.11
Antimony	µg/L	-	-	-	-	-	-	0.27	-	-	-	-	0.20	-	-	-	0.20
Arsenic	µg/L	-	-	-	-	-	-	0.09	-	-	-	-	0.08	-	-	-	0.07
Barium	µg/L	-	-	-	-	-	-	38.4 XF	-	-	-	-	47.6	-	-	-	37.3
Beryllium	µg/L	-	-	-	-	-	-	<0.01	-	-	-	-	0.01	-	-	-	<0.01
Bismuth	µg/L	-	-	-	-	-	-	<0.01	-	-	-	-	<0.01	-	-	-	<0.01
Boron	µg/L	-	-	-	-	-	-	161 XF	-	-	-	-	110	-	-	-	102
Cadmium	µg/L	-	-	-	-	-	-	0.009	-	-	-	-	0.011 XM	-	-	-	0.007
Cesium	µg/L	-	-	-	-	-	-	0.2	-	-	-	-	0.1	-	-	-	0.1

Table 3D-4: Discharge Data (Monthly and Six Day Samples) for SNP 02-17B from November 1, 2011 to October 31, 2012 (continued)

Sample Point:	Units	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B	SNP 02-17B
Date Sampled (yyyy-mm-dd):		2012-Jan-08	2012-Jan-14	2012-Jan-15	2012-Jan-20	2012-Jan-26	2012-Feb-01	2012-Feb-07	2012-Feb-13	2012-Feb-19	2012-Feb-25	2012-Mar-02	2012-Mar-11	2012-Mar-14	2012-Mar-20	2012-Mar-26	2012-Mar-31
Sample Control Number		2012-0059	2012-0102	2012-0112	2012-0149	2012-0188	2012-0211	2012-0245	2012-0315	2012-0364	2012-0386	2012-0428	2012-0491	2012-0512	2012-0570	2012-0604	2012-0626
Sample Type		Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
Chromium	µg/L	-	-	-	-	-	-	0.56 XF	-	-	-	-	0.23	-	-	-	0.54
Cobalt	µg/L	-	-	-	-	-	-	0.426	-	-	-	-	1.52	-	-	-	0.395
Copper	µg/L	-	-	-	-	-	-	0.88 XM, XF	-	-	-	-	1.85 XM	-	-	-	1.29 XM
Iron	µg/L	-	-	-	-	-	-	2.00	-	-	-	-	90.3	-	-	-	2.70
Lead	µg/L	-	-	-	-	-	-	0.02	-	-	-	-	<0.01	-	-	-	<0.01
Lithium	µg/L	-	-	-	-	-	-	24.3	-	-	-	-	28.3	-	-	-	18.9
Manganese	µg/L	-	-	-	-	-	-	73.4 XF	-	-	-	-	148	-	-	-	63.0
Mercury	µg/L	-	-	-	-	-	-	<0.02	-	-	-	-	<0.02	-	-	-	<0.02
Molybdenum	µg/L	-	-	-	-	-	-	8.84	-	-	-	-	5.10	-	-	-	7.27
Nickel	µg/L	-	-	-	-	-	-	10.3	-	-	-	-	21.4	-	-	-	12.4
Rubidium	µg/L	-	-	-	-	-	-	9.80	-	-	-	-	7.70	-	-	-	7.70
Selenium	µg/L	-	-	-	-	-	-	<0.04	-	-	-	-	<0.04	-	-	-	<0.04
Silver	µg/L	-	-	-	-	-	-	<0.005	-	-	-	-	<0.005	-	-	-	<0.005
Strontium	µg/L	-	-	-	-	-	-	1,620 XF	-	-	-	-	2,040	-	-	-	1,790
Thallium	µg/L	-	-	-	-	-	-	0.015	-	-	-	-	0.015	-	-	-	0.015
Tin	µg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	µg/L	-	-	-	-	-	-	<0.1	-	-	-	-	<0.1	-	-	-	<0.1
Uranium	µg/L	-	-	-	-	-	-	0.96	-	-	-	-	0.93	-	-	-	1.00
Vanadium	µg/L	-	-	-	-	-	-	0.05	-	-	-	-	0.07	-	-	-	0.06
Zinc	µg/L	-	-	-	-	-	-	4.0 XM, XF	-	-	-	-	9.4	-	-	-	4.0 XM
Organics-General																	
F2 ($>C_{10}$-C_{16})	mg/L	-	-	-	-	-	-	<0.25	-	-	-	-	<0.25	-	-	-	-
F3 (C_{16}-C_{34})	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F4 (C_{34}-C_{50})	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oil and Grease	mg/L	-	-	-	-	-	-	<1	-	-	-	-	<1	-	-	-	-
Organics-Volatiles																	
Benzene	mg/L	-	-	-	-	-	-	<0.0005	-	-	-	-	<0.0005	-	-	-	-
BTEX	mg/L	-	-	-	-	-	-	<0.00071	-	-	-	-	<0.00071	-	-	-	-
Ethylbenzene	mg/L	-	-	-	-	-	-	<0.0005	-	-	-	-	<0.0005	-	-	-	-
F1-BTEX	mg/L	-	-	-	-	-	-	<0.1	-	-	-	-	<0.1	-	-	-	-
F1 (C_6-C_{10})	mg/L	-	-	-	-	-	-	<0.1	-	-	-	-	<0.1	-	-	-	-
Toluene	mg/L	-	-	-	-	-	-	<0.0005	-	-	-	-	<0.0005	-	-	-	-
Xylene	mg/L	-	-	-	-	-	-	<0.00071	-	-	-	-	<0.00071	-	-	-	-
m&p-Xylene	mg/L	-	-	-	-	-	-	<0.0005	-	-	-	-	<0.0005	-	-	-	-
o-Xylene	mg/L	-	-	-	-	-	-	<0.0005	-	-	-	-	<0.0005	-	-	-	-
Microbiology																	
E. coli	CFU/100mL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E. coli	MPN/100m	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Fecal Coliform	CFU/100m	-	-	-	-	-	-	-	-	-	-	-	<1	-	-	-	-

Source: De Beers' Environmental Database (DSLEnvDbase) accessed on March 8, 2013.

Notes:

XM = qualifier flag assigned by De Beers; data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample.

XF = qualifier flag assigned by De Beers; invalid result based on De Beers' internal review: Analyte detected in the corresponding field blank.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using the formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

SNP = Surveillance Network Program; HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_3 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; BTEX = benzene, toluene, ethylbenzene, and xylenes; *E. coli* = *Escherichia coli* ; F1 (C_6 – C_{10}) = hydrocarbon fraction 1 encompasses the range of equivalent carbon number from C_6 to C_{10}; F2 (> C_{10}-C_{16}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from > C_{10} to C_{16}, F3 (C_{16}-C_{34}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from C_{16} to C_{34}, F4 (C_{34}-C_{50}) = hydrocarbon fraction 2 encompasses the range of equivalent carbon number from C_{34} to C_{50}.

- = no data; <= less than the detection limit; yyy-mm-dd = year-month-day.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre; MPN/100 mL = most probable number per 100 millilitres; CFU/100mL = coliform forming units per 100 millilitres.

American Public Health Association (APHA). 2005. Standard Methods for the Examination of Water and Wastewater, 21st Edition, Washington, DC, USA.

HydroQual Laboratories Ltd.

Algae Test Report

Client: DEB103
Reference: 12-0620-01-AGD

Result Summary

Client: DeBeers Canada Inc.; operation Snap Lake Mine

Sample: 2012-5118

Collection: collected on 2012/04/17 at 1244 by not given
Receipt: received on 2012/04/19 at 1410 by J. Romero
Containers: received 1 x 20L pail at 13 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/04/20 ; ended on 2012/04/23

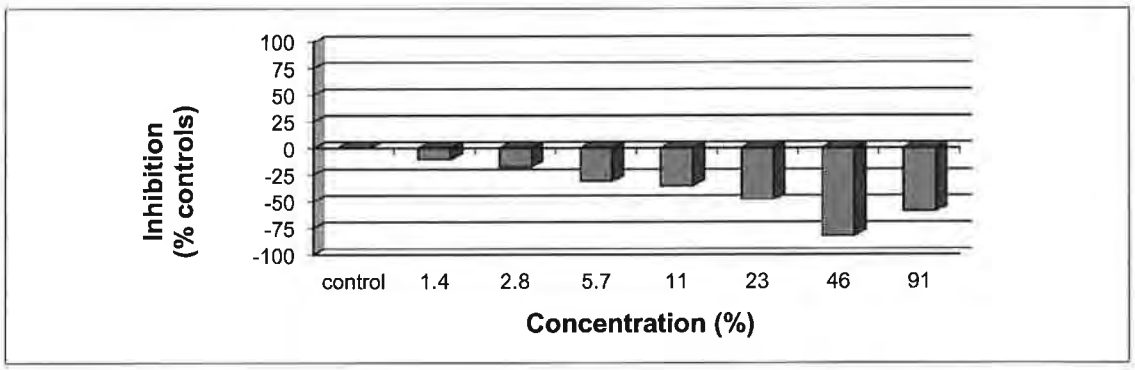
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Result:

	Endpoint (72-hour)	Value	Confidence Limits (95%) lower	upper		Method Calculated
Chronic:	IC25	>91			%	could not be calculated
(growth)	IC50	>91			%	could not be calculated

Notes: ICx, concentrations inhibiting growth by 'x' percent relative to controls; CV, coefficient of variation (%); SD, standard deviation



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

Our liability is limited to the cost of the test requested. The test results only relate to the sample as received. No liability in whole or in part is assumed for the collection, handling or transport of the sample, application or interpretation of the test data or results.

HydroQual Laboratories Ltd., #4, 6125 12th Street SE, Calgary, Alberta, Canada T2H 2K1
Tel (403) 253-7121 fax (403) 252-9363 www.hydroqual.ca

Test Conditions

Client: DEB103
Reference: 12-0620-01-AGD

Method: Biological Test Method: Growth Inhibition Test Using a Freshwater Alga *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum)*. Environment Canada, EPS 1/RM/25, 2nd Edition, March 2007

Test type: Algal Growth Inhibition Test (WTR-ME-034)
Species: *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum* and *Raphidocelis subcapitata*)
Organism source: In-house culture (original source: UTCC 37; strain: LB37)
Culture age: The test was started with 7 day old, exponentially growing cells determined with an algal growth curve. The algal growth curve was started with an inoculum from the algal stock culture determined over an 8-10 day period. This culture was initiated on 2012/03/03. Algal cultures are regrown every 2 months from slants made from a new culture purchased annually.
Culture observations: No unusual appearance or treatment of the algae was noted prior to or during the conduct of the test.
Sample initial chemistry: pH: 6.8; EC: 498 (µS/cm); DO: 8.9 (mg/L); temperature: 16 °C
hardness (mg CaC03/L): 135; colour: colourless; odour: odourless
Sample holding time: 3 days (must be ≤ 3 days)
Sample storage: 4 ± 2°C in darkness
Test concentrations: 7 effluent concentrations (1.4, 2.8, 5.7, 11, 23, 46 and 91% (v/v) plus a negative control)
Test vessel: The test was conducted in 96 well microplates. Three replicate plates were run (a, b and c). Test concentrations were not isolated from each other because volatility was not expected.
Test replicates: Three replicate microplates were run. Per plate there were 5 replicate wells per concentration and 10 replicate wells per control.
Test volume: 220 µL final volume in each well with 200 µL of sample;
10µL of enrichment medium and 10µL of algal inoculum.
Inoculum: The initial cell density of the inoculum was 9427 (cells/mL), it was prepared less than ≤2-3 hours before test initiation.
Control/dilution water: Made up with deionized City of Calgary water spiked with nutrients as per EPS 1/RM/25 (made by adding 1mL of each of the 5 stock solutions to 10mL of DRO). The metal stock with 25% reduced EDTA was used.
Sample Filtration: 100 mL filtered through a 0.45 µm pore diameter membrane.
Sample treatment: Sample spiked with nutrients as per EPS 1/RM/25; no other chemicals added.
Measurements: Final cell densities were determined from the absorbance at 430 nm calibrated against cell counts. The conversion factor for absorbance to cells per millilitre was 14297 with a coefficient of variation of 23 %.
Aeration: Not required
pH Adjustment: Not required
Lighting: The plates were incubated under continuous light: 4055 lux
(cool white fluorescent bulbs) 56.77 µmol/(m^2•S)
Test temperature: 24 ± 2°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-0620-01-AGD

Endpoint: Growth, 72-h IC25 (with 95% confidence limits)
Test endpoint was bracketed by at least 1 test concentration (except for <1.4% or >100 %)
No outliers were observed within the data set.

Test validity: Control growth was a 31 fold increase over the inoculum.
The cv of the standard control wells was 7 %.
(must be > 16 fold increase with a cv of ≤ 20%)

Statistics: See Data Analysis section.
Mann-Kendall Trend analysis was not performed as control cv was < 10%.

Reference toxicant: 72-h test with Zinc ($ZnSO_4$*7H2O) initiated April 13, 2012;
(must be within 14 days of the test initiation)
current results: (72-h IC25 and 95% confidence limits) = 1.31 (1.18-1.42) log (µg Zn^{2+}/L)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-0620-01-AGD

Test Log:

Date	Day	Technician	Time	Rotated	Temperature (°C)
2012/04/20	0	E. Blais/E. Petho	1430	na	24
2012/04/21	1	B. Shore	915	yes	25
2012/04/22	2	H. Caro-Riano	900	yes	24
2012/04/23	3	E. Petho/L. Windatt	1340	na	25

Absorbance and Direct Cell Data:

Concentration (%)	Absorbance (430 nm)	Direct Cell Counts(/0.5 mL)
ctl	0.022	4217
11	0.030	5083
91	0.035	9117

pH Measurements:

Concentration	Initial Value
control	7.8
91%	7.8

Concentration	Final Mean	% CV
control (well D6)	8.2	0
control (well D7)	8.2	0

Average Absorbance Control Data:

Column Well	2b	2c	2e	2f	2g
Absorbance (430 nm)	0.02	0.02	0.02	0.02	0.02
Column Well	11b	11c	11e	11f	11g
Absorbance (430 nm)	0.02	0.02	0.03	0.02	0.02

Standard Control Wells:

Average	328
SD	22
CV%	7

Test Results at 72 hours:

Concentration (%)	Cell Yield Densities ($x10^3$ / mL) Well Replicate					Average	SD	CV	Percent Controls	Inhibition (%)	Stimulation (%)
	a	b	c	d	e						
control	308	304	339	304	306	312	15	5	100	0	0
1.4	304	361	366	342	351	345	25	7	110	-10	10
2.8	318	361	418	385	356	368	37	10	118	-18	18
5.7	404	423	404	432	389	410	17	4	131	-31	31
11	385	432	423	442	437	424	23	5	136	-36	36
23	437	480	475	475	451	464	19	4	149	-49	49
46	604	566	556	571	552	570	21	4	182	-82	82
91	511	480	506	482	513	499	16	3	160	-60	60

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Comments/Statistics

Client: DEB103
Reference: 12-0620-01-AGD

Test Result Comments:
The absorbance measurements were made after the cells were centrifuged and resuspended in clear solution (and that the conversion factor developed for abs vs cell number reflects this step). Manual enumeration was performed on the same day as test termination.

Data Analysis:
Significant stimulatory effects in growth were observed in 2.8, 5.7, 11, 23, 46 and 91% concentrations as calculated by ANOVA analysis with CETIS v. 1.7.0revQ. (Dunnett's Multiple Comparison).

Endpoints for growth inhibition could not be calculated. Inhibitory effects did not occur.

Protocol Deviations:
None

Our liability is limited to the cost of the test requested. The test results only relate to the sample as received. No liability in whole or in part is assumed for the collection, handling or transport of the sample, application or interpretation of the test data or results.

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HydroQual Laboratories Ltd.

Warning Chart
Algae

Test Method: 72 hours Algal Growth Inhibition Test (IC25, seven or more treatments plus a control)
HydroQual Test Method: WTR-ME-035

Reference: Biological Test Method: Growth Inhibition Test Using the Freshwater Alga *Selenastrum capricornutum*, 2007. Environment Canada, EPS 1/RM/25.

Test Organism:		**Test Design:**	
test species:	*Pseudokirchneriella subcapitata*	test type:	static
batch number:	20120406AG	toxicant:	zinc
date started from slant:	2012/03/03	test vessel:	96 well flat bottom microplate
original source/strain:	UTCC 37 / LB37	test volume (µL):	220
culture vessels:	2L Erlenmeyer flask	no. of replicate plates:	3
water source:	85% deionized water, 15% dechlorinated tap	no. of replicate wells / treatment per plate (control, sample):	10, 5
growth medium:	nutrient solution	mean temperature (°C):	24 ± 2°C
cultivation method:	batch as per test conditions	photoperiod:	continuous light
culture condition at start	normal	light level:	3600-4400 lux (cool white)
culture age:	3-7 days	contol/dilution water:	deionized water and nutrients prepared as per EPS1/RM/25
growth phase:	exponentially growing		

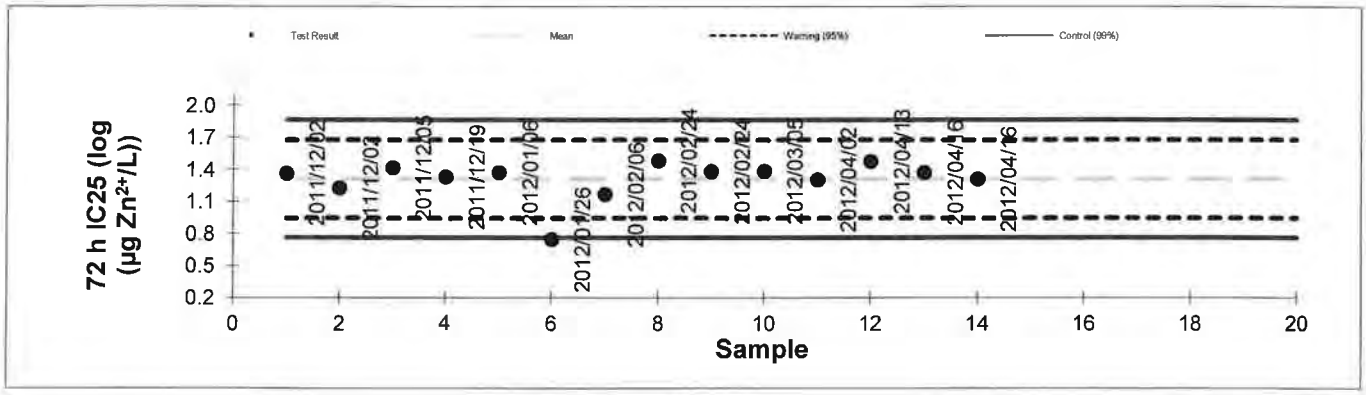
Current Test

toxicant Zinc ($ZnSO_4*7H_2O$)
started on 2012/04/13 ended on 2012/04/16
Result (IC25 @ 72h) 1.31 log (µg $Zn2^+$/L); geometric mean
Confidence Limits (95%) lower 1.18 upper 1.42

Historical Values

mean	1.31	sd	0.18	cv(%):	14
	lower	upper			
warning limits (±2 sd)	0.95	1.68	(95% confidence limits)		
control limits (±3 sd)	0.76	1.86	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance, na; could not be calculated



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

Our liability is limited to the cost of the test requested on the sample as received. No liability in whole or in part is assumed for the collection, handling or transport of the sample, application or interpretation of the test data or results in part or in whole.

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Client: DEB103
Reference: 12-0620-01-CDD

Result Summary

Client: DeBeers Canada Inc.; operation Snap Lake Mine

Sample: 2012-5118

Collection: collected on 2012/04/17 at 1244 by not given
Receipt: received on 2012/04/19 at 1410 by J. Romero
Containers: received 1 x 20L pail at 13 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/04/19 ; ended on 2012/04/26

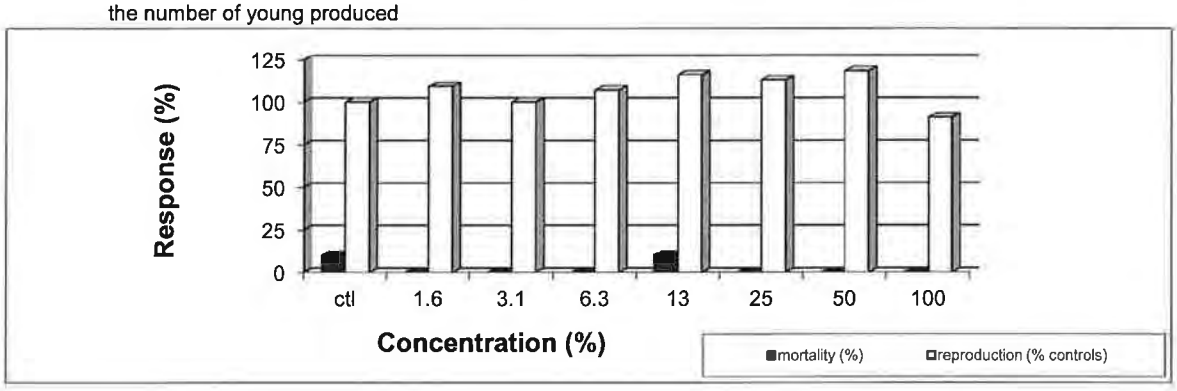
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Result:

	Endpoint (7-day)	Value	Confidence Limits (95%) lower	upper	Units	Method Calculated
Acute:	LC25	>100			%	could not be calculated
(survival)	LC50	>100			%	could not be calculated
Chronic:	IC25	>100			%	could not be calculated
(fecundity)	IC50	>100			%	could not be calculated

Notes: LCx & ICx, concentrations lethal or inhibitory to 'x' percent of the test population; fecundity, reproduction as the number of young produced



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Tel (403) 253-7121 fax (403) 252-9363 www.hydroqual.ca

Test Conditions

Client: DEB103
Reference: 12-0620-01-CDD

Method: Biological Test method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia*. Environment Canada, EPS 1/RM/21, 2nd Edition, February 2007.

Test type: *Ceriodaphnia* Survival and Reproduction Static Renewal Test (WTR-ME-018)
Species: *Ceriodaphnia dubia*
Age: <24 hours old; all from same brood source within 12 hours of the same age.
Organism source: in-house cultures; cultures from a single brood organism to provide test organisms.
Culture health: Culture mortality was 3% (must be ≤ 20%).
7-d prior to test initiation: No ephippia were noted in the cultures at any time.
Average young produced per adult in the first three broods was 18 (must be ≥ 15)
Number of young produced by each brood organism in the last complete brood before use was 9 (must be ≥ 8).
Organism observations: No unusual behavior, appearance or treatment of test organisms was noted prior to or during the test. All first-generation mortality was recorded on the day it was observed.
Sample initial chemistry: pH: 6.8; EC: 498 (µS/cm); DO: 8.9 (mg/L); temperature: 16 °C
hardness (mg CaC03/L): 135; colour: colourless; odour: odourless
Sample holding time: 2 days (must be ≤ 3 days); The test was conducted with three subsamples, samples a, b, and c were for days 0 to 2, 3 to 5, and 6 to 8 respectively
Sample storage: 4 ± 2°C in darkness

Test vessel: The tests were conducted in 30 mL plastic vessels (2 cm depth).
Test volume: 15 mL of solution (1 cm depth); replenished daily.
Control/dilution water: The control and dilution water was moderately hard reconstituted water. Chemicals added to dilution water:
1.92 g NaHCO3, 1.2 g CaSO4, 1.2 g MgSO4, 0.08 g KCl per 20L.
Test concentrations: 7 effluent concentrations (1.6, 3.1, 6.3, 13, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One neonate <24 hours old was loaded per test vessel;
10 replicates/concentration
Feeding: The test organisms were fed daily a mixture of fermented trout chow, yeast, alfalfa powder, and the green alga *Pseudokirchneriella subcapitata* (formerly *Selenastrum capricornutum* and *Raphidocelis subcapitata*).
Food expiration date: 2012/04/29; 2012/05/05
Measurements: pH, conductivity, dissolved oxygen and temperature were measured daily.
Sample pre-treatment: The sample was not aerated, filtered or pH adjusted prior or during testing.
The dissolved oxygen concentration (mg/L) was: 8
The sample pH was: 7
Lighting: Overhead full spectrum fluorescent lights; 100-600 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 25 ± 1°C

Note: Outlined sections are protocol deviations explained on the comment page

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Tel (403) 253-7121 fax (403) 252-9363 www.hydroqual.ca

Test Conditions

Client: DEB103
Reference: 12-0620-01-CDD

Endpoints: Survival, 7-d LC50 (with 95% confidence limits)
Reproduction, 7-d IC25 (with 95% confidence limits)
Test endpoints were bracketed by at least 1 test concentration (except for <1.6% or >100 %)
No outliers were observed within the data set.

Test completion: 60% of the control organisms had ≥ 3 broods on day 7 (must be ≥ 60% within 8 days) Any neonates produced after third brood were not included in the mean young per adult calculation.

Test validity: The control had 90% survival (must ≥ 80%)
Number of young produced by each surviving control adult within the first three broods was 20 (must be ≥ 15).

Reference toxicant: 7-d test with NaCl initiated on April 20, 2012;
(must be within 14 days of test initiation)
current results: (7-d LC50 and 95% confidence limits) =
3.15 (2.98-3.32) log (mg/L NaCl)
current results: (7-d IC50 and 95% confidence limits) =
2.88 (2.63-3.03) log (mg/L NaCl)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-0620-01-CDD

Test Log:

Date	Day	Time	Technicians	Temperature (°C) Control	Sample
2012/04/19	0	1605	E. Petho	25	25
2012/04/20	1	1220	E. Petho	24	24
2012/04/21	2	1145	E. Petho	25	25
2012/04/22	3	1020	E. Blais	25	25
2012/04/23	4	1010	E. Petho	25	25
2012/04/24	5	0940	J. Holmes-Smith	25	25
2012/04/25	6	1005	J. Holmes-Smith	25	25
2012/04/26	7	0915	J. Holmes-Smith	na	na

Chemistry Summary Tables:

	New Solutions								Old Solutions							
Conc. %	ctl	1.6	3.1	6.3	13	25	50	100	ctl	1.6	3.1	6.3	13	25	50	100
Average Values																
pH	7.9	7.9	7.9	7.9	7.9	7.8	7.7	7.4	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.7
cond.	380	388	390	394	401	418	449	518	411	423	416	417	433	484	484	557
DO	7.1	7.0	6.9	6.9	6.9	6.9	6.9	7.2	7.0	6.9	6.8	6.7	6.7	6.6	6.7	6.7
temp.	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Coefficients of Variation (%)																
pH	2	2	2	2	1	2	1	3	1	1	1	1	1	1	1	1
cond.	6	5	5	5	5	5	5	4	5	6	5	5	5	6	4	5
DO	6	5	5	4	4	4	4	6	3	3	4	4	4	4	4	4
temp.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

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Test Data

Client: DEB103
Reference: 12-0620-01-CDD

Biology (number of young produced):

Replicate	Day 1	2	3	4	5	6	7	8
Control								
1	0	0	0	5	9	0	13	
2	0	0	0	3	8	0	13	
3	0	0	0	4	0	8	12	
4	0	0	0	3	9	0	13	
5	0	0	0	4	6	0	0	
6	0	0	0	5	0	5	12	
7	0	0	0	0	7	10	0	
8	0	0	0	0	8	11	0	
9	0	0	0	4	2	0	9	
10	0	0	0	4	**0**	X	X	
1.6%								
1	0	0	0	4	8	0	11	
2	0	0	0	6	7	0	11	
3	0	0	0	6	0	8	10	
4	0	0	0	2	8	9	-	
5	0	0	0	0	7	10	0	
6	0	0	0	2	0	6	7	
7	0	0	0	0	8	10	0	
8	0	0	0	4	6	0	11	
9	0	0	0	5	0	7	11	
10	0	0	0	5	0	8	7	
3.1%								
1	0	0	0	5	0	8	11	
2	0	0	0	6	5	0	9	
3	0	0	0	0	7	9	0	
4	0	0	0	5	3	8	-	
5	0	0	0	2	5	6	-	
6	0	0	0	5	9	0	12	
7	0	0	0	5	9	0	8	
8	0	0	0	2	10	3	-	
9	0	0	0	4	8	0	8	
10	0	0	0	3	5	0	7	

Replicate	Day 1	2	3	4	5	6	7	8
13%								
1	0	0	0	4	9	0	13	
2	0	0	0	7	9	0	13	
3	0	0	0	3	10	0	14	
4	0	0	0	4	5	0	10	
5	0	0	0	5	3	0	11	
6	0	0	0	0	7	6	0	
7	0	0	0	5	8	0	9	
8	0	0	0	5	9	0	13	
9	0	0	0	4	0	**8**	X	
10	0	0	0	4	6	0	13	
25%								
1	0	0	0	5	6	0	12	
2	0	0	0	7	9	0	12	
3	0	0	0	4	7	0	10	
4	0	0	0	5	0	3	9	
5	0	0	0	2	7	11	-	
6	0	0	0	6	9	0	11	
7	0	0	0	5	0	10	9	
8	0	0	0	8	5	0	13	
9	0	0	0	4	0	9	0	
10	0	0	0	0	6	7	0	
50%								
1	0	0	0	2	7	0	10	
2	0	0	0	4	9	0	15	
3	0	0	0	5	0	7	12	
4	0	0	0	3	0	6	0	
5	0	0	0	0	5	10	0	
6	0	0	0	4	6	0	13	
7	0	0	0	4	0	0	14	
8	0	0	0	4	17	0	9	
9	0	0	0	5	9	0	14	
10	0	0	0	5	0	10	12	

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died; —, young produced after third brood

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Test Data

Client: DEB103
Reference: 12-0620-01-CDD

Biology (number of young produced):

Day	1	2	3	4	5	6	7	8

Replicate	6.3%							
1	0	0	0	4	8	0	12	
2	0	0	0	0	3	11	0	
3	0	0	0	3	0	8	10	
4	0	0	0	4	10	6	-	
5	0	0	0	0	7	8	0	
6	0	0	0	0	9	11	10	
7	0	0	0	6	9	2	-	
8	0	0	0	4	7	10	-	
9	0	0	0	2	0	5	8	
10	0	0	0	5	0	8	10	

1	2	3	4	5	6	7	8
100%							
0	0	0	2	0	9	6	
0	0	0	3	2	8	-	
0	0	0	0	9	14	0	
0	0	0	0	6	14	0	
0	0	0	0	6	10	0	
0	0	0	3	0	0	9	
0	0	0	6	9	0	9	
0	0	0	2	9	0	14	
0	0	0	0	0	0	0	
0	0	0	4	0	8	8	

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died; —, young produced after third brood

Biology Summary Tables:

Conc. %	ctl	1.6	3.1	6.3	13	25	50	100

Day	Number of Organism Alive							
0	10	10	10	10	10	10	10	10
1	10	10	10	10	10	10	10	10
2	10	10	10	10	10	10	10	10
3	10	10	10	10	10	10	10	10
4	10	10	10	10	10	10	10	10
5	9	10	10	10	10	10	10	10
6	9	10	10	10	9	10	10	10
7	9	10	10	10	9	10	10	10
8								

	Percent Mortality (%)							
mean	10	0	0	0	10	0	0	0

Replicate	Total Young Produced by Each Adult							
1	27	23	24	24	26	23	19	17
2	24	24	20	14	29	28	28	13
3	24	24	16	21	27	21	24	23
4	25	19	16	20	19	17	9	20
5	10	17	13	15	19	20	15	16
6	22	15	26	30	13	26	23	12
7	17	18	22	17	22	24	18	24
8	19	21	15	21	27	26	30	25
9	15	23	20	15	12	13	28	0
10	4	20	15	23	23	13	27	20

	ctl	1.6	3.1	6.3	13	25	50	100

Day	Daily Young Production							
0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0
4	32	34	37	28	41	46	36	20
5	49	44	61	53	66	49	53	41
6	34	58	34	69	14	40	33	63
7	72	68	55	50	96	76	99	46
8								

Total	187	204	187	200	217	211	221	170

Young Per Adult (within first three broods)

mean	19	20	19	20	22	21	22	17
sd	7.33	3.13	4.35	4.97	5.91	5.34	6.74	7.44
cv(%)	39.2	15.4	23.2	24.8	27.2	25.3	30.5	43.8

Young Production as a Percent of Controls

100	109	100	107	116	113	118	91

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Test Data

Client: DEB103
Reference: 12-0620-01-CDD

Chemistry:

	New Solutions								Old Solutions							
Conc. %	ctl	1.6	3.1	6.3	13	25	50	100	ctl	1.6	3.1	6.3	13	25	50	100
Day	pH (units)								pH (units)							
0	7.8	7.8	7.8	7.8	7.8	7.7	7.6	7.0								
1	7.9	7.9	7.9	7.9	7.9	7.8	7.7	7.2	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.5
2	7.9	7.9	7.9	7.8	7.8	7.8	7.7	7.5	8.0	8.0	8.0	8.0	8.0	7.9	7.9	7.6
3	8.0	8.0	8.0	8.0	7.9	7.9	7.8	7.5	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.6
4	8.1	8.1	8.1	8.0	8.0	8.0	7.8	7.5	8.1	8.0	8.0	8.0	8.0	8.0	8.0	7.8
5	7.7	7.7	7.7	7.7	7.7	7.7	7.6	7.5	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.6
6	8.1	8.1	8.1	8.1	8.0	8.0	7.9	7.8	7.9	8.0	8.0	8.0	8.0	8.0	8.0	7.8
7									8.0	8.0	7.9	7.9	7.9	7.9	7.9	7.7
8																
	Conductivity (µS/cm)								Conductivity (µS/cm)							
0	370	375	380	382	392	404	435	502								
1	355	369	371	376	382	400	434	503	398	402	397	398	416	446	458	522
2	364	371	371	375	382	395	433	500	387	396	394	398	412	455	465	533
3	371	382	382	384	388	413	431	507	400	399	396	397	412	463	465	544
4	416	412	414	419	425	442	472	544	440	448	438	439	453	521	504	588
5	410	419	422	426	433	449	481	548	431	446	439	439	458	511	512	589
6	375	388	393	396	405	420	455	523	418	443	431	429	448	509	498	566
7									404	428	414	419	433	486	488	558
8																
	Dissolved Oxygen (mg/L)								Dissolved Oxygen (mg/L)							
0	6.9	6.9	6.9	6.9	6.9	6.8	6.8	8.0								
1	6.3	6.4	6.3	6.4	6.5	6.5	6.5	7.1	6.7	6.6	6.6	6.5	6.4	6.4	6.4	6.4
2	7.1	6.9	6.7	6.7	6.7	6.7	6.7	6.6	6.8	6.8	6.6	6.7	6.6	6.6	6.6	6.6
3	7.8	7.6	7.3	7.1	7.1	7.0	7.0	7.0	6.8	6.8	6.6	6.6	6.6	6.6	6.6	6.6
4	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.0	7.0	7.0	7.0	6.9	6.9	7.0
5	7.1	7.1	7.1	7.2	7.2	7.2	7.2	7.2	7.2	7.1	7.1	7.0	7.0	6.9	7.0	6.9
6	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.2	7.2	7.1	7.0	6.9	6.8	6.8	6.8
7									7.1	6.8	6.5	6.4	6.4	6.3	6.3	6.4
8																
	Temperature (°C)								Temperature (°C)							
0	25	25	25	25	25	25	25	25								
1	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
2	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
4	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
5	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
6	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
7									25	25	25	25	25	25	25	25
8																

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Comments/Statistics

Client: DEB103
Reference: 12-0620-01-CDD

Test Result Comments:
None

Data Analysis:
Endpoints for mortality could not be calculated. No effect occurred.

Endpoints for reproduction could not be calculated. No effect occurred.

Protocol Deviations:
None

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HydroQual Laboratories Ltd.

Ceriodaphnia Test Report

Quality Assurance Information

Culture history for adults used in the test for reference 12-0620:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

	row/replicate	A4	B4	C2	E5	D3	D4	A8	A9	E7		
	number of young											
	number of adults											
		A4	B4	C2	E5	D3	D4	A8	A9	E7		
	number of young											
	number of adults											
		A4	B4	C2	E5	D3	D4	A8	A9	E7		
	number of young											
	number of adults											
		A4	B4	C2	E5	D3	D4	A8	A9	E7		
	number of young							3	5	7		
	number of adults							1	1	1		
		A4	B4	C2	E5	D3	D4	A8	A9	E7		
	number of young	2	6	5	6	2	2	6	6	6		
	number of adults	1	1	1	1	1	1	1	1	1		
		A4	B4	C2	E5	D3	D4	A8	A9	E7		
	number of young	6	8	6	2	9	8	6	5	6		
	number of adults	1	1	1	1	1	1	1	1	1		
		A4	B4	C2	E5	D3	D4	A8	A9	E7		
DAY USED 2012/04/19	number of young	9	9	8	9	9	8	9	11	10		
	number of adults	1	1	1	1	1	1	1	1	1		
		A4	B4	C2	E5	D3	D4	A8	A9	E7		
totals (# of young in first 3 broods)	number of young	17	23	19	17	20	18	15	16	19		

Number of young produced per organism in the last brood before use	9
Mean number of surviving young per adult over the first three broods	18
Culture mortality over the last seven days	3

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HydroQual Laboratories Ltd.

Warning Chart
Ceriodaphnia

Test Method: *Ceriodaphnia* Survival and Reproduction Test (7 treatments plus a control)
HydroQual Test Method: WTR-ME-019
Reference: Biological Test Method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia*, 2007. Environment Canada, EPS 1/RM/21

Test Organism:

test species:	*Ceriodaphnia dubia*
culture source:	in-house
original culture source:	Environment Canada
ephippia in stock culture:	none
food type:	YAT:Algae
frequency of feeding:	daily
age of test organisms:	<24 hours
culture mortality 7 days prior:	0%
culture fecundity 7 days prior within the first three broods:	22
young produced in previous brood:	10
culture condition prior to test initiation:	normal
culture water:	mixture of moderately hard reconstituted* water and Bow River Water (50:50)

Test Design:

test type:	static renewal
toxicant:	sodium chloride (NaCl)
test vessel:	30 mL plastic cup
test volume (mL):	15
replicates per treatment:	10
organisms per replicate:	1
feeding:	daily
temperature (°C):	24-26
photoperiod:	16 hours light: 8 hours dark
light level (surface):	100-600 lux (full spectrum)
hardness adjustment:	no

*Note: there are 2 subcultures within this culture source, separated by one week in age. The test is set with organisms from one subculture. The number of young a culture has is monitored daily. If young are not used that day, they are discarded, therefore organisms in tests are <24h.

Control/Dilution Water:

source:	mixture of moderately hard reconstituted* water and Bow River Water (50:50)
pH (units):	8.4
conductance (uS/cm):	466
dissolved oxygen (mg/L):	7.5
NH_4^+ (mg/L):	<0.1
hardness (mg $CaCO_3$/L):	149
alkalinity (mg $CaCO_3$/L):	107
total residual chlorine (mg/L):	<0.01

* Note: moderately hard reconstituted water prepared as per EPS 1/RM/21

Comments: None

The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Warning Chart
Ceriodaphnia

Mortality

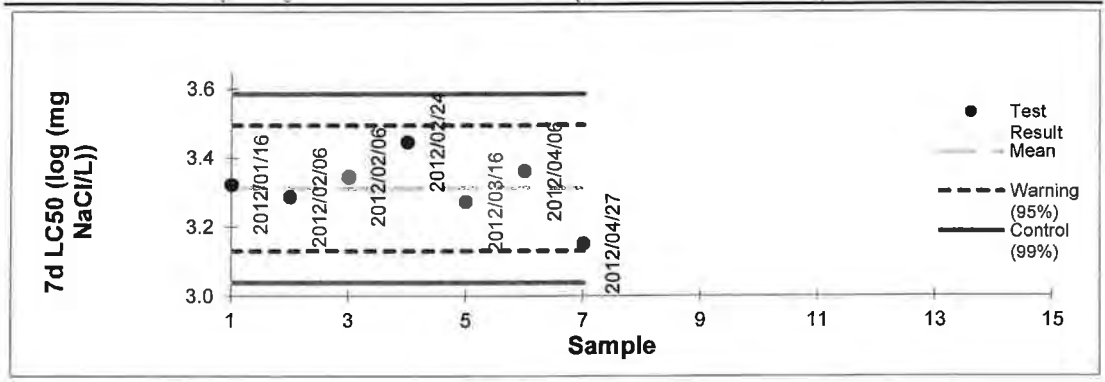
Current Test

toxicant Sodium chloride (NaCl)
started on 2012/04/20 ended on 2012/04/27

Result (7d LC50):	3.15	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	2.98	upper	3.32	

Historical Values

mean	3.31	sd	0.09	cv(%):	3
	lower	upper			
warning limits (±2 sd)	3.13	3.49	(95% confidence limits)		
control limits (±3 sd)	3.04	3.59	(99% confidence limits)		



Reproduction

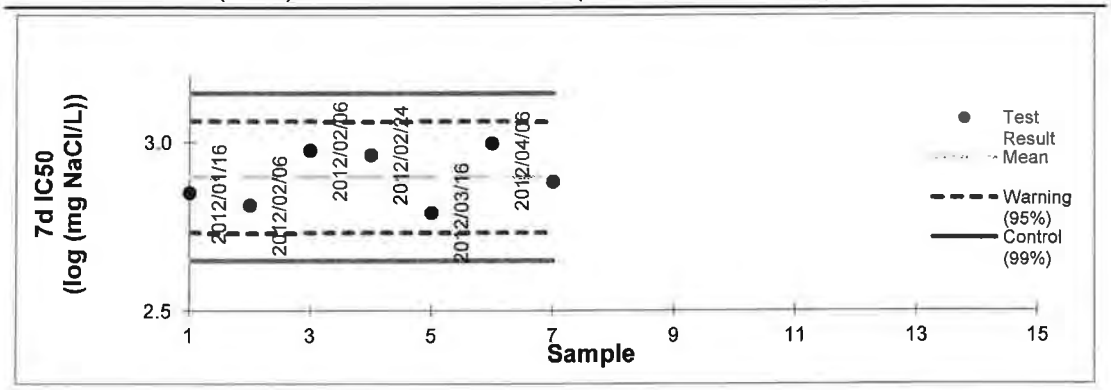
Current Test

toxicant Sodium chloride (NaCl)
started on 2012/04/20 ended on 2012/04/27

Result (7d IC50)	2.88	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	2.63	upper	3.03	

Historical Values

mean	2.90	sd	0.08	cv(%):	3
	lower	upper			
warning limits (±2 sd)	2.73	3.06	(95% confidence limits)		
control limits (±3 sd)	2.65	3.15	(99% confidence limits)		



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Quality Assurance Information

Culture history for adults used in the test for reference QA85:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

row/replicate	C4	D2	D3	D4	D5	E1	E3	E4	E5		

number of young number of adults											

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young number of adults											

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young number of adults											

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young number of adults											

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young	6	7	4	5	6	7	5	3	2		
number of adults	1	1	1	1	1	1	1	1	1		

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young	7	9	8	7	5	7	7	4	9		
number of adults	1	1	1	1	1	1	1	1	1		

DAY USED
2012/04/20

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young	9	8	8	11	10	9	10	13	8		
number of adults	1	1	1	1	1	1	1	1	1		

totals
(# of young in first
3 broods)

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young	22	24	20	23	21	23	22	20	19		

Number of young produced per organism in the last brood before use	10
Mean number of surviving young per adult over the first three broods	22
Culture mortality over the last seven days	0

Our liability is limited to the cost of the test requested on the sample as received. No liability in whole or in part is assumed for the collection, handling or transport of the sample, application or interpretation of the test data or results in part or in whole.

HydroQual Laboratories Ltd.

Algae Test Report

Client: DEB103
Reference: 12-1890-01-AGD

Result Summary

Client: DeBeers Canada Inc.; operation Snap Lake

Sample: 2012-1888

Collection: collected on 2012/10/15 at 0845 by not given
Receipt: received on 2012/10/16 at 1345 by C. Quinteros
Containers: received 4 x 20 L pails at 15 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/10/16 ; ended on 2012/10/19

Contents

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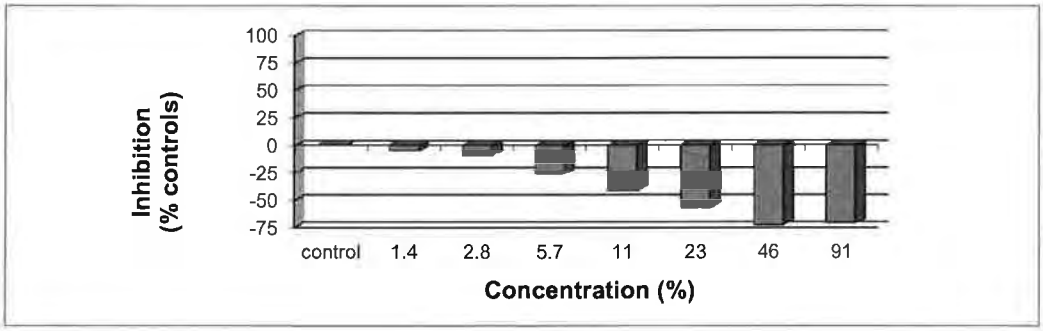
Result:

	Endpoint (72-hour)	Value	Confidence Limits (95%) lower	upper		Method Calculated
Chronic: Growth Inhibition	IC25	>91			%	could not be calculated
	IC50	>91			%	could not be calculated

Notes: ICx, concentrations inhibiting growth by 'x' percent relative to controls; CV, coefficient of variation (%); SD, standard deviation

	Stimulation Observed	Test Concentrations		Method Calculated
Chronic: Growth Stimulation	**yes**	91, 46, 23,11, 5.7	%	William's Multiple Comparison

Notes: Stimulation refers to increased response at all concentrations or at high concentrations



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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HydroQual Laboratories Ltd., #4, 6125 12th Street SE, Calgary, Alberta, Canada T2H 2K1
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Test Conditions

Client: DEB103
Reference: 12-1890-01-AGD

Method: Biological Test Method: Growth Inhibition Test Using a Freshwater Alga *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum)*. Environment Canada, EPS 1/RM/25, 2nd Edition, March 2007

Test type: Algal Growth Inhibition Test (WTR-ME-034)
Species: *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum* and *Raphidocelis subcapitata*)
Organism source: In-house culture (original source: UTCC 37; strain: LB37)
Culture age: The test was started with 7 day old, exponentially growing cells determined with an algal growth curve. The algal growth curve was started with an inoculum from the algal stock culture determined over an 8-10 day period. This culture was initiated on 2012/07/24. Algal cultures are regrown every 2 months from slants made from a new culture purchased annually.
Culture observations: No unusual appearance or treatment of the algae was noted prior to or during the conduct of the test.
Sample initial chemistry: pH: 7.3; EC: 1049 (µS/cm); DO: 8.2 (mg/L); temperature: 18 °C
hardness (mg CaC03/L): 312; colour: colourless; odour: odourless
Sample holding time: 1 day (must be ≤ 3 days)
Sample storage: 4 ± 2°C in darkness
Test concentrations: 7 effluent concentrations (1.4, 2.8, 5.7, 11, 23, 46 and 91% (v/v) plus a negative control)
Test vessel: The test was conducted in 96 well microplates. Three replicate plates were run (a, b and c). Test concentrations were not isolated from each other because volatility was not expected.
Test replicates: Three replicate microplates were run. Per plate there were 5 replicate wells per concentration and 10 replicate wells per control.
Test volume: 220 µL final volume in each well with 200 µL of sample;
10µL of enrichment medium and 10µL of algal inoculum.
Inoculum: The initial cell density of the inoculum was 9815 (cells/mL), it was prepared less than ≤2-3 hours before test initiation.
Control/dilution water: Made up with 85% deionized and 15% dechlorinated City of Calgary water spiked with nutrients as per EPS 1/RM/25 (made by adding 1mL of each of the 5 stock solutions to 10mL of DRO). The metal stock with 25% reduced EDTA was used.
Sample Filtration: 100 mL filtered through a 0.45 µm pore diameter membrane.
Sample treatment: Sample spiked with nutrients as per EPS 1/RM/25; no other chemicals added.
Measurements: Final cell densities were determined from the absorbance at 430 nm calibrated against cell counts. The conversion factor for absorbance to cells per millilitre was 18798 with a coefficient of variation of 9 %.
Aeration: Not required
pH Adjustment: Not required
Lighting: The plates were incubated under continuous light: 4025 lux
(cool white fluorescent bulbs) 56.35 µmol/(m^2•S)
Test temperature: 24 ± 2°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-1890-01-AGD

Endpoint: Growth, 72-h IC25 (with 95% confidence limits)
Test endpoint was bracketed by at least 1 test concentration
(except for <1.4% or >100 %)
No outliers were observed within the data set.

Test validity: Control growth was a 25 fold increase over the inoculum.
The cv of the standard control wells was 8 %.
(must be > 16 fold increase with a cv of ≤ 20%)

Statistics: See Data Analysis section.
Mann-Kendall Trend analysis was not performed as control cv was < 10%.

Reference toxicant: 72-h test with Zinc ($ZnSO_4$*7H2O) initiated October 16, 2012;
(must be within 14 days of the test initiation)
current results: (72-h IC25 and 95% confidence limits) = 1.47 (na-1.68) log (µg Zn^{2+}/L)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-1890-01-AGD

Test Log:

Date	Day	Technician	Time	Rotated	Temperature (°C)
2012/10/16	0	J. Holmes-Smith	1500	na	24
2012/10/17	1	E. Petho	830	yes	25
2012/10/18	2	D. Kaiser	830	yes	25
2012/10/19	3	J. Holmes-Smith	1400	na	25

Absorbance and Direct Cell Data:

Concentration (%)	Absorbance (430 nm)	Direct Cell Counts(/0.5 mL)
ctl	0.01	3617
11	0.02	6050
91	0.02	6750

pH Measurements:

Concentration	Initial Value
control	7.2
91%	7.2

Concentration	Final Mean	% CV
control (well D6)	7.2	0
control (well D7)	7.2	0

Average Absorbance Control Data:

Column Well	2b	2c	2e	2f	2g
Absorbance (430 nm)	0.02	0.01	0.02	0.02	0.01
Column Well	11b	11c	11e	11f	11g
Absorbance (430 nm)	0.01	0.01	0.01	0.01	0.01

Standard Control Wells:

Average	340
SD	28
CV%	8

Test Results at 72 hours:

Concentration (%)	Cell Yield Densities ($x10^3$ / mL) Well Replicate					Average	SD	CV	Percent Controls	Inhibition (%)	Stimulation (%)
	a	b	c	d	e						
control	286	251	292	264	260	270	17	6	100	0	0
1.4	301	301	282	270	264	284	17	6	105	-5	5
2.8	295	276	351	289	276	297	31	10	110	-10	10
5.7	376	339	358	358	276	341	39	11	126	-26	26
11	401	370	433	383	320	381	42	11	141	-41	41
23	426	426	452	426	383	423	25	6	156	-56	56
46	495	502	477	452	414	468	36	8	173	-73	73
91	477	477	486	455	420	463	26	6	171	-71	71

Calculations for Control Validity

Concentration (%)	Cell Yield Densities ($x10^3$ / mL) Well Replicate					Average	SD	CV	Percent Controls	Inhibition (%)	Stimulation (%)
	a	b	c	d	e						
control	261	229	266	241	238	247	16	6	100	0	0

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Comments/Statistics

Client: DEB103
Reference: 12-1890-01-AGD

Test Result Comments:
The absorbance measurements were made after the cells were centrifuged and resuspended in clear solution (and that the conversion factor developed for abs vs cell number reflects this step). Manual enumeration was performed on the same day as test termination.

Data Analysis:
Significant stimulatory effects in growth were observed in 5.7, 11, 23, 46 & 91% concentrations as calculated by ANOVA analysis with CETIS v. 1.7.0revQ. (William's Multiple Comparison).

Endpoints for growth inhibition could not be calculated. Inhibitory effects did not occur.

Protocol Deviations:
None

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HydroQual Laboratories Ltd.

Warning Chart
Algae

Test Method: 72 hours Algal Growth Inhibition Test (IC25, seven or more treatments plus a control)
HydroQual Test Method: WTR-ME-035

Reference: Biological Test Method: Growth Inhibition Test Using the Freshwater Alga *Selenastrum capricornutum*, 2007. Environment Canada, EPS 1/RM/25.

Test Organism:

test species:	*Pseudokirchneriella subcapitata*
batch number:	20121009AG
date started from slant:	2012/07/24
original source/strain:	UTCC 37 / LB37
culture vessels:	2L Erlenmeyer flask
water source:	85% deionized water, 15% dechlorinated tap
growth medium:	nutrient solution
cultivation method:	batch as per test conditions
culture condition at start	normal
culture age:	3-7 days
growth phase:	exponentially growing

Test Design:

test type:	static
toxicant:	zinc
test vessel:	96 well flat bottom microplate
test volume (µL):	220
no. of replicate plates:	3
no. of replicate wells / treatment per plate (control, sample):	10, 5
mean temperature (˚C):	24 ± 2˚C
photoperiod:	continuous light
light level:	3600-4400 lux (cool white)
contol/dilution water:	deionized water and nutrients prepared as per EPS1/RM/25

Current Test

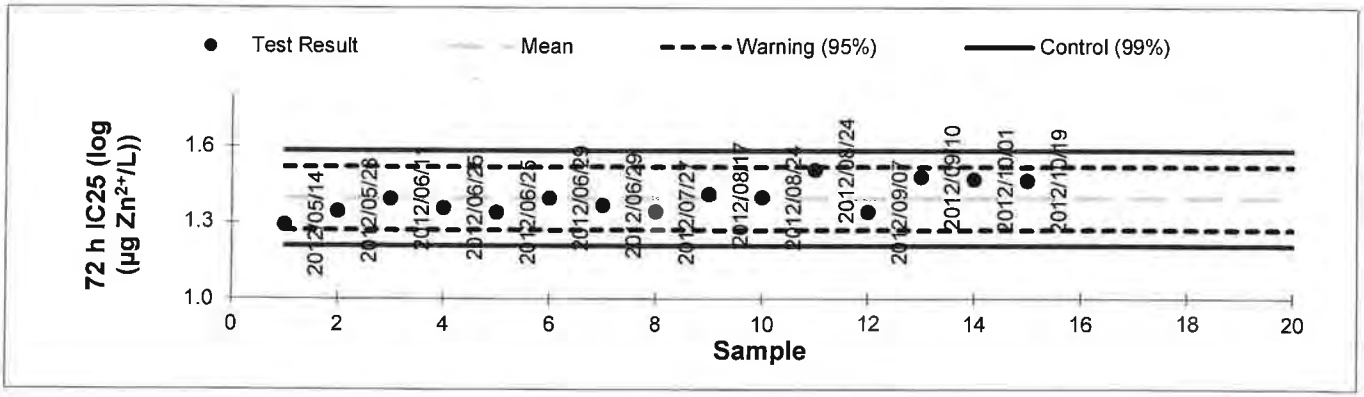
toxicant Zinc ($ZnSO_4*7H_2O$)
started on 2012/10/16 ended on 2012/10/19

Result (IC25 @ 72h)	1.47	log (µg $Zn2^+$/L); geometric mean			
Confidence Limits (95%)	lower	na	upper	1.68	

Historical Values

mean	1.40	sd	0.06	cv(%):	4
	lower	upper			
warning limits (±2 sd)	1.27	1.52	(95% confidence limits)		
control limits (±3 sd)	1.21	1.58	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance, na; could not be calculated



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Client: DEB103
Reference: 12-1890-01-CDD

Result Summary

Client: DeBeers Canada Inc.; operation Snap Lake

Sample: 2012-1888

Collection: collected on 2012/10/15 at 0845 by not given
Receipt: received on 2012/10/16 at 1345 by C. Quinteros
Containers: received 4 x 20 L pails at 15 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/10/17 ; ended on 2012/10/24

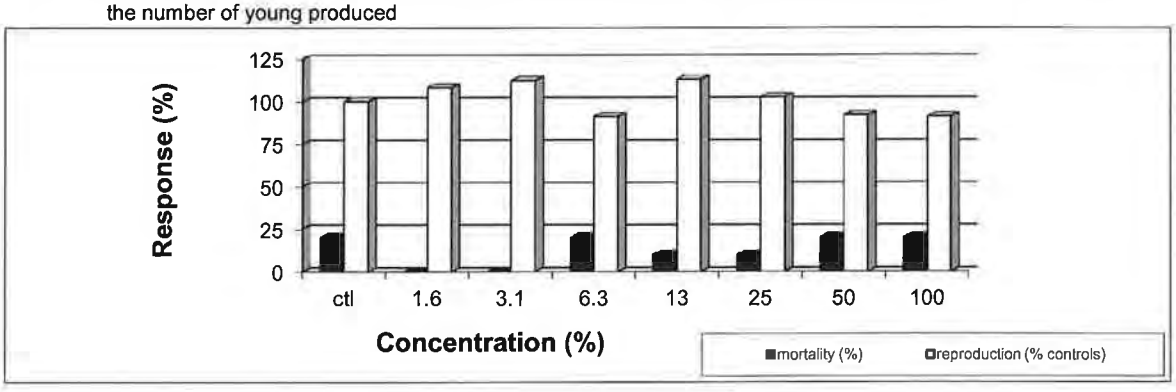
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Comments/Statistics..8
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Result:

	Endpoint (7-day)	Value	Confidence Limits (95%) lower	upper	Units	Method Calculated
Acute:	LC25	>100			%	could not be calculated
(survival)	LC50	>100			%	could not be calculated
Chronic:	IC25	>100			%	could not be calculated
(fecundity)	IC50	>100			%	could not be calculated

Notes: LCx & ICx, concentrations lethal or inhibitory to 'x' percent of the test population; fecundity, reproduction as the number of young produced



The test data and results are authorized and verified correct.

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Test Conditions

Client: DEB103
Reference: 12-1890-01-CDD

Method: Biological Test method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia*. Environment Canada, EPS 1/RM/21, 2nd Edition, February 2007.

Test type: *Ceriodaphnia* Survival and Reproduction Static Renewal Test (WTR-ME-018)
Species: *Ceriodaphnia dubia*
Age: <24 hours old; all from same brood source within 12 hours of the same age.
Organism source: in-house cultures; cultures from a single brood organism to provide test organisms.
Culture health: Culture mortality was 15% (must be ≤ 20%).
7-d prior to test initiation: No ephippia were noted in the cultures at any time.
Average young produced per adult in the first three broods was 17 (must be ≥ 15)
Number of young produced by each brood organism in the last complete brood before use was 9 (must be ≥ 8).
Organism observations: No unusual behavior, appearance or treatment of test organisms was noted prior to or during the test. All first-generation mortality was recorded on the day it was observed.
Sample initial chemistry: pH: 7.3; EC: 1049 (µS/cm); DO: 8.2 (mg/L); temperature: 18 °C
hardness (mg CaC03/L): 312; colour: colourless; odour: odourless
Sample holding time: 2 days (must be ≤ 3 days); The test was conducted with three subsamples, samples a, b, and c were for days 0 to 2, 3 to 5, and 6 to 8 respectively
Sample storage: 4 ± 2°C in darkness

Test vessel: The tests were conducted in 30 mL plastic vessels (2 cm depth).
Test volume: 15 mL of solution (1 cm depth); replenished daily.
Control/dilution water: The control and dilution water was a mixture of moderately hard reconstituted water and Bow River Water (50:50). Chemicals added to dilution water: 0.96 g NaHCO3, 0.60 g CaSO4, 0.60 g MgSO4, 0.04 g KCl per 20L.
Test concentrations: 7 effluent concentrations (1.6, 3.1, 6.3, 13, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One neonate <24 hours old was loaded per test vessel; 10 replicates/concentration
Feeding: The test organisms were fed daily a mixture of fermented trout chow, yeast, alfalfa powder, and the green alga *Pseudokirchneriella subcapitata* (formerly *Selenastrum capricornutum* and *Raphidocelis subcapitata*).
Food expiration date: 2012/11/04
Measurements: pH, conductivity, dissolved oxygen and temperature were measured daily.
Sample pre-treatment: The sample was not aerated, filtered or pH adjusted prior or during testing.
The dissolved oxygen concentration (mg/L) was: 7.2
The sample pH was: 7.5
Lighting: Overhead full spectrum fluorescent lights; 100-600 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 25 ± 1°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-1890-01-CDD

Endpoints: Survival, 7-d LC50 (with 95% confidence limits)
Reproduction, 7-d IC25 (with 95% confidence limits)
Test endpoints were bracketed by at least 1 test concentration (except for <1.6% or >100 %)
No outliers were observed within the data set.

Test completion: 70% of the control organisms had ≥ 3 broods on day 7 (must be ≥ 60% within 8 days) Any neonates produced after third brood were not included in the mean young per adult calculation.

Test validity: The control had 80% survival (must ≥ 80%)
Number of young produced by each surviving control adult within the first three broods was 15 (must be ≥ 15).

Reference toxicant: 7-d test with NaCl initiated on October 17, 2012;
(must be within 14 days of test initiation)
current results: (7-d LC50 and 95% confidence limits) =
3.25 (3.11-3.39) log (mg/L NaCl)
current results: (7-d IC50 and 95% confidence limits) =
2.94 (2.59-3.08) log (mg/L NaCl)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-1890-01-CDD

Test Log:

Date	Day	Time	Technicians	Temperature (°C) Control	Sample
2012/10/17	0	1200	J. Holmes-Smith	25	25
2012/10/18	1	0910	E. Henson	25	25
2012/10/19	2	0830	E. Henson	25	25
2012/10/20	3	0930	E. Henson	25	25
2012/10/21	4	1015	J. Holmes-Smith	25	25
2012/10/22	5	1005	E. Henson	25	25
2012/10/23	6	0905	E. Henson	25	25
2012/10/24	7	1215	T. Kloschinsky	na	na

Chemistry Summary Tables:

New Solutions

Conc. %	ctl	1.6	3.1	6.3	13	25	50	100

Old Solutions

ctl	1.6	3.1	6.3	13	25	50	100

Average Values

pH	7.9	7.8	7.8	7.8	7.8	7.7	7.6	7.5	7.8	7.9	7.9	7.9	7.9	7.9	7.9	7.7
cond.	428	417	421	438	475	545	692	988	454	443	490	490	511	595	799	1091
DO	7.2	7.2	7.0	6.9	6.8	6.8	6.6	6.7	6.7	6.6	6.5	6.6	6.6	6.6	6.6	6.6
temp.	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25

Coefficients of Variation (%)

pH	1	1	1	1	1	1	1	1	2	1	1	2	2	2	1	1
cond.	10	5	4	4	3	3	2	1	3	4	5	3	3	3	3	7
DO	4	3	3	4	5	5	7	6	6	4	4	4	3	3	3	3
temp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Test Data

Client: DEB103
Reference: 12-1890-01-CDD

Biology (number of young produced):

Replicate	Day 1	2	3	4	5	6	7	8
Control								
1	0	0	**0**	X	X	X	X	
2	0	0	0	3	0	6	6	
3	0	0	0	5	6	5	-	
4	0	0	0	3	5	9	-	
5	0	**0**	X	X	X	X	X	
6	0	0	0	4	6	4	-	
7	0	0	0	0	9	7	0	
8	0	0	0	3	0	5	6	
9	0	0	0	6	4	7	-	
10	0	0	0	4	0	6	4	
1.6%								
1	0	0	0	2	4	5	-	
2	0	0	0	5	0	6	7	
3	0	0	0	3	9	0	7	
4	0	0	0	4	4	4	-	
5	0	0	0	2	5	5	-	
6	0	0	0	4	5	0	3	
7	0	0	0	0	8	7	0	
8	0	0	0	3	0	4	0	
9	0	0	0	5	4	4	-	
10	0	0	0	6	4	0	4	
3.1%								
1	0	0	0	0	4	5	6	
2	0	0	0	3	5	9	-	
3	0	0	0	6	0	0	0	
4	0	0	0	4	4	8	-	
5	0	0	0	3	4	4	-	
6	0	0	0	3	5	6	-	
7	0	0	0	5	8	5	-	
8	0	0	0	3	4	5	-	
9	0	0	0	3	0	4	6	
10	0	0	0	0	4	5	7	

Replicate	Day 1	2	3	4	5	6	7	8
13%								
1	0	0	0	5	0	9	5	
2	0	0	0	0	4	7	6	
3	0	0	0	5	5	0	5	
4	0	0	0	3	0	6	4	
5	0	0	0	4	4	5	-	
6	0	0	0	4	5	0	5	
7	0	0	0	0	6	9	0	
8	0	0	0	4	0	4	6	
9	0	0	0	6	0	5	8	
10	0	0	**0**	X	X	X	X	
25%								
1	0	0	0	0	8	4	6	
2	0	0	0	5	4	7	-	
3	0	0	0	**0**	X	X	X	
4	0	0	0	3	0	4	5	
5	0	0	0	0	6	5	6	
6	0	0	0	0	5	6	4	
7	0	0	0	0	6	9	0	
8	0	0	0	0	4	5	6	
9	0	0	0	4	0	0	0	
10	0	0	0	3	7	4	-	
50%								
1	0	0	0	0	4	4	6	
2	0	0	0	3	5	7	-	
3	0	0	0	**0**	X	X	X	
4	0	0	0	4	0	6	4	
5	0	0	0	5	6	4	-	
6	0	0	0	0	4	4	6	
7	0	0	0	3	0	7	5	
8	0	0	0	0	6	3	0	
9	0	**0**	X	X	X	X	X	
10	0	0	0	6	5	6	-	

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died; —, young produced after third brood

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Test Data

Client: DEB103
Reference: 12-1890-01-CDD

Biology (number of young produced):

Day	1	2	3	4	5	6	7	8

Day	1	2	3	4	5	6	7	8

Replicate	6.3%							
1	0	0	0	0	5	7	6	
2	0	0	0	0	4	4	8	
3	0	0	0	4	6	5	-	
4	0	0	0	0	0	9	7	
5	0	0	0	3	6	5	-	
6	0	0	0	2	5	**0**	X	
7	0	0	0	2	4	3	-	
8	0	**0**	X	X	X	X	X	
9	0	0	0	0	0	0	0	
10	0	0	0	6	6	5	-	

	100%							
1	0	0	0	0	5	6	7	
2	0	0	0	3	0	5	6	
3	0	0	0	3	0	0	0	
4	0	**0**	X	X	X	X	X	
5	0	0	0	6	4	4	-	
6	0	0	0	5	6	5	-	
7	0	0	0	4	0	4	8	
8	0	0	0	3	4	8	-	
9	0	**0**	X	X	X	X	X	
10	0	0	0	2	0	6	8	

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died; —, young produced after third brood

Biology Summary Tables:

Conc. %	ctl	1.6	3.1	6.3	13	25	50	100

	ctl	1.6	3.1	6.3	13	25	50	100

Day	Number of Organism Alive							
0	10	10	10	10	10	10	10	10
1	10	10	10	10	10	10	10	10
2	9	10	10	9	10	10	10	8
3	8	10	10	9	9	10	9	8
4	8	10	10	9	9	9	9	8
5	8	10	10	9	9	9	8	8
6	8	10	10	8	9	9	8	8
7	8	10	10	8	9	9	8	8
8								

Day	Daily Young Production							
0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0
4	28	34	30	17	31	15	21	26
5	30	43	38	36	24	40	30	19
6	49	35	51	38	45	44	41	38
7	16	21	19	21	39	27	21	29
8								

	Percent Mortality (%)							
mean	20	0	0	20	10	10	20	20

Total	123	133	138	112	139	126	113	112

Replicate	Total Young Produced by Each Adult							
1	0	11	15	18	19	18	14	18
2	15	18	17	16	17	16	15	14
3	16	19	6	15	15	0	0	3
4	17	12	16	16	13	12	14	0
5	0	12	11	14	13	17	15	14
6	14	12	14	7	14	15	14	16
7	16	15	18	9	15	15	15	16
8	14	7	12	0	14	15	9	15
9	17	13	13	0	19	4	0	0
10	14	14	16	17	0	14	17	16

Young Per Adult (within first three broods)

mean	12	13	14	11	14	13	11	11
sd	6.58	3.47	3.52	6.84	5.36	5.89	6.29	7.18
cv(%)	53.5	26.1	25.5	61.1	38.6	46.8	55.7	64.1

Young Production as a Percent of Controls

100	108	112	91	113	102	92	91

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Test Data

Client: DEB103
Reference: 12-1890-01-CDD

Chemistry:

	New Solutions								Old Solutions							
Conc. %	ctl	1.6	3.1	6.3	13	25	50	100	ctl	1.6	3.1	6.3	13	25	50	100
Day	pH (units)								pH (units)							
0	8.0	8.0	7.9	7.9	7.9	7.8	7.7	7.5								
1	7.9	7.8	7.7	7.8	7.7	7.7	7.6	7.5	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.6
2	7.8	7.6	7.7	7.7	7.7	7.7	7.6	7.4	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.7
3	7.9	7.8	7.8	7.8	7.8	7.7	7.6	7.5	7.7	7.9	8.0	8.1	8.1	8.0	8.0	7.8
4	7.9	7.8	7.7	7.7	7.6	7.6	7.6	7.5	7.7	7.8	7.8	7.8	7.9	7.9	7.9	7.8
5	7.8	7.8	7.7	7.7	7.7	7.7	7.6	7.5	7.7	7.8	7.8	7.8	7.8	7.7	7.8	7.6
6	7.7	7.8	7.9	7.9	7.9	7.9	7.8	7.7	8.0	8.0	8.0	8.0	8.0	8.0	7.9	7.8
7									8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.8
8																
	Conductivity (µS/cm)								Conductivity (µS/cm)							
0	425	420	424	440	474	541	689	992								
1	480	438	436	452	486	560	700	1004	449	451	474	482	508	580	762	1024
2	462	441	445	462	497	572	718	997	458	459	501	507	524	608	819	1099
3	466	424	409	426	463	530	685	1003	480	473	529	521	536	627	825	1155
4	394	414	424	444	480	549	694	976	458	435	492	485	511	599	805	1173
5	376	387	407	425	464	536	684	972	446	432	491	484	503	576	769	1102
6	391	394	401	414	458	530	672	970	450	425	487	475	498	580	810	1129
7									435	424	455	478	499	594	802	956
8																
	Dissolved Oxygen (mg/L)								Dissolved Oxygen (mg/L)							
0	7.8	7.5	7.3	7.3	7.2	7.3	7.2	7.2								
1	7.3	7.3	7.2	7.2	7.1	7.1	7.1	7.1	6.8	6.7	6.6	6.6	6.6	6.6	6.6	6.5
2	7.2	7.2	7.0	7.0	6.9	6.9	6.8	6.7	6.7	6.7	6.6	6.6	6.5	6.6	6.5	6.5
3	7.2	7.0	6.8	6.8	6.5	6.5	6.4	6.4	6.3	6.3	6.4	6.5	6.7	6.6	6.7	6.5
4	7.3	7.3	6.8	6.4	6.2	6.2	6.2	6.2	6.3	6.4	6.4	6.5	6.6	6.6	6.8	6.8
5	6.9	6.8	6.7	6.8	6.7	6.7	6.0	6.5	6.4	6.3	6.3	6.3	6.3	6.2	6.3	6.3
6	7.0	7.1	7.1	6.8	6.8	6.7	6.5	6.5	6.7	6.6	6.4	6.5	6.5	6.6	6.6	6.6
7									7.4	7.0	7.0	7.1	7.0	7.0	7.0	7.0
8																
	Temperature (°C)								Temperature (°C)							
0	25	25	25	25	25	25	25	25								
1	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
2	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
4	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
5	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
6	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
7									25	25	25	25	25	25	25	25
8																

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Comments/Statistics

Client: DEB103
Reference: 12-1890-01-CDD

Test Result Comments:
None

Data Analysis:
Endpoints for mortality could not be calculated. No effect occurred.

Endpoints for reproduction could not be calculated. No effect occurred.

Protocol Deviations:
None

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HydroQual Laboratories Ltd.

Ceriodaphnia Test Report

Quality Assurance Information

Culture history for adults used in the test for reference 12-1890:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

	row/replicate	E10	E7	B6	A9	D7	C8	C6	A6	A7		
	number of young											
	number of adults											
		E10	E7	B6	A9	D7	C8	C6	A6	A7		
	number of young											
	number of adults											
		E10	E7	B6	A9	D7	C8	C6	A6	A7		
	number of young											
	number of adults											
		E10	E7	B6	A9	D7	C8	C6	A6	A7		
	number of young	4	5							8		
	number of adults	1	1	1	1	1	1	1	1	1		
		E10	E7	B6	A9	D7	C8	C6	A6	A7		
	number of young	6	4	4	3	4	3	6	3	4		
	number of adults	1	1	1	1	1	1	1	1	1		
		E10	E7	B6	A9	D7	C8	C6	A6			
	number of young	8	8	8	6	5	2	2	4	8		
	number of adults	1	1	1	1	1	1	1	1	1		
		E10	E7	B6	A9	D7	C8	C6	A6			
DAY USED 2012/10/17	number of young	10	12	8	8	8	10	8	9	10		
	number of adults	1	1	1	1	1	1	1	1	1		
		E10	E7	B6	A9	D7	C8	C6	A6			
totals (# of young in first 3 broods)	number of young	18	17	20	17	17	15	16	16	20		

Number of young produced per organism in the last brood before use	9
Mean number of surviving young per adult over the first three broods	17
Culture mortality over the last seven days	15

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Warning Chart
Ceriodaphnia

Test Method: *Ceriodaphnia* Survival and Reproduction Test (7 treatments plus a control)
HydroQual Test Method: WTR-ME-019
Reference: Biological Test Method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia* , 2007. Environment Canada, EPS 1/RM/21

Test Organism:

test species:	*Ceriodaphnia dubia*
culture source:	in-house
original culture source:	Environment Canada
ephippia in stock culture:	none
food type:	YAT:Algae
frequency of feeding:	daily
age of test organisms:	<24 hours
culture mortality 7 days prior:	16%
culture fecundity 7 days prior within the first three broods:	20
young produced in previous brood:	10
culture condition prior to test initiation:	normal
culture water:	moderately hard reconstituted water*

Test Design:

test type:	static renewal
toxicant:	sodium chloride (NaCl)
test vessel:	30 mL plastic cup
test volume (mL):	15
replicates per treatment:	10
organisms per replicate:	1
feeding:	daily
temperature (°C):	24-26
photoperiod:	16 hours light: 8 hours dark
light level (surface):	100-600 lux (full spectrum)
hardness adjustment:	no

*Note: there are 2 subcultures within this culture source, separated by one week in age. The test is set with organisms from one subculture. The number of young a culture has is monitored daily. If young are not used that day, they are discarded, therefore organisms in tests are <24h.

Control/Dilution Water:

source: moderately hard reconstituted water*

pH (units):	7.5
conductance (uS/cm):	349
dissolved oxygen (mg/L):	7.2
NH_4^+ (mg/L):	<0.1
hardness (mg $CaCO_3$/L):	112
alkalinity (mg $CaCO_3$/L):	99
total residual chlorine (mg/L):	<0.01

* Note: moderately hard reconstituted water prepared as per EPS 1/RM/21

Comments: None

The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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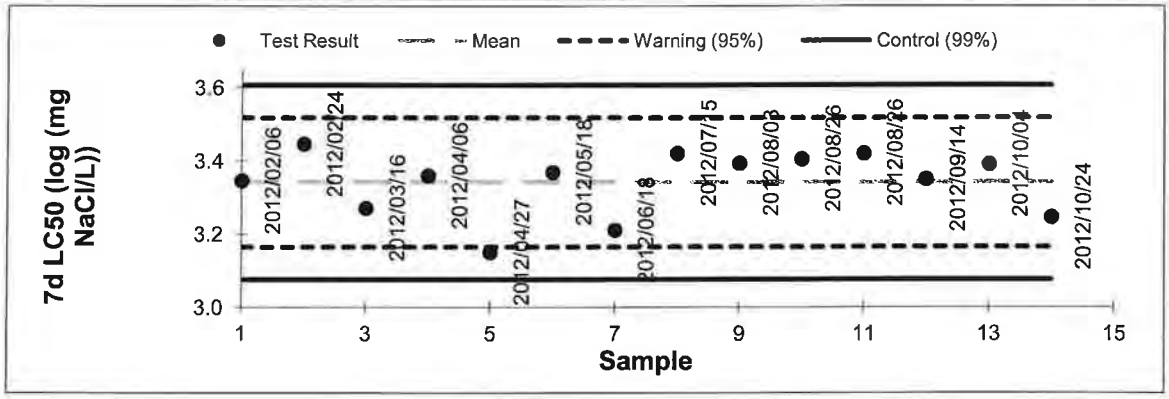
Mortality

Current Test

toxicant	Sodium chloride (NaCl)				
started on	2012/10/17	ended on	2012/10/24		
Result (7d LC50):	3.25	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	3.11	upper	3.39	

Historical Values

mean	3.34	sd	0.09	cv(%):	3
	lower	upper			
warning limits (±2 sd)	3.16	3.52	(95% confidence limits)		
control limits (±3 sd)	3.08	3.61	(99% confidence limits)		



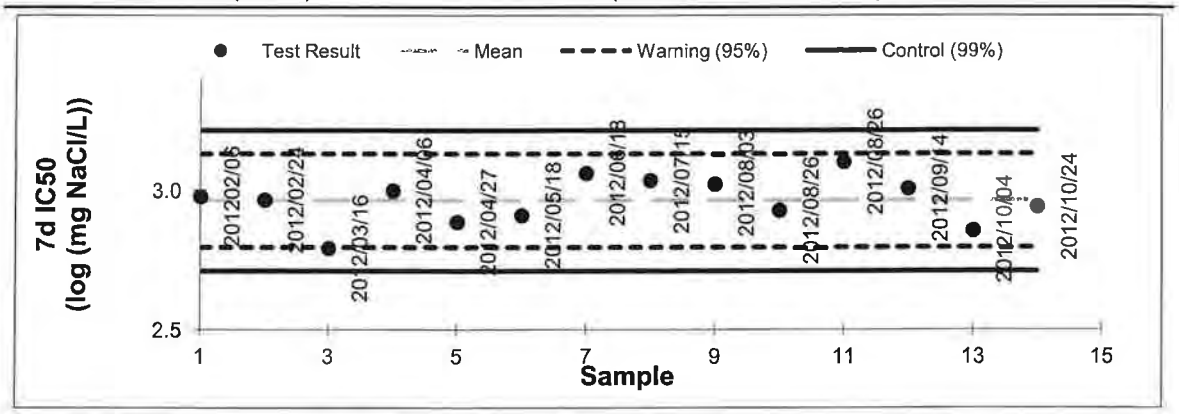
Reproduction

Current Test

toxicant	Sodium chloride (NaCl)				
started on	2012/10/17	ended on	2012/10/24		
Result (7d IC50)	2.94	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	2.59	upper	3.08	

Historical Values

mean	2.96	sd	0.08	cv(%):	3
	lower	upper			
warning limits (±2 sd)	2.79	3.13	(95% confidence limits)		
control limits (±3 sd)	2.71	3.22	(99% confidence limits)		



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Quality Assurance Information

Culture history for adults used in the test for reference QA247:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

	row/replicate	C7	C9	D9	B8	C6	C7	D9	E9	E10		
	number of young											
	number of adults											
		C7	C9	D9	B8	C6	C7	D9	E9	E10		
	number of young											
	number of adults											
		C7	C9	D9	B8	C6	C7	D9	E9	E10		
	number of young											
	number of adults											
		C7	C9	D9	B8	C6	C7	D9	E9	E10		
	number of young								3	4		
	number of adults								1	1		
		C7	C9	D9	B8	C6	C7	D9	E9	E10		
	number of young	3	2	4	4	2	3	3	8	4		
	number of adults	1	1	1	1	1	1	1	1	1		
		C7	C9	D9	B8	C6	C7	D9	E9	E10		
	number of young	8	5	3	6	8	6	6	8	12		
	number of adults	1	1	1	1	1	1	1	1	1		
		C7	C9	D9	B8	C6	C7	D9	E9	E10		
DAY USED	number of young	9	12	12	10	10	12	9	8	9		
2012/10/17	number of adults	1	1	1	1	1	1	1	1	1		
		C7	C9	D9	B8	C6	C7	D9	E9	E10		
totals	number of young	20	19	19	20	20	21	18	19	20		
(# of young in first 3 broods)												

Number of young produced per organism in the last brood before use: 10

Mean number of surviving young per adult over the first three broods: 20

Culture mortality over the last seven days: 16

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HydroQual Laboratories Ltd.

Trout (96-h LC50) Test Report

Result Summary

Client: DEB103
Reference: 12-1890-01-TRD

Client: DeBeers Canada Inc.; operation Snap Lake

Sample: 2012-1888

Collection: collected on 2012/10/15 at 0845 by not given
Receipt: received on 2012/10/16 at 1345 by C. Quinteros
Containers: received 4 x 20 L pails at 15 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/10/17 ; ended on 2012/10/21

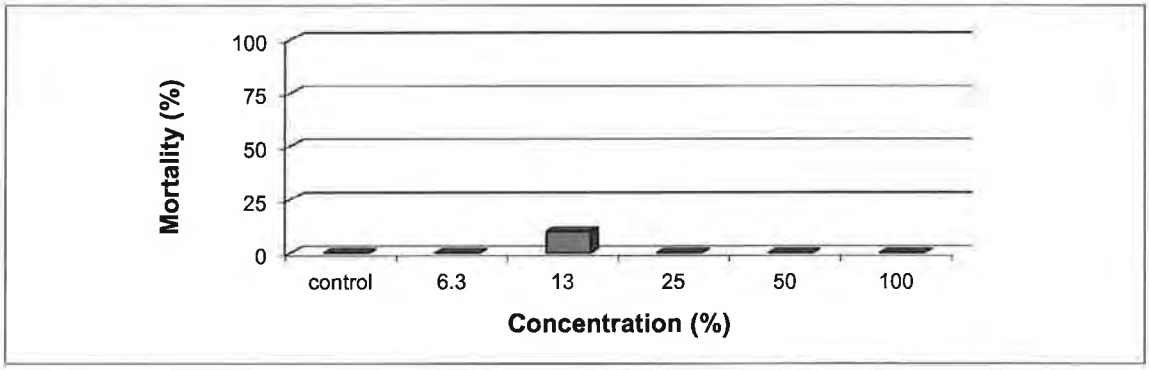
Contents

Result Summary.....1
Test Conditions.....2
Test Data.....3
Comments/Statistics..5
QA/QC.....6

Result:

	Endpoint (96-hour)	Value (%)	Confidence Limits (95%) lower	upper	Method Calculated
Acute:	LC50	>100			could not be calculated
(mortality)	LC25	>100			could not be calculated

Notes: LC25 & LC50, concentrations lethal to 25% and 50% of the test population



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-1890-01-TRD

Method: Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout, 2000. Environment Canada, EPS 1/RM/13. Second Edition (amended May 2007).

Test type: Trout 96-h Static Acute Test (WTR-ME-041)
Species: *Oncorhynchus mykiss*
Organism source: Miracle Springs (Batch 20120928TR)
Acclimation: 19 days (must be ≥2 weeks)
Stock mortality: 0% (seven days preceding testing)

Sample initial chemistry: pH: 7.3; EC: 1049 (µS/cm @ 25°C); DO: 8.2 (mg/L); temperature: 18 °C
hardness (mg CaC03/L): 312; colour: colourless; odour: odourless
Sample holding time: 2 days (must be ≤ 5 days)
Sample storage: 4 ± 2°C in darkness

Test vessel: The test was conducted in 22 L plastic pails with polyethylene liners
Test volume: 20 Litres (depth of solution in each test vessel ≥15cm)
Sample pre-treatment: All test solutions and controls were pre-aerated for 30 minutes at 6.5 ±1 mL/min/L
Dissolved oxygen in 100 % sample was 8.4 mg/L after pre-aeration
The sample was not filtered or pH adjusted prior to or during testing
Loading density: 0.241 g/Litre (must be ≤ 0.5 g/Litre)
Control/dilution water: Dechlorinated City of Calgary water acclimated to test conditions
Test concentrations: 5 effluent concentrations (6.3, 12.5, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One replicate per treatment; 10 fish per replicate
Feeding: Fish are not fed 24 hours before test initiation and no feeding during test
Measurements: pH, conductivity, dissolved oxygen and temperature measured daily
Aeration: All treatments aerated at 6.5 ±1 mL/min/L by oil-free compressed air passed through airline tubes connected to disposable air stones
Lighting: Overhead full spectrum fluorescent lights; 100-500 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 15 ± 1°C

Endpoint: Mortality, 96-h LC50 (with 95% confidence limits)
Test validity: The control had 100% survival (must ≥ 90%)
The control had 0 percent (%) stressed behaviour (must ≤ 10%)
Reference toxicant: 96-h test with Phenol (C_6H_6O) initiated October 15, 2012;
(96-h LC50 and 95% confidence limits) = 1.01 (0.97-1.05) log (mg/L Phenol)

Note: Outlined sections are protocol deviations explained on the comment page; v/v, volume per volume

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Test Data

Client: DEB103
Reference: 12-1890-01-TRD

Test Log:

Date	Day	Time	Technician	Comment/Observation
2012/10/17	0	1030	J. Holmes-Smith/ D. Kaiser	test fish loaded at 1030 h
2012/10/18	1	0900	D. Kaiser	all test fish appear normal
2012/10/19	2	0940	H. Caro-Riano	all test fish appear normal
2012/10/20	3	1040	A. Pounden	all test fish appear normal
2012/10/21	4	1045	H. Caro-Riano	all test fish appear normal

Chemistry:

Conc. (%)	control	6.3	13	25	50	100		
Day				pH (units)				
0	7.5	7.5	7.4	7.4	7.4	7.5		
1	7.8	7.9	7.8	7.7	7.6	7.5		
2	8.1	8.0	7.9	7.8	7.7	7.6		
3	7.8	7.8	7.8	7.7	7.7	7.6		
4	8.0	8.1	7.9	7.9	7.8	7.7		
				Conductivity (µS/cm @ 25°C)				
0	424	449	491	567	722	1019		
1	428	468	514	590	745	1039		
2	441	448	493	570	719	1020		
3	409	448	493	574	728	1027		
4	441	472	516	594	750	1051		
				Dissolved Oxygen (mg/L)				
0	8.2	8.3	8.3	8.4	8.4	8.4		
1	8.2	8.0	8.1	8.0	7.8	7.6		
2	8.3	8.1	8.0	7.7	7.7	7.7		
3	8.4	8.2	8.3	8.1	7.9	8.0		
4	8.0	7.9	7.7	7.5	7.5	7.6		
				Temperature (°C)				
0	15	15	15	15	15	15		
1	15	15	15	15	15	15		
2	15	15	15	15	15	15		
3	15	15	15	15	15	15		
4	15	15	15	15	15	15		

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HydroQual Laboratories Ltd.

Trout (96-h LC50) Test Report

Test Data

Client: DEB103
Reference: 12-1890-01-TRD

Number Alive (In brackets number stressed):

Conc. (%)	control	6.3	13	25	50	100		
Day								
0	10	10	10	10	10	10		
1	10	10	10	9*	10	10		
2	10	10	9	9	10	10		
3	10	10	9	9	10	10		
4	10	10	9	9	10	10		

* see test result comments

Mortality (%)

4	0	0	10	0	0	0		

Stressed (%)

4	0	0	0	0	0	0		

Biology Summary Tables:

Control Fish	Length (cm)	Wet Weight(g)
1	3.5	0.3
2	3.5	0.4
3	3.9	0.5
4	3.9	0.5
5	3.6	0.4
6	3.8	0.5
7	4.5	0.8
8	3.9	0.5
9	4.0	0.5
10	3.5	0.4
average	3.8	0.5
sd	0.3	0.2
cv(%)	8.2	31.9

Notes: nd, not done; na, not applicable; sd, standard deviation; cv(%), coefficient of variation

Conc. (%)	Group Wet Weight (g)
control	4.8
6.3	8.0
13	8.1
25	5.3
50	6.6
100	6.8

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Comments/Statistics

Client: DEB103
Reference: 12-1890-01-TRD

Test Result Comments:

One fish jumped out of the 25% test vessel and is not included in the mortality calculations or group weights.

Data Analysis:
Endpoints for mortality could not be calculated. No effect occurred.

Protocol Deviations:
None

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HydroQual Laboratories Ltd.

Warning Chart
Trout

Test Method: Trout 96h Static Acute Test. (LC50, 5 treatments plus a control)
HydroQual Test Method: WTR-ME-042

Reference: Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout, 1990. Environment Canada, EPS 1/RM/13. including May 1996 and December 2000 amendments.

Test Organism:

test species:	*Oncorhyncus mykiss*
culture source:	Miracle Springs
temperature (°C):	15 ± 1
dissolved oxygen:	70-100% saturation
stock mortality (last 7d):	0.0%
batch number:	20120928TR

Test Design:

vol. of test vessel (L):	20
test volume depth:	>15 cm
replicates per treatment:	1
fish per replicate:	10
loading (g fish/L):	≤0.5
temperature (°C):	15 ± 1
photoperiod:	16h light: 8h dark
light level (water surface):	100-500 lux (full-spectrum)
control/dilution water:	dechlorinated tap water

Current Test

toxicant phenol (C_6H_5OH)

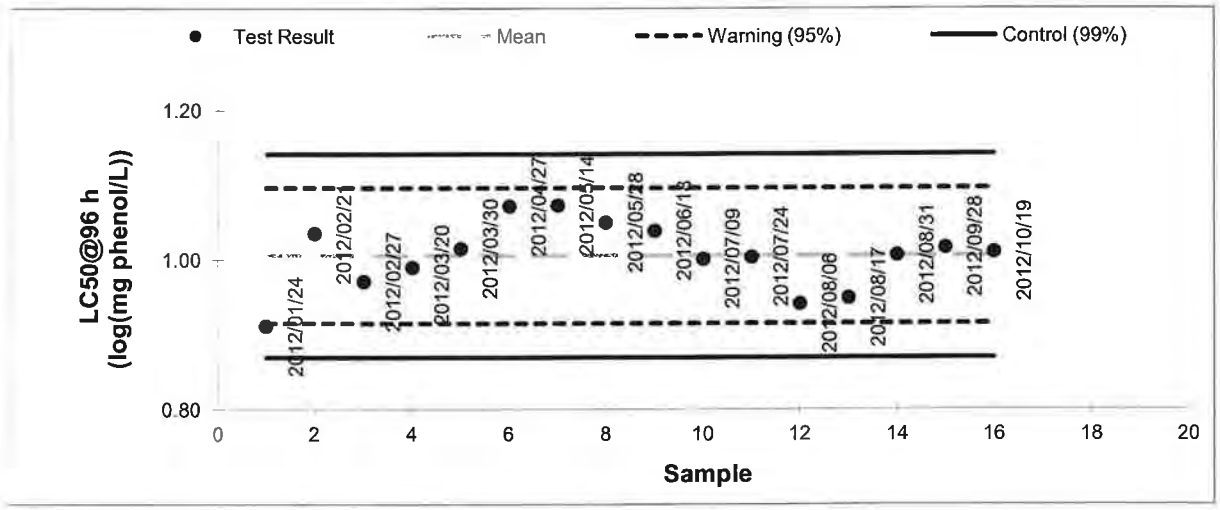
started on 2012/10/15 ended on 2012/10/19

Result (LC50 @ 96h)	1.01	log (mg phenol/L); geometric mean			
Confidence Limits (95%)	lower	0.97	upper	1.05	

Historical Values

mean	1.01	sd	0.05	cv(%):	5
	lower	upper			
warning limits (±2 sd)	0.91	1.10	(95% confidence limits)		
control limits (±3 sd)	0.87	1.14	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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HydroQual Laboratories Ltd.

Daphnia (48-h LC50/EC50) Test Report

Result Summary

Client: DEB103
Reference: 12-1890-01-DAD

Client: DeBeers Canada Inc.; operation Snap Lake

Sample: 2012-1888

Collection: collected on 2012/10/15 at 0845 by not given
Receipt: received on 2012/10/16 at 1345 by C. Quinteros
Containers: received 4 x 20 L pails at 15 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/10/16 ; ended on 2012/10/18

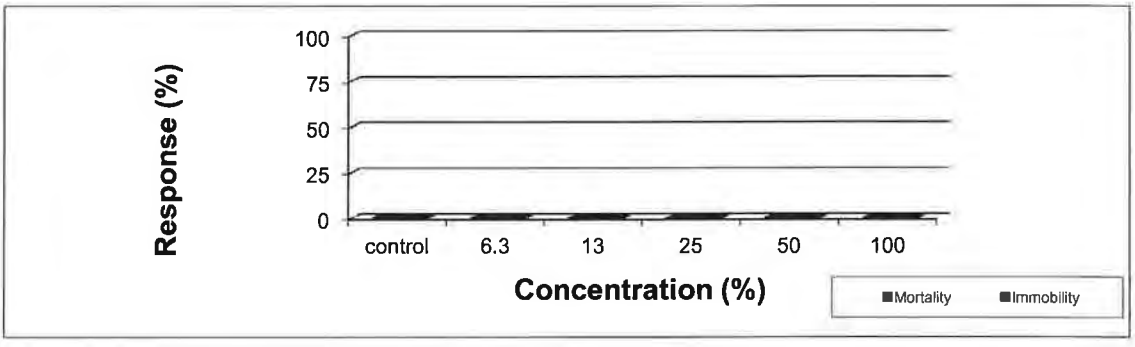
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Test Conditions.....2
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Result:

	Endpoint (48-hour)	Value (%)	Confidence Limits (95%) lower	upper	Method Calculated
Acute: (mortality)	LC50	>100			could not be calculated
	LC25	>100			could not be calculated
Acute: (immobility)	EC50	>100			could not be calculated
	EC25	>100			could not be calculated

Notes: LC25 & LC50, concentrations lethal to 25% and 50% of the test population



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-1890-01-DAD

Method: Biological Test method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*, 2000. Environ. Can., EPS 1/RM/14. Second Edition.

Test type: *Daphnia* 48-h Static Acute Test (WTR-ME-015)
Species: *Daphnia magna*
Age: < 24 hours old
Organism source: in-house culture
Stock mortality: 10%
Culture brood data: 9 days to first brood
18 neonates per average brood

Sample initial chemistry: pH: 7.3; EC: 1049 (µS/cm @ 25°C); DO: 8.2 (mg/L); temperature: 18 °C hardness (mg CaC03/L): 312; colour: colourless; odour: odourless
Sample holding time: 1 day (must be ≤ 5 days)
Sample storage: 4 ± 2°C in darkness

Test vessel: 385 mL plastic vessels
Test volume: 150 mL
Sample pre-treatment: The sample was not filtered or pH adjusted prior to or during testing
The sample was pre-aerated for 20 minutes (rate of 37.5 ± 12.5 mL/min.L^{-1})
The hardness of the sample was not adjusted (mg $CaCO_3$/L) prior to or during testing
Loading density: One daphnid/15 mL (must ≤ 1 organism/15 mL)
Control/dilution water: Dechlorinated City of Calgary water acclimated to test conditions
The hardness of the control/dilution water was 141 mg $CaCO_3$/L
Test concentrations: 5 effluent concentrations (6.3, 12.5, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One replicate per treatment, 10 daphnids per replicate
Feeding: None
Aeration: None
Measurements: pH, conductivity, dissolved oxygen and temperature at test initiation and termination
Lighting: Cool white fluorescent lights; 400-800 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 20 ± 2°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-1890-01-DAD

Endpoint: Mortality, 48-h LC50 (95% confidence limits)
Immobility, 48-h EC50 (95% confidence limits)

Test validity: The control had 100% survival (must ≥ 90%)
Control had 0 percent (%) abnormal behaviour (must ≤ 10%, immobility)

Reference toxicant: 48-h test with NaCl initiated October 5, 2012; current results
(48-h LC50 and 95% confidence limits) = 0.74 (0.70-0.78) log (g/L NaCl)

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-1890-01-DAD

Test Log:

Date	Day	Time	Technician	Comment/Observation
2012/10/16	0	1425	J. Holmes-Smith	test *Daphnia* appear normal
2012/10/17	1	1115	E. Petho	test *Daphnia* appear normal
2012/10/18	2	0905	H. Caro-Riano	test *Daphnia* appear normal

Chemistry:

Conc. (%)	control	6.3	13	25	50	100		
Day	pH (units)							
0	7.7	7.8	7.9	7.9	7.9	7.8		
2	8.1	8.0	8.0	8.0	7.9	7.9		
	Conductivity (µS/cm @ 25°C)							
0	357	399	443	526	699	1006		
2	353	400	440	520	699	987		
	Dissolved Oxygen (mg/L)							
0	7.7	7.7	7.7	7.6	7.6	7.6		
2	8.0	8.0	7.9	7.9	7.9	7.9		
	Temperature (°C)							
0	20	20	20	20	20	20		
2	20	20	20	20	20	21		

Biology:

Conc. (%)	control	6.3	13	25	50	100		
Day	Number Alive and Behavior (behavior is in brackets)							
1	10	10	10	10	10	10		
2	10	10	10	10	10	10		

Notes: F, floating; I, immobile; B, stuck on bubble; D, caught in debris; nd, not done; na, not applicable;

	Mortality (%)							
2	0	0	0	0	0	0		
	Immobility (%)							
2	0	0	0	0	0	0		

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Comments/Statistics

Client: DEB103
Reference: 12-1890-01-DAD

Test Result Comments:
None

Data Analysis:
Endpoints for mortality could not be calculated. No effect occurred.

Endpoints for immobility could not be calculated. No effect occurred.

Protocol Deviations:
None

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Quality Assurance Information

Test Method: *Daphnia* Static Acute Test (LC50, 5 treatments plus a control)
HydroQual Test Method: WTR-ME-016

Reference: Biological Test Method: Reference Method for Determining the Acute Lethality of Effluents to *Daphnia magna*, 1990. Environment Canada, EPS 1/RM/14. including May 1996 and December 2000 ammendments.

Test Organism:		**Test Design:**	
test species:	*Daphnia magna*	vol. of test vessel (mL):	500
culture source:	in-house	toxicant:	sodium chloride
original culture source:	Environment Canada	test volume (mL):	150
days to first brood:	9	replicates per treatment:	1
mean brood size:	18	neonates per replicate:	10
ephippia in stock culture:	no	volume per neonate (mL):	15
age of test organisms:	<24 hours old	samples preaerated:	no
culture mortality (%):	0%	hardness adjustment:	no
dissolved oxygen:	40-100% saturation	temperature (°C):	20
		photoperiod:	16h light:8h dark
		light level (water surface):	400-800 lux (cool white)
		control/dilution water:	dechlorinated tap water

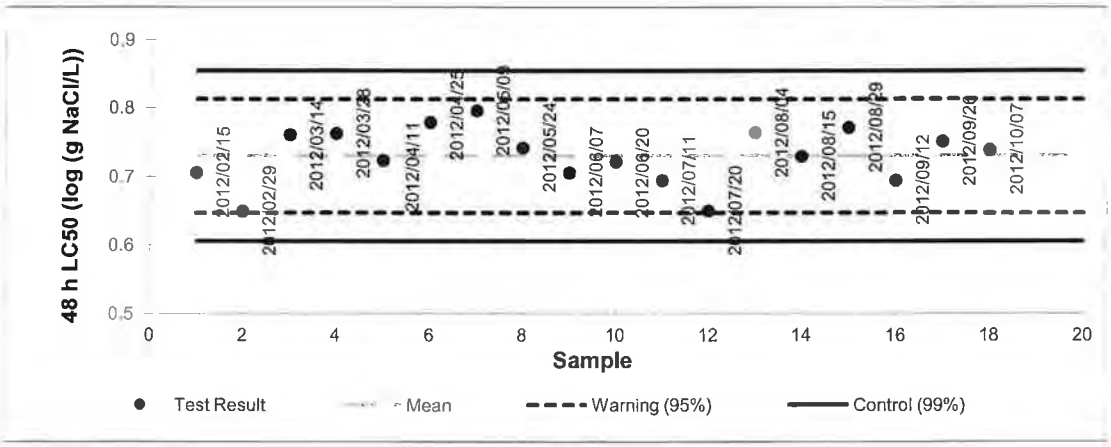
Current Test

toxicant	Sodium chloride (NaCl)				
started on	2012/10/05	ended on	2012/10/07		
Result (LC50 @ 48h)	0.74	log (g NaCl/L); geometric mean			
Confidence Limits (95%)	lower	0.70	upper	0.78	

Historical Values

mean	0.73	sd	0.04	cv(%):	6
	lower	upper			
warning limits (±2 sd)	0.65	0.81	(95% confidence limits)		
control limits (±3 sd)	0.61	0.86	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance
Comments:



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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HydroQual Laboratories Ltd.

Algae Test Report

Client: DEB103
Reference: 12-1586-01-AGD

Result Summary

Client: DeBeers Canada Inc.; operation Snap Lake

Sample: 2012-1700

Collection: collected on 2012/09/09 at 1615 by not given
Receipt: received on 2012/09/11 at 1430 by J. Holmes-Smith, L. Windatt
Containers: received 4 x 20 L pails at 17 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/09/11 ; ended on 2012/09/14

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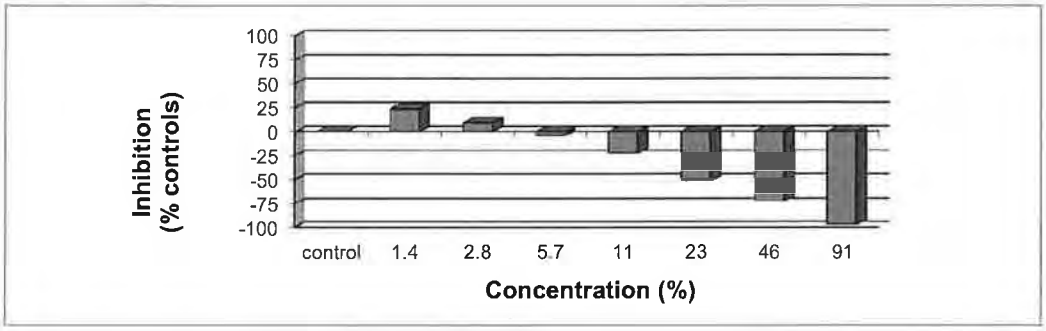
Result:

	Endpoint (72-hour)	Value	Confidence Limits (95%) lower	upper		Method Calculated
Chronic: Growth Inhibition	IC25	>91			%	could not be calculated
	IC50	>91			%	could not be calculated

Notes: ICx, concentrations inhibiting growth by 'x' percent relative to controls; CV, coefficient of variation (%); SD, standard deviation

	Stimulation Observed	Test Concentrations		Method Calculated
Chronic: Growth Stimulation	**yes**	23, 46, 91	%	William's Multiple Comparison

Notes: Stimulation refers to increased response at all concentrations or at high concentrations



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-1586-01-AGD

Method: Biological Test Method: Growth Inhibition Test Using a Freshwater Alga *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum)*. Environment Canada, EPS 1/RM/25, 2nd Edition, March 2007

Test type: Algal Growth Inhibition Test (WTR-ME-034)
Species: *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum* and *Raphidocelis subcapitata*)
Organism source: In-house culture (original source: UTCC 37; strain: LB37)
Culture age: The test was started with 7 day old, exponentially growing cells determined with an algal growth curve. The algal growth curve was started with an inoculum from the algal stock culture determined over an 8-10 day period. This culture was initiated on 2012/07/24. Algal cultures are regrown every 2 months from slants made from a new culture purchased annually.
Culture observations: No unusual appearance or treatment of the algae was noted prior to or during the conduct of the test.
Sample initial chemistry: pH: 6.6; EC: 1179 (µS/cm); DO: 8.5 (mg/L); temperature: 17 °C
hardness (mg CaC03/L): 412; colour: colourless; odour: odourless
Sample holding time: 2 days (must be ≤ 3 days)
Sample storage: 4 ± 2°C in darkness
Test concentrations: 7 effluent concentrations (1.4, 2.8, 5.7, 11, 23, 46 and 91% (v/v) plus a negative control)
Test vessel: The test was conducted in 96 well microplates. Three replicate plates were run (a, b and c). Test concentrations were not isolated from each other because volatility was not expected.
Test replicates: Three replicate microplates were run. Per plate there were 5 replicate wells per concentration and 10 replicate wells per control.
Test volume: 220 µL final volume in each well with 200 µL of sample;
10µL of enrichment medium and 10µL of algal inoculum.
Inoculum: The initial cell density of the inoculum was 9094 (cells/mL), it was prepared less than ≤2-3 hours before test initiation.
Control/dilution water: Made up with 85% deionized and 15% dechlorinated City of Calgary water spiked with nutrients as per EPS 1/RM/25 (made by adding 1mL of each of the 5 stock solutions to 10mL of DRO). The metal stock with 25% reduced EDTA was used.
Sample Filtration: 100 mL filtered through a 0.45 µm pore diameter membrane.
Sample treatment: Sample spiked with nutrients as per EPS 1/RM/25; no other chemicals added.
Measurements: Final cell densities were determined from the absorbance at 430 nm calibrated against cell counts. The conversion factor for absorbance to cells per millilitre was 18195 with a coefficient of variation of 7 %.
Aeration: Not required
pH Adjustment: Not required
Lighting: The plates were incubated under continuous light: 4025 lux
(cool white fluorescent bulbs) 56.35 µmol/(m^2•S)
Test temperature: 24 ± 2°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-1586-01-AGD

Endpoint: Growth, 72-h IC25 (with 95% confidence limits)
Test endpoint was bracketed by at least 1 test concentration
(except for <1.4% or >100 %)
No outliers were observed within the data set.

Test validity: Control growth was a 30 fold increase over the inoculum.
The cv of the standard control wells was 9 %.
(must be > 16 fold increase with a cv of ≤ 20%)

Statistics: See Data Analysis section.
Mann-Kendall Trend analysis was not performed as control cv was < 10%.

Reference toxicant: 72-h test with Zinc ($ZnSO_4$*7H2O) initiated September 7, 2012;
(must be within 14 days of the test initiation)
current results: (72-h IC25 and 95% confidence limits) = 1.48 (0.58-1.62) log (µg Zn^{2+}/L)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-1586-01-AGD

Test Log:

Date	Day	Technician	Time	Rotated	Temperature (°C)
2012/09/11	0	J.Holmes-Smith/L.Windatt	1615	na	25
2012/09/12	1	D. Kaiser	0830	yes	25
2012/09/13	2	D. Kaiser	0830	yes	25
2012/09/14	3	E. Petho	1200	na	25

Absorbance and Direct Cell Data:

Concentration (%)	Absorbance (430 nm)	Direct Cell Counts(/0.5 mL)
ctl	0.014	3983
11	0.017	4500
91	0.027	6767

pH Measurements:

Concentration	Initial Value
control	7.2
91%	7.8

Concentration	Final Mean	% CV
control (well D6)	7.6	0
control (well D7)	7.6	0

Average Absorbance Control Data:

Column Well	2b	2c	2e	2f	2g
Absorbance (430 nm)	0.02	0.02	0.02	0.02	0.01
Column Well	11b	11c	11e	11f	11g
Absorbance (430 nm)	0.01	0.01	0.01	0.01	0.01

Standard Control Wells:

Average	269
SD	24
CV%	9

Test Results at 72 hours:

Concentration (%)	Cell Yield Densities ($x10^3$ / mL) Well Replicate a	b	c	d	e	Average	SD	CV	Percent Controls	Inhibition (%)	Stimulation (%)
control	266	266	241	260	232	253	15	6	100	0	0
1.4	172	190	190	208	208	194	15	8	77	23	-23
2.8	214	226	238	226	244	230	12	5	91	9	-9
5.7	251	263	275	269	263	264	9	3	104	-4	4
11	299	293	348	281	329	310	28	9	123	-23	23
23	360	372	402	402	384	384	19	5	152	-52	52
46	426	426	451	445	439	437	11	2	173	-73	73
91	484	496	520	499	496	499	13	3	197	-97	97

Calculations for Control Validity

Concentration (%)	Cell Yield Densities ($x10^3$ / mL) Well Replicate a	b	c	d	e	Average	SD	CV	Percent Controls	Inhibition (%)	Stimulation (%)
control	286	286	260	280	250	272	16	6	100	0	0

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Comments/Statistics

Client: DEB103
Reference: 12-1586-01-AGD

Test Result Comments:
The absorbance measurements were made after the cells were centrifuged and resuspended in clear solution (and that the conversion factor developed for abs vs cell number reflects this step). Manual enumeration was performed on the same day as test termination.

Data Analysis:
Significant stimulatory effects in growth were observed in 23, 46 & 91% concentrations as calculated by ANOVA analysis with CETIS v. 1.7.0revQ. (William's Multiple Comparison).

Endpoints for growth inhibition could not be calculated. Inhibitory effects did not occur.

Protocol Deviations:
None

Our liability is limited to the cost of the test requested. The test results only relate to the sample as received. No liability in whole or in part is assumed for the collection, handling or transport of the sample, application or interpretation of the test data or results.

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HydroQual Laboratories Ltd.

Warning Chart
Algae

Test Method: 72 hours Algal Growth Inhibition Test (IC25, seven or more treatments plus a control)
HydroQual Test Method: WTR-ME-035

Reference: Biological Test Method: Growth Inhibition Test Using the Freshwater Alga *Selenastrum capricornutum*, 2007. Environment Canada, EPS 1/RM/25.

Test Organism:

test species: *Pseudokirchneriella subcapitata*
batch number: 20120831AG
date started from slant: 2012/07/27
original source/strain: UTCC 37 / LB37
culture vessels: 2L Erlenmeyer flask
water source: 85% deionized water, 15% dechlorinated tap
growth medium: nutrient solution
cultivation method: batch as per test conditions
culture condition at start normal
culture age: 3-7 days
growth phase: exponentially growing

Test Design:

test type: static
toxicant: zinc
test vessel: 96 well flat bottom microplate
test volume (µL): 220
no. of replicate plates: 3
no. of replicate wells / treatment per plate (control, sample): 10, 5
mean temperature (˚C): 24 ± 2˚C
photoperiod: continuous light
light level: 3600-4400 lux (cool white)
contol/dilution water: deionized water and nutrients prepared as per EPS1/RM/25

Current Test

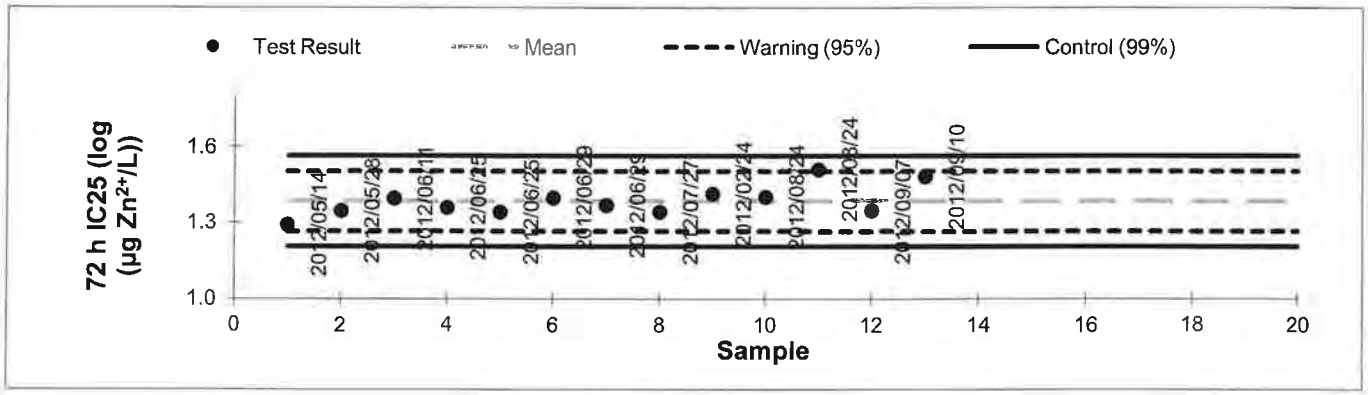
toxicant Zinc ($ZnSO_4*7H_2O$)
started on 2012/09/07 ended on 2012/09/10

Result (IC25 @ 72h)	1.48	log (µg $Zn2^+$/L); geometric mean			
Confidence Limits (95%)	lower	0.58	upper	1.62	

Historical Values

mean	1.38	sd	0.06	cv(%):	4
	lower	upper			
warning limits (±2 sd)	1.27	1.50	(95% confidence limits)		
control limits (±3 sd)	1.21	1.56	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance, na; could not be calculated



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Result Summary

Client: DEB103
Reference: 12-1586-01-CDD

Client: DeBeers Canada Inc.; operation Snap Lake

Sample: 2012-1700

Collection: collected on 2012/09/09 at 1615 by not given
Receipt: received on 2012/09/11 at 1430 by J. Holmes-Smith, L. Windatt
Containers: received 4 x 20 L pails at 17 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/09/12 ; ended on 2012/09/19

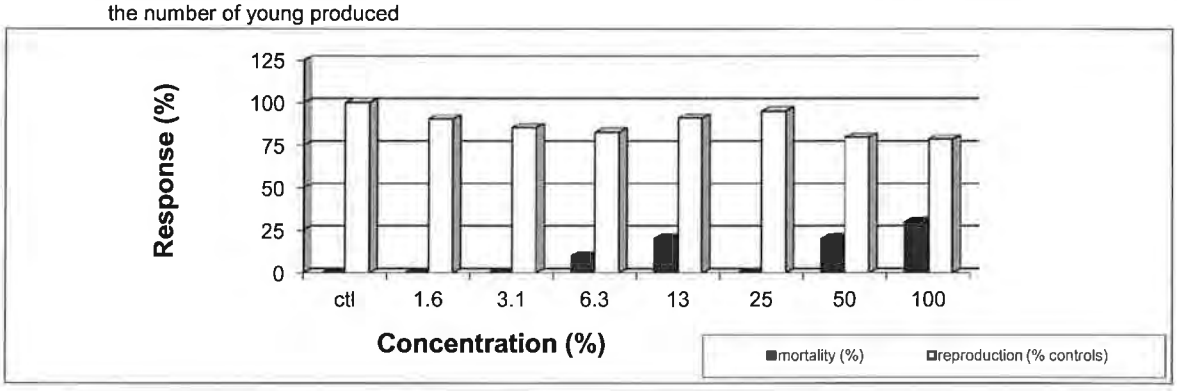
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Result:

	Endpoint (7-day)	Value	Confidence Limits (95%) lower	upper	Units	Method Calculated
Acute:	LC25	78	26	>100	%	Log-Normal
(survival)	LC50	>100	93	>100	%	Log-Normal
Chronic:	IC25	>100			%	could not be calculated
(fecundity)	IC50	>100			%	could not be calculated

Notes: LCx & ICx, concentrations lethal or inhibitory to 'x' percent of the test population; fecundity, reproduction as the number of young produced



The test data and results are authorized and verified correct.

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Test Conditions

Client: DEB103
Reference: 12-1586-01-CDD

Method: Biological Test method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia*. Environment Canada, EPS 1/RM/21, 2nd Edition, February 2007.

Test type: *Ceriodaphnia* Survival and Reproduction Static Renewal Test (WTR-ME-018)
Species: *Ceriodaphnia dubia*
Age: <24 hours old; all from same brood source within 12 hours of the same age.
Organism source: in-house cultures; cultures from a single brood organism to provide test organisms.
Culture health: Culture mortality was 8% (must be ≤ 20%).
7-d prior to test initiation: No ephippia were noted in the cultures at any time.
Average young produced per adult in the first three broods was 19 (must be ≥ 15)
Number of young produced by each brood organism in the last complete brood before use was 9 (must be ≥ 8).
Organism observations: No unusual behavior, appearance or treatment of test organisms was noted prior to or during the test. All first-generation mortality was recorded on the day it was observed.
Sample initial chemistry: pH: 6.6; EC: 1179 (µS/cm); DO: 8.5 (mg/L); temperature: 17 °C
hardness (mg CaC03/L): 412; colour: colourless; odour: odourless
Sample holding time: 3 days (must be ≤ 3 days); The test was conducted with three subsamples, samples a, b, and c were for days 0 to 2, 3 to 5, and 6 to 8 respectively
Sample storage: 4 ± 2°C in darkness

Test vessel: The tests were conducted in 30 mL plastic vessels (2 cm depth).
Test volume: 15 mL of solution (1 cm depth); replenished daily.
Control/dilution water: The control and dilution water was a mixture of moderately hard reconstituted water and Bow River Water (50:50). Chemicals added to dilution water: 0.96 g NaHCO3, 0.60 g CaSO4, 0.60 g MgSO4, 0.04 g KCl per 20L.
Test concentrations: 7 effluent concentrations (1.6, 3.1, 6.3, 13, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One neonate <24 hours old was loaded per test vessel; 10 replicates/concentration
Feeding: The test organisms were fed daily a mixture of fermented trout chow, yeast, alfalfa powder, and the green alga *Pseudokirchneriella subcapitata* (formerly *Selenastrum capricornutum* and *Raphidocelis subcapitata*).
Food expiration date: 2012/09/30; 2012/10/06
Measurements: pH, conductivity, dissolved oxygen and temperature were measured daily.
Sample pre-treatment: The sample was not aerated, filtered or pH adjusted prior or during testing.
The dissolved oxygen concentration (mg/L) was: 7.5
The sample pH was 6.6
Lighting: Overhead full spectrum fluorescent lights; 100-600 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 25 ± 1°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-1586-01-CDD

Endpoints: Survival, 7-d LC50 (with 95% confidence limits)
Reproduction, 7-d IC25 (with 95% confidence limits)
Test endpoints were bracketed by at least 1 test concentration (except for <1.6% or >100 %)
No outliers were observed within the data set.

Test completion: 90% of the control organisms had ≥ 3 broods on day 7 (must be ≥ 60% within 8 days) Any neonates produced after third brood were not included in the mean young per adult calculation.

Test validity: The control had 100% survival (must ≥ 80%)
Number of young produced by each surviving control adult within the first three broods was 20 (must be ≥ 15).

Reference toxicant: 7-d test with NaCl initiated on September 7, 2012;
(must be within 14 days of test initiation)
current results: (7-d LC50 and 95% confidence limits) =
3.35 (3.25-3.45) log (mg/L NaCl)
current results: (7-d IC50 and 95% confidence limits) =
3.01 (3.04-3.12) log (mg/L NaCl)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-1586-01-CDD

Test Log:

Date	Day	Time	Technicians	Temperature (°C) Control	Sample
2012/09/12	0	1100	E. Petho	25	25
2012/09/13	1	1200	T. Kloshinsky	25	25
2012/09/14	2	1100	L. Windatt	25	25
2012/09/15	3	0950	T. Kloshinsky	25	25
2012/09/16	4	0915	T. Kloshinsky	25	25
2012/09/17	5	1145	D. Kaiser	25	25
2012/09/18	6	1030	L. Windatt	25	25
2012/09/19	7	0905	J. Holmes-Smith	na	na

Chemistry Summary Tables:

New Solutions

Conc. %	ctl	1.6	3.1	6.3	13	25	50	100

Old Solutions

ctl	1.6	3.1	6.3	13	25	50	100

Average Values

pH	7.9	7.9	7.9	7.9	7.9	7.8	7.8	7.6	7.9	8.0	8.0	8.0	8.0	7.9	7.9	7.8
cond.	378	396	410	435	481	586	770	1173	404	425	458	456	502	605	814	1264
DO	7.4	7.2	7.1	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
temp.	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25

Coefficients of Variation (%)

pH	2	2	1	1	1	2	2	1	2	1	1	1	1	1	1	1
cond.	5	3	4	3	3	2	1	1	4	5	6	4	4	2	3	3
DO	4	3	4	4	5	5	6	7	4	1	3	2	2	2	2	2
temp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Test Data

Client: DEB103
Reference: 12-1586-01-CDD

Biology (number of young produced):

Replicate	Day	1	2	3	4	5	6	7	8
Control	1	0	0	0	2	4	0	9	
	2	0	0	0	4	7	0	12	
	3	0	0	0	4	7	14	-	
	4	0	0	0	2	5	0	8	
	5	0	0	2	0	8	10	-	
	6	0	0	0	0	10	12	12	
	7	0	0	4	4	8	-	-	
	8	0	0	0	4	0	0	0	
	9	0	0	0	4	8	0	11	
	10	0	0	0	4	0	10	6	
1.6%	1	0	0	0	4	0	0	12	
	2	0	0	0	4	8	0	15	
	3	0	0	0	2	4	0	6	
	4	0	0	0	4	4	0	11	
	5	0	0	0	0	0	6	9	
	6	0	0	0	0	2	8	7	
	7	0	0	4	0	6	5	-	
	8	0	0	4	0	7	12	-	
	9	0	0	0	4	6	0	10	
	10	0	0	0	0	0	4	8	
3.1%	1	0	0	0	0	0	0	0	
	2	0	0	0	0	0	0	0	
	3	0	0	0	6	8	0	12	
	4	0	0	0	6	10	8	-	
	5	0	0	0	4	9	0	9	
	6	0	0	0	4	10	0	12	
	7	0	0	0	4	4	6	-	
	8	0	0	0	4	10	0	11	
	9	0	0	0	0	0	4	9	
	10	0	0	0	0	4	6	6	

Replicate	Day	1	2	3	4	5	6	7	8
13%	1	0	0	0	4	9	0	13	
	2	0	0	2	0	6	9	-	
	3	0	0	0	0	6	7	7	
	4	0	0	0	4	7	0	11	
	5	0	0	2	0	8	9	-	
	6	0	0	2	0	2	0	0	
	7	0	0	0	0	10	14	**0**	
	8	0	0	0	4	8	0	13	
	9	0	0	0	4	8	0	0	
	10	0	0	0	0	0	8	**0**	
25%	1	0	0	0	4	2	0	11	
	2	0	0	0	6	6	0	13	
	3	0	0	0	4	6	0	9	
	4	0	0	0	6	8	0	11	
	5	0	0	0	0	6	0	14	
	6	0	0	4	0	5	9	-	
	7	0	0	2	0	6	11	-	
	8	0	0	2	0	6	9	-	
	9	0	0	0	0	5	8	0	
	10	0	0	4	4	4	-	-	
50%	1	0	0	0	4	0	0	11	
	2	0	0	0	2	10	0	10	
	3	0	0	0	0	**0**	X	X	
	4	0	0	0	4	0	0	3	
	5	0	0	0	0	4	0	11	
	6	0	0	4	0	4	13	-	
	7	0	0	0	4	6	0	7	
	8	0	0	0	4	7	0	11	
	9	0	0	0	0	8	0	**9**	
	10	0	0	4	0	7	8	-	

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died; —, young produced after third brood

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Test Data

Client: DEB103
Reference: 12-1586-01-CDD

Biology (number of young produced):

Day	1	2	3	4	5	6	7	8

Replicate	6.3%								100%							
1	0	0	0	0	0	6	10		0	0	4	0	6	8	-	
2	0	0	0	0	4	**0**	X		0	0	4	0	4	8	-	
3	0	0	0	4	8	0	11		0	0	0	0	0	7	**3**	
4	0	0	4	4	6	-	-		0	0	0	4	8	0	7	
5	0	0	0	0	6	0	8		0	**0**	X	X	X	X	X	
6	0	0	0	6	9	0	3		0	0	0	4	6	0	8	
7	0	0	0	4	8	7	-		0	0	0	0	6	10	10	
8	0	0	0	0	7	0	13		0	0	0	0	0	6	8	
9	0	0	2	0	7	10	-		0	0	0	0	10	4	3	
10	0	0	4	0	2	8	-		0	0	0	4	4	0	**7**	

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died;
—, young produced after third brood

Biology Summary Tables:

Conc. %	ctl	1.6	3.1	6.3	13	25	50	100

Day	Number of Organism Alive							
0	10	10	10	10	10	10	10	10
1	10	10	10	10	10	10	10	10
2	10	10	10	10	10	10	10	9
3	10	10	10	10	10	10	10	9
4	10	10	10	10	10	10	10	9
5	10	10	10	10	10	10	9	9
6	10	10	10	9	10	10	9	9
7	10	10	10	9	8	10	8	7
8								

	Percent Mortality (%)							
mean	0	0	0	10	20	0	20	30

Replicate	Total Young Produced by Each Adult							
1	15	16	0	16	26	17	15	18
2	23	27	0	4	17	25	22	16
3	25	12	26	23	20	19	0	10
4	15	19	24	14	22	25	7	19
5	20	15	22	14	19	20	15	0
6	34	17	26	18	4	18	21	18
7	16	15	14	19	24	19	17	26
8	4	23	25	20	25	17	22	14
9	23	20	13	19	12	13	17	17
10	20	12	16	14	8	12	19	15

Day	ctl	1.6	3.1	6.3	13	25	50	100
0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	6	8	0	10	6	12	8	8
4	28	18	28	18	16	24	18	12
5	57	37	55	57	64	54	46	44
6	46	35	24	31	47	37	21	43
7	58	78	59	45	44	58	62	46
8								
Total	195	176	166	161	177	185	155	153

Young Per Adult (within first three broods)

mean	20	18	17	16	18	19	16	15
sd	7.88	4.77	10	5.2	7.47	4.28	7.03	6.75
cv(%)	40.4	27.1	60.3	32.3	42.2	23.1	45.3	44.1

Young Production as a Percent of Controls

100	90	85	83	91	95	79	78

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Test Data

Client: DEB103
Reference: 12-1586-01-CDD

Chemistry:

Day	New Solutions								Old Solutions							
Conc. %	ctl	1.6	3.1	6.3	13	25	50	100	ctl	1.6	3.1	6.3	13	25	50	100
	pH (units)								pH (units)							
0	8.1	8.0	8.0	8.0	8.0	7.9	7.8	7.6								
1	8.0	8.0	8.0	8.0	8.0	7.9	7.8	7.6	8.1	8.0	8.0	8.0	8.0	8.0	7.9	7.8
2	7.8	7.8	7.9	7.9	7.9	7.8	7.8	7.6	7.8	8.0	8.0	8.0	8.0	8.0	7.9	7.8
3	7.6	7.6	7.7	7.7	7.7	7.6	7.5	7.5	8.0	8.0	7.9	7.9	7.9	7.9	7.8	7.8
4	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.6	7.9	7.9	8.0	8.0	8.0	7.9	7.9	7.8
5	8.1	8.1	8.0	8.0	8.0	8.0	7.9	7.8	8.1	8.1	8.1	8.2	8.1	8.0	8.0	8.0
6	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.6	7.8	7.9	7.9	7.9	7.9	7.9	7.8	7.7
7									7.8	7.9	7.9	7.9	7.9	7.9	7.8	7.7
8																
	Conductivity (µS/cm)								Conductivity (µS/cm)							
0	410	402	411	438	488	584	777	1196								
1	373	394	416	433	487	587	781	1177	403	415	433	450	499	599	790	1199
2	350	375	390	417	468	568	762	1165	374	401	431	433	484	585	801	1238
3	377	399	418	444	468	598	765	1169	401	415	427	446	499	600	802	1265
4	379	393	386	422	467	586	753	1159	401	415	480	454	474	608	787	1259
5	378	403	420	447	498	598	784	1182	411	427	478	459	503	609	834	1310
6	381	403	427	447	489	581	771	1160	404	432	470	470	518	604	833	1266
7									432	470	486	483	536	630	850	1312
8																
	Dissolved Oxygen (mg/L)								Dissolved Oxygen (mg/L)							
0	7.2	7.2	7.2	7.2	7.2	7.3	7.4	7.5								
1	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.4	7.1	7.0	7.0	7.0	7.0	6.9	6.9	6.9
2	7.4	7.4	7.3	7.2	7.2	7.2	7.2	7.2	7.4	7.1	7.1	7.1	7.1	7.1	7.1	7.1
3	7.6	7.3	6.7	6.5	6.3	6.4	6.2	6.1	6.5	6.9	6.6	6.7	6.7	6.8	6.8	6.8
4	7.8	7.6	7.5	7.3	7.2	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.2	7.2	7.2	7.2
5	7.6	7.0	6.8	6.8	6.8	6.7	6.7	6.7	7.1	7.0	7.0	7.0	7.0	7.0	7.0	6.9
6	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.8	6.9	6.9	6.9	6.9	6.9	6.9	6.8	6.8
7									7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.0
8																
	Temperature (°C)								Temperature (°C)							
0	25	25	25	25	25	25	25	25								
1	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
2	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
4	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
5	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
6	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
7									25	25	25	25	25	25	25	25
8																

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Comments/Statistics

Client: DEB103
Reference: 12-1586-01-CDD

Test Result Comments:
None

Data Analysis:
Endpoints for mortality were calculated using a linear regression model (Log-Normal Probit) with CETIS v. 1.7.0 rev Q.

Endpoints for reproduction could not be calculated. No effect occurred.

Protocol Deviations:
None

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HydroQual Laboratories Ltd.

Ceriodaphnia Test Report

Quality Assurance Information

Culture history for adults used in the test for reference 12-1586:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

	row/replicate	A1	A2	A3	A5	B1	E1	A1	B2	B3	C2	
	number of young											
	number of adults											
		A1	A2	A3	A5	B1	E1	A1	B2	B3	C2	
	number of young											
	number of adults											
		A1	A2	A3	A5	B1	E1	A1	B2	B3	C2	
	number of young											
	number of adults											
		A1	A2	A3	A5	B1	E1	A1	B2	B3	C2	
	number of young	8	7	8	7	6	6	5	4	3	5	
	number of adults	1	1	1	1	1	1	1	1	1	1	
		A1	A2	A3	A5	B1	E1	A1	B2	B3	C2	
	number of young	4	10	4	4	6	6	10	7	6	4	
	number of adults	1	1	1	1	1	1	1	1	1	1	
		A1	A2	A3	A5	B1	E1	A1	B2	B3	C2	
	number of young	5	10	8	6	5	5	10	8	7	8	
	number of adults	1	1	1	1	1	1	1	1	1	1	
		A1	A2	A3	A5	B1	E1	A1	B2	B3	C2	
DAY USED 2012/09/12	number of young	8	9	8	11	11	8	8	9	9	9	
	number of adults	1	1	1	1	1	1	1	1	1	1	
		A1	A2	A3	A5	B1	E1	A1	B2	B3	C2	
totals (# of young in first 3 broods)	number of young	17	27	20	17	17	17	25	19	16	17	

Number of young produced per organism in the last brood before use	9
Mean number of surviving young per adult over the first three broods	19
Culture mortality over the last seven days	8

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Warning Chart
Ceriodaphnia

Test Method: *Ceriodaphnia* Survival and Reproduction Test (7 treatments plus a control)
HydroQual Test Method: WTR-ME-019
Reference: Biological Test Method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia*, 2007. Environment Canada, EPS 1/RM/21

Test Organism:

test species:	*Ceriodaphnia dubia*
culture source:	in-house
original culture source:	Environment Canada
ephippia in stock culture:	none
food type:	YAT:Algae
frequency of feeding:	daily
age of test organisms:	<24 hours
culture mortality 7 days prior:	4%
culture fecundity 7 days prior	
within the first three broods:	21
young produced in previous brood:	9
culture condition prior to test initiation:	normal
culture water:	moderately hard reconstituted water*

Test Design:

test type:	static renewal
toxicant:	sodium chloride (NaCl)
test vessel:	30 mL plastic cup
test volume (mL):	15
replicates per treatment:	10
organisms per replicate:	1
feeding:	daily
temperature (°C):	24-26
photoperiod:	16 hours light: 8 hours dark
light level (surface):	100-600 lux (full spectrum)
hardness adjustment:	no

*Note: there are 2 subcultures within this culture source, separated by one week in age. The test is set with organisms from one subculture. The number of young a culture has is monitored daily. If young are not used that day, they are discarded, therefore organisms in tests are <24h.

Control/Dilution Water:

source: moderately hard reconstituted water*

pH (units):	7.9
conductance (uS/cm):	364
dissolved oxygen (mg/L):	7.5
NH_4^+ (mg/L):	<0.1
hardness (mg $CaCO_3$/L):	113.5
alkalinity (mg $CaCO_3$/L):	107.5
total residual chlorine (mg/L):	<0.01

* Note: moderately hard reconstituted water prepared as per EPS 1/RM/21

Comments: None

The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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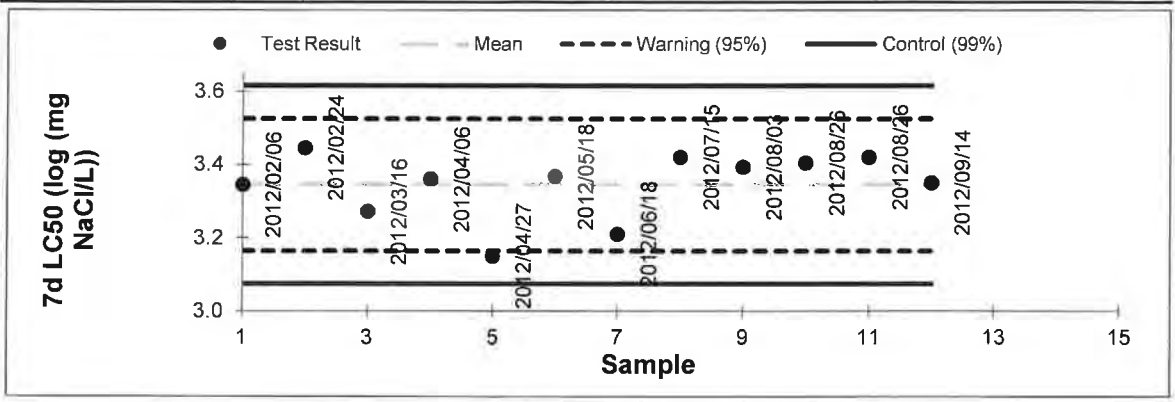
Mortality

Current Test

toxicant	Sodium chloride (NaCl)				
started on	2012/09/07	ended on	2012/09/14		
Result (7d LC50):	3.35	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	3.25	upper	3.45	

Historical Values

mean	3.35	sd	0.09	cv(%):	3
	lower	upper			
warning limits (±2 sd)	3.16	3.53	(95% confidence limits)		
control limits (±3 sd)	3.07	3.62	(99% confidence limits)		



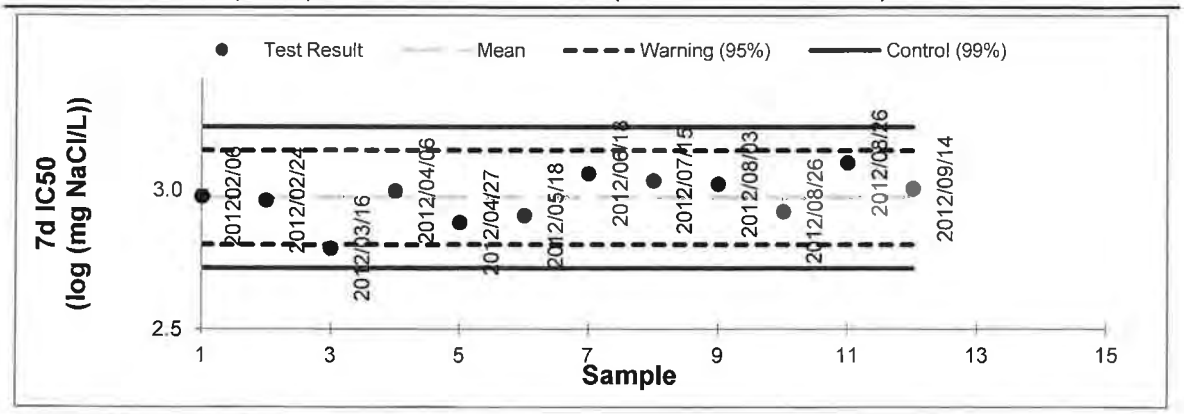
Reproduction

Current Test

toxicant	Sodium chloride (NaCl)				
started on	2012/09/07	ended on	2012/09/14		
Result (7d IC50)	3.01	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	3.07	upper	3.12	

Historical Values

mean	2.97	sd	0.08	cv(%):	3
	lower	upper			
warning limits (±2 sd)	2.80	3.14	(95% confidence limits)		
control limits (±3 sd)	2.72	3.23	(99% confidence limits)		



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Ceriodaphnia **Test Report**

Quality Assurance Information

Culture history for adults used in the test for reference QA201:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

row/replicate	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young number of adults											

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young number of adults											

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young number of adults											

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young number of adults											

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young	7	6	8	8	8	4	7	5	6	4	
number of adults	1	1	1	1	1	1	1	1	1	1	

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young	10	3	7	10	3	5	4	5	6	5	
number of adults	1	1	1	1	1	1	1	1	1	1	

DAY USED 2012/09/07

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young	10	8	8	11	8	8	10	10	9	8	
number of adults	1	1	1	1	1	1	1	1	1	1	

totals (# of young in first 3 broods)

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young	27	17	23	29	19	17	21	20	21	17	

Number of young produced per organism in the last brood before use	9
Mean number of surviving young per adult over the first three broods	21
Culture mortality over the last seven days	4

HydroQual Laboratories Ltd.

Trout (96-h LC50) Test Report

Result Summary

Client: DEB103
Reference: 12-1586-01-TRD

Client: DeBeers Canada Inc.; operation Snap Lake

Sample: 2012-1700

Collection: collected on 2012/09/09 at 1615 by not given
Receipt: received on 2012/09/11 at 1430 by J. Holmes-Smith, L. Windatt
Containers: received 4 x 20 L pails at 17 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/09/12 ; ended on 2012/09/16

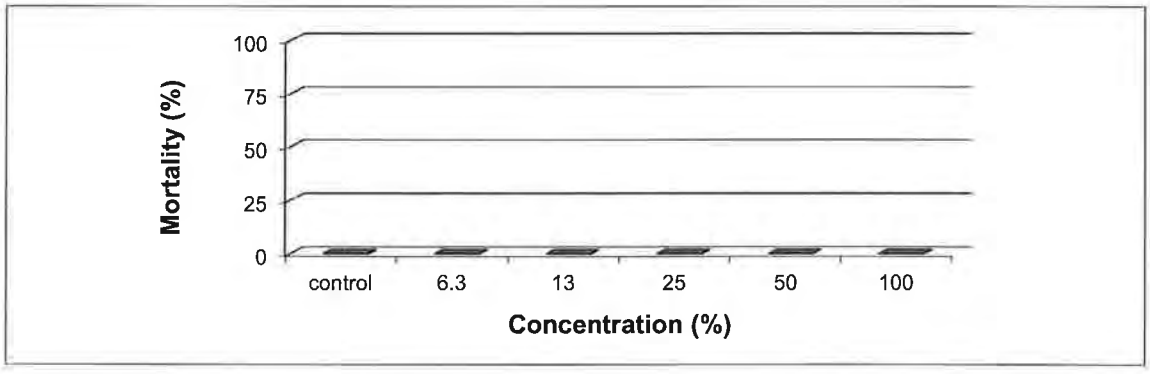
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Result:

	Endpoint (96-hour)	Value (%)	Confidence Limits (95%) lower	upper	Method Calculated
Acute: (mortality)	LC50	>100			could not be calculated
	LC25	>100			could not be calculated

Notes: LC25 & LC50, concentrations lethal to 25% and 50% of the test population



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-1586-01-TRD

Method: Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout, 2000. Environment Canada, EPS 1/RM/13. Second Edition (amended May 2007).

Test type: Trout 96-h Static Acute Test (WTR-ME-041)
Species: *Oncorhynchus mykiss*
Organism source: Miracle Springs (Batch 20120810TR)
Acclimation: 33 days (must be ≥2 weeks)
Stock mortality: 0% (seven days preceding testing)

Sample initial chemistry: pH: 6.6; EC: 1179 (µS/cm @ 25°C); DO: 8.5 (mg/L); temperature: 17 °C hardness (mg CaC03/L): 412; colour: colourless; odour: odourless
Sample holding time: 3 days (must be ≤ 5 days)
Sample storage: 4 ± 2°C in darkness

Test vessel: The test was conducted in 22 L plastic pails with polyethylene liners
Test volume: 20 Litres (depth of solution in each test vessel ≥15cm)
Sample pre-treatment: All test solutions and controls were pre-aerated for 30 minutes at 6.5 ±1 mL/min/L
Dissolved oxygen in 100 % sample was 8.6 mg/L after pre-aeration
The sample was not filtered or pH adjusted prior to or during testing
Loading density: 0.349 g/Litre (must be ≤ 0.5 g/Litre)
Control/dilution water: Dechlorinated City of Calgary water acclimated to test conditions
Test concentrations: 5 effluent concentrations (6.3, 12.5, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One replicate per treatment; 10 fish per replicate
Feeding: Fish are not fed 24 hours before test initiation and no feeding during test
Measurements: pH, conductivity, dissolved oxygen and temperature measured daily
Aeration: All treatments aerated at 6.5 ±1 mL/min/L by oil-free compressed air passed through airline tubes connected to disposable air stones
Lighting: Overhead full spectrum fluorescent lights; 100-500 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 15 ± 1°C

Endpoint: Mortality, 96-h LC50 (with 95% confidence limits)
Test validity: The control had 100% survival (must ≥ 90%)
The control had 0 percent (%) stressed behaviour (must ≤ 10%)
Reference toxicant: 96-h test with Phenol (C_6H_6O) initiated August 27, 2012; current results (96-h LC50 and 95% confidence limits) = 1.01 (0.96-1.06) log (mg/L Phenol)

Note: Outlined sections are protocol deviations explained on the comment page; v/v, volume per volume

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HydroQual Laboratories Ltd.

Trout (96-h LC50) Test Report

Test Data

Client: DEB103
Reference: 12-1586-01-TRD

Test Log:

Date	Day	Time	Technician	Comment/Observation
2012/09/12	0	1400	J. Holmes-Smith/D. Kaiser	test fish loaded at 1400 h
2012/09/13	1	0900	J. Holmes-Smith	all test fish appear normal
2012/09/14	2	0900	J. Holmes-Smith	all test fish appear normal
2012/09/15	3	0900	A. Pounder	all test fish appear normal
2012/09/16	4	1200	D. Kaiser	all test fish appear normal

Chemistry:

Conc. (%)	control	6.3	13	25	50	100		
Day	pH (units)							
0	7.7	7.6	7.7	7.6	7.6	7.6		
1	7.9	7.8	7.7	7.6	7.6	7.6		
2	8.1	8.1	8.0	7.9	7.9	7.8		
3	7.9	7.9	7.8	7.7	7.6	7.6		
4	8.2	8.1	7.9	7.8	7.8	7.8		
	Conductivity (µS/cm @ 25°C)							
0	410	461	519	625	828	1226		
1	387	435	496	601	801	1204		
2	411	458	521	623	822	1227		
3	380	433	495	603	802	1207		
4	411	459	522	624	827	1218		
	Dissolved Oxygen (mg/L)							
0	8.5	8.4	8.4	8.4	8.4	8.6		
1	8.3	8.3	8.2	7.9	7.9	7.9		
2	8.2	8.2	8.2	7.9	7.8	8.0		
3	8.5	8.5	8.3	8.1	8.0	8.4		
4	8.3	8.3	8.2	7.9	7.8	7.9		
	Temperature (°C)							
0	15	15	15	15	15	15		
1	15	15	15	15	15	15		
2	15	15	15	15	15	15		
3	15	15	15	15	15	15		
4	15	15	15	15	15	15		

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Trout (96-h LC50) Test Report

Test Data

Client: DEB103
Reference: 12-1586-01-TRD

Number Alive (In brackets number stressed):

Conc. (%)	control	6.3	13	25	50	100		
Day								
0	10	10	10	10	10	10		
1	10	10	10	10	10	10		
2	10	10	10	10	9*	10		
3	10	10	10	10	9	10		
4	10	10	10	10	9	10		

*see test result comment

Mortality (%)

4	0	0	0	0	0	0		

Stressed (%)

4	0	0	0	0	0	0		

Biology Summary Tables:

Control Fish	Length (cm)	Wet Weight(g)
1	4.5	0.8
2	3.5	0.4
3	4.9	1.0
4	4.7	1.0
5	4.3	0.7
6	4.0	0.5
7	3.9	0.5
8	4.5	0.9
9	4.1	0.6
10	3.8	0.5
average	4.2	0.7
sd	0.4	0.2
cv(%)	10.3	30.3

Notes: nd, not done; na, not applicable; sd, standard deviation; cv(%), coefficient of variation

Conc. (%)	Group Wet Weight (g)
control	7.0
6.3	6.4
13	6.9
25	6.7
50	5.9
100	7.3

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Comments/Statistics

Client: DEB103
Reference: 12-1586-01-TRD

Test Result Comments:
One fish jumped out of the 50% test vessel on day 1 and is not included in the mortality calculations or group weights.

Data Analysis:
Endpoints for mortality could not be calculated. No effect occurred.

Protocol Deviations:
None

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HydroQual Laboratories Ltd.

Warning Chart
Trout

Test Method: Trout 96h Static Acute Test. (LC50, 5 treatments plus a control)
HydroQual Test Method: WTR-ME-042

Reference: Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout, 1990. Environment Canada, EPS 1/RM/13. including May 1996 and December 2000 amendments.

Test Organism:		**Test Design:**	
test species:	*Oncorhyncus mykiss*	vol. of test vessel (L):	20
culture source:	Miracle Springs	test volume depth:	>15 cm
temperature (°C):	15 ± 1	replicates per treatment:	1
dissolved oxygen:	70-100% saturation	fish per replicate:	10
stock mortality (last 7d):	0.6%	loading (g fish/L):	≤0.5
batch number:	20120810TR	temperature (°C):	15 ± 1
		photoperiod:	16h light: 8h dark
		light level (water surface):	100-500 lux (full-spectrum)
		control/dilution water:	dechlorinated tap water

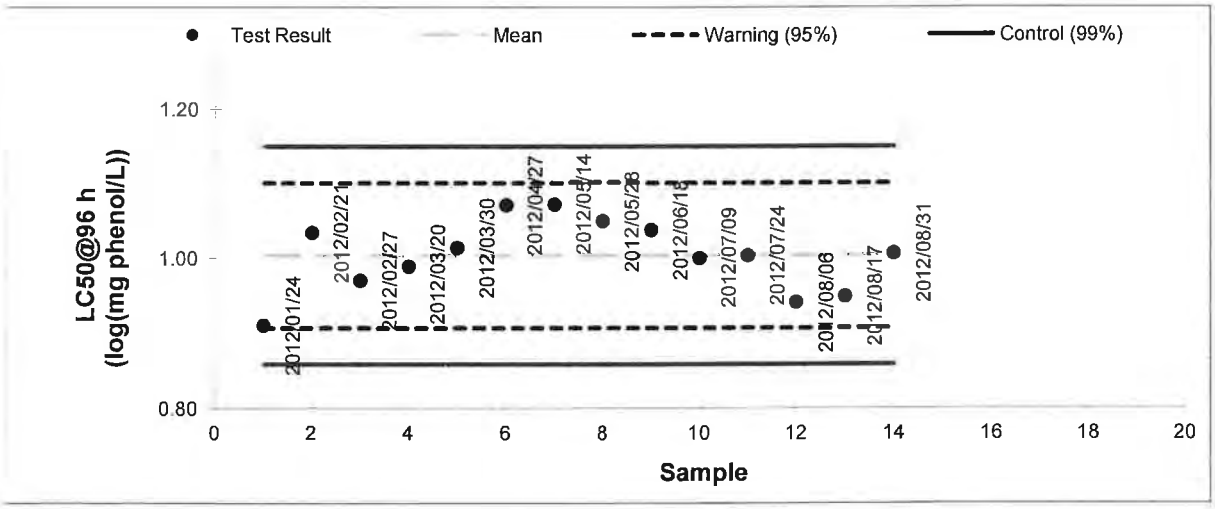
Current Test

toxicant	phenol (C_6H_5OH)				
started on	2012/08/27	ended on	2012/08/31		
Result (LC50 @ 96h)	1.01	log (mg phenol/L); geometric mean			
Confidence Limits (95%)	lower	0.96	upper	1.06	

Historical Values

mean	1.00	sd	0.05	cv(%):	5
	lower	upper			
warning limits (±2 sd)	0.91	1.10	(95% confidence limits)		
control limits (±3 sd)	0.86	1.15	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance



The test data and results are authorized and verified correct.

J. Holmes for E. Henson
Ecotoxicology Team Leader

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Result Summary

Client: DEB103
Reference: 12-1586-01-DAD

Client: DeBeers Canada Inc.; operation Snap Lake

Sample: 2012-1700

Collection: collected on 2012/09/09 at 1615 by not given
Receipt: received on 2012/09/11 at 1430 by J. Holmes-Smith, L. Windatt
Containers: received 4 x 20 L pails at 17 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/09/12 ; ended on 2012/09/14

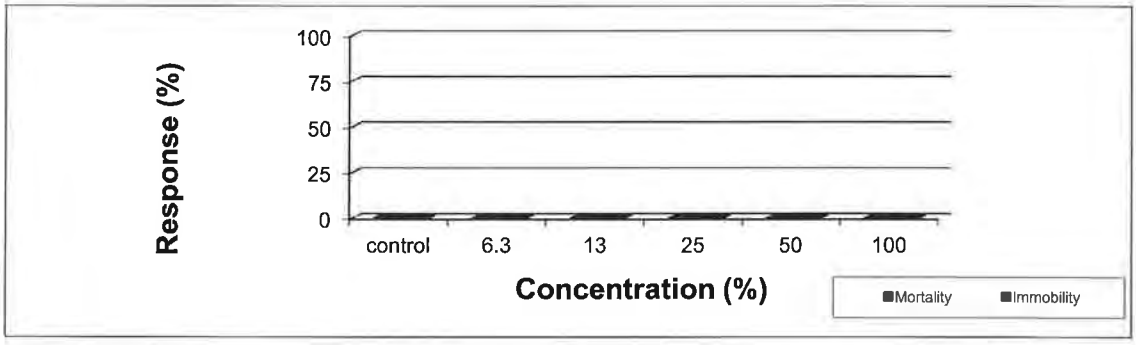
Contents

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Comments/Statistics..5
QA/QC.....6

Result:

	Endpoint (48-hour)	Value (%)	Confidence Limits (95%) lower	upper	Method Calculated
Acute: (mortality)	LC50	>100			could not be calculated
	LC25	>100			could not be calculated
Acute: (immobility)	EC50	>100			could not be calculated
	EC25	>100			could not be calculated

Notes: LC25 & LC50, concentrations lethal to 25% and 50% of the test population



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-1586-01-DAD

Method: Biological Test method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*, 2000. Environ. Can., EPS 1/RM/14. Second Edition.

Test type: *Daphnia* 48-h Static Acute Test (WTR-ME-015)
Species: *Daphnia magna*
Age: < 24 hours old
Organism source: in-house culture
Stock mortality: 0%
Culture brood data: 9 days to first brood
21 neonates per average brood

Sample initial chemistry: pH: 6.6; EC: 1179 (µS/cm @ 25°C); DO: 8.5 (mg/L); temperature: 17 °C
hardness (mg CaC03/L): 412; colour: colourless; odour: odourless
Sample holding time: 3 days (must be ≤ 5 days)
Sample storage: 4 ± 2°C in darkness

Test vessel: 385 mL plastic vessels
Test volume: 150 mL
Sample pre-treatment: The sample was not filtered or pH adjusted prior to or during testing
The sample was pre-aerated for 0 minutes (rate of 37.5 ± 12.5 mL/min.L^{-1})
The hardness of the sample was not adjusted (mg $CaCO_3$/L) prior to or during testing
Loading density: One daphnid/15 mL (must ≤ 1 organism/15 mL)
Control/dilution water: Dechlorinated City of Calgary water acclimated to test conditions
The hardness of the control/dilution water was 141 mg $CaCO_3$/L
Test concentrations: 5 effluent concentrations (6.3, 12.5, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One replicate per treatment, 10 daphnids per replicate
Feeding: None
Aeration: None
Measurements: pH, conductivity, dissolved oxygen and temperature at test initiation and termination
Lighting: Cool white fluorescent lights; 400-800 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 20 ± 2°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-1586-01-DAD

Endpoint: Mortality, 48-h LC50 (95% confidence limits)
Immobility, 48-h EC50 (95% confidence limits)

Test validity: The control had 100% survival (must ≥ 90%)
Control had 0 percent (%) abnormal behaviour (must ≤ 10%, immobility)

Reference toxicant: 48-h test with NaCl initiated September 10, 2012; current results (48-h LC50 and 95% confidence limits) = 0.69 (0.67-0.72) log (g/L NaCl)

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-1586-01-DAD

Test Log:

Date	Day	Time	Technician	Comment/Observation
2012/09/12	0	1030	L. Windatt/E. Petho	test *Daphnia* appear normal
2012/09/13	1	1015	D. Kaiser	test *Daphnia* appear normal
2012/09/14	2	0930	D. Kaiser	test *Daphnia* appear normal

Chemistry:

Conc. (%)	control	6.3	13	25	50	100		

Day	pH (units)							
0	8.2	8.2	8.2	8.1	7.9	7.6		
2	8.1	8.1	8.1	8.1	7.9	7.9		

	Conductivity (µS/cm @ 25°C)							
0	371	429	480	587	791	1190		
2	367	419	472	573	798	1187		

	Dissolved Oxygen (mg/L)							
0	7.7	7.8	7.8	7.8	7.9	8.0		
2	7.8	7.7	7.7	7.7	7.8	7.6		

	Temperature (°C)							
0	19	19	19	19	19	20		
2	21	21	21	21	21	21		

Biology:

Conc. (%)	control	6.3	13	25	50	100		

Day	Number Alive and Behavior (behavior is in brackets)							
1	10	10	10	10	10 (1F)	10		
2	10	10	10	10	10	10		

Notes: F, floating; I, immobile; B, stuck on bubble; D, caught in debris; nd, not done; na, not applicable;

	Mortality (%)							
2	0	0	0	0	0	0		

	Immobility (%)							
2	0	0	0	0	0	0		

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Comments/Statistics

Client: DEB103
Reference: 12-1586-01-DAD

Test Result Comments:
None

Data Analysis:
Endpoints for mortality could not be calculated. No effect occurred.

Endpoints for immobility could not be calculated. No effect occurred.

Protocol Deviations:
None

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Quality Assurance Information

Test Method: *Daphnia* Static Acute Test (LC50, 5 treatments plus a control)
HydroQual Test Method: WTR-ME-016

Reference: Biological Test Method: Reference Method for Determining the Acute Lethality of Effluents to *Daphnia magna,* 1990. Environment Canada, EPS 1/RM/14. including May 1996 and December 2000 ammendments.

Test Organism:

test species:	*Daphnia magna*
culture source:	in-house
original culture source:	Environment Canada
days to first brood:	9
mean brood size:	21
ephippia in stock culture:	no
age of test organisms:	<24 hours old
culture mortality (%):	0%
dissolved oxygen:	40-100% saturation

Test Design:

vol. of test vessel (mL):	500
toxicant:	sodium chloride
test volume (mL):	150
replicates per treatment:	1
neonates per replicate:	10
volume per neonate (mL):	15
samples preaerated:	no
hardness adjustment:	no
temperature (°C):	20
photoperiod:	16h light:8h dark
light level (water surface):	400-800 lux (cool white)
control/dilution water:	dechlorinated tap water

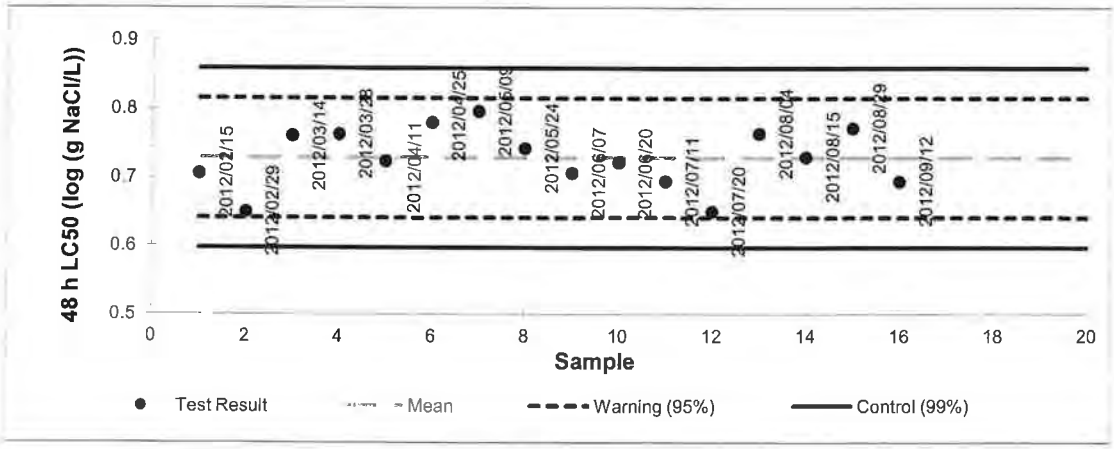
Current Test

toxicant	Sodium chloride (NaCl)				
started on	2012/09/10	ended on	2012/09/12		
Result (LC50 @ 48h)	0.69	log (g NaCl/L); geometric mean			
Confidence Limits (95%)	lower	0.67	upper	0.72	

Historical Values

mean	0.73	sd	0.04	cv(%):	6
	lower	upper			
warning limits (±2 sd)	0.64	0.82	(95% confidence limits)		
control limits (±3 sd)	0.60	0.86	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance
Comments:



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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HydroQual Laboratories Ltd.

Algae Test Report

Client: DEB103
Reference: 12-0619-01-AGD

Result Summary

Client: DeBeers Canada Inc.; operation Snap Lake Mine

Sample: 2012-0722

Collection: collected on 2012/04/17 at 1250 by not given
Receipt: received on 2012/04/19 at 1410 by J. Romero
Containers: received 4 x 20L pails at 13 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/04/20 ; ended on 2012/04/23

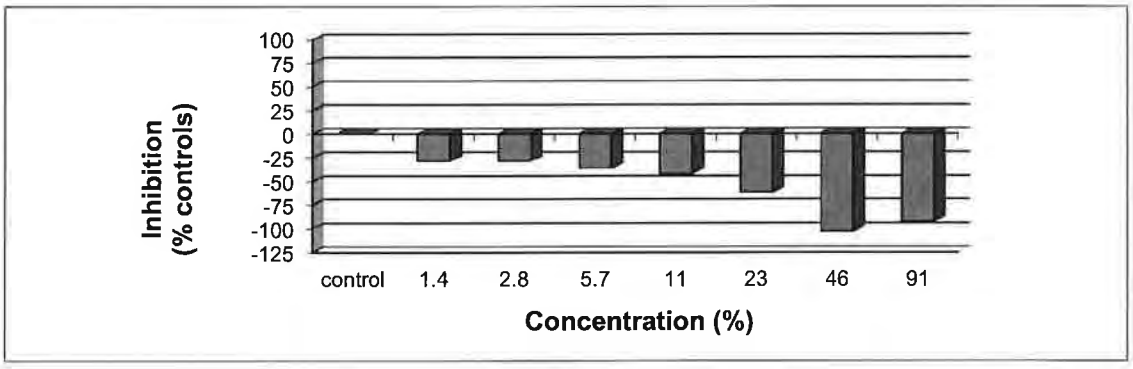
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Result:

	Endpoint (72-hour)	Value	Confidence Limits (95%) lower	upper		Method Calculated
Chronic:	IC25	>91			%	could not be calculated
(growth)	IC50	>91			%	could not be calculated

Notes: ICx, concentrations inhibiting growth by 'x' percent relative to controls; CV, coefficient of variation (%); SD, standard deviation



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Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-0619-01-AGD

Method: Biological Test Method: Growth Inhibition Test Using a Freshwater Alga *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum)*. Environment Canada, EPS 1/RM/25, 2nd Edition, March 2007

Test type: Algal Growth Inhibition Test (WTR-ME-034)

Species: *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum* and *Raphidocelis subcapitata*)

Organism source: In-house culture (original source: UTCC 37; strain: LB37)

Culture age: The test was started with 7 day old, exponentially growing cells determined with an algal growth curve. The algal growth curve was started with an inoculum from the algal stock culture determined over an 8-10 day period. This culture was initiated on 2012/03/03. Algal cultures are regrown every 2 months from slants made from a new culture purchased annually.

Culture observations: No unusual appearance or treatment of the algae was noted prior to or during the conduct of the test.

Sample initial chemistry: pH: 7.0; EC: 973 (µS/cm); DO: 9.0 (mg/L); temperature: 17 °C
hardness (mg CaC03/L): 272; colour: colourless; odour: odourless

Sample holding time: 3 days (must be ≤ 3 days)

Sample storage: 4 ± 2°C in darkness

Test concentrations: 7 effluent concentrations (1.4, 2.8, 5.7, 11, 23, 46 and 91% (v/v) plus a negative control)

Test vessel: The test was conducted in 96 well microplates. Three replicate plates were run (a, b and c). Test concentrations were not isolated from each other because volatility was not expected.

Test replicates: Three replicate microplates were run. Per plate there were 5 replicate wells per concentration and 10 replicate wells per control.

Test volume: 220 µL final volume in each well with 200 µL of sample;
10µL of enrichment medium and 10µL of algal inoculum.

Inoculum: The initial cell density of the inoculum was 9427 (cells/mL), it was prepared less than ≤2-3 hours before test initiation.

Control/dilution water: Made up with deionized City of Calgary water spiked with nutrients as per EPS 1/RM/25 (made by adding 1mL of each of the 5 stock solutions to 10mL of DRO). The metal stock with 25% reduced EDTA was used.

Sample Filtration: 100 mL filtered through a 0.45 µm pore diameter membrane.

Sample treatment: Sample spiked with nutrients as per EPS 1/RM/25; no other chemicals added.

Measurements: Final cell densities were determined from the absorbance at 430 nm calibrated against cell counts. The conversion factor for absorbance to cells per millilitre was 11796 with a coefficient of variation of 5 %.

Aeration: Not required

pH Adjustment: Not required

Lighting: The plates were incubated under continuous light: 4055 lux
(cool white fluorescent bulbs) 56.77 µmol/(m^2•S)

Test temperature: 24 ± 2°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-0619-01-AGD

Endpoint: Growth, 72-h IC25 (with 95% confidence limits)
Test endpoint was bracketed by at least 1 test concentration (except for <1.4% or >100 %)
No outliers were observed within the data set.

Test validity: Control growth was a 22 fold increase over the inoculum.
The cv of the standard control wells was 8 %.
(must be > 16 fold increase with a cv of ≤ 20%)

Statistics: See Data Analysis section.
Mann-Kendall Trend analysis was not performed as control cv was < 10%.

Reference toxicant: 72-h test with Zinc ($ZnSO_4$*7H2O) initiated April 13, 2012;
(must be within 14 days of the test initiation)
current results: (72-h IC25 and 95% confidence limits) = 1.31 (1.18-1.42) log (µg Zn^{2+}/L)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-0619-01-AGD

Test Log:

Date	Day	Technician	Time	Rotated	Temperature (°C)
2012/04/20	0	E.Blais/E.Petho	1430	na	24
2012/04/21	1	B.Shore	915	yes	25
2012/04/22	2	H.Caro-Riano	900	yes	24
2012/04/23	3	E.Petho/L.Windatt	1340	na	25

Absorbance and Direct Cell Data:

Concentration (%)	Absorbance (430 nm)	Direct Cell Counts(/0.5 mL)
ctl	0.02	3083
11	0.02	3983
91	0.03	5750

pH Measurements:

Concentration	Initial Value
control	7.8
91%	7.8

Concentration	Final Mean	% CV
control (well D6)	8.2	0
control (well D7)	8.2	0

Average Absorbance Control Data:

Column Well	2b	2c	2e	2f	2g
Absorbance (430 nm)	0.02	0.02	0.02	0.02	0.01
Column Well	11b	11c	11e	11f	11g
Absorbance (430 nm)	0.02	0.02	0.02	0.02	0.02

Standard Control Wells:

Average	201
SD	17
CV%	8

Test Results at 72 hours:

Concentration (%)	Cell Yield Densities ($x10^3$ / mL) Well Replicate					Average	SD	CV	Percent Controls	Inhibition (%)	Stimulation (%)
	a	b	c	d	e						
control	231	189	201	203	187	202	17	9	100	0	0
1.4	258	254	250	290	246	260	17	7	128	-28	28
2.8	270	254	258	274	242	260	13	5	128	-28	28
5.7	321	301	262	242	250	275	34	12	136	-36	36
11	321	293	301	270	250	287	28	10	142	-42	42
23	337	341	325	309	325	327	12	4	162	-62	62
46	407	411	419	404	411	411	6	1	203	-103	103
91	376	380	417	388	386	389	16	4	193	-93	93

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Comments/Statistics

Client: DEB103
Reference: 12-0619-01-AGD

Test Result Comments:
The absorbance measurements were made after the cells were centrifuged and resuspended in clear solution (and that the conversion factor developed for abs vs cell number reflects this step). Manual enumeration was performed on the same day as test termination.

Data Analysis:
Significant stimulatory effects in growth were observed in 1.4, 2.8, 5.7, 11, 23, 46, and 91% concentrations as calculated by ANOVA analysis with CETIS v. 1.7.0revQ. (William's Multiple Comparison).

Endpoints for growth inhibition could not be calculated. Inhibitory effects did not occur.

Protocol Deviations:
None

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Warning Chart
Algae

Test Method: 72 hours Algal Growth Inhibition Test (IC25, seven or more treatments plus a control)
HydroQual Test Method: WTR-ME-035

Reference: Biological Test Method: Growth Inhibition Test Using the Freshwater Alga *Selenastrum capricornutum*, 2007. Environment Canada, EPS 1/RM/25.

Test Organism:		**Test Design:**	
test species:	*Pseudokirchneriella subcapitata*	test type:	static
batch number:	20120406AG	toxicant:	zinc
date started from slant:	2012/03/03	test vessel:	96 well flat bottom microplate
original source/strain:	UTCC 37 / LB37	test volume (µL):	220
culture vessels:	2L Erlenmeyer flask	no. of replicate plates:	3
water source:	85% deionized water, 15% dechlorinated tap	no. of replicate wells / treatment per plate (control, sample):	10, 5
growth medium:	nutrient solution	mean temperature (°C):	24 ± 2°C
cultivation method:	batch as per test conditions	photoperiod:	continuous light
culture condition at start	normal	light level:	3600-4400 lux (cool white)
culture age:	3-7 days	contol/dilution water:	deionized water and nutrients prepared as per EPS1/RM/25
growth phase:	exponentially growing		

Current Test

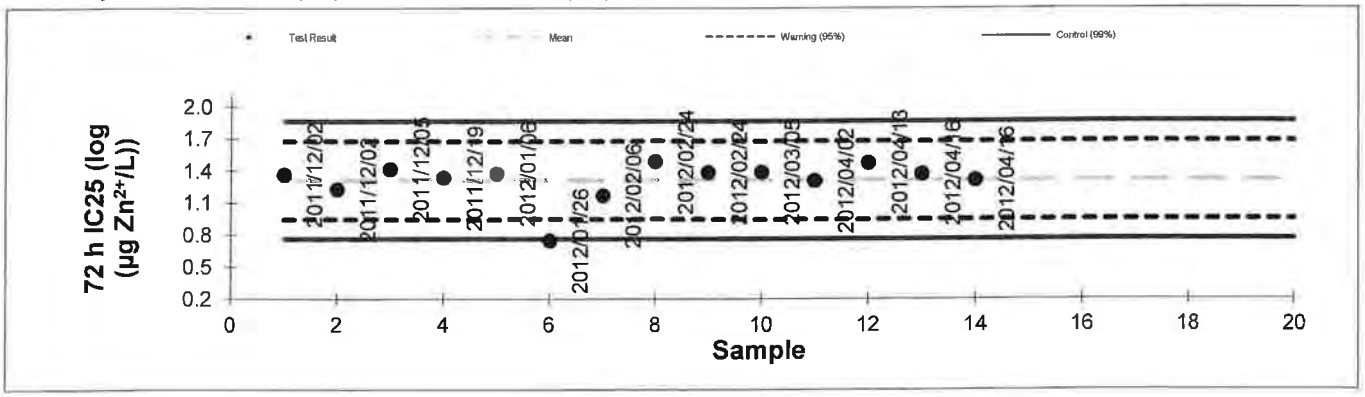
toxicant Zinc ($ZnSO_4*7H_2O$)
started on 2012/04/13 ended on 2012/04/16

Result (IC25 @ 72h)	1.31	log (µg $Zn2^+$/L); geometric mean			
Confidence Limits (95%)	lower	1.18	upper	1.42	

Historical Values

mean	1.31	sd	0.18	cv(%):	14
	lower	upper			
warning limits (±2 sd)	0.95	1.68	(95% confidence limits)		
control limits (±3 sd)	0.76	1.86	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance, na; could not be calculated



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Ecotoxicology Team Leader

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Client: DEB103
Reference: 12-0619-01-CDD

Result Summary

Client: DeBeers Canada Inc.; operation Snap Lake Mine

Sample: 2012-0722

Collection: collected on 2012/04/17 at 1250 by not given
Receipt: received on 2012/04/19 at 1410 by J. Romero
Containers: received 4 x 20L pails at 13 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/04/19 ; ended on 2012/04/26

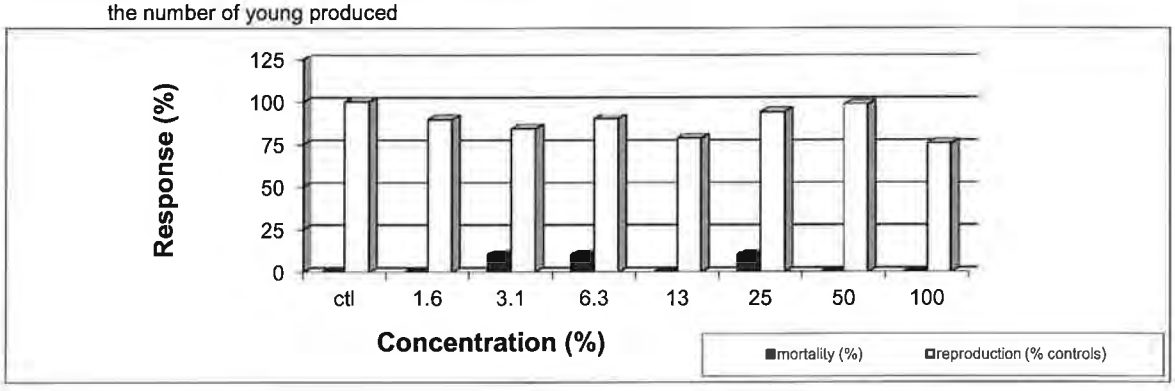
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Result:

	Endpoint (7-day)	Value	Confidence Limits (95%) lower	upper	Units	Method Calculated
Acute:	LC25	>100			%	could not be calculated
(survival)	LC50	>100			%	could not be calculated
Chronic:	IC25	>100			%	could not be calculated
(fecundity)	IC50	>100			%	could not be calculated

Notes: LCx & ICx, concentrations lethal or inhibitory to 'x' percent of the test population; fecundity, reproduction as the number of young produced



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Test Conditions

Client: DEB103
Reference: 12-0619-01-CDD

Method: Biological Test method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia*. Environment Canada, EPS 1/RM/21, 2nd Edition, February 2007.

Test type: *Ceriodaphnia* Survival and Reproduction Static Renewal Test (WTR-ME-018)
Species: *Ceriodaphnia dubia*
Age: <24 hours old; all from same brood source within 12 hours of the same age.
Organism source: in-house cultures; cultures from a single brood organism to provide test organisms.
Culture health: Culture mortality was 8% (must be ≤ 20%).
7-d prior to test initiation: No ephippia were noted in the cultures at any time.
Average young produced per adult in the first three broods was 19 (must be ≥ 15)
Number of young produced by each brood organism in the last complete brood before use was 10 (must be ≥ 8).
Organism observations: No unusual behavior, appearance or treatment of test organisms was noted prior to or during the test. All first-generation mortality was recorded on the day it was observed.
Sample initial chemistry: pH: 7.0; EC: 973 (µS/cm); DO: 9.0 (mg/L); temperature: 17 °C
hardness (mg CaC03/L): 272; colour: colourless; odour: odourless
Sample holding time: 2 days (must be ≤ 3 days); The test was conducted with three subsamples, samples a, b, and c were for days 0 to 2, 3 to 5, and 6 to 8 respectively
Sample storage: 4 ± 2°C in darkness

Test vessel: The tests were conducted in 30 mL plastic vessels (2 cm depth).
Test volume: 15 mL of solution (1 cm depth); replenished daily.
Control/dilution water: The control and dilution water was moderately hard reconstituted water. Chemicals added to dilution water:
1.92 g NaHCO3, 1.2 g CaSO4, 1.2 g MgSO4, 0.08 g KCl per 20L.
Test concentrations: 7 effluent concentrations (1.6, 3.1, 6.3, 13, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One neonate <24 hours old was loaded per test vessel;
10 replicates/concentration
Feeding: The test organisms were fed daily a mixture of fermented trout chow, yeast, alfalfa powder, and the green alga *Pseudokirchneriella subcapitata* (formerly *Selenastrum capricornutum* and *Raphidocelis subcapitata*).
Food expiration date: 2012/04/29; 2012/05/05
Measurements: pH, conductivity, dissolved oxygen and temperature were measured daily.
Sample pre-treatment: The sample was not aerated, filtered or pH adjusted prior or during testing.
The dissolved oxygen concentration (mg/L) was: 7.5
The sample pH was: 6.9
Lighting: Overhead full spectrum fluorescent lights; 100-600 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 25 ± 1°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-0619-01-CDD

Endpoints: Survival, 7-d LC50 (with 95% confidence limits)
Reproduction, 7-d IC25 (with 95% confidence limits)
Test endpoints were bracketed by at least 1 test concentration (except for <1.6% or >100 %)
No outliers were observed within the data set.

Test completion: 70% of the control organisms had ≥ 3 broods on day 7 (must be ≥ 60% within 8 days) Any neonates produced after third brood were not included in the mean young per adult calculation.

Test validity: The control had 100% survival (must ≥ 80%)
Number of young produced by each surviving control adult within the first three broods was 20 (must be ≥ 15).

Reference toxicant: 7-d test with NaCl initiated on April 20, 2012;
(must be within 14 days of test initiation)
current results: (7-d LC50 and 95% confidence limits) =
3.15 (2.98-3.32) log (mg/L NaCl)
current results: (7-d IC50 and 95% confidence limits) =
2.88 (2.63-3.03) log (mg/L NaCl)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-0619-01-CDD

Test Log:

Date	Day	Time	Technicians	Temperature (°C) Control	Sample
2012/04/19	0	1545	J.Holmes-Smith	25	25
2012/04/20	1	1200	E.Petho	24	24
2012/04/21	2	1130	E.Petho	25	25
2012/04/22	3	1005	E.Blais	25	25
2012/04/23	4	0940	J.Holmes-Smith	25	25
2012/04/24	5	1020	J.Holmes-Smith	25	25
2012/04/25	6	0925	J.Holmes-Smith	25	25
2012/04/26	7	0845	J.Holmes-Smith	na	na

Chemistry Summary Tables:

	New Solutions								Old Solutions							
Conc. %	ctl	1.6	3.1	6.3	13	25	50	100	ctl	1.6	3.1	6.3	13	25	50	100
Average Values																
pH	7.8	7.9	7.9	7.9	7.9	7.8	7.7	7.5	7.9	7.9	8.0	7.9	7.9	7.9	7.8	7.7
cond.	380	391	401	421	457	529	677	988	388	425	418	432	495	548	704	1056
DO	7.0	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.7	6.7	6.6	6.6	6.6	6.6	6.5
temp.	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Coefficients of Variation (%)																
pH	2	2	2	2	2	2	2	4	1	1	1	1	1	1	1	1
cond.	6	5	5	5	5	4	3	2	6	4	4	4	7	3	3	3
DO	4	2	3	3	3	3	3	4	3	2	2	3	3	3	3	3
temp.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

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Test Data

Client: DEB103
Reference: 12-0619-01-CDD

Biology (number of young produced):

Replicate	Day 1	2	3	4	5	6	7	8
Control								
1	0	0	0	5	0	2	0	
2	0	0	0	6	0	7	12	
3	0	0	0	5	7	0	12	
4	0	0	0	3	0	0	0	
5	0	0	0	2	0	8	11	
6	0	0	0	0	8	6	0	
7	0	0	0	4	9	0	12	
8	0	0	0	4	11	0	13	
9	0	0	0	5	0	9	13	
10	0	0	0	4	0	8	15	
1.6%								
1	0	0	0	6	0	6	2	
2	0	0	0	5	0	8	9	
3	0	0	0	0	0	6	8	
4	0	0	0	5	0	7	8	
5	0	0	0	3	0	8	10	
6	0	0	0	5	0	7	8	
7	0	0	0	3	0	6	10	
8	0	0	0	2	2	6	-	
9	0	0	0	4	5	0	11	
10	0	0	0	4	7	0	9	
3.1%								
1	0	0	0	0	0	0	7	
2	0	0	0	4	0	7	12	
3	0	0	0	3	0	6	3	
4	0	0	0	3	11	0	13	
5	0	0	0	2	8	8	-	
6	0	0	0	5	9	0	10	
7	0	0	0	6	4	0	10	
8	0	0	0	4	0	**8**	X	
9	0	0	0	4	0	2	8	
10	0	0	0	0	0	6	6	

Replicate	Day 1	2	3	4	5	6	7	8
13%								
1	0	0	0	0	0	4	7	
2	0	0	0	5	0	7	9	
3	0	0	0	0	6	8	0	
4	0	0	0	0	7	13	0	
5	0	0	0	4	7	7	-	
6	0	0	0	4	6	0	9	
7	0	0	0	0	0	5	10	
8	0	0	0	4	3	0	9	
9	0	0	0	5	6	0	10	
10	0	0	0	3	0	0	0	
25%								
1	0	0	0	4	0	9	9	
2	0	0	0	0	0	4	4	
3	0	0	0	3	10	0	9	
4	0	0	0	2	0	8	9	
5	0	0	0	5	5	8	-	
6	0	0	0	6	**4**	X	X	
7	0	0	0	4	9	0	12	
8	0	0	0	6	4	8	-	
9	0	0	0	6	10	0	13	
10	0	0	0	3	0	5	10	
50%								
1	0	0	0	3	0	6	8	
2	0	0	0	5	6	0	10	
3	0	0	0	5	9	0	10	
4	0	0	0	2	6	10	-	
5	0	0	0	5	5	0	7	
6	0	0	0	3	5	11	-	
7	0	0	0	4	0	5	6	
8	0	0	0	5	0	8	8	
9	0	0	0	6	7	0	13	
10	0	0	0	5	6	0	9	

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died; —, young produced after third brood

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Test Data

Client: DEB103
Reference: 12-0619-01-CDD

Biology (number of young produced):

Replicate	Day 1	2	3	4	5	6	7	8
	6.3%							
1	0	0	0	4	0	6	9	
2	0	0	0	6	6	0	13	
3	0	0	0	5	8	0	9	
4	0	0	0	2	2	0	7	
5	0	0	0	6	9	0	9	
6	0	0	0	4	9	0	7	
7	0	0	0	0	0	5	9	
8	0	0	0	4	8	0	11	
9	0	0	0	4	0	4	6	
10	0	0	0	3	0	6	**0**	
	100%							
1	0	0	0	4	6	0	11	
2	0	0	0	4	7	2	-	
3	0	0	0	0	4	0	6	
4	0	0	0	0	5	8	0	
5	0	0	0	2	9	9	-	
6	0	0	0	5	6	0	9	
7	0	0	0	5	4	0	5	
8	0	0	0	0	2	3	10	
9	0	0	0	5	0	8	2	
10	0	0	0	3	4	4	-	

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died;
—, young produced after third brood

Biology Summary Tables:

Number of Organism Alive

Day	Conc. % ctl	1.6	3.1	6.3	13	25	50	100
0	10	10	10	10	10	10	10	10
1	10	10	10	10	10	10	10	10
2	10	10	10	10	10	10	10	10
3	10	10	10	10	10	10	10	10
4	10	10	10	10	10	10	10	10
5	10	10	10	10	10	9	10	10
6	10	10	9	10	10	9	10	10
7	10	10	9	9	10	9	10	10
8								

Daily Young Production

Day	ctl	1.6	3.1	6.3	13	25	50	100
0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0
4	38	37	31	38	25	39	43	28
5	35	14	32	42	35	42	44	47
6	40	54	37	21	44	42	40	34
7	88	75	69	80	54	66	71	43
8								
Total	201	180	169	181	158	189	198	152

Percent Mortality (%)

	ctl	1.6	3.1	6.3	13	25	50	100
mean	0	0	10	10	0	10	0	0

Total Young Produced by Each Adult

Replicate	ctl	1.6	3.1	6.3	13	25	50	100
1	7	14	7	19	11	22	17	21
2	25	22	23	25	21	8	21	13
3	24	14	12	22	14	22	24	10
4	3	20	27	11	20	19	18	13
5	21	21	18	24	18	18	17	20
6	14	20	24	20	19	10	19	20
7	25	19	20	14	15	25	15	14
8	28	10	12	23	16	18	21	15
9	27	20	14	14	21	29	26	15
10	27	20	12	9	3	18	20	11

Young Per Adult (within first three broods)

	ctl	1.6	3.1	6.3	13	25	50	100
mean	20	18	17	18	16	19	20	15
sd	8.96	3.92	6.49	5.7	5.55	6.31	3.36	3.88
cv(%)	44.6	21.8	38.4	31.5	35.2	33.4	17	25.5

Young Production as a Percent of Controls

ctl	1.6	3.1	6.3	13	25	50	100
100	90	84	90	79	94	99	76

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Test Data

Client: DEB103
Reference: 12-0619-01-CDD

Chemistry:

	New Solutions								Old Solutions							
Conc. %	ctl	1.6	3.1	6.3	13	25	50	100	ctl	1.6	3.1	6.3	13	25	50	100
Day	pH (units)								pH (units)							
0	7.5	7.6	7.6	7.6	7.6	7.5	7.4	6.9								
1	7.9	7.9	7.9	7.9	7.8	7.8	7.7	7.4	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.7
2	7.9	7.9	7.9	7.9	7.9	7.8	7.7	7.6	8.0	8.0	8.0	8.0	8.0	8.0	7.9	7.8
3	7.9	7.9	7.9	8.0	7.9	7.9	7.8	7.6	7.9	7.9	8.0	7.9	7.9	7.9	7.8	7.7
4	7.7	7.8	7.9	7.9	7.9	7.9	7.8	7.7	7.9	8.0	8.0	8.0	8.0	8.0	7.9	7.8
5	7.9	8.0	8.0	8.0	8.0	7.9	7.8	7.7	8.0	8.0	8.0	8.0	8.0	8.0	7.9	7.8
6	7.8	7.9	7.9	7.9	7.9	7.8	7.7	7.5	7.9	7.9	7.9	7.8	7.8	7.8	7.7	7.6
7									7.9	7.9	7.9	7.8	7.8	7.8	7.8	7.7
8																
	Conductivity (µS/cm)								Conductivity (µS/cm)							
0	402	418	428	448	485	561	703	1010								
1	361	373	385	408	444	517	662	975	381	421	426	436	484	552	702	1056
2	361	374	386	406	446	516	667	988	375	409	403	417	467	537	695	1019
3	393	385	394	414	440	512	663	964	389	412	402	417	568	534	680	1016
4	411	418	429	449	486	557	708	1016	425	462	448	463	510	573	741	1100
5	362	373	382	400	435	507	655	981	358	418	407	421	468	531	694	1052
6	368	393	406	423	461	535	681	982	404	429	420	434	484	557	700	1082
7									381	426	421	434	486	555	713	1064
8																
	Dissolved Oxygen (mg/L)								Dissolved Oxygen (mg/L)							
0	7.0	6.9	6.9	6.8	6.8	6.9	7.1	7.5								
1	6.8	6.8	6.6	6.6	6.6	6.5	6.6	6.6	6.7	6.7	6.6	6.4	6.4	6.4	6.4	6.3
2	6.9	6.8	6.8	6.7	6.6	6.7	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
3	7.6	7.2	7.1	7.0	7.0	7.0	7.0	6.9	6.9	6.6	6.6	6.6	6.6	6.6	6.6	6.5
4	6.8	6.8	6.9	6.9	6.9	7.0	7.0	7.0	7.1	7.0	7.0	7.0	6.9	6.9	7.0	6.9
5	6.9	7.0	7.0	7.0	7.0	7.0	6.9	6.8	6.7	6.8	6.8	6.7	6.7	6.7	6.7	6.7
6	7.1	7.1	7.1	7.1	7.1	7.1	7.0	6.9	7.0	6.8	6.7	6.7	6.6	6.6	6.6	6.5
7									7.0	6.7	6.7	6.3	6.4	6.3	6.3	6.3
8																
	Temperature (°C)								Temperature (°C)							
0	25	25	25	25	25	25	25	25								
1	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
2	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
4	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
5	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
6	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
7									25	25	25	25	25	25	25	25
8																

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Comments/Statistics

Client: DEB103
Reference: 12-0619-01-CDD

Test Result Comments:
None

Data Analysis:
Endpoints for mortality could not be calculated. No effect occurred.

Endpoints for reproduction could not be calculated. No effect occurred.

Protocol Deviations:
None

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Quality Assurance Information

Culture history for adults used in the test for reference 12-0619:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

	row/replicate	A10	B2	B4	B6	B9	C10	E8	A2	A10	D10	
	number of young											
	number of adults											
		A10	B2	B4	B6	B9	C10	E8	A2	A10	D10	
	number of young											
	number of adults											
		A10	B2	B4	B6	B9	C10	E8	A2	A10	D10	
	number of young											
	number of adults											
		A10	B2	B4	B6	B9	C10	E8	A2	A10	D10	
	number of young	8			6	7	5	7		2	5	
	number of adults	1			1	1	1	1		1	1	
		A10	B2	B4	B6	B9	C10	E8	A2	A10	D10	
	number of young	8	2	2	7	9	7	9	2	7	8	
	number of adults	1	1	1	1	1	1	1	1	1	1	
		A10	B2	B4	B6	B9	C10	E8	A2	A10	D10	
	number of young	6	4	5	2	9	7	8	6	6	8	
	number of adults	1	1	1	1	1	1	1	1	1	1	
		A10	B2	B4	B6	B9	C10	E8	A2	A10	D10	
DAY USED	number of young	9	9	9	9	11	10	11	10	13	8	
2012/04/19	number of adults	1	1	1	1	1	1	1	1	1	1	
		A10	B2	B4	B6	B9	C10	E8	A2	A10	D10	
totals	number of young	22	15	16	15	25	19	24	18	15	21	
(# of young in first 3 broods)												

Number of young produced per organism in the last brood before use: 10

Mean number of surviving young per adult over the first three broods: 19

Culture mortality over the last seven days: 8

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HydroQual Laboratories Ltd.

Warning Chart
Ceriodaphnia

Test Method: *Ceriodaphnia* Survival and Reproduction Test (7 treatments plus a control)
HydroQual Test Method: WTR-ME-019
Reference: Biological Test Method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia*, 2007. Environment Canada, EPS 1/RM/21

Test Organism:

test species:	*Ceriodaphnia dubia*
culture source:	in-house
original culture source:	Environment Canada
ephippia in stock culture:	none
food type:	YAT:Algae
frequency of feeding:	daily
age of test organisms:	<24 hours
culture mortality 7 days prior:	0%
culture fecundity 7 days prior within the first three broods:	22
young produced in previous brood:	10
culture condition prior to test initiation:	normal
culture water:	mixture of moderately hard reconstituted* water and Bow River Water (50:50)

Test Design:

test type:	static renewal
toxicant:	sodium chloride (NaCl)
test vessel:	30 mL plastic cup
test volume (mL):	15
replicates per treatment:	10
organisms per replicate:	1
feeding:	daily
temperature (°C):	24-26
photoperiod:	16 hours light: 8 hours dark
light level (surface):	100-600 lux (full spectrum)
hardness adjustment:	no

*Note: there are 2 subcultures within this culture source, separated by one week in age. The test is set with organisms from one subculture. The number of young a culture has is monitored daily. If young are not used that day, they are discarded, therefore organisms in tests are <24h.

Control/Dilution Water:

source:	mixture of moderately hard reconstituted* water and Bow River Water (50:50)
pH (units):	8.4
conductance (uS/cm):	466
dissolved oxygen (mg/L):	7.5
NH_4^+ (mg/L):	<0.1
hardness (mg $CaCO_3$/L):	149
alkalinity (mg $CaCO_3$/L):	107
total residual chlorine (mg/L):	<0.01

* Note: moderately hard reconstituted water prepared as per EPS 1/RM/21

Comments: None

The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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HydroQual Laboratories Ltd.

Warning Chart
Ceriodaphnia

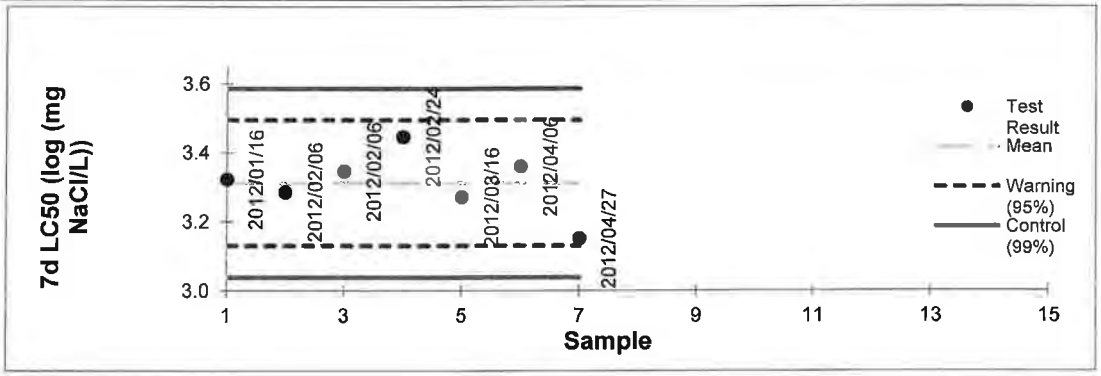
Mortality

Current Test

toxicant	Sodium chloride (NaCl)				
started on	2012/04/20	ended on	2012/04/27		
Result (7d LC50):	3.15	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	2.98	upper	3.32	

Historical Values

mean	3.31	sd	0.09	cv(%):	3
	lower	upper			
warning limits (±2 sd)	3.13	3.49	(95% confidence limits)		
control limits (±3 sd)	3.04	3.59	(99% confidence limits)		



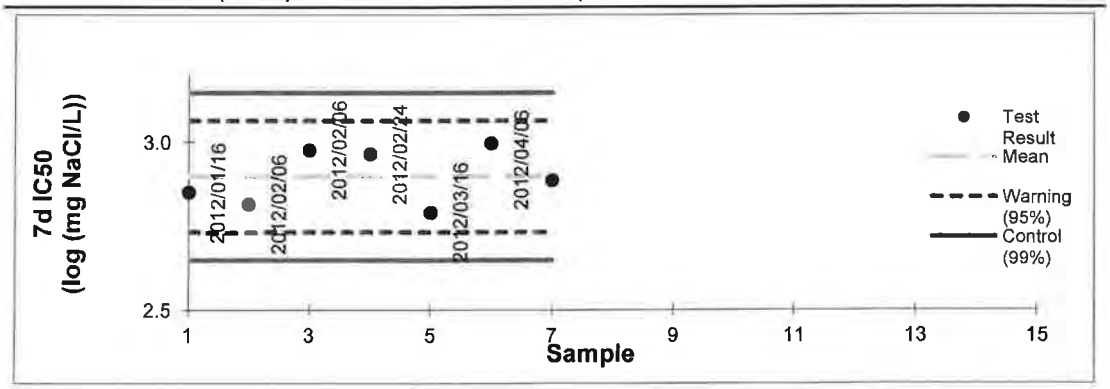
Reproduction

Current Test

toxicant	Sodium chloride (NaCl)				
started on	2012/04/20	ended on	2012/04/27		
Result (7d IC50)	2.88	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	2.63	upper	3.03	

Historical Values

mean	2.90	sd	0.08	cv(%):	3
	lower	upper			
warning limits (±2 sd)	2.73	3.06	(95% confidence limits)		
control limits (±3 sd)	2.65	3.15	(99% confidence limits)		



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Quality Assurance Information

Culture history for adults used in the test for reference QA85:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

row/replicate	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young number of adults											

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young number of adults											

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young number of adults											

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young number of adults											

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young	6	7	4	5	6	7	5	3	2		
number of adults	1	1	1	1	1	1	1	1	1		

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young	7	9	8	7	5	7	7	4	9		
number of adults	1	1	1	1	1	1	1	1	1		

DAY USED
2012/04/20

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young	9	8	8	11	10	9	10	13	8		
number of adults	1	1	1	1	1	1	1	1	1		

totals
(# of young in first
3 broods)

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young	22	24	20	23	21	23	22	20	19		

Number of young produced per organism in the last brood before use: 10

Mean number of surviving young per adult over the first three broods: 22

Culture mortality over the last seven days: 0

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HydroQual Laboratories Ltd.

Trout (96-h LC50) Test Report

Client: DEB103
Reference: 12-0619-01-TRD

Result Summary

Client: DeBeers Canada Inc.; operation Snap Lake Mine

Sample: 2012-0722

Collection: collected on 2012/04/17 at 1250 by not given
Receipt: received on 2012/04/19 at 1410 by J. Romero
Containers: received 4 x 20L pails at 13 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/04/20 ; ended on 2012/04/24

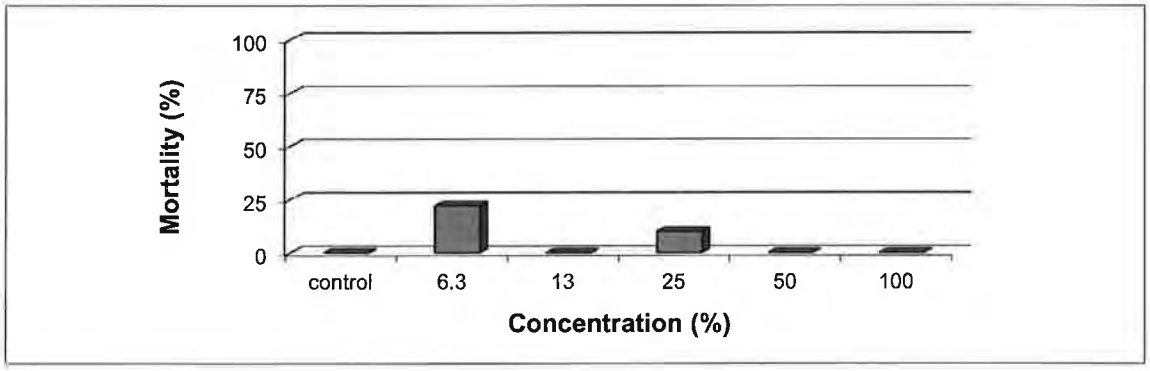
Contents

Result Summary.....1
Test Conditions.....2
Test Data.....3
Comments/Statistics..5
QA/QC.....6

Result:

	Endpoint (96-hour)	Value (%)	Confidence Limits (95%) lower	upper	Method Calculated
Acute: (mortality)	LC50	>100			could not be calculated
	LC25	>100			could not be calculated

Notes: LC25 & LC50, concentrations lethal to 25% and 50% of the test population



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-0619-01-TRD

Method: Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout, 2000. Environment Canada, EPS 1/RM/13. Second Edition (amended May 2007).

Test type: Trout 96-h Static Acute Test (WTR-ME-041)
Species: *Oncorhynchus mykiss*
Organism source: Miracle Springs (Batch 20120411TR)
Acclimation: 9 days (must be ≥2 weeks)
Stock mortality: 0.8% (seven days preceding testing)

Sample initial chemistry: pH: 7.0; EC: 973 (µS/cm @ 25°C); DO: 9.0 (mg/L); temperature: 17 °C hardness (mg CaC03/L): 272; colour: colourless; odour: odourless
Sample holding time: 3 days (must be ≤ 5 days)
Sample storage: 4 ± 2°C in darkness

Test vessel: The test was conducted in 22 L plastic pails with polyethylene liners
Test volume: 20 Litres (depth of solution in each test vessel ≥15cm)
Sample pre-treatment: All test solutions and controls were pre-aerated for 30 minutes at 6.5 ±1 mL/min/L
Dissolved oxygen in 100 % sample was 8 mg/L after pre-aeration
The sample was not filtered or pH adjusted prior to or during testing
Loading density: 0.213 g/Litre (must be ≤ 0.5 g/Litre)
Control/dilution water: Dechlorinated City of Calgary water acclimated to test conditions
Test concentrations: 5 effluent concentrations (6.3, 12.5, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One replicate per treatment; 10 fish per replicate
Feeding: Fish are not fed 24 hours before test initiation and no feeding during test
Measurements: pH, conductivity, dissolved oxygen and temperature measured daily
Aeration: All treatments aerated at 6.5 ±1 mL/min/L by oil-free compressed air passed through airline tubes connected to disposable air stones
Lighting: Overhead full spectrum fluorescent lights; 100-500 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 15 ± 1°C

Endpoint: Mortality, 96-h LC50 (with 95% confidence limits)
Test validity: The control had 100% survival (must ≥ 90%)
The control had 0 percent (%) stressed behaviour (must ≤ 10%)
Reference toxicant: 96-h test with Phenol (C_6H_6O) initiated April 23, 2011; current results (96-h LC50 and 95% confidence limits) = 1.07 (1.04-1.11) log (mg/L Phenol)

Note: Outlined sections are protocol deviations explained on the comment page; v/v, volume per volume

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HydroQual Laboratories Ltd.

Trout (96-h LC50) Test Report

Test Data

Client: DEB103
Reference: 12-0619-01-TRD

Test Log:

Date	Day	Time	Technician	Comment/Observation
2012/04/20	0	1120	D.Kaiser	test fish loaded at 1120 h
2012/04/21	1	1135	B.Shore	all test fish appear normal
2012/04/22	2	1200	E.Blais	all test fish appear normal
2012/04/23	3	1015	L.Windatt/D.Kaiser	all test fish appear normal
2012/04/24	4	1100	L.Windatt/D.Kaiser	all test fish appear normal

Chemistry:

Conc. (%)	control	6.3	13	25	50	100		
Day	pH (units)							
0	7.7	7.7	7.6	7.6	7.6	7.3		
1	7.8	7.9	7.9	7.9	7.9	7.8		
2	7.8	7.8	7.8	7.7	7.7	7.5		
3	8.1	8.1	8.1	7.1	8.0	7.8		
4	8.0	8.0	8.0	8.0	7.9	7.8		
	Conductivity (µS/cm @ 25°C)							
0	444	479	520	590	718	974		
1	439	473	518	594	723	983		
2	447	483	524	595	725	998		
3	483	482	523	592	724	991		
4	496	535	577	648	788	1072		
	Dissolved Oxygen (mg/L)							
0	7.9	8.1	8.2	8.3	8.4	8.0		
1	8.6	8.5	8.3	8.1	8.1	8.0		
2	8.1	8.1	8.1	8.0	8.0	8.0		
3	8.3	8.3	8.3	8.3	8.3	8.3		
4	8.9	8.7	8.7	8.7	8.6	8.6		
	Temperature (°C)							
0	15	15	15	15	14	15		
1	16	15	15	15	15	15		
2	15	15	15	15	15	15		
3	15	15	15	15	15	15		
4	14	14	15	15	15	15		

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Test Data

Client: DEB103
Reference: 12-0619-01-TRD

Number Alive (In brackets number stressed):

Conc. (%)	control	6.3	13	25	50	100		
Day								
0	10	10	10	10	10	10		
1	10	10	10	10	10	10		
2	10	10	10	10	10	10		
3	10	8	10	10	10	10		
4	10	7*	10	9	10	10		

*See test result comment

Mortality (%)

4	0	22	0	10	0	0		

Stressed (%)

4	0	0	0	0	0	0		

Biology Summary Tables:

Control Fish	Length (cm)	Wet Weight(g)
1	3.5	0.4
2	2.9	0.2
3	3.2	0.3
4	3.7	0.6
5	3.6	0.5
6	3.5	0.4
7	3.7	0.5
8	4.1	0.7
9	3.8	0.5
10	3.0	0.2
average	3.5	0.4
sd	0.4	0.2
cv(%)	10.6	37.0

Notes: nd, not done; na, not applicable; sd, standard deviation; cv(%), coefficient of variation

Conc. (%)	Group Wet Weight (g)
control	4.3
6.3	3.5
13	4.3
25	4.2
50	3.2
100	4.8

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Comments/Statistics

Client: DEB103
Reference: 12-0619-01-TRD

Test Result Comments:
One fish jumped out of the 6.3% test vessel and is not included in the mortality calculations or group weights.

Data Analysis:
Endpoints for mortality could not be calculated. No effect occurred.

Protocol Deviations:
The fish were held less than 14 days prior to test initiation

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Warning Chart
Trout

Test Method: Trout 96h Static Acute Test. (LC50, 5 treatments plus a control)
HydroQual Test Method: WTR-ME-042

Reference: Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout, 1990. Environment Canada, EPS 1/RM/13. including May 1996 and December 2000 amendments.

Test Organism:		**Test Design:**	
test species:	*Oncorhyncus mykiss*	vol. of test vessel (L):	20
culture source:	Miracle Springs	test volume depth:	>15 cm
temperature (°C):	15 ± 1	replicates per treatment:	1
dissolved oxygen:	70-100% saturation	fish per replicate:	10
stock mortality (last 7d):	0.80%	loading (g fish/L):	≤0.5
batch number:	20120411TR	temperature (°C):	15 ± 1
		photoperiod:	16h light: 8h dark
		light level (water surface):	100-500 lux (full-spectrum)
		control/dilution water:	dechlorinated tap water

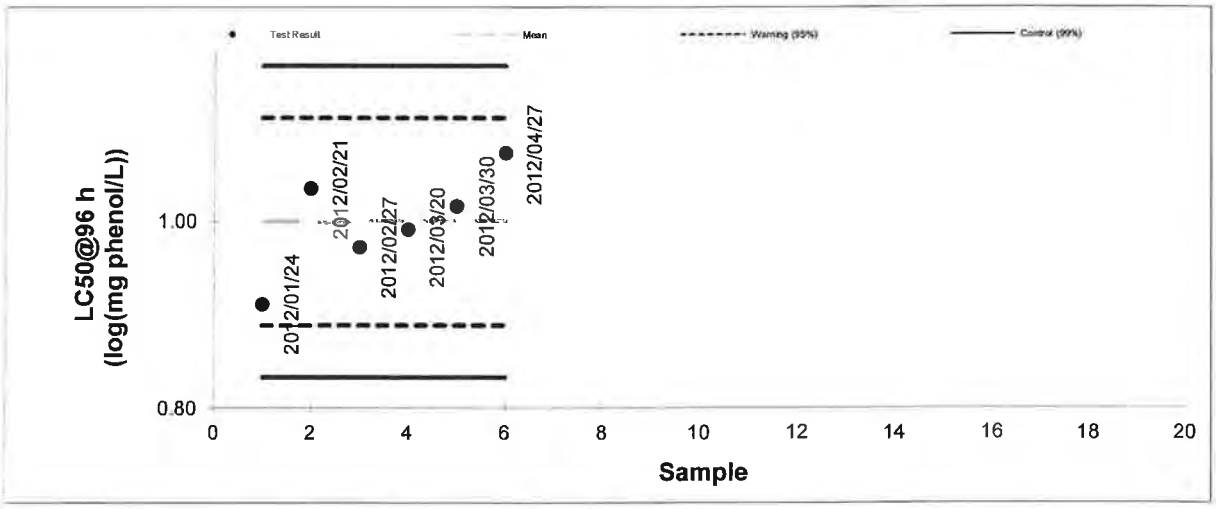
Current Test

toxicant	phenol (C_6H_5OH)				
started on	2012/04/23	ended on	2012/04/27		
Result (LC50 @ 96h)	1.07	log (mg phenol/L); geometric mean			
Confidence Limits (95%)	lower	1.04	upper	1.11	

Historical Values

mean	1.00	sd	0.06	cv(%):	6
	lower	upper			
warning limits (±2 sd)	0.89	1.11	(95% confidence limits)		
control limits (±3 sd)	0.83	1.17	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

Our liability is limited to the cost of the test requested on the sample as received. No liability in whole or in part is assumed for the collection, handling or transport of the sample, application or interpretation of the test data or results in part or in whole.

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HydroQual Laboratories Ltd.

Daphnia (48-h LC50/EC50) Test Report

Result Summary

Client: DEB103
Reference: 12-0619-01-DAD

Contents

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Test Conditions.....2
Test Data.....4
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Client: DeBeers Canada Inc.; operation Snap Lake Mine

Sample: 2012-0722

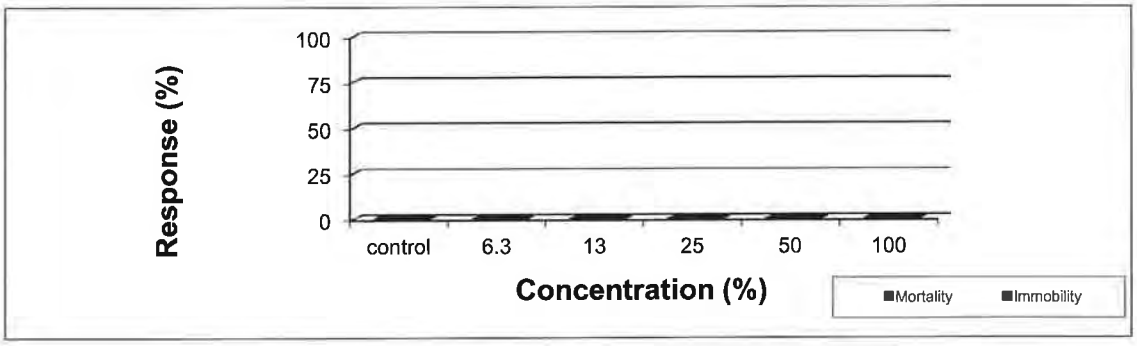
Collection: collected on 2012/04/17 at 1250 by not given
Receipt: received on 2012/04/19 at 1410 by J. Romero
Containers: received 4 x 20L pails at 13 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/04/20 ; ended on 2012/04/22

Result:

	Endpoint (48-hour)	Value (%)	Confidence Limits (95%) lower	upper	Method Calculated
Acute: (mortality)	LC50	>100			could not be calculated
	LC25	>100			could not be calculated
Acute: (immobility)	EC50	>100			could not be calculated
	EC25	>100			could not be calculated

Notes: LC25 & LC50, concentrations lethal to 25% and 50% of the test population



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-0619-01-DAD

Method: Biological Test method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*, 2000. Environ. Can., EPS 1/RM/14. Second Edition.

Test type: *Daphnia* 48-h Static Acute Test (WTR-ME-015)
Species: *Daphnia magna*
Age: < 24 hours old
Organism source: in-house culture
Stock mortality: 0%
Culture brood data: 11 days to first brood
26 neonates per average brood

Sample initial chemistry: pH: 7.0; EC: 973 (µS/cm @ 25°C); DO: 9.0 (mg/L); temperature: 17 °C
hardness (mg CaC03/L): 272; colour: colourless; odour: odourless
Sample holding time: 3 days (must be ≤ 5 days)
Sample storage: 4 ± 2°C in darkness

Test vessel: 385 mL plastic vessels
Test volume: 150 mL
Sample pre-treatment: The sample was not filtered or pH adjusted prior to or during testing
The sample was pre-aerated for 0 minutes (rate of 37.5 ± 12.5 mL/min.L^{-1})
The hardness of the sample was not adjusted (mg $CaCO_3$/L) prior to or during testing
Loading density: One daphnid/15 mL (must ≤ 1 organism/15 mL)
Control/dilution water: Dechlorinated City of Calgary water acclimated to test conditions
The hardness of the control/dilution water was 157 mg $CaCO_3$/L
Test concentrations: 5 effluent concentrations (6.3, 12.5, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One replicate per treatment, 10 daphnids per replicate
Feeding: None
Aeration: None
Measurements: pH, conductivity, dissolved oxygen and temperature at test initiation and termination
Lighting: Cool white fluorescent lights; 400-800 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 20 ± 2°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-0619-01-DAD

Endpoint: Mortality, 48-h LC50 (95% confidence limits)
Immobility, 48-h EC50 (95% confidence limits)

Test validity: The control had 100% survival (must ≥ 90%)
Control had 0 percent (%) abnormal behaviour (must ≤ 10%, immobility)

Reference toxicant: 48-h test with NaCl initiated April 23, 2012; current results
(48-h LC50 and 95% confidence limits) = 0.78 (0.75-0.81) log (g/L NaCl)

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-0619-01-DAD

Test Log:

Date	Day	Time	Technician	Comment/Observation
2012/04/20	0	1015	J.Romero	test *Daphnia* appear normal
2012/04/21	1	1030	B.Shore	test *Daphnia* appear normal
2012/04/22	2	1020	H.Caro-Riano	test *Daphnia* appear normal

Chemistry:

Conc. (%)	control	6.3	13	25	50	100		
Day	pH (units)							
0	7.9	7.9	7.9	7.8	7.7	7.4		
2	8.4	8.2	8.2	8.2	8.1	8.0		
	Conductivity (µS/cm @ 25°C)							
0	434	475	514	590	738	1035		
2	445	477	518	603	743	1048		
	Dissolved Oxygen (mg/L)							
0	7.3	7.3	7.3	7.3	7.3	7.3		
2	7.2	7.2	7.2	7.3	7.3	7.3		
	Temperature (°C)							
0	21	21	21	21	21	21		
2	21	21	21	21	21	21		

Biology:

Conc. (%)	control	6.3	13	25	50	100		
Day	Number Alive and Behavior (behavior is in brackets)							
1	10	10	10	10	10(1F)	10		
2	10	10	10	10	10	10		

Notes: F, floating; I, immobile; B, stuck on bubble; D, caught in debris; nd, not done; na, not applicable;

	Mortality (%)							
2	0	0	0	0	0	0		
	Immobility (%)							
2	0	0	0	0	0	0		

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Comments/Statistics

Client: DEB103
Reference: 12-0619-01-DAD

Test Result Comments:
None

Data Analysis:
Endpoints for mortality could not be calculated. No effect occurred.

Endpoints for immobility could not be calculated. No effect occurred.

Protocol Deviations:
None

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Quality Assurance Information

Test Method: *Daphnia* Static Acute Test (LC50, 5 treatments plus a control)
HydroQual Test Method: WTR-ME-016

Reference: Biological Test Method: Reference Method for Determining the Acute Lethality of Effluents to *Daphnia magna,* 1990. Environment Canada, EPS 1/RM/14. including May 1996 and December 2000 ammendments.

Test Organism:		**Test Design:**	
test species:	*Daphnia magna*	vol. of test vessel (mL):	500
culture source:	in-house	toxicant:	sodium chloride
original culture source:	Environment Canada	test volume (mL):	150
days to first brood:	11	replicates per treatment:	1
mean brood size:	26	neonates per replicate:	10
ephippia in stock culture:	no	volume per neonate (mL):	15
age of test organisms:	<24 hours old	samples preaerated:	no
culture mortality (%):	3.5%	hardness adjustment:	no
dissolved oxygen:	40-100% saturation	temperature (°C):	20
		photoperiod:	16h light:8h dark
		light level (water surface):	400-800 lux (cool white)
		control/dilution water:	dechlorinated tap water

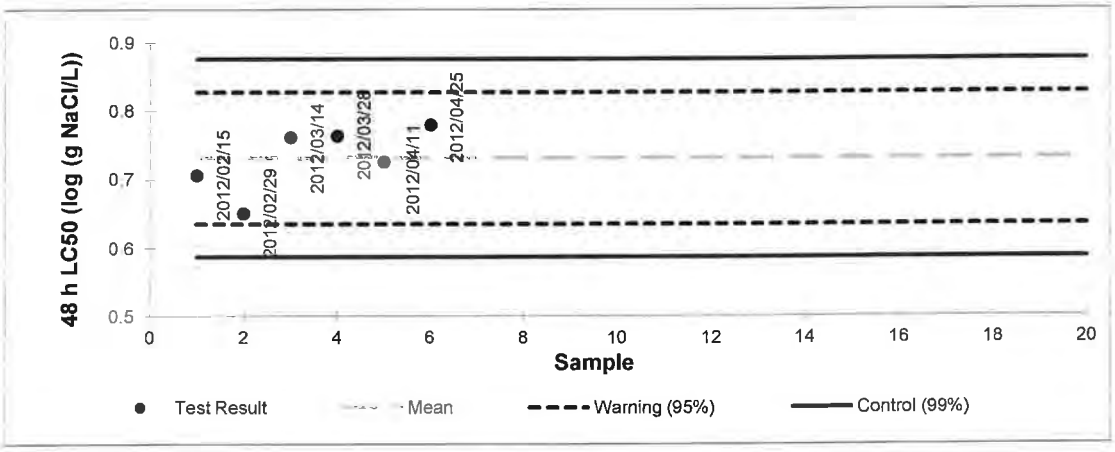
Current Test

toxicant	Sodium chloride (NaCl)				
started on	2012/04/23	ended on	2012/04/25		
Result (LC50 @ 48h)	0.78	log (g NaCl/L); geometric mean			
Confidence Limits (95%)	lower	0.75	upper	0.81	

Historical Values

mean	0.73	sd	0.05	cv(%):	7
	lower	upper			
warning limits (±2 sd)	0.63	0.83	(95% confidence limits)		
control limits (±3 sd)	0.59	0.88	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance
Comments:



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

HydroQual Laboratories Ltd.

Algae Test Report

Client: DEB103
Reference: 12-0370-01-AGD

Result Summary

Client: DeBeers Canada Inc.- Snap Lake Mine c/o Deton'Cho Logistics Ltd.; operation Snap Lake

Sample: 2012-0492

Collection: collected on 2012/03/11 at 1700 by A. Boulanger
Receipt: received on 2012/03/13 at 1330 by B. Shore
Containers: received 4 x 20 L pails at 12 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/03/13 ; ended on 2012/03/16

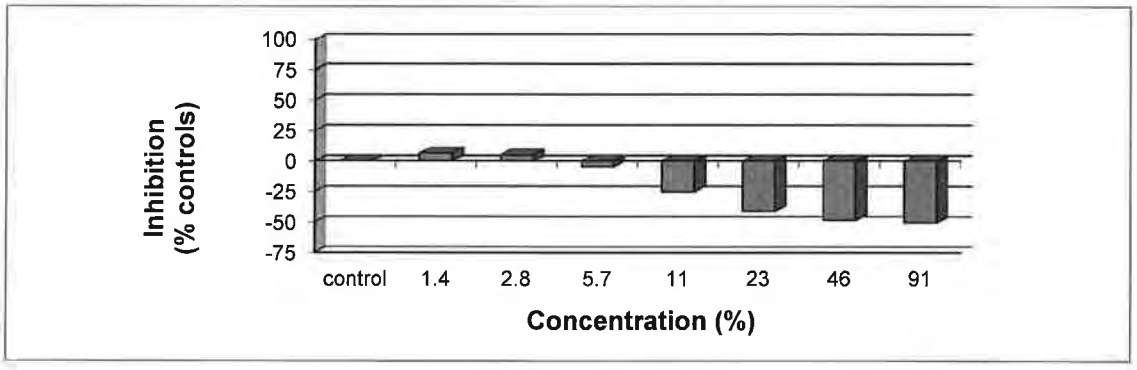
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Result:

	Endpoint (72-hour)	Value	Confidence Limits (95%) lower	upper		Method Calculated
Chronic:	IC25	>91%			%	could not be calculated
(growth)	IC50	>91%			%	could not be calculated

Notes: ICx, concentrations inhibiting growth by 'x' percent relative to controls; CV, coefficient of variation (%); SD, standard deviation



The test data and results are authorized and verified correct.

for
Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-0370-01-AGD

Method: Biological Test Method: Growth Inhibition Test Using a Freshwater Alga *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum)*. Environment Canada, EPS 1/RM/25, 2nd Edition, March 2007

Test type: Algal Growth Inhibition Test (WTR-ME-034)
Species: *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum* and *Raphidocelis subcapitata*)
Organism source: In-house culture (original source: UTCC 37; strain: LB37)
Culture age: The test was started with 7 day old, exponentially growing cells determined with an algal growth curve. The algal growth curve was started with an inoculum from the algal stock culture determined over an 8-10 day period. This culture was initiated on 2012/01/24. Algal cultures are regrown every 2 months from slants made from a new culture purchased annually.
Culture observations: No unusual appearance or treatment of the algae was noted prior to or during the conduct of the test.
Sample initial chemistry: pH: 6.8; EC: 1340 (µS/cm); DO: 9.1 (mg/L); temperature: 15 °C
hardness (mg CaC03/L): 362; colour: colourless; odour: odourless
Sample holding time: 2 days (must be ≤ 3 days)
Sample storage: 4 ± 2°C in darkness
Test concentrations: 7 effluent concentrations (1.4, 2.8, 5.7, 11, 23, 46 and 91% (v/v) plus a negative control)
Test vessel: The test was conducted in 96 well microplates. Three replicate plates were run (a, b and c). Test concentrations were not isolated from each other because volatility was not expected.
Test replicates: Three replicate microplates were run. Per plate there were 5 replicate wells per concentration and 10 replicate wells per control.
Test volume: 220 µL final volume in each well with 200 µL of sample;
10µL of enrichment medium and 10µL of algal inoculum.
Inoculum: The initial cell density of the inoculum was 9815 (cells/mL), it was prepared less than ≤2-3 hours before test initiation.
Control/dilution water: Made up with deionized City of Calgary water spiked with nutrients as per EPS 1/RM/25 (made by adding 1mL of each of the 5 stock solutions to 10mL of DRO). The metal stock with 25% reduced EDTA was used.
Sample Filtration: 100 mL filtered through a 0.45 µm pore diameter membrane.
Sample treatment: Sample spiked with nutrients as per EPS 1/RM/25; no other chemicals added.
Measurements: Final cell densities were determined from the absorbance at 430 nm calibrated against cell counts. The conversion factor for absorbance to cells per millilitre was 14633 with a coefficient of variation of 10 %.
Aeration: Not required
pH Adjustment: Not required
Lighting: The plates were incubated under continuous light: 4095 lux
(cool white fluorescent bulbs) 57.33 µmol/(m^2•S)
Test temperature: 24 ± 2°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-0370-01-AGD

Endpoint: Growth, 72-h IC25 (with 95% confidence limits)
Test endpoint was bracketed by at least 1 test concentration (except for <1.4% or >91 %)
No outliers were observed within the data set.

Test validity: Control growth was a 45 fold increase over the inoculum.
The cv of the standard control wells was 8 %.
(must be > 16 fold increase with a cv of ≤ 20%)

Statistics: See Data Analysis section.
Mann-Kendall Trend analysis was not performed as control cv was < 10%.

Reference toxicant: 72-h test with Zinc ($ZnSO_4$*7H2O) initiated March 02, 2012;
(must be within 14 days of the test initiation)
current results: (72-h IC25 and 95% confidence limits) = 1.39 (1.31-1.45) log (µg Zn^{2+}/L)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-0370-01-AGD

Test Log:

Date	Day	Technician	Time	Rotated	Temperature (°C)
2012/03/13	0	E. Petho	1500	na	25
2012/03/14	1	J. Romero	0830	yes	25
2012/03/15	2	J. Romero	0830	yes	25
2012/03/16	3	E. Petho	1450	na	25

Absorbance and Direct Cell Data:

Concentration (%)	Absorbance (430 nm)	Direct Cell Counts(/0.5 mL)
ctl	0.03	6433
11	0.03	7717
91	0.04	7900

pH Measurements:

Concentration	Initial Value
control	7.0
91%	7.8

Concentration	Final Mean	% CV
control (well D6)	7.2	0
control (well D7)	7.2	0

Average Absorbance Control Data:

Column Well	2b	2c	2e	2f	2g
Absorbance (430 nm)	0.03	0.03	0.03	0.03	0.03
Column Well	11b	11c	11e	11f	11g
Absorbance (430 nm)	0.03	0.03	0.03	0.02	0.02

Standard Control Wells:

Average	433
SD	34
CV%	8

Test Results at 72 hours:

Concentration (%)	Cell Yield Densities ($x10^3$ / mL) Well Replicate					Average	SD	CV	Percent Controls	Inhibition (%)	Stimulation (%)
	a	b	c	d	e						
control	423	389	413	401	413	408	13	3	100	0	0
1.4	377	391	391	367	381	381	10	3	94	6	-6
2.8	460	445	435	323	277	388	82	21	95	5	-5
5.7	494	479	425	377	357	426	60	14	105	-5	5
11	518	503	518	508	508	511	7	1	125	-25	25
23	567	611	620	555	528	576	39	7	141	-41	41
46	518	586	655	635	640	607	56	9	149	-49	49
91	581	611	630	623	623	614	19	3	150	-50	50

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Comments/Statistics

Client: DEB103
Reference: 12-0370-01-AGD

Test Result Comments:
The absorbance measurements were made after the cells were centrifuged and resuspended in clear solution (and the conversion factor developed for abs vs cell number reflects this step). Manual enumeration was performed on the same day as test termination.

Data Analysis:
Significant stimulatory effects in growth were observed in 11, 23, 46, 91% concentrations as calculated by ANOVA analysis with CETIS v. 1.7.0revQ. (Fligner-Wolfe).

Endpoints for growth inhibition could not be calculated. Inhibitory effects did not occur.

Protocol Deviations:
None

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HydroQual Laboratories Ltd.

Warning Chart
Algae

Test Method: 72 hours Algal Growth Inhibition Test (IC25, seven or more treatments plus a control)
HydroQual Test Method: WTR-ME-035

Reference: Biological Test Method: Growth Inhibition Test Using the Freshwater Alga *Selenastrum capricornutum*, 2007. Environment Canada, EPS 1/RM/25.

Test Organism:		**Test Design:**	
test species:	*Pseudokirchneriella subcapitata*	test type:	static
batch number:	20120224AG	toxicant:	zinc
date started from slant:	2012/01/27	test vessel:	96 well flat bottom microplate
original source/strain:	UTCC 37 / LB37	test volume (µL):	220
culture vessels:	2L Erlenmeyer flask	no. of replicate plates:	3
water source:	85% deionized water, 15% dechlorinated tap	no. of replicate wells / treatment per plate (control, sample):	10, 5
growth medium:	nutrient solution	mean temperature (°C):	24 ± 2°C
cultivation method:	batch as per test conditions	photoperiod:	continuous light
culture condition at start	normal	light level:	3600-4400 lux (cool white)
culture age:	3-7 days	contol/dilution water:	deionized water and nutrients prepared as per EPS1/RM/25
growth phase:	exponentially growing		

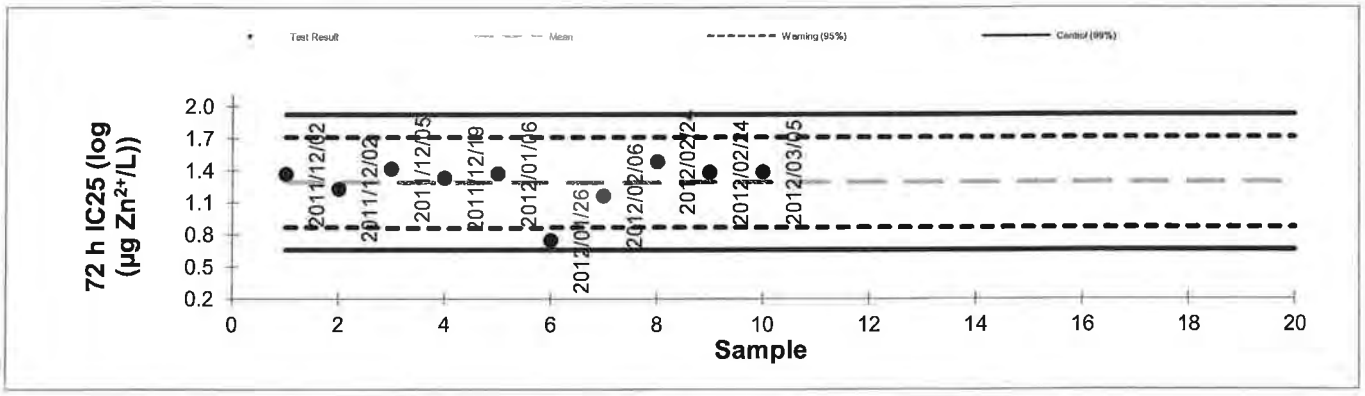
Current Test

toxicant	Zinc ($ZnSO_4*7H_2O$)				
started on	2012/03/02	ended on	2012/03/05		
Result (IC25 @ 72h)	1.39	log (µg $Zn2^+$/L); geometric mean			
Confidence Limits (95%)	lower	1.31	upper	1.45	

Historical Values

mean	1.29	sd	0.21	cv(%):	16
	lower	upper			
warning limits (±2 sd)	0.87	1.71	(95% confidence limits)		
control limits (±3 sd)	0.66	1.92	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance, na; could not be calculated



The test data and results are ~~authorized~~ and verified correct.

E. Blondan

Ecotoxicology Team Leader

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Client: DEB103
Reference: 12-0370-01-CDD

Result Summary

Client: DeBeers Canada Inc.- Snap Lake Mine c/o Deton'Cho Logistics Ltd.; operation Snap Lake

Sample: 2012-0492

Collection: collected on 2012/03/11 at 1700 by A. Boulanger
Receipt: received on 2012/03/13 at 1330 by B. Shore
Containers: received 4 x 20 L pails at 12 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/03/13 ; ended on 2012/03/20

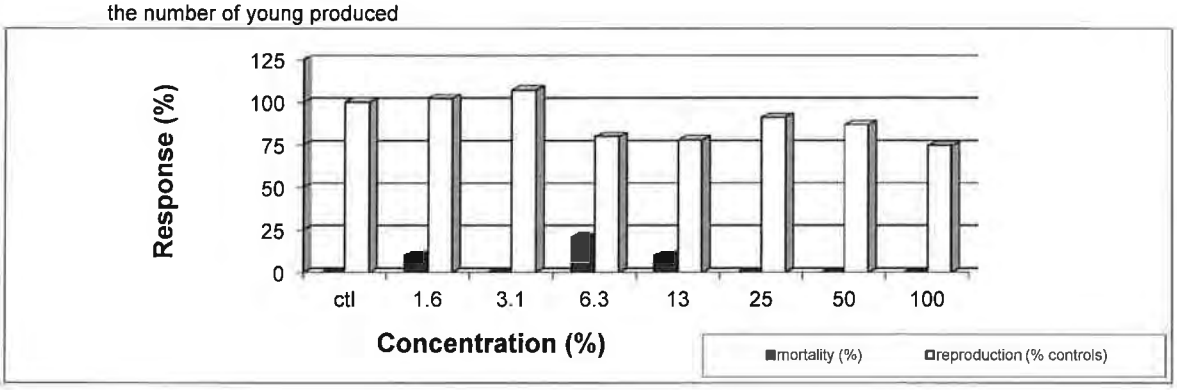
Contents

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Result:

	Endpoint (7-day)	Value	Confidence Limits (95%) lower	upper	Units	Method Calculated
Acute:	LC25	>100			%	could not be calculated
(survival)	LC50	>100			%	could not be calculated
Chronic:	IC25	>100			%	could not be calculated
(fecundity)	IC50	>100			%	could not be calculated

Notes: LCx & ICx, concentrations lethal or inhibitory to 'x' percent of the test population; fecundity, reproduction as the number of young produced



The test data and results are authorized and verified correct.

for
Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-0370-01-CDD

Method: Biological Test method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia.* Environment Canada, EPS 1/RM/21, 2nd Edition, February 2007.

Test type: *Ceriodaphnia* Survival and Reproduction Static Renewal Test (WTR-ME-018)
Species: *Ceriodaphnia dubia*
Age: <24 hours old; all from same brood source within 12 hours of the same age.
Organism source: in-house cultures; cultures from a single brood organism to provide test organisms.
Culture health: Culture mortality was 8% (must be ≤ 20%).
7-d prior to test initiation: No ephippia were noted in the cultures at any time.
Average young produced per adult in the first three broods was 20 (must be ≥ 15)
Number of young produced by each brood organism in the last complete brood before use was 11 (must be ≥ 8).
Organism observations: No unusual behavior, appearance or treatment of test organisms was noted prior to or during the test. All first-generation mortality was recorded on the day it was observed.
Sample initial chemistry: pH: 6.8; EC: 1340 (µS/cm); DO: 9.1 (mg/L); temperature: 15 °C
hardness (mg CaC03/L): 362; colour: colourless; odour: odourless
Sample holding time: 2 days (must be ≤ 3 days); The test was conducted with three subsamples, samples a, b, and c were for days 0 to 2, 3 to 5, and 6 to 8 respectively
Sample storage: 4 ± 2°C in darkness

Test vessel: The tests were conducted in 30 mL plastic vessels (2 cm depth).
Test volume: 15 mL of solution (1 cm depth); replenished daily.
Control/dilution water: The control and dilution water was a mixture of moderately hard reconstituted water and Bow River Water (50:50). Chemicals added to dilution water: 0.96 g NaHCO3, 0.60 g CaSO4, 0.60 g MgSO4, 0.04 g KCl per 20L.
Test concentrations: 7 effluent concentrations (1.6, 3.1, 6.3, 13, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One neonate <24 hours old was loaded per test vessel; 10 replicates/concentration
Feeding: The test organisms were fed daily a mixture of fermented trout chow, yeast, alfalfa powder, and the green alga *Pseudokirchneriella subcapitata* (formerly *Selenastrum capricornutum* and *Raphidocelis subcapitata*).
Food expiration date: 2012/03/23; 2012/04/01
Measurements: pH, conductivity, dissolved oxygen and temperature were measured daily.
Sample pre-treatment: The sample was not aerated, filtered or pH adjusted prior or during testing.
The dissolved oxygen concentration (mg/L) was: 8.1
The sample pH was: 7.3
Lighting: Overhead full spectrum fluorescent lights; 100-600 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 25 ± 1°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-0370-01-CDD

Endpoints: Survival, 7-d LC50 (with 95% confidence limits)
Reproduction, 7-d IC25 (with 95% confidence limits)
Test endpoints were bracketed by at least 1 test concentration (except for <1.6% or >100 %)
No outliers were observed within the data set.

Test completion: 70% of the control organisms had ≥ 3 broods on day 7 (must be ≥ 60% within 8 days) Any neonates produced after third brood were not included in the mean young per adult calculation.

Test validity: The control had 100% survival (must ≥ 80%)
Number of young produced by each surviving control adult within the first three broods was 19 (must be ≥ 15).

Reference toxicant: 7-d test with NaCl initiated on March 09, 2012;
(must be within 14 days of test initiation)
current results: (7-d LC50 and 95% confidence limits) =
3.27 (3.14-3.40) log (mg/L NaCl)
current results: (7-d IC50 and 95% confidence limits) =
2.79 (2.54-2.93) log (mg/L NaCl)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-0370-01-CDD

Test Log:

Date	Day	Time	Technicians	Temperature (°C) Control	Sample
2012/03/13	0	1530	J. Holmes-Smith	25	25
2012/03/14	1	1140	E. Petho	25	25
2012/03/15	2	1135	J. Holmes-Smith	25	25
2012/03/16	3	1030	J. Holmes-Smith	25	25
2012/03/17	4	0910	E. Blais	25	25
2012/03/18	5	1105	E. Petho	25	25
2012/03/19	6	1030	J. Holmes-Smith	25	25
2012/03/20	7	1140	E. Petho	na	na

Chemistry Summary Tables:

Average Values

	New Solutions								Old Solutions							
Conc. %	ctl	1.6	3.1	6.3	13	25	50	100	ctl	1.6	3.1	6.3	13	25	50	100
pH	7.8	7.9	7.9	7.9	7.9	7.9	7.8	7.5	8.0	8.0	8.0	7.9	8.0	7.9	7.9	7.7
cond.	523	554	566	590	637	729	917	1277	593	593	598	619	689	807	981	1361
DO	7.0	6.9	6.8	6.9	6.8	6.8	6.8	7.1	6.9	6.8	6.8	6.7	6.7	6.7	6.7	6.7
temp.	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25

Coefficients of Variation (%)

pH	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1
cond.	2	3	2	1	2	1	1	2	6	4	3	2	4	5	2	2
DO	8	7	7	7	7	6	6	9	6	5	5	5	5	5	4	4
temp.	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2

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Test Data

Client: DEB103
Reference: 12-0370-01-CDD

Biology (number of young produced):

Day	1	2	3	4	5	6	7	8

Control

Replicate	1	2	3	4	5	6	7	8
1	0	0	0	4	5	0	8	
2	0	0	0	0	6	12	0	
3	0	0	0	6	6	0	12	
4	0	0	0	5	0	6	7	
5	0	0	0	0	7	7	0	
6	0	0	4	3	8	-	-	
7	0	0	0	4	0	7	12	
8	0	0	0	6	0	7	10	
9	0	0	0	6	0	7	7	
10	0	0	0	0	6	0	10	

1.6%

1	0	0	0	4	0	**9**	X	
2	0	0	5	0	7	10	-	
3	0	0	0	5	8	0	13	
4	0	0	0	4	8	0	10	
5	0	0	0	6	8	8	-	
6	0	0	3	0	5	9	-	
7	0	0	0	0	6	6	7	
8	0	0	3	0	6	13	-	
9	0	0	0	4	9	7	-	
10	0	0	0	0	4	0	5	

3.1%

1	0	0	0	4	2	0	6	
2	0	0	3	0	8	10	-	
3	0	0	0	5	8	8	-	
4	0	0	0	6	7	6	-	
5	0	0	0	0	8	8	10	
6	0	0	0	4	8	0	10	
7	0	0	0	6	8	0	14	
8	0	0	0	0	9	0	5	
9	0	0	0	4	7	0	13	
10	0	0	0	5	3	6	-	

13%

	0	0	0	**0**	X	X	X	
	0	0	0	0	0	5	7	
	0	0	0	6	10	7	-	
	0	0	0	0	0	2	0	
	0	0	0	0	6	8	0	
	0	0	0	4	9	8	-	
	0	0	0	4	2	7	-	
	0	0	0	0	6	10	0	
	0	0	0	0	0	12	13	
	0	0	0	4	0	6	10	

25%

	0	0	0	5	0	6	11	
	0	0	0	3	0	3	2	
	0	0	0	8	0	5	4	
	0	0	0	4	6	8	-	
	0	0	0	4	8	12	-	
	0	0	0	0	3	6	2	
	0	0	0	4	4	0	10	
	0	0	0	6	0	8	9	
	0	0	0	6	7	2	-	
	0	0	0	0	0	9	6	

50%

	0	0	0	4	6	0	6	
	0	0	0	4	0	5	10	
	0	0	0	3	3	5	-	
	0	0	3	0	7	7	-	
	0	0	4	0	6	10	-	
	0	0	0	4	6	0	9	
	0	0	0	0	2	0	5	
	0	0	0	0	10	9	0	
	0	0	0	4	7	0	9	
	0	0	0	6	2	7	-	

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died; —, young produced after third brood

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Test Data

Client: DEB103
Reference: 12-0370-01-CDD

Biology (number of young produced):

Day	1	2	3	4	5	6	7	8

Day	1	2	3	4	5	6	7	8

Replicate	6.3%							
1	0	0	0	6	0	5	10	
2	0	0	0	4	6	0	0	
3	0	0	0	4	0	4	0	
4	0	0	0	0	0	**0**	X	
5	0	0	0	0	7	5	2	
6	0	0	0	5	7	0	6	
7	0	0	0	4	6	0	11	
8	0	0	0	4	6	0	**6**	
9	0	0	0	0	7	4	10	
10	0	0	0	6	0	6	9	

100%							
0	0	0	0	0	5	6	
0	0	0	0	0	5	6	
0	0	0	6	6	0	0	
0	0	3	0	7	8	-	
0	0	0	5	7	0	7	
0	0	0	4	6	8	-	
0	0	5	0	5	7	-	
0	0	0	0	0	0	0	
0	0	0	0	6	6	2	
0	0	0	5	8	0	7	

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died; —, young produced after third brood

Biology Summary Tables:

Conc. %	ctl	1.6	3.1	6.3	13	25	50	100

ctl	1.6	3.1	6.3	13	25	50	100

Day	Number of Organism Alive							
0	10	10	10	10	10	10	10	10
1	10	10	10	10	10	10	10	10
2	10	10	10	10	10	10	10	10
3	10	10	10	10	10	10	10	10
4	10	10	10	10	9	10	10	10
5	10	10	10	10	9	10	10	10
6	10	9	10	9	9	10	10	10
7	10	9	10	8	9	10	10	10
8								

Day	Daily Young Production							
0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	4	11	3	0	0	0	7	8
4	34	23	34	33	18	40	25	20
5	38	61	68	39	33	28	49	45
6	46	62	38	24	65	59	43	39
7	66	35	58	54	30	44	39	28
8								

	Percent Mortality (%)							
mean	0	10	0	20	10	0	0	0

Total	188	192	201	150	146	171	163	140

Replicate	Total Young Produced by Each Adult							
1	17	13	12	21	0	22	16	11
2	18	22	21	10	12	8	19	11
3	24	26	21	8	23	17	11	12
4	18	22	19	0	2	18	17	18
5	14	22	26	14	14	24	20	19
6	15	17	22	18	21	11	19	18
7	23	19	28	21	13	18	7	17
8	23	22	14	16	16	23	19	0
9	20	20	24	21	25	15	20	14
10	16	9	14	21	20	15	15	20

Young Per Adult (within first three broods)

mean	19	19	20	15	15	17	16	14
sd	3.55	5.01	5.36	7.1	8.38	5.13	4.3	5.96
cv(%)	18.9	26.1	26.7	47.3	57.4	30	26.4	42.6

Young Production as a Percent of Controls

100	102	107	80	78	91	87	74

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Test Data

Client: DEB103
Reference: 12-0370-01-CDD

Chemistry:

	New Solutions								Old Solutions							
Conc. %	ctl	1.6	3.1	6.3	13	25	50	100	ctl	1.6	3.1	6.3	13	25	50	100
Day	pH (units)								pH (units)							
0	8.1	8.1	8.1	8.1	8.0	8.0	7.9	7.3								
1	7.8	7.8	7.8	7.9	7.8	7.8	7.7	7.4	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.7
2	7.7	7.8	7.9	7.9	7.9	7.8	7.8	7.6	7.9	8.0	8.0	8.0	8.0	8.0	7.9	7.8
3	8.0	8.0	8.0	8.0	8.0	7.9	7.8	7.6	8.0	8.0	8.0	8.0	8.0	8.0	7.9	7.8
4	7.5	7.8	7.8	7.8	7.8	7.8	7.7	7.5	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.7
5	8.0	8.0	8.0	7.9	8.0	7.9	7.7	7.5	8.1	8.1	8.1	8.0	8.1	8.0	8.0	7.8
6	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.5	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.7
7									8.0	8.0	8.0	7.9	7.9	7.9	7.9	7.7
8																
	Conductivity (µS/cm)								Conductivity (µS/cm)							
0	508	543	555	580	626	717	905	1275								
1	532	546	555	582	630	723	916	1298	561	571	585	606	650	751	947	1310
2	527	541	557	579	628	723	913	1293	582	570	584	611	671	765	965	1347
3	539	562	575	599	643	733	925	1284	592	575	588	607	693	790	981	1351
4	508	582	590	596	661	741	907	1209	542	608	609	626	684	806	985	1390
5	522	551	564	596	630	729	918	1288	652	636	627	644	746	857	993	1390
6	523	551	566	595	639	739	934	1292	597	594	596	616	684	828	989	1379
7									622	599	600	623	692	850	1004	1363
8																
	Dissolved Oxygen (mg/L)								Dissolved Oxygen (mg/L)							
0	7.1	6.7	6.7	6.7	6.7	6.8	6.9	8.1								
1	6.6	6.6	6.6	6.6	6.6	6.6	6.7	6.8	6.8	6.6	6.6	6.6	6.5	6.5	6.5	6.4
2	6.3	6.4	6.5	6.6	6.6	6.7	6.7	6.7	6.8	6.8	6.7	6.6	6.6	6.6	6.6	6.6
3	6.7	6.6	6.6	6.6	6.6	6.6	6.6	6.5	6.7	6.6	6.6	6.6	6.6	6.6	6.6	6.6
4	8.0	7.9	7.8	7.9	7.8	7.7	7.7	7.7	7.5	7.4	7.4	7.4	7.4	7.4	7.3	7.3
5	6.8	6.7	6.7	6.6	6.4	6.4	6.3	6.3	6.2	6.4	6.4	6.4	6.4	6.4	6.4	6.5
6	7.2	7.1	7.0	7.0	7.0	7.0	7.0	7.4	7.4	7.0	7.0	6.8	6.7	6.8	6.8	6.8
7									7.0	6.8	6.8	6.8	6.8	6.7	6.7	6.6
8																
	Temperature (°C)								Temperature (°C)							
0	25	25	25	25	25	25	25	25								
1	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
2	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
4	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
5	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
6	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
7									26	26	26	26	26	26	26	26
8																

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Comments/Statistics

Client: DEB103
Reference: 12-0370-01-CDD

Test Result Comments:
None

Data Analysis:
Endpoints for mortality could not be calculated. No effect occurred.

Endpoints for reproduction could not be calculated. No significant dose response was observed.

Protocol Deviations:
None

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Quality Assurance Information

Culture history for adults used in the test for reference 12-0370:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

	row/replicate	B3	B4	B5	C3	C1	C2	C4	D3	E4		
	number of young											
	number of adults											
		B3	B4	B5	C3	C1	C2	C4	D3	E4		
	number of young											
	number of adults											
		B3	B4	B5	C3	C1	C2	C4	D3	E4		
	number of young											
	number of adults											
		B3	B4	B5	C3	C1	C2	C4	D3	E4		
	number of young	3	3	3	6	5	6	8	6	2		
	number of adults	1	1	1	1	1	1	1	1	1		
		B3	B4	B5	C3	C1	C2	C4	D3	E4		
	number of young	6	5	5	2	8	10	11	5	7		
	number of adults	1	1	1	1	1	1	1	1	1		
		B3	B4	B5	C3	C1	C2	C4	D3	E4		
	number of young	9	8	7	9	7	7	14	10	9		
	number of adults	1	1	1	1	1	1	1	1	1		
		B3	B4	B5	C3	C1	C2	C4	D3	E4		
DAY USED	number of young	13	11	13	11	9	9	14	10	9		
2012/03/13	number of adults	1	1	1	1	1	1	1	1	1		
		B3	B4	B5	C3	C1	C2	C4	D3	E4		
totals	number of young	18	16	15	17	20	23	33	21	18		
(# of young in first 3 broods)												

Number of young produced per organism in the last brood before use	11
Mean number of surviving young per adult over the first three broods	20
Culture mortality over the last seven days	8

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HydroQual Laboratories Ltd.

Warning Chart
Ceriodaphnia

Test Method: *Ceriodaphnia* Survival and Reproduction Test (7 treatments plus a control)
HydroQual Test Method: WTR-ME-019
Reference: Biological Test Method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia*, 2007. Environment Canada, EPS 1/RM/21

Test Organism:

test species:	*Ceriodaphnia dubia*
culture source:	in-house
original culture source:	Environment Canada
ephippia in stock culture:	none
food type:	YAT:Algae
frequency of feeding:	daily
age of test organisms:	<24 hours
culture mortality 7 days prior:	4%
culture fecundity 7 days prior	
within the first three broods:	18
young produced in previous brood:	9
culture condition prior to test initiation:	normal
culture water:	mixture of moderately hard reconstituted* water and Bow River Water (50:50)

Test Design:

test type:	static renewal
toxicant:	sodium chloride (NaCl)
test vessel:	30 mL plastic cup
test volume (mL):	15
replicates per treatment:	10
organisms per replicate:	1
feeding:	daily
temperature (°C):	24-26
photoperiod:	16 hours light: 8 hours dark
light level (surface):	100-600 lux (full spectrum)
hardness adjustment:	no

*Note: there are 2 subcultures within this culture source, separated by one week in age. The test is set with organisms from one subculture. The number of young a culture has is monitored daily. If young are not used that day, they are discarded, therefore organisms in tests are <24h.

Control/Dilution Water:

source:	mixture of moderately hard reconstituted* water and Bow River Water (50:50)
pH (units):	7.6
conductance (uS/cm):	510
dissolved oxygen (mg/L):	7.5
NH_4^+ (mg/L):	<0.1
hardness (mg $CaCO_3$/L):	161
alkalinity (mg $CaCO_3$/L):	161
total residual chlorine (mg/L):	<0.01

* Note: moderately hard reconstituted water prepared as per EPS 1/RM/21

Comments: None

The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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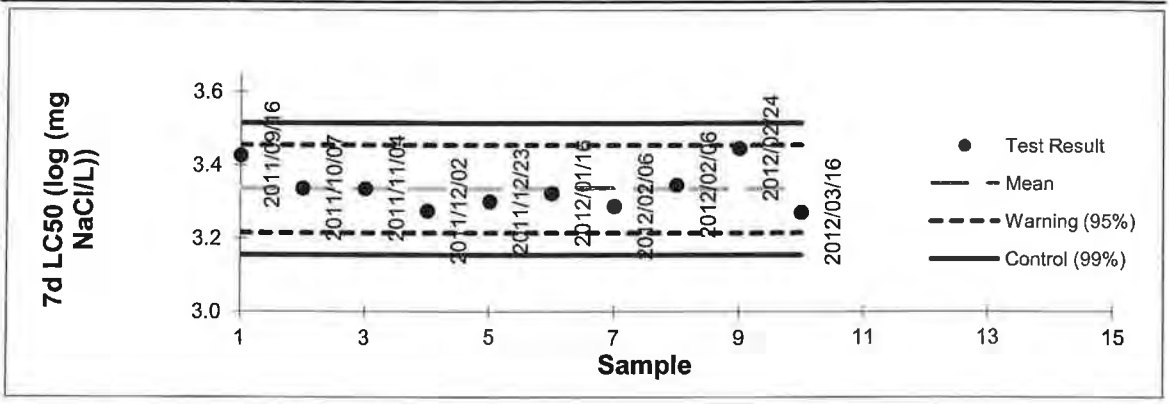
Mortality

Current Test

toxicant	Sodium chloride (NaCl)				
started on	2012/03/09	ended on	2012/03/16		
Result (7d LC50):	3.27	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	3.14	upper	3.40	

Historical Values

mean	3.33	sd	0.06	cv(%):	2
	lower	upper			
warning limits (±2 sd)	3.21	3.45	(95% confidence limits)		
control limits (±3 sd)	3.16	3.51	(99% confidence limits)		



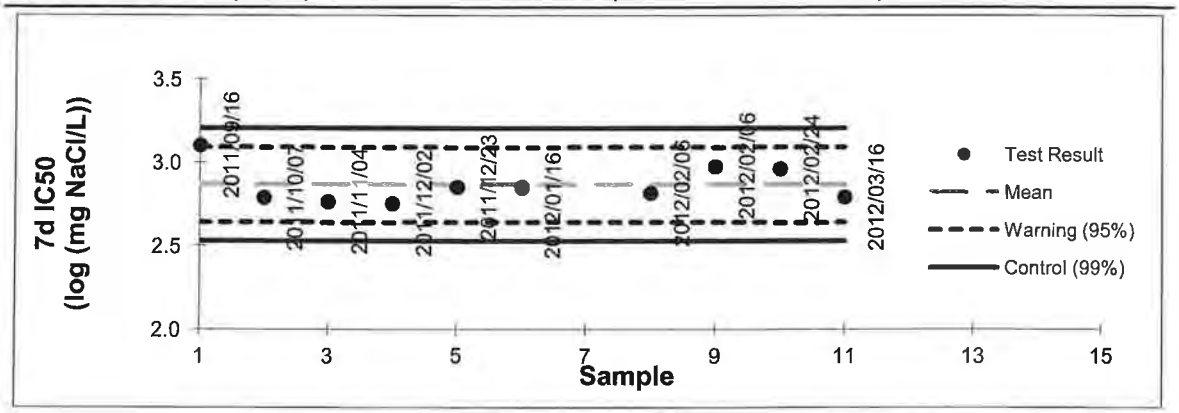
Reproduction

Current Test

toxicant	Sodium chloride (NaCl)				
started on	2012/03/09	ended on	2012/03/16		
Result (7d IC50)	2.79	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	2.54	upper	2.93	

Historical Values

mean	2.87	sd	0.11	cv(%):	4
	lower	upper			
warning limits (±2 sd)	2.64	3.09	(95% confidence limits)		
control limits (±3 sd)	2.53	3.20	(99% confidence limits)		



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Quality Assurance Information

Culture history for adults used in the test for reference QA58:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

row/replicate	A1	A2	B1	B3	B4	C1	C2	A4	B4	B2	
number of young number of adults											

	A1	A2	B1	B3	B4	C1	C2	A4	B4	B2	
number of young number of adults											

	A1	A2	B1	B3	B4	C1	C2	A4	B4	B2	
number of young number of adults											

	A1	A2	B1	B3	B4	C1	C2	A4	B4	B2	
number of young number of adults											

	A1	A2	B1	B3	B4	C1	C2	A4	B4	B2	
number of young	3	3	4	3	3	3	3	2	6	4	
number of adults	1	1	1	1	1	1	1	1	1	1	

	A1	A2	B1	B3	B4	C1	C2	A4	B4	B2	
number of young	7	5	7	6	5	7	5	5	7	3	
number of adults	1	1	1	1	1	1	1	1	1	1	

DAY USED
2012/03/09

	A1	A2	B1	B3	B4	C1	C2	A4	B4	B2	
number of young	8	8	13	9	8	9	10	9	8	8	
number of adults	1	1	1	1	1	1	1	1	1	1	

totals
(# of young in first
3 broods)

	A1	A2	B1	B3	B4	C1	C2	A4	B4	B2	
number of young	18	16	24	18	16	19	18	16	21	15	

Number of young produced per organism in the last brood before use	9
Mean number of surviving young per adult over the first three broods	18
Culture mortality over the last seven days	4

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Trout (96-h LC50) Test Report

Result Summary

Client: DEB103
Reference: 12-0370-01-TRD

Client: DeBeers Canada Inc.- Snap Lake Mine c/o Deton'Cho Logistics Ltd.; operation Snap Lake

Sample: 2012-0492

Collection: collected on 2012/03/11 at 1700 by A. Boulanger
Receipt: received on 2012/03/13 at 1330 by B. Shore
Containers: received 4 x 20 L pails at 12 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/03/15 ; ended on 2012/03/19

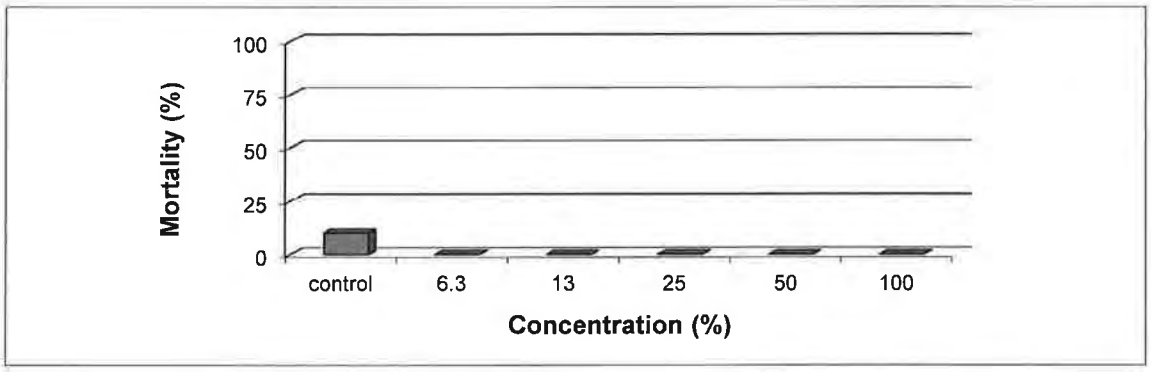
Contents

Result Summary.....1
Test Conditions.....2
Test Data.....3
Comments/Statistics..5
QA/QC.....6

Result:

	Endpoint (96-hour)	Value (%)	Confidence Limits (95%) lower	upper	Method Calculated
Acute:	LC50	>100			could not be calculated
(mortality)	LC25	>100			could not be calculated

Notes: LC25 & LC50, concentrations lethal to 25% and 50% of the test population



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-0370-01-TRD

Method: Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout, 2000. Environment Canada, EPS 1/RM/13. Second Edition (amended May 2007).

Test type: Trout 96-h Static Acute Test (WTR-ME-041)
Species: *Oncorhynchus mykiss*
Organism source: Lyndon Fish Hatcheries (Batch 20120202TR)
Acclimation: 42 days (must be ≥2 weeks)
Stock mortality: 0.2% (seven days preceding testing)

Sample initial chemistry: pH: 6.8; EC: 1340 (µS/cm @ 25°C); DO: 9.1 (mg/L); temperature: 15 °C
hardness (mg CaC03/L): 362; colour: colourless; odour: odourless
Sample holding time: 4 days (must be ≤ 5 days)
Sample storage: 4 ± 2°C in darkness

Test vessel: The test was conducted in 22 L plastic pails with polyethylene liners
Test volume: 20 Litres (depth of solution in each test vessel ≥15cm)
Sample pre-treatment: All test solutions and controls were pre-aerated for 30 minutes at 6.5 ±1 mL/min/L
Dissolved oxygen in 100 % sample was 8 mg/L after pre-aeration
The sample was not filtered or pH adjusted prior to or during testing
Loading density: 0.228 g/Litre (must be ≤ 0.5 g/Litre)
Control/dilution water: Dechlorinated City of Calgary water acclimated to test conditions
Test concentrations: 5 effluent concentrations (6.3, 12.5, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One replicate per treatment; 10 fish per replicate
Feeding: Fish are not fed 24 hours before test initiation and no feeding during test
Measurements: pH, conductivity, dissolved oxygen and temperature measured daily
Aeration: All treatments aerated at 6.5 ±1 mL/min/L by oil-free compressed air passed through airline tubes connected to disposable air stones
Lighting: Overhead full spectrum fluorescent lights; 100-500 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 15 ± 1°C

Endpoint: Mortality, 96-h LC50 (with 95% confidence limits)
Test validity: The control had 90% survival (must ≥ 90%)
The control had 0 percent (%) stressed behaviour (must ≤ 10%)
Reference toxicant: 96-h test with Phenol (C_6H_6O) initiated March 16, 2012; current results (96-h LC50 and 95% confidence limits) = 0.99 (0.93-1.04) log (mg/L Phenol)

Note: Outlined sections are protocol deviations explained on the comment page; v/v, volume per volume

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Test Data

Client: DEB103
Reference: 12-0370-01-TRD

Test Log:

Date	Day	Time	Technician	Comment/Observation
2012/03/15	0	1435	J. Holmes-Smith/J. Romero	test fish loaded at 1435 h
2012/03/16	1	1115	J. Holmes-Smith/J. Romero	all test fish appear normal
2012/03/17	2	1146	I. Birulina	all test fish appear normal
2012/03/18	3	1100	B. Shore	all test fish appear normal
2012/03/19	4	1400	J. Holmes-Smith	all test fish appear normal

Chemistry:

Conc. (%)	control	6.3	13	25	50	100		
Day	pH (units)							
0	7.7	7.7	7.8	7.8	7.7	7.7		
1	7.9	8.0	8.0	7.9	7.9	7.7		
2	8.2	8.2	8.2	8.2	8.1	7.9		
3	8.1	8.1	8.1	8.1	8.1	7.9		
4	7.7	7.7	7.8	7.8	7.7	7.6		
	Conductivity (µS/cm @ 25°C)							
0	535	581	648	750	959	1364		
1	512	564	628	738	955	1379		
2	529	684	650	755	965	1376		
3	508	555	622	732	959	1362		
4	520	572	639	744	955	1379		
	Dissolved Oxygen (mg/L)							
0	8.2	8.3	8.4	8.4	8.4	8.0		
1	8.2	8.2	8.1	8.2	8.1	8.1		
2	8.6	8.6	8.8	8.8	8.9	8.9		
3	7.7	7.7	7.9	7.9	8.0	8.0		
4	8.8	8.7	8.6	8.6	8.6	8.6		
	Temperature (°C)							
0	14	14	14	14	14	14		
1	14	14	14	14	14	14		
2	15	15	15	15	14	14		
3	15	15	14	14	14	14		
4	14	14	14	14	14	14		

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HydroQual Laboratories Ltd.

Trout (96-h LC50) Test Report

Test Data

Client: DEB103
Reference: 12-0370-01-TRD

Number Alive (In brackets number stressed):

Conc. (%)	control	6.3	13	25	50	100		
Day								
0	10	10	10	10	10	10		
1	10	10	10	10	10	10		
2	10	10	10	10	10	10		
3	10	10	10	10	10	10		
4	9	10	10	10	10	10		
				Mortality (%)				
4	10	0	0	0	0	0		
				Stressed (%)				
4	0	0	0	0	0	0		

Biology Summary Tables:

Control Fish	Length (cm)	Wet Weight(g)
1	3.8	0.5
2	3.8	0.4
3	3.9	0.6
4	3.7	0.4
5	2.9	0.2
6	3.9	0.6
7	3.1	0.4
8	3.9	0.6
9	3.6	0.4
10	4.2	0.7
average	3.7	0.5
sd	0.4	0.1
cv(%)	10.7	31.6

Conc. (%)	Group Wet Weight (g)
control	4.6
6.3	4.6
13	4.9
25	4.8
50	4.9
100	4.9

Notes: nd, not done; na, not applicable; sd, standard deviation; cv(%), coefficient of variation

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Comments/Statistics

Client: DEB103
Reference: 12-0370-01-TRD

Test Result Comments:
None

Data Analysis:
Endpoints for mortality could not be calculated. No effect occurred.

Protocol Deviations:
None

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HydroQual Laboratories Ltd.

Warning Chart
Trout

Test Method: Trout 96h Static Acute Test. (LC50, 5 treatments plus a control)
HydroQual Test Method: WTR-ME-042

Reference: Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout, 1990. Environment Canada, EPS 1/RM/13. including May 1996 and December 2000 amendments.

Test Organism:		**Test Design:**	
test species:	*Oncorhyncus mykiss*	vol. of test vessel (L):	20
culture source:	Lyndon Fish Hatcheries	test volume depth:	>15 cm
temperature (°C):	15 ± 1	replicates per treatment:	1
dissolved oxygen:	70-100% saturation	fish per replicate:	10
stock mortality (last 7d):	0.42%	loading (g fish/L):	≤0.5
batch number:	20120202TR	temperature (°C):	15 ± 1
		photoperiod:	16h light: 8h dark
		light level (water surface):	100-500 lux (full-spectrum)
		control/dilution water:	dechlorinated tap water

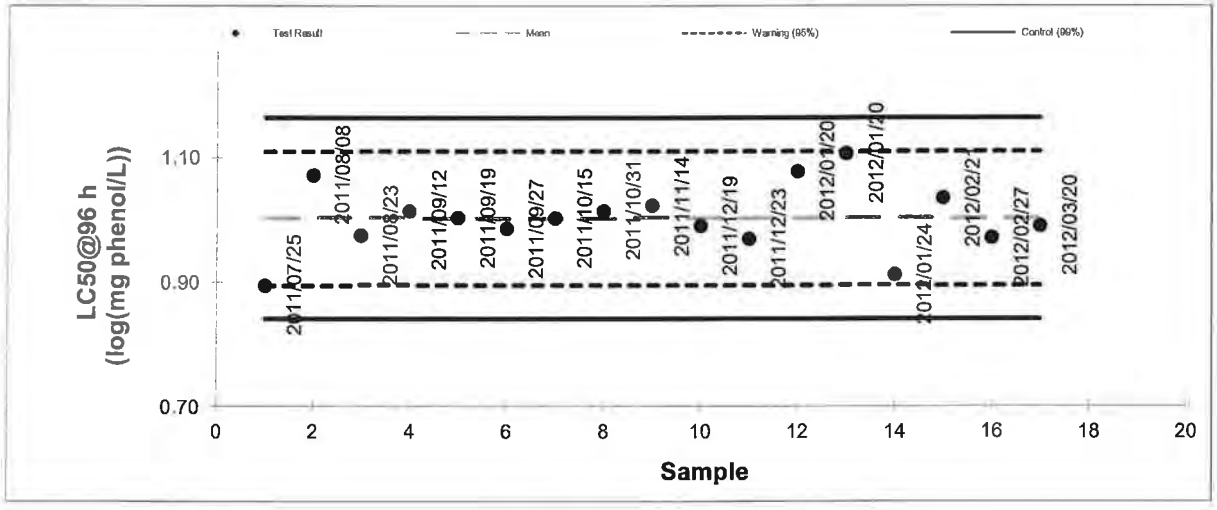
Current Test

toxicant	phenol (C_6H_5OH)				
started on	2012/03/16	ended on	2012/03/20		
Result (LC50 @ 96h)	0.99	log (mg phenol/L); geometric mean			
Confidence Limits (95%)	lower	0.93	upper	1.04	

Historical Values

mean	1.00	sd	0.05	cv(%):	5
	lower	upper			
warning limits (±2 sd)	0.89	1.11	(95% confidence limits)		
control limits (±3 sd)	0.84	1.16	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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HydroQual Laboratories Ltd.

Daphnia (48-h LC50/EC50) Test Report

Result Summary

Client: DEB103
Reference: 12-0370-01-DAD

Contents

Result Summary.....1
Test Conditions.....2
Test Data.....4
Comments/Statistics..5
QA/QC.....6

Client: DeBeers Canada Inc.- Snap Lake Mine c/o Deton'Cho Logistics Ltd.; operation Snap Lake

Sample: 2012-0492

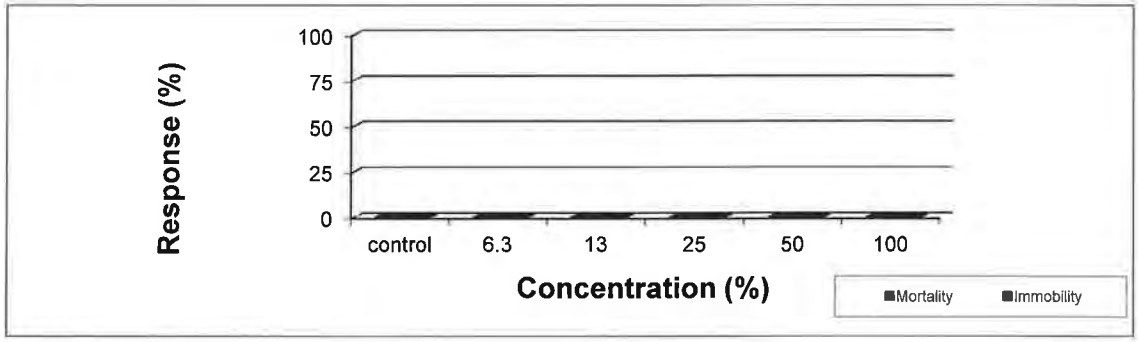
Collection: collected on 2012/03/11 at 1700 by A. Boulanger
Receipt: received on 2012/03/13 at 1330 by B. Shore
Containers: received 4 x 20 L pails at 12 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/03/13 ; ended on 2012/03/15

Result:

	Endpoint (48-hour)	Value (%)	Confidence Limits (95%) lower	upper	Method Calculated
Acute: (mortality)	LC50	>100			could not be calculated
	LC25	>100			could not be calculated
Acute: (immobility)	EC50	>100			could not be calculated
	EC25	>100			could not be calculated

Notes: LC25 & LC50, concentrations lethal to 25% and 50% of the test population



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-0370-01-DAD

Method: Biological Test method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*, 2000. Environ. Can., EPS 1/RM/14. Second Edition.

Test type: *Daphnia* 48-h Static Acute Test (WTR-ME-015)
Species: *Daphnia magna*
Age: < 24 hours old
Organism source: in-house culture
Stock mortality: 3%
Culture brood data: 12 days to first brood
19 neonates per average brood

Sample initial chemistry: pH: 6.8; EC: 1340 (µS/cm @ 25°C); DO: 9.1 (mg/L); temperature: 15 °C hardness (mg CaC03/L): 362; colour: colourless; odour: odourless
Sample holding time: 2 days (must be ≤ 5 days)
Sample storage: 4 ± 2°C in darkness

Test vessel: 385 mL plastic vessels
Test volume: 150 mL
Sample pre-treatment: The sample was not filtered or pH adjusted prior to or during testing
The sample was pre-aerated for 20 minutes (rate of 37.5 ± 12.5 mL/min.L^{-1})
The hardness of the sample was not adjusted (mg $CaCO_3$/L) prior to or during testing
Loading density: One daphnid/15 mL (must ≤ 1 organism/15 mL)
Control/dilution water: Dechlorinated City of Calgary water acclimated to test conditions
The hardness of the control/dilution water was 177 mg $CaCO_3$/L
Test concentrations: 5 effluent concentrations (6.3, 12.5, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One replicate per treatment, 10 daphnids per replicate
Feeding: None
Aeration: None
Measurements: pH, conductivity, dissolved oxygen and temperature at test initiation and termination
Lighting: Cool white fluorescent lights; 400-800 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 20 ± 2°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-0370-01-DAD

Endpoint: Mortality, 48-h LC50 (95% confidence limits)
Immobility, 48-h EC50 (95% confidence limits)

Test validity: The control had 100% survival (must ≥ 90%)
Control had 0 percent (%) abnormal behaviour (must ≤ 10%, immobility)

Reference toxicant: 48-h test with NaCl initiated March 12, 2012; current results
(48-h LC50 and 95% confidence limits) = 0.76 (0.74-0.78) log (g/L NaCl)

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-0370-01-DAD

Test Log:

Date	Day	Time	Technician	Comment/Observation
2012/03/13	0	1525	J . Romero	test *Daphnia* appear normal
2012/03/14	1	1115	J. Romero	test *Daphnia* appear normal
2012/03/15	2	1050	J. Romero	test *Daphnia* appear normal

Chemistry:

Conc. (%)	control	6.3	13	25	50	100		
Day	pH (units)							
0	8.0	8.0	8.0	8.0	7.9	7.8		
2	7.3	7.6	7.7	7.8	7.8	7.7		
	Conductivity (µS/cm @ 25°C)							
0	384	447	512	630	860	1302		
2	391	454	520	636	869	1309		
	Dissolved Oxygen (mg/L)							
0	7.7	7.6	7.5	7.5	7.5	7.5		
2	7.2	7.3	7.2	7.3	7.3	7.3		
	Temperature (°C)							
0	20	20	20	20	20	20		
2	21	22	22	22	22	22		

Biology:

Conc. (%)	control	6.3	13	25	50	100		
Day	Number Alive and Behavior (behavior is in brackets)							
1	10	10	10	10	10 (2F)	10		
2	10	10	10	10	10	10		

Notes: F, floating; I, immobile; B, stuck on bubble; D, caught in debris; nd, not done; na, not applicable;

	Mortality (%)							
2	0	0	0	0	0	0		
	Immobility (%)							
2	0	0	0	0	0	0		

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Comments/Statistics

Client: DEB103
Reference: 12-0370-01-DAD

Test Result Comments:
None

Data Analysis:
Endpoints for mortality could not be calculated. No effect occurred.

Protocol Deviations:
None

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Warning Chart
Daphnia

Quality Assurance Information

Test Method: *Daphnia* Static Acute Test (LC50, 5 treatments plus a control)
HydroQual Test Method: WTR-ME-016

Reference: Biological Test Method: Reference Method for Determining the Acute Lethality of Effluents to *Daphnia magna*, 1990. Environment Canada, EPS 1/RM/14. including May 1996 and December 2000 ammendments.

Test Organism:		**Test Design:**	
test species:	*Daphnia magna*	vol. of test vessel (mL):	500
culture source:	in-house	toxicant:	sodium chloride
original culture source:	Environment Canada	test volume (mL):	150
days to first brood:	12	replicates per treatment:	1
mean brood size:	19	neonates per replicate:	10
ephippia in stock culture:	no	volume per neonate (mL):	15
age of test organisms:	<24 hours old	samples preaerated:	no
culture mortality (%):	0%	hardness adjustment:	no
dissolved oxygen:	40-100% saturation	temperature (°C):	20
		photoperiod:	16h light:8h dark
		light level (water surface):	400-800 lux (cool white)
		control/dilution water:	dechlorinated tap water

Current Test

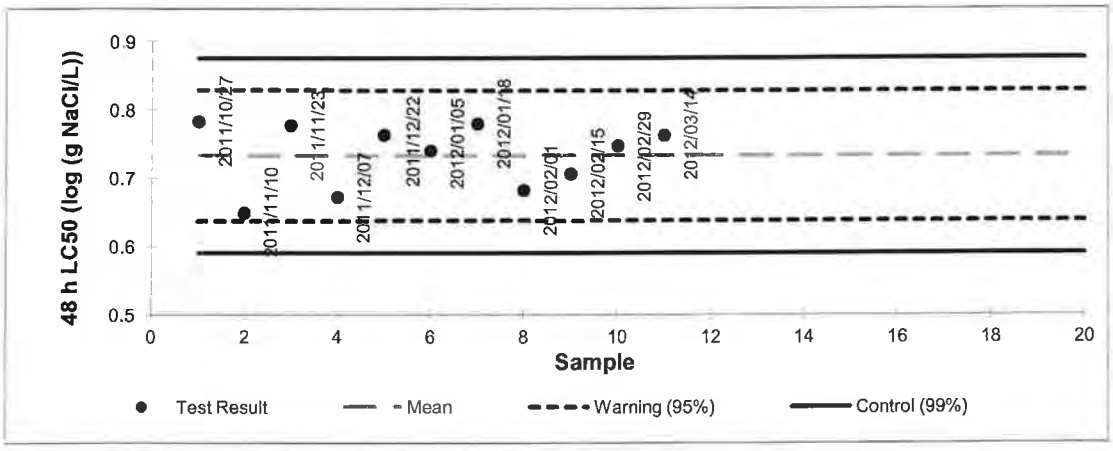
toxicant	Sodium chloride (NaCl)				
started on	2012/03/12	ended on	2012/03/14		
Result (LC50 @ 48h)	0.76	log (g NaCl/L); geometric mean			
Confidence Limits (95%)	lower	0.74	upper	0.78	

Historical Values

mean	0.73	sd	0.05	cv(%):	6
	lower	upper			
warning limits (±2 sd)	0.64	0.83	(95% confidence limits)		
control limits (±3 sd)	0.59	0.88	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance

Comments:



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

HydroQual Laboratories Ltd.

Algae Test Report

Client: DEB103
Reference: 12-0101-01-AGD

Result Summary

Client: DeBeers Canada Inc.- Snap Lake Mine c/o Deton'Cho Logistics Ltd.; operation Snap Lake

Sample: 2012-0165

Collection: collected on 2012/01/22 at 1632 by A. Boulanger
Receipt: received on 2012/01/24 at 1340 by B. Shore
Containers: received 4 x 20 L pails at 14 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/01/24 ; ended on 2012/01/27

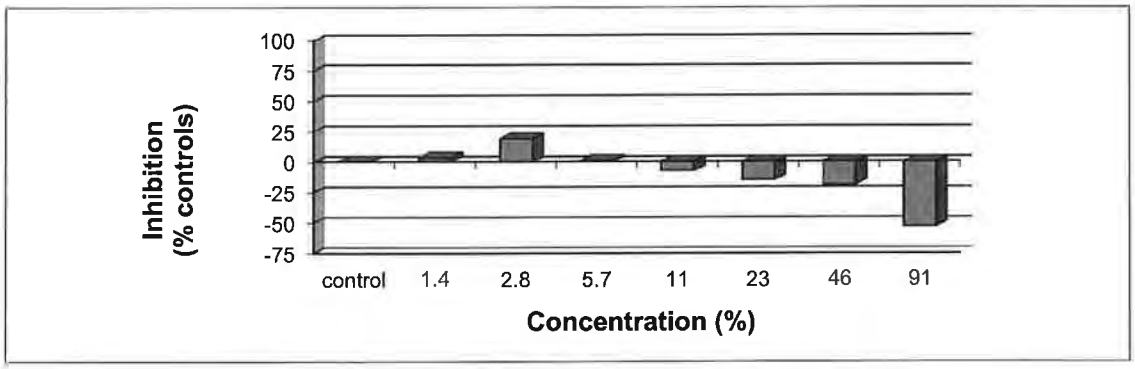
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Result:

	Endpoint (72-hour)	Value	Confidence Limits (95%) lower	upper		Method Calculated
Chronic: (growth)	IC25	>91			%	could not be calculated
	IC50	>91			%	could not be calculated

Notes: ICx, concentrations inhibiting growth by 'x' percent relative to controls; CV, coefficient of variation (%); SD, standard deviation



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-0101-01-AGD

Method: Biological Test Method: Growth Inhibition Test Using a Freshwater Alga *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum)*. Environment Canada, EPS 1/RM/25, 2nd Edition, March 2007

Test type: Algal Growth Inhibition Test (WTR-ME-034)
Species: *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum* and *Raphidocelis subcapitata*)
Organism source: In-house culture (original source: UTCC 37; strain: LB37)
Culture age: The test was started with 4 days old, exponentially growing cells determined with an algal growth curve. The algal growth curve was started with an inoculum from the algal stock culture determined over an 8-10 day period. This culture was initiated on 2011/11/11. Algal cultures are regrown every 2 months from slants made from a new culture purchased annually.
Culture observations: No unusual appearance or treatment of the algae was noted prior to or during the conduct of the test.
Sample initial chemistry: pH: 7.3; EC: 1156 (µS/cm); DO: 8.3 (mg/L); temperature: 19 °C
hardness (mg CaC03/L): 299; colour: colourless; odour: odourless
Sample holding time: 2 days (must be ≤ 3 days)
Sample storage: 4 ± 2°C in darkness
Test concentrations: 7 effluent concentrations (1.4, 2.8, 5.7, 11, 23, 46 and 91% (v/v) plus a negative control)
Test vessel: The test was conducted in 96 well microplates. Three replicate plates were run (a, b and c). Test concentrations were not isolated from each other because volatility was not expected.
Test replicates: Three replicate microplates were run. Per plate there were 5 replicate wells per concentration and 10 replicate wells per control.
Test volume: 220 µL final volume in each well with 200 µL of sample;
10µL of enrichment medium and 10µL of algal inoculum.
Inoculum: The initial cell density of the inoculum was 10314 (cells/mL), it was prepared less than ≤2-3 hours before test initiation.
Control/dilution water: Made up with deionized City of Calgary water spiked with nutrients as per EPS 1/RM/25 (made by adding 1mL of each of the 5 stock solutions to 10mL of DRO). The metal stock with 25% reduced EDTA was used.
Sample Filtration: 100 mL filtered through a 0.45 µm pore diameter membrane.
Sample treatment: Sample spiked with nutrients as per EPS 1/RM/25; no other chemicals added.
Measurements: Final cell densities were determined from the absorbance at 430 nm calibrated against cell counts. The conversion factor for absorbance to cells per millilitre was 14597 with a coefficient of variation of 9 %.
Aeration: Not required
pH Adjustment: Not required
Lighting: The plates were incubated under continuous light: 4025 lux
(cool white fluorescent bulbs) 56.35 µmol/(m^2•S)
Test temperature: 24 ± 2°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-0101-01-AGD

Endpoint: Growth, 72-h IC25 (with 95% confidence limits)
Test endpoint was bracketed by at least 1 test concentration
(except for <1.4% or >100 %)
No outliers were observed within the data set.

Test validity: Control growth was a 57 fold increase over the inoculum.
The cv of the standard control wells was 7 %.
(must be > 16 fold increase with a cv of ≤ 20%)

Statistics: See Data Analysis section.
Mann-Kendall Trend analysis was not performed as control cv was < 10%.

Reference toxicant: 72-h test with Zinc ($ZnSO_4$*7H2O) initiated January 23, 2012;
(must be within 14 days of the test initiation)
current results: (72-h IC25 and 95% confidence limits) = 0.75 (na-1.04) log (µg Zn^{2+}/L)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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HydroQual Laboratories Ltd.

Algae Test Report

Test Data

Client: DEB103
Reference: 12-0101-01-AGD

Test Log:

Date	Day	Technician	Time	Rotated	Temperature (°C)
2012/01/24	0	E. Petho	1450	na	25
2012/01/25	1	R. Bradley	830	yes	25
2012/01/26	2	J. Romero	830	yes	25
2012/01/27	3	E. Petho	1350	na	25

Absorbance and Direct Cell Data:

Concentration (%)	Absorbance (430 nm)	Direct Cell Counts(/0.5 mL)
ctl	0.038	8583
11	0.041	9050
91	0.058	11067

pH Measurements:

Concentration	Initial Value
control	7.8
91%	7.8

Concentration	Final Mean	% CV
control (well D6)	7.8	0
control (well D7)	7.8	0

Average Absorbance Control Data:

Column Well	2b	2c	2e	2f	2g
Absorbance (430 nm)	0.04	0.03	0.04	0.04	0.04
Column Well	11b	11c	11e	11f	11g
Absorbance (430 nm)	0.04	0.03	0.04	0.04	0.04

Standard Control Wells:

Average	509
SD	37
CV%	7

Test Results at 72 hours:

Concentration (%)	Cell Yield Densities ($x10^3$ / mL) Well Replicate					Average	SD	CV	Percent Controls	Inhibition (%)	Stimulation (%)
	a	b	c	d	e						
control	565	478	551	561	619	555	50	9	100	0	0
1.4	595	527	502	517	541	536	36	7	97	3	-3
2.8	585	463	371	400	424	449	83	19	81	19	-19
5.7	580	556	502	546	556	548	28	5	99	1	-1
11	638	604	546	619	570	596	37	6	107	-7	7
23	629	648	614	604	697	638	37	6	115	-15	15
46	643	697	638	653	672	661	24	4	119	-19	19
91	797	814	879	853	901	849	44	5	153	-53	53

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Comments/Statistics

Client: DEB103
Reference: 12-0101-01-AGD

Test Result Comments:
The absorbance measurements were made after the cells were centrifuged and resuspended in clear solution (and that the conversion factor developed for abs vs cell number reflects this step). Manual enumeration was performed on the same day as test termination.

Data Analysis:
Significant stimulatory effects in growth were observed in the 91% concentration as calculated by ANOVA analysis with CETIS v. 1.7.0revQ. (William's Multiple Comparison).

Endpoints for growth inhibition could not be calculated. Inhibitory effects did not occur.

Protocol Deviations:
None

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Warning Chart
Algae

Test Method: 72 hours Algal Growth Inhibition Test (IC25, seven or more treatments plus a control)
HydroQual Test Method: WTR-ME-035

Reference: Biological Test Method: Growth Inhibition Test Using the Freshwater Alga *Selenastrum capricornutum*, 2007. Environment Canada, EPS 1/RM/25.

Test Organism:

test species:	*Pseudokirchneriella subcapitata*
batch number:	20120117AG
date started from slant:	2011/11/08
original source/strain:	UTCC 37 / LB37
culture vessels:	2L Erlenmeyer flask
water source:	85% deionized water, 15% dechlorinated tap
growth medium:	nutrient solution
cultivation method:	batch as per test conditions
culture condition at start	normal
culture age:	3-7 days
growth phase:	exponentially growing

Test Design:

test type:	static
toxicant:	zinc
test vessel:	96 well flat bottom microplate
test volume (µL):	220
no. of replicate plates:	3
no. of replicate wells / treatment per plate (control, sample):	10, 5
mean temperature (°C):	24 ± 2°C
photoperiod:	continuous light
light level:	3600-4400 lux (cool white)
contol/dilution water:	deionized water and nutrients prepared as per EPS1/RM/25

Current Test

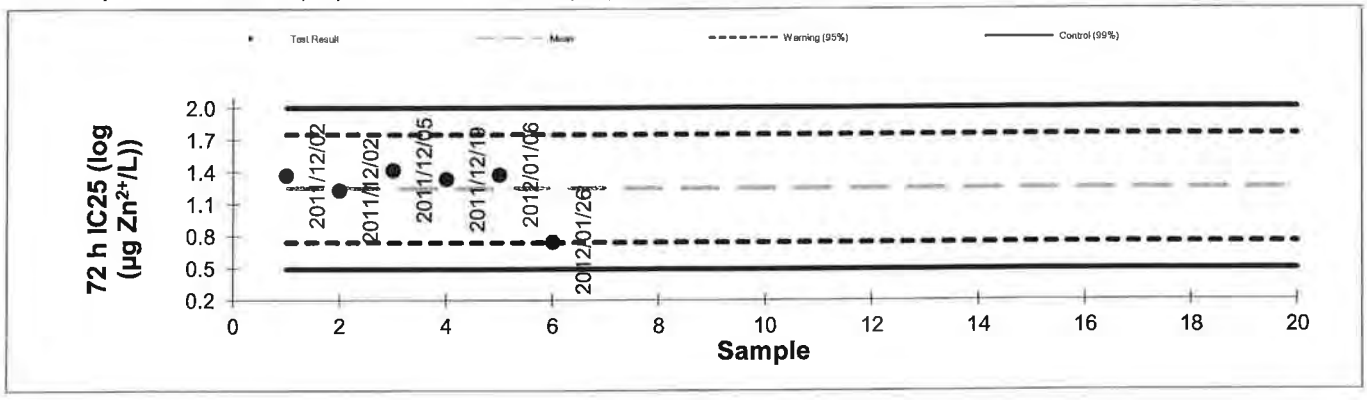
toxicant Zinc ($ZnSO_4*7H_2O$)
started on 2012/01/23 ended on 2012/01/26

Result (IC25 @ 72h)	0.75	log (µg $Zn2^+$/L); geometric mean			
Confidence Limits (95%)	lower	na	upper	1.04	

Historical Values

mean	1.25	sd	0.25	cv(%):	20
	lower	upper			
warning limits (±2 sd)	0.74	1.75	(95% confidence limits)		
control limits (±3 sd)	0.49	2.00	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance, na; could not be calculated



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

Our liability is limited to the cost of the test requested on the sample as received. No liability in whole or in part is assumed for the collection, handling or transport of the sample, application or interpretation of the test data or results in part or in whole.

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Client: DEB103
Reference: 12-0101-01-CDD

Result Summary

Client: DeBeers Canada Inc.- Snap Lake Mine c/o Deton'Cho Logistics Ltd.; operation Snap Lake

Sample: 2012-0165

Collection: collected on 2012/01/22 at 1632 by A. Boulanger
Receipt: received on 2012/01/24 at 1340 by B. Shore
Containers: received 4 x 20 L pails at 14 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/01/25 ; ended on 2012/02/02

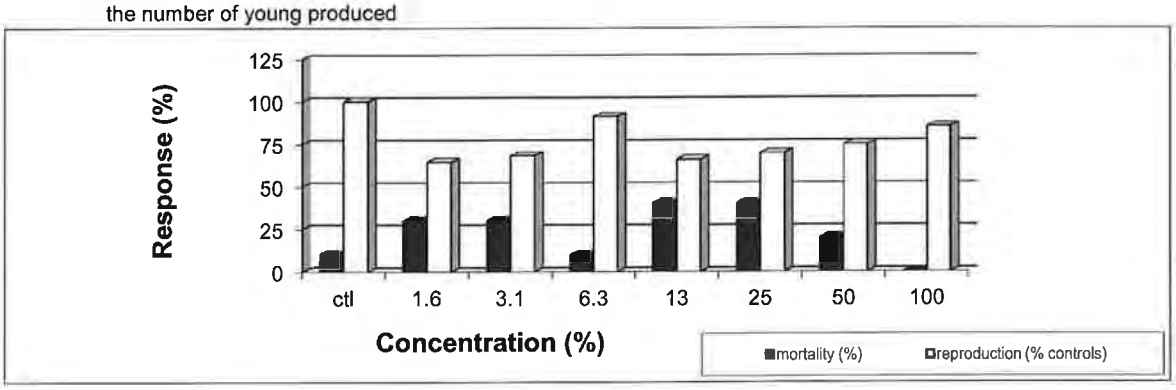
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Result:

	Endpoint (8-day)	Value	Confidence Limits (95%) lower	upper	Units	Method Calculated
Acute:	LC25	>100			%	could not be calculated
(survival)	LC50	>100			%	could not be calculated
Chronic:	IC25	>100			%	could not be calculated
(fecundity)	IC50	>100			%	could not be calculated

Notes: LCx & ICx, concentrations lethal or inhibitory to 'x' percent of the test population; fecundity, reproduction as the number of young produced



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-0101-01-CDD

Method: Biological Test method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia.* Environment Canada, EPS 1/RM/21, 2nd Edition, February 2007.

Test type: *Ceriodaphnia* Survival and Reproduction Static Renewal Test (WTR-ME-018)
Species: *Ceriodaphnia dubia*
Age: <24 hours old; all from same brood source within 12 hours of the same age.
Organism source: in-house cultures; cultures from a single brood organism to provide test organisms.
Culture health: Culture mortality was 8% (must be ≤ 20%).
7-d prior to test initiation: No ephippia were noted in the cultures at any time.
Average young produced per adult in the first three broods was 24 (must be ≥ 15)
Number of young produced by each brood organism in the last complete brood before use was 11 (must be ≥ 8).
Organism observations: No unusual behavior, appearance or treatment of test organisms was noted prior to or during the test. All first-generation mortality was recorded on the day it was observed.
Sample initial chemistry: pH: 7.3; EC: 1156 (µS/cm); DO: 8.3 (mg/L); temperature: 19 °C
hardness (mg CaC03/L): 299; colour: colourless; odour: odourless
Sample holding time: 3 days (must be ≤ 3 days); The test was conducted with three subsamples, samples a, b, and c were for days 0 to 2, 3 to 5, and 6 to 8 respectively
Sample storage: 4 ± 2°C in darkness

Test vessel: The tests were conducted in 30 mL plastic vessels (2 cm depth).
Test volume: 15 mL of solution (1 cm depth); replenished daily.
Control/dilution water: The control and dilution water was a mixture of moderately hard reconstituted water and Bow River Water (50:50). Chemicals added to dilution water: 0.96 g NaHCO3, 0.60 g CaSO4, 0.60 g MgSO4, 0.04 g KCl per 20L.
Test concentrations: 7 effluent concentrations (1.6, 3.1, 6.3, 13, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One neonate <24 hours old was loaded per test vessel;
10 replicates/concentration
Feeding: The test organisms were fed daily a mixture of fermented trout chow, yeast, alfalfa powder, and the green alga *Pseudokirchneriella subcapitata* (formerly *Selenastrum capricornutum* and *Raphidocelis subcapitata*).
Food expiration date: 2012/02/05; 2012/02/12
Measurements: pH, conductivity, dissolved oxygen and temperature were measured daily.
Sample pre-treatment: The sample was not aerated, filtered or pH adjusted prior or during testing.
The dissolved oxygen concentration (mg/L) was: 6.8
The sample pH was: 7.3
Lighting: Overhead full spectrum fluorescent lights; 100-600 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 25 ± 1°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-0101-01-CDD

Endpoints: Survival, 8-d LC50 (with 95% confidence limits)
Reproduction, 8-d IC25 (with 95% confidence limits)
Test endpoints were bracketed by at least 1 test concentration (except for <1.6% or >100 %)
No outliers were observed within the data set.

Test completion: 90% of the control organisms had ≥ 3 broods on day 8 (must be ≥ 60% within 8 days) Any neonates produced after third brood were not included in the mean young per adult calculation.

Test validity: The control had 90% survival (must ≥ 80%)
Number of young produced by each surviving control adult within the first three broods was 15 (must be ≥ 15).

Reference toxicant: 7-d test with NaCl initiated on January 30, 2012;
(must be within 14 days of test initiation)
current results: (7-d LC50 and 95% confidence limits) =
3.29 (3.16-3.41) log (mg/L NaCl)
current results: (7-d IC50 and 95% confidence limits) =
2.81 (2.61-2.95) log (mg/L NaCl)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-0101-01-CDD

Test Log:

Date	Day	Time	Technicians	Temperature (°C) Control	Sample
2012/01/25	0	1120	R. Bradley/J. Romero	25	24
2012/01/26	1	0925	R. Bradley	25	25
2012/01/27	2	0925	J. Romero	25	25
2012/01/28	3	1040	R. Bradley	25	25
2012/01/29	4	1010	E. Petho	25	25
2012/01/30	5	0920	E. Petho	25	25
2012/01/31	6	0910	R. Bradley	25	25
2012/02/01	7	0820	J. Holmes-Smith	25	25
2012/02/02	8	0850	J. Holmes-Smith	na	na

Chemistry Summary Tables:

	New Solutions								Old Solutions							
Conc. %	ctl	1.6	3.1	6.3	13	25	50	100	ctl	1.6	3.1	6.3	13	25	50	100
Average Values																
pH	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.5	8.0	8.0	8.0	8.0	8.0	8.0	7.9	7.8
cond.	453	461	476	491	531	609	770	1090	503	515	560	552	589	674	860	1254
DO	7.2	7.0	7.0	6.9	6.9	6.9	6.9	6.7	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.7
temp.	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Coefficients of Variation (%)																
pH	4	3	3	3	3	2	3	2	2	2	2	2	2	1	1	2
cond.	10	10	11	9	8	7	5	4	10	9	9	7	8	5	4	6
DO	5	6	6	5	4	3	3	4	3	2	2	2	2	2	2	2
temp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Test Data

Client: DEB103
Reference: 12-0101-01-CDD

Biology (number of young produced):

Day	1	2	3	4	5	6	7	8
Replicate	Control							
1	0	0	0	0	0	0	0	**0**
2	0	0	0	3	0	8	0	9
3	0	0	0	2	0	10	7	-
4	0	0	0	3	5	4	-	-
5	0	0	0	2	0	2	4	-
6	0	0	0	4	0	0	5	8
7	0	0	0	2	4	0	4	-
8	0	0	0	2	6	0	4	-
9	0	0	0	0	5	4	0	11
10	0	0	0	0	3	0	6	8
	1.6%							
1	0	0	0	0	**0**	X	X	X
2	0	0	0	0	0	0	6	6
3	0	0	0	0	2	2	5	-
4	0	0	0	2	0	6	7	-
5	0	0	0	0	0	2	0	**0**
6	0	0	0	0	0	**6**	X	X
7	0	0	0	2	2	6	-	-
8	0	0	0	0	3	5	4	-
9	0	0	0	0	2	2	3	-
10	0	0	0	0	2	4	0	8
	3.1%							
1	0	0	0	0	0	0	6	6
2	0	0	0	0	0	6	0	8
3	0	0	0	0	2	2	0	**0**
4	0	0	0	3	5	2	-	-
5	0	0	0	2	0	2	6	-
6	0	0	0	2	9	0	7	-
7	0	0	0	0	5	0	7	8
8	0	0	0	0	0	0	2	**0**
9	0	**0**	X	X	X	X	X	X
10	0	0	0	0	0	2	0	0

1	2	3	4	5	6	7	8
13%							
0	0	0	0	0	**0**	X	X
0	0	0	0	2	4	0	9
0	0	0	4	0	7	7	-
0	**0**	X	X	X	X	X	X
0	0	0	2	7	0	10	-
0	0	0	0	0	6	4	2
0	0	0	0	**0**	X	X	X
0	0	0	0	2	8	0	8
0	0	0	0	0	2	5	0
0	0	0	**0**	X	X	X	X
25%							
0	0	0	0	0	2	0	4
0	0	0	0	2	6	0	8
0	0	0	0	**3**	X	X	X
0	0	0	4	0	4	7	-
0	0	0	2	0	4	4	-
0	0	0	0	3	4	8	-
0	0	0	2	2	0	**12**	X
0	0	0	2	2	**3**	X	X
0	0	0	0	0	**2**	X	X
0	0	0	0	2	0	2	0
50%							
0	0	0	0	5	0	6	8
0	0	0	0	3	**2**	X	X
0	0	0	3	7	0	10	-
0	0	0	2	3	3	-	-
0	0	0	0	0	0	0	0
0	0	0	0	4	0	6	2
0	0	0	2	0	5	0	0
0	0	0	2	0	0	0	**0**
0	0	0	0	0	6	10	0
0	0	0	2	0	4	0	6

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died; —, young produced after third brood

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Test Data

Client: DEB103
Reference: 12-0101-01-CDD

Biology (number of young produced):

Day	1	2	3	4	5	6	7	8

1	2	3	4	5	6	7	8

Replicate	6.3%							
1	0	0	0	0	2	4	0	7
2	0	0	0	0	0	8	0	5
3	0	0	0	2	6	0	8	-
4	0	0	0	2	3	0	8	-
5	0	0	0	0	4	4	0	10
6	0	0	0	2	0	5	12	-
7	0	0	0	**2**	X	X	X	X
8	0	0	0	2	0	6	5	-
9	0	0	0	0	0	6	0	0
10	0	0	0	0	2	0	6	2

100%							
0	0	0	0	3	7	0	7
0	0	0	3	0	3	6	-
0	0	0	0	0	6	8	0
0	0	0	0	0	4	8	0
0	0	0	0	0	0	0	0
0	0	0	2	0	5	11	-
0	0	0	0	0	0	0	0
0	0	0	0	0	4	5	0
0	0	0	2	0	6	7	-
0	0	0	0	2	0	8	8

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died;
—, young produced after third brood

Biology Summary Tables:

Conc. %	ctl	1.6	3.1	6.3	13	25	50	100

ctl	1.6	3.1	6.3	13	25	50	100

Day	Number of Organism Alive							
0	10	10	10	10	10	10	10	10
1	10	10	10	10	10	10	10	10
2	10	10	9	10	9	10	10	10
3	10	10	9	10	9	10	10	10
4	10	10	9	9	8	10	10	10
5	10	9	9	9	8	9	10	10
6	10	8	9	9	6	7	9	10
7	10	8	9	9	6	6	9	10
8	9	7	7	9	6	6	8	10

Day	Daily Young Production							
0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0
4	18	4	7	10	6	10	11	7
5	23	11	21	17	11	14	22	5
6	28	33	14	33	27	25	20	35
7	30	25	28	39	26	33	32	53
8	36	14	22	24	19	12	16	15

	Percent Mortality (%)							
mean	10	30	30	10	40	40	20	0

Total	135	87	92	123	89	94	101	115

Replicate	Total Young Produced by Each Adult							
1	0	0	12	13	0	6	19	17
2	20	12	14	13	15	16	5	12
3	19	9	4	16	18	3	20	14
4	12	15	10	13	0	15	8	12
5	8	2	10	18	19	10	0	0
6	17	6	18	19	12	15	12	18
7	10	10	20	2	0	16	7	0
8	12	12	2	13	18	7	2	9
9	20	7	0	6	7	2	16	15
10	17	14	2	10	0	4	12	18

Young Per Adult (within first three broods)

mean	14	9	9	12	9	9	10	12
sd	6.4	4.97	7	5.21	8.4	5.7	6.89	6.7
cv(%)	47.4	57.1	76.1	42.3	94.4	60.6	68.2	58.3

Young Production as a Percent of Controls

100	64	68	91	66	70	75	85

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Test Data

Client: DEB103
Reference: 12-0101-01-CDD

Chemistry:

Day	New Solutions								Old Solutions							
Conc. %	ctl	1.6	3.1	6.3	13	25	50	100	ctl	1.6	3.1	6.3	13	25	50	100
	pH (units)								pH (units)							
0	7.6	7.7	7.7	7.7	7.7	7.7	7.5	7.3								
1	7.4	7.6	7.6	7.6	7.6	7.6	7.5	7.4	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.6
2	8.0	8.1	8.1	8.1	8.1	8.1	8.0	7.7	8.1	8.2	8.2	8.2	8.1	8.1	8.0	7.9
3	7.8	7.8	7.8	7.9	7.9	7.8	7.7	7.5	7.8	7.9	8.0	8.1	8.0	8.0	8.0	7.8
4	8.3	8.3	8.3	8.2	8.2	8.1	8.0	7.6	8.2	8.2	8.3	8.2	8.1	8.1	8.0	7.9
5	7.8	7.8	7.8	7.8	7.8	7.7	7.6	7.2	8.0	8.0	8.0	8.0	8.0	7.9	7.9	7.7
6	8.2	8.2	8.1	8.1	8.1	8.0	7.9	7.7	8.1	8.1	8.1	8.1	8.1	8.0	7.9	7.8
7	7.8	7.9	7.9	7.9	7.9	7.9	7.8	7.5	8.1	8.1	8.1	8.1	8.1	8.0	8.0	7.8
8									7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.5
	Conductivity (µS/cm)								Conductivity (µS/cm)							
0	370	386	394	416	456	541	710	1050								
1	419	410	421	445	489	579	767	1142	419	452	490	494	536	637	842	1293
2	473	485	494	510	560	639	804	1134	447	453	501	500	543	642	849	1305
3	488	519	554	530	571	651	812	1128	539	564	620	591	651	716	914	1334
4	503	504	512	530	568	644	804	1127	545	575	619	600	665	720	903	1325
5	434	445	451	473	509	582	731	1036	522	526	569	561	574	672	846	1192
6	451	451	475	496	532	600	745	1026	470	485	529	525	549	638	808	1149
7	485	488	504	527	562	637	784	1073	553	540	595	576	596	673	880	1253
8									528	525	556	572	598	692	839	1178
	Dissolved Oxygen (mg/L)								Dissolved Oxygen (mg/L)							
0	6.9	6.6	6.6	6.7	6.7	6.7	6.8	6.8								
1	7.0	6.5	6.5	6.5	6.6	6.6	6.6	6.7	6.9	6.8	6.7	6.7	6.6	6.6	6.6	6.5
2	7.1	6.9	6.9	6.8	6.9	6.9	6.9	6.8	7.0	6.9	7.0	7.0	6.9	6.9	6.9	6.8
3	8.0	7.8	7.7	7.5	7.4	7.3	7.2	7.2	7.1	7.0	7.0	7.0	7.0	7.1	7.0	7.0
4	7.6	7.4	7.3	7.2	7.2	7.1	7.0	6.3	6.5	6.5	6.6	6.7	6.7	6.7	6.7	6.7
5	7.3	7.3	7.1	7.1	7.0	7.0	6.9	6.5	6.5	6.6	6.7	6.7	6.7	6.8	6.8	6.8
6	6.8	6.7	6.7	6.7	6.7	6.7	6.8	6.9	6.8	6.7	6.7	6.7	6.7	6.7	6.7	6.7
7	7.2	6.9	6.8	6.8	6.8	6.8	6.8	6.7	6.8	6.8	6.8	6.9	6.9	6.8	6.8	6.8
8									6.6	6.9	6.7	6.7	6.7	6.6	6.6	6.6
	Temperature (°C)								Temperature (°C)							
0	25	25	25	25	25	25	25	25								
1	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
2	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
4	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
5	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
6	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
7	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
8									25	25	25	25	25	25	25	25

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Comments/Statistics

Client: DEB103
Reference: 12-0101-01-CDD

Test Result Comments:
None

Data Analysis:
Endpoints for mortality could not be calculated. No significant dose-response was observed.

Endpoints for reproduction could not be calculated. No significant dose-response was observed.

Protocol Deviations:
None

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Quality Assurance Information

Culture history for adults used in the test for reference 12-0101:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

	row/replicate	E8	D10	C10	B10	D7	A7	C6	B7			
	number of young											
	number of adults											
		E8	D10	C10	B10	D7	A7	C6	B7			
	number of young											
	number of adults											
		E8	D10	C10	B10	D7	A7	C6	B7			
	number of young											
	number of adults											
		E8	D10	C10	B10	D7	A7	C6	B7			
	number of young	13	4	7	7	6	7	5	7			
	number of adults	1	1	1	1	1	1	1	1			
		E8	D10	C10	B10	D7	A7	C6	B7			
	number of young	8	8	10	10	10	9	8	5			
	number of adults	1	1	1	1	1	1	1	1			
		E8	D10	C10	B10	D7	A7	C6	B7			
	number of young	12	4	11	6	11	10	10	6			
	number of adults	1	1	1	1	1	1	1	1			
		E8	D10	C10	B10	D7	A7	C6	B7			
DAY USED 2012/01/25	number of young	14	14	8	10	10	10	9	12			
	number of adults	1	1	1	1	1	1	1	1			
		E8	D10	C10	B10	D7	A7	C6	B7			
totals (# of young in first 3 broods)	number of young	33	16	28	23	27	26	23	18			

Number of young produced per organism in the last brood before use	11
Mean number of surviving young per adult over the first three broods	24
Culture mortality over the last seven days	8

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HydroQual Laboratories Ltd.

Warning Chart
Ceriodaphnia

Test Method: *Ceriodaphnia* Survival and Reproduction Test (7 treatments plus a control)
HydroQual Test Method: WTR-ME-019
Reference: Biological Test Method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia*, 2007. Environment Canada, EPS 1/RM/21

Test Organism:

test species:	*Ceriodaphnia dubia*
culture source:	in-house
original culture source:	Environment Canada
ephippia in stock culture:	none
food type:	YAT:Algae
frequency of feeding:	daily
age of test organisms:	<24 hours
culture mortality 7 days prior:	4%
culture fecundity 7 days prior within the first three broods:	21
young produced in previous brood:	11
culture condition prior to test initiation:	normal
culture water:	mixture of moderately hard reconstituted* water and Bow River Water (50:50)

Test Design:

test type:	static renewal
toxicant:	sodium chloride (NaCl)
test vessel:	30 mL plastic cup
test volume (mL):	15
replicates per treatment:	10
organisms per replicate:	1
feeding:	daily
temperature (°C):	24-26
photoperiod:	16 hours light: 8 hours dark
light level (surface):	100-600 lux (full spectrum)
hardness adjustment:	no

*Note: there are 2 subcultures within this culture source, separated by one week in age. The test is set with organisms from one subculture. The number of young a culture has is monitored daily. If young are not used that day, they are discarded, therefore organisms in tests are <24h.

Control/Dilution Water:

source:	mixture of moderately hard reconstituted* water and Bow River Water (50:50)
pH (units):	8.0
conductance (uS/cm):	434
dissolved oxygen (mg/L):	7.3
NH_4^+ (mg/L):	<0.1
hardness (mg $CaCO_3$/L):	120
alkalinity (mg $CaCO_3$/L):	123
total residual chlorine (mg/L):	<0.01

* Note: moderately hard reconstituted water prepared as per EPS 1/RM/21

Comments: None

The test data and results are authorized and verified correct.

E. Hanson
Ecotoxicology Team Leader

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Mortality

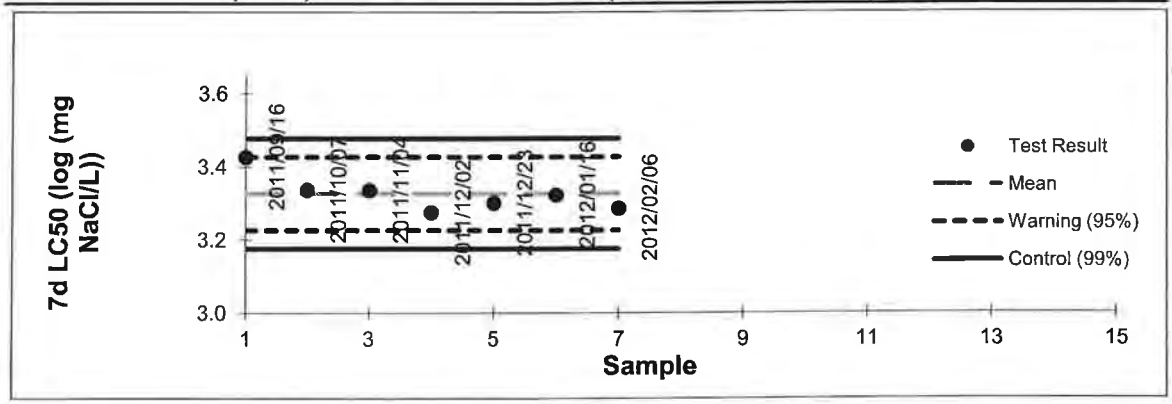
Current Test

toxicant Sodium chloride (NaCl)
started on 2012/01/30 ended on 2012/02/06

Result (7d LC50):	3.29	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	3.16	upper	3.41	

Historical Values

mean	3.33	sd	0.05	cv(%):	2
	lower	upper			
warning limits (±2 sd)	3.23	3.43	(95% confidence limits)		
control limits (±3 sd)	3.18	3.48	(99% confidence limits)		



Reproduction

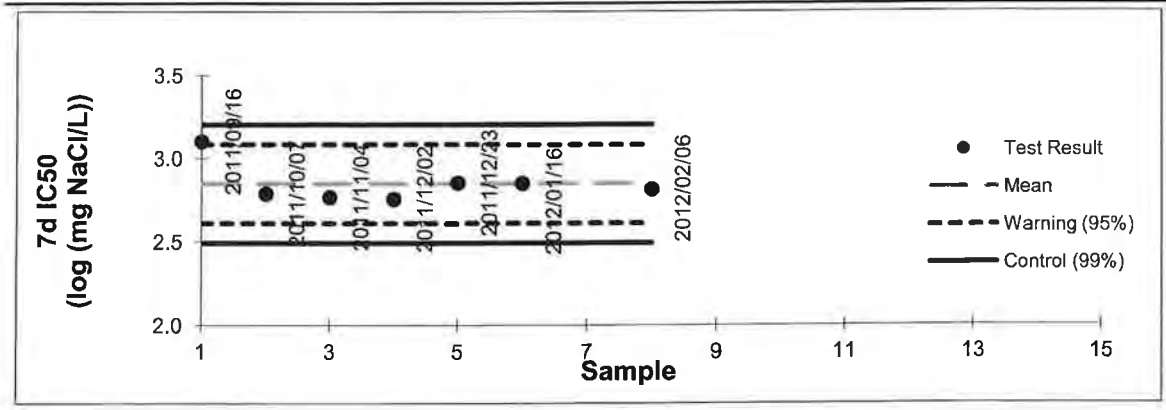
Current Test

toxicant Sodium chloride (NaCl)
started on 2012/01/30 ended on 2012/02/06

Result (7d IC50)	2.81	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	2.61	upper	2.95	

Historical Values

mean	2.85	sd	0.12	cv(%):	4
	lower	upper			
warning limits (±2 sd)	2.61	3.08	(95% confidence limits)		
control limits (±3 sd)	2.49	3.20	(99% confidence limits)		



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HydroQual Laboratories Ltd.

Ceriodaphnia Test Report

Quality Assurance Information

Culture history for adults used in the test for reference QA25:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

	row/replicate	A4	B4	C5	B2	C5	B5	C2	C3	E4		
	number of young											
	number of adults											
		A4	B4	C5	B2	C5	B5	C2	C3	E4		
	number of young											
	number of adults											
		A4	B4	C5	B2	C5	B5	C2	C3	E4		
	number of young											
	number of adults											
		A4	B4	C5	B2	C5	B5	C2	C3	E4		
	number of young		4	4								
	number of adults		1	1								
		A4	B4	C5	B2	C5	B5	C2	C3	E4		
	number of young	6	8	9	5	5	2	3	3	4		
	number of adults	1	1	1	1	1	1	1	1	1		
		A4	B4	C5	B2	C5	B5	C2	C3	E4		
	number of young	8	12	9	6	4	7	10	5	6		
	number of adults	1	1	1	1	1	1	1	1	1		
		A4	B4	C5	B2	C5	B5	C2	C3	E4		
DAY USED	number of young	12	11	13	10	12	8	9	8	12		
2012/01/30	number of adults	1	1	1	1	1	1	1	1	1		
		A4	B4	C5	B2	C5	B5	C2	C3	E4		
totals	number of young	26	24	22	21	21	17	22	16	22		
(# of young in first 3 broods)												

Number of young produced per organism in the last brood before use: 11

Mean number of surviving young per adult over the first three broods: 21

Culture mortality over the last seven days: 4

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HydroQual Laboratories Ltd.

Trout (96-h LC50) Test Report

Result Summary

Client: DEB103
Reference: 12-0101-01-TRD

Client: DeBeers Canada Inc.- Snap Lake Mine c/o Deton'Cho Logistics Ltd.; operation Snap Lake

Sample: 2012-0165

Collection: collected on 2012/01/22 at 1632 by A. Boulanger
Receipt: received on 2012/01/24 at 1340 by B. Shore
Containers: received 4 x 20 L pails at 14 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/01/26 ; ended on 2012/01/30

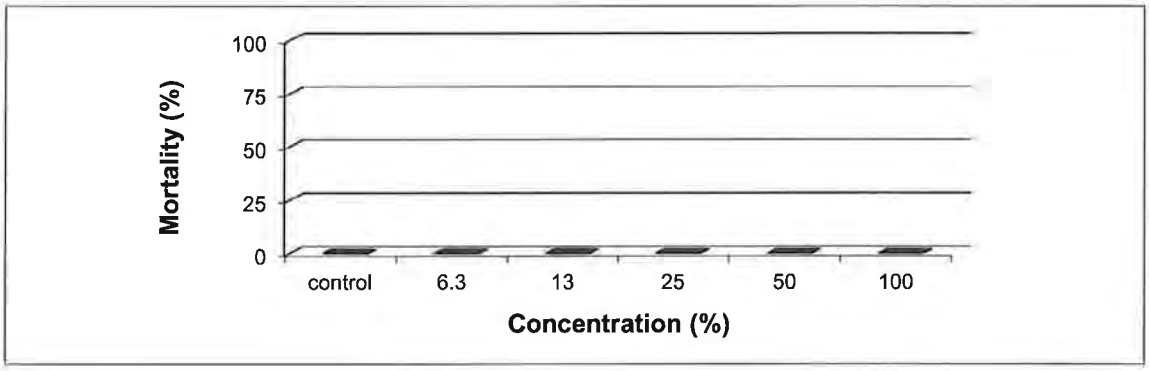
Contents

Result Summary.....1
Test Conditions.....2
Test Data.....3
Comments/Statistics..5
QA/QC.....6

Result:

	Endpoint (96-hour)	Value (%)	Confidence Limits (95%) lower	upper	Method Calculated
Acute:	LC50	>100			could not be calculated
(mortality)	LC25	>100			could not be calculated

Notes: LC25 & LC50, concentrations lethal to 25% and 50% of the test population



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-0101-01-TRD

Method: Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout, 2000. Environment Canada, EPS 1/RM/13. Second Edition (amended May 2007).

Test type: Trout 96-h Static Acute Test (WTR-ME-041)
Species: *Oncorhynchus mykiss*
Organism source: Lyndon Fish Hatcheries (Batch 20120111TR)
Acclimation: 15 days (must be ≥2 weeks)
Stock mortality: 0.07% (seven days preceding testing)

Sample initial chemistry: pH: 7.3; EC: 1156 (µS/cm @ 25°C); DO: 8.3 (mg/L); temperature: 19 °C
hardness (mg CaC03/L): 299; colour: colourless; odour: odourless
Sample holding time: 4 days (must be ≤ 5 days)
Sample storage: 4 ± 2°C in darkness

Test vessel: The test was conducted in 22 L plastic pails with polyethylene liners
Test volume: 20 Litres (depth of solution in each test vessel ≥15cm)
Sample pre-treatment: All test solutions and controls were pre-aerated for 30 minutes at 6.5 ±1 mL/min/L
Dissolved oxygen in 100 % sample was 8.1 mg/L after pre-aeration
The sample was not filtered or pH adjusted prior to or during testing
Loading density: 0.194 g/Litre (must be ≤ 0.5 g/Litre)
Control/dilution water: Dechlorinated City of Calgary water acclimated to test conditions
Test concentrations: 5 effluent concentrations (6.3, 12.5, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One replicate per treatment; 10 fish per replicate
Feeding: Fish are not fed 24 hours before test initiation and no feeding during test
Measurements: pH, conductivity, dissolved oxygen and temperature measured daily
Aeration: All treatments aerated at 6.5 ±1 mL/min/L by oil-free compressed air passed through airline tubes connected to disposable air stones
Lighting: Overhead full spectrum fluorescent lights; 100-500 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 15 ± 1°C

Endpoint: Mortality, 96-h LC50 (with 95% confidence limits)
Test validity: The control had 100% survival (must ≥ 90%)
The control had 0 percent (%) stressed behaviour (must ≤ 10%)
Reference toxicant: 96-h test with Phenol (C_6H_6O) initiated January 16, 2012; current results (96-h LC50 and 95% confidence limits) = 1.11 (1.05-1.18) log (mg/L Phenol)

Note: Outlined sections are protocol deviations explained on the comment page; v/v, volume per volume

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Test Data

Client: DEB103
Reference: 12-0101-01-TRD

Test Log:

Date	Day	Time	Technician	Comment/Observation
2012/01/26	0	1100	R. Bradley/J. Holmes-Smith	test fish loaded at 1100 h
2012/01/27	1	0915	J. Holmes-Smith	all test fish appear normal
2012/01/28	2	0940	H. Caro-Riano	all test fish appear normal
2012/01/29	3	1120	E. Petho	all test fish appear normal
2012/01/30	4	1130	J. Holmes-Smith	all test fish appear normal

Chemistry:

Conc. (%)	control	6.3	13	25	50	100		
Day	pH (units)							
0	7.9	7.9	8.0	7.9	7.9	7.6		
1	8.2	8.1	8.1	8.0	7.9	7.8		
2	8.1	8.1	8.1	8.0	8.0	7.7		
3	8.0	8.1	8.1	8.1	8.0	7.6		
4	8.0	8.0	8.1	8.0	7.9	7.7		
	Conductivity (µS/cm @ 25°C)							
0	505	533	567	648	801	1097		
1	514	538	569	648	800	1091		
2	489	537	570	648	805	1088		
3	513	567	606	697	867	1194		
4	516	570	610	708	871	1188		
	Dissolved Oxygen (mg/L)							
0	8.2	8.3	8.4	8.4	8.4	8.1		
1	8.4	8.5	8.6	8.7	8.8	8.8		
2	8.6	8.7	8.7	8.7	8.7	8.8		
3	7.4	7.7	7.9	8.0	8.0	8.1		
4	7.8	7.9	8.0	8.1	8.1	8.1		
	Temperature (°C)							
0	14	14	14	14	14	14		
1	14	14	14	14	14	14		
2	14	14	14	14	14	14		
3	14	14	14	14	14	14		
4	14	14	14	14	14	14		

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Test Data

Client: DEB103
Reference: 12-0101-01-TRD

Number Alive (In brackets number stressed):

Conc. (%)	control	6.3	13	25	50	100		
Day								
0	10	10	10	10	10	10		
1	10	10	10	10	10	10		
2	10	10	10	10	10	10		
3	10	10	10	10	10	10		
4	10	10	10	10	10	10		
				Mortality (%)				
4	0	0	0	0	0	0		
				Stressed (%)				
4	0	0	0	0	0	0		

Biology Summary Tables:

Control Fish	Length (cm)	Wet Weight(g)
1	3.1	0.3
2	3.5	0.4
3	3.2	0.4
4	3.1	0.3
5	3.3	0.4
6	3.3	0.5
7	3.0	0.3
8	3.6	0.5
9	3.4	0.4
10	2.9	0.3
average	3.2	0.4
sd	0.2	0.1
cv(%)	6.9	18.3

Notes: nd, not done; na, not applicable; sd, standard deviation; cv(%), coefficient of variation

Conc. (%)	Group Wet Weight (g)
control	3.9
6.3	5.1
13	4.9
25	5.8
50	4.3
100	4.5

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Comments/Statistics

Client: DEB103
Reference: 12-0101-01-TRD

Test Result Comments:
None

Data Analysis:
Endpoints for mortality could not be calculated. No effect occurred.

Protocol Deviations:
None

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HydroQual Laboratories Ltd.

Warning Chart
Trout

Test Method: Trout 96h Static Acute Test. (LC50, 5 treatments plus a control)
HydroQual Test Method: WTR-ME-042

Reference: Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout, 1990. Environment Canada, EPS 1/RM/13. including May 1996 and December 2000 amendments.

Test Organism:

test species: *Oncorhyncus mykiss*
culture source: Lyndon Fish Hatcheries
temperature (°C): 15 ± 1
dissolved oxygen: 70-100% saturation
stock mortality (last 7d): 0.04%
batch number: 20120111TR

Test Design:

vol. of test vessel (L): 20
test volume depth: >15 cm
replicates per treatment: 1
fish per replicate: 10
loading (g fish/L): ≤0.5
temperature (°C): 15 ± 1
photoperiod: 16h light: 8h dark
light level (water surface): 100-500 lux (full-spectrum)
control/dilution water: dechlorinated tap water

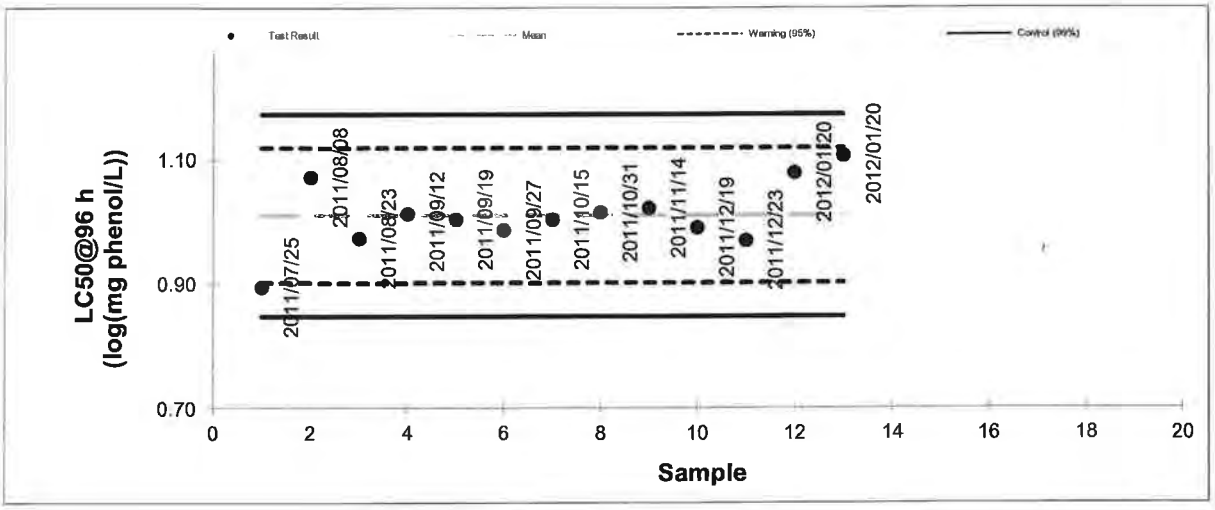
Current Test

toxicant	phenol (C_6H_5OH)				
started on	2012/01/16	ended on	2012/01/20		
Result (LC50 @ 96h)	1.11	log (mg phenol/L); geometric mean			
Confidence Limits (95%)	lower	1.05	upper	1.18	

Historical Values

mean	1.01	sd	0.05	cv(%):	5
	lower	upper			
warning limits (±2 sd)	0.90	1.12	(95% confidence limits)		
control limits (±3 sd)	0.85	1.17	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

Our liability is limited to the cost of the test requested on the sample as received. No liability in whole or in part is assumed for the collection, handling or transport of the sample, application or interpretation of the test data or results in part or in whole.

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HydroQual Laboratories Ltd.

Daphnia (48-h LC50/EC50) Test Report

Result Summary

Client: DEB103
Reference: 12-0101-01-DAD

Contents

Result Summary.....1
Test Conditions.....2
Test Data.....4
Comments/Statistics..5
QA/QC.....6

Client: DeBeers Canada Inc.- Snap Lake Mine c/o Deton'Cho Logistics Ltd.; operation Snap Lake

Sample: 2012-0165

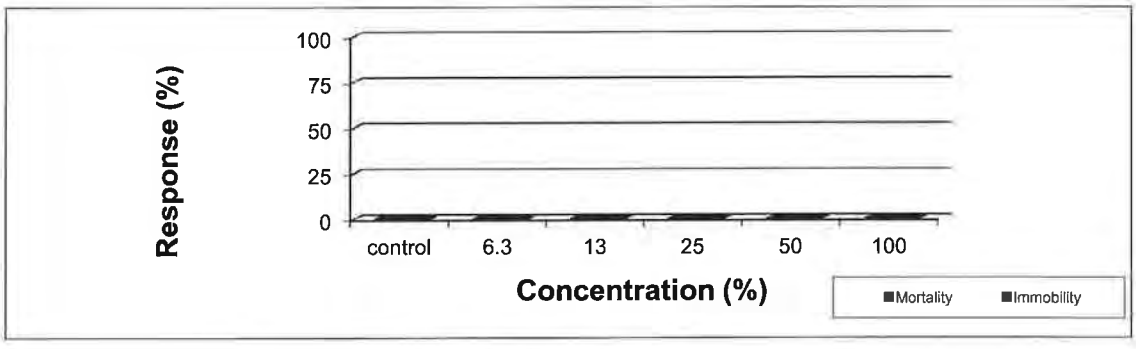
Collection: collected on 2012/01/22 at 1632 by A. Boulanger
Receipt: received on 2012/01/24 at 1340 by B. Shore
Containers: received 4 x 20 L pails at 14 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/01/25 ; ended on 2012/01/27

Result:

	Endpoint (48-hour)	Value (%)	Confidence Limits (95%) lower	upper	Method Calculated
Acute: (mortality)	LC50	>100			could not be calculated
	LC25	>100			could not be calculated
Acute: (immobility)	EC50	>100			could not be calculated
	EC25	>100			could not be calculated

Notes: LC25 & LC50, concentrations lethal to 25% and 50% of the test population



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-0101-01-DAD

Method: Biological Test method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna*, 2000. Environ. Can., EPS 1/RM/14. Second Edition.

Test type: *Daphnia* 48-h Static Acute Test (WTR-ME-015)
Species: *Daphnia magna*
Age: < 24 hours old
Organism source: in-house culture
Stock mortality: 0%
Culture brood data: 11 days to first brood
24 neonates per average brood

Sample initial chemistry: pH: 7.3; EC: 1156 (µS/cm @ 25°C); DO: 8.3 (mg/L); temperature: 19 °C
hardness (mg CaC03/L): 299; colour: colourless; odour: odourless
Sample holding time: 3 days (must be ≤ 5 days)
Sample storage: 4 ± 2°C in darkness

Test vessel: 385 mL plastic vessels
Test volume: 150 mL
Sample pre-treatment: The sample was not filtered or pH adjusted prior to or during testing
The sample was pre-aerated for 0 minutes (rate of 37.5 ± 12.5 mL/min.L^{-1})
The hardness of the sample was not adjusted (mg $CaCO_3$/L) prior to or during testing
Loading density: One daphnid/15 mL (must ≤ 1 organism/15 mL)
Control/dilution water: Dechlorinated City of Calgary water acclimated to test conditions
The hardness of the control/dilution water was 169 mg $CaCO_3$/L
Test concentrations: 5 effluent concentrations (6.3, 12.5, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One replicate per treatment, 10 daphnids per replicate
Feeding: None
Aeration: None
Measurements: pH, conductivity, dissolved oxygen and temperature at test initiation and termination
Lighting: Cool white fluorescent lights; 400-800 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 20 ± 2°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-0101-01-DAD

Endpoint: Mortality, 48-h LC50 (95% confidence limits)
Immobility, 48-h EC50 (95% confidence limits)

Test validity: The control had 100% survival (must ≥ 90%)
Control had 0 percent (%) abnormal behaviour (must ≤ 10%, immobility)

Reference toxicant: 48-h test with NaCl initiated January 16, 2012; current results
(48-h LC50 and 95% confidence limits) = 0.78 (0.75-0.81) log (g/L NaCl)

Note: Outlined sections are protocol deviations explained on the comment page

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HydroQual Laboratories Ltd.

Daphnia (48-h LC50/EC50) Test Report

Test Data

Client: DEB103
Reference: 12-0101-01-DAD

Test Log:

Date	Day	Time	Technician	Comment/Observation
2012/01/25	0	1130	J. Holmes-Smith	test *Daphnia* appear normal
2012/01/26	1	1015	J. Romero	test *Daphnia* appear normal
2012/01/27	2	1040	E. Petho	test *Daphnia* appear normal

Chemistry:

Conc. (%)	control	6.3	13	25	50	100		
Day	pH (units)							
0	8.1	8.0	7.9	7.9	7.8	7.6		
2	8.2	8.1	8.1	8.1	8.0	7.9		
	Conductivity (µS/cm @ 25°C)							
0	391	433	481	572	759	1138		
2	389	450	489	591	769	1161		
	Dissolved Oxygen (mg/L)							
0	6.9	7.0	7.1	7.1	7.1	7.2		
2	7.4	7.4	7.4	7.4	7.4	7.4		
	Temperature (°C)							
0	20	20	20	20	20	21		
2	21	21	21	21	21	21		

Biology:

Conc. (%)	control	6.3	13	25	50	100		
Day	Number Alive and Behavior (behavior is in brackets)							
1	10	10	10	10	10	10		
2	10	10	10	10	10	10		

Notes: F, floating; I, immobile; B, stuck on bubble; D, caught in debris; nd, not done; na, not applicable;

	Mortality (%)							
2	0	0	0	0	0	0		
	Immobility (%)							
2	0	0	0	0	0	0		

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Comments/Statistics

Client: DEB103
Reference: 12-0101-01-DAD

Test Result Comments:
None

Data Analysis:
Endpoints for mortality could not be calculated. No effect occurred.

Endpoints for immobility could not be calculated. No effect occurred.

Protocol Deviations:
None

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HydroQual Laboratories Ltd.

Warning Chart
Daphnia

Quality Assurance Information

Test Method: *Daphnia* Static Acute Test (LC50, 5 treatments plus a control)
HydroQual Test Method: WTR-ME-016

Reference: Biological Test Method: Reference Method for Determining the Acute Lethality of Effluents to *Daphnia magna*, 1990. Environment Canada, EPS 1/RM/14. including May 1996 and December 2000 ammendments.

Test Organism:		**Test Design:**	
test species:	*Daphnia magna*	vol. of test vessel (mL):	500
culture source:	in-house	toxicant:	sodium chloride
original culture source:	Environment Canada	test volume (mL):	150
days to first brood:	11	replicates per treatment:	1
mean brood size:	24	neonates per replicate:	10
ephippia in stock culture:	no	volume per neonate (mL):	15
age of test organisms:	<24 hours old	samples preaerated:	no
culture mortality (%):	0%	hardness adjustment:	no
dissolved oxygen:	40-100% saturation	temperature (°C):	20
		photoperiod:	16h light:8h dark
		light level (water surface):	400-800 lux (cool white)
		control/dilution water:	dechlorinated tap water

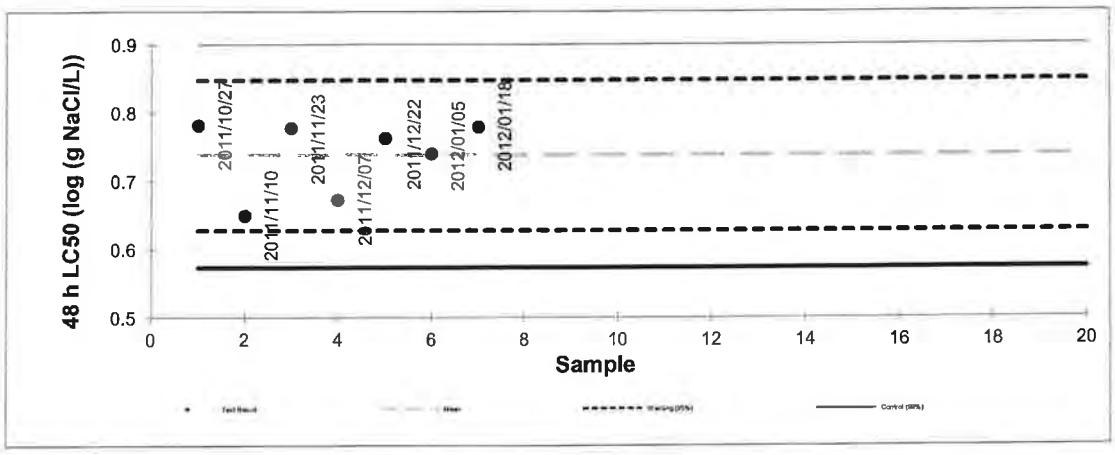
Current Test

toxicant	Sodium chloride (NaCl)				
started on	2012/01/16	ended on	2012/01/18		
Result (LC50 @ 48h)	0.78	log (g NaCl/L); geometric mean			
Confidence Limits (95%)	lower	0.75	upper	0.81	

Historical Values

mean	0.74	sd	0.05	cv(%):	7
	lower	upper			
warning limits (±2 sd)	0.63	0.85	(95% confidence limits)		
control limits (±3 sd)	0.57	0.90	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance
Comments:



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

HydroQual Laboratories Ltd.

Algae Test Report

Result Summary

Client: DEB103
Reference: 12-1585-01-AGD

Client: DeBeers Canada Inc.; operation Snap Lake

Contents

Result Summary.....1
Test Conditions.....2
Test Data.....4
Comments/Statistics..5
QA/QC.....6

Sample: 2012-5905

Collection: collected on 2012/09/09 at 1615 by not given
Receipt: received on 2012/09/11 at 1430 by J. Holmes-Smith/ L. Windatt
Containers: received 6 x 1 L bottles at 14 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/09/11 ; ended on 2012/09/14

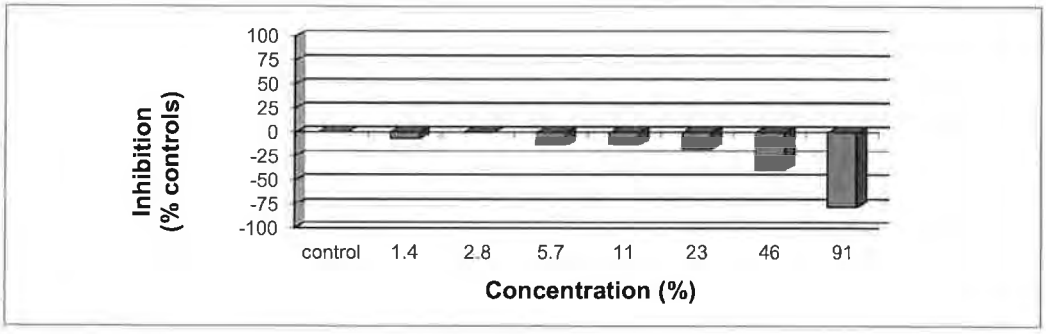
Result:

	Endpoint (72-hour)	Value	Confidence Limits (95%) lower	upper		Method Calculated
Chronic: Growth Inhibition	IC25	>91			%	could not be calculated
	IC50	>91			%	could not be calculated

Notes: ICx, concentrations inhibiting growth by 'x' percent relative to controls; CV, coefficient of variation (%); SD, standard deviation

	Stimulation Observed	Test Concentrations		Method Calculated
Chronic: Growth Stimulation	**yes**	11, 23, 46, 91	%	William's Multiple Comparison

Notes: Stimulation refers to increased response at all concentrations or at high concentrations



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-1585-01-AGD

Method: Biological Test Method: Growth Inhibition Test Using a Freshwater Alga *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum)*. Environment Canada, EPS 1/RM/25, 2nd Edition, March 2007

Test type: Algal Growth Inhibition Test (WTR-ME-034)
Species: *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum* and *Raphidocelis subcapitata*)
Organism source: In-house culture (original source: UTCC 37; strain: LB37)
Culture age: The test was started with 7 day old, exponentially growing cells determined with an algal growth curve. The algal growth curve was started with an inoculum from the algal stock culture determined over an 8-10 day period. This culture was initiated on 2012/07/24. Algal cultures are regrown every 2 months from slants made from a new culture purchased annually.
Culture observations: No unusual appearance or treatment of the algae was noted prior to or during the conduct of the test.
Sample initial chemistry: pH: 6.6; EC: 408 (µS/cm); DO: 8.4 (mg/L); temperature: 16 °C
hardness (mg CaC03/L): 108; colour: colourless; odour: odourless
Sample holding time: 2 days (must be ≤ 3 days)
Sample storage: 4 ± 2°C in darkness
Test concentrations: 7 effluent concentrations (1.4, 2.8, 5.7, 11, 23, 46 and 91% (v/v) plus a negative control)
Test vessel: The test was conducted in 96 well microplates. Three replicate plates were run (a, b and c). Test concentrations were not isolated from each other because volatility was not expected.
Test replicates: Three replicate microplates were run. Per plate there were 5 replicate wells per concentration and 10 replicate wells per control.
Test volume: 220 µL final volume in each well with 200 µL of sample;
10µL of enrichment medium and 10µL of algal inoculum.
Inoculum: The initial cell density of the inoculum was 9094 (cells/mL), it was prepared less than ≤2-3 hours before test initiation.
Control/dilution water: Made up with 85% deionized and 15% dechlorinated City of Calgary water spiked with nutrients as per EPS 1/RM/25 (made by adding 1mL of each of the 5 stock solutions to 10mL of DRO). The metal stock with 25% reduced EDTA was used.
Sample Filtration: 100 mL filtered through a 0.45 µm pore diameter membrane.
Sample treatment: Sample spiked with nutrients as per EPS 1/RM/25; no other chemicals added.
Measurements: Final cell densities were determined from the absorbance at 430 nm calibrated against cell counts. The conversion factor for absorbance to cells per millilitre was 19376 with a coefficient of variation of 4 %.
Aeration: Not required
pH Adjustment: Not required
Lighting: The plates were incubated under continuous light: 4025 lux
(cool white fluorescent bulbs) 56.35 µmol/(m^2•S)
Test temperature: 24 ± 2°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-1585-01-AGD

Endpoint: Growth, 72-h IC25 (with 95% confidence limits)
Test endpoint was bracketed by at least 1 test concentration
(except for <1.4% or >100 %)
No outliers were observed within the data set.

Test validity: Control growth was a 28 fold increase over the inoculum.
The cv of the standard control wells was 8 %.
(must be > 16 fold increase with a cv of ≤ 20%)

Statistics: See Data Analysis section.
Mann-Kendall Trend analysis was not performed as control cv was < 10%.

Reference toxicant: 72-h test with Zinc ($ZnSO_4$*7H2O) initiated September 7, 2012;
(must be within 14 days of the test initiation)
current results: (72-h IC25 and 95% confidence limits) = 1.48 (0.58-1.62) log (µg Zn^{2+}/L)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-1585-01-AGD

Test Log:

Date	Day	Technician	Time	Rotated	Temperature (°C)
2012/09/11	0	J.Holmes-Smith/L.Windatt	1615	na	25
2012/09/12	1	D. Kaiser	0830	yes	25
2012/09/13	2	D. Kaiser	0830	yes	25
2012/09/14	3	E. Petho	1145	na	25

Absorbance and Direct Cell Data:

Concentration (%)	Absorbance (430 nm)	Direct Cell Counts(/0.5 mL)
ctl	0.013	3717
11	0.014	3933
91	0.023	6500

pH Measurements:

Concentration	Initial Value
control	7.2
91%	7.2

Concentration	Final Mean	% CV
control (well D6)	7.6	0
control (well D7)	7.6	0

Average Absorbance Control Data:

Column Well	2b	2c	2e	2f	2g
Absorbance (430 nm)	0.01	0.01	0.01	0.01	0.01
Column Well	11b	11c	11e	11f	11g
Absorbance (430 nm)	0.01	0.01	0.01	0.01	0.01

Standard Control Wells:

Average	265
SD	20
CV%	8

Test Results at 72 hours:

Concentration (%)	Cell Yield Densities ($x10^3$ / mL) Well Replicate					Average	SD	CV	Percent Controls	Inhibition (%)	Stimulation (%)
	a	b	c	d	e						
control	261	251	248	228	248	247	12	5	100	0	0
1.4	261	267	261	254	274	263	7	3	107	-7	7
2.8	241	248	267	222	261	248	18	7	100	0	0
5.7	261	267	306	287	287	281	18	6	114	-14	14
11	267	254	312	280	287	280	22	8	113	-13	13
23	299	274	325	274	280	290	22	8	118	-18	18
46	351	319	358	338	351	343	15	4	139	-39	39
91	454	454	448	406	438	440	20	5	178	-78	78

Calculations for Control Validity

Concentration (%)	Cell Yield Densities ($x10^3$ / mL) Well Replicate					Average	SD	CV	Percent Controls	Inhibition (%)	Stimulation (%)
	a	b	c	d	e						
control	268	258	255	235	255	254	12	5	100	0	0

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Comments/Statistics

Client: DEB103
Reference: 12-1585-01-AGD

Test Result Comments:
The absorbance measurements were made after the cells were centrifuged and resuspended in clear solution (and that the conversion factor developed for abs vs cell number reflects this step). Manual enumeration was performed on the same day as test termination.

Data Analysis:
Significant stimulatory effects in growth were observed in 11, 23, 46 & 91% concentrations as calculated by ANOVA analysis with CETIS v. 1.7.0revQ. (William's Multiple Comparison).

Endpoints for growth inhibition could not be calculated. Inhibitory effects did not occur.

Protocol Deviations:
None

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Warning Chart
Algae

Test Method: 72 hours Algal Growth Inhibition Test (IC25, seven or more treatments plus a control)
HydroQual Test Method: WTR-ME-035

Reference: Biological Test Method: Growth Inhibition Test Using the Freshwater Alga *Selenastrum capricornutum*, 2007. Environment Canada, EPS 1/RM/25.

Test Organism:		**Test Design:**	
test species:	*Pseudokirchneriella subcapitata*	test type:	static
batch number:	20120831AG	toxicant:	zinc
date started from slant:	2012/07/27	test vessel:	96 well flat bottom microplate
original source/strain:	UTCC 37 / LB37	test volume (µL):	220
culture vessels:	2L Erlenmeyer flask	no. of replicate plates:	3
water source:	85% deionized water, 15% dechlorinated tap	no. of replicate wells / treatment per plate (control, sample):	10, 5
growth medium:	nutrient solution	mean temperature (°C):	24 ± 2°C
cultivation method:	batch as per test conditions	photoperiod:	continuous light
culture condition at start	normal	light level:	3600-4400 lux (cool white)
culture age:	3-7 days	contol/dilution water:	deionized water and nutrients prepared as per EPS1/RM/25
growth phase:	exponentially growing		

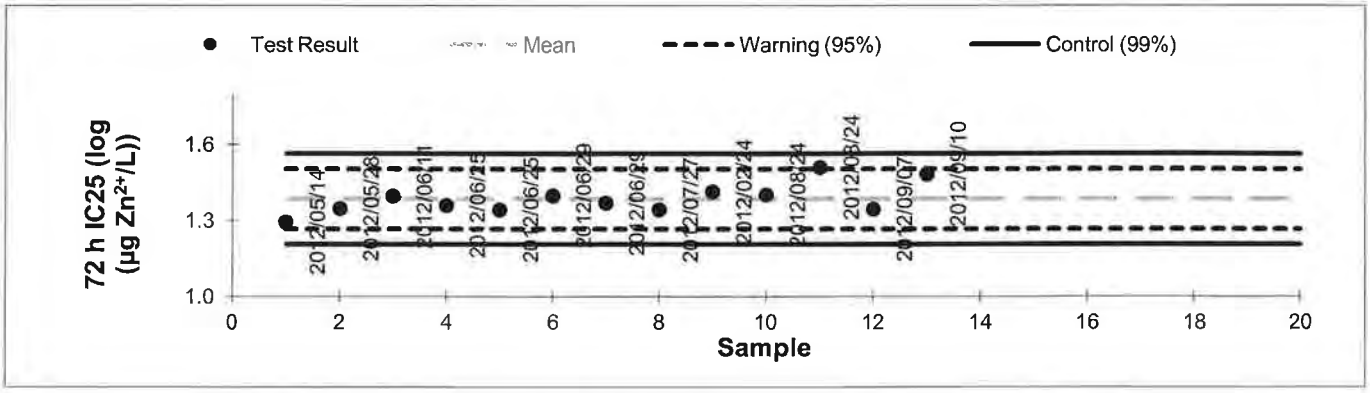
Current Test

toxicant	Zinc ($ZnSO_4*7H_2O$)				
started on	2012/09/07	ended on	2012/09/10		
Result (IC25 @ 72h)	1.48	log (µg $Zn2^+$/L); geometric mean			
Confidence Limits (95%)	lower	0.58	upper	1.62	

Historical Values

mean	1.38	sd	0.06	cv(%):	4
	lower	upper			
warning limits (±2 sd)	1.27	1.50	(95% confidence limits)		
control limits (±3 sd)	1.21	1.56	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance, na; could not be calculated



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Result Summary

Client: DEB103
Reference: 12-1585-01-CDD

Client: DeBeers Canada Inc.; operation Snap Lake

Sample: 2012-5905

Collection: collected on 2012/09/09 at 1615 by not given
Receipt: received on 2012/09/11 at 1430 by J. Holmes-Smith/ L. Windatt
Containers: received 6 x 1 L bottles at 14 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/09/12 ; ended on 2012/09/19

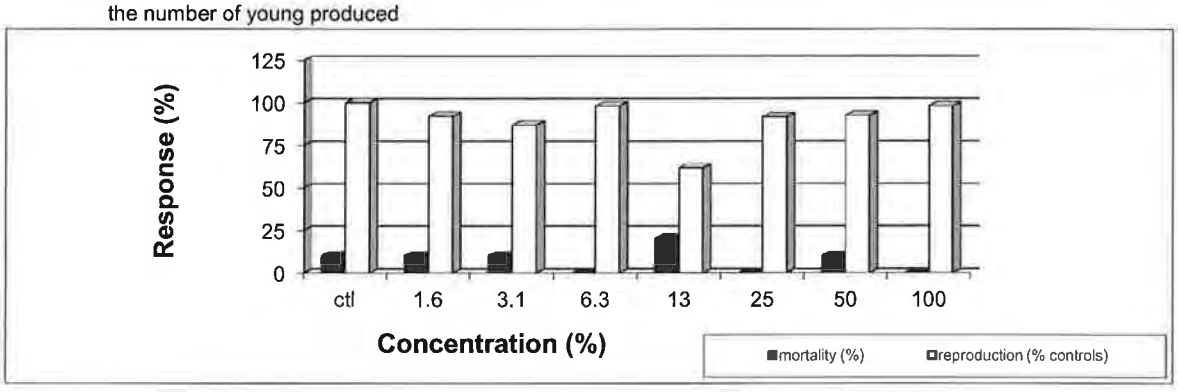
Contents

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Result:

	Endpoint (7-day)	Value	Confidence Limits (95%) lower	upper	Units	Method Calculated
Acute:	LC25	>100			%	could not be calculated
(survival)	LC50	>100			%	could not be calculated
Chronic:	IC25	>100			%	could not be calculated
(fecundity)	IC50	>100			%	could not be calculated

Notes: LCx & ICx, concentrations lethal or inhibitory to 'x' percent of the test population; fecundity, reproduction as the number of young produced



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-1585-01-CDD

Method: Biological Test method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia.* Environment Canada, EPS 1/RM/21, 2nd Edition, February 2007.

Test type: *Ceriodaphnia* Survival and Reproduction Static Renewal Test (WTR-ME-018)
Species: *Ceriodaphnia dubia*
Age: <24 hours old; all from same brood source within 12 hours of the same age.
Organism source: in-house cultures; cultures from a single brood organism to provide test organisms.
Culture health: Culture mortality was 8% (must be ≤ 20%).
7-d prior to test initiation: No ephippia were noted in the cultures at any time.
Average young produced per adult in the first three broods was 23 (must be ≥ 15)
Number of young produced by each brood organism in the last complete brood before use was 10 (must be ≥ 8).
Organism observations: No unusual behavior, appearance or treatment of test organisms was noted prior to or during the test. All first-generation mortality was recorded on the day it was observed.
Sample initial chemistry: pH: 6.6; EC: 408 (µS/cm); DO: 8.4 (mg/L); temperature: 16 °C
hardness (mg CaC03/L): 108; colour: colourless; odour: odourless
Sample holding time: 3 days (must be ≤ 3 days); The test was conducted with three subsamples, samples a, b, and c were for days 0 to 2, 3 to 5, and 6 to 8 respectively
Sample storage: 4 ± 2°C in darkness

Test vessel: The tests were conducted in 30 mL plastic vessels (2 cm depth).
Test volume: 15 mL of solution (1 cm depth); replenished daily.
Control/dilution water: The control and dilution water was a mixture of moderately hard reconstituted water and Bow River Water (50:50). Chemicals added to dilution water: 0.96 g NaHCO3, 0.60 g CaSO4, 0.60 g MgSO4, 0.04 g KCl per 20L.
Test concentrations: 7 effluent concentrations (1.6, 3.1, 6.3, 13, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One neonate <24 hours old was loaded per test vessel; 10 replicates/concentration
Feeding: The test organisms were fed daily a mixture of fermented trout chow, yeast, alfalfa powder, and the green alga *Pseudokirchneriella subcapitata* (formerly *Selenastrum capricornutum* and *Raphidocelis subcapitata*).
Food expiration date: 2012/09/30; 2012/10/06
Measurements: pH, conductivity, dissolved oxygen and temperature were measured daily.
Sample pre-treatment: The sample was not aerated, filtered or pH adjusted prior or during testing.
The dissolved oxygen concentration (mg/L) was: 7.5
The sample pH was: 7.8
Lighting: Overhead full spectrum fluorescent lights; 100-600 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 25 ± 1°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-1585-01-CDD

Endpoints: Survival, 7-d LC50 (with 95% confidence limits)
Reproduction, 7-d IC25 (with 95% confidence limits)
Test endpoints were bracketed by at least 1 test concentration (except for <1.6% or >100 %)
No outliers were observed within the data set.

Test completion: 80% of the control organisms had ≥ 3 broods on day 7 (must be ≥ 60% within 8 days) Any neonates produced after third brood were not included in the mean young per adult calculation.

Test validity: The control had 90% survival (must ≥ 80%)
Number of young produced by each surviving control adult within the first three broods was 21 (must be ≥ 15).

Reference toxicant: 7-d test with NaCl initiated on September 7, 2012;
(must be within 14 days of test initiation)
current results: (7-d LC50 and 95% confidence limits) =
3.35 (3.25-3.45) log (mg/L NaCl)
current results: (7-d IC50 and 95% confidence limits) =
3.01 (3.07-3.12) log (mg/L NaCl)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-1585-01-CDD

Test Log:

Date	Day	Time	Technicians	Temperature (°C) Control	Sample
2012/09/12	0	1000	D. Kaiser	25	25
2012/09/13	1	1115	T. Kloschinsky	25	25
2012/09/14	2	1000	L.Windatt	25	25
2012/09/15	3	1005	T. Kloschinsky	25	25
2012/09/16	4	0935	T. Kloschinsky	25	25
2012/09/17	5	1105	E. Petho	25	25
2012/09/18	6	1100	L.Windatt	25	25
2012/09/19	7	0940	J. Holmes-Smith	na	na

Chemistry Summary Tables:

	New Solutions								Old Solutions							
Conc. %	ctl	1.6	3.1	6.3	13	25	50	100	ctl	1.6	3.1	6.3	13	25	50	100
Average Values																
pH	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.7	7.8	7.9	7.9	7.9	7.9	7.9	7.8	7.8
cond.	385	387	385	387	388	393	405	428	410	411	431	411	401	406	428	471
DO	7.6	7.5	7.3	7.2	7.2	7.2	7.2	7.2	7.1	7.0	7.1	7.1	7.0	7.1	7.0	7.0
temp.	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Coefficients of Variation (%)																
pH	2	2	2	1	1	1	1	1	2	1	1	2	1	1	1	2
cond.	4	3	4	3	3	2	2	2	6	4	6	9	6	7	3	4
DO	4	3	3	3	3	3	3	5	5	5	3	3	2	2	3	3
temp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Test Data

Client: DEB103
Reference: 12-1585-01-CDD

Biology (number of young produced):

Replicate	Day 1	2	3	4	5	6	7	8
Control								
1	0	0	0	4	0	10	9	
2	0	0	0	4	6	0	7	
3	0	0	0	4	6	0	9	
4	0	0	0	6	8	0	11	
5	0	0	0	4	9	0	10	
6	0	0	0	2	7	0	11	
7	0	0	0	4	6	0	**13**	
8	0	0	0	4	10	0	9	
9	0	0	0	4	0	0	13	
10	0	0	0	2	0	8	13	
1.6%								
1	0	0	0	4	0	0	11	
2	0	0	0	4	8	0	11	
3	0	0	0	4	7	0	10	
4	0	0	0	6	6	0	15	
5	0	0	0	0	10	0	9	
6	0	0	0	4	3	0	**9**	
7	0	0	0	0	7	0	8	
8	0	0	0	2	9	0	11	
9	0	0	0	0	0	8	10	
10	0	0	0	0	0	8	12	
3.1%								
1	0	0	0	4	0	5	12	
2	0	0	0	4	0	8	11	
3	0	0	2	0	8	9	-	
4	0	0	2	0	7	11	-	
5	0	0	0	0	6	15	0	
6	0	0	2	0	5	14	-	
7	0	0	4	0	6	11	-	
8	0	0	0	**0**	X	X	X	
9	0	0	0	0	8	14	0	
10	0	0	0	4	0	6	7	

Replicate	Day 1	2	3	4	5	6	7	8
13%								
1	0	0	0	0	7	8	0	
2	0	0	0	0	8	6	0	
3	0	0	4	0	6	5	-	
4	0	0	4	0	6	6	-	
5	0	0	0	0	8	8	-	
6	0	0	0	0	5	6	-	
7	0	0	0	0	4	**10**	X	
8	0	0	0	0	0	**0**	X	
9	0	0	0	0	4	8	0	
10	0	0	0	0	7	6	5	
25%								
1	0	0	0	4	6	6	-	
2	0	0	0	4	7	9	-	
3	0	0	2	0	8	9	-	
4	0	0	4	0	9	9	-	
5	0	0	0	0	12	14	12	
6	0	0	4	0	8	10	-	
7	0	0	4	0	10	7	-	
8	0	0	0	0	4	6	4	
9	0	0	0	0	0	8	0	
10	0	0	0	0	9	6	0	
50%								
1	0	0	2	0	9	10	-	
2	0	0	0	4	7	0	11	
3	0	0	0	6	10	0	15	
4	0	0	0	**6**	X	X	X	
5	0	0	0	2	11	6	-	
6	0	0	0	2	5	10	-	
7	0	0	0	4	8	10	-	
8	0	0	0	4	8	0	8	
9	0	0	0	2	9	9	-	
10	0	0	0	2	6	0	11	

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died; —, young produced after third brood

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Test Data

Client: DEB103
Reference: 12-1585-01-CDD

Biology (number of young produced):

Day	1	2	3	4	5	6	7	8

Day	1	2	3	4	5	6	7	8

Replicate	6.3%							
1	0	0	0	0	8	12	0	
2	0	0	4	2	8	-	-	
3	0	0	0	4	7	0	11	
4	0	0	0	4	10	11	-	
5	0	0	0	2	6	8	-	
6	0	0	0	4	7	11	-	
7	0	0	0	4	6	11	-	
8	0	0	0	4	9	0	11	
9	0	0	0	4	6	0	12	
10	0	0	0	4	0	11	8	

	100%							
	0	0	0	2	5	0	9	
	0	0	0	4	6	0	10	
	0	0	0	4	6	0	12	
	0	0	0	4	0	6	10	
	0	0	0	2	0	7	15	
	0	0	0	4	0	7	13	
	0	0	0	4	0	4	9	
	0	0	0	4	0	7	9	
	0	0	0	4	0	8	3	
	0	0	0	4	5	7	15	

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died; —, young produced after third brood

Biology Summary Tables:

Conc. %	ctl	1.6	3.1	6.3	13	25	50	100

	ctl	1.6	3.1	6.3	13	25	50	100

Day	Number of Organism Alive							
0	10	10	10	10	10	10	10	10
1	10	10	10	10	10	10	10	10
2	10	10	10	10	10	10	10	10
3	10	10	10	10	10	10	10	10
4	10	10	9	10	10	10	9	10
5	10	10	9	10	10	10	9	10
6	10	10	9	10	8	10	9	10
7	9	9	9	10	8	10	9	10
8								

Day	Daily Young Production							
0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	0	0	10	4	8	14	2	0
4	38	24	12	32	0	8	32	36
5	52	50	40	67	55	73	73	22
6	18	16	93	64	63	84	45	46
7	105	106	30	42	5	16	45	105
8								

	Percent Mortality (%)							
mean	10	10	10	0	20	0	10	0

Total	213	196	185	209	131	195	197	209

Replicate	Total Young Produced by Each Adult							
1	23	15	21	20	15	16	21	16
2	17	23	23	14	14	20	22	20
3	19	21	19	22	15	19	31	22
4	25	27	20	25	16	22	6	20
5	23	19	21	16	16	38	19	24
6	20	16	21	22	11	22	17	24
7	23	15	21	21	14	21	22	17
8	23	22	0	24	0	14	20	20
9	17	18	22	22	12	8	20	15
10	23	20	17	23	18	15	19	31

Young Per Adult (within first three broods)

mean	21	20	19	21	13	20	20	21
sd	2.83	3.84	6.7	3.45	5.02	7.84	6.11	4.7
cv(%)	13.3	19.6	36.2	16.5	38.3	40.2	31	22.5

Young Production as a Percent of Controls

100	92	87	98	62	92	92	98

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Test Data

Client: DEB103
Reference: 12-1585-01-CDD

Chemistry:

Day	New Solutions								Old Solutions							
Conc. %	ctl	1.6	3.1	6.3	13	25	50	100	ctl	1.6	3.1	6.3	13	25	50	100
	pH (units)								pH (units)							
0	8.1	8.2	8.2	8.1	8.1	8.0	8.0	7.8								
1	8.1	8.0	8.0	8.0	8.0	8.0	8.0	7.7	8.0	8.0	8.0	8.1	8.0	8.0	7.8	7.8
2	7.8	7.8	7.9	7.9	7.9	7.9	7.8	7.8	7.8	7.9	8.0	8.0	8.0	7.9	7.9	7.8
3	7.9	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.9	7.9	7.9	7.9	7.9	7.8	7.7
4	8.0	7.9	7.9	7.9	7.9	7.9	7.8	7.7	7.8	7.9	7.9	7.8	8.0	8.0	7.9	8.0
5	7.9	7.9	8.0	8.0	8.0	7.9	7.9	7.8	7.9	8.0	8.1	8.1	8.0	8.0	8.0	7.9
6	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.5	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.7
7									7.6	7.8	7.8	7.8	7.8	7.8	7.7	7.6
8																
	Conductivity (µS/cm)								Conductivity (µS/cm)							
0	379	381	382	385	386	392	406	434								
1	387	386	388	388	391	394	409	436	404	410	440	466	405	414	432	493
2	356	364	355	367	370	376	389	417	375	383	399	383	385	390	408	452
3	390	392	391	391	396	396	410	441	410	415	425	415	412	419	442	488
4	384	389	382	384	382	388	398	421	388	394	405	352	353	351	411	452
5	402	394	394	394	396	404	413	416	419	414	452	410	415	417	427	486
6	394	404	401	400	397	398	409	430	418	422	434	417	412	414	425	452
7									456	438	465	436	428	438	448	476
8																
	Dissolved Oxygen (mg/L)								Dissolved Oxygen (mg/L)							
0	7.8	7.6	7.5	7.4	7.4	7.4	7.4	7.5								
1	7.5	7.4	7.2	7.3	7.2	7.2	7.2	7.3	7.3	7.1	7.2	7.1	7.1	7.1	7.1	7.0
2	7.5	7.5	7.4	7.3	7.3	7.3	7.3	7.3	7.3	7.2	7.2	7.2	7.1	7.1	7.0	6.9
3	7.6	7.6	7.1	6.8	6.7	6.7	6.7	6.4	6.4	6.4	6.7	6.7	6.8	6.9	6.8	6.9
4	8.2	8.0	7.6	7.4	7.3	7.3	7.3	7.4	7.2	7.1	7.2	7.1	7.2	7.3	7.3	7.3
5	7.3	7.3	7.2	7.2	7.2	7.3	7.3	7.4	7.2	7.0	7.1	7.1	7.1	7.0	7.0	7.0
6	7.2	7.3	7.1	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.9	6.9	6.8	6.8	6.7	6.7
7									7.5	7.5	7.4	7.3	7.2	7.2	7.1	6.9
8																
	Temperature (°C)								Temperature (°C)							
0	25	25	25	25	25	25	25	25								
1	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
2	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
4	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
5	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
6	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
7									25	25	25	25	25	25	25	25
8																

Our liability is limited to the cost of the test requested. The test results only relate to the sample as received. No liability in whole or in part is assumed for the collection, handling or transport of the sample, application or interpretation of the test data or results.

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Comments/Statistics

Client: DEB103
Reference: 12-1585-01-CDD

Test Result Comments:
None

Data Analysis:
Endpoints for mortality could not be calculated. No effect occurred.

Endpoints for reproduction could not be calculated. No effect occurred.

Protocol Deviations:
None

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Quality Assurance Information

Culture history for adults used in the test for reference 12-1585:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

	row/replicate	A2	A3	A4	A5	B1	B3	C1	D3			
	number of young											
	number of adults											
		A2	A3	A4	A5	B1	B3	C1	D3			
	number of young											
	number of adults											
		A2	A3	A4	A5	B1	B3	C1	D3			
	number of young											
	number of adults											
		A2	A3	A4	A5	B1	B3	C1	D3			
	number of young	10	8	8	4	8	7	9	10			
	number of adults	1	1		1	1	1	1	1			
		A2	A3	A4	A5	B1	B3	C1	D3			
	number of young	6	4	9	6	8	10	8	4			
	number of adults	1	1	1	1	1	1	1	1			
		A2	A3	A4	A5	B1	B3	C1	D3			
	number of young	8	11	8	9	8	9	8	5			
	number of adults	1	1	1	1	1	1	1	1			
		A2	A3	A4	A5	B1	B3	C1	D3			
DAY USED 2012/09/12	number of young	12	10	9	8	12	9	11	8			
	number of adults	1	1	1	1	1	1	1	1			
		A2	A3	A4	A5	B1	B3	C1	D3			
totals (# of young in first 3 broods)	number of young	24	23	25	19	24	26	25	19			

Number of young produced per organism in the last brood before use	10
Mean number of surviving young per adult over the first three broods	23
Culture mortality over the last seven days	8

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HydroQual Laboratories Ltd.

Warning Chart
Ceriodaphnia

Test Method: *Ceriodaphnia* Survival and Reproduction Test (7 treatments plus a control)
HydroQual Test Method: WTR-ME-019
Reference: Biological Test Method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia*, 2007. Environment Canada, EPS 1/RM/21

Test Organism:

test species:	*Ceriodaphnia dubia*
culture source:	in-house
original culture source:	Environment Canada
ephippia in stock culture:	none
food type:	YAT:Algae
frequency of feeding:	daily
age of test organisms:	<24 hours
culture mortality 7 days prior:	4%
culture fecundity 7 days prior within the first three broods:	21
young produced in previous brood:	9
culture condition prior to test initiation:	normal
culture water:	moderately hard reconstituted water*

Test Design:

test type:	static renewal
toxicant:	sodium chloride (NaCl)
test vessel:	30 mL plastic cup
test volume (mL):	15
replicates per treatment:	10
organisms per replicate:	1
feeding:	daily
temperature (°C):	24-26
photoperiod:	16 hours light: 8 hours dark
light level (surface):	100-600 lux (full spectrum)
hardness adjustment:	no

*Note: there are 2 subcultures within this culture source, separated by one week in age. The test is set with organisms from one subculture. The number of young a culture has is monitored daily. If young are not used that day, they are discarded, therefore organisms in tests are <24h.

Control/Dilution Water:

source: moderately hard reconstituted water*

pH (units):	7.9
conductance (uS/cm):	364
dissolved oxygen (mg/L):	7.5
NH_4^+ (mg/L):	<0.1
hardness (mg $CaCO_3$/L):	113.5
alkalinity (mg $CaCO_3$/L):	107.5
total residual chlorine (mg/L):	<0.01

* Note: moderately hard reconstituted water prepared as per EPS 1/RM/21

Comments: None

The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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HydroQual Laboratories Ltd.

Warning Chart
Ceriodaphnia

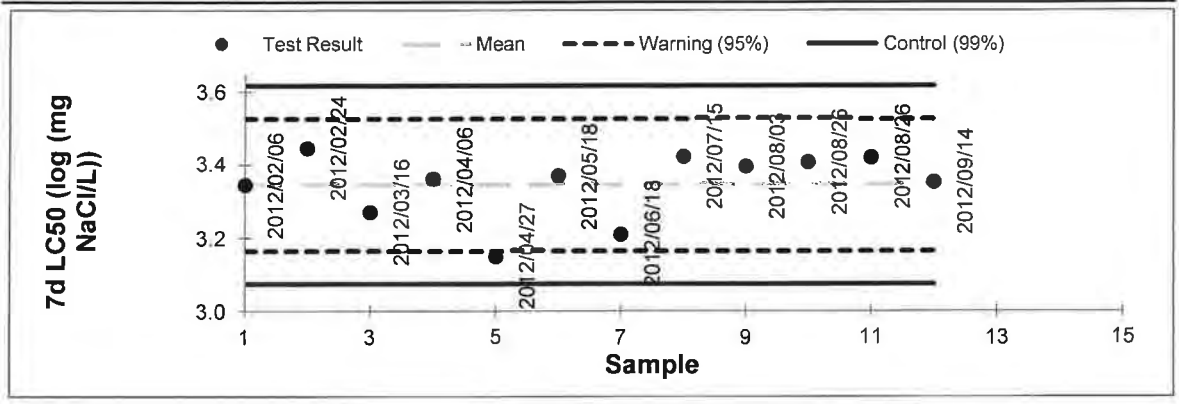
Mortality

Current Test

toxicant	Sodium chloride (NaCl)				
started on	2012/09/07	ended on	2012/09/14		
Result (7d LC50):	3.35	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	3.25	upper	3.45	

Historical Values

mean	3.35	sd	0.09	cv(%):	3
	lower	upper			
warning limits (±2 sd)	3.16	3.53	(95% confidence limits)		
control limits (±3 sd)	3.07	3.62	(99% confidence limits)		



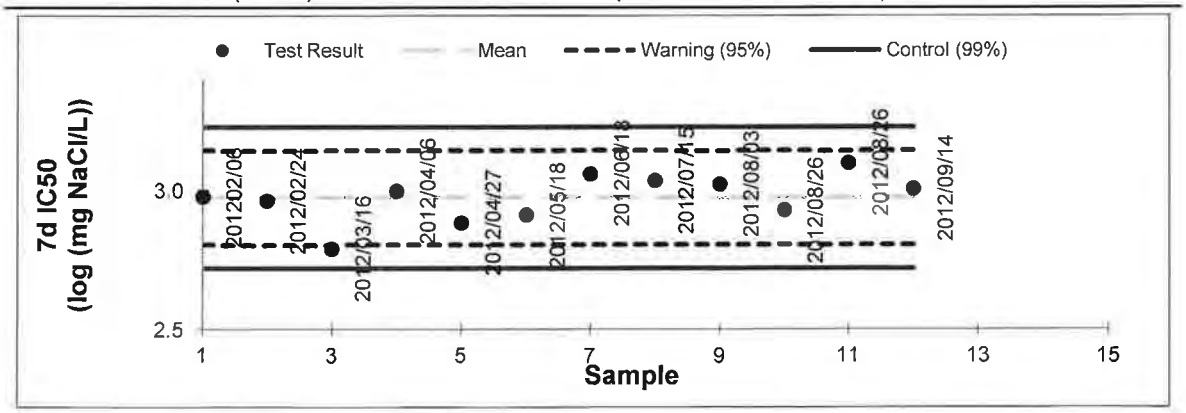
Reproduction

Current Test

toxicant	Sodium chloride (NaCl)				
started on	2012/09/07	ended on	2012/09/14		
Result (7d IC50)	3.01	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	3.07	upper	3.12	

Historical Values

mean	2.97	sd	0.08	cv(%):	3
	lower	upper			
warning limits (±2 sd)	2.80	3.14	(95% confidence limits)		
control limits (±3 sd)	2.72	3.23	(99% confidence limits)		



Our liability is limited to the cost of the test requested on the sample as received. No liability in whole or in part is assumed for the collection, handling or transport of the sample, application or interpretation of the test data or results in part or in whole.

Quality Assurance Information

Culture history for adults used in the test for reference QA201:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

row/replicate	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young number of adults											

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young number of adults											

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young number of adults											

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young number of adults											

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young	7	6	8	8	8	4	7	5	6	4	
number of adults	1	1	1	1	1	1	1	1	1	1	

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young	10	3	7	10	3	5	4	5	6	5	
number of adults	1	1	1	1	1	1	1	1	1	1	

DAY USED 2012/09/07

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young	10	8	8	11	8	8	10	10	9	8	
number of adults	1	1	1	1	1	1	1	1	1	1	

totals (# of young in first 3 broods)

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young	27	17	23	29	19	17	21	20	21	17	

Number of young produced per organism in the last brood before use: 9

Mean number of surviving young per adult over the first three broods: 21

Culture mortality over the last seven days: 4

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HydroQual Laboratories Ltd.

Algae Test Report

Client: DEB103
Reference: 12-1584-01-AGD

Result Summary

Client: DeBeers Canada Inc.; operation Snap Lake

Sample: 2012-5902

Collection: collected on 2012/09/09 at 1630 by not given
Receipt: received on 2012/09/11 at 1430 by J. Holmes-Smith/ L. Windatt
Containers: received 6 x 1 L bottles at 14 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/09/11 ; ended on 2012/09/14

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QA/QC.....6

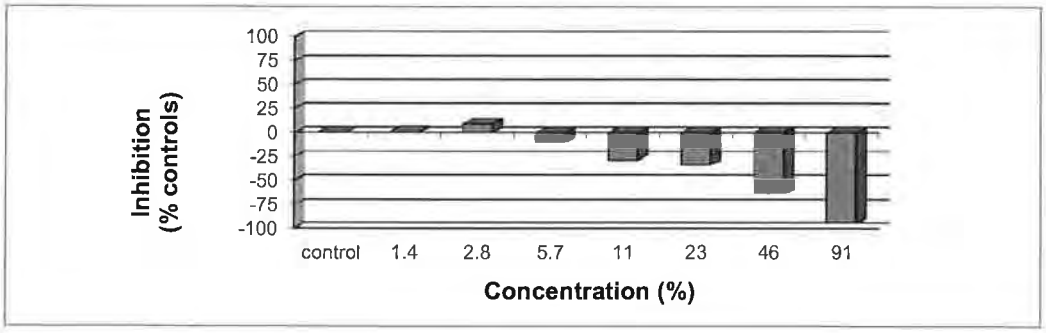
Result:

	Endpoint (72-hour)	Value	Confidence Limits (95%) lower	upper		Method Calculated
Chronic: Growth Inhibition	IC25	>91			%	could not be calculated
	IC50	>91			%	could not be calculated

Notes: ICx, concentrations inhibiting growth by 'x' percent relative to controls; CV, coefficient of variation (%); SD, standard deviation

	Stimulation Observed	Test Concentrations		Method Calculated
Chronic: Growth Stimulation	**yes**	91, 46, 23, 11	%	William's Multiple Comparison

Notes: Stimulation refers to increased response at all concentrations or at high concentrations



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-1584-01-AGD

Method: Biological Test Method: Growth Inhibition Test Using a Freshwater Alga *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum)*. Environment Canada, EPS 1/RM/25, 2nd Edition, March 2007

Test type: Algal Growth Inhibition Test (WTR-ME-034)
Species: *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum* and *Raphidocelis subcapitata*)
Organism source: In-house culture (original source: UTCC 37; strain: LB37)
Culture age: The test was started with 7 day old, exponentially growing cells determined with an algal growth curve. The algal growth curve was started with an inoculum from the algal stock culture determined over an 8-10 day period. This culture was initiated on 2012/07/24. Algal cultures are regrown every 2 months from slants made from a new culture purchased annually.
Culture observations: No unusual appearance or treatment of the algae was noted prior to or during the conduct of the test.
Sample initial chemistry: pH: 6.6; EC: 410 (µS/cm); DO: 8.4 (mg/L); temperature: 17 °C
hardness (mg CaC03/L): 111; colour: colorless; odour: odorless
Sample holding time: 2 days (must be ≤ 3 days)
Sample storage: 4 ± 2°C in darkness
Test concentrations: 7 effluent concentrations (1.4, 2.8, 5.7, 11, 23, 46 and 91% (v/v) plus a negative control)
Test vessel: The test was conducted in 96 well microplates. Three replicate plates were run (a, b and c). Test concentrations were not isolated from each other because volatility was not expected.
Test replicates: Three replicate microplates were run. Per plate there were 5 replicate wells per concentration and 10 replicate wells per control.
Test volume: 220 µL final volume in each well with 200 µL of sample; 10µL of enrichment medium and 10µL of algal inoculum.
Inoculum: The initial cell density of the inoculum was 9094 (cells/mL), it was prepared less than ≤2-3 hours before test initiation.
Control/dilution water: Made up with 85% deionized and 15% dechlorinated City of Calgary water spiked with nutrients as per EPS 1/RM/25 (made by adding 1mL of each of the 5 stock solutions to 10mL of DRO). The metal stock with 25% reduced EDTA was used.
Sample Filtration: 100 mL filtered through a 0.45 µm pore diameter membrane.
Sample treatment: Sample spiked with nutrients as per EPS 1/RM/25; no other chemicals added.
Measurements: Final cell densities were determined from the absorbance at 430 nm calibrated against cell counts. The conversion factor for absorbance to cells per millilitre was 20075 with a coefficient of variation of 12 %.
Aeration: Not required
pH Adjustment: Not required
Lighting: The plates were incubated under continuous light: 4025 lux
(cool white fluorescent bulbs) 56.35 µmol/(m^2•S)
Test temperature: 24 ± 2°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-1584-01-AGD

Endpoint: Growth, 72-h IC25 (with 95% confidence limits)
Test endpoint was bracketed by at least 1 test concentration
(except for <1.4% or >100 %)
No outliers were observed within the data set.

Test validity: Control growth was a 28 fold increase over the inoculum.
The cv of the standard control wells was 11 %.
(must be > 16 fold increase with a cv of ≤ 20%)

Statistics: See Data Analysis section.
Mann-Kendall Trend analysis ($p>0.05$) indicates there was no volatility in the sample.

Reference toxicant: 72-h test with Zinc ($ZnSO_4$*7H2O) initiated September 7, 2012;
(must be within 14 days of the test initiation)
current results: (72-h IC25 and 95% confidence limits) = 1.48 (0.58-1.62) log (µg Zn^{2+}/L)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-1584-01-AGD

Test Log:

Date	Day	Technician	Time	Rotated	Temperature (°C)
2012/09/11	0	J.Holmes/ L.Windatt	1615	na	25
2012/09/12	1	D.Kaiser	830	yes	25
2012/09/13	2	D.Kaiser	830	yes	25
2012/09/14	3	E.Petho	1130	na	25

Absorbance and Direct Cell Data:

Concentration (%)	Absorbance (430 nm)	Direct Cell Counts(/0.5 mL)
ctl	0.011	3717
11	0.014	3867
91	0.022	6017

pH Measurements:

Concentration	Initial Value
control	7.2
91%	7.2

Concentration	Final Mean	% CV
control (well D6)	7.2	0
control (well D7)	7.2	0

Average Absorbance Control Data:

Column Well	2b	2c	2e	2f	2g
Absorbance (430 nm)	0.01	0.01	0.01	0.01	0.01
Column Well	11b	11c	11e	11f	11g
Absorbance (430 nm)	0.01	0.01	0.01	0.01	0.01

Standard Control Wells:

Average	240
SD	25
CV%	11

Test Results at 72 hours:

Concentration (%)	Cell Yield Densities (x10^3 / mL) Well Replicate					Average	SD	CV	Percent Controls	Inhibition (%)	Stimulation (%)
	a	b	c	d	e						
control	231	208	224	221	235	224	10	5	100	0	0
1.4	228	241	208	201	235	222	17	8	99	1	-1
2.8	228	201	188	188	214	204	17	9	91	9	-9
5.7	248	261	248	241	235	247	10	4	110	-10	10
11	281	261	308	295	295	288	18	6	129	-29	29
23	301	301	315	275	308	300	15	5	134	-34	34
46	362	368	362	368	368	366	4	1	163	-63	63
91	412	425	455	442	442	435	17	4	194	-94	94

Calculations for Control Validity

Concentration (%)	Cell Yield Densities (x10^3 / mL) Well Replicate					Average	SD	CV	Percent Controls	Inhibition (%)	Stimulation (%)
	a	b	c	d	e						
control	262	236	255	251	266	254	12	5	100	0	0

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Comments/Statistics

Client: DEB103
Reference: 12-1584-01-AGD

Test Result Comments:
The absorbance measurements were made after the cells were centrifuged and resuspended in clear solution (and that the conversion factor developed for abs vs cell number reflects this step). Manual enumeration was performed on the same day as test termination.

Data Analysis:
Significant stimulatory effects in growth were observed in 11, 23, 46, and 91% concentrations as calculated by ANOVA analysis with CETIS v. 1.7.0revQ. (William's Multiple Comparison).

Endpoints for growth inhibition could not be calculated. Inhibitory effects did not occur.

Protocol Deviations:
None

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HydroQual Laboratories Ltd.

Warning Chart
Algae

Test Method: 72 hours Algal Growth Inhibition Test (IC25, seven or more treatments plus a control)
HydroQual Test Method: WTR-ME-035

Reference: Biological Test Method: Growth Inhibition Test Using the Freshwater Alga *Selenastrum capricornutum*, 2007. Environment Canada, EPS 1/RM/25.

Test Organism:		**Test Design:**	
test species:	*Pseudokirchneriella subcapitata*	test type:	static
batch number:	20120831AG	toxicant:	zinc
date started from slant:	2012/07/27	test vessel:	96 well flat bottom microplate
original source/strain:	UTCC 37 / LB37	test volume (µL):	220
culture vessels:	2L Erlenmeyer flask	no. of replicate plates:	3
water source:	85% deionized water, 15% dechlorinated tap	no. of replicate wells / treatment per plate (control, sample):	10, 5
growth medium:	nutrient solution	mean temperature (°C):	24 ± 2°C
cultivation method:	batch as per test conditions	photoperiod:	continuous light
culture condition at start	normal	light level:	3600-4400 lux (cool white)
culture age:	3-7 days	contol/dilution water:	deionized water and nutrients prepared as per EPS1/RM/25
growth phase:	exponentially growing		

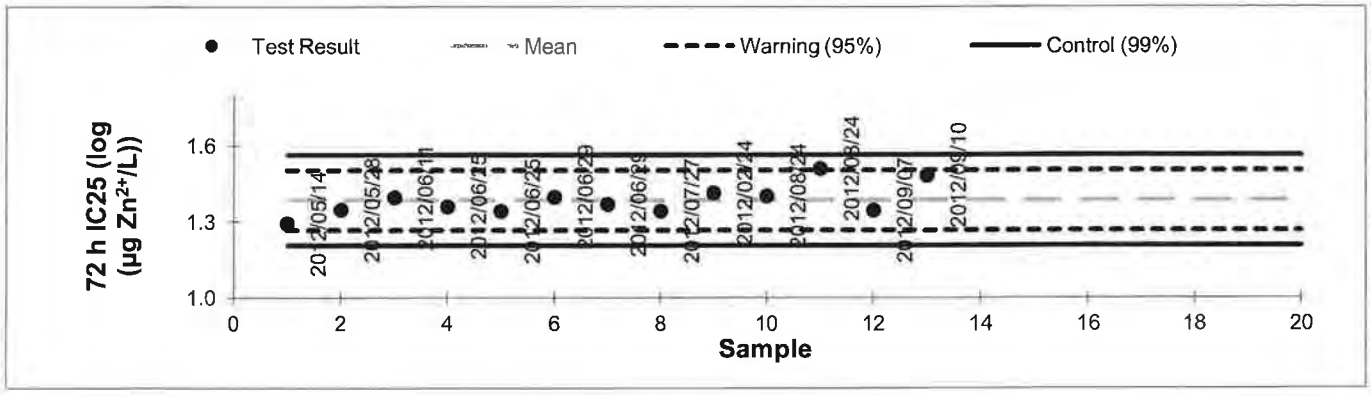
Current Test

toxicant	Zinc ($ZnSO_4$*$7H_2O$)				
started on	2012/09/07	ended on	2012/09/10		
Result (IC25 @ 72h)	1.48	log (µg $Zn2^+$/L); geometric mean			
Confidence Limits (95%)	lower	0.58	upper	1.62	

Historical Values

mean	1.38	sd	0.06	cv(%):	4
	lower	upper			
warning limits (±2 sd)	1.27	1.50	(95% confidence limits)		
control limits (±3 sd)	1.21	1.56	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance, na; could not be calculated



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Client: DEB103
Reference: 12-1584-01-CDD

Result Summary

Client: DeBeers Canada Inc.; operation Snap Lake

Sample: 2012-5902

Collection: collected on 2012/09/09 at 1630 by not given
Receipt: received on 2012/09/11 at 1430 by J. Holmes-Smith/ L. Windatt
Containers: received 6 x 1 L bottles at 14 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/09/11 ; ended on 2012/09/18

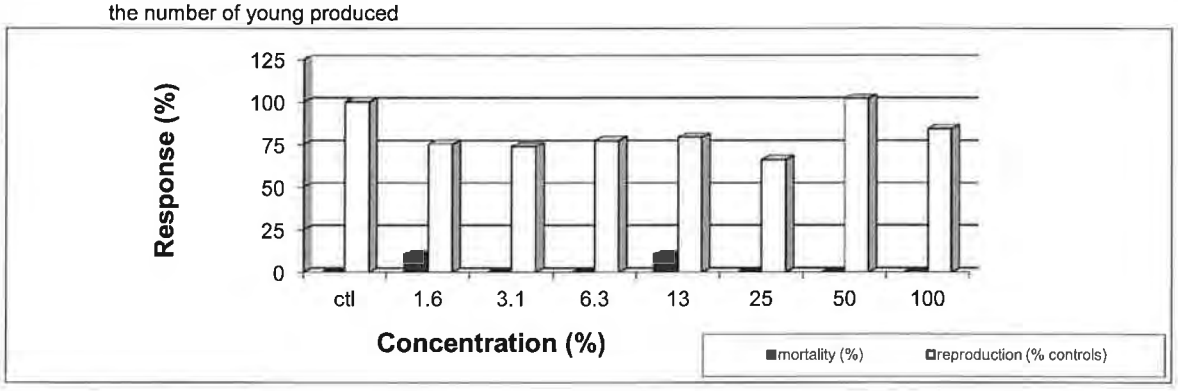
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Result:

	Endpoint (7-day)	Value	Confidence Limits (95%) lower	upper	Units	Method Calculated
Acute:	LC25	>100			%	could not be calculated
(survival)	LC50	>100			%	could not be calculated
Chronic:	IC25	>100			%	could not be calculated
(fecundity)	IC50	>100			%	could not be calculated

Notes: LCx & ICx, concentrations lethal or inhibitory to 'x' percent of the test population; fecundity, reproduction as the number of young produced



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-1584-01-CDD

Method: Biological Test method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia*. Environment Canada, EPS 1/RM/21, 2nd Edition, February 2007.

Test type: *Ceriodaphnia* Survival and Reproduction Static Renewal Test (WTR-ME-018)
Species: *Ceriodaphnia dubia*
Age: <24 hours old; all from same brood source within 12 hours of the same age.
Organism source: in-house cultures; cultures from a single brood organism to provide test organisms.
Culture health: Culture mortality was 10% (must be ≤ 20%).
7-d prior to test initiation: No ephippia were noted in the cultures at any time.
Average young produced per adult in the first three broods was 18 (must be ≥ 15)
Number of young produced by each brood organism in the last complete brood before use was 9 (must be ≥ 8).
Organism observations: No unusual behavior, appearance or treatment of test organisms was noted prior to or during the test. All first-generation mortality was recorded on the day it was observed.
Sample initial chemistry: pH: 6.6; EC: 410 (µS/cm); DO: 8.4 (mg/L); temperature: 17 °C
hardness (mg CaC03/L): 111; colour: colorless; odour: odorless
Sample holding time: 2 days (must be ≤ 3 days); The test was conducted with three subsamples, samples a, b, and c were for days 0 to 2, 3 to 5, and 6 to 8 respectively
Sample storage: 4 ± 2°C in darkness

Test vessel: The tests were conducted in 30 mL plastic vessels (2 cm depth).
Test volume: 15 mL of solution (1 cm depth); replenished daily.
Control/dilution water: The control and dilution water was a mixture of moderately hard reconstituted water and Bow River Water (50:50). Chemicals added to dilution water: 0.96 g NaHCO3, 0.60 g CaSO4, 0.60 g MgSO4, 0.04 g KCl per 20L.
Test concentrations: 7 effluent concentrations (1.6, 3.1, 6.3, 13, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One neonate <24 hours old was loaded per test vessel; 10 replicates/concentration
Feeding: The test organisms were fed daily a mixture of fermented trout chow, yeast, alfalfa powder, and the green alga *Pseudokirchneriella subcapitata* (formerly *Selenastrum capricornutum* and *Raphidocelis subcapitata*).
Food expiration date: 2012/09/30, 2012/10/06
Measurements: pH, conductivity, dissolved oxygen and temperature were measured daily.
Sample pre-treatment: The sample was not aerated, filtered or pH adjusted prior or during testing.
The dissolved oxygen concentration (mg/L) was: 7.7
The sample pH was: 7.8
Lighting: Overhead full spectrum fluorescent lights; 100-600 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 25 ± 1°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-1584-01-CDD

Endpoints: Survival, 7-d LC50 (with 95% confidence limits)
Reproduction, 7-d IC25 (with 95% confidence limits)
Test endpoints were bracketed by at least 1 test concentration (except for <1.6% or >100 %)
No outliers were observed within the data set.

Test completion: 70% of the control organisms had ≥ 3 broods on day 7 (must be ≥ 60% within 8 days) Any neonates produced after third brood were not included in the mean young per adult calculation.

Test validity: The control had 100% survival (must ≥ 80%)
Number of young produced by each surviving control adult within the first three broods was 20 (must be ≥ 15).

Reference toxicant: 7-d test with NaCl initiated on September 7, 2012;
(must be within 14 days of test initiation)
current results: (7-d LC50 and 95% confidence limits) =
3.35 (3.25-3.45) log (mg/L NaCl)
current results: (7-d IC50 and 95% confidence limits) =
3.01 (3.07-3.12) log (mg/L NaCl)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-1584-01-CDD

Test Log:

Date	Day	Time	Technicians	Temperature (°C) Control	Sample
2012/09/11	0	1620	E. Henson	24	24
2012/09/12	1	1005	E. Henson	25	25
2012/09/13	2	1055	T. Kloshinsky	25	25
2012/09/14	3	1000	L. Windatt	25	25
2012/09/15	4	0900	T. Kloshinsky	25	25
2012/09/16	5	0840	T. Kloshinsky	25	25
2012/09/17	6	1430	E. Petho	25	25
2012/09/18	7	1000	L. Windatt	na	na

Chemistry Summary Tables:

	New Solutions								Old Solutions							
Conc. %	ctl	1.6	3.1	6.3	13	25	50	100	ctl	1.6	3.1	6.3	13	25	50	100
Average Values																
pH	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.7	7.9	7.9	8.0	8.0	8.0	7.9	7.9	7.8
cond.	375	381	381	389	388	392	398	419	390	420	404	397	409	406	424	470
DO	7.6	7.4	7.2	7.2	7.2	7.2	7.2	7.2	7.1	7.0	6.9	7.0	6.9	7.0	7.0	7.0
temp.	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Coefficients of Variation (%)																
pH	2	2	1	1	1	1	2	2	2	2	1	1	1	1	2	1
cond.	3	2	3	2	2	2	3	2	4	4	7	5	3	6	4	5
DO	5	6	8	7	8	8	7	9	9	7	5	3	3	2	3	3
temp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Test Data

Client: DEB103
Reference: 12-1584-01-CDD

Biology (number of young produced):

Day	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Replicate	Control								13%							
1	0	0	0	4	0	8	9		0	0	0	0	0	8	5	
2	0	0	3	0	0	8	11		0	0	0	0	0	7	10	
3	0	0	0	0	6	7	8		0	0	0	**4**	X	X	X	
4	0	0	0	4	8	9	-		0	0	0	4	0	9	11	
5	0	0	0	4	4	8	-		0	0	4	0	6	12	-	
6	0	0	4	0	6	13	-		0	0	0	4	0	7	7	
7	0	0	0	0	0	7	10		0	0	0	0	0	4	11	
8	0	0	0	4	8	0	12		0	0	0	0	0	6	9	
9	0	0	0	0	4	0	12		0	0	0	4	0	7	6	
10	0	0	0	0	0	9	12		0	0	0	4	4	0	7	
	1.6%								25%							
1	0	0	0	0	2	3	0		0	0	0	0	0	0	0	
2	0	0	0	0	0	7	8		0	0	0	4	0	7	11	
3	0	0	0	0	6	13	0		0	0	3	0	4	9	-	
4	0	0	0	4	0	**6**	X		0	0	0	0	0	0	0	
5	0	0	0	0	0	7	13		0	0	0	0	0	11	9	
6	0	0	0	4	0	7	15		0	0	0	0	0	9	11	
7	0	0	0	0	0	8	8		0	0	0	4	0	8	11	
8	0	0	0	0	0	8	10		0	0	0	0	0	9	9	
9	0	0	0	0	4	7	6		0	0	0	2	0	4	8	
10	0	0	0	2	0	0	4		0	0	0	0	0	0	0	
	3.1%								50%							
1	0	0	0	4	0	8	9		0	0	0	4	0	10	9	
2	0	0	0	0	0	9	11		0	0	0	2	0	8	9	
3	0	0	3	0	8	11	-		0	0	4	0	6	8	-	
4	0	0	0	0	0	0	0		0	0	5	0	10	14	-	
5	0	0	3	0	4	11	-		0	0	2	0	6	8	10	
6	0	0	0	2	6	0	10		0	0	0	0	4	0	0	
7	0	0	0	2	0	9	8		0	0	0	4	6	10	-	
8	0	0	0	0	4	0	10		0	0	0	4	0	6	11	
9	0	0	0	4	4	0	9		0	0	0	4	0	8	11	
10	0	0	0	0	0	0	0		0	0	0	4	0	8	11	

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died; —, young produced after third brood

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Test Data

Client: DEB103
Reference: 12-1584-01-CDD

Biology (number of young produced):

Day	1	2	3	4	5	6	7	8

Replicate	6.3%							
1	0	0	0	4	0	9	10	
2	0	0	0	2	0	9	12	
3	0	0	3	0	4	7	-	
4	0	0	0	6	4	3	-	
5	0	0	4	0	6	12	-	
6	0	0	0	6	0	0	8	
7	0	0	4	0	6	4	-	
8	0	0	0	4	8	7	-	
9	0	0	0	4	0	0	10	
10	0	0	0	0	0	0	0	

100%							
0	0	0	2	0	4	11	
0	0	0	2	0	4	4	
0	0	4	0	6	9	-	
0	0	4	0	10	10	-	
0	0	4	0	6	10	-	
0	0	0	4	0	6	12	
0	0	0	2	0	5	12	
0	0	0	0	0	3	10	
0	0	2	0	6	6	-	
0	0	0	0	0	6	6	

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died; —, young produced after third brood

Biology Summary Tables:

Conc. %	ctl	1.6	3.1	6.3	13	25	50	100

Number of Organism Alive

Day								
0	10	10	10	10	10	10	10	10
1	10	10	10	10	10	10	10	10
2	10	10	10	10	10	10	10	10
3	10	10	10	10	10	10	10	10
4	10	10	10	10	9	10	10	10
5	10	10	10	10	9	10	10	10
6	10	9	10	10	9	10	10	10
7	10	9	10	10	9	10	10	10
8								

Percent Mortality (%)

mean	0	10	0	0	10	0	0	0

Total Young Produced by Each Adult

Replicate								
1	21	5	21	23	13	0	23	17
2	22	15	20	23	17	22	19	10
3	21	19	22	14	4	16	18	19
4	21	10	0	13	24	0	29	24
5	16	20	18	22	22	20	26	20
6	23	26	18	14	18	20	4	22
7	17	16	19	14	15	23	20	19
8	24	18	14	19	15	18	21	13
9	16	17	17	14	17	14	23	14
10	21	6	0	0	15	0	23	12

	ctl	1.6	3.1	6.3	13	25	50	100

Daily Young Production

Day								
0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	7	0	6	11	4	3	11	14
4	16	10	12	26	20	10	22	10
5	36	12	26	28	10	4	32	28
6	69	66	48	51	60	57	80	63
7	74	64	57	40	66	59	61	55
8								
Total	202	152	149	156	160	133	206	170

Young Per Adult (within first three broods)

mean	20	15	15	16	16	13	21	17
sd	2.86	6.51	8.16	6.85	5.4	9.55	6.69	4.59
cv(%)	14.2	42.8	54.7	43.9	33.7	71.8	32.5	27

Young Production as a Percent of Controls

100	75	74	77	79	66	102	84

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Test Data

Client: DEB103
Reference: 12-1584-01-CDD

Chemistry:

	New Solutions								Old Solutions							
Conc. %	ctl	1.6	3.1	6.3	13	25	50	100	ctl	1.6	3.1	6.3	13	25	50	100
Day	pH (units)								pH (units)							
0	8.0	8.1	8.0	8.0	8.0	8.0	8.0	7.8								
1	7.5	7.6	7.7	7.8	7.9	7.9	7.9	7.7	7.7	7.8	7.9	7.9	7.9	7.9	7.8	7.8
2	8.0	8.0	8.0	8.0	8.0	8.0	7.9	7.8	8.0	8.0	8.0	8.0	8.0	8.0	7.9	7.8
3	7.8	7.9	7.9	7.9	7.8	7.9	7.8	7.7	7.8	7.8	7.9	7.9	7.9	7.9	7.8	7.8
4	7.8	7.8	7.8	7.7	7.7	7.7	7.6	7.5	7.6	7.6	7.9	7.9	7.9	7.9	7.8	7.8
5	8.0	7.9	7.9	7.9	7.9	7.9	7.8	7.7	7.9	7.9	7.9	8.0	8.0	8.0	8.0	7.8
6	8.0	8.0	8.0	8.0	8.0	8.0	7.9	7.9	8.1	8.1	8.2	8.2	8.2	8.1	8.1	7.9
7									7.9	7.9	7.9	7.9	7.9	7.8	7.8	7.7
8																
	Conductivity (µS/cm)								Conductivity (µS/cm)							
0	369	381	379	389	389	399	408	423								
1	363	380	388	390	380	384	384	417	373	408	392	386	392	398	399	425
2	387	385	382	386	390	393	407	430	411	432	423	415	433	434	447	486
3	355	363	363	385	388	389	386	409	368	398	392	384	398	397	415	468
4	390	388	388	391	392	395	405	431	393	415	404	401	410	411	426	466
5	377	378	375	380	379	382	392	411	380	412	355	367	405	357	419	472
6	382	393	393	399	398	399	402	411	394	443	448	414	408	427	414	509
7									410	435	416	409	417	418	446	463
8																
	Dissolved Oxygen (mg/L)								Dissolved Oxygen (mg/L)							
0	7.5	7.3	7.3	7.3	7.3	7.3	7.4	7.7								
1	8.3	8.3	8.1	7.9	7.9	7.8	7.8	8.0	8.1	7.7	7.0	7.4	7.0	7.0	7.2	7.2
2	7.4	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.2	7.0	7.0	7.0	7.0	7.0	7.0	7.0
3	7.7	7.5	7.4	7.4	7.6	7.7	7.5	7.3	7.4	7.3	7.2	7.2	7.1	7.1	7.1	7.0
4	7.0	6.8	6.3	6.3	6.2	6.2	6.2	6.1	6.0	6.0	6.1	6.7	6.6	6.9	6.9	6.9
5	7.8	7.4	7.1	7.1	7.1	7.1	7.1	7.1	7.1	6.9	6.9	7.0	7.1	7.2	7.3	7.3
6	7.4	7.0	6.9	6.8	6.8	6.7	6.8	6.8	7.1	6.9	6.9	7.0	7.0	7.0	7.0	6.9
7									7.0	6.9	6.9	6.9	6.7	6.7	6.7	6.7
8																
	Temperature (°C)								Temperature (°C)							
0	25	25	25	25	25	25	25	25								
1	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
2	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
4	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
5	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
6	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
7									25	25	25	25	25	25	25	25
8																

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Comments/Statistics

Client: DEB103
Reference: 12-1584-01-CDD

Test Result Comments:
None

Data Analysis:
Endpoints for mortality could not be calculated. No effect occurred.

Endpoints for reproduction could not be calculated. No effect occurred.

Protocol Deviations:
None

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Quality Assurance Information

Culture history for adults used in the test for reference 12-1584:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

	row/replicate	B4	B5	C2	C4	D3	A4	B1	E4	D5	D4	
	number of young											
	number of adults											
		B4	B5	C2	C4	D3	A4	B1	E4	D5	D4	
	number of young											
	number of adults											
		B4	B5	C2	C4	D3	A4	B1	E4	D5	D4	
	number of young											
	number of adults											
		B4	B5	C2	C4	D3	A4	B1	E4	D5	D4	
	number of young	5	4	5	7	7	6	4	8	7	6	
	number of adults	1	1		1	1	1	1	1	1	1	
		B4	B5	C2	C4	D3	A4	B1	E4	D5	D4	
	number of young	6	5	4	4	7	5	9	4	6	6	
	number of adults	1	1	1	1	1	1	1	1	1	1	
		B4	B5	C2	C4	D3	A4	B1	E4	D5	D4	
	number of young	4	8	8	10	8	5	6	5	6	9	
	number of adults	1	1	1	1	1	1	1	1	1	1	
		B4	B5	C2	C4	D3	A4	B1	E4	D5	D4	
DAY USED	number of young	8	9	9	8	9	9	8	9	8	8	
2012/09/11	number of adults	1	1	1	1	1	1	1	1	1	1	
		B4	B5	C2	C4	D3	A4	B1	E4	D5	D4	
totals	number of young	15	17	17	21	22	16	19	17	19	21	
(# of young in first 3 broods)												

Number of young produced per organism in the last brood before use	9
Mean number of surviving young per adult over the first three broods	18
Culture mortality over the last seven days	10

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HydroQual Laboratories Ltd.

Warning Chart
Ceriodaphnia

Test Method: *Ceriodaphnia* Survival and Reproduction Test (7 treatments plus a control)
HydroQual Test Method: WTR-ME-019
Reference: Biological Test Method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia*, 2007. Environment Canada, EPS 1/RM/21

Test Organism:

test species:	*Ceriodaphnia dubia*
culture source:	in-house
original culture source:	Environment Canada
ephippia in stock culture:	none
food type:	YAT:Algae
frequency of feeding:	daily
age of test organisms:	<24 hours
culture mortality 7 days prior:	4%
culture fecundity 7 days prior within the first three broods:	21
young produced in previous brood:	9
culture condition prior to test initiation:	normal
culture water:	moderately hard reconstituted water*

Test Design:

test type:	static renewal
toxicant:	sodium chloride (NaCl)
test vessel:	30 mL plastic cup
test volume (mL):	15
replicates per treatment:	10
organisms per replicate:	1
feeding:	daily
temperature (°C):	24-26
photoperiod:	16 hours light: 8 hours dark
light level (surface):	100-600 lux (full spectrum)
hardness adjustment:	no

*Note: there are 2 subcultures within this culture source, separated by one week in age. The test is set with organisms from one subculture. The number of young a culture has is monitored daily. If young are not used that day, they are discarded, therefore organisms in tests are <24h.

Control/Dilution Water:

source: moderately hard reconstituted water*

pH (units):	7.9
conductance (uS/cm):	364
dissolved oxygen (mg/L):	7.5
NH_4^+ (mg/L):	<0.1
hardness (mg $CaCO_3$/L):	113.5
alkalinity (mg $CaCO_3$/L):	107.5
total residual chlorine (mg/L):	<0.01

* Note: moderately hard reconstituted water prepared as per EPS 1/RM/21

Comments: None

The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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HydroQual Laboratories Ltd.

Warning Chart
Ceriodaphnia

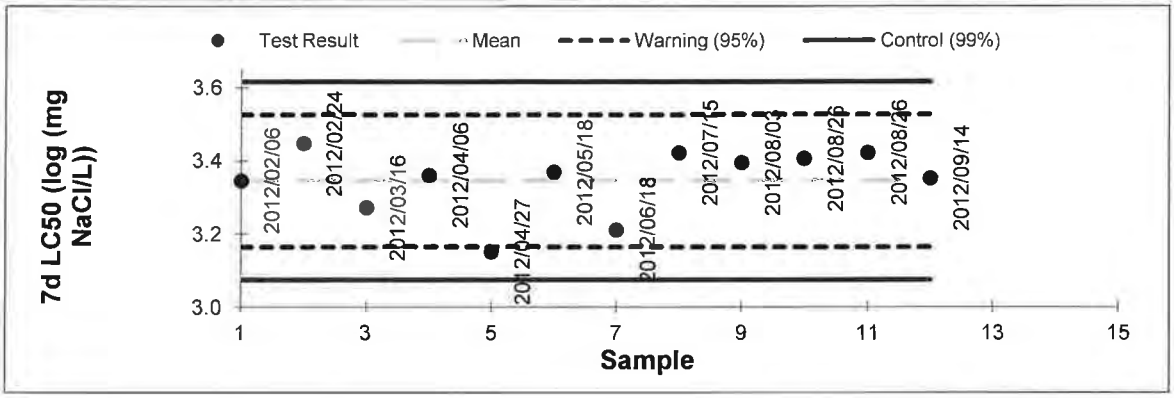
Mortality

Current Test

toxicant	Sodium chloride (NaCl)				
started on	2012/09/07	ended on	2012/09/14		
Result (7d LC50):	3.35	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	3.25	upper	3.45	

Historical Values

mean	3.35	sd	0.09	cv(%):	3
	lower	upper			
warning limits (±2 sd)	3.16	3.53	(95% confidence limits)		
control limits (±3 sd)	3.07	3.62	(99% confidence limits)		



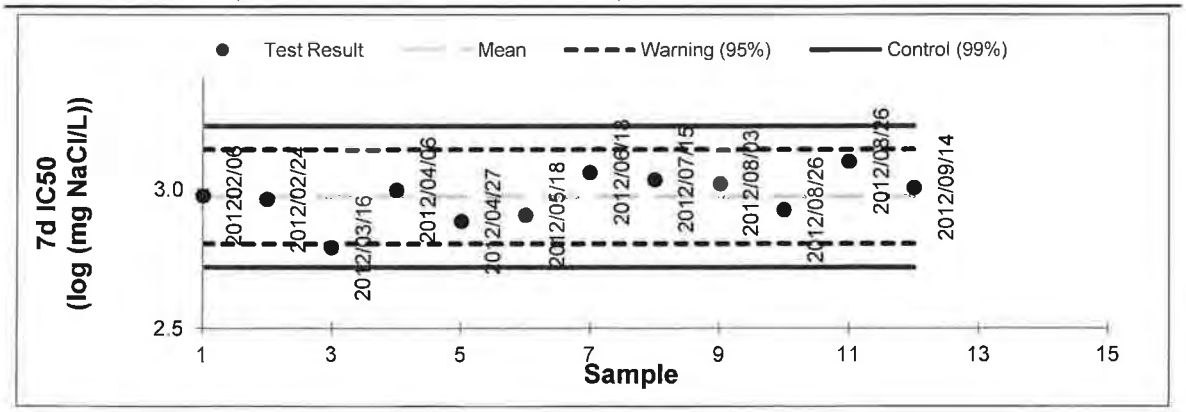
Reproduction

Current Test

toxicant	Sodium chloride (NaCl)				
started on	2012/09/07	ended on	2012/09/14		
Result (7d IC50)	3.01	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	3.07	upper	3.12	

Historical Values

mean	2.97	sd	0.08	cv(%):	3
	lower	upper			
warning limits (±2 sd)	2.80	3.14	(95% confidence limits)		
control limits (±3 sd)	2.72	3.23	(99% confidence limits)		



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HydroQual
Laboratories Ltd.

Ceriodaphnia
Test Report

Quality Assurance Information

Culture history for adults used in the test for reference QA201:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

row/replicate	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young number of adults											

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young number of adults											

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young number of adults											

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young number of adults											

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young	7	6	8	8	8	4	7	5	6	4	
number of adults	1	1	1	1	1	1	1	1	1	1	

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young	10	3	7	10	3	5	4	5	6	5	
number of adults	1	1	1	1	1	1	1	1	1	1	

DAY USED
2012/09/07

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young	10	8	8	11	8	8	10	10	9	8	
number of adults	1	1	1	1	1	1	1	1	1	1	

totals
(# of young in first
3 broods)

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young	27	17	23	29	19	17	21	20	21	17	

Number of young produced per organism in the last brood before use	9
Mean number of surviving young per adult over the first three broods	21
Culture mortality over the last seven days	4

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HydroQual Laboratories Ltd.

Algae Test Report

Result Summary

Client: DEB103
Reference: 12-1583-01-AGD

Client: DeBeers Canada Inc.; operation Snap Lake

Sample: 2012-5908

Collection: collected on 2012/09/09 at 1600 by not given
Receipt: received on 2012/09/11 at 1430 by J. Holmes-Smith/ L. Windatt
Containers: received 6 x 1 L bottles at 14 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/09/11 ; ended on 2012/09/14

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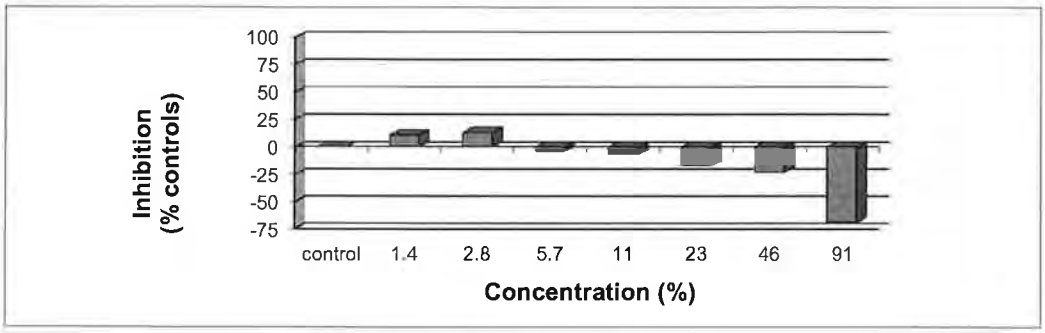
Result:

	Endpoint (72-hour)	Value	Confidence Limits (95%) lower	upper		Method Calculated
Growth Inhibition	IC25	>91			%	could not be calculated
	IC50	>91			%	could not be calculated

Notes: ICx, concentrations inhibiting growth by 'x' percent relative to controls; CV, coefficient of variation (%); SD, standard deviation

	Stimulation Observed	Test Concentrations		Method Calculated
Chronic: Growth Stimulation	**yes**	91	%	William's Multiple Comparison

Notes: Stimulation refers to increased response at all concentrations or at high concentrations



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-1583-01-AGD

Method: Biological Test Method: Growth Inhibition Test Using a Freshwater Alga *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum)*. Environment Canada, EPS 1/RM/25, 2nd Edition, March 2007

Test type: Algal Growth Inhibition Test (WTR-ME-034)
Species: *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum* and *Raphidocelis subcapitata*)
Organism source: In-house culture (original source: UTCC 37; strain: LB37)
Culture age: The test was started with 7 day old, exponentially growing cells determined with an algal growth curve. The algal growth curve was started with an inoculum from the algal stock culture determined over an 8-10 day period. This culture was initiated on 2012/07/24. Algal cultures are regrown every 2 months from slants made from a new culture purchased annually.
Culture observations: No unusual appearance or treatment of the algae was noted prior to or during the conduct of the test.
Sample initial chemistry: pH: 6.5; EC: 407 (µS/cm); DO: 8.6 (mg/L); temperature: 16 °C
hardness (mg CaC03/L): 125; colour: colourless; odour: odourless
Sample holding time: 2 days (must be ≤ 3 days)
Sample storage: 4 ± 2°C in darkness
Test concentrations: 7 effluent concentrations (1.4, 2.8, 5.7, 11, 23, 46 and 91% (v/v) plus a negative control)
Test vessel: The test was conducted in 96 well microplates. Three replicate plates were run (a, b and c). Test concentrations were not isolated from each other because volatility was not expected.
Test replicates: Three replicate microplates were run. Per plate there were 5 replicate wells per concentration and 10 replicate wells per control.
Test volume: 220 µL final volume in each well with 200 µL of sample;
10µL of enrichment medium and 10µL of algal inoculum.
Inoculum: The initial cell density of the inoculum was 9205 (cells/mL), it was prepared less than ≤2-3 hours before test initiation.
Control/dilution water: Made up with 85% deionized and 15% dechlorinated City of Calgary water spiked with nutrients as per EPS 1/RM/25 (made by adding 1mL of each of the 5 stock solutions to 10mL of DRO). The metal stock with 25% reduced EDTA was used.
Sample Filtration: 100 mL filtered through a 0.45 µm pore diameter membrane.
Sample treatment: Sample spiked with nutrients as per EPS 1/RM/25; no other chemicals added.
Measurements: Final cell densities were determined from the absorbance at 430 nm calibrated against cell counts. The conversion factor for absorbance to cells per millilitre was 17222 with a coefficient of variation of 6 %.
Aeration: Not required
pH Adjustment: Not required
Lighting: The plates were incubated under continuous light: 4025 lux
(cool white fluorescent bulbs) 56.35 µmol/(m^2•S)
Test temperature: 24 ± 2°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-1583-01-AGD

Endpoint: Growth, 72-h IC25 (with 95% confidence limits)
Test endpoint was bracketed by at least 1 test concentration
(except for <1.4% or >100 %)
No outliers were observed within the data set.

Test validity: Control growth was a 24 fold increase over the inoculum.
The cv of the standard control wells was 4 %.
(must be > 16 fold increase with a cv of ≤ 20%)

Statistics: See Data Analysis section.
Mann-Kendall Trend analysis was not performed as control cv was < 10%.

Reference toxicant: 72-h test with Zinc ($ZnSO_4$*7H2O) initiated September 7, 2012;
(must be within 14 days of the test initiation)
current results: (72-h IC25 and 95% confidence limits) = 1.48 (0.58-1.62) log (µg Zn^{2+}/L)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-1583-01-AGD

Test Log:

Date	Day	Technician	Time	Rotated	Temperature (°C)
2012/09/11	0	J.Holmes-Smith/L.Windatt	1015	na	25
2012/09/12	1	D.Kaiser	830	yes	25
2012/09/13	2	D.Kaiser	830	yes	25
2012/09/14	3	E.Petho	1115	na	25

Absorbance and Direct Cell Data:

Concentration (%)	Absorbance (430 nm)	Direct Cell Counts(/0.5 mL)
ctl	0.012	3217
11	0.013	3117
91	0.021	5400

pH Measurements:

Concentration	Initial Value
control	7.2
91%	7.2

Concentration	Final Mean	% CV
control (well D6)	7.2	0
control (well D7)	7.2	0

Average Absorbance Control Data:

Column Well	2b	2c	2e	2f	2g
Absorbance (430 nm)	0.01	0.01	0.01	0.01	0.01
Column Well	11b	11c	11e	11f	11g
Absorbance (430 nm)	0.01	0.01	0.01	0.01	0.01

Standard Control Wells:

Average	225
SD	8
CV%	4

Test Results at 72 hours:

Concentration (%)	Cell Yield Densities ($x10^3$ / mL) Well Replicate a	b	c	d	e	Average	SD	CV	Percent Controls	Inhibition (%)	Stimulation (%)
control	221	221	210	207	204	213	8	4	100	0	0
1.4	218	195	178	178	178	190	18	9	89	11	-11
2.8	178	184	184	201	178	185	9	5	87	13	-13
5.7	213	213	241	218	218	221	12	5	104	-4	4
11	213	195	247	253	230	228	24	10	107	-7	7
23	230	253	276	247	241	249	17	7	117	-17	17
46	282	264	282	264	218	262	26	10	123	-23	23
91	368	385	371	348	319	358	26	7	168	-68	68

Calculations for Control Validity

Concentration (%)	Cell Yield Densities ($x10^3$ / mL) Well Replicate a	b	c	d	e	Average	SD	CV	Percent Controls	Inhibition (%)	Stimulation (%)
control	228	228	217	214	211	220	8	4	100	0	0

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Comments/Statistics

Client: DEB103
Reference: 12-1583-01-AGD

Test Result Comments:
The absorbance measurements were made after the cells were centrifuged and resuspended in clear solution (and that the conversion factor developed for abs vs cell number reflects this step). Manual enumeration was performed on the same day as test termination.

Data Analysis:
Significant stimulatory effects in growth were observed in 91% concentration as calculated by ANOVA analysis with CETIS v. 1.7.0revQ. (William's Multiple Comparison).

Endpoints for growth inhibition could not be calculated. Inhibitory effects did not occur.

Protocol Deviations:
None

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HydroQual Laboratories Ltd.

Warning Chart
Algae

Test Method: 72 hours Algal Growth Inhibition Test (IC25, seven or more treatments plus a control)
HydroQual Test Method: WTR-ME-035

Reference: Biological Test Method: Growth Inhibition Test Using the Freshwater Alga *Selenastrum capricornutum*, 2007. Environment Canada, EPS 1/RM/25.

Test Organism:		**Test Design:**	
test species:	*Pseudokirchneriella subcapitata*	test type:	static
batch number:	20120831AG	toxicant:	zinc
date started from slant:	2012/07/27	test vessel:	96 well flat bottom microplate
original source/strain:	UTCC 37 / LB37	test volume (µL):	220
culture vessels:	2L Erlenmeyer flask	no. of replicate plates:	3
water source:	85% deionized water, 15% dechlorinated tap	no. of replicate wells / treatment per plate (control, sample):	10, 5
growth medium:	nutrient solution	mean temperature (°C):	24 ± 2°C
cultivation method:	batch as per test conditions	photoperiod:	continuous light
culture condition at start	normal	light level:	3600-4400 lux (cool white)
culture age:	3-7 days	contol/dilution water:	deionized water and nutrients prepared as per EPS1/RM/25
growth phase:	exponentially growing		

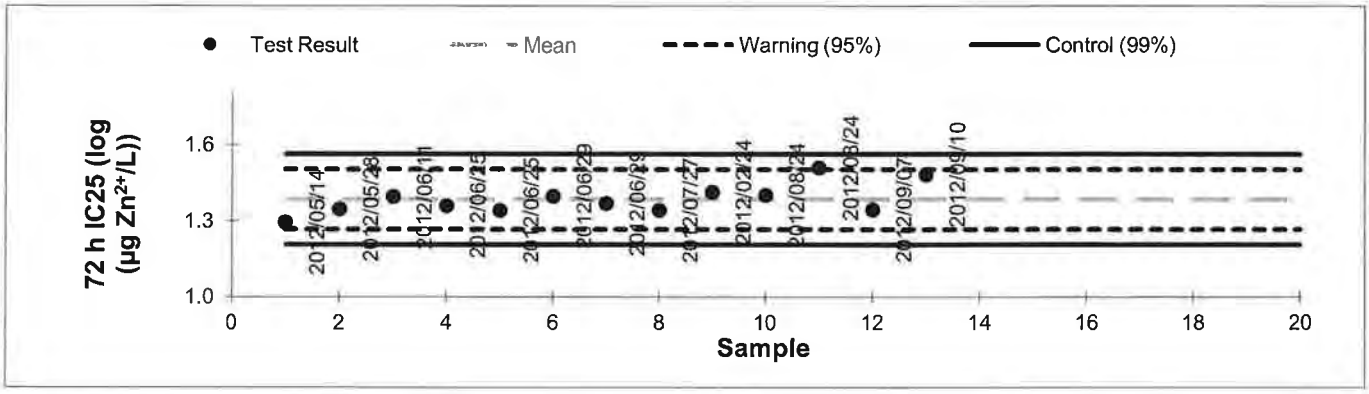
Current Test

toxicant	Zinc ($ZnSO_4*7H_2O$)				
started on	2012/09/07	ended on	2012/09/10		
Result (IC25 @ 72h)	1.48	log (µg $Zn2^+$/L); geometric mean			
Confidence Limits (95%)	lower	0.58	upper	1.62	

Historical Values

mean	1.38	sd	0.06	cv(%):	4
	lower	upper			
warning limits (±2 sd)	1.27	1.50	(95% confidence limits)		
control limits (±3 sd)	1.21	1.56	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance, na; could not be calculated



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Result Summary

Client: DEB103
Reference: 12-1583-01-CDD

Client: DeBeers Canada Inc.; operation Snap Lake

Sample: 2012-5908

Collection: collected on 2012/09/09 at 1600 by not given
Receipt: received on 2012/09/11 at 1430 by J. Holmes-Smith/ L. Windatt
Containers: received 6 x 1 L bottles at 14 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/09/11 ; ended on 2012/09/18

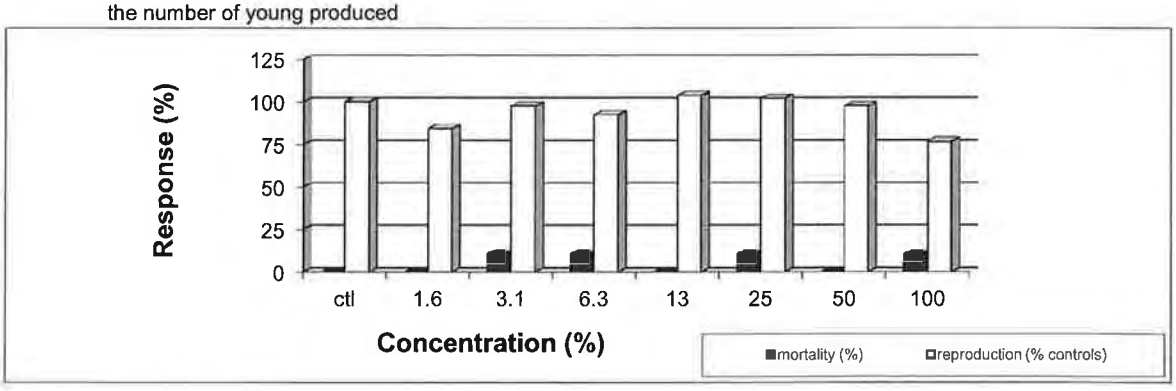
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Result:

	Endpoint (7-day)	Value	Confidence Limits (95%) lower	upper	Units	Method Calculated
Acute:	LC25	>100			%	could not be calculated
(survival)	LC50	>100			%	could not be calculated
Chronic:	IC25	>100			%	could not be calculated
(fecundity)	IC50	>100			%	could not be calculated

Notes: LCx & ICx, concentrations lethal or inhibitory to 'x' percent of the test population; fecundity, reproduction as the number of young produced



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-1583-01-CDD

Method: Biological Test method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia.* Environment Canada, EPS 1/RM/21, 2nd Edition, February 2007.

Test type: *Ceriodaphnia* Survival and Reproduction Static Renewal Test (WTR-ME-018)
Species: *Ceriodaphnia dubia*
Age: <24 hours old; all from same brood source within 12 hours of the same age.
Organism source: in-house cultures; cultures from a single brood organism to provide test organisms.
Culture health: Culture mortality was 12% (must be ≤ 20%).
7-d prior to test initiation: No ephippia were noted in the cultures at any time.
Average young produced per adult in the first three broods was 19 (must be ≥ 15)
Number of young produced by each brood organism in the last complete brood before use was 9 (must be ≥ 8).
Organism observations: No unusual behavior, appearance or treatment of test organisms was noted prior to or during the test. All first-generation mortality was recorded on the day it was observed.
Sample initial chemistry: pH: 6.5; EC: 407 (µS/cm); DO: 8.6 (mg/L); temperature: 16 °C
hardness (mg CaC03/L): 125; colour: colourless; odour: odourless
Sample holding time: 2 days (must be ≤ 3 days); The test was conducted with three subsamples, samples a, b, and c were for days 0 to 2, 3 to 5, and 6 to 8 respectively
Sample storage: 4 ± 2°C in darkness

Test vessel: The tests were conducted in 30 mL plastic vessels (2 cm depth).
Test volume: 15 mL of solution (1 cm depth); replenished daily.
Control/dilution water: The control and dilution water was a mixture of moderately hard reconstituted water and Bow River Water (50:50). Chemicals added to dilution water: 0.96 g NaHCO3, 0.60 g CaSO4, 0.60 g MgSO4, 0.04 g KCl per 20L.
Test concentrations: 7 effluent concentrations (1.6, 3.1, 6.3, 13, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One neonate <24 hours old was loaded per test vessel; 10 replicates/concentration
Feeding: The test organisms were fed daily a mixture of fermented trout chow, yeast, alfalfa powder, and the green alga *Pseudokirchneriella subcapitata* (formerly *Selenastrum capricornutum* and *Raphidocelis subcapitata*).
Food expiration date: 2012/09/30, 2012/10/06
Measurements: pH, conductivity, dissolved oxygen and temperature were measured daily.
Sample pre-treatment: The sample was not aerated, filtered or pH adjusted prior or during testing.
The dissolved oxygen concentration (mg/L) was: 8
The sample pH was: 7.4
Lighting: Overhead full spectrum fluorescent lights; 100-600 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 25 ± 1°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-1583-01-CDD

Endpoints: Survival, 7-d LC50 (with 95% confidence limits)
Reproduction, 7-d IC25 (with 95% confidence limits)
Test endpoints were bracketed by at least 1 test concentration (except for <1.6% or >100 %)
No outliers were observed within the data set.

Test completion: 70% of the control organisms had ≥ 3 broods on day 7 (must be ≥ 60% within 8 days) Any neonates produced after third brood were not included in the mean young per adult calculation.

Test validity: The control had 100% survival (must ≥ 80%)
Number of young produced by each surviving control adult within the first three broods was 16 (must be ≥ 15).

Reference toxicant: 7-d test with NaCl initiated on September 7, 2012;
(must be within 14 days of test initiation)
current results: (7-d LC50 and 95% confidence limits) =
3.35 (3.25-3.45) log (mg/L NaCl)
current results: (7-d IC50 and 95% confidence limits) =
3.01 (3.07-3.12) log (mg/L NaCl)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-1583-01-CDD

Test Log:

Date	Day	Time	Technicians	Temperature (°C) Control	Sample
2012/09/11	0	1530	L. Windatt	25	25
2012/09/12	1	0940	E. Henson	25	25
2012/09/13	2	1035	T. Kloshinsky	25	25
2012/09/14	3	0930	L. Windatt	25	25
2012/09/15	4	0840	T. Kloshinsky	25	25
2012/09/16	5	0815	T. Kloshinsky	25	25
2012/09/17	6	1200	E. Petho	25	25
2012/09/18	7	1030	L. Windatt	na	na

Chemistry Summary Tables:

New Solutions

Conc. %	ctl	1.6	3.1	6.3	13	25	50	100

Old Solutions

ctl	1.6	3.1	6.3	13	25	50	100

Average Values

pH	8.0	7.9	7.9	7.9	7.9	7.9	7.8	7.6	7.9	7.9	8.0	8.0	8.0	8.0	7.9	7.8
cond.	380	385	382	386	390	392	405	430	405	405	437	408	413	416	429	472
DO	7.4	7.3	7.3	7.2	7.2	7.2	7.1	7.3	6.9	6.9	7.0	7.0	7.0	7.0	7.0	7.0
temp.	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25

Coefficients of Variation (%)

pH	1	1	1	2	1	2	2	2	2	1	1	1	1	1	1	1
cond.	3	2	3	1	2	2	2	2	6	5	2	2	2	2	2	3
DO	3	4	5	5	6	5	6	7	7	6	4	4	4	4	3	3
temp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Test Data

Client: DEB103
Reference: 12-1583-01-CDD

Biology (number of young produced):

Day	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Replicate	Control								13%							
1	0	0	0	4	6	0	8		0	0	0	4	6	0	7	
2	0	0	0	0	4	8	0		0	0	0	0	2	0	8	
3	0	0	0	4	0	6	8		0	0	0	6	0	6	7	
4	0	0	0	6	6	0	12		0	0	3	0	10	10	-	
5	0	0	4	0	8	8	-		0	0	2	0	4	9	-	
6	0	0	0	4	4	2	-		0	0	0	0	4	5	0	
7	0	0	0	0	0	0	6		0	0	0	6	6	0	11	
8	0	0	0	4	0	9	10		0	0	0	2	6	0	10	
9	0	0	0	4	0	0	6		0	0	0	4	4	0	8	
10	0	0	0	4	0	7	6		0	0	0	2	0	0	12	
	1.6%								25%							
1	0	0	0	6	4	0	8		0	0	0	4	0	7	9	
2	0	0	0	0	0	0	8		0	0	0	0	4	0	**0**	
3	0	0	0	0	0	4	7		0	0	0	0	0	4	12	
4	0	0	0	4	0	8	10		0	0	0	4	8	0	6	
5	0	0	4	0	0	8	0		0	0	2	0	6	11	-	
6	0	0	4	0	6	12	-		0	0	0	4	6	0	10	
7	0	0	0	4	0	0	10		0	0	0	2	6	0	9	
8	0	0	0	0	0	0	7		0	0	0	4	0	7	11	
9	0	0	0	0	0	2	6		0	0	0	0	0	4	5	
10	0	0	0	0	4	0	7		0	0	0	0	0	9	7	
	3.1%								50%							
1	0	0	0	4	4	0	10		0	0	0	2	0	5	9	
2	0	0	0	0	0	7	10		0	0	0	4	4	7	-	
3	0	0	0	0	0	5	8		0	0	0	4	0	5	11	
4	0	0	0	4	0	5	8		0	0	0	4	0	4	7	
5	0	0	0	4	4	8	-		0	0	0	4	6	4	-	
6	0	0	0	6	8	0	9		0	0	0	4	8	0	9	
7	0	0	0	0	0	4	7		0	0	0	2	6	0	7	
8	0	**0**	X	X	X	X	X		0	0	0	4	0	7	11	
9	0	0	0	4	0	9	8		0	0	0	0	0	0	0	
10	0	0	0	2	0	8	8		0	0	0	0	0	7	9	

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died; —, young produced after third brood

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Test Data

Client: DEB103
Reference: 12-1583-01-CDD

Biology (number of young produced):

Day	1	2	3	4	5	6	7	8

Replicate	6.3%								100%							
1	0	0	0	4	0	10	7		0	0	0	2	0	0	7	
2	0	0	**0**	X	X	X	X		0	0	0	**2**	X	X	X	
3	0	0	0	0	0	6	7		0	0	0	0	0	6	7	
4	0	0	0	4	4	0	10		0	0	0	0	0	4	9	
5	0	0	4	0	4	10	-		0	0	0	4	0	0	5	
6	0	0	0	0	4	12	7		0	0	0	0	6	9	0	
7	0	0	0	4	4	0	7		0	0	0	4	4	5	-	
8	0	0	0	0	6	0	8		0	0	0	2	0	7	9	
9	0	0	0	2	8	7	-		0	0	0	2	0	0	9	
10	0	0	0	0	0	7	0		0	0	0	4	0	8	6	

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died;
—, young produced after third brood

Biology Summary Tables:

Conc. %	ctl	1.6	3.1	6.3	13	25	50	100

Number of Organism Alive

Day	ctl	1.6	3.1	6.3	13	25	50	100
0	10	10	10	10	10	10	10	10
1	10	10	10	10	10	10	10	10
2	10	10	9	10	10	10	10	10
3	10	10	9	9	10	10	10	10
4	10	10	9	9	10	10	10	9
5	10	10	9	9	10	10	10	9
6	10	10	9	9	10	10	10	9
7	10	10	9	9	10	9	10	9
8								

Daily Young Production

Day	ctl	1.6	3.1	6.3	13	25	50	100
0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	4	8	0	4	5	2	0	0
4	30	14	24	14	24	18	28	20
5	28	14	16	30	42	30	24	10
6	40	34	46	52	30	42	39	39
7	56	63	68	46	63	69	63	52
8								
Total	158	133	154	146	164	161	154	121

Percent Mortality (%)

	ctl	1.6	3.1	6.3	13	25	50	100
mean	0	0	10	10	0	10	0	10

Young Per Adult (within first three broods)

	ctl	1.6	3.1	6.3	13	25	50	100
mean	16	13	15	15	16	16	15	12
sd	6.01	5.6	6.42	6.79	4.72	5.53	6.11	4.75
cv(%)	38.1	42.1	41.7	46.5	28.8	34.3	39.7	39.2

Total Young Produced by Each Adult

Replicate	ctl	1.6	3.1	6.3	13	25	50	100
1	18	18	18	21	17	20	16	9
2	12	8	17	0	10	4	15	2
3	18	11	13	13	19	16	20	13
4	24	22	17	18	23	18	15	13
5	20	12	16	18	15	19	14	9
6	10	22	23	23	9	20	21	15
7	6	14	11	15	23	17	15	13
8	23	7	0	14	18	22	22	18
9	10	8	21	17	16	9	0	11
10	17	11	18	7	14	16	16	18

Young Production as a Percent of Controls

ctl	1.6	3.1	6.3	13	25	50	100
100	84	97	92	104	102	97	77

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Test Data

Client: DEB103
Reference: 12-1583-01-CDD

Chemistry:

Day	New Solutions								Old Solutions							
Conc. %	ctl	1.6	3.1	6.3	13	25	50	100	ctl	1.6	3.1	6.3	13	25	50	100
						pH (units)								pH (units)		
0	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.4								
1	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.9	8.0	8.0	8.0	8.0	8.0	8.0	7.9	7.8
2	8.0	8.0	8.0	8.0	8.0	8.0	7.9	7.5	8.0	8.0	8.2	8.0	8.0	8.0	7.9	7.8
3	8.0	8.0	8.0	8.0	8.0	8.0	7.9	7.7	8.0	8.0	8.0	8.0	8.0	8.0	7.9	7.7
4	7.8	7.8	7.8	7.8	7.7	7.7	7.6	7.5	7.7	7.8	7.9	7.9	7.9	7.9	7.8	7.9
5	7.9	7.9	7.9	7.7	7.9	7.8	7.8	7.7	7.8	7.9	8.0	8.0	8.0	8.0	7.9	7.9
6	8.1	8.0	8.0	8.0	8.0	8.0	7.9	7.8	8.0	8.1	8.1	8.1	8.0	8.0	8.0	7.9
7									7.8	7.8	7.9	7.9	7.9	7.8	7.8	7.7
8																
						Conductivity (µS/cm)								Conductivity (µS/cm)		
0	380	387	387	389	393	399	410	434								
1	361	373	377	375	377	385	393	423	401	400	442	410	404	415	432	458
2	388	386	387	388	391	398	409	435	418	413	438	415	417	423	440	482
3	376	385	385	388	392	400	408	436	408	411	421	404	408	410	427	470
4	385	388	388	390	393	387	413	443	411	416	440	413	422	422	438	481
5	382	379	360	383	383	396	393	423	356	358	425	396	401	402	418	472
6	391	394	393	392	399	382	412	417	413	417	453	406	416	418	428	488
7									426	422	440	412	424	424	423	456
8																
						Dissolved Oxygen (mg/L)								Dissolved Oxygen (mg/L)		
0	7.6	7.6	7.6	7.5	7.5	7.4	7.5	8.0								
1	7.7	7.7	7.7	7.7	7.7	7.6	7.7	7.9	7.7	7.5	7.4	7.5	7.4	7.3	7.2	7.2
2	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.2	7.1	7.1	7.1	7.1	7.1	7.1	7.1
3	7.3	7.3	7.2	7.2	7.2	7.1	7.1	7.1	7.1	7.0	7.0	6.9	6.9	6.9	6.9	6.8
4	7.2	7.0	6.7	6.5	6.4	6.4	6.4	6.4	6.0	6.2	6.7	6.9	6.9	6.9	6.8	6.9
5	7.5	7.4	7.4	7.1	7.0	7.0	6.7	7.0	6.9	7.0	7.1	7.3	7.3	7.3	7.3	7.3
6	7.1	7.0	7.1	7.1	7.2	7.3	7.3	7.3	7.0	7.1	7.0	7.0	7.0	7.0	7.0	7.0
7									6.7	6.7	6.6	6.6	6.6	6.6	6.6	6.6
8																
						Temperature (°C)								Temperature (°C)		
0	25	25	25	25	25	25	25	25								
1	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
2	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
4	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
5	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
6	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
7									25	25	25	25	25	25	25	25
8																

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Comments/Statistics

Client: DEB103
Reference: 12-1583-01-CDD

Test Result Comments:
None

Data Analysis:
Endpoints for mortality could not be calculated. No effect occurred.

Endpoints for reproduction could not be calculated. No effect occurred.

Protocol Deviations:
None

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Quality Assurance Information

Culture history for adults used in the test for reference 12-1583:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

	row/replicate	C2	E5	A1	A2	A3	A4	A5	B1	B2	B3	
	number of young											
	number of adults											
		C2	E5	A1	A2	A3	A4	A5	B1	B2	B3	
	number of young											
	number of adults											
		C2	E5	A1	A2	A3	A4	A5	B1	B2	B3	
	number of young											
	number of adults											
		C2	E5	A1	A2	A3	A4	A5	B1	B2	B3	
	number of young	9	7			7	6	5	6	4	3	
	number of adults	1	1			1	1	1	1	1	1	
		C2	E5	A1	A2	A3	A4	A5	B1	B2	B3	
	number of young	3	5	5	10	10	3	6	8	7	6	
	number of adults	1	1	1	1	1	1	1	1	1	1	
		C2	E5	A1	A2	A3	A4	A5	B1	B2	B3	
	number of young	4	4	10	6	8	6	9	8	4	7	
	number of adults	1	1	1	1	1	1	1	1	1	1	
		C2	E5	A1	A2	A3	A4	A5	B1	B2	B3	
DAY USED	number of young	8	8	10	8	11	8	9	8	8	9	
2012/09/11	number of adults	1	1	1	1	1	1	1	1	1	1	
		C2	E5	A1	A2	A3	A4	A5	B1	B2	B3	
totals	number of young	16	16	25	24	25	15	20	22	15	16	
(# of young in first 3 broods)												

Number of young produced per organism in the last brood before use	9
Mean number of surviving young per adult over the first three broods	19
Culture mortality over the last seven days	12

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HydroQual Laboratories Ltd.

Warning Chart
Ceriodaphnia

Test Method: *Ceriodaphnia* Survival and Reproduction Test (7 treatments plus a control)
HydroQual Test Method: WTR-ME-019
Reference: Biological Test Method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia*, 2007. Environment Canada, EPS 1/RM/21

Test Organism:

test species:	*Ceriodaphnia dubia*
culture source:	in-house
original culture source:	Environment Canada
ephippia in stock culture:	none
food type:	YAT:Algae
frequency of feeding:	daily
age of test organisms:	<24 hours
culture mortality 7 days prior:	4%
culture fecundity 7 days prior	
within the first three broods:	21
young produced in previous brood:	9
culture condition prior to test initiation:	normal
culture water:	moderately hard reconstituted water*

Test Design:

test type:	static renewal
toxicant:	sodium chloride (NaCl)
test vessel:	30 mL plastic cup
test volume (mL):	15
replicates per treatment:	10
organisms per replicate:	1
feeding:	daily
temperature (°C):	24-26
photoperiod:	16 hours light: 8 hours dark
light level (surface):	100-600 lux (full spectrum)
hardness adjustment:	no

*Note: there are 2 subcultures within this culture source, separated by one week in age. The test is set with organisms from one subculture. The number of young a culture has is monitored daily. If young are not used that day, they are discarded, therefore organisms in tests are <24h.

Control/Dilution Water:

source: moderately hard reconstituted water*

pH (units):	7.9
conductance (uS/cm):	364
dissolved oxygen (mg/L):	7.5
NH_4^+ (mg/L):	<0.1
hardness (mg $CaCO_3$/L):	113.5
alkalinity (mg $CaCO_3$/L):	107.5
total residual chlorine (mg/L):	<0.01

* Note: moderately hard reconstituted water prepared as per EPS 1/RM/21

Comments: None

The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Mortality

Current Test

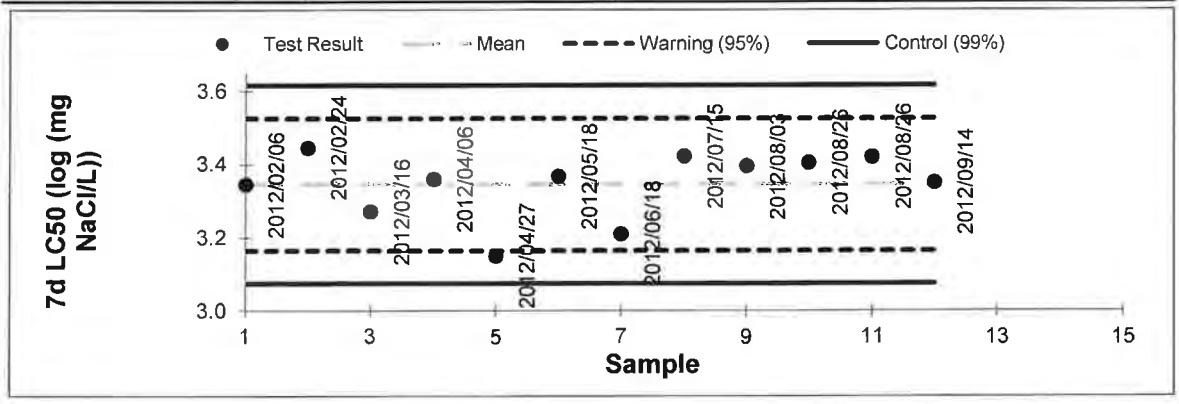
toxicant Sodium chloride (NaCl)

started on 2012/09/07 ended on 2012/09/14

Result (7d LC50):	3.35	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	3.25	upper	3.45	

Historical Values

mean	3.35	sd	0.09	cv(%):	3
	lower	upper			
warning limits (±2 sd)	3.16	3.53	(95% confidence limits)		
control limits (±3 sd)	3.07	3.62	(99% confidence limits)		



Reproduction

Current Test

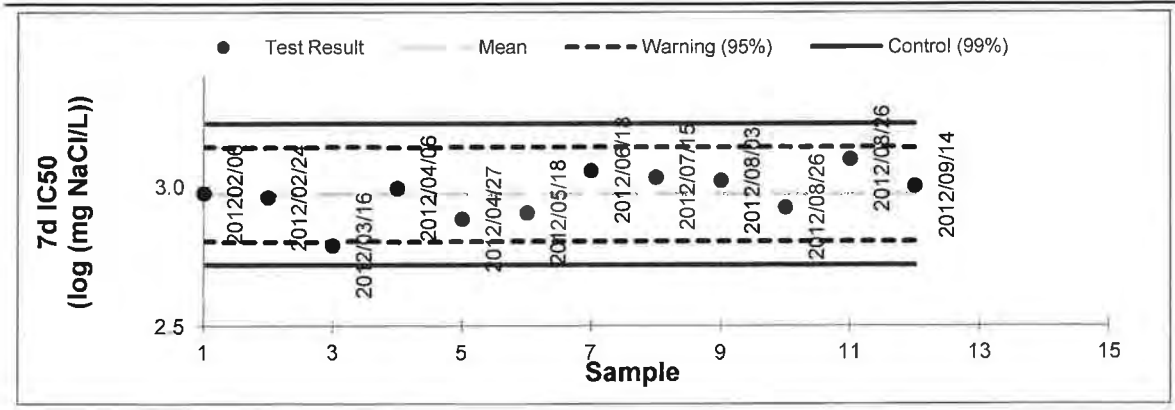
toxicant Sodium chloride (NaCl)

started on 2012/09/07 ended on 2012/09/14

Result (7d IC50)	3.01	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	3.07	upper	3.12	

Historical Values

mean	2.97	sd	0.08	cv(%):	3
	lower	upper			
warning limits (±2 sd)	2.80	3.14	(95% confidence limits)		
control limits (±3 sd)	2.72	3.23	(99% confidence limits)		



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Quality Assurance Information

Culture history for adults used in the test for reference QA201:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

row/replicate	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young number of adults											

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young number of adults											

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young number of adults											

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young number of adults											

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young	7	6	8	8	8	4	7	5	6	4	
number of adults	1	1	1	1	1	1	1	1	1	1	

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young	10	3	7	10	3	5	4	5	6	5	
number of adults	1	1	1	1	1	1	1	1	1	1	

DAY USED
2012/09/07

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young	10	8	8	11	8	8	10	10	9	8	
number of adults	1	1	1	1	1	1	1	1	1	1	

totals
(# of young in first 3 broods)

	A2	B5	D3	D5	E4	B5	C4	C5	D4	B2	
number of young	27	17	23	29	19	17	21	20	21	17	

Number of young produced per organism in the last brood before use: 9

Mean number of surviving young per adult over the first three broods: 21

Culture mortality over the last seven days: 4

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HydroQual Laboratories Ltd.

Algae Test Report

Client: DEB103
Reference: 12-0622-01-AGD

Result Summary

Client: DeBeers Canada Inc.; operation Snap Lake Mine

Sample: 2012-5120

Collection: collected on 2012/04/17 at 1350 by not given
Receipt: received on 2012/04/19 at 1505 by E. Petho
Containers: received 1 x 20L pail at 13 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/04/20 ; ended on 2012/04/23

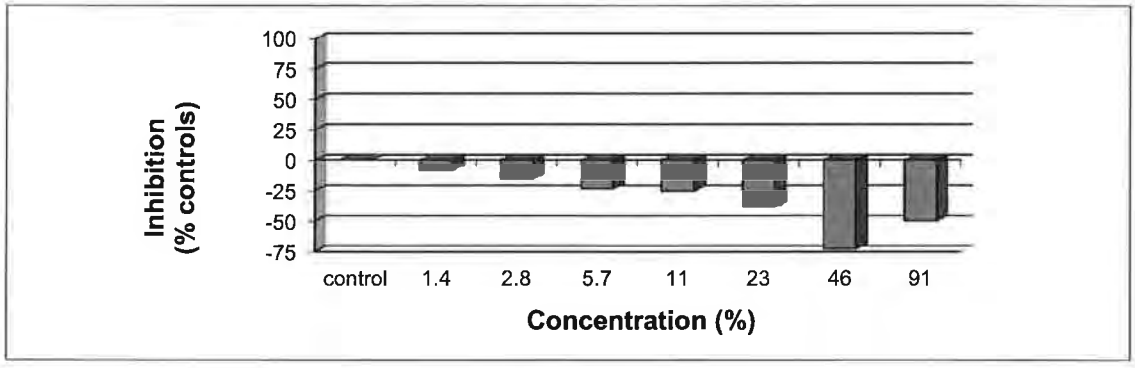
Contents

Result Summary.....1
Test Conditions.....2
Test Data.....4
Comments/Statistics..5
QA/QC.....6

Result:

	Endpoint (72-hour)	Value	Confidence Limits (95%) lower	upper		Method Calculated
Chronic:	IC25	>91			%	could not be calculated
(growth)	IC50	>91			%	could not be calculated

Notes: ICx, concentrations inhibiting growth by 'x' percent relative to controls; CV, coefficient of variation (%); SD, standard deviation



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-0622-01-AGD

Method: Biological Test Method: Growth Inhibition Test Using a Freshwater Alga *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum)*. Environment Canada, EPS 1/RM/25, 2nd Edition, March 2007

Test type: Algal Growth Inhibition Test (WTR-ME-034)

Species: *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum* and *Raphidocelis subcapitata*)

Organism source: In-house culture (original source: UTCC 37; strain: LB37)

Culture age: The test was started with 7 day old, exponentially growing cells determined with an algal growth curve. The algal growth curve was started with an inoculum from the algal stock culture determined over an 8-10 day period. This culture was initiated on 2012/03/03. Algal cultures are regrown every 2 months from slants made from a new culture purchased annually.

Culture observations: No unusual appearance or treatment of the algae was noted prior to or during the conduct of the test.

Sample initial chemistry: pH: 6.6; EC: 493 (µS/cm); DO: 8.7 (mg/L); temperature: 17 °C
hardness (mg CaC03/L): 127; colour: colourless; odour: odourless

Sample holding time: 3 days (must be ≤ 3 days)

Sample storage: 4 ± 2°C in darkness

Test concentrations: 7 effluent concentrations (1.4, 2.8, 5.7, 11, 23, 46 and 91% (v/v) plus a negative control)

Test vessel: The test was conducted in 96 well microplates. Three replicate plates were run (a, b and c). Test concentrations were not isolated from each other because volatility was not expected.

Test replicates: Three replicate microplates were run. Per plate there were 5 replicate wells per concentration and 10 replicate wells per control.

Test volume: 220 µL final volume in each well with 200 µL of sample;
10µL of enrichment medium and 10µL of algal inoculum.

Inoculum: The initial cell density of the inoculum was 9427 (cells/mL), it was prepared less than ≤2-3 hours before test initiation.

Control/dilution water: Made up with deionized City of Calgary water spiked with nutrients as per EPS 1/RM/25 (made by adding 1mL of each of the 5 stock solutions to 10mL of DRO). The metal stock with 25% reduced EDTA was used.

Sample Filtration: 100 mL filtered through a 0.45 µm pore diameter membrane.

Sample treatment: Sample spiked with nutrients as per EPS 1/RM/25; no other chemicals added.

Measurements: Final cell densities were determined from the absorbance at 430 nm calibrated against cell counts. The conversion factor for absorbance to cells per millilitre was 12351 with a coefficient of variation of 14 %.

Aeration: Not required

pH Adjustment: Not required

Lighting: The plates were incubated under continuous light: 4055 lux
(cool white fluorescent bulbs) 56.77 µmol/(m^2•S)

Test temperature: 24 ± 2°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-0622-01-AGD

Endpoint: Growth, 72-h IC25 (with 95% confidence limits)
Test endpoint was bracketed by at least 1 test concentration (except for <1.4% or >100 %)
No outliers were observed within the data set.

Test validity: Control growth was a 26 fold increase over the inoculum.
The cv of the standard control wells was 6 %.
(must be > 16 fold increase with a cv of ≤ 20%)

Statistics: See Data Analysis section.
Mann-Kendall Trend analysis was not performed as control cv was < 10%.

Reference toxicant: 72-h test with Zinc ($ZnSO_4$*7H2O) initiated April 13, 2012;
(must be within 14 days of the test initiation)
current results: (72-h IC25 and 95% confidence limits) = 1.31 (1.18-1.42) log (µg Zn^{2+}/L)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-0622-01-AGD

Test Log:

Date	Day	Technician	Time	Rotated	Temperature (°C)
2012/04/20	0	E. Blais/E.Petho	1430	na	24
2012/04/21	1	B. Shore	0915	Yes	25
2012/04/22	2	H. Caro-Riano	0900	Yes	24
2012/04/23	3	E. Petho/L. Windatt	1400	na	25

Absorbance and Direct Cell Data:

Concentration (%)	Absorbance (430 nm)	Direct Cell Counts(/0.5 mL)
ctl	0.02	3617
11	0.03	4150
91	0.03	6417

pH Measurements:

Concentration	Initial Value
control	7.8
91%	7.8

Concentration	Final Mean	% CV
control (well D6)	8.2	0
control (well D7)	8.2	0

Average Absorbance Control Data:

Column Well	2b	2c	2e	2f	2g
Absorbance (430 nm)	0.02	0.02	0.02	0.02	0.02
Column Well	11b	11c	11e	11f	11g
Absorbance (430 nm)	0.02	0.02	0.02	0.02	0.02

Standard Control Wells:

Average	274
SD	17
CV%	6

Test Results at 72 hours:

Concentration (%)	Cell Yield Densities ($x10^3$ / mL) Well Replicate					Average	SD	CV	Percent Controls	Inhibition (%)	Stimulation (%)
	a	b	c	d	e						
control	257	253	249	261	257	256	5	2	100	0	0
1.4	336	282	249	282	245	279	36	13	109	-9	9
2.8	340	282	282	303	274	296	27	9	116	-16	16
5.7	298	298	360	319	303	316	26	8	124	-24	24
11	336	315	311	331	311	321	12	4	125	-25	25
23	352	356	364	336	356	353	11	3	138	-38	38
46	463	434	443	447	422	442	15	3	173	-73	73
91	383	387	385	385	375	383	5	1	150	-50	50

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Comments/Statistics

Client: DEB103
Reference: 12-0622-01-AGD

Test Result Comments:
The absorbance measurements were made after the cells were centrifuged and resuspended in clear solution (and that the conversion factor developed for abs vs cell number reflects this step). Manual enumeration was performed on the same day as test termination.

Data Analysis:
Significant stimulatory effects in growth were observed in 2.8, 5.7, 11, 23, 46, 91% concentrations as calculated by ANOVA analysis with CETIS v. 1.7.0revQ. (Fligner-Wolfe Test).

Endpoints for growth inhibition could not be calculated. Inhibitory effects did not occur.

Protocol Deviations:
None

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HydroQual Laboratories Ltd.

Warning Chart
Algae

Test Method: 72 hours Algal Growth Inhibition Test (IC25, seven or more treatments plus a control)
HydroQual Test Method: WTR-ME-035

Reference: Biological Test Method: Growth Inhibition Test Using the Freshwater Alga *Selenastrum capricornutum*, 2007. Environment Canada, EPS 1/RM/25.

Test Organism:

test species:	*Pseudokirchneriella subcapitata*
batch number:	20120406AG
date started from slant:	2012/03/03
original source/strain:	UTCC 37 / LB37
culture vessels:	2L Erlenmeyer flask
water source:	85% deionized water, 15% dechlorinated tap
growth medium:	nutrient solution
cultivation method:	batch as per test conditions
culture condition at start	normal
culture age:	3-7 days
growth phase:	exponentially growing

Test Design:

test type:	static
toxicant:	zinc
test vessel:	96 well flat bottom microplate
test volume (µL):	220
no. of replicate plates:	3
no. of replicate wells / treatment per plate (control, sample):	10, 5
mean temperature (°C):	24 ± 2°C
photoperiod:	continuous light
light level:	3600-4400 lux (cool white)
contol/dilution water:	deionized water and nutrients prepared as per EPS1/RM/25

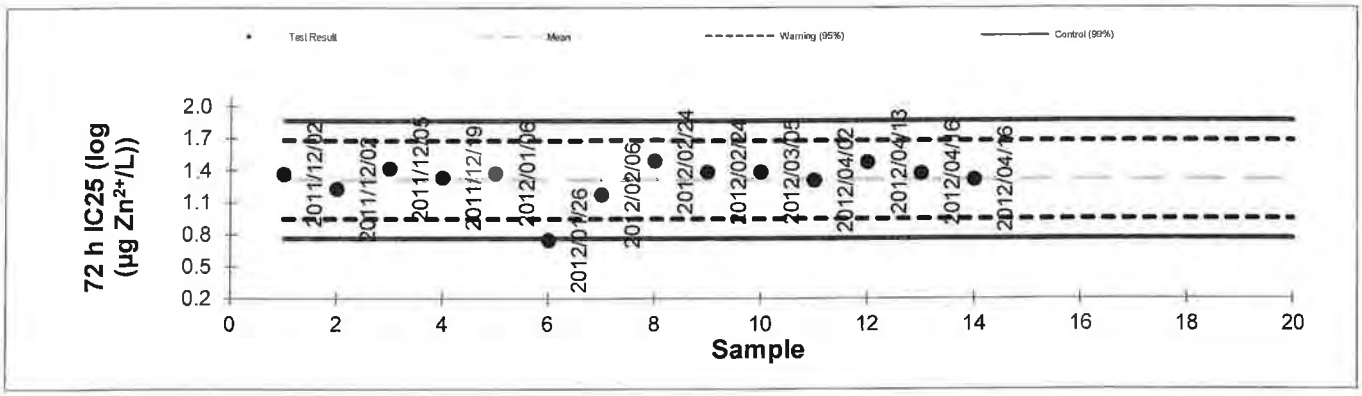
Current Test

toxicant	Zinc ($ZnSO_4$*$7H_2O$)				
started on	2012/04/13	ended on	2012/04/16		
Result (IC25 @ 72h)	1.31	log (µg $Zn2^+$/L); geometric mean			
Confidence Limits (95%)	lower	1.18	upper	1.42	

Historical Values

mean	1.31	sd	0.18	cv(%):	14
	lower	upper			
warning limits (±2 sd)	0.95	1.68	(95% confidence limits)		
control limits (±3 sd)	0.76	1.86	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance, na; could not be calculated



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Client: DEB103
Reference: 12-0622-01-CDD

Result Summary

Client: DeBeers Canada Inc.; operation Snap Lake Mine

Sample: 2012-5120

Collection: collected on 2012/04/17 at 1350 by not given
Receipt: received on 2012/04/19 at 1505 by E. Petho
Containers: received 1 x 20L pail at 13 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/04/20 ; ended on 2012/04/27

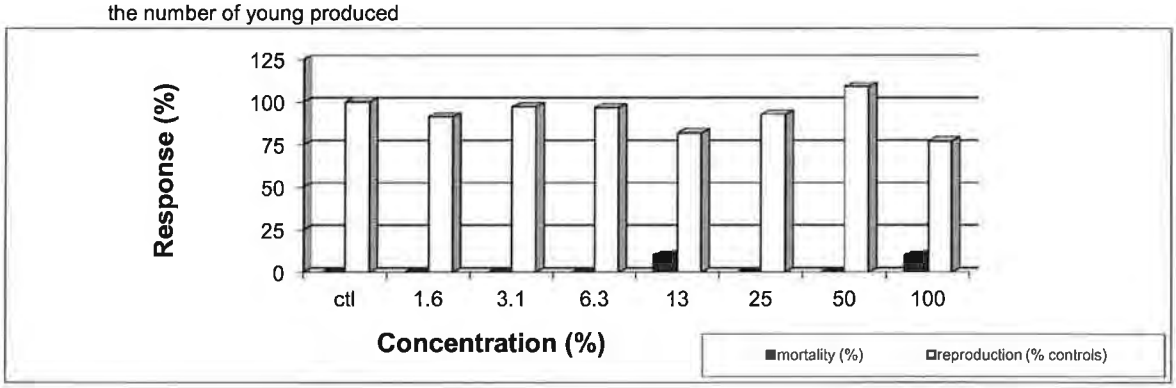
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Result:

	Endpoint (7-day)	Value	Confidence Limits (95%) lower	upper	Units	Method Calculated
Acute:	LC25	>100			%	could not be calculated
(survival)	LC50	>100			%	could not be calculated
Chronic:	IC25	>100			%	could not be calculated
(fecundity)	IC50	>100			%	could not be calculated

Notes: LCx & ICx, concentrations lethal or inhibitory to 'x' percent of the test population; fecundity, reproduction as the number of young produced



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-0622-01-CDD

Method: Biological Test method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia.* Environment Canada, EPS 1/RM/21, 2nd Edition, February 2007.

Test type: *Ceriodaphnia* Survival and Reproduction Static Renewal Test (WTR-ME-018)
Species: *Ceriodaphnia dubia*
Age: <24 hours old; all from same brood source within 12 hours of the same age.
Organism source: in-house cultures; cultures from a single brood organism to provide test organisms.
Culture health: Culture mortality was 4% (must be ≤ 20%).
7-d prior to test initiation: No ephippia were noted in the cultures at any time.
Average young produced per adult in the first three broods was 22 (must be ≥ 15)
Number of young produced by each brood organism in the last complete brood before use was 9 (must be ≥ 8).
Organism observations: No unusual behavior, appearance or treatment of test organisms was noted prior to or during the test. All first-generation mortality was recorded on the day it was observed.
Sample initial chemistry: pH: 6.6; EC: 493 (µS/cm); DO: 8.7 (mg/L); temperature: 17 °C
hardness (mg CaC03/L): 127; colour: colourless; odour: odourless
Sample holding time: 3 days (must be ≤ 3 days); The test was conducted with three subsamples, samples a, b, and c were for days 0 to 2, 3 to 5, and 6 to 8 respectively
Sample storage: 4 ± 2°C in darkness

Test vessel: The tests were conducted in 30 mL plastic vessels (2 cm depth).
Test volume: 15 mL of solution (1 cm depth); replenished daily.
Control/dilution water: The control and dilution water was moderately hard reconstituted water. Chemicals added to dilution water:
1.92 g NaHCO3, 1.2 g CaSO4, 1.2 g MgSO4, 0.08 g KCl per 20L.
Test concentrations: 7 effluent concentrations (1.6, 3.1, 6.3, 13, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One neonate <24 hours old was loaded per test vessel;
10 replicates/concentration
Feeding: The test organisms were fed daily a mixture of fermented trout chow, yeast, alfalfa powder, and the green alga *Pseudokirchneriella subcapitata* (formerly *Selenastrum capricornutum* and *Raphidocelis subcapitata*).
Food expiration date: 2012/05/05
Measurements: pH, conductivity, dissolved oxygen and temperature were measured daily.
Sample pre-treatment: The sample was not aerated, filtered or pH adjusted prior or during testing.
The dissolved oxygen concentration (mg/L) was: 7.5
The sample pH was: 7.4
Lighting: Overhead full spectrum fluorescent lights; 100-600 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 25 ± 1°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-0622-01-CDD

Endpoints: Survival, 7-d LC50 (with 95% confidence limits)
Reproduction, 7-d IC25 (with 95% confidence limits)
Test endpoints were bracketed by at least 1 test concentration (except for <1.6% or >100 %)
No outliers were observed within the data set.

Test completion: 80% of the control organisms had ≥ 3 broods on day 7 (must be ≥ 60% within 8 days) Any neonates produced after third brood were not included in the mean young per adult calculation.

Test validity: The control had 100% survival (must ≥ 80%)
Number of young produced by each surviving control adult within the first three broods was 20 (must be ≥ 15).

Reference toxicant: 7-d test with NaCl initiated on April 20, 2012;
(must be within 14 days of test initiation)
current results: (7-d LC50 and 95% confidence limits) =
3.15 (2.98-3.32) log (mg/L NaCl)
current results: (7-d IC50 and 95% confidence limits) =
2.88 (2.63-3.03) log (mg/L NaCl)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-0622-01-CDD

Test Log:

Date	Day	Time	Technicians	Temperature (°C) Control	Sample
2012/04/20	0	1100	E. Petho	25	25
2012/04/21	1	1225	E. Petho	25	25
2012/04/22	2	1055	E. Blais	25	25
2012/04/23	3	1040	J. Holmes-Smith	25	25
2012/04/24	4	1115	J. Holmes-Smith	25	25
2012/04/25	5	1040	J. Holmes-Smith	25	25
2012/04/26	6	1100	E. Petho	25	25
2012/04/27	7	0840	J. Holmes-Smith	na	na

Chemistry Summary Tables:

New Solutions

Conc. %	ctl	1.6	3.1	6.3	13	25	50	100

Old Solutions

ctl	1.6	3.1	6.3	13	25	50	100

Average Values

pH	7.9	7.9	7.9	7.9	7.9	7.8	7.7	7.4	7.9	7.9	7.9	7.9	7.9	7.9	7.8	7.6
cond.	381	390	394	398	405	421	456	525	408	408	413	412	427	445	494	570
DO	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.1	7.0	6.9	6.8	6.7	6.7	6.7	6.6	6.7
temp.	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25

Coefficients of Variation (%)

pH	1	1	1	1	1	1	1	3	1	1	1	1	2	2	2	2
cond.	4	4	4	5	4	4	4	4	5	4	5	4	4	4	5	4
DO	5	4	5	5	5	5	4	5	3	4	3	4	3	3	4	5
temp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Test Data

Client: DEB103
Reference: 12-0622-01-CDD

Biology (number of young produced):

Replicate	Day 1	2	3	4	5	6	7	8
	Control							
1	0	0	0	4	0	9	10	
2	0	0	0	6	9	0	11	
3	0	0	0	2	9	0	13	
4	0	0	0	3	0	10	9	
5	0	0	0	3	4	12	-	
6	0	0	0	5	6	0	12	
7	0	0	0	0	7	10	0	
8	0	0	0	3	0	7	10	
9	0	0	0	2	0	0	9	
10	0	0	0	5	0	6	8	
	1.6%							
1	0	0	0	2	0	0	0	
2	0	0	0	4	6	0	8	
3	0	0	0	3	8	0	8	
4	0	0	0	4	7	0	13	
5	0	0	0	5	3	11	-	
6	0	0	0	4	8	10	-	
7	0	0	0	3	7	0	8	
8	0	0	0	6	8	0	10	
9	0	0	0	2	6	0	9	
10	0	0	0	4	0	10	9	
	3.1%							
1	0	0	0	5	3	0	7	
2	0	0	0	2	4	0	4	
3	0	0	0	4	10	0	11	
4	0	0	0	5	6	8	-	
5	0	0	0	5	4	8	-	
6	0	0	0	0	6	13	12	
7	0	0	0	3	11	0	12	
8	0	0	0	2	7	0	11	
9	0	0	0	5	0	9	10	
10	0	0	0	3	0	2	6	

Replicate	Day 1	2	3	4	5	6	7	8
	13%							
1	0	0	0	2	0	7	12	
2	0	0	0	3	0	7	0	
3	0	0	0	3	5	0	12	
4	0	0	0	5	10	14	-	
5	0	0	0	2	8	0	2	
6	0	0	0	5	9	0	0	
7	0	0	0	5	8	12	-	
8	0	0	0	**3**	X	X	X	
9	0	0	0	0	7	8	0	
10	0	0	0	0	7	11	0	
	25%							
1	0	0	0	3	0	9	10	
2	0	0	0	0	2	6	11	
3	0	0	0	6	6	0	9	
4	0	0	0	2	6	0	0	
5	0	0	0	4	7	9	-	
6	0	0	0	2	3	4	-	
7	0	0	0	5	7	0	8	
8	0	0	0	0	7	13	11	
9	0	0	0	2	7	10	-	
10	0	0	0	2	7	11	-	
	50%							
1	0	0	0	4	0	8	13	
2	0	0	0	3	6	0	12	
3	0	0	0	4	8	0	13	
4	0	0	0	5	6	0	9	
5	0	0	0	4	8	0	11	
6	0	0	0	5	0	10	11	
7	0	0	0	0	6	11	0	
8	0	0	0	2	7	0	8	
9	0	0	0	3	7	0	12	
10	0	0	0	6	6	0	14	

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died; —, young produced after third brood

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Test Data

Client: DEB103
Reference: 12-0622-01-CDD

Biology (number of young produced):

Day	1	2	3	4	5	6	7	8

Day	1	2	3	4	5	6	7	8

Replicate	6.3%							
1	0	0	0	5	7	0	11	
2	0	0	0	4	7	0	10	
3	0	0	0	3	6	0	9	
4	0	0	0	5	6	0	10	
5	0	0	0	5	9	0	9	
6	0	0	0	0	8	5	0	
7	0	0	0	5	8	8	-	
8	0	0	0	0	8	9	0	
9	0	0	0	3	9	0	11	
10	0	0	0	5	0	2	10	

100%							
0	0	**0**	X	X	X	X	
0	0	0	3	0	7	8	
0	0	0	4	0	6	7	
0	0	0	5	0	7	7	
0	0	0	6	0	7	7	
0	0	0	0	0	3	13	
0	0	0	6	6	0	5	
0	0	0	5	0	6	7	
0	0	0	2	6	0	5	
0	0	0	0	4	5	10	

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died; —, young produced after third brood

Biology Summary Tables:

Conc. %	ctl	1.6	3.1	6.3	13	25	50	100

ctl	1.6	3.1	6.3	13	25	50	100

Day	Number of Organism Alive							
0	10	10	10	10	10	10	10	10
1	10	10	10	10	10	10	10	10
2	10	10	10	10	10	10	10	10
3	10	10	10	10	10	10	10	9
4	10	10	10	10	9	10	10	9
5	10	10	10	10	9	10	10	9
6	10	10	10	10	9	10	10	9
7	10	10	10	10	9	10	10	9
8								

Day	Daily Young Production							
0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0
4	33	37	34	35	28	26	36	31
5	35	53	51	68	54	52	54	16
6	54	31	40	24	59	62	29	41
7	82	65	73	70	26	49	103	69
8								
Total	204	186	198	197	167	189	222	157

	Percent Mortality (%)							
mean	0	0	0	0	10	0	0	10

Replicate	Total Young Produced by Each Adult							
1	23	2	15	23	21	22	25	0
2	26	18	10	21	10	19	21	18
3	24	19	25	18	20	21	25	17
4	22	24	19	21	29	8	20	19
5	19	19	17	23	12	20	23	20
6	23	22	31	13	14	9	26	16
7	17	18	26	21	25	20	17	17
8	20	24	20	17	3	31	17	18
9	11	17	24	23	15	19	22	13
10	19	23	11	17	18	20	26	19

	Young Per Adult (within first three broods)							
mean	20	19	20	20	17	19	22	16
sd	4.27	6.4	6.78	3.33	7.57	6.51	3.43	5.85
cv(%)	21	34.4	34.2	16.9	45.3	34.4	15.4	37.3

Young Production as a Percent of Controls							
100	91	97	97	82	93	109	77

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Test Data

Client: DEB103
Reference: 12-0622-01-CDD

Chemistry:

Day	New Solutions								Old Solutions							
Conc. %	ctl	1.6	3.1	6.3	13	25	50	100	ctl	1.6	3.1	6.3	13	25	50	100
					pH (units)								pH (units)			
0	7.9	7.9	7.9	7.9	7.8	7.8	7.7	7.4								
1	7.9	7.9	7.9	7.9	7.8	7.8	7.7	7.2	8.0	8.0	8.0	8.0	8.0	8.0	7.9	7.5
2	7.8	7.8	7.8	7.8	7.8	7.7	7.6	7.4	7.7	7.7	7.7	7.7	7.6	7.6	7.6	7.4
3	7.9	8.0	8.1	8.0	8.0	8.0	7.9	7.8	7.9	8.0	8.0	8.0	8.0	8.0	7.9	7.8
4	7.8	7.9	7.9	7.9	7.8	7.8	7.6	7.2	7.9	7.9	7.9	7.9	7.8	7.8	7.8	7.5
5	7.8	7.9	7.9	7.9	7.9	7.9	7.8	7.6	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.7
6	8.0	7.9	8.0	8.0	7.9	7.9	7.8	7.4	7.8	7.9	7.9	7.8	7.8	7.8	7.7	7.4
7									8.0	8.0	8.0	8.0	8.0	8.0	7.9	7.8
8																
					Conductivity (µS/cm)								Conductivity (µS/cm)			
0	402	410	412	417	425	441	475	538								
1	354	364	369	371	382	396	431	499	382	387	391	390	404	422	455	533
2	373	376	380	382	386	402	435	507	396	395	390	393	407	424	466	540
3	401	408	417	422	425	440	473	547	437	424	432	429	444	463	513	592
4	385	400	403	408	416	435	477	547	431	432	440	436	452	469	522	601
5	376	390	392	395	403	416	453	521	401	400	404	408	423	441	491	574
6	375	382	386	389	399	414	448	518	414	410	413	411	427	450	503	581
7									394	407	421	415	429	449	508	572
8																
					Dissolved Oxygen (mg/L)								Dissolved Oxygen (mg/L)			
0	7.0	7.0	7.0	6.9	6.9	6.8	6.9	7.5								
1	6.7	6.6	6.5	6.5	6.5	6.5	6.5	6.5	6.7	6.6	6.5	6.5	6.5	6.5	6.5	6.5
2	7.3	7.3	7.4	7.4	7.6	7.5	7.4	7.5	7.2	7.0	6.9	6.8	6.7	6.6	6.6	6.6
3	7.0	7.0	7.0	7.0	7.0	7.1	7.1	7.1	7.2	7.1	6.9	6.9	6.8	6.8	6.8	6.8
4	7.3	7.2	7.2	7.2	7.1	7.1	7.0	7.0	7.1	7.0	7.0	6.9	6.9	6.9	6.9	7.2
5	7.3	7.2	7.2	7.2	7.1	7.2	7.1	7.1	7.1	7.0	6.8	6.8	6.7	6.6	6.6	6.6
6	6.5	6.6	6.6	6.6	6.7	6.7	6.7	6.7	6.6	6.4	6.4	6.3	6.3	6.3	6.2	6.2
7									7.1	7.0	6.9	6.9	6.9	6.9	6.9	6.8
8																
					Temperature (°C)								Temperature (°C)			
0	25	25	25	25	25	25	25	25								
1	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
2	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
4	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
5	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
6	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
7									25	25	25	25	25	25	25	25
8																

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Comments/Statistics

Client: DEB103
Reference: 12-0622-01-CDD

Test Result Comments:
None

Data Analysis:
Endpoints for mortality could not be calculated. No effect occurred.

Endpoints for reproduction could not be calculated. No effect occurred.

Protocol Deviations:
None

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Quality Assurance Information

Culture history for adults used in the test for reference 12-0622:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

	row/replicate	E1	A1	A2	A4	A5	B1	B3	B4	B5	C1	
	number of young											
	number of adults											
		E1	A1	A2	A4	A5	B1	B3	B4	B5	C1	
	number of young											
	number of adults											
		E1	A1	A2	A4	A5	B1	B3	B4	B5	C1	
	number of young											
	number of adults											
		E1	A1	A2	A4	A5	B1	B3	B4	B5	C1	
	number of young				2				6			
	number of adults				1				1			
		E1	A1	A2	A4	A5	B1	B3	B4	B5	C1	
	number of young	7	5	8	6	5	7	3	8	7	4	
	number of adults	1	1	1	1	1	1	1	1	1	1	
		E1	A1	A2	A4	A5	B1	B3	B4	B5	C1	
	number of young	8	6	8	9	7	6	8	9	8	8	
	number of adults	1	1	1	1	1	1	1	1	1	1	
		E1	A1	A2	A4	A5	B1	B3	B4	B5	C1	
DAY USED	number of young	9	10	9	10	9	9	8	8	11	8	
2012/04/20	number of adults	1	1	1	1	1	1	1	1	1	1	
		E1	A1	A2	A4	A5	B1	B3	B4	B5	C1	
totals	number of young	24	21	25	17	21	22	19	23	26	20	
(# of young in first 3 broods)												

Number of young produced per organism in the last brood before use: 9

Mean number of surviving young per adult over the first three broods: 22

Culture mortality over the last seven days: 4

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HydroQual Laboratories Ltd.

Warning Chart
Ceriodaphnia

Test Method: *Ceriodaphnia* Survival and Reproduction Test (7 treatments plus a control)
HydroQual Test Method: WTR-ME-019
Reference: Biological Test Method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia*, 2007. Environment Canada, EPS 1/RM/21

Test Organism:

test species:	*Ceriodaphnia dubia*
culture source:	in-house
original culture source:	Environment Canada
ephippia in stock culture:	none
food type:	YAT:Algae
frequency of feeding:	daily
age of test organisms:	<24 hours
culture mortality 7 days prior:	0%
culture fecundity 7 days prior within the first three broods:	22
young produced in previous brood:	10
culture condition prior to test initiation:	normal
culture water:	mixture of moderately hard reconstituted* water and Bow River Water (50:50)

Test Design:

test type:	static renewal
toxicant:	sodium chloride (NaCl)
test vessel:	30 mL plastic cup
test volume (mL):	15
replicates per treatment:	10
organisms per replicate:	1
feeding:	daily
temperature (°C):	24-26
photoperiod:	16 hours light: 8 hours dark
light level (surface):	100-600 lux (full spectrum)
hardness adjustment:	no

*Note: there are 2 subcultures within this culture source, separated by one week in age. The test is set with organisms from one subculture. The number of young a culture has is monitored daily. If young are not used that day, they are discarded, therefore organisms in tests are <24h.

Control/Dilution Water:

source:	mixture of moderately hard reconstituted* water and Bow River Water (50:50)
pH (units):	8.4
conductance (uS/cm):	466
dissolved oxygen (mg/L):	7.5
NH_4^+ (mg/L):	<0.1
hardness (mg $CaCO_3$/L):	149
alkalinity (mg $CaCO_3$/L):	107
total residual chlorine (mg/L):	<0.01

* Note: moderately hard reconstituted water prepared as per EPS 1/RM/21

Comments: None

The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Warning Chart
Ceriodaphnia

Mortality

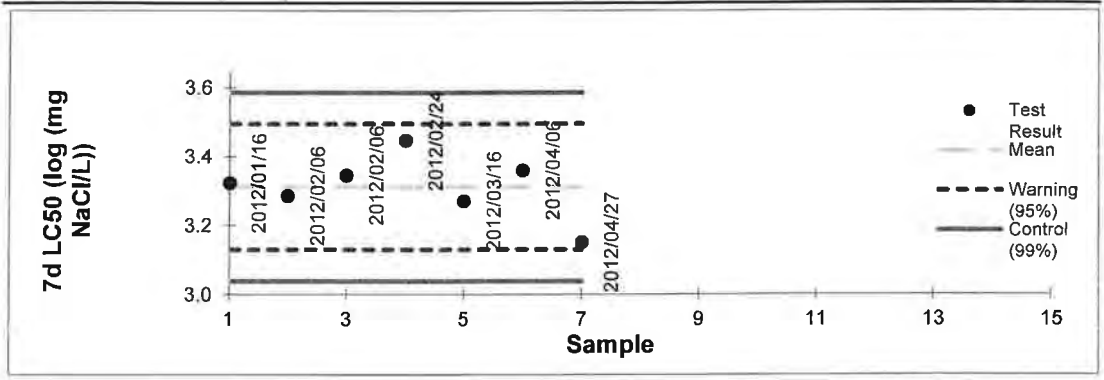
Current Test

toxicant Sodium chloride (NaCl)
started on 2012/04/20 ended on 2012/04/27

Result (7d LC50):	3.15	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	2.98	upper	3.32	

Historical Values

mean	3.31	sd	0.09	cv(%):	3
	lower	upper			
warning limits (±2 sd)	3.13	3.49	(95% confidence limits)		
control limits (±3 sd)	3.04	3.59	(99% confidence limits)		



Reproduction

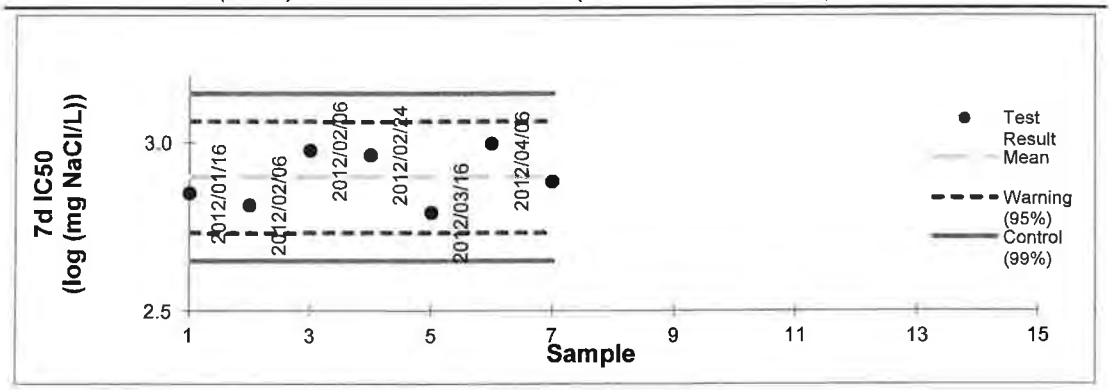
Current Test

toxicant Sodium chloride (NaCl)
started on 2012/04/20 ended on 2012/04/27

Result (7d IC50)	2.88	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	2.63	upper	3.03	

Historical Values

mean	2.90	sd	0.08	cv(%):	3
	lower	upper			
warning limits (±2 sd)	2.73	3.06	(95% confidence limits)		
control limits (±3 sd)	2.65	3.15	(99% confidence limits)		



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***Ceriodaphnia* Test Report**

Quality Assurance Information

Culture history for adults used in the test for reference QA85:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

row/replicate	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young number of adults											

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young number of adults											

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young number of adults											

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young number of adults											

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young	6	7	4	5	6	7	5	3	2		
number of adults	1	1	1	1	1	1	1	1	1		

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young	7	9	8	7	5	7	7	4	9		
number of adults	1	1	1	1	1	1	1	1	1		

DAY USED 2012/04/20

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young	9	8	8	11	10	9	10	13	8		
number of adults	1	1	1	1	1	1	1	1	1		

totals (# of young in first 3 broods)

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young	22	24	20	23	21	23	22	20	19		

Number of young produced per organism in the last brood before use: 10

Mean number of surviving young per adult over the first three broods: 22

Culture mortality over the last seven days: 0

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HydroQual Laboratories Ltd.

Algae Test Report

Client: DEB103
Reference: 12-0621-01-AGD

Result Summary

Client: DeBeers Canada Inc.; operation Snap Lake Mine

Sample: 2012-5119

Collection: collected on 2012/04/17 at 1453 by not given
Receipt: received on 2012/04/19 at 1505 by E. Petho
Containers: received 1 x 20L pail at 13 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/04/20 ; ended on 2012/04/23

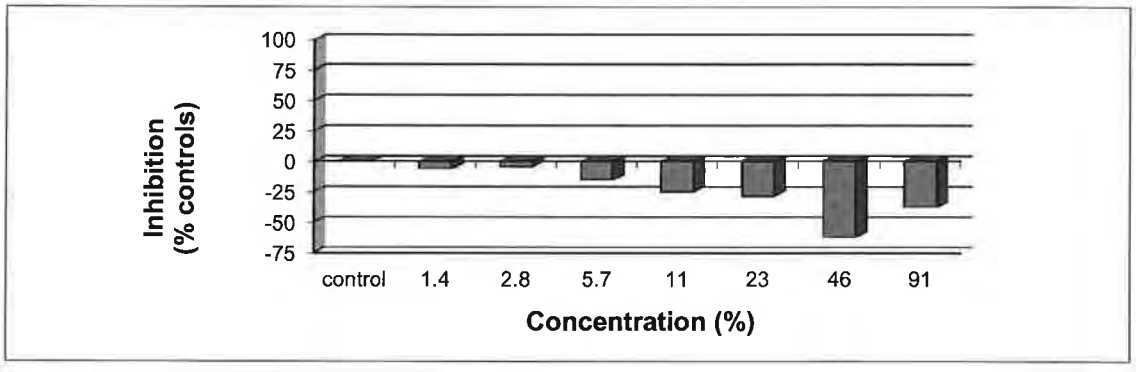
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Result:

	Endpoint (72-hour)	Value	Confidence Limits (95%) lower	upper		Method Calculated
Chronic:	IC25	>91			%	could not be calculated
(growth)	IC50	>91			%	could not be calculated

Notes: ICx, concentrations inhibiting growth by 'x' percent relative to controls; CV, coefficient of variation (%); SD, standard deviation



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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Test Conditions

Client: DEB103
Reference: 12-0621-01-AGD

Method: Biological Test Method: Growth Inhibition Test Using a Freshwater Alga *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum)*. Environment Canada, EPS 1/RM/25, 2nd Edition, March 2007

Test type: Algal Growth Inhibition Test (WTR-ME-034)
Species: *Pseudokirchneriella subcapitata (formerly Selenastrum capricornutum* and *Raphidocelis subcapitata*)
Organism source: In-house culture (original source: UTCC 37; strain: LB37)
Culture age: The test was started with 7 day old, exponentially growing cells determined with an algal growth curve. The algal growth curve was started with an inoculum from the algal stock culture determined over an 8-10 day period. This culture was initiated on 2012/03/03. Algal cultures are regrown every 2 months from slants made from a new culture purchased annually.
Culture observations: No unusual appearance or treatment of the algae was noted prior to or during the conduct of the test.
Sample initial chemistry: pH: 6.6; EC: 525 (µS/cm); DO: 8.9 (mg/L); temperature: 16 °C
hardness (mg CaC03/L): 153; colour: colourless; odour: odourless
Sample holding time: 3 days (must be ≤ 3 days)
Sample storage: 4 ± 2°C in darkness
Test concentrations: 7 effluent concentrations (1.4, 2.8, 5.7, 11, 23, 46 and 91% (v/v) plus a negative control)
Test vessel: The test was conducted in 96 well microplates. Three replicate plates were run (a, b and c). Test concentrations were not isolated from each other because volatility was not expected.
Test replicates: Three replicate microplates were run. Per plate there were 5 replicate wells per concentration and 10 replicate wells per control.
Test volume: 220 µL final volume in each well with 200 µL of sample;
10µL of enrichment medium and 10µL of algal inoculum.
Inoculum: The initial cell density of the inoculum was 9427 (cells/mL), it was prepared less than ≤2-3 hours before test initiation.
Control/dilution water: Made up with deionized City of Calgary water spiked with nutrients as per EPS 1/RM/25 (made by adding 1mL of each of the 5 stock solutions to 10mL of DRO). The metal stock with 25% reduced EDTA was used.
Sample Filtration: 100 mL filtered through a 0.45 µm pore diameter membrane.
Sample treatment: Sample spiked with nutrients as per EPS 1/RM/25; no other chemicals added.
Measurements: Final cell densities were determined from the absorbance at 430 nm calibrated against cell counts. The conversion factor for absorbance to cells per millilitre was 12354 with a coefficient of variation of 13 %.
Aeration: Not required
pH Adjustment: Not required
Lighting: The plates were incubated under continuous light: 4055 lux
(cool white fluorescent bulbs) 56.77 µmol/(m^2•S)
Test temperature: 24 ± 2°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-0621-01-AGD

Endpoint: Growth, 72-h IC25 (with 95% confidence limits)
Test endpoint was bracketed by at least 1 test concentration (except for <1.4% or >100 %)
No outliers were observed within the data set.

Test validity: Control growth was a 28 fold increase over the inoculum.
The cv of the standard control wells was 10 %.
(must be > 16 fold increase with a cv of ≤ 20%)

Statistics: See Data Analysis section.
Mann-Kendall Trend analysis ($p>0.05$) indicates there was no volatility in the sample.

Reference toxicant: 72-h test with Zinc ($ZnSO_4$*7H2O) initiated April 13, 2012;
(must be within 14 days of the test initiation)
current results: (72-h IC25 and 95% confidence limits) = 1.31 (1.18-1.42) log (µg Zn^{2+}/L)
The reference toxicant test was performed under the same conditions as those used during this test.

Note: Outlined sections are protocol deviations explained on the comment page

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Test Data

Client: DEB103
Reference: 12-0621-01-AGD

Test Log:

Date	Day	Technician	Time	Rotated	Temperature (°C)
2012/04/20	0	E. Blais/E. Petho	1430	na	24
2012/04/21	1	B. Shore	0915	yes	25
2012/04/22	2	H. Caro-Riano	0900	yes	24
2012/04/23	3	E. Petho/L. Windatt	1400	na	25

Absorbance and Direct Cell Data:

Concentration (%)	Absorbance (430 nm)	Direct Cell Counts(/0.5 mL)
ctl	0.022	3900
11	0.028	4450
91	0.031	6333

pH Measurements:

Concentration	Initial Value
control	7.8
91%	7.8

Concentration	Final Mean	% CV
control (well D6)	8.2	0
control (well D7)	8.2	0

Average Absorbance Control Data:

Column Well	2b	2c	2e	2f	2g
Absorbance (430 nm)	0.02	0.02	0.02	0.02	0.02
Column Well	11b	11c	11e	11f	11g
Absorbance (430 nm)	0.02	0.02	0.02	0.02	0.02

Standard Control Wells:

Average	301
SD	30
CV%	10

Test Results at 72 hours:

Concentration (%)	Cell Yield Densities ($x10^3$ / mL) Well Replicate					Average	SD	CV	Percent Controls	Inhibition (%)	Stimulation (%)
	a	b	c	d	e						
control	281	258	285	281	273	275	11	4	100	0	0
1.4	273	277	285	314	310	291	19	7	106	-6	6
2.8	285	264	301	289	293	287	14	5	104	-4	4
5.7	305	314	322	314	330	317	9	3	115	-15	15
11	318	371	343	347	343	344	19	6	125	-25	25
23	359	359	359	326	363	353	15	4	128	-28	28
46	450	441	450	450	441	446	5	1	162	-62	62
91	369	369	386	367	400	378	14	4	137	-37	37

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Comments/Statistics

Client: DEB103
Reference: 12-0621-01-AGD

Test Result Comments:
The absorbance measurements were made after the cells were centrifuged and resuspended in clear solution (and that the conversion factor developed for abs vs cell number reflects this step). Manual enumeration was performed on the same day as test termination.

Data Analysis:
Significant stimulatory effects in growth were observed in 5.7, 11, 23, 46, 91% concentrations as calculated by ANOVA analysis with CETIS v. 1.7.0revQ. (Dunnett's Multiple Comparison).

Endpoints for growth inhibition could not be calculated. Inhibitory effects did not occur.

Protocol Deviations:
None

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HydroQual Laboratories Ltd.

Warning Chart
Algae

Test Method: 72 hours Algal Growth Inhibition Test (IC25, seven or more treatments plus a control)
HydroQual Test Method: WTR-ME-035

Reference: Biological Test Method: Growth Inhibition Test Using the Freshwater Alga *Selenastrum capricornutum*, 2007. Environment Canada, EPS 1/RM/25.

Test Organism:		**Test Design:**	
test species:	*Pseudokirchneriella subcapitata*	test type:	static
batch number:	20120406AG	toxicant:	zinc
date started from slant:	2012/03/03	test vessel:	96 well flat bottom microplate
original source/strain:	UTCC 37 / LB37	test volume (µL):	220
culture vessels:	2L Erlenmeyer flask	no. of replicate plates:	3
water source:	85% deionized water, 15% dechlorinated tap	no. of replicate wells / treatment per plate (control, sample):	10, 5
growth medium:	nutrient solution	mean temperature (°C):	24 ± 2°C
cultivation method:	batch as per test conditions	photoperiod:	continuous light
culture condition at start	normal	light level:	3600-4400 lux (cool white)
culture age:	3-7 days	contol/dilution water:	deionized water and nutrients prepared as per EPS1/RM/25
growth phase:	exponentially growing		

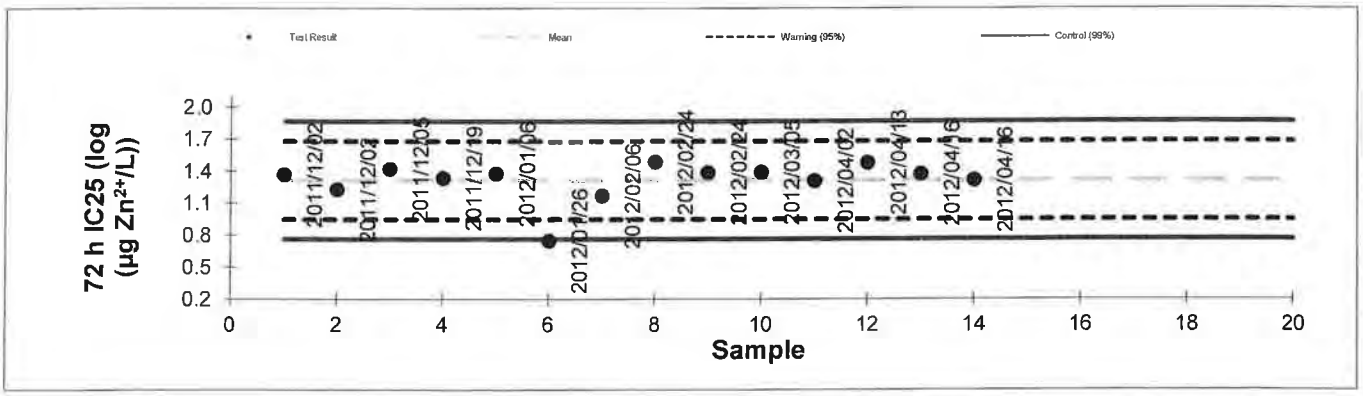
Current Test

toxicant	Zinc ($ZnSO_4$*$7H_2O$)				
started on	2012/04/13	ended on	2012/04/16		
Result (IC25 @ 72h)	1.31	log (µg $Zn2^+$/L); geometric mean			
Confidence Limits (95%)	lower	1.18	upper	1.42	

Historical Values

mean	1.31	sd	0.18	cv(%):	14
	lower	upper			
warning limits (±2 sd)	0.95	1.68	(95% confidence limits)		
control limits (±3 sd)	0.76	1.86	(99% confidence limits)		

notes: sd, standard deviation; cv, coefficient of variance, na; could not be calculated



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Client: DEB103
Reference: 12-0621-01-CDD

Result Summary

Client: DeBeers Canada Inc.; operation Snap Lake Mine

Sample: 2012-5119

Collection: collected on 2012/04/17 at 1453 by not given
Receipt: received on 2012/04/19 at 1505 by E. Petho
Containers: received 1 x 20L pail at 13 °C, in good condition with no seals and no initials
Description: type: water, collection method: grab

Test: started on 2012/04/20 ; ended on 2012/04/27

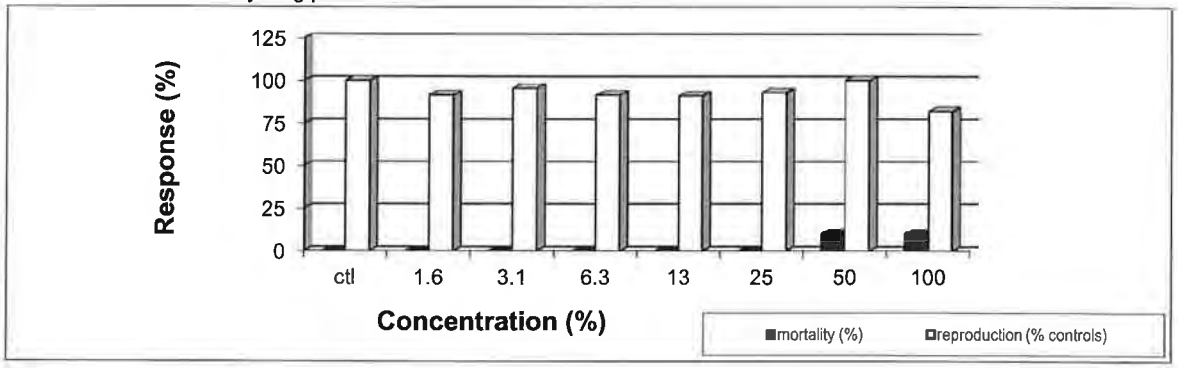
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Result:

	Endpoint (7-day)	Value	Confidence Limits (95%) lower	upper	Units	Method Calculated
Acute:	LC25	>100			%	could not be calculated
(survival)	LC50	>100			%	could not be calculated
Chronic:	IC25	>100			%	could not be calculated
(fecundity)	IC50	>100			%	could not be calculated

Notes: LCx & ICx, concentrations lethal or inhibitory to 'x' percent of the test population; fecundity, reproduction as the number of young produced



The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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HydroQual Laboratories Ltd., #4, 6125 12th Street SE, Calgary, Alberta, Canada T2H 2K1
Tel (403) 253-7121 fax (403) 252-9363 www.hydroqual.ca

Test Conditions

Client: DEB103
Reference: 12-0621-01-CDD

Method: Biological Test method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia.* Environment Canada, EPS 1/RM/21, 2nd Edition, February 2007.

Test type: *Ceriodaphnia* Survival and Reproduction Static Renewal Test (WTR-ME-018)
Species: *Ceriodaphnia dubia*
Age: <24 hours old; all from same brood source within 12 hours of the same age.
Organism source: in-house cultures; cultures from a single brood organism to provide test organisms.
Culture health: Culture mortality was 6% (must be ≤ 20%).
7-d prior to test initiation: No ephippia were noted in the cultures at any time.
Average young produced per adult in the first three broods was 21 (must be ≥ 15)
Number of young produced by each brood organism in the last complete brood before use was 10 (must be ≥ 8).
Organism observations: No unusual behavior, appearance or treatment of test organisms was noted prior to or during the test. All first-generation mortality was recorded on the day it was observed.
Sample initial chemistry: pH: 6.6; EC: 525 (µS/cm); DO: 8.9 (mg/L); temperature: 16 °C
hardness (mg CaC03/L): 153; colour: colourless; odour: odourless
Sample holding time: 3 days (must be ≤ 3 days); The test was conducted with three subsamples, samples a, b, and c were for days 0 to 2, 3 to 5, and 6 to 8 respectively
Sample storage: 4 ± 2°C in darkness

Test vessel: The tests were conducted in 30 mL plastic vessels (2 cm depth).
Test volume: 15 mL of solution (1 cm depth); replenished daily.
Control/dilution water: The control and dilution water was moderately hard reconstituted water. Chemicals added to dilution water:
1.92 g $NaHCO_3$, 1.2 g $CaSO_4$, 1.2 g $MgSO_4$, 0.08 g KCl per 20L.
Test concentrations: 7 effluent concentrations (1.6, 3.1, 6.3, 13, 25, 50, 100% (v/v) plus a negative control)
Test replicates: One neonate <24 hours old was loaded per test vessel;
10 replicates/concentration
Feeding: The test organisms were fed daily a mixture of fermented trout chow, yeast, alfalfa powder, and the green alga *Pseudokirchneriella subcapitata* (formerly *Selenastrum capricornutum* and *Raphidocelis subcapitata*).
Food expiration date: 2012/05/05
Measurements: pH, conductivity, dissolved oxygen and temperature were measured daily.
Sample pre-treatment: The sample was not aerated, filtered or pH adjusted prior or during testing.
The dissolved oxygen concentration (mg/L) was: 7.5
The sample pH was: 7.2
Lighting: Overhead full spectrum fluorescent lights; 100-600 lux at surface
Photoperiod: 16h light:8h dark
Test temperature: 25 ± 1°C

Note: Outlined sections are protocol deviations explained on the comment page

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Test Conditions

Client: DEB103
Reference: 12-0621-01-CDD

Endpoints: Survival, 7-d LC50 (with 95% confidence limits)
Reproduction, 7-d IC25 (with 95% confidence limits)
Test endpoints were bracketed by at least 1 test concentration (except for <1.6% or >100 %)
No outliers were observed within the data set.

Test completion: 100% of the control organisms had ≥ 3 broods on day 7 (must be ≥ 60% within 8 days) Any neonates produced after third brood were not included in the mean young per adult calculation.

Test validity: The control had 100% survival (must ≥ 80%)
Number of young produced by each surviving control adult within the first three broods was 22 (must be ≥ 15).

Reference toxicant: 7-d test with NaCl initiated on April 20, 2012;
(must be within 14 days of test initiation)
current results: (7-d LC50 and 95% confidence limits) =
3.15 (2.98-3.32) log (mg/L NaCl)
current results: (7-d IC50 and 95% confidence limits) =
2.88 (2.63-3.03) log (mg/L NaCl)
The reference toxicant test was performed under the same conditions as those used during this test.

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Test Data

Client: DEB103
Reference: 12-0621-01-CDD

Test Log:

Date	Day	Time	Technicians	Temperature (°C) Control	Sample
2012/04/20	0	1030	E. Petho	25	25
2012/04/21	1	1205	E. Petho	25	25
2012/04/22	2	1035	E. Blais	25	25
2012/04/23	3	1020	J. Holmes-Smith	25	25
2012/04/24	4	1050	J. Holmes-Smith	25	25
2012/04/25	5	1035	E. Petho	25	25
2012/04/26	6	1015	J. Holmes-Smith	25	25
2012/04/27	7	0815	J. Holmes-Smith	na	na

Chemistry Summary Tables:

New Solutions

Conc. %	ctl	1.6	3.1	6.3	13	25	50	100

Old Solutions

ctl	1.6	3.1	6.3	13	25	50	100

Average Values

pH	7.9	7.9	7.9	7.9	7.9	7.8	7.7	7.4	7.9	7.9	7.9	7.9	7.9	7.8	7.7	7.5
cond.	384	387	391	396	404	424	464	519	396	408	424	412	423	439	482	599
DO	6.9	6.9	6.9	6.8	6.8	6.8	6.8	6.9	6.9	6.7	6.7	6.7	6.6	6.6	6.6	6.6
temp.	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25

Coefficients of Variation (%)

pH	2	1	1	1	1	1	1	2	1	1	1	1	1	2	1	2
cond.	4	4	4	4	4	4	4	12	3	4	5	4	4	3	4	5
DO	6	4	5	4	3	3	3	4	4	4	3	3	3	4	3	4
temp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Test Data

Client: DEB103
Reference: 12-0621-01-CDD

Biology (number of young produced):

Replicate	Day 1	2	3	4	5	6	7	8	Day 1	2	3	4	5	6	7	8
	Control								13%							
1	0	0	0	5	0	6	8		0	0	0	2	0	7	9	
2	0	0	0	4	9	0	13		0	0	0	6	9	0	12	
3	0	0	0	3	9	11	-		0	0	0	3	7	0	12	
4	0	0	0	5	7	0	10		0	0	0	3	6	0	10	
5	0	0	4	0	10	10	-		0	0	0	3	7	0	11	
6	0	0	5	0	10	10	-		0	0	0	5	6	0	12	
7	0	0	0	3	3	0	11		0	0	0	0	8	13	0	
8	0	0	0	3	9	0	12		0	0	4	0	6	7	-	
9	0	0	0	4	7	0	10		0	0	0	3	0	0	6	
10	0	0	0	4	0	6	12		0	0	0	5	8	0	13	
	1.6%								25%							
1	0	0	0	5	9	0	16		0	0	0	4	8	0	11	
2	0	0	0	3	0	4	7		0	0	0	3	10	0	9	
3	0	0	0	5	0	9	8		0	0	0	4	11	8	-	
4	0	0	0	5	0	0	10		0	0	0	5	11	8	-	
5	0	0	0	4	6	0	7		0	0	0	3	9	0	9	
6	0	0	0	2	7	6	-		0	0	0	5	8	12	-	
7	0	0	0	5	6	0	13		0	0	0	0	0	0	0	
8	0	0	0	0	9	11	0		0	0	0	4	7	0	10	
9	0	0	0	5	9	9	-		0	0	0	0	9	13	0	
10	0	0	0	4	7	0	13		0	0	0	4	8	0	14	
	3.1%								50%							
1	0	0	0	3	0	5	10		0	0	0	5	11	0	**3**	
2	0	0	0	6	7	0	12		0	0	0	3	7	0	10	
3	0	0	0	4	8	0	12		0	0	0	3	7	0	13	
4	0	0	0	3	0	6	9		0	0	0	6	8	0	14	
5	0	0	0	5	7	0	9		0	0	0	0	4	7	7	
6	0	0	0	4	10	15	-		0	0	0	6	7	12	-	
7	0	0	0	4	0	7	12		0	0	0	3	10	0	13	
8	0	0	0	0	7	0	0		0	0	0	2	9	0	9	
9	0	0	0	5	10	0	10		0	0	3	0	9	10	-	
10	0	0	0	4	0	7	12		0	0	0	4	6	0	12	

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died; —, young produced after third brood

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HydroQual Laboratories Ltd.

Ceriodaphnia (6-8d LC50/IC25) Test Report

Test Data

Client: DEB103
Reference: 12-0621-01-CDD

Biology (number of young produced):

Day	1	2	3	4	5	6	7	8

Replicate	6.3%								100%							
1	0	0	0	3	10	0	13		0	0	0	2	9	0	9	
2	0	0	0	3	0	7	9		0	0	0	5	2	7	-	
3	0	0	0	4	6	10	-		0	0	0	0	0	0	**0**	
4	0	0	0	5	10	0	13		0	0	0	5	7	0	10	
5	0	0	0	5	4	0	11		0	0	0	5	0	10	8	
6	0	0	0	3	7	0	8		0	0	0	4	0	7	15	
7	0	0	0	5	8	10	-		0	0	0	4	8	0	11	
8	0	0	0	2	8	0	12		0	0	0	4	5	0	6	
9	0	0	0	0	6	11	0		0	0	0	4	0	6	8	
10	0	0	0	3	4	0	4		0	0	0	4	10	8	-	

Notes: #, young produced; 0, no young; X, dead; bold #, number of young the test organism had the day it died; —, young produced after third brood

Biology Summary Tables:

Conc. %	ctl	1.6	3.1	6.3	13	25	50	100

Number of Organism Alive

Day	ctl	1.6	3.1	6.3	13	25	50	100
0	10	10	10	10	10	10	10	10
1	10	10	10	10	10	10	10	10
2	10	10	10	10	10	10	10	10
3	10	10	10	10	10	10	10	10
4	10	10	10	10	10	10	10	10
5	10	10	10	10	10	10	10	10
6	10	10	10	10	10	10	10	10
7	10	10	10	10	10	10	9	9
8								

Daily Young Production

Day	ctl	1.6	3.1	6.3	13	25	50	100
0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0
3	9	0	0	0	4	0	3	0
4	31	38	38	33	30	32	32	37
5	64	53	49	63	57	81	78	41
6	43	39	40	38	27	41	29	38
7	76	74	86	70	85	53	81	67
8								
Total	223	204	213	204	203	207	223	183

Percent Mortality (%)

	ctl	1.6	3.1	6.3	13	25	50	100
mean	0	0	0	0	0	0	10	10

Total Young Produced by Each Adult

Replicate	ctl	1.6	3.1	6.3	13	25	50	100
1	19	30	18	26	18	23	19	20
2	26	14	25	19	27	22	20	14
3	23	22	24	20	22	23	23	0
4	22	15	18	28	19	24	28	22
5	24	17	21	20	21	21	18	23
6	25	15	29	18	23	25	25	26
7	17	24	23	23	21	0	26	23
8	24	20	7	22	17	21	20	15
9	21	23	25	17	9	22	22	18
10	22	24	23	11	26	26	22	22

Young Per Adult (within first three broods)

	ctl	1.6	3.1	6.3	13	25	50	100
mean	22	20	21	20	20	21	22	18
sd	2.75	5.15	6.02	4.79	5.1	7.45	3.23	7.44
cv(%)	12.3	25.2	28.3	23.5	25.1	36	14.5	40.7

Young Production as a Percent of Controls

ctl	1.6	3.1	6.3	13	25	50	100
100	91	96	91	91	93	100	82

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Test Data

Client: DEB103
Reference: 12-0621-01-CDD

Chemistry:

Day	New Solutions								Old Solutions							
Conc. %	ctl	1.6	3.1	6.3	13	25	50	100	ctl	1.6	3.1	6.3	13	25	50	100
	pH (units)								pH (units)							
0	8.1	8.1	8.1	8.0	8.0	7.9	7.6	7.2								
1	7.9	7.9	7.9	7.9	7.9	7.8	7.7	7.4	8.0	8.0	8.0	8.0	8.0	7.9	7.8	7.6
2	7.8	7.8	7.8	7.8	7.7	7.7	7.6	7.4	7.7	7.7	7.7	7.7	7.7	7.6	7.6	7.4
3	7.9	7.9	8.0	8.0	8.0	7.9	7.8	7.4	7.9	7.9	8.0	8.0	8.0	8.0	7.9	7.7
4	8.0	8.0	8.0	8.0	7.9	7.9	7.7	7.2	7.9	7.9	7.9	7.9	7.9	7.8	7.7	7.4
5	8.0	8.0	8.0	8.0	7.9	7.9	7.8	7.3	7.9	7.9	7.9	7.9	7.9	7 .8	7.7	7.5
6	7.7	7.8	7.8	7.9	7.9	7.8	7.8	7.6	7.8	7.8	7.9	7.8	7.8	7.8	7.7	7.5
7									7.9	7.9	7.9	7.9	7.9	7.8	7.7	7.4
8																
	Conductivity (µS/cm)								Conductivity (µS/cm)							
0	392	385	383	385	394	413	447	525								
1	357	360	369	376	382	405	443	415	375	389	403	397	403	421	460	553
2	370	373	378	384	388	404	444	445	384	386	399	389	405	422	462	571
3	394	408	415	419	429	450	493	572	404	423	440	431	437	453	497	617
4	390	400	404	410	421	441	485	574	411	431	449	433	444	462	510	632
5	394	390	391	395	406	426	465	550	400	399	417	404	417	434	478	594
6	393	394	396	402	411	431	471	549	394	408	421	411	424	438	480	601
7									403	419	440	419	429	445	490	622
8																
	Dissolved Oxygen (mg/L)								Dissolved Oxygen (mg/L)							
0	6.5	6.6	6.6	6.6	6.7	6.7	7.0	7.5								
1	6.8	6.6	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.5	6.5	6.5	6.5
2	7.6	7.3	7.2	7.0	6.8	6.7	6.7	7.0	6.8	6.5	6.5	6.5	6.4	6.4	6.4	6.4
3	7.3	7.1	7.1	7.1	7.0	7.0	6.9	7.0	7.1	7.0	6.8	6.9	6.8	6.8	6.8	6.7
4	6.7	6.9	7.1	7.1	7.1	7.1	7.0	6.9	7.1	7.0	6.9	6.9	6.9	6.9	6.9	7.0
5	7.1	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.7	6.6	6.6	6.6	6.5	6.5	6.5	6.5
6	6.6	6.5	6.5	6.6	6.7	6.7	6.8	6.7	6.7	6.5	6.5	6.4	6.4	6.3	6.3	6.3
7									7.3	7.0	7.0	7.0	6.9	6.9	6.8	6.8
8																
	Temperature (°C)								Temperature (°C)							
0	25	25	25	25	25	25	25	25								
1	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
2	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
3	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
4	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
5	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
6	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
7									25	25	25	25	25	25	25	25
8																

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Comments/Statistics

Client: DEB103
Reference: 12-0621-01-CDD

Test Result Comments:
None

Data Analysis:
Endpoints for mortality could not be calculated. No effect occurred.

Endpoints for reproduction could not be calculated. No effect occurred.

Protocol Deviations:
None

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Quality Assurance Information

Culture history for adults used in the test for reference 12-0621:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

row/replicate	B3	C2	C5	D2	E1	E2	E5	A3	D1	D4	
number of young number of adults											

	B3	C2	C5	D2	E1	E2	E5	A3	D1	D4	
number of young number of adults											

	B3	C2	C5	D2	E1	E2	E5	A3	D1	D4	
number of young number of adults											

	B3	C2	C5	D2	E1	E2	E5	A3	D1	D4	
number of young number of adults											

	B3	C2	C5	D2	E1	E2	E5	A3	D1	D4	
number of young	6	4	5	5	5	4	3	3	4	4	
number of adults	1	1	1	1	1	1	1	1	1	1	

	B3	C2	C5	D2	E1	E2	E5	A3	D1	D4	
number of young	13	5	7	5	5	7	7	6	8	8	
number of adults	1	1	1	1	1	1	1	1	1	1	

DAY USED 2012/04/20

	B3	C2	C5	D2	E1	E2	E5	A3	D1	D4	
number of young	8	8	12	9	10	11	8	11	8	10	
number of adults	1	1	1	1	1	1	1	1	1	1	

totals (# of young in first 3 broods)

	B3	C2	C5	D2	E1	E2	E5	A3	D1	D4	
number of young	27	17	24	19	20	22	18	20	20	22	

Number of young produced per organism in the last brood before use	10
Mean number of surviving young per adult over the first three broods	21
Culture mortality over the last seven days	6

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HydroQual Laboratories Ltd.

Warning Chart
Ceriodaphnia

Test Method: *Ceriodaphnia* Survival and Reproduction Test (7 treatments plus a control)
HydroQual Test Method: WTR-ME-019
Reference: Biological Test Method: Test of Reproduction and Survival Using the Cladoceran *Ceriodaphnia dubia*, 2007. Environment Canada, EPS 1/RM/21

Test Organism:

test species:	*Ceriodaphnia dubia*
culture source:	in-house
original culture source:	Environment Canada
ephippia in stock culture:	none
food type:	YAT:Algae
frequency of feeding:	daily
age of test organisms:	<24 hours
culture mortality 7 days prior:	0%
culture fecundity 7 days prior within the first three broods:	22
young produced in previous brood:	10
culture condition prior to test initiation:	normal
culture water:	mixture of moderately hard reconstituted* water and Bow River Water (50:50)

Test Design:

test type:	static renewal
toxicant:	sodium chloride (NaCl)
test vessel:	30 mL plastic cup
test volume (mL):	15
replicates per treatment:	10
organisms per replicate:	1
feeding:	daily
temperature (°C):	24-26
photoperiod:	16 hours light: 8 hours dark
light level (surface):	100-600 lux (full spectrum)
hardness adjustment:	no

*Note: there are 2 subcultures within this culture source, separated by one week in age. The test is set with organisms from one subculture. The number of young a culture has is monitored daily. If young are not used that day, they are discarded, therefore organisms in tests are <24h.

Control/Dilution Water:

source:	mixture of moderately hard reconstituted* water and Bow River Water (50:50)
pH (units):	8.4
conductance (uS/cm):	466
dissolved oxygen (mg/L):	7.5
NH_4^+ (mg/L):	<0.1
hardness (mg $CaCO_3$/L):	149
alkalinity (mg $CaCO_3$/L):	107
total residual chlorine (mg/L):	<0.01

* Note: moderately hard reconstituted water prepared as per EPS 1/RM/21

Comments: None

The test data and results are authorized and verified correct.

Ecotoxicology Team Leader

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HydroQual Laboratories Ltd.

Warning Chart
Ceriodaphnia

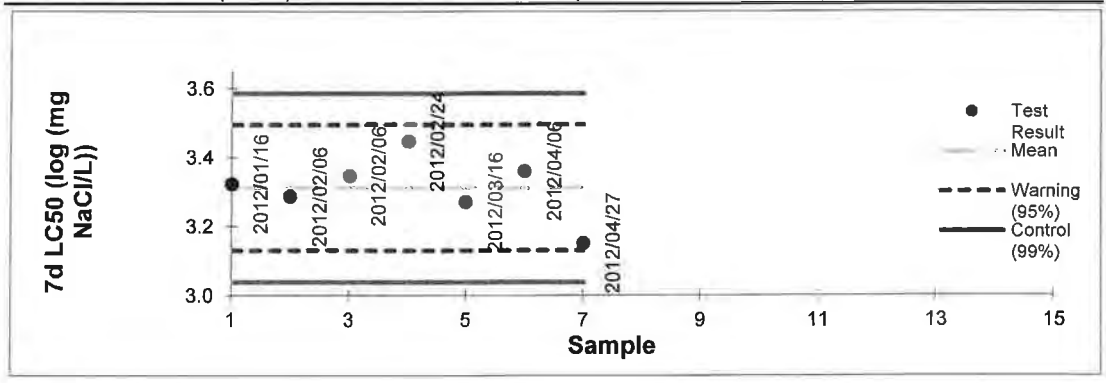
Mortality

Current Test

toxicant	Sodium chloride (NaCl)				
started on	2012/04/20	ended on	2012/04/27		
Result (7d LC50):	3.15	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	2.98	upper	3.32	

Historical Values

mean	3.31	sd	0.09	cv(%):	3
	lower	upper			
warning limits (±2 sd)	3.13	3.49	(95% confidence limits)		
control limits (±3 sd)	3.04	3.59	(99% confidence limits)		



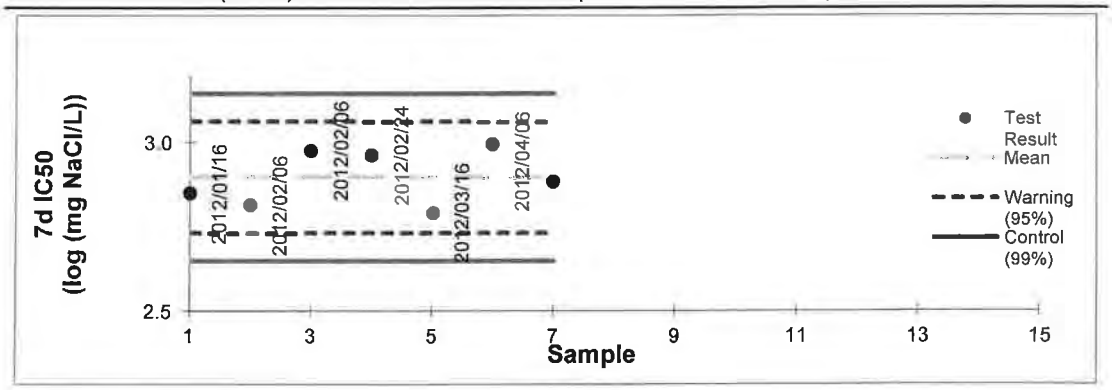
Reproduction

Current Test

toxicant	Sodium chloride (NaCl)				
started on	2012/04/20	ended on	2012/04/27		
Result (7d IC50)	2.88	log (mg NaCl/L); geometric mean			
Confidence Limits (95%)	lower	2.63	upper	3.03	

Historical Values

mean	2.90	sd	0.08	cv(%):	3
	lower	upper			
warning limits (±2 sd)	2.73	3.06	(95% confidence limits)		
control limits (±3 sd)	2.65	3.15	(99% confidence limits)		



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Ceriodaphnia
Test Report

Quality Assurance Information

Culture history for adults used in the test for reference QA85:

Number of young produced per brood adult:
(Note: The third brood per adult may be on the day the test is set)

row/replicate	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young number of adults											

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young number of adults											

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young number of adults											

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young number of adults											

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young	6	7	4	5	6	7	5	3	2		
number of adults	1	1	1	1	1	1	1	1	1		

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young	7	9	8	7	5	7	7	4	9		
number of adults	1	1	1	1	1	1	1	1	1		

DAY USED 2012/04/20

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young	9	8	8	11	10	9	10	13	8		
number of adults	1	1	1	1	1	1	1	1	1		

totals (# of young in first 3 broods)

	C4	D2	D3	D4	D5	E1	E3	E4	E5		
number of young	22	24	20	23	21	23	22	20	19		

Number of young produced per organism in the last brood before use: 10

Mean number of surviving young per adult over the first three broods: 22

Culture mortality over the last seven days: 0

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3E.1 TOXICITY RESULTS FOR WATER TREATMENT PLANT EFFLUENT AND SNAP LAKE

3E.1.1 WATER TREATMENT PLANT EFFLUENT

3E.1.1.1 Introduction

Aquatic toxicity testing was conducted on treated effluent samples collected from the De Beers Canada Inc. (De Beers) permanent water treatment plant (WTP) between November 1, 2011 and October 31, 2012. The treated effluent sampling served as the compliance monitoring for the Water Licence[1] for the Snap Lake Mine (Mine) (MVLWB 2004, 2012).

3E.1.1.2 Field Methods

De Beers staff collected samples of the final treated WTP effluent during five sampling events between November 1, 2011 and October 31, 2012 (Table 3E-1), as per the Surveillance Network Program (SNP) of the Water Licence (MVLWB 2004, 2012). Four quarterly samples were collected from the permanent WTP discharge (SNP 02-17B) in January, April, September, and October 2012; one additional sample was collected from the temporary WTP discharge (SNP 02-17) on March 11, 2012. Approximately 40 to 60 litres (L) of treated effluent was flushed from the valve prior to sample collection. Water temperature, pH, and conductivity were measured from a triple-rinsed bottle using a calibrated HACH HQ40d multi-meter with a YSI sonde.

Four clean 20-L pails were triple-rinsed and filled, leaving three inches of head space, and sealed. The pails were labelled, refrigerated, and shipped as soon as possible so that holding times would not be exceeded. Processing of the samples occurred within three days of sample collection, which met the requirements of Environment Canada's toxicity testing methods (Section 3E.1.1.3) and the recommendation of Environment Canada (2012) under the Metal Mining Effluent Regulations (Environment Canada 2002 with updates).

[1] The Mine operated under Water Licence MV2001L2-0002 (MVLWB 2004) from June 2004 to June 2012. The Water Licence was renewed in 2012, and the Mine now operates under Water Licence MV2011L2-0004 (MVLWB 2012) since June 14, 2012. Requirements for toxicity testing of treated effluent samples were specified in Section B, sub-Section 11 of the SNP for MVLWB (2004), and in Section A, sub-Section 1 of Annex A to MVLWB (2012).

Table 3E-1 Water Treatment Plant Effluent Samples Collected for Toxicity Testing Between November 1, 2011 and October 31, 2012

Parameter	Station				
	SNP 02-17B[a]	SNP 02-17	SNP 02-17B	SNP 02-17B	SNP 02-17B
	22-Jan-12	11-Mar-12	17-Apr-12	9-Sep-12	15-Oct-12
Acute toxicity[b]	X	X	X	X	X
Chronic toxicity[c]	X	X	X	X	X

(a) SNP 02-17B is the permanent WTP discharge, and SNP 02-17 is the temporary WTP discharge.

(b) Acute toxicity testing was conducted using Rainbow Trout (*Oncorhynchus mykiss*) and a water flea (*Daphnia magna*).

(c) Chronic toxicity testing was conducted using a water flea (*Ceriodaphnia dubia*) and an alga (*Pseudokirchneriella subcapitata*).

X - Date sample collected for testing.

3E.1.1.3 Toxicity Test Methods

Acute toxicity testing was conducted with Rainbow Trout, *Oncorhynchus mykiss*, following method EPS 1/RM/13 (Environment Canada 2000a), and a water flea, *Daphnia magna*, following method EPS 1/RM/14 (Environment Canada 2000b) (Table 3E-2). Environment Canada (2002 with updates) considers a treated effluent sample to be acutely lethal if the Rainbow Trout test has greater than 50 percent (%) mortality when exposed to 100% treated effluent for 96 hours; a similar criterion is not defined for water flea tests.

Chronic toxicity testing was conducted with a different genus and species of water flea than for acute toxicity testing, specifically *Ceriodaphnia dubia*, as well as with the alga *Pseudokirchneriella subcapitata* (Table 3E-2). Toxicity testing using *Ceriodaphnia dubia* followed method EPS 1/RM/21 as outlined by Environment Canada (2007a). Toxicity testing using *Pseudokirchneriella subcapitata* followed method EPS 1/RM/25 as outlined by Environment Canada (2007b).

Table 3E-2 Toxicity Tests Performed on Treated Effluent Samples Collected From the Water Treatment Plant at Snap Lake Mine in 2012

Test Species	Acute or Chronic Test	Test Duration	Endpoint Measured	Point Estimate Statistic
Oncorhynchus mykiss (Rainbow Trout)	acute	96 hours	survival	LC50[(c)] LC25[(d)]
Daphnia magna (water flea)	acute	48 hours	survival	LC50[(c)] LC25[(d)]
Daphnia magna (water flea)	acute	48 hours	immobilization	EC50[(e)] EC25[(f)]
Ceriodaphnia dubia (water flea)[(a)]	chronic	7 days (approx)	survival	LC50[(c)] LC25[(d)]
Ceriodaphnia dubia (water flea)[(a)]	chronic	7 days (approx)	fecundity	IC50[(g)] IC25[(h)]
Pseudokirchneriella subcapitata (alga)[(b)]	chronic	72 hours	growth	IC50[(g)] IC25[(h)]

(a) Test duration for the chronic *Ceriodaphnia dubia* test is defined as when greater than or equal to 60% of controls have produced three broods of offspring, and cannot be longer than eight days.

(b) This species was formerly known as *Selenastrum capricornutum*.

(c) LC50, or median lethal concentration, is the concentration of sample estimated to be lethal to 50% of the test organisms.

(d) LC25 is the concentration of sample estimated to be lethal to 25% of the test organisms.

(e) EC50, or median effective concentration, is the concentration of sample estimated to cause a specified effect to 50% of the test organisms.

(f) EC25 is the concentration of sample estimated to cause a specified effect to 25% of the test organisms.

(g) IC50 is the inhibiting concentration for a 50% effect; it is the concentration of sample estimated to cause a 50% reduction in growth or fecundity of the test organisms.

(h) IC25 is the inhibiting concentration for a 25% effect; it is the concentration of sample estimated to cause a 25% reduction in growth or fecundity of the test organisms.

approx. = approximately;% = percent; ≥ = greater than or equal to.

3E.1.1.4 2012 Results

3E.1.1.4.1 Field and Laboratory Water Quality Data

Field water quality measurements of pH, specific conductivity (hereafter referred to as conductivity), and temperature from grab samples collected at the same time as the toxicity samples, where available, were compared to laboratory measurements upon receipt of the samples (Table 3E-3). Relative percent difference (RPD) was used to compare the field and laboratory measurements, using the following equation[2]:

$$RPD = \left(\frac{sample\ 1 - sample\ 2}{(sample\ 1 + sample\ 2)/2}\right) \times 100 \qquad \text{[Equation 1]}$$

Field measurements of pH and conductivity were within ±20% of the laboratory measurements for corresponding samples. Sample temperatures at receipt by HydroQual Laboratories (HydroQual) were above the 4 ± 3 degrees Celsius (°C) range specified for sample transportation by the Environment Canada testing protocols in all five samples. However, HydroQual staff (Blais and

[2] In this application of the RPD equation, "sample 1" is the field measurement and "sample 2" is the corresponding laboratory measurement.

Henson 2011) previously noted that the toxicity results were valid and that sample temperature becomes an issue for toxicity testing only if the samples freeze during transport.

Table 3E-3 Comparison of Field and Laboratory Water Quality Data for Water Treatment Plant Effluent Samples Collected at Snap Lake Mine in 2012

Parameter	Station				
	SNP 02-17B	SNP 02-17	SNP 02-17B	SNP 02-17B	SNP 02-17B
	22-Jan-12	11-Mar-12	17-Apr-12	9-Sep-12	15-Oct-12
Field pH	7.3	7.3	6.8	6.8	6.5
Laboratory pH	7.3	6.8	7	6.6	7.3
RPD between field and laboratory pH	0%	8%	4%	4%	11%
Field conductivity (µS/cm)	1,146	1,262	1,030	1,209	1,133
Laboratory conductivity (µS/cm)	1,156	1,340	973	1,179	1,049
RPD between field and laboratory conductivity	1%	6%	6%	3%	8%
Field temperature (ºC)	8	2.7	7.2	10.4	8.8
Laboratory temperature (ºC)	14	12	13	17	15

RPD = relative percent difference; °C = degrees Celsius; µS/cm = microSiemens per centimetre.

3E.1.1.4.2 Toxicity Test Results for Treated Effluent

Results of the acute and chronic toxicity tests performed on treated effluent samples are summarized in Tables 3E-4 and 3E-5. Technical details and quality assurance (QA) and quality control (QC) summaries for the acute and chronic toxicity tests completed by HydroQual are provided separately as attachments 3E.1 to 3E.11, on compact disc. Test acceptability criteria for laboratory control performance were met for all tests. One protocol deviation occurred when the Rainbow Trout used for testing the April 17 treated effluent sample were only acclimated for 9 days prior to testing, instead of the minimum of at least 14 days acclimation. Stock mortality and the reference toxicant test result for this batch of fish were acceptable, but a higher occurrence of sporadic mortalities were observed in the test results for the April 17 sample.

Acute Toxicity

Treated effluent samples did not show any acute toxicity responses to either Rainbow Trout or *Daphnia magna* (Table 3E-4), and were therefore characterized as not being acutely lethal. Up to 10% mortality is acceptable in the laboratory (clean) control. Survival was 100% in all treatments for the Rainbow Trout tests, except as follows: the March 11 sample had 90% survival in the control; the April 17 sample had 80% survival in the 6.3% effluent treatment and 90% survival in the 25% effluent treatment; and, the October 15 sample had 90% survival in the 12.5% effluent treatment. Survival was 100% in all treatments in the *Daphnia magna* tests, and there was no evidence of immobilization in these tests.

Table 3E-4 Acute Toxicity Test Results for Effluent Samples Collected From the Water Treatment Plant (SNP 02-17B or SNP 02-17) at Snap Lake Mine in 2012

Sample Location and Collection Date[(a)]	*Oncorhynchus mykiss* (Rainbow Trout)		*Daphnia magna* (Water Flea)			
	96-h Survival		48-h Survival		48-h Immobilization	
	LC50 (%) (95% CL)	LC25 (%) (95% CL)	LC50 (%) (95% CL)	LC25 (%) (95% CL)	EC50 (%) (95% CL)	EC25 (%) (95% CL)
SNP 02-17B (January 22, 2012)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)
SNP 02-17 (March 11, 2012)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)
SNP 02-17B (April 17, 2012)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)
SNP 02-17B (September 9, 2012)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)
SNP 02-17B (October 15, 2012)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)

(a) Samples collected from permanent water treatment plant (WTP) discharge quarterly; one sample collected from temporary WTP discharge March 11, 2012.

95% CL = 95% confidence limits associated with each point estimate.

LC50 = median lethal concentration; the concentration of sample estimated to be lethal to 50% of the test organisms.

LC25 = the concentration of sample estimated to be lethal to 25% of the test organisms.

EC50 = median effective concentration; the concentration of sample estimated to cause a specified effect to 50% of the test organisms.

EC25 = the concentration of sample estimated to cause a specified effect to 25% of the test organisms.

nc = not calculable;% = percent; >= greater than; h = hour.

Chronic Toxicity

One of the four quarterly samples from the permanent WTP discharge demonstrated adverse effects to *Ceriodaphnia dubia* in chronic toxicity tests in 2012 (Table 3E-5). The single temporary WTP discharge sample did not demonstrate adverse effects to *Ceriodaphnia dubia*. For the purpose of this report, adverse effects were defined as any of the point estimates being less than the highest treated effluent concentration tested. The September 9 sample had adverse effects on *Ceriodaphnia dubia* survival with 70% survival in the 100% effluent treatment and an LC25 of 78%, but no adverse effects on reproduction.

No adverse effects were found for *Pseudokirchneriella subcapitata* with respect to algal growth inhibition in any of the treated effluent samples tested in 2012 (Table 3E-5). The 72-h IC25 and IC50 values were greater than 91% for all five samples[3]. Algal growth was stimulated in all samples, with the degree of stimulation increasing at higher treated effluent concentrations.

[3] Typically the highest concentration used for toxicity tests with effluent or receiving environment samples is 100%. However, because of the very small sample volumes used for this algal test, after accounting for the volume of algal cells and the nutrient spike added to each replicate, the highest test concentration is actually 91%.

Table 3E-5 Chronic Toxicity Test Results for Effluent Samples Collected From the Water Treatment Plant (SNP 02-17B or SNP 02-17) at Snap Lake Mine in 2012

Sample Location and Collection Date[(a)]	*Ceriodaphnia dubia* (Water Flea)				*Pseudokirchneriella subcapitata* (Alga)	
	Survival		Fecundity		72-h Growth	
	LC50 (%) (95% CL)	LC25 (%) (95% CL)	IC50 (%) (95% CL)	IC25 (%) (95% CL)	IC50 (%) (95% CL)	IC25 (%) (95% CL)
SNP 02-17B (January 22, 2012)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)	>91 (nc)	>91 (nc)
SNP 02-17 (March 11, 2012)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)	>91 (nc)	>91 (nc)
SNP 02-17B (April 17, 2012)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)	>91 (nc)	>91 (nc)
SNP 02-17B (September 9, 2012)	>100 (93 and >100)	78 (26 and >100)	>100 (nc)	>100 (nc)	>91 (nc)	>91 (nc)
SNP 02-17B) (October 15, 2012)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)	>91 (nc)	>91 (nc)

(a) Samples collected from permanent water treatment plant (WTP) discharge quarterly; one sample collected from temporary WTP discharge March 11, 2012.

95% CL = 95% confidence limits associated with each point estimate.

LC50 = median lethal concentration; the concentration of sample estimated to be lethal to 50% of the test organisms.

LC25 = the concentration of sample estimated to be lethal to 25% of the test organisms.

IC50 = the inhibiting concentration for a 50% effect; the concentration of sample estimated to cause a 50% reduction in growth or fecundity of the test organisms.

IC25 = the inhibiting concentration for a 25% effect; the concentration of sample estimated to cause a 25% reduction in growth or fecundity of the test organisms.

nc = not calculable;% = percent; >= greater than; h = hour.

3E.1.2 SNAP LAKE (DIFFUSER STATIONS)

3E.1.2.1 Introduction

Toxicity sampling at the diffuser stations was completed in support of the SNP, as required by the Water Licence (MVLWB 2004, 2012)[4]. The SNP requires samples from the diffuser stations in Snap Lake to be collected for chronic toxicity testing twice between November 1, 2011 and October 31, 2012: once during ice-covered conditions; and, once during open-water conditions.

[4] The Mine operated under Water Licence MV2001L2-0002 (MVLWB 2004) from June 2004 to June 2012. The Water Licence was renewed in 2012, and the Mine now operates under Water Licence MC2011L2-0004 (MVLWB 2012) since June 14, 2012. Requirements for toxicity testing of Snap Lake diffuser station samples were specified in Section B, sub-Section 15 of the SNP for MVLWB (2004), and in Section A, sub-Section 1 of Annex A to MVLWB (2012)

3E.1.2.2 Field Methods

Sampling was conducted by Golder Associates Ltd. (Golder) at the three diffuser stations, SNP 02-20d, SNP 02-20e, and SNP 02-20f, located on the edge of the treated effluent mixing zone in Snap Lake, about 200 metres (m) from the treated effluent diffuser (Table 3E-6). The ice-covered sampling occurred on April 17 and the open-water sampling occurred on September 11.

Table 3E-6 Toxicity Testing and Other Measurements Completed on Diffuser Station Samples Collected in Snap Lake in April and September 2012

Variable	Ice-Covered Sampling Event			Open-Water Sampling Event		
	SNP 02-20d	SNP 02-20e	SNP 02-20f	SNP 02-20d	SNP 02-20e	SNP 02-20f
	17-Apr-12	17-Apr-12	17-Apr-12	9-Sep-12	9-Sep-12	9-Sep-12
Chronic toxicity[a]	X	X	X	X	X	X
Field water quality measurements	X	X	X	X	X	X

(a) Chronic toxicity tests were conducted using a water flea (*Ceriodaphnia dubia*) and an alga (*Pseudokirchneriella subcapitata*).

X = Date sampled for testing.

A conductivity profile was measured at 1-m intervals at each site using a YSI 650 Multiparameter Display System (MDS) water quality meter with a YSI 600 Quick Sample (QS) multi parameter water quality probe. Water temperature, pH, dissolved oxygen, and water depth were also recorded using the YSI meter. During the ice-covered sampling in April, each sample was placed in a 20-L plastic pail that was triple-rinsed and filled from a Kemmerer sampler that collected water from the depth of maximum conductivity, or mid-depth if no conductivity gradient was present. During the open-water sampling in September, each sample was placed in six 1-L plastic bottles that were triple-rinsed and filled from a Kemmerer sampler that collected water from the depth of maximum conductivity, or mid-depth if no conductivity gradient was present. Samples were shipped to HydroQual for chronic toxicity testing and were processed within three days of sample collection; this met requirements of the Environment Canada chronic toxicity testing methods (see Section 3E.1.2.3) and the recommendation of Environment Canada (2012) under the Metal Mining Effluent Regulations (Environment Canada 2002 with updates).

3E.1.2.3 Toxicity Test Methods

Chronic toxicity tests were performed on Snap Lake water samples collected in April and September 2012 from the diffuser stations (Table 3E-7). No acute toxicity tests were performed on these samples. The species and the methods used by HydroQual to perform the chronic toxicity tests were the same as those described in Section 3E.1.1.3 for the treated effluent samples.

Table 3E-7 Chronic Toxicity Tests Performed on Water Samples Collected at Diffuser Stations in Snap Lake in 2012

Test Species	Acute or Chronic Test	Test Duration	Endpoint Measured	Point Estimate Statistic
Ceriodaphnia dubia (water flea)[(a)]	Chronic	7 days (approx)	survival	LC50[(c)] LC25[(d)]
Ceriodaphnia dubia (water flea)[(a)]	Chronic	7 days (approx)	fecundity	IC50[(e)] IC25[(f)]
Pseudokirchneriella subcapitata (alga)[(b)]	Chronic	72 hours	growth	IC50[(e)] IC25[(f)]

(a) Test duration for the chronic *Ceriodaphnia dubia* test is defined as when greater than or equal to 60% of controls have produced three broods of offspring, and cannot be longer than eight days.

(b) This species was formerly known as *Selenastrum capricornutum*.

(c) LC50, or median lethal concentration, is the concentration of sample estimated to be lethal to 50% of the test organisms.

(d) LC25 is the concentration of sample estimated to be lethal to 25% of the test organisms.

(e) IC50 is the inhibiting concentration for a 50% effect; it is the concentration of sample estimated to cause a 50% reduction in growth or fecundity of the test organisms.

(f) IC25 is the inhibiting concentration for a 25% effect; it is the concentration of sample estimated to cause a 25% reduction in growth or fecundity of the test organisms.

approx = approximately;% = percent; ≥ = greater than or equal to.

3E.1.2.4 2012 Results

3E.1.2.4.1 Field and Laboratory Water Quality Data

Field water quality measurements of pH, conductivity, dissolved oxygen and temperature from grab samples collected at the same time as the toxicity samples, where available, were compared to laboratory measurements upon receipt of the samples (Table 3E-8). Field measurements of pH and conductivity were within ±20% of the laboratory measurements based on RPDs for corresponding samples. Differences between field and laboratory dissolved oxygen measurements were larger for the April 2012 samples, which was likely related to differences in oxygen saturation between the field and laboratory received temperatures. Sample temperatures at receipt by HydroQual were above the 4 ± 3°C range specified for sample transportation by the Environment Canada testing protocols in four of the six samples. However, HydroQual laboratory staff (Blais and Henson 2011) previously noted that the toxicity results were valid and that sample temperature becomes an issue for toxicity testing only if the samples freeze during transport.

Table 3E-8 Comparison of Field and Laboratory Water Quality Data for Water Samples Collected at Diffuser Stations in Snap Lake in 2012

Variable	Ice-Covered Sampling Event			Open-Water Sampling Event		
	SNP 02-20d	SNP 02-20e	SNP 02-20f	SNP 02-20e	SNP 02-20d	SNP 02-20f
	17-Apr-12	17-Apr-12	17-Apr-12	9-Sep-12	9-Sep-12	9-Sep-12
Field pH	6.9	6.9	7	7.2	7.2	7.3
Laboratory pH	6.8	6.6	6.6	6.6	6.6	6.5
RPD between field and laboratory pH	1%	4%	6%	9%	9%	12%
Field conductivity (µS/cm)	530	558	531	368	372	365
Laboratory conductivity (µS/cm)	498	525	493	410	408	407
RPD between field and laboratory conductivity	6%	6%	7%	11%	9%	11%
Field dissolved oxygen (mg/L)	14.5	13.7	14.4	10	10.1	10.1
Laboratory dissolved oxygen (mg/L)	8.9	8.9	8.7	8.4	8.4	8.6
Field temperature (ºC)	1.5	1.5	1.5	12.7	12.8	12.9
Laboratory temperature at receipt (ºC)	13	13	13	14	14	14

RPD = relative percent difference; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; °C = degrees Celsius: % = percent.

3E.1.2.4.2 Toxicity Test Results for Diffuser Station Samples

Results of the chronic toxicity tests performed on lake water samples collected in April and September 2012 at the diffuser stations are summarized in Table 3E-9. Technical details and QA/QC summaries for the chronic toxicity tests completed by HydroQual are provided separately as attachments 3E.1 to 3E.11, on compact disc. Test acceptability criteria for laboratory control performance were met for all tests.

None of the six diffuser station samples demonstrated adverse effects to *Ceriodaphnia dubia* survival or reproduction in chronic toxicity tests in 2012 (Table 3E-9). For the purpose of this report, adverse effects were defined as any of the test endpoints being less than the highest concentration tested.

No adverse effects to *Pseudokirchneriella subcapitata* were found with respect to algal growth inhibition in any of the diffuser station samples tested in 2012 (Table 3E-9). The 72-hour IC25 and IC50 values were greater than 91% for all six samples. Algal growth was stimulated in all samples, with the degree of stimulation increasing at higher sample concentrations.

Table 3E-9 Chronic Toxicity Test Results for Water Samples Collected at Diffuser Stations in Snap Lake in 2012

Station Location and Sample Collection Date	*Ceriodaphnia dubia* (Water Flea)				*Pseudokirchneriella subcapitata* (Alga)	
	Survival		Fecundity		72-h Growth	
	LC50 (%) (95% CL)	LC25 (%) (95% CL)	IC50 (%) (95% CL)	IC25 (%) (95% CL)	IC50 (%) (95% CL)	IC25 (%) (95% CL)
SNP 02-20d (April 17, 2012)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)	>91 (nc)	>91 (nc)
SNP 02-20e (April 17, 2012)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)	>91 (nc)	>91 (nc)
SNP 02-20f (April 17, 2012)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)	>91 (nc)	>91 (nc)
SNP 02-20d (September 9, 2012)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)	>91 (nc)	>91 (nc)
SNP 02-20e (September 9, 2012)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)	>91 (nc)	>91 (nc)
SNP 02-20f (September 9, 2012)	>100 (nc)	>100 (nc)	>100 (nc)	>100 (nc)	>91 (nc)	>91 (nc)

95% CL = 95% confidence limits associated with each point estimate.

LC50 = median lethal concentration; the concentration of sample estimated to be lethal to 50% of the test organisms.

LC25 = the concentration of sample estimated to be lethal to 25% of the test organisms.

IC50 = the inhibiting concentration for a 50% effect; the concentration of sample estimated to cause a 50% reduction in growth or fecundity of the test organisms.

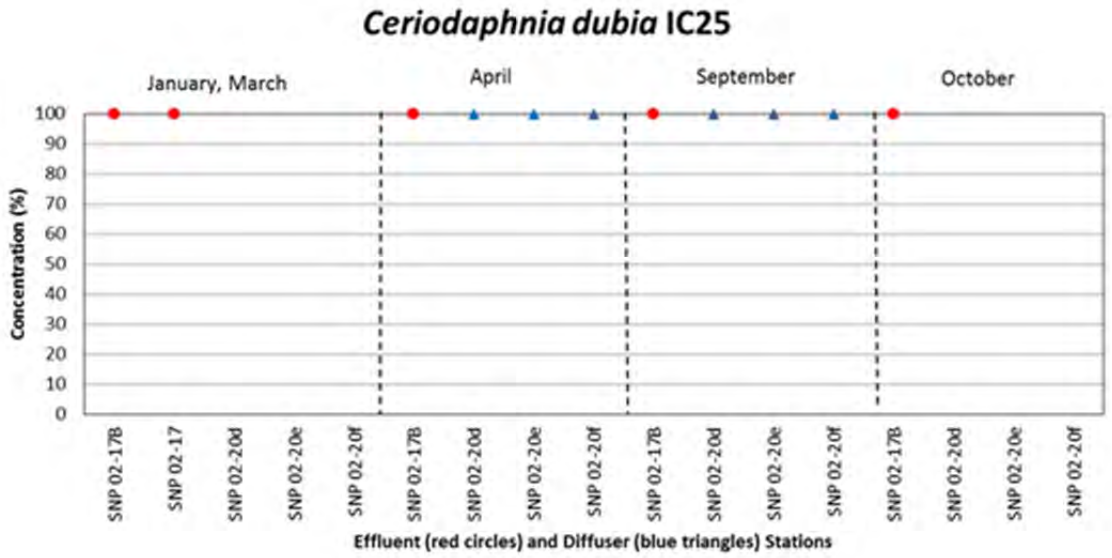
IC25 = the inhibiting concentration for a 25% effect; the concentration of sample estimated to cause a 25% reduction in growth or fecundity of the test organisms.

nc = not calculable;% = percent; >= greater than; h = hour.

3E.1.3 COMPARISON OF 2012 CHRONIC TOXICITY TEST RESULTS FOR TREATED EFFLUENT AND DIFFUSER STATIONS

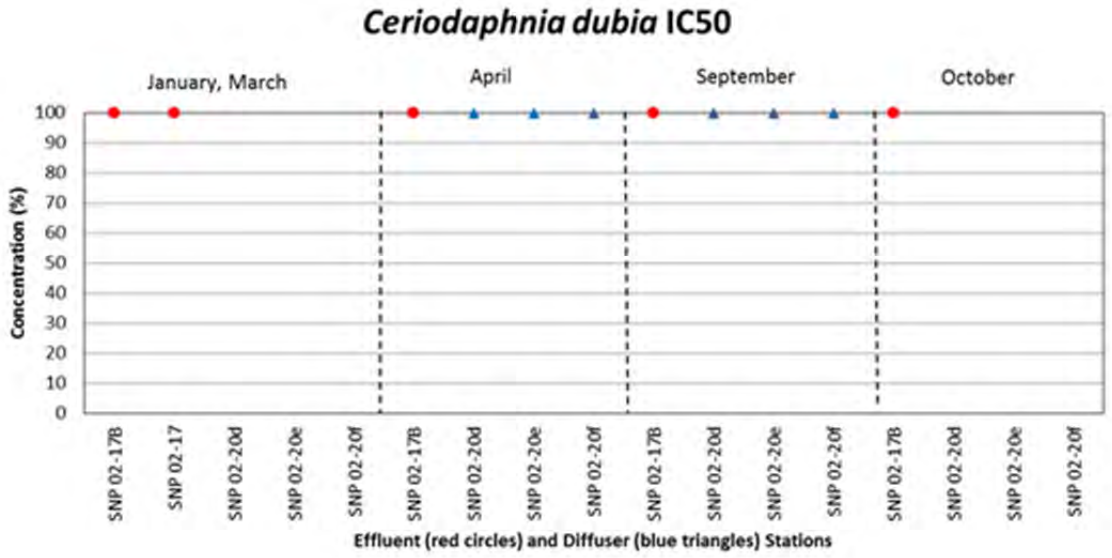
Results for the sublethal endpoints from the chronic toxicity tests, *Ceriodaphnia dubia* reproduction and *Pseudokirchneriella subcapitata* algal growth, performed on the treated effluent and diffuser station samples in 2012 are compared in Figures 3E-1 to 3E-4. Sublethal endpoints such as reproduction or growth are generally considered to be more sensitive indicators of adverse biological effects than the mortality endpoint. Although there were no adverse effects reported in any samples for either sublethal endpoint in 2012, there were effects on *Ceriodaphnia dubia* survival in one treated effluent sample collected September 9: LC50 >100% but LC25 = 78% (Table 3E-5).

Figure 3E-1 IC25 Results for *Ceriodaphnia dubia* Reproduction for Treated Effluent and Diffuser Station Samples Collected in 2012



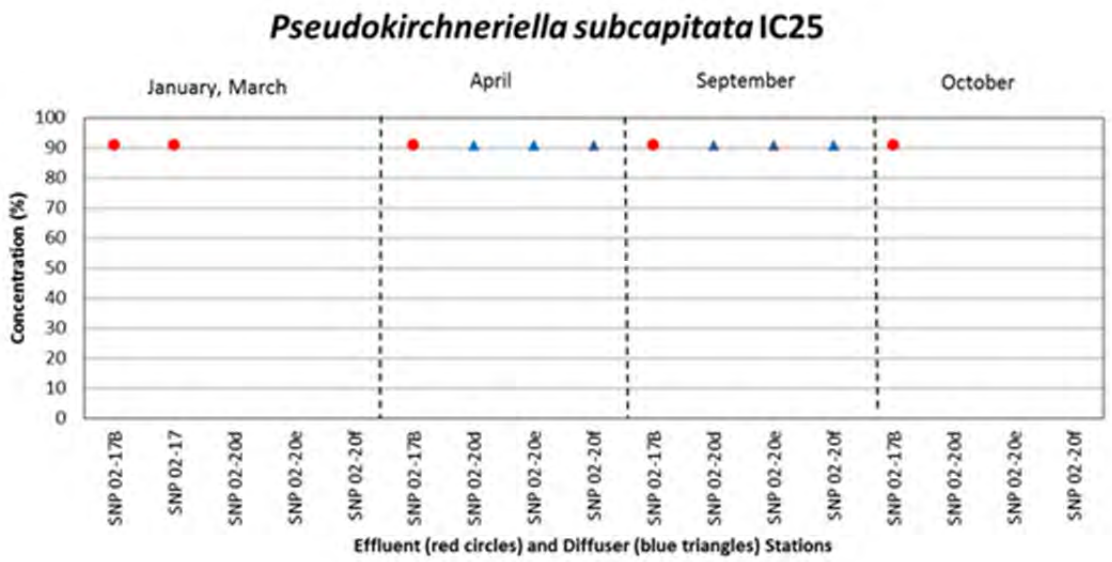
% = percent.

Figure 3E-2 IC50 Results for *Ceriodaphnia dubia* Reproduction for Treated Effluent and Diffuser Station Samples Collected in 2012



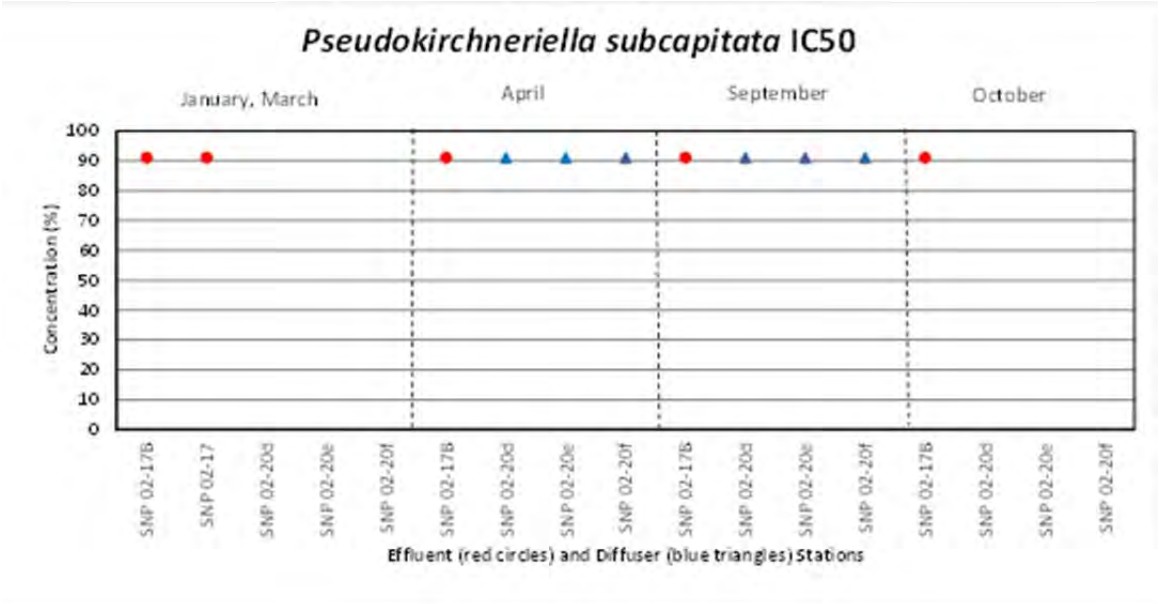
% = percent.

Figure 3E-3 IC25 Results for *Pseudokirchneriella subcapitata* Growth for Treated Effluent and Diffuser Station Samples Collected in 2012



% = percent.

Figure 3E-4 IC50 Results for *Pseudokirchneriella subcapitata* Growth for Treated Effluent and Diffuser Station Samples Collected in 2012



% = percent.

3E.1.4 TEMPORAL COMPARISON OF TOXICITY TEST RESULTS FOR TREATED EFFLUENT AND DIFFUSER STATIONS (2005 TO 2012)

3E.1.4.1 Toxicity of Treated Effluent

Acute and chronic toxicity tests have been conducted on treated effluent samples on a quarterly basis since November 2005, following the same procedures described in Section 3E.1.1. There have been no adverse effects in any of the acute toxicity tests performed on treated effluent samples between November 2005 and October 2012. Chronic toxicity was predicted to occur in treated effluent in the Environmental Assessment Report (EAR; De Beers 2002). The results summarized in Table 3E-10 show that, although toxicity did occur in chronic tests performed on the treated effluent, it did not show a trend of increasing frequency or severity over time. With the possible exception of 2007, when Ceriodaphnia dubia reproduction was reduced to some degree in all samples, these occurrences of toxicity appear to be episodic.

Of the 35 Ceriodaphnia dubia tests conducted on treated effluent samples between November 2005 and October 2012 (Table 3E-10), 5 tests showed adverse effects for mortality and 19 tests showed adverse effects on reproduction. Of the 33 algal tests conducted during the same period, one test showed an adverse effect with respect to inhibition of cell growth. The occurrence of these chronic effects is summarized below for each year:

- 2005: One sample from SNP 02-17 was tested in November 2005 and no adverse effects were reported for either toxicity test method.
- 2006: Four samples from SNP 02-17 were tested and no adverse effects were reported for either toxicity test method.
- 2007: Seven samples from SNP 02-17 and SNP 02-17B were tested with Ceriodaphnia dubia; one sample had adverse effects on mortality and all seven samples had adverse effects on reproduction; however, the IC25 and IC50 values fluctuated between samples. Five samples were tested with *Pseudokirchneriella subcapitata*, and no adverse effects were reported.
- 2008: Five samples from SNP 02-17 and SNP 02-17B were tested with Ceriodaphnia dubia and *Pseudokirchneriella subcapitata*. Two samples showed adverse effects on Ceriodaphnia dubia mortality and three samples showed effects on reproduction. There were no adverse effects for *Pseudokirchneriella subcapitata*.

Table 3E-10 Summary of Chronic Toxicity Test Results for SNP 02-17 / SNP 02-17B Treated Effluent Samples, 2005 to 2012

Station	Sample Collection Date	*Ceriodaphnia dubia (Water Flea)*				*Pseudokirchneriella subcapitata* (Alga)	
		LC50 (%)	LC25 (%)	IC50 (%)	IC25 (%)	IC50 (%)	IC25 (%)
SNP 02-17	28-Nov-05	>100	>100	>100	>100	>100	>100
SNP 02-17	6-Feb-06	>100	>100	>100	>100	>100	>100
SNP 02-17	2-Apr-06	>100	>100	>100	>100	>100	>100
SNP 02-17	4-Jul-06	>100	>100	>100	>100	>100	>100
SNP 02-17	4-Dec-06	>100	>100	>100	>100	>100	>100
SNP 02-17	9-Jan-07	>100	>100	66	40	>100	>100
SNP 02-17	3-Apr-07	>100	>100	87	66	>100	>100
SNP 02-17B	23-Apr-07	>100	>100	13	<6.3	>100	>100
SNP 02-17B	9-Jul-07	>100	>50	59	3	>100	>100
SNP 02-17B	14-Nov-07	>100	>100	14	<1.6	>91	>91
SNP 02-17B	3-Dec-07	>100	>100	>100	17	-	-
SNP 02-17	3-Dec-07	>100	>100	>100	32	-	-
SNP 02-17B	16-Mar-08	>100	>100	>100	56	>91	>91
SNP 02-17B	2-Apr-08	>100	>100	>100	>100	>91	>91
SNP 02-17	13-Apr-08	33	>25	12	4	>91	>91
SNP 02-17B	9-Jul-08	>100	50	67	15	>91	>91
SNP 02-17B	22-Oct-08	>100	>100	>100	>100	>91	>91
SNP 02-17B	14-Jan-09	>100	>100	>100	>100	>91	>91
SNP 02-17B	8-Apr-09	>100	>100	>100	36	>91	>91
SNP 02-17B	13-Jul-09	>100	>100	81	52	>91	>91
SNP 02-17B	12-Oct-09	>100	>100	>100	1.9	>91	>91
SNP 02-17B	3-Jan-10	>100	>100	95	18	>91	18
SNP 02-17B	6-Apr-10	>100	>100	>100	>100	>91	>91
SNP 02-17B	14-Jul-10	>100	>100	>100	67	>91	>91
SNP 02-17B	12-Oct-10	>100	>100	>100	>100	>91	>91
SNP 02-17B	17-Jan-11	>100	>100	>100	36	>91	>91
SNP 02-17B	10-Apr-11	>100	>100	>100	7.2	>91	>91
SNP 02-17B	12-Jul-11	>100	>100	>100	>100	>91	>91
SNP 02-17B	31-Jul-11	>100	>100	89	63	>91	>91

Table 3E-10 Summary of Chronic Toxicity Test Results for SNP 02-17 / SNP 02-17B Treated Effluent Samples, 2005 to 2012

Station	Sample Collection Date	*Ceriodaphnia dubia (Water Flea)*				*Pseudokirchneriella subcapitata* (Alga)	
		LC50 (%)	LC25 (%)	IC50 (%)	IC25 (%)	IC50 (%)	IC25 (%)
SNP 02-17B	24-Oct-11	>100	84	>100	77	>91	>91
SNP 02-17B	22-Jan-12	>100	>100	>100	>100	>91	>91
SNP 02-17	11-Mar-12	>100	>100	>100	>100	>91	>91
SNP 02-17B	17-Apr-12	>100	>100	>100	>100	>91	>91
SNP 02-17B	9-Sep-12	>100	78	>100	>100	>91	>91
SNP 02-17B	15-Oct-12	>100	>100	>100	>100	>91	>91

LC50 = median lethal concentration; the concentration of sample estimated to be lethal to 50% of the test organisms.

LC25 = the concentration of sample estimated to be lethal to 25% of the test organisms.

IC50 = the inhibiting concentration for a 50% effect; the concentration of sample estimated to cause a 50% reduction in growth or fecundity of the test organisms.

IC25 = the inhibiting concentration for a 25% effect; the concentration of sample estimated to cause a 25% reduction in growth or fecundity of the test organisms.

% = percent; >= greater than; - = no data; shaded cells indicate an inhibitory or adverse test result.

- 2009: Four samples from SNP 02-17B were tested with *Ceriodaphnia dubia* and *Pseudokirchneriella subcapitata*. There were no adverse effects on *Ceriodaphnia dubia* survival, but three samples exhibited effects on reproduction. There were no adverse effects for *Pseudokirchneriella subcapitata*.
- 2010: Four samples from SNP 02-17B were tested with *Ceriodaphnia dubia* and *Pseudokirchneriella subcapitata*. There were no adverse effects on *Ceriodaphnia dubia* survival, but two samples exhibited effects on reproduction. One sample showed adverse effects for *Pseudokirchneriella subcapitata*.
- 2011: Five samples from SNP 02-17 and SNP 02-17B were tested with *Ceriodaphnia dubia* and *Pseudokirchneriella subcapitata*. One sample showed adverse effects on *Ceriodaphnia dubia* mortality and four samples showed effects on reproduction. There were no adverse effects for *Pseudokirchneriella subcapitata*.
- 2012: Five samples from SNP 02-17 and SNP 02-17B were tested with *Ceriodaphnia dubia* and *Pseudokirchneriella subcapitata*. One sample showed adverse effects on *Ceriodaphnia dubia* mortality, but none of the samples showed adverse effects on reproduction. There were no adverse effects for *Pseudokirchneriella subcapitata*.

Adverse effects in the *Pseudokirchneriella subcapitata* algal test are expressed in terms of growth inhibition. However, it is also possible for growth stimulation to occur; this would not be reflected in the IC25 or IC50 results but is important because of the potential for growth stimulation to result in algal blooms. Most of the algal tests performed on treated effluent since November 2005 showed growth stimulation, and stimulation generally increased with increasing treated effluent concentration.

3E.1.4.1 Toxicity in Snap Lake at Diffuser Stations

Since April 2006, water samples for toxicity testing have been collected annually from the three diffuser stations, once during the ice-covered period and once during the open-water period, typically in April and September. Samples were collected from the depth of highest conductivity when a vertical gradient in conductivity was observed, and from mid-depth when no conductivity gradient was observed. Samples from the three lake stations were not always collected on the same day due to logistical constraints, so the toxicity tests on the three lake samples were not always performed concurrently and therefore used different batches of test organisms. Differences in toxicity results that were conducted with different batches of test organisms are more difficult to interpret because any differences in toxicity could be related to the different batch of organisms used in the test or to actual toxicological differences in the lake water sampled. Chronic toxicity tests performed on treated effluent were also performed on the diffuser station samples.

Adverse effects on *Ceriodaphnia dubia* reproduction, and to a lesser extent on *Ceriodaphnia dubia* survival and algal growth, have occurred periodically in these samples (Table 3E-11).

Of the 41 tests conducted between April 2006 and October 2012, one test showed adverse effects for *Ceriodaphnia dubia* mortality, 14 tests showed adverse effects on *Ceriodaphnia dubia* reproduction, and one test showed adverse effects in the form of inhibition of algal growth (Table 3E-11). The sample that showed effects on algal growth did not show effects on *Ceriodaphnia dubia*. The occurrence of these chronic effects is summarized below for each year:

- 2006: Three diffuser samples collected in April had no adverse effects for any test endpoints. Only one diffuser sample was collected in September, and it showed adverse effects on *Ceriodaphnia dubia* reproduction.
- 2007: Two diffuser samples were collected in April; one had adverse effects on *Ceriodaphnia dubia* survival and reproduction, and one had effects on *Ceriodaphnia dubia* reproduction only. Three diffuser samples were collected in September; two had no adverse effects for any test endpoints and one had adverse effects on *Ceriodaphnia dubia* reproduction. Direct comparisons between these three samples cannot be made because the one with effects on *Ceriodaphnia dubia* reproduction was not collected on the same day as the other two samples that showed no effects.
- 2008: Three diffuser samples were collected in April and three were collected in September, and there were no adverse effects for any test endpoints.
- 2009: Three diffuser samples were collected on two dates in April and all three had adverse effects on *Ceriodaphnia dubia* reproduction. Three samples were collected in September; two samples had no adverse effects for any test endpoints but a third sample collected on a different day had an adverse effect on *Ceriodaphnia dubia* reproduction.
- 2010: Three diffuser samples were collected in April; two samples collected on the same day had differing results, with one showing no adverse effects and the other showing adverse effects on *Ceriodaphnia dubia* reproduction, while the third sample collected on a different day had no adverse effects. The station that showed adverse effects on reproduction was resampled one month later and the result showed that there were still adverse effects on *Ceriodaphnia dubia* reproduction but to a lesser degree. Three diffuser samples were collected in September; two samples collected the same day had adverse effects on *Ceriodaphnia dubia* reproduction, whereas a third sample collected on a different day had no adverse effects on *Ceriodaphnia dubia* reproduction but did have adverse effects on algal growth.

Table 3E-11 Summary of Chronic Toxicity Test Results for Snap Lake Diffuser Station Samples, 2006 to 2012

Station	Sample Collection Date	*Ceriodaphnia dubia (Water Flea)*				*Pseudokirchneriella subcapitata* (Alga)	
		LC50 (%)	LC25 (%)	IC50 (%)	IC25 (%)	IC50 (%)	IC25 (%)
SNP 02-20a	12-Apr-06	>100	>100	>100	>100	>100	>100
SNP 02-20b	12-Apr-06	>100	>100	>100	>100	>100	>100
SNP 02-20c	12-Apr-06	>100	>100	>100	>100	>100	>100
SNP 02-20d	20-Sep-06	>100	>100	>100	24	>100	>100
SNP 02-20d	16-Apr-07	>100	>100	>100	12	>100	>100
SNP 02-20f	17-Apr-07	74	>50	14	<6.3	>100	>100
SNP 02-20d-mid	17-Sep-07	>100	>100	>100	>100	>100	>100
SNP 02-20f-mid	17-Sep-07	>100	>100	>100	>100	>100	>100
SNP 02-20e	19-Sep-07	>100	>100	>100	<1.6	>100	>100
SNP 02-20d-mid	6-Apr-08	>100	>100	>100	>100	>91	>91
SNP 02-20e-mid	7-Apr-08	>100	>100	>100	>100	>91	>91
SNP 02-20f-mid	13-Apr-08	>100	>100	>100	>100	>91	>91
SNP 02-20f-mid	14-Sep-08	>100	>100	>100	>100	>91	>91
SNP 02-20d-mid	15-Sep-08	>100	>100	>100	>100	>91	>91
SNP 02-20e-mid	15-Sep-08	>100	>100	>100	>100	>91	>91
SNP 02-20e-mid	3-May-09	>100	>100	>100	76	>91	>91
SNP 02-20d-mid	3-May-09	>100	>100	>100	33	>91	>91
SNP 02-20f-mid	5-May-09	>100	>100	>100	77	>91	>91
SNP 02-20e-mid	15-Sep-09	>100	>100	66	5.6	>91	>91
SNP 02-20d-mid	27-Sep-09	>100	>100	>100	>100	>91	>91
SNP 02-20f-mid	27-Sep-09	>100	>100	>100	>100	>91	>91
SNP 02-20e-mid	6-Apr-10	>100	>100	>100	>100	>91	>91
SNP 02-20d-mid	11-Apr-10	>100	>100	>100	>100	>91	>91
SNP 02-20f-mid	11-Apr-10	>100	>100	23	<1.6	>91	>91
SNP 02-20f-mid	4-May-10	>100	>100	>100	43	>91	>91
SNP 02-20e-mid	7-Sep-10	>100	>100	>100	>100	>91	77
SNP 02-20f-mid	12-Sep-10	>100	>100	89	2.4	>91	>91
SNP 02-20d-mid	12-Sep-10	>100	>100	26	2.2	>91	>91

Table 3E-11 Summary of Chronic Toxicity Test Results for Snap Lake Diffuser Station Samples, 2006 to 2012

Station	Sample Collection Date	*Ceriodaphnia dubia (Water Flea)*				*Pseudokirchneriella subcapitata* (Alga)	
		LC50 (%)	LC25 (%)	IC50 (%)	IC25 (%)	IC50 (%)	IC25 (%)
SNP 02-20d-mid	12-Oct-10	>100	>100	>100	>100	>91	>91
SNP02-20e-mid	10-Apr-11	>100	>100	>100	>100	>91	>91
SNP02-20f-bot	10-Apr-11	>100	>100	>100	>100	>91	>91
SNP02-20d-mid	26-Apr-11	>100	>100	>100	>100	>91	>91
SNP02-20d-top	11-Sep-11	>100	>100	>100	71	>91	>91
SNP02-20e-top	11-Sep-11	>100	>100	>100	>100	>91	>91
SNP02-20f-mid	11-Sep-11	>100	>100	>100	>100	>91	>91
SNP02-20d-mid	17-Apr-12	>100	>100	>100	>100	>91	>91
SNP02-20e-bot	17-Apr-12	>100	>100	>100	>100	>91	>91
SNP02-20f-mid	17-Apr-12	>100	>100	>100	>100	>91	>91
SNP02-20e-bot	9-Sep-12	>100	>100	>100	>100	>91	>91
SNP02-20d-bot	9-Sep-12	>100	>100	>100	>100	>91	>91
SNP02-20f-bot	9-Sep-12	>100	>100	>100	>100	>91	>91

LC50 = median lethal concentration; the concentration of sample estimated to be lethal to 50% of the test organisms.

LC25 = the concentration of sample estimated to be lethal to 25% of the test organisms.

IC50 = the inhibiting concentration for a 50% effect; the concentration of sample estimated to cause a 50% reduction in growth or fecundity of the test organisms.

IC25 = the inhibiting concentration for a 25% effect; the concentration of sample estimated to cause a 25% reduction in growth or fecundity of the test organisms.

% = percent; >= greater than; - = no data; shaded cells indicate an inhibitory or adverse test result.

- 2011: One of the six diffuser station samples in 2011 showed evidence of chronic toxicity in terms of *Ceriodaphnia dubia* reproduction, but none of the samples showed chronic toxicity in terms of algal growth inhibition. Algal growth was stimulated in all samples, with the degree of stimulation increasing at higher sample concentrations.
- 2012: Three diffuser samples were collected in April and three were collected in September, and there were no adverse effects for any test endpoints. Algal growth was stimulated in all samples, with the degree of stimulation increasing at higher sample concentrations.

The 2002 EAR predicted that chronic toxicity would occur within 1% of the volume of Snap Lake. The results summarized in Table 3E-11 show that, although chronic toxicity occurs periodically at the diffuser stations, a trend of increasing toxicity frequency or severity has not occurred. These occurrences of chronic toxicity appear to be episodic.

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3F.1 RESULTS FROM THE TEMPORAL TREND ANALYSIS

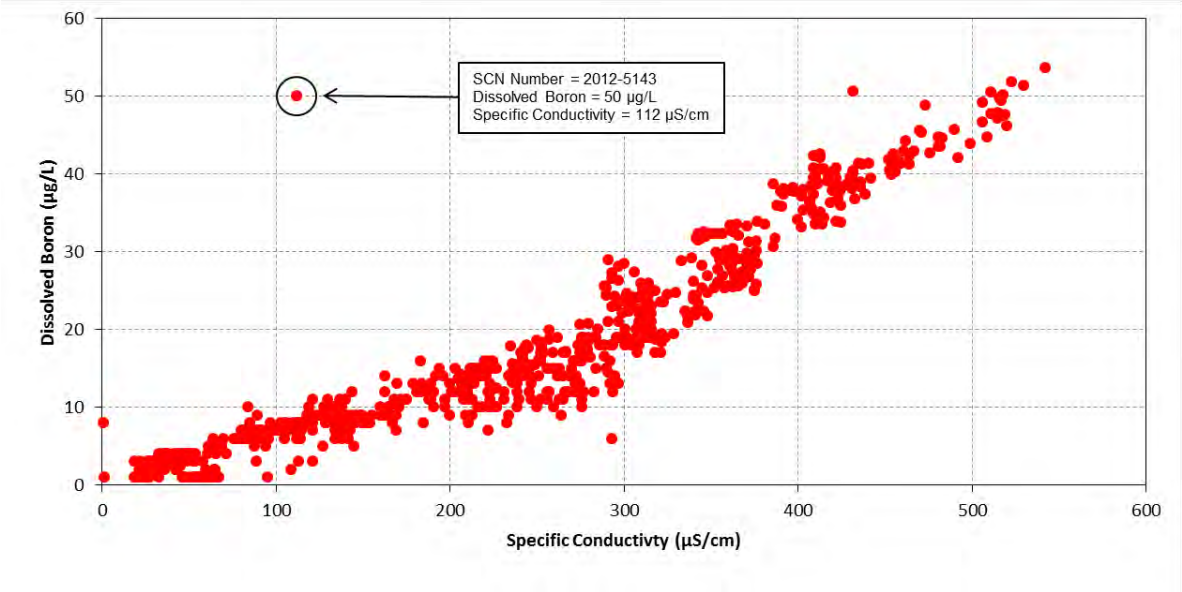
This appendix includes figures and tables referenced in Section 3 (Water Quality).

Table 3F-1 Rationale for Removing Outliers for Correlation Test with Laboratory Conductivity

Parameter	Units	Results Removed	Sample Control Number	Rationale
Benzene	mg/L	0.0014	2011-5111	Result well above all other lake results
Benzene	mg/L	0.0013	2011-5110	Result well above all other lake results
Dissolved Antimony	µg/L	5.62	2011-5025	Result well above all other lake results
Dissolved Boron	µg/L	<50	2012-5143	High detection limit
Dissolved Inorganic Phosphorus	mg-P/L	0.01	2006-1152	Result well above all other lake results
Dissolved Inorganic Phosphorus	mg-P/L	0.0075	2009-5171	Result well above all other lake results
Dissolved Iron	µg/L	460	2009-5142	Result well above all other lake results
Dissolved Manganese	µg/L	272	2009-5039	Result well above all other lake results
Dissolved Manganese	µg/L	346	2009-5142	Result well above all other lake results
Dissolved Manganese	µg/L	320	2010-5107	Result well above all other lake results
Dissolved Organic Phosphorus	mg-P/L	0.0191	2009-5171	Result well above all other lake results
Dissolved Organic Phosphorus	mg-P/L	0.0211	2009-5235	Result well above all other lake results
Dissolved Titanium	µg/L	<3	2006-1169	High detection limit
Dissolved Titanium	µg/L	<3	2007-0141	High detection limit
Dissolved Titanium	µg/L	<3	2007-1285	High detection limit
Dissolved Vanadium	µg/L	<5	2010-5007	High detection limit
Dissolved Vanadium	µg/L	<5	2010-5009	High detection limit
Toluene	mg/L	0.00141	2011-5127	Result well above all other lake results
Total Aluminum	µg/L	25.4	2009-5135	Result well above all other lake results
Total Aluminum	µg/L	32.2	2009-5171	Result well above all other lake results
Total Aluminum	µg/L	44	2009-5537	Result well above all other lake results
Total Antimony	µg/L	48.3	2009-5124	Result well above all other lake results
Total Antimony	µg/L	53.2	2009-5133	Result well above all other lake results
Total Arsenic, Hydride	µg/L	<0.8	2011-5175	High detection limit
Total Dissolved Phosphorus	mg-P/L	0.0266	2009-5171	Result well above all other lake results
Total Lead	µg/L	5.51	2005-0007	Result well above all other lake results
Total Lithium	µg/L	63.2	2006-0179	Result well above all other lake results
Total Manganese	µg/L	238	2009-5039	Result well above all other lake results
Total Manganese	µg/L	366	2009-5142	Result well above all other lake results
Total Manganese	µg/L	374	2010-5107	Result well above all other lake results
Total Organic Carbon	mg/L	11	2009-5012	Result well above all other lake results
Total Phosphorus	mg-P/L	2	2007-0141	Result well above all other lake results
Total Phosphorus	mg-P/L	2	2007-1285	Result well above all other lake results
Total Titanium	µg/L	4.3	2007-0011	Result well above all other lake results

mg/L = milligrams per litre; µg/L = micrograms per litre; mg-P/L = milligrams as phosphorus per litre; < = less than.

Figure 3F-1 Dissolved Boron Correlation with Laboratory Conductivity with Outliers, 2004 to 2012



µS/cm = microSiemens per centimetre; µg/L = micrograms per litre; SCN = sample control number.

Table 3F-2 Results of Pearson Correlations with Laboratory Conductivity, 2004 to 2012 Snap Lake Data

Parameter	Pearson Correlation Coefficient[(a)]	Pairs of Results	Critical Pearson Value for *P* = 0.001
Conventional Parameters			
Field pH	**0.357**	600	0.147
Laboratory pH	**0.645**	1,245	0.104
True Colour	-0.385	45	0.474
Total Dissolved Solids, Measured	**0.970**	1,180	0.104
Total Dissolved Solids, Calculated	**0.998**	1,246	0.104
Total Suspended Solids	-0.056	1,088	0.104
Turbidity	**-0.175**	1,104	0.104
Ions			
Bicarbonate, as HCO_3	**0.905**	1,247	0.104
Calcium	**0.995**	1,240	0.104
Carbonate, as CO_3	Not Tested	1,247	-
Chloride	**0.996**	1,241	0.104
Fluoride	**0.854**	1,237	0.104
Hardness, as $CaCO_3$	**0.995**	1,240	0.104
Hydroxide	Not Tested	592	-
Magnesium	**0.977**	1,240	0.104
Potassium	**0.943**	1,245	0.104
Reactive Silica, as SiO_2	**0.699**	1,171	0.104
Sodium	**0.994**	1,246	0.104
Sulphate	**0.985**	1,239	0.104
Total Alkalinity, as $CaCO_3$	**0.904**	1,246	0.104

Table 3F-2 Results of Pearson Correlations with Laboratory Conductivity, 2004 to 2012 Snap Lake Data

Parameter	Pearson Correlation Coefficient[(a)]	Pairs of Results	Critical Pearson Value for *P* = 0.001
Nutrients and Carbon			
Chemical Oxygen Demand	-0.118	86	0.361
Dissolved Inorganic Phosphorus	**-0.170**	1,076	0.104
Dissolved Organic Carbon	0.043	158	0.324
Dissolved Organic Phosphorus, Calculated	-0.103	1,050	0.104
Dissolved Phosphorus	**-0.215**	1,130	0.104
Nitrate, as N, Calculated	**0.927**	1,211	0.104
Nitrate/Nitrite, as N	**0.924**	1,226	0.104
Nitrite, as N	**0.851**	1,239	0.104
Total Ammonia, as N	**0.787**	1,111	0.104
Total Inorganic Phosphorus	**-0.221**	1,101	0.104
Total Kjeldahl Nitrogen	**0.623**	1,096	0.104
Total Organic Carbon	-0.084	1,049	0.104
Total Organic Phosphorus, Calculated	-0.065	1,074	0.104
Total Phosphorus	**-0.253**	1,123	0.104
ortho-Phosphate, as P	0.071	1,101	0.104
Total Metals and Metalloids			
Total Aluminum	**-0.306**	977	0.147
Total Antimony	0.128	865	0.147
Total Arsenic by HG-AAS	Not Tested	470	-
Total Arsenic	**0.113**	1,044	0.104
Total Barium	**0.965**	1,041	0.104
Total Beryllium	Not Tested	1,046	-
Total Bismuth	Not Tested	1,047	-
Total Boron	**0.956**	1,025	0.104
Total Cadmium	Not Tested	1,046	-
Total Cadmium (AITF)	-0.038	841	0.147
Total Cesium	Not Tested	1,044	-
Total Chromium by GF-AAS	0.134	428	0.164
Total Chromium	**-0.205**	1,029	0.104
Total Cobalt	-0.100	1,046	0.104
Total Copper	**-0.181**	1,046	0.104
Total Iron	**-0.126**	1,033	0.104
Total Lead	**-0.219**	1,044	0.104
Total Lithium	**0.983**	1,041	0.104
Total Manganese	**0.106**	1,031	0.104
Total Mercury	**-0.189**	1,016	0.104
Total Mercury (Flett)	**-0.352**	807	0.147
Total Methyl Mercury, as Hg	-0.439	4	0.999
Total Molybdenum	**0.939**	1,039	0.104
Total Nickel	**0.833**	1,040	0.104
Total Rubidium	**0.897**	1,044	0.104
Total Selenium, Hydride	Not Tested	887	-
Total Selenium	Not Tested	160	-
Total Silver	Not Tested	1,041	-
Total Silver (AITF)	-0.112	536	0.147
Total Strontium	**0.992**	1,041	0.104
Total Thallium	**-0.306**	1,047	0.104
Total Tin	0.405	9	0.898

Table 3F-2 Results of Pearson Correlations with Laboratory Conductivity, 2004 to 2012 Snap Lake Data

Parameter	Pearson Correlation Coefficient[a]	Pairs of Results	Critical Pearson Value for $P = 0.001$
Total Titanium	**0.209**	1,040	0.104
Total Uranium	**0.848**	1,046	0.104
Total Vanadium by ICP-OES	Not Tested	462	-
Total Vanadium	0.046	1,046	0.104
Total Zinc	-0.044	1,043	0.104
Total Zirconium	Not Tested	2	-
Hexavalent Chromium	**-0.119**	1,041	0.104
Trivalent Chromium	Not Tested	73	0.385
Dissolved Metals and Metalloids			
Dissolved Aluminum	**-0.184**	822	0.147
Dissolved Antimony	0.032	659	0.147
Dissolved Arsenic by HG-AAS	-0.051	370	0.189
Dissolved Arsenic	0.131	847	0.147
Dissolved Barium	**0.970**	843	0.147
Dissolved Beryllium	Not Tested	849	-
Dissolved Bismuth	Not Tested	849	-
Dissolved Boron	**0.950 (0.951)**	813 (812)	0.147
Dissolved Cadmium	Not Tested	848	-
Dissolved Cesium	Not Tested	845	-
Dissolved Chromium by GF-AAS	0.074	305	0.189
Dissolved Chromium	**-0.148**	837	0.147
Dissolved Cobalt	**-0.251**	604	0.147
Dissolved Copper	**-0.269**	838	0.147
Hexavalent Chromium	Not Tested	1	-
Dissolved Iron	-0.139	834	0.147
Dissolved Lead	Not Tested	842	-
Dissolved Lithium	**0.983**	837	0.147
Dissolved Manganese	**0.167**	654	0.147
Dissolved Mercury	Not Tested	819	-
Dissolved Molybdenum	**0.933**	847	0.147
Dissolved Nickel	**0.811**	751	0.147
Dissolved Rubidium	**0.885**	845	0.147
Dissolved Selenium by HG-AAS	Not Tested	176	-
Dissolved Selenium	Not Tested	678	-
Dissolved Silver	Not Tested	849	-
Dissolved Strontium	**0.989**	841	0.147
Dissolved Thallium	Not Tested	848	-
Dissolved Tin	Not Tested	9	-
Dissolved Titanium	**0.397**	844	0.147
Dissolved Uranium	**0.810**	849	0.147
Dissolved Vanadium by ICP-OES	Not Tested	361	-
Dissolved Vanadium	0.050	832	0.147
Dissolved Zinc	-0.118	805	0.147
Dissolved Zirconium	Not Tested	3	-
Organics-General			
F2, (>C10-C16)	Not Tested	442	0.164
Oil & Grease	**-0.182**	558	0.147
Phenols	Not Tested	9	0.898
Total Extractable Hydrocarbons, (>C10-C16)	Not Tested	34	-

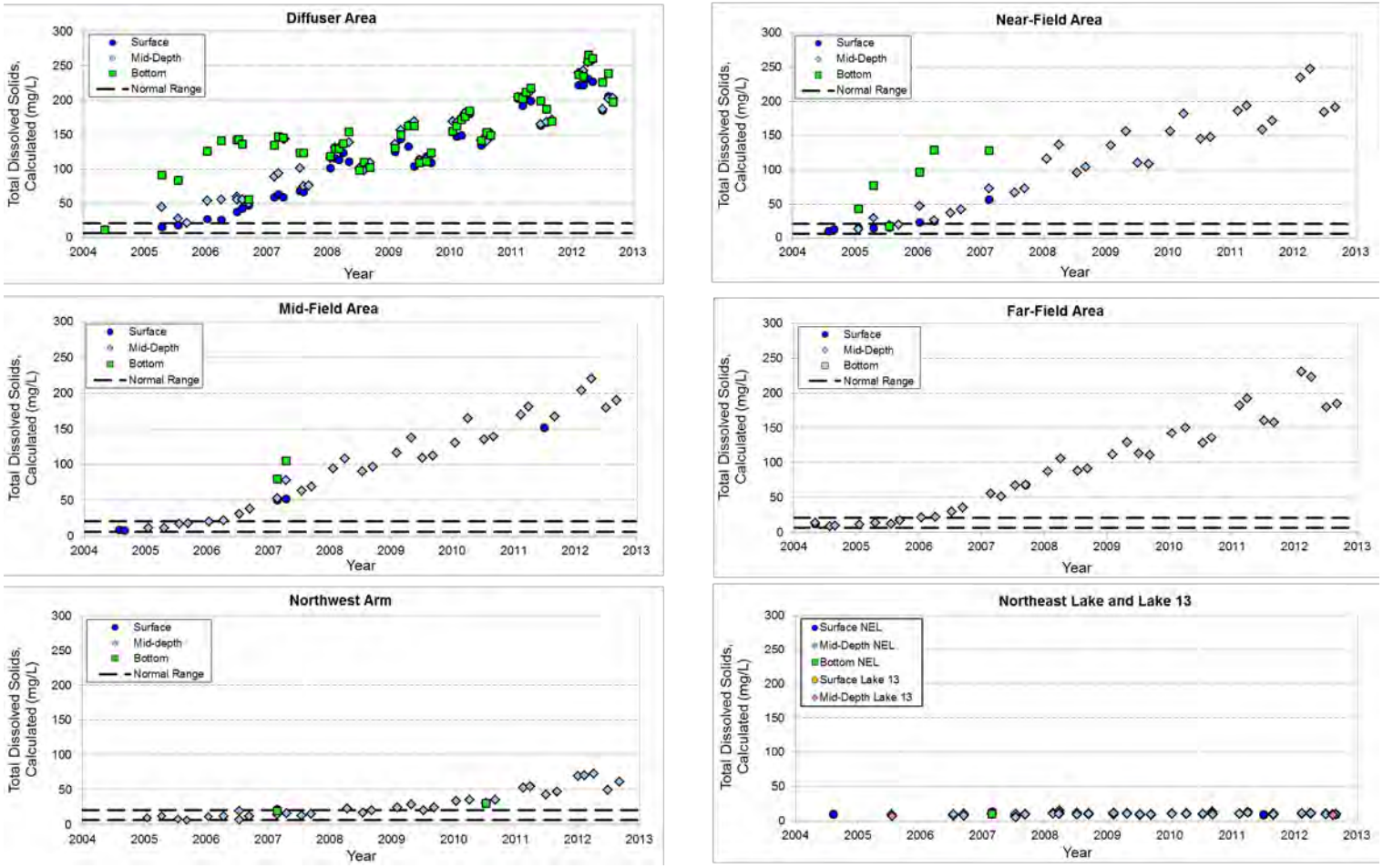
Table 3F-2 Results of Pearson Correlations with Laboratory Conductivity, 2004 to 2012 Snap Lake Data

Parameter	Pearson Correlation Coefficient[(a)]	Pairs of Results	Critical Pearson Value for P = 0.001
Total Extractable Hydrocarbons, (C10-C30)	Not Tested	1	-
Total Extractable Hydrocarbons, (C11-C30)	Not Tested	268	-
Total Extractable Hydrocarbons, (C16-C34)	Not Tested	1	-
Total Extractable Hydrocarbons, (C34-C50)	Not Tested	1	-
Total Extractable Hydrocarbons, (C6-C10)	Not Tested	178	-
Organics-Volatile			
BTEX, Calculated	Not Tested	519	-
Benzene	Not Tested	575	-
Ethylbenzene	Not Tested	577	-
F1, (C6-C10)	Not Tested	377	-
F1, BTEX	Not Tested	376	-
Total Volatile Hydrocarbons, (C5-C10)	Not Tested	267	-
Toluene	Not Tested	576	-
Xylene	Not Tested	577	-
m&p-Xylene	Not Tested	237	-
o-Xylene	Not Tested	237	-
Microbiology			
E. coli	Not Tested	329	-
E. coli	-0.130	157	0.324
Fecal Coliform	Not Tested	7	-
Total Coliforms	Not Tested	7	-

(a) A Pearson Correlation test was completed on data from 2004 to 2011 excluding outliers and data from 2012. A second Pearson Correlation test was completed on data from 2004 to 2012 excluding outliers. Pearson Correlation Coefficients in brackets indicate correlation with outliers removed. Significant Pearson correlation coefficients (P<0.001) are shown in **bold**.

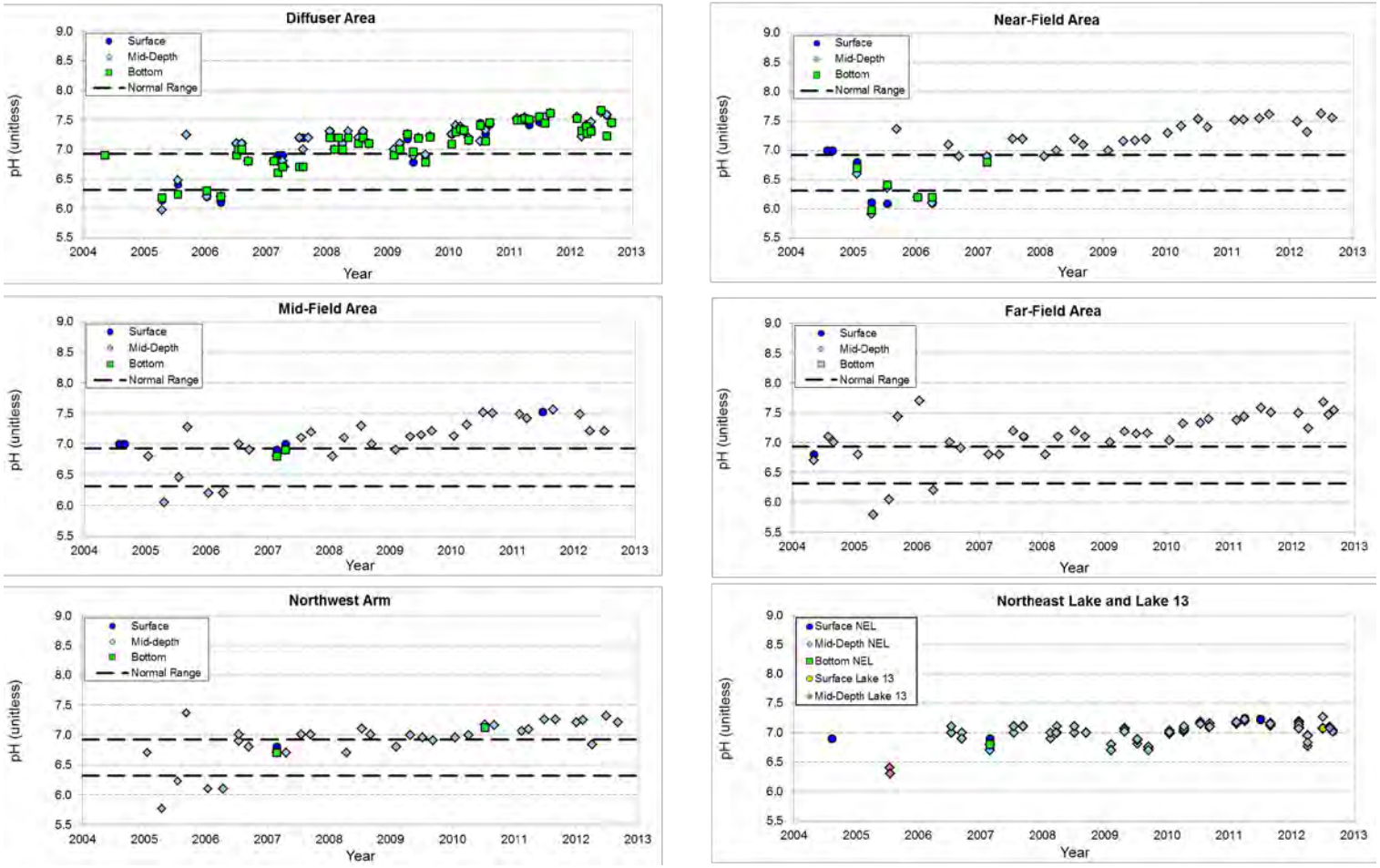
AITF = Alberta Innovates Technology Futures laboratory; Flett = Flett Research Ltd.; GF-AAS = graphite furnace atomic absorption spectrometry; HG-AAS = hydride generation atomic absorption spectrometry; ICP-OES = inductively coupled plasma-optical emission spectrometry; BTEX = benzene, toluene, ethyl benzene and xylenes; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; *E. coli* = *Escherichia coli*; F1 = F1 hydrocarbon fractions (C6-C10); F2 = F2 hydrocarbon fractions (>C10-C16); HCO_3 = bicarbonate; Hg = mercury; m&p-Xylene = meta and para Xylene; o-Xylene = ortho-Xylene; N = nitrogen; P = phosphorus; SiO_2 = silicate; > = greater than; - = not applicable, or negative correlation observed; Not Tested = Pearson test was not completed for this parameter because most of the results were the same value.

Figure 3F-2 Total Dissolved Solids (Calculated) Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



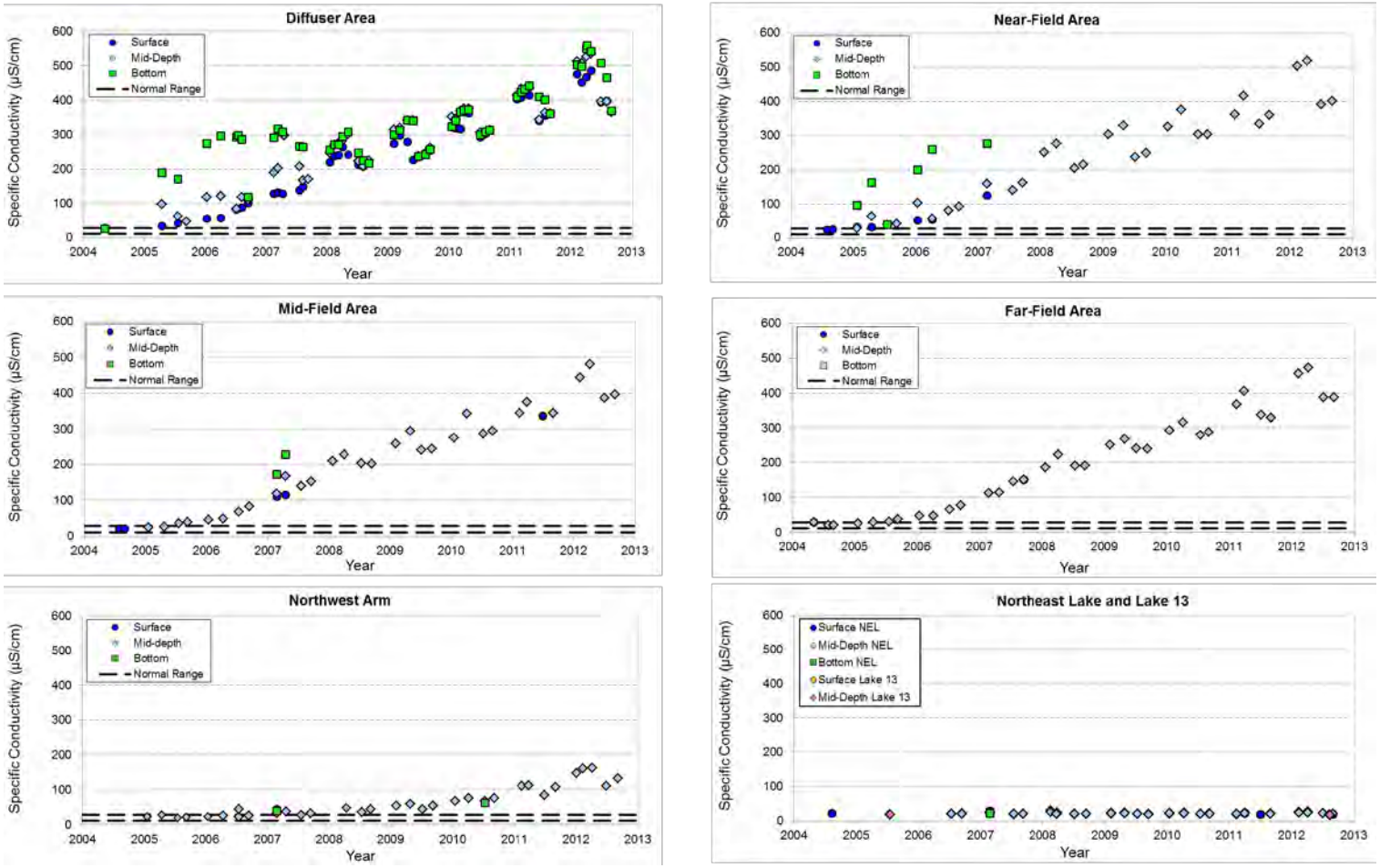
Note: mg/L = milligrams per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-3 Laboratory-measured pH in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



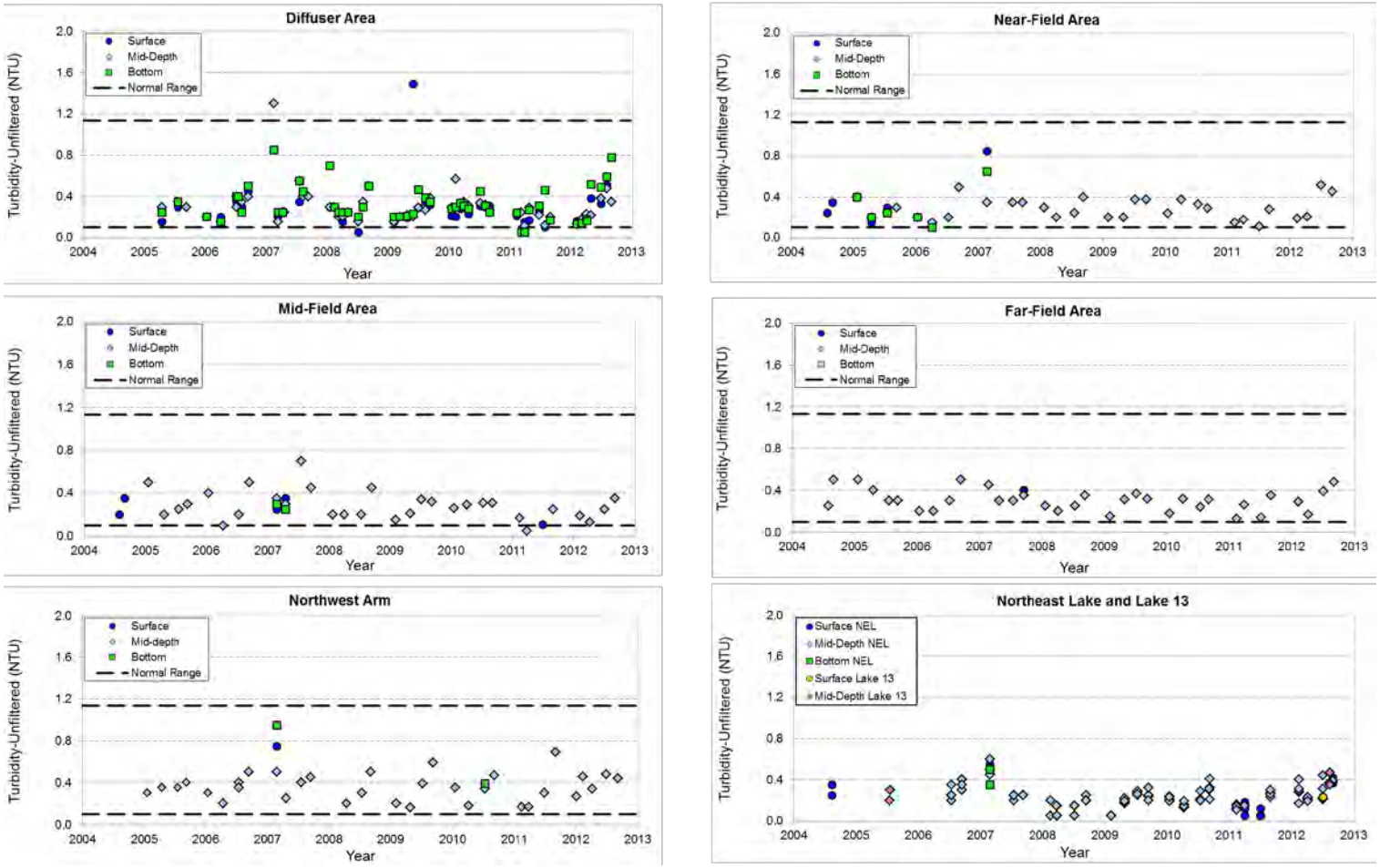
Note: Normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-4 Laboratory Conductivity in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



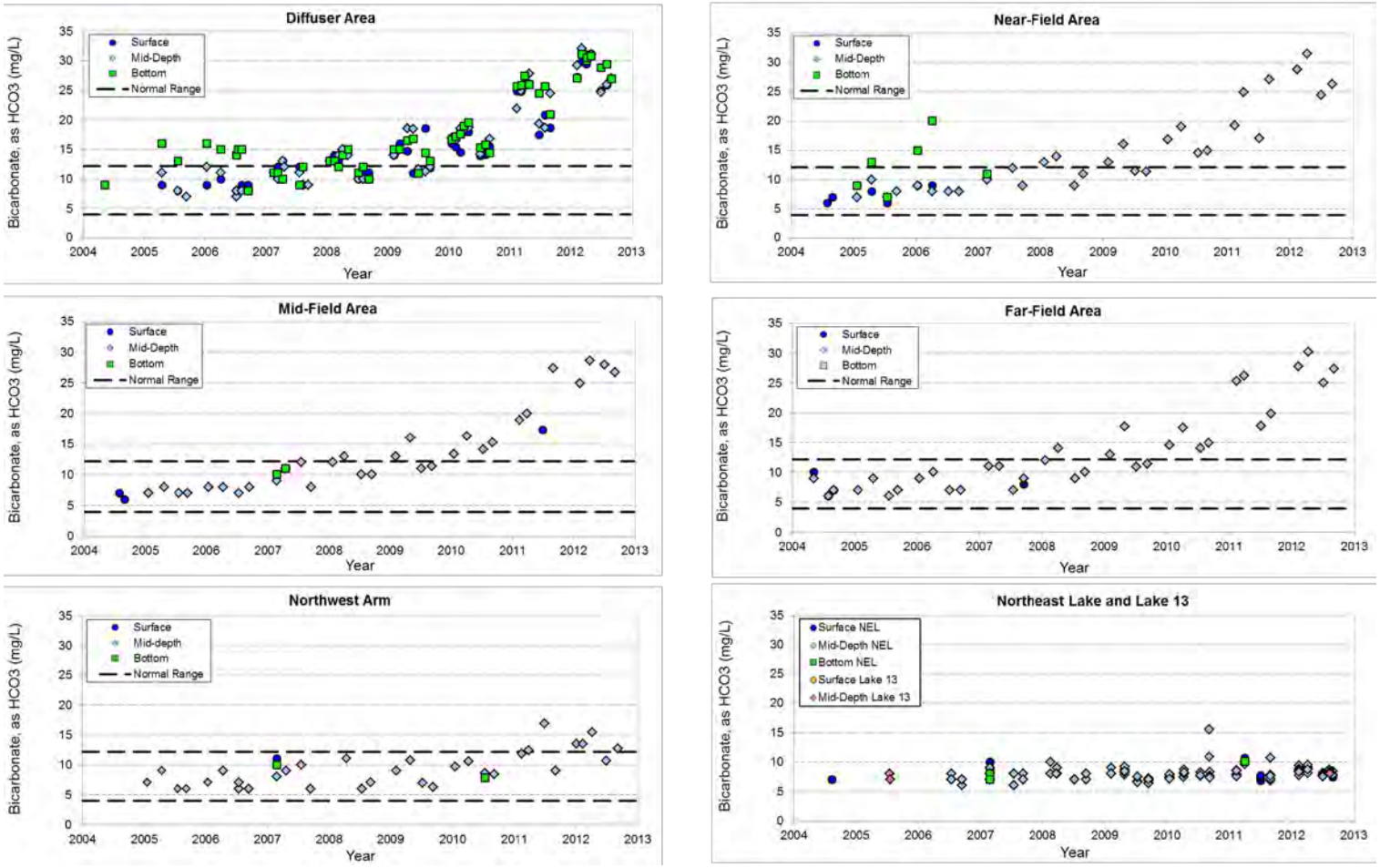
Note: µS/cm = microSiemens per centimetre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-5 Turbidity in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



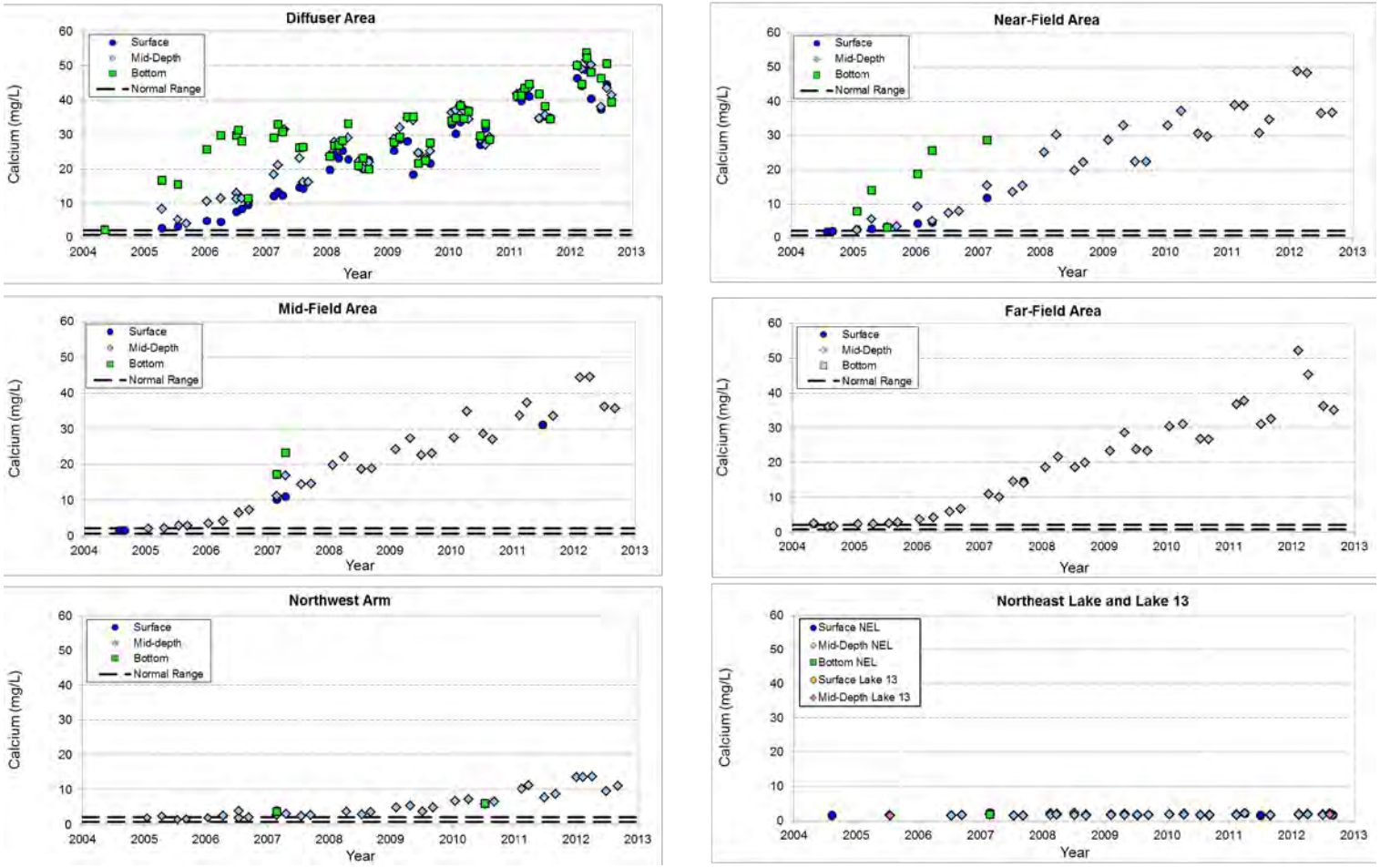
Note: NTU = nephelometric turbidity units; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-6 Bicarbonate Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



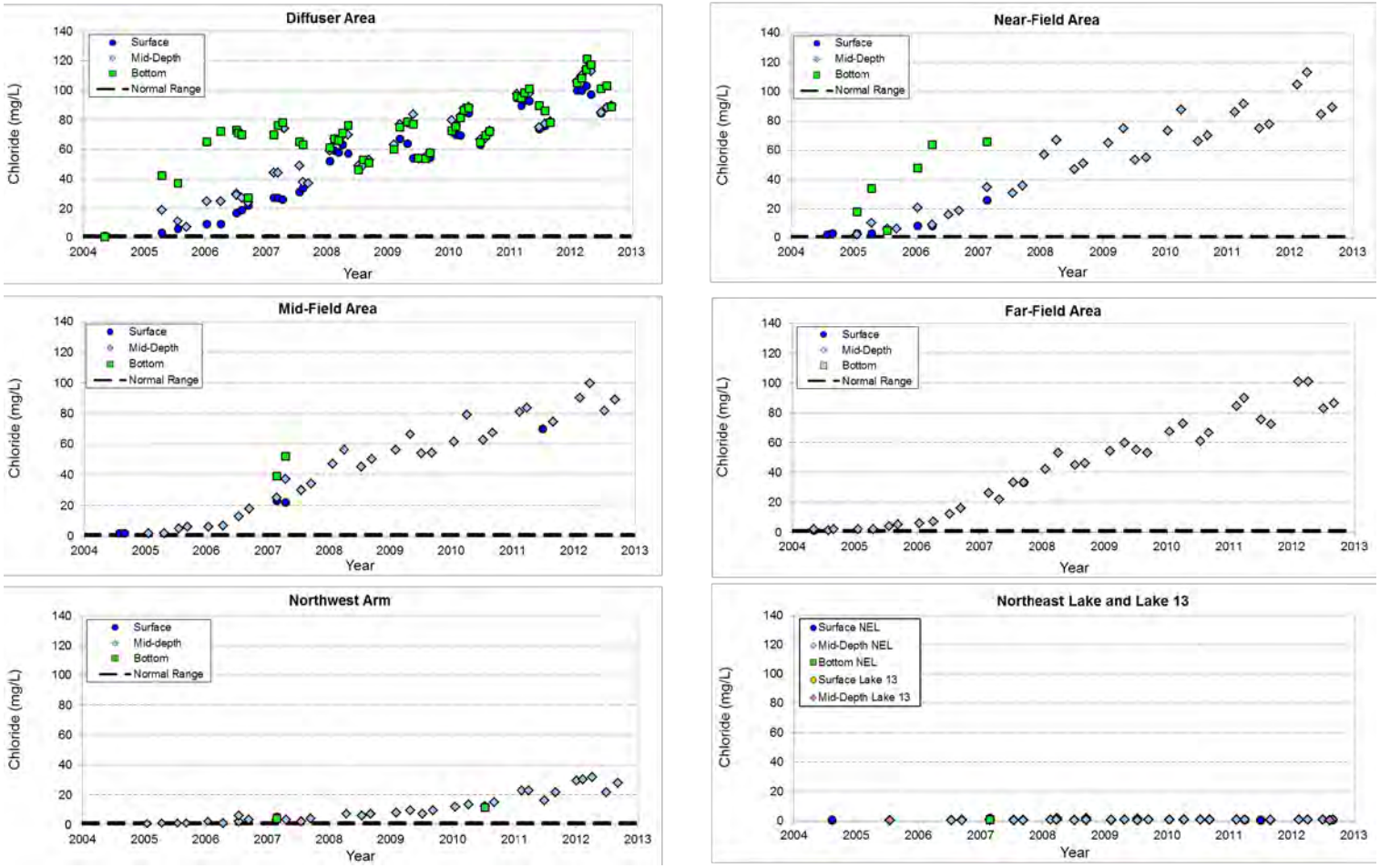
Note: mg/L = milligrams per litre; HCO_3 = bicarbonate; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-7 Calcium Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



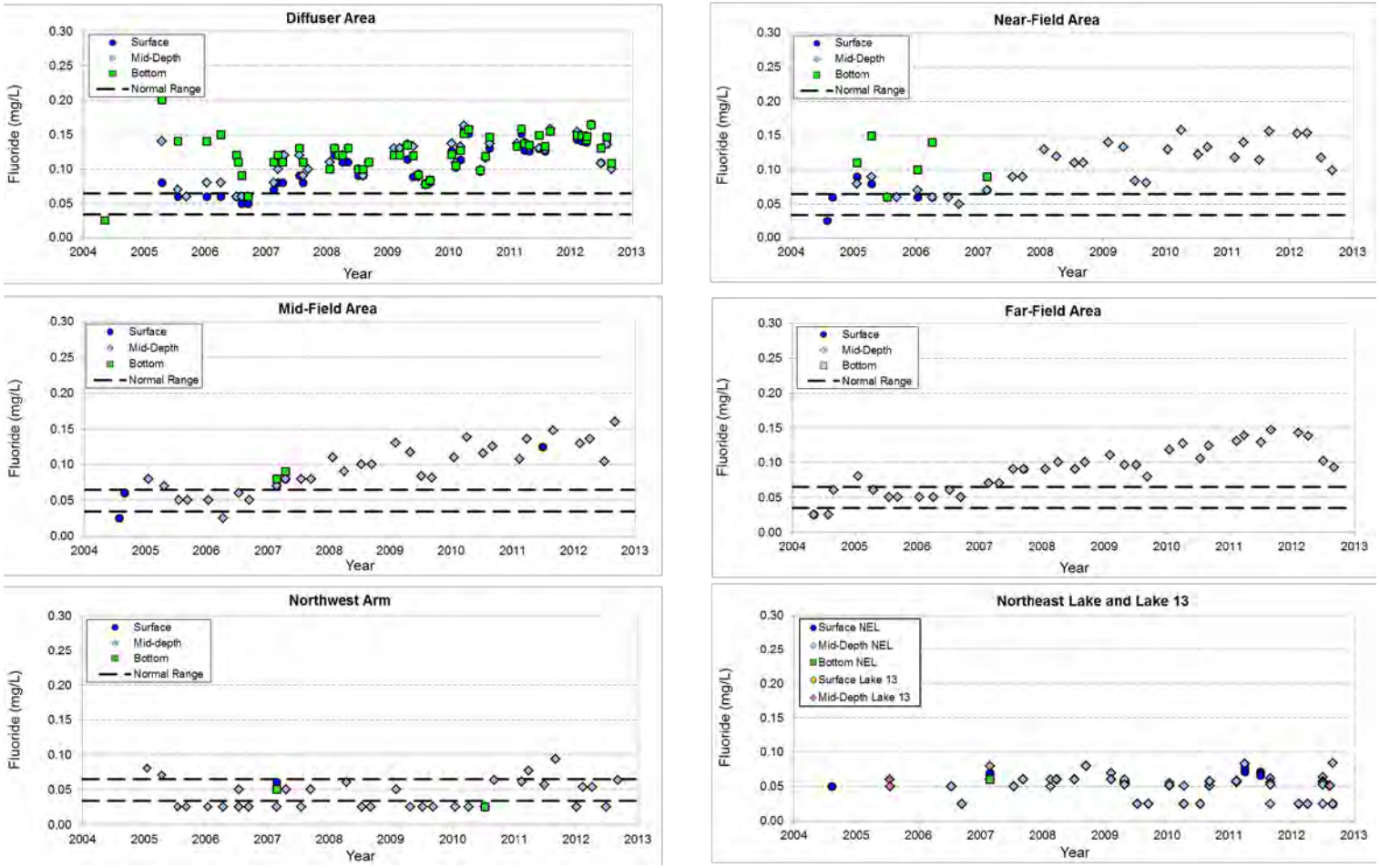
Note: mg/L = milligrams per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-8 Chloride Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



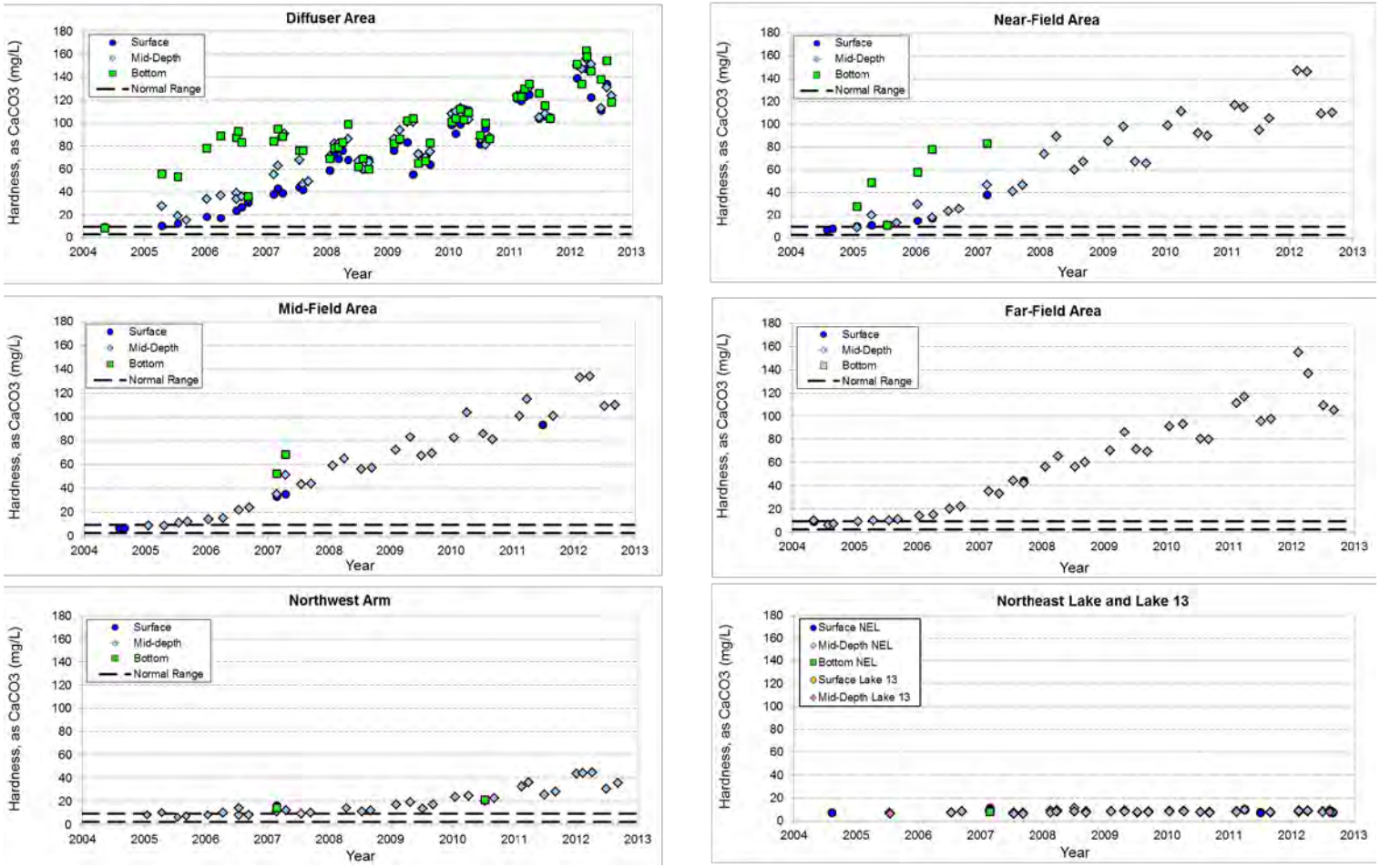
Note: mg/L = milligrams per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-9 Fluoride Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



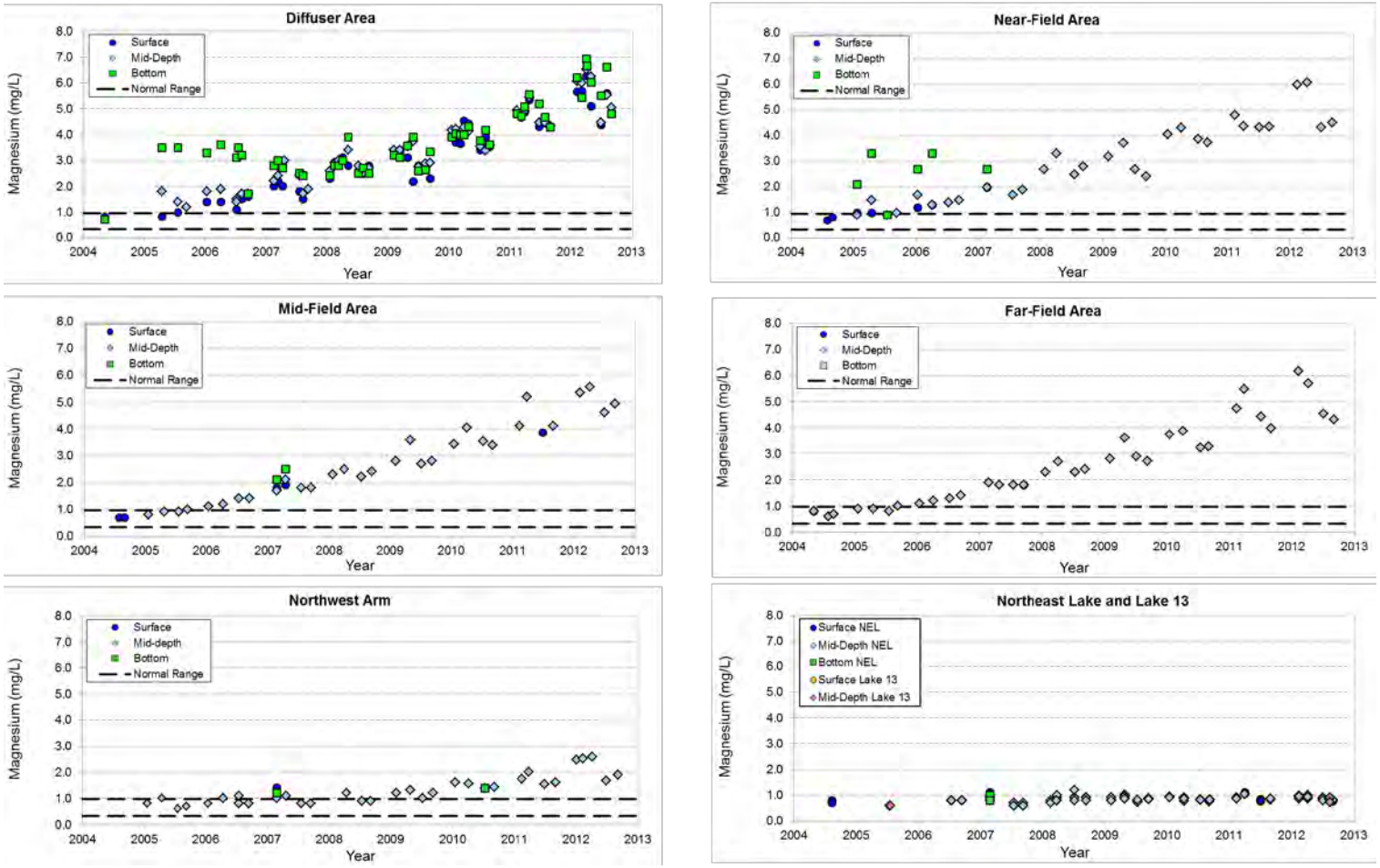
Note: mg/L = milligrams per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-10 Hardness Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



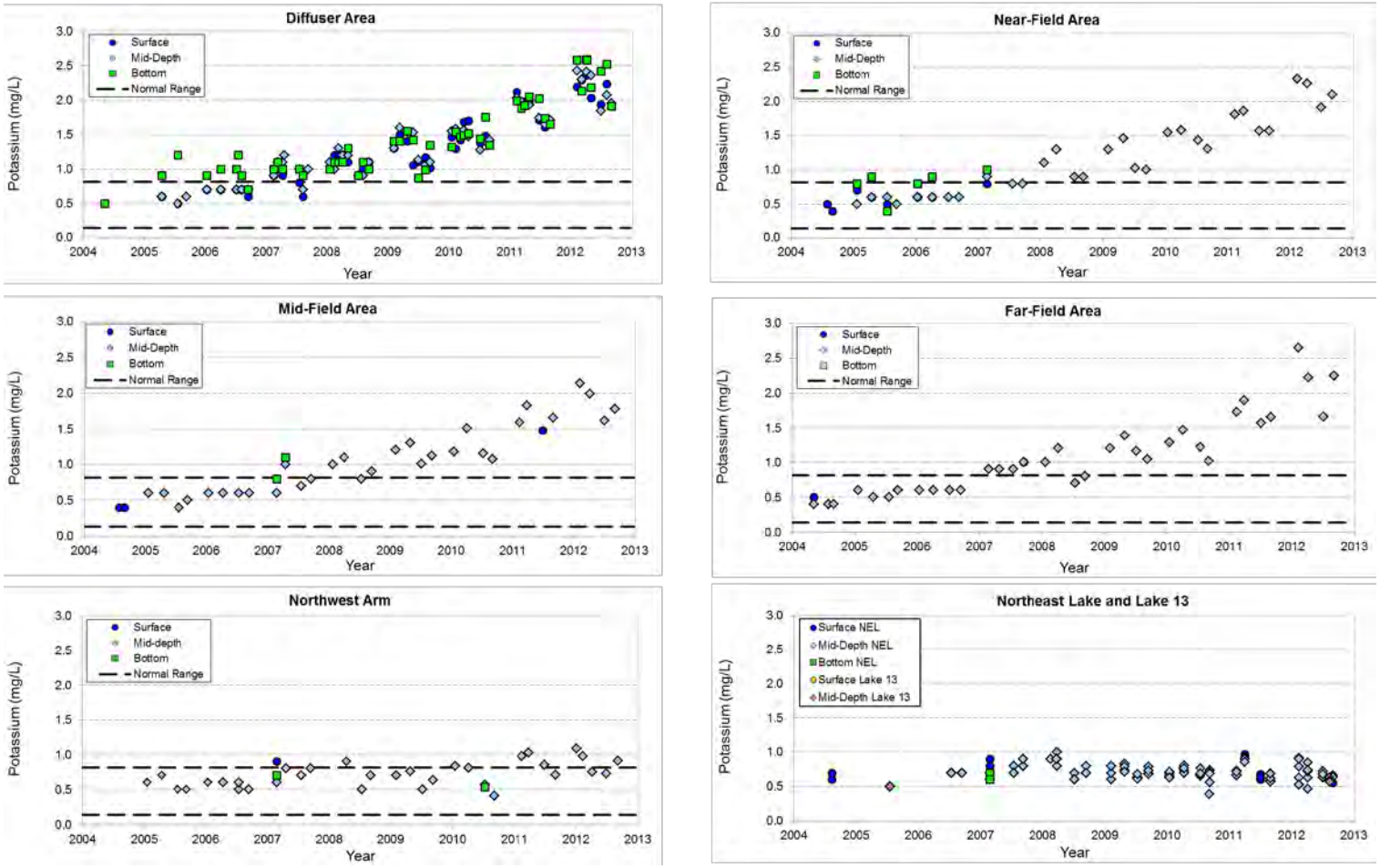
Note: mg/L = milligrams per litre; $CaCO_3$ = calcium carbonate; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-11 Magnesium Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



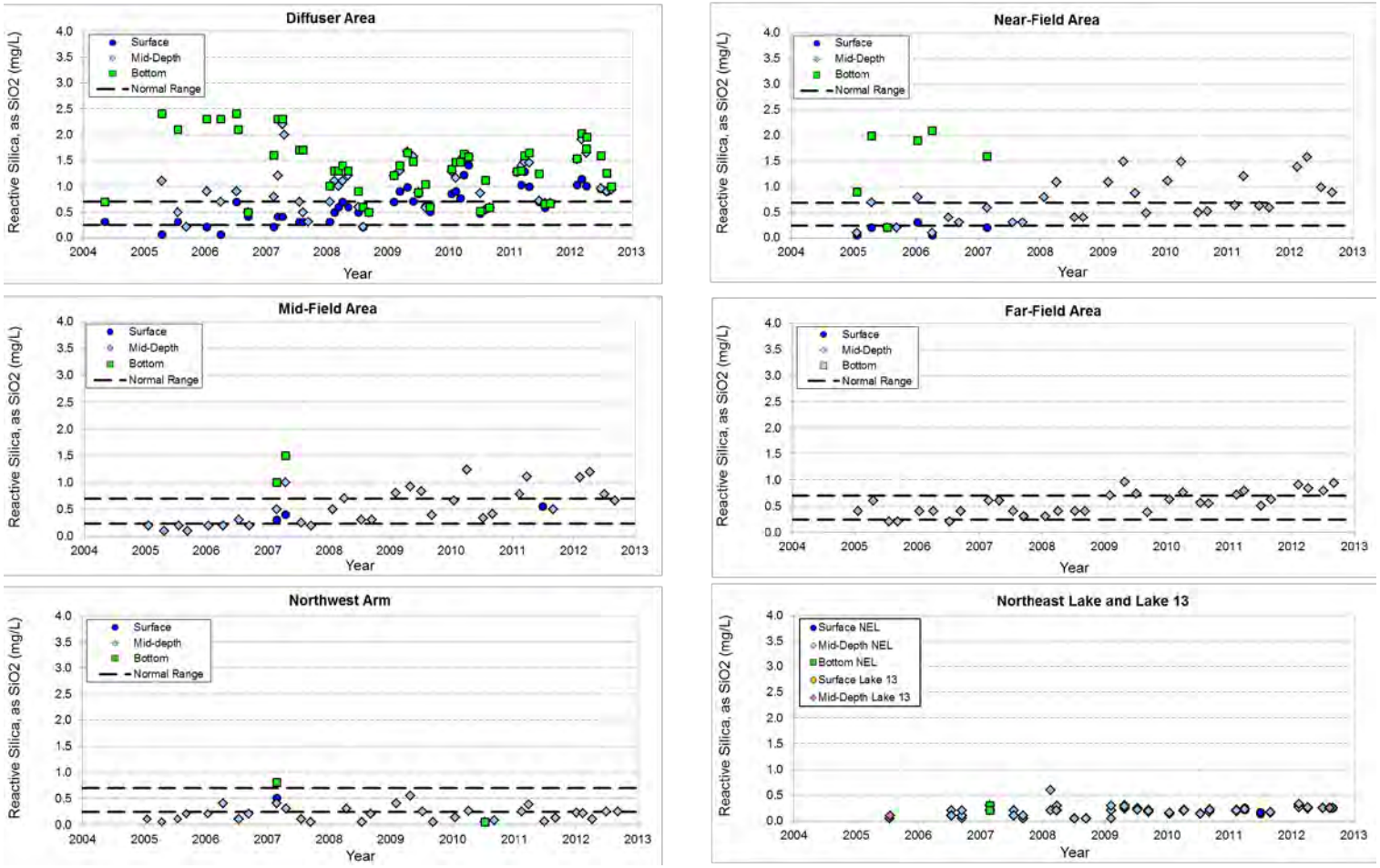
Note: mg/L = milligrams per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-12 Potassium Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



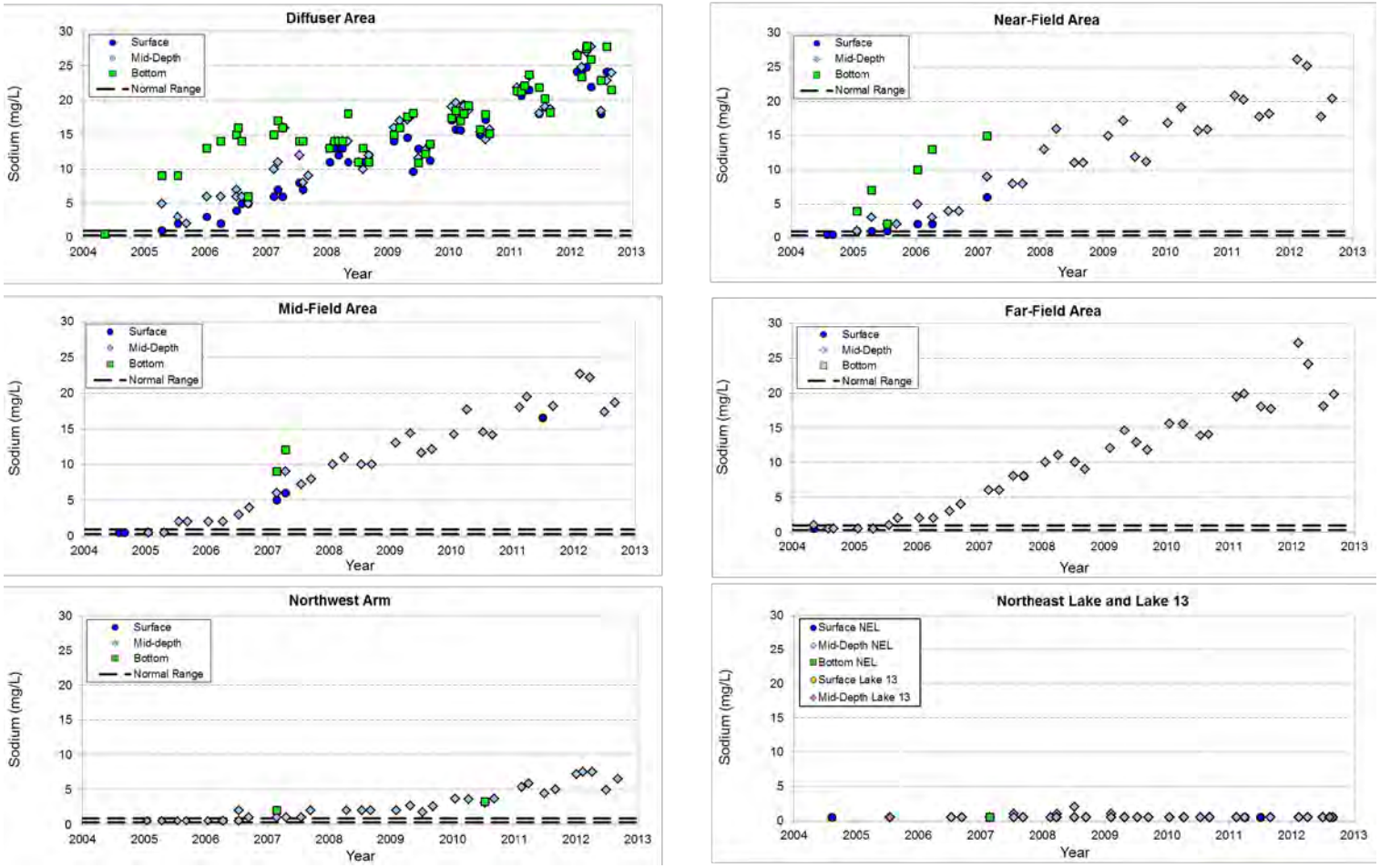
Note: mg/L = milligrams per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-13 Reactive Silica Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



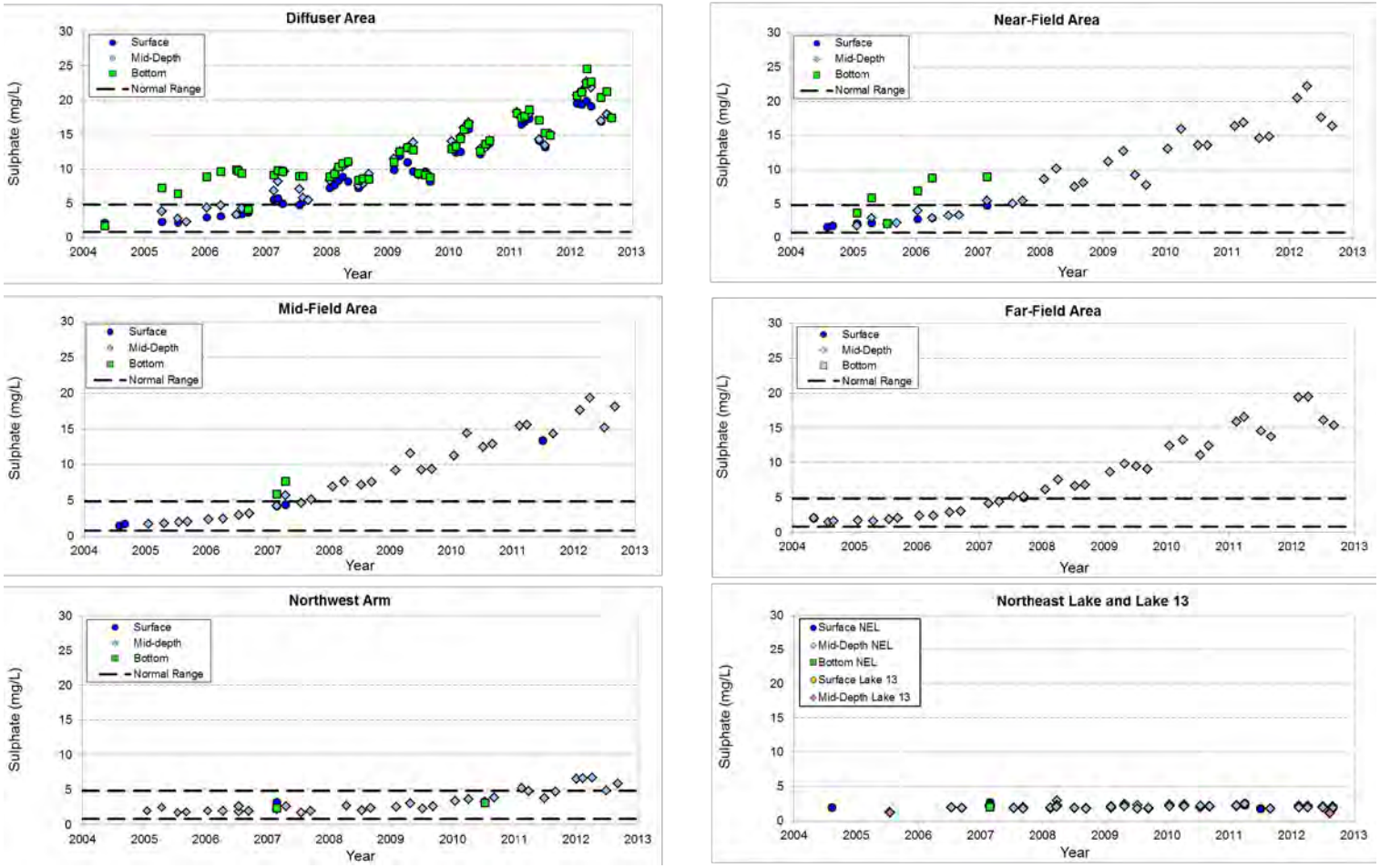
Note: mg/L = milligrams per litre; SiO_2 = silicate; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-14 Sodium Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



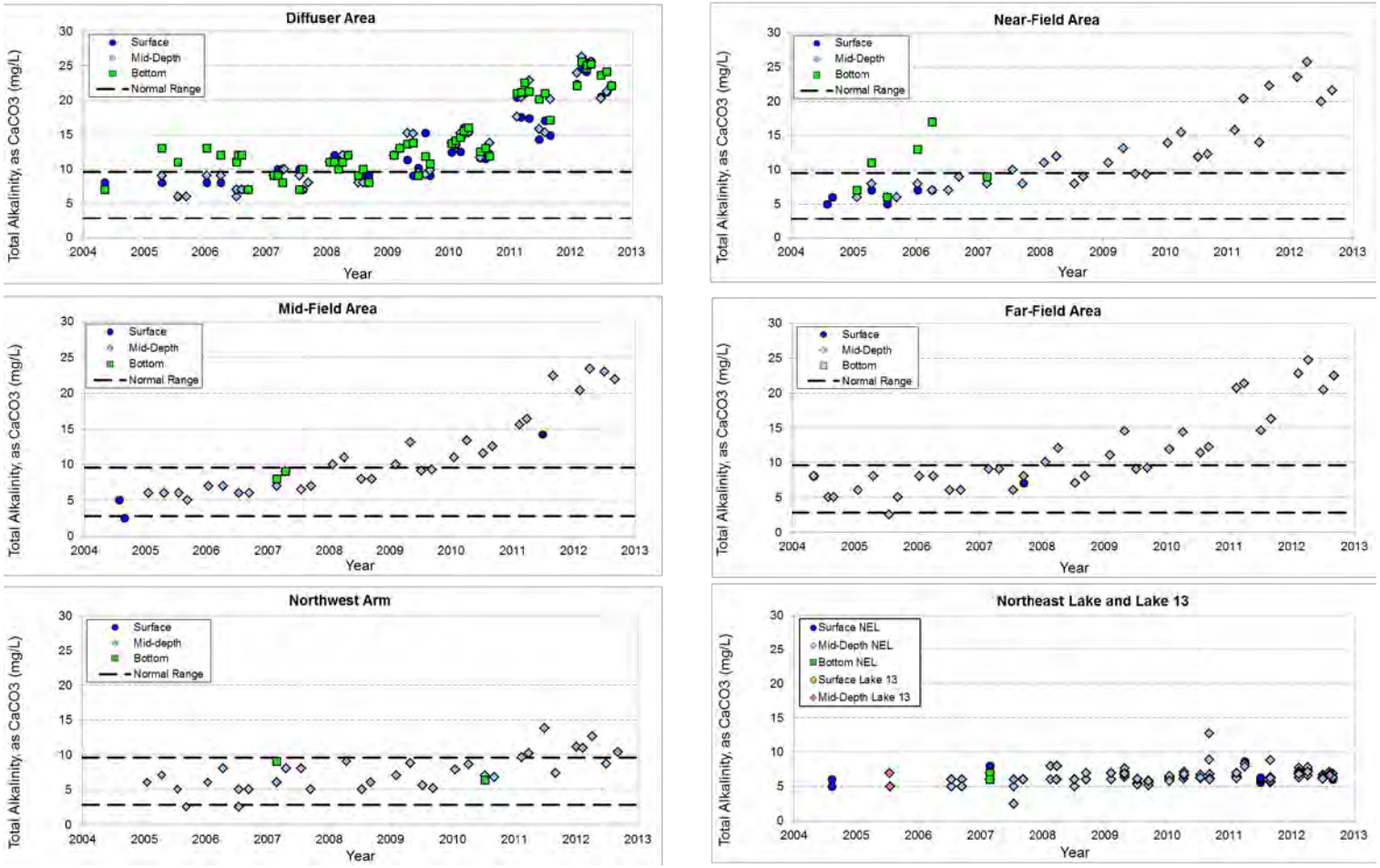
Note: mg/L = milligrams per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-15 Sulphate Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



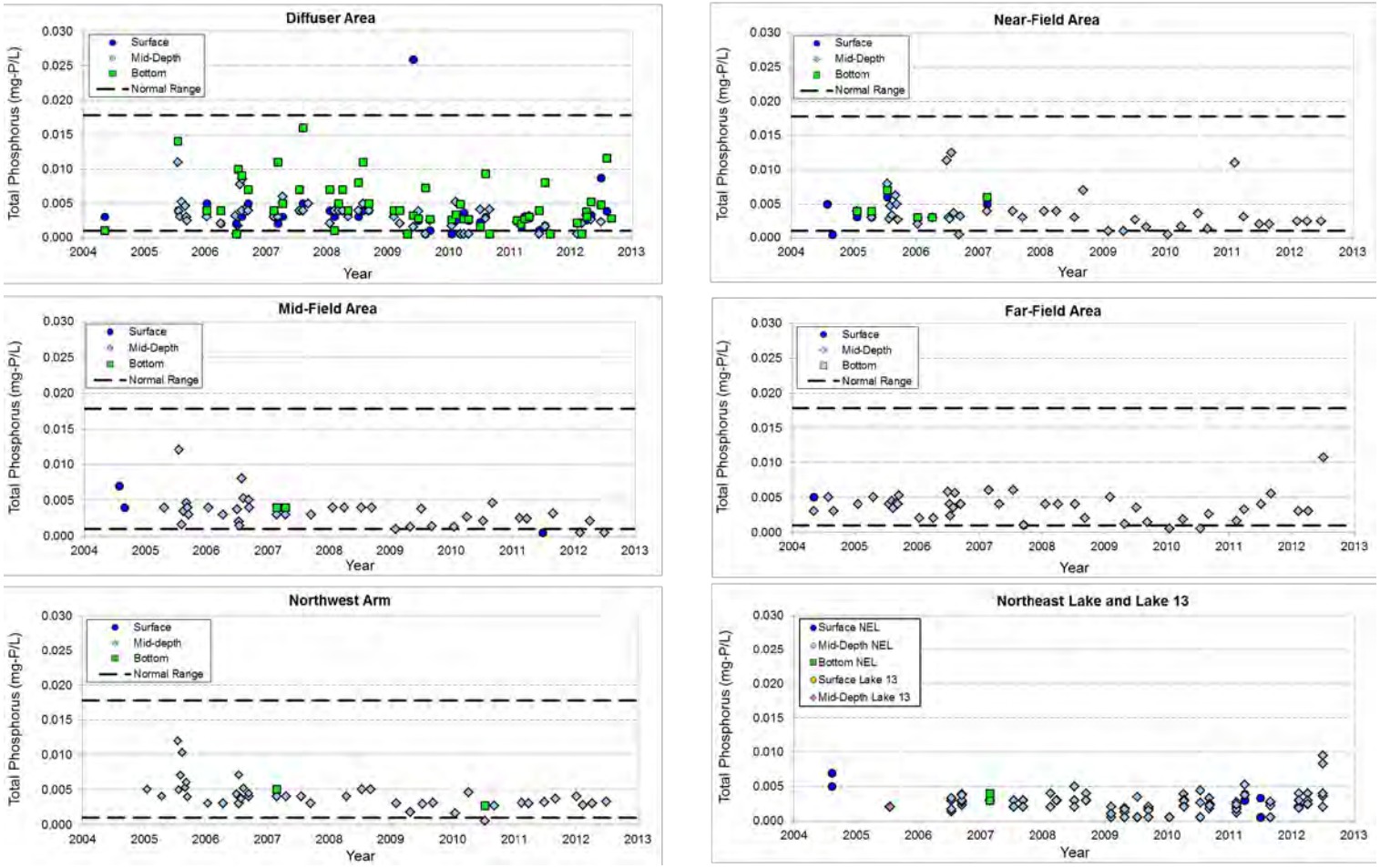
Note: mg/L = milligrams per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-16 Total Alkalinity Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



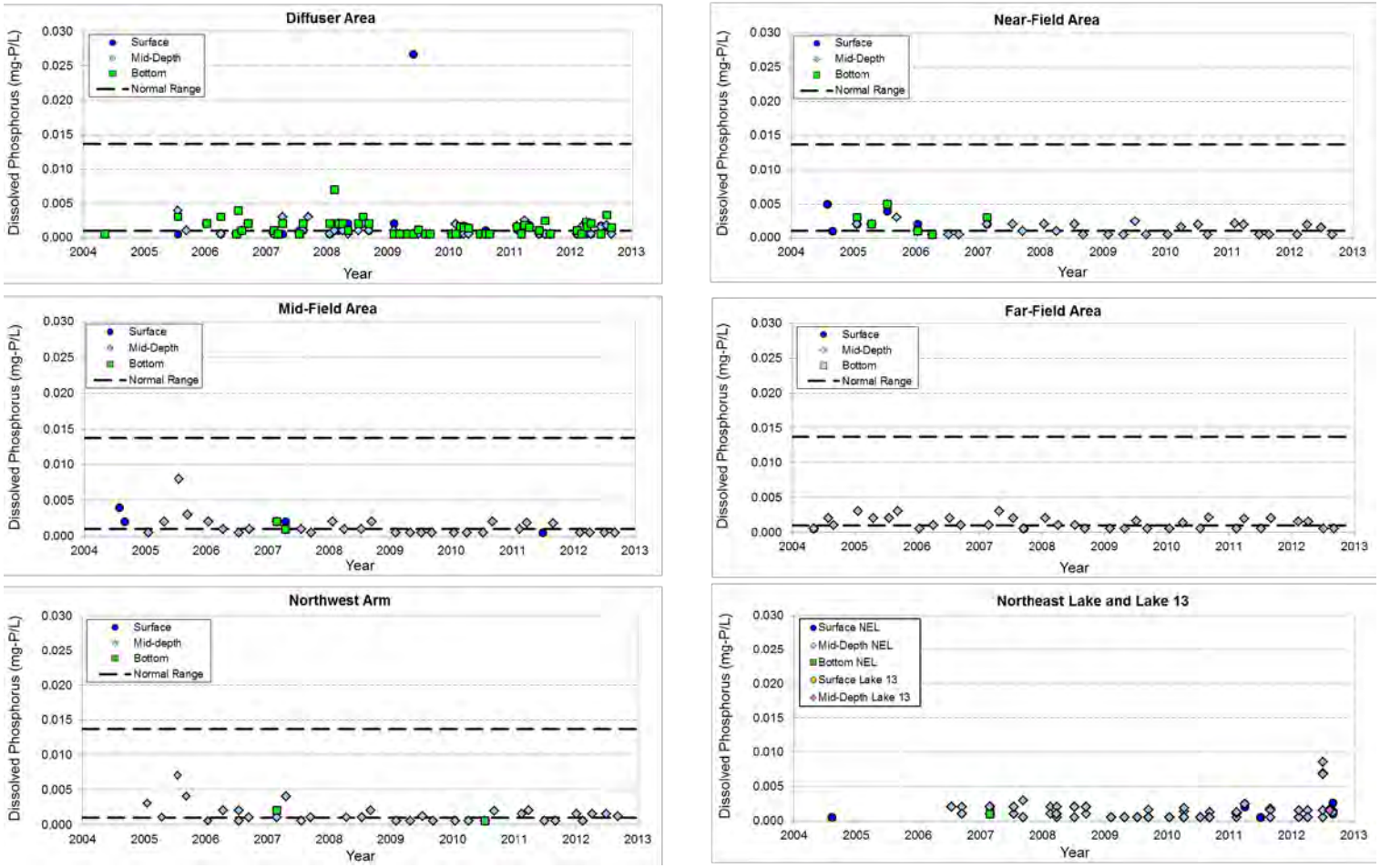
Note: mg/L = milligrams per litre; $CaCO_3$ = calcium carbonate; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-17 Total Phosphorus Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



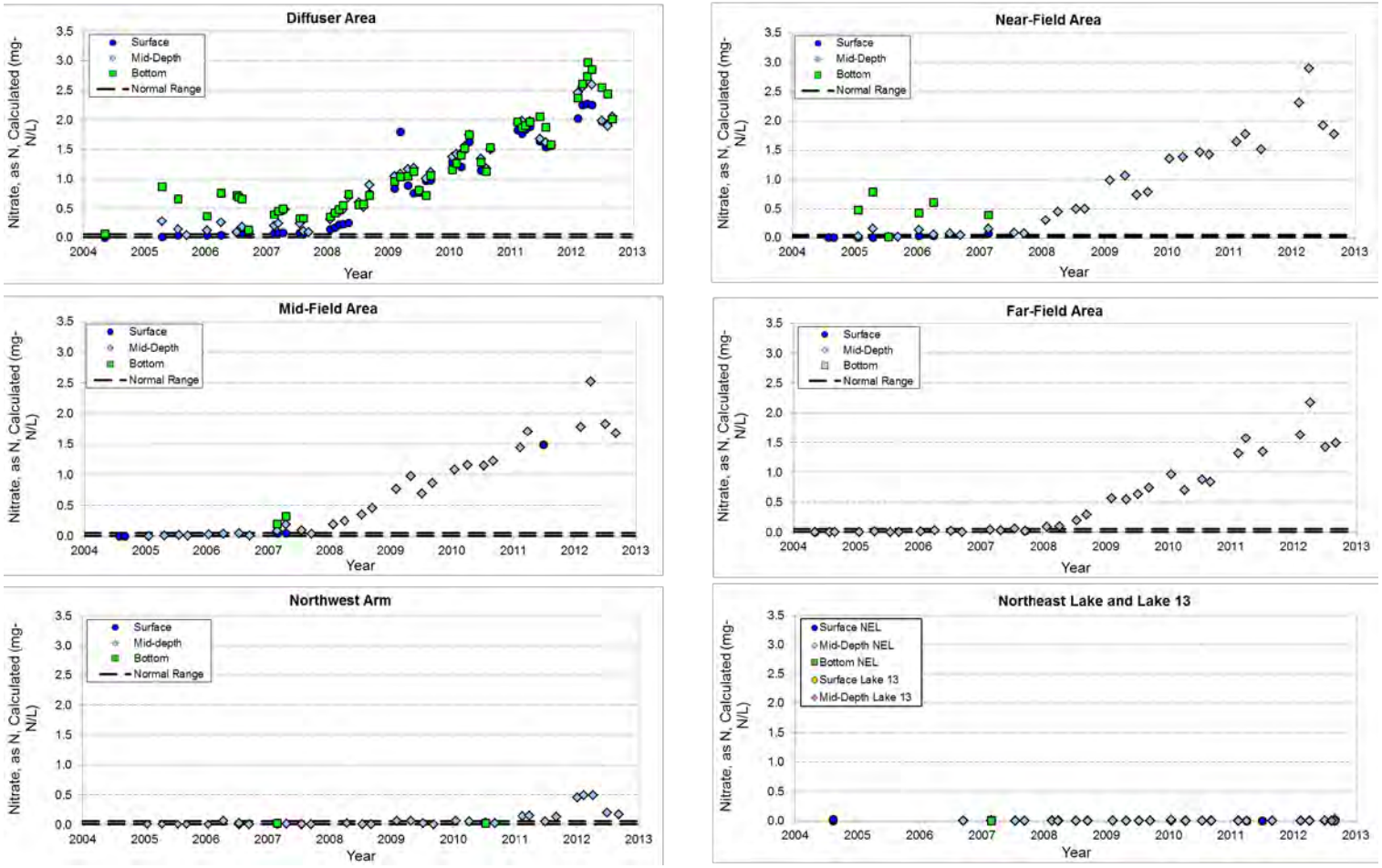
Note: mg-P/L = milligrams as phosphorus per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-18 Dissolved Phosphorus Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



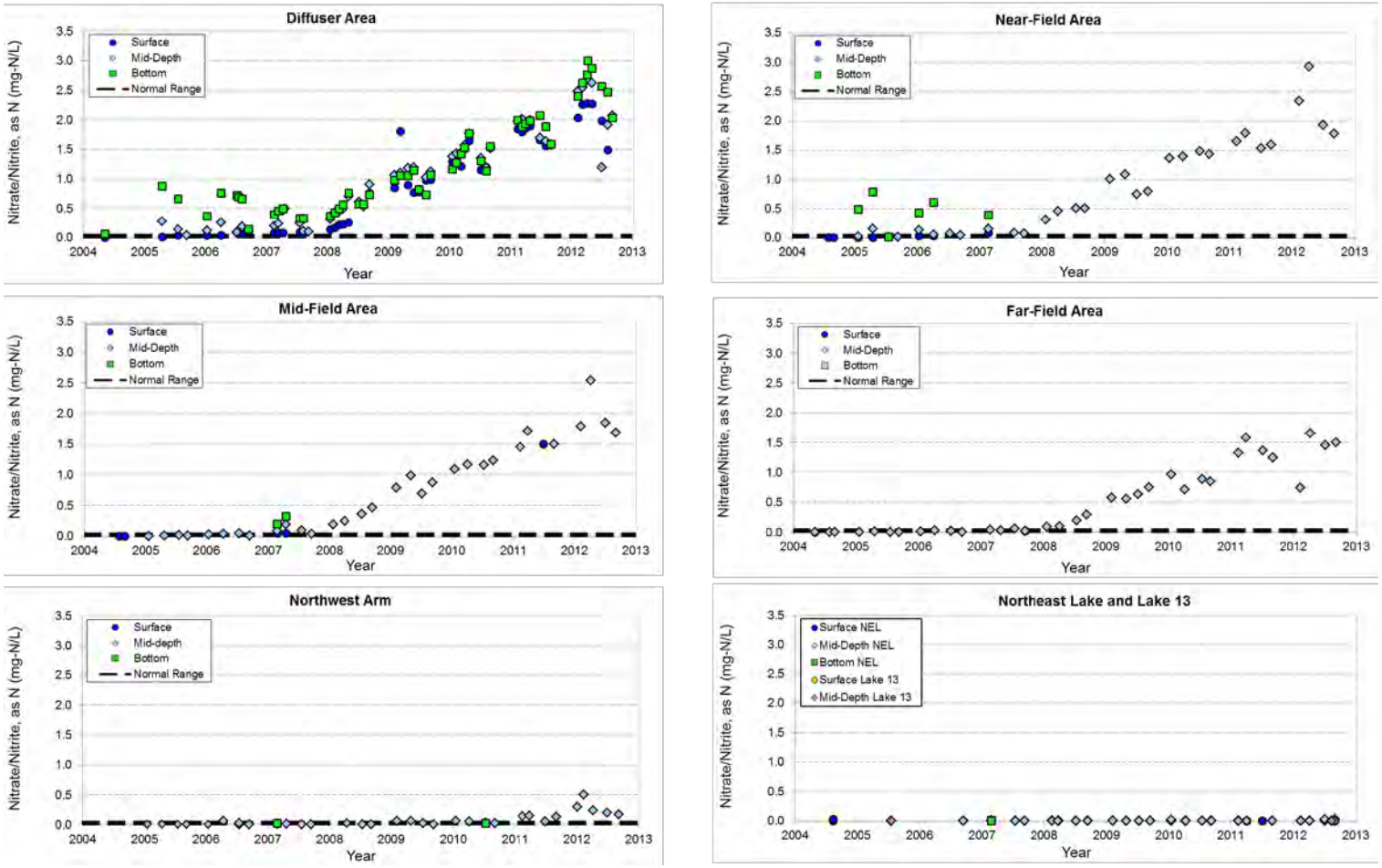
Note: mg-P/L = milligrams as phosphorus per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-19 Nitrate Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



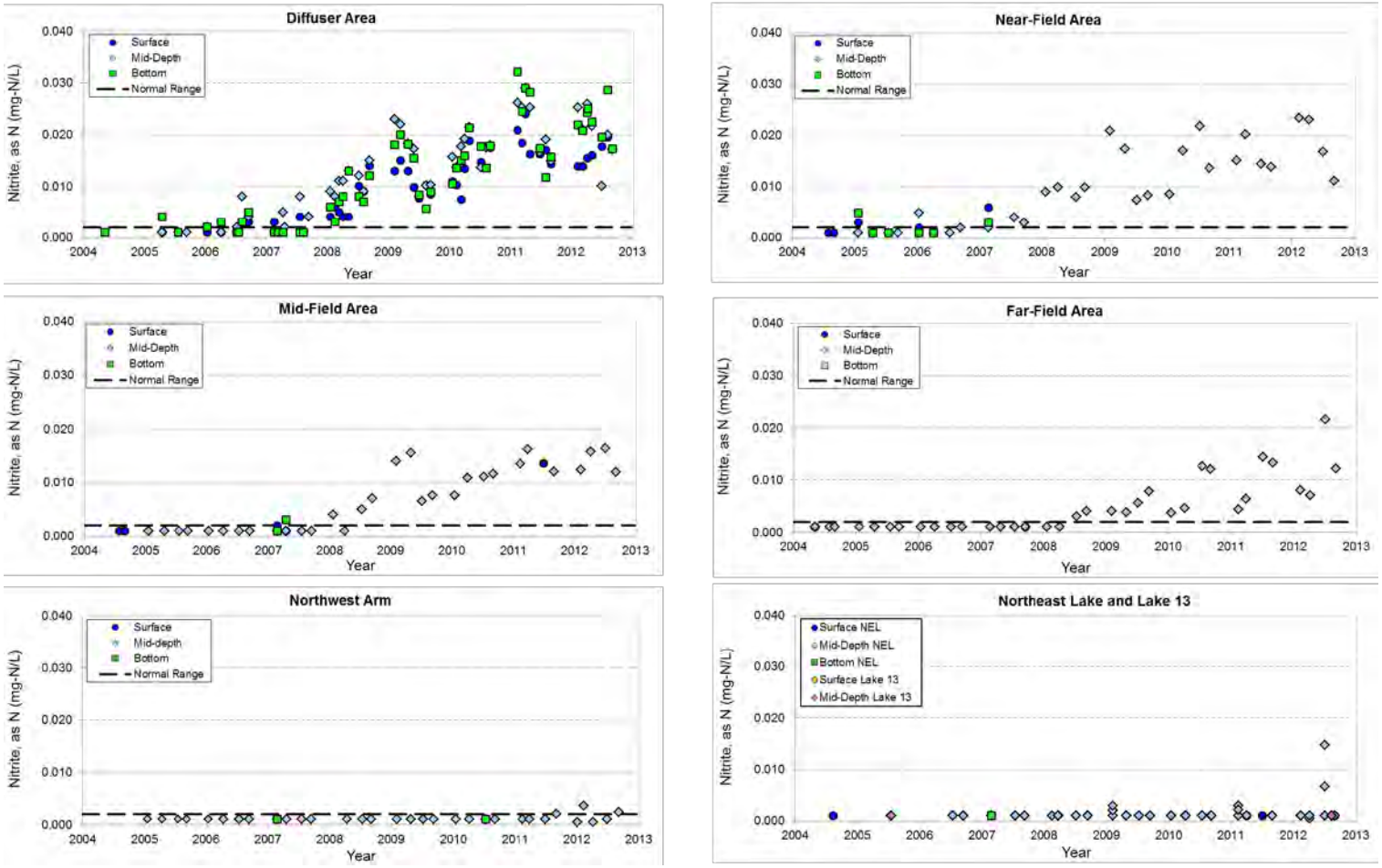
Note: mg-N/L = milligrams as nitrogen per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-20 Nitrate/Nitrite Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



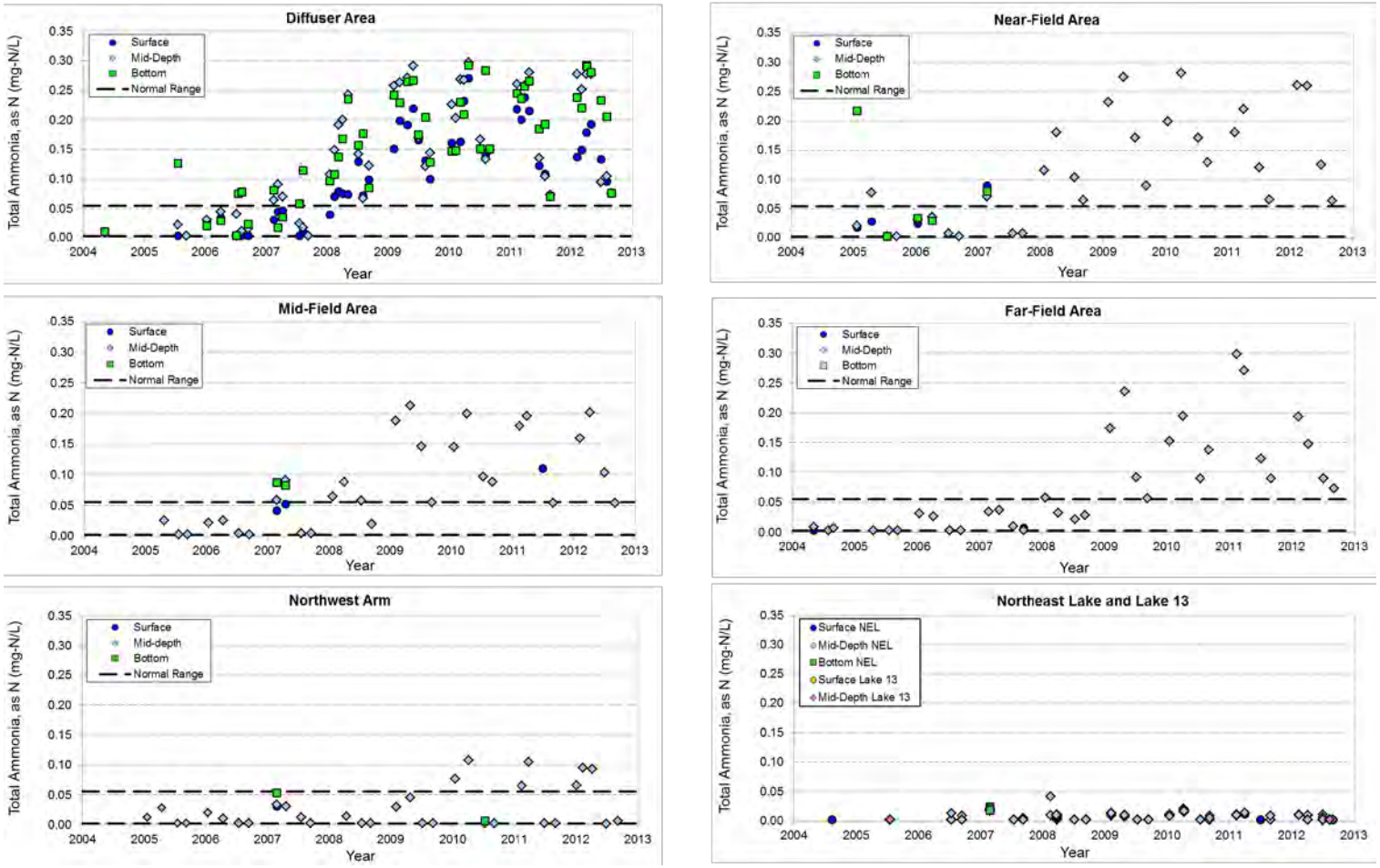
Note: mg-N/L = milligrams as nitrogen per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-21 Nitrite Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



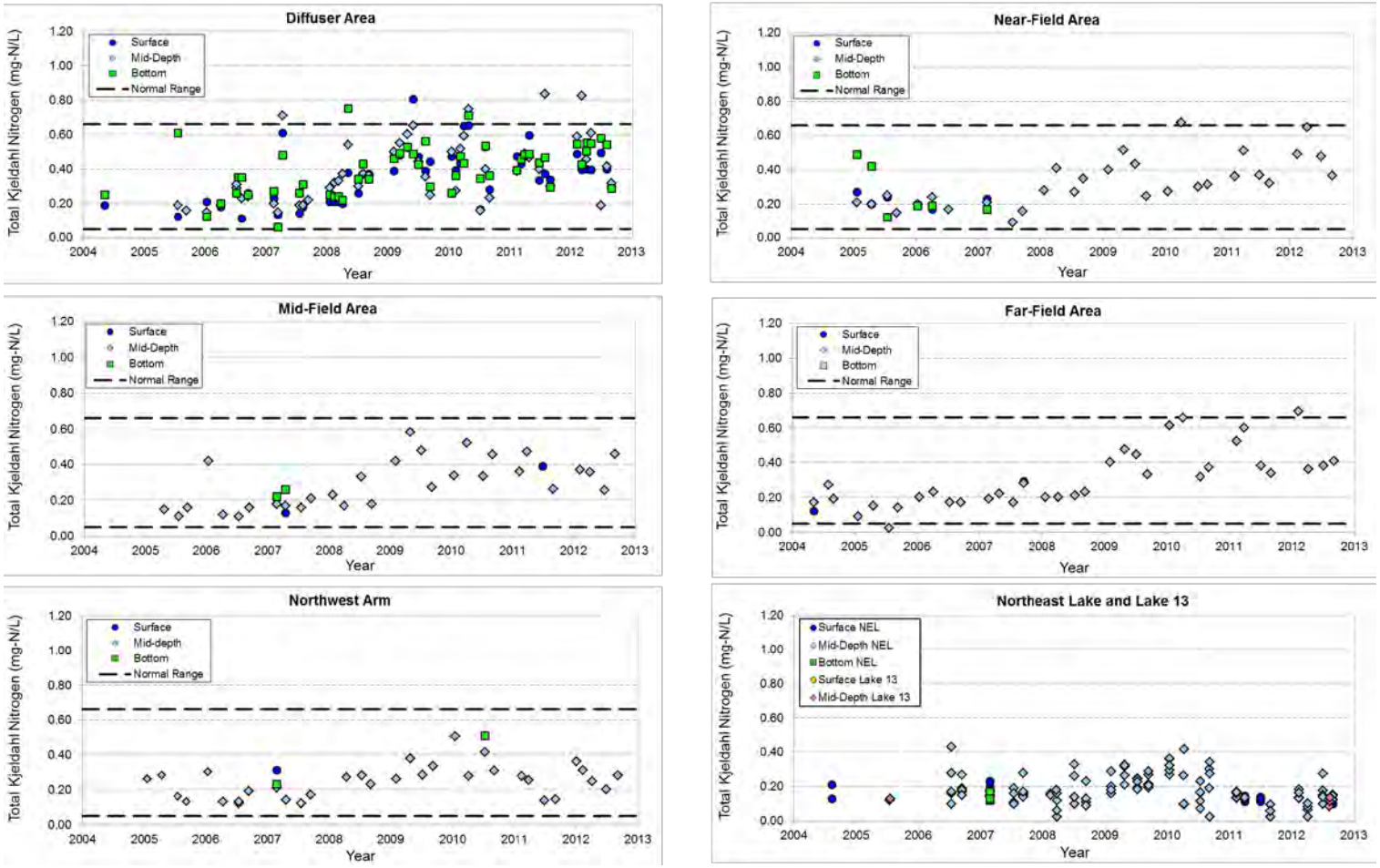
Note: mg-N/L = milligrams as nitrogen per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-22 Total Ammonia Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



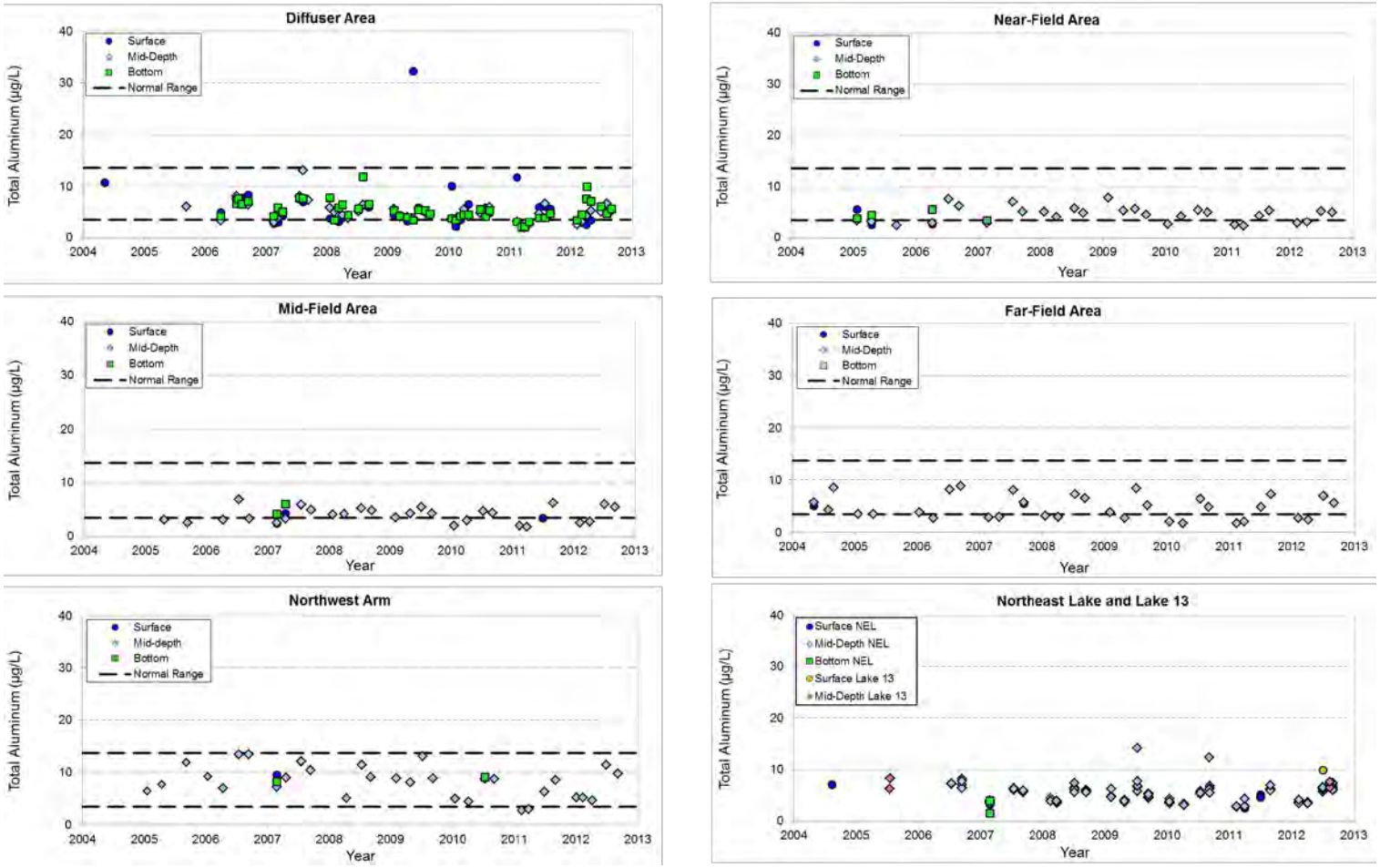
Note: mg-N/L = milligrams as nitrogen per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-23 Total Kjeldahl Nitrogen Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



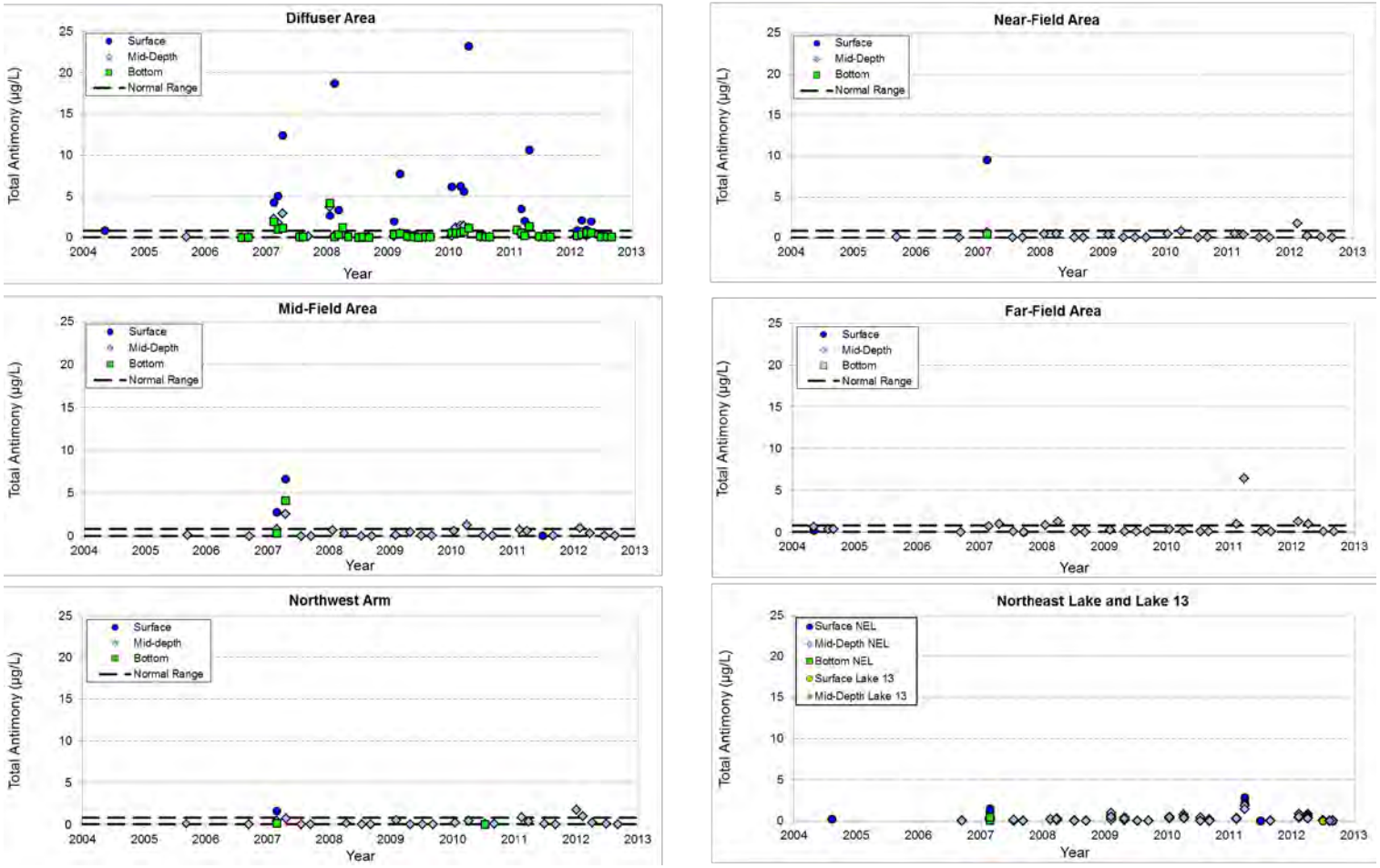
Note: mg-N/L = milligrams as nitrogen per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-24 Total Aluminum Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



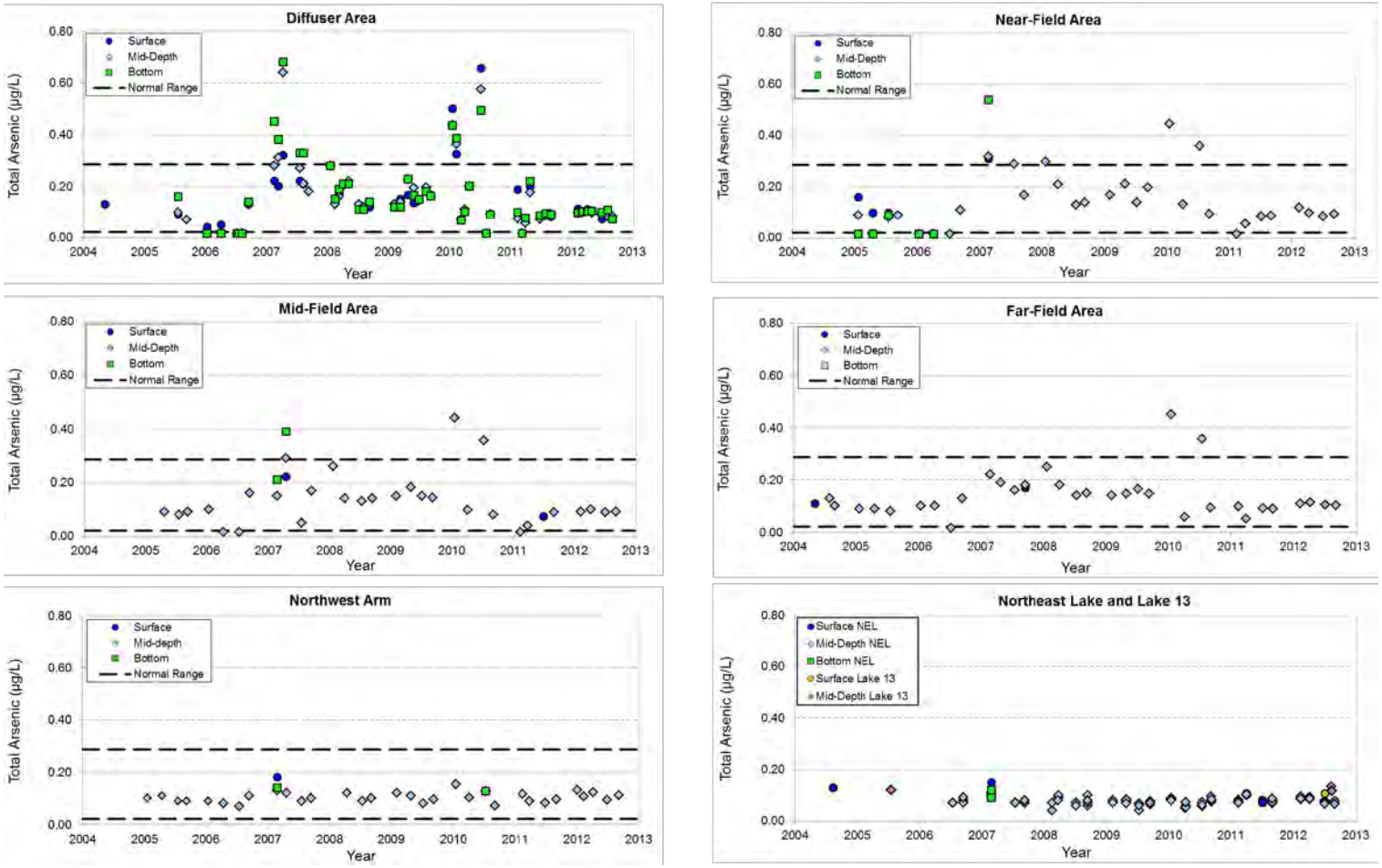
Note: µg/L = micrograms per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-25 Total Antimony Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



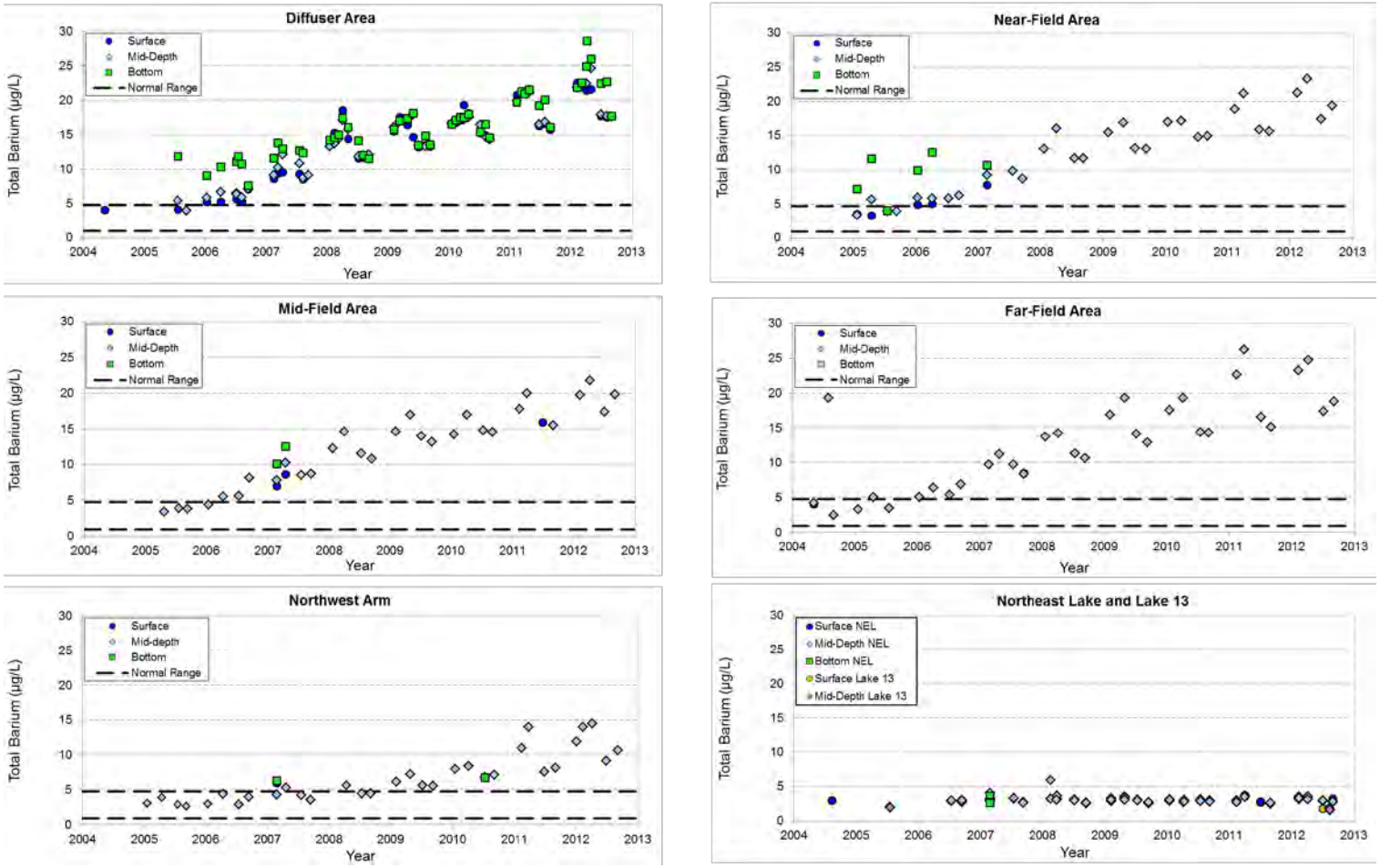
Note: µg/L = micrograms per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-26 Total Arsenic Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



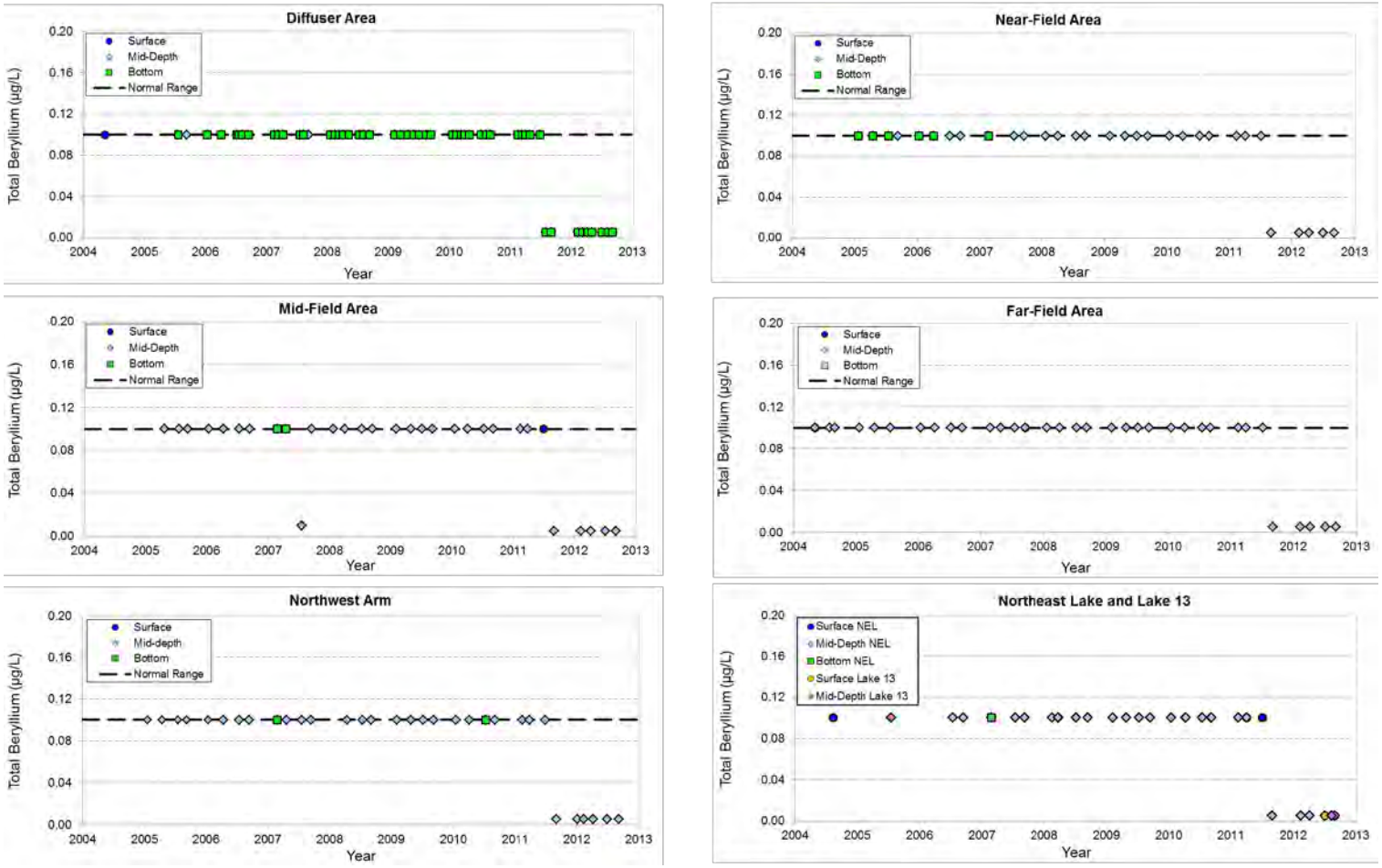
Note: µg/L = micrograms per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-27 Total Barium Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



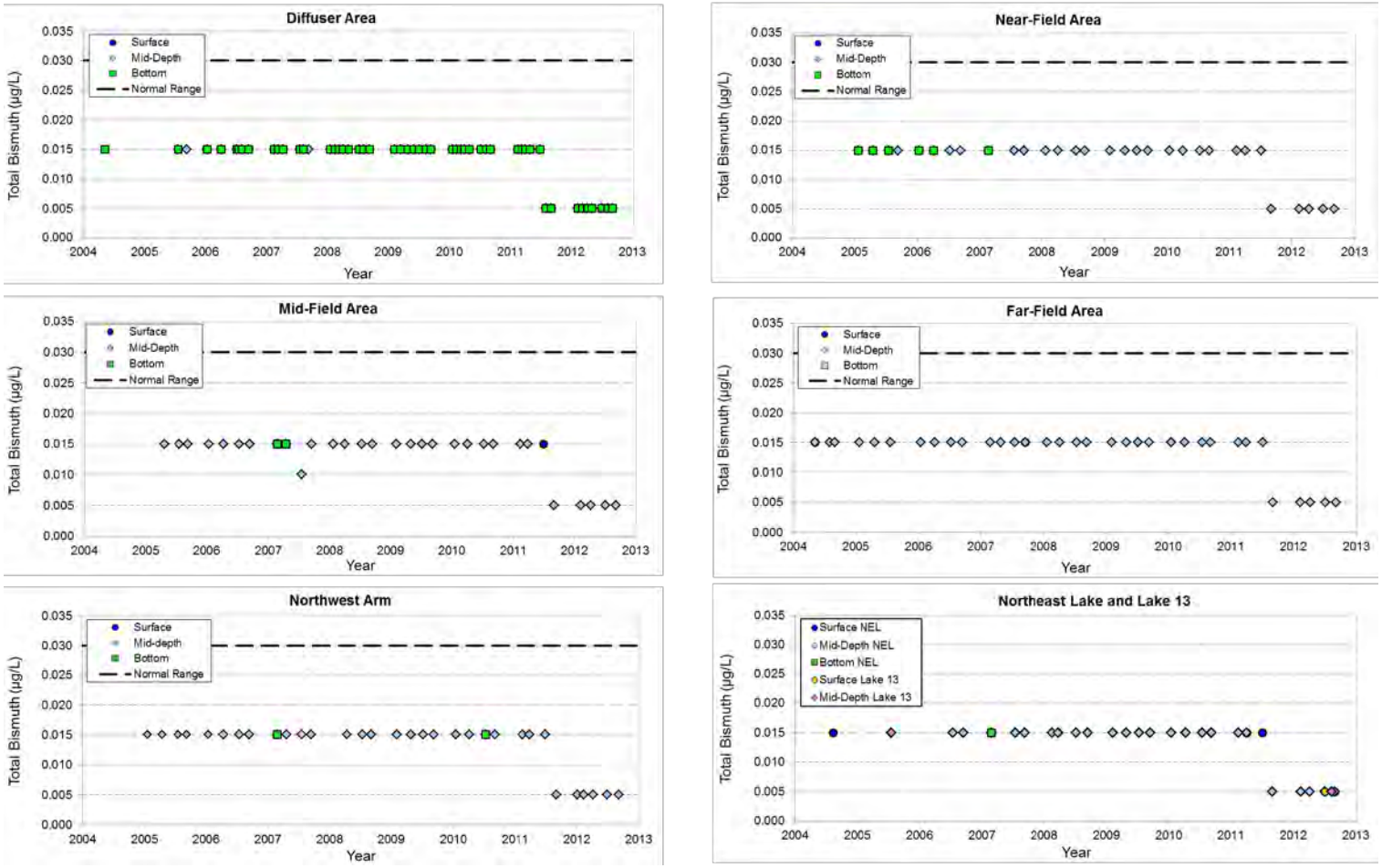
Note: µg/L = micrograms per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-28 Total Beryllium Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



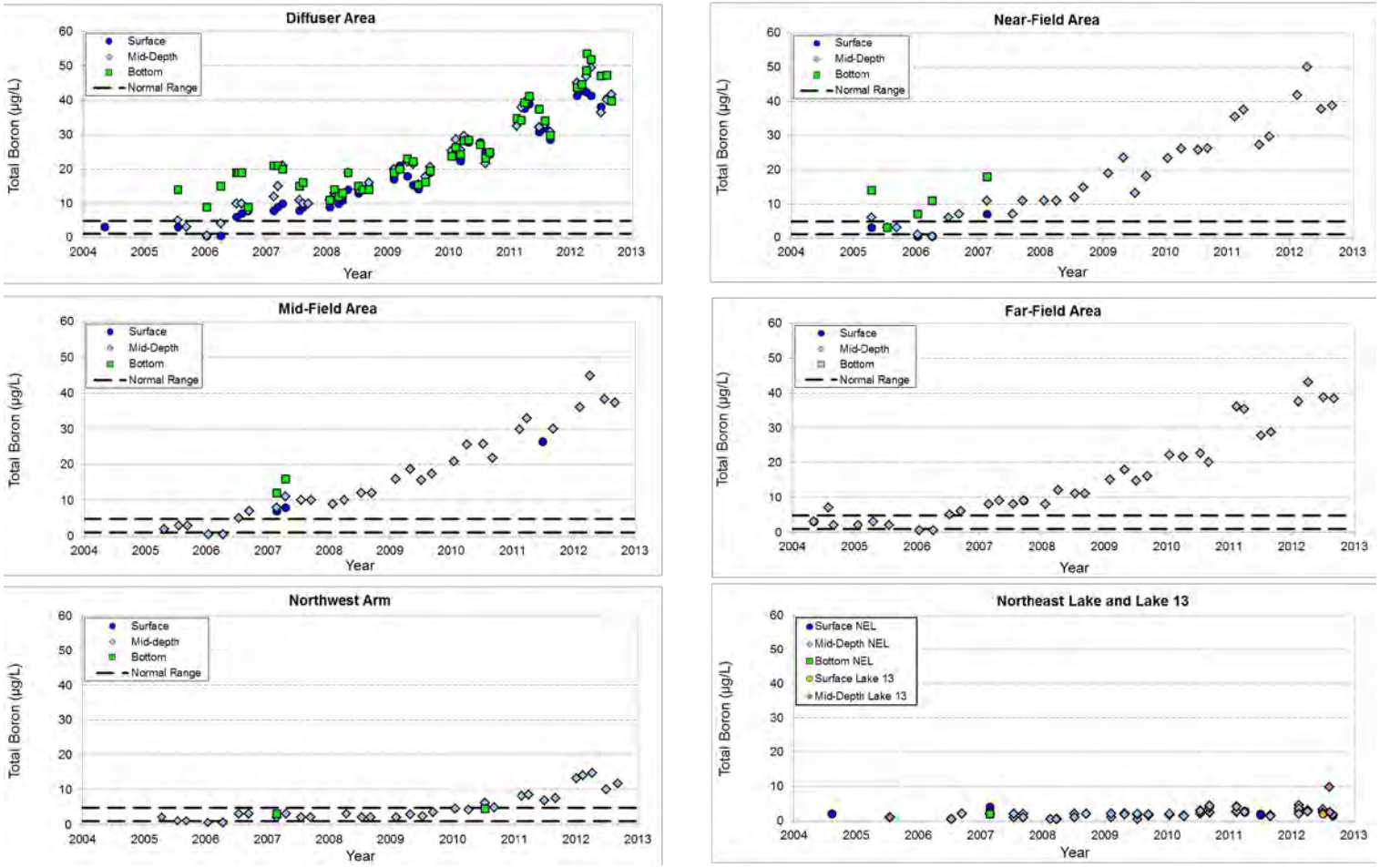
Note: µg/L = micrograms per litre; normal range presented as the lowest detection limit (DL) between 1999 and 2004, because values were reported below the DL; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-29 Total Bismuth Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



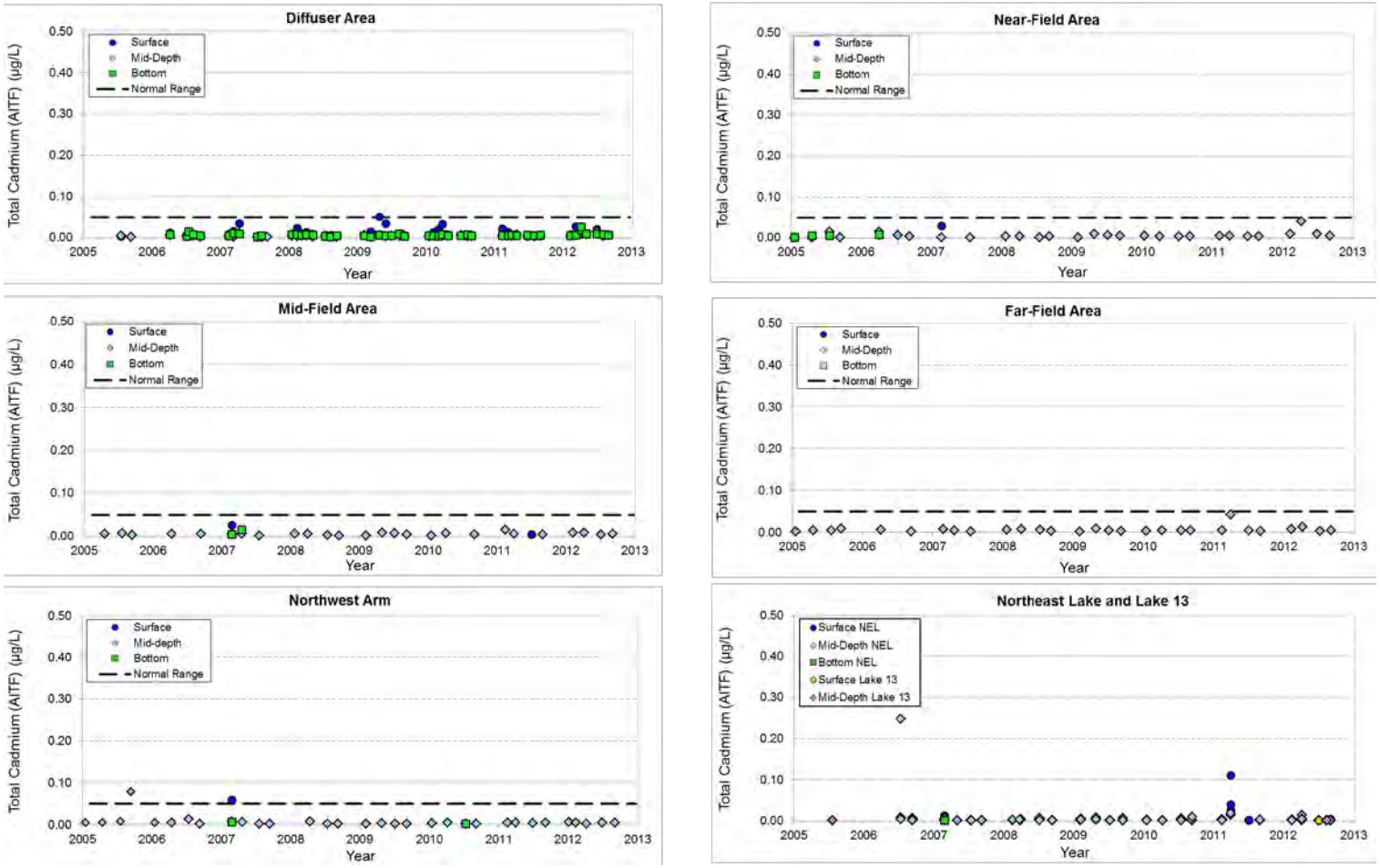
Note: µg/L = micrograms per litre; normal range presented as the lowest detection limit (DL) between 1999 and 2004, because values were reported below the DL; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-30 Total Boron Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



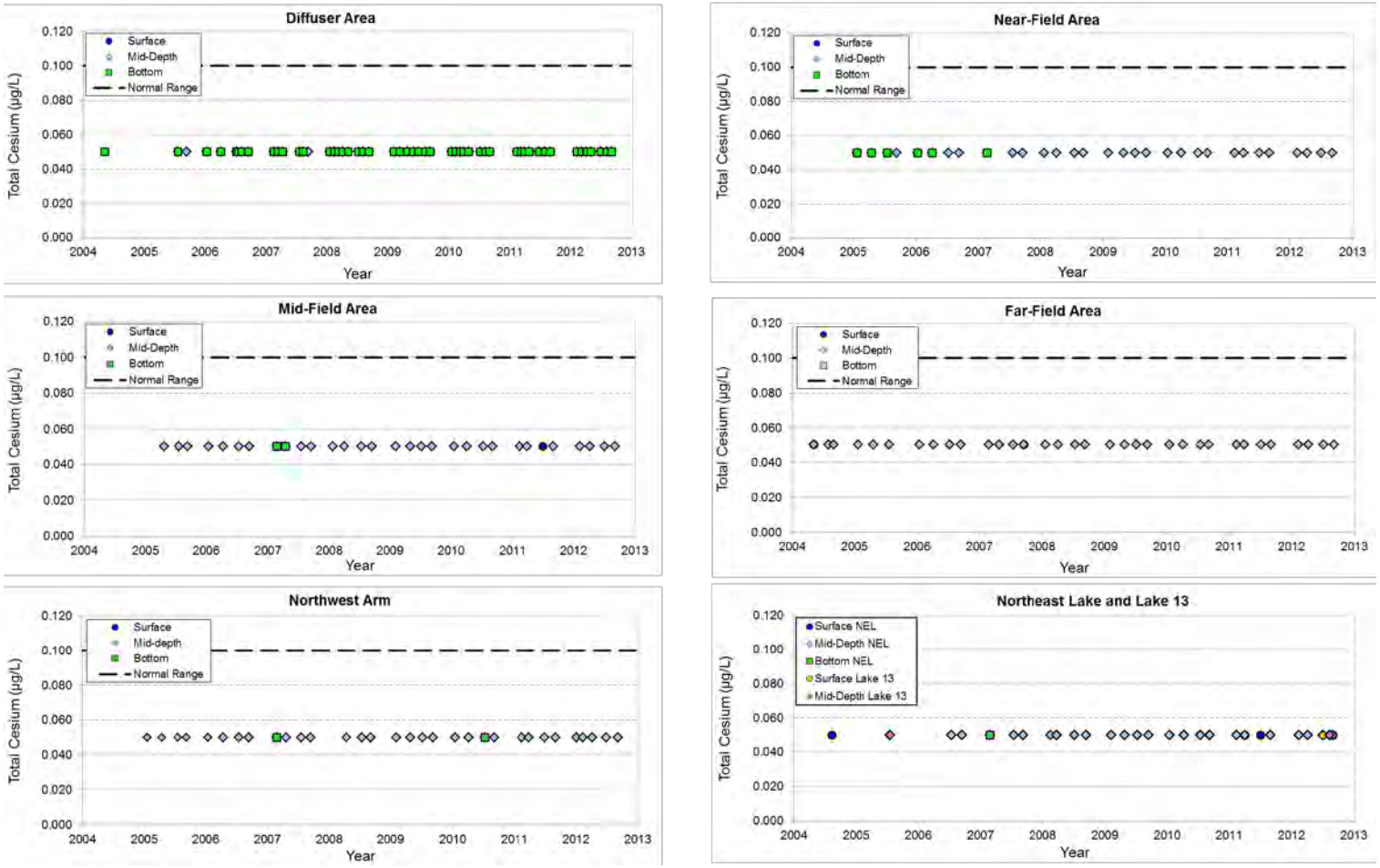
Note: µg/L = micrograms per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-31 Total Cadmium Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



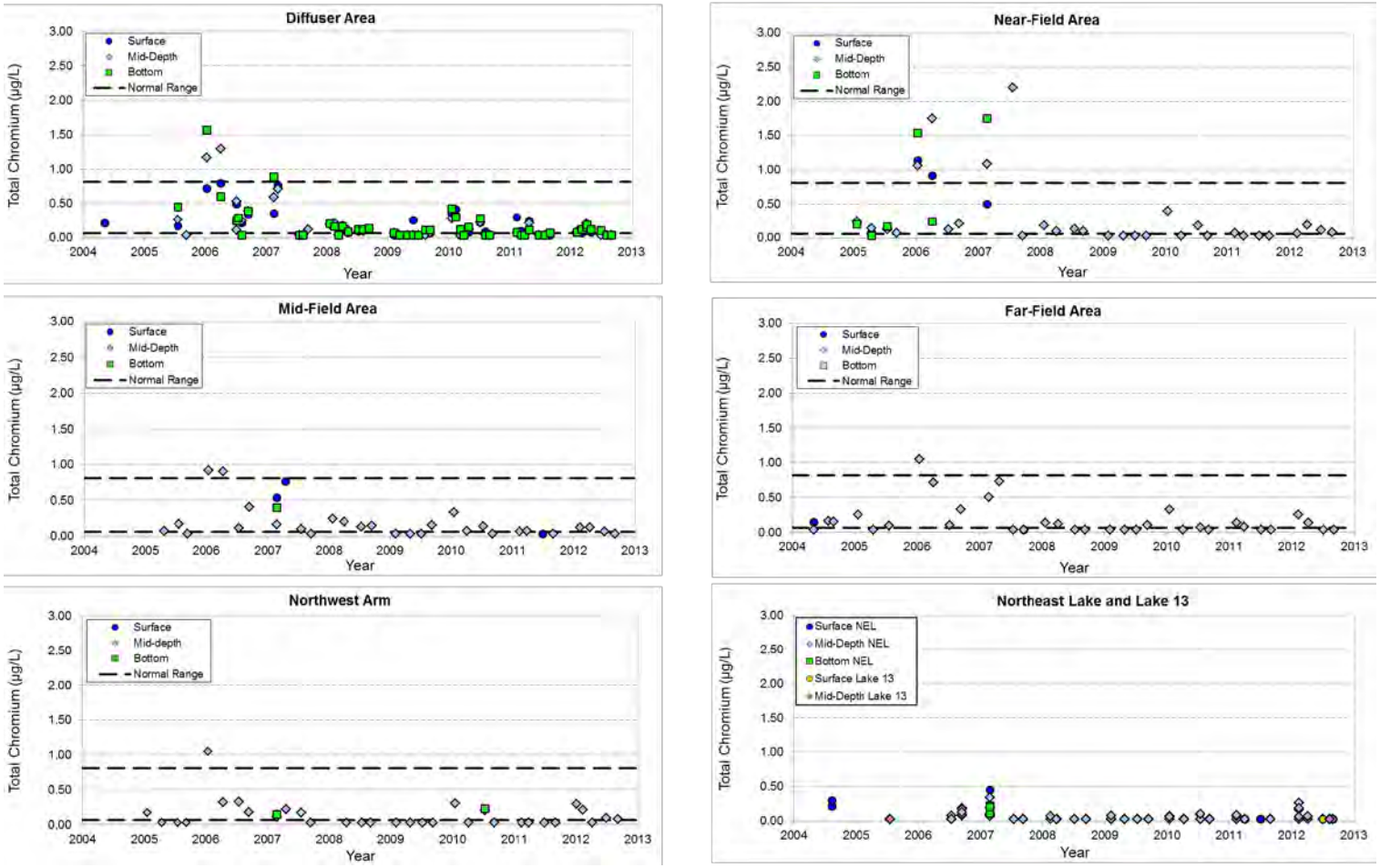
Note: µg/L = micrograms per litre; normal range presented as the lowest detection limit (DL) between 1999 and 2004, because values were reported below the DL; the data collected prior to 2004 was not analyzed by AITF; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012); AITF = Alberta Innovates Technology Futures laboratory.

Figure 3F-32 Total Cesium Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



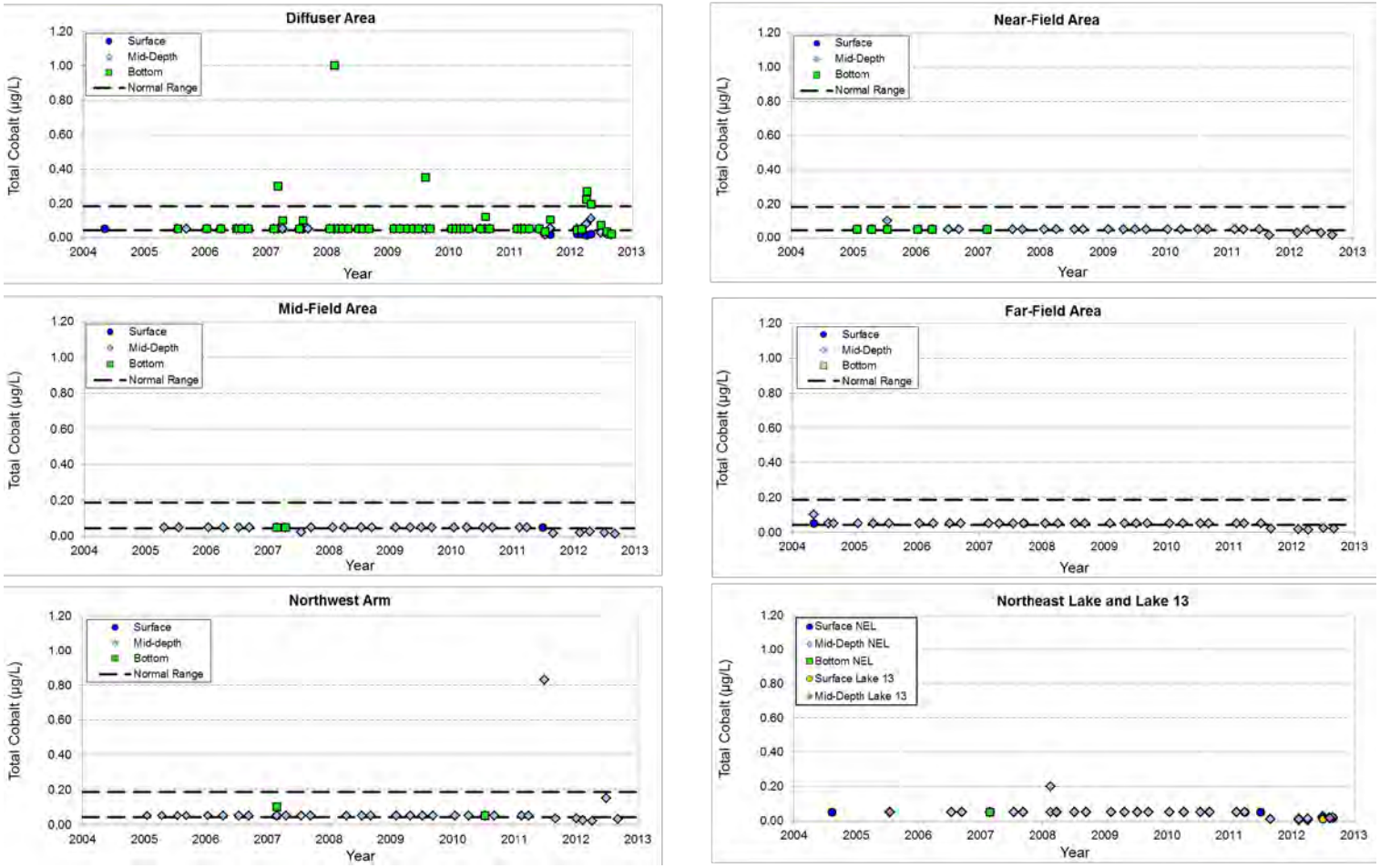
Note: µg/L = micrograms per litre; normal range presented as the lowest detection limit (DL) between 1999 and 2004, because values were reported below the DL; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-33 Total Chromium Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



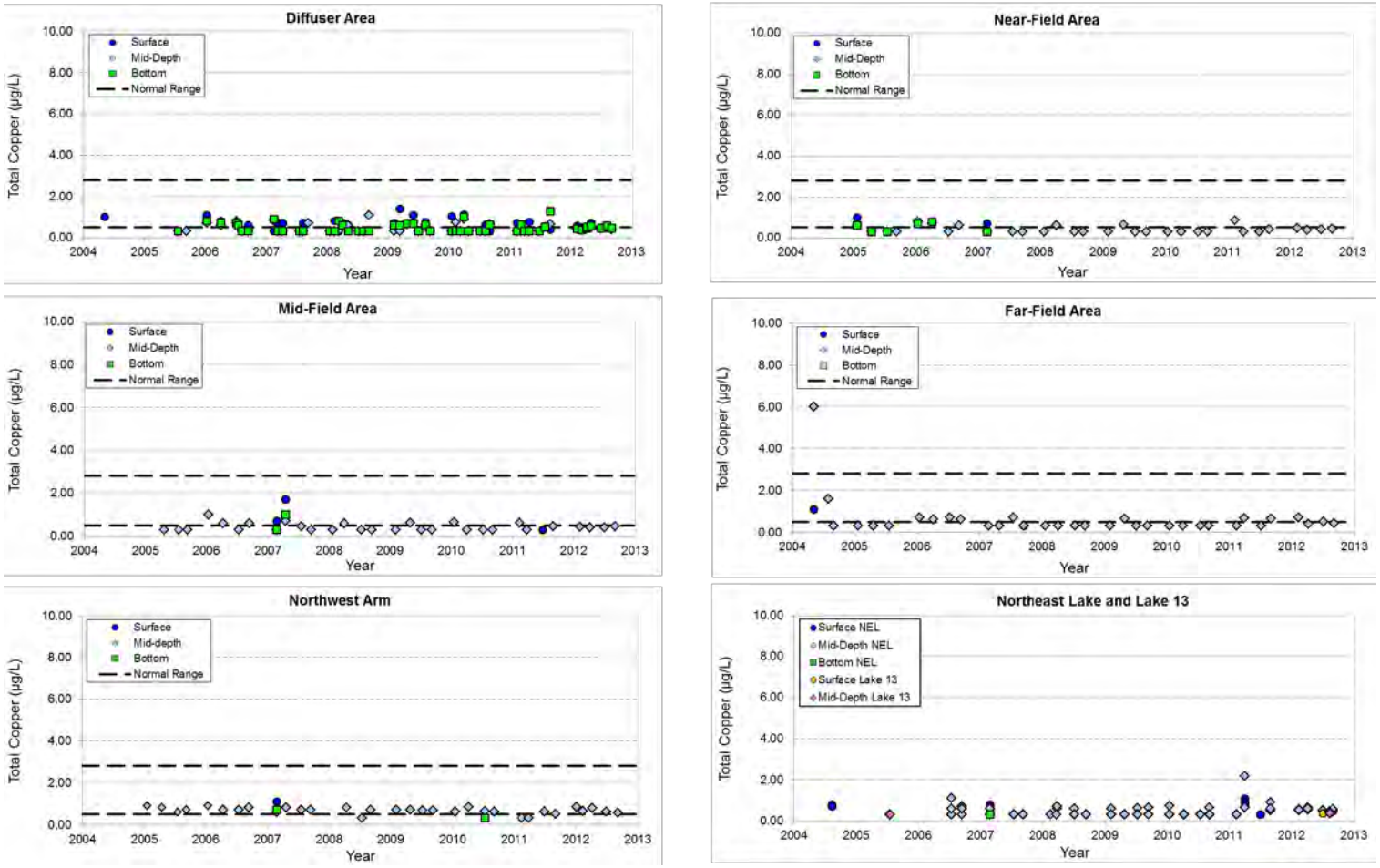
Note: µg/L = micrograms per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-34 Total Cobalt Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



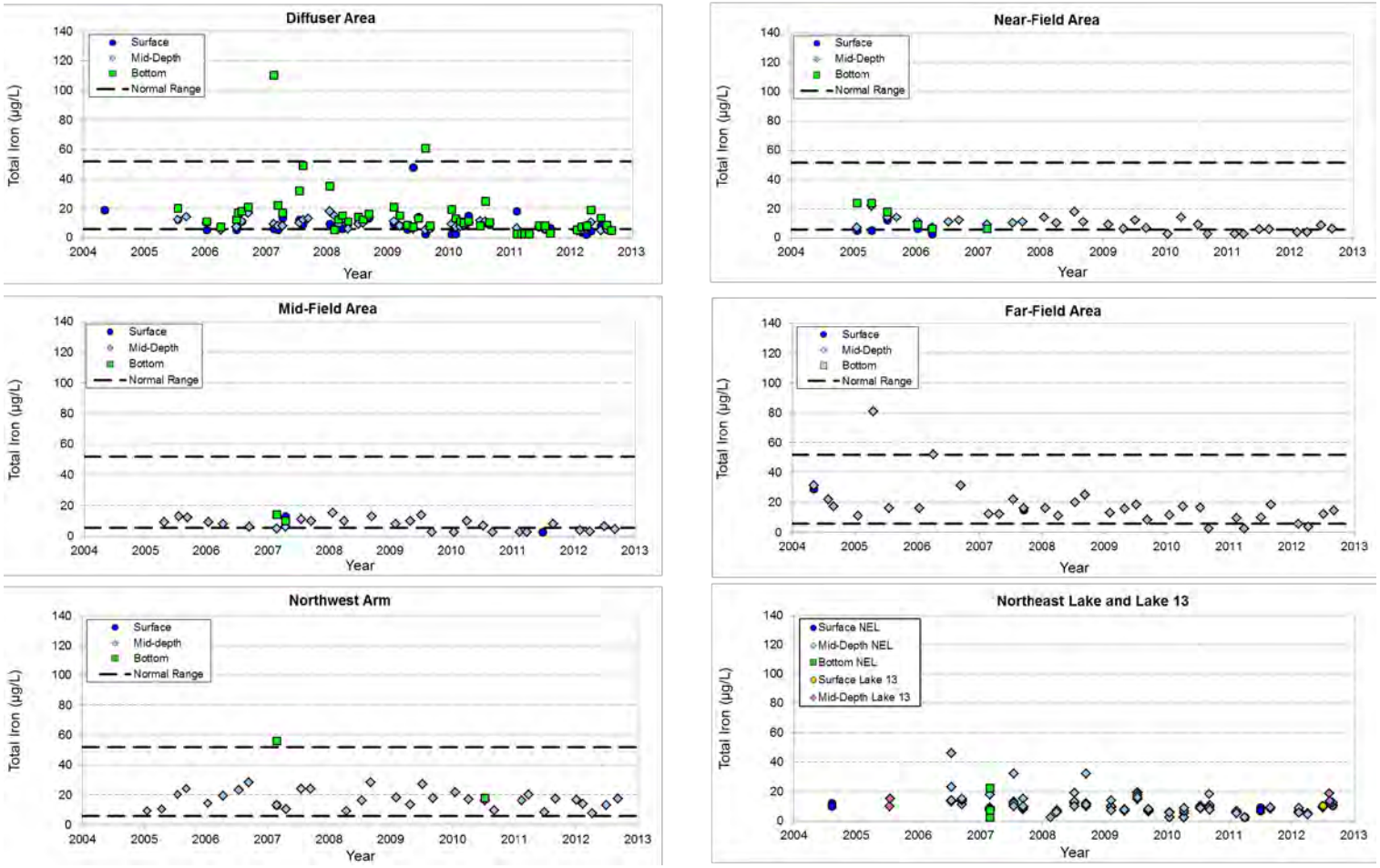
Note: µg/L = micrograms per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-35 Total Copper Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



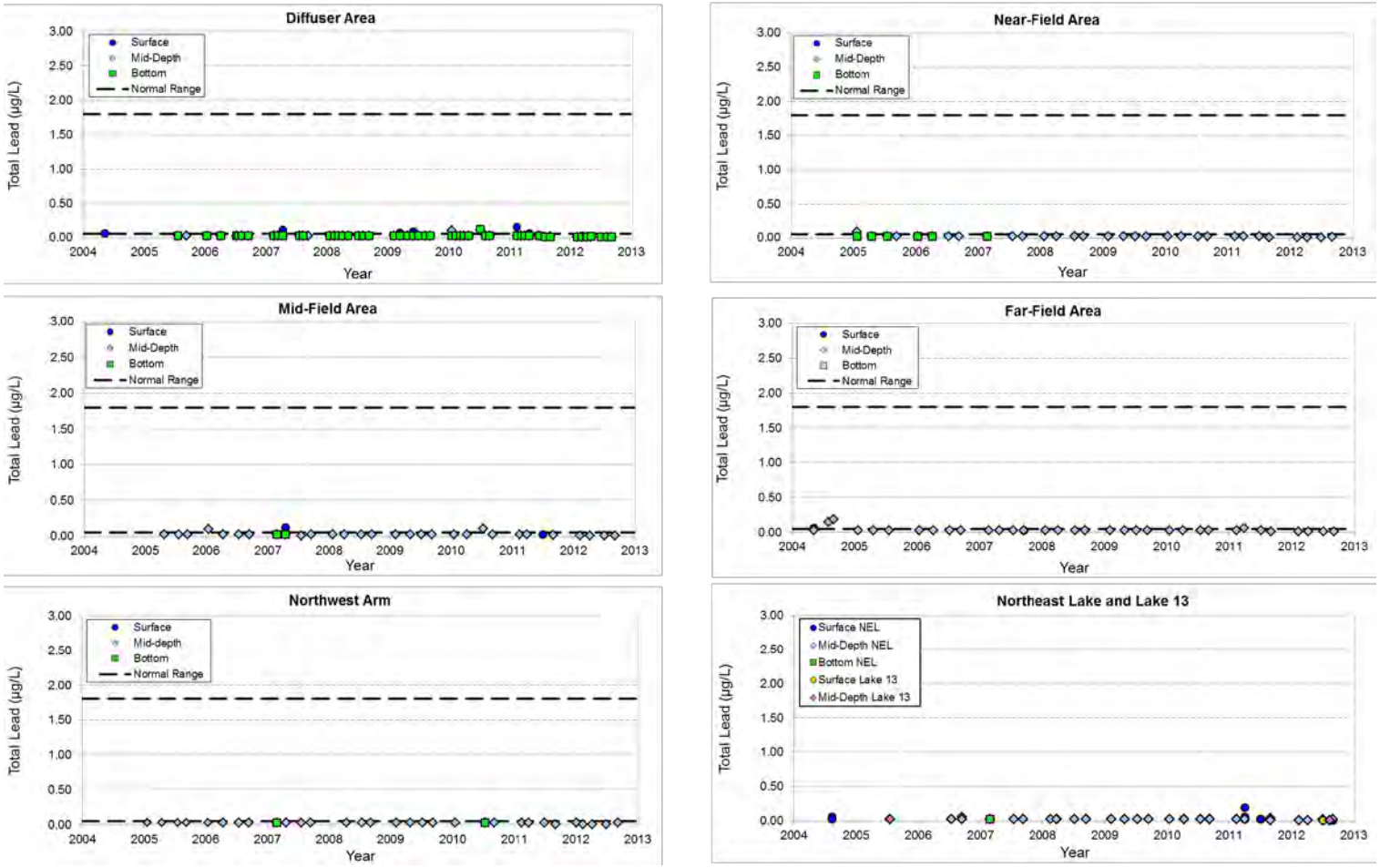
Note: µg/L = micrograms per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-36 Total Iron Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



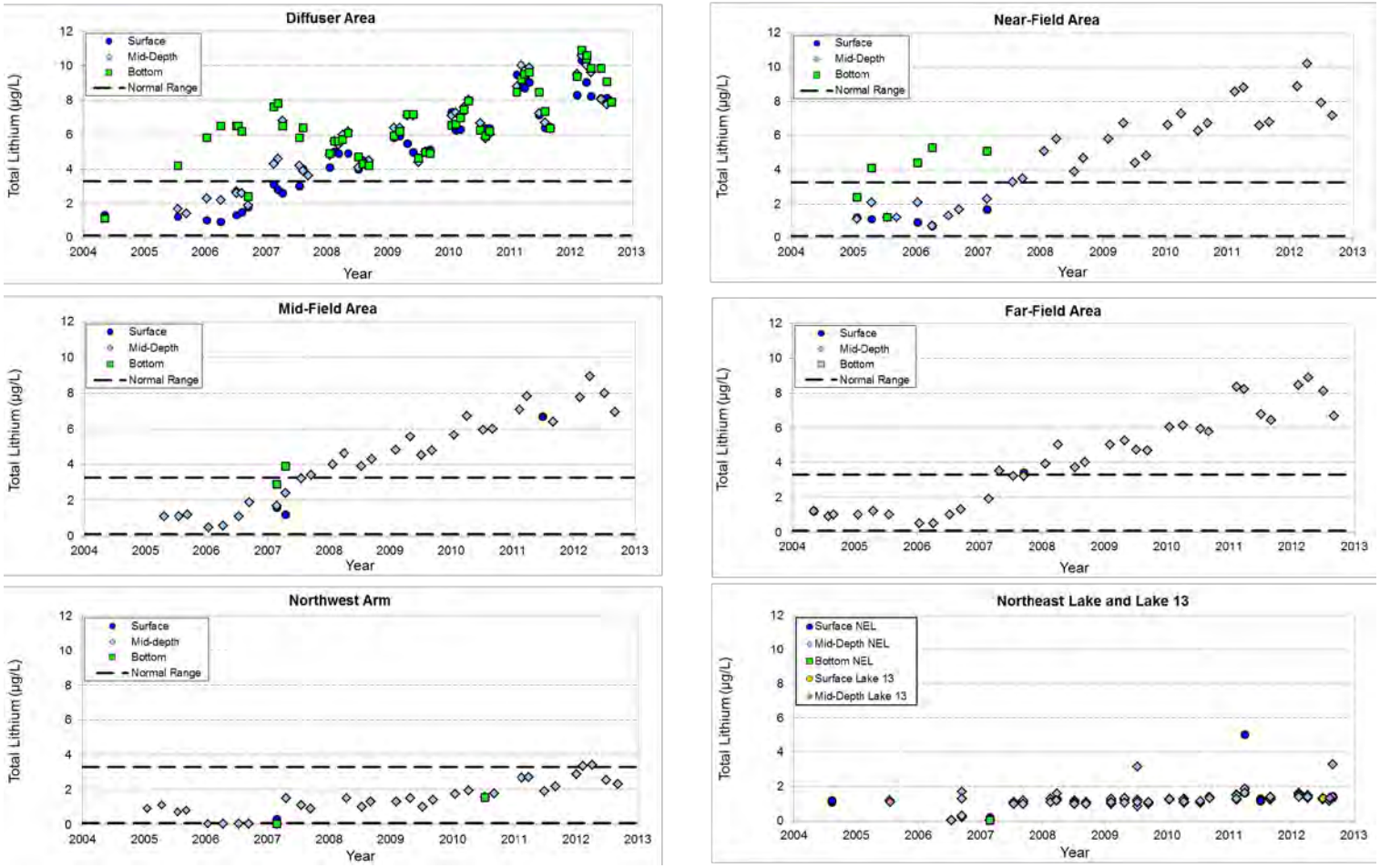
Note: µg/L = micrograms per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-37 Total Lead Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



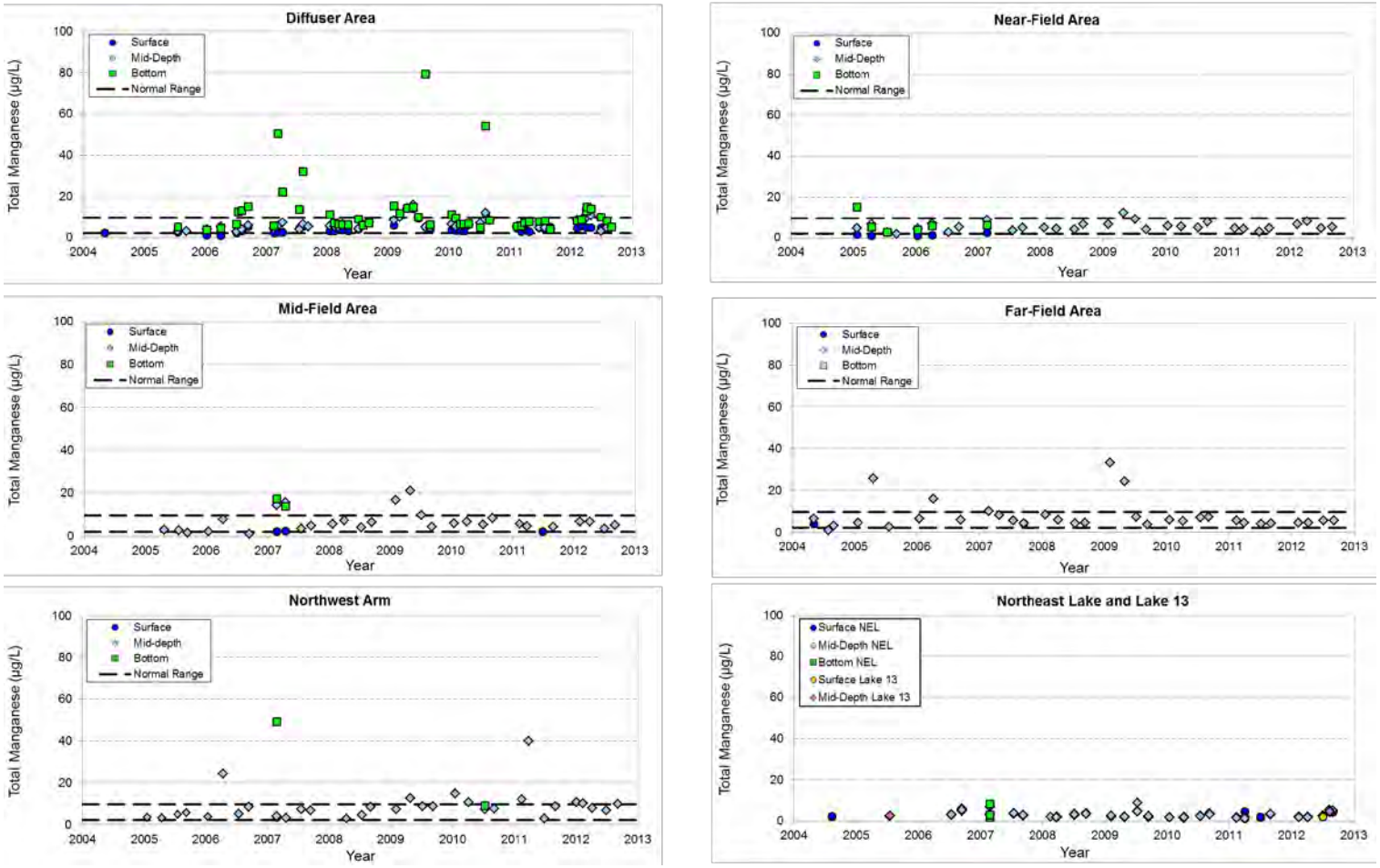
Note: µg/L = micrograms per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-38 Total Lithium Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



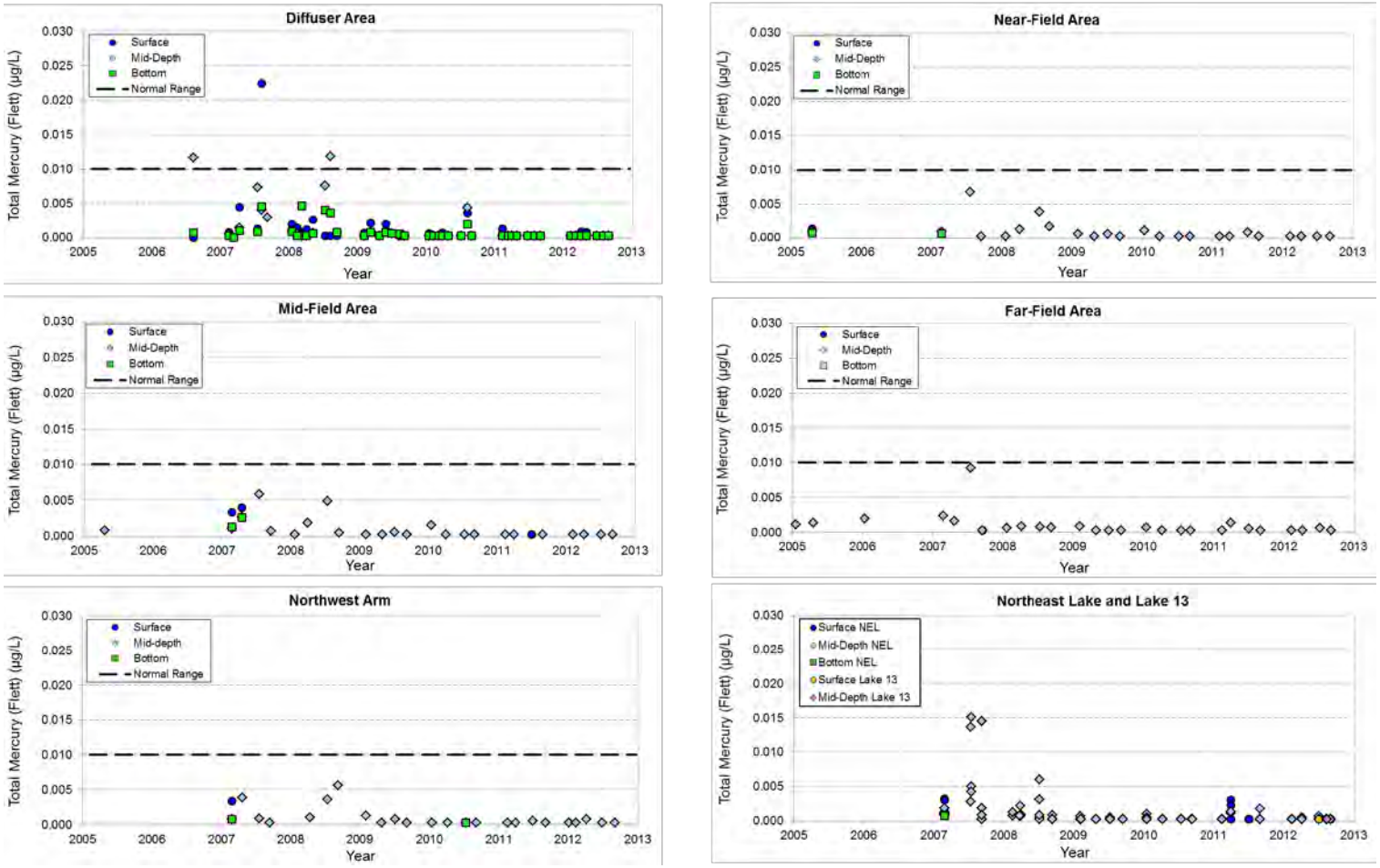
Note: µg/L = micrograms per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-39 Total Manganese Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



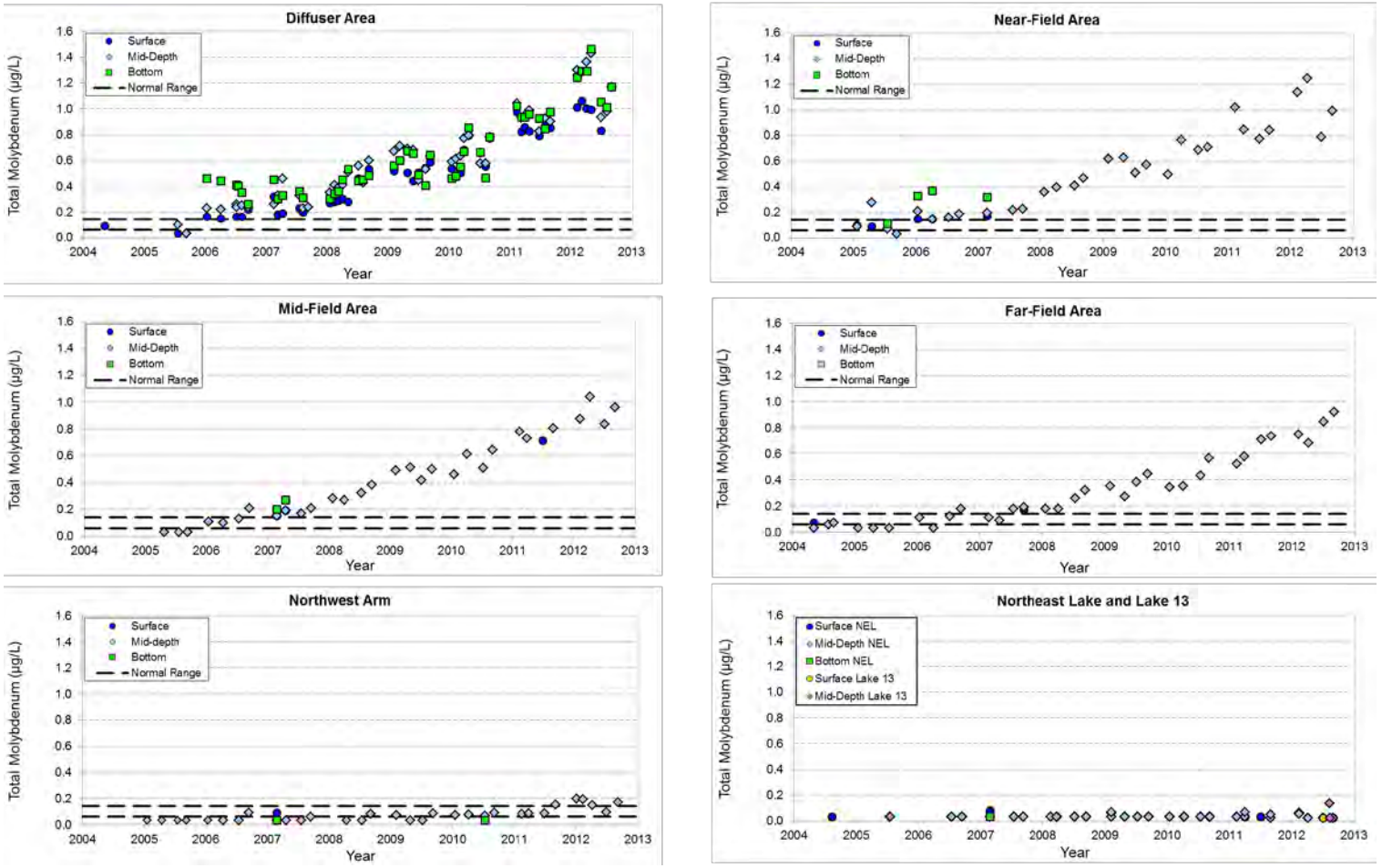
Note: µg/L = micrograms per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-40 Total Mercury Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



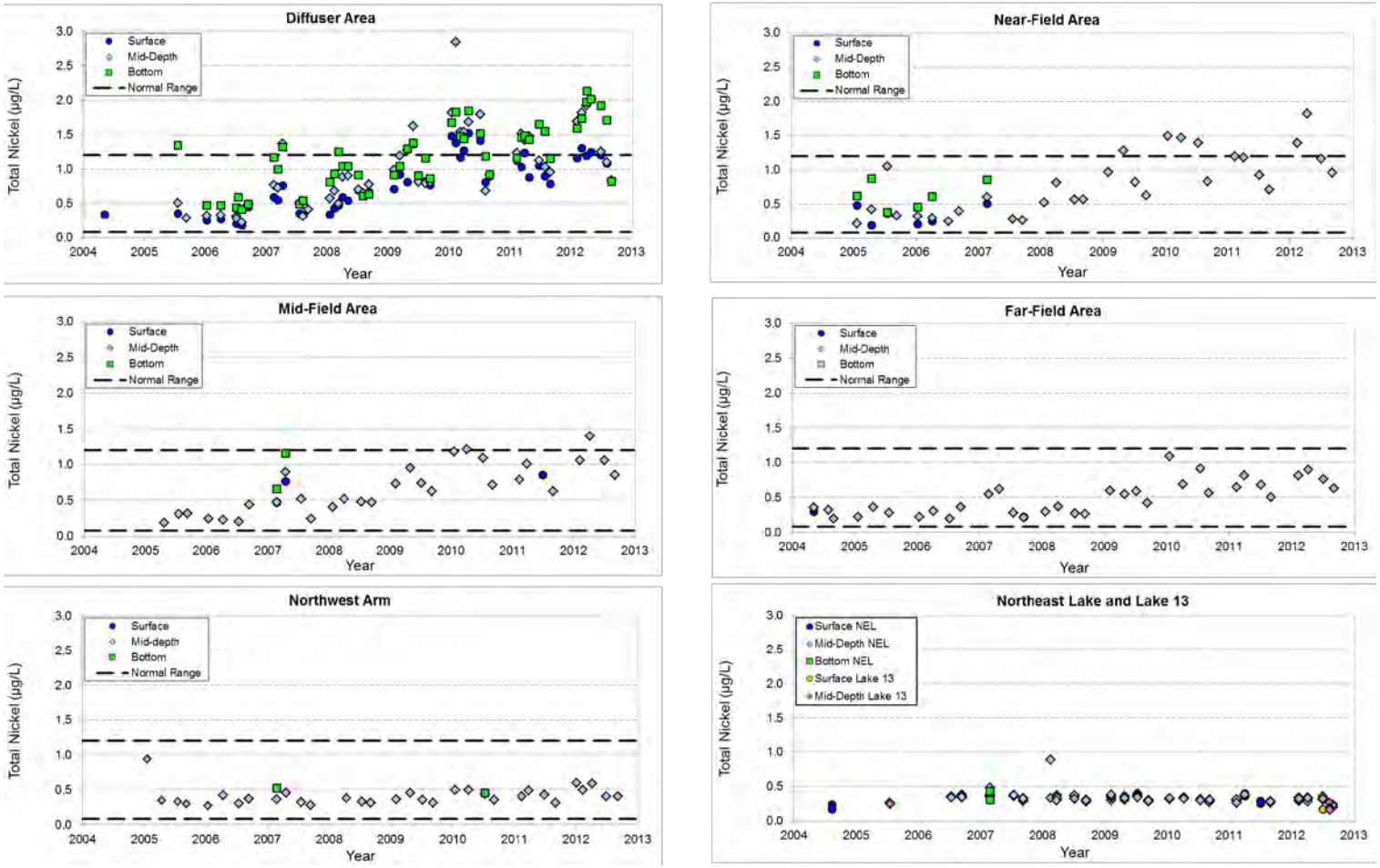
Note: µg/L = micrograms per litre; normal range presented as the lowest detection limit (DL) between 1999 and 2004, because values were reported below the DL; the data collected prior to 2004 was not analyzed by Flett; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012); Flett = Flett Research Limited.

Figure 3F-41 Total Molybdenum Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



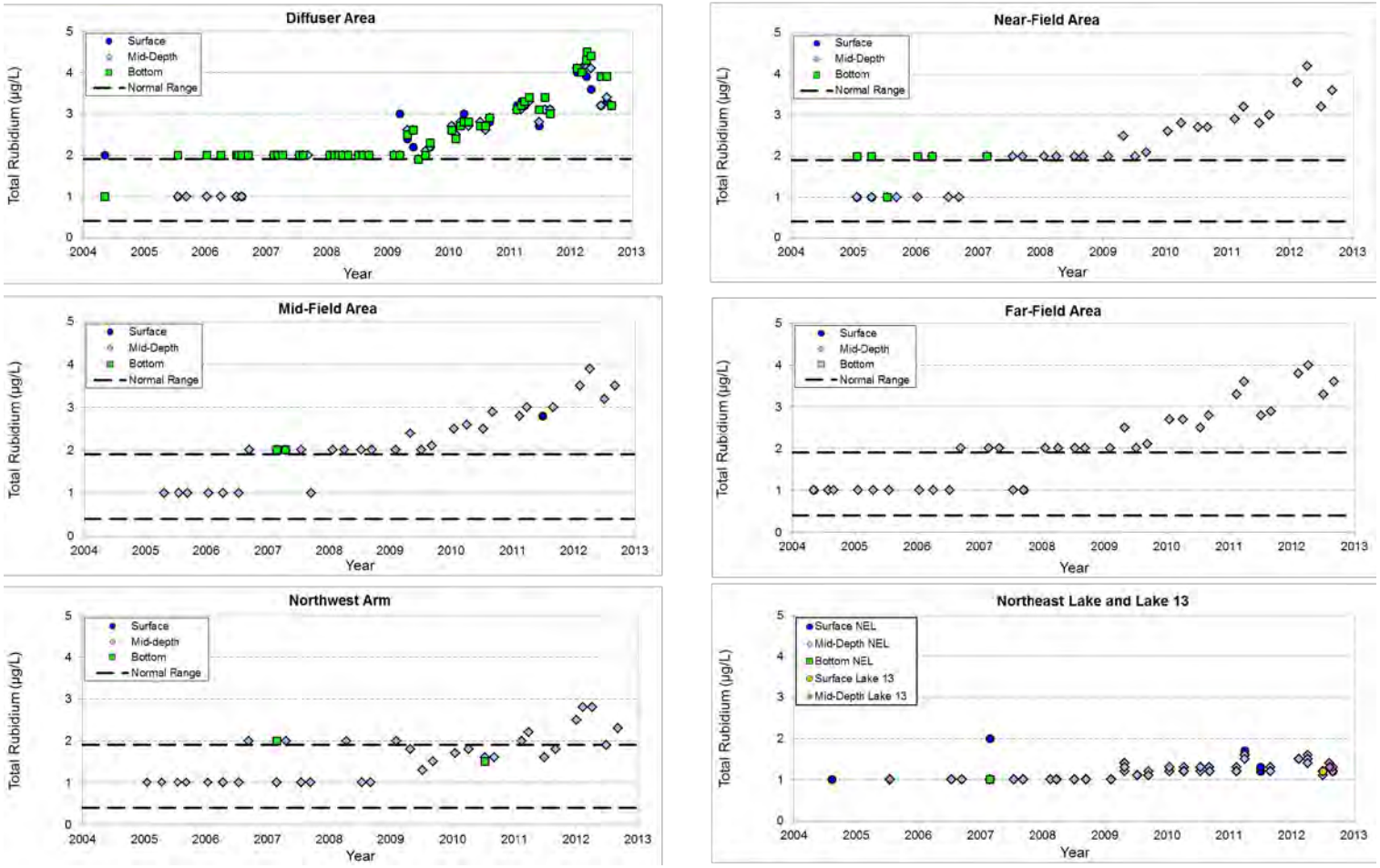
Note: µg/L = micrograms per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-42 Total Nickel Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



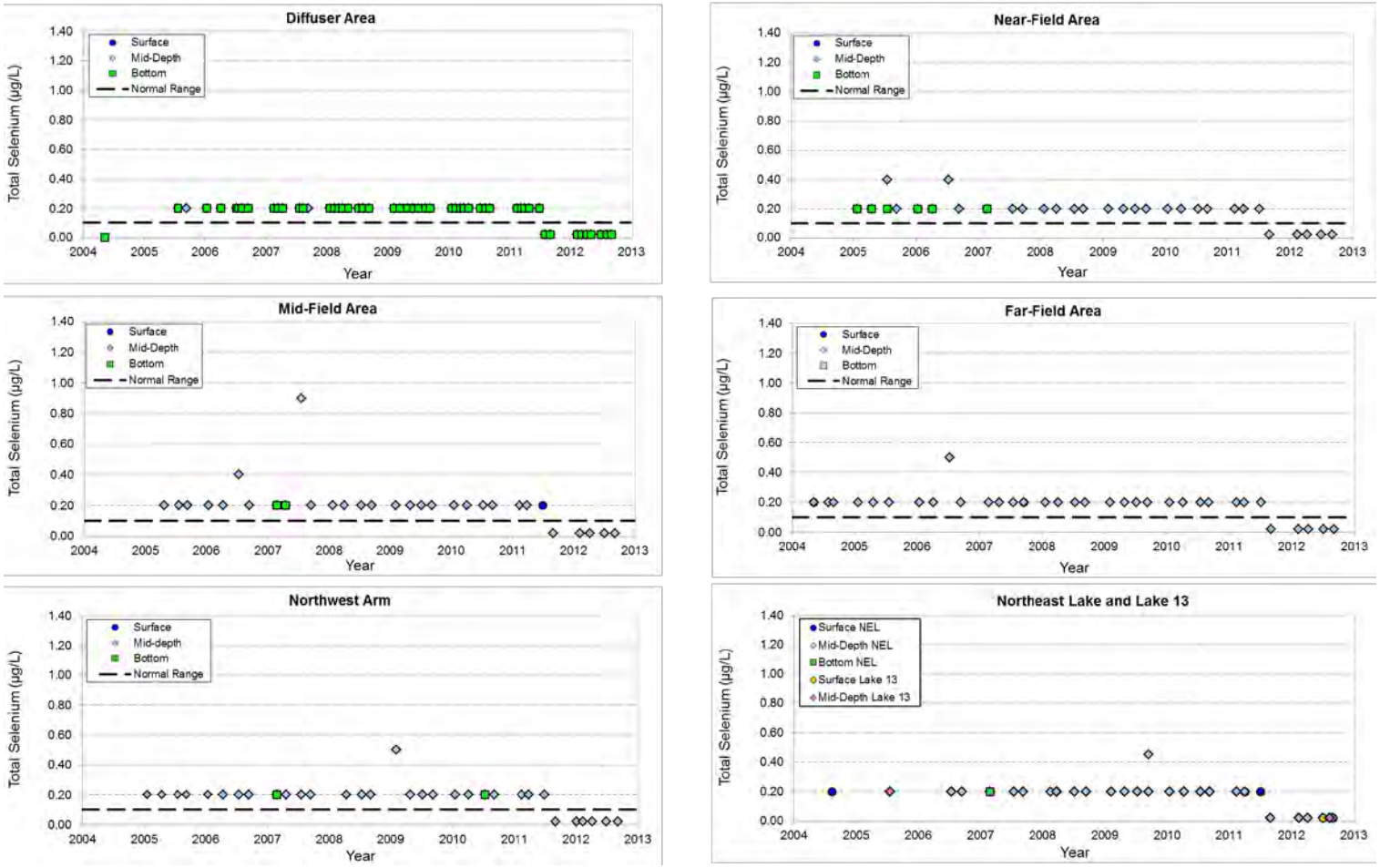
Note: µg/L = micrograms per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-43 Total Rubidium Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



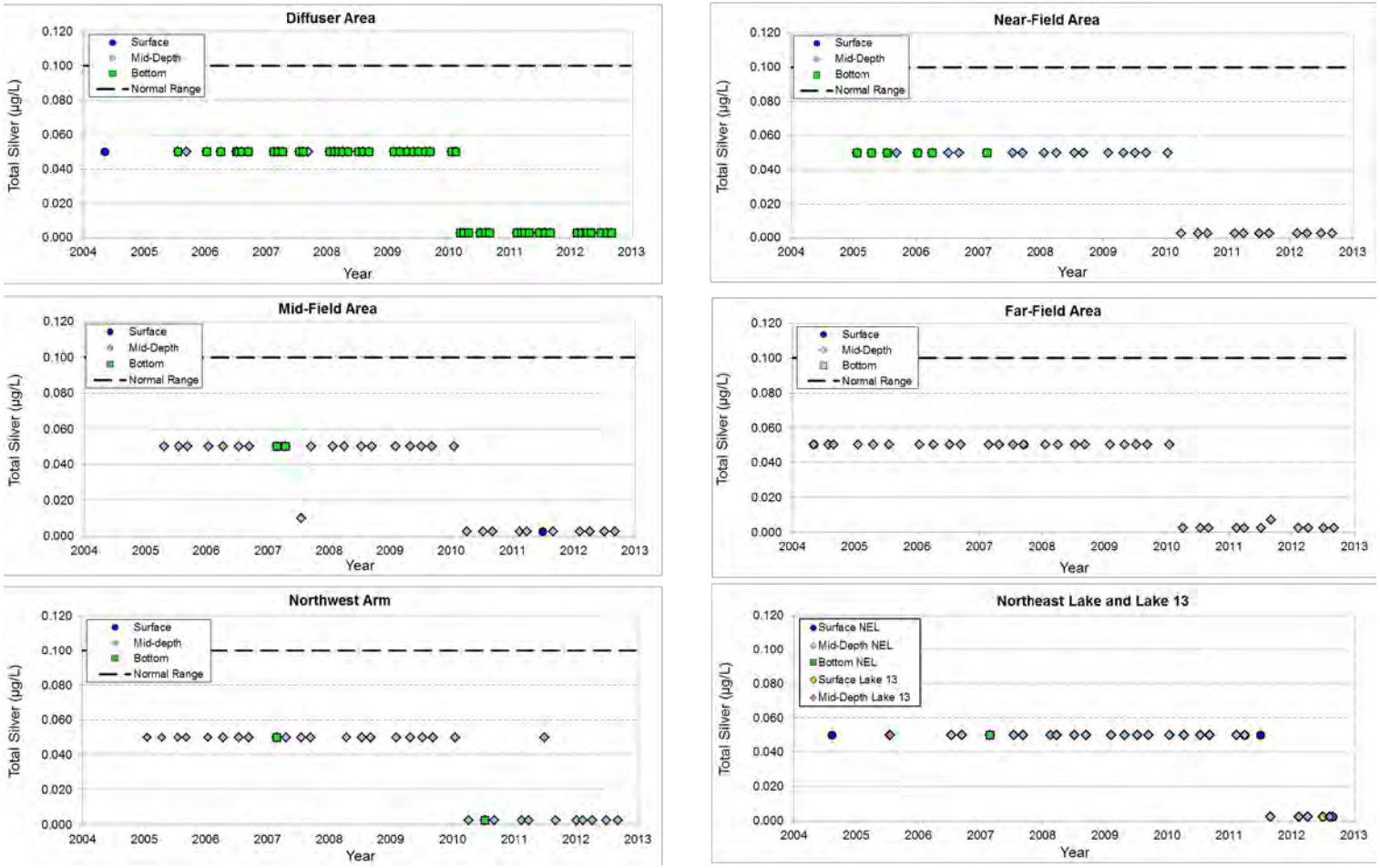
Note: µg/L = micrograms per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-44 Total Selenium Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



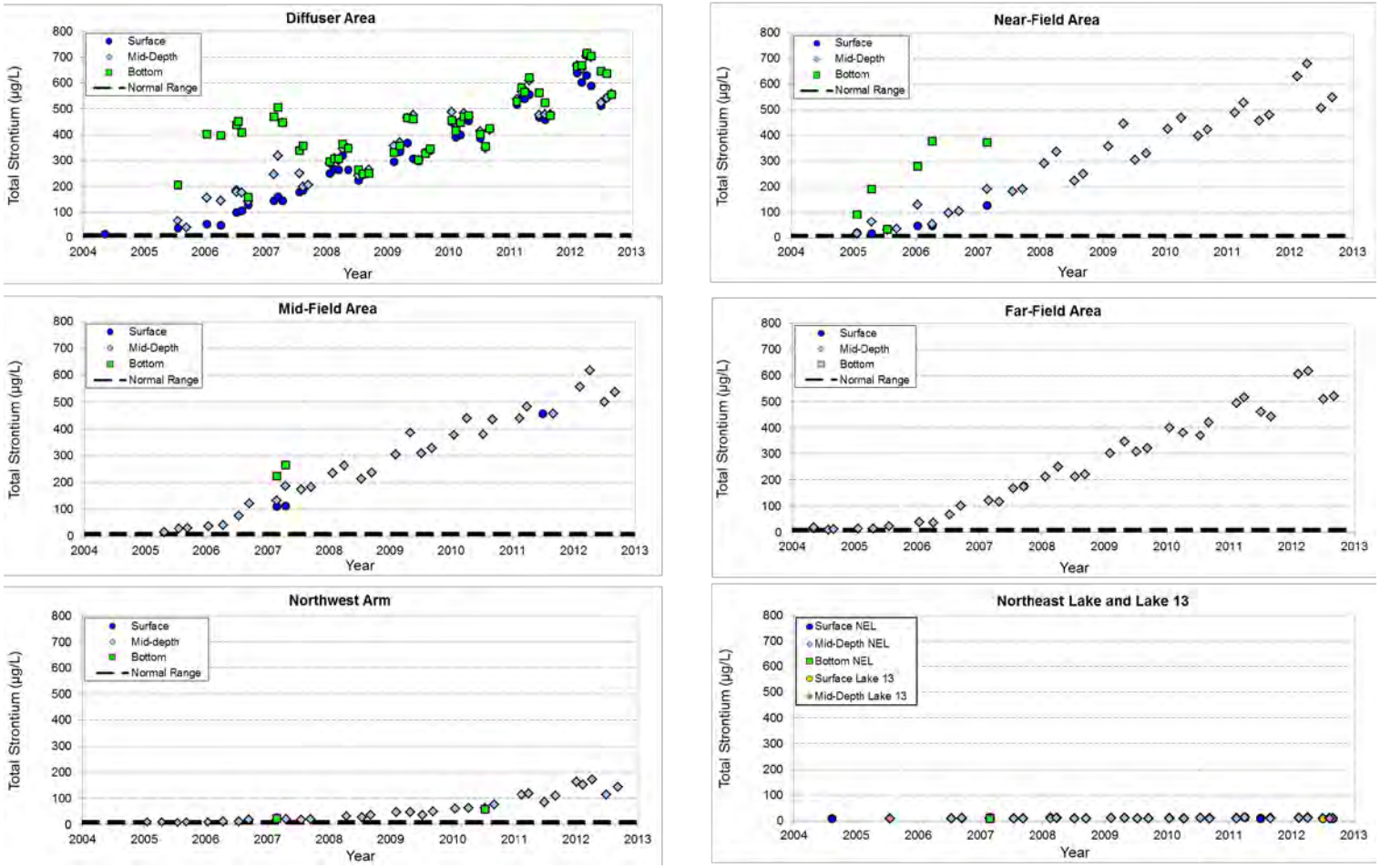
Note: µg/L = micrograms per litre; normal range presented as the lowest detection limit (DL) between 1999 and 2004, because values were reported below the DL; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-45 Total Silver Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



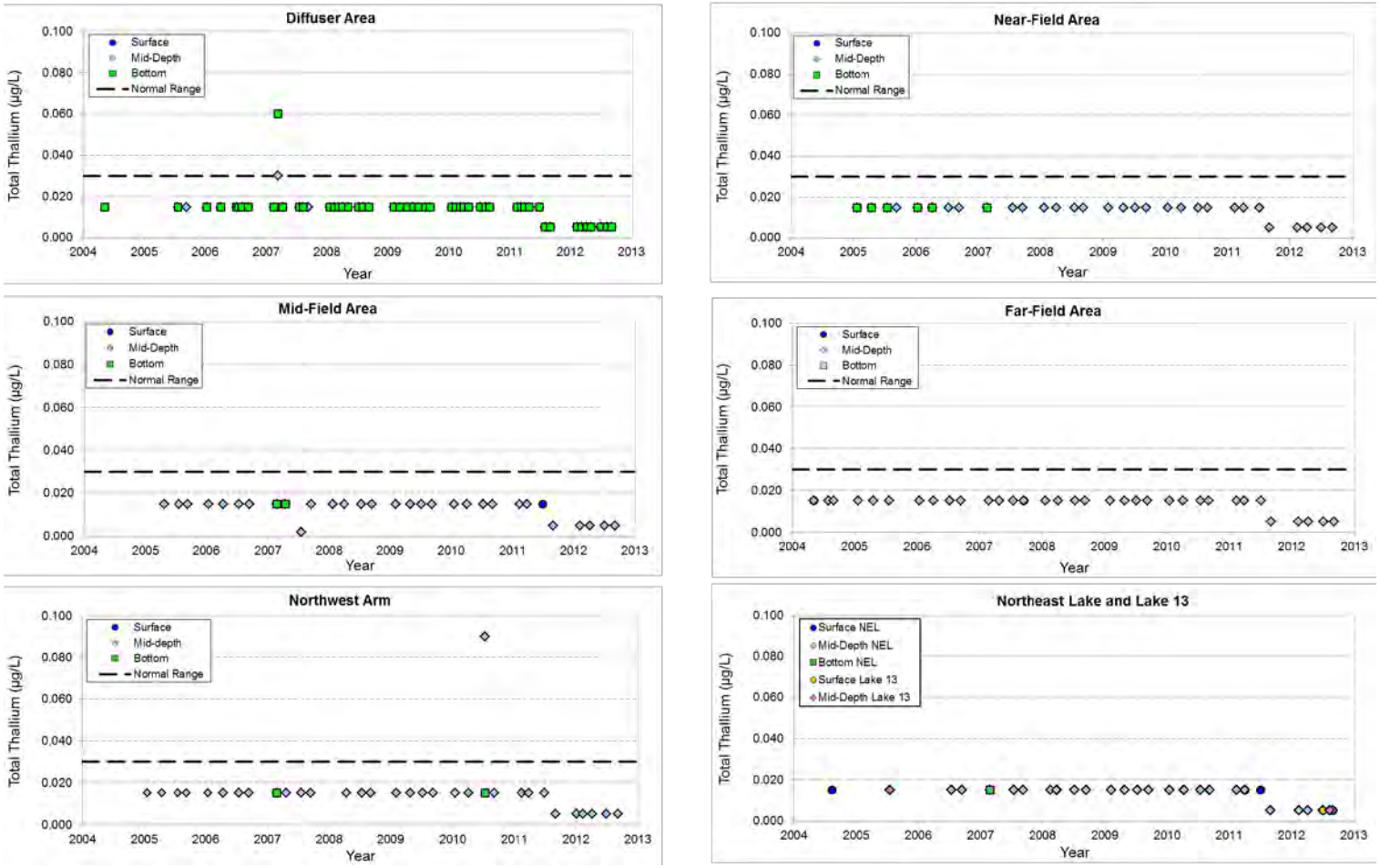
Note: µg/L = micrograms per litre; normal range presented as the lowest detection limit (DL) between 1999 and 2004, because values were reported below the DL; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-46 Total Strontium Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



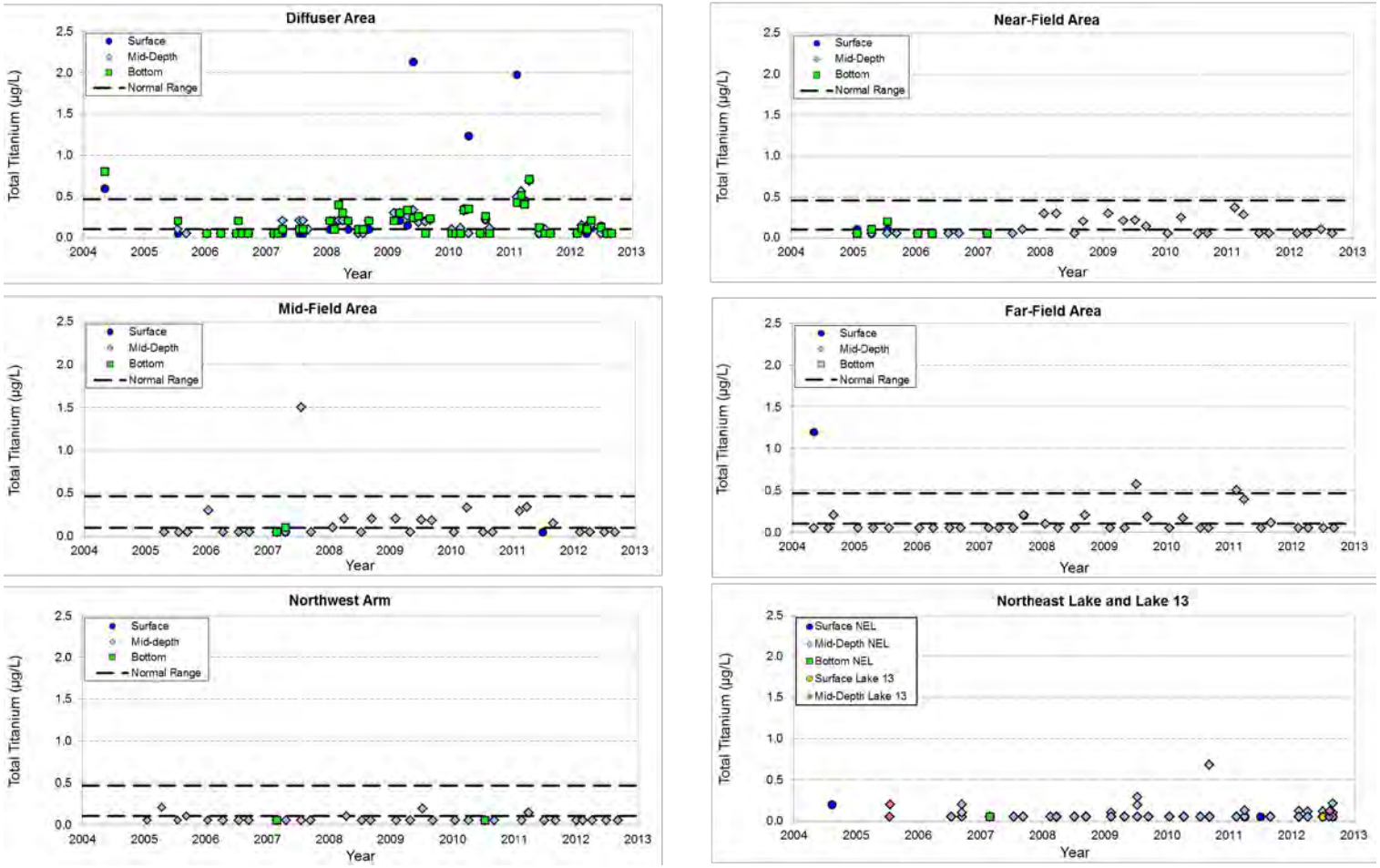
Note: µg/L = micrograms per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-47 Total Thallium Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



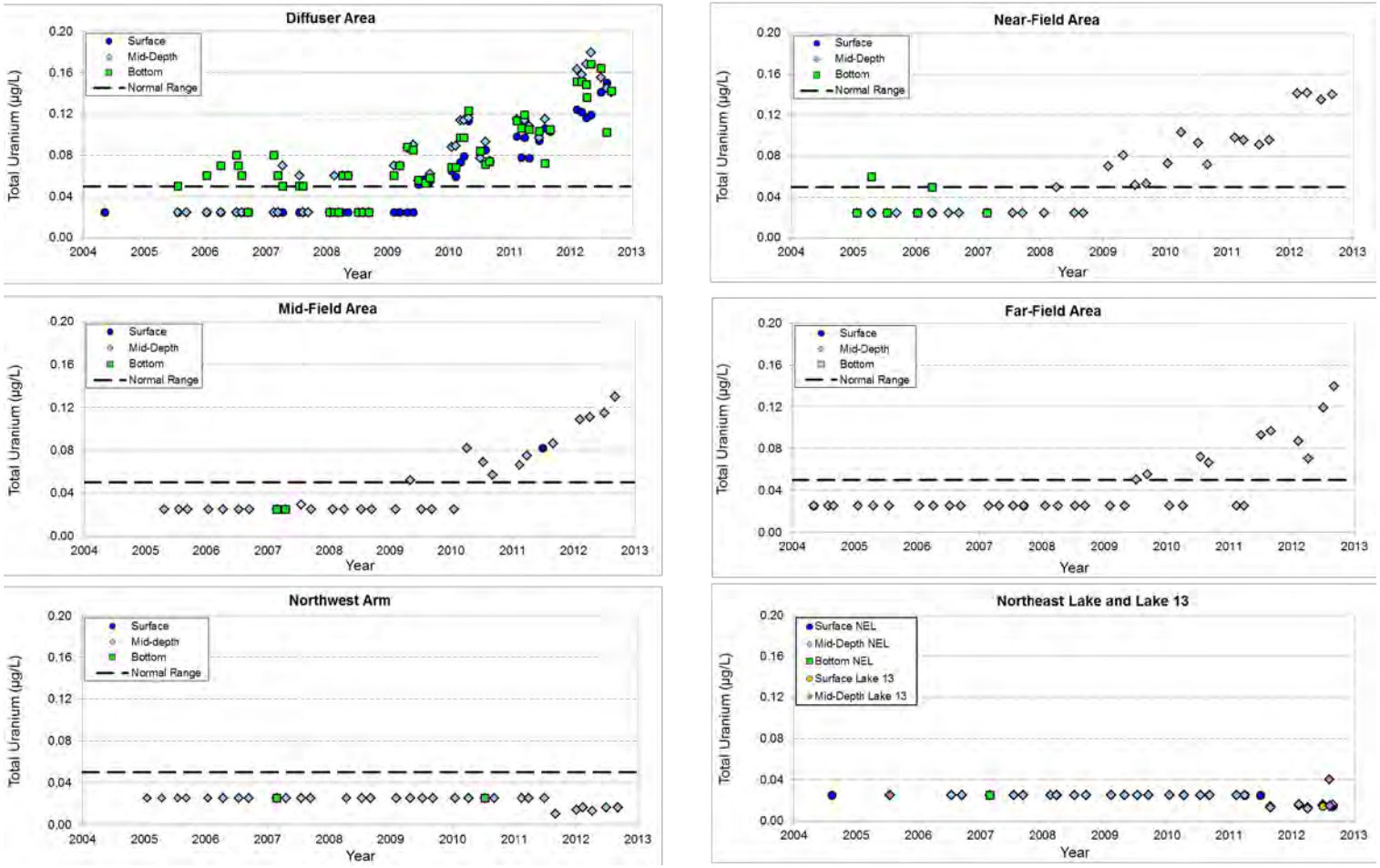
Note: µg/L = micrograms per litre; normal range presented as the lowest detection limit (DL) between 1999 and 2004, because values were reported below the DL; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-48 Total Titanium Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



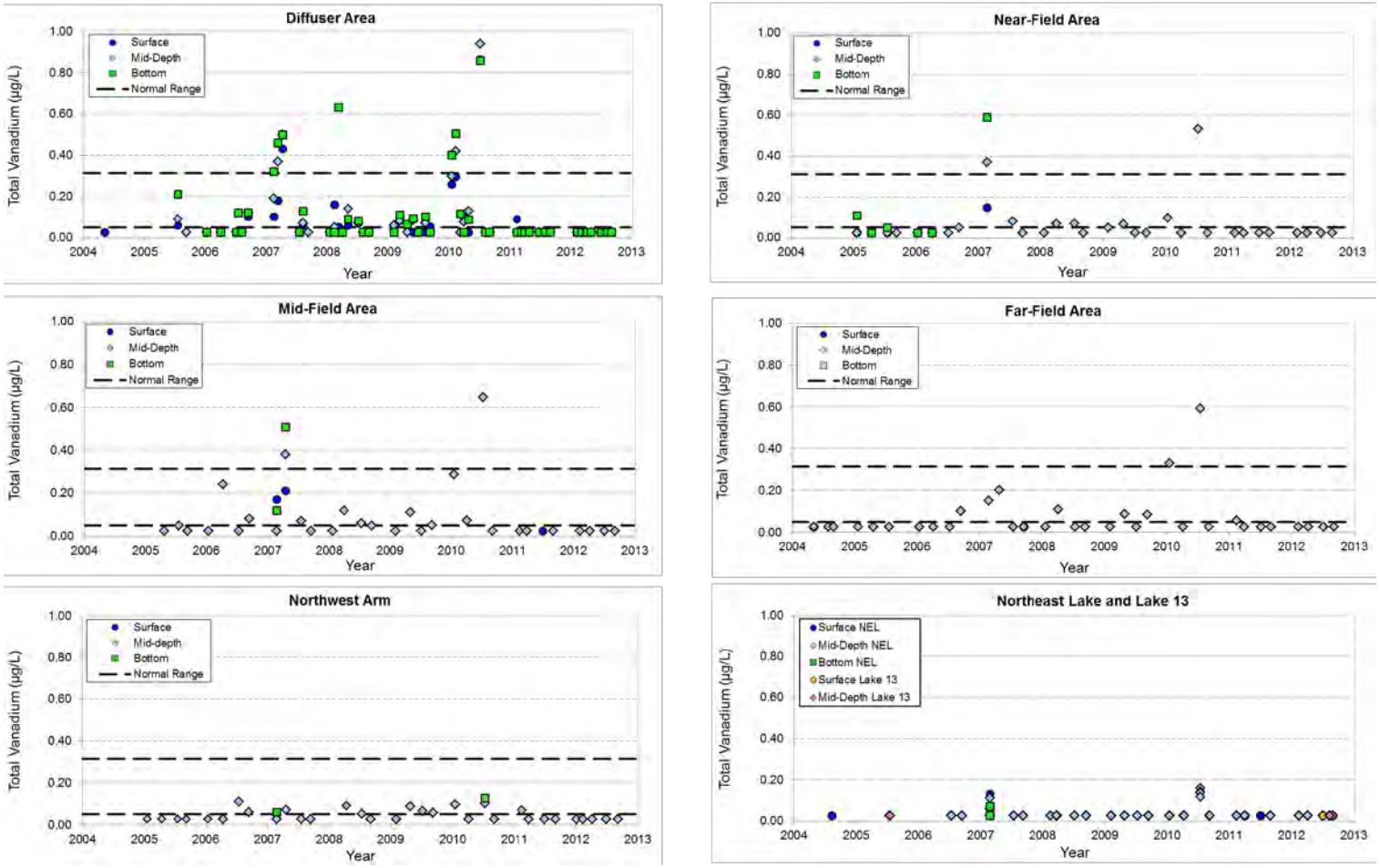
Note: µg/L = micrograms per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-49 Total Uranium Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



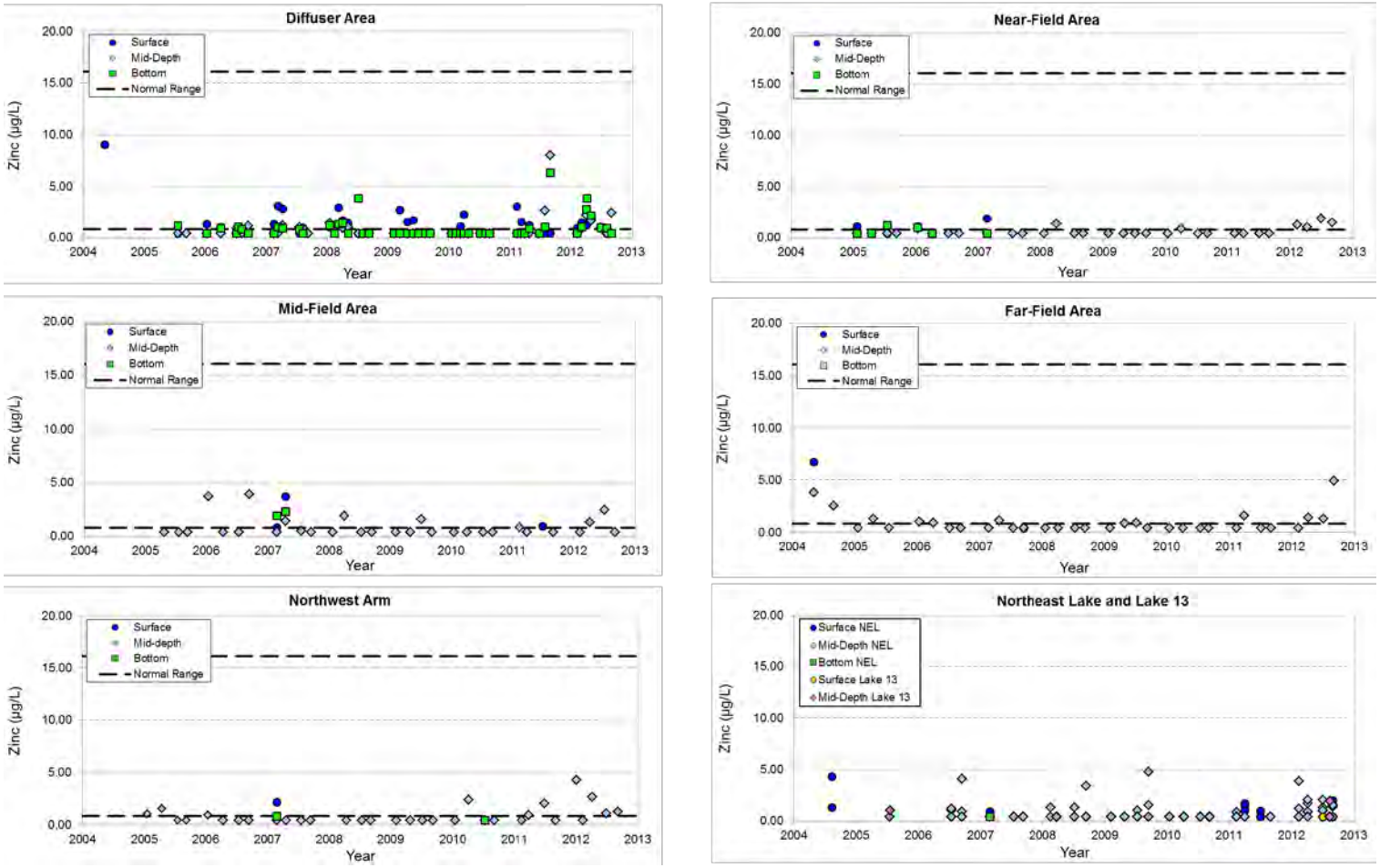
Note: µg/L = micrograms per litre; normal range presented as the lowest detection limit (DL) between 1999 and 2004, because values were reported below the DL; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-50 Total Vanadium Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



Note: µg/L = micrograms per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

Figure 3F-51 Total Zinc Concentrations in Snap Lake, Northeast Lake, and Lake 13, 2004 to 2012



Note: µg/L = micrograms per litre; normal range is based on data collected prior to 2004, with the upper and lower range calculated as the mean ± 2 standard deviations; data shown are from representative stations within Snap Lake: Diffuser Area = SNAP13 (2004 to April 2006) and SNP 02-20e (July 2006 to 2012); Near-field Area = SNAP05; Mid-field Area = SNAP09; Far-field Area = SNAP08; Northwest Arm = SNAP02 (2004 to April 2006) and SNAP02A (July 2006 to 2012); Northeast Lake = NEL01 to NEL05; Lake 13 = Lake 13-01 to Lake 13-05 (2005 and 2012).

3G SPATIAL AND SEASONAL PATTERNS

This appendix provides the figures that were referenced in Section 3. The figures for F1-BTEX (benzene, ethylbenzene, toluene, xylene), F1 hydrocarbon fractions (C_6 - C_{10}), F2 hydrocarbon fractions (>C_{10} - C_{16}), methyl mercury and *Escherichia coli* were excluded from this appendix because they were only measured at the diffuser stations and all values were reported below the detection limit. Oil and grease was similarly excluded; only one detectable value was measured. The following abbreviations are used in the figures in this appendix.

The acronyms and units of measure included here are found in, or associated with, the figures in this appendix.

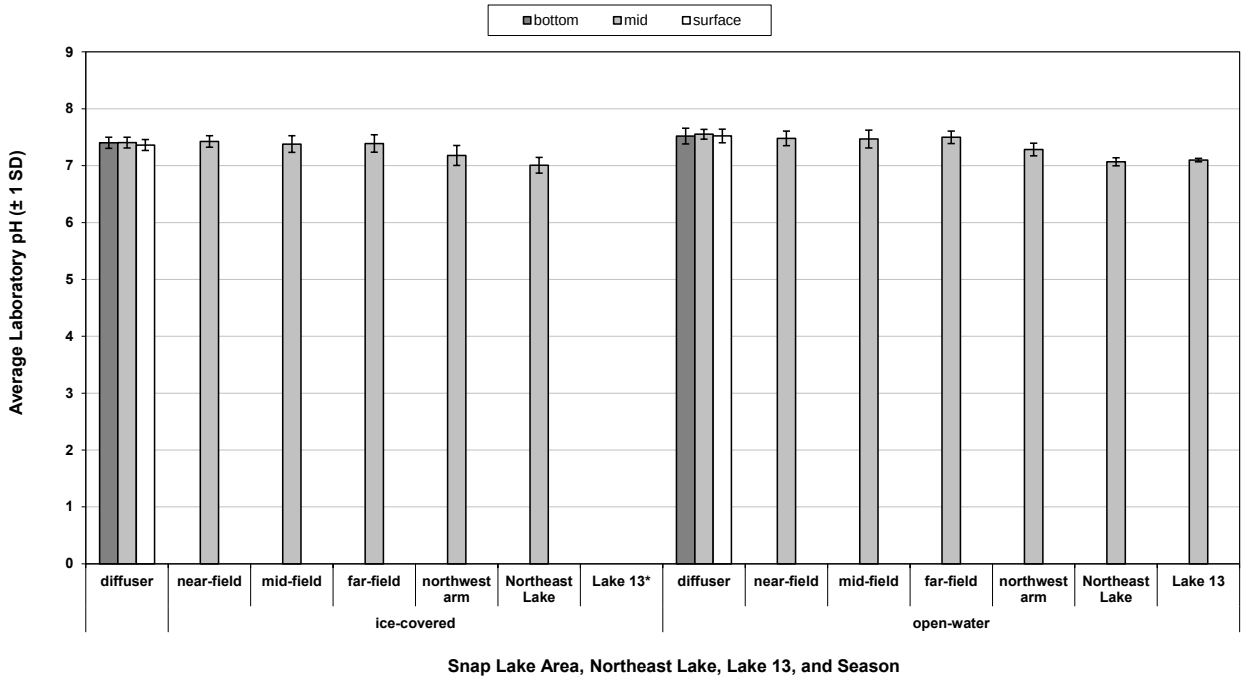
Acronyms

Alberta Innovates	Alberta Innovates Technology Futures
BOD	biochemical oxygen demand
$CaCO_3$	calcium carbonate
DL	detection limit
Flett	Flett Research Limited
HCO_3	bicarbonate
Hg	mercury;
mid	mid-depth
N	nitrogen
P	phosphorus
SD	standard deviation
SiO_2	silicate

Units of Measure

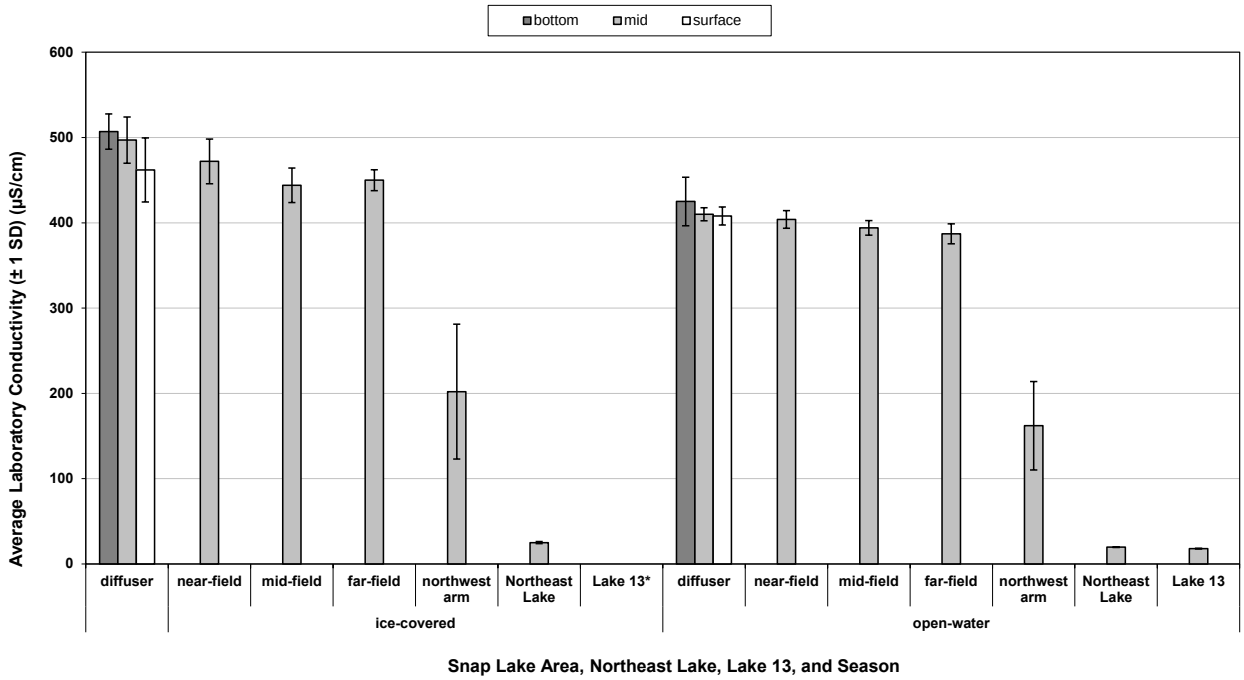
$\pm$	plus or minus
µg/L	micrograms per litre
µS/cm	microSiemens per centimetre
mg/L	milligrams per litre
mg-N/L	milligrams as nitrogen per litre
mg-P/L	milligrams as phosphorus per litre
NTU	Nephelometric Turbidity Unit

Figure 3G-1 Average (± 1 SD) Laboratory pH in Snap Lake, Northeast Lake, and Lake 13, 2012



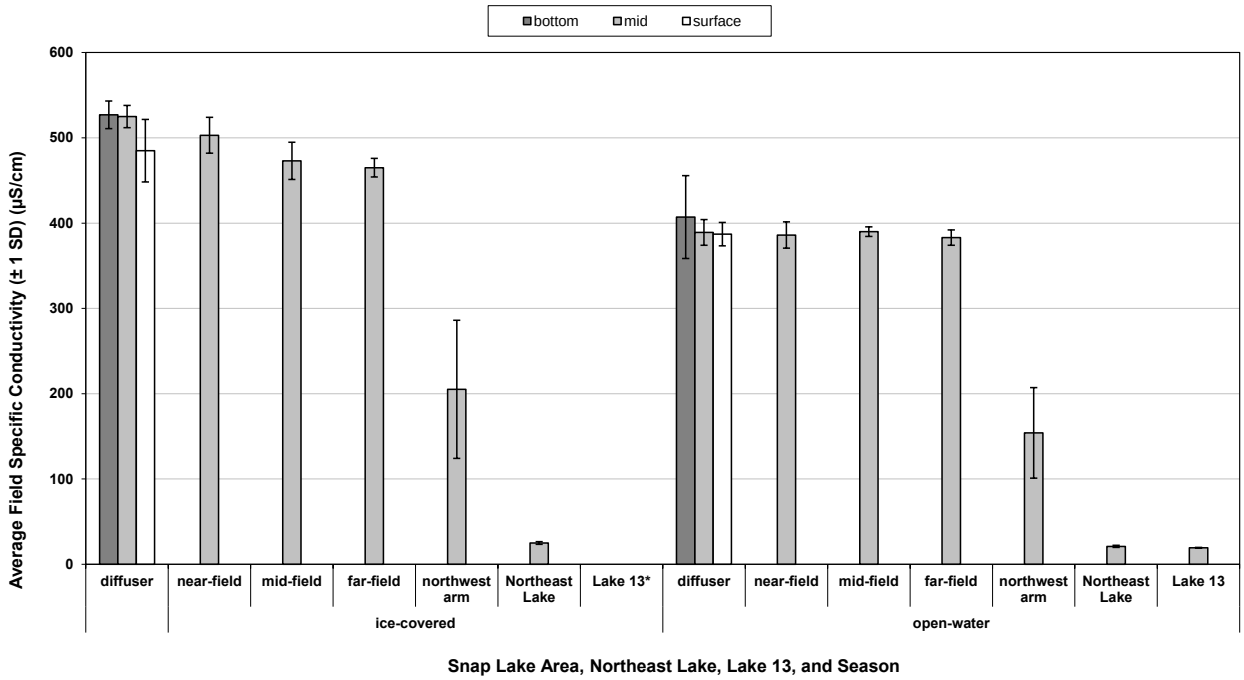
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-2 Average (± 1 SD) Laboratory Conductivity in Snap Lake, Northeast Lake, and Lake 13, 2012



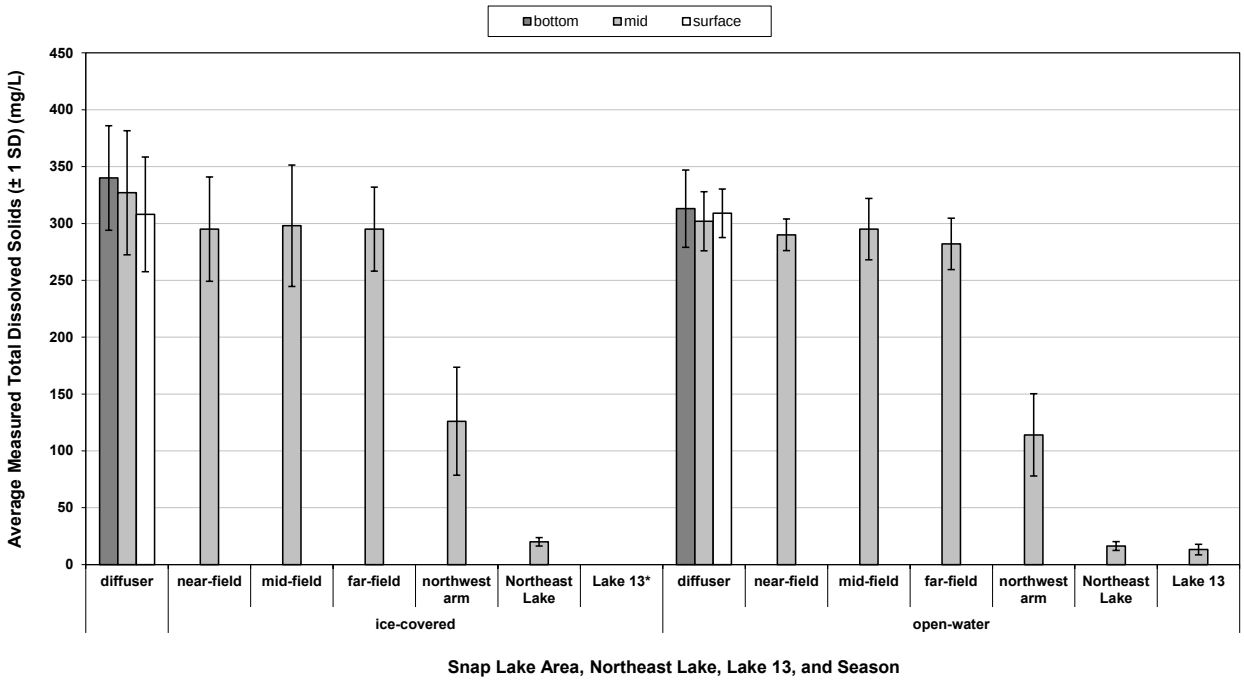
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-3 Average (± 1 SD) Field Specific Conductivity in Snap Lake, Northeast Lake, and Lake 13, 2012



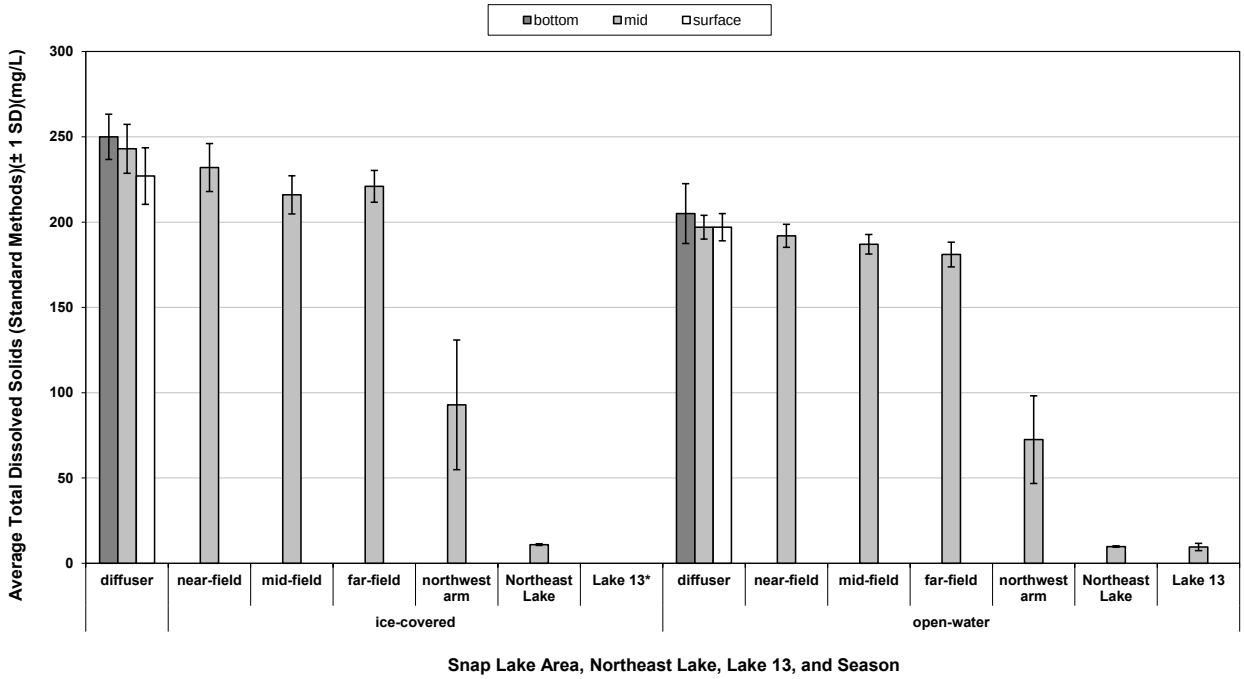
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-4 Average (± 1 SD) Measured Total Dissolved Solids Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



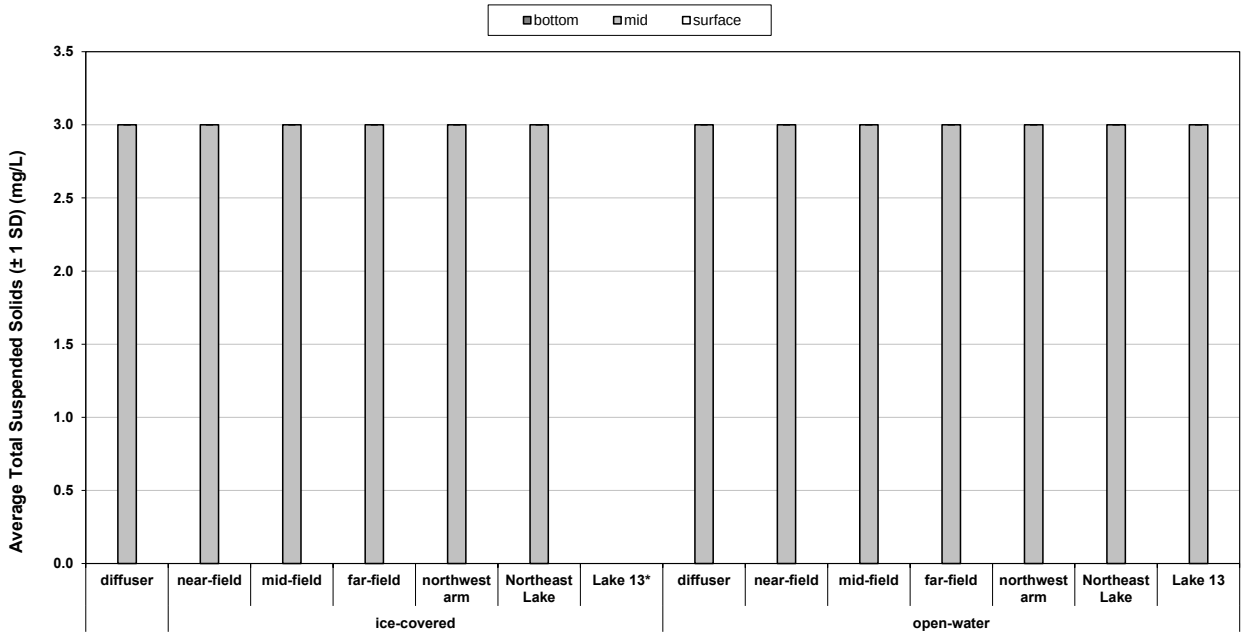
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-5 Average (± 1 SD) Calculated Total Dissolved Solids (Standard Methods) Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



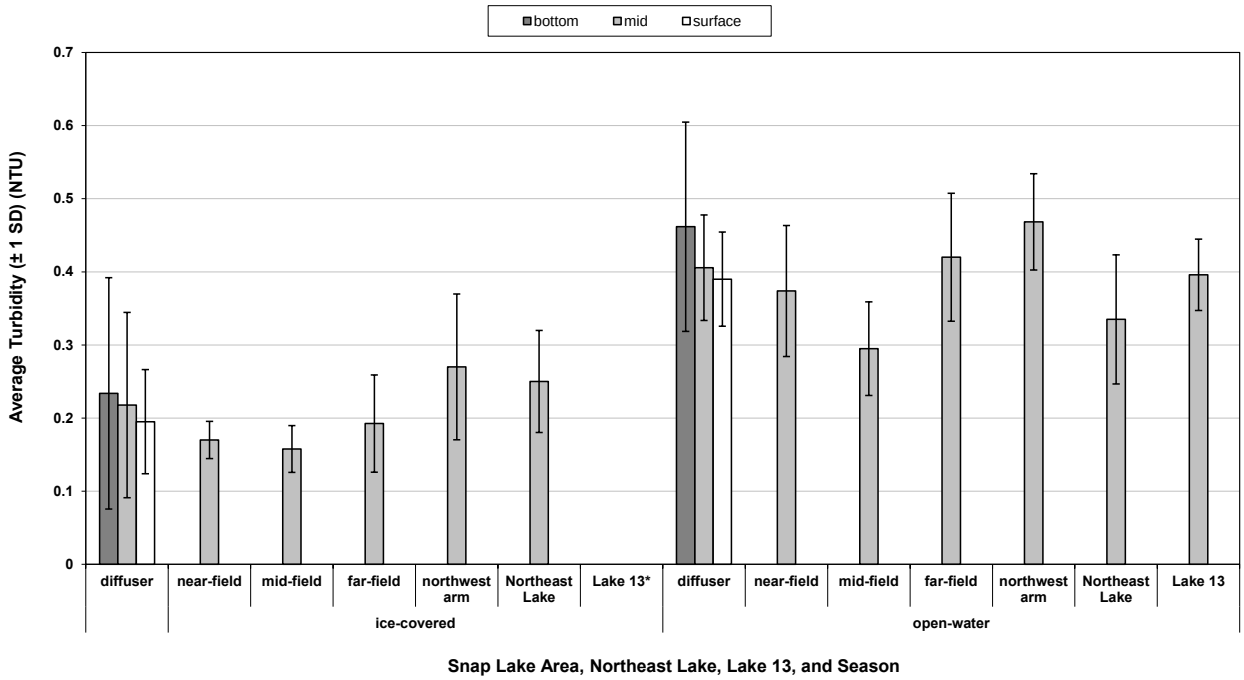
Notes:
* Water samples were not collected from Lake 13 during the ice-covered season.
Concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A for further details.

Figure 3G-6 Average (± 1 SD) Total Suspended Solids Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



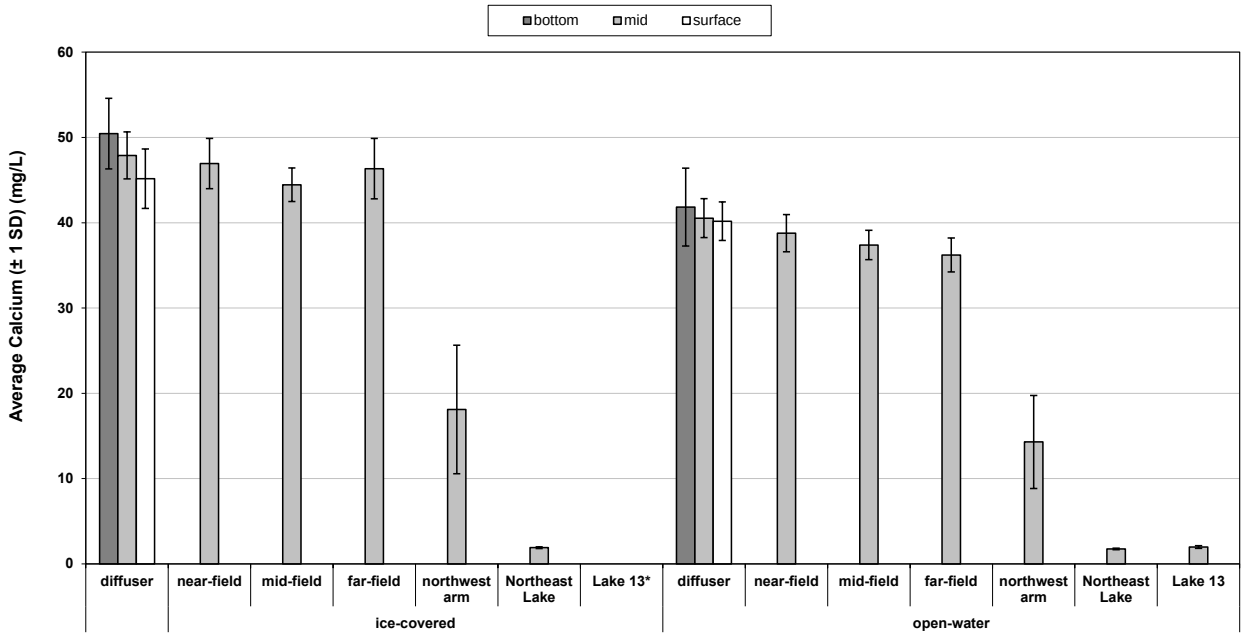
Notes:
* Water samples were not collected from Lake 13 during the ice-covered season.
All values reported as less than the DL of 3 mg/L.

Figure 3G-7 Average (± 1 SD) Turbidity Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



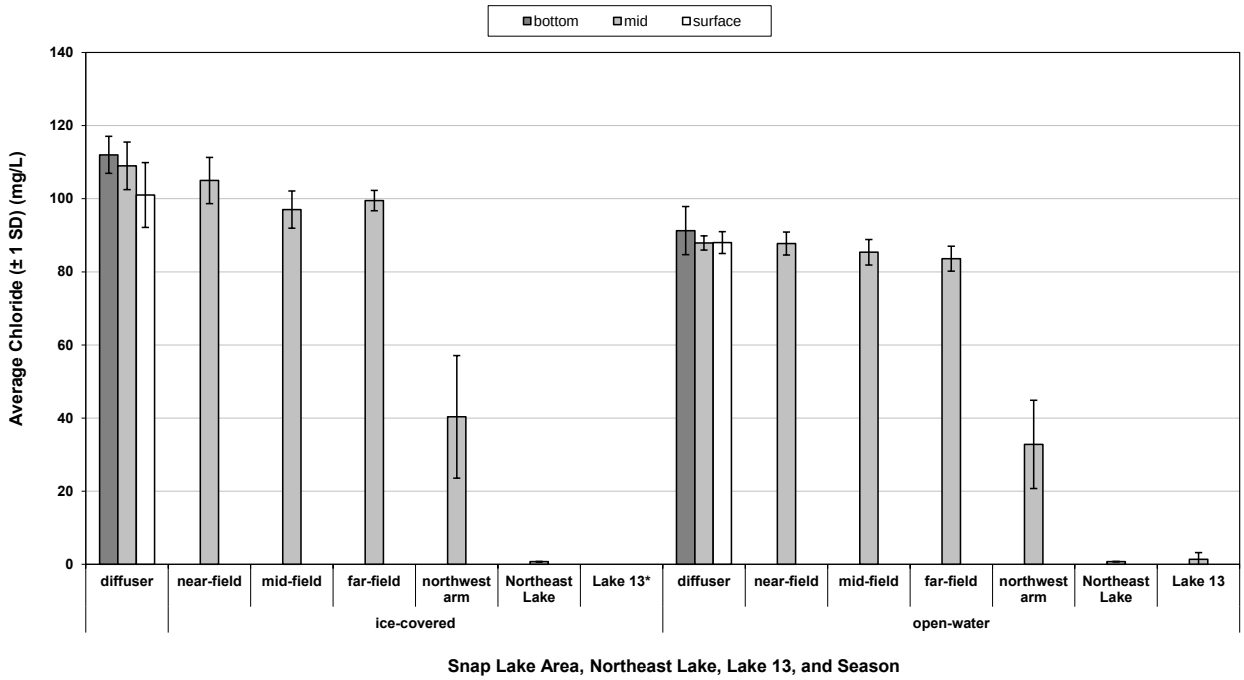
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-8 Average (± 1 SD) Calcium Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



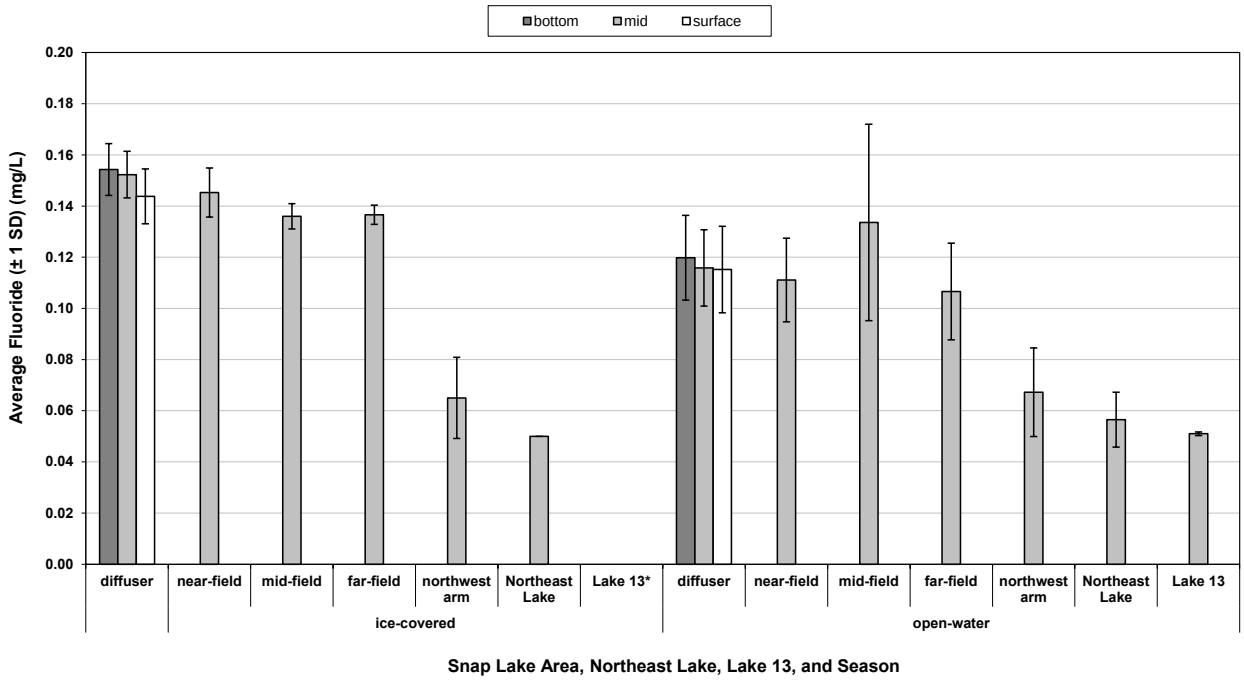
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-9 Average (± 1 SD) Chloride Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



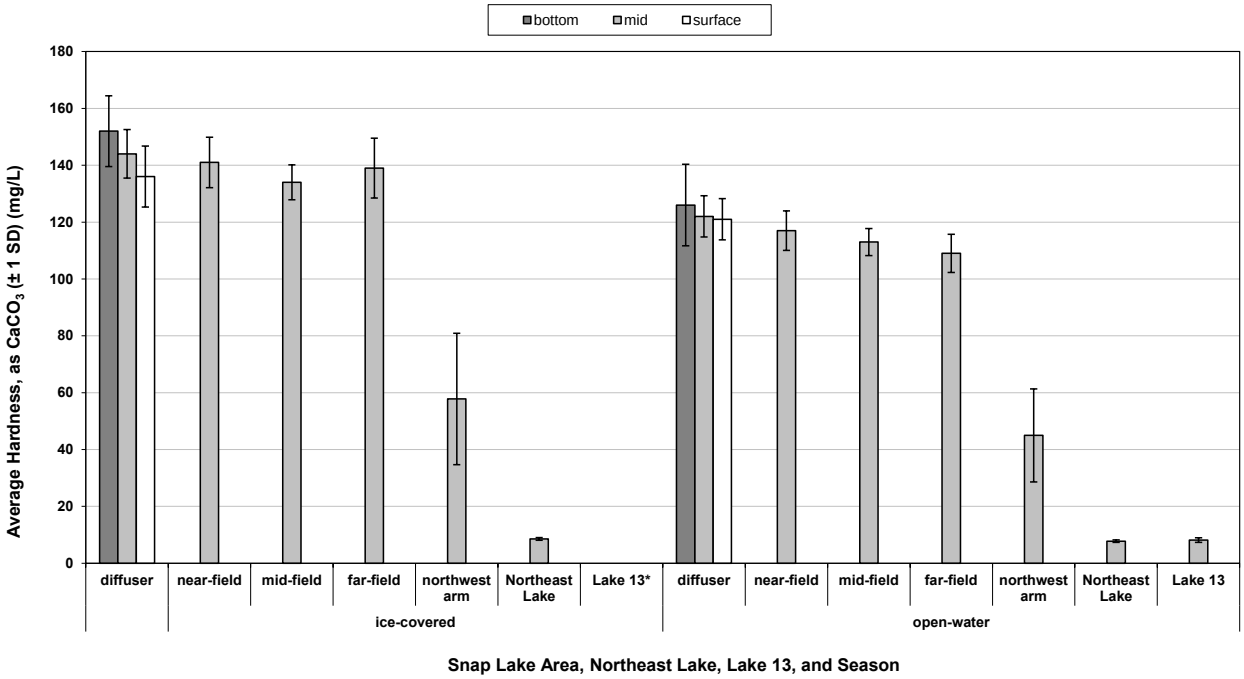
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-10 Average (± 1 SD) Fluoride Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



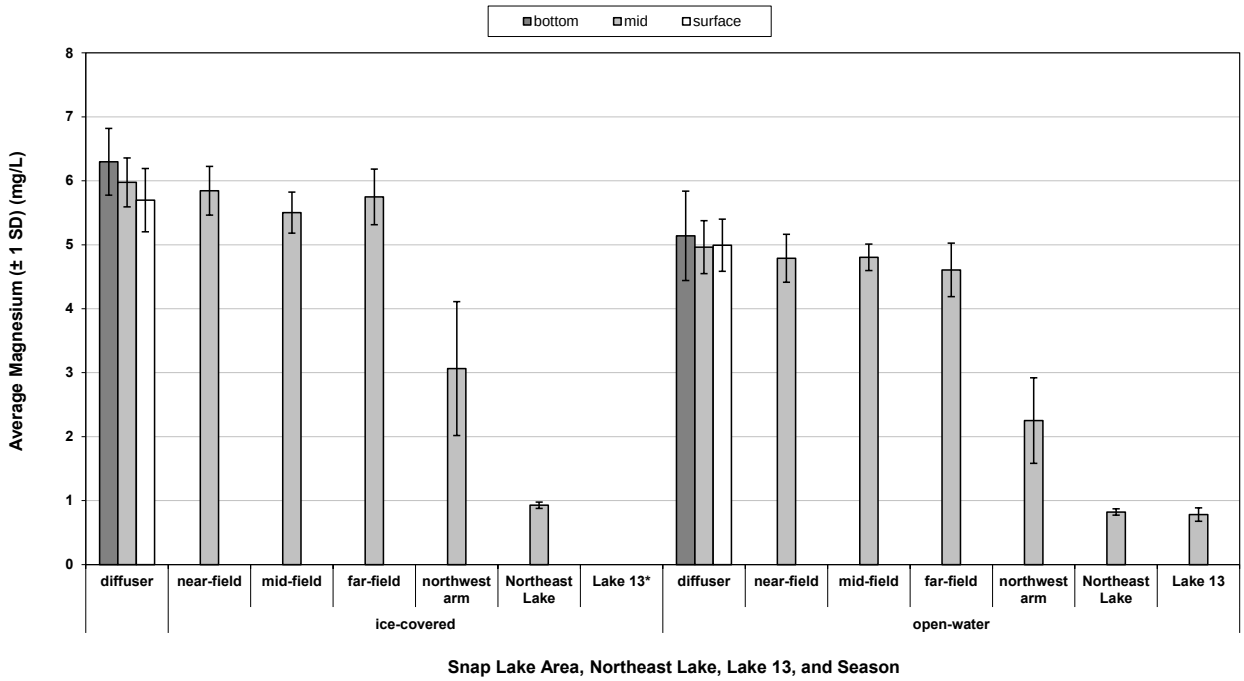
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-11 Average (± 1 SD) Hardness Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



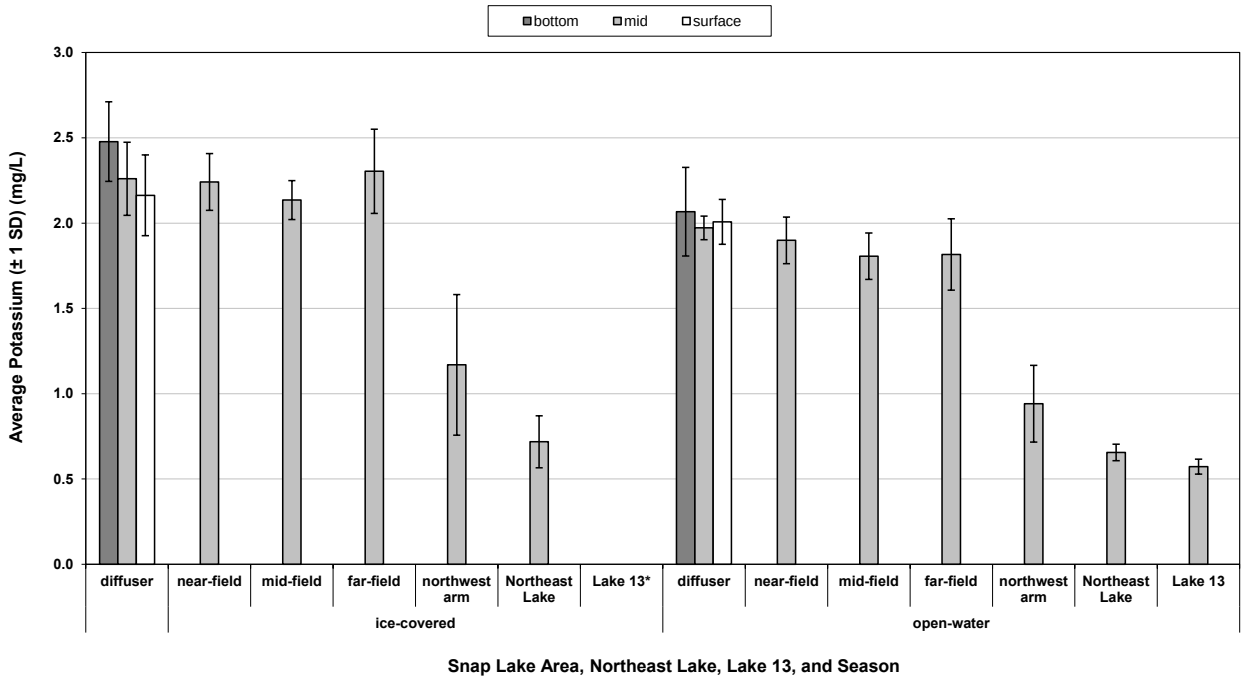
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-12 Average (± 1 SD) Magnesium Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



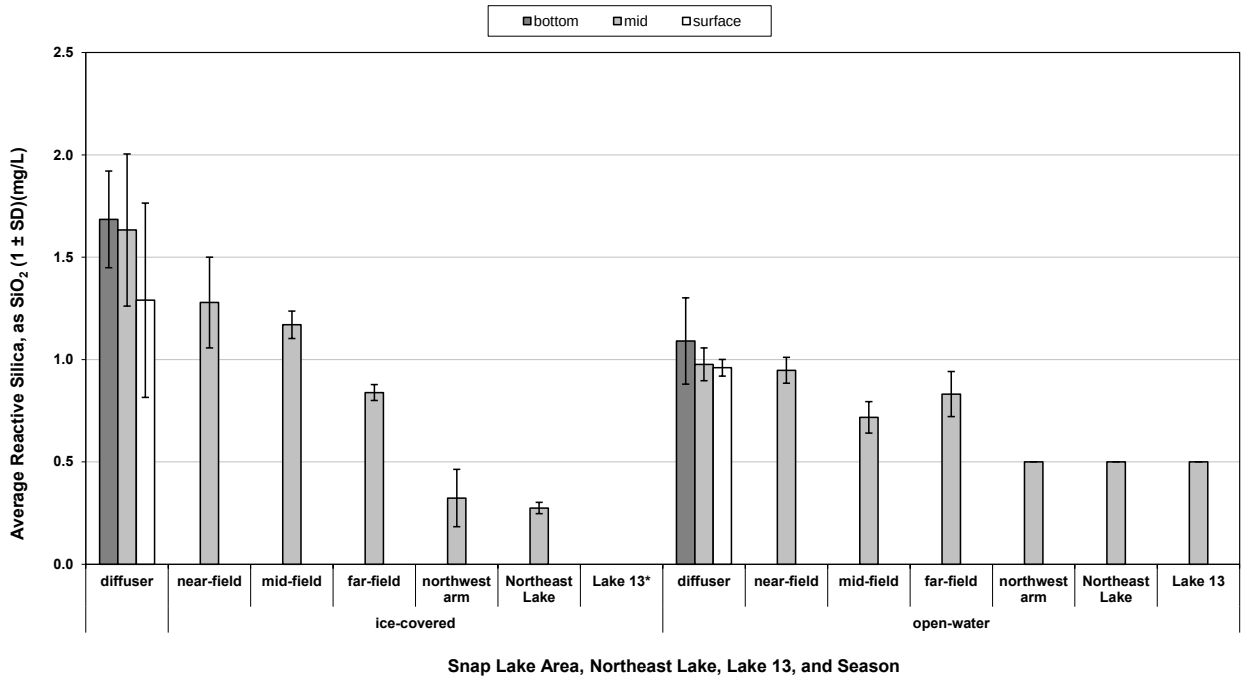
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-13 Average (± 1 SD) Potassium Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



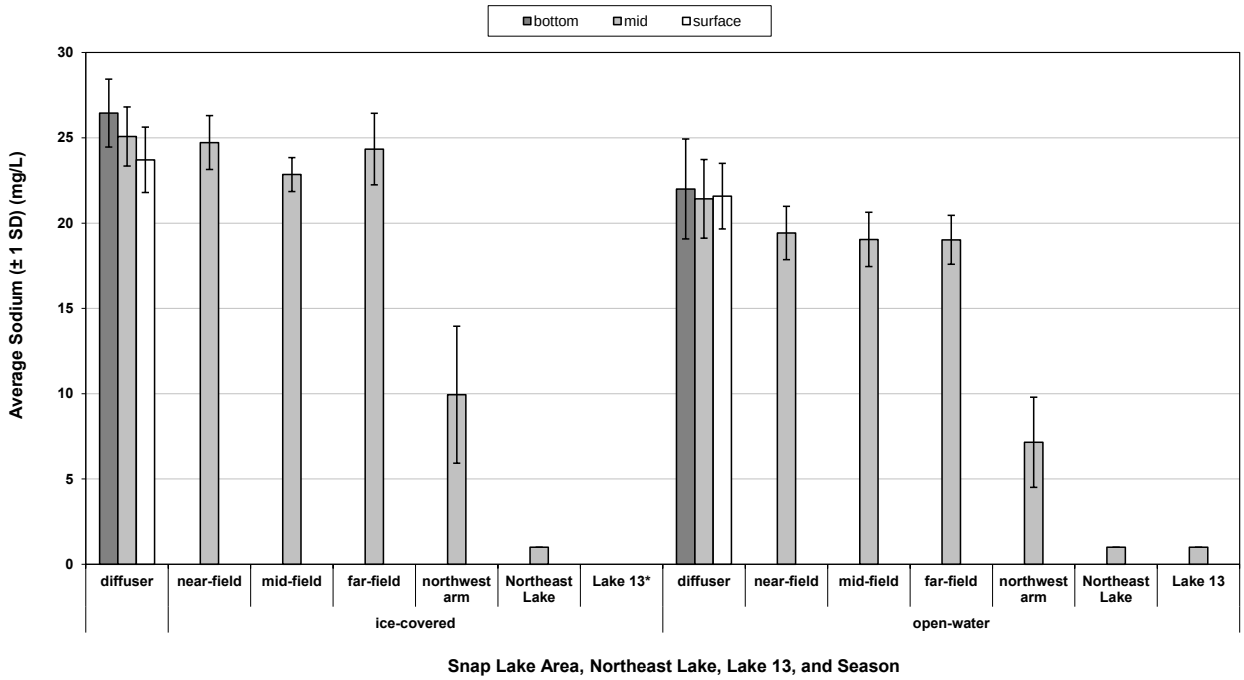
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-14 Average (± 1 SD) Reactive Silica Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



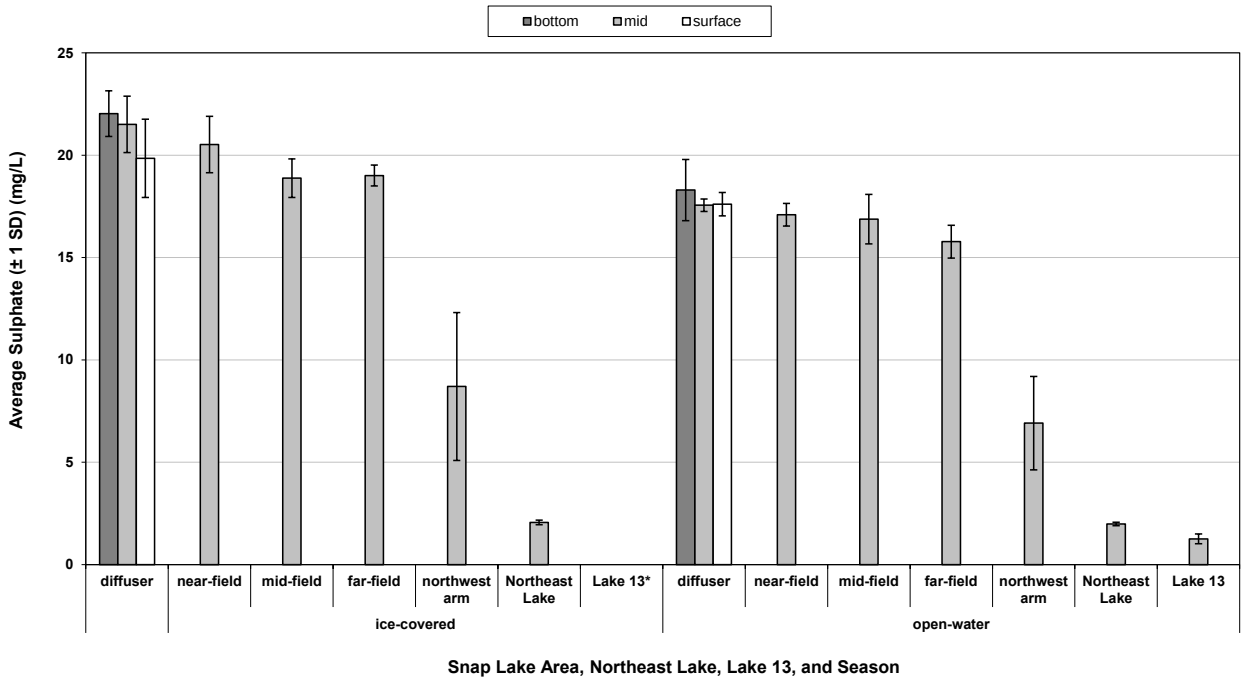
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-15 Average (± 1 SD) Sodium Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



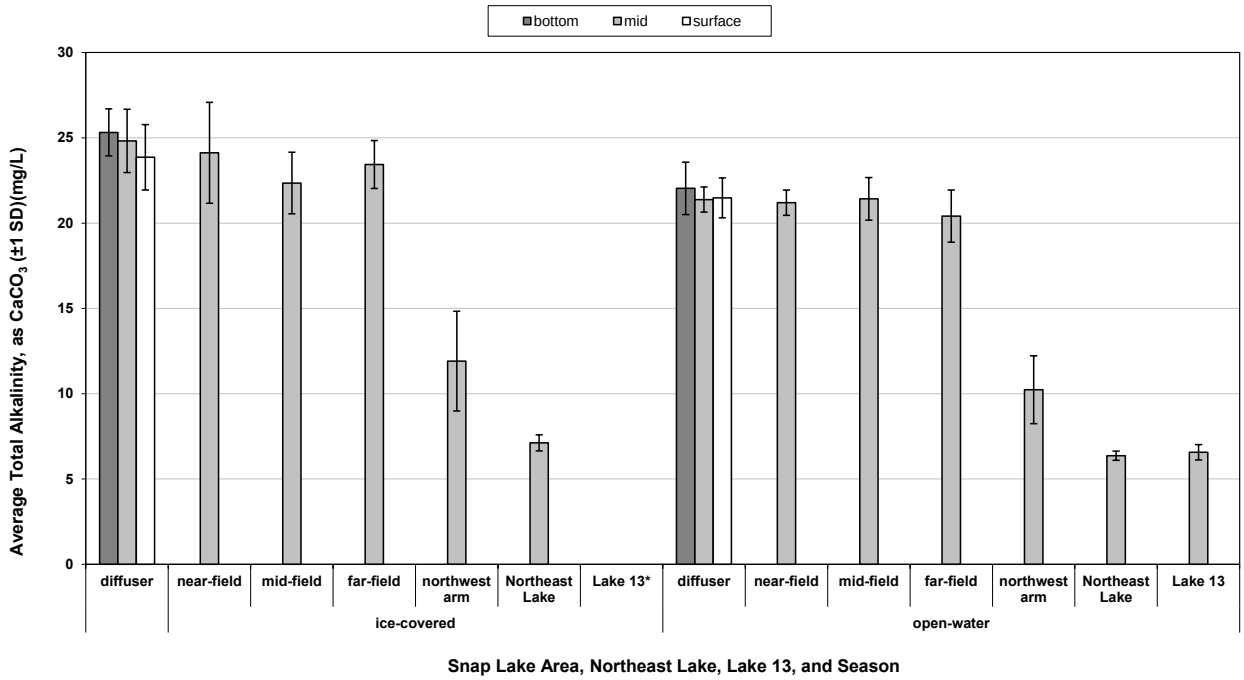
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-16 Average (± 1 SD) Sulphate Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



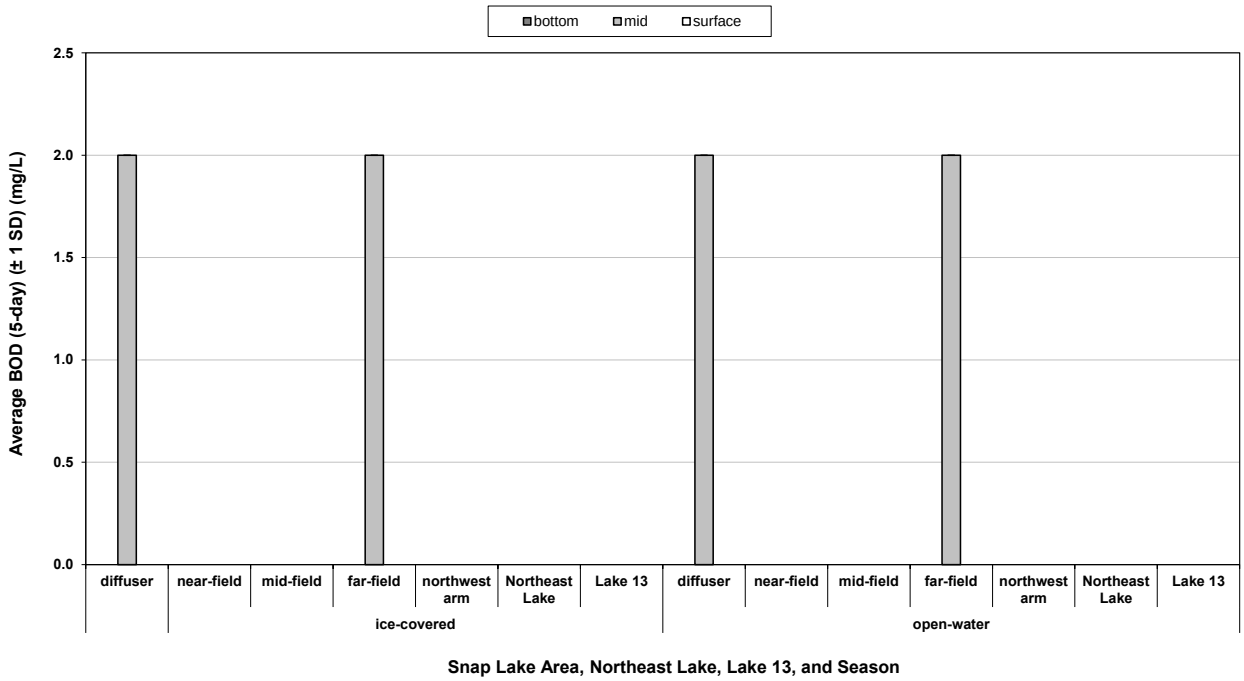
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-17 Average (± 1 SD) Total Alkalinity Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



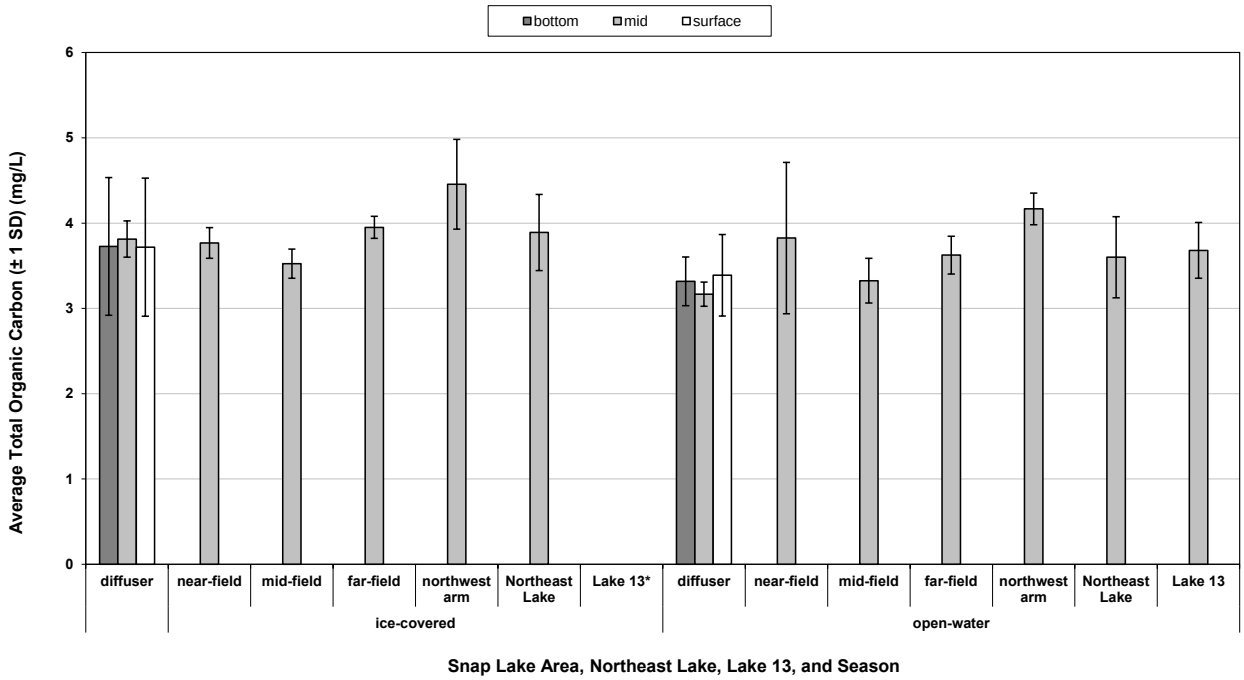
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-18 Average (± 1 SD) Biochemical Oxygen Demand (BOD) Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



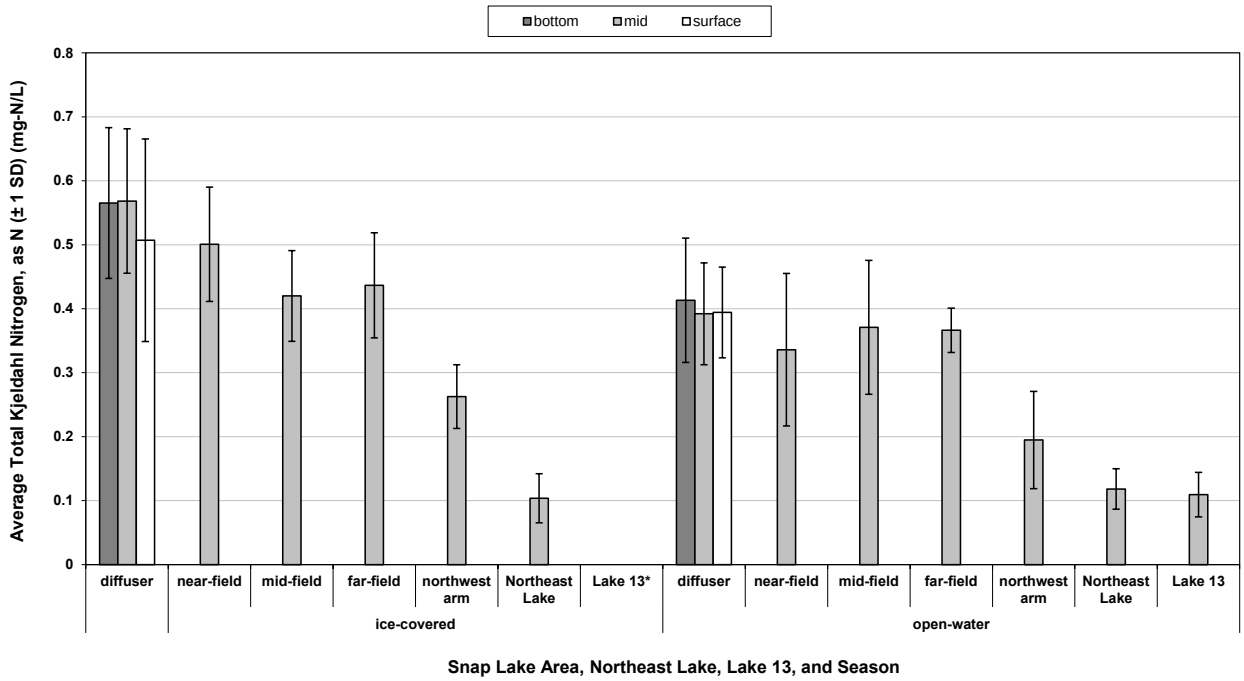
Notes:
As outlined in Section 3.2.2.4, BOD analysis was completed only for samples collected at the diffuser stations and SNAP08.
All values reported as less than the DL of 2 mg/L.

Figure 3G-19 Average (± 1 SD) Total Organic Carbon Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



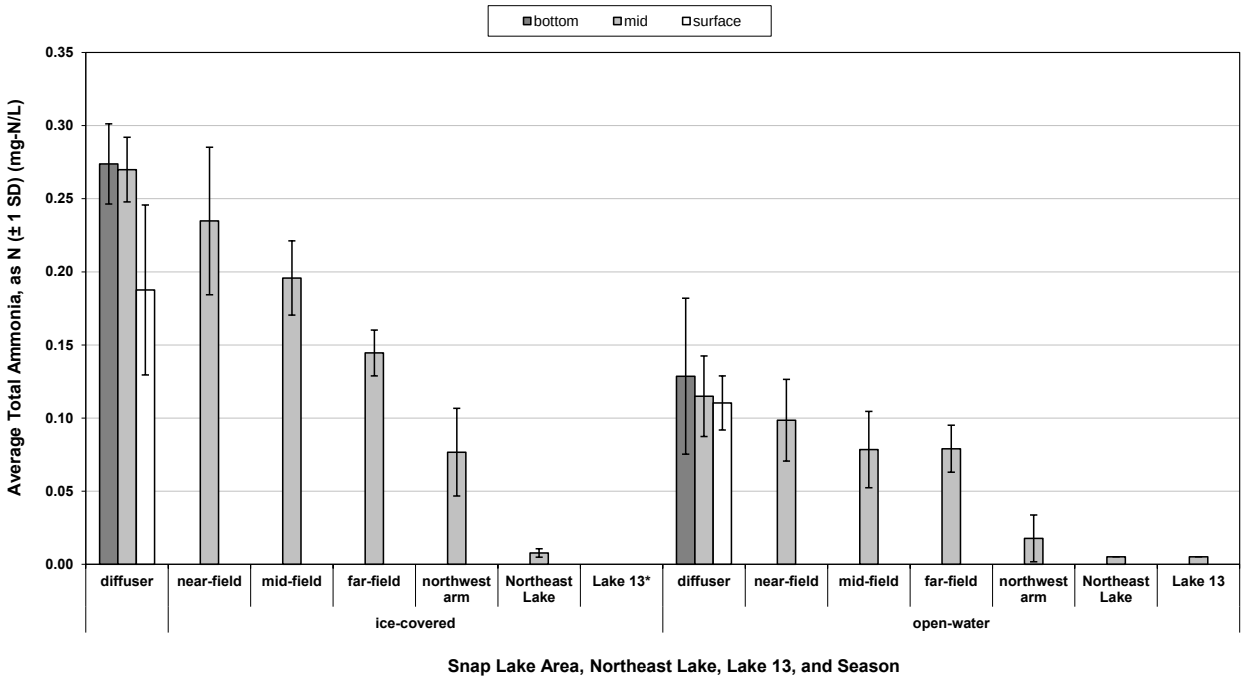
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-20 Average (± 1 SD) Total Kjeldahl Nitrogen Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



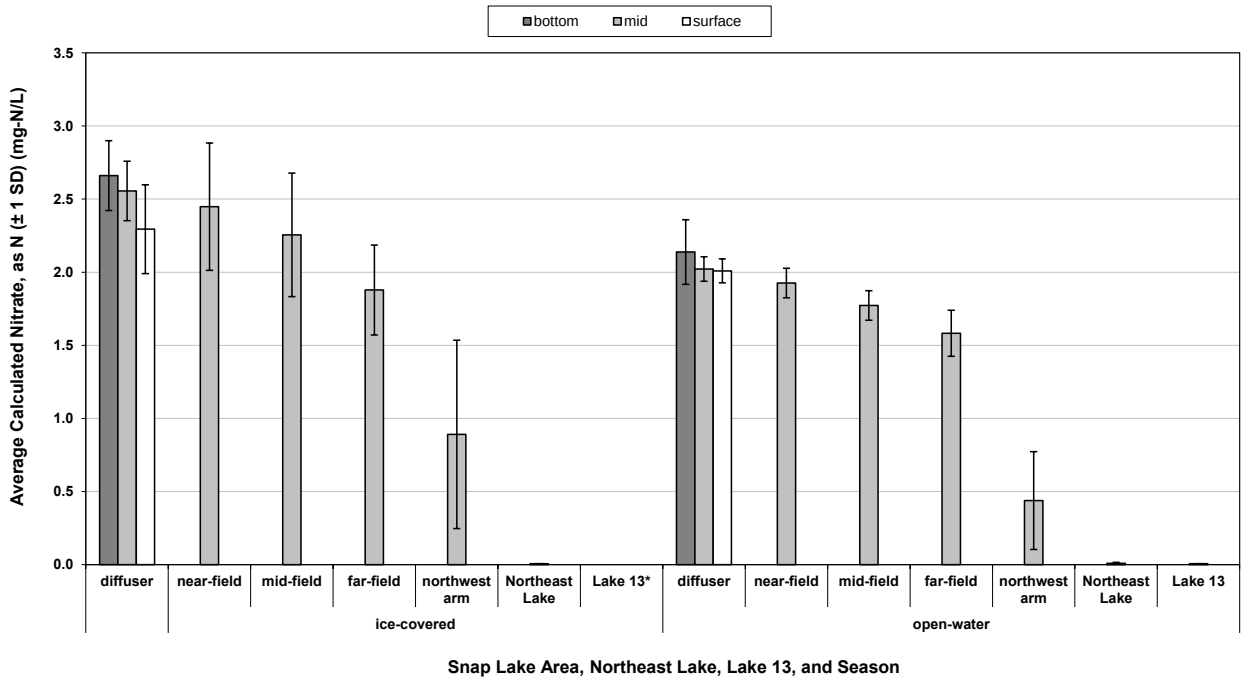
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-21 Average (± 1 SD) Total Ammonia Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



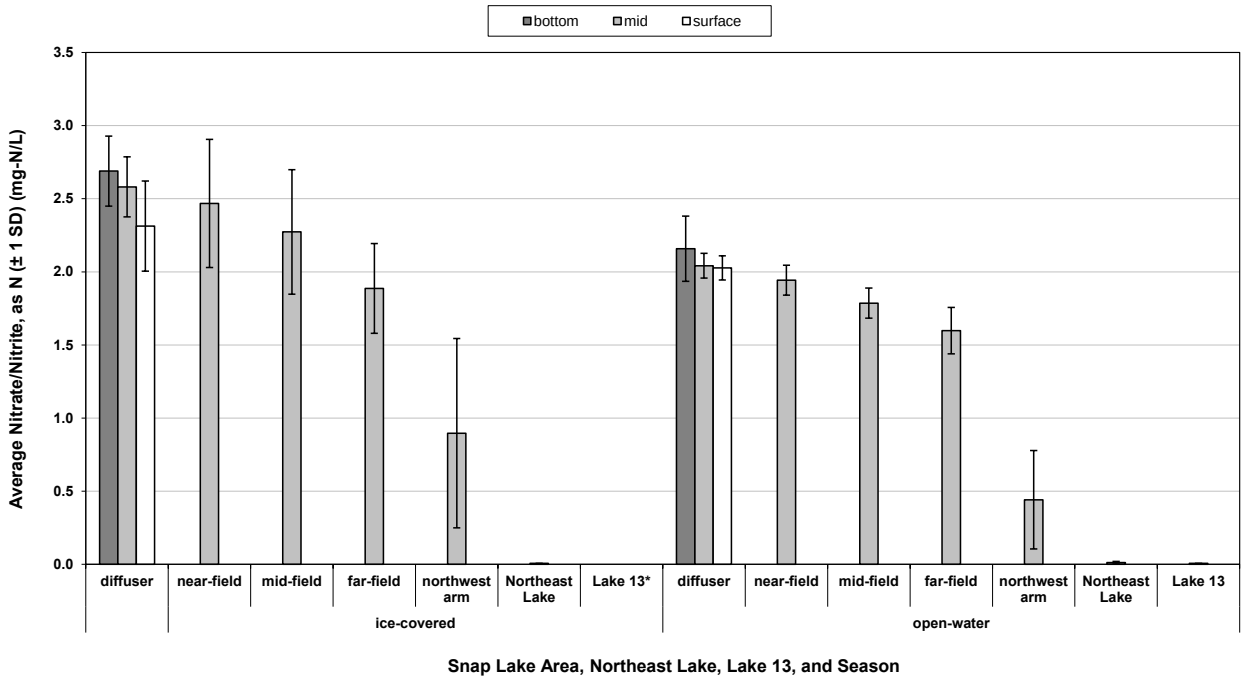
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-22 Average (± 1 SD) Calculated Nitrate Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



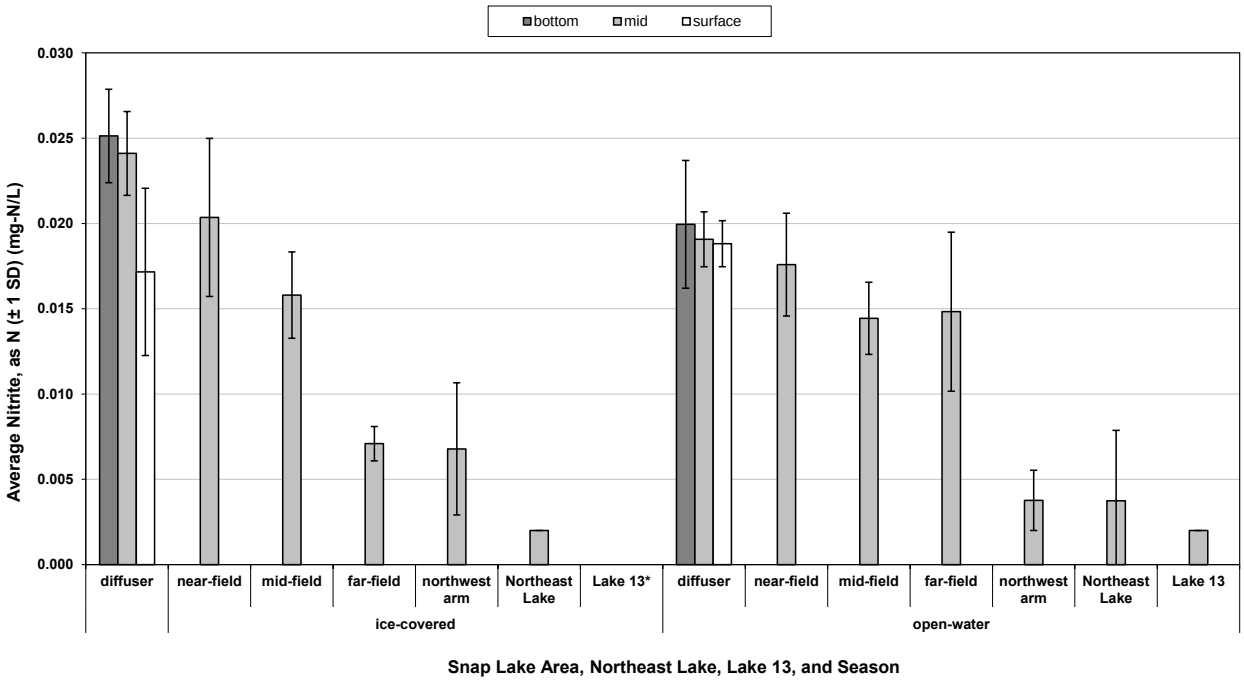
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-23 Average (± 1 SD) Nitrate/Nitrite Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



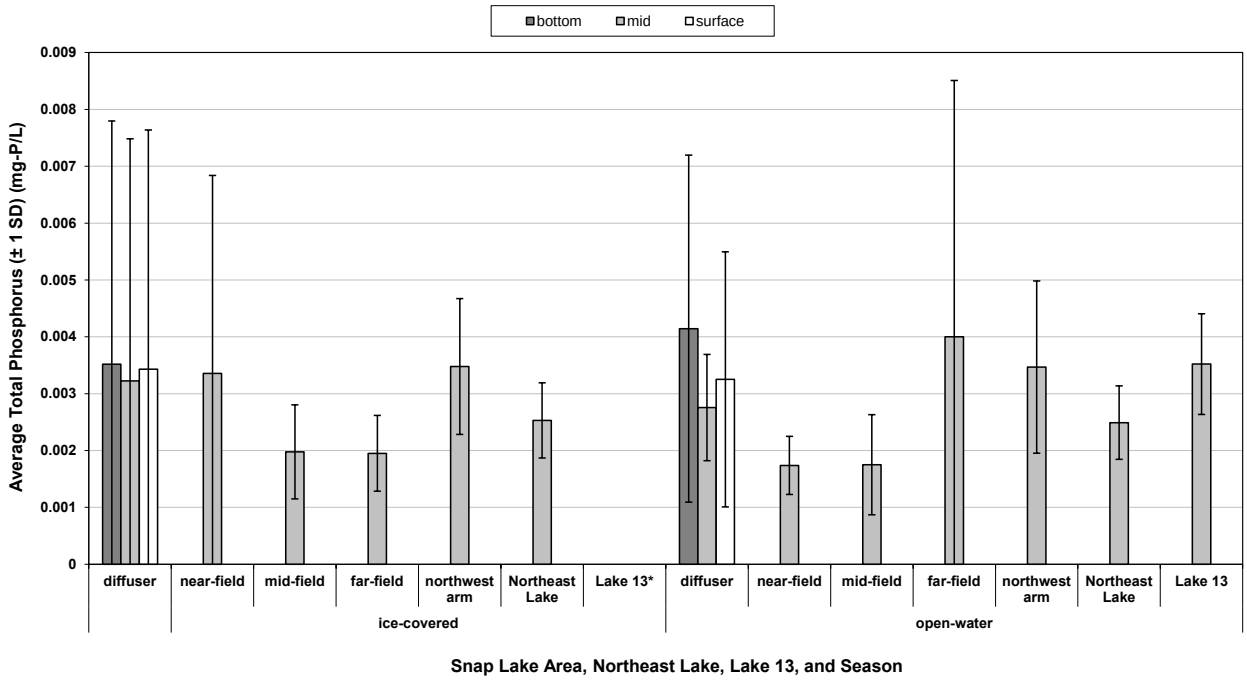
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-24 Average (± 1 SD) Nitrite Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



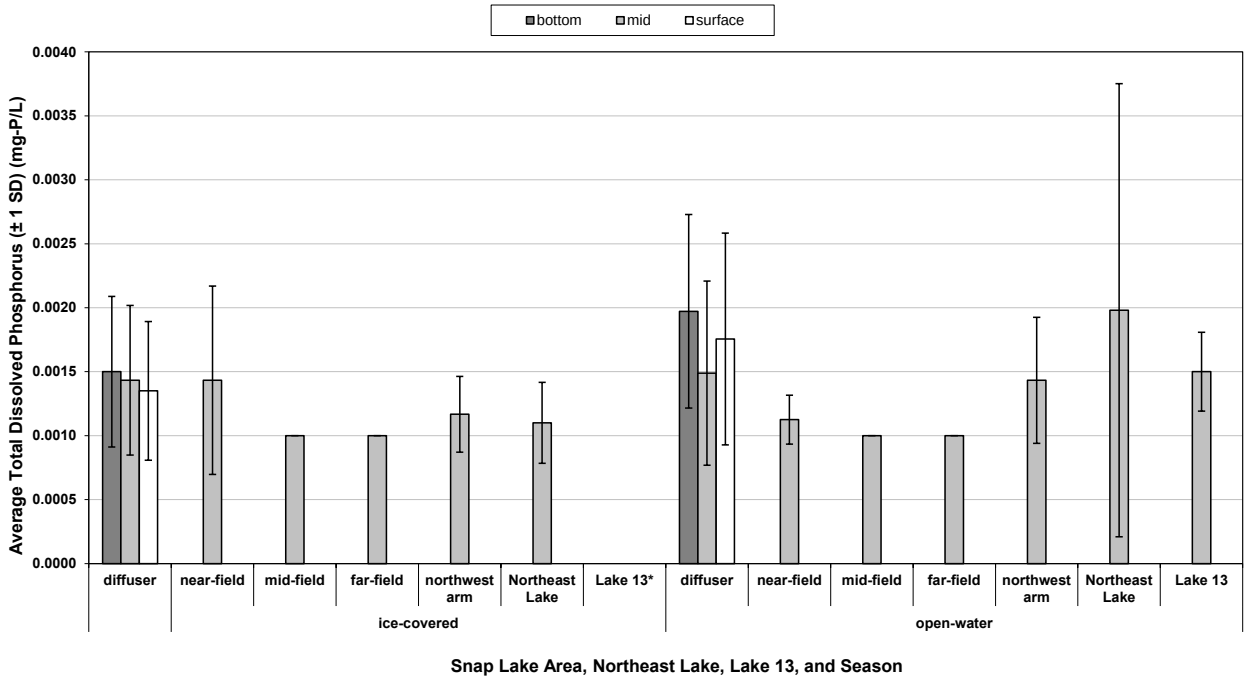
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-25 Average (± 1 SD) Total Phosphorus Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



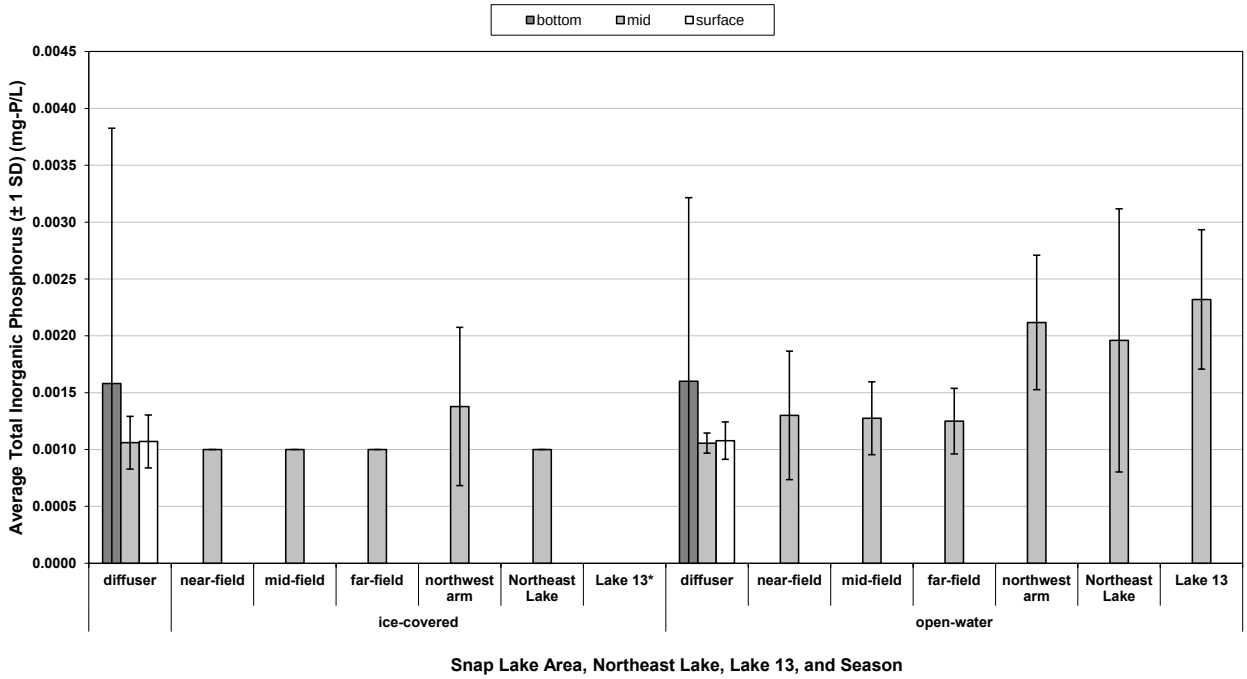
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-26 Average (± 1 SD) Total Dissolved Phosphorus Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



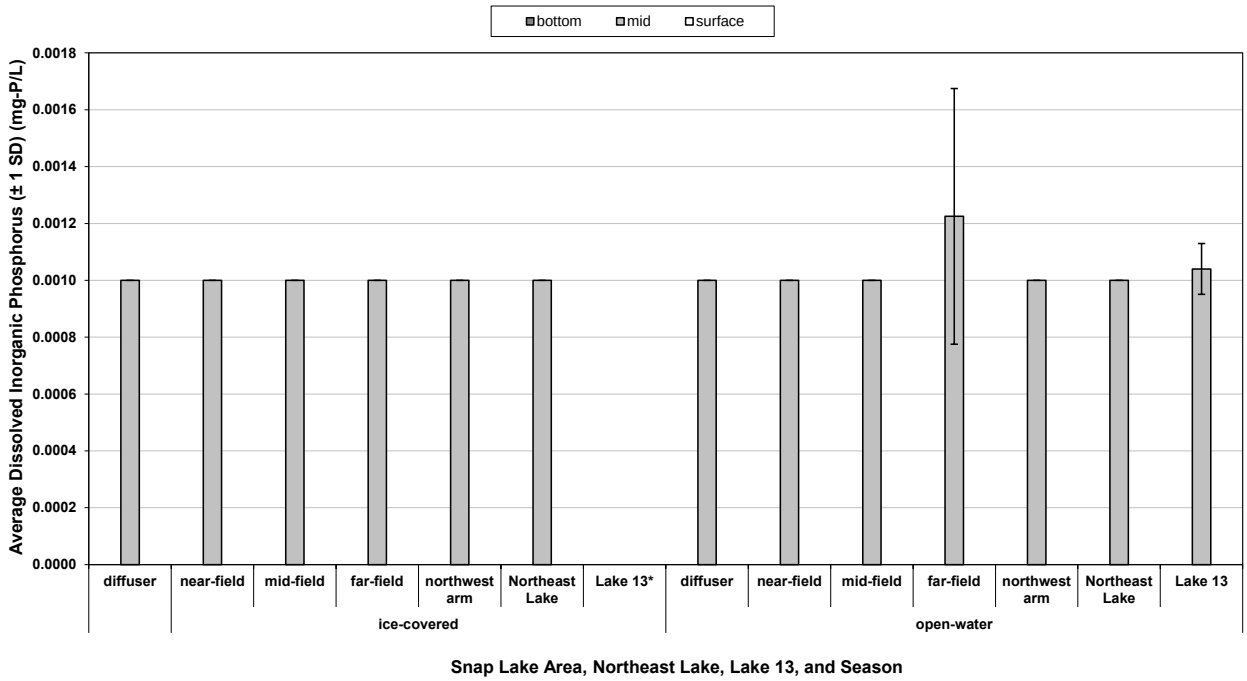
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-27 Average (± 1 SD) Total Inorganic Phosphorus Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



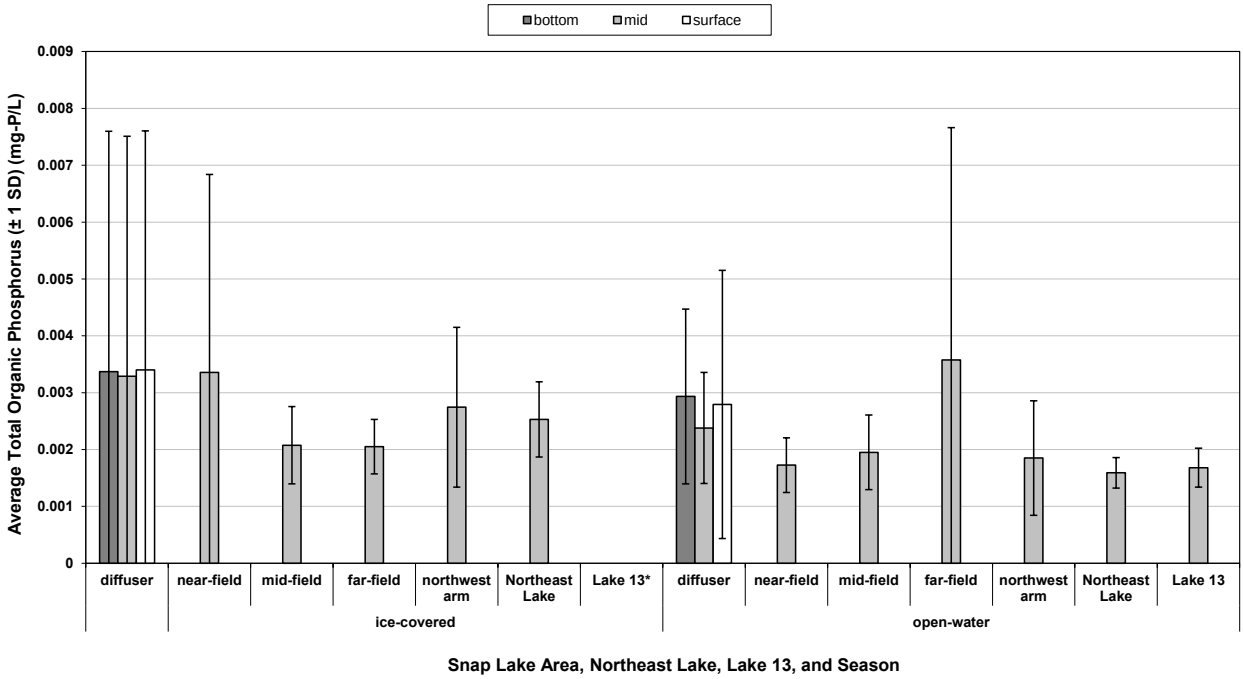
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-28 Average (± 1 SD) Dissolved Inorganic Phosphorus Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



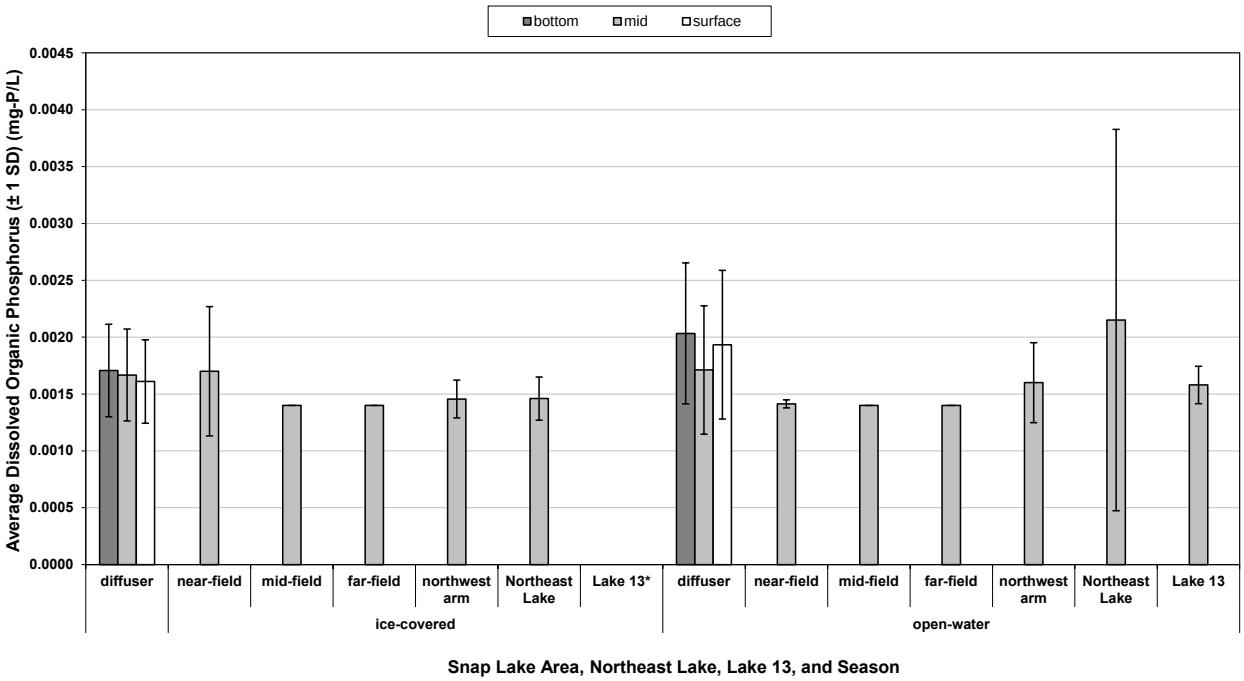
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-29 Average (± 1 SD) Calculated Total Organic Phosphorus Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



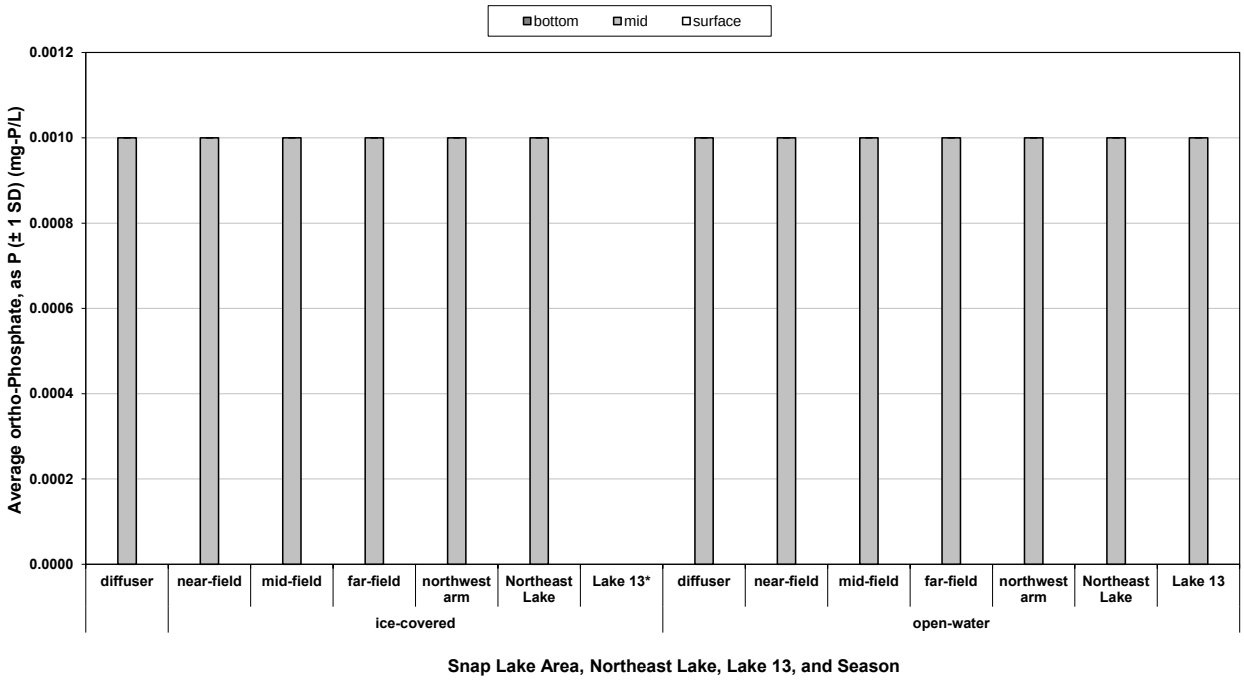
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-30 Average (± 1 SD) Calculated Dissolved Organic Phosphorus Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



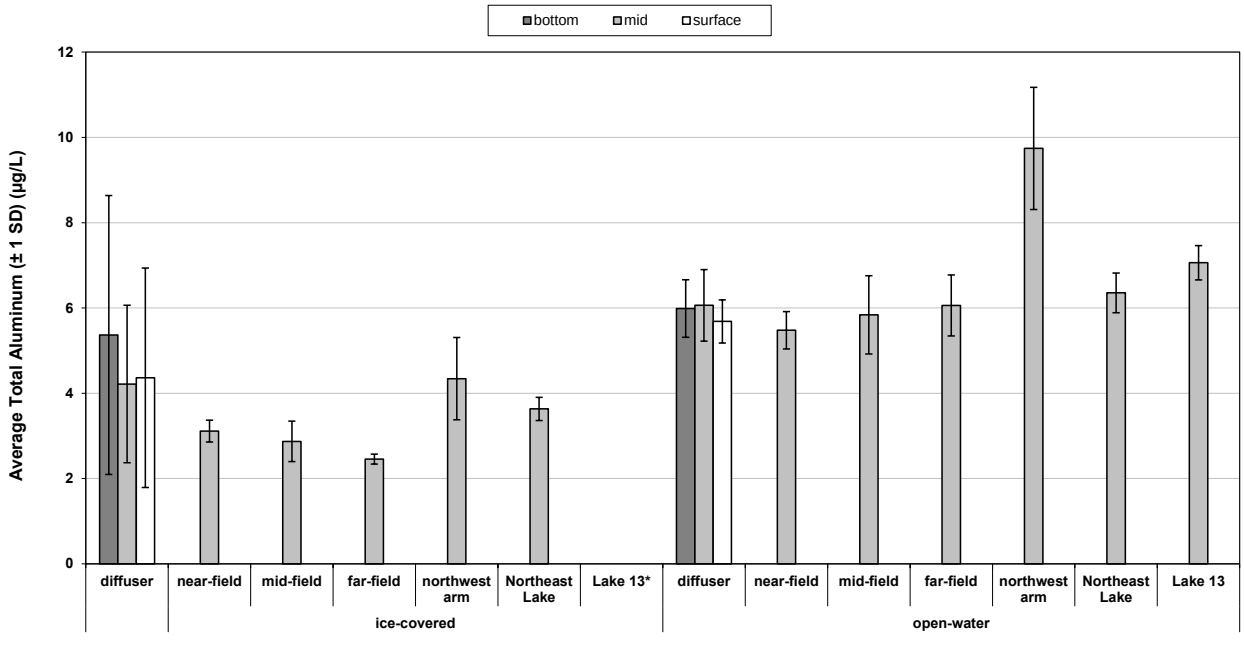
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-31 Average (± 1 SD) ortho-Phosphate Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



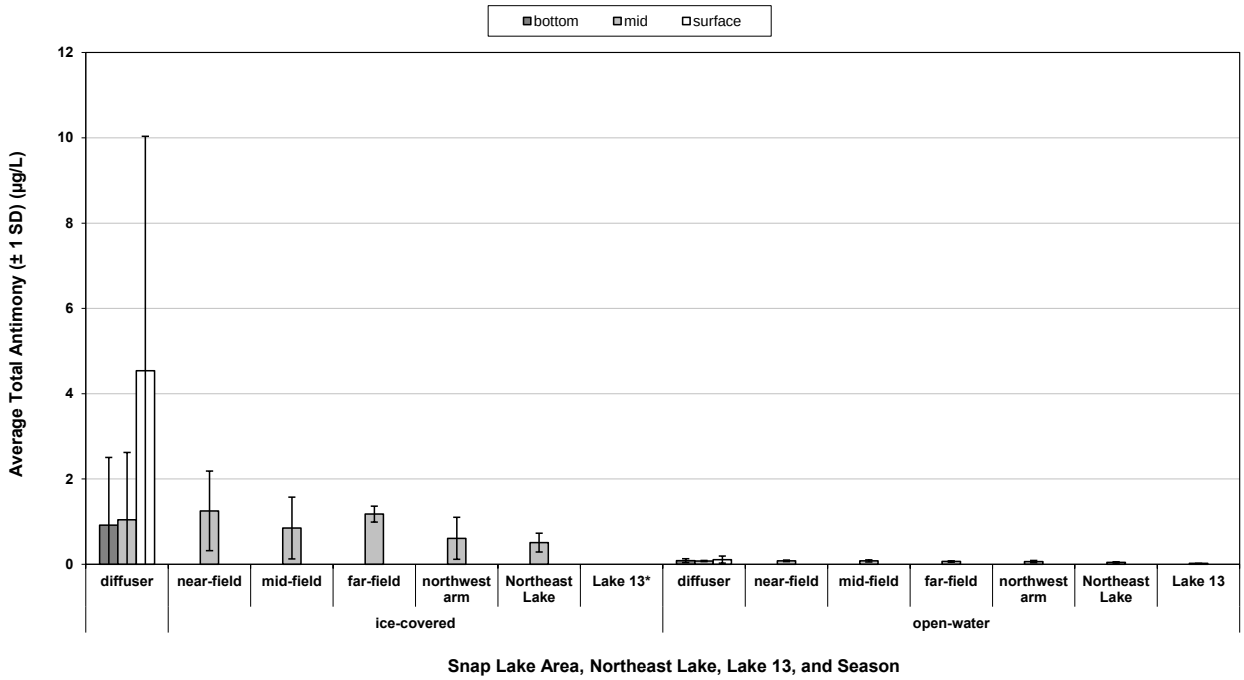
Notes:
* Water samples were not collected from Lake 13 during the ice-covered season.
All values reported as less than the DL of 0.001 mg/L.

Figure 3G-32 Average (± 1 SD) Total Aluminium Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



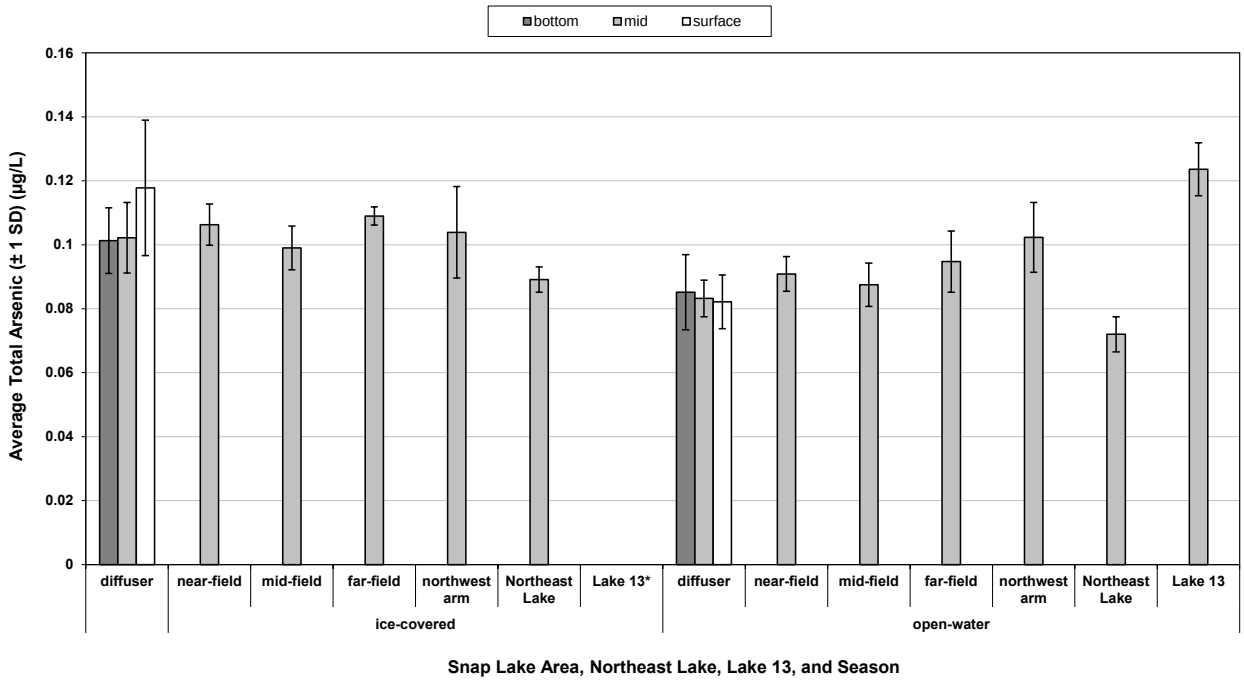
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-33 Average (± 1 SD) Total Antimony Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



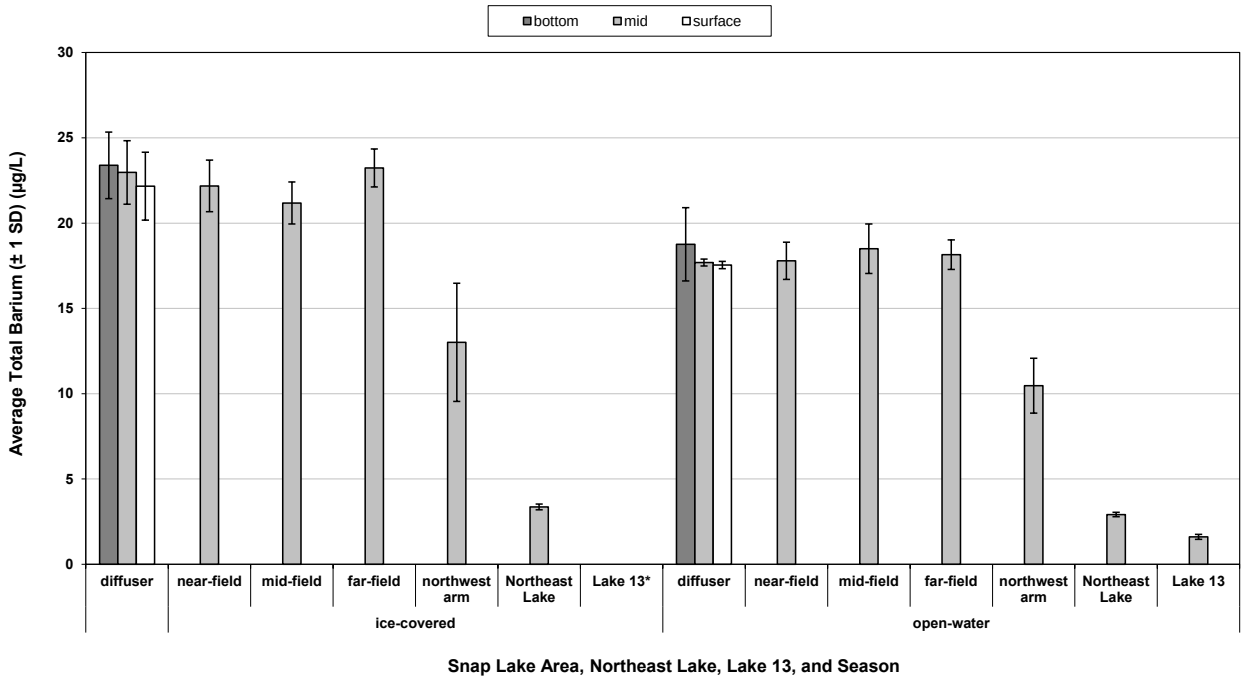
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-34 Average (± 1 SD) Total Arsenic Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



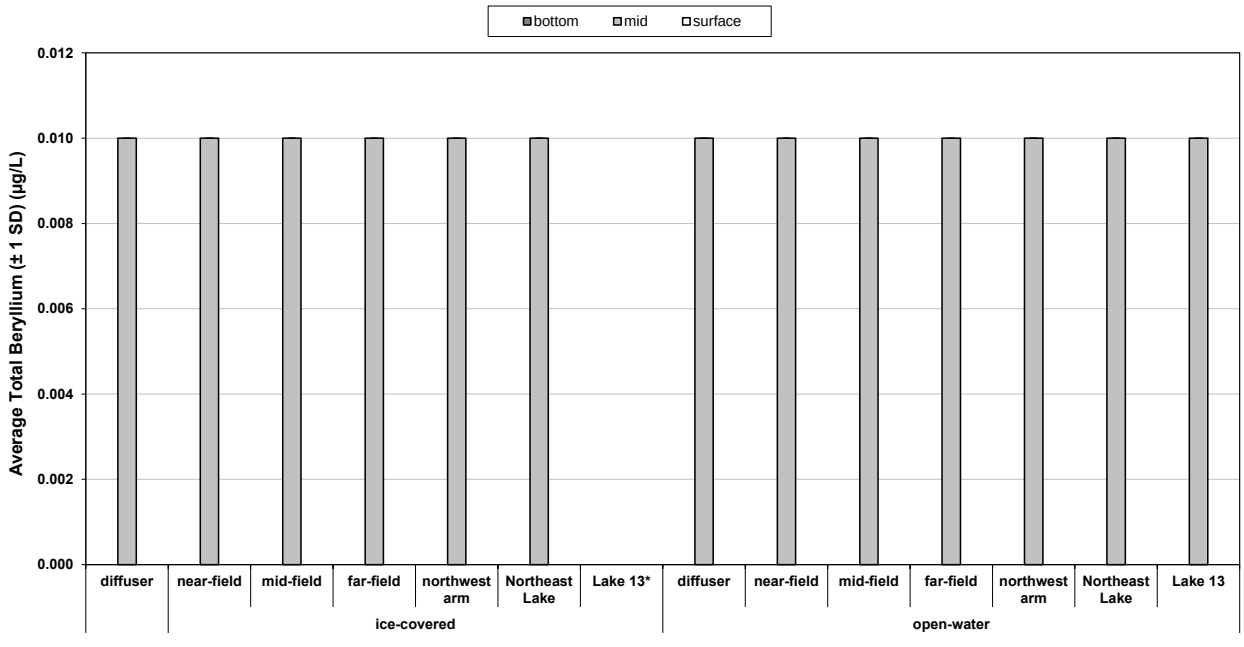
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-35 Average (± 1 SD) Total Barium Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



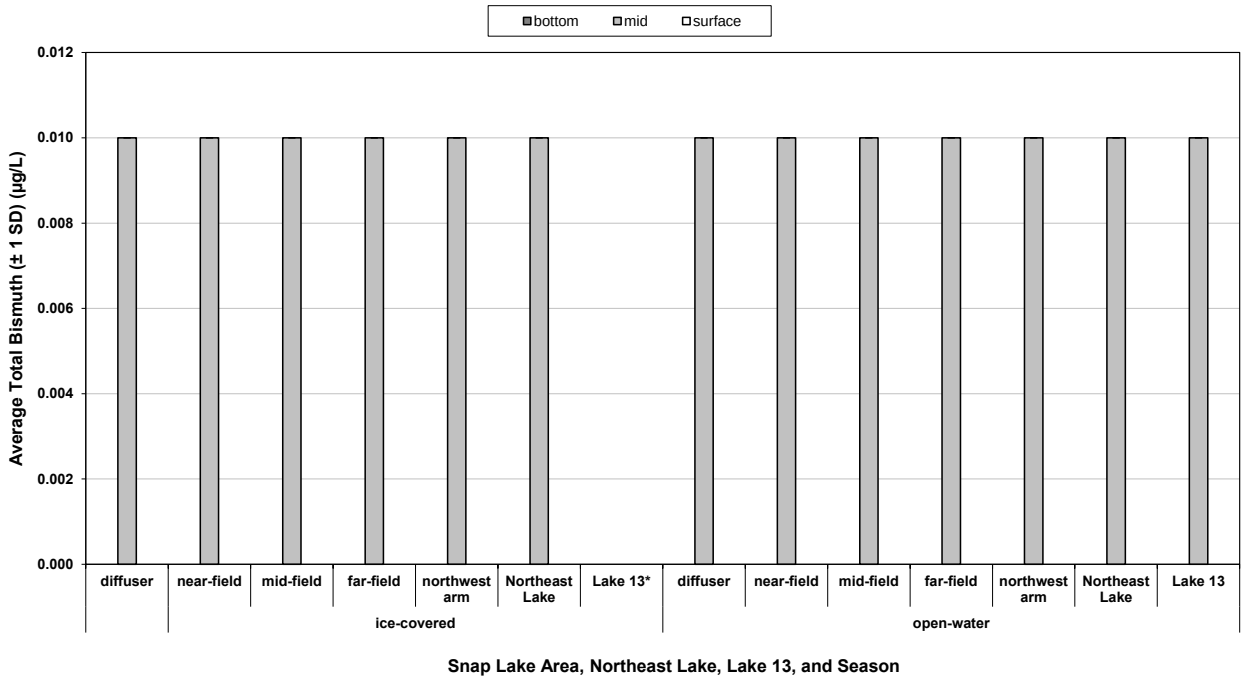
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-36 Average (± 1 SD) Total Beryllium Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



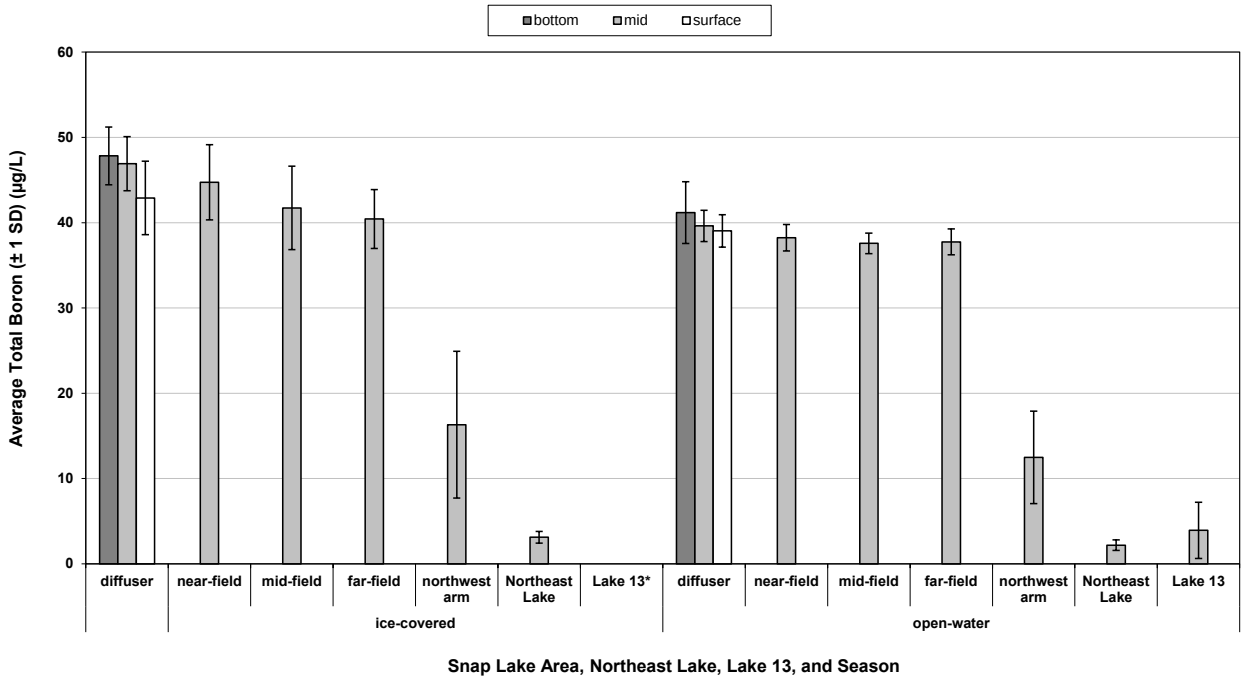
Notes:
* Water samples were not collected from Lake 13 during the ice-covered season.
All values reported as less than the DL of 0.01 µg/L.

Figure 3G-37 Average (± 1 SD) Total Bismuth Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



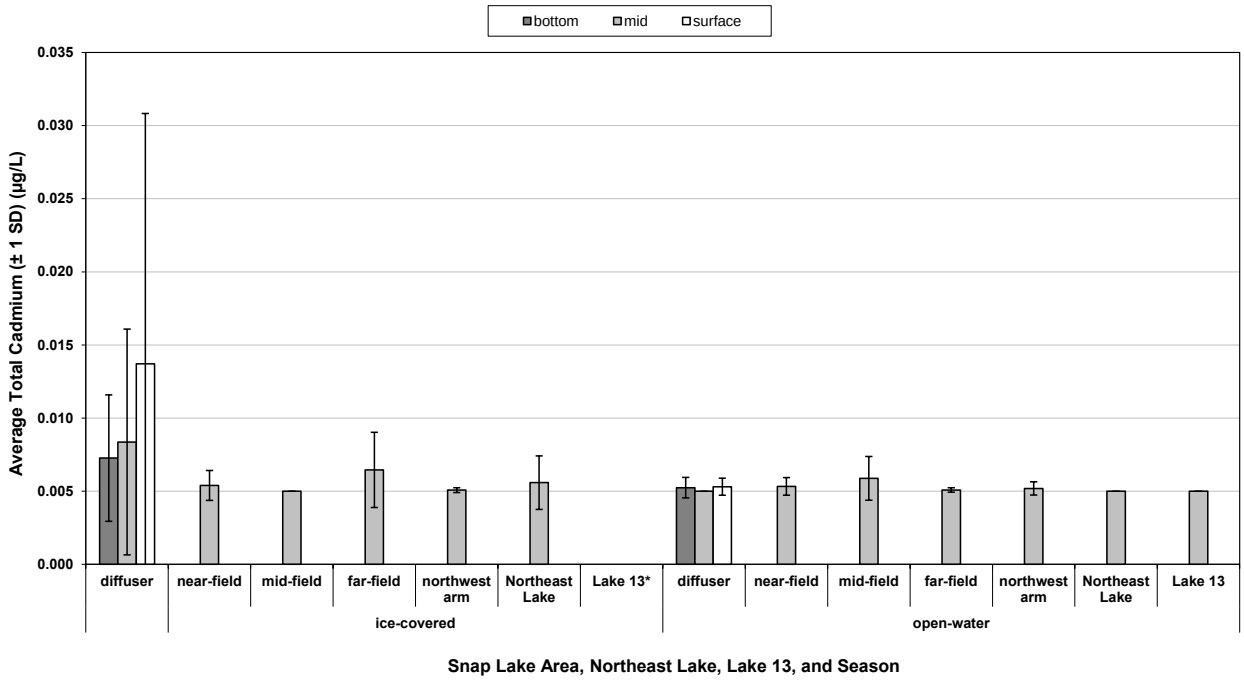
Notes:
* Water samples were not collected from Lake 13 during the ice-covered season.
All values reported as less than the DL of 0.01 µg/L.

Figure 3G-38 Average (± 1 SD) Total Boron Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



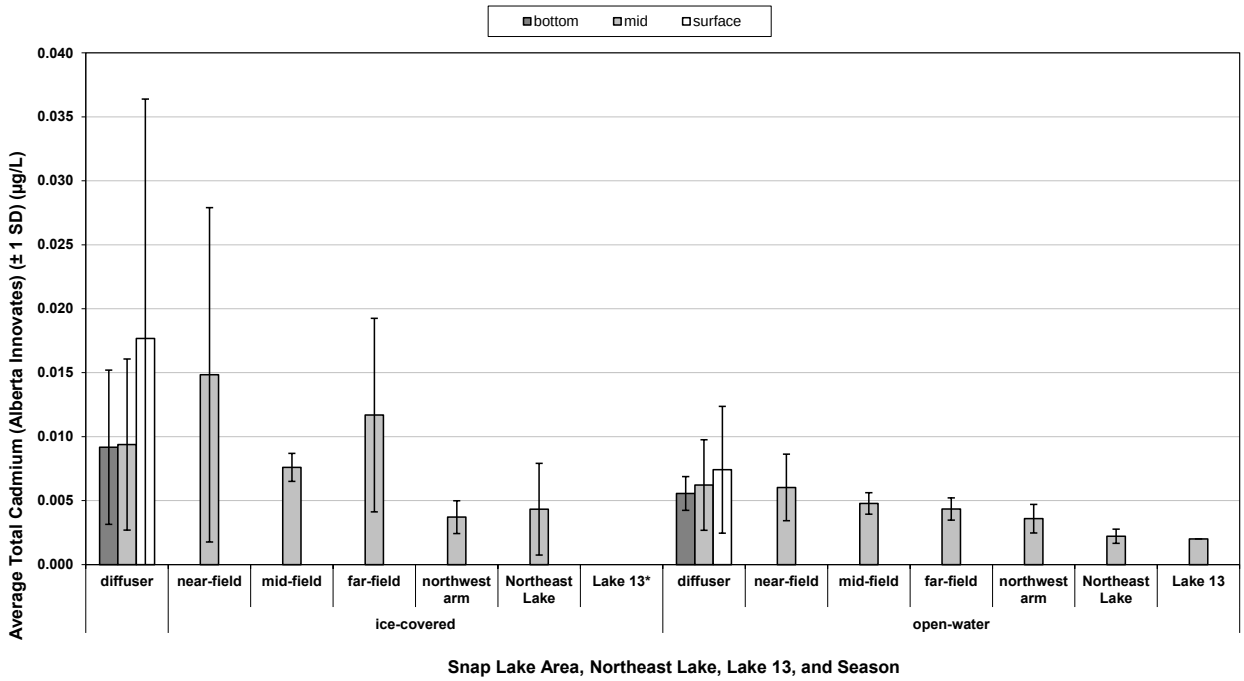
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-39 Average (± 1 SD) Total Cadmium Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



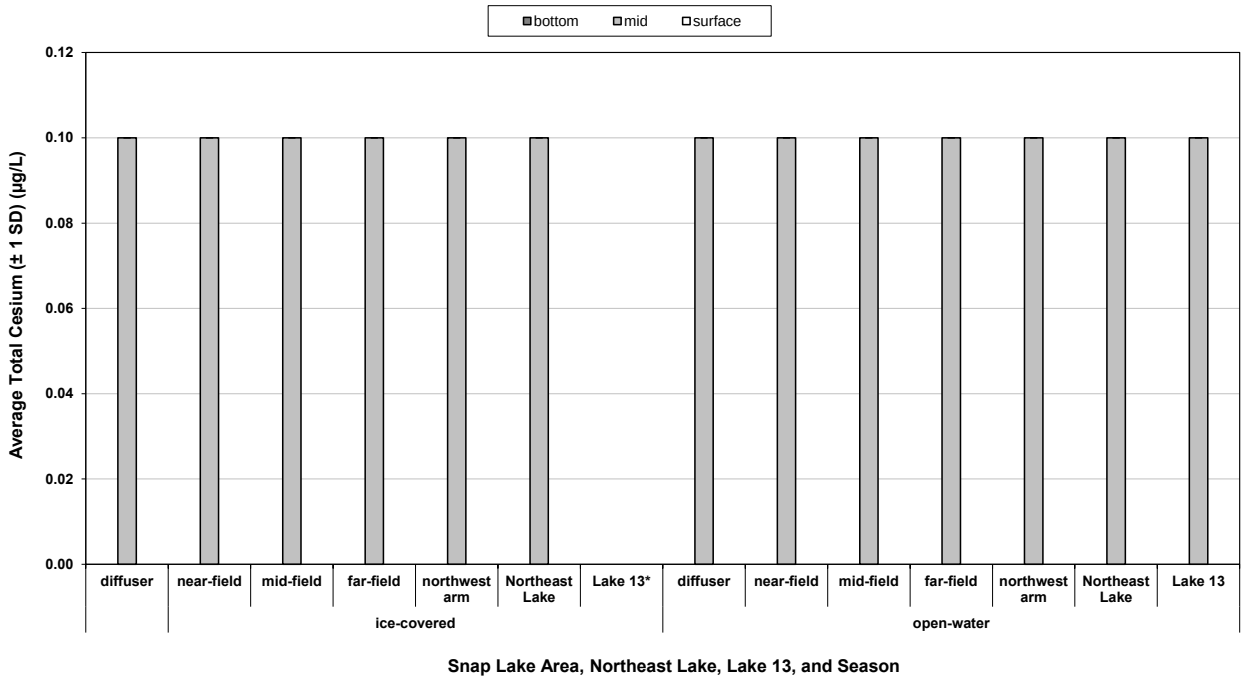
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-40 Average (± 1 SD) Total Cadmium (Alberta Innovates) Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



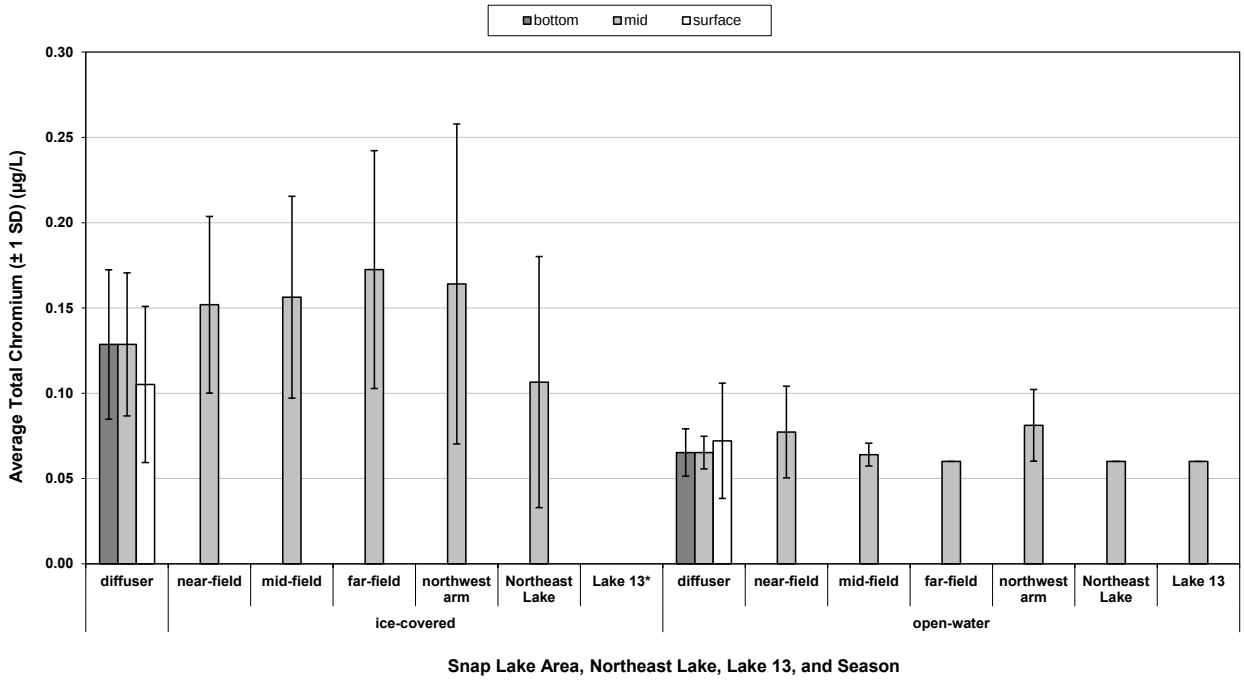
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-41 Average (± 1 SD) Total Cesium Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



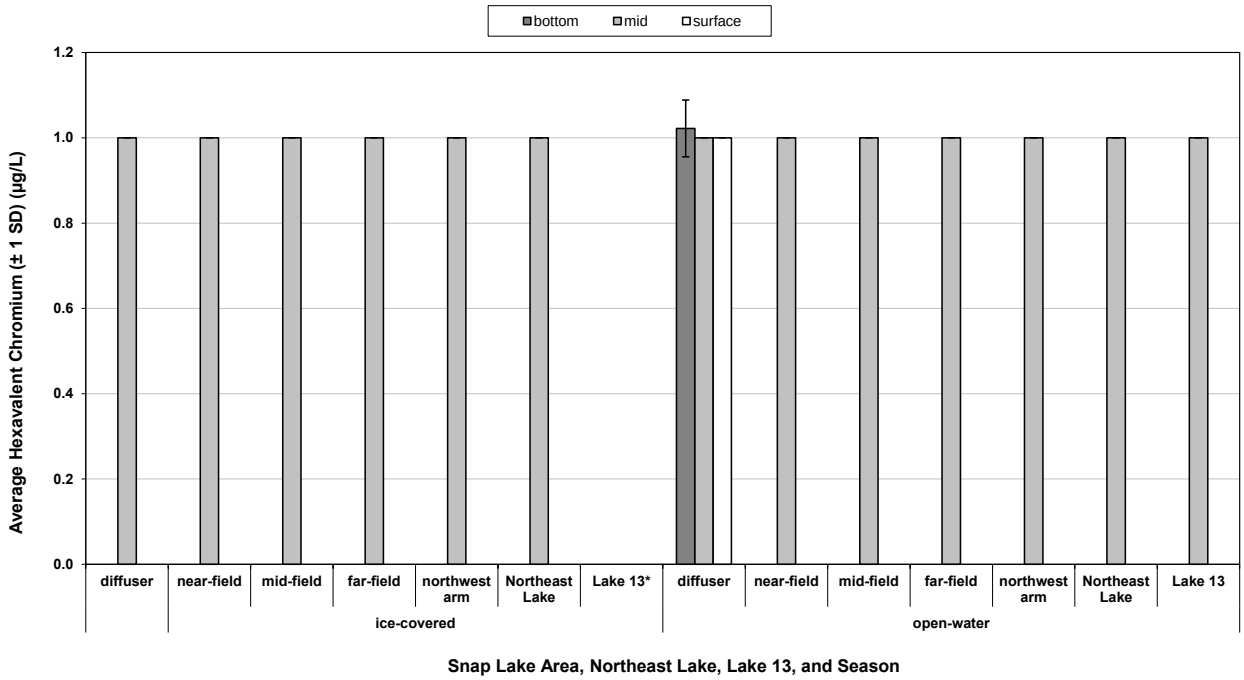
Notes:
* Water samples were not collected from Lake 13 during the ice-covered season.
All values reported as less than the DL of 0.1 µg/L.

Figure 3G-42 Average (± 1 SD) Total Chromium Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



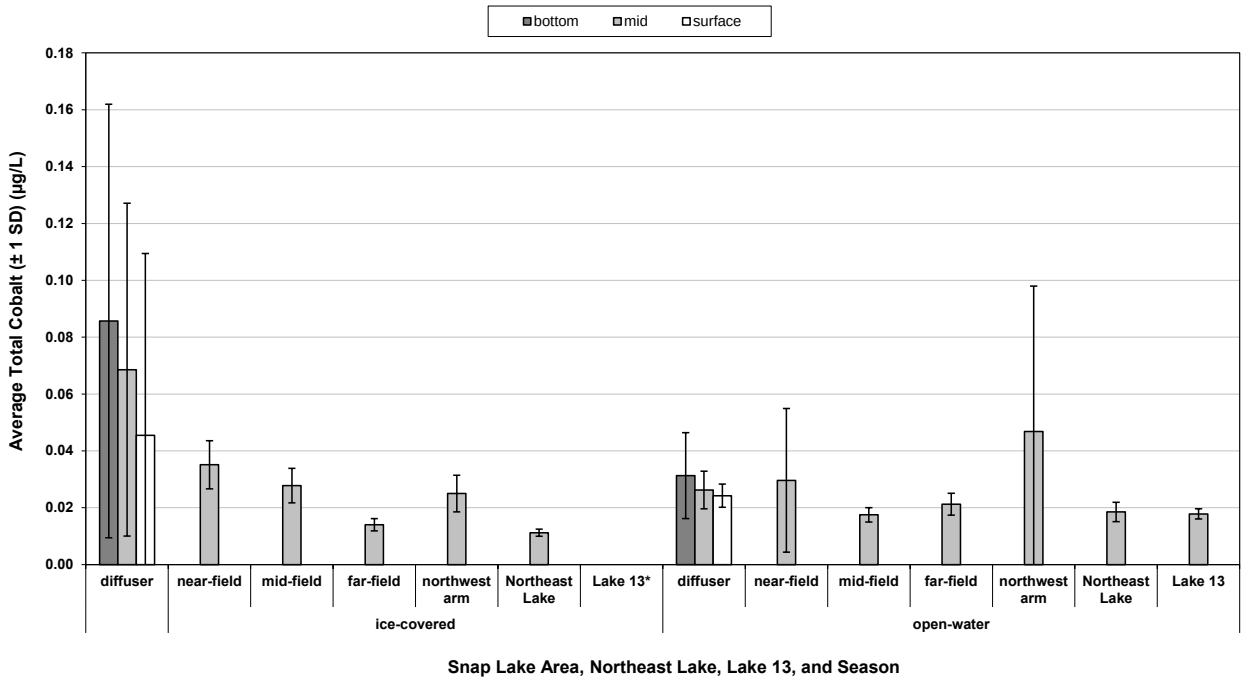
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-43 Average (± 1 SD) Hexavalent Chromium Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



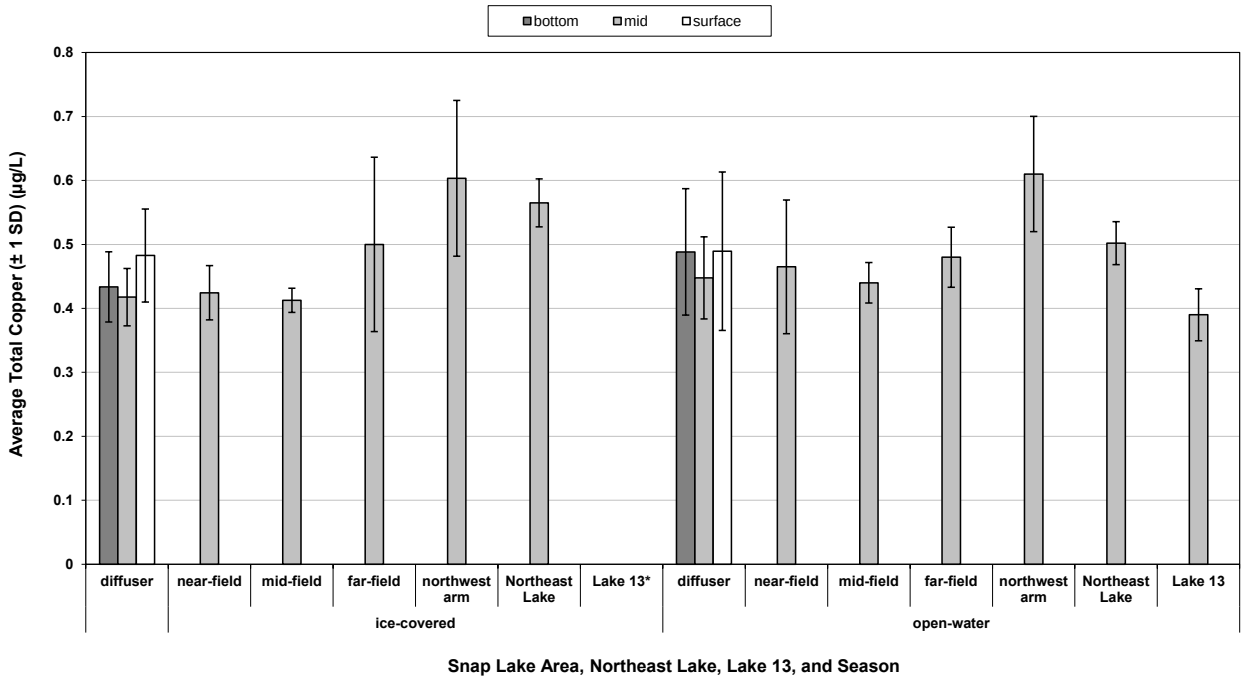
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-44 Average (± 1 SD) Total Cobalt Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



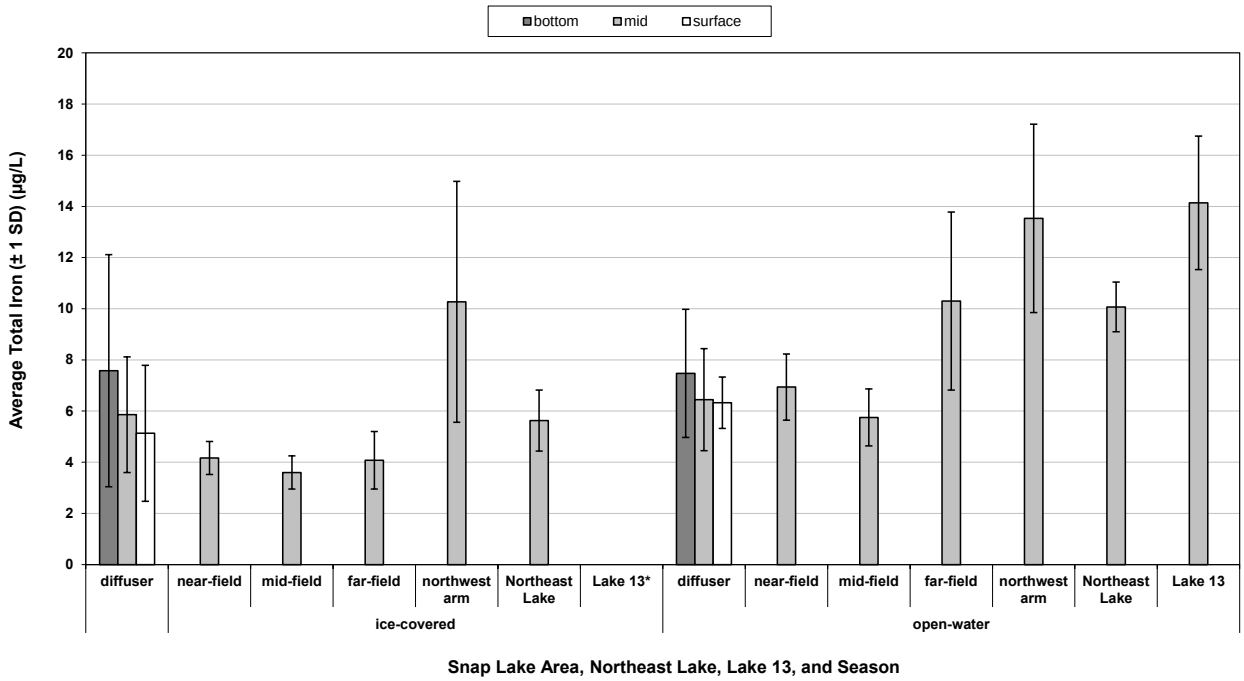
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-45 Average (± 1 SD) Total Copper Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



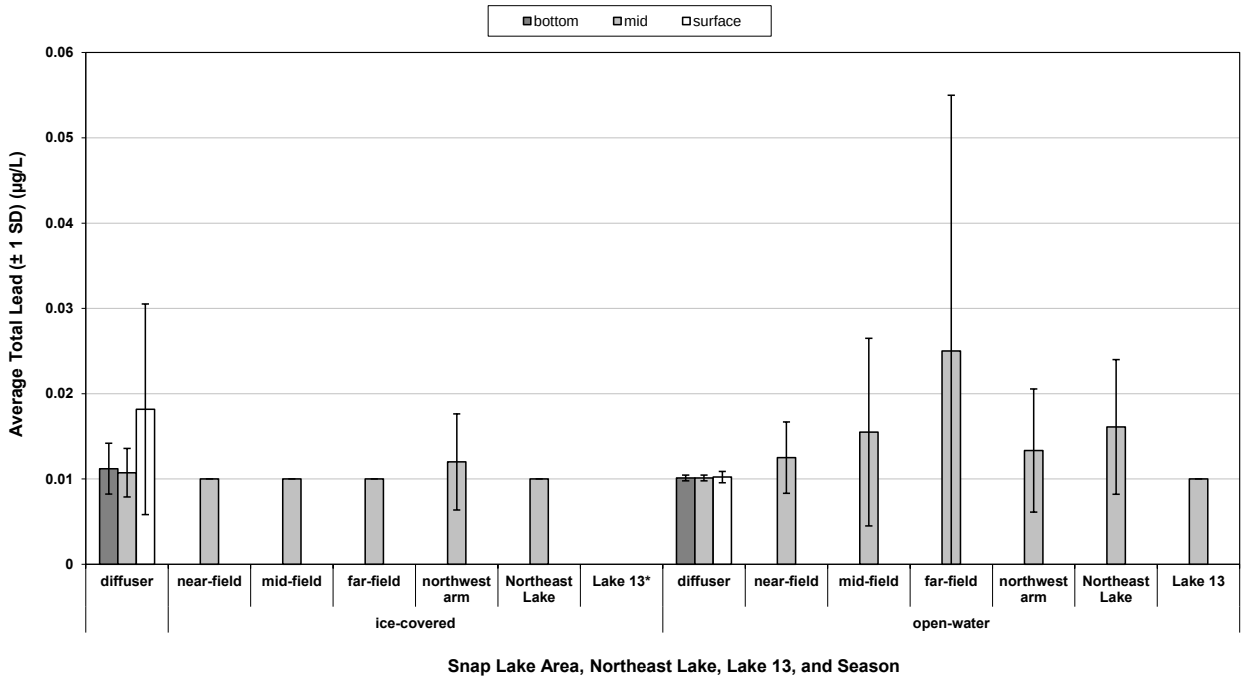
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-46 Average (± 1 SD) Total Iron Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



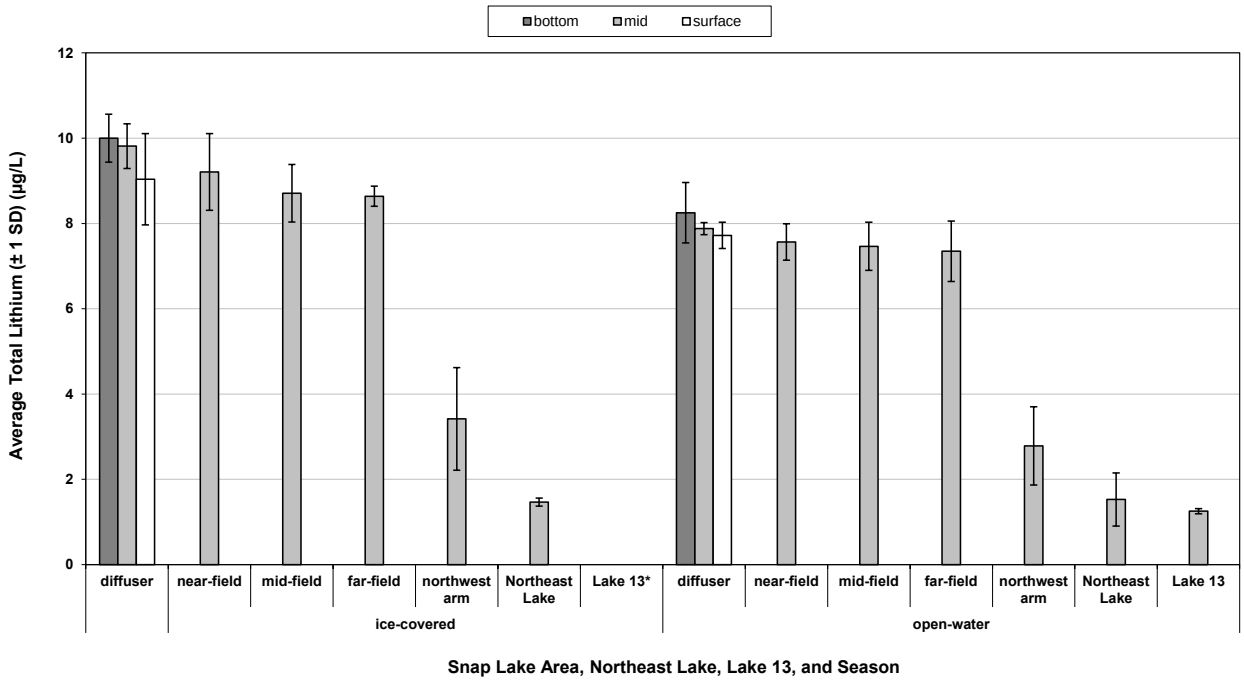
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-47 Average (± 1 SD) Total Lead Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



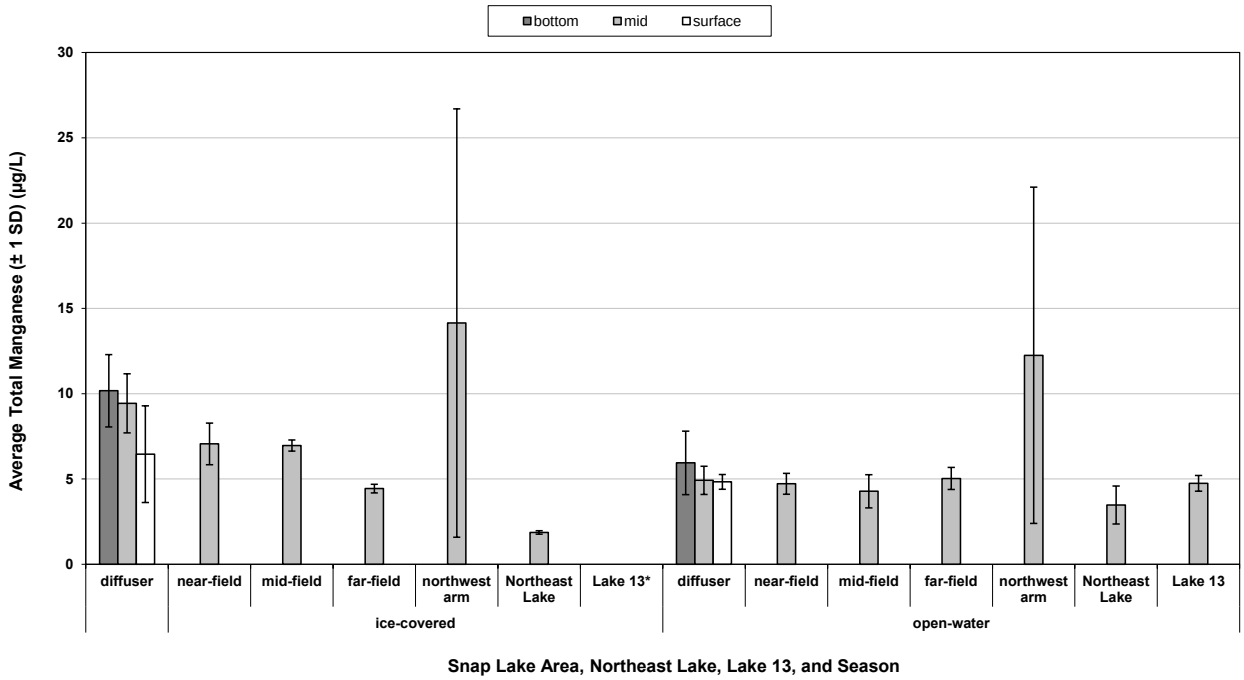
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-48 Average (± 1 SD) Total Lithium Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



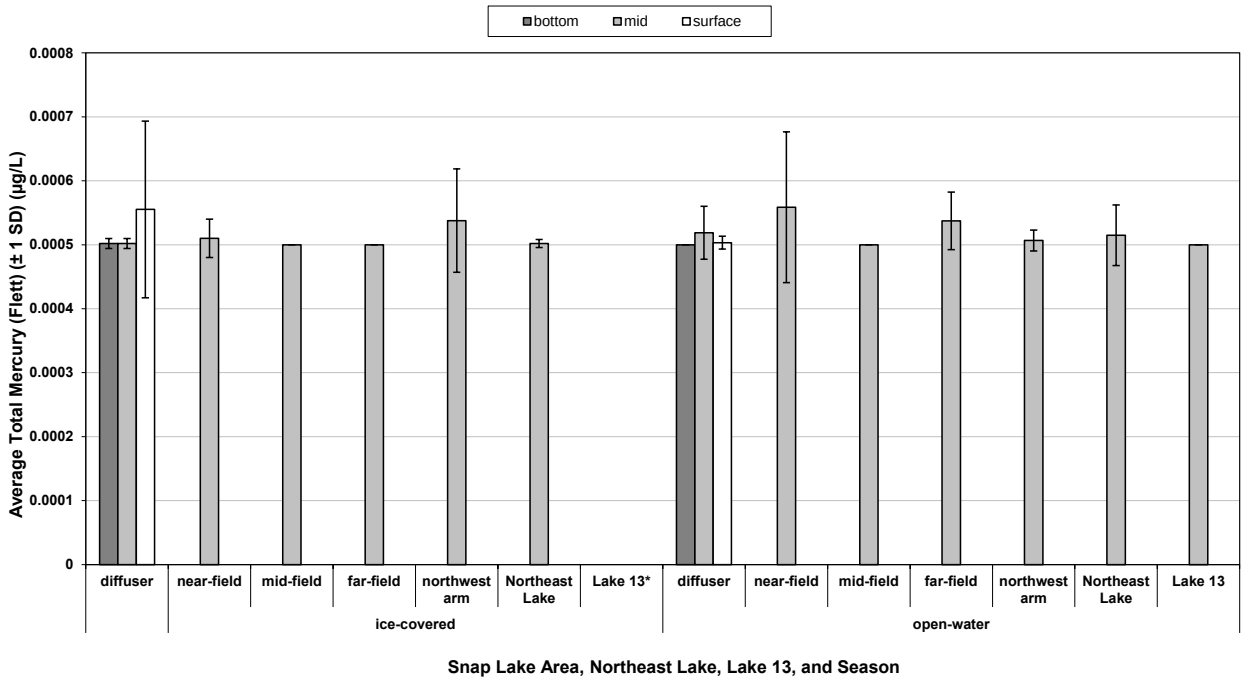
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-49 Average (± 1 SD) Total Manganese Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



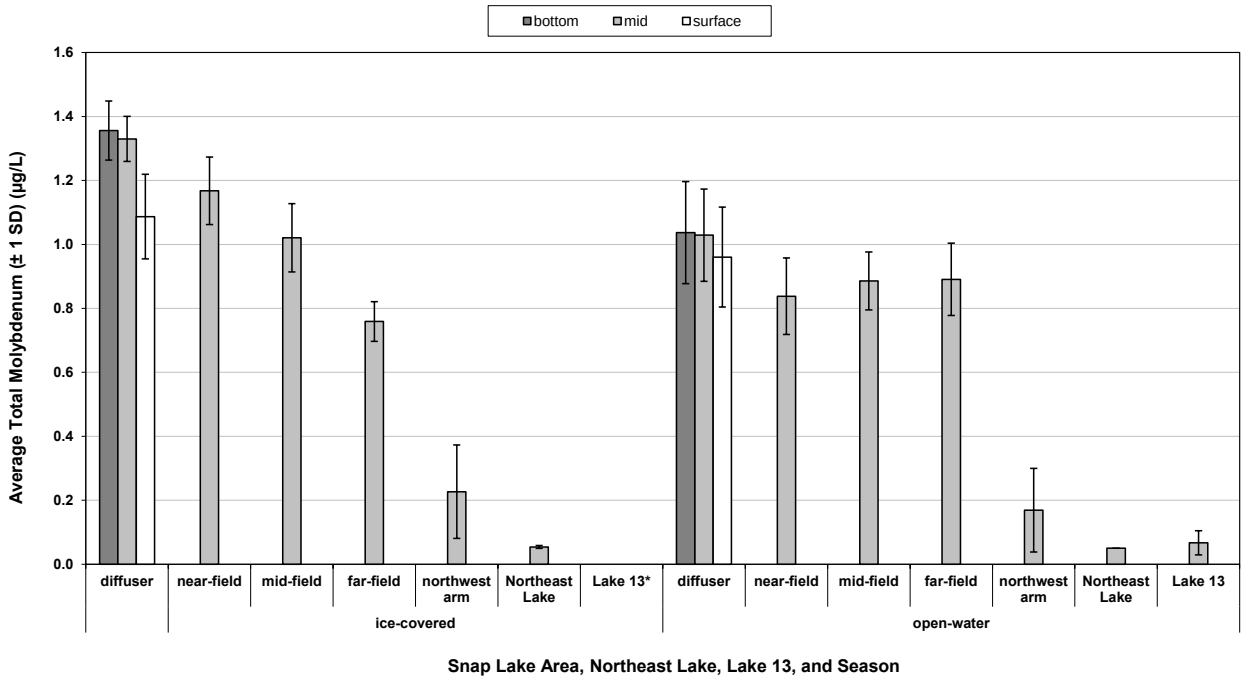
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-50 Average (± 1 SD) Total Mercury (Flett) Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



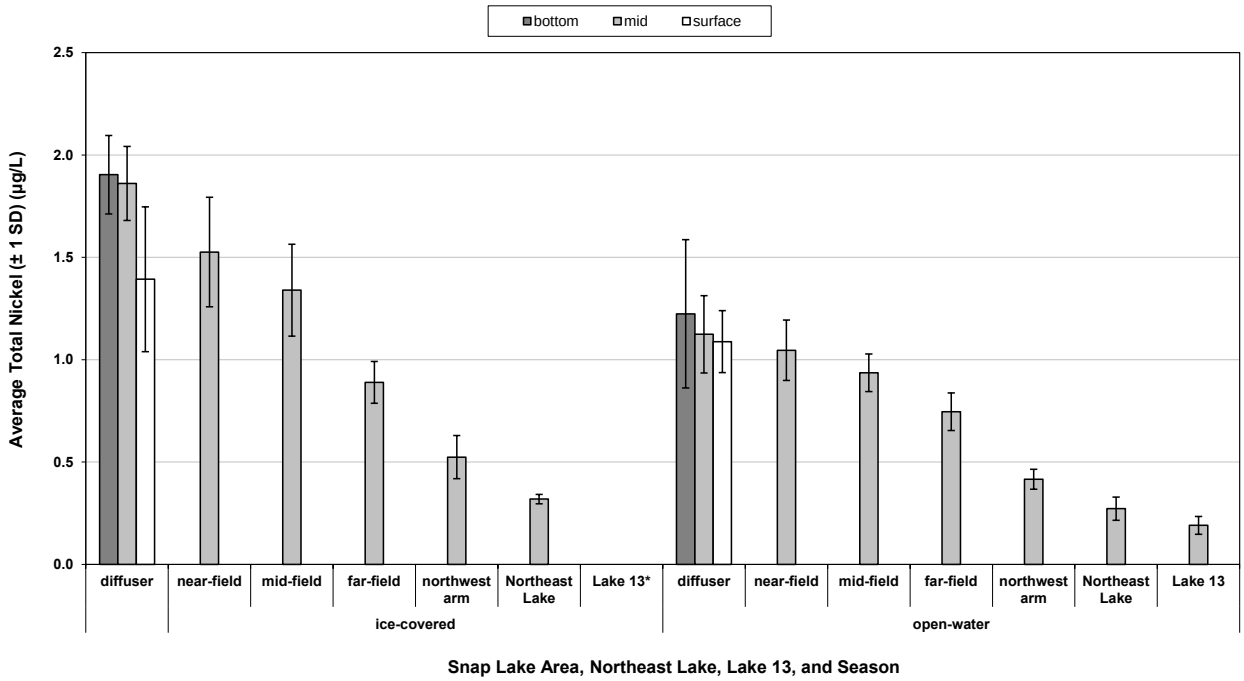
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-51 Average (± 1 SD) Total Molybdenum Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



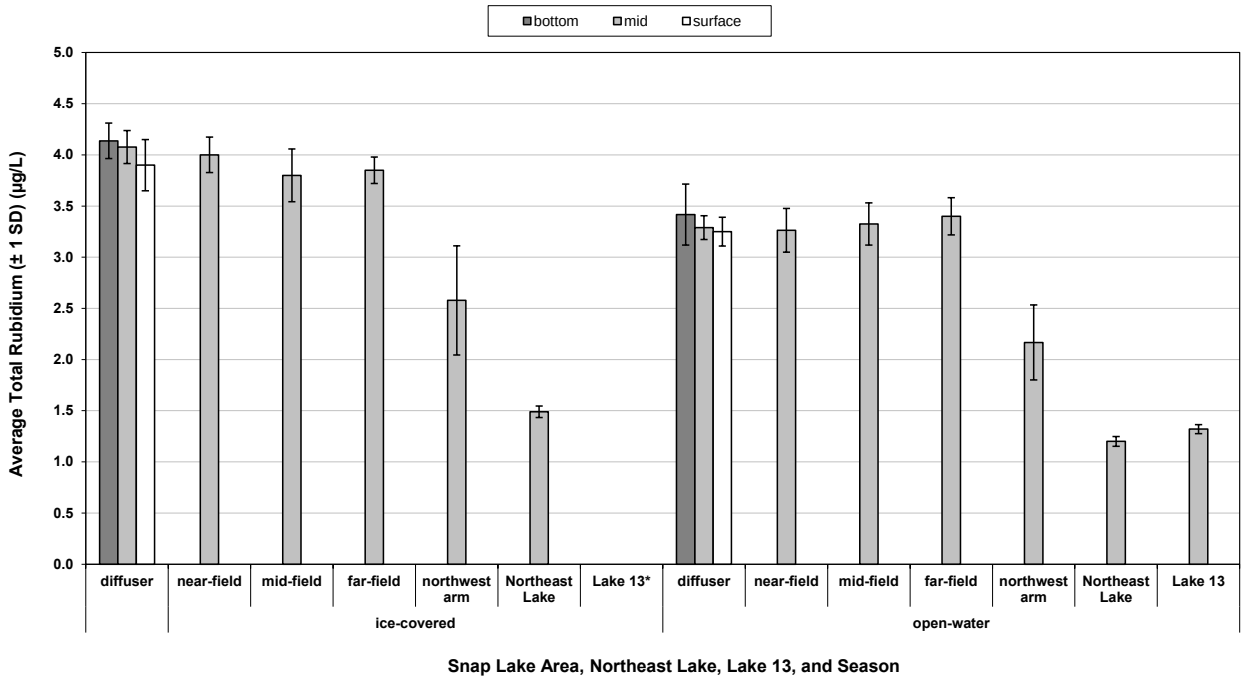
Note: * Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-52 Average (± 1 SD) Total Nickel Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



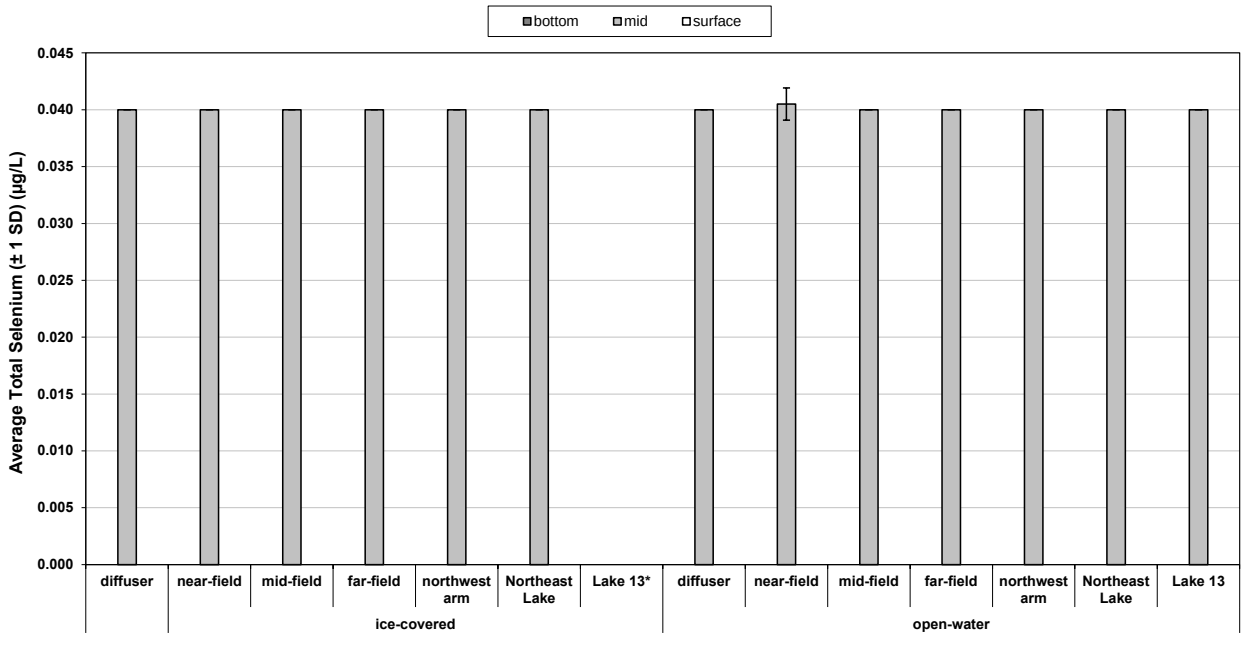
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-53 Average (± 1 SD) Total Rubidium Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



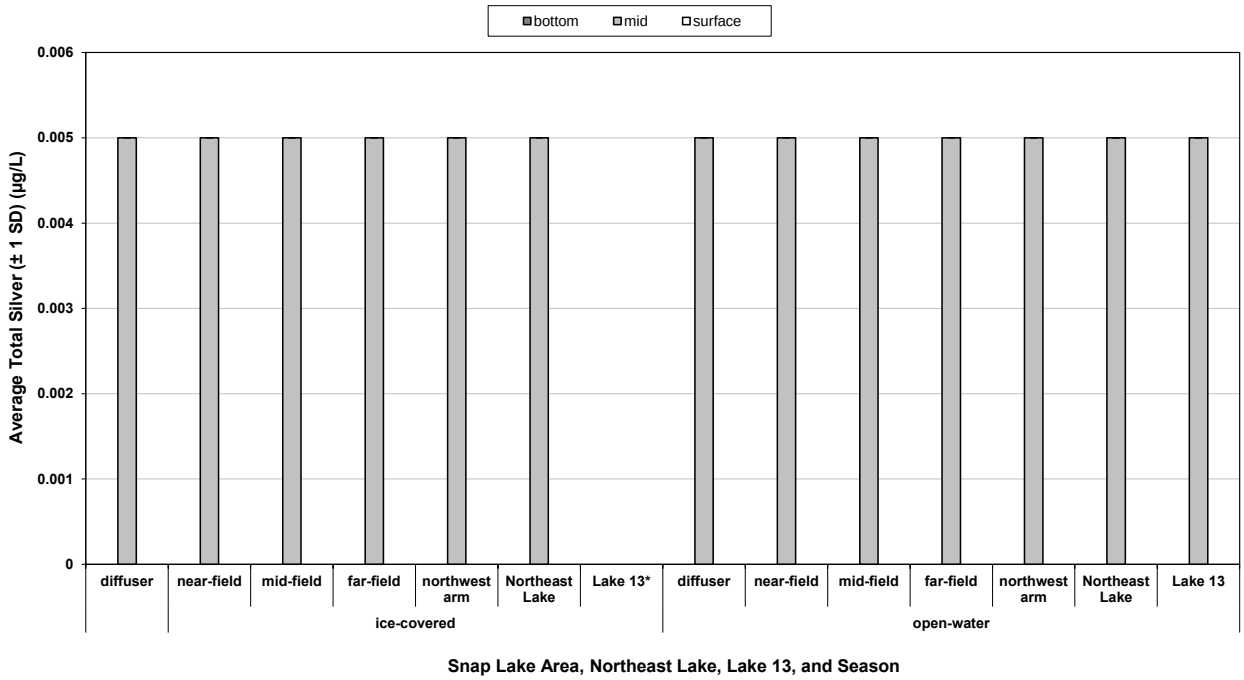
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-54 Average (± 1 SD) Total Selenium Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



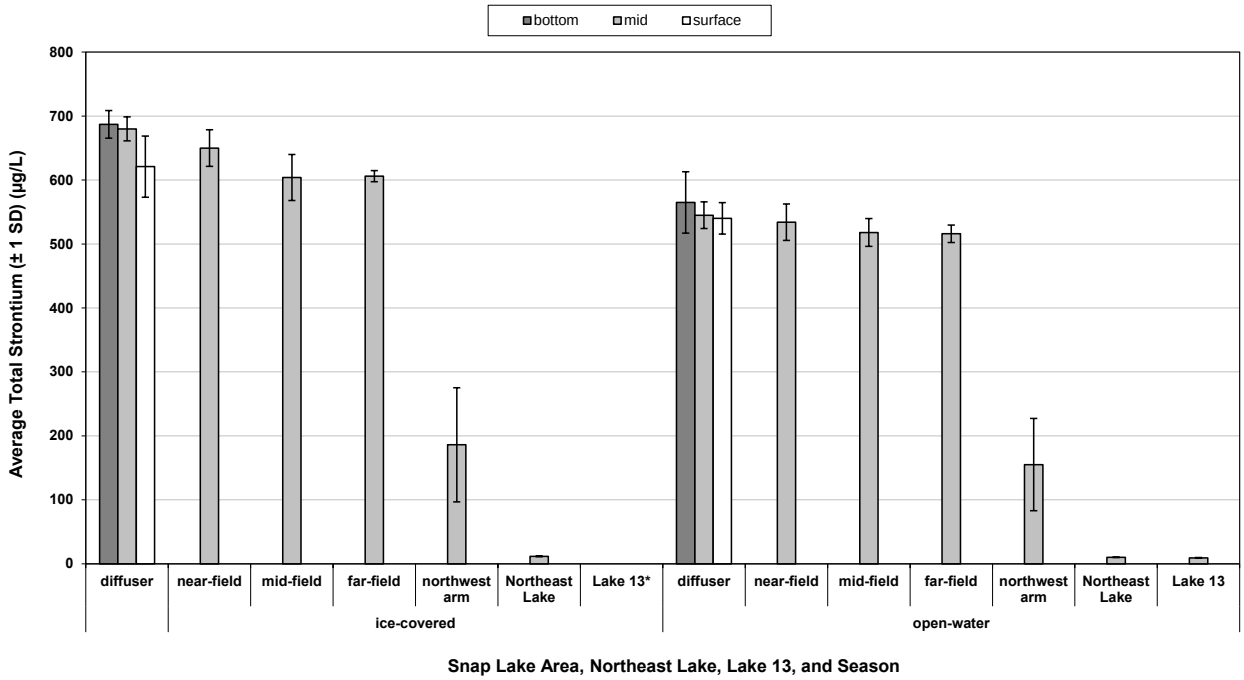
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-55 Average (± 1 SD) Total Silver Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



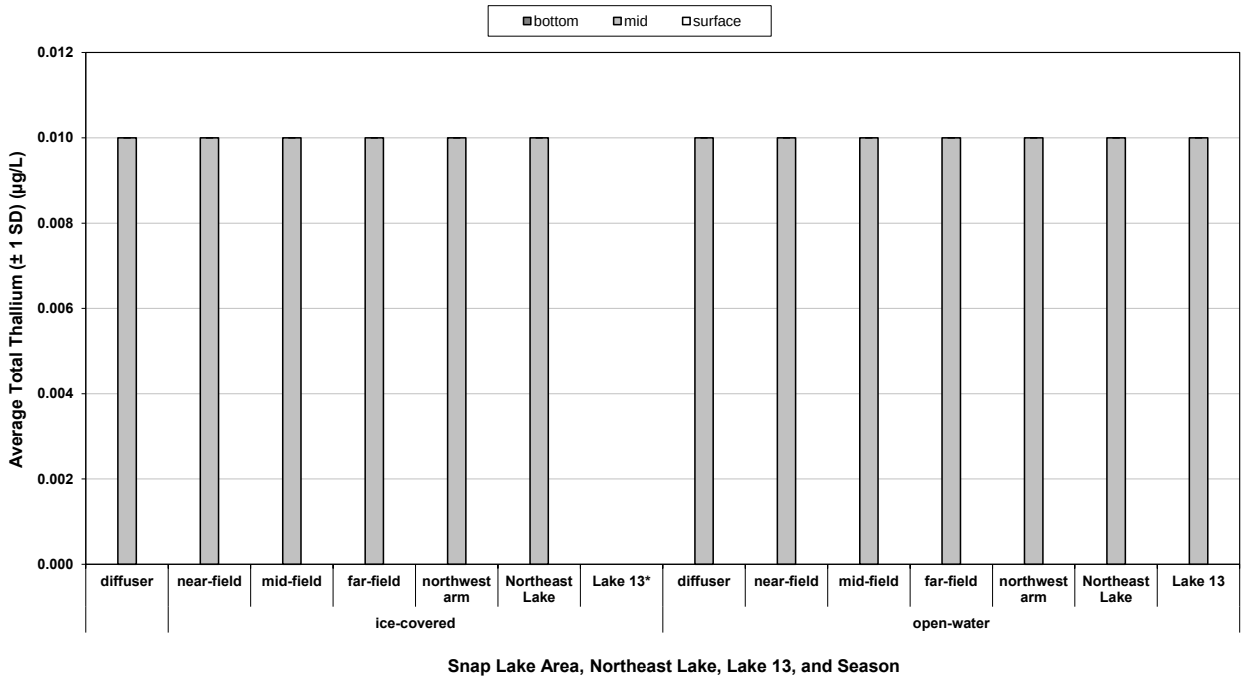
Notes:
* Water samples were not collected from Lake 13 during the ice-covered season.
All values reported as less than the DL of 0.005 µg/L.

Figure 3G-56 Average (± 1 SD) Total Strontium Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



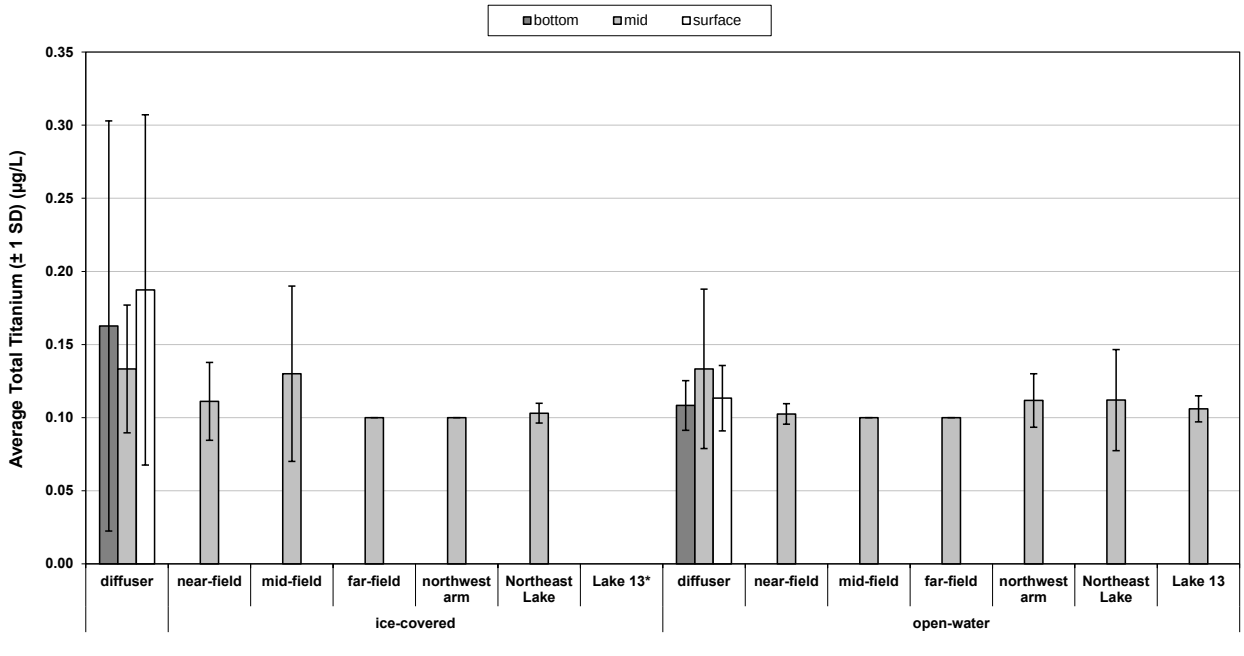
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-57 Average (± 1 SD) Total Thallium Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



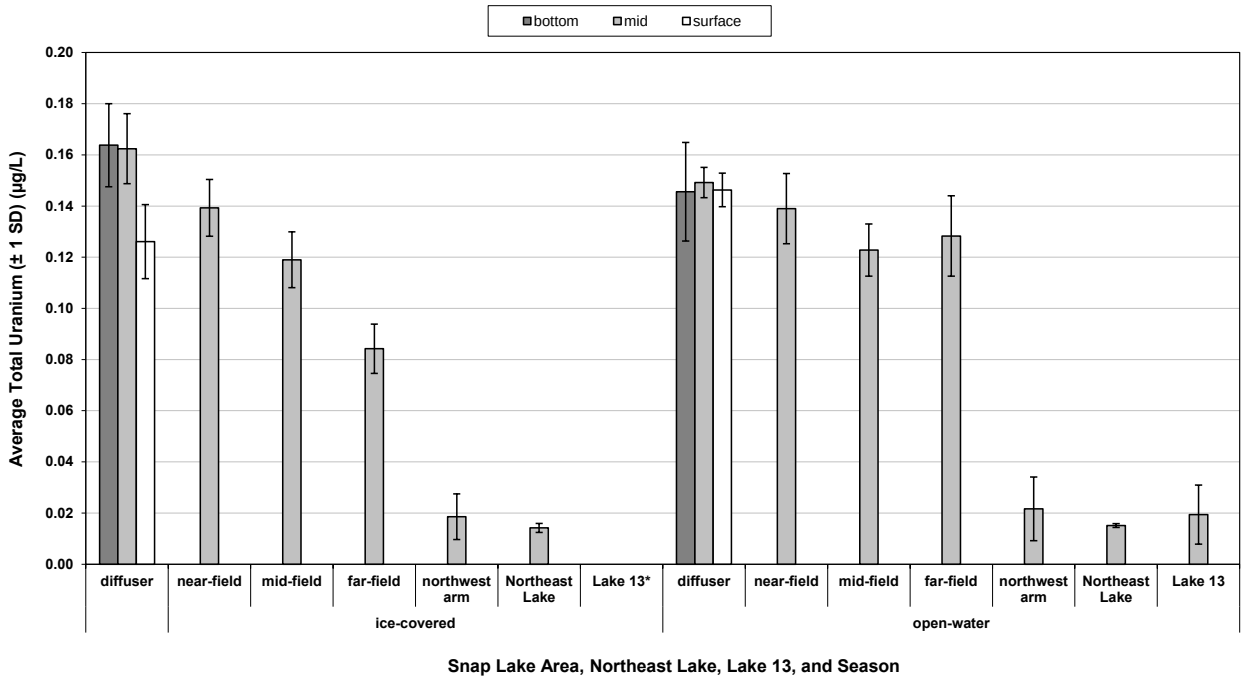
Notes:
* Water samples were not collected from Lake 13 during the ice-covered season.
All values reported as less than the DL of 0.01 µg/L.

Figure 3G-58 Average (± 1 SD) Total Titanium Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



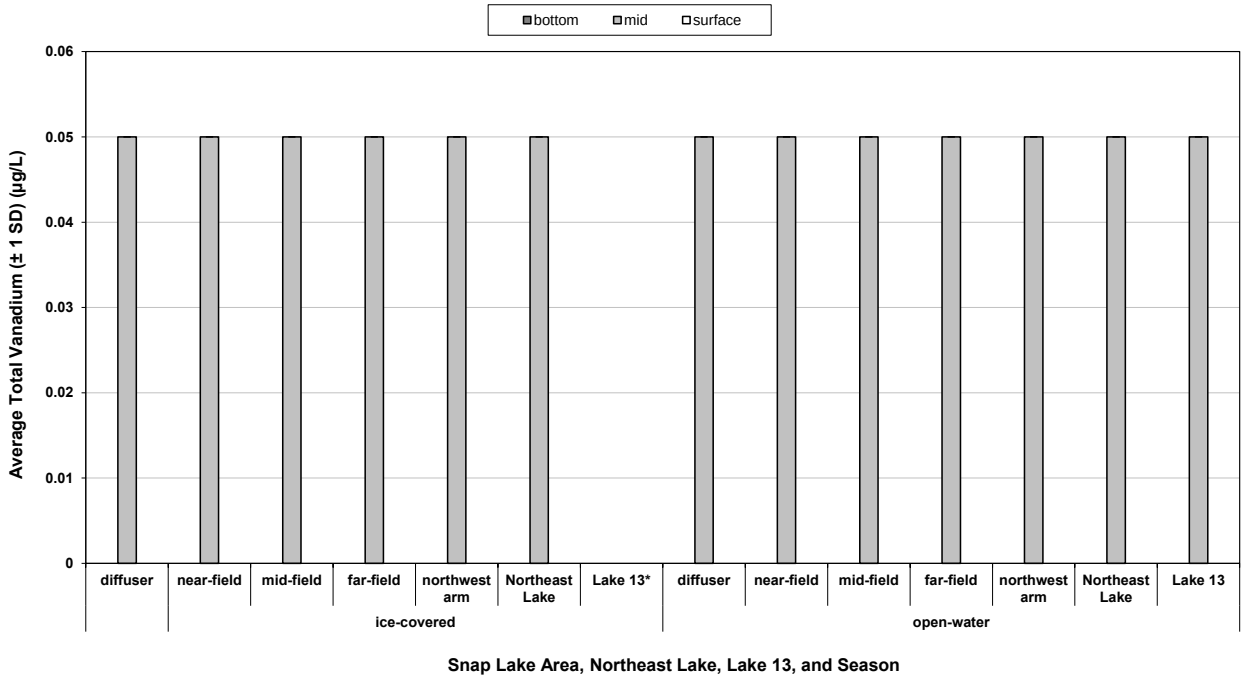
Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-59 Average (± 1 SD) Total Uranium Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



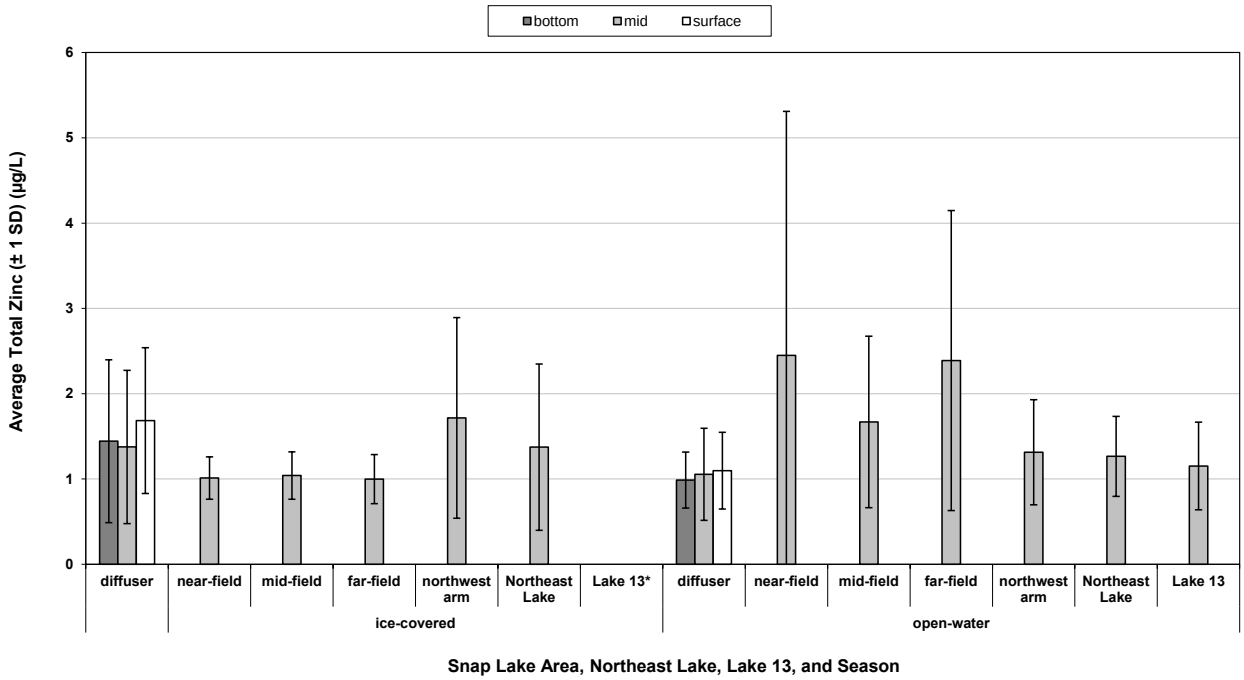
Note: * = water samples were not collected from Lake 13 during the ice-covered season.

Figure 3G-60 Average (± 1 SD) Total Vanadium Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



Notes:
* Water samples were not collected from Lake 13 during the ice-covered season.
All values reported as less than the DL of 0.05 µg/L.

Figure 3G-61 Average (± 1 SD) Total Zinc Concentration in Snap Lake, Northeast Lake, and Lake 13, 2012



Note:
* Water samples were not collected from Lake 13 during the ice-covered season.

Table 3H-1 Water Quality Data from the Water Intake Station (SNP 02-15) from November 2011 to October 2012

Sample Point:	Units	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15
Date Sampled (yyyy-mm-dd):		**2011-11-06**	**2011-12-04**	**2012-01-03**	**2012-01-08**	**2012-02-05**	**2012-03-04**	**2012-04-01**	**2012-04-01**	**2012-05-06**	**2012-06-05**	**2012-07-03**	**2012-08-27**	**2012-10-01**	**2012-10-01**	**2012-11-01**	**2012-11-06**	**2012-12-02**
Sample Control Number:		**2011-1495**	**2011-1704**	**2012-0015**	**2012-0060**	**2012-0239**	**2012-0446**	**2012-0638**	**2012-0639**	**2012-0819**	**2012-1137**	**2012-1291**	**2012-1623**	**2012-1823**	**2012-1824**	**2012-1948**	**2012-2024**	**2012-2111**
Field Parameters																		
pH	unitless	6.1	6.9	6.8	6.4	6.4	6.2	7.2	7.2	7.0	-	7.0	6.9	6.7	6.7	5.8	7.2	7.7
Specific Conductivity	µS/cm	265	303	274	270	280	282	325	325	289	-	218	236	254	254	282	303	334
Water Temperature	°C	6.2	6.6	4.1	5.7	6.3	0.0	-	-	7.0	-	14.0	19.0	8.4	8.4	4.7	4.4	5.4
Conventional Parameters																		
Apparent Colour	CU	-	-	-	<2	-	-	-	-	-	-	-	-	-	-	-	-	-
Laboratory pH	unitless	7.0	7.3	7.3	7.2	-	7.1	7.3	-	7.4	7.4	7.2	7.2	-	-	7.2	-	7.1
Laboratory Specific Conductivity	µS/cm	274	289	284	294	-	291	294	-	307	283	223	238	-	-	299	-	349
Total Dissolved Solids, measured	mg/L	182	180	184	169	-	171	212	-	175	235	186	156	82	-	158	-	190
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	128	130	133	141	-	133	143	-	147	140	99	-	-	-	140	-	171
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	-	-	133	142	-	134	143	-	147	140	101	107	-	-	140	-	171
Total Suspended Solids	mg/L	-	-	-	3	-	-	-	-	-	< 3.0	-	-	-	-	-	-	-
Turbidity	NTU	-	-	-	1.32	-	-	-	-	-	1.14	-	-	-	-	-	-	-
Ions																		
Acidity to pH 4.5, as $CaCO_3$	mg/L	<5	<5	<5	<5	-	<5	<5	-	<5	<5	<5	<5	-	-	<5	-	<5
Bicarbonate, as HCO_3	mg/L	17	19	19	18	-	19	21	-	21	19	15	17	-	-	18	-	27
Calcium	mg/L	25.0	24.4	24.8	29.7	-	26.9	28.0	-	25.8	27.1	20.1	21.2	28.0	-	29.3	-	36.2
Carbonate, as CO_3	mg/L	<5	<5	<5	<5	-	<5	<5	-	<5	<5	<5	<5	-	-	<5	-	<5
Chloride	mg/L	56.8	59.8	59.3	60.7	-	58.1	60.7	-	62.4	57.7	44.4	47.6	56.7	-	62.4	-	74.6
Cyanide	mg/L	-	-	-	<0.002	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoride	mg/L	0.07	0.10	0.09	0.07	-	0.08	0.09	-	0.09	0.09	0.08	0.09	0.10	-	0.07	-	0.10
Hardness, as $CaCO_3$	mg/L	79	76	78	92	-	84	88	-	82	85	63	65	87	-	91	-	109
Hydroxide, as OH	mg/L	<5	<5	<5	<5	-	<5	<5	-	<5	<5	<5	<5	-	-	<5	-	<5
Magnesium	mg/L	3.9	3.6	3.9	4.4	-	4.1	4.3	-	4.1	4.2	3.0	2.8	4.2	-	4.3	-	4.6
Potassium	mg/L	1.6	1.3	1.6	1.9	-	1.5	1.8	-	1.6	1.7	1.3	1.4	1.5	-	1.6	-	2.0
Reactive Silica, as SiO_2	mg/L	0.5	0.6	0.6	0.6	-	0.7	0.8	-	6.2	0.7	< 0.50	-	-	-	< 1.0	-	0.9
Sodium	mg/L	14	13	14	17	-	14	15	-	14	15	10	11	14	-	16	-	17
Sulphate	mg/L	11.7	12.9	12.6	12.6	-	12.6	13.3	-	13.3	13.0	9.97	9.86	12.0	-	12.7	-	15.0
Total Alkalinity, as $CaCO_3$	mg/L	14	15	15	15	-	15	17	-	17	16	12	14	-	-	15	-	22
Nutrients																		
BOD (5-day)	mg/L	-	-	-	-	-	-	-	<2	-	-	-	-	-	-	-	-	-
Dissolved Organic Carbon	mg-P/L	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate, as N, calculated	mg-N/L	1.66	1.47	1.62	1.44	-	1.58	1.89	-	1.81	2.59	1.18	1.11	0.89	-	1.13	-	1.63
Nitrate/Nitrite, as N	mg-N/L	1.66	1.47	1.63	1.45	-	1.59	1.90	-	1.81	2.59	1.18	1.11		-	1.13	-	1.63
Nitrite, as N	mg-N/L	0.004	0.005	0.005	0.005	-	0.005	0.004	-	0.004	0.002	<0.002	<0.002	<0.01	-	<0.002	-	<0.002
ortho-Phosphate, as P	mg-P/L	-	-	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Ammonia, as N	mg-N/L	0.02	2.58	-	0.05	-	-	0.05	-	0.04	-	-	<0.005	-	-	-	-	-
Total Dissolved Phosphorus	mg-P/L	-	-	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Kjeldahl Nitrogen	mg-N/L	-	-	-	0.19	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Organic Carbon	mg/L	-	-	-	3.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Phosphorus	mg-P/L	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Metals and Metalloids																		
Aluminum	µg/L	-	-	-	4.2	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	µg/L	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	µg/L	-	-	-	0.08	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	µg/L	-	-	-	17	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	µg/L	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	µg/L	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron	µg/L	-	-	-	28	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	µg/L	-	-	-	0.252	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	µg/L	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	µg/L	-	-	-	<0.06	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	µg/L	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	µg/L	-	-	-	0.7	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	µg/L	-	-	-	168	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	µg/L	-	-	-	0.43	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithium	µg/L	-	-	-	5.6	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	µg/L	-	-	-	4.11	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	µg/L	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	µg/L	-	-	-	0.45	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	µg/L	-	-	-	0.96	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	µg/L	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	µg/L	-	-	-	<0.04	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	µg/L	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	µg/L	-	-	-	370	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	µg/L	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	µg/L	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	µg/L	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	µg/L	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	µg/L	-	-	-	16	-	-	-	-	-	-	-	-	-	-	-	-	-
Dissolved Metals and Metalloids																		
Aluminum	µg/L	-	-	-	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	µg/L	-	-	-	0.05 XG	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	µg/L	-	-	-	0.08	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	µg/L	-	-	-	17	-	-	-	-	-	-	-	-	-	-	-	-	-
Beryllium	µg/L	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-
Bismuth	µg/L	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3H-1 Water Quality Data from the Water Intake Station (SNP 02-15) from November 2011 to October 2012

Sample Point:	Units	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15	SNP 02-15
Date Sampled (yyyy-mm-dd):		2011-11-06	2011-12-04	2012-01-03	2012-01-08	2012-02-05	2012-03-04	2012-04-01	2012-04-01	2012-05-06	2012-06-05	2012-07-03	2012-08-27	2012-10-01	2012-10-01	2012-11-01	2012-11-06	2012-12-02
Sample Control Number:		2011-1495	2011-1704	2012-0015	2012-0060	2012-0239	2012-0446	2012-0638	2012-0639	2012-0819	2012-1137	2012-1291	2012-1623	2012-1823	2012-1824	2012-1948	2012-2024	2012-2111
Boron	µg/L	-	-	-	27	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	µg/L	-	-	-	0.25	-	-	-	-	-	-	-	-	-	-	-	-	-
Cesium	µg/L	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	µg/L	-	-	-	<0.06	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	µg/L	-	-	-	0.03	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	µg/L	-	-	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	µg/L	-	-	-	71	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	µg/L	-	-	-	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithium	µg/L	-	-	-	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	µg/L	-	-	-	3.9	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	µg/L	-	-	-	<0.02	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	µg/L	-	-	-	0.43	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	µg/L	-	-	-	0.95	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubidium	µg/L	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	µg/L	-	-	-	<0.04	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	µg/L	-	-	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	µg/L	-	-	-	363.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	µg/L	-	-	-	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	µg/L	-	-	-	<0.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	µg/L	-	-	-	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	µg/L	-	-	-	<0.05	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	µg/L	-	-	-	18	-	-	-	-	-	-	-	-	-	-	-	-	-
Microbiology																		
Cryptosporidium	oocysts/11mL	-	-	-	0	-	-	0	-	-	-	0	-	-	0	-	-	-
E. coli	CFU/100mL	-	<1	-	-	-	-	-	-	-	-	<1	-	-	-	<1	-	-
E. coli	MPN/100mL	<1	-	-	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	-	-	<1	-
Fecal Coliform	CFU/100mL	<1	<1	-	<1	<1	9	-	<1	-	-	-	-	-	-	-	<1	-
Giarida	cysts/10L	-	-	-	0	-	-	0.5	-	-	-	0	-	-	0		-	-
Heterotrophic Plate Count	CFU/100mL	-	-	-	22	-	-	<1	-	-	-	500	-	-		<1	-	-
Total Coliforms	CFU/100mL	-	-	-	-	-	-	-	-	-	-	-	-	-	10		-	-

Notes:

· XG = data invalidated because the dissolved metal concentration was substantially higher than total metal concentration in the same sample.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater (APHA 2005). "Total dissolved solids, calculated (Standard Methods)" concentrations were calculated using the formula outlined in APHA (2005). Refer to Appendix 3A

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; BOD = biochemical oxygen demand; N = nitrogen; P = phosphorus; *E. coli= Escherichia coli.*

- = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day; RPD = relative percent difference.

°C = degrees Celsius; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; CU = colour units; NTU = nephelometric turbidity units; mg-P/L = milligrams as phosphorus per litre; mg-N/L = milligrams as nitrogen per litre; µg/L = micrograms per litre; CFU/100 mL = colony-forming unit per 100 millilitres; MPN/100 mL = most probable number per 100 millilitres.

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4A1 QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES AND RESULTS FOR THE SEDIMENT QUALITY PROGRAM

The quality assurance and quality control (QA/QC) procedures for the sediment quality program cover three areas of internal and external management:

- field staff training and operations;
- laboratory analyses and requirements; and,
- office operations.

Detailed descriptions of each of these three QA/QC components are provided below.

4A1.1 FIELD QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

Specific work instructions outlining each field task were provided to field personnel by the task manager. Detailed field notes were recorded in pencil in waterproof field books and on pre-printed waterproof field data sheets. Data sheets and sample labels were checked at the end of each field day to confirm completeness and accuracy. Samples were labelled, and shipped according to standard protocols provided by the analytical laboratory and De Beers Canada Inc. (De Beers) Environmental Management System procedures (De Beers 2002). Each sediment sample was assigned a name corresponding to its station location and a unique sample control number (SCN).

Project-specific chain-of-custody forms were used to track shipment and analyses of the sediment samples. ALS Laboratory Group (ALS) was instructed that they should not proceed with any analyses of samples that were not accompanied by both chain-of-custody and analysis request forms, and complied with this instruction.

4A1.2 LABORATORY QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

Laboratories that conduct sediment quality analyses have internal QA/QC procedures. In accordance with the Water Licence (MVLWB 2012) and the De Beers QA/QC Plan (De Beers 2005), sediment samples were submitted to an accredited analytical laboratory where rigorous QA/QC procedures are in place. These laboratory QA/QC procedures are available upon request. Internal laboratory QA/QC results were reviewed to determine whether data quality

objectives (DQOs) were met, and if they were not, whether data quality was affected. Findings from that review are documented in Section 4A1.3.

All sediment samples were submitted to the ALS laboratory[1] in Edmonton, Alberta for chemistry analyses. In 2012, sediment samples were collected and submitted to ALS in three separate batches representing three sampling programs, and results from each sampling program were reported under a separate ALS file number:

- Sediment Depth Comparison (ALS File L1194852): Sediment samples collected August 14, 2012 from three Snap Lake stations (SNP 02-20e, SNAP03, and SNAP17) to compare sediment quality in samples collected from the top 5-cm layer of sediment using an Ekman grab with samples collected from the top 2-cm layer of sediment using a Tech-Ops corer;
- Lake 13 Reference Lake Sampling (ALS File L1200037): Sediment samples collected August 18 to 20, 2012 from five stations in Lake 13 to evaluate the suitability of Lake 13 as a potential second reference lake for the Aquatic Effects Monitoring Program (AEMP); and,
- 2012 AEMP Sediment Sampling (ALS File L1212930): Sediment samples collected September 5 to 11, 2012 from 18 stations in Snap Lake and 5 stations in Northeast Lake for the annual AEMP sediment quality component.

For all sediment samples collected in 2012, total metals[2] analyses were performed by ALS in Edmonton, Alberta; particle size, carbon, and nutrient analyses were performed by the ALS laboratory in Saskatoon, Saskatchewan. Selenium analyses were performed by two different methods: one performed by ALS Edmonton and one performed by the ALS laboratory in Burnaby, British Columbia.

All sediment quality data provided in this appendix are presented on a dry weight (dw) basis, except for moisture content.

[1] Chemistry analyses of Snap Lake sediment samples were performed by EnviroTest Laboratories in Edmonton, Alberta until January 2006, when this analytical laboratory merged with ALS.

[2] The list of elements reported in the ALS total metals analysis includes metalloids such as arsenic and non-metals such as selenium, which are collectively referred to as “metals” in this appendix.

4A1.3 OFFICE QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

Office QA/QC requirements included procedures to validate data and results of data analyses, which are described below.

4A1.3.1 Data Validation

A data management system is in place to provide an organized, consistent system of data control and data analyses. This management system follows the Environmental Management System procedures for sample collection, data entry, and analysis within a Microsoft Access database that is referred to as the Snap Lake Environmental Database. The management procedures are governed by the Office Operations QA system.

Data received from ALS were transferred electronically into the Snap Lake Environmental Database to avoid transcription errors associated with manual data entry. The laboratory analytical method for each parameter was entered into the database along with the analytical results.

After data were entered into the database, a seven-step procedure was followed to validate the sample results. The purpose of data validation was to identify results that may not be valid, and to validate data collection, handling, and analysis procedures, so that any identified problems could be corrected. The seven steps in the data management system, and the results of the subsequent data validation, are described further in Sections 4A1.3.1.1 to 4A1.3.1.7.

4A1.3.1.1 Check for Data Qualifiers

Qualifiers are alphabetic codes that the analytical laboratory assigns to results to identify a potential issue with specific data. Any qualifiers attached to the 2012 sediment quality data were reviewed. In particular, the laboratory would have been questioned if a qualifier code had been frequently assigned to a particular parameter. A list of qualifiers used by ALS is available upon request.

ALS assigned two types of qualifiers to sub-sets of the 2012 sediment quality data, one for adjustment of detection limits (DLs) and one for detection of target parameters in method blanks. These qualifiers are discussed below and were not considered to have adversely affected data quality, except for the unavoidable increased DL for available ammonium in the depth comparison samples:

ALS assigned the “DLM” qualifier if it was necessary to increase the DL due to sample matrix effects. This qualifier was assigned to the available ammonium, available nitrate, and available phosphate data for all or most of the sediment samples.

- The DL for available ammonium was increased from 1.0 milligrams per kilogram (mg/kg) to either 1.6 or 2.4 mg/kg for the AEMP and Lake 13 sediment samples, but concentrations of available ammonium were well above these adjusted DLs in all samples (8.6 to 99.8 mg/kg) and therefore the increased DL did not affect data quality. In contrast, the DL used for the depth comparison samples had to be increased from 1.0 mg/kg to between 17 and 25 mg/kg; concentrations in these samples ranged from <21 to 65 mg/kg, and were undetected in four of the six samples, which limited the ability to compare results between the two sampling depths.
- The DL for available nitrate was increased from 2.0 mg/kg to between 4.0 and 8.0 mg/kg. Concentrations measured in sediments from all three sampling programs ranged from <4.0 to 44 mg/kg. This DL adjustment has occurred since 2010, as a result of ALS changing how they report DLs for this parameter, with a lower DL having been used prior to 2010.
- The DL for available phosphate was increased from 2.0 to 4.0 mg/kg for all but one sample; concentrations measured in sediments from all three sampling programs ranged from <4.0 to 426 mg/kg.

ALS assigned the “B” qualifier if a parameter was detected in a method blank. The ALS DQO is that no target parameters should be detected in method blanks. However, barium, boron, chromium, copper, molybdenum, nickel, and zinc were detected in one or more method blanks in 2012. In 2011, ALS advised that when the laboratory’s building furnaces start running in fall they stir up dust settled in the heating ducts; despite efforts to keep laboratory areas and equipment clean, and samples covered at all times, detection of zinc in method blanks was more common in the fall. However, in 2012 ALS attributed the detection of metals in the method blanks to their sample digestion method. The sediment samples were analysed by inductively coupled plasma mass spectrometry (ICP-MS); the second step of the digestion has the possibility of introducing contamination due to the open vessel digestion method. In November 2012, ALS switched to using collision cell inductively coupled plasma mass spectrometry (CCMS) for metals analyses, and with its one-step digestion method ALS has noticed a reduction in the occurrence of metals being detected in the method blanks.

- Barium was detected in one of two method blanks analysed with the AEMP samples (0.9 mg/kg as compared to a DL of 0.5 mg/kg); this was at least 50 times lower than concentrations measured in the AEMP sediment samples and therefore unlikely to affect data quality.
- Boron was detected in the two method blanks analysed with the depth comparison samples (2.2 and 2.6 mg/kg, as compared to a DL of 2.0 mg/kg). These concentrations were at least seven times lower than the range of concentrations measured in the depth comparison sediment samples and therefore unlikely to affect data quality.
- Chromium was detected in both method blanks analysed with the AEMP samples (3.73 and 7.5 mg/kg, as compared to a DL of 0.5 mg/kg). Concentrations measured in the AEMP

sediment samples were well above the concentrations detected in the method blanks; thus, it is not likely that data quality was adversely affected.

- Copper was detected in one of two method blanks analysed with the AEMP samples (0.79 mg/kg as compared to a DL of 0.50 mg/kg). Copper concentrations were at least 10 times higher in the AEMP sediment samples than in this method blank, so data quality was not likely to have been adversely affected.
- Molybdenum was detected in one of two method blanks analysed with the AEMP samples (0.24 mg/kg as compared to a DL of 0.10 mg/kg). Molybdenum concentrations were at least 10 times higher in the AEMP sediment samples than in this method blank, so data quality was not likely to have been adversely affected.
- Nickel was detected in both method blanks analysed with the AEMP samples (1.44 and 1.98 mg/kg, as compared to a DL of 0.50 mg/kg). These nickel concentrations were three to four times higher than the target DL. Concentrations measured in the AEMP sediment samples were well above the concentrations detected in the method blanks, so it is not likely that data quality was adversely affected.
- Zinc was detected in both method blanks analysed with the AEMP samples (10.2 and 19 mg/kg, as compared to a DL of 5 mg/kg). These concentrations were two to four times higher than the target DL. Concentrations measured in the AEMP sediment samples were well above the concentrations detected in the method blanks, so it is not likely that data quality was adversely affected. ALS has previously advised that their routine DL for zinc is 10 mg/kg, and that the low-level DL of 5 mg/kg requested for this project is sometimes difficult to distinguish from background noise.

4A1.3.1.2 Compare Detection Limits

Required Mine DLs were specified for all chemical analyses for the AEMP as outlined in Table 4A1-1. The required DLs and the actual DLs provided by ALS for individual samples were compared. Where actual DLs were higher than required DLs, the data were reviewed to determine the reason(s) for the difference in DLs and whether this difference would affect data quality.

Table 4A1-1 ALS Laboratory Group Sediment Detection Limits

Parameter	Units	Method	Detection Limit
Moisture	%	gravimetric	0.1
Sand (2.0 to 0.063 mm)	% dw	sieve – pipette	0.1
Silt (0.063 to 0.004 mm)	% dw	sieve – pipette	0.1
Clay (<0.004 mm)	% dw	sieve – pipette	0.1
Total carbon	% dw	combustion	0.1
Inorganic carbon	% dw	gravimetric	0.01 (0.1 actual)
Total organic carbon (TOC)	% dw	gravimetric	0.1
Available ammonium	mg/kg dw	colourimetric	1.0 (1.6 to 25 actual)
Available nitrate	mg/kg dw	colourimetric	2.0 (4.0 to 8.0 actual)
Available phosphate	mg/kg dw	colourimetric	2.0 (4.0 actual)
Available potassium	mg/kg dw	flame photometer	2 (20 actual)

Table 4A1-1 ALS Laboratory Group Sediment Detection Limits

Parameter	Units	Method	Detection Limit
Available sulphate	mg/kg dw	ICP-AES	2 (3 actual)
Total Kjeldahl nitrogen (TKN)	% dw	distillation-titration	0.02
Total nitrogen	% dw	combustion	0.02
Total aluminum	mg/kg dw	ICP-MS	50
Total antimony	mg/kg dw	ICP-MS	0.10
Total arsenic	mg/kg dw	ICP-MS	0.10
Total barium	mg/kg dw	ICP-MS	0.50
Total beryllium	mg/kg dw	ICP-MS	0.20
Total bismuth	mg/kg dw	ICP-MS	0.5 (0.2 actual)
Total boron	mg/kg dw	ICP-MS	2.0
Total cadmium	mg/kg dw	ICP-MS	0.10
Total calcium	mg/kg dw	ICP-MS	100
Total cesium	mg/kg dw	ICP-MS	10 (0.10 actual)
Total chromium	mg/kg dw	ICP-MS	0.2 (0.5 actual)
Total cobalt	mg/kg dw	ICP-MS	0.10
Total copper	mg/kg dw	ICP-MS	0.50
Total iron	mg/kg dw	ICP-MS	200
Total lead	mg/kg dw	ICP-MS	0.50
Total lithium	mg/kg dw	ICP-MS	20 (0.50 actual)
Total magnesium	mg/kg dw	ICP-MS	20
Total manganese	mg/kg dw	ICP-MS	1.0
Total mercury	mg/kg dw	CVAAS	0.050
Total molybdenum	mg/kg dw	ICP-MS	0.10
Total nickel	mg/kg dw	ICP-MS	0.50
Total phosphorus	mg/kg dw	ICP-MS	100
Total potassium	mg/kg dw	ICP-MS	20 (100 actual)
Total rubidium	mg/kg dw	ICP-MS	5 (1.0 actual)
Total selenium	mg/kg dw	ICP-MS	0.1 (0.2 actual)
Total selenium	mg/kg dw	CCMS	0.1
Total silver	mg/kg dw	ICP-MS	0.2
Total sodium	mg/kg dw	ICP-MS	100
Total strontium	mg/kg dw	ICP-MS	1.0
Total thallium	mg/kg dw	ICP-MS	0.050
Total tin	mg/kg dw	ICP-MS	2.0
Total titanium	mg/kg dw	ICP-MS	1.0
Total uranium	mg/kg dw	ICP-MS	0.050
Total vanadium	mg/kg dw	ICP-MS	0.20
Total zinc	mg/kg dw	ICP-MS	5.0

% = percent; mg/kg dw = milligrams per kilogram dry weight; % dw = percent dry weight; actual = detection limit used by labs; CVAAS = cold vapour atomic absorption spectroscopy; ICP-AES = inductively coupled plasma atomic emission spectroscopy; ICP-MS = inductively coupled plasma mass spectrometry; CCMS = collision cell inductively coupled plasma mass spectrometry.

Differences in DLs used in 2012 are summarized below:

- The DL for inorganic carbon was higher than the Mine specification, but use of this higher DL did not adversely affect data quality. Inorganic carbon data were only used to calculate total

organic carbon concentrations. The contribution of inorganic carbon was less than 0.2%, which was relatively small compared to mean total organic carbon concentrations of approximately 16% for Snap Lake and Northeast Lake, and 8% for Lake 13.

- As noted in Section 4A1.3.1.1, it was necessary to increase DLs for some nutrient analyses due to sample matrix effects. These increased DLs did not affect data quality, except for available ammonium in the depth comparison samples.
- The DLs used for bismuth, cesium, lithium, and rubidium were lower than the Mine specifications. Continued application of these lower DLs is recommended based on the concentration ranges being measured in sediment samples.
- The DLs used for chromium, potassium, and selenium were higher than the Mine specifications, but this did not affect data quality because concentrations measured in the sediment samples were well above these DLs.

4A1.3.1.3 Review of Sample Holding Times

Laboratory holding times were the recommended maximum periods between sample collection and analysis, and ranged from 14 days to 6 months depending on the parameter. The 2012 sediment samples were analyzed within their recommended holding times, except as noted:

- The Lake 13 sediment samples were collected August 18 to 20, 2012 and received by ALS Edmonton on August 27. Laboratory analyses were completed within recommended holding times, except that the inorganic and organic carbon analyses were completed 18 to 20 days after sample collection and not within the recommended 14-day holding time. These sediment samples were kept cool in sealed containers in darkness prior to analyses, and it is unlikely that the holding time exceedance affected data quality.
- The AEMP sediment samples from Snap Lake and Northeast Lake were collected September 5 to 11, 2012 and received by ALS Edmonton on September 13. The ALS Account Manager was on vacation at the time these samples were received; the samples were placed in cold storage until the Account Manager's return and therefore the samples were not logged in nor did any analyses begin until September 21. ALS has advised their sample receipt staff that this delay is not acceptable. Laboratory analyses were completed within recommended holding times, with two exceptions. As a result of the ALS delay logging in the samples, the inorganic and organic carbon analyses were completed 17 to 23 days after sample collection and not within the recommended 14-day holding time. Although moisture content was listed on the analysis request form that was submitted with the chain-of-custody form, ALS did not include this parameter when the samples were logged in. This error was identified during review of the sample receipt confirmation for these samples. ALS subsequently performed the moisture content analyses 43 to 49 days after sample collection, which was outside the recommended 14-day holding time. These sediment samples were kept cool in sealed containers in darkness prior to analyses, and it is unlikely that the holding time exceedances affected data quality.

4A1.3.1.4 Review of Field and Laboratory Quality Control Data (Blanks, Duplicates, Matrix Spikes, and Reference Materials)

Two field duplicate sediment samples were collected with the AEMP samples in 2012: SCN 2012-8030 was a field duplicate of SNP 02-20e, and SCN 2012-8031 was a field duplicate of NEL01. Comparison of each field duplicate to its original sample showed that there was generally good agreement in terms of measured parameter concentrations:

- For SNP 02-20e, the relative percent differences (RPDs) for individual parameters were less than 30% except that the RPDs for available ammonium, available phosphate, and total Kjeldahl nitrogen (TKN) ranged from 36 to 67%, the relative percent difference (RPD) for antimony was 111% (0.59 mg/kg in the original sample and 0.17 mg/kg in the field duplicate), and the RPD for available nitrate was 168% (<6.0 mg/kg in the original sample and 68.9 mg/kg in the field duplicate). The original sample result was consistent with previous years' results for this station whereas the field duplicate result was anomalously high; a repeat analysis was not requested as the samples were no longer available at the time the difference was identified.
- For NEL01, the RPDs were less than 30% except that the RPD for available phosphate was 82% (27.6 mg/kg in the original sample and 11.6 mg/kg in the field duplicate) and the RPD for available sulphate was 86% (36.2 mg/kg in the original sample and 91.2 mg/kg in the field duplicate). Since 2008, concentrations at NEL01 have ranged from 5.7 to 27.6 mg/kg for available phosphate and from 36.2 to 140 mg/kg for available sulphate, so the differences between these separately collected samples and their field duplicates likely represent sample heterogeneity.

Sediment samples were analyzed in one or more batches. Method blanks were included in each batch for all parameters. As discussed in Section 4A1.3.1.1, barium, boron, chromium, copper, molybdenum, nickel, and zinc were detected in one or more method blanks, but at concentrations low enough relative to the sediment samples that data quality was not likely to have been affected. The change in analytical methodology from ICP-MS to CCMS, implemented in November 2012, has reduced the occurrence of method blank contamination.

Laboratory duplicates were included in each analytical batch and results were reported for all parameters. Laboratory duplicate results met their DQOs in all cases; these were expressed either in terms of RPD or an absolute difference between the original and duplicate result, depending on the parameter. The RPDs were all less than or equal to 32%, and were less than 10% for most analyses.

Laboratory reference materials may be either certified reference materials or internal reference materials. These reference materials were included for all parameters except cesium, which is not part of ALS' standard metals analysis and for which a reference material is not readily available; results of the reference material analyses met DQOs in all cases.

4A1.3.1.5 Review of Concentration Units

The concentration units reported by the analytical laboratory were compared against the expected units for each parameter and matrix type, as coded into the Snap Lake Environmental Database. This review was done to confirm that the laboratory had reported units appropriate to a solid matrix for sediment samples. No errors or discrepancies were identified in the sediment quality data with respect to concentration units.

4A1.3.1.6 Proofing Sheets and Data Completeness

Sediment quality data downloaded from the database were compared to paper copies of the analytical laboratory reports, and to chain-of-custody and analysis request forms, to confirm that data were complete and accurately entered in the database. The following data issues were identified:

- Golder Associates Ltd. (Golder) requested that ALS re-analyse the six depth comparison sediment samples for available ammonium, available nitrate, available phosphate, and available potassium. At the diffuser station (SNP 02-20e), concentrations of all four parameters were lower in the top 2-cm layer samples than in the top 5-cm layer samples, which was not expected if Mine-related effects were occurring. Similar relationships were observed at the other two depth comparison stations, although not for all four parameters. Concentrations of available phosphate and available potassium were higher in the top 5-cm layer sample from the diffuser station than the concentration ranges reported across all AEMP stations in previous years. The DL for available ammonium was increased due to sample matrix effects, but the increase for the depth comparison samples was approximately 10 times higher than the increase for the AEMP and Lake 13 samples. ALS reported that the original results were confirmed through the repeat analyses.
- Arsenic concentrations were elevated in four of the five Lake 13 sediment samples, particularly at Station LK13-03. Barium and manganese concentrations were approximately 10 times higher at Station LK13-03 than the other Lake 13 stations, although manganese concentrations were variable among all five stations. ALS was requested to repeat the arsenic and manganese analyses in all five Lake 13 samples, and to re-analyse barium in the LK13-03 sample. Despite re-digesting and analysing these samples twice, ALS reported that the original results were confirmed through the repeat analyses.
- Moisture content was not measured in the 2-cm layer depth comparison samples collected using the corer, because ALS dried and ground the entire sample volume before subsamples for moisture content had been removed. Although analysis of moisture content is always requested for sediment samples, ALS did not measure moisture content in the Lake 13 samples for moisture content and the samples had been discarded by the time this oversight was identified. Omission of moisture content from analysis of the AEMP samples was identified and the analyses were performed. A similar error by ALS also occurred in 2010, and has been attributed to ALS copying previous sample log-in files and not checking entries against Golder's 2012 analysis requests.

- Particle size analyses performed in 2011 and 2012 used slightly different size breaks for the sand, silt, and clay fractions than in previous years. The size breaks used since 2011 were those typically used to characterize sediments: sand (2 to 0.063 millimetres [mm]), silt (0.063 to 0.004 mm), and clay (less than 0.004 mm). In contrast, size breaks used in previous years were typically used to characterize soils: sand (2 to 0.05 mm), silt (0.05 to 0.002 mm), and clay (less than 0.002 mm). Differences in the size breaks used by analytical laboratories can occur, and as long as the specific size breaks are reported, the differences between methods should not be an issue with respect to data quality (Taylor 2012). For the 2012 Lake 13 samples, ALS initially performed the particle size analyses using the size breaks for soils, but repeated the analyses at Golder's request and reported revised results using the correct size breaks for sediments.
- Selenium concentrations in the AEMP and Lake 13 sediment samples were measured by two methods in 2012: ICP-MS was used by ALS Edmonton; and, CCMS was used by ALS Burnaby. From 2004 to 2008, sediment selenium concentrations reported for the AEMP were determined by hydride vapour atomic absorption spectrometer (HG-AAS), but ALS Edmonton discontinued that method in 2008 and has used ICP-MS since 2009. ALS Edmonton implemented use of CCMS for sediment selenium measurement in November 2012. A comparison of all three analytical methods was undertaken as part of the 2010 AEMP (De Beers 2011). That comparison showed that there was no consistent bias between hydride and ICP-MS results and that RPDs were consistent with what would be expected for pairs of laboratory replicates; in contrast, the CCMS results were almost always higher than ICP-MS and frequently higher than the hydride results. In 2011, the CCMS results were again almost always higher than the corresponding ICP-MS results, but in 2012 the CCME results were consistently lower than the ICP-MS results. Having selenium data from 2010 and 2012 analyzed by ICP-MS and CCMS will be useful for interpreting temporal comparisons now that ALS Edmonton is using the CCMS method.
- Apart from the previously noted moisture content analyses that were not performed, no missing data or incorrect parameter names were identified in the Snap Lake Environmental Database, and no corrections to the database were required.

4A1.3.1.7 Record Data Management Processes and Actions

Notes were recorded for the above six steps, which included results from each step and follow-up action items to resolve any issue. These notes were stored electronically and also printed and stored with the hard copy of results. After all QA/QC items were resolved, the data were marked as valid and proofed in the Snap Lake Environmental Database and the seven-step procedure was complete.

4A1.3.2 Data Analyses

Data for the 2012 AEMP were analyzed within the Snap Lake Environmental Database and in separate software such as Microsoft Excel™ spreadsheets and Systat 11™ statistical software. Approximately 10% of the calculations were checked; all were verified.

Data were transferred electronically from the database to software packages used for data analyses, to facilitate consistency between users and software, and to avoid transcription errors. Data analyses were checked for accuracy and realistic results. Where appropriate, data were plotted to visually confirm statistically significant results for spatial gradients and temporal comparisons to baseline 2004 data.

Approximately 20% of the statistical tests were run in duplicate to confirm results. Data or statistical results observed to be inconsistent with expected concentrations or results were investigated further. Where possible, data were copied directly from Excel spreadsheets to the report document to avoid transcription errors. Spreadsheets used to prepare or analyze the data included a page of notes describing each worksheet and documenting the data sources used in the spreadsheets.

4A1.4 REFERENCES

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Taylor L. 2012. Manager, Method Development and Application Unit, Environment Canada, Ottawa, ON, Canada. E-mail communication with Cathy McPherson. January 30, 2012.

4B SEDIMENT QUALITY DATA

The 2012 sediment quality data for Snap Lake, Northeast Lake, and Lake 13 are presented in tables and figures in Appendix 4B, with comparisons to previous years' data included where applicable:

- The 2012 sediment quality data for the 18 Snap Lake stations, 5 Northeast Lake stations, 5 Lake 13 stations, and the 2 field duplicates are provided in Table 4B-1. In addition to sampling the top 5 centimetres (cm) of sediment at all stations in 2012, the top 2 cm of sediment was also sampled at three stations: SNP02-20e, SNAP03, and SNAP17. Stations are grouped by lake area: northwest arm, diffuser, near-field, mid-field, far-field, Northeast Lake, and Lake 13.
- Mean sediment parameter concentrations by lake area, measured in Snap Lake, Northeast Lake, and Lake 13 in August and September 2012, are presented in Figure 4B-1. To prepare these graphs and calculate mean parameter concentrations, results reported as undetected were replaced with values equal to one-half the applicable detection limit (DL). Only data from the top 5 cm sediment samples were used for calculating mean concentrations.
- Mean sediment parameter concentrations by lake area, measured in Snap Lake from 2004 to 2012[1], in Northeast Lake from 2008 to 2012, and in Lake 13 for 2012, are presented in Figure 4B-2. Normal ranges, calculated from baseline data, are provided for each parameter along with benchmarks where applicable; these are explained in Section 4 of the 2012 Aquatic Effects Monitoring Program (AEMP) report. Data from 2004 to 2006 were from bulk samples, whereas data from 2007 onward were from top 5-cm sediment samples. Data for the diffuser area were sampled near the temporary diffuser location in 2005 and 2006, and near the permanent diffuser location from 2007 onward. To prepare these graphs and calculate mean parameter concentrations, results reported as undetected were replaced with values equal to one-half the applicable DL. Because the analytical method for selenium changed in 2009, the graph for selenium shows data analyzed by the hydride method for 2004 to 2008, and by the inductively coupled plasma mass spectrometry (ICP-MS) method for 2009 to 2012.

[1] Two changes in presentation of the 2004 to 2006 Snap Lake sediment data were incorporated into the temporal graphs (Figure 4A2-2 in this report) in 2010. Temporal graphs in previous reports did not show diffuser data for 2006. A detailed review of the data identified that a temporary diffuser station (SNP 02-20b) had been grouped as a near-field station in 2005 and 2006; this station was re-classified as a diffuser station in the 2010 and subsequent AEMP reports. Between 2004 and 2006, mean parameter concentrations were calculated using DLs for results reported as being undetected. This method was not consistent with the practice used since 2007 of using one-half the DL to represent undetected concentrations, and therefore some means for 2004 to 2006 data were recalculated in 2010.

Table 4B-1 Raw Sediment Quality Data for Snap Lake, Northeast Lake, and Lake 13 (August and September 2012)

Sampling Area	Units (dw)	Target Detection Limit (DL)	NWA	NWA	NWA	Diffuser	Diffuser	Diffuser	Diffuser	Diffuser	Diffuser
Sampling Point			SNAP02A	SNAP20	SNAP23	SNP 02-20e	SNP 02-20e	SNP 02-20e Depth Comparison (RPD)	SNP 02-20e	SNP 02-20e (Field Duplicate)	SNP 02-20e Field Duplicate (RPD)
Sampling Date			05-SEP-12	05-SEP-12	05-SEP-12	14-AUG-12	14-AUG-12		07-SEP-12	07-SEP-12	
Sample Control Number (SCN)			2012-8020	2012-8021	2012-8022	2012-8001	2012-8002		2012-8007	2012-8030	
ALS Lab ID			L1212930-14	L1212930-15	L1212930-16	L1194852-1	L1194852-2		L1212930-1	L1212930-24	
Water Depth (m)			10	14.5	13.5				26	26	
Sediment Depth (cm)			Top 5 cm	Top 5 cm	Top 5 cm	Top 5 cm	Top 2 cm		Top 5 cm	Top 5 cm	
Physical											
Moisture	%	0.25	94.6	92.0	94.2	95.1	NM	-	94.3	94.2	0%
% Gravel (>2 mm)	% dw	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	-
% Sand (2.0 mm - 0.063 mm)	% dw	0.10	1.97	2.46	2.35	2.11	1.24	52%	4.06	3.88	5%
% Silt (0.063 mm - 0.004 mm)	% dw	0.10	88.5	83.4	83.6	88.1	89.5	-2%	83.5	86.0	-3%
% Clay (<0.004 mm)	% dw	0.10	9.51	14.2	14.0	9.79	9.22	6%	12.5	10.2	20%
% Fines (Silt + Clay)	% dw	0.10	98.0	97.6	97.6	97.9	98.7	-1%	96.0	96.2	0%
Inorganic / Organic Carbon											
CaCO3 Equivalent	% dw	0.80	1.57	0.89	1.09	0.96	<0.80	-	0.85	0.92	-8%
Total Carbon by Combustion	% dw	0.1	20.2	12.1	21.0	16.7	18.4	-10%	18.4	18.6	-1%
Inorganic Carbon	% dw	0.10	0.19	0.11	0.13	0.12	<0.10	-	0.10	0.11	-10%
Total Organic Carbon	% dw	0.10	20.0	12.0	20.8	16.5	18.4	-11%	18.3	18.5	-1%
Nutrients											
Available Ammonium-N	mg/kg dw	1.6	44.2	29.6	28.6	65	<25	89%	18.1	36.3	-67%
Available Nitrate-N	mg/kg dw	4.0	<4.0	<4.0	<4.0	44.0	10.4	124%	<6.0	68.9	-168%
Total Kjeldahl Nitrogen	% dw	0.020	1.42	0.878	1.29	1.33	1.51	-13%	1.60	1.09	38%
Total Nitrogen	% dw	0.020	1.49	0.931	1.56	1.28	1.54	-18%	1.36	1.37	-1%
Available Phosphate-P	mg/kg dw	4.0	18.8	4.9	12.8	426	14.1	187%	98.7	68.7	36%
Available Potassium	mg/kg dw	20	69	120	97	1320	269	132%	112	92	20%
Available Sulfate-S	mg/kg dw	3.0	32.5	160	207	59.3	253	-124%	102	123	-19%
Metals											
Aluminum (Al)	mg/kg dw	50	16,500	18,200	17,600	11,500	11,000	4%	15,400	15,800	-3%
Antimony (Sb)	mg/kg dw	0.10	0.18	0.30	0.18	0.12	0.38	-104%	0.59	0.17	111%
Arsenic (As)	mg/kg dw	0.10	1.20	5.33	1.97	1.53	3.13	-69%	1.47	1.45	1%
Barium (Ba)	mg/kg dw	0.50	77.8	240	68.8	68.9	76.8	-11%	73.7	76.7	-4%
Beryllium (Be)	mg/kg dw	0.20	0.80	0.90	1.11	0.69	0.50	32%	0.91	0.87	4%
Bismuth (Bi)	mg/kg dw	0.20	0.53	0.65	0.70	0.68	0.77	-12%	0.86	0.72	18%
Boron (B)	mg/kg dw	2.0	10.9	7.2	11.1	20.1	26.0	-26%	16.6	19.1	-14%
Cadmium (Cd)	mg/kg dw	0.10	0.60	0.99	0.72	0.45	0.44	2%	0.49	0.49	0%
Calcium (Ca)	mg/kg dw	100	4020	2190	4120	3930	6490	-49%	3570	3850	-8%
Cesium (Cs)	mg/kg dw	0.10	1.58	1.59	1.38	1.75	1.67	5%	1.89	1.94	-3%
Chromium (Cr)	mg/kg dw	0.50	41.2	38.0	34.7	30.8	38.7	-23%	34.1	34.0	0%
Cobalt (Co)	mg/kg dw	0.10	11.2	64.9	28.5	11.1	15.4	-32%	11.3	11.6	-3%
Copper (Cu)	mg/kg dw	0.50	106	108	112	106	94.8	11%	107	108	-1%
Iron (Fe)	mg/kg dw	200	18,100	132,000	34,800	17,600	26,300	-40%	23,100	22,800	1%
Lead (Pb)	mg/kg dw	0.50	4.06	6.58	4.95	5.33	10.4	-64%	4.97	5.42	-9%
Lithium (Li)	mg/kg dw	0.50	15.2	14.2	13.9	20.4	22.9	-12%	20.5	21.7	-6%
Magnesium (Mg)	mg/kg dw	20	3,180	2,790	2,560	2,920	5,790	-66%	3,670	3,700	-1%
Manganese (Mn)	mg/kg dw	1.0	201	6,910	243	246	373	-41%	242	222	9%
Mercury (Hg)	mg/kg dw	0.050	0.050	0.084	<0.050	0.062	0.101	-48%	0.058	0.052	11%
Molybdenum (Mo)	mg/kg dw	0.10	6.51	14.9	11.5	9.18	13.5	-38%	7.74	8.30	-7%
Nickel (Ni)	mg/kg dw	0.50	39.0	64.5	40.9	33.1	53.9	-48%	32.7	33.4	-2%
Phosphorus (P)	mg/kg dw	100	1,020	2,470	1,480	1,510	1,620	-7%	1,510	1,560	-3%
Potassium (K)	mg/kg dw	100	1,130	1,020	920	1,380	1,470	-6%	1,370	1,490	-8%
Rubidium (Rb)	mg/kg dw	1.0	9.8	8.9	8.5	13.3	13.0	2%	13.0	13.2	-2%
Selenium (Se) - ICPMS	mg/kg dw	0.20	1.71	2.17	1.99	1.77	2.03	-14%	1.73	1.71	1%
Selenium (Se) - CCMS	mg/kg dw	0.10	1.13	1.86	1.59	NM	NM	-	1.46	1.29	12%
Silver (Ag)	mg/kg dw	0.20	<0.20	0.20	0.23	0.23	0.39	-52%	0.22	0.22	0%
Sodium (Na)	mg/kg dw	100	200	150	260	440	810	-59%	390	400	-3%
Strontium (Sr)	mg/kg dw	1.0	31.1	24.2	40.1	44.9	110	-84%	39.8	40.0	-1%
Thallium (Tl)	mg/kg dw	0.050	0.155	0.285	0.196	0.135	0.127	6%	0.120	0.137	-13%
Tin (Sn)	mg/kg dw	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	-	2.9	<2.0	-
Titanium (Ti)	mg/kg dw	1.0	215	214	177	245	248	-1%	244	250	-2%
Uranium (U)	mg/kg dw	0.050	5.44	5.06	6.32	8.27	8.80	-6%	7.95	8.35	-5%
Vanadium (V)	mg/kg dw	0.20	34.6	39.0	35.9	29.9	29.6	1%	32.4	32.5	0%
Zinc (Zn)	mg/kg dw	5.0	132	170	165	110	102	8%	115	119	-3%

Table 4B-1 Raw Sediment Quality Data for Snap Lake, Northeast Lake, and Lake 13 (August and September 2012)

Sampling Area	Units (dw)	Target Detection Limit (DL)	Near-Field	Near-Field	Near-Field	Near-Field	Near-Field	Near-Field	Near-Field	Near-Field	Near-Field	Near-Field
Sampling Point			SNAP03	SNAP03	SNAP03 Depth Comparison (RPD)	SNAP03	SNAP05	SNAP06	SNAP12	SNAP14	SNAP15	SNAP26
Sampling Date			14-AUG-12	14-AUG-12		05-SEP-12	07-SEP-12	08-SEP-12	07-SEP-12	07-SEP-12	07-SEP-12	07-SEP-12
Sample Control Number (SCN)			2012-8003	2012-8004		2012-8008	2012-8009	2012-8010	2012-8011	2012-8012	2012-8013	2012-8014
ALS Lab ID			L1194852-3	L1194852-4		L1212930-2	L1212930-3	L1212930-4	L1212930-5	L1212930-6	L1212930-7	L1212930-8
Water Depth (m)			9	9		13.2	13.1	14.5	8.1	12.5	10	5.8
Sediment Depth (cm)			Top 5 cm	Top 2 cm		Top 5 cm	Top 5 cm	Top 5 cm	Top 5 cm	Top 5 cm	Top 5 cm	Top 5 cm
Physical												
Moisture	%	0.25	96.1	NM	-	94.9	94.7	94.9	94.9	94.7	94.6	92.2
% Gravel (>2 mm)	% dw	0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
% Sand (2.0 mm - 0.063 mm)	% dw	0.10	0.18	0.18	0%	0.69	1.92	2.58	2.96	1.38	2.00	25.6
% Silt (0.063 mm - 0.004 mm)	% dw	0.10	88.9	91.2	-3%	86.1	88.9	85.1	87.6	86.3	84.8	69.0
% Clay (<0.004 mm)	% dw	0.10	10.9	8.62	23%	13.2	9.22	12.3	9.42	12.3	13.2	5.49
% Fines (Silt + Clay)	% dw	0.10	99.8	99.8	0%	99.3	98.1	97.4	97.0	98.6	98.0	74.5
Inorganic / Organic Carbon												
CaCO3 Equivalent	% dw	0.80	<0.80	<0.80	-	1.05	1.25	1.13	<0.80	0.92	1.14	1.03
Total Carbon by Combustion	% dw	0.1	18.5	17.7	4%	18.8	19.1	18.2	19.0	18.1	17.0	14.2
Inorganic Carbon	% dw	0.10	<0.10	<0.10	-	0.13	0.15	0.14	<0.10	0.11	0.14	0.12
Total Organic Carbon	% dw	0.10	18.5	17.7	4%	18.6	19.0	18.0	19.0	18.0	16.8	14.1
Nutrients												
Available Ammonium-N	mg/kg dw	1.6	<19	<21	-	14.4	17.2	45.6	22.6	12.6	13.3	16.6
Available Nitrate-N	mg/kg dw	4.0	6.9	18.1	-90%	28.1	14.6	<4.0	5.7	14.0	27.1	<6.0
Total Kjeldahl Nitrogen (TKN)	% dw	0.020	1.32	1.40	-6%	1.63	1.59	1.09	1.47	1.37	1.05	0.955
Total Nitrogen	% dw	0.020	1.41	1.39	1%	1.41	1.45	1.36	1.42	1.31	1.18	1.11
Available Phosphate-P	mg/kg dw	4.0	41.1	6.0	149%	11.7	22.2	4.6	4.6	28.1	19.4	14.1
Available Potassium	mg/kg dw	20	333	252	28%	111	182	98	177	127	116	150
Available Sulfate-S	mg/kg dw	3.0	77.9	111	-35%	178	183	509	190	69.2	83.3	184
Metals												
Aluminum (Al)	mg/kg dw	50	12,600	11,500	9%	17,300	15,000	16,300	17,300	16,400	17,500	9,300
Antimony (Sb)	mg/kg dw	0.10	0.23	0.27	-16%	0.37	0.41	0.29	0.26	0.17	0.17	0.26
Arsenic (As)	mg/kg dw	0.10	2.47	2.88	-15%	1.78	2.60	2.65	2.37	1.31	1.88	1.29
Barium (Ba)	mg/kg dw	0.50	54.7	49.3	10%	77.2	68.2	62.4	64.9	49.6	78.7	56.9
Beryllium (Be)	mg/kg dw	0.20	0.88	0.92	-4%	1.08	0.99	1.08	1.41	0.91	1.24	0.61
Bismuth (Bi)	mg/kg dw	0.20	0.77	0.72	7%	0.77	0.67	0.73	0.66	0.66	0.76	0.37
Boron (B)	mg/kg dw	2.0	32.4	33.3	-3%	19.3	31.2	21.2	27.4	25.5	19.3	19.8
Cadmium (Cd)	mg/kg dw	0.10	0.55	0.48	14%	0.58	0.68	0.61	0.69	0.45	0.76	0.77
Calcium (Ca)	mg/kg dw	100	5550	5950	-7%	4,360	5,290	4,270	5,380	4,920	4,440	5,390
Cesium (Cs)	mg/kg dw	0.10	1.73	1.65	5%	1.75	1.90	1.88	1.70	2.02	1.86	1.29
Chromium (Cr)	mg/kg dw	0.50	29.1	28.3	3%	33.9	32.0	34.5	33.6	33.8	33.5	27.1
Cobalt (Co)	mg/kg dw	0.10	14.2	14.3	-1%	20.6	10.6	19.2	14.6	10.0	12.8	10.8
Copper (Cu)	mg/kg dw	0.50	108	99.5	8%	119	101	113	104	105	113	75.7
Iron (Fe)	mg/kg dw	200	34,800	36,500	-5%	35,900	27,300	50,100	44,200	24,400	33,600	13,900
Lead (Pb)	mg/kg dw	0.50	6.45	7.27	-12%	5.01	7.22	5.69	5.47	5.30	5.01	5.78
Lithium (Li)	mg/kg dw	0.50	20.2	18.6	8%	19.6	21.4	20.1	18.4	24.0	19.0	21.3
Magnesium (Mg)	mg/kg dw	20	2,920	2,940	-1%	3,200	3,480	3,460	3,560	3,580	3,320	4,170
Manganese (Mn)	mg/kg dw	1.0	259	490	-62%	268	299	213	245	129	240	193
Mercury (Hg)	mg/kg dw	0.050	0.056	0.065	-15%	0.056	0.059	0.051	<0.050	<0.050	<0.050	<0.050
Molybdenum (Mo)	mg/kg dw	0.10	14.8	15.8	-7%	11.1	10.8	14.7	16.3	7.87	12.6	4.49
Nickel (Ni)	mg/kg dw	0.50	43.9	45.3	-3%	36.4	40.6	37.4	41.7	38.3	39.2	40.5
Phosphorus (P)	mg/kg dw	100	1,280	1,250	2%	1,210	1,170	1,150	1,060	1,080	1,200	630
Potassium (K)	mg/kg dw	100	1,290	1,260	2%	1,250	1,400	1,430	1,280	1,400	1,280	1,050
Rubidium (Rb)	mg/kg dw	1.0	12.3	11.6	6%	11.8	12.7	12.9	11.4	13.4	12.3	9.0
Selenium (Se) - ICPMS	mg/kg dw	0.20	1.85	1.85	0%	1.89	1.55	1.78	1.50	1.68	1.76	1.12
Selenium (Se) - CCMS	mg/kg dw	0.10	NM	NM	-	1.34	1.12	1.55	1.11	1.17	1.38	0.65
Silver (Ag)	mg/kg dw	0.20	0.21	0.23	-9%	0.28	<0.20	0.21	0.54	<0.20	<0.20	<0.20
Sodium (Na)	mg/kg dw	100	560	620	-10%	430	490	430	480	450	420	440
Strontium (Sr)	mg/kg dw	1.0	82.0	88.3	-7%	58.1	84.4	61.1	77.4	82.3	65.4	82.1
Thallium (Tl)	mg/kg dw	0.050	0.105	0.082	25%	0.136	0.140	0.131	0.153	0.080	0.155	0.087
Tin (Sn)	mg/kg dw	2.0	<2.0	<2.0	-	<2.0	<2.0	2.4	<2.0	<2.0	3.0	<2.0
Titanium (Ti)	mg/kg dw	1.0	192	165	15%	182	178	223	209	208	180	333
Uranium (U)	mg/kg dw	0.050	9.89	9.48	4%	9.56	9.29	9.31	9.36	8.70	9.58	5.02
Vanadium (V)	mg/kg dw	0.20	30.1	28.2	7%	33.5	30.9	32.6	36.2	30.9	34.9	25.0
Zinc (Zn)	mg/kg dw	5.0	154	149	3%	153	137	148	208	119	151	123

Table 4B-1 Raw Sediment Quality Data for Snap Lake, Northeast Lake, and Lake 13 (August and September 2012)

Sampling Area	Units (dw)	Target Detection Limit (DL)	Mid-Field	Mid-Field	Mid-Field	Mid-Field	Mid-Field	Mid-Field	Mid-Field	Mid-Field
Sampling Point			SNAP09	SNAP11A	SNAP17	SNAP17	SNAP17 Depth Comparison (RPD)	SNAP17	SNAP18	SNAP19
Sampling Date			11-SEP-12	08-SEP-12	14-AUG-12	14-AUG-12		08-SEP-12	11-SEP-12	11-SEP-12
Sample Control Number (SCN)			2012-8015	2012-8016	2012-8005	2012-8006		2012-8017	2012-8018	2012-8019
ALS Lab ID			L1212930-9	L1212930-10	L1194852-5	L1194852-6		L1212930-11	L1212930-12	L1212930-13
Water Depth (m)			15	14.4				10.2	12.4	11.7
Sediment Depth (cm)			Top 5 cm	Top 5 cm	Top 5 cm	Top 2 cm		Top 5 cm	Top 5 cm	Top 5 cm
Physical										
Moisture	%	0.25	94.1	94.7	94.4	NM	-	94.1	94.6	94.2
% Gravel (>2 mm)	% dw	0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10
% Sand (2.0 mm - 0.063 mm)	% dw	0.10	4.75	1.01	6.96	6.46	7%	5.60	1.95	1.68
% Silt (0.063 mm - 0.004 mm)	% dw	0.10	79.8	88.3	81.2	87.6	-8%	82.6	87.7	87.2
% Clay (<0.004 mm)	% dw	0.10	15.5	10.7	11.9	5.92	67%	11.8	10.3	11.2
% Fines (Silt + Clay)	% dw	0.10	95.3	99.0	93.1	93.5	0%	94.4	98.0	98.4
Inorganic / Organic Carbon										
CaCO3 Equivalent	% dw	0.80	<0.80	1.39	0.98	1.02	-4%	0.91	0.93	0.95
Total Carbon by Combustion	% dw	0.1	16.5	18.1	14.5	16.0	-10%	16.5	18.3	17.3
Inorganic Carbon	% dw	0.10	<0.10	0.17	0.12	0.12	0%	0.11	0.11	0.11
Total Organic Carbon	% dw	0.10	16.5	18.0	14.4	15.9	-10%	16.4	18.2	17.1
Nutrients										
Available Ammonium-N	mg/kg dw	1.6	9.6	14.8	23	<22	-	11.6	12.6	8.6
Available Nitrate-N	mg/kg dw	4.0	16.2	<4.0	<4.0	9.5	-	8.9	28.8	14.1
Total Kjeldahl Nitrogen (TKN)	% dw	0.020	1.10	1.44	1.11	1.28	-14%	1.17	1.57	1.23
Total Nitrogen	% dw	0.020	1.21	1.36	1.08	1.27	-16%	1.21	1.35	1.26
Available Phosphate-P	mg/kg dw	4.0	34.8	22.8	38.4	20.1	63%	34.6	20.8	11.2
Available Potassium	mg/kg dw	20	109	104	170	205	-19%	125	108	105
Available Sulfate-S	mg/kg dw	3.0	102	68.8	134	160	-18%	130	93.2	70.2
Metals										
Aluminum (Al)	mg/kg dw	50	17,900	17,100	12,700	11,700	8%	18,100	16,700	17,700
Antimony (Sb)	mg/kg dw	0.10	0.12	0.45	0.11	0.18	-48%	0.41	0.28	0.20
Arsenic (As)	mg/kg dw	0.10	1.64	1.58	1.82	2.43	-29%	2.35	1.78	1.92
Barium (Ba)	mg/kg dw	0.50	102	87.4	94.6	90.4	5%	90.1	93.8	90.8
Beryllium (Be)	mg/kg dw	0.20	1.09	1.01	0.89	0.84	6%	1.36	1.04	1.15
Bismuth (Bi)	mg/kg dw	0.20	0.73	0.90	0.72	0.66	9%	0.81	0.75	0.75
Boron (B)	mg/kg dw	2.0	15.7	21.3	22.0	24.1	-9%	18.8	22.3	22.1
Cadmium (Cd)	mg/kg dw	0.10	0.73	0.48	0.68	0.62	9%	1.02	0.55	0.63
Calcium (Ca)	mg/kg dw	100	4,210	4,580	4,620	5,390	-15%	4,630	4,310	4,470
Cesium (Cs)	mg/kg dw	0.10	2.49	2.28	2.20	2.08	6%	2.16	2.28	2.18
Chromium (Cr)	mg/kg dw	0.50	41.0	37.3	34.5	33.6	3%	36.9	37.2	37.6
Cobalt (Co)	mg/kg dw	0.10	9.98	9.54	13.2	16.1	-20%	13.0	11.0	13.4
Copper (Cu)	mg/kg dw	0.50	107	107	99.9	90.0	10%	100	107	111
Iron (Fe)	mg/kg dw	200	20,800	22,400	19,200	23,500	-20%	30,200	24,900	33,300
Lead (Pb)	mg/kg dw	0.50	5.15	4.86	5.60	6.34	-12%	6.38	5.39	5.10
Lithium (Li)	mg/kg dw	0.50	27.5	22.7	24.7	24.1	2%	21.8	22.7	23.0
Magnesium (Mg)	mg/kg dw	20	4,640	4,050	3,620	3,510	3%	3,850	4,060	3,920
Manganese (Mn)	mg/kg dw	1.0	196	176	273	652	-82%	316	263	268
Mercury (Hg)	mg/kg dw	0.050	<0.050	<0.050	<0.050	<0.050	-	<0.050	<0.050	<0.050
Molybdenum (Mo)	mg/kg dw	0.10	7.38	9.05	9.78	11.4	-15%	10.8	9.18	11.7
Nickel (Ni)	mg/kg dw	0.50	39.6	37.4	44.1	47.8	-8%	45.2	39.5	42.2
Phosphorus (P)	mg/kg dw	100	1,040	1,010	1,020	1,050	-3%	1,430	1,000	1,070
Potassium (K)	mg/kg dw	100	2,080	1,890	2,190	2,190	0%	1,870	1,940	1,850
Rubidium (Rb)	mg/kg dw	1.0	18.0	16.1	18.2	17.2	6%	15.3	16.2	15.5
Selenium (Se) - ICPMS	mg/kg dw	0.20	1.65	1.78	1.48	1.65	-11%	1.61	1.73	1.78
Selenium (Se) - CCMS	mg/kg dw	0.10	1.38	1.40	NM	NM	-	1.19	1.33	1.16
Silver (Ag)	mg/kg dw	0.20	<0.20	0.20	<0.20	<0.20	-	<0.20	<0.20	<0.20
Sodium (Na)	mg/kg dw	100	390	450	460	520	-12%	430	440	440
Strontium (Sr)	mg/kg dw	1.0	55.3	56.1	62.4	73.9	-17%	67.3	53.2	57.7
Thallium (Tl)	mg/kg dw	0.050	0.149	0.141	0.178	0.169	5%	0.162	0.143	0.178
Tin (Sn)	mg/kg dw	2.0	<2.0	<2.0	<2.0	<2.0	-	9.5	<2.0	<2.0
Titanium (Ti)	mg/kg dw	1.0	304	240	269	277	-3%	192	246	238
Uranium (U)	mg/kg dw	0.050	9.17	9.25	9.16	8.54	7%	10.1	9.52	10.2
Vanadium (V)	mg/kg dw	0.20	36.4	32.9	33.1	31.5	5%	35.8	33.3	34.8
Zinc (Zn)	mg/kg dw	5.0	121	128	159	140	13%	163	137	166

Table 4B-1 Raw Sediment Quality Data for Snap Lake, Northeast Lake, and Lake 13 (August and September 2012)

Sampling Area	Units (dw)	Target Detection Limit (DL)	Far-Field	Far-Field	Northeast Lake	Northeast Lake	Northeast Lake	Northeast Lake	Northeast Lake	Northeast Lake	Northeast Lake
Sampling Point			SNAP07	SNAP08	NEL01	NEL01 (Field Duplicate)	NEL01 Field Duplicate (RPD)	NEL02	NEL03	NEL04	NEL05
Sampling Date			08-SEP-12	08-SEP-12	09-SEP-12	09-SEP-12		09-SEP-12	09-SEP-12	09-SEP-12	09-SEP-12
Sample Control Number (SCN)			2012-8023	2012-8024	2012-8025	2012-8031		2012-8026	2012-8027	2012-8028	2012-8029
ALS Lab ID			L1212930-17	L1212930-18	L1212930-19	L1212930-25		L1212930-20	L1212930-21	L1212930-22	L1212930-23
Water Depth (m)			11.8	9.4	11.4	11.4		10.5	10.7	12.8	11.4
Sediment Depth (cm)			Top 5 cm	Top 5 cm	Top 5 cm	Top 5 cm		Top 5 cm	Top 5 cm	Top 5 cm	Top 5 cm
Physical											
Moisture	%	0.25	94.9	95.3	94.1	94.3	0%	93.6	94.3	93.7	92.6
% Gravel (>2 mm)	% dw	0.10	<0.10	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10
% Sand (2.0 mm - 0.063 mm)	% dw	0.10	2.61	3.15	3.46	3.68	-6%	1.17	4.48	0.89	2.90
% Silt (0.063 mm - 0.004 mm)	% dw	0.10	88.6	91.3	87.8	89.3	-2%	87.3	85.7	86.9	83.2
% Clay (<0.004 mm)	% dw	0.10	8.83	5.58	8.77	7.05	22%	11.5	9.87	12.2	13.9
% Fines (Silt + Clay)	% dw	0.10	97.4	96.9	96.6	96.4	0%	98.8	95.6	99.1	97.1
Inorganic / Organic Carbon											
CaCO3 Equivalent	% dw	0.80	1.11	1.18	1.13	1.18	-4%	<0.80	0.89	<0.80	1.42
Total Carbon by Combustion	% dw	0.1	22.0	23.2	17.9	19.4	-8%	16.1	16.7	16.6	15.2
Inorganic Carbon	% dw	0.10	0.13	0.14	0.14	0.14	0%	<0.10	0.11	<0.10	0.17
Total Organic Carbon	% dw	0.10	21.9	23.1	17.8	19.3	-8%	16.1	16.6	16.6	15.0
Nutrients											
Available Ammonium-N	mg/kg dw	1.6	55.0	72.0	68.9	82.2	-18%	47.8	73.7	99.8	37.5
Available Nitrate-N	mg/kg dw	4.0	13.5	<4.0	<4.0	<4.0	-	<4.0	4.2	<4.0	11.5
Total Kjeldahl Nitrogen (TKN)	% dw	0.020	1.39	1.39	1.19	1.18	1%	0.942	0.969	0.944	0.863
Total Nitrogen	% dw	0.020	1.61	1.65	1.33	1.45	-9%	1.15	1.20	1.18	1.09
Available Phosphate-P	mg/kg dw	4.0	31.3	<4.0	27.6	11.6	82%	18.0	8.3	<2.0	8.8
Available Potassium	mg/kg dw	20	140	98	160	151	6%	118	91	114	116
Available Sulfate-S	mg/kg dw	3.0	106	251	36.2	91.2	-86%	145	73.6	181	74.2
Metals											
Aluminum (Al)	mg/kg dw	50	12,100	12,000	15,400	15,300	1%	18,300	19,000	20,100	20,100
Antimony (Sb)	mg/kg dw	0.10	0.15	0.19	0.25	0.27	-8%	0.52	0.39	0.28	0.25
Arsenic (As)	mg/kg dw	0.10	1.21	1.64	2.40	2.30	4%	3.03	2.84	3.96	2.64
Barium (Ba)	mg/kg dw	0.50	60.0	48.9	132	130	2%	141	130	185	149
Beryllium (Be)	mg/kg dw	0.20	0.87	0.97	1.05	1.13	-7%	1.33	1.43	1.34	1.53
Bismuth (Bi)	mg/kg dw	0.20	0.53	0.64	0.90	0.88	2%	1.33	1.17	1.34	1.27
Boron (B)	mg/kg dw	2.0	24.8	15.8	23.2	23.9	-3%	20.2	16.9	20.3	18.5
Cadmium (Cd)	mg/kg dw	0.10	0.51	0.60	0.66	0.67	-2%	0.74	1.11	0.81	0.87
Calcium (Ca)	mg/kg dw	100	4,610	4,210	4,370	4,260	3%	3,330	3,540	3,070	3,390
Cesium (Cs)	mg/kg dw	0.10	1.72	1.40	3.03	2.99	1%	3.18	3.01	3.40	3.46
Chromium (Cr)	mg/kg dw	0.50	29.6	27.5	49.8	49.6	0%	55.5	54.8	59.9	57.3
Cobalt (Co)	mg/kg dw	0.10	7.64	37.3	12.4	12.3	1%	29.9	12.6	31.4	13.7
Copper (Cu)	mg/kg dw	0.50	103	125	117	115	2%	134	137	152	135
Iron (Fe)	mg/kg dw	200	13,600	93,800	19,100	18,700	2%	34,900	23,100	66,800	29,000
Lead (Pb)	mg/kg dw	0.50	4.67	5.58	8.27	8.16	1%	6.00	7.39	7.71	7.54
Lithium (Li)	mg/kg dw	0.50	19.9	15.9	31.3	31.1	1%	32.9	32.2	34.0	36.1
Magnesium (Mg)	mg/kg dw	20	3,190	2,490	5,280	5,250	1%	5,500	5,380	5,750	5,830
Manganese (Mn)	mg/kg dw	1.0	143	179	263	255	3%	415	306	927	391
Mercury (Hg)	mg/kg dw	0.050	<0.050	0.056	<0.050	<0.050	-	<0.050	0.056	<0.050	0.060
Molybdenum (Mo)	mg/kg dw	0.10	6.35	16.4	5.34	5.18	3%	12.7	7.63	14.6	10.3
Nickel (Ni)	mg/kg dw	0.50	36.9	42.4	69.2	68.9	0%	106	79.8	108	81.1
Phosphorus (P)	mg/kg dw	100	820	1,250	850	840	1%	1,040	960	1,320	990
Potassium (K)	mg/kg dw	100	1,380	1,070	2,810	2,770	1%	2,860	2,670	3,000	3,010
Rubidium (Rb)	mg/kg dw	1.0	12.4	9.6	22.1	21.5	3%	22.3	21.3	23.5	24.1
Selenium (Se) - ICPMS	mg/kg dw	0.20	1.57	2.20	1.44	1.54	-7%	1.71	1.66	2.03	1.64
Selenium (Se) - CCMS	mg/kg dw	0.10	1.06	1.78	0.94	0.91	3%	1.30	1.17	1.55	1.18
Silver (Ag)	mg/kg dw	0.20	<0.20	0.21	<0.20	<0.20	-	<0.20	<0.20	0.22	0.20
Sodium (Na)	mg/kg dw	100	460	420	150	150	0%	160	130	160	150
Strontium (Sr)	mg/kg dw	1.0	56.0	56.1	33.3	32.4	3%	25.9	27.8	25.8	27.4
Thallium (Tl)	mg/kg dw	0.050	0.101	0.128	0.161	0.175	-8%	0.211	0.149	0.266	0.199
Tin (Sn)	mg/kg dw	2.0	8.4	<2.0	<2.0	<2.0	-	3.8	<2.0	<2.0	<2.0
Titanium (Ti)	mg/kg dw	1.0	211	246	386	386	0%	370	308	414	393
Uranium (U)	mg/kg dw	0.050	8.78	13.0	9.90	9.63	3%	11.6	12.3	12.7	11.9
Vanadium (V)	mg/kg dw	0.20	26.0	26.5	36.6	36.1	1%	42.6	42.0	45.7	45.7
Zinc (Zn)	mg/kg dw	5.0	110	133	178	189	-6%	210	163	214	182

Table 4B-1 Raw Sediment Quality Data for Snap Lake, Northeast Lake, and Lake 13 (August and September 2012)

Sampling Area	Units (dw)	Target Detection Limit (DL)	Lake 13	Lake 13	Lake 13	Lake 13	Lake 13
Sampling Point			LK13-01	LK13-02	LK13-03	LK13-04	LK13-05
Sampling Date			18-AUG-12	19-AUG-12	19-AUG-12	20-AUG-12	20-AUG-12
Sample Control Number (SCN)			2012-9065	2012-9066	2012-9067	2012-9068	2012-9069
ALS Lab ID			L1200037-1	L1200037-2	L1200037-3	L1200037-4	L1200037-5
Water Depth (m)			12	10.5	12	10.3	14.7
Sediment Depth (cm)			Top 5 cm	Top 5 cm	Top 5 cm	Top 5 cm	Top 5 cm
Physical							
Moisture	%	0.25	NM	NM	NM	NM	NM
% Gravel (>2 mm)	% dw	0.10	0.62	<0.10	<0.10	<0.10	<0.10
% Sand (2.0 mm - 0.063 mm)	% dw	0.10	2.93	3.26	4.85	1.84	3.19
% Silt (0.063 mm - 0.004 mm)	% dw	0.10	78.5	78.6	83.4	79.1	77.7
% Clay (<0.004 mm)	% dw	0.10	18.0	18.1	11.7	19.1	19.1
% Fines (Silt + Clay)	% dw	0.10	96.5	96.7	95.1	98.2	96.8
Inorganic / Organic Carbon							
CaCO3 Equivalent	% dw	0.80	1.18	1.02	1.78	1.56	1.63
Total Carbon by Combustion	% dw	0.1	9.3	7.9	7.4	8.4	7.5
Inorganic Carbon	% dw	0.10	0.14	0.12	0.21	0.19	0.20
Total Organic Carbon	% dw	0.10	9.21	7.79	7.20	8.22	7.28
Nutrients							
Available Ammonium-N	mg/kg dw	1.6	25.5	15.0	25.4	22.8	41.7
Available Nitrate-N	mg/kg dw	4.0	<6.0	<4.0	<6.0	<6.0	<6.0
Total Kjeldahl Nitrogen	% dw	0.020	0.799	0.653	0.651	0.685	0.632
Total Nitrogen	% dw	0.020	0.821	0.615	0.627	0.699	0.632
Available Phosphate-P	mg/kg dw	4.0	21.1	50.3	<4.0	12.6	20.9
Available Potassium	mg/kg dw	20	122	102	207	130	113
Available Sulfate-S	mg/kg dw	3.0	28.1	62.0	21.4	9.2	9.5
Metals							
Aluminum (Al)	mg/kg dw	50	15,100	15,000	13,600	15,200	16,600
Antimony (Sb)	mg/kg dw	0.10	0.17	0.12	0.15	0.14	0.13
Arsenic (As)	mg/kg dw	0.10	9.90	4.97	37.2	20.5	15.9
Barium (Ba)	mg/kg dw	0.50	132	121	1400	174	173
Beryllium (Be)	mg/kg dw	0.20	1.01	0.83	0.75	0.74	0.79
Bismuth (Bi)	mg/kg dw	0.20	0.99	0.64	0.78	0.91	0.98
Boron (B)	mg/kg dw	2.0	6.4	7.4	6.2	7.6	6.1
Cadmium (Cd)	mg/kg dw	0.10	0.42	0.36	0.65	0.45	0.58
Calcium (Ca)	mg/kg dw	100	2,520	2,330	2,300	2,320	2,340
Cesium (Cs)	mg/kg dw	0.10	3.00	3.63	2.92	3.51	3.81
Chromium (Cr)	mg/kg dw	0.50	48.1	72.0	47.3	53.6	57.6
Cobalt (Co)	mg/kg dw	0.10	31.5	14.2	52.2	33.7	40.0
Copper (Cu)	mg/kg dw	0.50	66.1	54.2	69.6	66.2	68.3
Iron (Fe)	mg/kg dw	200	48,800	27,700	93,100	60,200	57,600
Lead (Pb)	mg/kg dw	0.50	10.4	5.81	6.41	7.69	8.92
Lithium (Li)	mg/kg dw	0.50	31.9	39.5	30.1	35.4	40.8
Magnesium (Mg)	mg/kg dw	20	4,800	6,000	4,490	5,310	6,030
Manganese (Mn)	mg/kg dw	1.0	1,660	343	46,600	4,840	5,570
Mercury (Hg)	mg/kg dw	0.050	0.065	<0.050	<0.050	<0.050	<0.050
Molybdenum (Mo)	mg/kg dw	0.10	7.45	4.63	11.5	8.12	7.47
Nickel (Ni)	mg/kg dw	0.50	43.3	58.8	71.8	56.3	62.6
Phosphorus (P)	mg/kg dw	100	1,250	860	1,190	1,100	1,320
Potassium (K)	mg/kg dw	100	2,290	3,100	2,800	2,880	3,250
Rubidium (Rb)	mg/kg dw	1.0	19.4	25.1	21.6	23.5	26.2
Selenium (Se) - ICP-MS	mg/kg dw	0.20	1.14	0.74	1.05	1.04	1.17
Selenium (Se) - CCMS	mg/kg dw	0.10	0.85	0.55	0.88	0.76	0.83
Silver (Ag)	mg/kg dw	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Sodium (Na)	mg/kg dw	100	170	170	160	160	180
Strontium (Sr)	mg/kg dw	1.0	21.0	18.4	40.8	21.0	21.4
Thallium (Tl)	mg/kg dw	0.050	0.160	0.119	0.360	0.212	0.271
Tin (Sn)	mg/kg dw	2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium (Ti)	mg/kg dw	1.0	373	525	378	417	501
Uranium (U)	mg/kg dw	0.050	11.3	6.38	6.27	6.79	6.71
Vanadium (V)	mg/kg dw	0.20	49.1	45.4	41.4	47.9	52.0
Zinc (Zn)	mg/kg dw	5.0	114	95.2	120	117	112

ALS = ALS Laboratory Group; RPD = relative percent differences; SNAP = Snap Lake; NWA = northwest arm; CVAAS = cold vapour atomic absorption spectroscopy; ICP-AES = inductively coupled plasma atomic emission spectroscopy; ICP-MS = inductively coupled plasma mass spectrometry; CCMS = collision cell inductively coupled plasma mass spectrometry; $CaCO_3$ = calcium carbonate; mm = millimetres; cm = centimetres; m = metres; % = percent; dw = dry weight; mg/kg dw = milligrams per kilogram dry weight; % dw = percent dry weight; < = less than; > = greater than; dash (-) = not applicable; NM = Not measured, NEL = Northeast Lake: DL = detection limit: LK13 = Lake 13: SCN = sample control number.

Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012

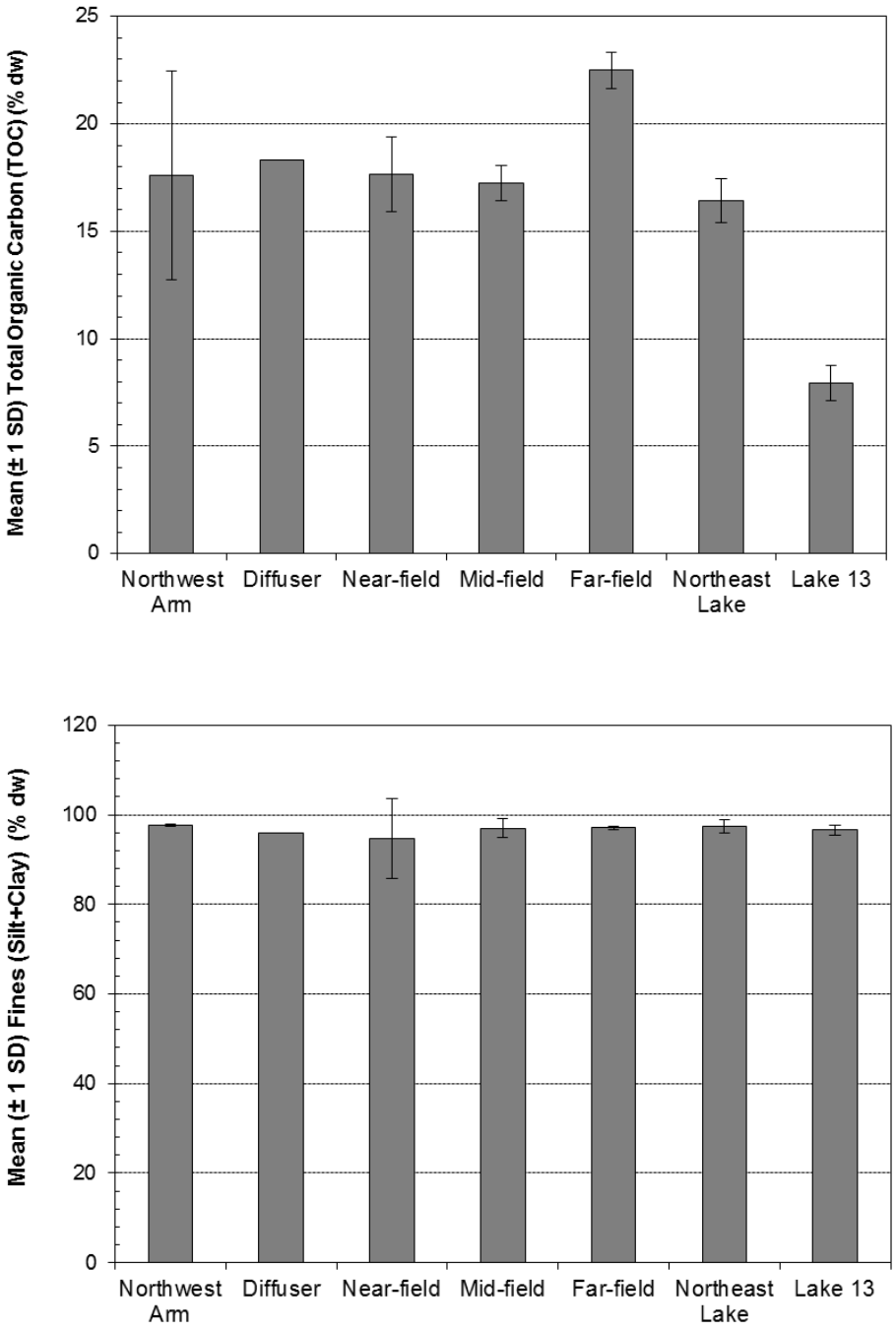
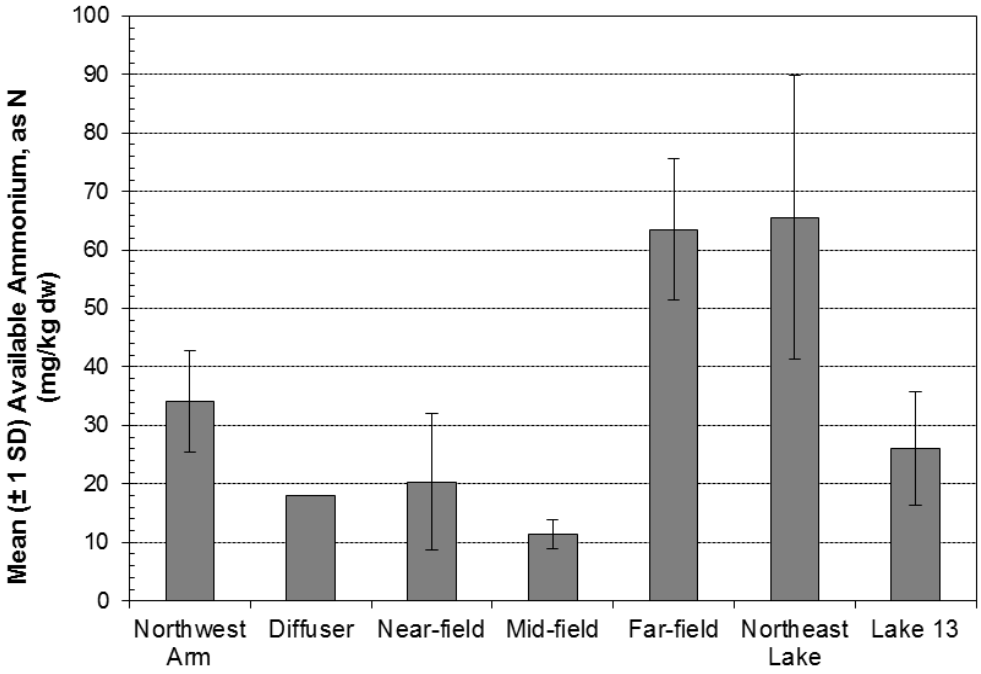


Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012



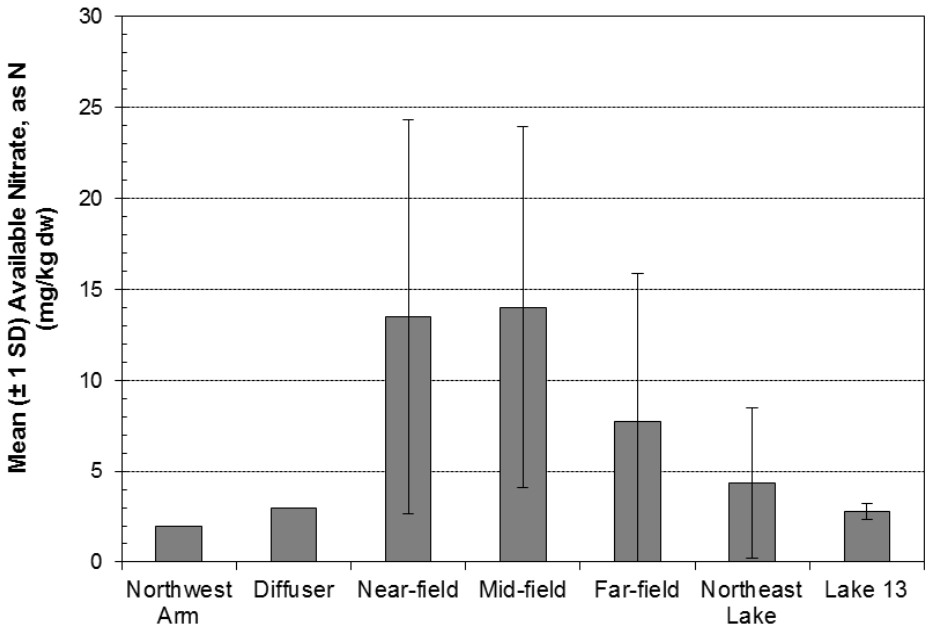


Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012

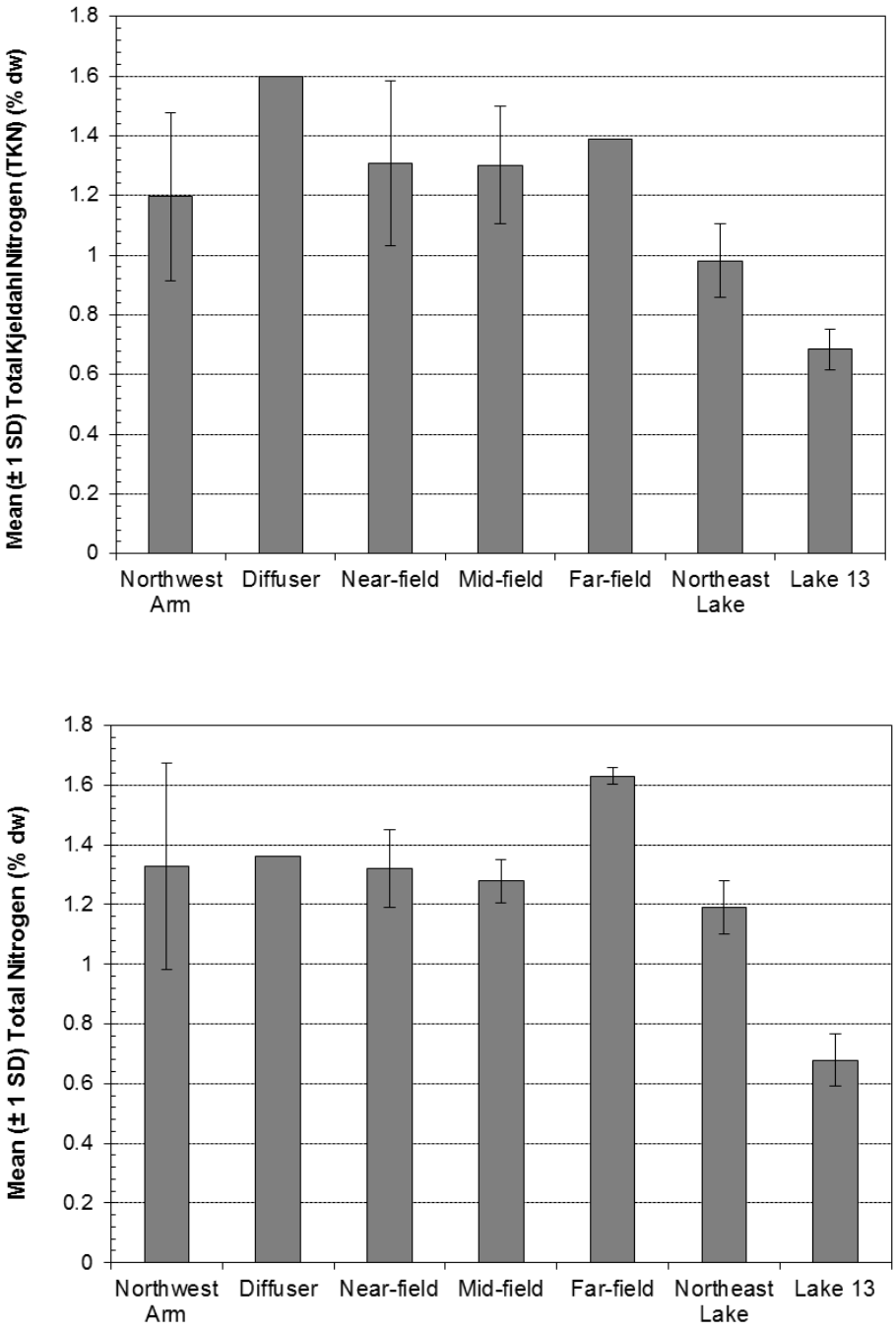


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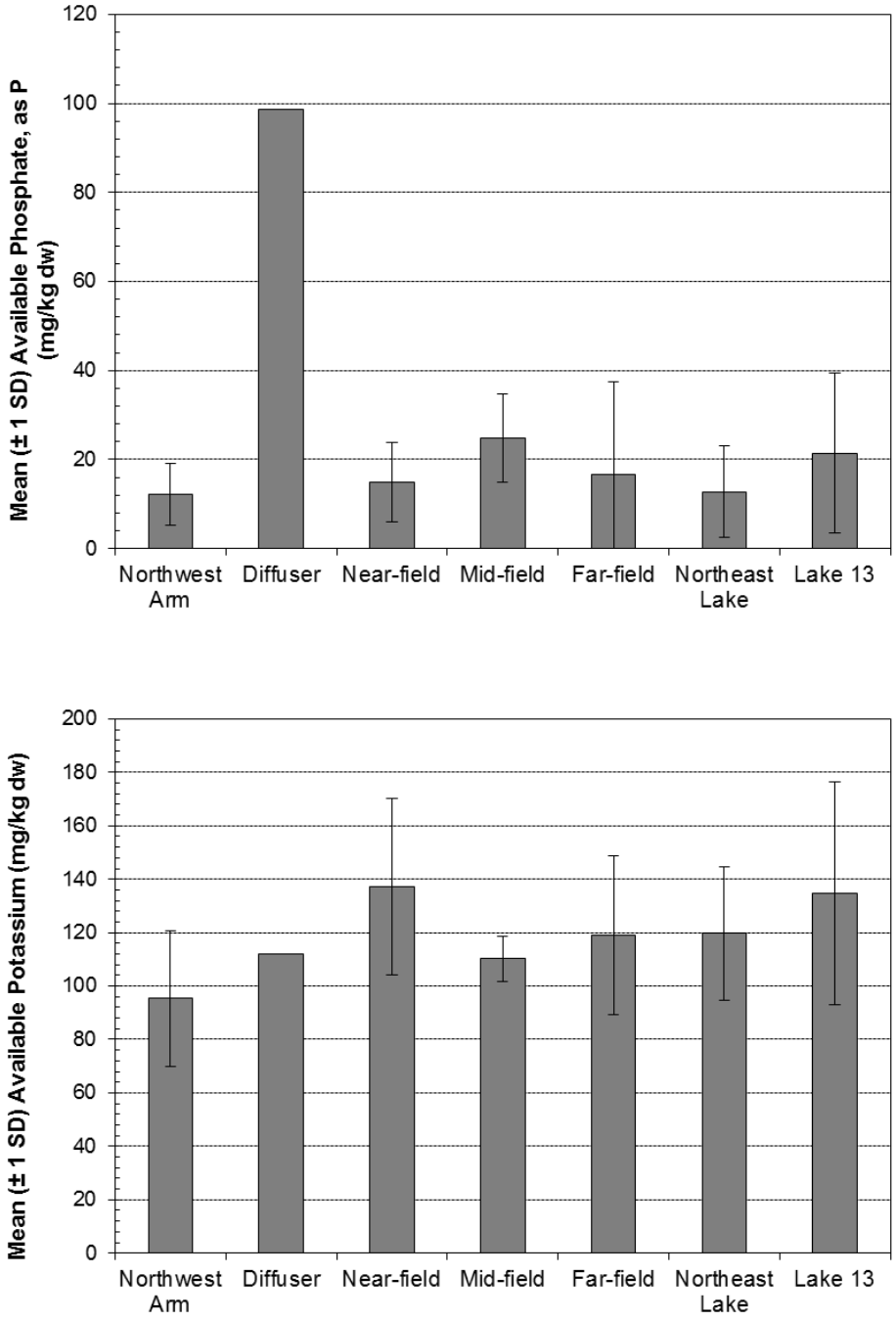
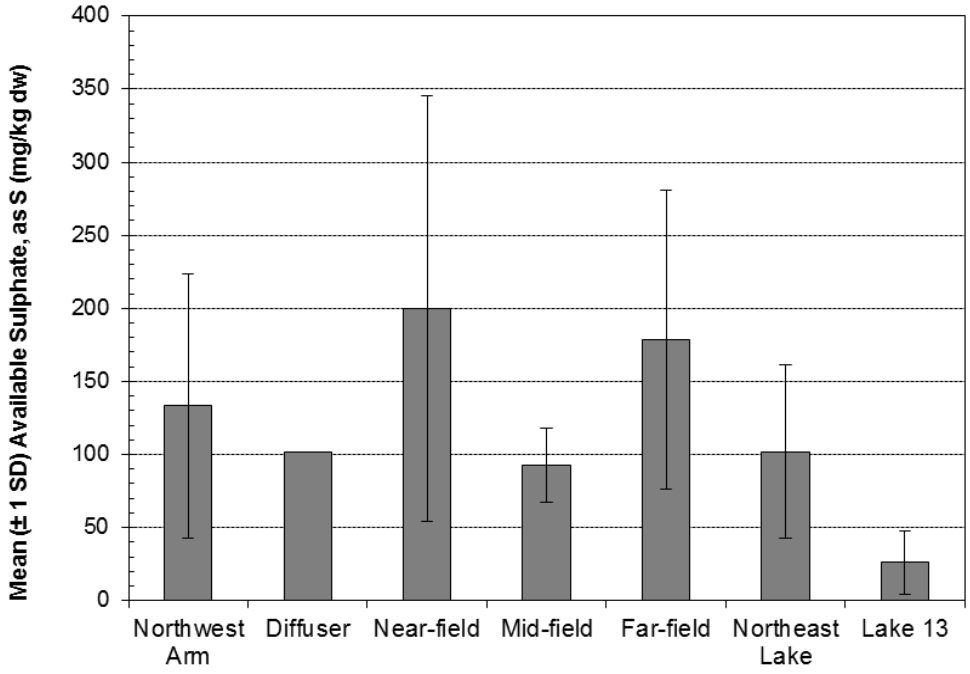


Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012



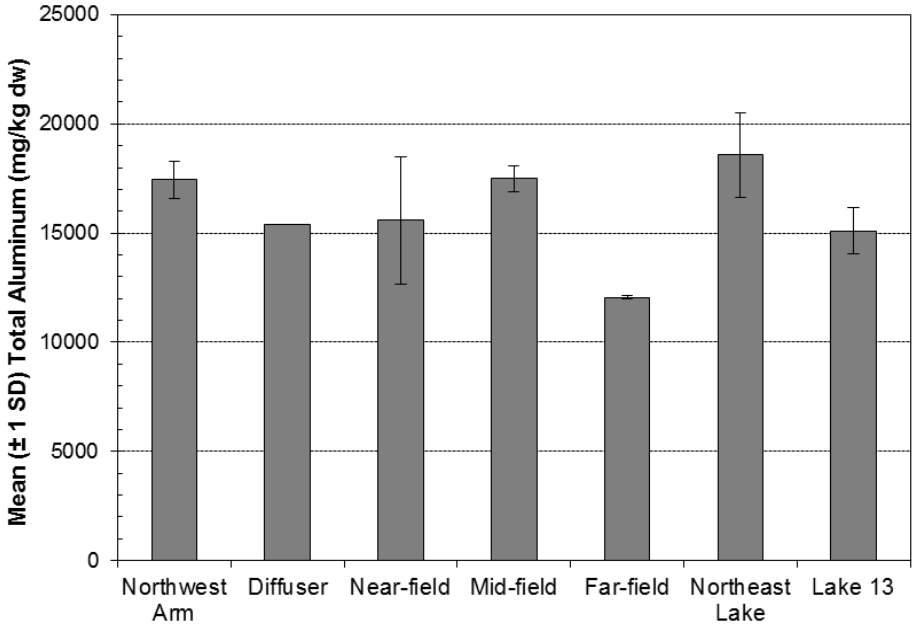
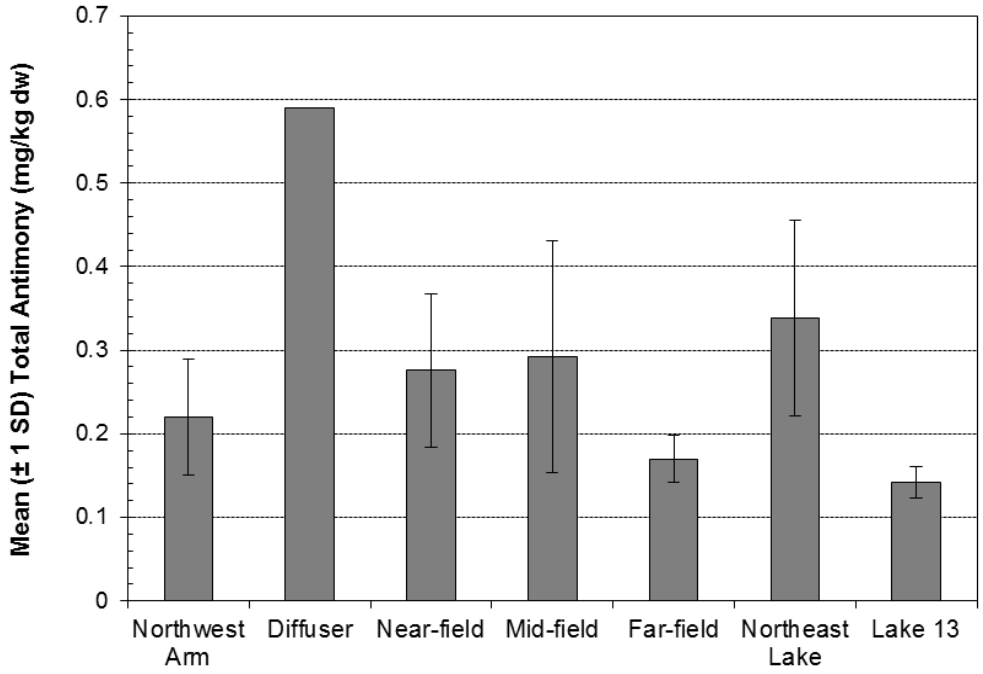


Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012



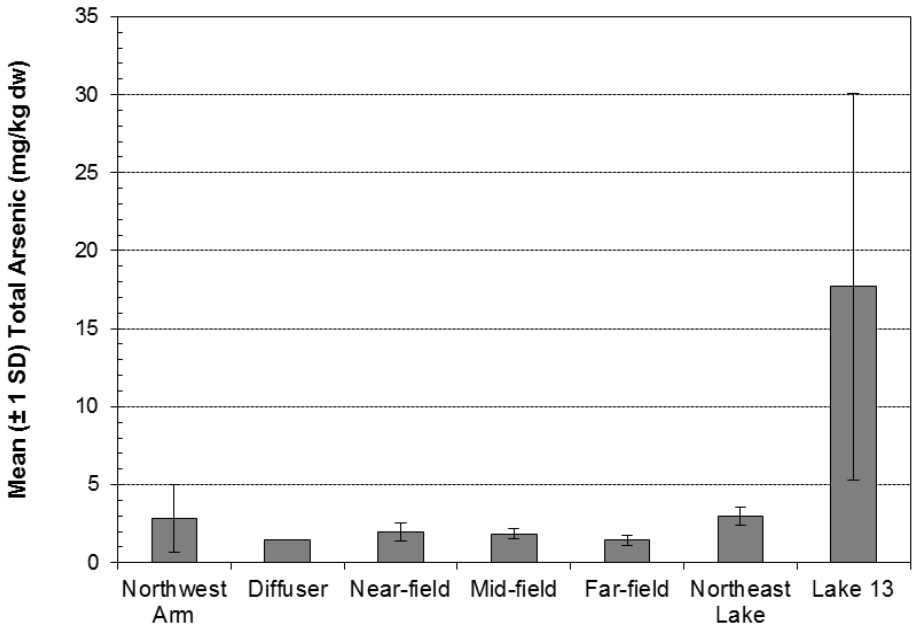


Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012

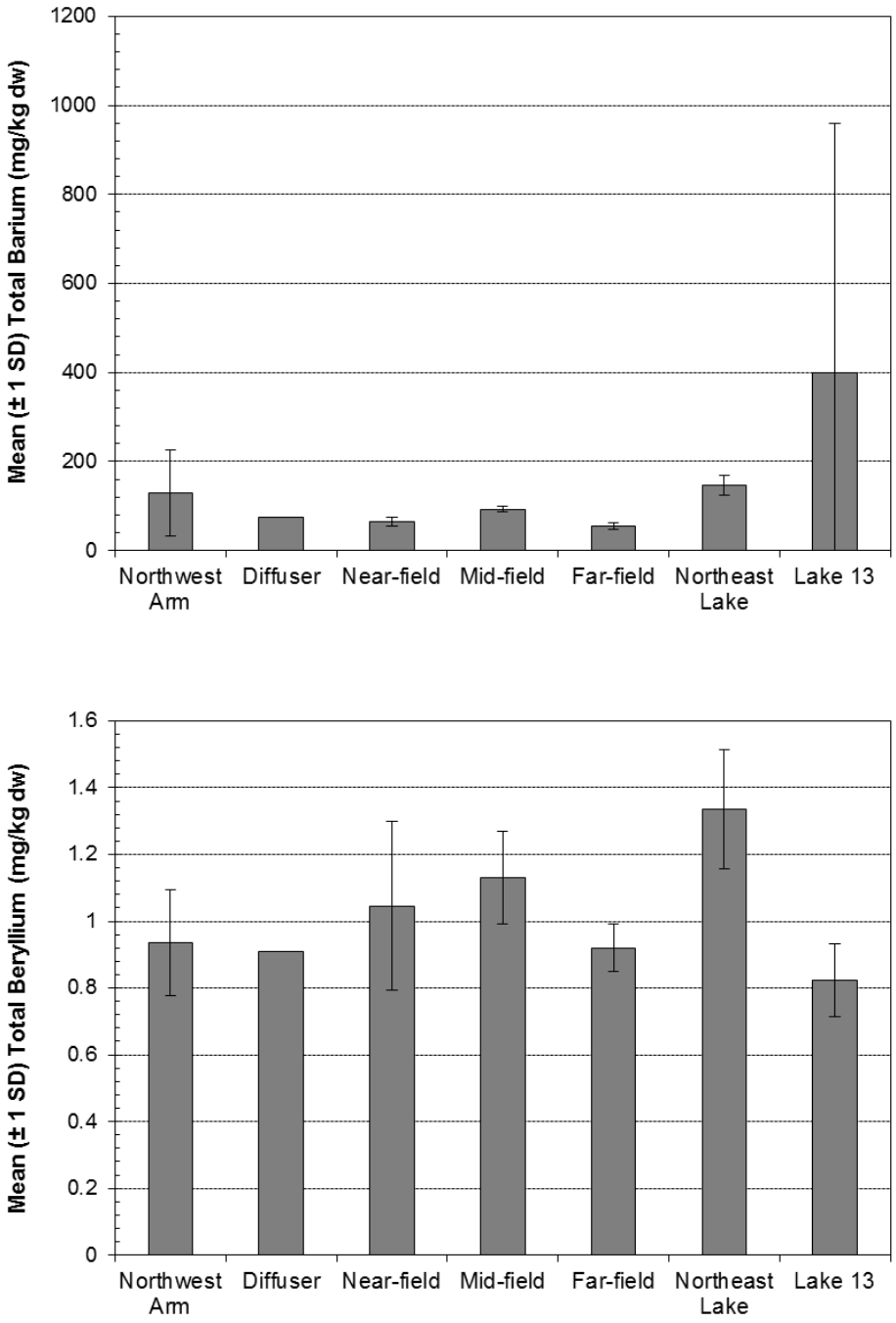


Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012

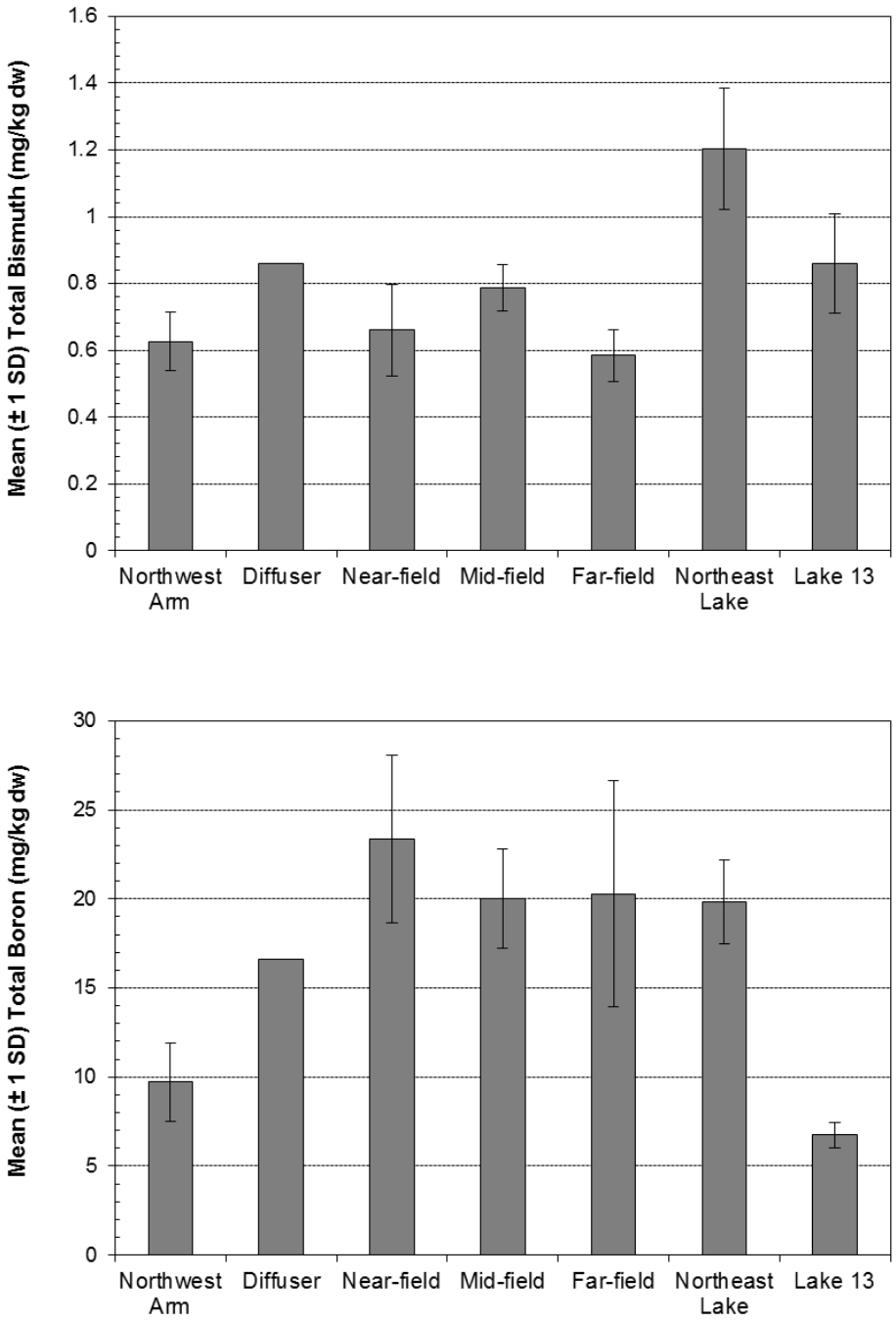


Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012

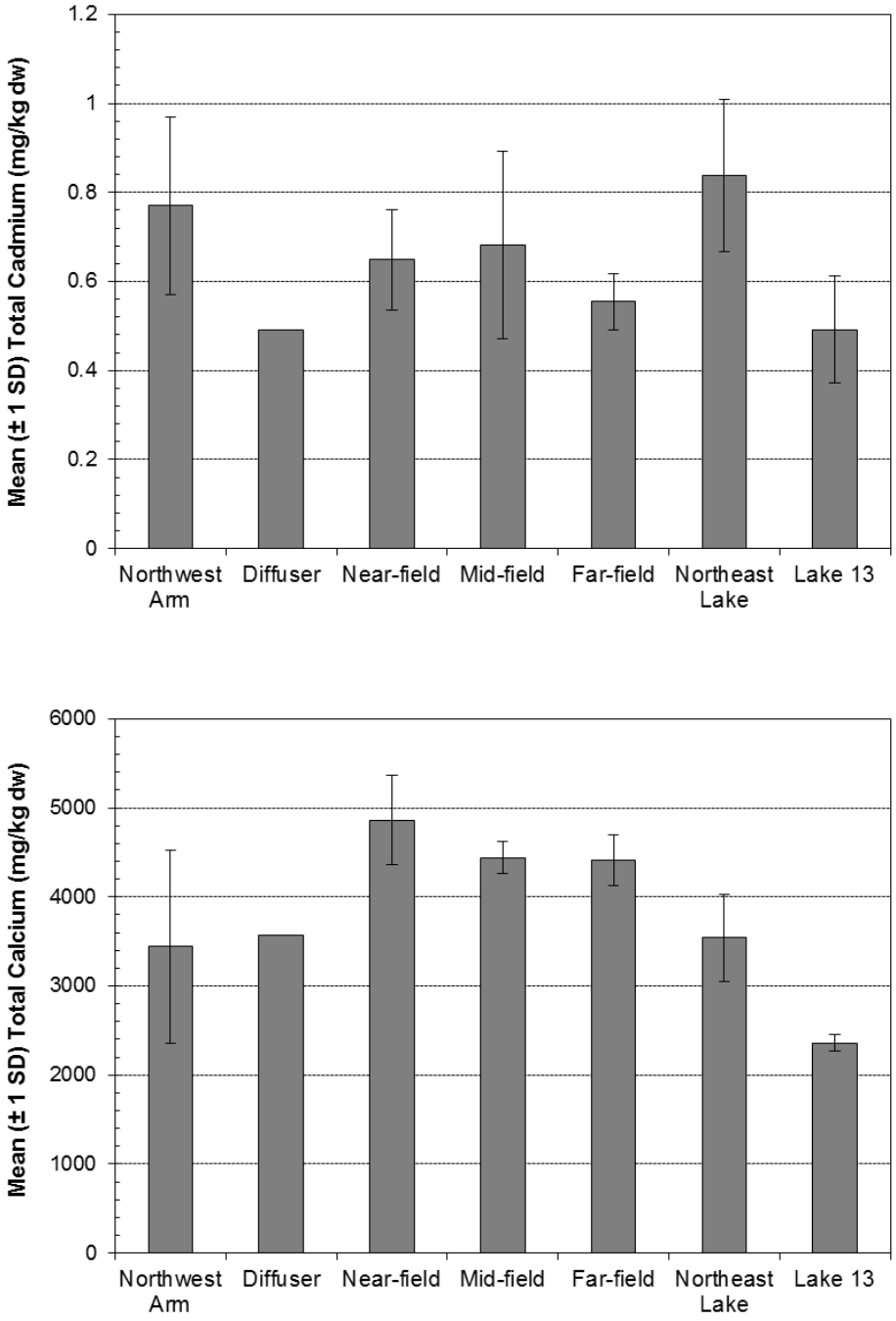


Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012

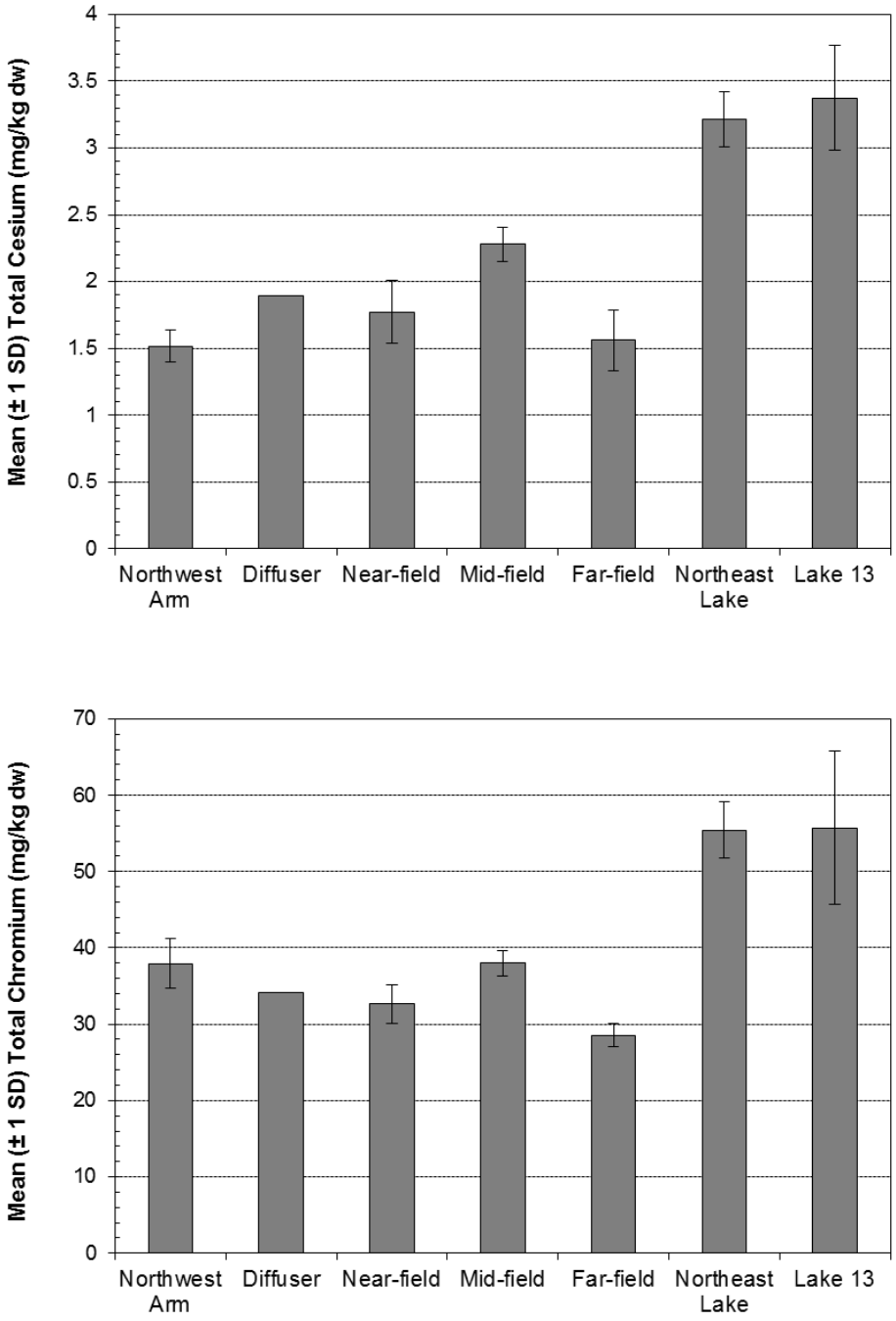


Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012

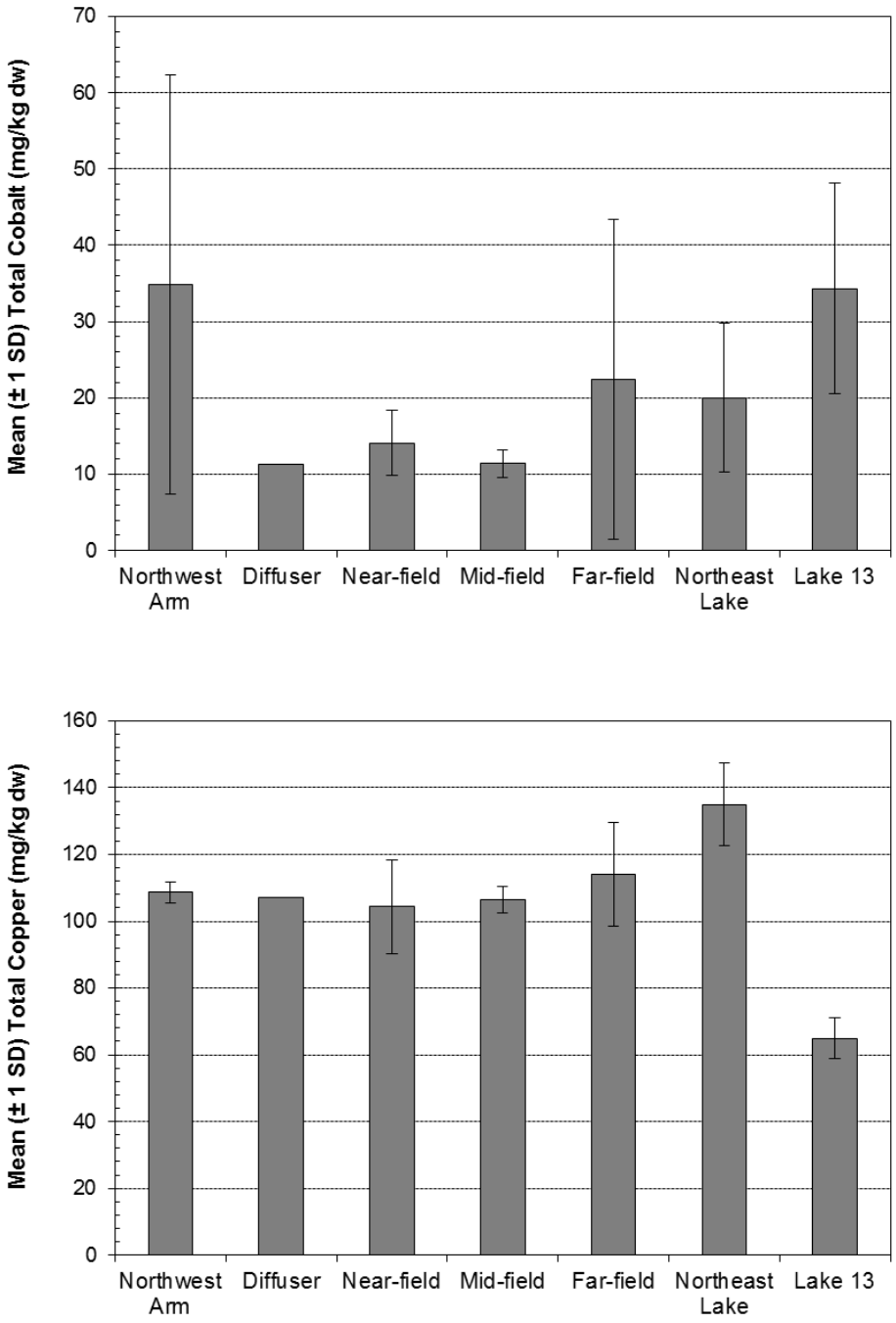


Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012

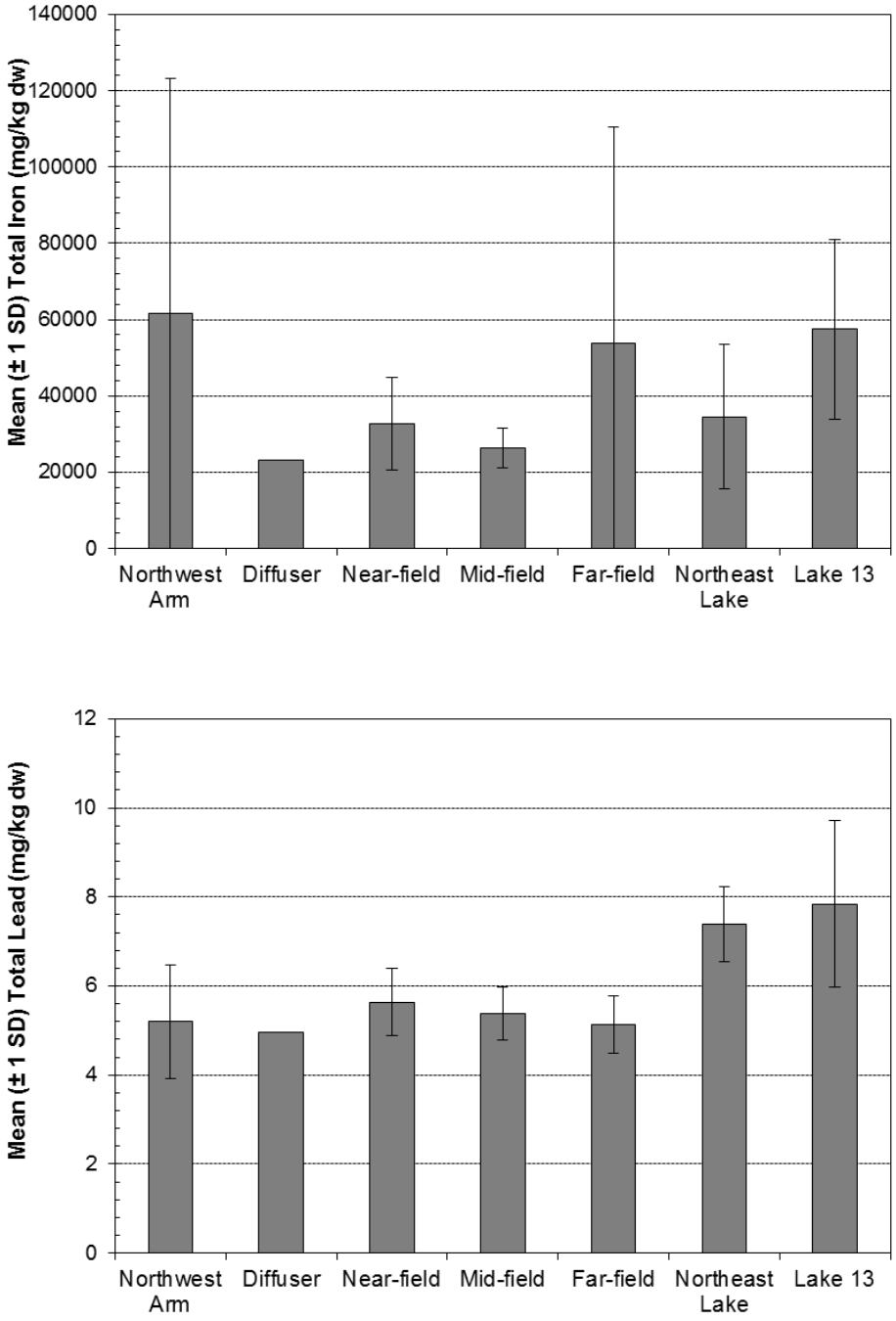


Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012

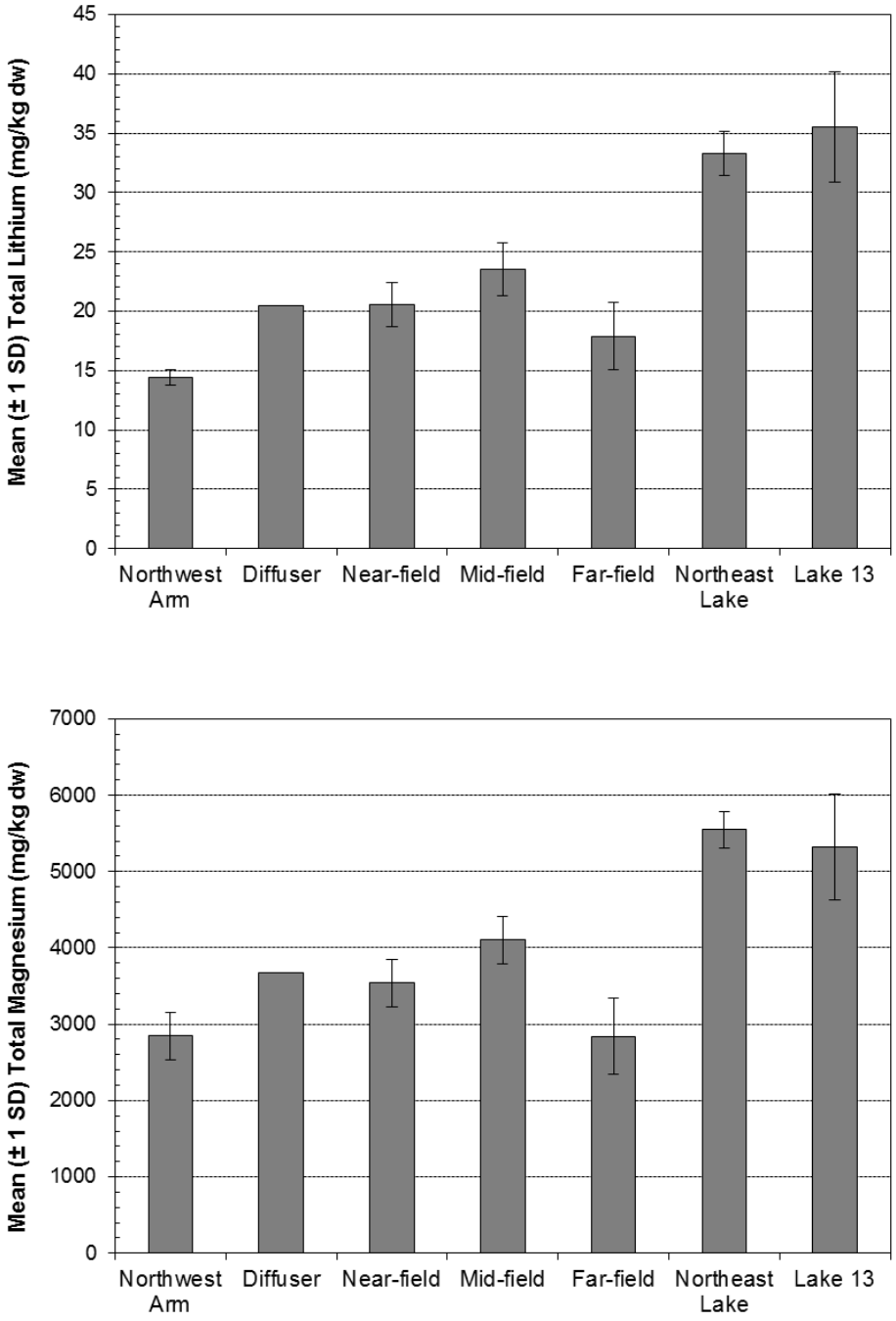


Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012

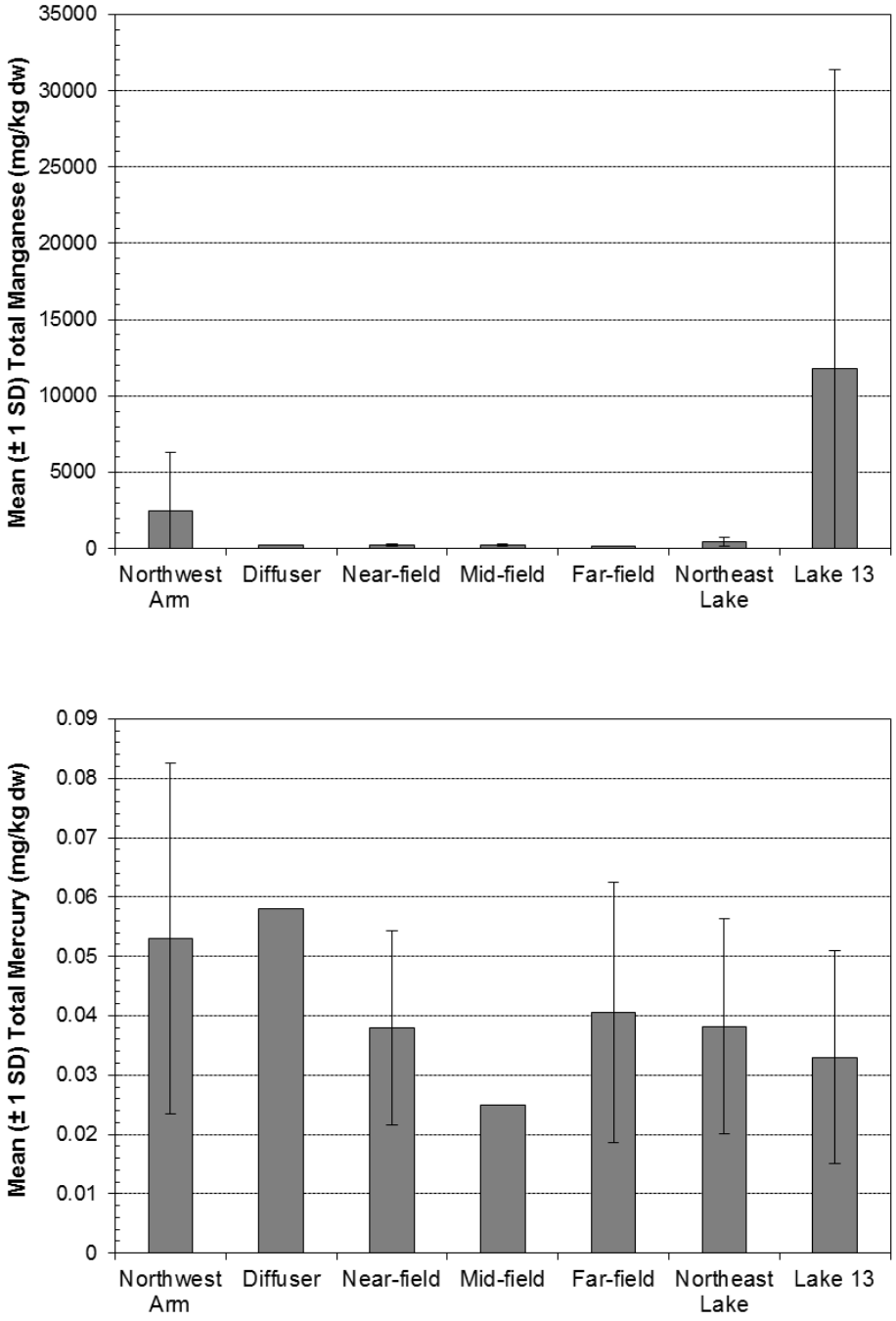


Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012

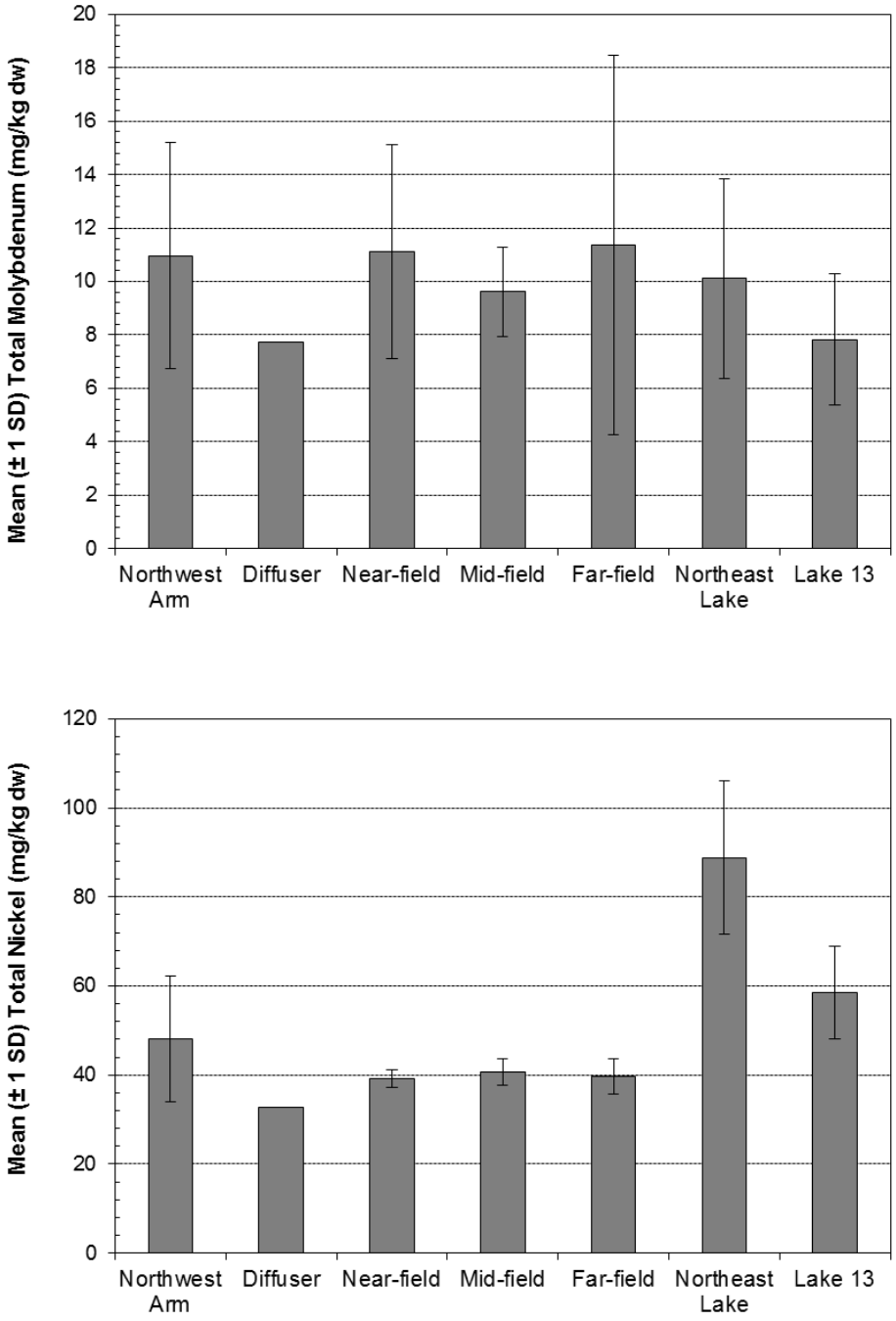


Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012

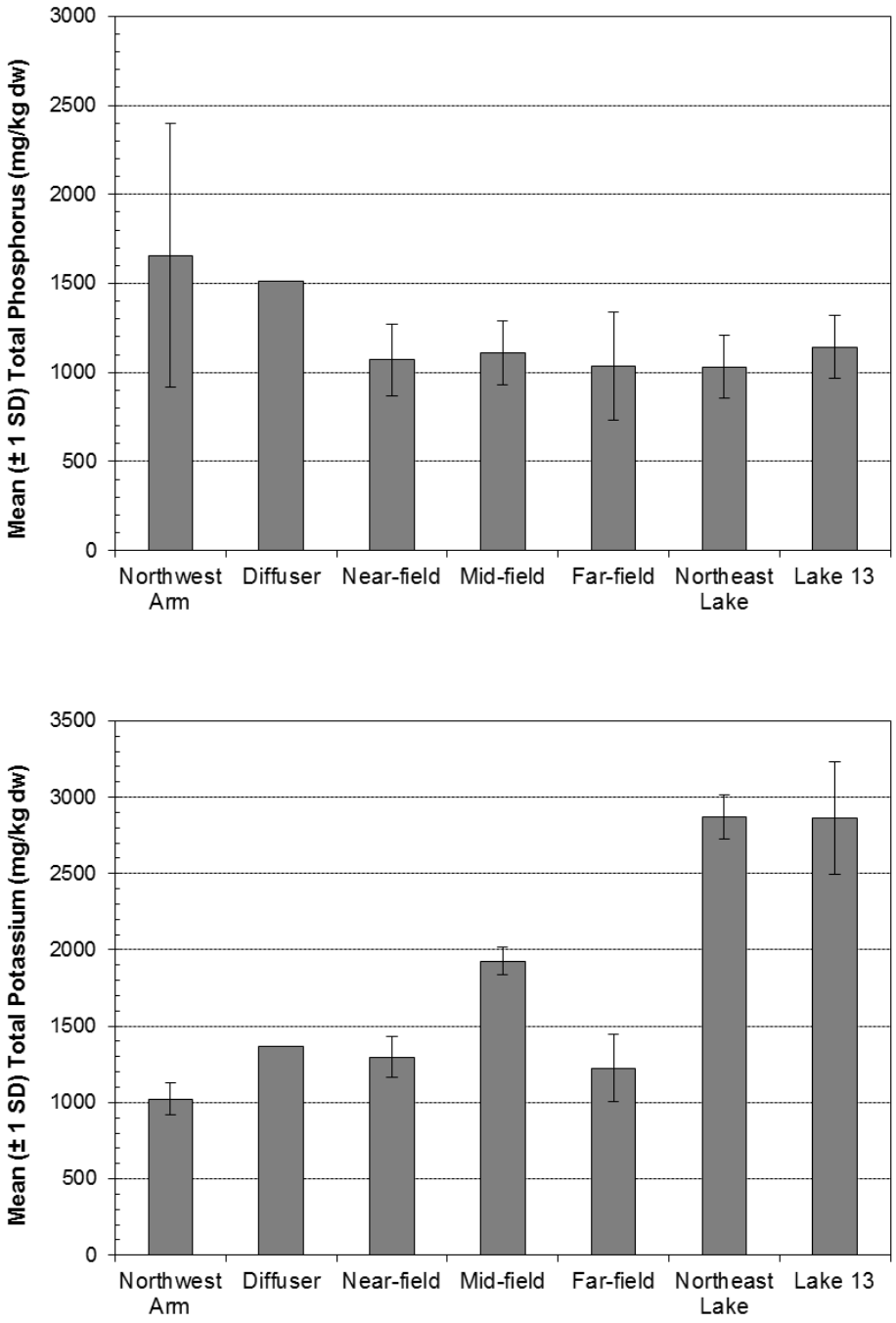


Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012

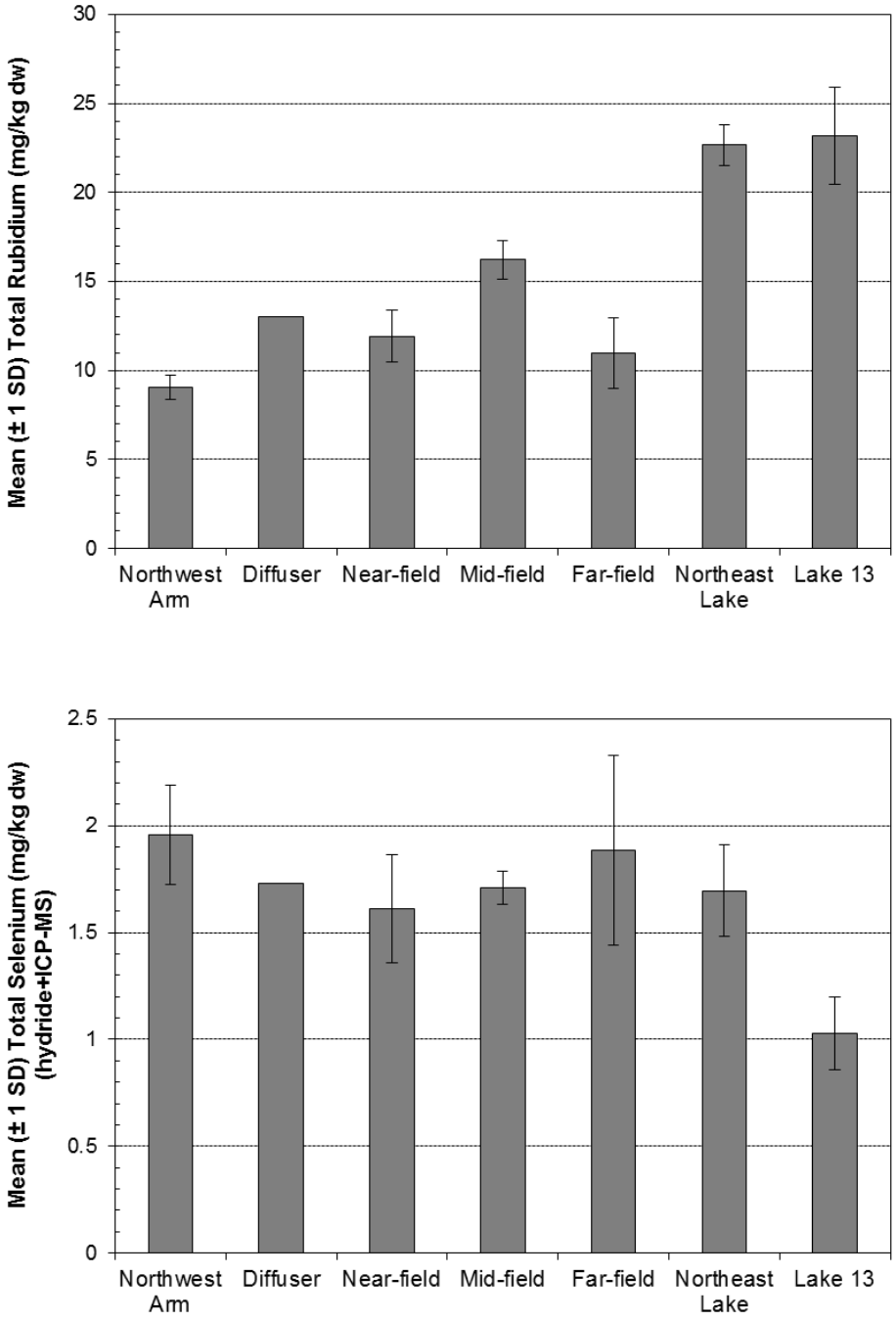


Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012

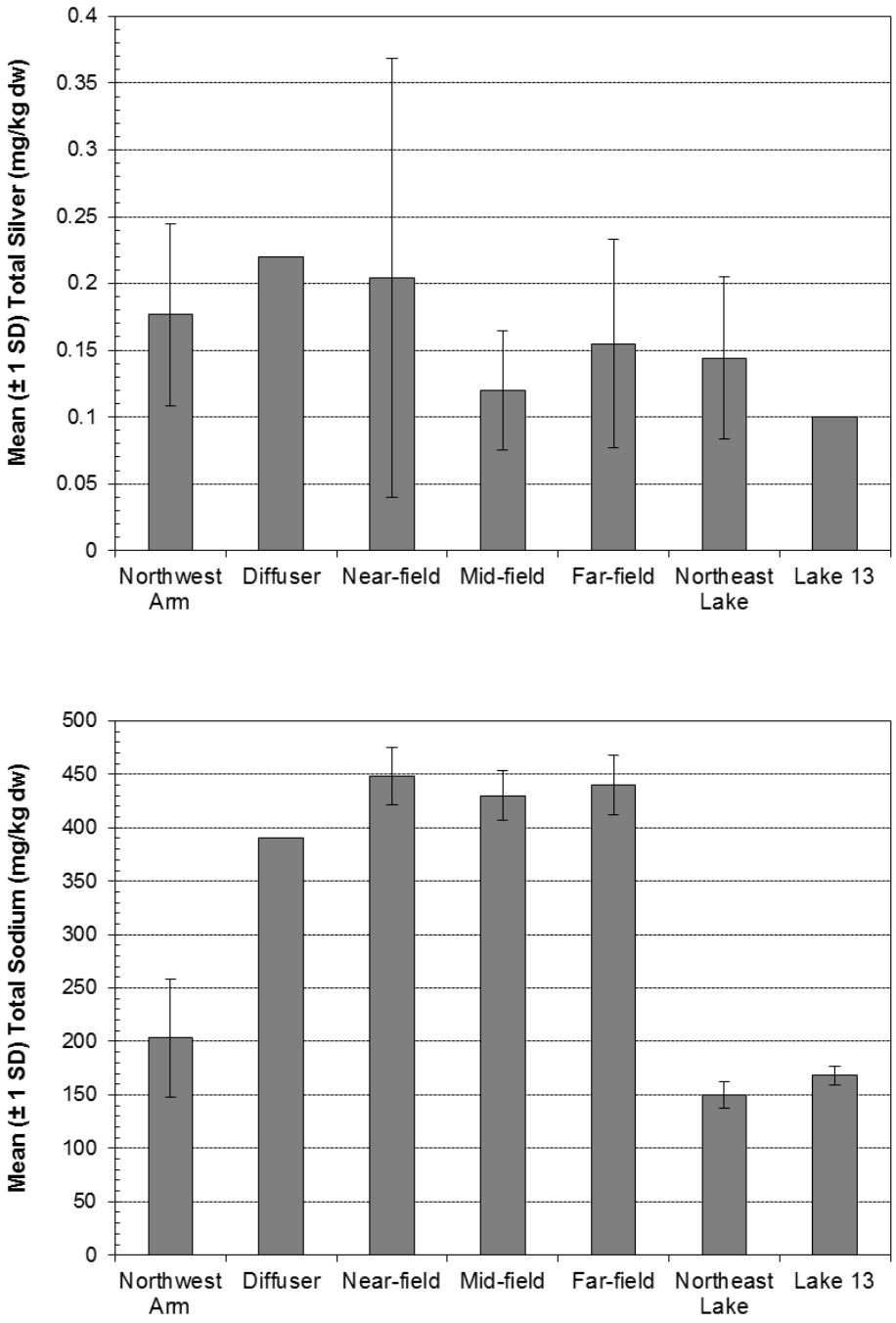


Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012

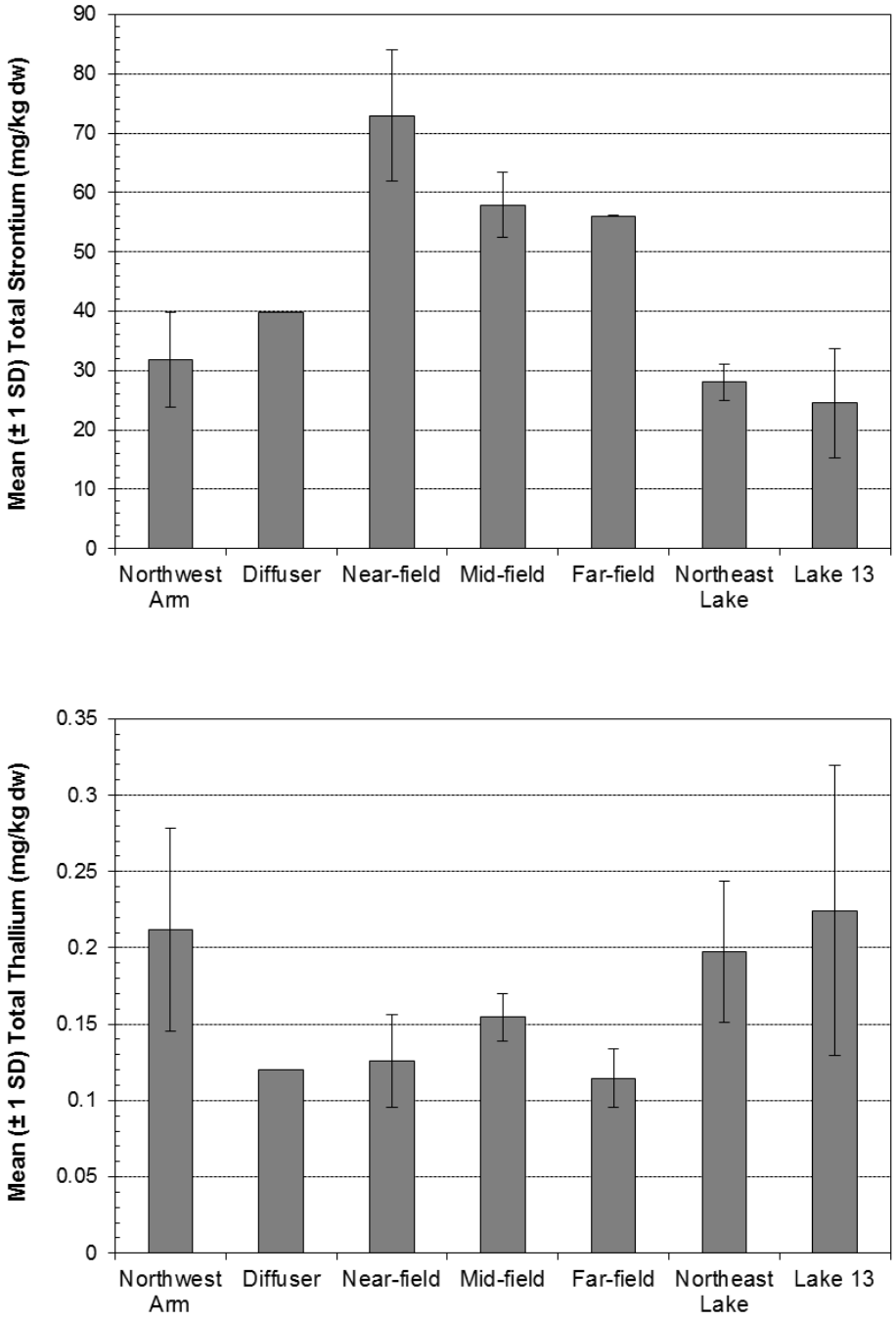


Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012

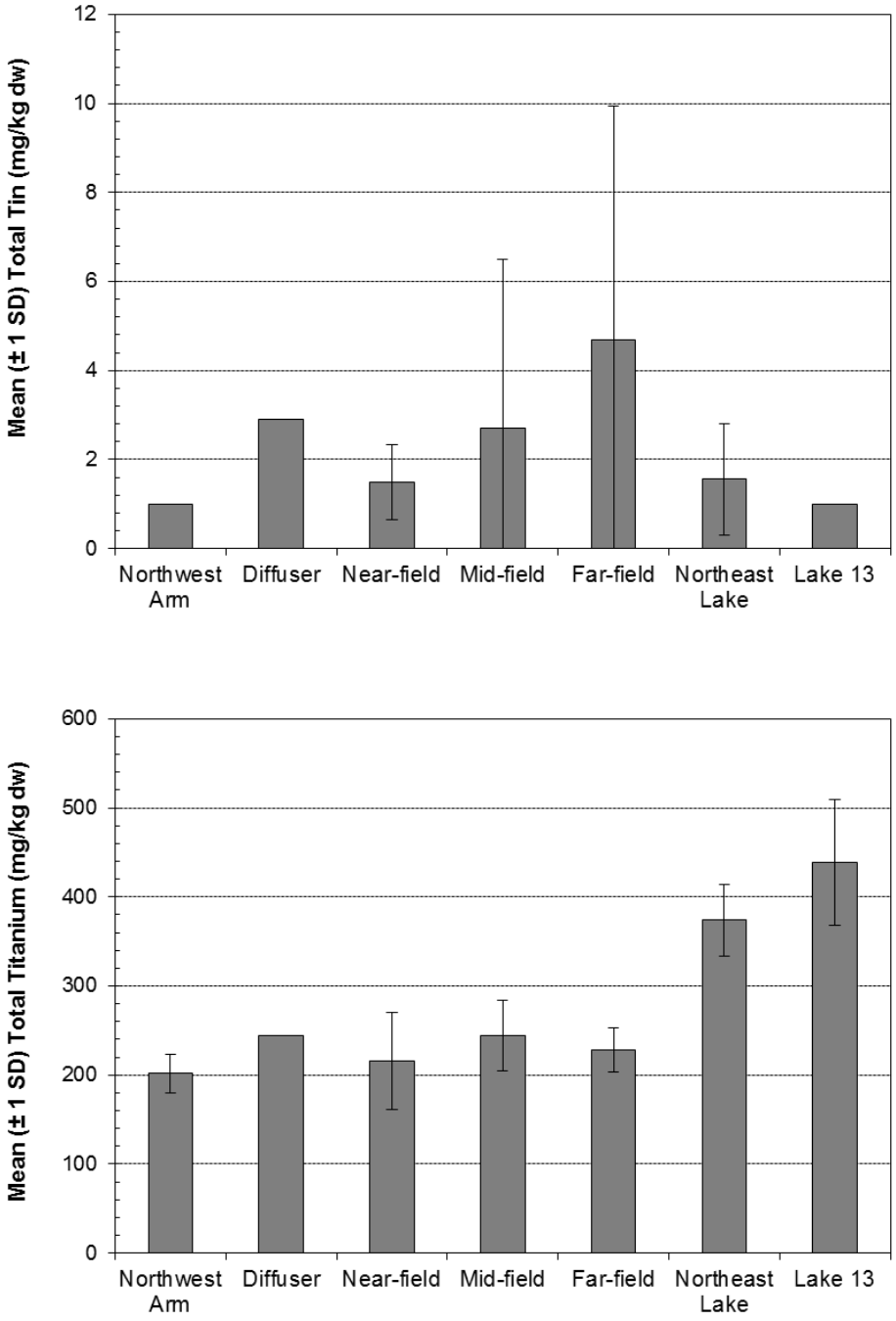


Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012

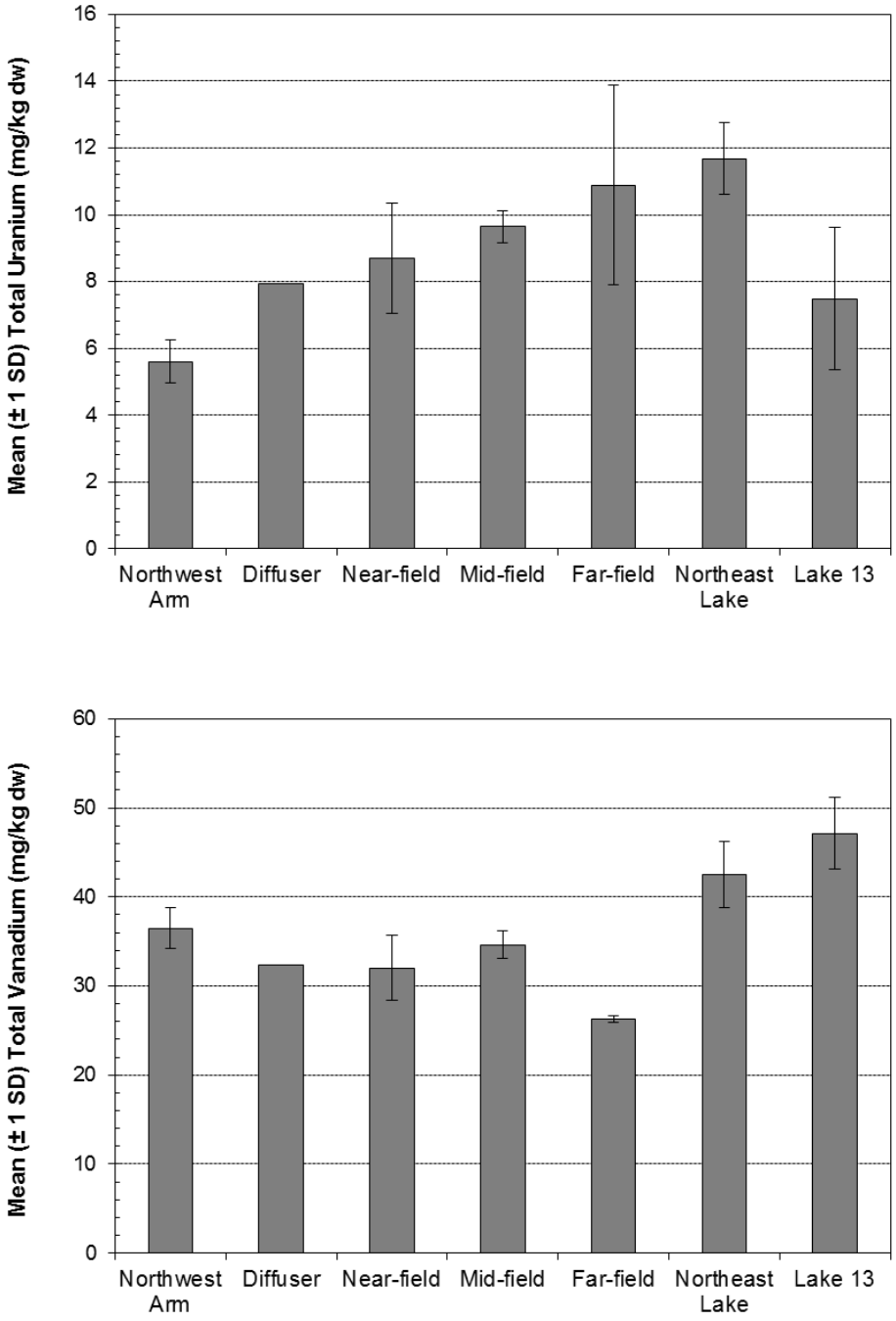
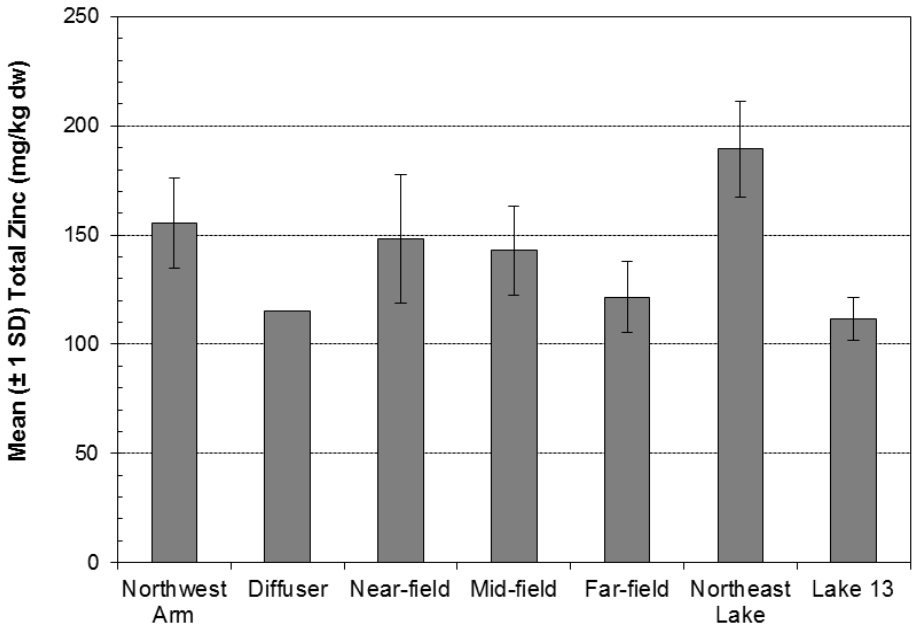


Figure 4B-1 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, Northeast Lake, and Lake 13, August and September 2012



SD = standard deviation; % dw = percent dry weight; mg/kg dw = milligrams per kilogram dry weight.

Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012

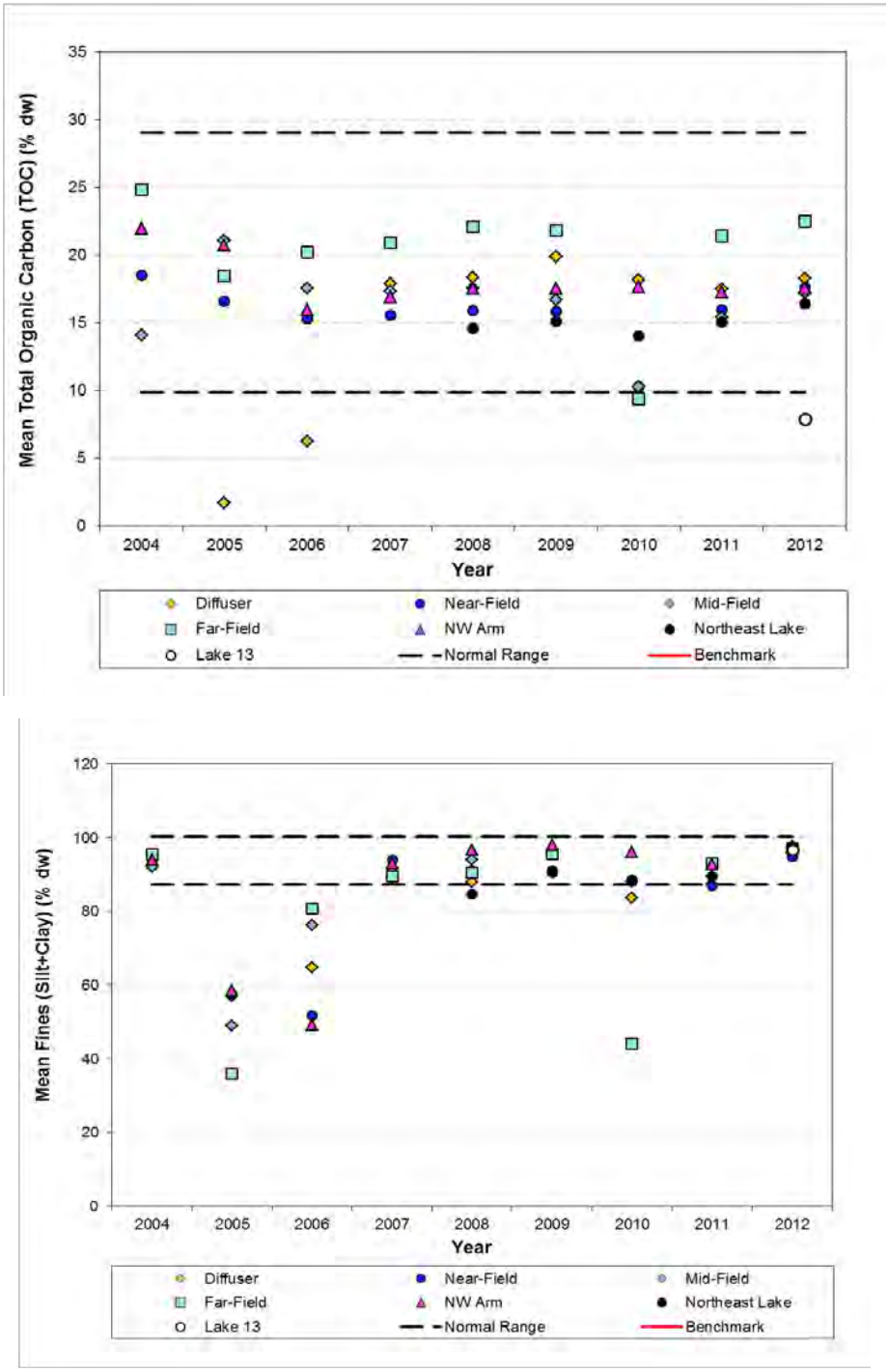
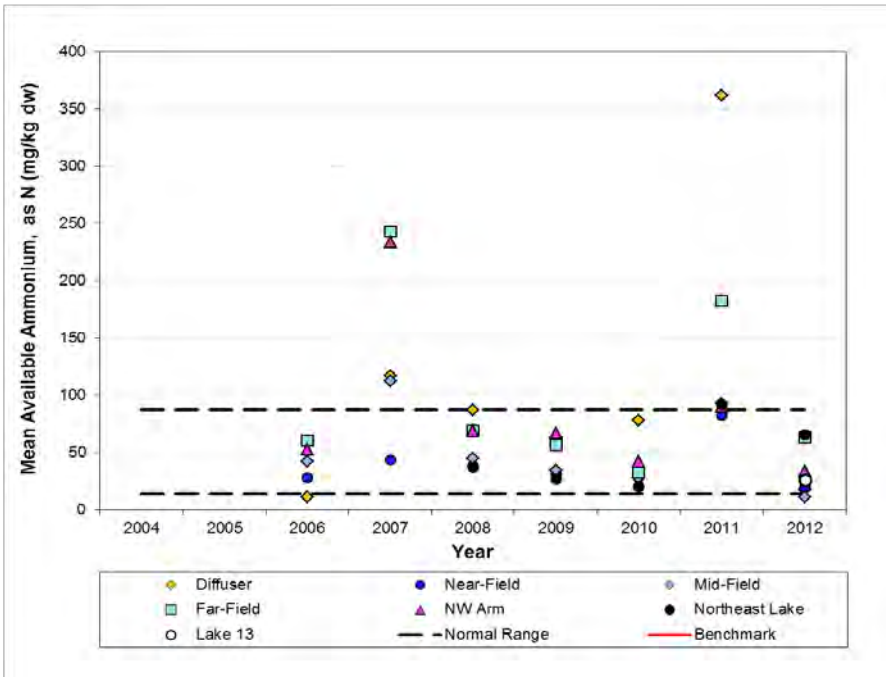


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



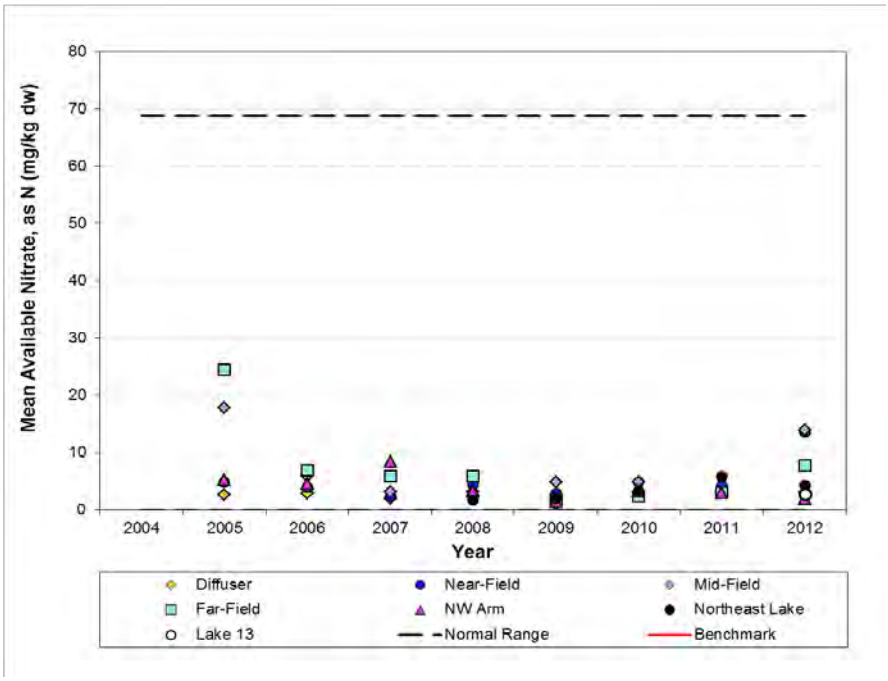
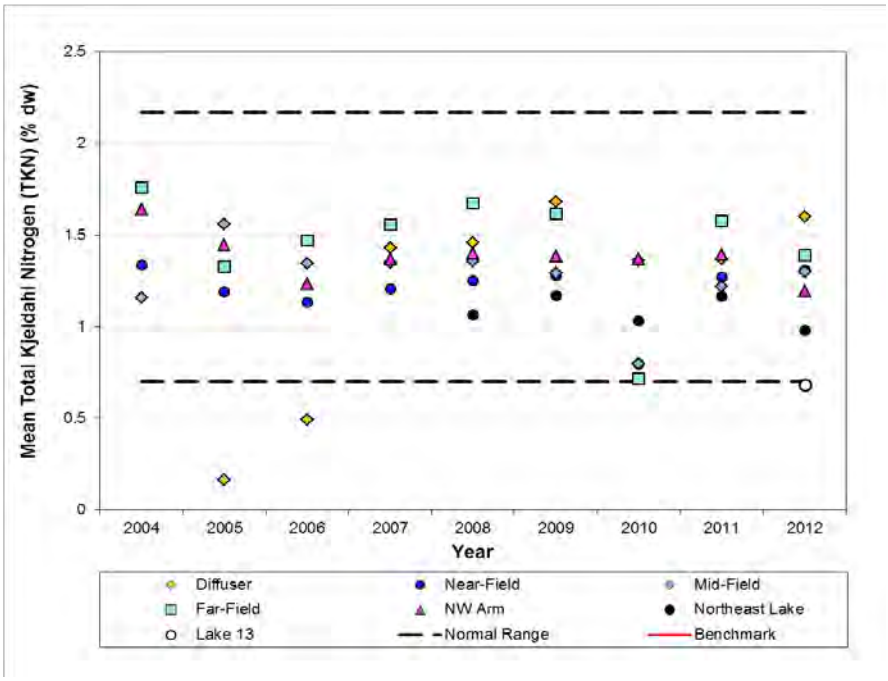


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



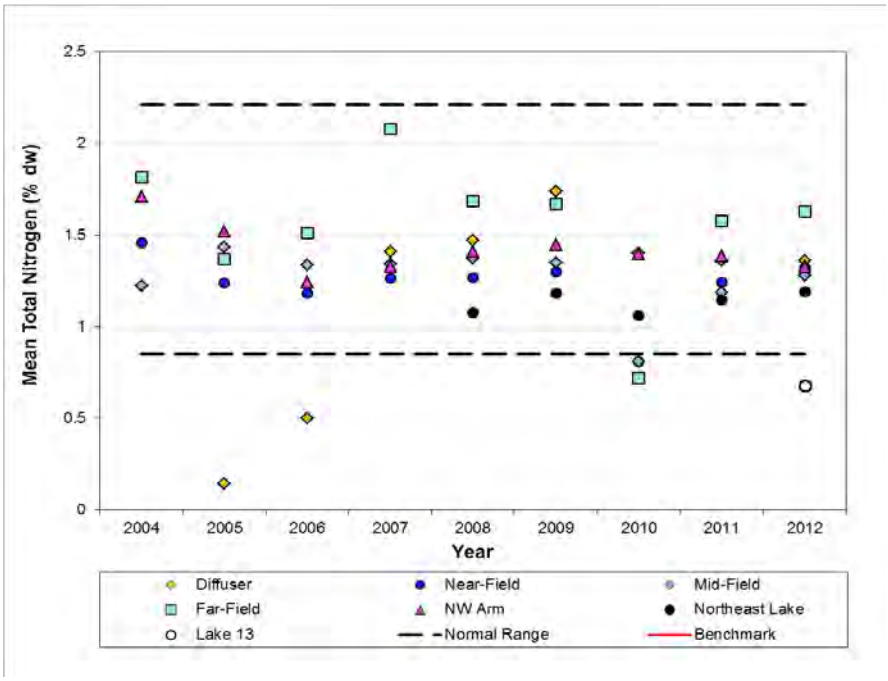
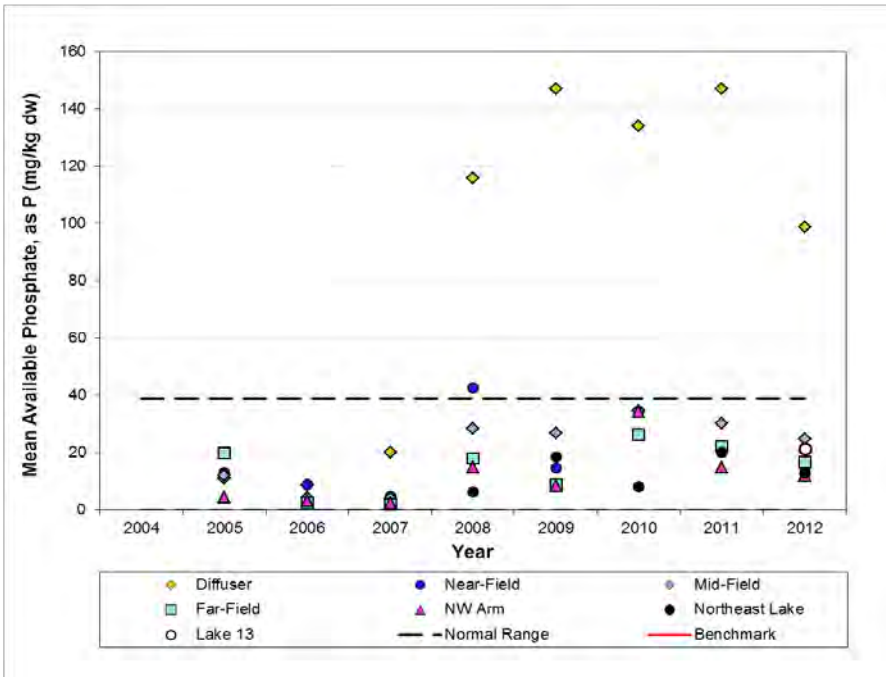


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



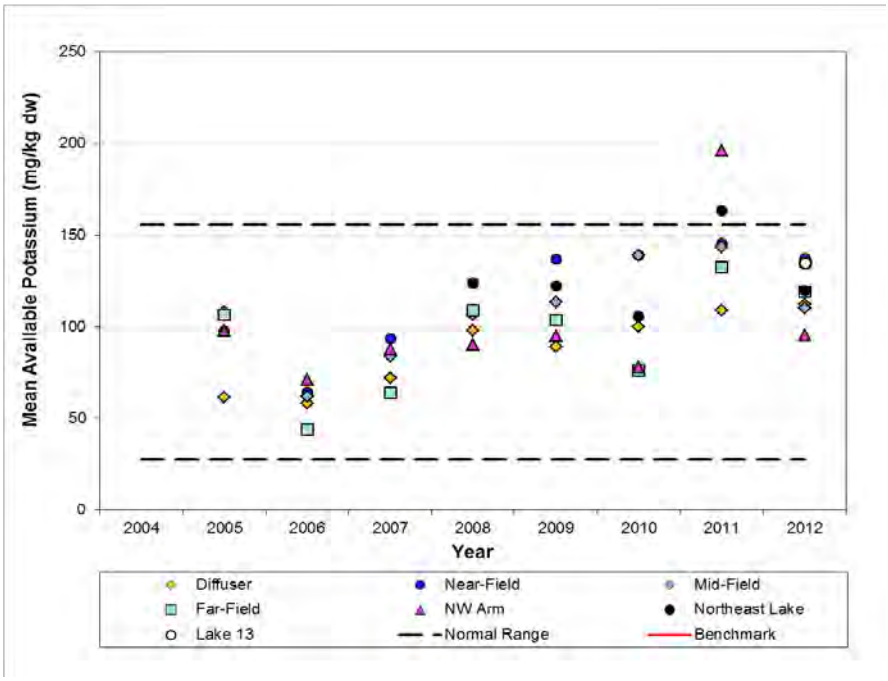
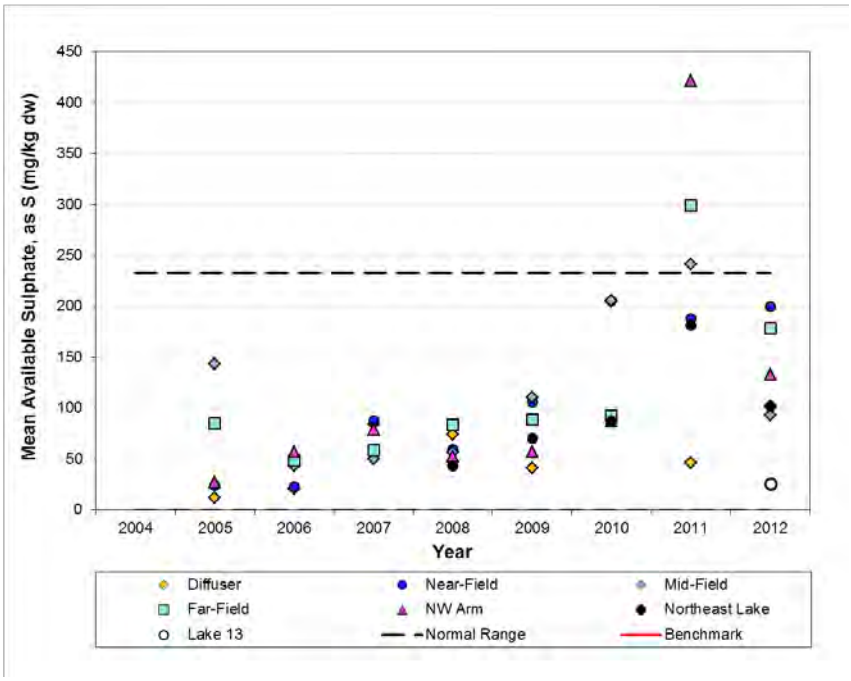


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



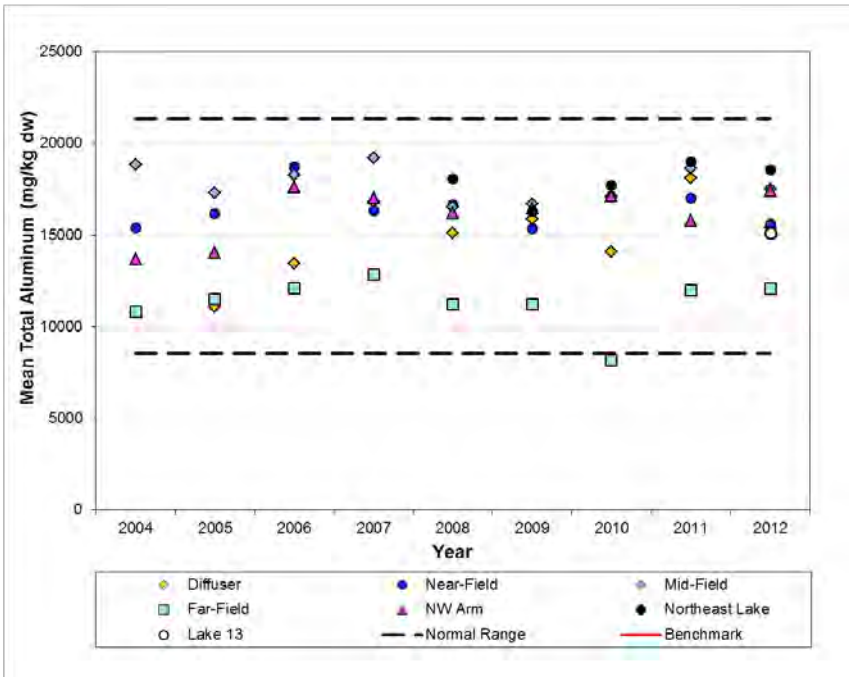
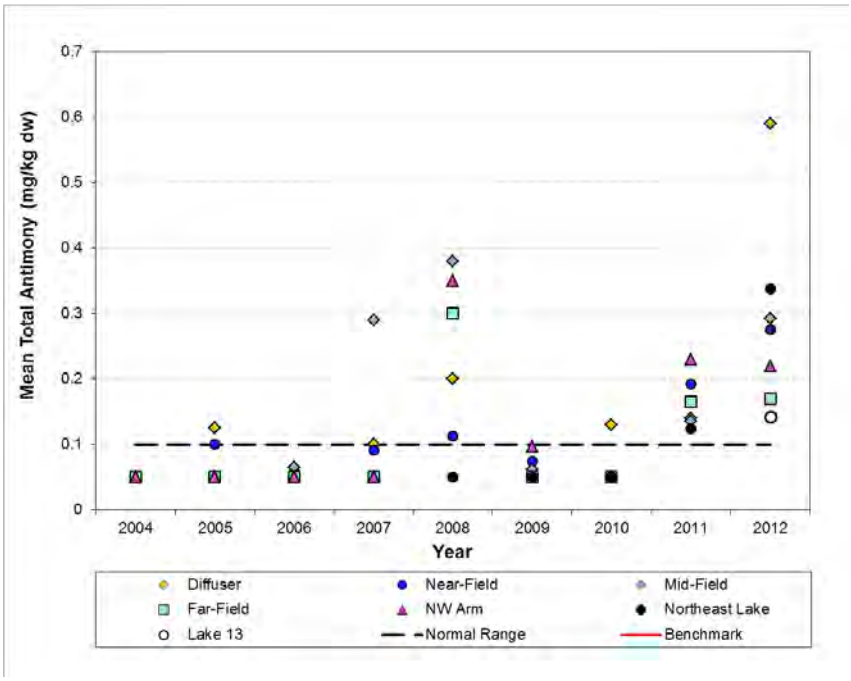


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



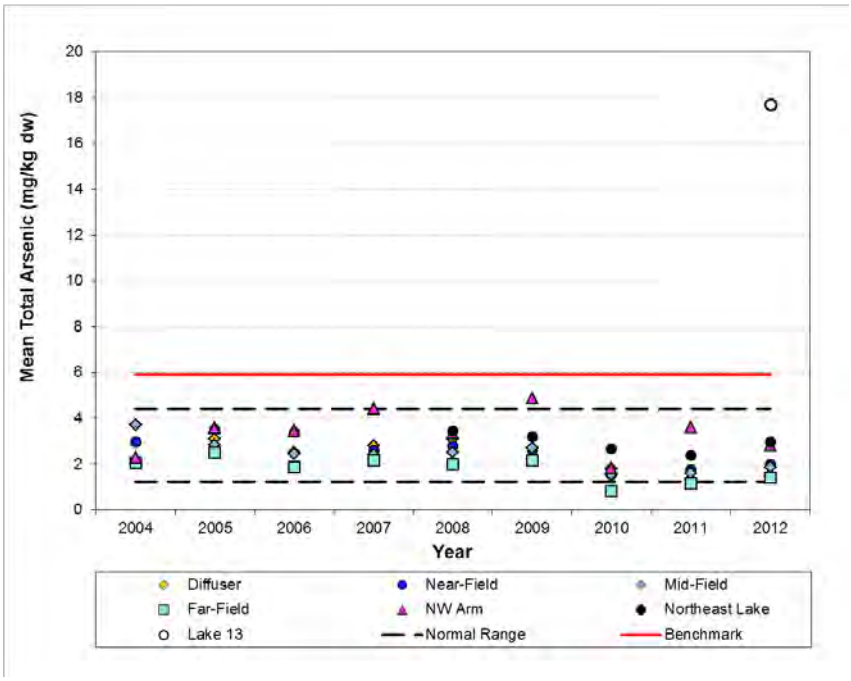
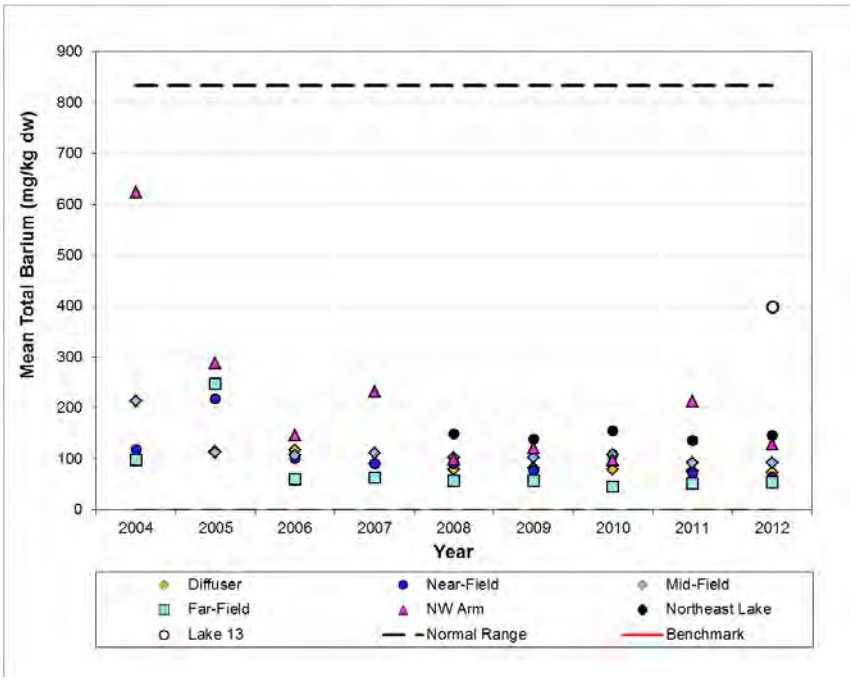


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



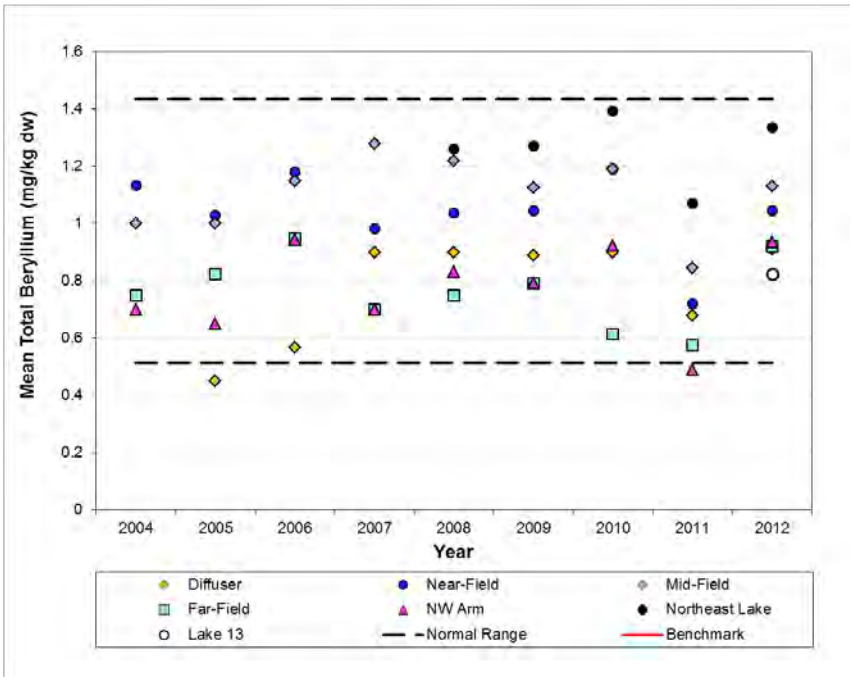
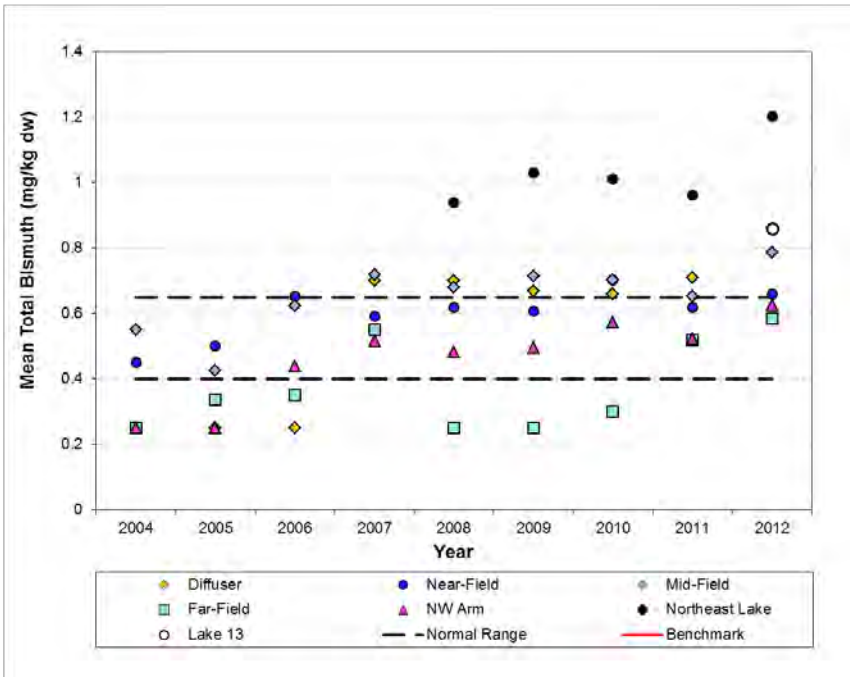


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



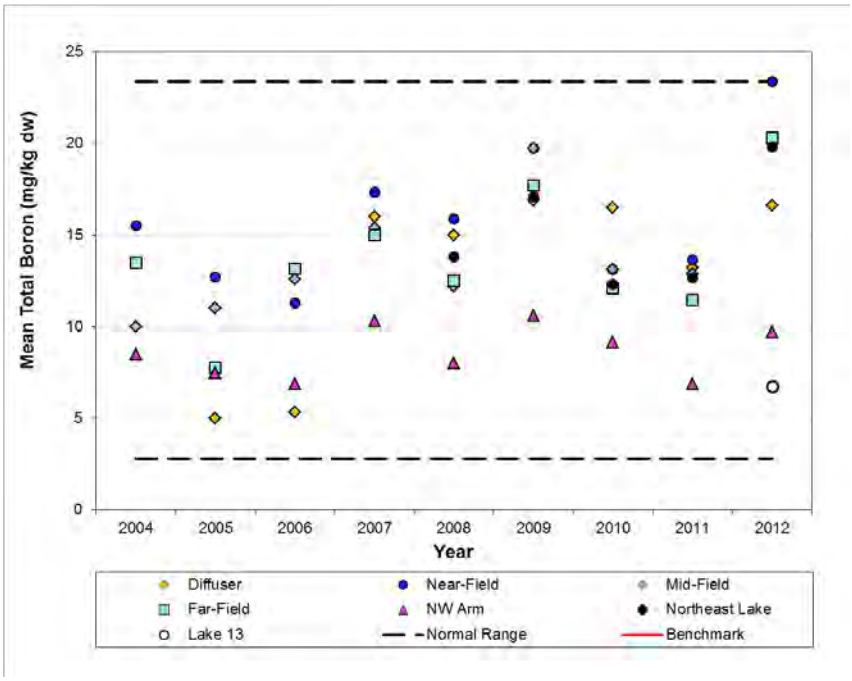
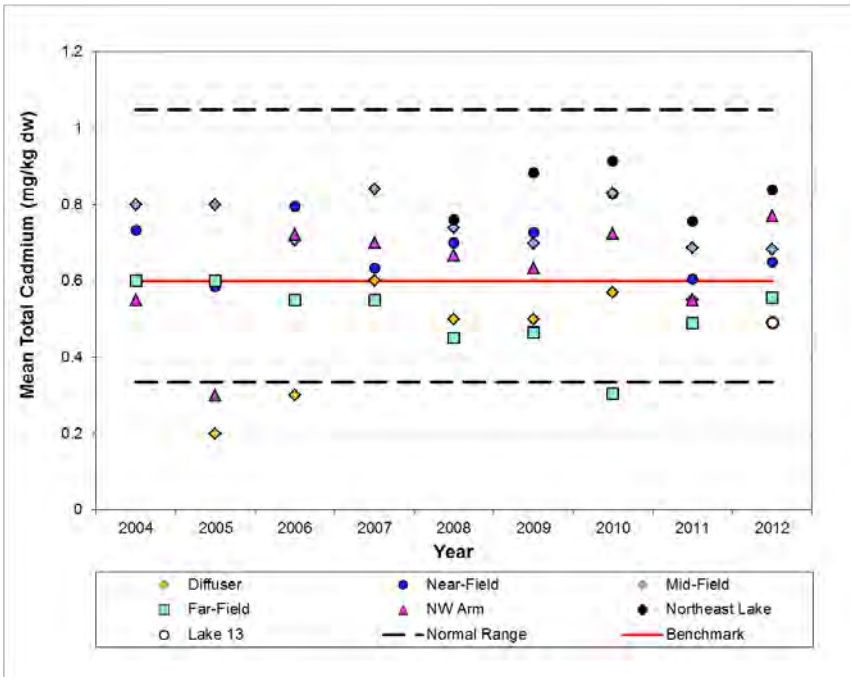


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



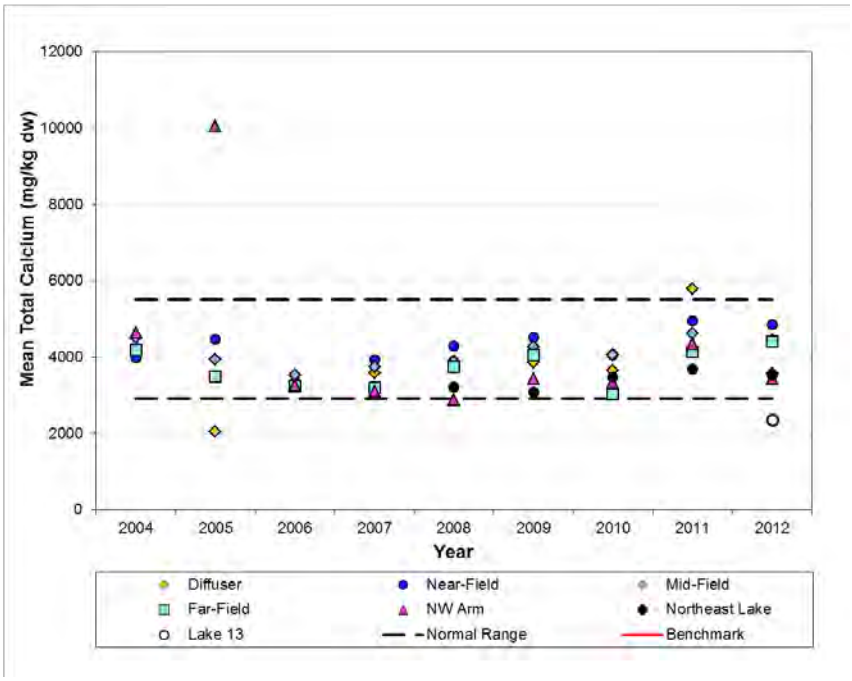
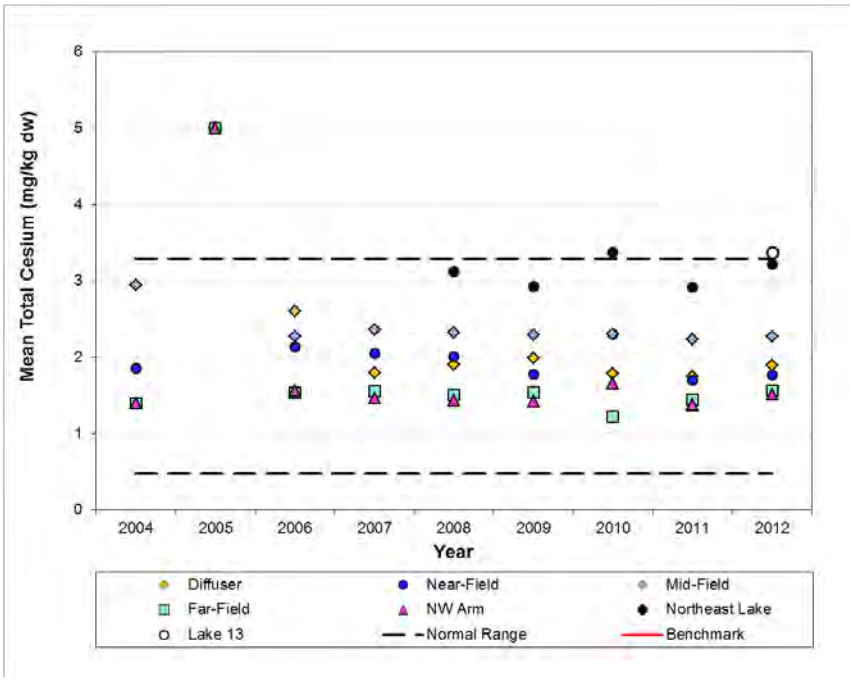


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



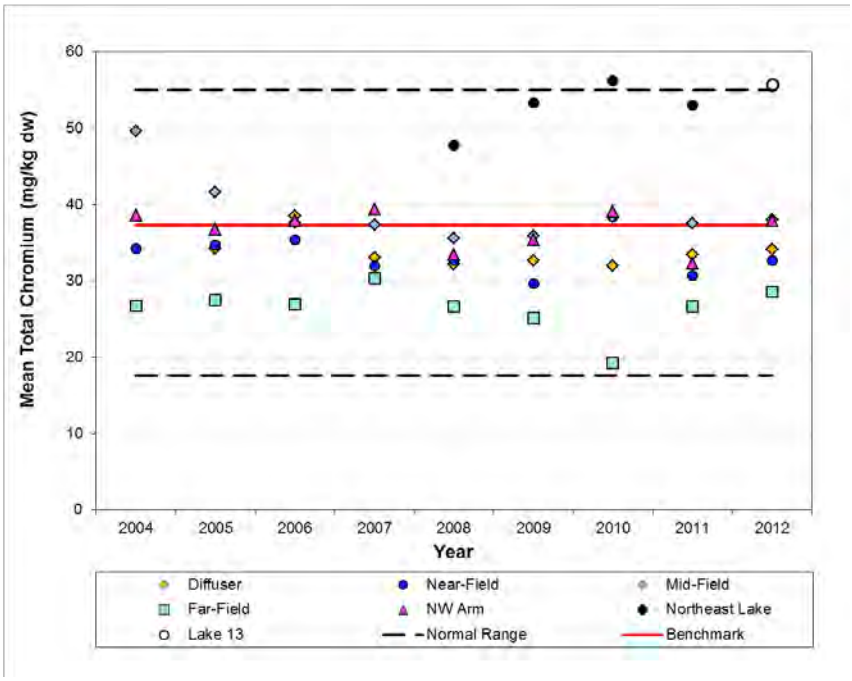
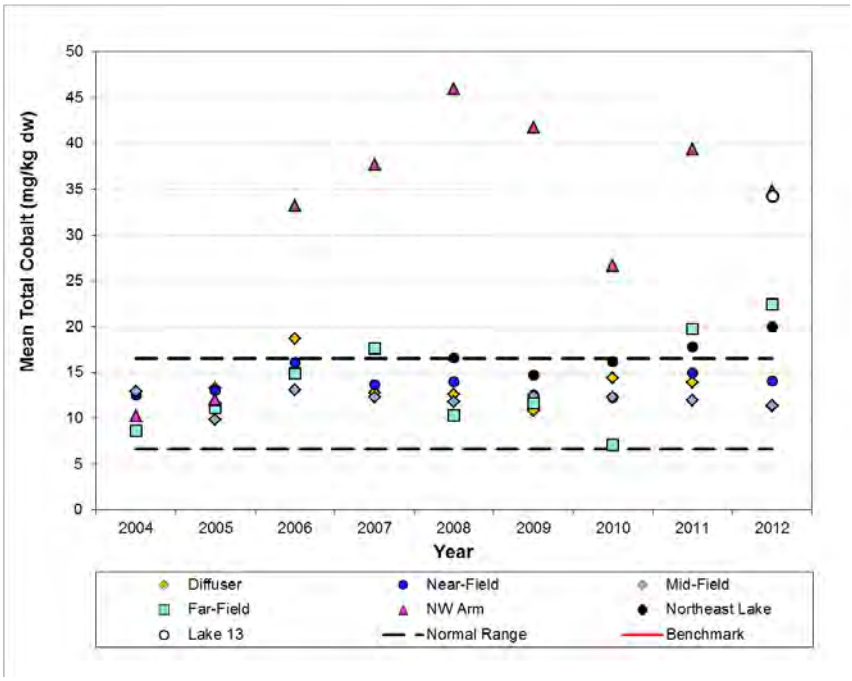


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



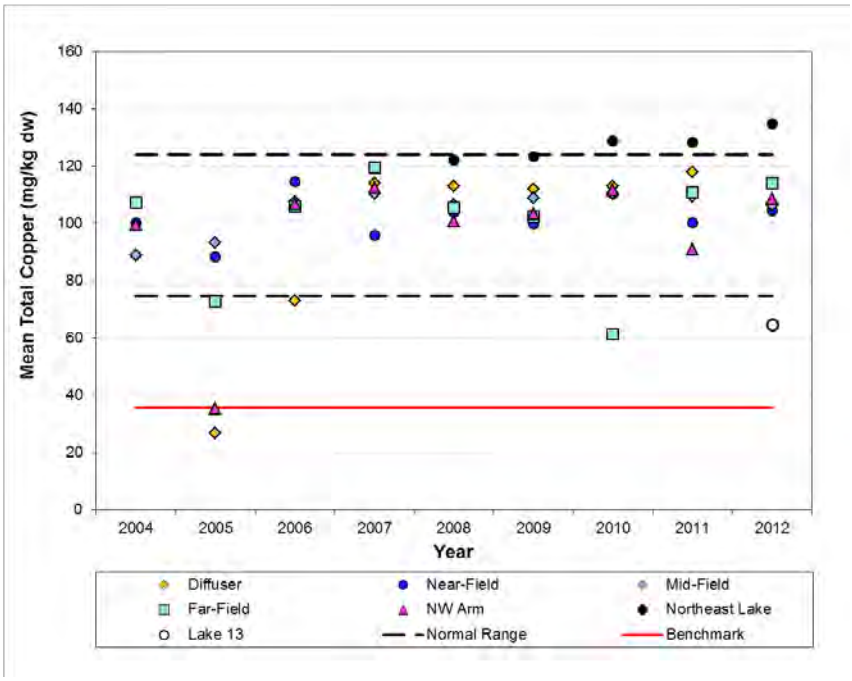
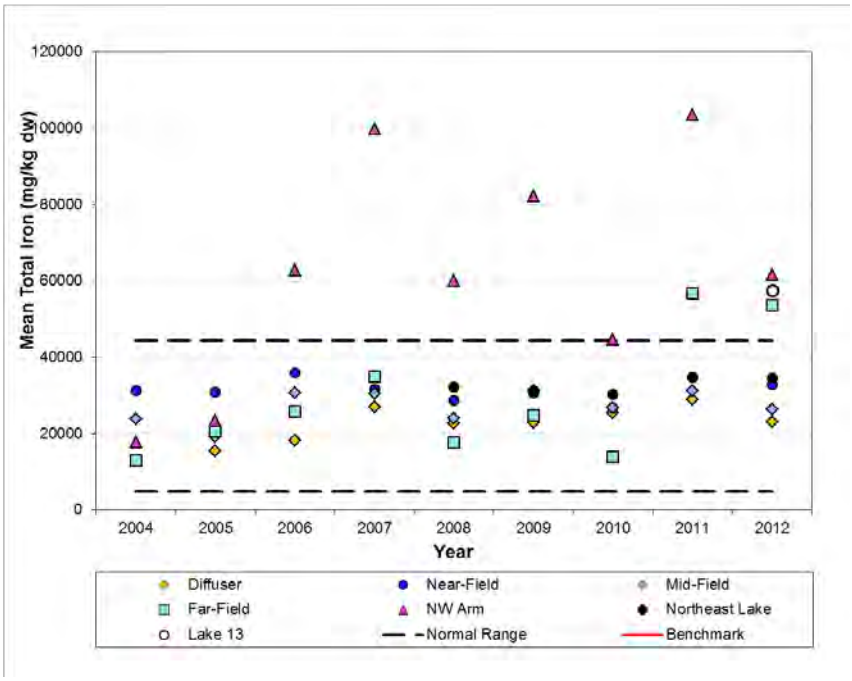


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



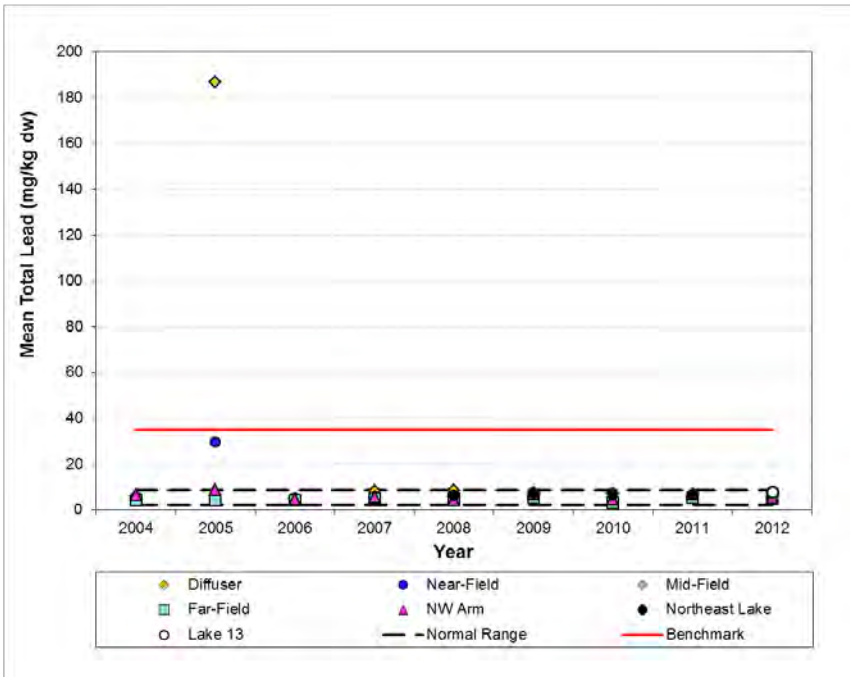
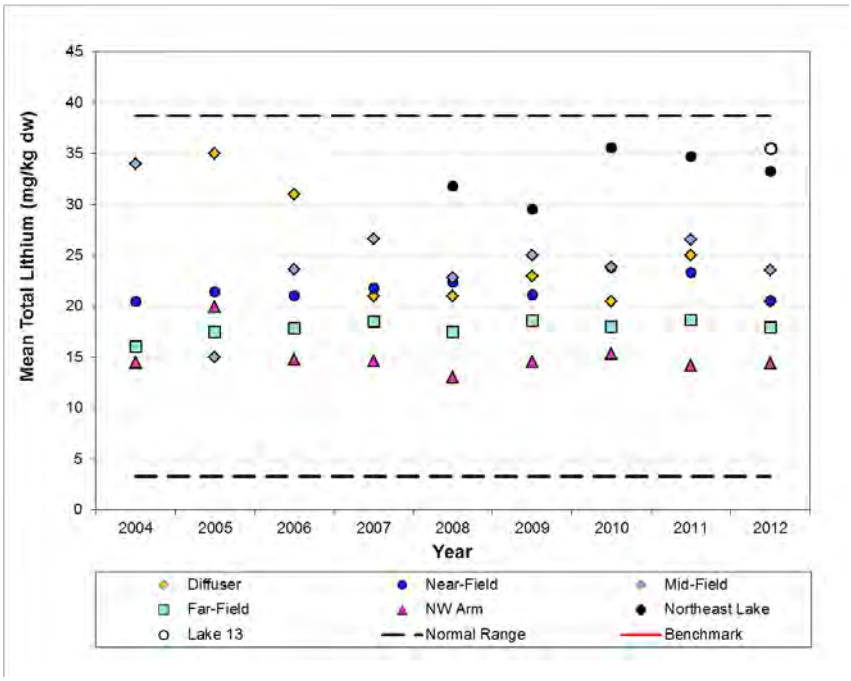


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



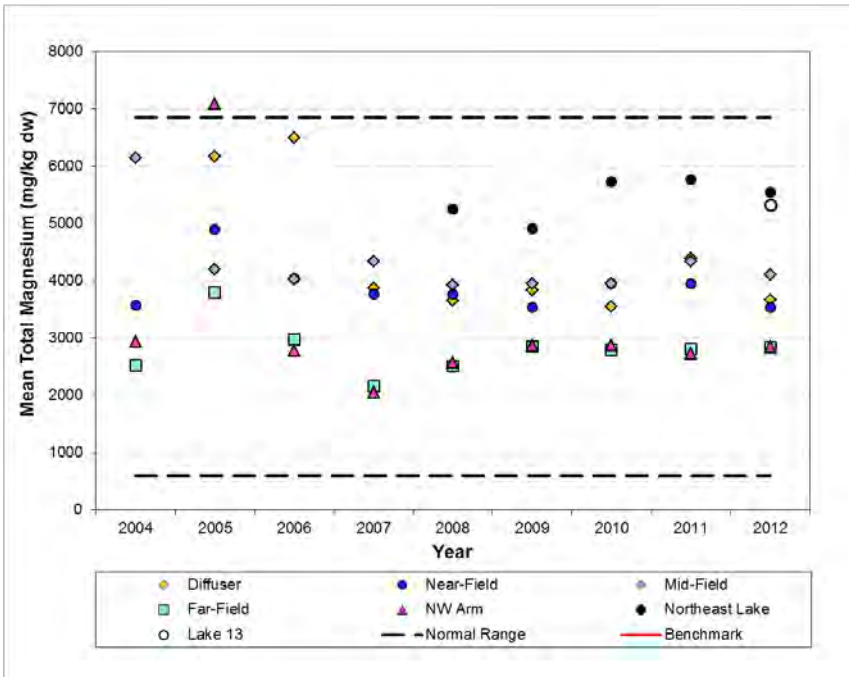
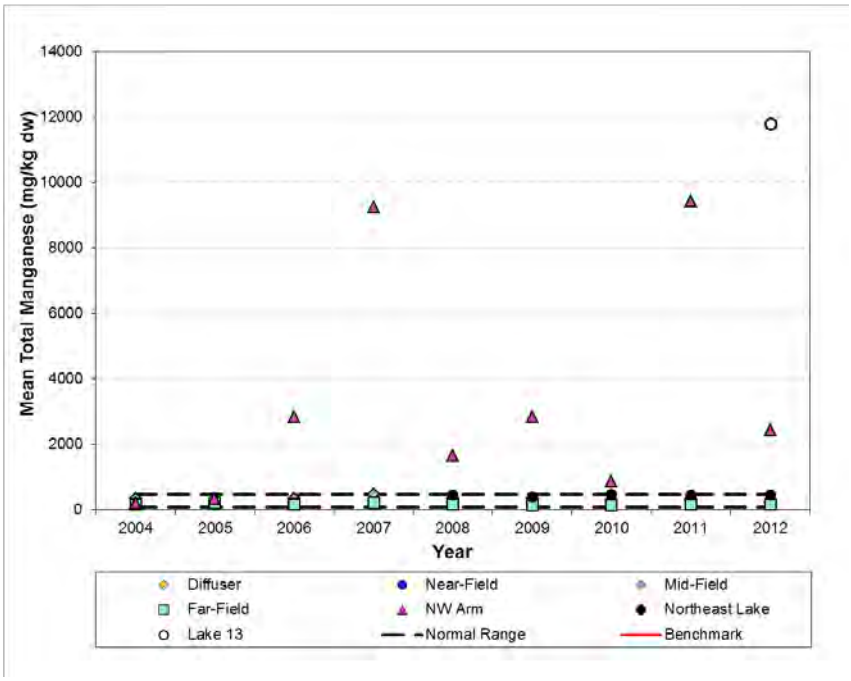


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



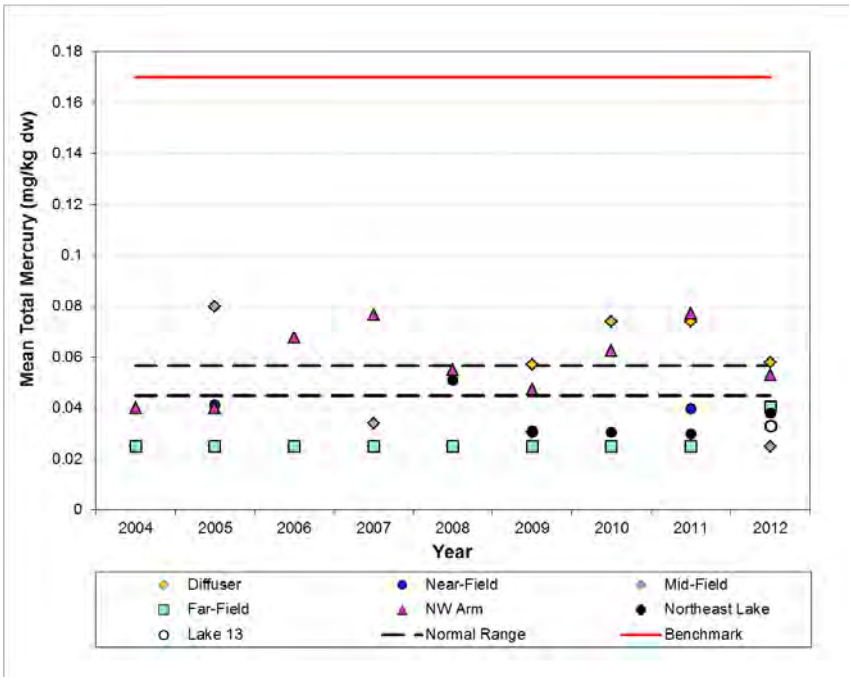
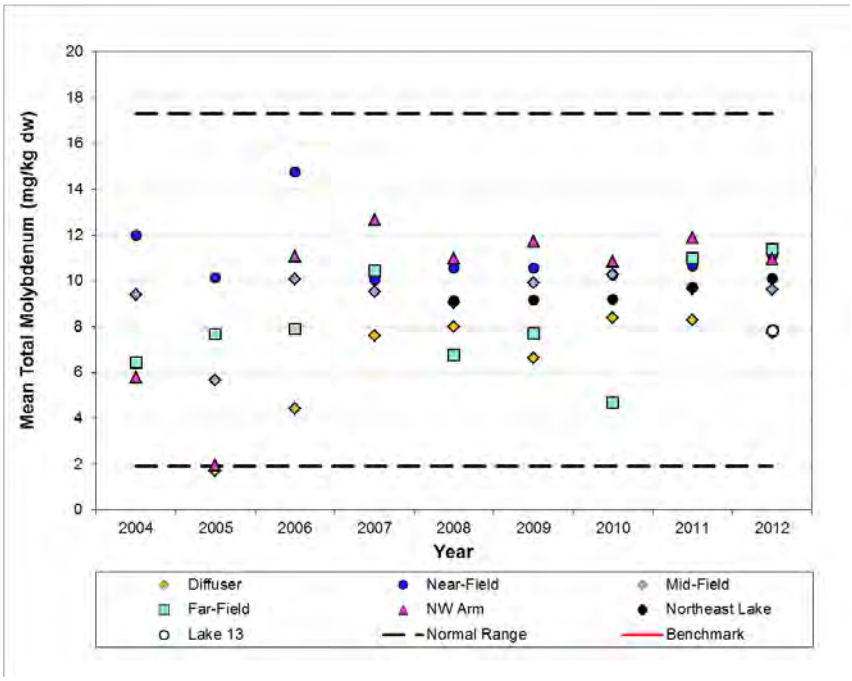


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



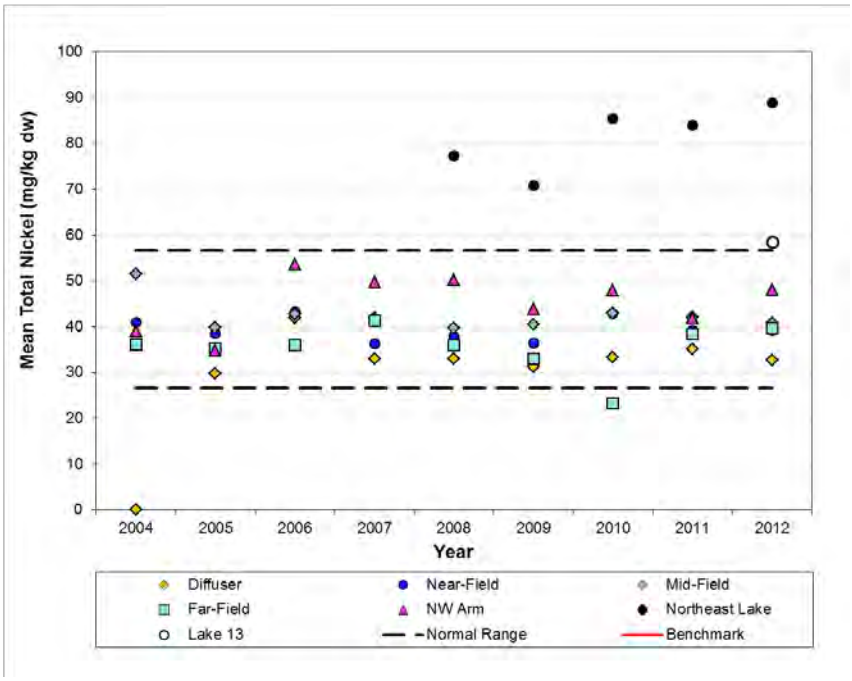
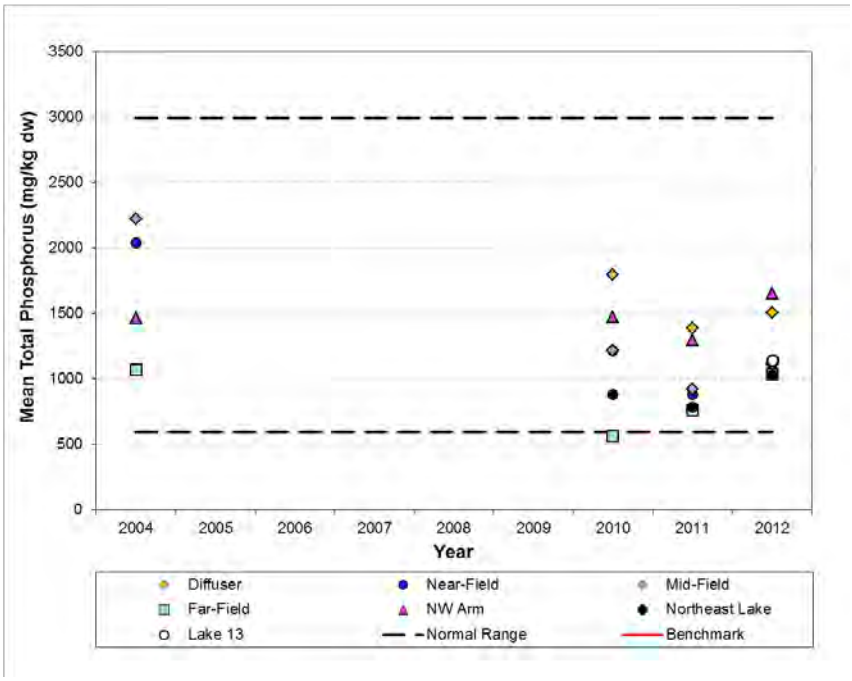


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



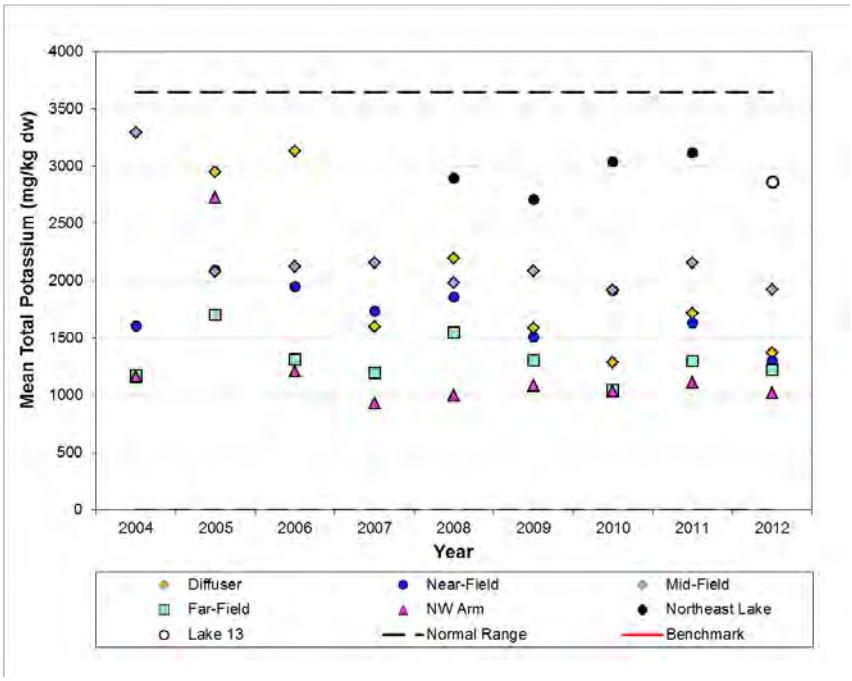
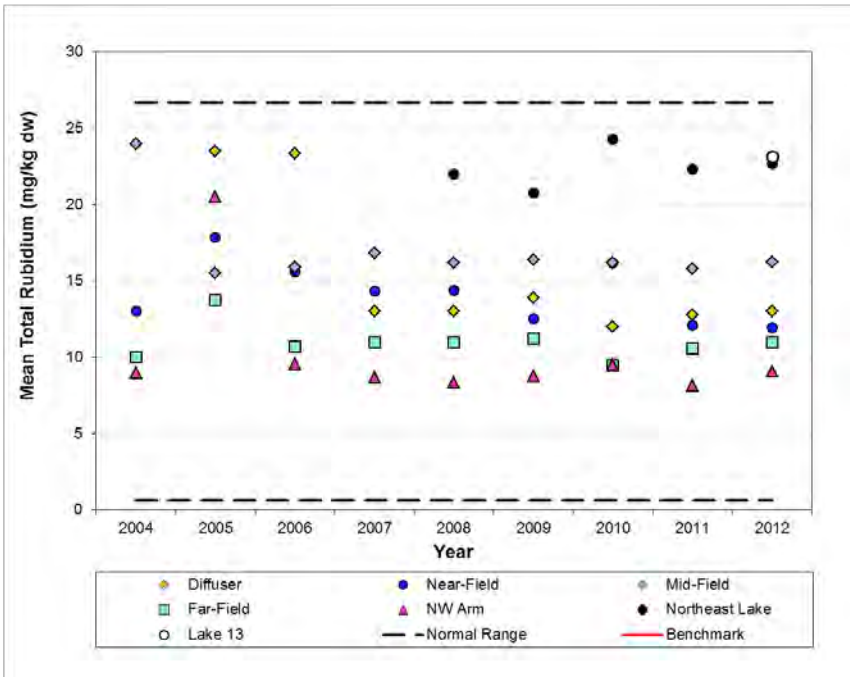


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



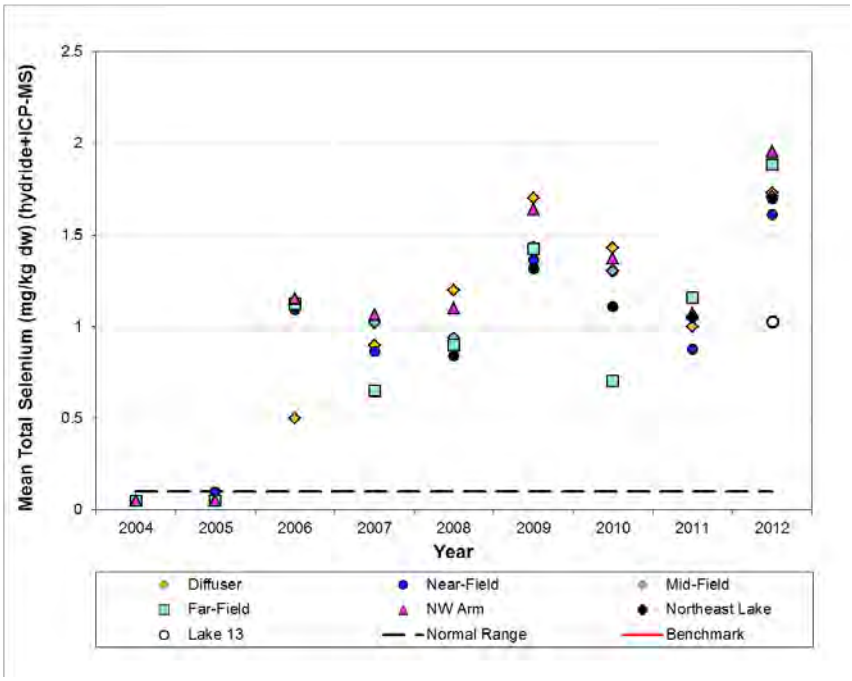
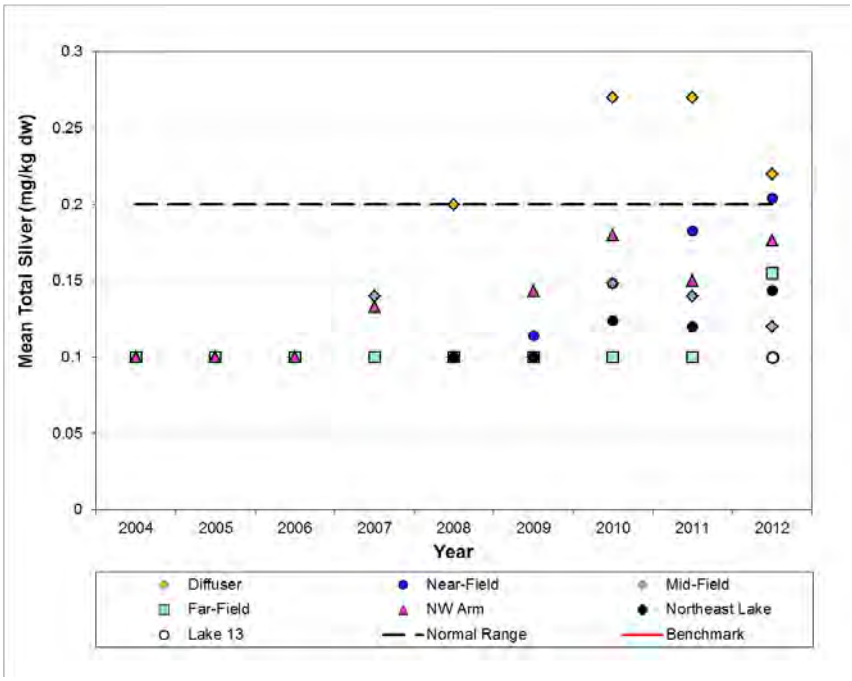


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



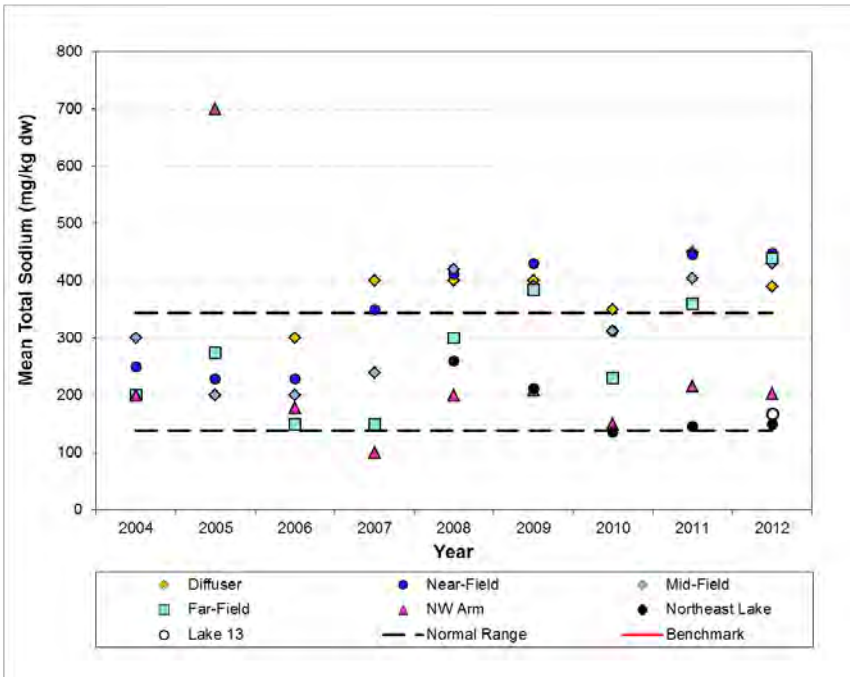
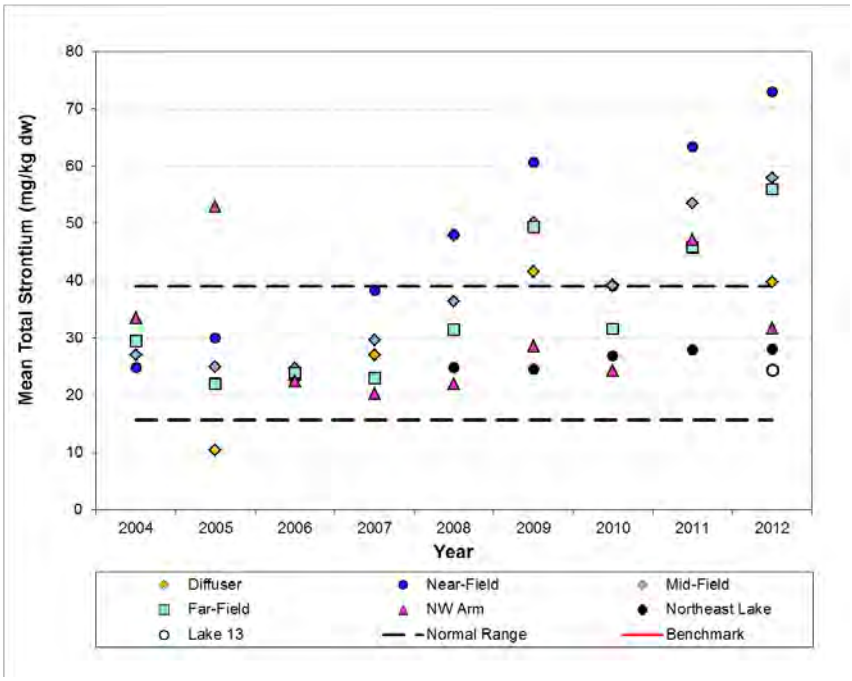


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



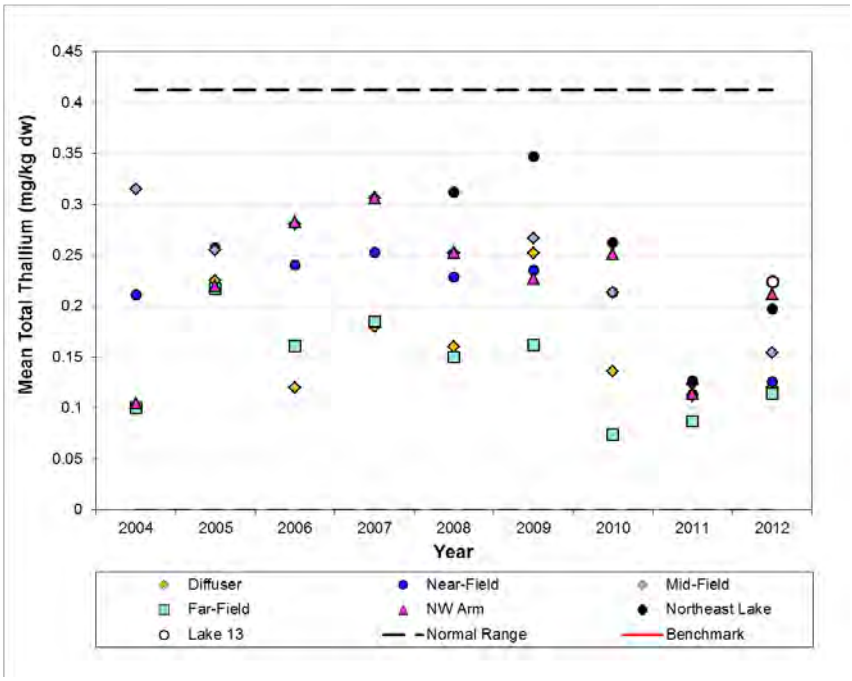
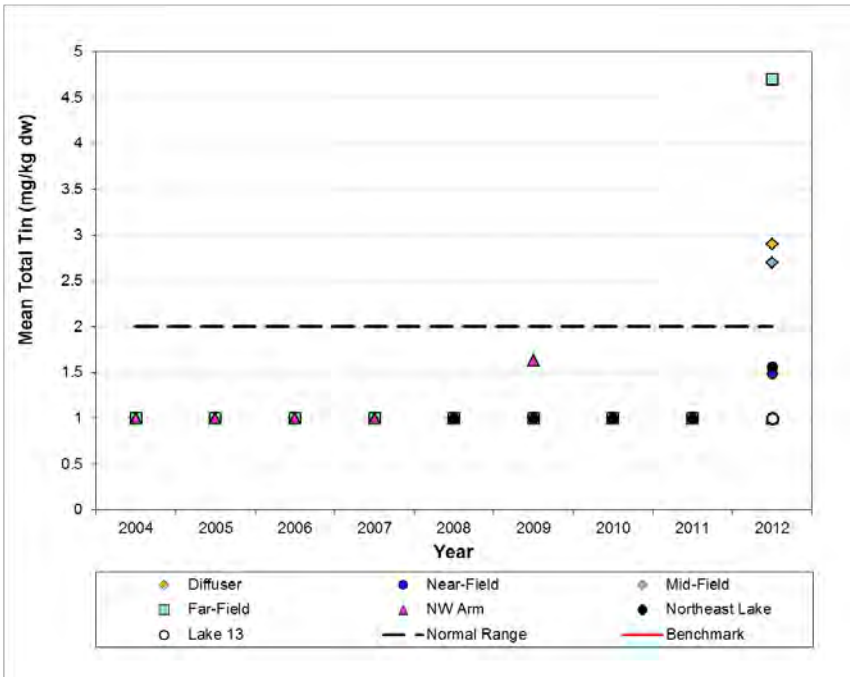


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



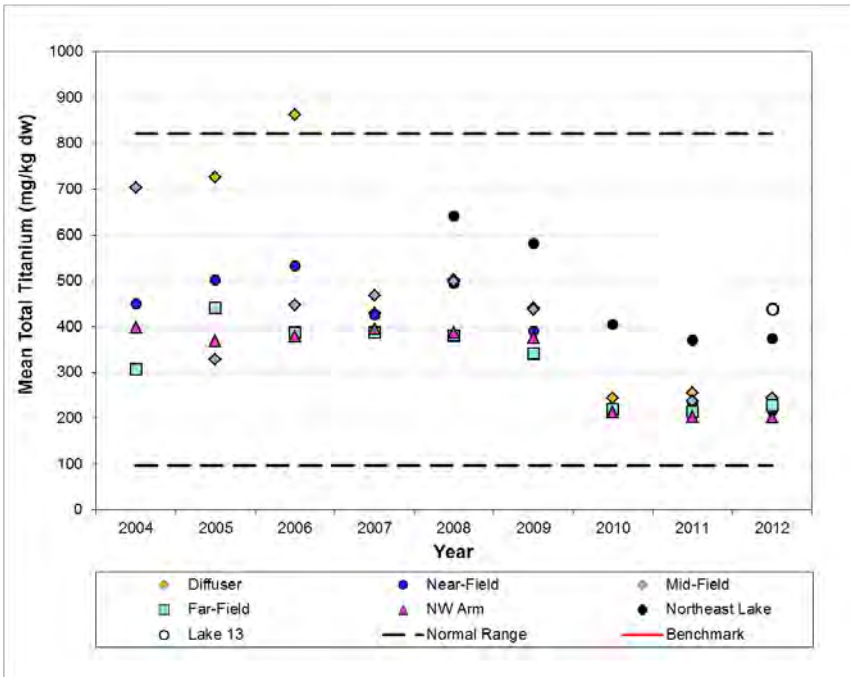
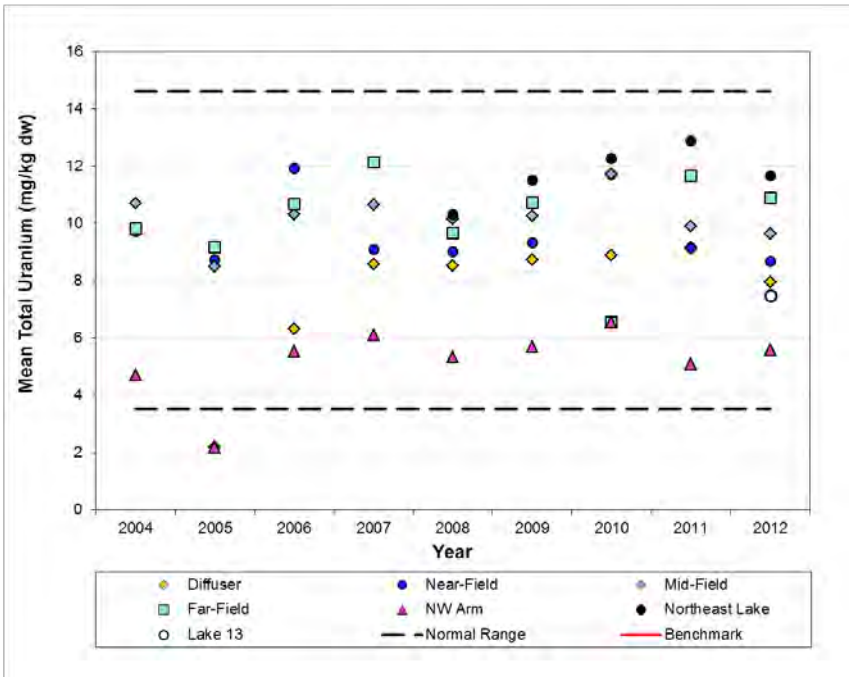


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



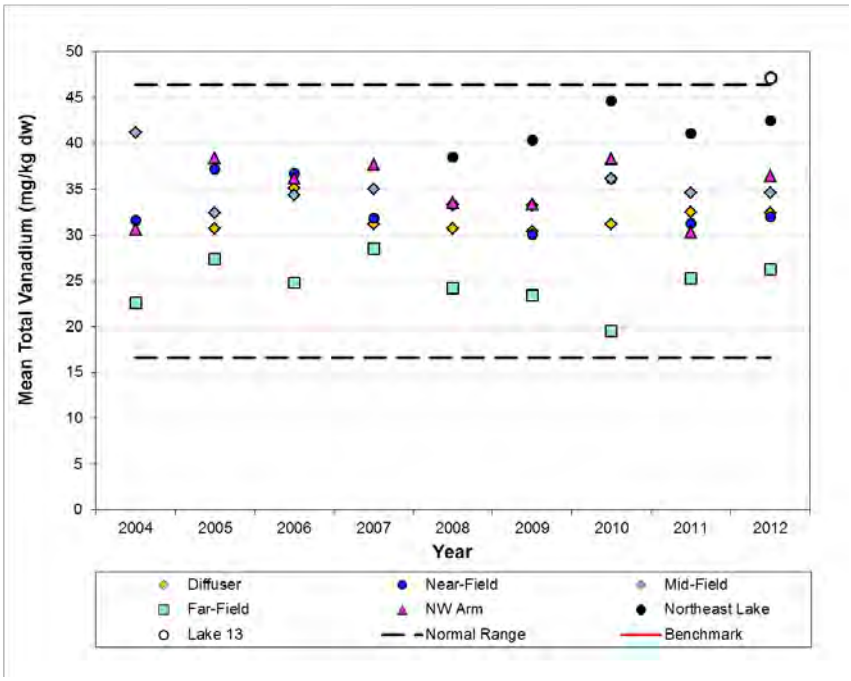
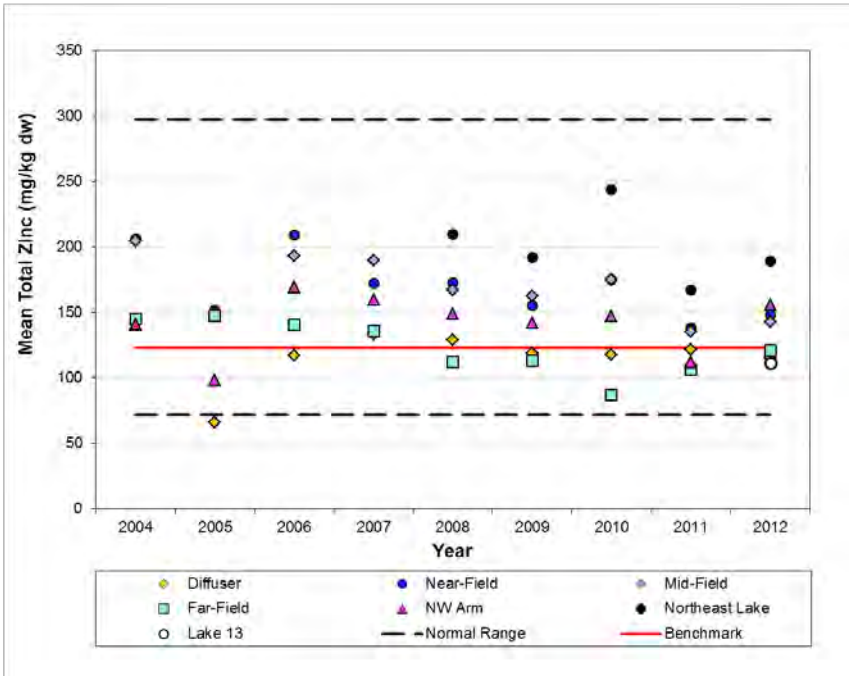


Figure 4B-2 Mean Sediment Parameter Concentrations by Lake Area in Snap Lake, 2004 to 2012, Northeast Lake, 2008 to 2012, and Lake 13, 2012



SD = standard deviation; % dw = percent dry weight; mg/kg dw = milligrams per kilogram dry weight NW = northwest.

Table 5A-4 Microcystin-LR Concentrations at Plankton Sampling Stations in Snap Lake and Northeast Lake, 2012

Station	July	August	September
Snap Lake - Main Basin			
SNAP02-20e	<0.22	<0.22	<0.22
SNAP03	<0.22	<0.22	<0.22
SNAP06	<0.22	<0.22	<0.22
SNAP11A	<0.22	<0.22	0.26
SNAP08	<0.22	<0.22	0.33
Mean	**<0.22**	**<0.22**	**<0.22**
Snap Lake - Northwest Arm			
SNAP29	<0.22	0.23	<0.22
SNAP02A	<0.22	<0.22	<0.22
SNAP01	<0.22	<0.22	0.23
SNAP20B	<0.22	<0.22	0.28
SNAP30	<0.22	<0.22	<0.22
Mean	**<0.22**	**<0.22**	**<0.22**
Northeast Lake			
NEL01	<0.22	0.24	<0.22
NEL02	<0.22	0.24	<0.22
NEL03	<0.22	<0.22	0.29
NEL04	<0.22	<0.22	0.37
NEL05	<0.22	0.22	0.40
Mean	**<0.22**	**<0.22**	**0.26**

Notes:
Samples were analyzed by HydroQual Laboratories. All concentrations are reported as micrograms per litre (µg/L).
Where values were <0.22 (below the limit of detection), means were calculated using 0.5 x 0.22
< = less than

Table 5A-3 Chlorophyll *a* and *c* concentrations at Plankton Sampling Stations in Snap Lake, Northeast Lake, and Lake 13, 2012

	Chlorophyll *a* (µg/L)			Chlorophyll *c* (µg/L)		
Station	**July**	**August**	**September**	**July**	**August**	**September**
Snap Lake - Main Basin						
SNAP02-20e	0.64	0.70	1.05	0.11	0.03	0.26
SNAP03	0.77	1.09	0.75	0.13	0.10	0.04
SNAP06	0.40	X-16.9	1.58	0.06	X-1.70	0.32
SNAP11A	0.35	1.22	1.39	0.03	0.14	0.23
SNAP08	-	0.94	0.87	-	0.12	0.09
Mean	**0.54**	**0.99**	**1.13**	**0.08**	**0.10**	**0.19**
Standard Error	**0.10**	**0.11**	**0.16**	**0.02**	**0.03**	**0.05**
Snap Lake - Northwest Arm						
SNAP29	0.43	0.65	2.37	0.01	0.03	0.23
SNAP02A	1.05	1.12	4.28	0.18	0.05	0.05
SNAP01	1.18	1.19	1.91	0.16	0.09	0.26
SNAP20B	1.42	1.17	3.01	0.24	0.11	0.41
SNAP30	1.50	1.13	2.29	2.98	0.09	0.13
Mean (northwest	**1.11**	**1.05**	**2.77**	**0.71**	**0.07**	**0.22**
Standard Error	**0.19**	**0.10**	**0.42**	**0.57**	**0.02**	**0.06**
Northeast Lake						
NEL01	0.36	0.80	1.67	0.07	0.13	0.10
NEL02	0.35	0.67	1.70	0.07	0.13	0.16
NEL03	0.35	0.66	3.32	0.05	0.16	0.44
NEL04	0.37	0.83	3.60	0.05	0.08	0.54
NEL05	0.49	0.72	0.90	0.08	0.03	0.20
Mean	**0.38**	**0.74**	**2.24**	**0.06**	**0.11**	**0.29**
Standard Error	**0.03**	**0.03**	**0.52**	**0.01**	**0.02**	**0.09**
Lake 13						
LK13-01	-	0.68	-	-	0.06	-

Notes:
Samples were analyzed by University of Alberta Biogeochemistry Laboratory; single sample collected for Lake 13.
- = no sample submitted; X= sample omitted from analysis

Table 5A-2 Total Phosphorus and Total Nitrogen Concentrations at Plankton Sampling Stations in Snap

Station	Total Nitrogen (µg/L)			Total Phosphorus (µg/L)		
	July	August	September	July	August	September
Snap Lake - Main Basin						
SNAP02-20e	2,440	2,490	2,290	2.0	3.0	6.0
SNAP03	2,320	2,340	1,360	<3	1.0	4.0
SNAP06	2,270	2,210	2,110	3.0	3.0	4.0
SNAP11A	2,070	2,150	2,040	5.0	2.0	4.0
SNAP08	2,100	1,990	1,800	<3	2.0	6.0
Mean	**2,240**	**2,236**	**1,920**	**2.6**	**2.2**	**4.8**
Standard Error	**69**	**85**	**161**	**0.7**	**0.4**	**0.5**
Snap Lake - Northwest Arm						
SNAP29	1,120	1,060	1,010	4.0	3.0	12.0
SNAP02A	419	429	462	<3	6.0	15.0
SNAP01	377	380	378	5.0	3.0	4.0
SNAP20B	333	321	301	4.0	3.0	5.0
SNAP30	256	312	316	3.0	2.0	4.0
Mean (northwest	**501**	**500**	**493**	**3.5**	**3.4**	**8.0**
Standard Error	**157**	**141**	**132**	**0.4**	**0.7**	**2.3**
Northeast Lake						
NEL01	300	165	-	2.0	3.0	-
NEL02	142	168	223	1.0	2.0	8.0
NEL03	120	147	-	2.0	2.0	-
NEL04	129	146	209	<3	1.0	17.0
NEL05	135	203	-	4.0	3.0	-
Mean	**165**	**166**	**216**	**2.3**	**2.2**	**12.5**
Standard Error	**34**	**10**	**7**	**0.6**	**0.4**	**4.5**

Notes:
Samples were analyzed by the University of Alberta Biogeochemistry Laboratory.
Where values were <3 (below the level of detection), means were calculated using 0.5 x 3
- = no sample submitted; µg/L = micrograms per litre; and < = less than;

Table 5A-1 Limnology Profiles at Plankton Sampling Stations in Snap Lake and Northeast Lake, 2012

Station	Date	Maximum Depth (m)	Secchi Depth (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
Snap Lake - Main Basin								
SNAP02-20e	8-Jul-12	27.5	6.0	0.3	14.8	10.2	391	7.3
				1	14.5	10.2	394	7.3
				2	14.1	10.3	400	7.3
				3	13.9	10.4	400	7.3
				4	13.8	10.4	400	7.3
				5	13.8	10.3	399	7.3
				6	13.7	10.3	399	7.4
				7	13.6	10.4	396	7.4
				8	13.6	10.4	397	7.4
				9	13.6	10.4	396	7.4
				10	13.5	10.6	395	7.4
				11	13.4	10.3	394	7.4
				12	13.4	10.3	394	7.4
				13	13.3	10.3	395	7.4
				14	13.2	10.3	393	7.4
				15	13.1	10.4	391	7.4
				16	13.1	10.2	390	7.4
				17	13.0	10.2	391	7.4
				18	12.9	10.1	391	7.4
				19	12.6	10.0	392	7.4
				20	11.0	10.3	409	7.4
				21	7.2	11.4	463	7.3
				22	5.6	12.1	490	7.3
				23	4.7	12.4	497	7.3
				24	4.1	12.6	506	7.2
				25	3.9	12.6	508	7.2
				26	3.8	12.3	509	7.2
	10-Aug-12	22.5	7.0	0.5	17.0	9.7	407	**6.4**
				1	17.0	9.9	407	**6.4**
				2	17.0	10.1	407	6.6
				3	17.0	9.8	407	6.7
				4	16.9	9.8	407	6.7
				5	16.9	9.8	408	6.8
				6	16.9	9.8	407	6.8
				7	16.9	9.8	407	6.9
				8	16.9	9.8	407	6.9
				9	16.8	9.9	412	7.0
				10	16.8	9.9	416	7.0
				11	16.8	9.9	414	7.0
				12	16.8	9.9	416	7.1
				13	16.8	9.9	416	7.1
				14	16.8	9.9	415	7.1
				15	16.8	9.8	414	7.1
				16	16.7	9.8	407	7.1
				17	16.6	9.8	406	7.2
				18	16.6	9.8	406	7.1
				19	16.5	9.7	405	7.1
				20	15.7	9.4	401	7.3
				21	8.5	9.3	448	7.2
				22	7.8	7.3	450	7.0
	9-Sep-12	25.7	6.5	0.3	12.9	10.0	364	6.6
				1	12.9	10.0	365	6.7
				2	12.9	10.0	365	6.8
				3	12.9	10.0	365	6.8
				4	12.9	10.0	365	6.8
				5	12.9	10.0	365	6.9
				6	12.9	10.1	365	7.0
				7	12.9	10.0	365	7.0
				8	12.9	10.0	365	7.0
				9	12.9	10.1	365	7.1
				10	12.8	10.0	365	7.1
				11	12.9	10.1	365	7.1
				12	12.8	10.0	365	7.1
				13	12.8	10.0	364	7.1
				14	12.8	10.0	364	7.1
				15	12.8	10.0	364	7.1
				16	12.8	10.1	365	7.2
				17	12.8	10.0	365	7.2
				18	12.8	10.0	365	7.2
				19	12.8	10.0	366	7.2
				20	12.8	10.0	365	7.2
				21	12.8	10.0	367	7.2
				22	12.7	10.0	368	7.2
				23	12.7	10.0	368	7.2
				24	12.7	10.0	368	7.1
				0.3	15.7	9.9	384	7.1
				1	15.1	10.1	384	7.1
				2	14.9	10.0	386	7.1
				3	14.7	10.0	386	7.3
				4	14.1	10.1	394	7.1

Station	Date	(m)	(m)	(m)	(°C)	(mg/L)	(µS/cm)	pH
Snap Lake - Main Basin								
SNAP03	7-Jul-12	13.2	6.0	0.3	14.8	10.2	391	7.3
				1	14.5	10.2	394	7.3
				5	13.7	10.2	394	7.2
				6	13.6	10.2	388	7.2
				7	13.5	10.2	387	7.2
				8	13.4	10.3	390	7.2
				9	13.3	10.3	387	7.2
				10	13.2	10.3	387	7.2
				11	13.2	10.3	388	7.2
				12	13.2	10.2	388	7.3
				13	13.0[(a)]	**5.8[(a)]**	386[(a)]	7.2[(a)]
	13-Aug-12	12.8	6.0	0.5	16.6	9.5	403	7.3
				1	16.6	9.5	403	7.3
				2	16.6	9.5	403	7.3
				3	16.6	9.5	403	7.3
				4	16.6	9.5	403	7.3
				5	16.6	9.5	403	7.3
				6	16.6	9.5	402	7.3
				7	16.6	9.5	402	7.3
				8	16.6	9.5	402	7.3
				9	16.6	9.5	402	7.4
				10	16.6	9.5	402	7.4
				11	16.6	9.5	402	7.4
				12	16.5	9.5	400	7.4
	7-Sep-12	13.1	7.0	0.3	13.5	11.0	362	7.1
				1	13.4	11.0	363	7.2
				2	13.3	11.0	363	7.1
				3	13.3	11.0	363	7.2
				4	13.3	11.0	363	7.2
				5	13.3	11.0	363	7.3
				6	13.3	11.0	363	7.3
				7	13.3	11.0	363	7.3
				8	13.3	11.0	363	7.3
				9	13.3	11.0	363	7.3
				10	13.3	11.0	363	7.3
				11	13.3	11.0	363	7.3
				12	13.3	11.0	363	7.3
				13	13.5[(a)]	**0.9[(a)]**	347[(a)]	6.7[(a)]
SNAP06	13-Jul-12	13.8	7.0	0.3	16.4	9.6	382	6.5
				1	16.5	9.6	382	6.6
				2	16.5	9.6	382	6.6
				3	16.5	9.6	382	6.7
				4	16.5	9.5	382	6.7
				5	16.4	9.6	382	6.8
				6	16.4	9.6	382	6.8
				7	16.4	9.6	382	6.8
				8	15.9	9.8	383	6.8
				9	15.3	10.1	384	6.9
				10	15.1	10.2	384	6.9
				11	15.0	10.2	384	6.9
				12	14.8	10.3	384	6.9
				13	14.6	10.3	383	6.9
	10-Aug-12	13.2	6.5	0.5	17.4	9.8	385	7.7
				1	17.4	9.8	385	7.7
				2	17.4	9.8	385	7.7
				3	17.4	9.8	385	7.7
				4	17.4	9.9	385	7.7
				5	17.4	9.8	386	7.7
				6	17.3	9.8	386	7.7
				7	17.3	9.8	386	7.7
				8	17.3	9.8	386	7.7
				9	17.2	9.8	386	7.7
				10	17.2	9.8	386	7.7
				11	17.2	9.8	386	7.7
				12	17.2	9.9	386	7.5
				13	17.1	7.9	386	-
	11-Sep-12	12.7	5.5	0.3	12.1	10.1	406	7.0
				1	12.1	10.1	405	7.0
				2	12.1	10.1	405	7.0
				3	12.2	10.1	405	7.1
				4	12.1	10.1	405	7.1
				5	12.1	10.1	406	7.1
				6	12.2	10.1	405	7.1
				7	12.2	10.1	405	7.1
				8	12.2	10.1	405	7.1
				9	12.2	10.1	405	7.1
				10	12.2	10.1	405	7.1
				11	12.2	10.1	406	7.2
				12	12.2	10.0	405	7.1
				0.3	16.7	9.8	384	7.4
				1	16.7	9.8	385	7.4
				2	16.7	9.8	384	7.4

Station	Date	(m)	(m)	(m)	(°C)	(mg/L)	(µS/cm)	pH
Snap Lake - Main Basin								
SNAP11A	12-Jul-12	15.7	7.0	0.3	14.8	10.2	391	7.3
				1	14.5	10.2	394	7.3
				3	16.6	9.8	384	7.4
				4	16.6	9.8	384	7.4
				5	16.6	9.8	384	7.4
				6	15.2	10.4	385	7.5
				7	14.8	10.5	385	7.5
				8	14.2	10.6	385	7.5
				9	13.5	10.7	385	7.5
				10	13.2	10.8	384	7.5
				11	12.9	10.7	384	7.5
				12	12.8	10.7	384	7.5
				13	12.7	10.7	384	7.5
				14	12.7	10.7	384	7.5
				15	12.7[a]	10.7[a]	384[a]	**4.5[a]**
	13-Aug-12 [c]	16.5	8.0	0.5	16.6	-	386	7.0
				1	16.6	-	386	7.0
				2	16.6	-	386	7.0
				3	16.6	-	386	7.0
				4	16.6	-	386	7.1
				5	16.6	-	386	7.1
				6	16.6	-	385	7.1
				7	16.6	-	386	7.1
				8	16.6	-	386	7.1
				9	16.6	-	386	7.1
				10	16.6	-	386	7.1
				11	16.6	-	386	7.1
				12	16.5	-	386	7.1
				13	16.5	-	386	7.1
				14	16.5	-	386	7.2
				15	16.5	-	386	7.2
				16	16.5	-	385	7.2
	13-Sep-12	16.5	4.8	0.3	11.4	10.7	397	7.0
				1	11.4	10.7	397	7.0
				2	11.4	10.7	396	7.1
				3	11.4	10.7	396	7.1
				4	11.4	10.7	396	7.1
				5	11.4	10.7	396	7.2
				6	11.4	10.7	396	7.2
				7	11.4	10.7	396	7.2
				8	11.4	10.7	396	7.2
				9	11.4	10.7	396	7.2
				10	11.4	10.7	396	7.2
				11	11.4	10.9	396	7.2
				12	11.4	10.7	396	7.2
				13	11.4	10.8	396	7.2
				14	11.3	10.8	396	7.2
				15	11.3	10.8	395	7.2
				16	11.3	10.8	395	7.2
SNAP08	13-Jul-12	9.0	6.0	0.3	18.7	9.9	391	**6.2**
				1	18.6	9.8	391	6.8
				2	17.5	10.4	391	**6.3**
				3	16.4	10.9	391	**6.4**
				4	15.8	10.5	391	6.5
				5	15.2	10.6	391	6.6
				6	14.9	10.5	391	6.6
				7	14.5	10.6	391	6.7
				8	14.2	10.7	390	6.7
	13-Aug-12[c]	9.1	7.5	0.5	16.5	-	383	**6.3**
				1	16.5	-	383	**6.3**
				2	16.4	-	383	6.7
				3	16.4	-	383	6.7
				4	16.4	-	383	6.7
				5	16.3	-	383	6.7
				6	16.3	-	382	6.8
				7	16.2	-	382	6.8
				8	16.1	-	382	6.8
				9	16.1	-	385	6.8
	11-Sep-12	8.5	5.0	0.3	11.1	10.2	387	**6.0**
				1	11.1	10.2	387	**6.2**
				2	11.1	10.2	388	**6.2**
				3	11.0	10.3	387	**6.3**
				4	11.0	10.2	387	**6.3**
				5	11.0	10.2	387	**6.4**
				6	11.0	10.2	387	**6.4**
				7	11.0	10.2	387	6.5
				8	11.0	10.2	387	6.5
Snap Lake - Northwest Arm								
	7-Jul-12	7.3	7.3	0.3	16.1	9.5	232	6.9
				1.0	15.2	9.6	198	7.0
				2.0	15.1	9.6	197	7.0
				3.0	14.8	9.6	196	7.0

Station	Date	(m)	(m)	(m)	(°C)	(mg/L)	(µS/cm)	pH
Snap Lake - Main Basin								
SNAP29	11-Aug-12	7.4	6.0	0.3	14.8	10.2	391	7.3
				1	14.5	10.2	394	7.3
				4.0	14.8	9.6	198	7.0
				5.0	14.7	9.6	198	7.0
				6.0	14.5	9.6	204	7.0
				7.0	14.3	9.5	229	7.0
				0.5	17.6	9.3	215	7.2
				1	17.6	9.3	215	7.2
				2	17.6	9.3	215	7.3
				3	17.6	9.4	216	7.3
				4	17.5	9.4	218	7.3
				5	17.4	9.5	224	7.3
				6	17.3	9.4	224	7.3
				7	17.3	9.5	269	7.3
	12-Sep-12	6.9	4.5	0.3	10.9	10.9	212	6.9
				1	10.9	10.9	211	6.9
				2	10.9	11.0	211	7.0
				3	10.8	11.0	211	7.0
				4	10.9	10.9	212	7.0
				5	10.9	11.0	212	7.0
				6	10.9	11.0	212	7.0
SNAP02A	7-Jul-12	9.0	5.5	0.3	15.7	9.6	116	6.8
				1	15.6	9.6	115	6.9
				2	15.5	9.6	114	6.9
				3	15.3	9.6	112	7.0
				4	14.6	9.7	110	7.0
				5	14.5	9.7	113	7.0
				6	14.3	9.6	111	7.0
				7	14.3	9.6	111	7.0
				8	14.2	9.6	111	7.0
	11-Aug-12	9.1	5.5	0.5	17.7	9.3	125	7.1
				1	17.7	9.4	125	7.1
				2	17.7	9.4	125	7.1
				3	17.7	9.4	125	7.1
				4	17.7	9.4	125	7.1
				5	17.4	9.4	122	7.2
				6	17.4	9.4	122	7.2
				7	17.3	9.4	121	7.2
				8	17.3	9.4	121	7.2
				9	17.0[(a)]	**6.1[(a)]**	128[(a)]	6.9[(a)]
	12-Sep-12	8.0	4.3	0.3	10.7	10.9	133	6.6
				1	10.7	11.0	133	6.6
				2	10.7	11.0	132	6.7
				3	10.7	11.0	133	6.7
				4	10.7	10.9	133	6.7
				5	10.7	11.0	133	6.7
				6	10.7	11.0	132	6.7
				7	10.7	11.0	132	6.7
				8	10.7	10.8	133	6.7
SNAP01	7-Jul-12	5.0	4.5	0.3	15.8	9.8	110	6.6
				1	15.7	9.7	110	6.7
				2	15.5	9.8	111	6.7
				3	14.5	10.1	102	6.7
				4	14.3	10.0	101	6.8
				5	14.3	10.0	101	6.8
	13-Aug-12	-	-	-	-	-	-	-
	14-Sep-12	5.9	4.5	0.3	9.5	11.1	126	7.1
				1	9.5	11.0	126	7.1
				2	9.5	11.0	126	7.1
				3	9.5	10.9	126	7.1
				4	9.5	10.9	126	7.1
				5	9.5	10.9	126	7.1
	14-Jul-12	35.0	6.0	0.3	15.0	11.7	95	**6.3**
				1	14.9	11.7	95	**6.4**
				2	14.9	11.7	95	**6.4**
				3	14.5	11.8	95	6.5
				4	14.2	11.8	95	6.5
				5	14.1	11.8	95	6.5
				6	13.7	11.8	95	6.5
				7	13.5	11.8	94	6.5
				8	13.4	11.7	95	6.5
				9	13.3	11.7	95	6.5
				10	12.4	11.7	94	6.5
				11	8.0	12.9	92	6.5
				12	7.0	13.0	91	6.5
				13	6.4	12.9	91	6.5
				14	6.2	12.9	91	6.5
				15	6.0	12.8	91	6.5
				16	5.7	12.7	91	6.5
				17	5.7	12.5	91	6.5
				18	5.6	12.4	91	6.5
				19	5.5	12.2	91	**6.4**

Station	Date	(m)	(m)	(m)	(°C)	(mg/L)	(µS/cm)	pH
Snap Lake - Main Basin								
SNAP20B	11-Aug-12	-	7.5	0.3	14.8	10.2	391	7.3
				1	14.5	10.2	394	7.3
				20	5.4	12.1	91	**6.4**
				21	5.4	12.2	91	**6.4**
				22	5.3	12.3	91	**6.4**
				23	5.3	12.2	91	**6.4**
				24	5.2	12.1	91	**6.4**
				25	5.1	12.1	91	**6.4**
				26	5.1	11.8	91	**6.3**
				27.0	5.0	11.9	91	**6.3**
				28.0	5.0	11.9	91	**6.3**
				29[d]	5.0	11.8	91	**6.3**
				0.5	17.5	9.5	104	7.4
				1	17.4	9.5	104	7.4
				2	17.4	9.5	104	7.4
				3	17.4	9.5	104	7.3
				4	17.3	9.5	103	7.4
				5	17.3	9.5	103	7.3
				6	17.3	9.5	103	7.4
				7	17.2	9.6	103	7.4
				8	16.6	9.5	102	7.4
				9	14.5	9.8	96	7.3
				10	11.5	10.0	92	7.3
				11	9.5	10.4	90	7.2
				12	8.0	10.5	90	7.1
				13	7.2	10.4	90	7.0
				14	6.7	10.2	90	7.0
				15	6.2	9.6	90	6.5
				16	5.9	9.2	90	6.7
				17	5.7	8.8	90	6.7
				18	5.6	8.8	90	6.6
				19	5.5	8.8	90	6.6
				20	5.3	8.8	90	6.5
				21	5.2	9.0	90	6.5
				22	5.2	8.8	90	6.5
				23	5.1	8.7	90	**6.4**
				24	5.1	8.5	90	**6.4**
				25	5.0	8.4	90	**6.4**
				26	5.0	8.5	90	**6.3**
				27	5.0	8.5	90	**6.3**
				28	5.0	8.4	90	**6.3**
				29[d]	5.0	8.4	90	**6.3**
	12-Sep-12	37.0	5.5	0.3	11.7	10.5	107	6.7
				1	11.7	10.5	109	6.7
				2	11.7	10.5	109	6.8
				3	11.7	10.5	109	6.7
				4	11.7	10.5	109	6.8
				5	11.7	10.5	109	6.7
				6	11.7	10.5	109	6.7
				7	11.7	10.5	109	6.8
				8	11.7	10.5	109	6.8
				9	11.7	10.5	109	6.8
				10	11.7	10.5	109	6.8
				11	11.7	10.5	109	6.8
				12	11.7	10.5	109	6.8
				13	11.7	10.5	109	6.8
				14	11.6	10.4	109	6.7
				15	6.4	8.5	91	6.6
				16	5.8	8.0	91	**6.4**
				17	5.6	7.8	91	**6.4**
				18	5.5	7.6	92	**6.3**
				19	5.4	7.9	91	**6.2**
				20	5.3	7.9	91	**6.2**
				21	5.3	7.8	91	**6.0**
				22	5.2	7.6	91	**6.0**
				23	5.2	7.6	91	**6.0**
				24	5.1	7.6	91	**6.0**
				25	5.0	7.5	91	**5.9**
				26	5.0	7.4	92	**5.9**
				27	5.0	7.4	91	**5.9**
				28	4.9	7.3	92	**5.9**
				29[d]	4.9	7.2	92	**5.9**
	7-Jul-12	9.8	4.5	0.3	16.4	9.6	95	6.8
				1.0	16.4	9.6	95	6.8
				2.0	16.3	9.6	95	6.8
				3.0	15.3	9.8	94	6.9
				4.0	14.9	9.8	95	6.9
				5.0	14.4	9.8	95	6.9
				6.0	14.3	9.7	95	6.9
				7.0	14.2	9.7	95	6.9
				8.0	14.2	9.6	96	6.9
				9.0	14.1	9.5	96	6.9

Station	Date	(m)	(m)	(m)	(°C)	(mg/L)	(µS/cm)	pH
Snap Lake - Main Basin								
SNAP30	11-Aug-12	10.1	5.5	0.3	14.8	10.2	391	7.3
				1	14.5	10.2	394	7.3
				0.5	17.8	9.3	108	7.0
				1	17.7	9.3	108	7.1
				2	17.7	9.3	108	7.1
				3	17.8	9.4	108	7.1
				4	17.7	9.4	108	7.1
				5	17.7	9.4	108	7.1
				6	17.3	9.4	108	7.1
				7	17.1	9.3	108	7.1
				8	16.5	8.7	107	7.1
				9	16.3	8.4	107	7.1
				10	16.1[(a)]	**3.6[(a)]**	113[(a)]	6.7[(a)]
	14-Sep-12	6.0	4.3	0.3	9.3	11.0	121	7.3
				1	9.3	11.0	120	7.3
				2	9.3	11.0	120	7.3
				3	9.3	10.9	120	7.3
				4	9.3	10.9	120	7.3
				5	9.3	10.9	119	7.3
Northeast Lake								
NEL01	10-Jul-12	12.1	7.5	0.3	16.0	10.3	22	6.5
				1	15.6	10.4	22	6.5
				2	15.3	10.5	22	**6.4**
				3	14.7	10.6	22	**6.4**
				4	14.2	10.7	22	6.5
				5	13.8	10.7	22	6.5
				6	13.3	10.8	22	6.5
				7	13.0	10.8	22	6.5
				8	12.5	10.8	22	6.5
				9	12.3	10.9	22	6.5
				10	12.1	10.9	22	6.5
				11	12.0	10.9	22	6.5
				12	11.8[(a)]	7.6[(a)]	24[(a)]	**6.4[(a)]**
	15-Aug-12	12.0	7.5	0.5	15.4	9.6	22	7.6
				1	15.4	9.6	22	7.5
				2	15.5	9.6	22	7.5
				3	15.5	9.6	22	7.4
				4	15.4	9.6	22	7.4
				5	15.4	9.6	22	7.4
				6	15.4	9.6	22	7.4
				7	15.4	9.6	22	7.4
				8	15.4	9.6	22	7.4
				9	15.4	9.6	22	7.3
				10	15.4	9.6	22	7.3
				11	15.3	9.6	22	7.3
				12	15.3[(a)]	7.0[(a)]	33[(a)]	7.0[(a)]
	8-Sep-12	12.6	4.5	0.3	13.1	9.8	20	7.0
				1	13.1	9.8	20	6.9
				2	13.1	9.8	20	6.9
				3	13.1	9.8	20	6.9
				4	13.1	9.8	20	6.9
				5	13.1	9.8	20	6.9
				6	13.1	9.9	20	6.8
				7	13.1	9.8	20	6.8
				8	13.1	9.9	20	6.8
				9	13.0	9.9	20	6.8
				10	13.0	9.9	20	6.8
				11	13.0	9.9	20	6.8
NEL02	10-Jul-12	10.0	6.5	0.3	18.1	10.0	22	**6.2**
				1	18.0	10.1	22	**6.2**
				2	17.6	10.1	22	**6.2**
				3	17.3	10.2	22	**6.2**
				4	13.7	10.9	22	**6.3**
				5	13.1	10.9	22	**6.2**
				6	13.0	10.9	22	**6.2**
				7	12.7	10.9	22	**6.3**
				8	12.3	11.0	22	**6.2**
				9	12.1	11.1	22	**6.3**
				10	12.0	11.0	22	**6.2**
	15-Aug-12	12.0	8.5	0.5	15.8	9.6	22	7.0
				1	15.8	9.6	22	7.0
				2	15.8	9.6	22	7.0
				3	15.7	9.6	22	7.0
				4	15.7	9.6	22	6.9
				5	15.7	9.7	22	7.0
				6	15.7	9.6	22	7.0
				7	15.7	9.6	22	6.9
				8	15.7	9.6	22	6.9
				9	15.7	9.6	22	6.9
				10	15.7	9.6	22	6.9
				11	15.7	9.7	22	6.9
				0.3	13.2	9.9	19	6.7

Station	Date	(m)	(m)	(m)	(°C)	(mg/L)	(µS/cm)	pH
Snap Lake - Main Basin								
NEL03	8-Sep-12	10.8	4.5	0.3	14.8	10.2	391	7.3
				1	14.5	10.2	394	7.3
				1	13.2	9.9	19	6.7
				2	13.2	9.9	19	6.7
				3	13.2	9.9	19	6.7
				4	13.2	9.8	19	6.6
				5	13.2	9.9	19	6.7
				6	13.2	9.9	20	6.6
				7	13.2	9.9	20	6.6
				8	13.2	9.8	20	6.6
				9	13.2	9.9	20	6.6
				10	13.2	9.9	20	6.6
	10-Jul-12	10.2	6.0	0.3	17.8	10.0	22	**6.2**
				1	17.7	10.1	22	**6.2**
				2	17.5	10.1	22	**6.2**
				3	17.1	10.1	22	**6.3**
				4	15.8	10.4	22	**6.2**
				5	13.3	10.9	22	**6.2**
				6	12.6	10.9	22	**6.2**
				7	12.4	10.9	22	**6.2**
				8	12.3	11.0	22	**6.2**
				9	12.2	10.9	22	**6.1**
				10	12.1	9.8	22	**6.2**
	15-Aug-12	10.3	9.5	0.5	15.7	9.6	22	7.0
				1	15.7	9.6	22	7.0
				2	15.7	9.6	22	7.0
				3	15.7	9.6	22	7.0
				4	15.7	9.6	22	7.0
				5	15.0	9.6	22	7.0
				6	15.6	9.7	22	7.0
				7	15.5	9.7	22	7.0
				8	15.5	9.7	22	7.0
				9	15.5	9.7	22	7.0
				10	15.4	9.7	22	7.0
	8-Sep-12	8.0	4.5	0.3	13.1	9.8	19	6.6
				1	13.1	9.8	19	6.6
				2	13.1	9.8	19	6.6
				3	13.1	9.8	19	6.6
				4	13.1	9.8	20	6.6
				5	13.1	9.7	20	6.6
				6	1.1	9.9	20	6.6
				7	13.1	9.9	20	6.6
				7.5	13.1	9.9	20	6.6
NEL04	10-Jul-12	12.5	7.0	0.3	17.1	10.1	22	**6.2**
				1	16.9	10.1	22	**6.3**
				2	16.7	10.1	22	**6.3**
				3	15.8	10.3	22	**6.3**
				4	14.4	10.7	22	**6.3**
				5	13.2	10.8	22	**6.2**
				6	12.6	10.9	22	**6.3**
				7	12.3	10.9	22	**6.2**
				8	12.2	10.9	22	**6.3**
				9	12.0	10.9	22	**6.3**
				10	11.8	10.8	22	**6.3**
				11	11.8	10.8	22	**6.3**
				12	11.6	10.9	22	**6.2**
	15-Aug-12	13.3	7.5	0.5	15.6	9.6	22	7.0
				1	15.6	9.6	22	7.1
				2	15.6	9.6	22	7.1
				3	15.6	9.6	22	7.1
				4	15.6	9.6	22	7.1
				5	15.6	9.6	22	7.1
				6	15.6	9.6	22	7.1
				7	15.6	9.6	22	7.1
				8	15.6	9.6	22	7.0
				9	15.6	9.6	22	7.0
				10	15.6	9.6	22	7.1
				11	15.5	9.6	22	7.0
				12	15.5	9.6	22	7.0
				13	15.5	8.8	22	6.9
	8-Sep-12	11.9	5.5	0.3	13.2	9.9	20	6.6
				1	13.2	9.8	20	6.6
				2	13.2	9.8	20	6.6
				3	13.2	9.8	20	6.6
				4	13.2	9.8	20	6.6
				5	13.2	9.8	20	6.6
				6	13.2	9.8	20	6.6
				7	13.2	9.8	19	6.6
				8	13.2	9.8	19	6.6
				9	13.2	9.8	19	6.6
				10	13.2	9.8	20	6.6
				11	13.2	9.8	19	6.6

Station	Date	(m)	(m)	(m)	(°C)	(mg/L)	(µS/cm)	pH
Snap Lake - Main Basin								
				0.3	14.8	10.2	391	7.3
				1	14.5	10.2	394	7.3
				11.5	13.2	9.8	19	6.6
NEL05	10-Jul-12	9.0	5.5	0.3	18.1	10.0	22	**6.2**
				1	17.9	10.0	22	**6.2**
				2	17.1	10.1	22	**6.2**
				3	16.5	10.2	22	**6.2**
				4	14.7	10.7	22	**6.2**
				5	13.2	10.9	22	**6.2**
				6	12.5	11.0	22	**6.2**
				7	12.2	10.9	22	**6.2**
				8	12.1	10.9	22	**6.2**
				9	12.0	10.5	22	**6.2**
	15-Aug-12	12.0	8.5	0.5	15.5	9.7	22	7.0
				1	15.5	9.7	22	7.0
				2	15.5	9.7	22	7.0
				3	15.5	9.7	22	7.0
				4	15.5	9.7	22	7.0
				5	15.5	9.7	22	7.0
				6	15.5	9.7	22	7.0
				7	15.5	9.7	22	7.0
				8	15.4	9.7	22	7.0
				9	15.4	9.7	22	7.0
				10	15.4	9.7	22	7.0
				11	15.4	9.7	22	7.0
	8-Sep-12	11.0	7.5	0.3	13.1	9.8	19	6.6
				1	13.1	9.8	19	6.6
				2	13.1	9.8	19	6.6
				3	13.1	9.9	19	6.6
				4	13.1	9.8	20	6.6
				5	13.1	9.9	20	6.6
				6	13.1	9.8	20	6.6
				7	13.1	9.8	20	6.6
				8	13.1	9.9	20	6.6
				9	13.1	9.9	20	6.6
				9.5	13.1	9.8	20	6.6

Notes:
Values in **bold** type are outside the applicable Canadian Water Quality Guidlines for the Protection of Aquatic Life: dissolved oxygen for cold water biota (6.5 to 9.5 mg/L); and pH (6.5 to 9.0; CCME 2012).
[a] = instrument likely came into contact with bottom substrate.
[b] =limnology profiles were not collected at SNAP01 on 11-Aug-12.
[c] = percent dissolved oxygen was recorded rather than mg/L
[d] = YSI cable could not reach maximum depth
'-' = not recorded; Jul = July; Aug = August; Sep = September; m = metre; °C = degrees Celsius; mg/L = milligrams per litre; and µS/cm = microSiemens per centimetre.

Table 5A-10 Zooplankton Quality Assurance/Quality Control Comparison of Abundance in Split Samples in Snap Lake and Northeast Lake, 2012

Major Taxonomic Group	Snap Lake Abundance																		Northeast Lake Abundance								
	SNAP02-20e Rep B			SNAP30 Rep B			SNAP06 Rep A			SNAP01 Rep A			SNAP01 Rep A			SNAP29 Rep B			NEL01 Rep B			NEL03 Rep B			NEL05 Rep B		
	8-Jul-12			7-Jul-12			10-Aug-12			11-Aug-12			8-Sep-12			12-Sep-12			10-Jul-12			15-Aug-11			8-Sep-12		
	O2-1	31-IQ	RPD	O6-1	32-IQ	RPD	42-2	64-2QA	RPD	48-2	65-2QA	RPD	81-3	97-3QA	RPD	86-3	98-3QA	RPD	O22-1	33-IQ	RPD	59-2	62-2QA	RPD	96-3	99-3QA	RPD
	(# of orgs/m^3)	(# of orgs/m^3)	(%)	(# of orgs/m^3)	(# of orgs/m^3)	(%)	(# of orgs/m^3)	(# of orgs/m^3)	(%)	(# of orgs/m^3)	(# of orgs/m^3)	(%)	(# of orgs/m^3)	(# of orgs/m^3)	(%)	(# of orgs/m^3)	(# of orgs/m^3)	(%)	(# of orgs/m^3)	(# of orgs/m^3)	(%)	(# of orgs/m^3)	(# of orgs/m^3)	(%)	(# of orgs/m^3)	(# of orgs/m^3)	(%)
Rotifera	507	166	101	64,582	58,961	9	7,540	7,892	5	2,131	4,848	78	28,175	28,502	1	30,452	26,479	14	37,590	29,014	26	12,845	8,787	38	4,468	3,143	35
Others	0	0	0	0	0	0	0	2,321	200	0	231	200	0	0	0	0	2,583	200	0	0	0	6,702	0	200	558	0	200
Calanoida	1,807	1,400	25	5,965	5,550	7	4,535	4,535	0	512	541	6	1,426	1,680	16	1,140	868	27	5,782	3,520	49	3,477	3,235	7	2,761	2,179	24
Cyclopoida	588	578	2	7,227	8,276	14	4,051	5,372	28	3,895	5,428	33	9,756	9,826	1	7,857	4,493	54	4,299	2,053	71	4,988	3,692	30	3,131	2,176	36
Cladocera	20	0	200	104	52	67	251	273	9	1,392	1,286	8	153	0	200	37	31	17	213	74	97	462	506	9	325	159	68
Total Zooplankton Community	2,922	2,144	31	77,877	72,838	7	16,376	20,394	22	7,931	12,335	43	39,509	40,008	1	39,485	34,453	14	47,884	34,661	32	28,473	16,220	55	11,243	7,658	38
Bray-Curtis Index	**0.15**			**0.04**			**0.11**			**0.22**			**0.01**			**0.10**			**0.16**			**0.28**			**0.19**		

Notes:
Grey cells Represent flagged values which exceed a relative percent difference greater than 50%
Jul = July; Aug = August; Sep = September; Rep = replicate; RPD = relative percent difference; % = percent; and # of orgs/m2 = number of organisms per cubic metre.

Table 5A-9 Zooplankton Abundance and Biomass from Plankton Sampling Stations in Snap Lake, Northeast Lake, and Lake 13, 20

Taxon	SNAP02-20e Rep A 8-Jul-12 O1-1		SNAP02-20e Rep B 8-Jul-12 O2-1		SNAP02-20e Rep A 10-Aug-12 34-2		SNAP02-20e Rep B 10-Aug-12 35-2		SNAP02-20e Rep A 9-Sep-12 67-3		SNAP02-20e Rep B 9-Sep-12 68-3		SNAP03 Rep A 7-Jul-12 O7-1		SNAP03 Rep B 7-Jul-12 O8-1
	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)
Calanoida															
Epischura nevadensis Lilljeborg	0	0	0	0	16	294	34	605	0	0	13	228	0	0	0
Heterocope septentrionalis Juday and Muttkowsk	0	0	0	0	0	0	17	1696	0	0	0	0	0	0	0
Leptodiaptomus sicilis S.A. Forbes	921	7031	1293	9874	2997	22895	1637	12503	2209	16876	3112	23771	3473	26532	4444
Leptodiaptomus minutus Lilljeborg	9	42	20	97	631	3109	489	2413	54	266	13	63	587	2896	715
Calanoid copepodid	128	337	157	412	0	0	0	0	0	0	0	0	1379	3630	1558
Calanoid nauplii	0	0	338	2294	0	0	0	0	0	0	0	0	0	0	0
Total Calanoida	**1057**	**7410**	**1807**	**12676**	**3644**	**26298**	**2177**	**17217**	**2263**	**17142**	**3137**	**24061**	**5440**	**33058**	**6717**
Cyclopoida															
Cyclops bicuspidatus thomasi S. A. Forbes	0	0	0	0	41	213	17	88	13	70	0	0	0	0	0
Cyclops scutifer Sars	298	2,027	470	3,195	1,695	11,521	1,586	10,780	472	3,204	584	3,971	1,226	8,331	1,532
Cyclopoid copepodid	43	68	118	187	90	144	84	135	108	172	102	162	179	285	102
Cyclopoid nauplii	153	537	0	0	3,008	10,552	5,444	19,094	4,486	15,734	3,632	12,737	384	1,347	785
Total Cyclopoida	**494**	**2,632**	**588**	**3,382**	**4,835**	**22,429**	**7,131**	**30,097**	**5,079**	**19,181**	**4,318**	**16,870**	**1,789**	**9,963**	**2,420**
Cladocera															
Daphnia pulex Leydig	0	0	0	0	74	797	34	365	13	146	51	550	0	0	0
Daphnia longiremis Sars	0	0	10	79	0	0	17	137	0	0	0	0	26	207	26
Holopedium gibberum Zaddach	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bosmina longirostris Muller	0	0	10	14	49	68	68	93	54	74	64	88	26	35	77
Total Cladocera	**0**	**0**	**20**	**93**	**123**	**865**	**118**	**595**	**67**	**220**	**114**	**637**	**51**	**242**	**102**
Rotifera															
Collotheca mutabilis Harring	0	0	0	0	0	0	287	240	0	0	0	0	0	0	0
Conochilus unicornis Rousselet	0	0	0	0	0	0	0	0	0	0	214	380	0	0	0
Kellicotia longispina Kellicott	0	0	338	529	6711	10491	6017	9406	5982	9350	10468	16363	5567	8703	1309
Keratella cochlearis Gosse	0	0	169	176	463	480	2006	2082	427	444	855	887	0	0	0
Polyathra dolicoptera Idelson	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Polyathra vulgaris Carlin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Rotifera	**0**	**0**	**507**	**704**	**7174**	**10971**	**8309**	**11728**	**6409**	**9794**	**11536**	**17630**	**5567**	**8703**	**1309**
Ciliophora															
Vorticella sp.	0	0	0	0	0	0	0	0	214	37	0	0	0	0	0
Total Ciliophora	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**214**	**37**	**0**	**0**	**0**	**0**	**0**
Total Zooplankton Community	**1,551**	**10,042**	**2,922**	**16,855**	**15,776**	**60,564**	**17,736**	**59,636**	**14,032**	**46,373**	**19,105**	**59,199**	**12,847**	**51,967**	**10,548**

Notes:
Samples were analyzed by Bio-Limno Reseach and Consulting Inc.
(a) *Cyclops bicuspidatus thomasi* has appeared as *Dicyclops bicuspidatus* in previous years
Jul = July; Aug = August; Sep = September; Rep A = replicate sample A; Rep B = replicate sample B; sp. = species; # of orgs/m3 = number of organisms per cubic metre; and µg/m3 = micrograms per cubic metre.

	Snap Lake- Main Basin																
	SNAP03		SNAP03		SNAP03		SNAP03		SNAP06		SNAP06		SNAP06		SNAP06		SNAP06
	Rep A		Rep B		Rep A		Rep B		Rep A		Rep B		Rep A		Rep B		Rep A
	13-Aug-12		13-Aug-12		7-Sep-12		7-Sep-12		13-Jul-12		13-Jul-12		10-Aug-12		10-Aug-12		11-Sep-1
	40-2		41-2		73-3		74-3		O9-1		O10-1		42-2		43-2		75-3
Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)
0	0	0	0	0	0	0	26	467	0	0	0	0	23	409	0	0	0
0	20	2024	0	0	54	5382	0	0	0	0	0	0	0	0	0	0	0
33945	3082	23545	2856	21819	3535	27003	2525	19284	8013	61205	5758	43984	3031	23152	2673	20421	3025
3526	1289	6357	1108	5461	0	0	52	257	1005	4957	1127	5558	1459	7191	1337	6591	25
4101	0	0	0	0	0	0	0	0	609	1604	366	962	23	60	42	112	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41572	**4392**	**31926**	**3964**	**27280**	**3589**	**32386**	**2603**	**20008**	**9627**	**67766**	**7251**	**50504**	**4535**	**30812**	**4053**	**27123**	**3050**
0	0	0	0	0	0	0	0	0	0	0	0	0	23	119	0	0	0
10,414	342	2,328	554	3,764	830	5,642	625	4,245	1,371	9,317	1,310	8,903	729	4,956	764	5,191	610
163	20	32	87	139	241	384	234	374	213	340	274	437	0	0	64	102	610
2,755	6,848	24,019	5,231	18,348	4,688	16,442	5,023	17,616	709	2,485	2,142	7,512	3,299	11,569	4,363	15,303	3,823
13,332	**7,211**	**26,379**	**5,873**	**22,251**	**5,759**	**22,468**	**5,882**	**22,235**	**2,293**	**12,143**	**3,726**	**16,853**	**4,051**	**16,644**	**5,191**	**20,596**	**5,043**
0	20	218	29	315	134	1449	52	563	0	0	0	0	0	0	0	0	76
207	0	0	0	0	0	0	0	0	30	247	61	494	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	121	167	117	161	241	332	416	574	91	126	152	210	251	346	382	527	76
313	**141**	**385**	**146**	**476**	**375**	**1781**	**468**	**1137**	**122**	**373**	**213**	**704**	**251**	**346**	**382**	**527**	**153**
0	457	382	476	398	0	0	419	351	0	0	0	0	471	395	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2046	10044	15701	5707	8921	22033	34441	11719	18320	2480	3877	1530	2392	6597	10313	3054	4774	18841
0	457	474	0	0	0	0	1256	1304	0	0	0	0	471	489	0	0	1092
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2046	**10957**	**16557**	**6183**	**9319**	**22033**	**34441**	**13394**	**19974**	**2480**	**3877**	**1530**	**2392**	**7540**	**11196**	**3054**	**4774**	**19934**
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
57,262	**22,701**	**75,247**	**16,165**	**59,327**	**31,755**	**91,076**	**22,346**	**63,354**	**14,522**	**84,159**	**12,720**	**70,452**	**16,376**	**58,999**	**12,679**	**53,020**	**28,180**

3	SNAP06		SNAP11A		SNAP11A		SNAP11A		SNAP11A		SNAP11A		SNAP11A		SNAP08		SNAP08
	Rep B		Rep A		Rep B		Rep A		Rep B		Rep A		Rep B		Rep A		Rep B
2	11-Sep-12		12-Jul-12		12-Jul-12		13-Aug-12		13-Aug-12		13-Sep-12		13-Sep-12		9-Jul-12		9-Jul-12
	76-3		O13-1		O14-1		46-2		47-2		79-3		80-3		O11-1		O12-1
Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)
0	0	0	0	0	0	0	0	0	38	677	0	0	0	0	38	687	0
0	29	2925	0	0	0	0	17	1674	0	0	19	1895	0	0	0	0	90
23107	4163	31797	3811	29111	7523	57466	5614	42886	4941	37745	4413	33711	6735	51445	4674	35701	4300
125	29	144	186	917	541	2667	800	3943	1245	6137	0	0	0	0	192	944	179
0	0	0	170	449	443	1165	0	0	0	0	0	0	0	0	421	1109	672
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23232	**4221**	**34866**	**4167**	**30476**	**8507**	**61298**	**6431**	**48502**	**6224**	**44559**	**4432**	**35606**	**6735**	**51445**	**5325**	**38442**	**5241**
0	0	0	0	0	0	0	0	0	0	0	19	98	0	0	0	0	0
4,146	1,135	7,716	883	6,001	2,754	18,714	950	6,454	1,264	8,588	1,377	9,357	2,135	14,513	5,095	34,628	4,255
973	902	1,439	124	198	467	745	33	53	19	30	1,226	1,956	1,314	2,096	575	917	896
13,408	3,058	10,727	1,345	4,719	269	944	2,792	9,794	7,679	26,934	1,782	6,252	4,753	16,671	0	0	0
18,528	**5,096**	**19,882**	**2,352**	**10,918**	**3,490**	**20,403**	**3,775**	**16,301**	**8,962**	**35,552**	**4,404**	**17,662**	**8,203**	**33,280**	**5,670**	**35,544**	**5,151**
825	0	0	0	0	0	0	0	0	0	0	113	1224	0	0	0	0	0
0	0	0	46	376	0	0	0	0	0	0	0	0	0	0	0	0	45
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	29	40	31	43	25	34	83	115	113	156	19	26	137	189	38	53	0
930	**29**	**40**	**77**	**419**	**25**	**34**	**83**	**115**	**113**	**156**	**132**	**1250**	**137**	**189**	**38**	**53**	**45**
0	437	366	0	0	0	0	0	0	349	292	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29452	17039	26635	538	841	1884	2944	5585	8730	16755	26191	19013	29721	16042	25077	471	736	2196
1134	0	0	0	0	0	0	349	362	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30586	**17476**	**27001**	**538**	**841**	**1884**	**2944**	**5934**	**9093**	**17104**	**26483**	**19013**	**29721**	**16042**	**25077**	**471**	**736**	**2196**
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
73,276	**26,822**	**81,789**	**7,136**	**42,655**	**13,905**	**84,679**	**16,223**	**74,011**	**32,403**	**106,750**	**27,981**	**84,240**	**31,117**	**109,991**	**11,504**	**74,775**	**12,633**

	SNAP08		SNAP08		SNAP08		SNAP08		SNAP29		SNAP29		SNAP29		SNAP29		SNAP2
	Rep A		Rep B		Rep A		Rep B		Rep A		Rep B		Rep A		Rep B		Rep A
	13-Aug-12		13-Aug-12		11-Sep-12		11-Sep-12		7-Jul-12		7-Jul-12		11-Aug-12		11-Aug-12		12-Sep-1
	44-2		45-2		77-3		78-3		O19-1		O20-1		52-2		53-2		85-3
Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)
0	0	0	0	0	0	0	0	0	46	822	0	0	26	471	26	459	0
9002	38	3790	45	4560	0	0	0	0	46	4603	0	0	26	2640	0	0	0
32847	6941	53016	6399	48878	3430	26200	3528	26950	4855	37086	4973	37987	3809	29096	2176	16619	1579
883	717	3534	998	4923	39	192	116	570	321	1581	186	917	657	3238	410	2019	0
1769	38	99	0	0	0	0	0	0	229	603	790	2080	26	69	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44501	**7733**	**60439**	**7443**	**58361**	**3469**	**26393**	**3644**	**27520**	**5496**	**44694**	**5949**	**40983**	**4545**	**35514**	**2611**	**19097**	**1579**
0	2,527	13,166	0	0	0	0	29	151	137	716	232	1,211	53	274	0	0	30
28,920	113	769	3,313	22,515	1,325	9,007	1,301	8,844	3,344	22,724	3,346	22,742	1,156	7,855	1,613	10,959	2,065
1,429	0	0	136	217	585	933	752	1,199	733	1,169	697	1,112	0	0	26	41	3,158
0	3,295	11,556	1,569	5,503	5,780	20,274	4,887	17,140	1,525	5,348	1,794	6,292	3,349	11,745	3,438	12,060	6,530
30,349	**5,935**	**25,490**	**5,018**	**28,235**	**7,690**	**30,213**	**6,969**	**27,334**	**5,739**	**29,957**	**6,070**	**31,357**	**4,557**	**19,874**	**5,077**	**23,059**	**11,784**
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
363	0	0	0	0	0	0	0	0	137	1113	46	376	0	0	0	0	30
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	151	208	45	63	78	107	29	40	321	442	604	833	1287	1775	1280	1765	91
363	**151**	**208**	**45**	**63**	**78**	**107**	**29**	**40**	**458**	**1555**	**651**	**1210**	**1287**	**1775**	**1280**	**1765**	**121**
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1633
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3433	4942	7725	4184	6540	2569	4016	4189	6548	83358	130304	84315	131800	3767	5889	4126	6450	23673
0	0	0	523	543	1285	1333	1396	1449	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3433	**4942**	**7725**	**4707**	**7083**	**3854**	**5349**	**5585**	**7997**	**83358**	**130304**	**84315**	**131800**	**3767**	**5889**	**4126**	**6450**	**25306**
0	0	0	0	0	0	0	0	0	0	0	0	0	419	72	0	0	0
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**419**	**72**	**0**	**0**	**0**
78,646	**18,761**	**93,863**	**17,213**	**93,741**	**15,091**	**62,062**	**16,227**	**62,891**	**95,052**	**206,510**	**96,985**	**205,349**	**14,575**	**63,124**	**13,093**	**50,371**	**38,790**

)	SNAP29		SNAP02A		SNAP02A		SNAP02A		SNAP02A		SNAP02A		SNAP02A		SNAP01		SNAP01
	Rep B		Rep A		Rep B		Rep A		Rep B		Rep A		Rep B		Rep A		Rep B
2	12-Sep-12		7-Jul-12		7-Jul-12		11-Aug-12		11-Aug-12		12-Sep-12		12-Sep-12		12-Jul-12		12-Jul-1
	86-3		O17-1		O18-1		50-2		51-2		83-3		84-3		O15-1		O16-1
Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)
0	0	0	42	761	99	1776	0	0	0	0	0	0	0	0	0	0	209
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85	8528	0
12062	1029	7862	6323	48298	5644	43111	2657	20295	3287	25108	1855	14170	950	7255	5602	42787	4312
0	110	544	1273	6277	1040	5126	144	712	207	1020	34	169	0	0	3565	17575	4034
0	0	0	127	335	99	261	0	0	23	61	0	0	0	0	679	1787	417
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12062	**1140**	**8406**	**7766**	**55671**	**6882**	**50274**	**2801**	**21007**	**3517**	**26188**	**1889**	**14339**	**950**	**7255**	**9930**	**70678**	**8972**
158	0	0	85	442	0	0	116	602	23	120	0	0	63	330	85	442	0
14,034	1,581	10,743	6,323	42,971	4,951	33,646	2,513	17,075	2,368	16,090	2,096	14,241	1,266	8,606	2,037	13,843	1,878
5,038	3,934	6,274	552	880	594	948	0	0	69	110	8,657	13,809	7,250	11,564	424	677	278
22,905	2,342	8,216	6,668	23,386	6,223	21,827	7,322	25,679	12,159	42,646	1,196	4,195	1,196	4,195	2,981	10,455	941
42,135	**7,857**	**25,233**	**13,627**	**67,680**	**11,768**	**56,421**	**9,950**	**43,356**	**14,619**	**58,966**	**11,948**	**32,245**	**9,775**	**24,695**	**5,527**	**25,417**	**3,097**
0	0	0	0	0	0	0	29	312	0	0	34	372	0	0	0	0	0
246	0	0	509	4124	149	1203	29	234	46	372	69	556	0	0	0	0	278
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	37	51	42	59	50	68	924	1274	736	1014	69	95	0	0	0	0	139
372	**37**	**51**	**552**	**4183**	**198**	**1271**	**982**	**1821**	**782**	**1387**	**172**	**1023**	**0**	**0**	**0**	**0**	**417**
1367	0	0	0	0	0	0	366	307	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	366	651	0	0	0	0	0	0	0	0	0
37005	30452	47602	81583	127529	109353	170938	10250	16023	8629	13489	28703	44868	43055	67302	95389	149111	74366
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	445	540	0	0	0	0	0	0	0	0	0	0	0
38373	**30452**	**47602**	**81583**	**127529**	**109797**	**171478**	**10982**	**16981**	**8629**	**13489**	**28703**	**44868**	**43055**	**67302**	**95389**	**149111**	**74366**
0	0	0	0	0	0	0	4,393	757	7,452	1,284	0	0	0	0	0	0	0
0	**0**	**0**	**0**	**0**	**0**	**0**	**4,393**	**757**	**7,452**	**1,284**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
92,941	**39,485**	**81,292**	**103,528**	**255,063**	**128,645**	**279,445**	**29,108**	**83,922**	**34,998**	**101,313**	**42,713**	**92,475**	**53,780**	**99,252**	**110,846**	**245,206**	**86,852**

Snap Lake - Northwest Arm																	
	SNAP01		SNAP01		SNAP01		SNAP01		SNAP20B		SNAP20B		SNAP20B		SNAP20B		SNAP20
	Rep A		Rep B		Rep A		Rep B		Rep A		Rep B		Rep A		Rep B		Rep A
2	11-Aug-12		11-Aug-12		14-Sep-12		14-Sep-12		14-Jul-12		14-Jul-12		11-Aug-12		11-Aug-12		12-Sep-1
	48-2		49-2		81-3		82-3		O3-1		O4-1		36-2		37-2		69-3
Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)
3743	19	347	0	0	0	0	0	0	22	402	23	414	22	392	0	0	0
0	39	3885	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
32937	435	3323	382	2920	1426	10891	1431	10927	1904	14541	1663	12706	1836	14027	1887	14413	626
19888	19	95	72	357	0	0	0	0	179	883	254	1253	44	216	183	900	0
1098	0	0	0	0	0	0	0	0	134	354	69	182	0	0	61	160	0
0	0	0	0	0	0	0	0	0	0	0	167	1136	0	0	0	0	0
57666	**512**	**7650**	**455**	**3277**	**1426**	**10891**	**1431**	**10927**	**2240**	**16180**	**2178**	**15692**	**1902**	**14634**	**2130**	**15473**	**647**
0	10	50	31	161	51	265	116	604	134	700	162	843	0	0	61	317	21
12,762	561	3,810	300	2,037	5,092	34,608	4,756	32,320	4,121	28,006	3,558	24,180	5,509	37,439	6,208	42,193	2,482
444	10	15	41	66	2,852	4,549	8,003	12,766	179	286	832	1,327	503	802	396	631	2,758
3,302	3,315	11,628	2,694	9,447	1,761	6,176	2,516	8,823	8,635	30,286	8,876	31,131	32,758	114,893	46,131	161,798	24,314
16,507	**3,895**	**15,504**	**3,066**	**11,711**	**9,756**	**45,598**	**15,391**	**54,513**	**13,070**	**59,279**	**13,427**	**57,480**	**38,770**	**153,134**	**52,796**	**204,939**	**29,576**
0	0	0	0	0	51	551	39	418	0	0	0	0	0	0	30	329	0
2253	58	470	41	335	51	412	0	0	269	2177	69	561	328	2656	517	4190	74
0	0	0	0	0	0	0	0	0	0	0	23	155	0	0	0	0	0
192	1334	1839	940	1297	51	70	77	107	112	154	231	319	634	874	548	755	42
2445	**1392**	**2309**	**982**	**1631**	**153**	**1034**	**116**	**525**	**381**	**2331**	**323**	**1035**	**962**	**3530**	**1096**	**5275**	**117**
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3805	3187	1204
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	476	846	481
116248	1658	2591	2501	3910	26414	41289	22640	35391	32709	51130	30144	47121	7990	12489	6183	9664	3370
0	237	246	0	0	1761	1828	0	0	0	0	167	174	0	0	0	0	963
0	0	0	0	0	0	0	839	736	0	0	0	0	0	0	0	0	0
0	237	288	0	0	0	0	0	0	262	318	167	203	0	0	0	0	0
116248	**2131**	**3125**	**2501**	**3910**	**28175**	**43117**	**23479**	**36127**	**32970**	**51447**	**30479**	**47498**	**7990**	**12489**	**10463**	**13697**	**6018**
0	0	0	192	33	0	0	0	0	0	0	0	0	26,366	4,543	0	0	0
0	**0**	**0**	**192**	**33**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**26,366**	**4,543**	**0**	**0**	**0**
192,866	**7,931**	**28,588**	**7,196**	**20,563**	**39,509**	**100,640**	**40,416**	**102,092**	**48,660**	**129,238**	**46,407**	**121,706**	**75,989**	**188,331**	**66,485**	**239,385**	**36,359**

B	SNAP20B		SNAP30		SNAP30		SNAP30		SNAP30		SNAP30		SNAP30		NEL01		NEL01
	Rep B		Rep A		Rep B		Rep A		Rep B		Rep A		Rep B		Rep A		Rep B
2	12-Sep-12		7-Jul-12		7-Jul-12		11-Aug-12		11-Aug-12		14-Sep-12		14-Sep-12		10-Jul-12		10-Jul-1
	70-3		O5-1		O6-1		38-2		39-2		71-3		72-3		O21-1		O22-1
Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)
0	0	0	140	2513	104	1861	26	465	27	486	0	0	0	0	30	538	0
2132	0	0	35	3520	52	5212	0	0	0	0	0	0	0	0	30	3015	61
4781	806	6159	4378	33443	4512	34467	3112	23771	2196	16774	528	4034	754	5763	1950	14898	2313
0	0	0	666	3281	1141	5626	130	639	271	1337	0	0	0	0	780	3846	639
0	14	37	420	1106	156	410	0	0	0	0	0	0	0	0	3031	7977	2769
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6913	**820**	**6196**	**5639**	**43864**	**5965**	**47575**	**3268**	**24875**	**2494**	**18598**	**528**	**4034**	**754**	**5763**	**5821**	**30275**	**5782**
111	113	590	70	365	104	540	0	0	0	0	0	0	0	0	60	313	0
16,871	3,296	22,399	2,802	19,043	3,942	26,789	3,631	24,674	3,037	20,636	1,485	10,094	1,569	10,664	2,460	16,721	1,765
4,400	3,947	6,295	70	112	311	496	26	41	81	130	3,268	5,212	3,591	5,728	240	383	365
85,279	23,487	82,378	3,498	12,269	2,870	10,067	8,237	28,889	10,982	38,519	2,516	8,823	0	0	304	1,068	2,169
106,660	**30,843**	**111,662**	**6,440**	**31,789**	**7,227**	**37,893**	**11,893**	**53,604**	**14,100**	**59,285**	**7,268**	**24,129**	**5,160**	**16,392**	**3,065**	**18,484**	**4,299**
0	99	1071	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
601	14	115	70	567	52	420	26	210	0	0	0	0	0	0	0	0	0
0	0	0	35	235	0	0	0	0	0	0	0	0	0	0	60	403	183
59	57	78	70	97	52	72	934	1287	922	1271	33	46	91	125	0	0	30
660	**170**	**1264**	**175**	**899**	**104**	**492**	**960**	**1497**	**922**	**1271**	**33**	**46**	**91**	**125**	**60**	**403**	**213**
1008	2072	1736	1555	1302	1076	902	392	329	732	613	839	702	0	0	0	0	0
857	0	0	389	692	359	638	0	0	0	0	0	0	0	0	4566	8123	4337
5268	5066	7919	71130	111189	63147	98710	10982	17167	8786	13734	8385	13108	5786	9044	22523	35208	32891
1000	921	956	0	0	0	0	0	0	0	0	0	0	0	0	304	316	361
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8133	**8059**	**10611**	**73073**	**113183**	**64582**	**100250**	**11375**	**17496**	**9518**	**14347**	**9224**	**13810**	**5786**	**9044**	**27393**	**43647**	**37590**
0	0	0	0	0	0	0	3,530	608	366	63	0	0	1,929	332	0	0	0
0	**0**	**0**	**0**	**0**	**0**	**0**	**3,530**	**608**	**366**	**63**	**0**	**0**	**1,929**	**332**	**0**	**0**	**0**
122,366	**39,893**	**129,733**	**85,328**	**189,735**	**77,877**	**186,209**	**31,025**	**98,081**	**27,400**	**93,564**	**17,053**	**42,018**	**13,720**	**31,656**	**36,339**	**92,809**	**47,884**

	NEL01		NEL01		NEL01		NEL-01		NEL02		NEL02		NEL02		NEL02		NEL02
	Rep A		Rep B		Rep A		Rep B		Rep A		Rep B		Rep A		Rep B		Rep A
2	15-Aug-12		15-Aug-12		8-Sep-12		8-Sep-12		10-Jul-12		10-Jul-12		15-Aug-12		15-Aug-12		8-Sep-12
	54-2		55-2		87-3		88-3		O23-1		O24-1		56-2		57-2		89-3
Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)
0	20	367	15	261	0	0	0	0	23	404	0	0	42	761	0	0	0
6116	0	0	15	1461	21	2154	0	0	0	0	54	5475	21	2132	22	2179	24
17668	3821	29185	3111	23765	2100	16044	1564	11944	2253	17208	2670	20393	3904	29821	4099	31312	1800
3151	41	201	58	287	0	0	62	304	113	555	27	134	85	418	87	428	24
7290	123	323	102	268	0	0	0	0	1982	5218	1989	5235	21	56	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34225	**4005**	**30076**	**3300**	**26041**	**2122**	**18197**	**1625**	**12249**	**4370**	**23386**	**4740**	**31237**	**4074**	**33189**	**4208**	**33920**	**1848**
0	20	106	44	227	43	223	41	214	135	704	27	142	42	221	22	113	73
11,996	1,369	9,303	1,338	9,090	1,522	10,341	1,296	8,809	991	6,736	1,880	12,775	1,209	8,219	1,063	7,223	803
583	41	65	29	46	472	752	288	459	68	108	82	130	64	102	0	0	413
7,606	2,304	8,080	2,443	8,570	2,663	9,341	2,283	8,006	0	0	838	2,938	963	3,377	1,256	4,405	551
20,185	**3,734**	**17,555**	**3,854**	**17,933**	**4,699**	**20,658**	**3,908**	**17,490**	**1,194**	**7,548**	**2,826**	**15,985**	**2,278**	**11,919**	**2,340**	**11,741**	**1,840**
0	0	0	0	0	0	0	0	0	0	0	27	295	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1227	41	331	29	235	0	0	0	0	0	0	54	366	42	344	152	1230	0
42	368	711	102	197	43	59	185	255	0	0	0	0	679	1313	369	713	316
1269	**409**	**1042**	**131**	**432**	**43**	**59**	**185**	**255**	**0**	**0**	**82**	**661**	**721**	**1657**	**521**	**1943**	**316**
0	0	0	0	0	380	319	380	319	0	0	0	0	0	0	419	351	1101
7717	2304	4099	2094	3726	2663	4738	3424	6092	8726	15526	3770	6707	4815	8566	2931	5214	3304
51415	1152	1801	5934	9276	3044	4758	2283	3568	6632	10367	5445	8512	7704	12042	9211	14398	2753
375	0	0	0	0	380	395	380	395	0	0	0	0	0	0	0	0	551
0	0	0	349	306	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59507	**3456**	**5899**	**8377**	**13308**	**6468**	**10210**	**6468**	**10374**	**15358**	**25893**	**9215**	**15219**	**12518**	**20608**	**12560**	**19963**	**7708**
0	1,152	198	1,396	241	380	66	0	0	0	0	0	0	15,889	2,738	2,931	505	0
0	**1,152**	**198**	**1,396**	**241**	**380**	**66**	**0**	**0**	**0**	**0**	**0**	**0**	**15,889**	**2,738**	**2,931**	**505**	**0**
115,185	**12,755**	**54,771**	**17,058**	**57,955**	**13,712**	**49,190**	**12,187**	**40,368**	**20,923**	**56,827**	**16,864**	**63,103**	**35,480**	**70,111**	**22,560**	**68,071**	**11,712**

Northeast Lake																	
	NEL02		NEL03		NEL03		NEL03		NEL03		NEL03		NEL03		NEL04		NEL04
	Rep B		Rep A		Rep B		Rep A		Rep B		Rep A		Rep B		Rep A		Rep B
2	8-Sep-12		10-Jul-12		10-Jul-12		15-Aug-12		15-Aug-12		8-Sep-12		8-Sep-12		10-Jul-12		10-Jul-1
	90-3		O25-1		O26-1		58-2		59-2		91-3		92-3		O27-1		O28-1
Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)
0	0	0	0	0	0	0	0	0	22	395	0	0	0	0	0	0	0
2444	23	2294	0	0	24	2422	0	0	22	2211	0	0	35	3520	21	2286	0
13747	2146	16393	2178	16639	1759	13438	3112	23771	3235	24707	36	278	2277	17391	987	6218	1129
120	137	675	28	139	0	0	94	465	198	976	3565	17575	70	345	0	0	0
0	0	0	2207	5809	2000	5265	0	0	0	0	73	191	0	0	672	1303	718
0	0	0	1117	7575	0	0	0	0	0	0	0	0	0	0	0	0	0
16310	**2306**	**19363**	**5530**	**30163**	**3784**	**21125**	**3206**	**24236**	**3477**	**28289**	**3674**	**18044**	**2382**	**21256**	**1680**	**9807**	**1847**
380	68	357	85	442	24	126	0	0	66	344	0	0	105	547	21	87	27
5,454	1,119	7,603	1,641	11,151	1,566	10,646	919	6,249	968	6,580	36	247	1,331	9,046	504	2,790	691
659	365	583	141	226	24	38	47	75	44	70	1,564	2,495	385	615	63	70	13
1,931	0	0	0	0	419	1,469	2,327	8,162	3,909	13,712	1,435	5,034	3,588	12,584	0	0	342
8,425	**1,553**	**8,542**	**1,867**	**11,819**	**2,034**	**12,279**	**3,294**	**14,486**	**4,988**	**20,706**	**3,036**	**7,776**	**5,409**	**22,791**	**588**	**2,947**	**1,073**
0	23	247	0	0	0	0	0	0	0	0	473	5116	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	68	460	28	190	72	486	47	382	66	535	0	0	70	471	21	141	27
436	457	630	28	39	24	33	306	593	396	766	436	602	420	580	0	0	0
436	**548**	**1337**	**57**	**229**	**96**	**519**	**354**	**975**	**462**	**1301**	**909**	**5718**	**490**	**1050**	**21**	**141**	**27**
922	573	480	0	0	0	0	465	390	0	0	0	0	2870	2404	0	0	0
5878	6871	12226	11170	19873	11309	20122	6981	12421	3351	5962	5741	10214	1435	2553	3767	6702	1370
4303	2863	4476	3351	5238	6702	10476	8843	13823	9494	14841	0	0	3588	5609	5136	8029	9930
572	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11675	**10307**	**17181**	**14521**	**25112**	**18011**	**30598**	**16289**	**26634**	**12845**	**20803**	**5741**	**10214**	**7893**	**10566**	**8903**	**14730**	**11300**
0	1,145	197	0	0	0	0	14,893	2,566	6,702	1,155	2,870	495	0	0	0	0	0
0	**1,145**	**197**	**0**	**0**	**0**	**0**	**14,893**	**2,566**	**6,702**	**1,155**	**2,870**	**495**	**0**	**0**	**0**	**0**	**0**
36,846	**15,859**	**46,620**	**21,975**	**67,322**	**23,925**	**64,521**	**38,036**	**68,895**	**28,473**	**72,253**	**16,230**	**42,246**	**16,175**	**55,663**	**11,192**	**27,626**	**14,247**

	NEL04		NEL04		NEL04		NEL04		NEL05		NEL05		NEL05		NEL05		NEL05
	Rep A		Rep B		Rep A		Rep B		Rep A		Rep B		Rep A		Rep B		Rep A
2	15-Aug-12		15-Aug-12		8-Sep-12		8-Sep-12		10-Jul-12		10-Jul-12		15-Aug-12		15-Aug-12		8-Sep-12
	60-2		61-2		93-3		94-3		O29-1		O30-1		62-2		63-2		95-3
Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)
0	20	354	0	0	20	319	0	0	21	334	54	878	0	0	0	0	0
0	0	0	0	0	20	2146	59	6439	0	0	0	0	0	0	21	2111	27
7114	3727	28466	3135	23947	2425	15276	2859	18008	2579	16241	2359	14857	3004	22942	1953	14920	2218
0	99	486	59	292	39	153	99	383	0	0	0	0	147	725	63	311	107
1391	59	156	0	0	0	0	0	0	1609	3120	1572	3049	21	55	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8506	**3904**	**29461**	**3194**	**24239**	**2504**	**17894**	**3017**	**24829**	**4208**	**19695**	**3985**	**18784**	**3172**	**23722**	**2037**	**17342**	**2351**
110	99	514	59	308	79	325	177	732	83	340	81	336	147	766	42	219	80
3,825	1,479	10,050	1,518	10,318	1,420	7,858	1,242	6,876	1,630	9,020	1,166	6,453	1,260	8,564	1,092	7,423	1,443
15	20	31	20	31	335	374	237	264	41	46	0	0	0	0	0	0	481
1,201	1,807	6,338	1,750	6,138	476	1,668	1,902	6,672	1,046	3,668	471	1,651	3,938	13,811	2,188	7,673	2,327
5,150	**3,404**	**16,934**	**3,347**	**16,796**	**2,309**	**10,225**	**3,559**	**14,543**	**2,799**	**13,075**	**1,718**	**8,439**	**5,345**	**23,142**	**3,322**	**15,314**	**4,331**
0	0	0	0	0	20	213	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
179	79	639	59	479	20	132	39	265	21	139	0	0	126	1021	0	0	0
0	375	725	217	419	335	462	532	734	62	85	81	112	441	853	189	366	107
179	**454**	**1363**	**276**	**898**	**375**	**808**	**572**	**999**	**83**	**224**	**81**	**112**	**567**	**1874**	**189**	**366**	**107**
0	0	0	0	0	0	0	476	398	0	0	0	0	438	366	0	0	0
2437	3614	6431	5688	10120	4756	8462	3329	5923	6276	11166	8472	15074	7438	13234	6125	10898	465
15523	4337	6780	7438	11627	476	743	0	0	4184	6540	7060	11036	10501	16415	5250	8207	4654
0	0	0	0	0	0	0	2853	2962	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17959	**7952**	**13211**	**13126**	**21747**	**5231**	**9205**	**6658**	**9284**	**10459**	**17706**	**15532**	**26110**	**18376**	**30015**	**11376**	**19106**	**5119**
0	1,446	249	4,375	754	0	0	0	0	0	0	0	0	7,876	1,357	1,750	302	0
0	**1,446**	**249**	**4,375**	**754**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7,876**	**1,357**	**1,750**	**302**	**0**
31,794	**17,159**	**61,218**	**24,319**	**64,435**	**10,419**	**38,132**	**13,805**	**49,656**	**17,549**	**50,700**	**21,317**	**53,445**	**35,336**	**80,109**	**18,674**	**52,429**	**11,909**

			Lake 13			
	NEL05		Lk 13-01		Lk 13-01	
	Rep B		Rep A		Rep B	
2	8-Sep-12		8-Aug-12		8-Aug-12	
	96-3		100		101	
Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)	Abundance (# of orgs/m^3)	Biomass ($\mu g/m^3$)
0	0	0	0	0	0	0
2908	65	7071	0	0	0	0
13968	2534	15958	1551	9771	1909	12023
415	162	630	0	0	0	0
0	0	0	1491	2891	1124	2180
0	0	0	0	0	0	0
17291	**2761**	**23660**	**3042**	**12662**	**3033**	**3033**
331	97	402	121	499	131	539
7,986	1,364	7,551	1,007	5,576	1,046	5,789
536	552	615	0	0	0	0
8,162	1,117	3,918	0	0	0	0
17,014	**3,131**	**12,486**	**1,128**	**6,074**	**1,177**	**6,328**
0	0	0	0	0	0	0
0	0	0	141	1142	78	635
0	65	437	1249	8393	1229	8257
147	260	358	20	28	0	0
147	**325**	**795**	**1410**	**9563**	**1307**	**8893**
0	558	468	0	0	0	0
828	2792	4968	51667	91926	47402	84338
7275	1117	1746	3196	4996	2443	3819
0	0	0	0	0	489	507
0	0	0	0	0	0	0
0	0	0	0	0	0	0
8103	**4468**	**7182**	**54863**	**96922**	**50334**	**88664**
0	558	96	0	0	0	0
0	**558**	**96**	**0**	**0**	**0**	**0**
42,556	**11,243**	**44,219**	**60,443**	**125,220**	**55,851**	**112,503**

Table 5A-8 Flagellate Abundance and Biomass at Plankton Stations in Snap Lake and Northeast Lake, 2012

Taxon	SNAP02-20e 8-Jul-12		SNAP02-20e 10-Aug-12		SNAP02-20e 9-Sep-12		SNAP03 7-Jul-12		SNAP(11-Aug
	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)
Chryso-Chryptophyceae									
Chromulina sp.	0	0	10,137	0.203	40,547	0.811	435,886	33	20,274
Chrysochromulina sp.	344,654	26	30,411	2	50,684	4	20,274	10	60,821
Chryptomonas spp.	60,821	30	20,274	10	50,684	25	10,137	1	50,684
Boda spp.	20,274	2	10,137	1	10,137	1	81,095	6	30,411
Chroomonas acuta	141,916	11	81,095	6	60,821	5	912,319	228	81,095
Ochromonas sp.	1,064,372	266	81,095	20	172,327	43	0	0	121,642
Mallomonas sp.	0	0	0	0	0	0	0	0	0
Kephyrion sp.	20,274	1	20,274	1	20,274	1	60,821	3	10,137
Pseudokephrion sp.	20,274	2	0	0	0	0	10,137	1	0
Dinobryon sp.	598,075	120	0	0	20,274	4	598,075	120	0
Chrysococcus sp.	40,547	4	121,642	12	20,274	2	0	0	10,137
Bitrichia sp.	0	0	0	0	0	0	0	0	0
Chryocapsa sp. (cells)	0	0	0	0	0	0	1,621,900	284	0
Phaeaster sp.	0	0	0	0	0	0	0	0	0
Small microflagellates	1,013,687	15	628,486	9	1,672,584	25	1,064,372	16	1,317,793
Total Chryso-Chryptophyceae	3,324,894	477	1,003,550	63	2,118,606	111	4,815,014	701	1,702,995
Dinophyceae									
Peridinium spp.	0	0	0	0	0	0	0	0	0
Gymnodinium sp. (large)	10,137	15	0	0	0	0	0	0	0
Gymnodinium sp. (small)	20,274	10	10,137	5	20,274	10	10,137	5	10,137
Total Dinophyceae	30,411	25	10,137	5	20,274	10	10,137	5	10,137
Chlorophyceae									
Golenkinia sp.	0	0	0	0	0	0	0	0	0
Carteria sp.	10,137	2	0	0	10,137	2	0	0	0
Nephroselmis sp.	0	0	20,274	3	10,137	1	0	0	0
Oocystis sp.	0	0	0	0	0	0	0	0	0
Gyromitus sp.	30,411	7	20,274	5	60,821	14	40,547	9	30,411
Monomastic sp.	0	0	0	0	0	0	10,137	3	10,137
Scourfieldia sp.	30,411	2	10,137	0.659	81,095	5	60,821	4	30,411
Total Chlorophyceae	70,958	11	50,684	8	162,190	23	111,506	16	70,958
Total Flagellate Community	**3,426,263**	**513**	**1,064,372**	**75**	**2,301,070**	**143**	**4,936,657**	**723**	**1,784,090**

Notes: Jul = July; Aug = August; Sep = September; sp. = species (singular); spp. = species (plural); # of cells/L = number of cells per litre; and mg/m3 = milligrams per cubic metre.

Samples were analyzed by Eco-logic Ltd.

Snap Lake - Main Basin										
03	SNAP03		SNAP06		SNAP06		SNAP06		SNAP11A	
-12	7-Sep-12		13-Jul-12		13-Aug-12		11-Sep-12		12-Jul-12	
Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)
0.405	10,137	0.203	172,327	13	20,274	0.405	10,137	0.203	0	0
5	40,547	3	50,684	25	101,369	8	30,411	2	91,232	7
25	30,411	15	10,137	1	91,232	46	60,821	30	10,137	1
3	30,411	2	60,821	5	0	0	0	0	30,411	2
6	0	0	435,886	109	70,958	5	40,547	3	415,612	104
30	40,547	10	0	0	293,969	73	81,095	20	0	0
0	0	0	0	0	0	0	0	0	0	0
0.507	0	0	20,274	1	20,274	1	0	0	20,274	1
0	0	0	10,137	1	0	0	0	0	527,117	105
0	0	0	466,296	93	0	0	0	0	20,274	2
1	0	0	30,411	3	162,190	16	10,137	1	0	0
0	0	0	30,411	6	20,274	4	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
20	223,011	3	963,003	14	3,345,168	50	233,148	3	547,391	8
91	375,064	34	2,250,386	272	4,125,707	204	466,296	61	1,662,447	231
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	10,137	15
5	0	0	10,137	5	10,137	5	10,137	5	10,137	5
5	0	0	10,137	5	10,137	5	10,137	5	20,274	20
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	20,274	5	0	0	0	0
0	0	0	0	0	20,274	3	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
7	30,411	7	20,274	5	60,821	14	30,411	7	20,274	5
3	0	0	0	0	10,137	3	0	0	0	0
2	40,547	3	50,684	3	40,547	3	20,274	1	40,547	3
12	70,958	9	70,958	8	152,053	26	50,684	8	60,821	7
108	**446,022**	**44**	**2,331,481**	**285**	**4,287,897**	**235**	**527,117**	**74**	**1,743,542**	**258**

SNAP11A		SNAP11A		SNAP08		SNAP08		SNAP08		SNAP
13-Aug-12		13-Sep-12		12-Jul-12		10-Aug-12		11-Sep-12		7-Jul-1
Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)
20,274	0.405	40,547	0.811	0	0	20,274	0.405	20,274	0.405	0
40,547	3	70,958	5	283,832	21	152,053	11	81,095	6	50,684
10,137	5	121,642	61	40,547	20	30,411	15	50,684	25	30,411
20,274	2	20,274	2	0	0	40,547	3	0	0	10,137
121,642	9	111,506	8	60,821	5	0	0	50,684	4	60,821
70,958	18	141,916	35	739,992	185	162,190	41	91,232	23	162,190
0	0	0	0	0	0	0	0	0	0	0
10,137	0.507	20,274	1	20,274	1	10,137	0.507	0	0	0
0	0	0	0	10,137	1	0	0	0	0	0
0	0	0	0	1,621,900	324	0	0	0	0	20,274
50,684	5	20,274	2	0	0	20,274	2	10,137	1	0
0	0	10,137	2	0	0	10,137	2	0	0	10,137
0	0	0	0	0	0	0	0	0	0	608,212
0	0	0	0	0	0	0	0	0	0	0
506,844	8	2,331,481	35	1,621,900	24	2,027,374	30	354,791	5	608,212
851,497	51	2,889,009	153	4,399,403	582	2,473,397	106	658,897	65	1,561,078
0	0	0	0	0	0	10,137	4	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	20,274	10	10,137	5	20,274	10	0	0	0
0	0	20,274	10	10,137	5	30,411	14	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	20,274	5	0	0	50,684	11	0	0	0
0	0	10,137	1	0	0	10,137	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0
10,137	2	50,684	11	20,274	5	40,547	9	50,684	11	20,274
0	0	0	0	0	0	0	0	0	0	10,137
20,274	1	70,958	5	40,547	3	40,547	3	50,684	3	40,547
30,411	4	152,053	22	60,821	7	141,916	24	101,369	15	70,958
881,908	**54**	**3,061,335**	**185**	**4,470,361**	**594**	**2,645,724**	**144**	**760,265**	**79**	**1,632,036**

29	SNAP29		SNAP29		SNAP02A		SNAP02A		SNAP02A	
12	11-Aug-12		12-Sep-12		7-Jul-12		13-Aug-12		12-Sep-12	
Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)
0	20,274	0.405	50,684	1	658,897	49	20,274	0.405	20,274	0.405
4	60,821	5	192,601	14	81,095	41	101,369	8	91,232	7
15	10,137	5	172,327	86	30,411	3	91,232	46	40,547	20
1	30,411	3	0	0	202,737	15	81,095	8	10,137	1
5	101,369	8	152,053	11	1,155,603	289	223,011	17	60,821	5
41	91,232	23	446,022	112	0	0	354,791	89	111,506	28
0	0	0	0	0	0	0	0	0	0	0
0	10,137	0.507	30,411	2	30,411	2	20,274	1	0	0
0	0	0	0	0	60,821	6	20,274	2	10,137	1
4	0	0	0	0	152,053	30	0	0	0	0
0	40,547	4	50,684	5	121,642	12	40,547	4	20,274	2
2	0	0	0	0	20,274	4	20,274	4	0	0
106	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
9	709,581	11	2,230,112	33	1,621,900	24	1,368,478	21	283,832	4
187	1,074,508	59	3,324,894	265	4,135,844	476	2,341,618	199	648,760	68
0	0	0	10,137	4	0	0	10,137	4	0	0
0	0	0	0	0	0	0	0	0	0	0
0	20,274	10	20,274	10	10,137	5	10,137	5	10,137	5
0	20,274	10	30,411	14	10,137	5	20,274	9	10,137	5
0	0	0	0	0	0	0	0	0	0	0
0	10,137	2	20,274	5	0	0	0	0	0	0
0	0	0	10,137	1	0	0	20,274	3	10,137	1
0	0	0	0	0	0	0	0	0	0	0
5	30,411	7	111,506	25	70,958	16	50,684	11	50,684	11
3	0	0	0	0	20,274	6	10,137	3	0	0
3	40,547	3	101,369	7	60,821	4	40,547	3	40,547	3
10	81,095	12	243,285	38	152,053	26	121,642	20	101,369	15
197	**1,175,877**	**81**	**3,598,590**	**316**	**4,298,034**	**507**	**2,483,534**	**227**	**760,265**	**89**

Snap Lake - Northwest Arm										
SNAP01		SNAP01		SNAP01		SNAP20B		SNAP20B		SNAP2
7-Jul-12		11-Aug-12		14-Sep-12		6-Jul-12		11-Aug-12		12-Sep
Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)
0	0	20,274	0.405	20,274	0.405	0	0	20,274	0.405	40,547
334,517	25	172,327	13	60,821	5	364,927	27	60,821	5	334,517
40,547	20	70,958	35	20,274	10	10,137	1	30,411	15	172,327
50,684	5	131,779	13	10,137	1	91,232	7	40,547	4	10,137
111,506	8	364,927	27	50,684	4	973,140	243	91,232	7	253,422
1,561,078	390	223,011	56	141,916	35	0	0	223,011	56	537,254
0	0	0	0	0	0	0	0	0	0	0
70,958	4	20,274	1	0	0	10,137	0.507	10,137	0.507	20,274
141,916	14	20,274	2	0	0	30,411	3	0	0	0
506,844	101	0	0	0	0	608,212	122	0	0	0
10,137	1	20,274	2	10,137	1	20,274	2	30,411	3	30,411
10,137	2	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
1,824,637	27	1,875,321	28	293,969	4	932,592	14	405,475	6	1,469,846
4,662,961	599	2,919,419	178	608,212	61	3,041,062	420	912,319	96	2,868,735
0	0	0	0	10,137	4	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	20,274	10	0	0	10,137	5	20,274	10	20,274
0	0	20,274	10	10,137	4	10,137	5	20,274	10	20,274
0	0	0	0	0	0	0	0	10,137	3	0
10,137	2	0	0	0	0	10,137	2	0	0	30,411
0	0	10,137	1	0	0	0	0	0	0	20,274
30,411	15	0	0	0	0	0	0	0	0	0
70,958	16	30,411	7	30,411	7	20,274	5	40,547	9	141,916
0	0	0	0	0	0	0	0	0	0	0
91,232	6	40,547	3	60,821	4	20,274	1	30,411	2	81,095
202,737	39	81,095	11	91,232	11	50,684	8	81,095	14	273,696
4,865,699	**638**	**3,020,788**	**199**	**709,581**	**75**	**3,101,883**	**433**	**1,013,687**	**120**	**3,162,704**

0B	SNAP30		SNAP30		SNAP30		NEL 01		NEL 01	
-12	7-Jul-12		11-Aug-12		12-Sep-12		10-Jul-12		15-Aug-12	
Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)
0.811	0	0	20,274	0.405	50,684	1	0	0	20,274	0.405
25	405,475	30	60,821	5	324,380	24	405,475	30	162,190	12
86	81,095	41	10,137	5	111,506	56	81,095	41	30,411	15
1	10,137	1	20,274	2	10,137	1	10,137	1	20,274	2
19	70,958	5	81,095	6	162,190	12	70,958	5	60,821	5
134	1,317,793	329	101,369	25	273,696	68	1,317,793	329	111,506	28
0	0	0	0	0	0	0	0	0	10,137	7
1	20,274	1	20,274	1	0	0	20,274	1	20,274	1
0	40,547	4	0	0	0	0	40,547	4	0	0
0	963,003	193	0	0	60,821	12	963,003	193	40,547	8
3	30,411	3	40,547	4	30,411	3	30,411	3	20,274	2
0	10,137	2	0	0	0	0	10,137	2	0	0
0	506,844	89	0	0	0	0	506,844	89	0	0
0	0	0	0	0	0	0	0	0	0	0
22	1,216,425	18	709,581	11	1,368,478	21	1,216,425	18	456,159	7
292	4,673,098	716	1,064,372	59	2,392,302	198	4,673,098	716	952,866	87
0	10,137	4	10,137	4	20,274	7	10,137	4	10,137	4
0	0	0	0	0	0	0	0	0	10,137	15
10	10,137	5	20,274	10	10,137	5	10,137	5	10,137	5
10	20,274	9	30,411	14	30,411	12	20,274	9	30,411	24
0	0	0	0	0	0	0	0	0	0	0
7	0	0	10,137	2	30,411	7	0	0	0	0
3	0	0	10,137	1	20,274	3	0	0	10,137	1
0	0	0	0	0	0	0	0	0	0	0
32	40,547	9	30,411	7	141,916	32	40,547	9	40,547	9
0	20,274	6	0	0	0	0	20,274	6	0	0
5	30,411	2	30,411	2	91,232	6	30,411	2	30,411	2
47	91,232	17	81,095	12	283,832	47	91,232	17	81,095	12
349	**4,784,604**	**742**	**1,175,877**	**85**	**2,706,545**	**258**	**4,784,604**	**742**	**1,064,372**	**124**

NEL 01		NEL 02		NEL 02		NEL 02		NEL 03		NEL 0
8-Sep-12		10-Jul-12		15-Aug-12		8-Sep-12		10-Jul-12		15-Aug
Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)
20,274	0.405	10,137	0.203	30,411	0.608	30,411	0.608	0	0	30,411
40,547	3	131,779	10	182,464	14	60,821	5	50,684	4	81,095
30,411	15	10,137	5	30,411	15	20,274	10	10,137	5	30,411
10,137	1	10,137	1	20,274	2	10,137	1	10,137	1	30,411
70,958	5	50,684	4	70,958	5	81,095	6	81,095	6	111,506
91,232	23	466,296	117	91,232	23	81,095	20	425,749	106	101,369
0	0	0	0	10,137	7	0	0	0	0	20,274
40,547	2	40,547	2	10,137	0.507	40,547	2	20,274	1	20,274
0	0	20,274	2	0	0	0	0	10,137	1	0
40,547	8	20,274	4	10,137	2	70,958	14	364,927	73	10,137
20,274	2	0	0	182,464	18	20,274	2	0	0	70,958
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	10,137	2	0	0	0	0	0	0	0
314,243	5	314,243	5	527,117	8	476,433	7	283,832	4	324,380
679,170	65	1,084,645	151	1,165,740	95	892,045	68	1,256,972	202	831,224
10,137	4	0	0	10,137	4	10,137	4	0	0	0
0	0	0	0	10,137	15	0	0	0	0	10,137
20,274	10	10,137	5	10,137	5	10,137	5	10,137	5	10,137
30,411	14	10,137	5	30,411	24	20,274	9	10,137	5	20,274
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	10,137
0	0	0	0	10,137	1	0	0	0	0	10,137
0	0	0	0	0	0	0	0	0	0	0
30,411	7	10,137	2	40,547	9	20,274	5	10,137	2	50,684
10,137	3	0	0	0	0	10,137	3	0	0	0
20,274	1	20,274	1	20,274	1	10,137	0.659	20,274	1	40,547
60,821	11	30,411	4	70,958	12	40,547	8	30,411	4	111,506
770,402	**90**	**1,125,193**	**160**	**1,267,109**	**131**	**952,866**	**85**	**1,297,520**	**210**	**963,003**

Northeast Lake										
3	NEL 03		NEL 04		NEL 04		NEL 04		NEL 05	
-12	8-Sep-12		10-Jul-12		15-Aug-12		8-Sep-12		10-Jul-12	
Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)
0.608	40,547	0.811	0	0	20,274	0.405	20,274	0.405	0	0
6	70,958	5	91,232	7	70,958	5	101,369	8	81,095	6
15	30,411	15	10,137	5	30,411	15	30,411	15	10,137	5
3	10,137	1	10,137	1	30,411	3	10,137	1	10,137	1
8	70,958	5	131,779	10	81,095	6	81,095	6	81,095	6
25	101,369	25	395,338	99	91,232	23	121,642	30	496,707	124
14	10,137	7	0	0	20,274	14	10,137	7	0	0
1	20,274	1	10,137	0.507	10,137	0.507	50,684	3	20,274	1
0	10,137	1	10,137	1	10,137	1	10,137	1	10,137	1
2	70,958	14	131,779	26	30,411	6	60,821	12	101,369	20
7	30,411	3	91,232	9	60,821	6	20,274	2	91,232	9
0	0	0	0	0	10,137	2	0	0	0	0
0	0	0	0	0	0	0	0	0	456,159	80
0	0	0	0	0	0	0	0	0	0	0
5	476,433	7	324,380	5	557,528	8	537,254	8	415,612	6
88	942,729	87	1,206,288	164	1,023,824	91	1,054,235	94	1,773,953	260
0	20,274	7	0	0	0	0	10,137	4	10,137	4
15	0	0	10,137	15	0	0	0	0	0	0
5	10,137	5	0	0	20,274	10	30,411	15	10,137	5
20	30,411	12	10,137	15	20,274	10	40,547	19	20,274	9
0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	10,137	2	10,137	2	0	0
1	0	0	10,137	1	10,137	1	0	0	10,137	1
0	0	0	0	0	0	0	0	0	0	0
11	30,411	7	10,137	2	40,547	9	50,684	11	20,274	5
0	10,137	3	10,137	3	0	0	10,137	3	0	0
3	30,411	2	20,274	1	40,547	3	20,274	1	30,411	2
18	70,958	12	50,684	8	101,369	15	91,232	18	60,821	8
126	**1,044,098**	**111**	**1,267,109**	**187**	**1,145,467**	**117**	**1,186,014**	**130**	**1,855,048**	**276**

NEL 05		NEL 05	
15-Aug-12		8-Sep-12	
Abundance (# of cells/L)	Biomass (mg/m^3)	Abundance (# of cells/L)	Biomass (mg/m^3)
20,274	0.405	40,547	1
70,958	5	40,547	3
10,137	5	10,137	5
10,137	1	10,137	1
70,958	5	40,547	3
172,327	43	81,095	20
10,137	7	0	0
20,274	1	20,274	1
10,137	1	10,137	1
60,821	12	263,559	53
40,547	4	10,137	1
0	0	0	0
0	0	0	0
0	0	0	9
506,844	8	608,212	0
1,003,550	93	1,135,330	98
0	0	0	0
10,137	15	10,137	15
20,274	10	10,137	5
30,411	25	20,274	20
0	0	0	0
10,137	2	0	0
20,274	3	10,137	1
0	0	0	0
40,547	9	20,274	5
0	0	10,137	3
60,821	4	50,684	3
131,779	18	91,232	12
1,165,740	**136**	**1,246,835**	**131**

Table 5A-7 Picoplankton (Heterotrophic Bacteria and Pico-cyanobacteria) Abundance and Biomass at Plankton Sampling Stations in Snap Lake and Northeast Lake, 2012

Station	Heterotrophic Bacteria						Pico-cyanobacteria					
	Abundance (# of cells/L)			Biomass (mg/m^3)			Abundance (# of cells/L)			Biomass (mg/m^3)		
	July	August	September	July	August	September	July	August	September	July	August	September
Snap Lake - Main Basin												
SNAP02-20e	252,352,969	544,446,563	572,265,000	101	218	229	11,756,602	12,087,773	68,552,578	59	60	343
SNAP03	463,640,625	357,665,625	476,887,500	185	143	191	3,642,891	14,737,148	60,935,625	18	74	305
SNAP06	141,079,219	341,769,375	604,057,500	56	137	242	4,388,027	17,717,695	44,045,859	22	89	220
SNAP11A	140,085,703	468,939,375	500,731,875	56	188	200	4,056,855	22,354,102	43,383,516	20	112	217
SNAP08	484,835,625	544,446,563	600,083,438	194	218	240	2,069,824	20,035,898	37,091,250	10	100	185
Mean	**296,398,828**	**451,453,500**	**550,805,063**	**119**	**181**	**220**	**5,182,840**	**17,386,523**	**50,801,766**	**26**	**87**	**254**
Standard Error	**75,490,482**	**43,833,747**	**26,168,530**	**30**	**18**	**10**	**1,690,802**	**1,828,956**	**5,943,220**	**8**	**9**	**30**
Snap Lake - Northwest Arm												
SNAP29	171,878,203	373,561,875	564,316,875	69	149	226	19,042,383	61,929,141	109,617,891	95	310	548
SNAP02A	453,043,125	286,132,500	651,746,250	181	114	261	21,360,586	136,442,813	122,533,594	107	682	613
SNAP01	232,482,656	723,279,375	568,290,938	93	289	227	22,685,273	230,495,625	163,267,734	113	1,152	816
SNAP20B	423,900,000	854,423,438	631,875,938	170	342	253	25,665,820	77,494,219	163,930,078	128	387	820
SNAP30	181,813,359	389,458,125	560,342,813	73	156	224	29,639,883	185,456,250	91,734,609	148	927	459
Mean	**292,623,469**	**525,371,063**	**595,314,563**	**117**	**210**	**238**	**23,678,789**	**138,363,609**	**130,216,781**	**118**	**692**	**651**
Standard Error	**60,598,354**	**110,949,676**	**19,281,371**	**24**	**44**	**8**	**1,834,943**	**31,825,324**	**14,479,598**	**9**	**159**	**72**
Northeast Lake												
NEL01	181,813,359	929,930,625	627,901,875	73	372	251	18,380,039	98,026,875	111,604,922	92	490	558
NEL02	187,774,453	850,449,375	639,824,063	75	340	256	16,889,766	76,169,531	97,033,359	84	381	485
NEL03	198,703,125	735,201,563	778,916,250	79	294	312	21,360,586	86,767,031	116,241,328	107	434	581
NEL04	250,365,938	719,305,313	826,605,000	100	288	331	18,711,211	87,098,203	126,176,484	94	435	631
NEL05	202,677,188	747,123,750	631,875,938	81	299	253	15,068,320	83,124,141	115,910,156	75	416	580
Mean	**204,266,813**	**796,402,125**	**701,024,625**	**82**	**319**	**280**	**18,081,984**	**86,237,156**	**113,393,250**	**90**	**431**	**567**
Standard Error	**12,113,559**	**40,539,333**	**42,256,078**	**5**	**16**	**17**	**1,042,534**	**3,543,075**	**4,736,568**	**5**	**18**	**24**
Quality Control												
SNAP01 (split)	434,497,500	-	-	174	-	-	25,169,063	-	-	126	-	-
SNAP29 (split)	196,716,094	-	-	79	-	-	19,704,727	-	-	99	-	-
SNAP01 (split)	-	572,265,000		-	229	-	-	198,703,125		-	994	-
SNAP02A (split)	-	-	703,409,063	-	-	281	-	-	118,890,703	-		594

Notes:
Samples were analyzed by Advanced Eco-Solutions Inc.
- = not applicable; Jul = July; Aug = August; Sep = September; # of cells/L = number of cells per litre; and mg/m3 = milligrams per cubic metre.

Table 5A-6 Phytoplankton Quality Assurance/Quality Control Comparison of Abundance in Split Samples from Plankton Sampling Stations in Snap Lake and Northeast Lake, 2012

Major Taxonomic Group	SNAP LAKE									NORTHEAST LAKE								
	Abundance									Abundance								
	SNAP02A			SNAP08			SNAP20B			NEL01			NEL03			NEL02		
	7-Jul-12			13-Aug-12			8-Sep-12			10-Jul-12			15-Aug-12			8-Sep-12		
	BIO-02	BIO-16	RPD	BIO-23	BIO-33	RPD	BIO-42	BIO-51	RPD	BIO-11	BIO-17	RPD	BIO-30	BIO-34	RPD	BIO-46	BIO-52	RPD
	(# of cells/L)	(# of cells/L)	(%)	(# of cells/L)	(# of cells/L)	RPD	(# of cells/L)	(# of cells/L)	(%)	(# of cells/L)	(# of cells/L)	(%)	(# of cells/L)	(# of cells/L)	(%)	(# of cells/L)	(# of cells/L)	(%)
Bacillariophceae	1,794,071	2,698,399	40	7,234,637	9,612,151	28	444,870	430,282	3	87,513	211,492	83	72,927	51,048	35	80,514	131,268	48
Chlorophyceae	525,087	598,013	13	612,604	656,363	7	430,275	211,489	68	123,970	153,140	21	379,226	262,538	36	214,705	388,948	58
Chrysophyceae	3,121,383	3,996,541	25	2,114,960	2,348,335	10	882,442	889,734	1	1,465,878	1,516,927	3	685,530	371,934	59	281,799	204,190	32
Cryptophyceae	160,444	189,615	17	72,929	175,028	82	145,857	94,803	42	102,100	87,514	15	43,757	51,049	15	26,838	24,308	10
Cyanobacteria	131,270	189,616	36	14,585	58,342	120	72,926	58,341	22	145,856	87,511	50	940,791	364,645	88	223,650	272,266	20
Euglenophyceae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dinophyceae	0	0	0	0	14,585	200	14,584	21,877	40	7,292	7,292	0	14,585	0	200	0	0	0
Total Phytoplankton Community	**5,732,255**	**7,672,184**	**29**	**10,049,715**	**12,864,804**	**25**	**1,990,954**	**1,706,526**	**15**	**1,932,609**	**2,063,876**	**7**	**2,136,816**	**1,101,214**	**64**	**827,506**	**1,020,980**	**21**
Bray-Curtis Index	**0.15**			**0.12**			**0.08**			**0.05**			**0.32**			**0.15**		

Notes:
Grey cells represent flagged values which exceed a relative percent difference greater than 50%
Jul = July; Aug = August; Sep = September; RPD = relative percent difference; % = percent; # of cells/L = number of cells per litre; and mg/m3 = milligrams per cubic metre

Table 5A-5 Phytoplankton Abundance and Biomass at Plankton Sampling Stations in Snap Lake, Northeast Lake, and Lake 13, 2012

Major Taxonomic Group	SNAP02-20e 8-Jul-12		SNAP02-20e 10-Aug-12		SNAP02-20e 9-Sep-12		SNAP03 7-Jul-12		SNAP0 13-Aug-
	BIO-03 Abundance (# of cells/L)	BIO-03 Biomass (mg/m^3)	BIO-20 Abundance (# of cells/L)	BIO-20 Biomass (mg/m^3)	BIO-37 Abundance (# of cells/L)	BIO-37 Biomass (mg/m^3)	BIO-04 Abundance (# of cells/L)	BIO-04 Biomass (mg/m^3)	BIO-21 Abundance (# of cells/L)
Bacillariophyceae (Diatoms)									
Achnanthes minutissima Kuetzing	7292	0	0	0	0	0	0	0	14585
Aulacoseira granulata (Ehrenberg) Simonsen	0	0	0	0	0	0	0	0	0
Aulacoseira spp.	0	0	0	0	0	0	0	0	0
Centric Diatom 4 µm wide (*Cyclotella pseudostelligera* Hustedt)	109394	3	5061330	127	2034742	51	102101	3	9291260
Centric Diatom 10-16 µm *(Cyclotella ocellata* and *Cyclotella michiganiana* Sovereign	138565	59	72929	29	87515	34	182323	77	612610
Cyclotella bodanica Grunow	0	0	14585	101	0	0	0	0	29171
Denticula sp.	0	0	0	0	0	0	0	0	0
Diatoma tenue C.Agardh	0	0	0	0	0	0	0	0	0
Fragilaria capucina Desmazieres	0	0	0	0	0	0	0	0	0
Gomphonema sp.	0	0	0	0	0	0	0	0	0
Navicula sp.	0	0	0	0	0	0	0	0	0
Nitzschia acicularis (Kuetzing) W. Smith	0	0	0	0	0	0	0	0	0
Nitzschia clausii Hantzsch	0	0	0	0	0	0	0	0	0
Nitzschia sp.	7292	0	0	0	0	0	7292	2	0
Rhizosolenia eriensis H.L. Smith	0	0	0	0	0	0	0	0	0
Rhizosolenia longiseta Ehrenberg	0	0	0	0	0	0	0	0	0
Synedra sp.	72928	12	0	0	7292	2	51050	8	14585
Tabellaria flocculosa (Roth) Kuetzing	0	0	0	0	0	0	0	0	0
Total Bacillariophyceae	**335471**	**75**	**5148844**	**257**	**2129549**	**88**	**342766**	**89**	**9962211**
Chlorophyceae (Chlorophytes)									
Ankistrodesmus bernardii Komarek	0	0	0	0	0	0	0	0	0
Ankistrodesmus falcatus var. *mirabilis* West	0	0	0	0	0	0	0	0	14585
Ankistrodesmus fusiformis Corda	0	0	0	0	0	0	0	0	0
Ankistrodesmus gracilis (Reinsch) Kors.	0	0	0	0	0	0	0	0	0
Ankistrodesmus spiralis (Turner) Lemmermann	0	0	0	0	0	0	0	0	0
Ankistrodesmus stipitatus (Chod.)	0	0	0	0	0	0	0	0	0
Arthrodesmus incus (Brebisson) Hassall	0	0	0	0	0	0	0	0	0
Arthrodesmus incus var. *ralfsii* (W. West)	0	0	0	0	0	0	0	0	0
Carteria cordiformis (Carter) Diesing	0	0	0	0	0	0	0	0	0
Chlamydomonas frigida Skuja	0	0	0	0	43757	1	0	0	14585
Chlamydomonas sp.	0	0	0	0	0	0	0	0	0
Coelastrum microporum Naegeli	0	0	0	0	0	0	0	0	0
Cosmaruim bioculatum Brebisson	0	0	0	0	0	0	0	0	0
Cosmaruim phaseolus Brebisson	0	0	0	0	0	0	0	0	0
Crucigenia quadrata Morren	0	0	0	0	0	0	0	0	0
Crucigenia sp.	0	0	0	0	7292	1	0	0	0
Crucigenia tetrapedia (Kirchner) W. and G.S. W	0	0	0	0	0	0	0	0	0
Dictyosphaerium ehrenbergianum Naegeli	0	0	0	0	0	0	0	0	0
Elakatothrix gelatinosa Wille	0	0	0	0	0	0	0	0	0
Elakatothrix genevensis (Reverdin) Hindak	7292	0	0	0	7292	0	14585	1	14585
Gloeocystis planctonica (W. and G.S. West) Lemmermann	0	0	0	0	0	0	0	0	0
Gloeocystis sp.	0	0	0	0	0	0	0	0	0
Gloeotilia sp.	0	0	0	0	0	0	0	0	0
Korshikoviella sp.	14585	1	0	0	0	0	0	0	0
Lagerheimia genevensis (Chod.) Chod.	0	0	0	0	0	0	0	0	0
Monoraphidium braunii Naegeli	0	0	0	0	0	0	0	0	0

Monoraphidium contortum (Thuret) Komarkova-Legenerova	0	0	0	0	0	0	0	0	0
Monoraphidium convolutum (Corda)	0	0	0	0	0	0	0	0	0
Monoraphidium dybowskii (Wolosz) Hindak and Kom.-Legn.	0	0	0	0	0	0	0	0	0
Monoraphidium griffithii (Berkeley) Komarkova-Legenerova	21878	2	364649	26	211496	16	0	0	335477
Monoraphidium irregulare (G.M. Smith) Komarkova-Legenerova	0	0	43757	6	0	0	0	0	14585
Monoraphidium minutum (Nag.) Komarkova-Legenerova	0	0	0	0	0	0	0	0	0
Monoraphidium setiforme Komarkova-Legenerova	0	0	14585	0	0	0	0	0	0
Monoraphidium skujae Fott	0	0	0	0	0	0	0	0	29171
Mougeotia sp.	0	0	0	0	0	0	0	0	0
Oocystis borgei Snow	0	0	0	0	0	0	0	0	0
Oocystis gigas Archer	0	0	0	0	0	0	0	0	0
Oocystis parva W. & G.S. West	0	0	0	0	14585	0	0	0	0
Oocystis pusilla Hansgirg	0	0	0	0	0	0	0	0	0
Oocystis solitaria Wittrock	0	0	0	0	0	0	0	0	0
Quadrigula closteriodes (Bohlin) Printz	0	0	0	0	0	0	0	0	0
Scenedesmus acutus Meyen	0	0	0	0	7292	2	0	0	0
Scenedesmus obliquus (Turpin) Kuetzing	0	0	0	0	0	0	0	0	14585
Schroederia indica Philip	0	0	0	0	0	0	0	0	0
Sphaerocystis schroeteri Chodat	0	0	0	0	0	0	0	0	0
Spondylosium planum (Wolle) W. & G.S. West	0	0	0	0	0	0	0	0	0
Staurastrum sp.	0	0	0	0	0	0	0	0	0
Tetraedron minimum (A. Braun) Hansgirg	0	0	0	0	0	0	0	0	0
Tetraedron mimimum var. *tetralobulatum* Reins	0	0	0	0	0	0	0	0	0
Total Chlorophyceae	**43755**	**3**	**422991**	**33**	**291714**	**21**	**14585**	**1**	**437573**
Chrysophyceae (Chrysophytes)									
Bitrichia chodatii (Reverdin) Chodat	7292	0	58343	1	36464	1	7292	0	14585
Chrysolykos planctonicus Mack	0	0	0	0	7292	0	0	0	0
Chrysolykos skujae (Nauwerck) Bourrelly	0	0	0	0	7292	0	0	0	0
Chromulina sp.	0	0	0	0	72929	21	7292	2	29171
Codosiga sp.	0	0	0	0	0	0	0	0	0
Desmarella moniliformis Kent	0	0	0	0	0	0	0	0	0
Dicronema cf. *vlklanum* Prauser	0	0	0	0	7292	0	0	0	0
Dinobryon acuminatum Ruttner	0	0	0	0	0	0	0	0	0
Dinobryon bavaricum Imhof	21878	33	0	0	0	0	0	0	0
Dinobryon borgei Lemmermann	0	0	0	0	0	0	0	0	0
Dinobryon cylindricum var *alpina* (Imhof) Bachmann	0	0	0	0	0	0	0	0	0
Dinobryon cylindricum Imhof	21878	4	0	0	7292	4	21878	12	0
Dinobryon dilatatum Hillard	0	0	0	0	0	0	0	0	0
Dinobryon divergens Imhof	0	0	0	0	0	0	0	0	0
Dinobryon sociale var. *americana* (Brunthaler) Bachmann	0	0	0	0	0	0	0	0	0
Dinobryon sociale Ehrenberg	14585	3	0	0	0	0	7292	1	0
Dinobryon sociale var. *stipitatum* (Stein) Lemmermann	116687	87	14585	3	0	0	29171	27	0
Dinobryon sp. (loose monad)	21878	5	0	0	0	0	29170	5	0
Epipyxis sp.	0	0	0	0	0	0	7292	0	0
Unidentified naked Chrysophyte sp (*Ochromonas*/*Chromulina*)-large	481336	177	43757	12	14585	5	350063	99	87515
Unidentified naked Chrysophyte sp (*Ochromonas*/*Chromulina*)-small	269840	8	116687	3	102101	2	393821	9	262547
Haptophyte *(Erkenia/Chrysochromulina)*	364649	3	904329	6	495922	3	364649	3	1152291
Kephyrion boreale Skuja	0	0	0	0	0	0	0	0	0
Kephyrion cupuliforme Conrad	0	0	0	0	0	0	0	0	0
Kephyrion sp.	0	0	0	0	0	0	0	0	0
Mallomonas pseudocoronata Prescott	0	0	0	0	0	0	0	0	0
Mallomonas sp.	0	0	0	0	0	0	0	0	0
Monosiga varians Skuja	0	0	0	0	0	0	0	0	0
Ochromonas sp.	0	0	0	0	7292	3	0	0	0

Pedinella sp.	0	0	0	0	0	0	0	0	0
Pseudokephyrion attenuatum Hilliard	0	0	0	0	0	0	0	0	0
Pseudokephyrion auroreum Nicholls	0	0	0	0	0	0	0	0	0
Pseudokephyrion ellipsoideum (Pascher) Schmid	0	0	0	0	0	0	0	0	0
Pseudokephyrion minutissimum Conrad	0	0	0	0	0	0	0	0	0
Syncrypta/Uroglena sp.	0	0	0	0	0	0	0	0	14585
Spiniferomonas sp.	0	0	0	0	7292	3	0	0	0
Stichogloea doederleinii (Schmidle) Wille	0	0	0	0	0	0	0	0	0
Stichogloea globosa Starmach	0	0	0	0	0	0	0	0	0
Uroglena sp.	87515	6	0	0	0	0	211496	14	0
Total Chrysophyceae	**1407538**	**327**	**1137701**	**25**	**765753**	**42**	**1429416**	**173**	**1560694**
Cryptophyceae (Cryptophytes)									
Cryptomonas erosa Ehrenberg	0	0	0	0	0	0	0	0	0
Cryptomonas marssonii Skuja	7292	5	0	0	29171	29	0	0	14585
Cryptomonas pyrenoidifera Geitler	0	0	0	0	0	0	0	0	0
Cryptomonas reflexa Skuja	7292	22	0	0	0	0	0	0	0
Cryptomonas rostratiformis Skuja	0	0	0	0	0	0	0	0	0
Katablepharis ovalis Skuja	7292	1	29171	2	0	0	14585	1	0
Rhodomonas lens Pascher and Ruttner	0	0	0	0	0	0	0	0	0
Rhodomonas minuta Skuja	21878	3	58343	9	29171	5	29171	4	58343
Total Cryptophyceae	**43754**	**31**	**87514**	**12**	**58342**	**34**	**43756**	**5**	**72928**
Cyanobacteria									
Anabaena flos-aquae Brebisson	0	0	0	0	0	0	0	0	0
Anabaena sp.	0	0	0	0	0	0	0	0	0
Aphanocapsa delicatissima West and West	7292	1	14585	1	14585	1	21878	2	58343
Aphanocapsa elachista W. and G.S. West	0	0	87515	12	0	0	7292	1	102101
Aphanothece clathrata W and G.S. West	0	0	0	0	0	0	0	0	0
Aphanothece sp.	0	0	0	0	0	0	0	0	0
Chroococcus limneticus Lemmermann	0	0	0	0	0	0	0	0	0
Cyanodictyon sp. 1 (rod-shaped)- small *Aphanothece* colony	0	0	0	0	0	0	0	0	0
Cyanodictyon sp. 2 (spherical)- small *Aphanocapsa* colony	0	0	0	0	0	0	0	0	0
Limnothrix sp.	7292	1	0	0	0	0	0	0	0
Merismopedia tenuissima Lemmermann	14585	0	0	0	0	0	7292	0	0
Planktolyngya limnetica Lemmermann	0	0	0	0	0	0	0	0	0
Rhabdoderma lineare Schmidle and Lauterborn	0	0	0	0	0	0	0	0	0
Snowella arachnoidea Komarek and Hindak	0	0	0	0	0	0	0	0	0
Snowella lacustris (Chodat) Komarek and Hindak	0	0	0	0	0	0	0	0	0
Total Cyanobacteria	**29169**	**2**	**102100**	**14**	**14585**	**1**	**36462**	**3**	**160444**
Euglenophyceae (Euglenophytes)									
Euglenoid	0	0	0	0	0	0	0	0	0
Phacus acuminatus Stokes	0	0	0	0	0	0	0	0	0
Amphidinium sp.	0	0	0	0	0	0	0	0	0
Total Euglenophyceae	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Dinophyceae (Dinophytes)									
Glenodinium sp.	0	0	14585	24	0	0	0	0	0
Gymnodinium lantzschii Utermohl	0	0	0	0	0	0	0	0	0
Gymnodinium helveticum Pen.	0	0	0	0	7292	108	0	0	0
Gymnodinium ordinatum Skuja	0	0	14585	5	0	0	0	0	0
Gymnodinium profundum Schiller	0	0	0	0	0	0	0	0	0
Gymnodinium sp.	0	0	0	0	0	0	0	0	0
Peridinium inconspicum Lemmermann	0	0	0	0	0	0	0	0	0

Total Dinophyceae	**0**	**0**	**29170**	**29**	**7292**	**108**	**0**	**0**	**0**
Total Phytoplankton Community	**1859687**	**437**	**6928320**	**368**	**3267235**	**293**	**1866985**	**271**	**12193850**

Notes:
Samples were analyzed by Bio-Limno Research and Consulting Inc.
Jul = July; Aug = August; Sep = September; sp. = species (singular); spp. = species (plural); var. = variety; µm = micrometre; > = greater than; < = less than; # of cells/L = number of cells per litre; and mg/m3 = milligrams per cubic metre.

Snap Lake - Main Basin

3	SNAP03		SNAP06		SNAP06		SNAP06		SNAP11A		SNAP11A		SNAP11
12	9-Sep-12		13-Jul-12		10-Aug-12		11-Sep-12		12-Jul-12		13-Aug-12		13-Sep-
BIO-21	BIO-38	BIO-38	BIO-05	BIO-05	BIO-22	BIO-22	BIO-39	BIO-39	BIO-07	BIO-07	BIO-24	BIO-24	BIO-41
Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance
(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)
0	0	0	0	0	0	0	7292	0	0	0	0	0	7292
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
234	4565407	115	58343	1	6884575	173	2355633	59	102101	3	11245780	283	240668
241	58343	23	48619	19	160445	63	131273	52	111825	44	160445	63	65636
122	0	0	4861	26	29171	309	0	0	9723	125	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	7292	1	0	0	14585	3	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	7292	1	9723	3	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	43757	12	9723	2	14585	4	43755	10	19446	7	29171	7	7292
0	0	0	0	0	0	0	0	0	0	0	0	0	0
600	**4667507**	**150**	**121546**	**48**	**7088776**	**549**	**2552537**	**123**	**252818**	**181**	**11449981**	**356**	**320888**
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	14585	1	0	0	0	0	0	0	0	0	0	0	7292
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	14585	2	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	7292
0	72929	2	0	0	58343	2	14585	0	0	0	43757	1	14585
0	0	0	0	0	0	0	7292	10	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	14585	0	0	0	58343	2	36464	2	0	0	29171	1	14585
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	58342	8	7292
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	29171	0	7292

0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	364649	27	4861	0	131273	10	211496	15	4861	0	554266	41	167738
1	0	0	0	0	43757	3	14585	2	0	0	29171	2	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	14585	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	43757	1	0	0	14585	1	14585	1	0	0	14585	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	7292
0	0	0	0	0	14585	1	0	0	0	0	14585	6	7292
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	14585	3	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	**510505**	**31**	**4861**	**0**	**335471**	**19**	**299007**	**29**	**4861**	**0**	**802218**	**65**	**240660**

1	0	0	4861	0	14585	1	29171	1	0	0	0	0	14585
0	0	0	0	0	0	0	0	0	4861	0	0	0	0
0	14585	0	0	0	0	0	14585	0	0	0	0	0	7292
11	72929	21	0	0	0	0	65636	19	0	0	58343	22	72929
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	29171	0	0	0	0	0	7292	0	0	0	0	0	218789
0	0	0	0	0	0	0	0	0	0	0	0	0	7292
0	0	0	0	0	0	0	0	0	4861	2	0	0	0
0	0	0	4861	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	19447	16	14585	3	0	0	43757	66	0	0	0
0	0	0	4861	1	0	0	0	0	4861	1	0	0	0
0	0	0	0	0	0	0	0	0	0	0	14585	0	0
32	29171	8	160445	45	29171	11	123980	46	121549	45	29171	8	29171
6	131273	1	140997	3	175031	4	7292	0	447302	11	466750	4	247961
10	700126	6	160445	1	729298	5	357356	3	262547	2	831400	7	568852
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	7292	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	4861	2	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	29171	11	0	0	0	0	7292	3	0	0	0	0	7292

0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	7292
0	0	0	0	0	14585	7	14585	2	4861	2	14585	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	4861	0	0	0	0	0	9723	1	0	0	0
65	**1006426**	**47**	**505639**	**69**	**977255**	**31**	**634481**	**74**	**904322**	**129**	**1414834**	**42**	**1181455**

0	0	0	0	0	14585	24	0	0	0	0	0	0	0
12	29171	24	4861	4	14585	15	14585	10	0	0	0	0	7292
0	0	0	0	0	0	0	0	0	0	0	14585	14	21878
0	29171	53	4861	11	0	0	14585	39	0	0	0	0	7292
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	14585	1	14585	1	4861	0	0	0	7292
0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	131273	19	38895	6	131273	30	36464	6	48619	7	131273	21	21878
21	**189615**	**95**	**48617**	**21**	**175028**	**70**	**80219**	**56**	**53480**	**7**	**145858**	**34**	**65632**

0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	43757	2	4861	0	43757	4	43757	11	0	0	116687	6	36464
11	14585	2	4861	1	29171	5	0	0	0	0	87515	10	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	14585	61	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	7292	2	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	**72927**	**66**	**9722**	**2**	**72928**	**9**	**51049**	**13**	**0**	**0**	**218787**	**18**	**36464**

0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	14585	237	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0

0	0	0	0	0	0	0	0	0	0	0	14585	237	0

732	6446980	389	690385	140	8649458	678	3617293	296	1215481	318	14046263	752	1845099

IA	SNAP08		SNAP08		SNAP08		SNAP29		SNAP29		SNAP29		SNAP02
12	9-Jul-12		13-Aug-12		11-Sep-12		7-Jul-12		11-Aug-12		12-Sep-12		7-Jul-1
BIO-41	BIO-06	BIO-06	BIO-23	BIO-23	BIO-40	BIO-40	BIO-09	BIO-09	BIO-26	BIO-26	BIO-43	BIO-43	BIO-02
Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance
(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	80222	2	6972091	175	1356494	34	1444010	36	2858849	72	175031	4	1473182
26	72929	29	247961	97	138566	54	204203	80	116687	46	452164	178	291719
0	7292	30	0	0	0	0	0	0	0	0	7292	17	14585
0	0	0	0	0	7292	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	14585	7	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	7292	1	0	0	0	0	0	0	0
0	0	0	0	0	14584	4	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	7292	2	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	138565	24	14585	2	0	0	0	0	0	0	0	0	14585
0	7292	1	0	0	21878	23	0	0	0	0	0	0	0
34	**306300**	**87**	**7234637**	**275**	**1553398**	**120**	**1662798**	**123**	**2975536**	**118**	**634487**	**199**	**1794071**

0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	14585	1	0	0	0	0	0	0	0	0	14585
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	7292	0	0
0	0	0	29171	6	0	0	0	0	0	0	0	0	14585
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	102101	3	7292	0	0	0	43757	1	7292	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	14585	2	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	14585	1	14585	2	21878	1	14585	1	29171	1	14585	1	116687
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	14585	0	0	0	0	0	14585	7	43757	1	14585
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	14585	0	0	0	72929

0	0	0	0	0	7292	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	29171	2	364649	27	131273	10	29171	2	306305	23	80222	5	218789
0	7292	1	43757	4	0	0	0	0	14585	2	0	0	43757
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0	0	0	0	0	7292	0	0	0	0	0	0	0	0
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0	0	0	0	0	14585	0	14585	2	102101	2	21878	0	0
0	0	0	0	0	0	0	14585	0	0	0	0	0	0
1	0	0	29171	14	0	0	14585	4	0	0	7292	3	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	14585
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	14585	1	0	0	0	0	14585
39	**51048**	**4**	**612604**	**56**	**196904**	**26**	**116681**	**13**	**539674**	**39**	**204195**	**29**	**525087**

1	14585	1	0	0	0	0	0	0	14585	1	7292	0	58343
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0	0	0	0	0	0	0	0	0	0	0	7292	0	0
27	7292	2	14585	6	51050	19	29171	7	72929	27	43757	16	14585
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	7292	0	0	0	14585	0	29171	0	0	0	196910	5	0
0	0	0	0	0	0	0	14585	1	0	0	0	0	87515
0	7292	2	0	0	0	0	0	0	0	0	0	0	0
0	7292	0	0	0	0	0	0	0	0	0	14585	0	175031
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	14585	2	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	29171
0	21878	4	0	0	0	0	0	0	0	0	0	0	29171
0	153152	150	0	0	0	0	14585	15	0	0	0	0	14585
0	58343	6	0	0	0	0	29171	5	0	0	7292	1	29171
0	0	0	0	0	0	0	0	0	0	0	0	0	14585
5	284426	80	145859	54	65636	24	58343	16	131273	48	131273	37	277133
6	350063	8	612610	14	116687	3	466750	11	320891	8	138566	3	350063
5	663661	4	1298150	11	291719	2	1473182	9	1035603	9	262547	2	1837831
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	29171	11	14585	4	14585	6	58343	22	21878	6	29171

0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	7292	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	29171	1	0	0	0
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0	0	0	14585	5	0	0	0	0	14585	1	0	0	14585
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0	72929	5	0	0	0	0	0	0	0	0	0	0	58343
53	**1655497**	**264**	**2114960**	**101**	**554262**	**52**	**2158713**	**80**	**1677380**	**116**	**845977**	**76**	**3121383**

0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	7292	6	14585	11	43757	35	7292	6	0
43	0	0	0	0	14585	16	0	0	0	0	0	0	0
15	0	0	0	0	7292	21	0	0	0	0	7292	19	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	14585	1	14585	1	14585	1	7292	1	14585
0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	58343	8	72929	11	58343	9	160445	23	320891	50	29171	4	145859
69	**58343**	**8**	**72929**	**11**	**102097**	**53**	**189615**	**35**	**379233**	**87**	**51047**	**29**	**160444**

0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	14585	1	0	0	0	0	0	0	51050	14	58343
0	7292	4	0	0	7292	0	0	0	58343	4	0	0	43757
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	7292	2	14585
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	7292	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	14585
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	**14584**	**5**	**14585**	**1**	**7292**	**0**	**0**	**0**	**58343**	**4**	**58342**	**16**	**131270**

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0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
0	7292	25	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	7292	25	0	0	0	0	0	0	29171	24	0	0	0

199	2093064	393	10049715	443	2413953	252	4127807	251	5659337	388	1794048	349	5732255

Snap Lake - Northwest Arm													
2A	SNAP02A		SNAP02A		SNAP01		SNAP01		SNAP01		SNAP20B		SNAP20
2	11-Aug-12		12-Sep-12		7-Jul-12		11-Aug-12		14-Sep-12		6-Jul-12		11-Aug-
BIO-02	BIO-19	BIO-19	BIO-36	BIO-36	BIO-01	BIO-01	BIO-18	BIO-18	BIO-35	BIO-35	BIO-08	BIO-08	BIO-25
Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance
(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)
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37	751177	19	87515	2	765763	19	255254	6	408407	10	758470	19	1465889
115	87515	34	175031	69	58343	23	29171	11	131273	52	233375	92	36464
79	7292	63	4861	34	21878	119	14585	79	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	4861	1	0	0	0	0	0	0	0	0	0
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3	0	0	0	0	14585	3	0	0	0	0	58342	13	0
0	0	0	9723	5	0	0	0	0	0	0	0	0	0
234	**853276**	**117**	**281991**	**110**	**860569**	**164**	**299010**	**97**	**539680**	**62**	**1050187**	**124**	**1502353**

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0	0	0	0	0	7292	4	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	36464	3	0	0	0	0	0
7	21878	1	0	0	43757	3	14585	1	0	0	43757	1	0
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3	7292	0	0	0	29171	0	0	0	7292	0	29171	1	0

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0	0	0	4861	0	0	0	7292	0	7292	0	0	0	14585
17	211496	16	111825	8	43757	7	189617	14	145859	11	262547	20	138566
6	0	0	4861	1	14585	2	0	0	0	0	29171	4	0
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0	29171	1	0	0	0	0	21878	0	0	0	0	0	0
0	7292	0	4861	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	14585
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0	7292	3	0	0	0	0	0	0	0	0	14585	8	0
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0	0	0	0	0	0	0	0	0	7292	4	0	0	0
0	7292	0	9723	0	0	0	0	0	14585	0	0	0	0
65	**350053**	**25**	**165301**	**10**	**160438**	**32**	**328175**	**54**	**211489**	**16**	**408401**	**39**	**189612**

2	14585	1	4861	0	29171	1	43757	2	0	0	0	0	0
0	0	0	9723	0	0	0	0	0	0	0	14585	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	58343	22	38895	16	7292	2	29171	8	65635	32	29171	8	58343
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	14585	0	0	0	36464	1	14585	0	0
3	0	0	0	0	14585	1	0	0	0	0	14585	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	72929	5	0	0	0	0	87515	5	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	7292	27	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	4861	1	0	0	0	0	14585	1	0	0	0
12	0	0	0	0	7292	1	0	0	0	0	14585	231	0
7	0	0	0	0	0	0	0	0	7292	1	116687	12	0
0	0	0	4861	0	29171	8	0	0	14585	0	29171	1	0
78	226082	64	160445	59	175031	70	0	0	145859	74	510508	144	87515
8	269840	6	97239	2	328184	4	233375	2	131273	1	1312736	31	240668
15	1341908	11	48619	0	729298	6	940794	6	291719	2	1152291	10	444871
0	0	0	9723	1	14585	0	0	0	14585	1	0	0	14585
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	4861	0	0	0	0	0	7292	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	7292	0	0	0	0	0	7292	0	7292	0	0	0	0
15	29171	8	19447	5	21878	5	14585	4	29171	8	29171	8	14585

0	0	0	0	0	0	0	0	0	7292	4	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
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35	7292	2	0	0	14585	4	14585	4	0	0	0	0	7292
0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	36464	11	4861	2	0	0	21878	7	7292	4	14585	4	7292
0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	21878	1	4861	0	65636	4	14585	1	0	0	43757	3	0
338	**2012855**	**127**	**413257**	**88**	**1531514**	**139**	**1320022**	**35**	**780336**	**131**	**3383932**	**457**	**875151**

0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	7292	8	4861	5	7292	4	7292	5	7292	6	14585	15	0
0	14585	39	4861	14	7292	6	7292	10	0	0	29171	27	0
0	0	0	14585	55	0	0	0	0	21878	65	43757	106	0
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1	36464	3	19447	2	7292	1	36464	3	7292	1	0	0	7292
0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	459457	66	29171	3	0	0	299012	47	43757	6	145859	23	102101
22	**517798**	**116**	**72925**	**78**	**21876**	**10**	**350060**	**65**	**80219**	**78**	**233372**	**171**	**109393**

0	0	0	0	0	0	0	0	0	0	0	0	0	0
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23	51050	10	19447	5	7292	3	7292	1	36464	3	0	0	21878
13	51050	44	0	0	0	0	14585	2	0	0	14585	4	21878
0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	7292	3	4861	2	0	0	0	0	7292	1	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	7292	0	14585	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	14585	19	0	0	0	0	0	0	0	0	0	0	0
41	**123977**	**75**	**24308**	**7**	**7292**	**3**	**21877**	**2**	**51048**	**4**	**29170**	**4**	**43756**

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0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
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0	7292	5	4861	3	0	0	14585	9	0	0	0	0	7292
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	7292	20	0	0	0	0	0	0	7292	20	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0

0	14584	24	4861	3	0	0	14585	9	7292	20	0	0	7292

700	3872543	484	962643	297	2581689	348	2333729	262	1670064	311	5105062	795	2727557

B	SNAP20B		SNAP30		SNAP30		SNAP30		NEL01		NEL01		NEL01
12	12-Sep-12		11-Aug-12		7-Jul-12		14-Sep-12		10-Jul-12		15-Aug-12		8-Sep-1
BIO-25	BIO-42	BIO-42	BIO-27	BIO-27	BIO-10	BIO-10	BIO-44	BIO-44	BIO-11	BIO-11	BIO-28	BIO-28	BIO-45
Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance
(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)
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37	306305	8	2275410	57	2377512	60	320891	8	58343	1	21878	1	19447
14	131273	52	14585	6	160445	63	211496	83	14585	6	36464	14	29171
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0	0	0	0	0	29171	0	7292	0	14585	0	29171	0	9723
0	7292	2	0	0	43757	9	7292	2	0	0	14584	2	4861
0	0	0	0	0	0	0	0	0	0	0	0	0	4861
51	**444870**	**61**	**2289995**	**63**	**2640056**	**224**	**576142**	**160**	**87513**	**7**	**109389**	**18**	**82647**
0	7292	1	0	0	29171	1	0	0	7292	1	0	0	0
0	0	0	0	0	14585	1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	14585	1	0	0	0	0	0	0	7292	1	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	51050	1	29171	1	0	0	21878	1	0	0	7292	0	0
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0	0	0	0	0	0	0	0	0	7292	31	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	4861
0	7292	25	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	7292	7	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	14585	2	0	0	7292	0	0	0	0	0	0
0	7292	0	43756	3	58343	1	14585	1	7292	0	14585	1	4861
0	0	0	0	0	0	0	7292	5	0	0	0	0	0
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0	0	0	0	0	72929	1	0	0	0	0	0	0	24309

0	0	0	0	0	0	0	0	0	0	0	0	0	0
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1	7292	0	0	0	0	0	0	0	7292	0	0	0	0
10	262547	18	262547	20	189617	14	167738	12	43757	3	167738	12	140997
0	7292	1	0	0	72929	8	0	0	14585	2	7292	1	9723
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0	14585	0	0	0	29171	3	21878	1	0	0	7292	0	0
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6	36464	15	0	0	0	0	29171	12	7292	1	0	0	0
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0	0	0	0	0	43757	27	0	0	7292	8	0	0	0
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0	14585	13	0	0	0	0	14585	8	0	0	0	0	0
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22	**430275**	**76**	**408400**	**70**	**612600**	**139**	**320881**	**42**	**123970**	**55**	**233368**	**20**	**189612**

0	0	0	29171	1	58343	3	7292	0	0	0	7292	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	72929	27	29171	11	43757	16	167738	62	43757	16	21878	8	24309
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0	87515	2	43757	0	0	0	284426	2	0	0	72929	1	0
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0	0	0	0	0	0	0	14585	2	14585	1	0	0	4861
0	0	0	0	0	0	0	0	0	14585	7	0	0	0
0	0	0	0	0	72929	13	7292	1	14585	2	0	0	0
0	0	0	0	0	14585	0	0	0	7292	0	0	0	0
32	306305	113	145859	54	218789	62	291719	75	196910	73	102101	29	53481
2	160445	1	393821	9	598024	14	167738	4	627196	15	109394	1	24309
4	160445	1	539680	3	1706558	11	153152	1	415700	3	226082	2	4861
1	0	0	0	0	0	0	7292	0	0	0	7292	1	0
0	0	0	0	0	14585	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	7292	11	0	0	0	0	0	0	0	0	0	0	9723
0	0	0	0	0	0	0	29171	0	0	0	7292	0	14585
4	29171	15	29171	7	29171	7	21878	8	21878	8	21878	6	9723

0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	7292	0	29171	1	0	0	0	0	0	0	0	0	0
0	0	0	14585	0	0	0	0	0	0	0	0	0	0
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3	7292	3	0	0	58343	23	58343	23	7292	3	14585	6	0
0	0	0	0	0	0	0	7292	4	0	0	0	0	0
0	14585	14	14585	7	0	0	0	0	21878	1	14585	7	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	29171	2	0	0	43757	3	0	0	58343	2	80222	5	0
61	**882442**	**189**	**1268971**	**95**	**2946354**	**161**	**1239794**	**196**	**1465878**	**132**	**729286**	**68**	**179885**

0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	65636	53	43757	46	14585	11	29171	25	0	0	0	0	0
0	0	0	14585	26	0	0	0	0	0	0	0	0	0
0	21878	36	0	0	0	0	29171	87	0	0	0	0	0
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1	0	0	0	0	29171	2	14585	1	51050	4	14585	1	0
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16	58343	13	204203	29	145859	21	58343	9	51050	7	0	0	0
17	**145857**	**102**	**262545**	**102**	**189615**	**35**	**131270**	**122**	**102100**	**11**	**14585**	**1**	**0**

0	0	0	0	0	0	0	0	0	0	0	7292	4	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	43757	4	87515	7	58343	5	36464	6	80222	14	182324	68	131724
2	14585	1	72929	8	0	0	7292	4	21878	7	14585	19	4861
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	21878	26	0
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0	0	0	0	0	0	0	0	0	7292	1	29171	17	14585
0	0	0	0	0	14585	1	0	0	0	0	0	0	0
0	7292	5	0	0	0	0	0	0	36464	19	182324	120	92377
0	0	0	0	0	14585	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	4861
0	0	0	0	0	0	0	0	0	0	0	14585	3	4861
0	7292	10	0	0	0	0	0	0	0	0	0	0	0
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5	**72926**	**20**	**160444**	**15**	**87513**	**6**	**43756**	**10**	**145856**	**42**	**459451**	**262**	**253269**

0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	7292	3	0	0	0	0	0
0	**0**	**0**	**0**	**0**	**0**	**0**	**7292**	**3**	**0**	**0**	**0**	**0**	**0**
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	14585	376	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	29171	54	0	0	0	0	0

5	14584	38	29170	385	0	0	43756	69	7292	3	0	0	0

161	1990954	487	4419525	730	6476138	564	2362891	602	1932609	251	1546079	369	705413

							Northeast Lake						
	NEL02		NEL02		NEL02		NEL03		NEL03		NEL03		NEL04
2	10-Jul-12		15-Aug-12		8-Sep-12		10-Jul-12		15-Aug-12		8-Sep-12		10-Jul-1
BIO-45	BIO-12	BIO-12	BIO-29	BIO-29	BIO-46	BIO-46	BIO-13	BIO-13	BIO-30	BIO-30	BIO-47	BIO-47	BIO-14
Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance
(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)
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0	43757	1	21878	1	17892	0	36464	1	21878	1	0	0	65636
11	0	0	21878	9	26838	11	14584	8	29171	11	4861	2	14585
26	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	7292
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0	7292	1	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	7292	1	0	0	0	0	0
0	7292	0	0	0	8946	0	29171	2	0	0	0	0	7292
0	36464	0	36464	0	17892	0	21878	0	21878	0	9723	0	51050
1	7292	1	0	0	0	0	21877	4	0	0	9722	2	14584
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42	**102097**	**4**	**80220**	**10**	**80514**	**25**	**131266**	**16**	**72927**	**12**	**38889**	**14**	**167731**

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0	0	0	0	0	0	0	0	0	0	0	0	0	7292
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	7292	1	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	7292
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0	0	0	0	0	0	0	0	0	0	0	0	0	21878
20	211496	78	58343	23	40257	15	328184	121	116687	33	43757	16	342770
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0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	36463	5	14585	0	4473	5	51049	4	14585	1	0	0	29170
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0	43757	2	14585	1	0	0	211496	8	0	0	0	0	14585
87	**1531512**	**156**	**437570**	**38**	**281799**	**43**	**1808649**	**183**	**685530**	**120**	**58340**	**19**	**1764888**

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0	7292	3	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	14585	7	4861	3	21877

268	1845095	203	1152266	306	827506	186	2195154	295	2136816	622	544523	134	2275375

											Lake 13	
4	NEL04		NEL04		NEL05		NEL05		NEL05		LK 13-01	
12	15-Aug-12		8-Sep-12		10-Jul-12		15-Aug-12		8-Sep-12		8-Aug-12	
BIO-14	BIO-31	BIO-31	BIO-48	BIO-48	BIO-15	BIO-15	BIO-32	BIO-32	BIO-49	BIO-49	BIO-50	BIO-50
Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass
(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)	(# of cells/L)	(mg/m^3)
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1	21878	1	4861	0	7292	1	0	0	29171	0	29171	1
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4	211496	16	223651	17	65636	5	138566	9	277133	19	7292	1
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0	0	0	0	0	14585	4	0	0	14585	8	0	0
0	14585	0	0	0	36464	1	0	0	29171	3	7292	0
82	**335469**	**34**	**262541**	**22**	**175023**	**25**	**189611**	**24**	**466739**	**64**	**277120**	**91**

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0	0	0	0	0	7292	0	0	0	29171	0	14585	0
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0	0	0	0	0	0	0	7292	0	29171	3	21878	4
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126	167738	43	0	0	299012	120	29171	11	160445	75	218789	111
13	87515	2	0	0	525094	12	72929	2	167738	1	116687	1
4	240668	2	0	0	357356	3	109394	1	138566	1	65636	1
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0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	7292	8	0	0
0	0	0	0	0	0	0	0	0	36464	1	0	0
8	14585	5	0	0	43757	12	7292	4	14585	5	29171	12

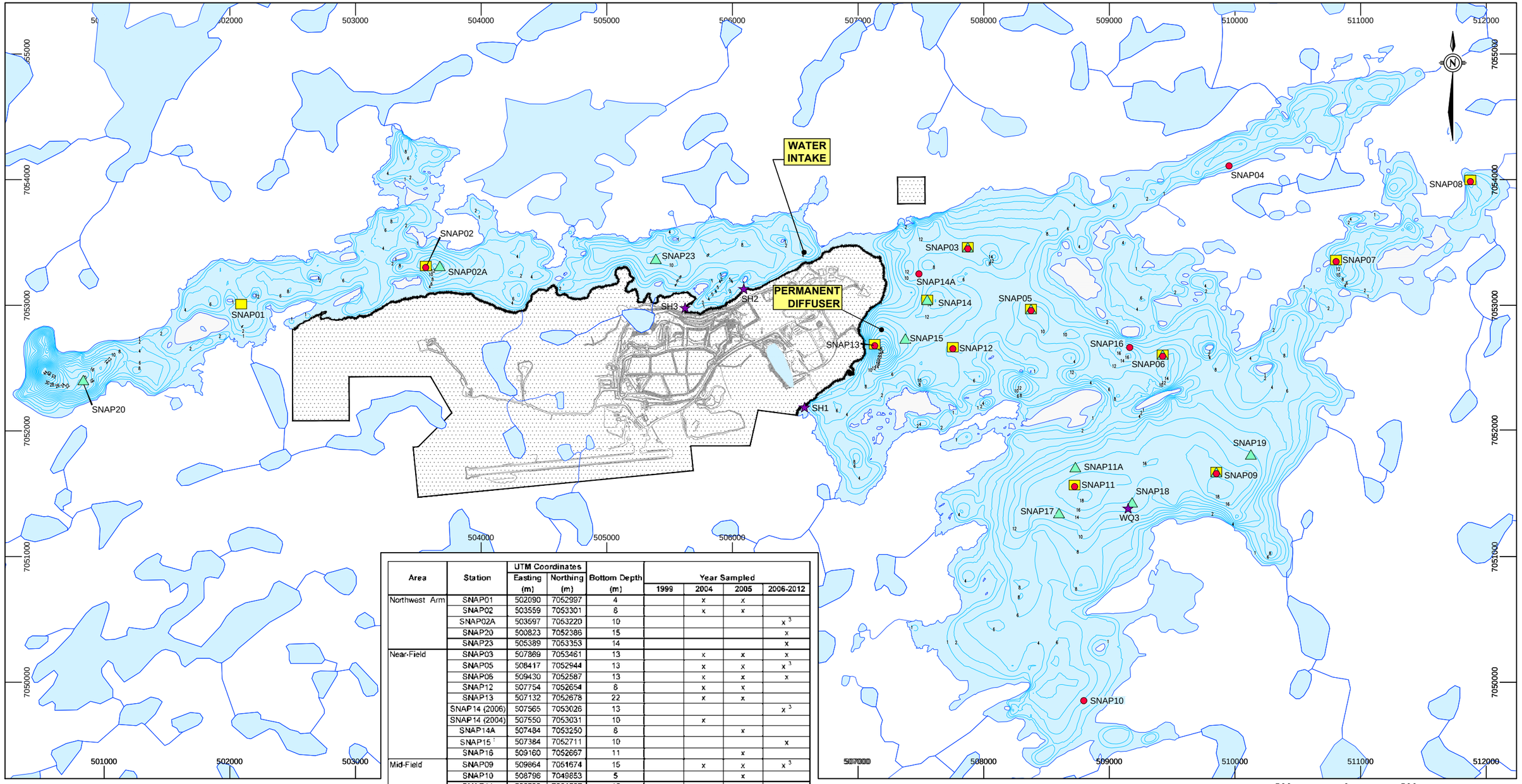
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4	29171	2	0	0	36464	3	14585	1	21878	2	0	0
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8	204203	119	155583	61	14585	14	131273	79	167738	86	7292	1
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0	7292	6	0	0	0	0	14585	6	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
35	**780343**	**300**	**209063**	**86**	**182320**	**58**	**430280**	**217**	**415696**	**158**	**262541**	**113**

0	0	0	0	0	0	0	0	0	0	0	7292	1
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7292**	**1**
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
6	14585	11	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0

7	14585	11	0	0	0	0	0	0	0	0	0	0
387	1939902	463	563972	258	1859684	278	977232	318	1713814	474	1312699	443



Area	Station	UTM Coordinates Easting (m)	UTM Coordinates Northing (m)	Bottom Depth (m)	Year Sampled 1999	2004	2005	2006-2012
Northwest Arm	SNAP01	502090	7052997	4		x	x	
	SNAP02	503559	7053301	8		x	x	
	SNAP02A	503597	7053220	10				x [3]
	SNAP20	500823	7052386	15				x
	SNAP23	505389	7053353	14				x
Near-Field	SNAP03	507869	7053461	13		x	x	x
	SNAP05	508417	7052944	13		x	x	x [3]
	SNAP06	509430	7052587	13		x	x	x
	SNAP12	507754	7052654	8		x	x	
	SNAP13	507132	7052678	22		x	x	
	SNAP14 (2006)	507565	7053026	13				x [3]
	SNAP14 (2004)	507550	7053031	10		x		
	SNAP14A	507484	7053250	8			x	
	SNAP15 [1]	507384	7052711	10				x
	SNAP16	509160	7052657	11			x	
Mid-Field	SNAP09	509864	7051674	15		x	x	x [3]
	SNAP10	508796	7049853	5			x	
	SNAP11	508723	7051557	16		x	x	
	SNAP11A	508609	7051753	14				x
	SNAP17	508602	7051333	10				x
	SNAP18	509177	7051411	12				x
	SNAP19	510118	7051802	12				x
Northeast Arm	SNAP04	509952	7054110	5			x	
Southeast Arm	SNAP07	510804	7053348	9		x	x	
	SNAP08	511873	7053985	9		x	x	
Baseline	SH1 [2]	506573	7052187	6	x			
	SH2 [2]	506090	7053129	6	x			
	SH3 [2]	505622	7052979	6	x			
	WQ3 [2]	509148	7051382	7	x			

NOTES:
BOTTOM DEPTH AND UTMS ARE FROM MOST RECENT SAMPLING YEAR.
[1] = SNAP15 WAS NOT SAMPLED IN 2007.
[2]= UTM LOCATIONS FOR 1999 SAMPLING STATIONS ARE APPROXIMATE.
[3]= STATIONS SAMPLED IN BOTH MAY AND SEPTEMBER 2009.
UTMS ARE NAD 83, ZONE 12 V.

LEGEND

- 1999 BENTHIC INVERTEBRATE MONITORING STATION
- 2004 BENTHIC INVERTEBRATE MONITORING STATION
- 2005 BENTHIC INVERTEBRATE MONITORING STATION
- 2006 - 2010 BENTHIC INVERTEBRATE MONITORING STATION
- SNAP LAKE MINE FOOTPRINT
- WATERBODY
- DEPTH CONTOUR (m)

REFERENCE

DIGITAL MAP FROM MACKAY LAKE, NORTHWEST TERRITORIES, PRODUCED BY DEPARTMENT OF ENERGY, MINES AND RESOURCES. MAP 75M, ORIGINAL SCALE 1:250,000, NAD 83 UTM ZONE 12.

SNAP LAKE OUTLINE AND ISLANDS WERE CORRECTED TO LANDSAT 7 SATELLITE IMAGE 45/15, DATED SEPTEMBER 2, 2000. PROVIDED BY GEOBASE.

BATHYMETRY WAS CREATED IN SURFER 8 USING SONAR DATA FROM THE 2002 NORTH LAKES PROGRAM (GOLDER) AND 2005 TRANSECT DATA FROM THE REFERENCE LAKE SEARCH PROGRAM (GOLDER).

NOTES

1. ALL DEPTH VALUES ARE SHOWN IN METRES
2. MAP MOVED TO NAD83 COORDINATE SYSTEM

PROJECT

De Beers
GROUP OF COMPANIES

TITLE

HISTORICAL BENTHIC INVERTEBRATE MONITORING STATIONS IN SNAP LAKE, 1999 TO 2012

Golder Associates

PROJECT	13-1349-0001.4300		FILE No.	13134900014300A6A-1	
DESIGN	TD	2013-03-01	SCALE	AS SHOWN	REV. 0
CADD	JEF	2013-03-13			
CHECK	LMB	2013-04-19			
REVIEW	PMC	2013-04-19			

FIGURE 6A-1

L:\2013\1349\13-1349-0001\Phase 4300\ Drawing file: 13134900014300A6A-1.dwg Apr 23, 2013 - 12:49pm

Table 6A-1 Benthic Invertebrate Abundance Data (number per sample) in Ekman Grabs Collected from Snap Lake, Northeast Lake, and Lake 13, August and September 2012

				Northeast Lake									
				NEL01						NEL02	NEL03	NEL04	NEL05
				NEL01-1	NEL01-2	NEL01-3	NEL01-4	NEL01-5	NEL01-6	Composite	Composite	Composite	Composite
Major Taxon	Family	Subfamily/Tribe	Genus/Species	09-Sep-2012	09-Sep-2012	09-Sep-2012	09-Sep-2012	09-Sep-2012	09-Sep-2012	09-Sep-2012	09-Sep-2012	09-Sep-2012	09-Sep-2012
Nematoda	-	-	-	4	2	5	0	0	1	0	3	0	1
Oligochaeta	Lumbriculidae	-	*Lumbriculus*	0	2	1	0	0	1	1	1	2	0
	Naididae	Naidinae	-	0	0	0	0	0	0	1	0	0	0
		Tubificinae	-	1	2	1	0	0	0	1	2	0	1
Hydracarina	-	-	-	0	0	0	0	0	0	3	0	0	1
Cladocera	Chydoridae	-	*Eurycercus*	0	0	0	0	0	0	1	0	0	0
	Macrothricidae	-	-	1	0	0	0	0	0	1	0	0	5
Copepoda - Cyclopoida	Cyclopidae	-	*Acanthocyclops*	0	0	0	0	0	0	2	1	0	0
Ostracoda	-	-	-	0	0	0	0	0	0	2	0	0	1
Amphipoda	Hyalellidae	-	*Hyalella azteca*	3	5	2	0	0	0	41	15	2	3
Gastropoda	-	-	(i/d)	0	0	0	0	0	0	0	0	0	0
	Valvatidae	-	*Valvata sincera*	7	6	2	0	0	1	9	2	2	0
Pelecypoda	Pisidiidae	-	(i/d)	1	1	0	0	0	0	13	7	1	3
		-	*Pisidium*	1	1	1	0	0	0	12	2	0	0
		-	*Sphaerium*	0	1	0	0	0	0	0	0	0	0
		-	*Pisidium / Sphaerium*	0	0	0	0	0	0	0	0	0	0
Trichoptera	Apataniidae	-	*Apatania*	0	0	0	0	0	0	0	0	0	0
	Phrygaenidae	-	*Agrypnia*	0	0	0	0	0	0	1	0	0	0
Diptera	Ceratopogonidae	-	*Bezzia*	0	0	0	0	0	0	0	0	0	0
		-	*Probezzia*	0	0	0	0	0	0	0	0	0	0
	Chironomidae	-	Pupa	0	0	0	0	0	0	0	0	0	0
		Tanypodinae	*Ablabesmyia*	0	0	0	0	0	0	0	0	0	0
			Procladius	5	5	6	0	0	0	11	4	2	4
			Thienemannimyia group	0	0	0	0	0	0	0	0	0	0
		Chironomini	(i/d)	0	0	0	0	0	0	0	0	0	0
			Chironomus	0	0	0	0	0	0	0	0	0	0
			Cladopelma	0	0	0	0	0	0	0	1	0	0
			Cryptochironomus	3	2	1	2	0	0	1	0	0	0
			Dicrotendipes	0	0	0	0	0	0	0	0	0	0
			Microtendipes	1	0	0	0	0	0	44	3	22	9
			Pagastiella	0	0	1	0	0	0	0	0	0	0
			Parachironomus	0	0	0	0	0	0	0	0	0	2
			Polypedilum	0	0	0	0	0	0	0	0	0	0
			Sergentia	0	0	0	0	0	0	0	0	0	0
			Stictochironomus	0	0	0	0	0	0	4	7	2	0
		Tanytarsini	*Cladotanytarsus*	0	0	0	0	0	0	0	1	0	0
			Corynocera	33	14	26	11	0	18	9	22	0	1
			Micropsectra	0	0	0	0	0	0	22	3	2	2
			Micropsectra / Tanytarsus	0	0	0	0	0	0	0	0	0	0

Table 6A-1 Benthic Invertebrate Abundance Data (number per sample) in Ekman Grabs Collected from Snap Lake, Northeast Lake, and Lake 13, August and September 2012

Major Taxon	Family	Subfamily/Tribe	Genus/Species	Northeast Lake									
				NEL01						NEL02	NEL03	NEL04	NEL05
				NEL01-1	NEL01-2	NEL01-3	NEL01-4	NEL01-5	NEL01-6	Composite	Composite	Composite	Composite
				09-Sep-2012	09-Sep-2012	09-Sep-2012	09-Sep-2012	09-Sep-2012	09-Sep-2012	09-Sep-2012	09-Sep-2012	09-Sep-2012	09-Sep-2012
			Paratanytarsus	0	0	0	0	0	0	0	0	0	0
			Tanytarsus	0	0	0	0	0	0	9	2	0	8
		Orthocladiinae	*Abiskomyia*	0	0	0	0	0	0	0	0	0	0
			Cricotopus / Orthocladius	0	0	0	0	0	0	0	0	0	0
			Heterotanytarsus	0	0	0	0	0	0	0	0	0	1
			Heterotrissocladius	0	0	0	0	0	0	0	0	0	0
			Psectrocladius	0	1	0	0	0	0	3	2	1	1
		Diamesinae	*Potthastia longimana* gr.	0	0	0	0	0	0	0	0	0	0
			Protanypus	0	0	0	0	0	0	1	1	0	1
		Prodiamesinae	*Monodiamesa*	0	0	0	0	0	0	0	0	1	0
Total				**60**	**42**	**46**	**13**	**0**	**21**	**192**	**79**	**37**	**44**

Table 6A-1 Benthic Invertebrate Abundance Data (number per sample) in Ekman Grabs Collected from Snap Lake, Northeast Lake, and Lake 13, August and September 2012

Major Taxon	Family	Subfamily/Tribe	Genus/Species	Lake 13											
				LK13-01						LK13-02					
				LK13-01-A	LK13-01-B	LK13-01-C	LK13-01-D	LK13-01-E	LK13-01-F	LK13-02-A	LK13-02-B	LK13-02-C	LK13-02-D	LK13-02-E	LK13-02-F
				18-Aug-2012	18-Aug-2012	18-Aug-2012	18-Aug-2012	18-Aug-2012	18-Aug-2012	19-Aug-2012	19-Aug-2012	19-Aug-2012	19-Aug-2012	19-Aug-2012	19-Aug-2012
Nematoda	-	-	-	0	0	2	0	0	0	0	0	0	1	0	0
Oligochaeta	Lumbriculidae	-	*Lumbriculus*	0	0	1	0	0	0	1	0	0	0	0	0
	Naididae	Naidinae	-	0	0	0	0	1	0	1	1	0	0	0	0
		Tubificinae	-	1	2	1	2	2	0	5	5	1	1	2	3
Hydracarina	-	-	-	0	0	0	0	0	1	0	0	0	0	0	0
Cladocera	Chydoridae	-	*Eurycercus*	0	0	0	0	0	0	0	0	0	0	0	0
	Macrothricidae	-	-	0	0	0	0	0	0	0	2	0	1	0	0
Copepoda - Cyclopoida	Cyclopidae	-	*Acanthocyclops*	0	0	0	3	1	0	0	0	0	0	0	0
Ostracoda	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Amphipoda	Hyalellidae	-	*Hyalella azteca*	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	-	-	(i/d)	0	0	0	0	0	0	0	0	0	0	0	0
	Valvatidae	-	*Valvata sincera*	5	3	0	5	1	5	4	8	0	5	7	1
Pelecypoda	Pisidiidae	-	(i/d)	0	0	0	0	0	0	0	0	0	0	0	0
		-	*Pisidium*	4	7	2	10	3	0	2	8	0	4	1	4
		-	*Sphaerium*	0	0	0	0	0	0	0	0	0	0	1	1
		-	*Pisidium / Sphaerium*	7	11	1	1	5	6	3	5	0	5	5	5
Trichoptera	Apataniidae	-	*Apatania*	0	0	0	0	0	0	0	0	0	0	0	0
	Phrygaenidae	-	*Agrypnia*	0	0	0	0	0	0	0	0	0	0	0	0
Diptera	Ceratopogonidae	-	*Bezzia*	0	1	0	0	0	0	0	0	0	0	0	0

Table 6A-1 Benthic Invertebrate Abundance Data (number per sample) in Ekman Grabs Collected from Snap Lake, Northeast Lake, and Lake 13, August and September 2012

Major Taxon	Family	Subfamily/Tribe	Genus/Species	Lake 13											
				LK13-01						LK13-02					
				LK13-01-A	LK13-01-B	LK13-01-C	LK13-01-D	LK13-01-E	LK13-01-F	LK13-02-A	LK13-02-B	LK13-02-C	LK13-02-D	LK13-02-E	LK13-02-F
				18-Aug-2012	18-Aug-2012	18-Aug-2012	18-Aug-2012	18-Aug-2012	18-Aug-2012	19-Aug-2012	19-Aug-2012	19-Aug-2012	19-Aug-2012	19-Aug-2012	19-Aug-2012
		-	*Probezzia*	0	0	1	0	0	0	0	0	0	0	0	0
	Chironomidae	-	Pupa	0	0	0	0	0	0	0	0	0	0	0	0
		Tanypodinae	*Ablabesmyia*	0	0	0	0	0	0	0	0	0	0	0	0
			Procladius	0	6	0	6	0	3	0	4	0	4	9	7
			Thienemannimyia group	0	0	0	0	0	0	0	0	0	0	0	0
		Chironomini	(i/d)	0	0	0	0	0	0	0	0	0	0	0	0
			Chironomus	0	0	0	0	0	0	0	0	0	0	0	0
			Cladopelma	0	0	0	4	0	0	1	2	0	0	0	0
			Cryptochironomus	0	0	0	0	0	0	2	3	0	0	1	1
			Dicrotendipes	0	0	0	0	0	0	0	0	0	0	0	0
			Microtendipes	18	2	0	0	2	0	4	0	0	4	2	9
			Pagastiella	0	0	0	0	1	1	0	2	0	3	3	6
			Parachironomus	0	0	0	0	0	0	0	0	0	0	0	1
			Polypedilum	0	0	0	0	0	0	1	1	0	0	0	0
			Sergentia	0	0	0	0	0	0	0	0	0	0	0	0
			Stictochironomus	8	2	2	1	0	13	3	0	0	2	3	2
		Tanytarsini	*Cladotanytarsus*	2	2	0	0	0	0	0	0	0	0	2	1
			Corynocera	0	0	0	0	0	0	0	0	0	0	0	0
			Micropsectra	2	6	1	12	2	1	0	0	0	0	1	1
			Micropsectra / Tanytarsus	0	0	0	0	1	0	0	0	0	0	0	0
			Paratanytarsus	2	0	0	0	1	1	0	0	0	0	0	0
			Tanytarsus	3	1	1	0	0	2	2	1	0	0	0	1
		Orthocladiinae	*Abiskomyia*	0	0	0	0	0	0	0	0	0	0	0	0
			Cricotopus / Orthocladius	0	0	0	0	0	0	0	0	0	0	0	0
			Heterotanytarsus	0	1	0	0	0	0	0	0	0	0	0	0
			Heterotrissocladius	0	0	0	0	0	0	0	0	0	0	0	0
			Psectrocladius	0	2	0	0	0	0	0	0	0	0	1	0
		Diamesinae	*Potthastia longimana* gr.	0	0	0	0	0	0	0	0	0	0	0	0
			Protanypus	0	2	0	0	0	0	1	0	0	0	0	0
		Prodiamesinae	*Monodiamesa*	0	3	5	1	2	0	0	0	0	0	0	0
Total				**52**	**51**	**17**	**45**	**22**	**33**	**30**	**42**	**1**	**30**	**38**	**43**

Table 6A-1 Benthic Invertebrate Abundance Data (number per sample) in Ekman Grabs Collected from Snap Lake, Northeast Lake, and Lake 13, August and September 2012

				Lake 13											
				LK13-03						LK13-04					
				LK13-03-A	LK13-03-B	LK13-03-C	LK13-03-D	LK13-03-E	LK13-03-F	LK13-04-A	LK13-04-B	LK13-04-C	LK13-04-D	LK13-04-E	LK13-04-F
Major Taxon	Family	Subfamily/Tribe	Genus/Species	19-Aug-2012	19-Aug-2012	19-Aug-2012	19-Aug-2012	19-Aug-2012	19-Aug-2012	20-Aug-2012	20-Aug-2012	20-Aug-2012	20-Aug-2012	20-Aug-2012	20-Aug-2012
Nematoda	-	-	-	1	0	0	0	0	0	0	0	0	1	0	1
Oligochaeta	Lumbriculidae	-	*Lumbriculus*	1	2	1	1	2	1	2	1	0	0	0	1
	Naididae	Naidinae	-	2	1	0	0	1	0	2	0	1	0	0	1
		Tubificinae	-	0	2	2	0	3	4	2	6	1	3	1	0
Hydracarina	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Cladocera	Chydoridae	-	*Eurycercus*	0	1	0	0	0	0	0	0	0	0	0	0
	Macrothricidae	-	-	0	0	1	0	0	1	6	8	4	1	1	3
Copepoda - Cyclopoida	Cyclopidae	-	*Acanthocyclops*	6	1	0	0	0	0	0	1	0	0	0	0
Ostracoda	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Amphipoda	Hyalellidae	-	*Hyalella azteca*	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	-	-	(i/d)	0	0	0	0	0	0	0	2	0	1	0	0
	Valvatidae	-	*Valvata sincera*	1	0	3	1	2	2	4	2	2	2	4	3
Pelecypoda	Pisidiidae	-	(i/d)	0	0	0	0	0	0	0	0	0	0	0	0
		-	*Pisidium*	0	0	0	0	0	3	6	4	0	3	5	5
		-	*Sphaerium*	0	0	0	0	0	0	0	0	1	0	2	0
		-	*Pisidium / Sphaerium*	1	3	2	2	1	2	12	10	12	6	9	5
Trichoptera	Apataniidae	-	*Apatania*	0	0	0	0	0	0	0	0	0	0	0	0
	Phrygaenidae	-	*Agrypnia*	1	0	0	0	0	0	1	0	0	0	0	0
Diptera	Ceratopogonidae	-	*Bezzia*	0	0	0	0	0	0	0	0	0	0	0	0
		-	*Probezzia*	0	0	0	0	3	0	0	0	0	0	0	0
	Chironomidae	-	Pupa	0	0	0	0	0	1	0	0	0	0	1	0
		Tanypodinae	*Ablabesmyia*	0	0	1	0	0	1	1	1	0	0	0	0
			Procladius	4	8	1	3	0	3	7	5	4	4	5	2
			Thienemannimyia group	0	0	0	0	1	0	0	0	0	0	0	0
		Chironomini	(i/d)	0	1	0	0	0	0	0	0	0	0	0	0
			Chironomus	0	0	0	0	0	0	0	0	0	0	0	0
			Cladopelma	6	2	2	1	1	0	5	2	1	1	0	1
			Cryptochironomus	0	1	0	1	0	1	1	0	1	0	0	0
			Dicrotendipes	0	1	1	0	0	0	0	0	0	0	0	1
			Microtendipes	74	55	20	75	27	7	32	23	29	8	4	28
			Pagastiella	0	1	0	3	0	6	0	4	1	1	0	1
			Parachironomus	1	0	0	0	0	0	0	0	0	0	0	0
			Polypedilum	0	0	0	0	0	0	1	0	0	0	0	0
			Sergentia	0	0	0	0	0	0	0	0	0	0	0	0
			Stictochironomus	9	7	11	8	2	8	8	15	0	2	1	6
		Tanytarsini	*Cladotanytarsus*	0	0	0	0	0	0	0	0	0	0	0	0
			Corynocera	0	2	1	0	2	1	4	6	6	6	3	4
			Micropsectra	4	15	1	1	1	1	2	7	0	0	0	0

Table 6A-1 Benthic Invertebrate Abundance Data (number per sample) in Ekman Grabs Collected from Snap Lake, Northeast Lake, and Lake 13, August and September 2012

Major Taxon	Family	Subfamily/Tribe	Genus/Species	Lake 13											
				LK13-03						LK13-04					
				LK13-03-A	LK13-03-B	LK13-03-C	LK13-03-D	LK13-03-E	LK13-03-F	LK13-04-A	LK13-04-B	LK13-04-C	LK13-04-D	LK13-04-E	LK13-04-F
				19-Aug-2012	19-Aug-2012	19-Aug-2012	19-Aug-2012	19-Aug-2012	19-Aug-2012	20-Aug-2012	20-Aug-2012	20-Aug-2012	20-Aug-2012	20-Aug-2012	20-Aug-2012
			Micropsectra / Tanytarsus	1	0	1	0	1	0	1	0	2	1	1	0
			Paratanytarsus	0	2	0	2	0	0	0	0	0	0	0	0
			Tanytarsus	0	0	1	0	0	0	0	0	0	0	0	0
		Orthocladiinae	*Abiskomyia*	0	0	0	0	0	0	0	0	0	0	0	0
			Cricotopus / Orthocladius	1	0	0	0	0	0	0	0	0	0	0	0
			Heterotanytarsus	0	0	0	0	0	0	0	0	0	0	0	0
			Heterotrissocladius	0	1	0	0	0	0	0	0	0	0	0	0
			Psectrocladius	0	5	0	3	2	0	1	0	0	0	0	0
		Diamesinae	*Potthastia longimana* gr.	0	0	0	0	0	0	0	0	0	0	0	0
			Protanypus	0	0	0	0	0	0	0	0	0	0	0	0
		Prodiamesinae	*Monodiamesa*	0	1	0	0	0	0	1	0	1	0	1	0
Total				**113**	**112**	**49**	**101**	**49**	**42**	**99**	**97**	**66**	**40**	**38**	**62**

Table 6A-1 Benthic Invertebrate Abundance Data (number per sample) in Ekman Grabs Collected from Snap Lake, Northeast Lake, and Lake 13, August and September 2012

Major Taxon	Family	Subfamily/Tribe	Genus/Species	Lake 13						Snap Lake							
				LK13-05						SNAP02A Composite	SNAP20						SNAP23 Composite
				LK13-05-A 20-Aug-2012	LK13-05-B 20-Aug-2012	LK13-05-C 20-Aug-2012	LK13-05-D 20-Aug-2012	LK13-05-E 20-Aug-2012	LK13-05-F 20-Aug-2012	05-Sep-2012	SNAP20-1 05-Sep-2012	SNAP20-2 05-Sep-2012	SNAP20-3 05-Sep-2012	SNAP20-4 05-Sep-2012	SNAP20-5 05-Sep-2012	SNAP20-6 05-Sep-2012	05-Sep-2012
Nematoda	-	-	-	0	0	0	0	0	0	4	0	0	1	0	0	0	2
Oligochaeta	Lumbriculidae	-	*Lumbriculus*	0	0	1	0	0	0	1	0	0	0	0	0	0	0
	Naididae	Naidinae	-	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		Tubificinae	-	0	1	1	0	1	0	0	0	0	0	1	0	1	0
Hydracarina	-	-	-	0	0	0	1	1	0	0	0	0	0	0	0	0	0
Cladocera	Chydoridae	-	*Eurycercus*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Macrothricidae	-	-	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Copepoda - Cyclopoida	Cyclopidae	-	*Acanthocyclops*	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Ostracoda	-	-	-	0	0	0	1	0	0	1	0	0	0	0	0	0	0
Amphipoda	Hyalellidae	-	*Hyalella azteca*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	-	-	(i/d)	0	0	0	3	1	0	0	0	0	0	0	0	0	0
	Valvatidae	-	*Valvata sincera*	4	4	8	8	14	3	2	0	0	0	0	0	0	0
Pelecypoda	Pisidiidae	-	(i/d)	0	0	0	0	0	0	9	3	2	0	0	5	2	8
		-	*Pisidium*	1	1	5	2	2	4	3	0	0	0	0	0	0	0
		-	*Sphaerium*	0	0	1	1	2	0	0	0	0	0	0	0	0	0
		-	*Pisidium / Sphaerium*	20	7	15	25	15	9	0	0	0	0	0	0	0	0
Trichoptera	Apataniidae	-	*Apatania*	0	1	0	0	0	0	0	0	0	0	0	0	0	0

Table 6A-1 Benthic Invertebrate Abundance Data (number per sample) in Ekman Grabs Collected from Snap Lake, Northeast Lake, and Lake 13, August and September 2012

				Lake 13						Snap Lake							
				LK13-05						SNAP02A	SNAP20						SNAP23
Major Taxon	Family	Subfamily/Tribe	Genus/Species	LK13-05-A 20-Aug-2012	LK13-05-B 20-Aug-2012	LK13-05-C 20-Aug-2012	LK13-05-D 20-Aug-2012	LK13-05-E 20-Aug-2012	LK13-05-F 20-Aug-2012	Composite 05-Sep-2012	SNAP20-1 05-Sep-2012	SNAP20-2 05-Sep-2012	SNAP20-3 05-Sep-2012	SNAP20-4 05-Sep-2012	SNAP20-5 05-Sep-2012	SNAP20-6 05-Sep-2012	Composite 05-Sep-2012
	Phrygaenidae	-	*Agrypnia*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diptera	Ceratopogonidae	-	*Bezzia*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		-	*Probezzia*	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Chironomidae	-	Pupa	1	0	0	0	0	0	0	0	1	0	0	0	0	0
		Tanypodinae	*Ablabesmyia*	0	0	0	1	0	0	0	0	1	0	0	0	0	0
			Procladius	1	6	3	11	10	4	4	1	4	2	1	5	3	0
			Thienemannimyia group	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Chironomini	(i/d)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Chironomus	0	0	0	0	0	0	0	1	0	0	0	0	0	0
			Cladopelma	0	0	0	1	0	0	0	0	0	0	0	0	0	0
			Cryptochironomus	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Dicrotendipes	0	0	1	0	0	0	0	0	0	0	0	0	0	0
			Microtendipes	5	38	55	50	60	4	16	0	0	0	0	0	0	14
			Pagastiella	1	1	1	0	0	0	0	0	0	0	0	0	0	0
			Parachironomus	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Polypedilum	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Sergentia	0	0	0	0	0	0	0	2	0	2	0	3	0	0
			Stictochironomus	0	8	5	17	11	2	0	4	11	2	5	6	6	0
		Tanytarsini	*Cladotanytarsus*	0	0	0	0	0	1	1	0	0	0	0	0	0	0
			Corynocera	0	0	1	1	1	0	23	0	0	0	0	0	0	4
			Micropsectra	0	1	5	1	1	1	0	2	0	4	0	7	1	0
			Micropsectra / Tanytarsus	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Paratanytarsus	0	0	0	0	1	0	0	0	1	0	0	0	0	0
			Tanytarsus	1	1	0	16	0	0	0	0	0	1	0	0	0	0
		Orthocladiinae	*Abiskomyia*	0	0	0	0	0	0	0	0	0	0	0	3	0	0
			Cricotopus / Orthocladius	0	0	0	0	1	0	0	0	0	0	0	0	0	0
			Heterotanytarsus	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Heterotrissocladius	0	0	2	1	0	0	0	0	0	0	0	0	0	0
			Psectrocladius	0	0	0	1	2	1	0	0	0	0	0	0	0	0
		Diamesinae	*Potthastia longimana* gr.	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			Protanypus	2	0	0	0	0	0	0	0	0	0	0	0	1	0
		Prodiamesinae	*Monodiamesa*	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Total				**36**	**69**	**105**	**144**	**123**	**29**	**65**	**13**	**21**	**12**	**7**	**29**	**14**	**28**

Table 6A-1 Benthic Invertebrate Abundance Data (number per sample) in Ekman Grabs Collected from Snap Lake, Northeast Lake, and Lake 13, August and September 2012

				Snap Lake									
				SNAP03	SNAP05						SNAP06	SNAP14	SNAP15
Major Taxon	Family	Subfamily/Tribe	Genus/Species	Composite 05-Sep-2012	SNAP05-1 07-Sep-2012	SNAP05-2 07-Sep-2012	SNAP05-3 07-Sep-2012	SNAP5-4 07-Sep-2012	SNAP05-5 07-Sep-2012	SNAP05-6 07-Sep-2012	Composite 08-Sep-2012	Composite 07-Sep-2012	Composite 07-Sep-2012
Nematoda	-	-	-	1	1	1	0	0	0	0	3	3	0
Oligochaeta	Lumbriculidae	-	*Lumbriculus*	2	0	1	0	0	0	0	0	2	0
	Naididae	Naidinae	-	0	0	0	0	0	0	0	0	0	0
		Tubificinae	-	1	4	0	1	3	1	0	0	0	0
Hydracarina	-	-	-	0	0	0	0	0	0	0	0	1	0
Cladocera	Chydoridae	-	*Eurycercus*	2	0	0	0	0	0	0	0	0	0
	Macrothricidae	-	-	0	0	0	0	0	0	0	0	0	0
Copepoda - Cyclopoida	Cyclopidae	-	*Acanthocyclops*	0	0	0	0	0	0	0	0	0	0
Ostracoda	-	-	-	0	0	0	0	0	0	0	0	0	0
Amphipoda	Hyalellidae	-	*Hyalella azteca*	0	0	0	0	0	0	0	0	0	0
Gastropoda	-	-	(i/d)	0	0	0	0	0	0	0	0	0	0
	Valvatidae	-	*Valvata sincera*	1	13	4	2	1	4	1	20	10	1
Pelecypoda	Pisidiidae	-	(i/d)	1	12	0	0	1	3	1	2	24	10
		-	*Pisidium*	0	3	0	1	1	2	3	12	4	1
		-	*Sphaerium*	0	1	0	0	0	0	0	0	0	0
		-	*Pisidium / Sphaerium*	0	0	0	0	0	0	0	0	0	0
Trichoptera	Apataniidae	-	*Apatania*	0	0	0	0	0	0	0	0	0	0
	Phrygaenidae	-	*Agrypnia*	0	0	1	0	0	0	0	0	0	0
Diptera	Ceratopogonidae	-	*Bezzia*	0	0	0	0	0	0	0	0	0	0
		-	*Probezzia*	0	0	0	0	0	0	0	0	0	0
	Chironomidae	-	Pupa	0	0	0	0	0	0	0	0	0	0
		Tanypodinae	*Ablabesmyia*	0	0	0	0	0	0	0	0	0	0
			Procladius	1	2	0	0	0	3	0	3	4	1
			Thienemannimyia group	0	0	0	0	0	0	0	0	2	0
		Chironomini	(i/d)	0	0	0	0	0	0	0	0	0	0
			Chironomus	0	0	0	0	1	0	0	1	0	0
			Cladopelma	0	0	0	0	0	0	0	0	0	0
			Cryptochironomus	0	1	0	0	0	0	0	0	0	0
			Dicrotendipes	0	0	0	0	0	0	0	0	0	0
			Microtendipes	5	4	0	0	0	0	0	3	18	6
			Pagastiella	0	0	0	0	0	1	0	0	0	0
			Parachironomus	0	0	0	0	0	0	0	0	0	0
			Polypedilum	0	0	0	0	1	0	0	0	0	0
			Sergentia	0	0	0	0	0	0	0	0	0	0
			Stictochironomus	0	4	1	4	0	2	1	0	0	0
		Tanytarsini	*Cladotanytarsus*	0	0	0	0	0	0	0	0	0	1
			Corynocera	0	4	2	0	0	2	1	10	0	0
			Micropsectra	0	0	0	0	0	0	0	0	0	0
			Micropsectra / Tanytarsus	0	0	0	0	0	0	0	0	0	0

Table 6A-1 Benthic Invertebrate Abundance Data (number per sample) in Ekman Grabs Collected from Snap Lake, Northeast Lake, and Lake 13, August and September 2012

				Snap Lake									
				SNAP03	SNAP05						SNAP06	SNAP14	SNAP15
Major Taxon	Family	Subfamily/Tribe	Genus/Species	Composite	SNAP05-1	SNAP05-2	SNAP05-3	SNAP5-4	SNAP05-5	SNAP05-6	Composite	Composite	Composite
				05-Sep-2012	07-Sep-2012	07-Sep-2012	07-Sep-2012	07-Sep-2012	07-Sep-2012	07-Sep-2012	08-Sep-2012	07-Sep-2012	07-Sep-2012
			Paratanytarsus	0	0	0	0	0	0	0	0	0	0
			Tanytarsus	0	12	0	0	0	0	0	0	7	7
		Orthocladiinae	*Abiskomyia*	0	0	0	0	0	0	0	0	0	0
			Cricotopus / Orthocladius	0	0	0	0	0	0	0	0	0	0
			Heterotanytarsus	0	0	0	0	0	0	0	0	0	0
			Heterotrissocladius	0	0	0	0	0	0	0	0	0	0
			Psectrocladius	0	1	0	0	0	0	0	0	1	1
		Diamesinae	*Potthastia longimana* gr.	0	0	0	0	0	0	0	0	0	0
			Protanypus	0	0	0	0	0	0	0	0	0	0
		Prodiamesinae	*Monodiamesa*	0	0	0	0	0	0	0	0	0	0
Total				**14**	**62**	**10**	**8**	**8**	**18**	**7**	**54**	**76**	**28**

Table 6A-1 Benthic Invertebrate Abundance Data (number per sample) in Ekman Grabs Collected from Snap Lake, Northeast Lake, and Lake 13, August and September 2012

				Snap Lake									
				SNAP09	SNAP11A						SNAP17	SNAP18	SNAP19
Major Taxon	Family	Subfamily/Tribe	Genus/Species	Composite	SNAP11A-1	SNAP11A-2	SNAP11A-3	SNAP11A-4	SNAP11A-5	SNAP11A-6	Composite	Composite	Composite
				11-Sep-2012	08-Sep-2012	08-Sep-2012	08-Sep-2012	08-Sep-2012	08-Sep-2012	08-Sep-2012	08-Sep-2012	11-Sep-2012	11-Sep-2012
Nematoda	-	-	-	0	0	1	0	0	0	0	0	1	4
Oligochaeta	Lumbriculidae	-	*Lumbriculus*	0	0	0	0	0	0	0	4	0	0
	Naididae	Naidinae	-	0	0	0	0	0	0	0	0	0	0
		Tubificinae	-	5	0	1	0	0	0	0	1	0	8
Hydracarina	-	-	-	0	0	0	0	0	0	0	0	0	0
Cladocera	Chydoridae	-	*Eurycercus*	0	0	0	0	0	0	0	2	1	0
	Macrothricidae	-	-	0	0	0	0	0	0	0	1	0	0
Copepoda - Cyclopoida	Cyclopidae	-	*Acanthocyclops*	0	0	0	0	0	0	0	0	0	0
Ostracoda	-	-	-	0	0	0	0	0	0	0	0	0	0
Amphipoda	Hyalellidae	-	*Hyalella azteca*	0	0	0	0	0	0	0	0	0	0
Gastropoda	-	-	(i/d)	0	0	0	0	0	0	0	0	0	0
	Valvatidae	-	*Valvata sincera*	1	1	0	0	0	0	0	10	0	6
Pelecypoda	Pisidiidae	-	(i/d)	6	1	1	0	0	0	0	59	1	13
		-	*Pisidium*	1	0	0	0	0	0	0	10	0	4
		-	*Sphaerium*	0	0	0	0	0	0	0	0	0	0
		-	*Pisidium / Sphaerium*	0	0	0	0	0	0	0	0	0	0
Trichoptera	Apataniidae	-	*Apatania*	0	0	0	0	0	0	0	0	0	0
	Phrygaenidae	-	*Agrypnia*	0	0	0	0	0	0	0	0	0	0
Diptera	Ceratopogonidae	-	*Bezzia*	0	0	0	0	0	0	0	0	0	0
		-	*Probezzia*	0	0	0	0	0	0	0	0	0	0

Table 6A-1 Benthic Invertebrate Abundance Data (number per sample) in Ekman Grabs Collected from Snap Lake, Northeast Lake, and Lake 13, August and September 2012

				Snap Lake									
				SNAP09 Composite	SNAP11A						SNAP17 Composite	SNAP18 Composite	SNAP19 Composite
Major Taxon	Family	Subfamily/Tribe	Genus/Species	11-Sep-2012	SNAP11A-1 08-Sep-2012	SNAP11A-2 08-Sep-2012	SNAP11A-3 08-Sep-2012	SNAP11A-4 08-Sep-2012	SNAP11A-5 08-Sep-2012	SNAP11A-6 08-Sep-2012	08-Sep-2012	11-Sep-2012	11-Sep-2012
	Chironomidae	-	Pupa	0	0	0	0	0	0	0	0	0	0
		Tanypodinae	*Ablabesmyia*	0	0	0	0	0	0	0	0	0	0
			Procladius	8	0	1	1	0	0	0	0	1	5
			Thienemannimyia group	0	0	0	0	0	0	0	0	0	0
		Chironomini	(i/d)	0	0	0	0	0	0	0	0	0	0
			Chironomus	0	0	0	0	0	0	0	0	0	0
			Cladopelma	0	0	0	0	0	0	0	0	0	0
			Cryptochironomus	0	0	0	0	0	0	0	0	0	0
			Dicrotendipes	0	0	0	0	0	0	0	0	0	0
			Microtendipes	9	10	4	7	5	14	7	12	11	1
			Pagastiella	0	0	0	0	0	0	0	0	0	0
			Parachironomus	0	0	0	0	0	0	0	0	0	0
			Polypedilum	0	0	0	0	0	0	0	0	0	0
			Sergentia	0	0	0	0	0	0	0	0	0	0
			Stictochironomus	4	0	0	0	0	0	0	5	0	13
		Tanytarsini	*Cladotanytarsus*	0	0	0	0	0	0	0	0	0	1
			Corynocera	50	1	0	1	0	0	1	10	0	17
			Micropsectra	0	0	0	0	0	1	0	0	0	0
			Micropsectra / Tanytarsus	0	0	0	0	0	0	0	0	0	0
			Paratanytarsus	0	0	0	1	0	1	0	2	0	0
			Tanytarsus	3	0	0	1	0	1	0	6	3	6
		Orthocladiinae	*Abiskomyia*	0	0	0	0	0	0	0	0	0	0
			Cricotopus / Orthocladius	0	0	0	0	0	0	0	0	0	0
			Heterotanytarsus	0	0	0	0	0	0	0	0	0	0
			Heterotrissocladius	0	0	0	0	0	0	0	0	0	0
			Psectrocladius	0	0	1	1	0	0	0	1	0	4
		Diamesinae	*Potthastia longimana* gr.	0	0	0	0	0	0	0	0	0	0
			Protanypus	0	0	0	0	0	0	0	0	0	0
		Prodiamesinae	*Monodiamesa*	0	0	0	0	0	0	0	0	0	0
Total				**87**	**13**	**9**	**12**	**5**	**17**	**8**	**123**	**18**	**82**

Notes: i/d = immature or damaged specimen identified to the lowest level possible; LK13 = Lake 13; NEL = Northeast Lake; SNAP = Snap Lake; - = not applicable

Table 6A-2 Benthic Invertebrate Biomass (wet weight) in Snap Lake and Northeast Lake, September 2012

Taxon	Northeast Lake									
	NEL01						NEL02 Composite (mg)	NEL03 Composite (mg)	NEL04 Composite (mg)	NEL05 Composite (mg)
	NEL01-1 (mg)	NEL01-2 (mg)	NEL01-3 (mg)	NEL01-4 (mg)	NEL01-5 (mg)	NEL01-6 (mg)				
Gastropoda/Pelecypoda	157.9	138.4	300.0	0.0	0.0	20.8	112.4	17.1	14.5	3.7
Oligochaeta	0.8	28.2	24.6	0.0	0.0	6.1	6.9	16.1	10.3	0.6
Amphipoda	6.3	20.7	8.6	0.0	0.0	0.0	111.9	23.8	1.5	9.5
Trichoptera	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	0.0
Chironomidae	63.1	32.9	52.4	34.7	0.0	13.3	122.3	52.4	51.5	38.0
Other taxa	0.4	0.2	0.5	0.0	0.0	0.1	0.0	0.5	0.0	1.6
Total	**228.5**	**220.4**	**386.1**	**34.7**	**0.0**	**40.3**	**357.9**	**109.9**	**77.8**	**53.4**

Taxon	Snap Lake							
	SNAP02A Composite (mg)	SNAP20						SNAP23 Composite (mg)
		SNAP20-1 (mg)	SNAP20-2 (mg)	SNAP20-3 (mg)	SNAP20-4 (mg)	SNAP20-5 (mg)	SNAP20-6 (mg)	
Gastropoda/Pelecypoda	27.3	0.4	4.4	0.0	0.0	12.8	6.1	16.3
Oligochaeta	15.1	0.0	0.0	0.0	0.4	0.0	1.8	0.0
Amphipoda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trichoptera	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chironomidae	53.2	7.4	33.2	15.0	10.6	38.2	22.1	37.8
Other taxa	0.3	0.0	0.1	0.1	0.0	0.0	0.0	0.3
Total	**95.9**	**7.8**	**37.7**	**15.1**	**11.0**	**51.0**	**30.0**	**54.4**

Table 6A-2 Benthic Invertebrate Biomass (wet weight) in Snap Lake and Northeast Lake, September 2012

	Snap Lake									
	SNAP03	SNAP05						SNAP06	SNAP14	SNAP15
Taxon	Composite (mg)	SNAP05-1 (mg)	SNAP05-2 (mg)	SNAP05-3 (mg)	SNAP05-4 (mg)	SNAP05-5 (mg)	SNAP05-6 (mg)	Composite (mg)	Composite (mg)	Composite (mg)
Gastropoda/Pelecypoda	6.4	185.4	12.6	25.3	5.6	40.1	73.6	345.0	126.5	34.1
Oligochaeta	14.6	27.6	1.6	2.1	6.6	0.8	0.0	0.0	13.4	0.0
Amphipoda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trichoptera	0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chironomidae	11.6	28.1	2.7	11.3	0.4	10.6	1.3	40.6	43.8	17.4
Other taxa	0.7	0.1	0.3	0.0	0.0	0.0	0.0	0.9	1.6	0.0
Total	**33.3**	**241.2**	**20.9**	**38.7**	**12.6**	**51.5**	**74.9**	**386.5**	**185.3**	**51.5**

	Snap Lake									
	SNAP09	SNAP11A						SNAP17	SNAP18	SNAP19
Taxon	Composite (mg)	SNAP11A-1 (mg)	SNAP11A-2 (mg)	SNAP11A-3 (mg)	SNAP11A-4 (mg)	SNAP11A-5 (mg)	SNAP11A-6 (mg)	Composite (mg)	Composite (mg)	Composite (mg)
Gastropoda/Pelecypoda	48.7	6.2	2.2	0.0	0.0	0.0	0.0	195.6	0.7	55.1
Oligochaeta	3.5	0.0	0.1	0.0	0.0	0.0	0.0	40.9	0.0	12.5
Amphipoda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trichoptera	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chironomidae	109.0	25.2	12.4	21.9	9.1	27.3	19.7	57.2	30.5	81.7
Other taxa	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.8	3.6	0.9
Total	**161.2**	**31.4**	**14.8**	**21.9**	**9.1**	**27.3**	**19.7**	**294.5**	**34.8**	**150.2**

Notes:
NEL = Northeast Lake; SNAP = Snap Lake; mg = milligram

Table 6A-3 Late Winter Water Quality Profile Data for Benthic Invertebrate Stations in Northeast Lake, Lake 13 and Snap Lake, 2012

Area	Station	Date	Ice Thickness (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	pH	Specific Conductivity (µS/cm)
Northeast Lake	NEL01	14-Apr-2012	1.5	2	1.3	15.1	107	6.9	28
				3	1.2	14.6	103	6.9	26
				4	1.2	14.0	99	6.9	25
				5	1.2	13.8	98	6.8	26
				6	1.2	13.9	99	6.8	27
				7	1.3	14.1	100	6.7	27
				8	1.4	14.4	102	6.7	28
				9	1.5	14.6	104	6.6	29
				10	2.0	11.9	86	6.6	29
				11	2.6	6.0	44	6.4	28
	NEL02	14-Apr-2012	> 1.6	2	0.4	15.4	107	6.2	25
				3	0.7	14.8	103	6.2	24
				4	0.9	14.2	100	6.2	24
				5	1.0	13.9	98	6.2	24
				6	1.1	13.7	97	6.2	24
				7	1.2	13.3	94	6.2	24
				8	1.3	13.1	93	6.2	24
				9	1.4	12.8	91	6.2	24
				10	1.5	12.7	90	6.2	25
				11	1.7	12.3	88	6.2	24
				12	1.8	11.9	86	6.1	24
	NEL03	14-Apr-2012	1.6	2	0.5	15.7	109	6.2	26
				3	0.7	14.7	102	6.2	25
				4	0.9	14.2	100	6.2	24
				5	1.0	13.9	98	6.2	25
				6	1.1	13.5	96	6.2	24
				7	1.3	13.2	94	6.2	24
				8	1.3	13.2	93	6.2	25
				9	1.4	13.5	96	6.2	26
	NEL04	14-Apr-2012	1.5	2	0.8	16.1	113	6.5	29
				3	1.0	15.2	107	6.5	26
				4	1.2	14.1	100	6.5	25
				5	1.2	14.0	99	6.5	26

Table 6A-3 Late Winter Water Quality Profile Data for Benthic Invertebrate Stations in Northeast Lake, Lake 13 and Snap Lake, 2012

Area	Station	Date	Ice Thickness (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	pH	Specific Conductivity (µS/cm)
				6	1.2	14.7	104	6.4	27
				7	1.2	14.7	104	6.4	27
				8	1.3	14.4	102	6.4	27
				9	1.4	12.8	91	6.4	25
				10	1.5	12.3	88	6.4	25
				11	1.6	12.1	86	6.3	25
				12	1.6	12.0	86	6.3	25
				13[(a)]	1.7[(a)]	8.5[(a)]	61[(a)]	6.2[(a)]	34[(a)]
	NEL05	14-Apr-2012	1.5	2	0.5	16.2	113	6.3	28
				3	0.9	15.2	107	6.4	25
				4	1.0	14.3	100	6.3	24
				5	1.1	13.4	95	6.3	24
				6	1.2	12.9	91	6.3	24
				7	1.3	12.8	91	6.3	24
				8	1.3	12.6	90	6.3	24
				9	1.4	12.5	89	6.3	24
				10	1.4	12.5	89	6.3	24
				11	1.4	12.4	89	6.3	24
Northwest Arm	SNAP02A	13-Apr-2012	1.5	2	1.1	15.6	110	6.2	162
				3	1.9	15.0	108	6.2	164
				4	2.5	13.7	100	6.2	163
				5	2.9	11.6	86	6.2	163
				6	3.1	7.5	56	6.1	165
				7	3.1	8.3	62	6.1	172
				8	3.1	9.2	69	6.0	179
				9	3.1	9.3	70	6.0	183
	SNAP23	13-Apr-2012	1.6	2	1.0	15.6	109	6.2	270
				3	1.6	15.4	110	6.2	274
				4	2.0	14.1	102	6.2	274
				5	2.5	12.0	88	6.2	271
				6	2.8	10.0	75	6.2	269
				7	3.2	6.7	50	6.2	274
				8	3.4	5.9	44	6.1	276

Table 6A-3 Late Winter Water Quality Profile Data for Benthic Invertebrate Stations in Northeast Lake, Lake 13 and Snap Lake, 2012

Area	Station	Date	Ice Thickness (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	pH	Specific Conductivity (µS/cm)
				9	3.5	6.5	48	6.1	280
				10	3.5	7.3	55	6.1	285
				11	3.5	9.0	68	6.1	288
				12	3.5	9.6	72	6.1	291
Near-Field	SNAP03	17-Apr-2012	1.4	2	1.0	14.9	105	6.6	470
				3	1.4	14.8	105	6.6	488
				4	1.4	14.8	106	6.6	516
				5	1.5	14.6	104	6.6	522
				6	1.5	14.6	104	6.6	526
				7	1.5	14.5	104	6.6	527
				8	1.5	14.5	104	6.7	529
				9	1.5	14.5	103	6.7	529
				10	1.4	14.4	103	6.7	524
				11	1.9	14.0	101	6.7	518
				12	2.0	13.6	99	6.7	516
				13[a]	2.2[a]	10.0[a]	76[a]	6.7[a]	487[a]
	SNAP05	17-Apr-2012	1.5	2	0.3	14.5	100	6.8	468
				3	1.4	14.2	101	6.8	461
				4	1.4	15.1	107	6.8	504
				5	1.5	14.7	105	6.8	516
				6	1.5	14.3	102	6.8	523
				7	1.6	14.3	102	6.8	519
				8	1.8	13.7	99	6.8	515
				9	2.1	13.2	96	6.8	509
				10	2.4	12.7	93	6.8	502
				11	2.7	12.4	92	6.8	497
				12	2.8	12.1	90	6.8	495
				13	2.9	11.5	86	6.8	497
				14	3.1	11.0	83	6.8	500
	SNAP06	16-Apr-2012	1.5	2	0.9	13.8	97	6.7	473
				3	1.4	13.6	97	6.7	477
				4	1.5	13.9	99	6.7	491
				5	1.4	14.0	100	6.7	516

Table 6A-3 Late Winter Water Quality Profile Data for Benthic Invertebrate Stations in Northeast Lake, Lake 13 and Snap Lake, 2012

Area	Station	Date	Ice Thickness (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	pH	Specific Conductivity (µS/cm)
				6	1.4	13.9	99	6.6	529
				7	1.5	13.7	98	6.7	525
				8	1.8	13.3	96	6.7	509
				9	2.0	12.9	93	6.7	506
				10	2.3	12.4	90	6.6	500
				11	2.5	12.0	88	6.6	497
				12	2.7	11.6	86	6.6	496
				13	3.0	11.1	83	6.6	493
Mid-Field	SNAP09	16-Apr-2012	1.4	2	1.5	12.6	90	6.7	458
				3	1.7	12.5	90	6.7	459
				4	1.7	12.5	89	6.7	464
				5	1.7	12.5	89	6.7	472
				6	1.7	12.4	89	6.7	475
				7	1.7	12.4	89	6.7	481
				8	1.7	12.4	89	6.6	483
				9	1.8	12.3	89	6.6	484
				10	1.8	12.2	88	6.6	485
				11	1.9	11.9	86	6.6	479
				12	2.0	11.6	84	6.6	478
				13	2.2	11.4	83	6.6	475
				14	2.3	11.0	81	6.6	473
	SNAP11A	16-Apr-2012	1.6	2	1.3	13.7	97	6.6	470
				3	1.5	13.3	95	6.6	473
				4	1.5	13.2	94	6.6	479
				5	1.5	13.1	94	6.6	486
				6	1.5	13.1	94	6.6	491
				7	1.6	13.1	93	6.6	491
				8	1.6	13.0	93	6.6	496
				9	1.6	12.9	93	6.6	498
				10	1.6	13.2	94	6.6	506
				11	1.5	13.3	95	6.6	514
				12	1.6	13.4	96	6.6	513
				13	1.7	13.3	95	6.6	512

Table 6A-3 Late Winter Water Quality Profile Data for Benthic Invertebrate Stations in Northeast Lake, Lake 13 and Snap Lake, 2012

Area	Station	Date	Ice Thickness (m)	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	pH	Specific Conductivity (µS/cm)
				14	1.9	12.7	92	6.6	502
				15	2.2	12.0	88	6.6	497
				16	2.5	11.3	83	6.6	492

(a) The probe was assumed to be near the sediment boundary, or submerged in sediment, based on the inconsistent readings relative to the water column profile. Data were excluded from the assessment.
NEL = Northeast Lake; SNAP = Snap Lake; - = data not available, m = metre, °C = degrees Celsius, mg/L = milligrams per litre, % Sat = percent saturation, µS/cm = microSiemens per centimetre.

Table 6A-4 Fall Water Quality Profile Data for Benthic Invertebrate Stations in Northeast Lake, Lake 13 and Snap Lake, 2012

Area	Station	Date	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
Northeast Lake	NEL01	09-Sep-2012	0.3	13.0	10.2	22	6.9
			1	13.0	10.2	22	6.9
			2	13.0	10.2	22	6.8
			3	13.0	10.2	22	6.8
			4	12.9	10.1	22	6.7
			5	13.0	10.1	22	6.7
			6	13.0	10.1	22	6.7
			7	12.9	10.1	22	6.7
			8	12.9	10.1	22	6.7
			9	12.9	10.1	22	6.7
			10	12.9	10.1	22	6.6
			11 [(a)]	12.9 [(a)]	8.9 [(a)]	23 [(a)]	6.6 [(a)]
	NEL02	09-Sep-2012	0.3	13.2	10.4	22	6.7
			1	13.2	10.3	22	6.7
			2	13.2	10.2	22	6.7
			3	13.2	10.2	22	6.7
			4	13.2	10.2	22	6.7
			5	13.2	10.1	22	6.7
			6	13.2	10.1	22	6.7
			7	13.2	10.1	22	6.7
			8	13.2	10.1	22	6.7
			9	13.2	10.1	22	6.7
			10	13.2	10.1	22	6.7
	NEL03	09-Sep-2012	0.3	13.2	10.4	22	6.7
			1	13.2	10.2	22	6.8

Table 6A-4 Fall Water Quality Profile Data for Benthic Invertebrate Stations in Northeast Lake, Lake 13 and Snap Lake, 2012

Area	Station	Date	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
			2	13.2	10.2	22	6.8
			3	13.2	10.2	22	6.7
			4	13.2	10.1	22	6.7
			5	13.2	10.1	22	6.7
			6	13.2	10.1	22	6.7
			7	13.2	10.1	22	6.7
			8	13.2	10.0	22	6.7
			9	13.2	10.0	22	6.7
			10	13.2	9.9	22	6.4
	NEL04	09-Sep-2012	0.3	13.2	10.4	22	6.8
			1	13.2	10.2	22	6.8
			2	13.2	10.2	22	6.8
			3	13.2	10.2	22	6.8
			4	13.2	10.1	22	6.7
			5	13.2	10.1	22	6.7
			6	13.2	10.1	22	6.7
			7	13.2	10.1	22	6.8
			8	13.2	10.1	22	6.7
			9	13.2	10.1	22	6.7
			10	13.2	10.0	22	6.7
			11	13.2	10.0	22	6.7
			12	13.2	10.0	22	6.7
	NEL05	09-Sep-2012	0.3	13.2	10.3	22	6.7
			1	13.2	10.2	22	6.8
			2	13.2	10.2	22	6.8

Table 6A-4 Fall Water Quality Profile Data for Benthic Invertebrate Stations in Northeast Lake, Lake 13 and Snap Lake, 2012

Area	Station	Date	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
			3	13.2	10.2	22	6.8
			4	13.2	10.2	22	6.7
			5	13.2	10.1	22	6.7
			6	13.2	10.1	22	6.7
			7	13.2	10.1	22	6.7
			8	13.1	10.1	22	6.7
			9	13.1	10.1	22	6.7
			10	13.1	10.0	22	6.7
			11	13.1	9.6	22	6.7
Lake 13	LK13-01	18-Aug-2012	0.3	15.2	9.4	20	9.4
			1	15.2	9.5	20	6.5
			2	15.2	9.5	20	6.6
			3	15.2	9.5	20	6.6
			4	15.2	9.6	20	6.6
			5	15.2	9.6	20	6.6
			6	15.2	9.6	20	6.6
			7	15.2	9.6	20	6.6
			8	15.2	9.6	20	6.6
			9	15.2	9.6	20	6.7
			10	15.2	9.6	20	6.7
			11	15.2	9.6	20	6.7
			12	15.2	9.6	20	6.7
	LK13-02	19-Aug-2012	0.3	15.3	9.8	19	6.6
			1	15.2	9.8	19	6.6
			2	15.2	9.8	19	6.6
			3	15.2	9.8	19	6.6

Table 6A-4 Fall Water Quality Profile Data for Benthic Invertebrate Stations in Northeast Lake, Lake 13 and Snap Lake, 2012

Area	Station	Date	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
			4	15.2	9.9	19	6.6
			5	15.2	9.9	19	6.7
			6	15.2	9.9	19	6.7
			7	15.2	9.9	19	6.7
			8	15.1	9.9	19	6.7
			9	15.1	9.9	19	6.7
			10	15.1	9.9	19	6.8
	LK13-03	19-Aug-2012	0.3	15.5	9.5	19	6.6
			1	15.5	9.6	19	6.6
			2	15.5	9.7	19	6.6
			3	15.4	9.7	19	6.6
			4	15.4	9.7	19	6.6
			5	15.4	9.8	19	6.7
			6	15.4	9.8	19	6.7
			7	15.4	9.8	19	6.7
			8	15.4	9.8	19	6.7
			9	15.4	9.8	19	6.7
			10	15.4	9.8	19	6.7
			11	15.4	9.8	19	6.8
			12	15.4	9.6	19	6.7
	LK13-04	20-Aug-2012	0.3	15.5	9.9	19	6.2
			1	15.5	10.0	19	6.1
			2	15.4	10.0	19	6.1
			3	15.4	10.1	19	6.1
			4	15.4	10.1	19	6.1
			5	15.3	10.1	19	6.2

Table 6A-4 Fall Water Quality Profile Data for Benthic Invertebrate Stations in Northeast Lake, Lake 13 and Snap Lake, 2012

Area	Station	Date	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
			6	15.3	10.1	19	6.2
			7	15.3	10.1	19	6.2
			8	15.3	10.1	19	6.2
			9	15.3	10.1	19	6.2
			10	15.3	10.1	19	6.3
	LK13-05	20-Aug-2012	0.3	15.5	9.9	19	6.7
			1	15.5	10.0	19	6.7
			2	15.4	10.0	19	6.8
			3	15.4	10.1	19	6.8
			4	15.4	10.1	19	6.8
			5	15.4	10.1	19	6.8
			6	15.4	10.1	19	6.8
			7	15.4	10.1	19	6.8
			8	15.3	10.1	19	6.8
			9	15.3	10.1	19	6.8
			10	15.3	10.2	19	6.8
			11	15.3	10.2	19	6.8
			12	15.3	10.2	19	6.8
			13	15.3	10.2	19	6.8
			14	15.2	10.1	19	6.8
Northwest Arm	SNAP02A	05-Sep-2012	0.3	13.6	10.3	127	7.7
			1	13.5	10.3	128	7.7
			2	13.5	10.2	127	7.6
			3	13.5	10.2	128	7.6
			4	13.5	10.2	128	7.6
			5	13.4	10.2	129	7.6

Table 6A-4 Fall Water Quality Profile Data for Benthic Invertebrate Stations in Northeast Lake, Lake 13 and Snap Lake, 2012

Area	Station	Date	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
			6	13.4	10.2	128	6.6 [(b)]
			7	13.4	10.2	128	7.6
			8	13.4	10.2	128	7.5
			9	13.4	10.1	128	7.5
			9.7 [(a)]	13.4 [(a)]	6.3 [(a)]	135 [(a)]	7.0 [(a)]
	SNAP20	05-Sep-2012	0.3	13.7	10.1	107	7.7
			1	13.7	10.1	107	7.7
			2	13.7	10.1	107	7.7
			3	13.7	10.1	107	7.6
			4	13.7	10.0	107	7.6
			5	13.7	10.1	107	7.5
			6	13.7	10.0	107	7.5
			7	13.7	10.0	107	7.4
			8	13.7	10.0	107	7.4
			9	13.7	10.0	108	7.4
			10	13.7	9.9	108	7.3
			11	13.6	9.9	108	7.3
			12	11.8	9.6	101	7.3
			13	8.1	8.9	91	7.2
			14	6.8	8.7	91	7.1
	SNAP23	05-Sep-2012	0.3	13.7	10.4	211	7.3
			1	13.7	10.3	211	7.3
			2	13.7	10.3	211	7.3
			3	13.7	10.2	211	7.3
			4	13.6	10.2	211	7.3

Table 6A-4 Fall Water Quality Profile Data for Benthic Invertebrate Stations in Northeast Lake, Lake 13 and Snap Lake, 2012

Area	Station	Date	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
			5	13.6	10.2	211	7.3
			6	13.6	10.2	211	7.3
			7	13.6	10.2	210	7.3
			8	13.6	10.2	210	7.3
			9	13.5	10.1	210	7.3
			10	13.5	10.1	211	7.3
			11	13.4	10.1	210	7.4
			12	13.4	10.0	210	7.4
Near-Field	SNAP03	05-Sep-2012	0.3	13.9	10.2	402	7.4
			1	13.9	10.1	402	7.4
			2	13.9	10.1	402	7.4
			3	13.9	10.1	403	7.4
			4	13.9	10.1	403	7.4
			5	13.8	10.1	403	7.5
			6	13.8	10.1	403	7.5
			7	13.8	10.1	403	7.5
			8	13.8	10.1	402	7.5
			9	13.8	10.1	401	7.5
			10	13.7	10.1	399	7.5
			11	13.7	11.3 [(c)]	397	7.5
			12	13.7	10.1	397	7.5
			13	13.7	9.2	394	7.4
	SNAP05	07-Sep-2012	0.3	13.4	10.6	402	7.7
			1	13.4	10.5	402	7.7
			2	13.4	10.4	401	7.7
			3	13.4	10.4	401	7.7

Table 6A-4 Fall Water Quality Profile Data for Benthic Invertebrate Stations in Northeast Lake, Lake 13 and Snap Lake, 2012

Area	Station	Date	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
			4	13.4	10.4	401	7.7
			5	13.4	10.4	401	7.7
			6	13.4	10.3	401	7.7
			7	13.4	10.3	401	7.7
			8	13.4	10.3	400	7.7
			9	13.4	10.3	400	7.7
			10	13.4	10.3	400	7.7
			11	13.3	10.3	401	7.7
			12	13.3	10.2	401	7.7
			13 [(a)]	13.3 [(a)]	6.0 [(a)]	400 [(a)]	7.6 [(a)]
	SNAP06	08-Sep-2012	0.3	13.1	10.9	398	7.8
			1	13.1	10.8	398	7.8
			2	13.1	10.7	399	7.8
			3	13.1	10.7	399	7.8
			4	13.1	10.7	399	7.8
			5	13.1	10.7	398	7.8
			6	13.1	10.7	398	7.8
			7	13.1	10.7	399	7.7
			8	13.1	10.6	399	7.7
			9	13.1	10.6	399	7.7
			10	13.0	10.6	399	7.7
			11	13.0	10.6	400	7.7
			12	12.9	10.6	400	7.7
	SNAP14	07-Sep-2012	0.3	13.4	10.5	402	7.8
			1	13.4	10.4	402	7.8
			2	13.4	10.4	402	7.8

Table 6A-4 Fall Water Quality Profile Data for Benthic Invertebrate Stations in Northeast Lake, Lake 13 and Snap Lake, 2012

Area	Station	Date	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
			3	13.4	10.3	402	7.7
			4	13.4	10.3	401	7.7
			5	13.4	10.3	401	7.7
			6	13.4	10.3	401	7.7
			7	13.4	10.3	401	7.6
			8	13.4	10.3	401	7.6
			9	13.4	10.3	402	7.6
			10	13.4	10.3	402	7.6
			11	13.4	10.2	402	7.6
			12	13.4	10.2	402	7.6
			13 [(a)]	13.4 [(a)]	8.9 [(a)]	401 [(a)]	7.6 [(a)]
	SNAP15	07-Sep-2012	0.3	13.4	10.6	415	7.7
			1	13.4	10.5	415	7.7
			2	13.4	10.4	415	7.7
			3	13.4	10.4	415	7.7
			4	13.4	10.4	415	7.7
			5	13.4	10.4	415	7.7
			6	13.4	10.3	413	7.7
			7	13.4	10.3	413	7.7
			8	13.4	10.3	414	7.7
			9	13.4	10.2	412	7.6
Mid-Field	SNAP09	11-Sep-2012	0.3	12.6	11.2	393	7.4
			1	12.6	11.1	393	7.4
			2	12.6	11.1	393	7.4
			3	12.6	11.1	393	7.4
			4	12.6	11.1	393	7.4

Table 6A-4 Fall Water Quality Profile Data for Benthic Invertebrate Stations in Northeast Lake, Lake 13 and Snap Lake, 2012

Area	Station	Date	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
			5	12.6	11.1	393	7.4
			6	12.6	11.0	393	7.4
			7	12.6	11.0	393	7.4
			8	12.6	11.0	393	7.5
			9	12.6	11.0	394	7.4
			10	12.6	11.0	393	7.4
			11	12.6	11.0	394	7.4
			12	12.6	11.0	394	7.4
			13	12.6	11.0	394	7.5
			14	12.6	11.0	394	7.4
	SNAP11A	08-Sep-2012	0.3	13.3	10.8	391	7.5
			1	13.3	10.7	391	7.5
			2	13.3	10.6	391	7.6
			3	13.3	10.6	391	7.6
			4	13.3	10.5	391	7.6
			5	13.3	10.5	392	7.6
			6	13.3	10.5	392	7.6
			7	13.3	10.4	392	7.6
			8	13.3	10.4	392	7.6
			9	13.3	10.4	392	7.6
			10	13.3	10.4	392	7.6
			11	13.3	10.3	392	7.6
			12	13.3	10.3	392	7.6
			13	13.3	10.3	392	7.6
			14	13.3	10.3	392	7.6
	SNAP17	08-Sep-2012	0.3	13.4	10.6	392	7.6

Table 6A-4 Fall Water Quality Profile Data for Benthic Invertebrate Stations in Northeast Lake, Lake 13 and Snap Lake, 2012

Area	Station	Date	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
			1	13.4	10.6	392	7.6
			2	13.4	10.5	392	7.6
			3	13.4	10.5	392	7.6
			4	13.3	10.5	392	7.6
			5	13.3	10.5	392	7.6
			6	13.3	10.5	392	7.6
			7	13.3	10.4	392	7.6
			8	13.3	10.4	392	7.6
			9	13.3	10.4	392	7.6
			10	13.3	10.3	392	7.6
	SNAP18	11-Sep-2012	0.3	12.5	11.2	393	7.4
			1	12.5	11.2	393	7.4
			2	12.5	11.1	393	7.4
			3	12.5	11.1	393	7.4
			4	12.5	11.1	393	7.4
			5	12.5	11.1	393	7.4
			6	12.5	11.1	393	7.4
			7	12.5	11.1	393	7.4
			8	12.5	11.1	393	7.4
			9	12.5	11.0	393	7.4
			10	12.5	11.0	393	7.4
			11	12.5	11.0	393	7.4
			12 [(a)]	12.5 [(a)]	10.3 [(a)]	393 [(a)]	7.4 [(a)]
	SNAP19	11-Sep-2012	0.3	12.5	11.2	392	7.4
			1	12.6	11.2	392	7.4
			2	12.6	11.1	393	7.5

Table 6A-4 Fall Water Quality Profile Data for Benthic Invertebrate Stations in Northeast Lake, Lake 13 and Snap Lake, 2012

Area	Station	Date	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
			3	12.6	11.1	392	7.5
			4	12.6	11.1	392	7.5
			5	12.6	11.1	392	7.5
			6	12.6	11.1	392	7.5
			7	12.6	11.1	393	7.5
			8	12.6	11.0	393	7.5
			9	12.6	11.0	393	7.5
			10	12.6	11.0	393	7.5
			11	12.6	11.0	393	7.5

(a) The probe was assumed to be near the sediment boundary, or submerged in sediment, based on the inconsistent readings relative to the water column profile. Data were excluded from the assessment.
(b) pH entered as 6.55 on field data sheet at SNAP02A for the 7 m depth.
(c) Dissolved oxygen entered as 11.26 mg/L on the field data sheet at SNAP03 for the 11 m depth.
LK13 = Lake 13; NEL = Northeast Lake; SNAP = Snap Lake; - = data not available, m = metres, ^{o}C = degree Celsius, mg/L = milligrams per litre, % Sat = percent saturation, µS/cm = microSiemens per centimetre.

Figure 6A-2: Plots of Significant Relationships Between Habitat Variables and Benthic Invertebrate Community Variables, Fall 2012

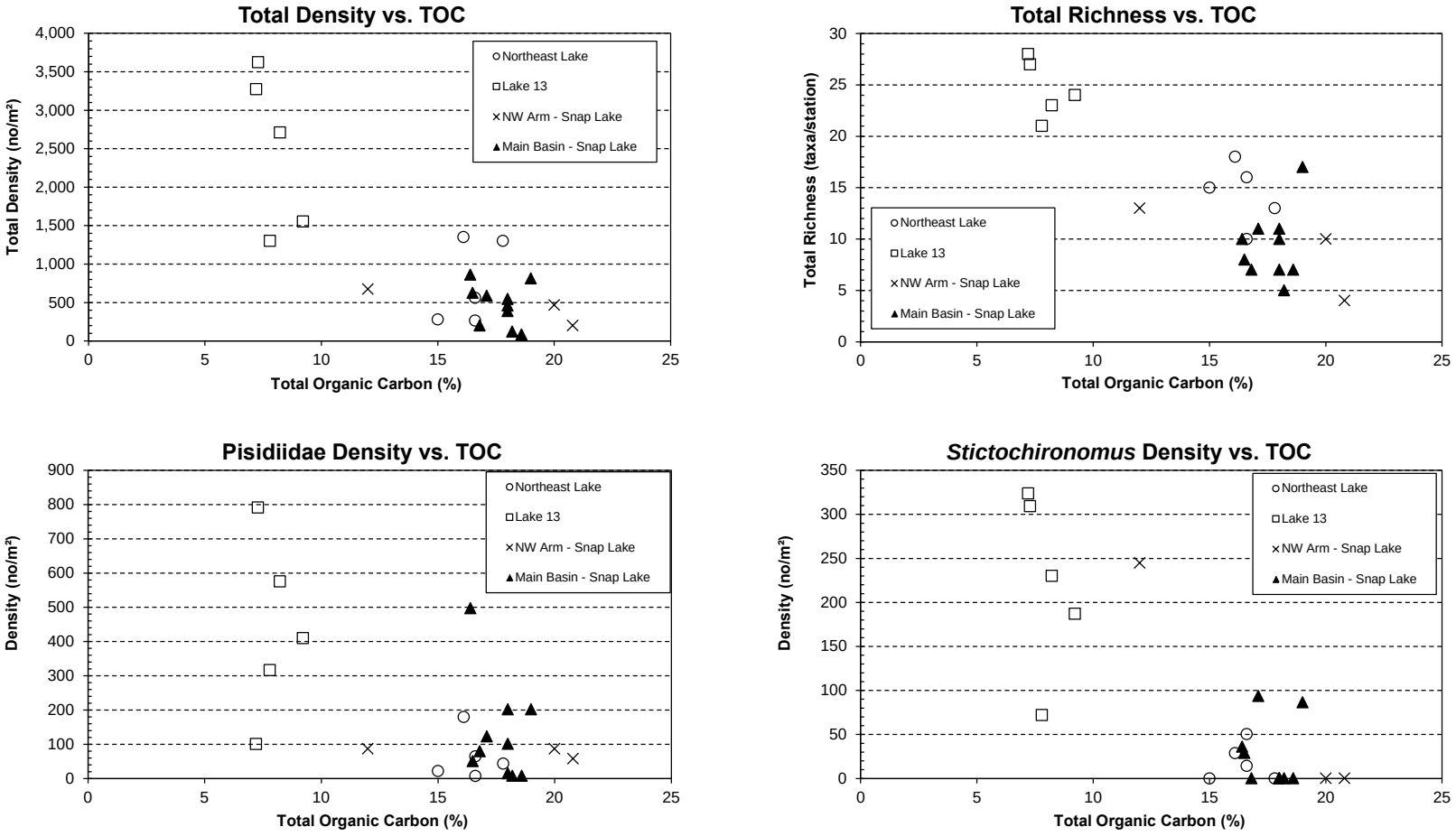


Figure 6A-2: Plots of Significant Relationships Between Habitat Variables and Benthic Invertebrate Community Variables, Fall 2012

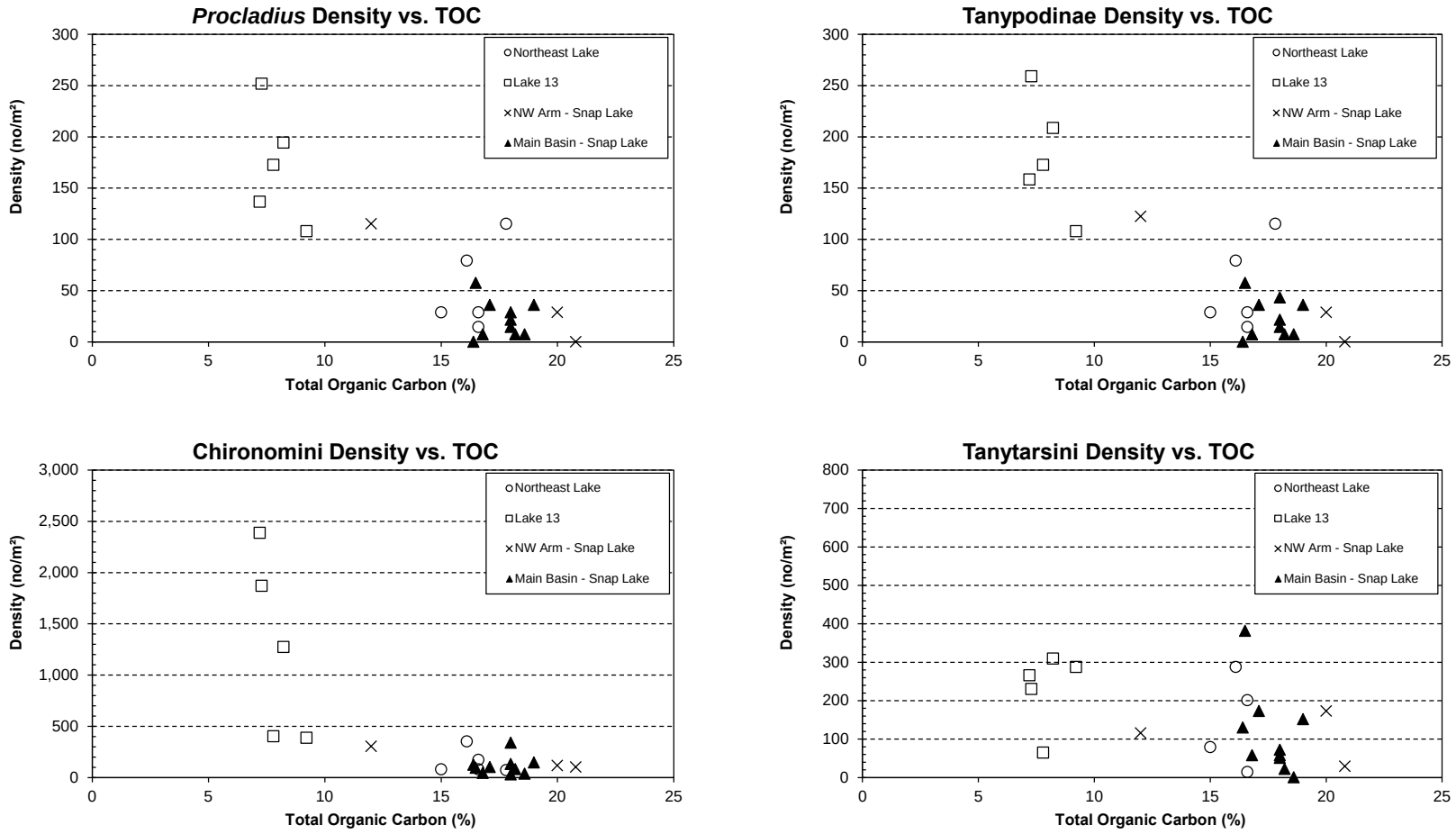


Figure 6A-2: Plots of Significant Relationships Between Habitat Variables and Benthic Invertebrate Community Variables, Fall 2012

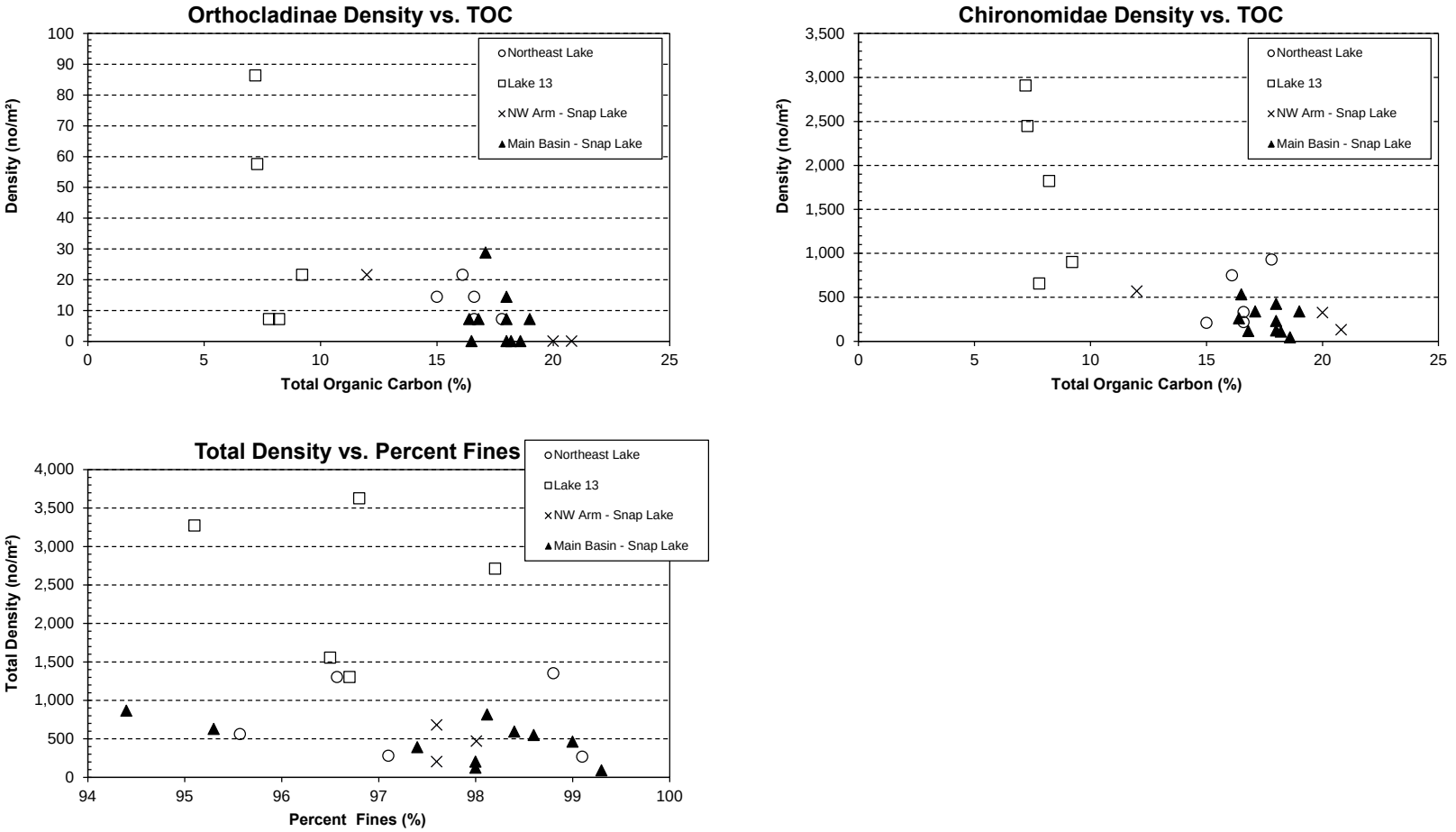


Table 6A-5 Benthic Invertebrate Taxonomist Quality Control Data for Re-Sorted Samples, Fall 2012

Sample	Number in Re-Sort	Number in Original Sort	Percent Missed	Sorting Efficiency
SNAP03	0	14	0.0	100.0
SNAP05-5	0	18	0.0	100.0
SNAP23	0	28	0.0	100.0
NEL05	0	44	0.0	100.0
LK13-01-C	0	17	0.0	100.0
LK13-03-F	0	42	0.0	100.0
LK13-05-D	2	144	1.4	98.6

Notes:
Sorting Efficiency = [1-(number in re-sort/(number in original sort + number in resort))] x 100.
LK13 = Lake 13; NEL = Northeast Lake; SNAP = Snap Lake.

TECHNICAL MEMORANDUM

DATE April 24, 2013 **PROJECT No.** 12-1337-0002-4200-4250

TO Alexandra Hood, Environment & Permitting Superintendent
Snap Lake Mine, De Beers Canada Inc.

FROM William Nalley **EMAIL** wnalley@golder.com

2012 SLIMY SCULPIN FISHING EFFORTS

THIS DOCUMENT IS AN APPENDIX TO THE FISH HEALTH SECTION OF THE 2012 AEMP

1.0 INTRODUCTION

Slimy Sculpin (*Cottus cognatus*) are a small bodied fish species with high site fidelity and a small home range, making them a preferred sentinel species for environmental effects monitoring studies (Gray et al. 2004). The objective of the present fish survey was to target Slimy Sculpin in Snap Lake and determine whether they were catchable in sufficient numbers for use as a second monitoring species in the Aquatic Effects Monitoring Program (AEMP) for Snap Lake Mine.

1.1 Background

Previous efforts to collect Slimy Sculpin in Snap Lake using under-ice gee minnow traps in the winter of 2011 yielded zero catch (Golder 2011). Results of the winter survey indicated winter sampling was not a viable method to capture Slimy Sculpin in Snap Lake.

An open water sampling program was proposed for 2012 to determine whether Slimy Sculpin could be captured during the open water season in sufficient numbers for use in the AEMP. Slimy Sculpin are spring spawners (McPhail 2007) and initiate their gonadal development in the fall. Therefore, the open water program was run in the fall to maximize the chances of collecting fish with active gonadal development, enabling accurate sex determination and providing the best possible fish health data for use in the monitoring program.

2.0 METHODS

Sampling was undertaken in August 2012 and targeted Slimy Sculpin using a combination of electrofishing, gee minnow traps and custom glass jar traps (method based on Hanson et al. 1992).

A Smith-Root 2.5 Generator Powered Pulsator (GPP) portable boat electroshocker with a gas powered generator affixed to a fourteen foot inflatable boat was used to sample the margins of Snap Lake with pulsed alternating current (AC). Depths ranging between 0.1 to 2.5 metres (m) were considered ideal for effective netting based on water clarity. Catch-per-unit-effort was calculated as total fish caught per minute of effort.

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A combination of standard baited/non-baited gee minnow traps (Photo 1) and baited/non-baited custom glass traps (Photos 2 and 3) were deployed in habitats considered ideal for Slimy Sculpin. Glass traps were assembled using 4-litre glass sample jars fitted with a conical opaque plastic funnel. The funnel opening measured approximately 3 centimetres in diameter. Approximately half of the glass traps were partially filled with 15-20% gravel substrate to appear naturalized. The majority of both standard and glass traps were baited with Lake Trout (*Salvelinus namaycush*) eggs whose scent would provide an attractant. Floats were affixed to the traps and deployed in clumps of three and four to saturate various substrates and depth strata. Electrofishing was avoided in areas where traps were set. Catch-per-unit-effort was calculated as total fish caught per hour of effort or per second of electroshocking.

In situ water quality and basic atmospheric parameters were collected during the program. For each fishing effort, basic information was recorded as follows:

- Weather (air temperature, wind speed, and direction);
- Daily *in situ* water quality parameters (temperature, dissolved oxygen, pH, specific conductivity);
- Start and end waypoint locations (Universal Transverse Mercator (UTM), Datum: NAD83);
- Start and end time;
- Substrate added to trap (glass traps only);
- Baited/non-baited;
- Depth metres (m);
- Percent slope (%) (boat electrofishing only); and,
- Substrate type.

For all fish captured, information was collected as follows:

- Species name;
- Total length (millimeters [mm]);
- Fork length (mm); and,
- Total weight (grams [g]).

Gee and glass traps were deployed from August 25 to 28, 2012. Boat electrofishing was conducted from August 27 to 29, 2012.

3.0 RESULTS

In situ water quality parameters were collected during each day of sampling. Dissolved oxygen values ranged from 9.29 to 10.76 milligram per litre (mg/L). Specific conductivity ranged between 207 to 412 microSiemens per centimetre (µS/cm) and pH ranged between 7.1 to 7.64. Air temperature ranged from 13 to 15.8 degrees Celsius (°C) and windspeed was estimated between 8 to gusts of 30 kilometers per hour (km/h). Basic field air quality and atmospheric parameters collected during the program are provided in Table 3 at the end of this report.

A total of 218.32 minutes of boat electrofishing effort was expended in Snap Lake (Figure 1). No Slimy Sculpin were captured. Non-target fish (n=121) representing five species were captured, measured, and released (Table 1 and Table 4 at the end of this report).

Gee and glass traps fished for 2670.1 hours in Snap Lake (Figure 1). No Slimy Sculpin were captured. Non-target fish (n=71) representing two species were captured, sampled, and released (Table 2 and Table 4 at the end of this report).

Table 1: Fish Species Collected by Gear Type during the 2012 Slimy Sculpin Snap Lake Reconnaissance Program

Gear Type	Arctic grayling (*Thymallus arcticus*)	Lake chub (*Couesius plumbeus*)	Round whitefish (*Prosopium cylindraceum*)	Longnose sucker (*Catastomus catastomus*)	Burbot (*Lota lota*)
Boat Electrofishing	x	x	x	x	x
Gee Trap		x		x	
Glass Trap		x			

Table 2: Catch-per-unit-effort for each Gear Type during the 2012 Slimy Sculpin Snap Lake Reconnaissance Program

Gear Type	CPUE
Boat Electrofishing	1.4371 fish/sec
Gee Trap	0.0942 fish/hr
Glass Trap	0.0137 fish/hr

4.0 DISCUSSION

Efforts to include backpack electrofishing were initially considered for sampling Slimy Sculpin in Snap Lake; however, this was not possible due to the lack of safe, accessible shoreline areas. Snap Lake shoreline is dominated by large boulders and is sufficiently deep immediately adjacent to shore to make safe access by wading impossible. Boat electrofishing was considered safest and most efficient; it allowing expansive shoreline areas to be sampled.

Sampling effort using both standard Gee traps and home-made glass traps did not capture any Slimy Sculpin. The addition of bait and or gravel substrate (glass traps only) did not improve capture success.

The results of the 2012 field program targeting Slimy Sculpin yielded zero catch. The lack of catch does not indicate that Slimy Sculpin are not present in Snap Lake, but does indicate that if they are present it is in very low numbers such that reasonable fishing efforts cannot collect sufficient numbers to allow the inclusion of Slimy Sculpin as a sentinel species in the Snap Lake AEMP. Additional efforts to collect Slimy Sculpin are not recommended, not solely because of lack of success to date but also because, if they are present in very low numbers, excessive fishing efforts could adversely affect existing populations of this fish species in Snap Lake.

5.0 CLOSING

We trust the this technical memorandum meets your present requirements. If you have any questions or require additional details, please contact the undersigned.

Golder Associates Ltd.

Original Signed

William Naley
Fisheries Technician

Original Signed

Chris Fraikin, M.Sc.
Associate, Senior Aquatic Scientist

Reviewed by:

Original Signed

Peter M Chapman, Ph.D.
Principal, Technical Director

WN/RS/CF/kl

6.0 REFERENCES

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McPhail JD. 2007. The Freshwater Fishes of British Columbia. University of Alberta Press, Edmonton, AB, Canada.



Photo 1: Minnow Trap Deployed in Snap Lake during 2012 Slimy Sculpin Reconnaissance Program



Photo 2: Custom Glass Trap Deployed in Snap Lake during 2012 Slimy Sculpin Reconnaissance Program



Photo 3: Custom Glass Trap with Substrate Added Deployed in Snap Lake during 2012 Slimy Sculpin Reconnaissance Program

Table 3: Field Air Quality and Atmospheric Parameters Collected During the 2012 Slimy Sculpin Fishing Program

Date	Zone [(a)]	Easting	Northing	Waypoint	Water temp (°C)	Dissolved oxygen (mg/L)	Specific Conductivity (µS/cm)	pH	Air temperature (°C)	Wind speed & direction (km/hr) [(b)]
26-Aug-12	12V	506524	7053311	236	14.7	10.4	217	7.4	14.0	~10-15, E
27-Aug-12	12V	506524	7053311	236	14.5	10.6	214	7.6	14.2	~5-10, E
27-Aug-12	12V	506569	7053345	237	14.6	10.6	216	7.4	14.4	~ 10-15, SW
27-Aug-12	12V	506902	7052450	238	14.4	10.8	408	7.5	15.0	10 SW
27-Aug-12	12V	507209	7052190	239	14.7	10.7	410	7.5	15.0	~ 10-15, SW
27-Aug-12	12V	507502	7053621	240	14.7	10.4	401	7.6	14.0	~ 15, SW
27-Aug-12	12V	506532	7053739	241	14.7	10.4	215	7.6	14.0	~ 10-15, SW
28-Aug-12	12V	506524	7053311	236	14.5	9.8	214	7.6	14.0	~ 20-25, E
28-Aug-12	12V	506569	7053345	237	14.7	9.3	217	7.5	14.0	~ 20-25, E
28-Aug-12	12V	506532	7053739	241	14.6	9.9	207	7.5	14.0	~ 25-30, E
28-Aug-12	12V	504245	7053019	244	14.7	10.0	129	7.6	14.0	~ 30
28-Aug-12	12V	503495	7053500	247	15.0	10.0	131	7.5	16.0	~ 30
29-Aug-12	12V	507440	7053640	129	14.7	10.3	406	7.0	15.8	~ 15-20
29-Aug-12	12V	508994	7052777	243	14.8	10.7	403	7.21	15.7	~ 15-20
29-Aug-12	12V	507229	7053032	253	14.7	9.7	412	7.1	15.8	~ 8
29-Aug-12	12V	506524	7053311	236	14.8	9.8	217	7.3	15.0	~ 8
29-Aug-12	12V	506569	7053345	237	14.4	10.6	216	7.4	14.0	~ 8

Notes: (a) NAD 83 (b) ~ indicates approximate

Table 4: Non-Target Fish Species Field Measurements Collected During the 2012 Slimy Sculpin Fishing Program

Date	Fishing Effort Number	Gear Type	Fish Number	Species code	Fork Length (mm)	Total length (mm)	Body Weight (g)	Comments
26-Aug-12	12SLRCSLMT01E3200	Gee Trap	27001	LKCH	97	105	12.3	--
26-Aug-12	12SLRCSLMT01E3200	Gee Trap	27002	LKCH	97	105	9.9	--
26-Aug-12	12SLRCSLMT01E3200	Gee Trap	27003	LKCH	99	109	12.4	--
26-Aug-12	12SLRCSLMT01E3200	Gee Trap	27004	LKCH	115	125	16.9	--
26-Aug-12	12SLRCSLMT01E3200	Gee Trap	27005	LKCH	81	90	6.3	--
26-Aug-12	12SLRCSLMT01E3200	Gee Trap	27006	LKCH	81	88	5.1	--
26-Aug-12	12SLRCSLMT01E3200	Gee Trap	27007	LKCH	84	92	6.4	--
26-Aug-12	12SLRCSLMT01E3200	Gee Trap	27008	LKCH	75	81	4.6	--
26-Aug-12	12SLRCSLMT01E3200	Gee Trap	27009	LKCH	63	67	2.6	--
26-Aug-12	12SLRCSLMT01E3200	Gee Trap	27010	LKCH	72	79	4.5	--
26-Aug-12	12SLRCSLMT01E3200	Gee Trap	27011	LKCH	61	66	2.5	--
26-Aug-12	12SLRCSLMT01E3200	Gee Trap	27012	LKCH	63	69	2.9	--
26-Aug-12	12SLRCSLMT01E3201	Gee Trap	27013	LKCH	98	106	11.4	--
26-Aug-12	12SLRCSLMT01E3201	Gee Trap	27014	LKCH	69	76	2.5	--
26-Aug-12	12SLRCSLMT01E3201	Gee Trap	27015	LKCH	99	109	11.1	--
26-Aug-12	12SLRCSLMT01E3201	Gee Trap	27016	LKCH	95	105	9.5	--
26-Aug-12	12SLRCSLMT01E3201	Gee Trap	27017	LKCH	62	67	1.6	--
26-Aug-12	12SLRCSLMT01E3201	Gee Trap	27018	LKCH	80	88	4.4	--
26-Aug-12	12SLRCSLMT01E3201	Gee Trap	27019	LKCH	66	71	2.8	--
26-Aug-12	12SLRCSLMT01E3201	Gee Trap	27020	LKCH	64	70	3	--
26-Aug-12	12SLRCSLMT01E3201	Gee Trap	27021	LKCH	71	78	3.2	--
26-Aug-12	12SLRCSLMT01E3201	Gee Trap	27022	LKCH	72	79	3.8	--
26-Aug-12	12SLRCSLMT01E3201	Gee Trap	27023	LKCH	65	72	2.3	--
26-Aug-12	12SLRCSLMT01E3201	Gee Trap	27024	LKCH	66	71	2.3	--
26-Aug-12	12SLRCSLMT01E3201	Gee Trap	27025	LKCH	64	70	3.3	--
26-Aug-12	12SLRCSLMT01E3201	Gee Trap	27026	LKCH	62	68	2.2	--
26-Aug-12	12SLRCSLMT01E3201	Gee Trap	27027	LKCH	52	56	1.2	--
26-Aug-12	12SLRCSLMT01E3201	Gee Trap	27028	LKCH	60	64	3.4	--
26-Aug-12	12SLRCSLMT01E3201	Gee Trap	27029	LNSC	91	97	9.6	--
26-Aug-12	12SLRCSLMT01E3201	Gee Trap	27030	LNSC	63	67	2.3	--
26-Aug-12	12SLRCSLMT01E3202	Gee Trap	27031	LKCH	66	73	3.4	--
26-Aug-12	12SLRCSLMT01E3202	Gee Trap	27032	LKCH	66	72	3.2	--
26-Aug-12	12SLRCSLMT01E3202	Gee Trap	27033	LKCH	75	81	5.4	--
26-Aug-12	12SLRCSLMT01E3202	Gee Trap	27034	LKCH	100	106	12	--
26-Aug-12	12SLRCSLMT01E3202	Gee Trap	27035	LKCH	85	93	6.9	--
26-Aug-12	12SLRCSLMT01E3202	Gee Trap	27036	LKCH	94	103	10.8	--
26-Aug-12	12SLRCSLMT01E3202	Gee Trap	27037	LKCH	69	75	4.3	--
26-Aug-12	12SLRCSLMT01E3202	Gee Trap	27038	LKCH	52	56	1.8	--
26-Aug-12	12SLRCSLMT01E3202	Gee Trap	27039	LKCH	66	73	3.2	--
26-Aug-12	12SLRCSLMT01E3202	Gee Trap	27040	LKCH	60	66	2.6	--
27-Aug-12	12SLRCSLMT01E3207	Gee Trap	27042	LKCH	101	111	10	--
27-Aug-12	12SLRCSLMT01E3207	Gee Trap	27043	LKCH	89	97	9.3	--
27-Aug-12	12SLRCSLMT01E3207	Gee Trap	27044	LKCH	66	74	3.6	--
27-Aug-12	12SLRCSLMT01E3207	Gee Trap	27045	LKCH	67	74	3.1	--
27-Aug-12	12SLRCSLMT01E3207	Gee Trap	27046	LKCH	66	73	3.9	--
27-Aug-12	12SLRCSLMT01E3207	Gee Trap	27047	LKCH	73	81	4.9	--
27-Aug-12	12SLRCSLMT01E3207	Gee Trap	27048	LKCH	42	49	1.2	--
27-Aug-12	12SLRCSLMT01E3207	Gee Trap	27049	LKCH	47	51	1.2	--

Table 4: Non-Target Fish Species Field Measurements Collected During the 2012 Slimy Sculpin Fishing Program

Date	Fishing Effort Number	Gear Type	Fish Number	Species code	Fork Length (mm)	Total length (mm)	Body Weight (g)	Comments
27-Aug-12	12SLRCSLMT01E3207	Gee Trap	27050	LKCH	45	49	1	--
27-Aug-12	12SLRCSLMT04E3208	Gee Trap	27054	LKCH	89	95	9.1	--
27-Aug-12	12SLRCSLMT04E3211	Gee Trap	27055	LKCH	77	85	5.1	--
27-Aug-12	12SLRCSLMT04E3211	Gee Trap	27056	LKCH	48	52	1.2	--
27-Aug-12	12SLRCMT06E3217	Gee Trap	27069	LKCH	93	101	13	--
27-Aug-12	12SLRCSLMT01E3510	Glass Trap	27041	LKCH	68	74	2.9	Dead in trap, 3 tapeworms, sex unknown
27-Aug-12	12SLRCSLMT01E3511	Glass Trap	27051	LKCH	96	103	13.6	Dead male
27-Aug-12	12SLRCSLMT01E3512	Glass Trap	27052	LKCH	90	98	8.9	--
27-Aug-12	12SLRCSLMT01E3512	Glass Trap	27053	LKCH	97	105	11	--
27-Aug-12	12SLRCSLMT04E3213	Glass Trap	27057	LKCH	90	98	9.5	--
27-Aug-12	12SLRCSLMT04E3213	Glass Trap	27058	LKCH	87	95	7.3	--
27-Aug-12	12SLRCSLMT04E3213	Glass Trap	27059	LKCH	110	119	17.9	--
27-Aug-12	12SLRCSLMT04E3213	Glass Trap	27060	LKCH	84	94	7.1	--
27-Aug-12	12SLRCSLMT04E3213	Glass Trap	27061	LKCH	87	97	7.4	--
27-Aug-12	12SLRCSLMT04E3213	Glass Trap	27062	LKCH	91	111	8.1	--
27-Aug-12	12SLRCSLMT04E3213	Glass Trap	27063	LKCH	98	109	11.4	--
27-Aug-12	12SLRCSLMT04E3213	Glass Trap	27064	LKCH	60	66	2.2	--
27-Aug-12	12SLRCSLMT04E3213	Glass Trap	27065	LKCH	64	70	3	--
27-Aug-12	12SLRCSLMT05E3521	Glass Trap	27066	LKCH	99	107	8	--
27-Aug-12	12SLRCSLMT05E3521	Glass Trap	27067	LKCH	101	111	9.2	--
27-Aug-12	12SLRCSLMT05E3519	Glass Trap	27068	LKCH	97	103	7.8	--
27-Aug-12	12SLRCMMT06E3524	Glass Trap	27070	LKCH	81	87	4.4	--
27-Aug-12	12SLRCMMT06GE3525	Glass Trap	27071	LKCH	52	57	1.2	--
27-Aug-12	12SLRCSLMMT04E3531	Glass Trap	27072	LKCH	26	29	0.5	Dead in trap
27-Aug-12	12SLRCSLMMT04E3531	Glass Trap	27073	LKCH	40	45	0.9	Dead in trap
27-Aug-12	12SLRCSLMMT04E3531	Glass Trap	27074	LKCH	39	43	0.8	Dead in trap
27-Aug-12	12SLRCSLMMT04E3531	Glass Trap	27075	LKCH	44	50	1.2	Dead in trap
27-Aug-12	12SLRCSLMMT04E3531	Glass Trap	27076	LKCH	50	54	na	Dead in trap
27-Aug-12	12SLRCSLMMT04E3531	Glass Trap	27077	LKCH	49	54	na	Dead in trap
27-Aug-12	12SLRCSLMMT04E3531	Glass Trap	27078	LKCH	75	81	na	Dead in trap
27-Aug-12	BE3301	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	–	LNSC	–	–	–	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	–	LNSC	–	–	–	Enumerated and released only

Table 4: Non-Target Fish Species Field Measurements Collected During the 2012 Slimy Sculpin Fishing Program

Date	Fishing Effort Number	Gear Type	Fish Number	Species code	Fork Length (mm)	Total length (mm)	Body Weight (g)	Comments
27-Aug-12	BE3302	Boat Electrofishing	−	LNSC	−	−	−	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	−	LNSC	−	−	−	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	−	LNSC	−	−	−	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	−	RNWH	−	−	−	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	−	RNWH	−	−	−	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	−	RNWH	−	−	−	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	−	RNWH	−	−	−	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	−	RNWH	−	−	−	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	−	RNWH	−	−	−	Enumerated and released only
27-Aug-12	BE3302	Boat Electrofishing	−	RNWH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	BURB	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	BURB	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	BURB	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	BURB	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	BURB	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	BURB	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	BURB	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	BURB	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	−	LKCH	−	−	−	Enumerated and released only

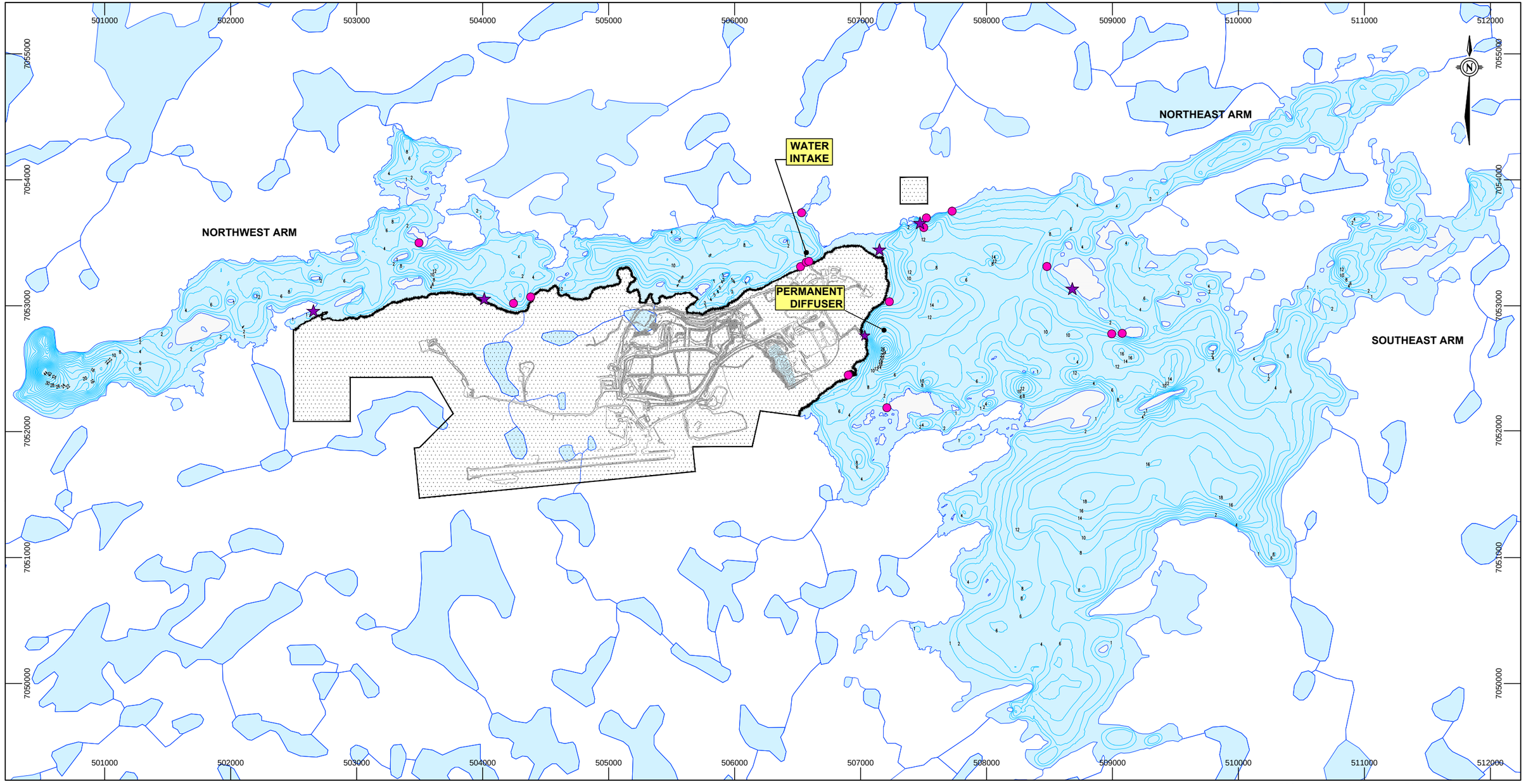
Table 4: Non-Target Fish Species Field Measurements Collected During the 2012 Slimy Sculpin Fishing Program

Date	Fishing Effort Number	Gear Type	Fish Number	Species code	Fork Length (mm)	Total length (mm)	Body Weight (g)	Comments
28-Aug-12	BE3303	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	–	LNSC	–	–	–	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	–	LNSC	–	–	–	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	–	LNSC	–	–	–	Enumerated and released only
28-Aug-12	BE3303	Boat Electrofishing	–	LNSC	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LNSC	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LNSC	–	–	–	Enumerated and released only
28-Aug-12	BE3304	Boat Electrofishing	–	LNSC	–	–	–	Enumerated and released only
29-Aug-12	BE3305	Boat Electrofishing	–	ARGR	–	–	–	Enumerated and released only
29-Aug-12	BE3305	Boat Electrofishing	–	ARGR	–	–	–	Enumerated and released only
29-Aug-12	BE3305	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
29-Aug-12	BE3305	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
29-Aug-12	BE3305	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
29-Aug-12	BE3305	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only

Table 4: Non-Target Fish Species Field Measurements Collected During the 2012 Slimy Sculpin Fishing Program

Date	Fishing Effort Number	Gear Type	Fish Number	Species code	Fork Length (mm)	Total length (mm)	Body Weight (g)	Comments
29-Aug-12	BE3305	Boat Electrofishing	–	LNSC	–	–	–	Enumerated and released only
29-Aug-12	BE3305	Boat Electrofishing	–	LNSC	–	–	–	Enumerated and released only
29-Aug-12	BE3305	Boat Electrofishing	–	LNSC	–	–	–	Enumerated and released only
29-Aug-12	BE3306	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
29-Aug-12	BE3306	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
29-Aug-12	BE3306	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
29-Aug-12	BE3306	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
29-Aug-12	BE3306	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
29-Aug-12	BE3306	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
29-Aug-12	BE3306	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
29-Aug-12	BE3306	Boat Electrofishing	–	LKCH	–	–	–	Enumerated and released only
29-Aug-12	BE3306	Boat Electrofishing	–	LNSC	–	–	–	Enumerated and released only
29-Aug-12	BE3306	Boat Electrofishing	–	LNSC	–	–	–	Enumerated and released only
29-Aug-12	BE3306	Boat Electrofishing	–	LNSC	–	–	–	Enumerated and released only
29-Aug-12	BE3306	Boat Electrofishing	–	RNWH	–	–	–	Enumerated and released only
29-Aug-12	BE3306	Boat Electrofishing	–	RNWH	–	–	–	Enumerated and released only
29-Aug-12	BE3306	Boat Electrofishing	–	RNWH	–	–	–	Enumerated and released only

Notes: '-- = no comments provided; - = no measurements taken; mm = millimeter; g = gram; BURB = Burbot; LKCH = Lake Chub; LNSC = Longnose Sucker; ARGR = Arctic Grayling; RNWH = Round Whitefish



LEGEND

- ELECTROFISHING LOCATION
- MINNOW TRAP LOCATION
- SNAP LAKE MINE FOOTPRINT
- WATERBODY
- DEPTH CONTOUR (m)

REFERENCE

DIGITAL MAP FROM MACKAY LAKE, NORTHWEST TERRITORIES, PRODUCED BY DEPARTMENT OF ENERGY, MINES AND RESOURCES. MAP 75M, ORIGINAL SCALE 1:250,000, NAD 83 UTM ZONE 12.

SNAP LAKE OUTLINE AND ISLANDS WERE CORRECTED TO LANDSAT 7 SATELLITE IMAGE 45/15, DATED SEPTEMBER 2, 2000. PROVIDED BY GEOBASE.

BATHYMETRY WAS CREATED IN SURFER 8 USING SONAR DATA FROM THE 2002 NORTH LAKES PROGRAM (GOLDER) AND 2005 TRANSECT DATA FROM THE REFERENCE LAKE SEARCH PROGRAM (GOLDER).

NOTES

1. MAP MOVED TO NAD83 COORDINATE SYSTEM.

PROJECT

De Beers
GROUP OF COMPANIES

TITLE

2012 SNAP LAKE SLIMY SCULPIN FISHING EFFORT LOCATIONS

Golder Associates

PROJECT	13-1349-0001		FILE No.	1313490001C07A-1
DESIGN	RS	2012-01-17	SCALE	AS SHOWN REV. 0
CADD	JEF	2012-01-22		
CHECK	LMB	2013-04-19		
REVIEW	PMC	2013-04-19		

FIGURE 1

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October 29, 2012

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SNAP LAKE HISTOLOGY WORK FOR JULY 2012

Project No. 12-1337-0002-4200

Scope of Work: Identification of gender and level of sexual maturity as per the attached gonadal staging categories (Table 7-3), as well as documentation of any visible abnormalities concerning the reproductive development of Lake Chub collected from the 3 lakes. Histological sections of the gonads will be prepared and placed onto glass slides for detailed pathological examination. Photographs will be taken of all representative reproductive stages.

GONAD HISTOLOGY:

Contact: Dr. Mac Law

Sample Size: 193 Lake Chub gonads preserved in 10% buffered formalin in cryovials, with an additional 10% Quality Assurance for a total of 213 analyses.

Golder Scope of Work: Fish were collected by Golder in July 2012 from Snap Lake (exposure lake), North-East Lake (reference lake), and Lake 13 (reference lake) near the Snap Lake Diamond Mine, Northwest Territories. A total of 30 adult male, 30 adult female, and 30 juvenile fish were targeted from each lake. The achieved sample sizes from each lake were: 77 fish from Snap Lake, 53 fish from Lake 13, and 63 fish from Northeast Lake. Fish were weighed and lengths were recorded at the time of collection, and gonads were weighed, placed in labeled cryovials and preserved with 10% buffered formalin.

COMMENTS:

1. Lake Chub gonad specimens from the three lakes were received by Dr. Mac Law's laboratory at the NCSU College of Veterinary Medicine, Raleigh, North Carolina, USA. As noted in the pathology data sheet, some of the labeled specimen vials contained only tiny fragments of tissue that were not able to be processed for histopathology. A few vials, also noted, contained tissues other than gonad (such as kidney or mesentery).
2. The fixed gonad specimens were trimmed or placed entirely into individually labeled tissue processing cassettes, routinely processed for histopathology, embedded in

paraffin, sectioned at 5 micrometers, and stained with hematoxylin and eosin (H&E) for microscopic analysis. NOTE: Tissue cassettes and corresponding glass slides were labeled/numbered in serial order according to the spreadsheet provided (e.g., Snap Lake sample 16000 corresponds to histology slide SL-1). These are detailed in the accompanying spreadsheet: "Sample and Cassette numbers."

3. The grading scheme provided by Golder Associates labeled, "Table 7-3 Gonad Histology Categories for Lake Trout, Round Whitefish, and Lake Chub" was used to classify the level of sexual maturity in these fish. A review of the literature reveals quite a number of staging schemes/methods for various fish species using histological methods. However, the stages used in "Table 7-3" were well defined and could be used for the Lake Chub in this study.

4. There are some overlapping criteria between the defined stages, but I did not find this to be prohibitive. One example is that mature females classified as 1B and maturing females classified as 3 have similar histological criteria and are both defined as "stages 3 to 5." However, mature 1B females were interpreted as having some atretic eggs present.

5. Few gonadal abnormalities were noted in these fish. Some fish had small, usually scattered aggregates of leukocytes in the interstitium -- I hesitate to call them "inflammatory cells" here because they did not appear to be activated. These were more common in immature fish (developing immune system; surveillance cells?). In these sections, the leukocytes did not appear to be targeting gonadal cells or degenerating cells. Only a few females had infiltrating macrophages that were actively phagocytosing yolk material.

6. In males, the most prevalent stage was 1B. In these fish, it was not uncommon to have some regional/multifocal areas of asynchronous development. This was seen in all lakes and is probably a normal part of testicular development in this species.

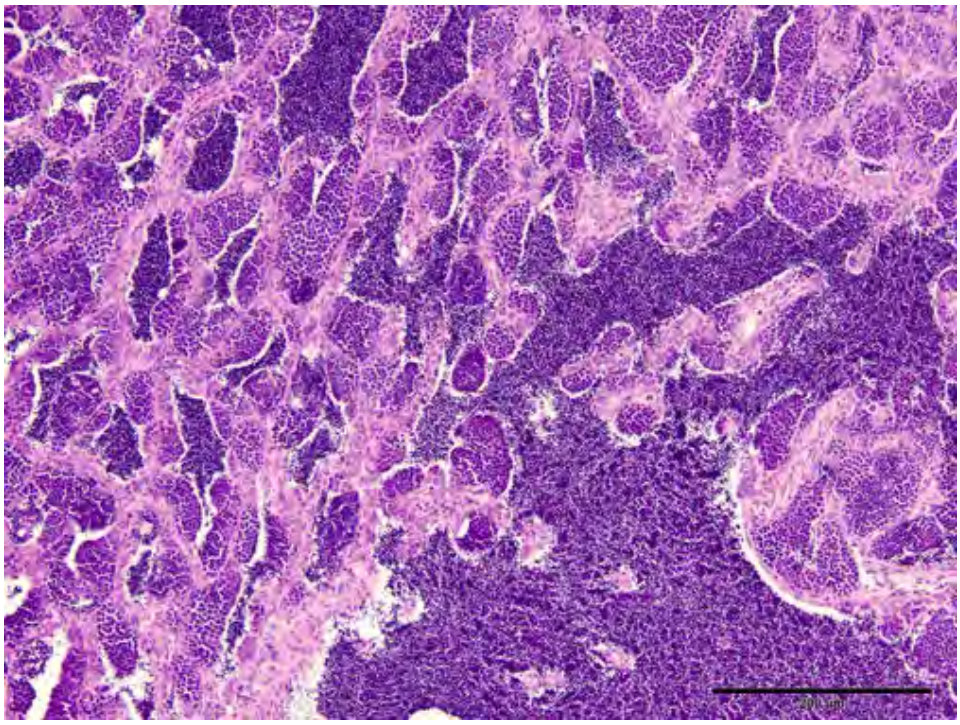
7. In many of the testes, there were abundant sloughed, larger cells (spermatocytes, spermatids) admixed with the spermatozoa within the lobular lumens and/or the spermatic duct.

8. Slide SL-33 was classified as a "reabsorbing" ovary (6), due to the large area of reabsorption at one end along with infiltrating macrophages. However, the mid-portions and opposite end of this ovary could be classified as mature (1B). Presumably, reabsorption was commencing at one end while other areas were still in somewhat earlier stages of maturation.

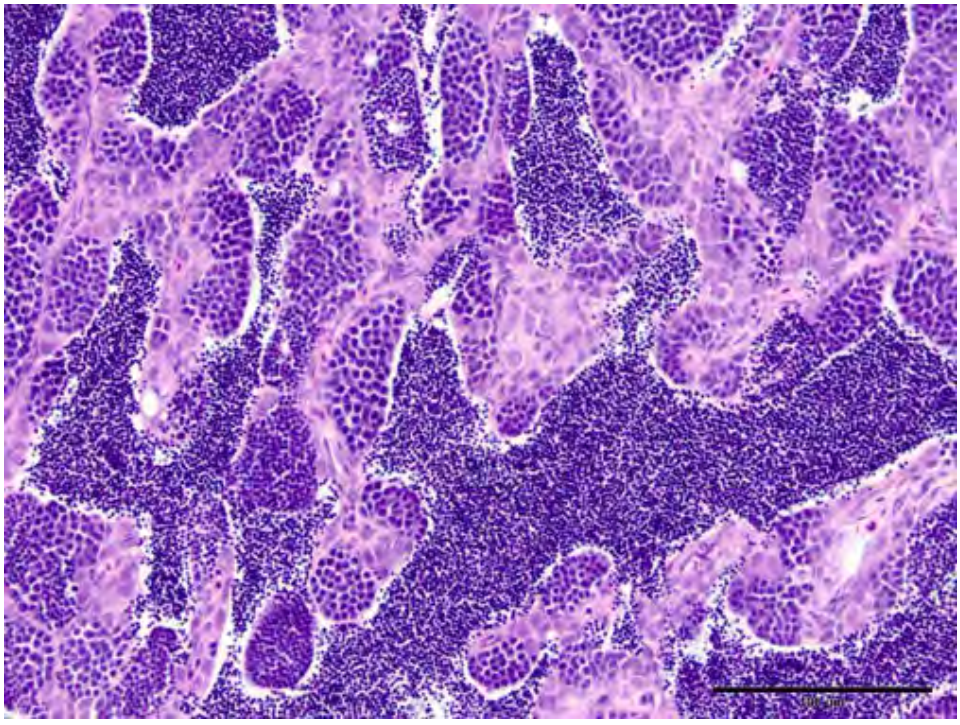
QUALITY ASSURANCE

Quality Assurance was provided via consultation with another faculty pathologist at NCSU CVM, Arnaud Van Wettere, DVM, PhD, Dipl. American College of Veterinary Pathologists. In a 10% cross-check of these gonad sections, Dr. Van Wettere was in general agreement with Dr. Law on the various stages. However, one point we discussed was the fact that some of the males classified as mature (1A) had a slightly wider row of spermatocytes and, thus, could be interpreted as either "early 1A" or "late 1B." I chose to call these 1A when comparing their morphology to the larger number of males in the study classified as 1B, whereas Dr. Van Wettere preferred "late 1B" on these.

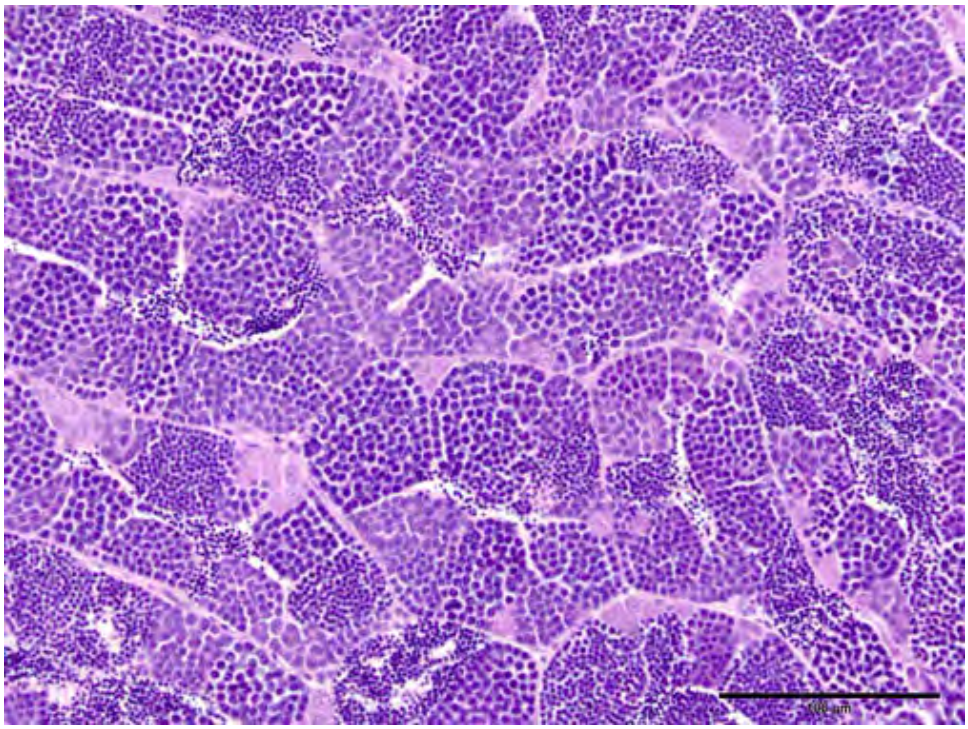
EXAMPLES OF GONAD HISTOLOGY CATEGORIES



Male, mature (1A – low magnification)



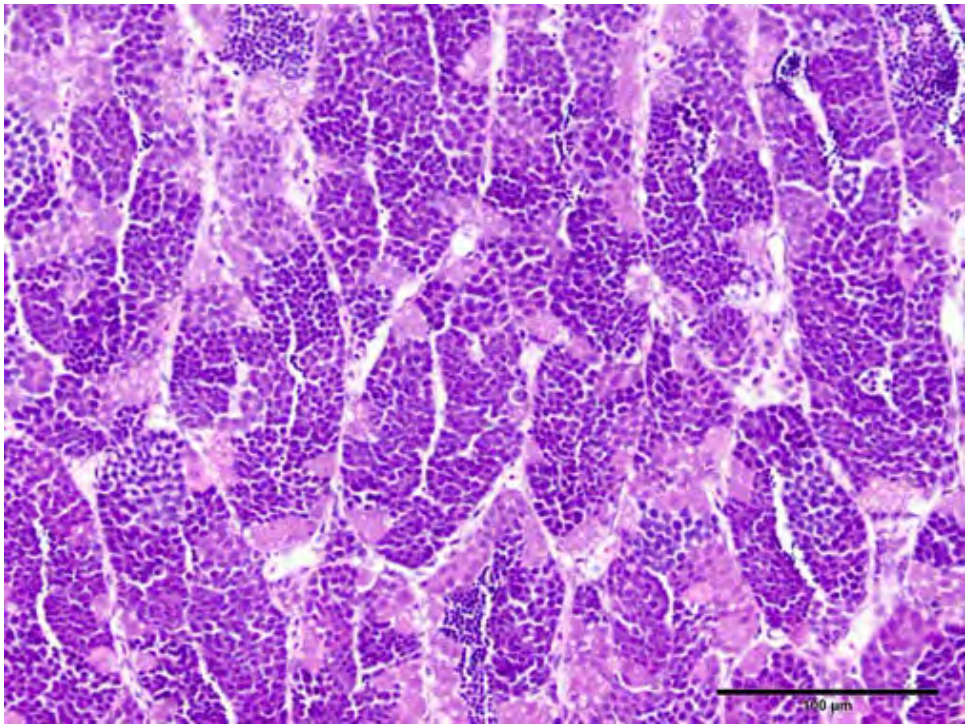
Male, mature (1A – high magnification)



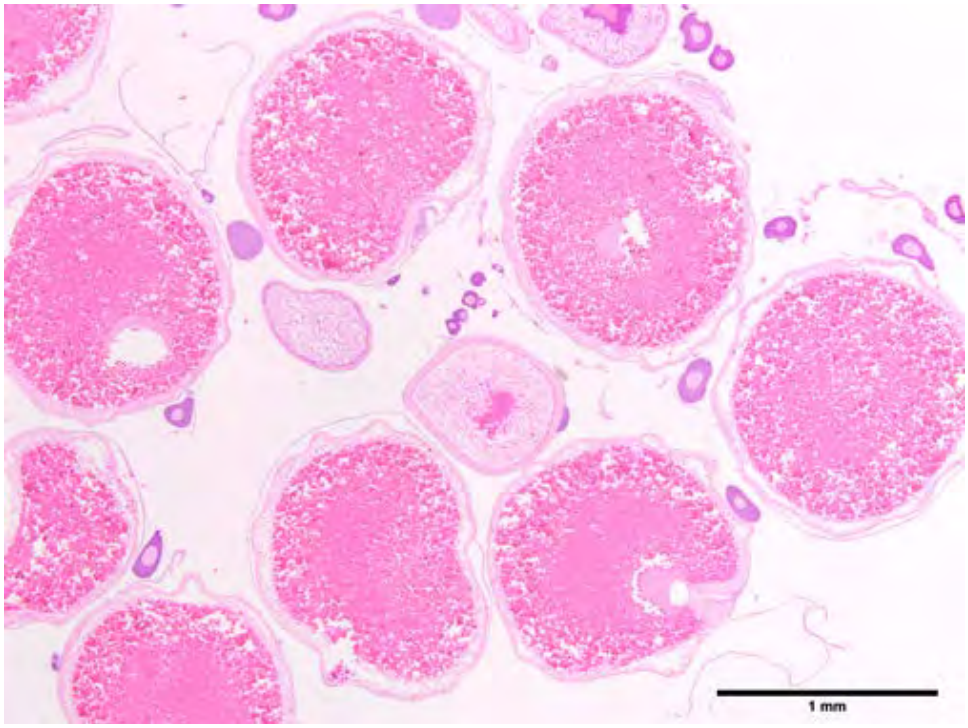
Male, mid-spermatogenic (1B)



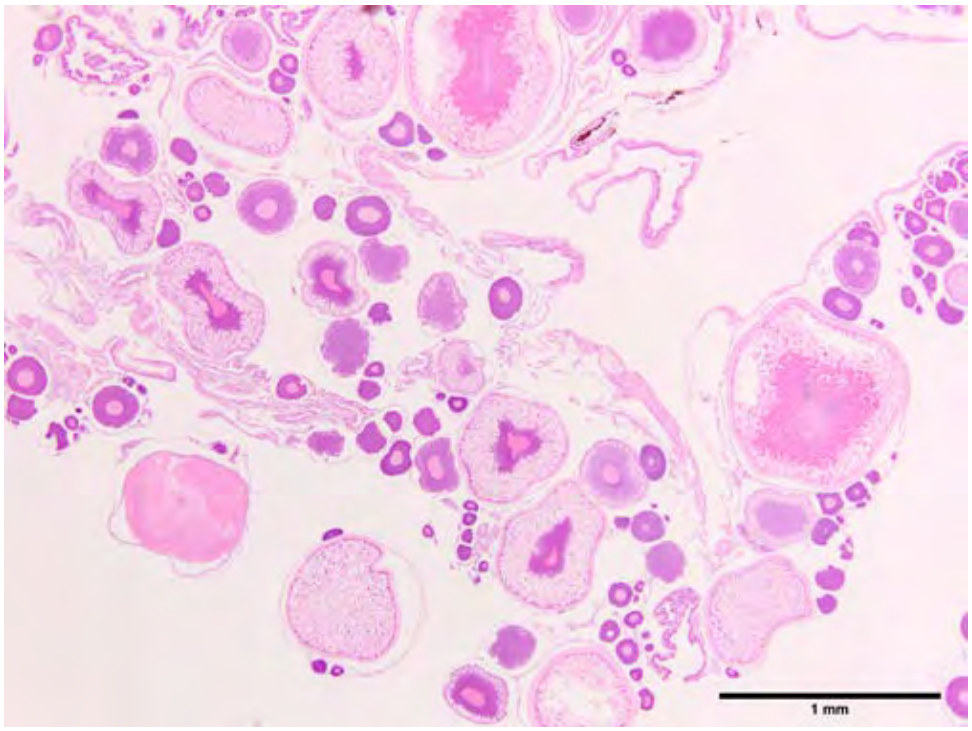
Male, immature (2)



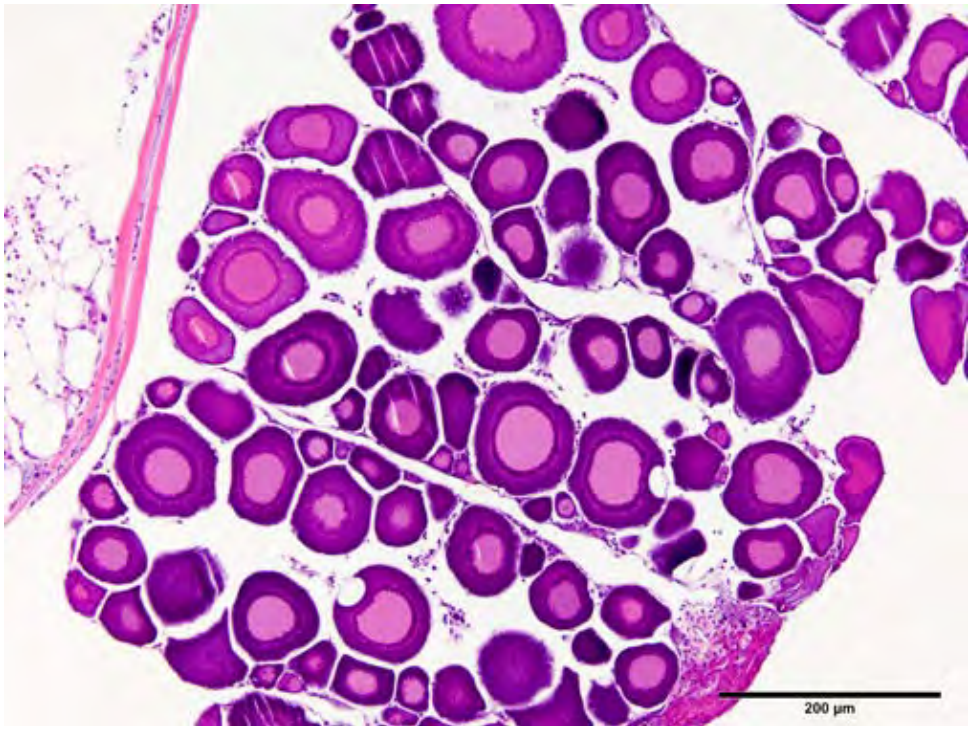
Male, maturing (3)



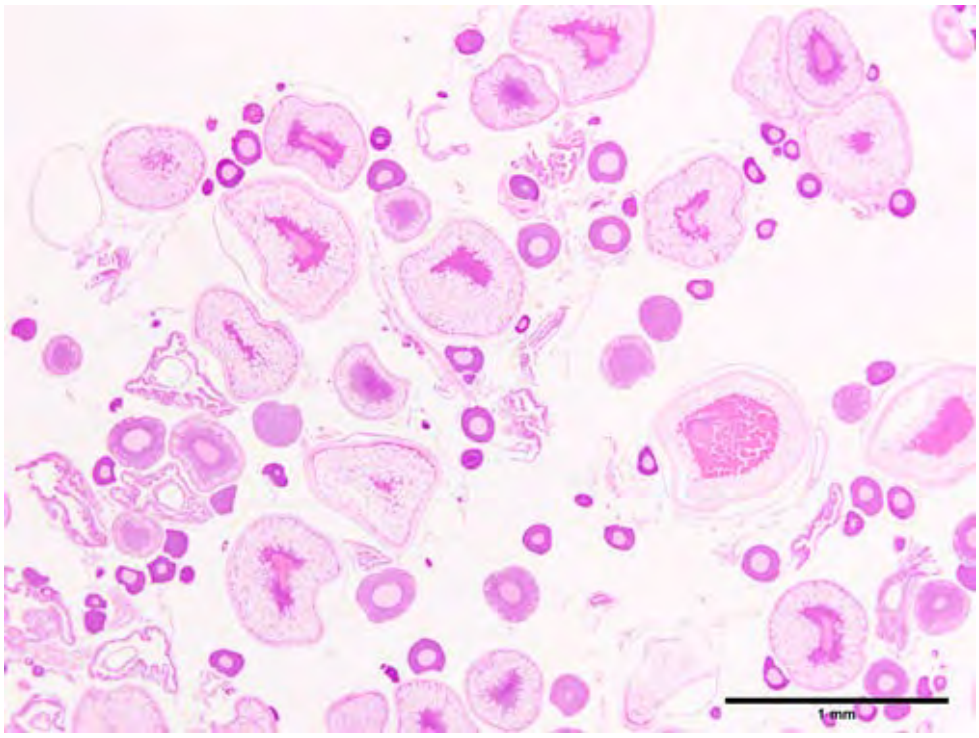
Female, mature (1)



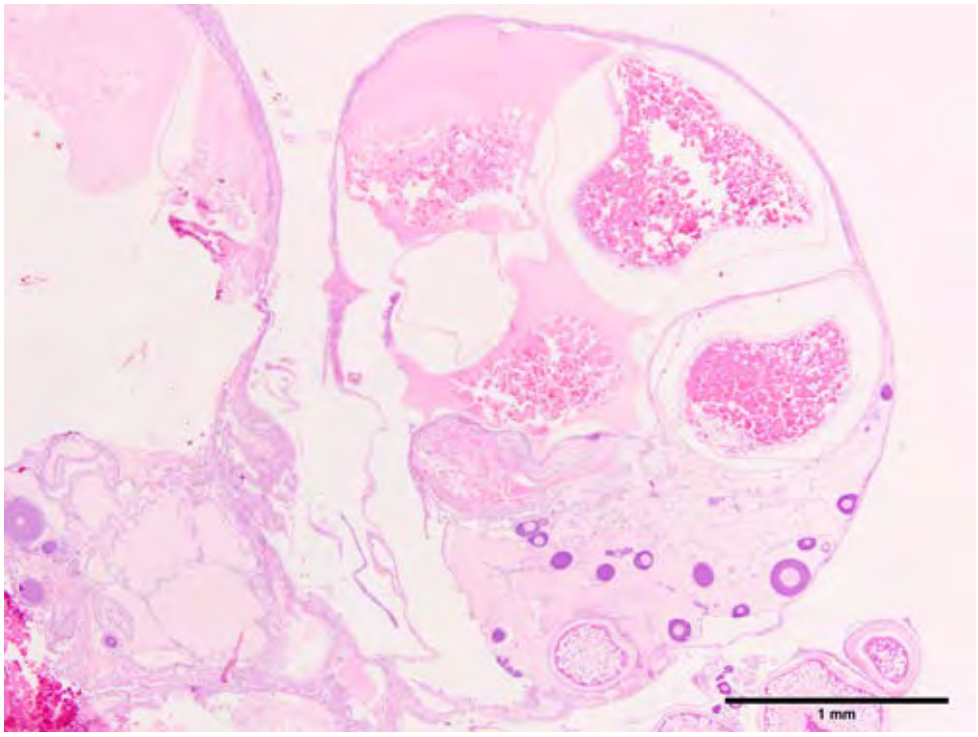
Female, mature (1B)



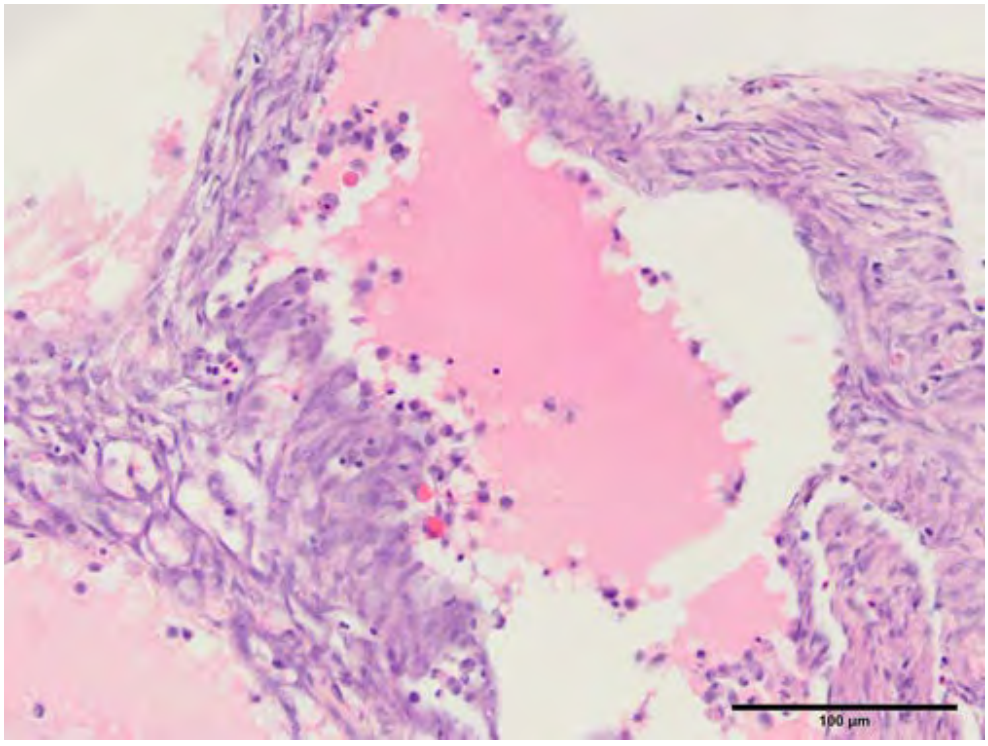
Female, immature (2)



Female, maturing (3)



Female, reabsorbing (6)



Female, reabsorbing (6) – note infiltrating macrophages that are phagocytosing yolk material.

I found no evidence of infectious disease or any marked developmental abnormalities in these specimens. Analysis and staging of the gonads according to the provided staging scheme was for the most part relatively straightforward. However, as noted, there are some areas of overlap such as in the higher levels of maturity, 1A vs. 1B. This may cause some (relatively minor) variations in scoring between different pathologists and, depending on the research question(s) involved, the staging scheme could be adapted/modified as long as the descriptions are modified and the interpretations kept consistent.

SL-12-U-SL-LKCH-123 -- Lake Chub with "black spot" on side of fish: An additional fish from the field sampling was submitted, whole, with an approximately 10 mm diameter, slightly raised but flat on the surface, fluctuant, black mass on its left side, just below the dorsal fin. The fixed fish specimen was dissected and examined grossly, and sections were trimmed and processed for histopathology as above.

> MICROSCOPIC FINDINGS: This is an invasive, unencapsulated, neoplastic mass composed of loosely arranged, fine, spindle-shaped cells with small, round to oval nuclei that are intervened by abundant clear space. Scattered cells throughout the mass contain black cytoplasmic pigment granules. Neoplastic cells do not breach the Malphigian (epidermal) layers of the skin, but invade deeply into skeletal muscle bundles and surround but do not invade the vertebral column and spinal cord.
>
> COMMENTS: Due to the black pigment seen grossly, the spindle-shaped cells, and the black pigmented cells scattered throughout the mass, my top differential for this tumor is a melanoma (chromatophore origin in fish). However, due to the fine/small size of the neoplastic cells, the abundant clear spaces, and the somewhat "neural" pattern they form, a malignant schwannoma should also be considered. Dermal melanoma with schwannoma-like differentiation in a catfish was recently confirmed via electron microscopy by Sakamoto and White (J Vet Diagn Invest 2002 May; 14:247-50).

Please do not hesitate to contact me with any questions or for further discussions on this project.

Sincerely,



Mac Law, DVM, PhD
Diplomate, American College of Veterinary Pathologists
Professor of Pathology

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Table 7B-1 Snap Lake 2012 AEMP Gonad Histology Data for Lethally Sampled Lake Chub from Snap Lake, Northeast Lake and Lake 13

Waterbody	Serial #	Sex[(a)]	Cassette #	Fish #	Histology code[(b)]	Pathology Comments
Snap Lake	1	m	SL-1	16000	1B	Male, mid-spermatogenic.
Snap Lake	2	m	SL-2	16001	1B	Male, mid-spermatogenic.
Snap Lake	3	m	SL-3	16002	1B	Male, mid-spermatogenic.
Snap Lake	4	m	SL-4	16003	1B	Male, mid-spermatogenic.
Snap Lake	5	f	SL-5	16004	1B	Female.
Snap Lake	6	m	SL-6	16005	1B	Male, mid-spermatogenic.
Snap Lake	7	m	SL-7	16006	1A	Male, mature. Some asynchrony between ends of testis.
Snap Lake	8	m	SL-8	16007	1B	Male, mid-spermatogenic.
Snap Lake	9	m	SL-9	16008	1B	Male, mid-spermatogenic.
Snap Lake	10	m	SL-10	16009	1B	Male, mid-spermatogenic.
Snap Lake	11	m	SL-11	16010	1B	Male, mid-spermatogenic.
Snap Lake	12	m	SL-12	16011	1B	Male, mid-spermatogenic.
Snap Lake	13	m	SL-13	16012	1B	Male, mid-spermatogenic.
Snap Lake	14	m	SL-14	16013	1B	Male, mid-spermatogenic.
Snap Lake	15	f	SL-15	16014	1	Female, mature.
Snap Lake	16	m	SL-16	16015	1B	Male, mid-spermatogenic.
Snap Lake	17	f	SL-17	16016	1	Female, mature.
Snap Lake	18	m	SL-18	16018	1B	Male, mid-spermatogenic.
Snap Lake	19	f	SL-19	16019	1	Female, mature.
Snap Lake	20	u	SL-20	16020	n/a	(Insufficient tissue received).
Snap Lake	21	u	SL-21	16021	2	Male, immature.
Snap Lake	22	u	SL-22	16022	2	Male, immature.
Snap Lake	23	m	SL-23	16023	1A	Male, mature.
Snap Lake	24	u	SL-24	16026	n/a	(Only normal kidney and hematopoietic tissue received).
Snap Lake	25	m	SL-25	16027	1B	Male, mid-spermatogenic.
Snap Lake	26	m	SL-26	16028	1B	Male, mid-spermatogenic.
Snap Lake	27	u	SL-27	16029	n/a	(Insufficient tissue received).
Snap Lake	28	f	SL-28	16030	3	Female, maturing.
Snap Lake	29	f	SL-29	16031	n/a	(Only normal kidney and hematopoietic tissue received).
Snap Lake	30	f	SL-30	16032	1	Female, mature.
Snap Lake	31	f	SL-31	16033	1	Female, mature.
Snap Lake	32	f	SL-32	16034	1	Female, mature.
Snap Lake	33	f	SL-33	16036	6	Female, ovary regressing/reabsorbing.
Snap Lake	34	f	SL-34	16037	1	Female, mature.
Snap Lake	35	f	SL-35	16038	1B	Female, some atresia present.
Snap Lake	36	f	SL-36	16039	1	Female, mature.
Snap Lake	37	f	SL-37	16041	1	Female, mature.
Snap Lake	38	f	SL-38	16042	1	Female, mature. Few small aggregates of macrophages present.
Snap Lake	39	f	SL-39	16043	1	Female, mature.
Snap Lake	40	u	SL-40	16045	2	Male, immature.
Snap Lake	41	u	SL-41	16046	2	Female, immature. Some scattered macrophages present.
Snap Lake	42	u	SL-42	16047	n/a	(Insufficient tissue received).
Snap Lake	43	u	SL-43	16049	2	Male, immature.
Snap Lake	44	f	SL-44	16051	3	Female, maturing.
Snap Lake	45	u	SL-45	16053	2	Female, immature. Inflammatory cell aggregates present.
Snap Lake	46	u	SL-46	16054	2	Female, immature.
Snap Lake	47	u	SL-47	16056	2	Female, immature. A few inflammatory cells present.
Snap Lake	48	f	SL-48	16057	1	Female, mature (early mature vs. late 1B).
Snap Lake	49	f	SL-49	16058	3	Female, maturing.

Table 7B-1 Snap Lake 2012 AEMP Gonad Histology Data for Lethally Sampled Lake Chub from Snap Lake, Northeast Lake and Lake 13

Waterbody	Serial #	Sex[(a)]	Cassette #	Fish #	Histology code[(b)]	Pathology Comments
Snap Lake	50	m	SL-50	16059	n/a	(Insufficient tissue received).
Snap Lake	51	u	SL-51	16501	2	Female, immature. A few atretic follicles present.
Snap Lake	52	f	SL-52	16505	1	Female, mature.
Snap Lake	53	m	SL-53	16506	1B	Male, mid-spermatogenic.
Snap Lake	54	f	SL-54	16512	1	Female, mature.
Snap Lake	55	m	SL-55	16513	3	Female, maturing.
Snap Lake	56	m	SL-56	17501	n/a	(Insufficient tissue received).
Snap Lake	57	f	SL-57	17502	3	Female, maturing. Some atretic follicles + a few inflammatory cells.
Snap Lake	58	f	SL-58	17503	1	Female, mature.
Snap Lake	59	f	SL-59	17504	1	Female, mature.
Snap Lake	60	f	SL-60	17505	2	Female, immature.
Snap Lake	61	m	SL-61	17506	1A	Male, mature. Wider lobular lumens, filled with spermatozoa.
Snap Lake	62	m	SL-62	17507	1B	Male, mid-spermatogenic.
Snap Lake	63	m	SL-63	17508	1B	Male, mid-spermatogenic.
Snap Lake	64	m	SL-64	17509	1A	Male, mature. Wide lobular lumens.
Snap Lake	65	f	SL-65	17510	n/a	(Insufficient tissue received).
Snap Lake	66	f	SL-66	17511	n/a	(Only mesenteric fat and a few leukocytes received).
Snap Lake	67	f	SL-67	17512	n/a	(Insufficient tissue received).
Snap Lake	68	m	SL-68	17513	1A	Male, mature. Some mild, regional asynchrony of maturation.
Snap Lake	69	m	SL-69	17514	3	Male, maturing. Many spermatogonia and spermatocytes.
Snap Lake	70	m	SL-70	17515	1A	Male, mature.
Snap Lake	71	f	SL-71	17517	1	Female, mature.
Snap Lake	72	m	SL-72	17518	1B	Male, mid-spermatogenic (late).
Snap Lake	73	f	SL-73	17519	n/a	(Insufficient tissue received).
Snap Lake	74	m	SL-74	17520	1A	Male, mature.
Snap Lake	75	f	SL-75	17521	1	Female, mature.
Snap Lake	76	f	SL-76	17522	1	Female, mature.
Snap Lake	77	m	SL-77	17523	1A	Male, mature (early).
Northeast Lake	1	m	NEL-1	18501	1B	Male, mid-spermatogenic. Focal area of interstitial fibrosis; some asynchrony.
Northeast Lake	2	f	NEL-2	19001	1	Female, mature.
Northeast Lake	3	m	NEL-3	19002	1B	Male, mid-spermatogenic.
Northeast Lake	4	f	NEL-4	19004	1	Female, mature (early).
Northeast Lake	5	f	NEL-5	19005	3	Female, maturing.
Northeast Lake	6	u	NEL-6	19006	2	Female, immature. Scattered macrophages present.
Northeast Lake	7	f	NEL-7	19007	3	Female, maturing.
Northeast Lake	8	m	NEL-8	19008	1A	Male, mature. Some regional asynchrony.
Northeast Lake	9	f	NEL-9	19009	1	Female, mature.
Northeast Lake	10	f	NEL-10	19010	1	Female, mature.
Northeast Lake	11	m	NEL-11	19011	3	Male, maturing.
Northeast Lake	12	f	NEL-12	19012	1	Female, mature.
Northeast Lake	13	f	NEL-13	19013	1	Female, mature.
Northeast Lake	14	u	NEL-14	19014	2	Male, immature.
Northeast Lake	15	u	NEL-15	19015	2	Female, immature.
Northeast Lake	16	f	NEL-16	19016	2	Female, immature.
Northeast Lake	17	f	NEL-17	19017	3	Female, maturing.
Northeast Lake	18	m	NEL-18	19018	1B	Male, mid-spermatogenic.
Northeast Lake	19	f	NEL-19	19019	1B	Female (vs. early mature).

Table 7B-1 Snap Lake 2012 AEMP Gonad Histology Data for Lethally Sampled Lake Chub from Snap Lake, Northeast Lake and Lake 13

Waterbody	Serial #	Sex[(a)]	Cassette #	Fish #	Histology code[(b)]	Pathology Comments
Northeast Lake	20	f	NEL-20	19020	1	Female, mature.
Northeast Lake	21	f	NEL-21	19021	1	Female, mature.
Northeast Lake	22	f	NEL-22	19022	3	Female, maturing. Few inflammatory cells.
Northeast Lake	23	f	NEL-23	19023	1	Female, mature.
Northeast Lake	24	m	NEL-24	19024	1B	Male, mid-spermatogenic.
Northeast Lake	25	f	NEL-25	19025	1	Female, mature (early).
Northeast Lake	26	f	NEL-26	19026	3	Female, maturing.
Northeast Lake	27	f	NEL-27	19027	3	Female, maturing.
Northeast Lake	28	m	NEL-28	19028	1B	Male, mid-spermatogenic.
Northeast Lake	29	f	NEL-29	19029	1	Female, mature.
Northeast Lake	30	m	NEL-30	19031	1B	Male, mid-spermatogenic (late; contain a few expanded lobular lumens).
Northeast Lake	31	u	NEL-31	19032	2	Male, immature.
Northeast Lake	32	m	NEL-32	19033	1A	Male, mature.
Northeast Lake	33	u	NEL-33	19034	n/a	(Insufficient tissue received -- only small amt. of mesenteric fat).
Northeast Lake	34	u	NEL-34	19035	n/a	(Insufficient tissue received -- only small amt. of mesenteric fat).
Northeast Lake	35	f	NEL-35	19036	3	Female, maturing.
Northeast Lake	36	m	NEL-36	19037	3	Male, maturing.
Northeast Lake	37	f	NEL-37	19038	3	Female, maturing.
Northeast Lake	38	f	NEL-38	19041	1	Female, mature.
Northeast Lake	39	u	NEL-39	19042	n/a	(Insufficient tissue received -- only small amt. of mesenteric fat).
Northeast Lake	40	u	NEL-40	19043	2	Female, immature. Small groups of inflammatory cells present.
Northeast Lake	41	u	NEL-41	19044	2	Male, immature.
Northeast Lake	42	u	NEL-42	19045	2	Female, immature.
Northeast Lake	43	u	NEL-43	19046	n/a	(Insufficient tissue received).
Northeast Lake	44	u	NEL-44	19047	n/a	(Insufficient tissue received).
Northeast Lake	45	u	NEL-45	19048	2	Male, immature.
Northeast Lake	46	u	NEL-46	19049	2	Female, immature (small specimen with sparse oocytes).
Northeast Lake	47	u	NEL-47	19050	2	Female, immature.
Northeast Lake	48	u	NEL-48	19051	n/a	(Insufficient tissue received).
Northeast Lake	49	f	NEL-49	19052	1	Female, mature.
Northeast Lake	50	m	NEL-50	19053	n/a	(Insufficient tissue received).
Northeast Lake	51	u	NEL-51	19054	n/a	(Insufficient tissue received; possible immature male).
Northeast Lake	52	m	NEL-52	19055	1A	Male, mature.
Northeast Lake	53	m	NEL-53	19057	1B	Male, mid-spermatogenic.
Northeast Lake	54	m	NEL-54	19060	1A	Male, mature (early).
Northeast Lake	55	f	NEL-55	19061	1B	Female (late 1B). Some atresia present).
Northeast Lake	56	f	NEL-56	19062	1B	Female. Some atresia present.
Northeast Lake	57	f	NEL-57	19063	3	Female, maturing.
Northeast Lake	58	f	NEL-58	19064	1	Female, mature.
Northeast Lake	59	f	NEL-59	19065	1	Female, mature.
Northeast Lake	60	m	NEL-60	19066	1A	Male, mature (early).
Northeast Lake	61	u	NEL-61	19067	3	Female, maturing.
Northeast Lake	62	u	NEL-62	19068	2	Female, immature.
Northeast Lake	63	m	NEL-63	20001	n/a	Autolysed tissue, unidentifiable (skeletal muscle?).
Lake 13	1	m	LK13-1	21001	1B	Male, mid-spermatogenic.
Lake 13	2	m	LK13-2	21002	1B	Male, mid-spermatogenic.
Lake 13	3	m	LK13-3	21003	1A	Male, mature.

Table 7B-1 Snap Lake 2012 AEMP Gonad Histology Data for Lethally Sampled Lake Chub from Snap Lake, Northeast Lake and Lake 13

Waterbody	Serial #	Sex[(a)]	Cassette #	Fish #	Histology code[(b)]	Pathology Comments
Lake 13	4	m	LK13-4	21004	1B	Male, mid-spermatogenic. Some asynchrony.
Lake 13	5	m	LK13-5	21005	1B	Male, mid-spermatogenic.
Lake 13	6	m	LK13-6	21006	1B	Male, mid-spermatogenic.
Lake 13	7	f	LK13-7	21007	3	Female, maturing.
Lake 13	8	m	LK13-8	21501	2	Male, immature.
Lake 13	9	u	LK13-9	21503	2	Female, immature.
Lake 13	10	f	LK13-10	21504	1	Female, mature.
Lake 13	11	f	LK13-11	21505	3	Female, maturing.
Lake 13	12	u	LK13-12	21506	2	Female, immature.
Lake 13	13	m	LK13-13	22501	1B	Male, mid-spermatogenic.
Lake 13	14	m	LK13-14	22502	1B	Male, mid-spermatogenic.
Lake 13	15	m	LK13-15	22503	1B	Male, mid-spermatogenic.
Lake 13	16	f	LK13-16	22504	1B	Female (no atretic eggs).
Lake 13	17	f	LK13-17	22505	1	Female, mature (early).
Lake 13	18	m	LK13-18	22506	1B	Male, mid-spermatogenic.
Lake 13	19	f	LK13-19	22507	1	Female, mature.
Lake 13	20	f	LK13-20	22508	n/a	(Only normal pancreas).
Lake 13	21	f	LK13-21	22509	2	Female, immature.
Lake 13	22	f	LK13-22	22510	1B	Female.
Lake 13	23	m	LK13-23	22511	1A	Male, mature. Some asynchrony between ends.
Lake 13	24	m	LK13-24	22512	1B	Male, mid-spermatogenic. Some asynchrony.
Lake 13	25	f	LK13-25	22513	3	Female, maturing.
Lake 13	26	m	LK13-26	22514	1A	Male, mature (wide lobular lumens).
Lake 13	27	m	LK13-27	22515	1A	Male, mature.
Lake 13	28	m	LK13-28	22516	1B	Male, mid-spermatogenic. Some asynchrony.
Lake 13	29	m	LK13-29	22517	1B	Male, mid-spermatogenic. Some asynchrony.
Lake 13	30	m	LK13-30	22518	1A	Male, mature (early).
Lake 13	31	m	LK13-31	22519	1B	Male, mid-spermatogenic.
Lake 13	32	u	LK13-32	22520	2	Female, immature.
Lake 13	33	u	LK13-33	22522	2	Female, immature.
Lake 13	34	u	LK13-34	22523	n/a	(Insufficient tissue received -- only small amt. of mesenteric fat).
Lake 13	35	u	LK13-35	22525	2	Female, immature. Some autolysis. Some inflammatory cells.
Lake 13	36	m	LK13-36	22526	1B	Male, mid-spermatogenic.
Lake 13	37	f	LK13-37	22527	1	Female, mature.
Lake 13	38	m	LK13-38	22528	1B	Male, mid-spermatogenic.
Lake 13	39	m	LK13-39	22529	1B	Male, mid-spermatogenic.
Lake 13	40	f	LK13-40	22530	1B	Female. Some atretic eggs.
Lake 13	41	f	LK13-41	22531	3	Female, maturing.
Lake 13	42	m	LK13-42	22532	1B	Male, mid-spermatogenic.
Lake 13	43	m	LK13-43	22534	1B	Male, mid-spermatogenic.
Lake 13	44	m	LK13-44	22535	1A	Male, mature.
Lake 13	45	u	LK13-45	22536	n/a	(Insufficient tissue received).
Lake 13	46	u	LK13-46	22537	n/a	(Only intestine and mesentery).
Lake 13	47	u	LK13-47	22538	n/a	(Insufficient tissue received -- only small amt. of mesenteric fat).
Lake 13	48	u	LK13-48	22539	2	Female, immature.
Lake 13	49	u	LK13-49	22540	2	Female, immature.
Lake 13	50	m	LK13-50	22541	1A	Male, mature. Some regional asynchrony.
Lake 13	51	u	LK13-51	22543	n/a	(Insufficient tissue received -- only small amt. of mesenteric fat).

Table 7B-1 Snap Lake 2012 AEMP Gonad Histology Data for Lethally Sampled Lake Chub from Snap Lake, Northeast Lake and Lake 13

Waterbody	Serial #	Sex[(a)]	Cassette #	Fish #	Histology code[(b)]	Pathology Comments
Lake 13	52	u	LK13-52	22544	2	Female, immature.
Lake 13	53	u	LK13-53	22545	2	Female, immature. Perinucleolar oocytes have some peripheral vacuoles.

Note: Data provided by Dr. Mac Law at North Carolina State University.

(a) Field assigned sex.

(b) Histology codes defined in Section 7 of AEMP report m = male; f = female; u = unknown; n/a = not applicable.

Report on Project #12-1328-0001-4200-4230
Lake Chub Liver Triglyceride, Glycogen and Protein Levels

SNAP LAKE AEMP SMALL BODIED FISH HEALTH PROGRAM

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Introduction:

Sublethal levels of contaminants, including contamination associated with various metal mining activities, pose an energetic stress on fish that may negatively affect resource allocation (Congdon et al., 2001). Fish have been reported to adapt by decreasing or delaying energetically expensive activities such as swimming (Taylor et al., 2004; Campbell et al., 2002) and reproduction (Levesque et al., 2003). However, insufficient resource reallocation would result in lower energy stores. In support of the hypothesis that metal contamination reduces energy stores, yellow perch (*Perca flavescens*) from metal-contaminated lakes in the Rouyn-Noranda, QC area were reported to have lower liver triglyceride and glycogen levels compared to reference lakes (Levesque et al., 2002, 2003). Laboratory studies also support this hypothesis with reports of decreased energy stores after chronic cadmium exposure in guppy (*Poecilia reticulate*; Miliou et al., 1998), acute methylmercury exposure in juvenile rainbow trout (*Oncorhynchus mykiss*; Bleau et al., 1996) and chronic iron excess in whitefish (*Coregonus lavaretus*; Lappivaara and Marttinen, 2005). However, it should be noted that factors other than energetic stress from contaminants such as habitat quality, sex, season, species and the presence of other sources of contamination may also influence liver energy stores. This latter fact is illustrated by the inconsistent effects of metal contamination on liver energetics reported in fathead minnow (*Pimephales promelas*) and creek chub (*Semotilus atromaculatus*) from the Junction Creek system in Sudbury, ON (Weber et al., 2008), in carp (*Cyprinus carpio*) with chronic copper exposure (De Boeck et al., 1997) and yellow perch collected from metal-contaminated lakes in the fall (Levesque et al., 2002). Therefore, if decreased liver energy stores are observed in a metal-contaminated area, then this may be an effect of the metal contamination. However, contributing effects from other factors unique to the particular study site, species studied and sampling time in question may still need to be ruled out.

Methods:

Glycogen, triglyceride and protein levels were measured in the same 15 individual and composite Lake Chub (*Couesius plumbeus)* liver samples collected from 2 reference lakes and Snap Lake using methods previously described (Weber et al., 2003). Livers from single fish were used in assays where the weight was >20 mg. When <20 mg, livers from fish of the same weight, sex and/or stage of development from the same collection site were pooled to meet a sample size as close to 20 mg as possible, according to that listed (see Table 1).

For quality control, each assay was run at least twice with a portion of the samples on each run performed in duplicate. The same internal standard (rainbow trout liver homogenate) was determined for every assay in triplicate. As a standard practice, any assays where the internal standard varied more than 5% from previously determined norms where discarded and the assays re-run. For the series of samples contained within this report, all assays performed within this guideline. The inter-assay variability for each of the three end-points measured was calculated based on the coefficient of variation (CV) of the internal standard. For the triglyceride, glycogen and protein assays, the inter-assay variability were 3.14%, 3.35% and 2.54%, respectively, indicating excellent assay performance. All sample data are expressed as mean $\pm$ standard deviation (SD) and n = number of liver samples analyzed. Separate 1-way

analysis of variance (ANOVA) followed by Tukey's posteriori tests as appropriate were conducted for each sex/stage of development. A $p<0.05$ was considered statistically significant.

Table 1 Fish Identification Numbers of Liver Samples to be Analyzed as individual (Male, Female) or composite (Juvenile only) samples.

Lake 13 (LK13)			Snap Lake (SL)			North East Lake (NEL)		
Male	Female	Juvenile[1]	Male	Female	Juvenile	Male	Female	Juvenile[1]
21004	22504	22536 22537 22543	16006	16016	16029 16507	18501	19013	19006 19015 19056
21002	22507	22538 22540 22544	16008	16033	16021 16040	19055	19020	19040 19047 19059
22515	22527	21502 22545 22546	16015	16036	16048 16050	19031	19022	19044 19045 19058
22529	22530	21503 22522 22523	16023	17504	16044 16053	19057	19025	19042 19043 19051
22535	22531	22521 22524 22525	16027	17517	16035 16056	19060	19027	19068 19069 19070

[1] *Fish numbers indicated for juveniles are to be combined to form one composite sample which will be analyzed for lipids, glycogen and protein (µg/g). Composites are composed of similar sized fish. Each fish selected for analyses was free of visible parasites.*

Results:

Liver triglycerides were significantly lower in male chub from Snap Lake compared to either Lake 13 or Northeast Lake (Fig. 1). No significant sites differences among sites were detected in liver triglycerides of female or juvenile chub (Fig. 1). In contrast, no significant differences among sites were detected in any chub, regardless of sex or stage of development (Fig. 2). Finally, liver protein levels did not differ significantly among sites for both male and female chub (Fig. 3), but juvenile chub from Snap Lake had significantly higher liver protein compared to either Lake 13 or NE Lake (Fig. 3).

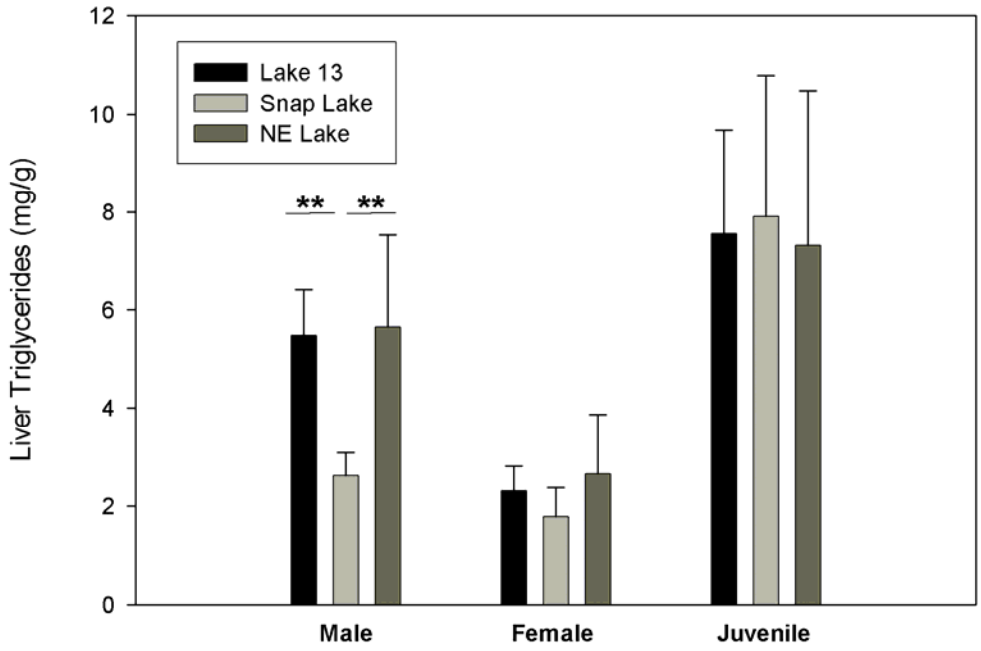


Figure 1. Liver triglyceride levels in Lake Chub collected from three different lakes (n=5 samples/site each for male, female and juvenile) during Summer 2012. Results are expressed as mean ± SD. **p<0.001 in Tukey's posteriori test after 1-way ANOVA testing for site effects.

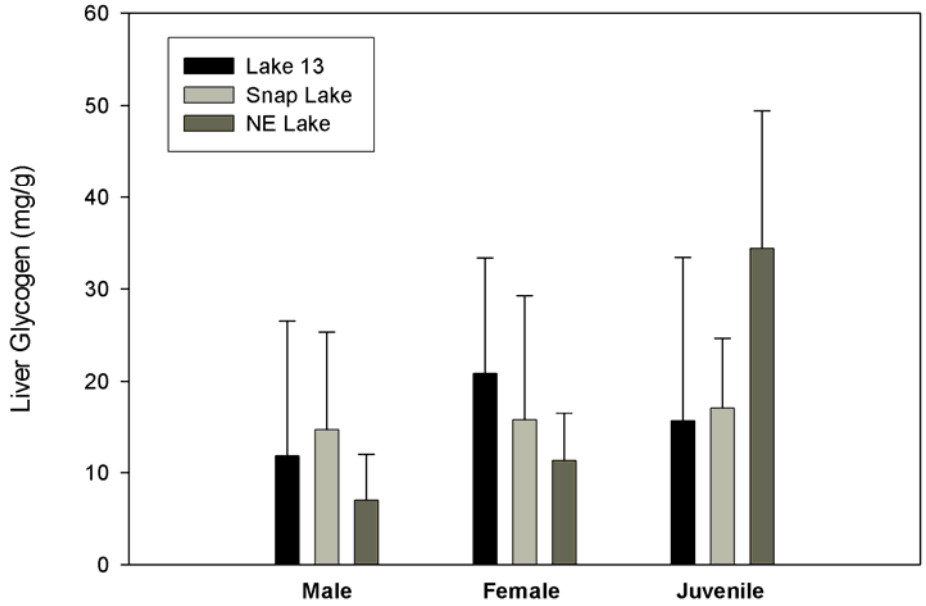


Figure 2. Liver glycogen levels in Lake Chub collected from three different lakes (n=5 samples/site each for male, female and juvenile) during Summer 2012. Results are expressed as mean ± SD. No significant differences among sites were detected using separate 1-way ANOVAs for each sex or stage of development.

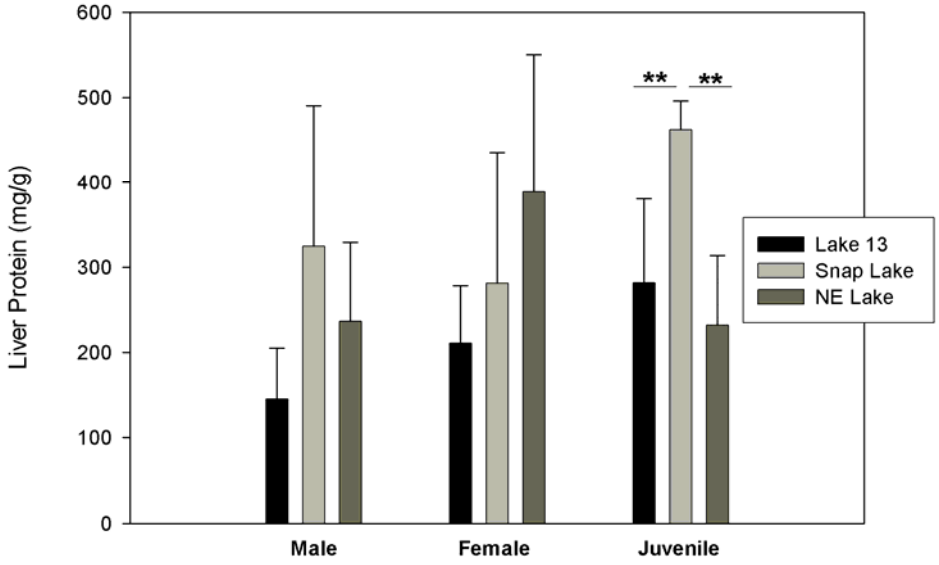


Figure 3. Liver protein levels in Lake Chub collected from three different lakes (n=5 samples/site each for male, female and juvenile) during Summer 2012. Results are expressed as mean ± SD. *p<0.05, **p<0.01, ***p<0.001 in Tukey's posteriori test after 1-way ANOVA testing for site effects.

Discussion & Conclusions:

Overall, liver energy stores in Lake Chub collected from Snap Lake were generally unchanged (glycogen for all sexes/stage of development) or higher (protein in juvenile chub) compared to either Lake 13 or NE Lake. In contrast, liver triglycerides were lower compared to both reference lakes in only male Lake Chub, not females or juveniles. This suggests that an important life history difference is causing male chub from Snap Lake to potentially be at an energetic disadvantage since lipid is the preferred fuel over either glycogen or protein for routine swimming and activities (Congdon et al., 2001). Protein is generally only consumed when all other energy stores are exhausted, such as during prolonged starvation (Weber et al., 2003). Instead, the higher liver protein levels may indicate a more energetically favorable state of juvenile chub from Snap Lake, although a lack of increase in either glycogen or triglyceride in juvenile chub livers from this site argues against this. Alternatively, the increased hepatic protein may instead be related to a response to contaminants such as metals (Hasemi et al., 2008).

Taken together, the results of this study from Summer 2012 suggest that Lake Chub from Snap lake generally have comparable energy stores, with the possible exception of males, compared to reference sites. Higher hepatic protein may be indicative of a detoxification process in response to metals or may indicate better energetic stores, but examination of metal-specific markers or metal body burdens might be considered to elucidate whether the former is the case. Furthermore, differences in habitat or diet preference should be considered to determine why male Lake Chub have lower liver triglycerides and juveniles have higher liver protein at Snap Lake, while females are unaffected.

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Table 7C-1 Snap Lake 2012 AEMP Protein, Triglyceride and Glycogen Results for Select Livers from Lethally Sampled Lake Chub in Snap Lake, Northeast Lake and Lake 13

Lake	Maturity	Sex	Fish ID	Fish code	Tissue Type	Tissue Weight (g)	[PR]	[TG]	[GLY]
Snap Lake	Adult	Male	16006	SL1	liver	0.050	119.60	2.484	31.01
Snap Lake	Adult	Male	16008	SL2	liver	0.049	215.89	2.449	5.92
Snap Lake	Adult	Male	16015	SL3	liver	0.044	459.96	3.342	11.50
Snap Lake	Adult	Male	16023	SL4	liver	0.088	518.68	2.082	5.71
Snap Lake	Adult	Male	16027	SL5	liver	0.034	308.15	2.717	19.39
Snap Lake	Adult	Female	16016	SL6	liver	0.076	166.17	2.488	28.41
Snap Lake	Adult	Female	16033	SL7	liver	0.083	120.44	1.336	31.59
Snap Lake	Adult	Female	16036	SL8	liver	0.352	445.87	1.780	0.87
Snap Lake	Adult	Female	17504	SL9	liver	0.065	228.14	2.226	7.70
Snap Lake	Adult	Female	17517	SL10	liver	0.152	443.91	1.088	10.22
Snap Lake	Juvenile	Unknown	16029+ 16507	SL11	liver	0.022	445.25	9.108	13.75
Snap Lake	Juvenile	Unknown	16040 + 16021	SL12	liver	0.020	472.52	6.273	7.22
Snap Lake	Juvenile	Unknown	16048 + 16050	SL13	liver	0.020	416.33	7.888	27.61
Snap Lake	Juvenile	Unknown	16044 + 16053	SL14	liver	0.061	469.41	11.920	20.16
Snap Lake	Juvenile	Unknown	16056 + 16035	SL15	liver	0.020	506.86	4.352	16.78
Northeast Lake	Adult	Male	18501	NEL1	liver	0.095	169.56	4.382	2.57
Northeast Lake	Adult	Male	19002	NEL2	liver	0.012	275.40	8.654	4.23
Northeast Lake	Adult	Male	19031	NEL3	liver	0.070	145.28	3.963	7.91
Northeast Lake	Adult	Male	19057	NEL4	liver	0.043	375.80	5.143	4.76
Northeast Lake	Adult	Male	19060	NEL5	liver	0.053	216.82	6.177	15.32
Northeast Lake	Adult	Female	19013	NEL6	liver	0.116	173.79	4.572	17.90
Northeast Lake	Adult	Female	19020	NEL7	liver	0.420	350.43	1.593	4.98
Northeast Lake	Adult	Female	19022	NEL8	liver	0.068	343.35	1.899	9.41
Northeast Lake	Adult	Female	19025	NEL9	liver	0.212	463.27	2.082	8.96
Northeast Lake	Adult	Female	19027	NEL10	liver	0.207	611.42	3.085	15.26
Northeast Lake	Juvenile	Unknown	19015 + 19056 + 19006	NEL11	liver	0.020	180.20	3.562	36.34
Northeast Lake	Juvenile	Unknown	19040 + 19047 + 19059	NEL12	liver	0.023	135.99	4.197	9.11
Northeast Lake	Juvenile	Unknown	19045 + 19044 + 19058	NEL13	liver	0.021	320.10	9.910	45.32
Northeast Lake	Juvenile	Unknown	19042 + 19043 + 19051	NEL14	liver	0.030	211.20	9.270	35.23
Northeast Lake	Juvenile	Unknown	19068 + 19069 + 19070	NEL15	liver	0.010	312.80	9.680	46.10
Lake 13	Adult	Male	21002 + 21001	LK1	liver	0.057	**73.85**	5.266	6.97
Lake 13	Adult	Male	21004	LK2	liver	0.046	**132.68**	6.315	37.95
Lake 13	Adult	Male	22515	LK3	liver	0.059	188.50	6.440	5.42
Lake 13	Adult	Male	22529	LK4	liver	0.035	105.19	4.149	2.29
Lake 13	Adult	Male	22535	LK5	liver	0.083	222.35	5.232	6.44
Lake 13	Adult	Female	22504	LK6	liver	0.166	172.48	1.917	4.91
Lake 13	Adult	Female	22507	LK7	liver	0.171	238.47	2.531	29.12
Lake 13	Adult	Female	22527	LK8	liver	0.046	140.69	2.463	19.71
Lake 13	Adult	Female	22530	LK9	liver	0.056	189.44	1.701	36.71
Lake 13	Adult	Female	22531	LK10	liver	0.089	312.95	2.944	13.92
Lake 13	Juvenile	Unknown	22509 + 21502 +22545 + 22546	Lk11	liver	0.024	385.77	5.706	8.87
Lake 13	Juvenile	Unknown	21503 + 22522 + 22523	LK12	liver	0.015	158.29	8.239	3.18
Lake 13	Juvenile	Unknown	22521 + 22524 + 22525	LK13	liver	0.015	237.38	5.027	3.39
Lake 13	Juvenile	Unknown	22536 + 22537 + 22543	LK14	liver	0.025	245.63	8.799	45.86
Lake 13	Juvenile	Unknown	22538 + 22540 + 22544	LK15	liver	0.017	380.27	10.020	16.87

[TG] = triglyceride concentration per gram tissue weight (mg/g); [PR] = protein concentration per gram tissue weight (mg/g); [GLY] = glycogen concentration per gram tissue weight (mg/g); g = grams; mg/g = milligram per gram.

Table 7D-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Stomach Content Results of Fish Samples with Stomach Fullness ≥50% from Snap Lake, Northeast Lake and Lake 13

Sampling Date	Specimen ID	TL (mm)	Sex	Weight (g)	JZ estimated fullness (%)	Stomach fullness (%)	Stomach contents description	Terrestrial	Other	Gastropoda-Pelecypoda	Cladocera	Ostracoda	Chironomidae-Pupa	Chironomidae - Chiromoninae	Chironomidae - Tanytarsini	Chironomidae - Orthocladiinae	Chironomidae - Tanypodinae	Coleoptera	Plecoptera	Trichoptera
Snap Lake (SL)																				
July 5, 2012	16000	101	M	7.94	40	80	Terrestrial: adults of Chironomidae & Trichoptera	100	-	-	-	-	-	-	-	-	-	-	-	-
	16001	110	M	8.80	20	80	Gastropoda; Valvatidae - *Valvata sincera*	-	-	100	-	-	-	-	-	-	-	-	-	-
	16002	108	M	9.35	10	90	Hydracarina; Chironomidae: Chironominae - *Parachironomus*	-	50		-	-	-	50	-	-	-	-	-	-
	16003	103	M	8.61	10	50	Gastropoda; Valvatidae - *Valvata sincera*	-	-	100	-	-	-	-	-	-	-	-	-	-
	16006	95	M	6.52	5	80	Terrestrial: adults of Chironomidae	100	-		-	-	-	-	-	-	-	-	-	-
	16007	-	M	4.98	0	50	empty	-	-		-	-	-	-	-	-	-	-	-	-
	16011	93	M	6.04	5	50	Gastropoda / Pelecypoda	-	-	100	-	-	-	-	-	-	-	-	-	-
	16012	91	M	5.01	70	80	Terrestrial: Diptera adults; Gastropoda: Lymnaeidae; Chironomidae: Orthocladiinae - *Cricotopus / Orthocladius*; Tanytarsini - *Tanytarsus*	20	-	60	-	-	-	-	10	10	-	-	-	-
	16026	62	U	1.74	10	50	Terrestrial: adults of Chironomidae	100	-		-	-	-	-	-	-	-	-	-	-
	16027	101	M	7.80	90	50	Terrestrial: adults of Chironomidae; Hydracarina	95	5		-	-	-	-	-	-	-	-	-	-
	16037	136	F	18.95	75	75	Gastropoda: Lymnaeidae; Trichoptera: Phryganeidae - *Agrypnia*	-	-	80	-	-	-	-	-	-	-	-	-	20
	16038	109	F	11.66	60	60	Terrestrial: Diptera adults; Gastropoda / Pelecypoda; Chironomidae: Pupae, Orthocladiinae - *Cricotopus / Orthocladius*, *Psectrocladius*; Tanytarsinae - *Paratanytarsus*	50	-	30	-	-	-	-	10	10	-	-	-	
	16044	60	U	1.91	0	50	empty	-	-	-	-	-	-	-	-	-	-	-	-	
	16054	55	U	1.53	5	50	Copepoda; Cladocera: Chydoridae; Chironomidae: *Cricotopus / Orthocladius*	-	19	-	1	-	-	-	-	80	-	-	-	
	16501	64	U	1.99	90	90	Terrestrial: adults of Chironomidae and probably Tipulidae	100	-	-	-	-	-	-	-	-	-	-	-	
	16504	57	U	1.50	100	90	Terrestrial: Chironomida and probably Tipulidae adults; Hydracarina; Coleoptera: Dytiscidae; Chironomidae: Tanypodinae; Tanytarsini - *Paratanytarsus*	20	0.5	-	-	-	-	-	-	78.5	1	-	-	-
	16506	97	M	7.79	60	80	Terrestrial: adults of Chironomidae; Hydracarina; Undetermined	50	50	-	-	-	-	-	-	-	-	-	-	-
	16507	58	U	1.30	100	90	Terrestrial: adults of Chironomidae; Chironomidae: Tanytarsini - *Paratanytarsus*	95	-	-	-	-	-	-	-	5	-	-	-	-
	16508	42	U	1.16	90	95	Terrestrial: adults of Chironomidae	100	-	-	-	-	-	-	-	-	-	-	-	-
July 4, 2012	17504	94	F	6.63	40	80	Undetermined; Hydracarina; Chironomidae: Tanypodinae		50	-	-	-	-	-	-	-	50	-	-	-
	17508	89	M	5.56	50	50	Terrestrial: adults of Chironomidae; Chironomidae: Tanytarsini	98	-	-	-	-	-	-	2	-	-	-	-	-
	17515	100	M	7.31	0	50	empty	-	-	-	-	-	-	-	-	-	-	-	-	-
	17518	91	M	6.37	30	50	Chironomidae: Tanypodinae; Orthocladiinae - *Psectrocladius*	-	-	-	-	-	-	-	-	20	80	-	-	-
	17519	82	F	4.42	60	60	Terrestrial: adults of Chironomidae; Chironomidae: Tanytarsini	95	-	-	-	-	-	-	5	-	-	-	-	-
Lake 13																				
July 11, 2012	22502	99	M	6.62	50	50	Terrestrial - Coleoptera; Gastropoda / Pelecypoda	90	-	10	-	-	-	-	-	-	-	-	-	-
	22514	122	M	14.76	10	60	Terrestrial - diptera	100	-	-	-	-	-	-	-	-	-	-	-	-
	22521	50	U	0.99	50	50	Cladocera: Bosminidae - *Bosmina;* Holopedidae - *Holopedium gibberum*	-	-	-	100	-	-	-	-	-	-	-	-	-
	22529	99	M	6.62	0	50	empty	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 7D-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Stomach Content Results of Fish Samples with Stomach Fullness ≥50% from Snap Lake, Northeast Lake and Lake 13

Sampling Date	Specimen ID	TL (mm)	Sex	Weight (g)	JZ estimated fullness (%)	Stomach fullness (%)	Stomach contents description	Terrestrial	Other	Gastropoda-Pelecypoda	Cladocera	Ostracoda	Chironomidae-Pupa	Chironomidae - Chiromoninae	Chironomidae - Tanytarsini	Chironomidae - Orthocladiinae	Chironomidae - Tanypodinae	Coleoptera	Plecoptera	Trichoptera
July 11, 2012	22534	93	M	6.62	30	50	Terrestrial - Arachnida; Coleoptera	100	-	-	-	-	-	-	-	-	-	-	-	-
Northeast Lake (NEL)																				
July 7, 2012	18501	118	M	11.71	60	80	Terrestrial - diptera, adults of Chironomidae; Trichoptera; Chironomidae: Chironominae	90	-	-	-	-	-	5	-	-	-	-	-	5
July 6, 2012	19004	124	F	13.12	100	100	Gastropoda: Valvatidae - *Valvata sincera*; Cladocera: Bosminidae - Bosmina; Coleoptera: Dytiscidae (adults); Trichoptera: Limnephilidae; Chironomidae: Chironominae - *Dicrotendipes*	-	-	5	60	-	-	0.5	-	-	-	-	14.5	20
	19006	48	U	0.90	80	80	Coleoptera: Dytiscidae	-	-	-	-	-	-	-	-	-	-	-	100	
July 7, 2012	19009	136	F	19.98	5	50	Cladocera: Chydoridae; Chironomidae: pupa	-	-	-	10	-	90	-	-	-	-	-	-	-
	19019	129	F	16.06	70	80	Terrestrial: terrestrial Diptera; adults of Chironomidae; Chironomidae pupa, Chironominae - *Microtendipes*	90	-	-	-	-	9	1	-	-	-	-	-	-
	19021	135	F	20.05	60	60	Coleoptera: Dytiscidae; Trichoptera: Limnephilidae	-	-	-	-	-	-	-	-	-	-	80		20
	19025	133	F	16.08	90	80	Terrestrial; Terrestrial - diptera, adults of Chironomidae; Cladocera: Bosminidae - *Bosminia*	50	-	-	50	-	-	-	-	-	-	-		
	19026	129	F	14.09	70	80	Coleoptera: Dytiscidae; Trichoptera: Limnephilidae	-	-	-	-	-	-					40		60
	19027	126	F	14.17	80	80	Terrestrial - adults of Chironomidae; Gastropoda: Valvatidae - *Valvata sincera*	5	-	95	-	-	-	-	-	-	-	-	-	-
	19028	103	M	8.20	50	50	Terrestrial - adults of Chironomidae	100	-	-	-	-	-	-	-	-	-	-		
July 8, 2012	19030	106	U	11.38	50	50	Terrestrial - adults of Chironomidae; Cladocera: Bosminidae - *Bosmina*; Coleoptera: Dytiscidae; Chironomidae - pupa	40	-	-	10	-	30	-	-	-	-	20		
	19034	54	U	1.05	70	50	Terrestrial - adults of Chironomidae; Cladocera: Bosminidae - Bosmina; Chironomidae - pupa	40	-	-	40	-	20	-	-	-	-	-	-	-
	19035	49	U	0.89	80	100	Terrestrial - adults of Chironomidae; Cladocera: Bosminidae - Bosmina	50	-	-	50	-	-	-	-	-	-	-	-	-
	19037	89	M	5.22	90	70	Terrestrial: Formicidae (ants), Coleoptera, Diptera: adults of Chironomidae; Gastropoda; Cladocera: Bosmidea - *Bosmina*	70	-	5	25	-	-	-	-	-	-	-	-	-
	19040	47	U	0.84	70	70	Terrestrial - diptera	100	-	-	-	-	-	-	-	-	-	-	-	-
	19042	56	U	1.22	50	50	Terrestrial - adults of Chironomidae; Hydracarina; Chironomidae: Orthocladiinae - *Cricotopus / Orthocladius*	95	1	-	-	-	-	-	-	4	-	-	-	-
	19045	50	U	0.93	50	50	Terrestrial - adults of Chironomidae; Hydracarina; Chironomidae: Orthocladiinae - *Cricotopus / Orthocladius*; Tanypodinae; Tanytarsini; Chironomina - *Dicrotendipes*	50	2	-	-	-	-	2	3	3	40	-	-	-
	19047	48	U	0.88	80	70	Terrestrial - adults of Chironomidae; Cladocera: Bosmidae - *Bosmina*; Chironomidae: Orthocladiinae - *Cricotopus / Orthocladius*; Tanypodinae; Tanytarsini; Chironominae - *Dicrotendipes*	40	-	-	40	-	-	2	2	2	14	-	-	-
	19053	54	M	1.06	50	50	Terrestrial - adults of Chironomidae	100	-	-	-	-	-	-	-	-	-	-	-	-
	19054	53	U	1.32	90	90	Terrestrial: terrestrial Diptera, adults of Chironomidae; Hydracarina; Chironomidae - Tanypodinae	80	10	-	-	-	-	-	-	-	10	-	-	-
	19063	84	F	4.52	90	50	Cladocera: Bosminidae - Bosmina	-	-	-	100	-	-	-	-	-	-	-	-	-
July 13, 2012	19064	113	F	12.80	90	50	Coleoptera: Dytiscidae; Trichoptera: Limnephilidae	-	-	-	-	-	-	-	-	-	-	70		30
July 13, 2012	19065	90	F	5.33	90	50	Terrestrial: adults of Chironomidae; Hydracarina; Gastropoda / Pelecypoda; Chironominae pupa; Orthocladiinae	10	1	10	-	-	75	-	-	4	-	-	-	-
July 14, 2012	19067	75	U	3.06	10	50	Chironomidae - pupa; Chironominae	-	-	-	-	-	70	30	-	-	-	-	-	-

Table 7D-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Stomach Content Results of Fish Samples with Stomach Fullness ≥50% from Snap Lake, Northeast Lake and Lake 13

Sampling Date	Specimen ID	TL (mm)	Sex	Weight (g)	JZ estimated fullness (%)	Stomach fullness (%)	Stomach contents description	Terrestrial	Other	Gastropoda-Pelecypoda	Cladocera	Ostracoda	Chironomidae-Pupa	Chironomidae - Chiromoninae	Chironomidae - Tanytarsini	Chironomidae - Orthocladiinae	Chironomidae - Tanypodinae	Coleoptera	Plecoptera	Trichoptera
July 14, 2012	19069	54	U	1.10	60	80	Ostracoda; Chironomidae - pupa, Tanypodinae	-	-	-	-	60	20	-	-	-	20	-	-	-
July 7, 2012	20001	115	M	12.19	n/d	50	no preservative - disaggregated	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: Analysis completed by Dr. Jack Zloty

Note: Samples collected on stomachs > 50% full

ID = identification number; TL = total length; JZ = Jack Zloty; M = male; F = female; U = unknown; mm = millimetre; g = gram; % = percent; ' – ' = organisms not present in stomach contents; n/d = no data available.

Figure 7E-1 Fish Health Endpoint Boxplots for Female Lake Chub Collected During the Lethal 2012 Fish Health Survey

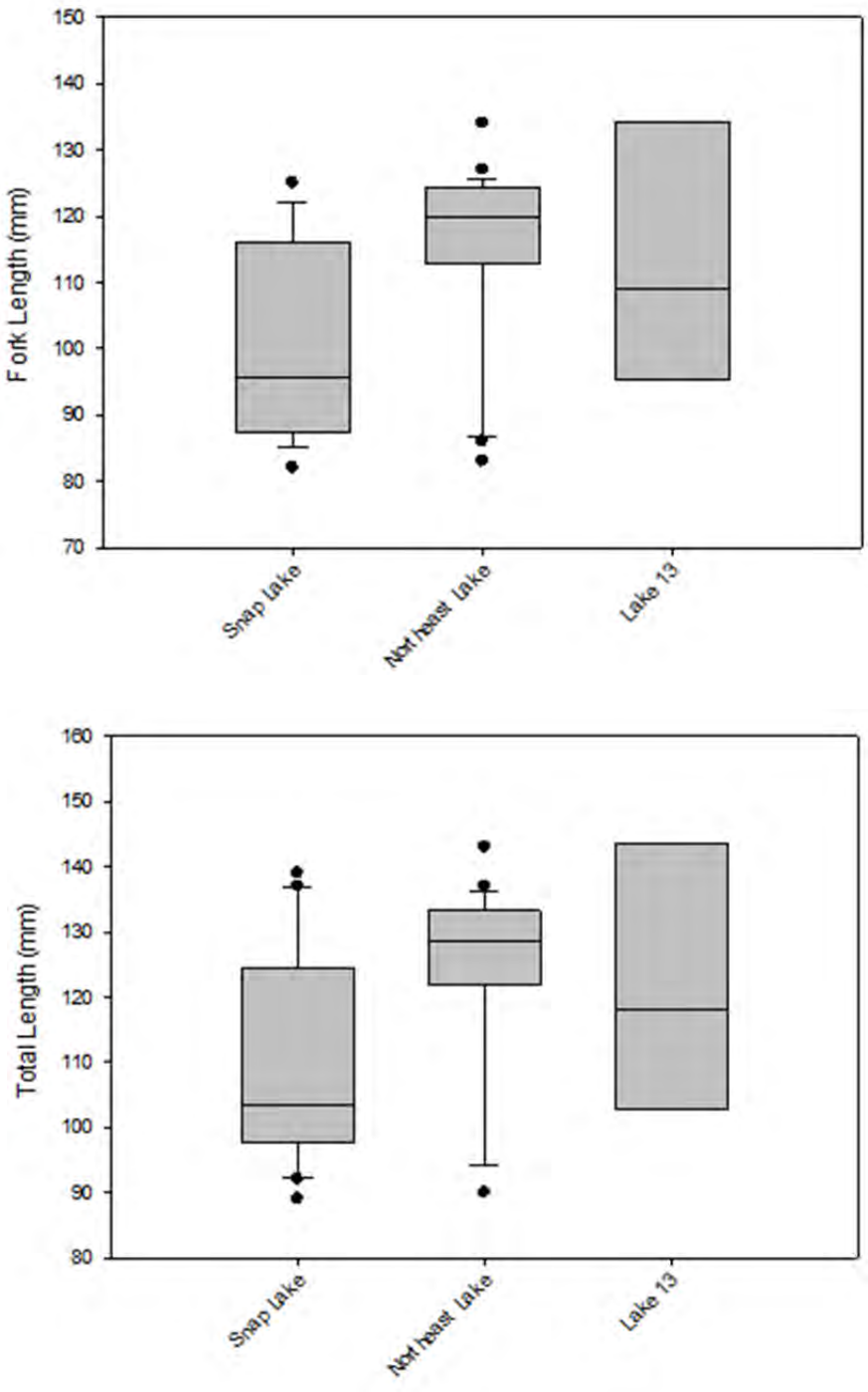


Figure 7E-1 Fish Health Endpoint Boxplots for Female Lake Chub Collected During the Lethal 2012 Fish Health Survey

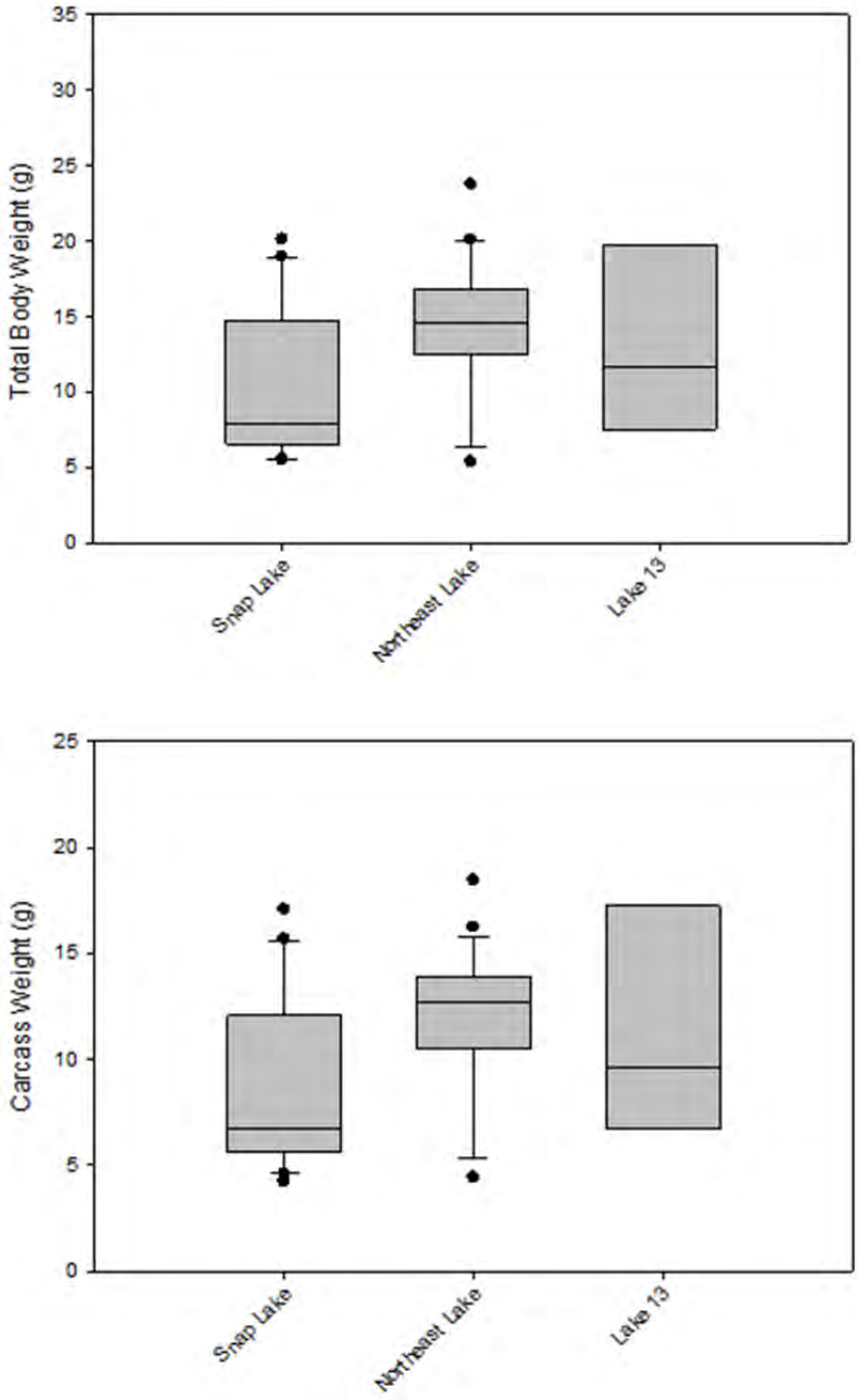


Figure 7E-1 Fish Health Endpoint Boxplots for Female Lake Chub Collected During the Lethal 2012 Fish Health Survey

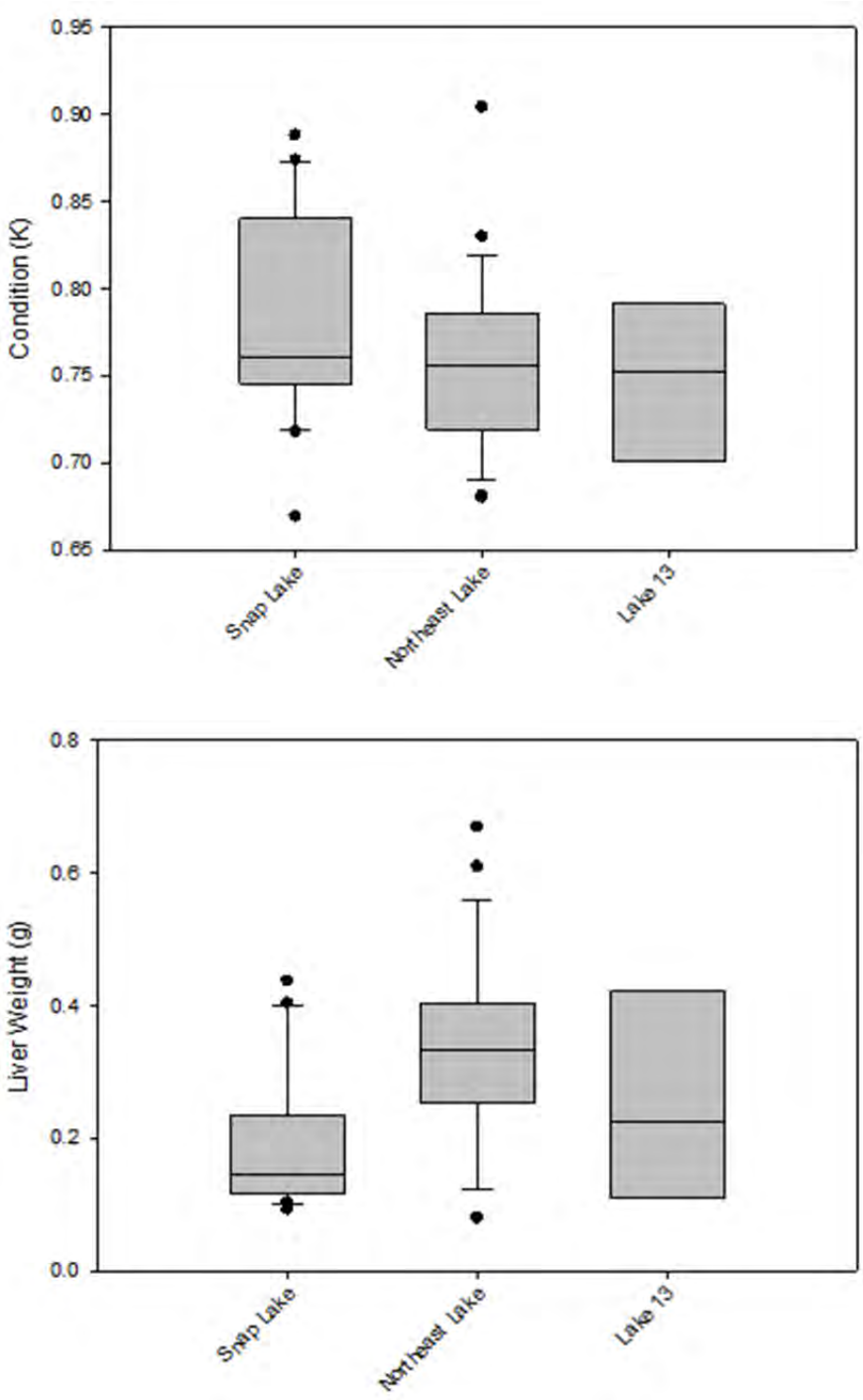


Figure 7E-1 Fish Health Endpoint Boxplots for Female Lake Chub Collected During the Lethal 2012 Fish Health Survey

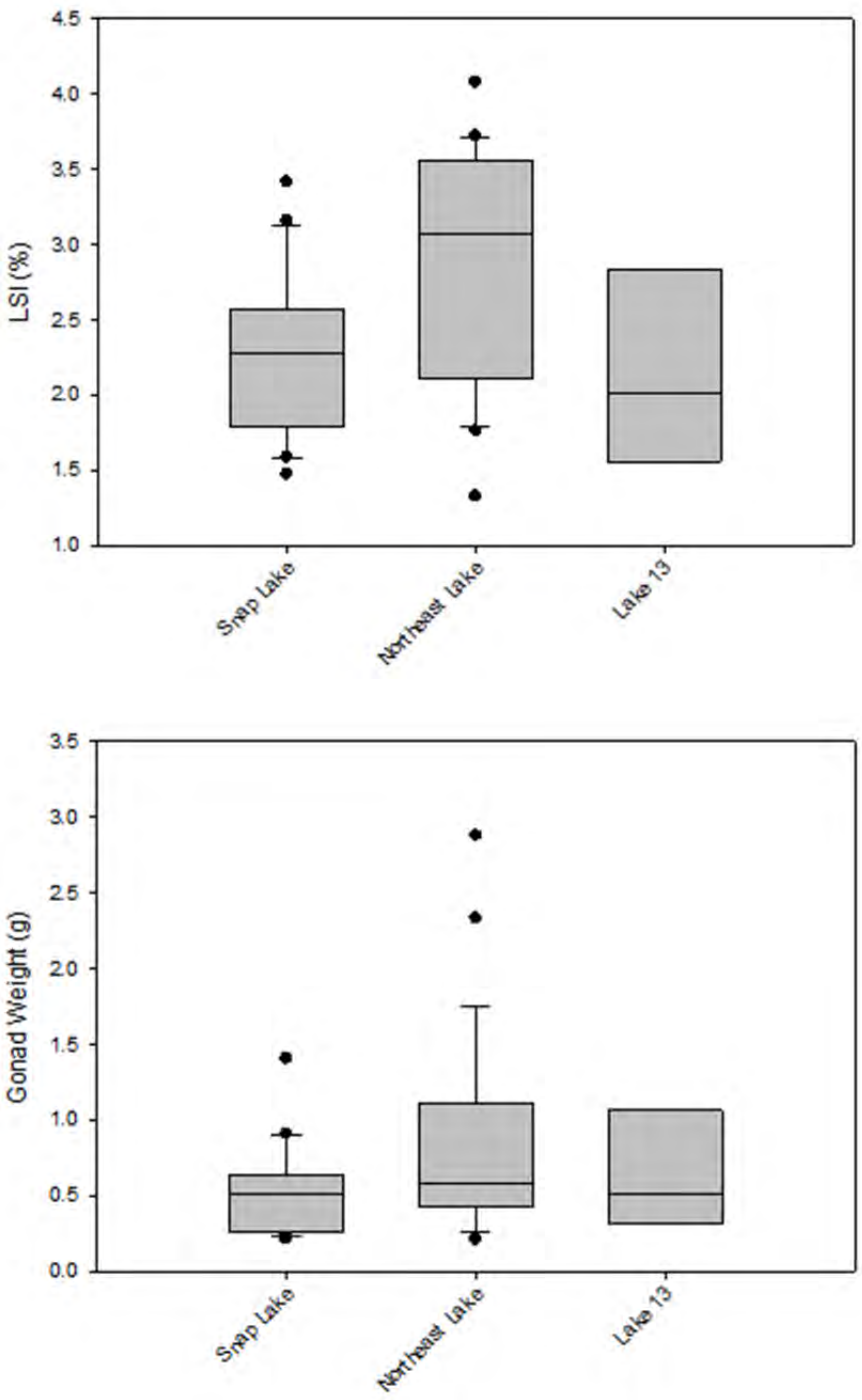


Figure 7E-1 Fish Health Endpoint Boxplots for Female Lake Chub Collected During the Lethal 2012 Fish Health Survey

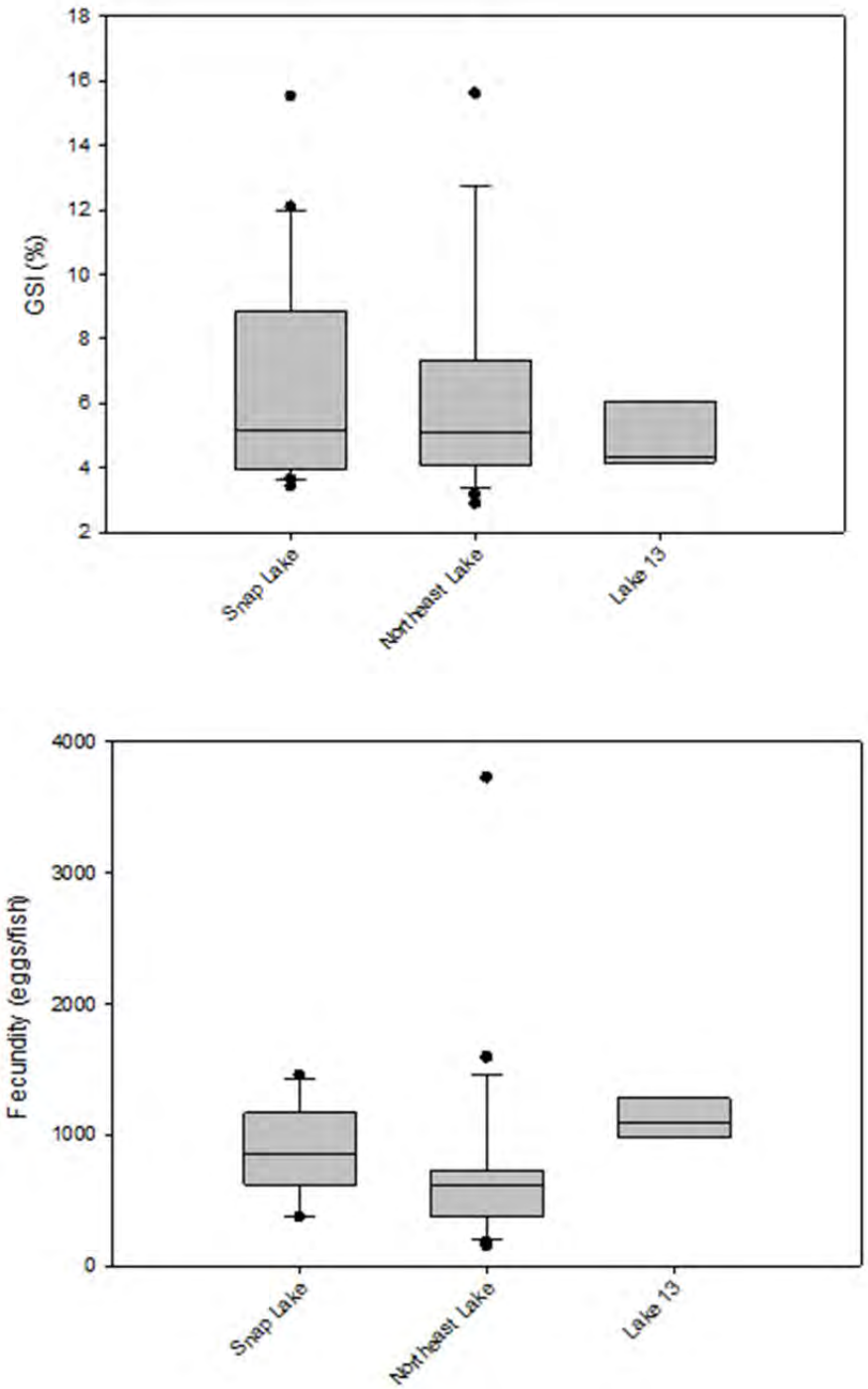


Figure 7E-1 Fish Health Endpoint Boxplots for Female Lake Chub Collected During the Lethal 2012 Fish Health Survey

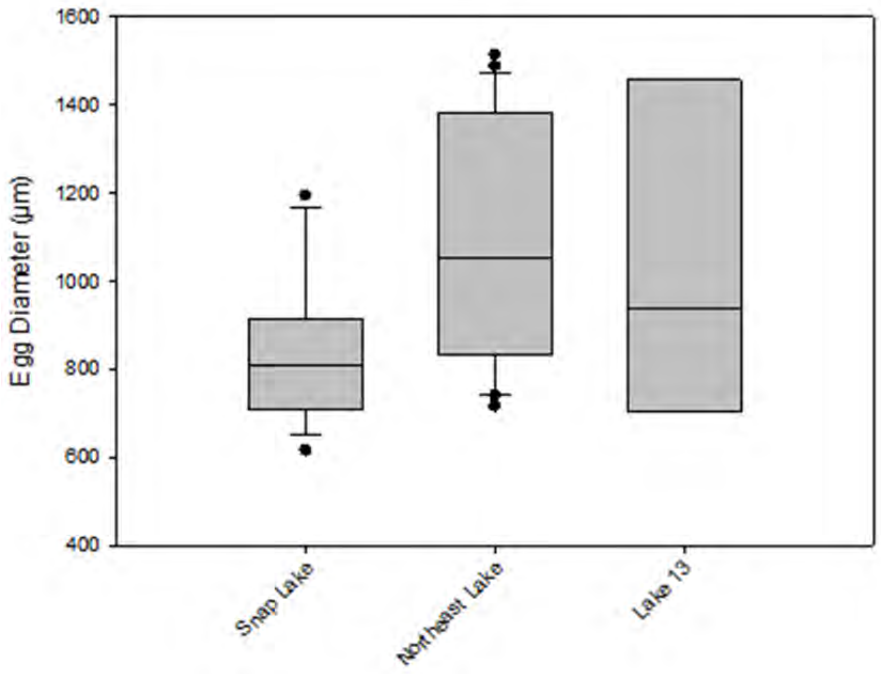


Figure 7E-2 Fish Health Endpoint Boxplots for Male Lake Chub Collected During the Lethal 2012 Fish Health Survey

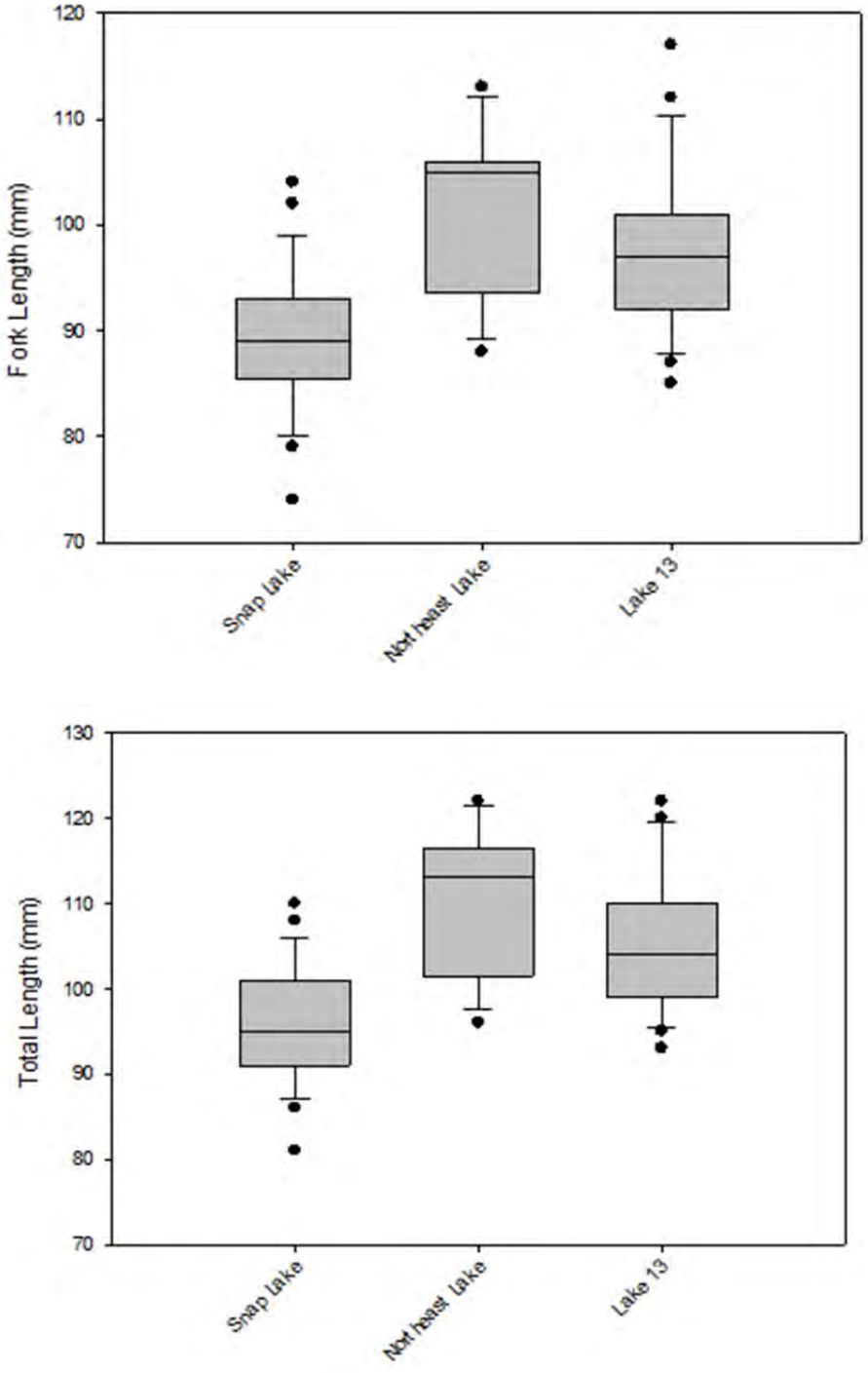
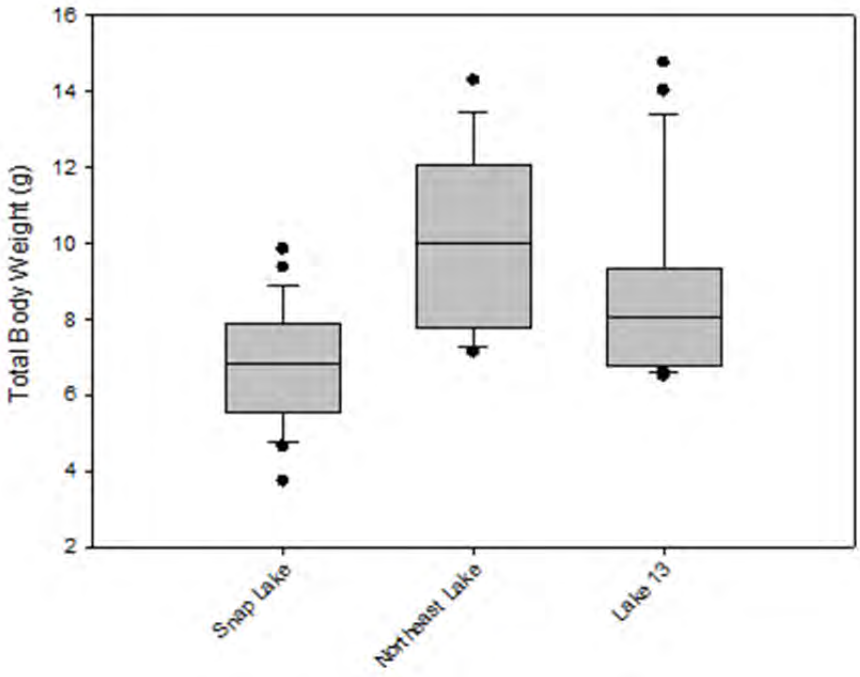


Figure 7E-2 Fish Health Endpoint Boxplots for Male Lake Chub Collected During the Lethal 2012 Fish Health Survey



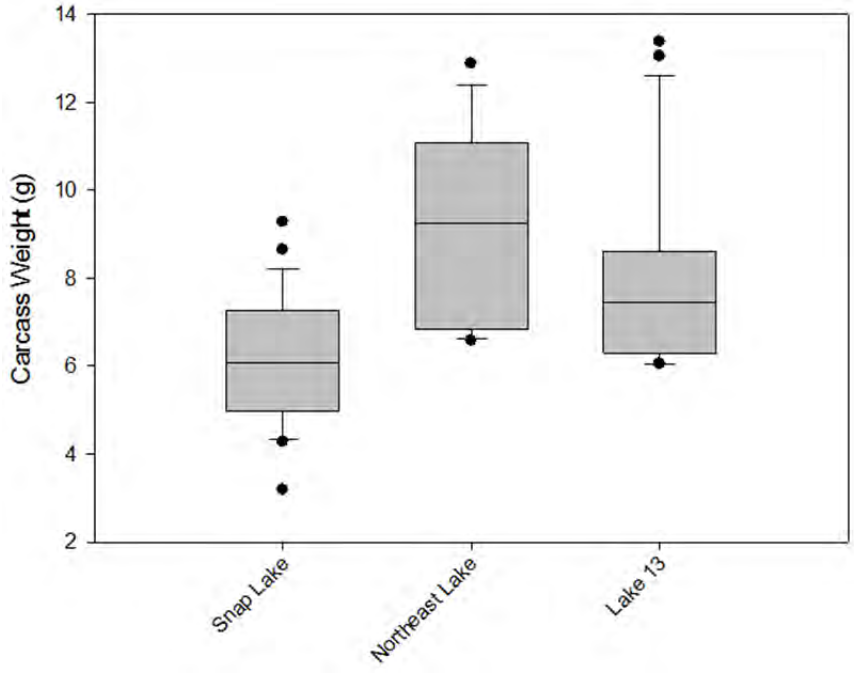


Figure 7E-2 Fish Health Endpoint Boxplots for Male Lake Chub Collected During the Lethal 2012 Fish Health Survey

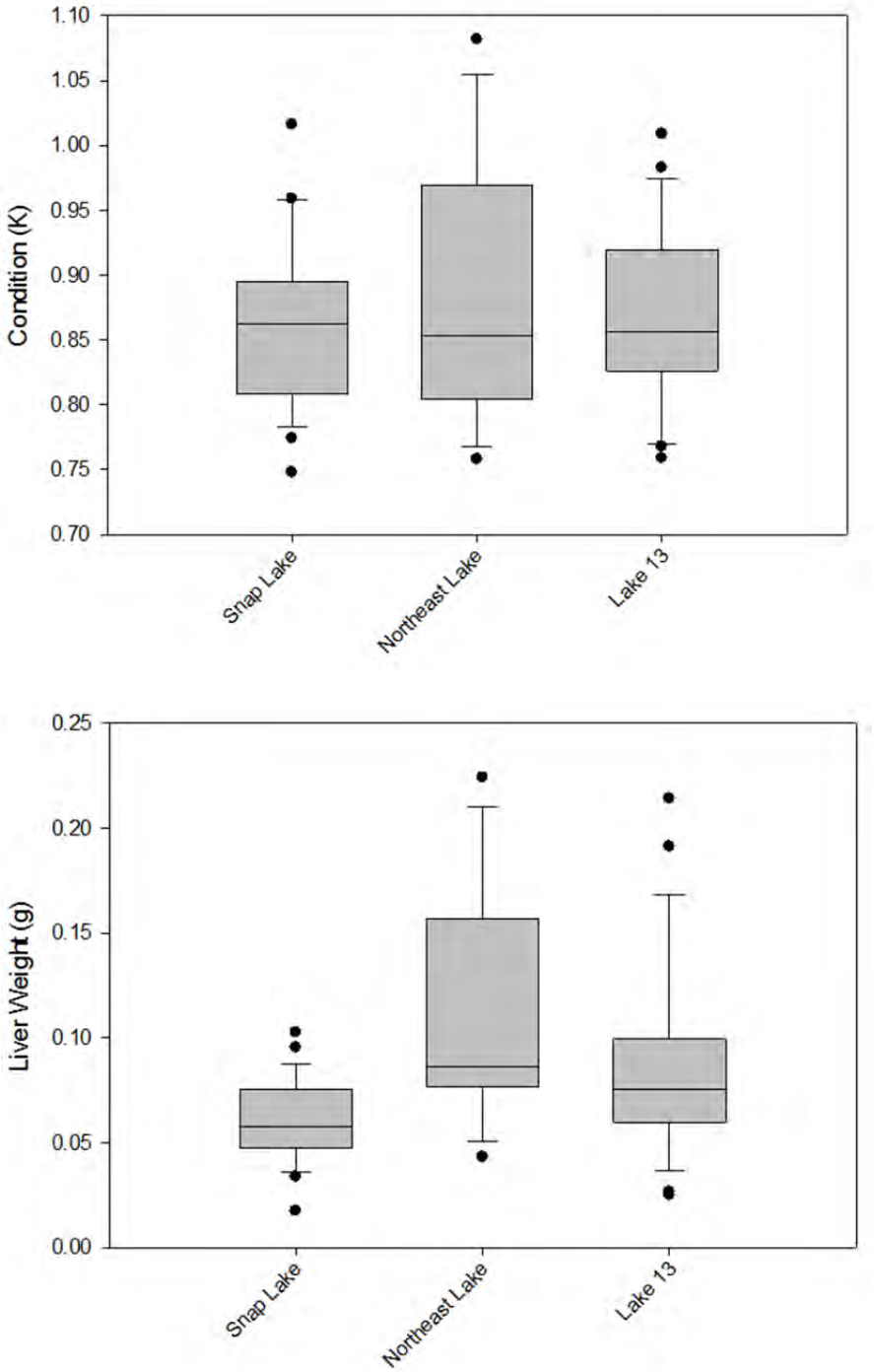


Figure 7E-2 Fish Health Endpoint Boxplots for Male Lake Chub Collected During the Lethal 2012 Fish Health Survey

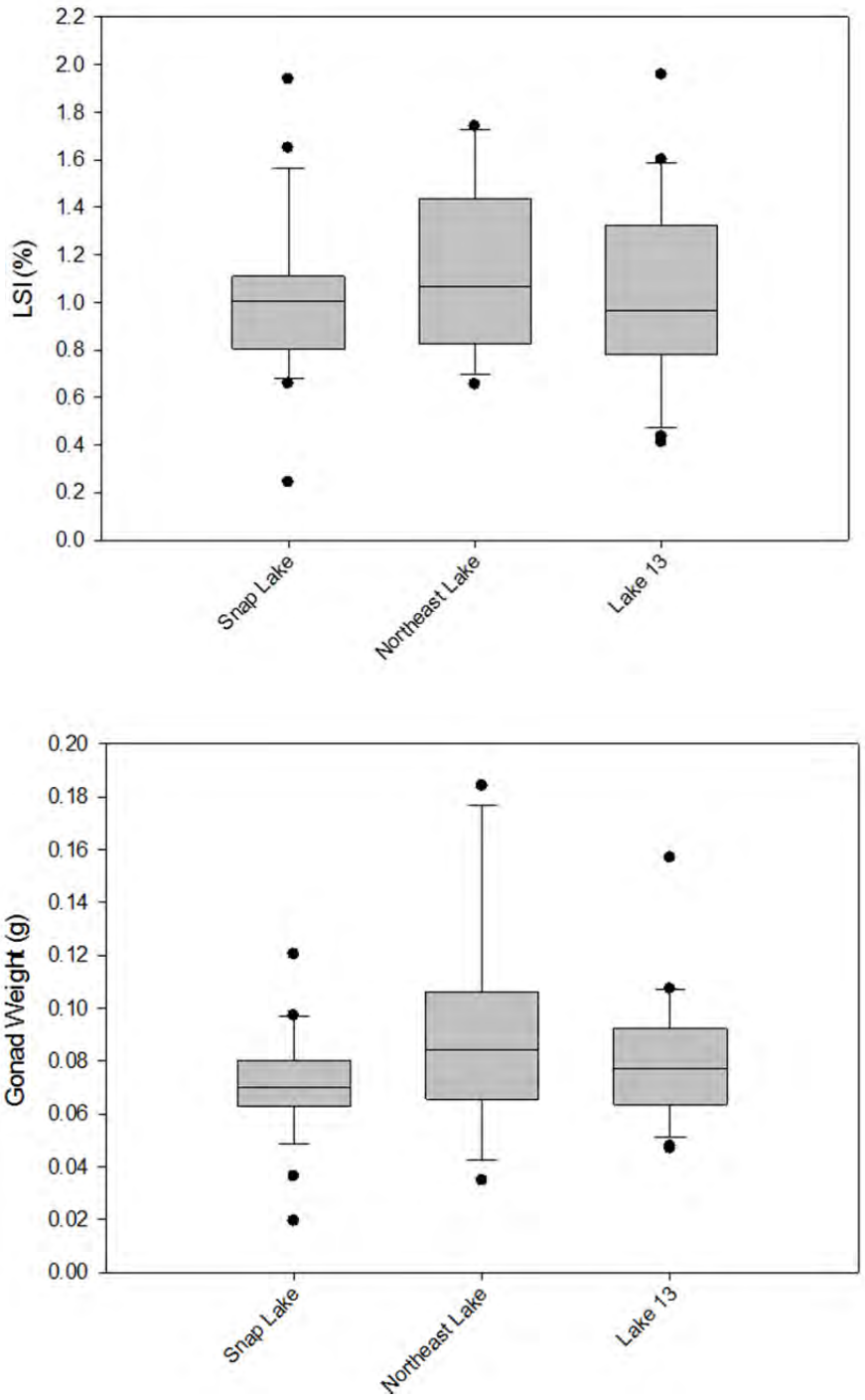


Figure 7E-2 Fish Health Endpoint Boxplots for Male Lake Chub Collected During the Lethal 2012 Fish Health Survey

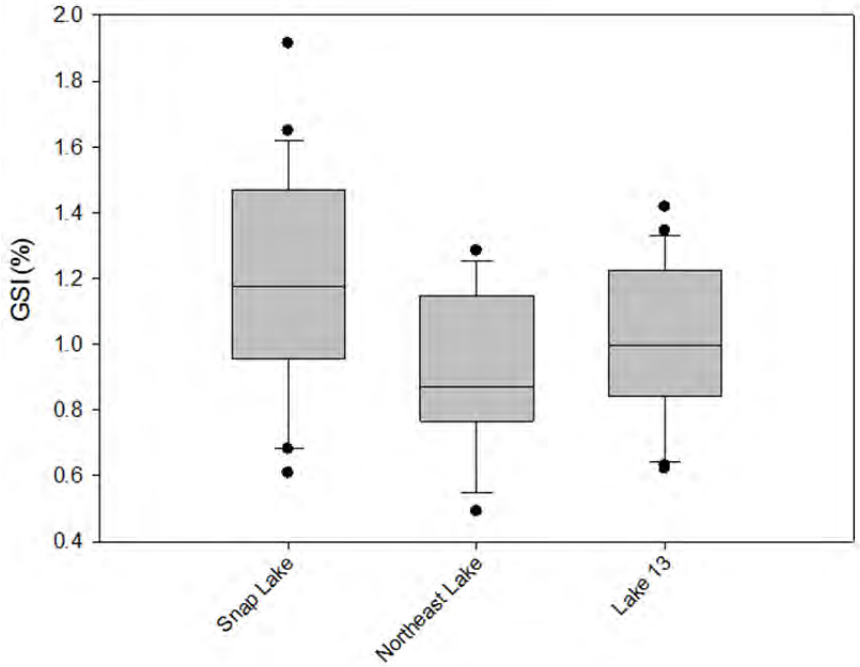


Figure 7E-3 Fish Health Endpoint Boxplots for Juvenile Lake Chub Collected During the Lethal 2012 Fish Health Survey

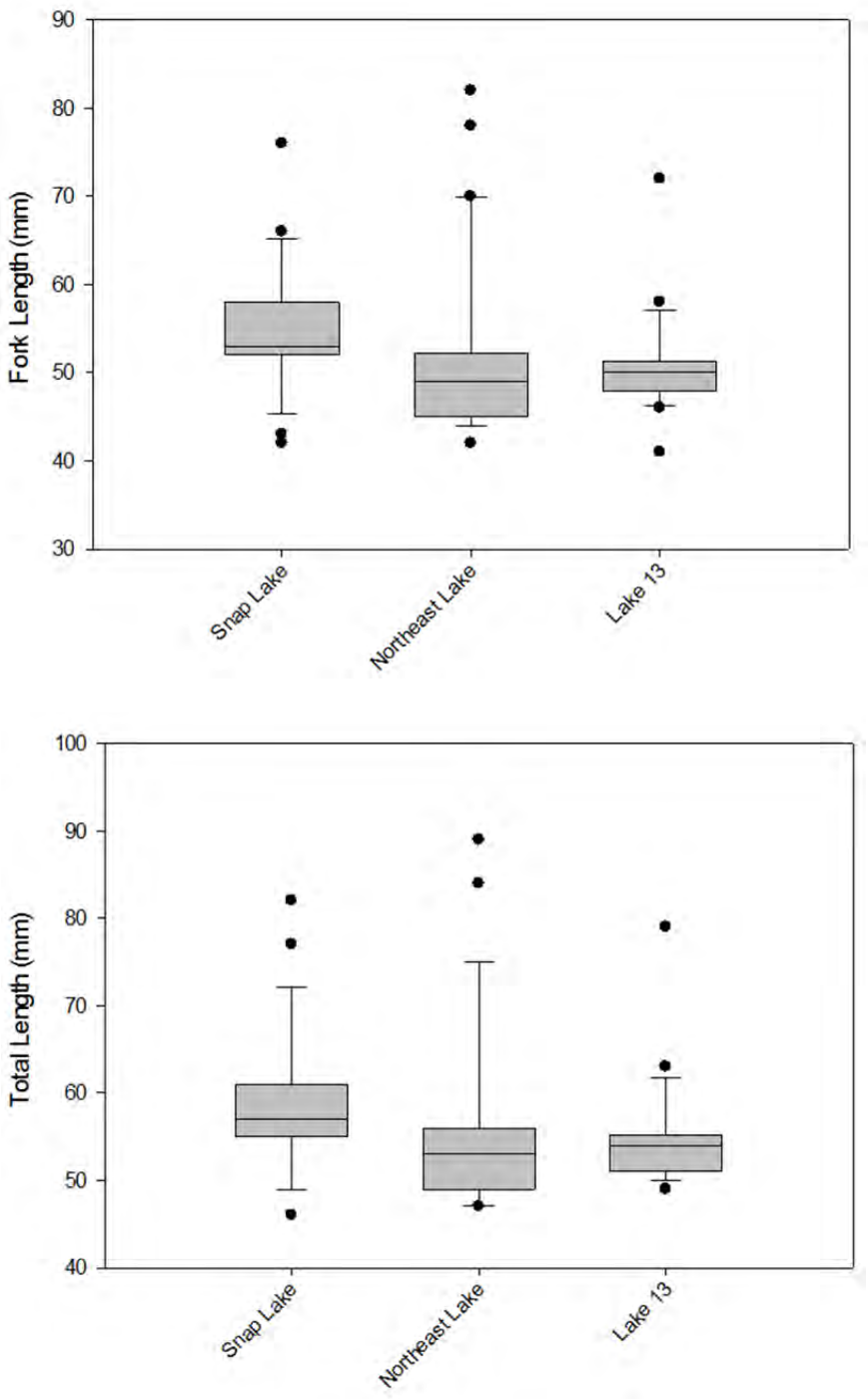


Figure 7E-3 Fish Health Endpoint Boxplots for Juvenile Lake Chub Collected During the Lethal 2012 Fish Health Survey

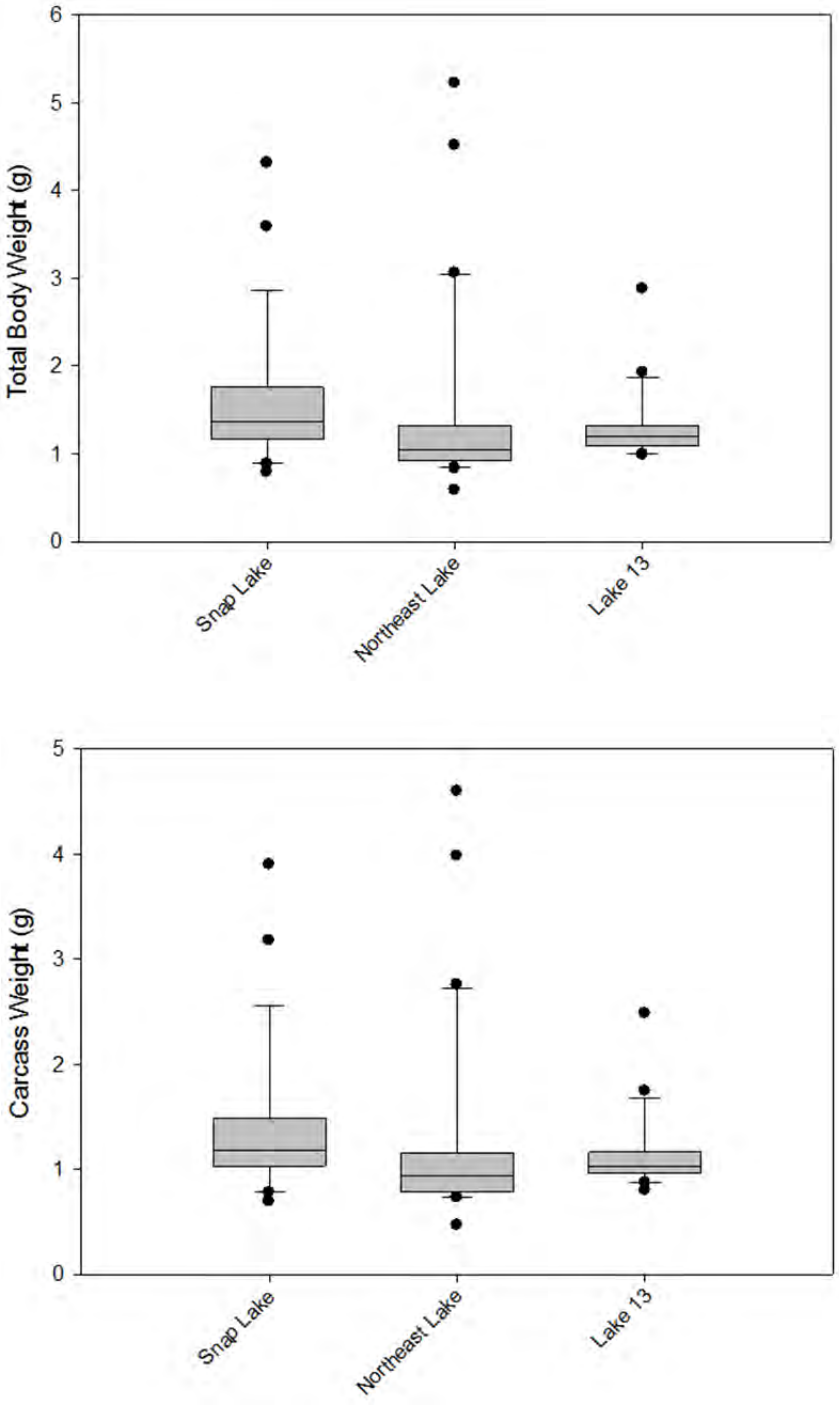


Figure 7E-3 Fish Health Endpoint Boxplots for Juvenile Lake Chub Collected During the Lethal 2012 Fish Health Survey

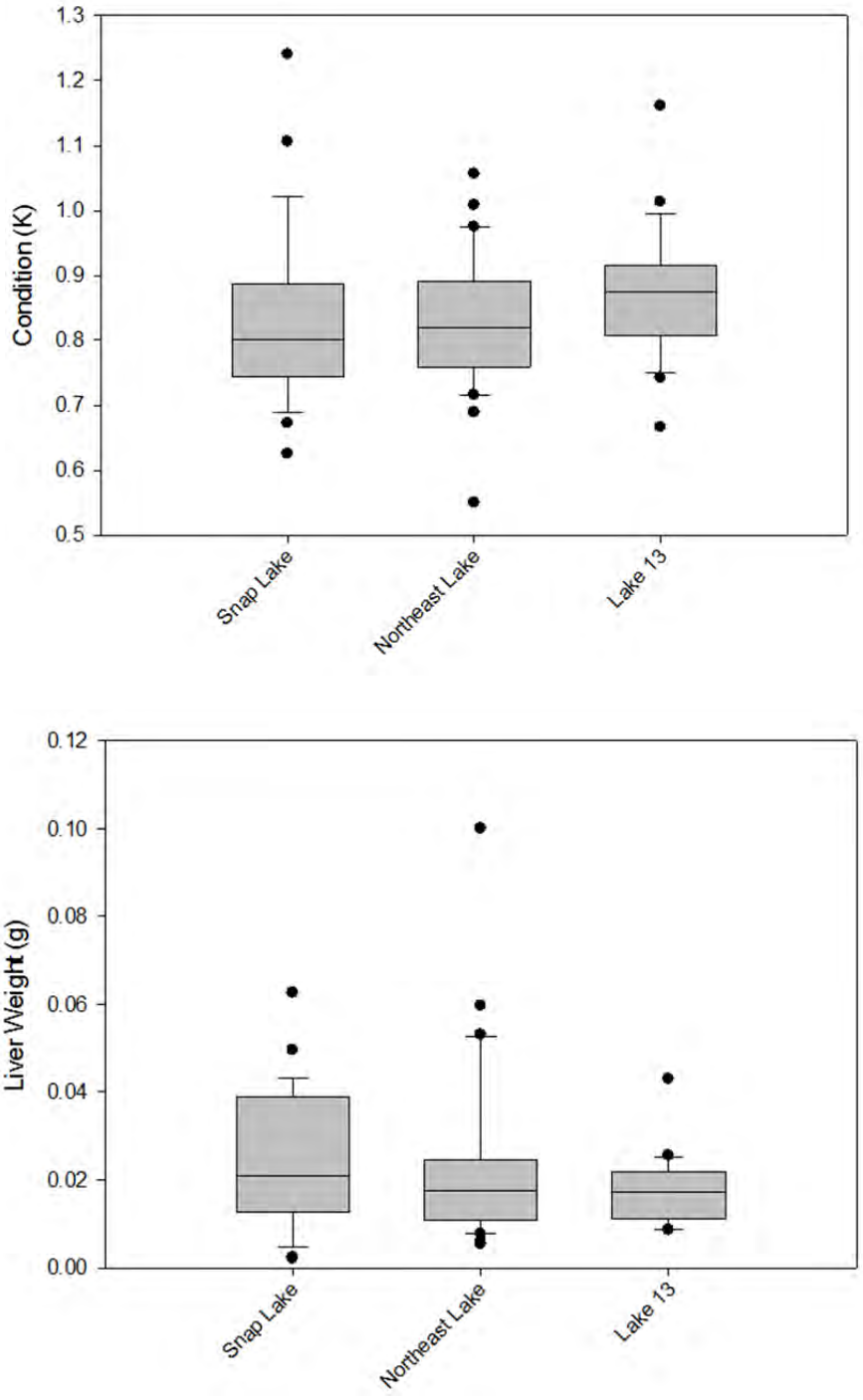
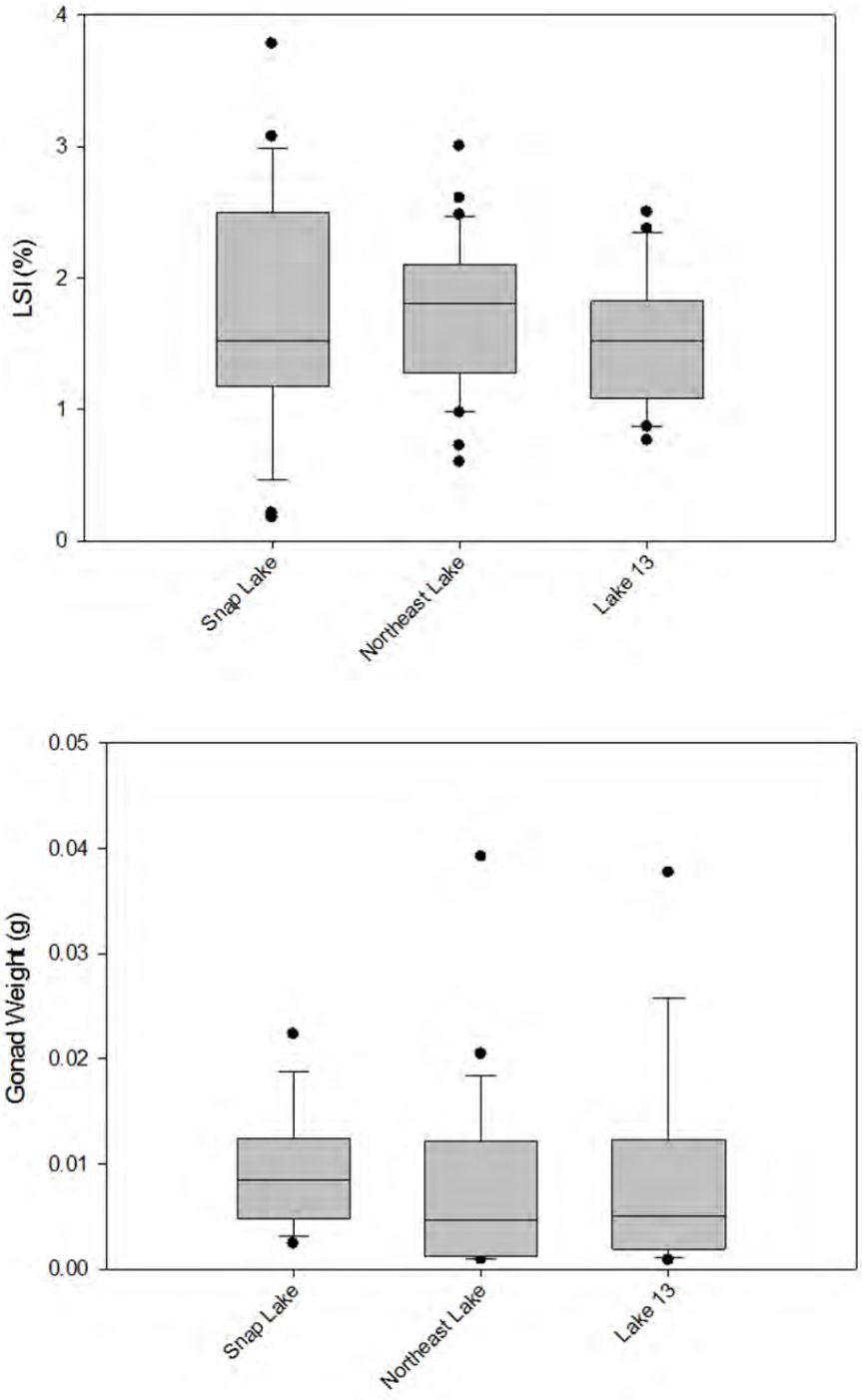


Figure 7E-3 Fish Health Endpoint Boxplots for Juvenile Lake Chub Collected During the Lethal 2012 Fish Health Survey



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Figure 7E-3 Fish Health Endpoint Boxplots for Juvenile Lake Chub Collected During the Lethal 2012 Fish Health Survey

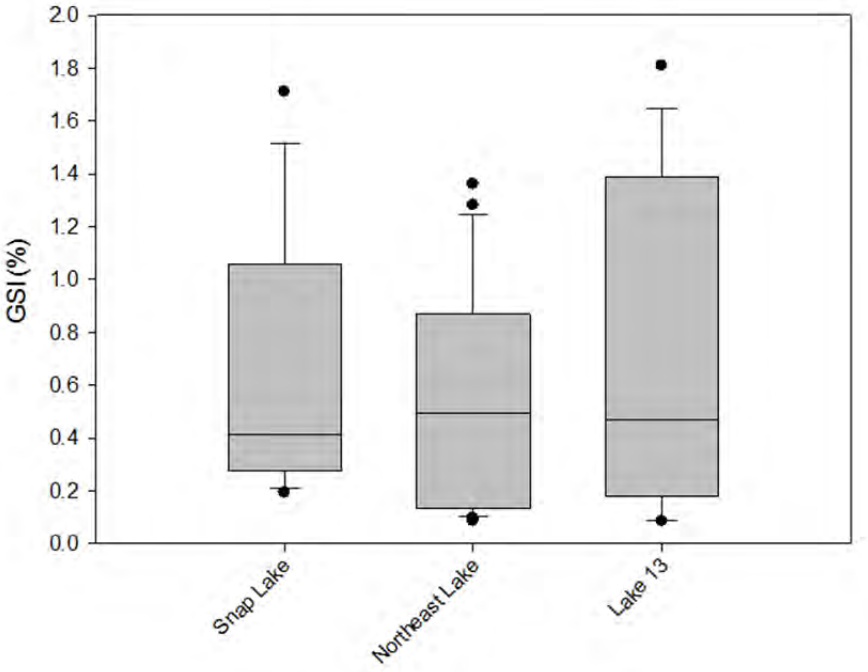


Figure 7E-4 Fish Health Endpoint Boxplots for Lake Chub Collected During the Non-Lethal 2012 Fish Health Survey

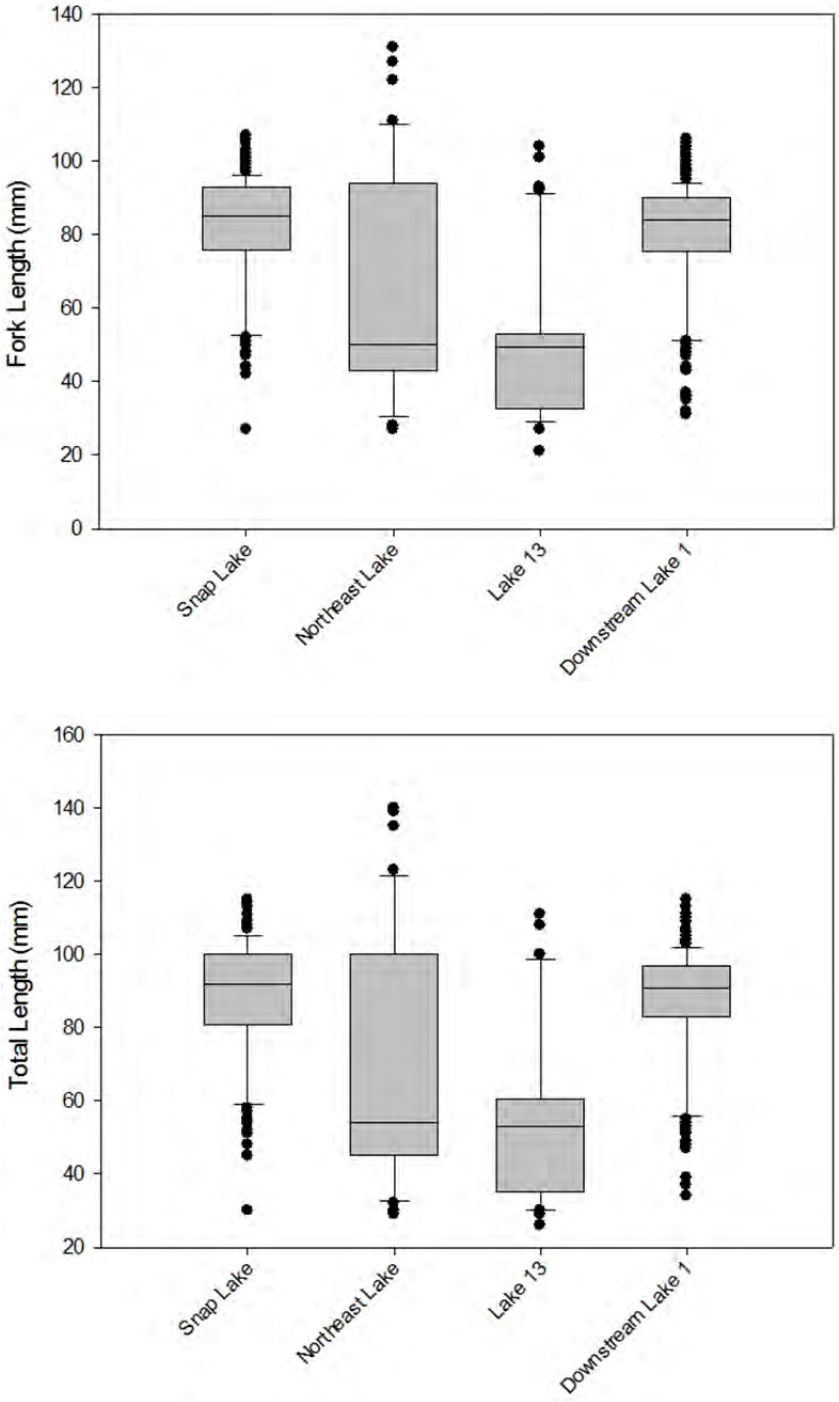
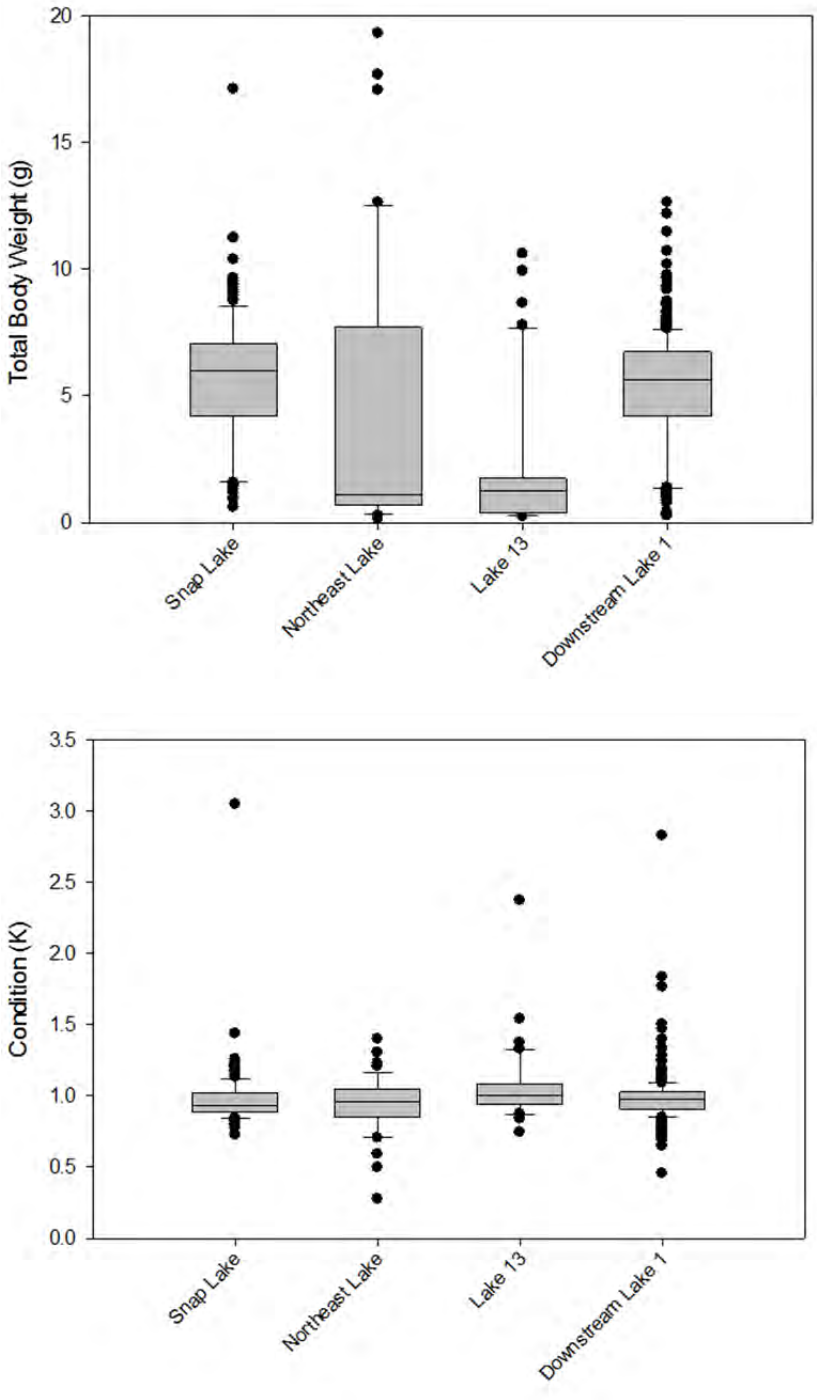


Figure 7E-4 Fish Health Endpoint Boxplots for Lake Chub Collected During the Non-Lethal 2012 Fish Health Survey



Total body weight was used to calculate condition (K).

Figure 7F-1 Snap Lake 2012 AEMP Length Frequency Distribution of Lethal and Non-Lethally Sampled Lake Chub in Snap Lake (a), Northeast Lake (b), Lake 13 (c) and Downstream Lake 1 (d)

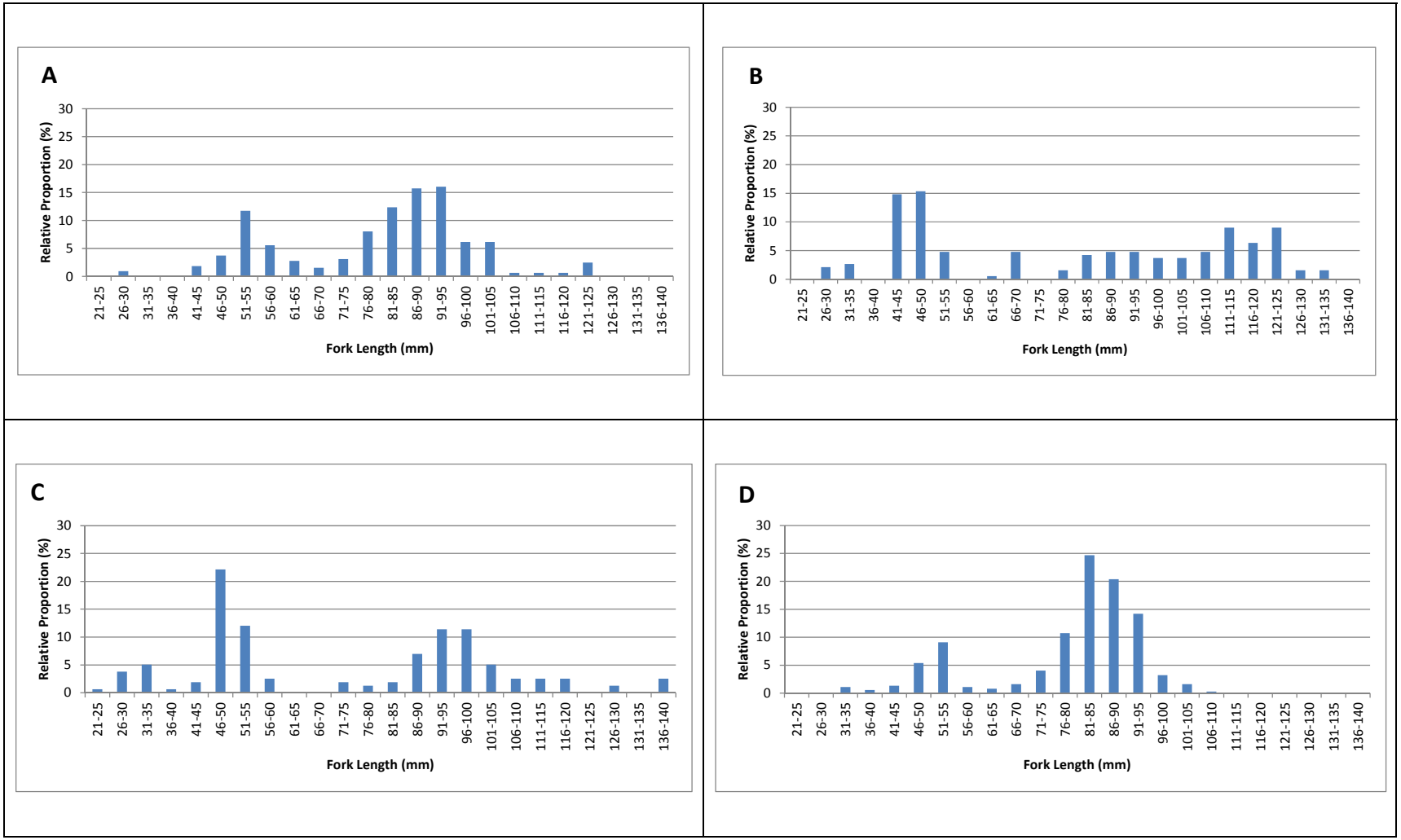
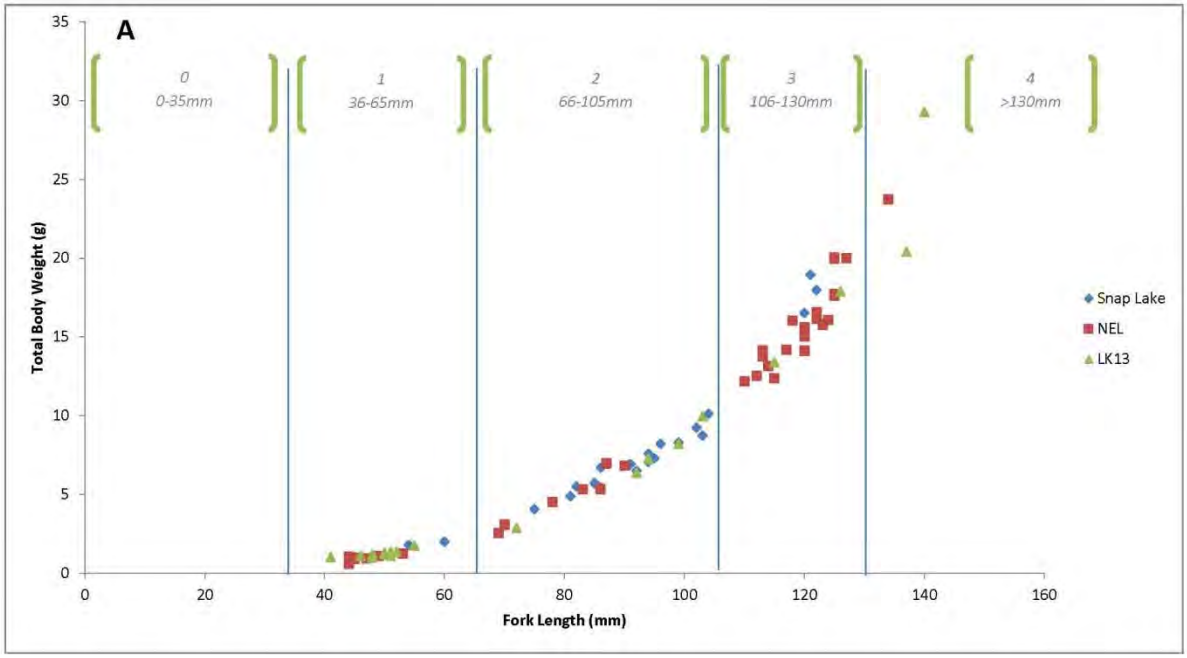


Figure 7F-2 Snap Lake 2012 AEMP Assigned Age Classes for Female (a) and Male (b) Lake Chub



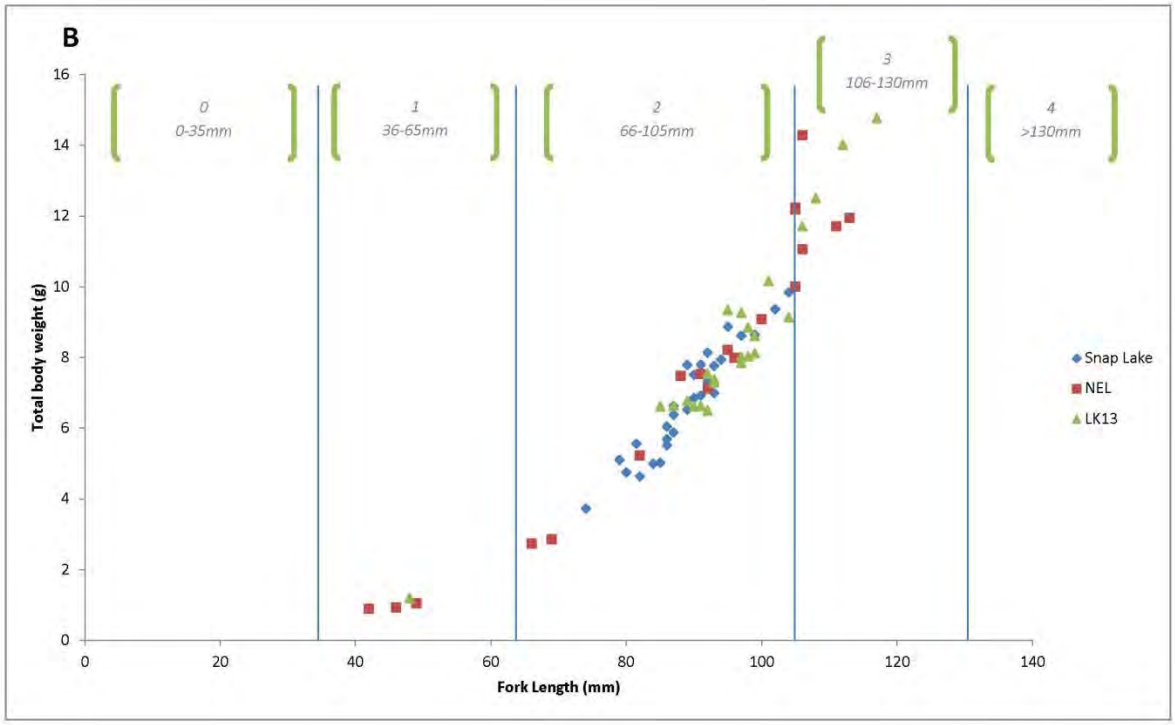


Table 7G-1 Fish Health Screening Statistics for Lethal Survey Analysis of Variance (ANOVA) Analyses for Male, Female and Juvenile Lake Chub from Snap Lake, Northeast Lake, and Lake 13

Variable	Maturity (Sex)	Raw					Log					TEST
		K-S Test			Bartlett	Levene	K-S Test			Bartlett	Levene	
		Exposure	Reference				Exposure	Reference				
		Snap Lake	Lake 13	NE Lake			Snap Lake	Lake 13	NE Lake			
Age	Adult (Male)	***	***	***	***	***	***	***	***	***	***	K-W
Fork Length	Adult (Male)	ns	ns	ns	ns	ns	ns	ns	*	ns	ns	ANOVA
Total Weight	Adult (Male)	ns	*	ns	ns	ns	ns	ns	ns	ns	ns	ANOVA[log]
Carcass Weight	Adult (Male)	ns	*	ns	ns	ns	ns	ns	ns	ns	ns	ANOVA[log]
Liver Weight	Adult (Male)	ns	*	ns	***	**	ns	ns	ns	ns	ns	ANOVA[log]
Gonad Weight	Adult (Male)	ns	ns	**	**	*	**	ns	ns	ns	ns	ANOVA[log]
Triglyceride	Adult (Male)	ns	ns	ns	*	ns	ns	ns	*	ns	ns	ANOVA[log]
Glycogen	Adult (Male)	*	ns	*	*	ns	ns	ns	*	ns	ns	ANOVA[log]
Age-2 (fork length) [(a)]	Adult (Male)	ns	ns	ns	**	**	ns	ns	ns	***	**	K-W
Age-2 (carcass weight) [(a)]	Adult (Male)	ns	ns	*	ns	*	ns	ns	**	***	***	K-W
Age-3 (fork length)	Adult (Male)	-	ns	*	ns	ns	-	ns	*	ns	ns	ANOVA
Age-3 (carcass weight)	Adult (Male)	-	ns	ns	ns	ns	-	ns	ns	ns	ns	ANOVA
Age	Adult (Female)	***	*	***	*	**	***	*	***	ns	**	K-W
Fork Length	Adult (Female)	ns	ns	**	ns	ns	ns	ns	***	ns	ns	ANOVA
Total Weight	Adult (Female)	**	ns	ns	ns	ns	ns	ns	**	ns	ns	ANOVA[log]
Carcass Weight	Adult (Female)	**	ns	ns	ns	*	ns	ns	**	ns	ns	ANOVA[log]
Liver Weight	Adult (Female)	***	ns	ns	*	ns	*	ns	ns	ns	ns	ANOVA[log]
Gonad Weight [(b)]	Adult (Female)	ns	ns	**	***	*	ns	ns	ns	ns	ns	ANOVA[log]
Fecundity	Adult (Female)	ns	ns	***	***	ns	ns	ns	ns	**	ns	K-W
Mean Egg Size	Adult (Female)	ns	ns	ns	*	*	ns	ns	ns	ns	*	K-W
Triglyceride	Adult (Female)	ns	*	**	ns	ns	ns	ns	**	ns	ns	ANOVA[log]
Glycogen	Adult (Female)	ns	ns	**	ns	ns	ns	ns	*	ns	ns	ANOVA[log]
Age-2 (fork length) [(a)]	Adult (Female)	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ANOVA
Age-2 (carcass weight) [(a)]	Adult (Female)	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ANOVA
Age-3 (fork length)	Adult (Female)	ns	ns	ns	ns	*	ns	ns	ns	ns	*	K-W
Age-3 (carcass weight)	Adult (Female)	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ANOVA
Age	Juvenile	***	***	***	*	**	***	***	***	*	**	K-W
Fork Length	Juvenile	***	***	***	**	*	**	**	***	*	*	K-W
Total Weight	Juvenile	***	***	***	***	**	ns	**	***	**	*	K-W
Carcass Weight	Juvenile	***	***	***	***	**	*	***	***	**	*	K-W
Liver Weight	Juvenile	ns	ns	***	***	*	ns	ns	ns	**	*	K-W
Triglyceride	Juvenile	ns	ns	ns	ns		ns	ns	ns	ns	ns	ANOVA[log]

Table 7G-1 Fish Health Screening Statistics for Lethal Survey Analysis of Variance (ANOVA) Analyses for Male, Female and Juvenile Lake Chub from Snap Lake, Northeast Lake, and Lake 13

Variable	Maturity (Sex)	Raw					Log					TEST
		K-S Test			Bartlett	Levene	K-S Test			Bartlett	Levene	
		Exposure	Reference				Exposure	Reference				
		Snap Lake	Lake 13	NE Lake			Snap Lake	Lake 13	NE Lake			
Glycogen	Juvenile	ns	*	ns	*		ns	ns	ns	ns	ns	ANOVA[log]
Age-1 (fork length)	Juvenile	**	ns	*	ns	ns	**	ns	*	ns	ns	K-W
Age-1 (carcass weight)	Juvenile	ns	**	ns	ns	ns	ns	*	ns	ns	ns	ANOVA[log]

Note: * $P<0.05$; ** $P<0.01$; *** $P<0.001$; "Raw" indicates screening performed on non-transformed data; "Log" indicates screening performed on log-transformed data.
(a) includes juvenile data;
(b) 1 LKCH removed due to resorbing gonads from all gonadal endpoints;
K-S = Kolmogorov-Smirnov test for normality; Bartlett = Bartlett's test for equality of variance; Levene = Levene's test for equality of variance; K-W = Kruskal-Wallis; ns = not significant; ANOVA = Analysis of Variance.

Table 7G-2 Fish Health Screening Statistics for Lethal Survey Analysis of Covariance (ANCOVA) Analyses for Male, Female and Juvenile Lake Chub from Snap Lake, Northeast Lake, and Lake 13

Variable	Maturity (Sex)	Normal				Log				TEST
		K-S Test			Probability plot of residuals linear?	K-S Test			Probability plot of residuals linear?	
		Exposure	Reference			Exposure	Reference			
		Snap Lake	Lake 13	NE Lake		Snap Lake	Lake 13	NE Lake		
Condition (Total Weight/FL)	Adult (Male)	ns	ns	ns	yes	ns	ns	ns	no	ANCOVA
Condition (Carcass Weight/FL)	Adult (Male)	ns	ns	ns	yes	ns	ns	ns	no	ANCOVA
LSI (Carcass Weight)	Adult (Male)	*	ns	ns	yes	ns	ns	ns	yes	ANCOVA^{log}
LSI (Fork Length)	Adult (Male)	RNS	ns	RNS	yes	ns	ns	ns	yes	ANCOVA^{log}
GSI (Carcass Weight)	Adult (Male)	ns	ns	ns	yes	RNS	ns	ns	yes	ANCOVA
GSI (Fork Length)	Adult (Male)	ns	RNS	RNS	no	RNS	ns	RNS	yes	-
Condition (Total Weight/FL)	Adult (Female)	ns	ns	ns	yes	ns	ns	ns	yes	ANCOVA
Condition (Carcass Weight/FL)	Adult (Female)	ns	ns	ns	yes	ns	ns	ns	yes	ANCOVA
LSI (Carcass Weight)	Adult (Female)	ns	ns	ns	yes	ns	ns	**	no	ANCOVA
LSI (Fork Length)	Adult (Female)	ns	ns	ns	yes	ns	*	*	no	ANCOVA
GSI (Carcass Weight)	Adult (Female)	ns	*	**	no	ns	ns	ns	yes	ANCOVA^{log}
GSI (Fork Length)	Adult (Female)	ns	ns	ns	no	ns	ns	ns	yes	ANCOVA^{log}
# of Eggs (Carcass Weight)	Adult (Female)	ns	ns	ns	no	ns	ns	ns	yes	ANCOVA^{log}
Condition (Total Weight/FL)	Juvenile	ns	ns	ns	yes	ns	ns	ns	yes	ANCOVA
Condition (Carcass Weight/FL)	Juvenile	ns	ns	ns	no	ns	ns	ns	yes	ANCOVA^{log}
LSI (Carcass Weight)	Juvenile	ns	ns	ns	yes	ns	ns	*	yes	ANCOVA
LSI (Fork Length)	Juvenile	ns	ns	ns	no	ns	*	ns	no	-

Note: * P< 0.05; ** P< 0.01; *** P<0.001, "Log" indicates screening performed on log-transformed data.

ns = not significant; K-S = Kolmogorov-Smirnov test for normality; GSI = gonadal somatic index; LSI = liver somatic index; FL = fork length;RNS = regression not significant; ANCOVA = Analysis of Covariance; - = cannot proceed with ANCOVA; # = number.

Table 7G-3 Fish Health Statistical Outliers Removed from the Lethal Survey Analyses of Variance (ANOVA) and Analysis of Covariance (ANCOVA) for Male, Female and Juvenile Lake Chub from Snap Lake, Northeast Lake, and Lake 13

Fish ID	CASE	Endpoint (s)	Analysis	Comments
SL12USL-LKCH-16036	102	Gonad Wt, GSI		Classified with resorbing gonads by histology and therefore removed from all gonadal endpoints
SL12USL-LKCH-17501	129	Log Gonad Wt	ANOVA - Males	SR = -4.216, removed from analysis
SL12USL-LKCH-17513	141	Log LSI	ANOVA - Males	SR = -4.207, removed from analysis
SL12USL-LKCH-16508	127	Log COND (carc)	ANOVA - Juveniles	SR = 3.391, removed from analysis
SL12UNEL-LKCH-19008	9	COND (total)	ANCOVA - Males	SR = 3.748, removed from analysis
SL12UNEL-LKCH-19008	9	COND (carc)	ANCOVA - Males	SR = 3.186, removed from analysis
SL12USL-LKCH-17513	141	LSI (carc)	ANCOVA - Males	SR = -3.114, removed from analysis
SL12ULK13-LKCH-22514	172	GSI (fl)	ANCOVA - Males	SR = 3.076, removed from analysis
SL12UNEL-LKCH-19008	9	Log COND (total)	ANCOVA - Males	SR = 3.146, removed from analysis
SL12USL-LKCH-17513	141	Log LSI (carc)	ANCOVA - Males	SR = -4.990, removed from analysis
SL12USL-LKCH-17513	141	Log LSI (fl)	ANCOVA - Males	SR = -4.655, removed from analysis
SL12USL-LKCH-17501	129	Log GSI (carc)	ANCOVA - Males	SR = -4.041, removed from analysis
SL12USL-LKCH-17523	149	Log GSI (carc)	ANCOVA - Males	SR = -3.200, removed from analysis
SL12USL-LKCH-17501	129	Log GSI (fl)	ANCOVA - Males	SR = -4.104, removed from analysis
SL12USL-LKCH-17523	149	Log GSI (fl)	ANCOVA - Males	SR = -3.253, removed from analysis
SL12ULK13-LKCH-22505	164	COND (total)	ANCOVA - Females	SR = 14.221, removed from analysis
SL12ULK13-LKCH-22505	164	COND (carc)	ANCOVA - Females	SR = 6.285, removed from analysis
SL12USL-LKCH-16043	107	LSI (carc)	ANCOVA - Females	SR = -3.124, removed from analysis
SL12ULK13-LKCH-22510	169	LSI (carc)	ANCOVA - Females	SR = -6.287, removed from analysis
SL12ULK13-LKCH-22505	164	LSI (fl)	ANCOVA - Females	SR = 3.657, removed from analysis
SL12ULK13-LKCH-22510	169	LSI (fl)	ANCOVA - Females	SR = -3.894, removed from analysis
SL12UNEL-LKCH-19010	11	GSI (carc)	ANCOVA - Females	SR = 3.484, removed from analysis
SL12UNEL-LKCH-19029	29	GSI (carc)	ANCOVA - Females	SR = 4.571, removed from analysis
SL12UNEL-LKCH-19010	11	GSI (fl)	ANCOVA - Females	SR = 3.894, removed from analysis
SL12UNEL-LKCH-19029	29	GSI (fl)	ANCOVA - Females	SR = 4.695, removed from analysis
SL12UNEL-LKCH-19062	60	FECUND (carc)	ANCOVA - Females	SR = 4.004, removed from analysis
SL12UNEL-LKCH-19010	11	FECUND (carc)	ANCOVA - Females	SR = 7.888, removed from analysis
SL12USL-LKCH-16019	89	FECUND (carc)	ANCOVA - Females	SR = -3.158, removed from analysis
SL12UNEL-LKCH-19017	17	Log GSI (carc)	ANCOVA - Females	SR = 3.050, removed from analysis
SL12ULK13-LKCH-22504	163	Log GSI (carc)	ANCOVA - Females	SR = 5.454, removed from analysis
SL12ULK13-LKCH-22504	163	Log GSI (fl)	ANCOVA - Females	SR = 3.074, removed from analysis
SL12UNEL-LKCH-19037	36	COND (total)	ANCOVA - Juveniles	SR = 3.869, removed from analysis
SL12USL-LKCH-16508	127	COND (total)	ANCOVA - Juveniles	SR = 3.059, removed from analysis

Table 7G-3 Fish Health Statistical Outliers Removed from the Lethal Survey Analyses of Variance (ANOVA) and Analysis of Covariance (ANCOVA) for Male, Female and Juvenile Lake Chub from Snap Lake, Northeast Lake, and Lake 13

Fish ID	CASE	Endpoint (s)	Analysis	Comments
SL12USL-LKCH-16020	90	COND (total)	ANCOVA - Juveniles	SR = 3.231, removed from analysis
SL12UL13-LKCH-21503	158	COND (total)	ANCOVA - Juveniles	SR = 4.131, removed from analysis
SL12UNEL-LKCH-19063	61	COND (total)	ANCOVA - Juveniles	SR = 5.364, removed from analysis
SL12USL-LKCH-16059	121	COND (total)	ANCOVA - Juveniles	SR = 4.293, removed from analysis
SL12UNEL-LKCH-19037	36	COND (carc)	ANCOVA - Juveniles	SR = 3.777, removed from analysis
SL12UNEL-LKCH-19063	61	COND (carc)	ANCOVA - Juveniles	SR = 5.110, removed from analysis
SL12UNEL-LKCH-19037	36	LSI (carc)	ANCOVA - Juveniles	SR = 3.001, removed from analysis
SL12USL-LKCH-16044	108	LSI (carc)	ANCOVA - Juveniles	SR = 3.358, removed from analysis
SL12UNEL-LKCH-19016	16	LSI (fl)	ANCOVA - Juveniles	SR = -3.730, removed from analysis
SL12UNEL-LKCH-19037	36	LSI (fl)	ANCOVA - Juveniles	SR = 4.692, removed from analysis
SL12UNEL-LKCH-19016	15	Log COND (total)	ANCOVA - Juveniles	SR = -3.473, removed from analysis
SL12USL-LKCH-16508	127	Log COND (total)	ANCOVA - Juveniles	SR = 4.073, removed from analysis
SL12UL13-LKCH-21503	158	Log COND (total)	ANCOVA - Juveniles	SR = 3.340, removed from analysis
SL12UNEL-LKCH-19016	15	Log COND (carc)	ANCOVA - Juveniles	SR = -4.328, removed from analysis
SL12USL-LKCH-16508	127	Log COND (carc)	ANCOVA - Juveniles	SR = 3.409, removed from analysis
SL12USL-LKCH-17511	139	Log LSI (carc)	ANCOVA - Juveniles	SR = -3.504, removed from analysis
SL12USL-LKCH-17512	140	Log LSI (carc)	ANCOVA - Juveniles	SR = -3.059, removed from analysis
SL12USL-LKCH-17511	139	Log LSI (fl)	ANCOVA - Juveniles	SR = -3.459, removed from analysis
SL12USL-LKCH-17512	140	Log LSI (fl)	ANCOVA - Juveniles	SR = -3.035, removed from analysis
SL12USL-LKCH-16502	123	Log LSI (fl)	ANCOVA - Juveniles	SR = -3.604, removed from analysis

LSI = liver somatic index; GSI = gonadal somatic index; Log= Logarithm; SR = standardized residuals; carc. = carcass; fl = fork length; Wt. = weight; ANOVA = Analysis of Variance; ID = identification; ANCOVA =Analysis of Covariance.

Table 7G-4 Fish Health Summary Statistics for Lethally Sampled Male, Female and Juvenile Lake Chub from Snap Lake, Northeast Lake, and Lake 13

Endpoint	Unit	Exposure -Snap Lake							Reference - Lake 13							Reference - Northeast Lake							Reference - Combined						
		n	Minimum	Maximum	Median	Mean	± SE	± SD	n	Minimum	Maximum	Median	Mean	± SE	± SD	n	Minimum	Maximum	Median	Mean	± SE	± SD	n	Minimum	Maximum	Median	Mean	± SE	± SD
Juvenile																													
Age	y	27	1	2	1	1.11	0.06	0.32	22	1	2	1	1.05	0.05	0.21	30	1	2	1	1.20	0.07	0.41	52	1	2	1	1.14	0.05	0.35
Fork Length	mm	27	42	76	53	54	1	7	22	41	72	50	51	1	6	30	42	82	49	52	2	11	52	41	82	50	52	1	9
Total Body Weight	g	27	0.8	4.3	1.4	1.6	0.2	0.8	22	1.0	2.9	1.2	1.3	0.1	0.4	30	0.6	5.2	1.1	1.5	0.2	1.1	52	0.6	5.2	1.1	1.4	0.1	0.9
Carcass Weight	g	27	0.7	3.9	1.2	1.4	0.1	0.7	22	0.80	2.49	1.03	1.14	0.08	0.37	30	0.5	4.6	0.9	1.3	0.2	1.0	52	0.5	4.6	1.0	1.2	0.1	0.8
Liver Weight	g	26	0.00	0.06	0.02	0.02	0.00	0.02	20	0.01	0.04	0.02	0.02	0.00	0.01	30	0.01	0.10	0.02	0.02	0.00	0.02	52	0.01	0.10	0.02	0.02	0.00	0.02
LSI	-	26	0.17	3.78	1.53	1.75	0.17	0.88	20	0.76	2.50	1.52	1.53	0.11	0.49	30	0.60	3.00	1.81	1.74	0.11	0.58	50	0.60	3.00	1.75	1.65	0.08	0.55
Triglyceride (protein normalized)	-	5	0.009	0.025	0.019	0.017	0.003	0.007	5	0.015	0.052	0.026	0.030	0.006	0.015	5	0.020	0.044	0.031	0.031	0.004	0.009	10	0.015	0.052	0.031	0.031	0.004	0.011
Glycogen (protein normalized)	-	5	0.015	0.066	0.033	0.038	0.008	0.019	5	0.015	0.187	0.023	0.058	0.033	0.073	5	0.067	0.202	0.147	0.145	0.022	0.049	10	0.014	0.202	0.104	0.101	0.024	0.075
Condition (carcass weight)	-	27	0.62	1.24	0.80	0.83	0.03	0.13	22	0.67	1.16	0.88	0.87	0.02	0.10	30	0.55	1.06	0.82	0.83	0.02	0.10	52	0.55	1.16	0.84	0.85	0.01	0.10
Condition (total weight)	-	27	0.73	1.57	0.92	0.96	0.03	0.17	22	0.77	1.46	0.99	1.00	0.03	0.13	30	0.69	1.21	0.94	0.95	0.02	0.12	52	0.69	1.46	0.96	0.97	0.02	0.13
Male																													
Age	y	29	2	2	2	2.00	0.00	0.00	23	2	3	2	2.2	0.1	0.4	13	2	3	2	2.5	0.1	0.5	36	2	3	2	2.3	0.1	0.5
Fork Length	mm	29	74	104	89	89	1	7	23	85	117	97	97	2	8	13	88	113	105	101	2	8	36	85	117	98	99	1	8
Total Body Weight	g	29	3.7	9.8	6.8	6.8	0.3	1.6	23	6.5	14.8	8.0	8.8	0.5	2.4	13	7.1	14.3	10.0	10.1	0.6	2.3	36	6.5	14.8	8.4	9.3	0.4	2.4
Carcass Weight	g	29	3.2	9.3	6.1	6.2	0.3	1.5	21	6.04	13.38	7.45	8.03	0.47	2.14	12	6.6	12.9	9.3	9.2	0.7	2.3	33	6.0	13.4	7.6	8.4	0.4	2.2
Gonad Weight	g	29	0.02	0.12	0.07	0.07	0.00	0.02	23	0.05	0.16	0.08	0.08	0.01	0.02	13	0.04	0.18	0.08	0.09	0.01	0.04	36	0.04	0.18	0.08	0.09	0.01	0.03
Liver Weight	g	26	0.02	0.10	0.06	0.06	0.00	0.02	23	0.03	0.21	0.08	0.09	0.01	0.05	13	0.04	0.22	0.09	0.11	0.02	0.05	36	0.03	0.22	0.08	0.10	0.01	0.05
GSI	-	29	0.61	1.91	1.17	1.16	0.06	0.33	21	0.62	1.42	0.99	1.01	0.05	0.24	12	0.49	1.28	0.87	0.92	0.07	0.23	33	0.49	1.42	0.97	0.98	0.04	0.24
LSI	-	26	0.24	1.94	1.01	1.02	0.07	0.35	21	0.41	1.96	0.97	1.04	0.09	0.39	12	0.65	1.74	1.07	1.13	0.10	0.36	33	0.41	1.96	1.03	1.08	0.07	0.38
Triglyceride (protein normalized)	-	5	0.004	0.021	0.009	0.010	0.003	0.006	5	0.024	0.071	0.039	0.043	0.008	0.018	5	0.014	0.031	0.027	0.025	0.003	0.007	10	0.014	0.071	0.030	0.034	0.005	0.016
Glycogen (protein normalized)	-	5	0.011	0.259	0.027	0.077	0.046	0.104	5	0.022	0.286	0.029	0.092	0.050	0.112	5	0.013	0.071	0.015	0.034	0.012	0.027	10	0.013	0.286	0.029	0.063	0.026	0.083
Condition (carcass weight)	-	29	0.75	1.02	0.86	0.86	0.01	0.06	21	0.76	1.01	0.86	0.87	0.02	0.07	12	0.76	1.08	0.85	0.88	0.03	0.10	33	0.76	1.08	0.86	0.87	0.01	0.08
Condition (total weight)	-	29	0.82	1.10	0.94	0.94	0.01	0.07	23	0.81	1.09	0.92	0.94	0.02	0.08	13	0.83	1.20	0.93	0.97	0.03	0.11	36	0.81	1.20	0.93	0.95	0.02	0.09
Female																													
Age	y	20	2	3	2	2.3	0.1	0.4	8	2	4	3	2.8	0.3	0.9	26	2	4	3	2.9	0.1	0.4	34	2	4	3	2.9	0.1	0.6
Fork Length	mm	20	82	125	96	100	3	14	8	92	140	109	113	7	19	26	83	134	120	115	3	14	34	83	140	119	115	3	15
Total Body Weight	g	20	5.4	20.1	7.9	9.9	1.1	5.0	8	6.4	29.3	11.7	14.1	2.8	8.0	26	5.3	23.7	14.6	14.4	0.9	4.5	34	5.3	29.3	14.2	14.4	0.9	5.4
Carcass Weight	g	20	4.2	17.1	6.7	8.4	0.9	4.1	8	5.57	23.86	9.57	11.93	2.29	6.47	26	4.4	18.4	12.7	11.9	0.7	3.5	34	4.4	23.9	12.4	11.9	0.7	4.3
Gonad Weight	g	19	0.21	0.90	0.50	0.47	0.05	0.21	8	0.23	1.56	0.50	0.67	0.17	0.47	26	0.20	2.88	0.58	0.81	0.13	0.64	34	0.20	2.88	0.58	0.77	0.10	0.60
Fecundity	# of eggs	19	366	1447	857	901	79	343	5	951	1391	1090	118	77	172	22	148	3722	606	746	160	750	27	148	3722	707	815	133	693
Mean Egg Diameter	µm	19	615	1193	807	831	38	167	5	682	1477	939	1051	171	383	22	714	1513	1054	1091	59	277	27	682	1513	1047	1084	56	291
Liver Weight	g	20	0.09	0.44	0.15	0.19	0.02	0.11	8	0.07	0.73	0.23	0.29	0.08	0.22	25	0.08	0.67	0.33	0.34	0.03	0.15	33	0.07	0.73	0.31	0.33	0.03	0.17
GSI	-	19	3.40	15.50	4.97	6.37	0.77	3.35	8	4.07	11.08	4.36	5.43	0.86	2.42	26	2.86	15.60	5.09	6.37	0.70	3.56	34	2.86	15.60	4.82	6.15	0.57	3.31
LSI	-	20	1.47	3.42	2.28	2.25	0.12	0.54	8	1.32	3.04	2.01	2.16	0.23	0.64	25	1.32	4.08	3.07	2.81	0.16	0.80	33	1.32	4.08	2.70	2.65	0.14	0.81
Triglyceride (protein normalized)	-	5	0.002	0.015	0.010	0.008	0.002	0.005	5	0.009	0.018	0.011	0.012	0.002	0.003	5	0.004	0.026	0.005	0.009	0.004	0.010	10	0.004	0.026	0.009	0.010	0.002	0.007
Glycogen (protein normalized)	-	5	0.002	0.262	0.034	0.098	0.051	0.113	5	0.028	0.194	0.122	0.106	0.031	0.069	5	0.014	0.103	0.025	0.038	0.016	0.037	10	0.014	0.194	0.036	0.072	0.020	0.063
Condition (carcass weight)	-	20	0.67	0.89	0.76	0.78	0.01	0.06	8	0.69	0.87	0.75	0.76	0.02	0.06	26	0.68	0.90	0.76	0.76	0.01	0.05	34	0.68	0.90	0.76	0.76	0.01	0.05
Condition (total weight)	-	20	0.80	1.07	0.92	0.92	0.02	0.08	8	0.79	1.07	0.88	0.88	0.03	0.09	26	0.81	1.06	0.91	0.92	0.01	0.07	34	0.79	1.07	0.90	0.91	0.01	0.07

n = sample size; SD = standard deviation; SE = standard error; mm = millimetres; µm = micrometres; g = grams; y = years; # = number; GSI = gonadosomatic index; LSI = liversomatic index; - = not applicable

Table 7G-5 Fish Health Summary Statistics for Non-Lethally Sampled Adult, Juvenile and Young-of-Year Lake Chub from Snap Lake, Northeast Lake, and Lake 13

Gender	Endpoint	Unit	Exposure -Snap Lake							Exposure - Downstream Lake 1						
			n	Minimum	Maximum	Median	Mean	± SE	± SD	n	Minimum	Maximum	Median	Mean	± SE	± SD
YOY	Fork Length	mm	3	27	27	27	27	0	0	3	31	32	31	31.3333	0.3333	0.5774
	Total Body Weight	g	3	0.6	0.6	0.6	0.6	0	0	3	0.253	0.343	0.275	0.2903	0.0271	0.0469
	Condition (total weight)	-	3	3.0483	3.0483	3.0483	3.0483	0	0	3	0.7721	1.1514	0.9231	0.9488	0.1102	0.1909
Juvenile	Fork Length	mm	29	42	65	56	55.2069	1.1451	6.1666	69	35	65	52	51.0725	0.6267	5.2055
	Total Body Weight	g	29	0.9	2.876	1.69	1.7742	0.1009	0.5432	69	0.388	3.423	1.391	1.3925	0.0493	0.4095
	Condition (total weight)	-	29	0.798	1.2574	1.0408	1.0327	0.0241	0.13	69	0.7934	1.834	1.0066	1.0289	0.0209	0.174
Adult	Fork Length	mm	114	66	107	89	88.3246	0.7524	8.0337	301	67	106	85	85.9502	0.3968	6.8839
	Total Body Weight	g	115	2.56	17.1124	6.453	6.5772	0.1734	1.8593	301	2.597	12.631	6.014	6.1842	0.0846	1.4676
	Condition (total weight)	-	114	0.7254	1.4368	0.9191	0.9385	0.009	0.0961	301	0.4549	1.4697	0.9626	0.9634	0.0064	0.1103

Gender	Endpoint	Unit	Reference - Lake 13							Reference - Northeast Lake							Reference - Combined						
			n	Minimum	Maximum	Median	Mean	± SE	± SD	n	Minimum	Maximum	Median	Mean	± SE	± SD	n	Minimum	Maximum	Median	Mean	± SE	± SD
YOY	Fork Length	mm	15	21	34	31	30.4	0.9092	3.5214	8	27	33	29.5	29.875	0.9342	2.6424	23	21	34	31	30.217	0.665	3.19
	Total Body Weight	g	13	0.214	0.3815	0.2921	0.301	0.0157	0.0567	8	0.147	0.458	0.2945	0.2899	0.0397	0.1122	21	0.147	0.458	0.292	0.297	0.017	0.08
	Condition (total weight)	-	13	0.7432	2.3734	1.0872	1.1667	0.1105	0.3983	8	0.7468	1.3977	1.0671	1.0437	0.077	0.2179	21	0.743	2.373	1.087	1.12	0.074	0.34
Juvenile	Fork Length	mm	18	36	53	50.5	49.3333	1.029	4.3656	20	35	64	47	46.9	1.3097	5.8571	38	35	64	49.5	48.0526	0.8567	5.281
	Total Body Weight	g	18	0.481	1.763	1.2764	1.2614	0.0688	0.2918	19	0.3934	1.5367	0.858	0.9054	0.0669	0.2916	37	0.3934	1.763	1.0619	1.0786	0.0558	0.3395
	Condition (total weight)	-	18	0.8423	1.5407	0.9972	1.0425	0.0417	0.1767	19	0.2745	1.303	0.8702	0.8874	0.0573	0.2497	37	0.2745	1.5407	0.979	0.9629	0.0375	0.2283
Adult	Fork Length	mm	9	75	104	89	88.2222	3.4188	10.2564	19	67	131	95	98.2632	3.9713	17.3104	28	67	131	93.5	95.0357	3.0103	15.9292
	Total Body Weight	g	9	3.904	10.611	6.75	6.9639	0.8098	2.4293	19	3.2808	19.3092	8.2925	9.6261	1.0522	4.5863	28	3.2808	19.3092	8.0242	8.7704	0.7877	4.1683
	Condition (total weight)	-	9	0.8888	1.0875	0.9601	0.9777	0.022	0.0661	19	0.5891	1.121	0.9672	0.9606	0.0264	0.1149	28	0.5891	1.121	0.9613	0.9661	0.019	0.1008

YOY = young-of-the-year; n = sample size; SD = standard deviation; SE = standard error; mm = millimetres; g = grams; GSI = gonadosomatic index; LSI = liversomatic index; - = not applicable

Table 7G-6 Fish Health Screening Statistics for Non-Lethal Survey Analysis of Variance (ANOVA) Analyses for Adult and Juvenile Lake Chub from Snap Lake, Northeast Lake, and Lake 13

Vari	Maturity	Raw						Log						TEST
		K-S Test						K-S Test						
		Exposure		Reference				Exposure		Reference				
		Snap Lake	DS Lake 1	Lake 13	NE Lake	Bartlett	Levene	Snap Lake	DS Lake 1	Lake 13	NE Lake	Bartlett	Levene	
Fork Length	Adult	ns	**	ns	ns	***	***	*	**	ns	ns	***	***	K-W
Total Body Weight	Adult	**	**	ns	ns	***	***	ns	ns	ns	ns	***	*	K-W
Condition (tot. weight)	Adult	*	***	ns	ns	ns	ns	ns	***	ns	ns	*	ns	K-W
Age-2 Fork Length	Adult	*	**	ns	ns	ns	ns	**	**	ns	ns	ns	ns	K-W
Age-2 Total Body Weight	Adult	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	*	K-W
Fork Length	Juvenile	ns	**	**	ns	ns	ns	*	***	***	ns	ns	ns	K-W
Total Body Weight	Juvenile	ns	***	ns	ns	**	*	ns	***	ns	ns	ns	ns	K-W
Condition (tot. weight)	Juvenile	ns	***	**	ns	*	ns	ns	***	*	*	***	***	K-W

Note: * *P*< 0.05; ** *P*< 0.01; *** *P*<0.001, "Raw" indicates screening performed on non-transformed data; "Log" indicates screening performed on log-transformed data.

DS = Downstream; NE = Northeast; K-S = = Kolmogorov-Smirnov test for normality; Bartlett = Bartlett's test for equality of variance; Levene = Levene's test for equality of variance; K-W = Kruskal-Wallis; ns = not significant.

Table 7G-7 Fish Health Screening Statistics for the Non-Lethal Survey Analysis of Covariance (ANCOVA) Analyses for Adult and Juvenile Lake Chub from Snap Lake, Northeast Lake, and Lake 13

Vari	Maturity	Raw					Log					TEST
		K-S Test				Probability plots of residuals linear?	K-S Test				Prob plots of residuals linear?	
		Exposure		Reference			Exposure		Reference			
		Snap Lake	DS Lake 1	Lake 13	NE Lake		Snap Lake	DS Lake 1	Lake 13	NE Lake		
Condition (Total Weight/FL)	Adult	ns	**	ns	***	no	ns	ns	ns	ns	yes	$ANCOVA^{log}$
Condition (Total Weight/FL)	Juvenile	ns	***	**	ns	yes	ns	**	**	ns	yes	$ANCOVA^{log}$

Note: Note: * *P*< 0.05; ** *P*< 0.01; *** *P*<0.001, "Raw" indicates screening performed on non-transformed data; "Log" indicates screening performed on log-transformed data.

DS = Downstream; NE = Northeast; ns = not significant; K-S = = Kolmogorov-Smirnov test for normality; RNS = regression not significant; ANCOVA = Analysis of Covariance; - cannot proceed with ANCOVA

Table 7G-8 Fish Health Statistical Outliers Removed from the Non-Lethal Survey Analyses of Variance (ANOVA) and Analysis of Covariance (ANCOVA) for Adult and Juvenile Lake Chub from Snap Lake, Northeast Lake, and Lake 13

Fish ID	CASE	Endpoint	Analysis	Comments
NEL57	177	Condition (total)	ANCOVA - juv	SR = -3.567, removed from analysis
DS225	461	Condition (total)	ANCOVA - juv	SR = 7.532, removed from analysis
SL28	5	Condition (total)	ANCOVA - adult	SR = 12.289, removed from analysis
DS16	252	Condition (total)	ANCOVA - adult	SR = 4.613, removed from analysis
DS24	260	Condition (total)	ANCOVA - adult	SR = 5.010, removed from analysis
DS219	455	Condition (total)	ANCOVA - adult	SR = 5.253, removed from analysis
DS343	560	Condition (total)	ANCOVA - adult	SR = -4.871, removed from analysis
NEL57	177	Log Condition (total)	$ANCOVA^{Log}$ - juv	SR = -3.294, removed from analysis
DS259	483	Log Condition (total)	$ANCOVA^{Log}$ - juv	SR = 3.985, removed from analysis
DS300	517	Log Condition (total)	$ANCOVA^{Log}$ - juv	SR = 4.014, removed from analysis
SL28	5	Log Condition (total)	$ANCOVA^{Log}$ - adult	SR = 5.932, removed from analysis
NEL47	167	Log Condition (total)	$ANCOVA^{Log}$ - adult	SR = -7.947, removed from analysis
DS219	455	Log Condition (total)	$ANCOVA^{Log}$ - adult	SR = 4.1395, removed from analysis
DS343	560	Log Condition (total)	$ANCOVA^{Log}$ - adult	SR = -7.004, removed from analysis

Log = Logarithm; ID = identification; ANCOVA = Analysis of Covariance; SR = standardized residuals; juv = juvenile.

Table 7H-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Female Fecundity Results and Calculations for Select Gonad Samples from Snap Lake, Northeast Lake and Lake 13

Waterbody	Fish ID #	# of Eggs in Sample	Total Gonad Wt. (g)	Lobe Wt-Field (g)	Lobe Wt- Lab	Sub-sample Wt-Lab (g)	Fecundity Calculation	Mean Egg Diameter (µm)	Comments
LK13	SL12ULK13-LKCH-21504	568	0.6314	0.329	0.381	-	1090	939	
LK13	SL12ULK13-LKCH-21505	1	0.0796	0.0233	0.033	-	3	744	Only 1 egg. Rest of ovary appears as a solid mass
LK13	SL12ULK13-LKCH-22504	193	1.1614	0.4463	0.564	0.298	951	1435	Lab took subsample; Egg count=196, QA count=190
LK13	SL12ULK13-LKCH-22505	391	1.5546	1.1011	1.159	0.46	1391	1477	Lab took subsample
LK13	SL12ULK13-LKCH-22507	340	0.3748	0.1978	0.242	0.156	999	722	Lab took subsample
LK13	SL12ULK13-LKCH-22510	578	0.7521	0.3754	0.618	-	1158	682	
NEL	SL12UNEL-LKCH-19001	302	0.4726	0.2123	0.283	-	672	750	
NEL	SL12UNEL-LKCH-19005	184	0.528	0.2401	0.336	-	405	1397	
NEL	SL12UNEL-LKCH-19009	374	1.0982	0.5516	0.612	-	745	1487	
NEL	SL12UNEL-LKCH-19010	394	2.8771	1.276	1.366	0.326	3722	1236	Lab took subsample
NEL	SL12UNEL-LKCH-19012	172	1.1328	0.5294	0.697	-	368	1398	
NEL	SL12UNEL-LKCH-19013	87	0.3092	0.1544	0.17	-	174	1072	
NEL	SL12UNEL-LKCH-19017	285.5	0.2794	0.1354	0.176	-	589	850	Original egg count= 283, QA count=288. Used average
NEL	SL12UNEL-LKCH-19019	259	0.4257	0.1773	0.231	-	622	770	
NEL	SL12UNEL-LKCH-19020	300.5	1.1674	0.7205	1.195	-	487	1377	Egg count=307, QA count=294
NEL	SL12UNEL-LKCH-19021	302	0.9197	0.4502	0.568	0.298	1176	970	Lab took subsample
NEL	SL12UNEL-LKCH-19022	225	0.2066	0.1049	0.138	-	443	739	
NEL	SL12UNEL-LKCH-19023	358	1.3587	0.6869	0.971	-	708	1446	
NEL	SL12UNEL-LKCH-19027	144	0.4056	0.2138	0.291	-	273	941	
NEL	SL12UNEL-LKCH-19029	505	2.332	1.0212	1.253	-	1153	1343	Mean egg diameter different than on data sheet
NEL	SL12UNEL-LKCH-19036	321	0.7635	0.3371	0.385	-	727	876	
NEL	SL12UNEL-LKCH-19038	284	0.444	0.1784	0.82	-	707	714	
NEL	SL12UNEL-LKCH-19041	358	1.4985	0.7558	1.11	-	710	1513	
NEL	SL12UNEL-LKCH-19052	182	0.6944	0.3313	0.405	-	381	1061	
NEL	SL12UNEL-LKCH-19061	203	0.4672	0.2594	0.366	-	366	963	
NEL	SL12UNEL-LKCH-19062	794	0.7453	0.3733	0.475	-	1585	768	
NEL	SL12UNEL-LKCH-19064	113	0.718	0.3322	0.371	-	244	1291	
NEL	SL12UNEL-LKCH-19065	67	0.2029	0.0919	0.123	-	148	1047	
SL	SL12USL-LKCH-16004	530	0.3621	0.1945	0.273	-	987	651	
SL	SL12USL-LKCH-16014	329	0.6516	0.2502	0.296	-	857	958	Count of eggs=324, QA count=334. Took average
SL	SL12USL-LKCH-16016	461	0.4996	0.2348	0.265	-	981	708	
SL	SL12USL-LKCH-16019	331	0.8426	0.3906	0.439	-	714	832	
SL	SL12USL-LKCH-16032	586	0.5666	0.2865	0.383	-	1159	820	
SL	SL12USL-LKCH-16033	390	0.25	0.1256	0.182	-	776	707	
SL	SL12USL-LKCH-16034	555	0.3834	0.1825	0.18	-	1166	914	
SL	SL12USL-LKCH-16036	311	1.4016	0.7935	0.67	0.258	1427	1086	Lab took subsample
SL	SL12USL-LKCH-16037	673	0.7578	0.3525	0.339	-	1447	702	
SL	SL12USL-LKCH-16039	343	0.9022	0.4337	0.44	0.238	1319	1193	Lab took subsample
SL	SL12USL-LKCH-16041	379	0.2613	0.1174	0.181	-	844	615	
SL	SL12USL-LKCH-16042	381	0.344	0.156	0.184	-	840	716	Count of eggs=391, QA count=371. Took Average
SL	SL12USL-LKCH-16051	387	0.2571	0.1205	0.18	-	826	688	
SL	SL12USL-LKCH-16057	217	0.2345	0.1076	0.106	-	473	756	
SL	SL12USL-LKCH-16058	163	0.0987	0.0364	0.069	-	442	471	
SL	SL12USL-LKCH-16505	630	0.5059	0.2378	0.265	-	1340	684	
SL	SL12USL-LKCH-16512	338	0.552	0.4941	0.224	-	378	784	
SL	SL12USL-LKCH-17502	41	0.081	0.0437	0.048	-	76	513	
SL	SL12USL-LKCH-17503	429	0.3339	0.1731	0.168	0.102	1363	812	Lab took subsample

Table 7H-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Female Fecundity Results and Calculations for Select Gonad Samples from Snap Lake, Northeast Lake and Lake 13

Waterbody	Fish ID #	# of Eggs in Sample	Total Gonad Wt. (g)	Lobe Wt-Field (g)	Lobe Wt- Lab	Sub-sample Wt-Lab (g)	Fecundity Calculation	Mean Egg Diameter (µm)	Comments
SL	SL12USL-LKCH-17504	316	0.5207	0.2946	0.373	-	559	1167	
SL	SL12USL-LKCH-17510	-	0.0625	0.0437	-	-	-	-	No sample available.
SL	SL12USL-LKCH-17511	-	0.008	0.0043	-	-	-	-	Sample was not preserved, or preservative drained out.
SL	SL12USL-LKCH-17517	190	0.2081	0.1081	0.126	-	366	721	Egg count= 185, QA count=195. Took average
SL	SL12USL-LKCH-17521	293	0.2496	0.1186	0.128	-	617	807	Egg count= 300, QA count=286. Took average
SL	SL12USL-LKCH-17522	386	0.5116	0.2284	0.289	-	865	865	

Source: Provided by Golder Saskatoon, Saskatchewan.

ID = identification; Lk 13 = Lake 13; NEL = Northeast Lake; SL = Snap Lake; QA = quality assurance; g = gram; Wt = weight; µm = micrometre; # = number; - = not available.

Table 7I-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake and Lake 13

Area	Fish ID	Species	Sex	Gonad Histology Code [a]	Maturation Stage	Life Stage	Fork Length (mm)	Total Length (mm)	Body Weight (g)	Carcass Weight (g)	Gonad Weight (g)	Liver Weight (g)	Lab Age (y)	Age Structures Collected	Age Structures used for Analysis	Assigned Age (y)	Fecundity (eggs/fish)	Muscle Metals Analysis Requested?	Liver Triglyceride, Glycogen and Protein Analysis Requested	Parasites Found	Stomach Fullness (%)
Snap Lake	SL12USL-LKCH-16000	LKCH	Male	1B	PR	Adult	94	101	7.9431	7.3927	0.0563	0.0788	4	1 OT	OT	2	-	-	-	-	80
Snap Lake	SL12USL-LKCH-16001	LKCH	Male	1B	PR	Adult	104	110	9.8412	9.2775	0.0729	0.1025	5	1 OT	OT	2	-	Yes	-	-	80
Snap Lake	SL12USL-LKCH-16002	LKCH	Male	1B	PR	Adult	102	108	9.3593	8.6437	0.1203	0.0842	5	2 OT	OT	2	-	Yes	-	-	90
Snap Lake	SL12USL-LKCH-16003	LKCH	Male	1B	RP	Adult	97	103	8.6121	8.0294	0.0646	0.0665	5	SC	FR- Set/cut	2	-	-	-	+	50
Snap Lake	SL12USL-LKCH-16004	LKCH	Female	1B	RP	Adult	104	110	10.1192	8.7974	0.3621	0.1736	4	1 OT	OT	2	987	-	-	-	30
Snap Lake	SL12USL-LKCH-16005	LKCH	Male	1B	PR	Adult	90	97	6.8417	6.3418	0.0967	0.0538	3	1 OT	OT	2	-	-	-	-	15
Snap Lake	SL12USL-LKCH-16006	LKCH	Male	1A	RP	Adult	89	95	6.5202	6.0815	0.0730	0.0506	4	2 OT	OT	2	-	-	Yes	-	80
Snap Lake	SL12USL-LKCH-16007	LKCH	Male	1B	RP	Adult	84	89	4.9894	4.6397	0.0700	0.0477	4	2 OT	OT	2	-	-	-	-	50
Snap Lake	SL12USL-LKCH-16008	LKCH	Male	1B	RP	Adult	93	100	6.9950	6.4470	0.0624	0.0536	6	2 OT	OT	2	-	-	Yes	-	20
Snap Lake	SL12USL-LKCH-16009	LKCH	Male	1B	RP	Adult	87	94	5.8700	5.4922	0.0518	0.0574	4	2 OT	OT	2	-	-	-	-	10
Snap Lake	SL12USL-LKCH-16010	LKCH	Male	1B	RP	Adult	86	92	5.5148	5.0919	0.0772	0.0507	-	2 OT	OT- no structure in env.	2	-	-	-	-	20
Snap Lake	SL12USL-LKCH-16011	LKCH	Male	1B	RP	Adult	86	93	6.0408	5.6110	0.0697	0.0843	5	2 OT	OT	2	-	-	-	-	50
Snap Lake	SL12USL-LKCH-16012	LKCH	Male	1B	RP	Adult	85	91	5.0188	4.5910	0.0695	0.0465	4	2 OT	OT	2	-	-	-	-	80
Snap Lake	SL12USL-LKCH-16013	LKCH	Male	1B	RP	Adult	82	87	4.6339	4.2665	0.0691	0.0336	4	2 OT	OT	2	-	-	-	-	20
Snap Lake	SL12USL-LKCH-16014	LKCH	Female	1A	RP	Adult	82	89	5.5101	4.2038	0.6516	0.1436	-	OT	OT	2	857	-	-	-	2
Snap Lake	SL12USL-LKCH-16015	LKCH	Male	1B	RP	Adult	99	106	8.6394	7.9821	0.0971	-	4	2 OT	OT	2	-	-	Yes	-	5
Snap Lake	SL12USL-LKCH-16016	LKCH	Female	1A	RP	Adult	102	109	9.2404	7.8898	0.4996	0.1252	4	OT	OT	2	981	-	Yes	-	1
Snap Lake	SL12USL-LKCH-16017	LKCH	Unknown	-	IM	Juvenile	46	49	0.8800	0.7772	-	0.0095	2	OT	OT	1	-	-	-	+	0
Snap Lake	SL12USL-LKCH-16018	LKCH	Male	1B	PR	Adult	80	86	4.7469	4.3206	0.0712	0.0437	4	OT	OT	2	-	-	-	-	10
Snap Lake	SL12USL-LKCH-16019	LKCH	Female	1A	RP	Adult	125	139	20.0933	17.0634	0.8426	0.4029	-	1 OT	OT- no structure in env.	3	714	Yes	-	-	20
Snap Lake	SL12USL-LKCH-16020	LKCH	Unknown	n/a	IM	Juvenile	66	77	3.5892	3.1784	0.0095	0.0495	4	2 OT	OT	2	-	-	-	-	20
Snap Lake	SL12USL-LKCH-16021	LKCH	Unknown	2	IM	Juvenile	53	57	1.4113	1.2522	0.0024	0.0147	-	-	OT	1	-	-	Yes	-	0
Snap Lake	SL12USL-LKCH-16022	LKCH	Unknown	2	MA	Juvenile	53	58	1.6789	1.4913	0.0058	0.0296	4	1 OT	OT	1	-	-	-	+	0
Snap Lake	SL12USL-LKCH-16023	LKCH	Male	1A	RP	Adult	92	106	8.1267	7.4626	0.0744	-	4	-	OT	2	-	-	Yes	-	0
Snap Lake	SL12USL-LKCH-16026	LKCH	Unknown	n/a	IM	Juvenile	58	62	1.7435	1.4899	0.0136	0.0124	4	OT	OT	1	-	-	-	++	50
Snap Lake	SL12USL-LKCH-16027	LKCH	Male	1B	PR	Adult	93	101	7.7561	7.1722	0.0842	0.0524	5	-	OT	2	-	-	Yes	-	50
Snap Lake	SL12USL-LKCH-16028	LKCH	Male	1B	PR	Adult	91	99	6.9240	6.0401	0.0861	0.0677	5	-	OT	2	-	-	-	-	1
Snap Lake	SL12USL-LKCH-16029	LKCH	Unknown	n/a	IM	Juvenile	48	52	1.0155	0.8669	0.0066	0.0126	3	1 OT	OT	1	-	-	Yes	-	10
Snap Lake	SL12USL-LKCH-16030	LKCH	Female	3	MA	Juvenile	75	80	3.2868	2.7932	0.0512	0.0621	4	-	OT	2	-	-	-	++	0
Snap Lake	SL12USL-LKCH-16031	LKCH	Unknown	n/a	MA	Juvenile	53	56	1.1006	1.0330	0.0042	0.0151	3	OT	OT	1	-	-	-	+	10
Snap Lake	SL12USL-LKCH-16032	LKCH	Female	1A	PR	Adult	103	111	8.7274	7.3085	0.5666	0.1471	5	2 OT	OT	2	1159	-	-	-	10
Snap Lake	SL12USL-LKCH-16033	LKCH	Female	1A	PR	Adult	95	102	7.2817	6.4481	0.2500	0.1019	4	1 OT, FR	OT	2	776	-	Yes	-	10
Snap Lake	SL12USL-LKCH-16034	LKCH	Female	1A	PR	Adult	94	100	7.5791	6.3444	0.3834	0.1514	4	2 OT	OT	2	1166	-	-	-	20
Snap Lake	SL12USL-LKCH-16035	LKCH	Unknown	-	IM	Juvenile	52	55	1.2783	1.1768	-	0.0124	3	1 OT, FR, SC	OT	1	-	-	Yes	-	20
Snap Lake	SL12USL-LKCH-16036	LKCH	Female	6	RP	Adult	120	129	16.5158	13.1340	1.4016	0.3640	8	2 OT	OT	3	1427	Yes	Yes	-	0
Snap Lake	SL12USL-LKCH-16037	LKCH	Female	1A	PR	Adult	121	136	18.9480	15.2460	0.7578	0.4364	10	2 OT	OT	3	1447	Yes	-	-	75
Snap Lake	SL12USL-LKCH-16038	LKCH	Female	1B	-	Adult	101	109	11.6593	8.4180	0.2498	0.0848	4	1 OT, FR	OT	2	-	-	-	++	60
Snap Lake	SL12USL-LKCH-16039	LKCH	Female	1A	RP	Adult	122	131	16.2036	13.5613	0.9022	0.3166	8	2 OT	OT	3	1319	-	-	-	0
Snap Lake	SL12USL-LKCH-16040	LKCH	Unknown	-	IM	Juvenile	51	55	1.3587	1.1799	-	0.0307	4	2 OT	OT	1	-	-	Yes-pooled with 16021	-	20
Snap Lake	SL12USL-LKCH-16041	LKCH	Female	1A	PR	Adult	99	107	8.2837	7.2358	0.2613	0.1360	5	2 OT	OT	2	844	-	-	+	0
Snap Lake	SL12USL-LKCH-16042	LKCH	Female	1A	PR	Adult	101	110	9.4894	8.1700	0.3440	0.2280	5	1 OT, FR, SC	OT	2	840	-	-	++	0
Snap Lake	SL12USL-LKCH-16043	LKCH	Female	1A	SP	Adult	122	137	17.9629	15.6584	0.5331	0.2552	11	1 OT, FR, SC	OT- too thick- set/cut	3	-	Yes	-	-	0
Snap Lake	SL12USL-LKCH-16044	LKCH	Unknown	-	IM	Juvenile	60	64	1.9134	1.6550	-	0.0626	4	1 OT, FR, SC	OT	1	-	-	Yes	-	50
Snap Lake	SL12USL-LKCH-16045	LKCH	Unknown	2	IM	Juvenile	65	71	2.6811	2.3951	0.0100	0.0333	4	2 OT	OT	2	-	-	-	-	0
Snap Lake	SL12USL-LKCH-16046	LKCH	Unknown	2	IM	Juvenile	58	61	1.5187	1.3106	-	0.0386	4	2 OT	OT	1	-	-	-	-	0
Snap Lake	SL12USL-LKCH-16047	LKCH	Unknown	n/a	IM	Juvenile	52	56	1.3698	1.1682	0.0082	0.0213	3	2 OT	OT	1	-	-	-	++	0

Table 7I-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake and Lake 13

Area	Fish ID	Species	Sex	Gonad Histology Code [a]	Maturation Stage	Life Stage	Fork Length (mm)	Total Length (mm)	Body Weight (g)	Carcass Weight (g)	Gonad Weight (g)	Liver Weight (g)	Lab Age (y)	Age Structures Collected	Age Structures used for Analysis	Assigned Age (y)	Fecundity (eggs/fish)	Muscle Metals Analysis Requested?	Liver Triglyceride, Glycogen and Protein Analysis Requested	Parasites Found	Stomach Fullness (%)
Snap Lake	SL12USL-LKCH-16048	LKCH	Unknown	-	IM	Juvenile	46	49	0.8917	0.7830	-	0.0148	2	2 OT	OT	1	-	-	Yes	-	0
Snap Lake	SL12USL-LKCH-16049	LKCH	Female	2	UN	Juvenile	85	91	6.2337	4.9888	0.0270	0.0957	6	2 OT	OT	2	-	-	-	++	0
Snap Lake	SL12USL-LKCH-16050	LKCH	Unknown	-	IM	Juvenile	43	46	0.7902	0.6921	-	0.0103	3	2 OT	OT	1	-	-	Yes-pooled with 16048	-	10
Snap Lake	SL12USL-LKCH-16051	LKCH	Female	3	PR	Adult	94	102	7.0499	6.2280	0.2571	0.0915	4	1 OT	OT	2	826	-	-	+	0
Snap Lake	SL12USL-LKCH-16052	LKCH	Unknown	-	IM	Juvenile	53	55	1.2740	1.1309	-	0.0161	3	2 OT	OT	1	-	-	-	+	0
Snap Lake	SL12USL-LKCH-16053	LKCH	Unknown	2	IM	Juvenile	58	63	1.7558	1.4497	0.0153	0.0405	3	2 OT	OT	1	-	-	Yes-pooled with 16044	-	0
Snap Lake	SL12USL-LKCH-16054	LKCH	Unknown	2	IM	Juvenile	53	55	1.5305	1.3040	0.0223	0.0401	4	2 OT	OT	1	-	-	-	+	50
Snap Lake	SL12USL-LKCH-16055	LKCH	Unknown	-	IM	Juvenile	53	56	1.2472	1.0962	-	0.0218	2.5	2 OT	OT	1	-	-	-	+	0
Snap Lake	SL12USL-LKCH-16056	LKCH	Unknown	2	IM	Juvenile	52	55	1.2324	1.0647	0.0141	0.0240	4	2 OT	OT	1	-	-	Yes-pooled with 16056	-	0
Snap Lake	SL12USL-LKCH-16057	LKCH	Female	1A	RP	Adult	91	100	6.9020	6.4470	0.2345	0.1136	4	2 OT	OT	2	473	-	-	-	0
Snap Lake	SL12USL-LKCH-16058	LKCH	Female	3	SD	Maturing	81	90	4.8920	4.2530	0.0987	0.0963	6	2 OT, FR	OT	2	442	-	-	-	0
Snap Lake	SL12USL-LKCH-16059	LKCH	Unknown	n/a	IM	Juvenile	76	82	4.3160	3.9000	0.0090	0.0399	5	2 OT, FR	OT	2	-	-	-	+	0
Snap Lake	SL12USL-LKCH-16501	LKCH	Female	2	IM	Juvenile	60	64	1.9888	1.7314	0.0049	0.0201	6	2 OT	OT	1	-	-	-	+	90
Snap Lake	SL12USL-LKCH-16502	LKCH	Unknown	-	IM	Juvenile	54	55	1.1480	0.9840	-	0.0056	-	-	OT	1	-	-	-	+	1
Snap Lake	SL12USL-LKCH-16504	LKCH	Unknown	-	IM	Juvenile	53	57	1.5278	1.3210	-	0.0326	3	-	OT	1	-	-	-	+	90
Snap Lake	SL12USL-LKCH-16505	LKCH	Female	1A	PR	Adult	111	120	11.9962	9.5327	0.5059	0.1409	4	OT	OT	3	1340	-	-	++	30
Snap Lake	SL12USL-LKCH-16506	LKCH	Male	1B	PR	Adult	89	97	7.7862	7.1622	0.0718	0.0579	5	-	OT	2	-	-	-	+	80
Snap Lake	SL12USL-LKCH-16507	LKCH	Unknown	-	IM	Juvenile	54	58	1.3358	1.1768	-	-	3.5	1 OT	OT	1	-	-	Yes-pooled with 16029	-	90
Snap Lake	SL12USL-LKCH-16508	LKCH	Unknown	-	IM	Juvenile	42	51	1.1622	0.9187	-	0.0150	3	1 OT	OT	1	-	-	-	+	95
Snap Lake	SL12USL-LKCH-16512	LKCH	Female	1A	PR	Adult	85	92	5.7228	4.5741	0.5520	0.1193	5	OT	OT	2	378	-	-	-	0
Snap Lake	SL12USL-LKCH-16513	LKCH	Male	3	MA	Maturing	75	80	3.6984	3.1629	0.0399	0.0490	4	OT	OT	2	-	-	-	++	15
Snap Lake	SL12USL-LKCH-17501	LKCH	Male	n/a	SD	Adult	74	81	3.7202	3.1790	0.0193	0.0616	4	OT	OT	2	-	-	-	-	30
Snap Lake	SL12USL-LKCH-17502	LKCH	Female	3	SD	Maturing	75	81	4.0369	3.4867	0.0810	0.0677	3	-	OT- Not the Sagital otilith	2	76	-	-	-	30
Snap Lake	SL12USL-LKCH-17503	LKCH	Female	1A	PR	Adult	96	105	8.1983	7.0365	0.3339	0.1715	6	-	OT	2	1363	-	-	+	10
Snap Lake	SL12USL-LKCH-17504	LKCH	Female	1A	RP	Adult	86	94	6.6894	5.6467	0.5207	0.1251	5.5	OT	OT	2	559	-	Yes	-	80
Snap Lake	SL12USL-LKCH-17505	LKCH	Female	2	IM	Juvenile	54	59	1.7892	1.5081	0.0039	0.0394	4	OT	OT	1	-	-	-	+	5
Snap Lake	SL12USL-LKCH-17506	LKCH	Male	1A	PR	Adult	95	104	8.8698	8.2198	0.0802	0.0648	5	OT	OT	2	-	Yes	-	-	10
Snap Lake	SL12USL-LKCH-17507	LKCH	Male	1B	PR	Adult	87	94	6.6236	6.0014	0.0690	0.0838	8	OT	OT	2	-	-	-	-	10
Snap Lake	SL12USL-LKCH-17508	LKCH	Male	1B	SD, PR	Adult	81.5	89	5.5585	4.8391	0.0926	0.0739	5	OT	OT	2	-	-	-	-	50
Snap Lake	SL12USL-LKCH-17509	LKCH	Male	1A	PR	Adult	90	95	7.5017	6.6857	0.0796	0.0727	4	2 OT	OT	2	-	-	-	+	20
Snap Lake	SL12USL-LKCH-17510	LKCH	Unknown	n/a	SD	Unknown	72	79	3.5097	2.9064	0.0625	0.0023	2	FR, SC	FR	2	-	-	-	-	10
Snap Lake	SL12USL-LKCH-17511	LKCH	Unknown	n/a	MA	Juvenile	54	58	1.5236	1.1445	0.0080	0.0020	3	OT	OT	1	-	-	-	-	0
Snap Lake	SL12USL-LKCH-17512	LKCH	Unknown	n/a	MA	Juvenile	53	57	1.3500	1.0972	0.0118	0.0023	1	-	FR	1	-	-	-	-	10
Snap Lake	SL12USL-LKCH-17513	LKCH	Male	1A	PR	Adult	91	99	7.7963	7.1180	0.0485	0.0172	8	OT	OT	2	-	-	-	-	10
Snap Lake	SL12USL-LKCH-17514	LKCH	Male	3	PR	Adult	79	87	5.0908	4.4150	0.0542	-	7	2 OT	OT	2	-	-	-	-	1
Snap Lake	SL12USL-LKCH-17515	LKCH	Male	1A	SD	Adult	92	100	7.3148	6.5051	0.0639	0.0427	4	OT	OT	2	-	-	-	+	50
Snap Lake	SL12USL-LKCH-17517	LKCH	Female	1A	PR	Adult	92	100	6.4867	5.5869	0.2081	0.1762	-	-	OT- no structure in env.	2	366	-	Yes	-	1
Snap Lake	SL12USL-LKCH-17518	LKCH	Male	1B	PR	Adult	87	91	6.3725	5.7762	0.0633	0.0952	-	OT	OT- no structure in env.	2	-	-	-	+	50
Snap Lake	SL12USL-LKCH-17519	LKCH	Unknown	n/a	MA	Unknown	77	85	4.4184	3.3184	0.0249	0.0049	2	OT	FR	2	-	-	-	-	60
Snap Lake	SL12USL-LKCH-17520	LKCH	Male	1A	RP	Adult	103	113	12.7465	10.0062	0.1385	0.1001	10	-	OT	3	-	Yes	-	++	0
Snap Lake	SL12USL-LKCH-17521	LKCH	Female	1A	PR	Adult	86	93	5.4419	4.6435	0.2496	0.1020	4	-	OT	2	617	-	-	-	0
Snap Lake	SL12USL-LKCH-17522	LKCH	Female	1A	PR	Adult	85	97	5.7027	4.6777	0.5116	0.1134	6	1 OT	OT	2	865	-	-	-	0
Snap Lake	SL12USL-LKCH-17523	LKCH	Male	1A	RP	Adult	86	91	5.6819	5.3240	0.0362	0.0366	5	1 OT	OT	2	-	-	-	-	20
Northeast Lake	SL12UNEL-LKCH-18501	LKCH	Male	1B	RP	Adult	111	118	11.7054	10.8305	0.0904	0.1397	8	2 OT	OT	3	-	-	Yes	-	80

Table 7I-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake and Lake 13

Area	Fish ID	Species	Sex	Gonad Histology Code [a]	Maturation Stage	Life Stage	Fork Length (mm)	Total Length (mm)	Body Weight (g)	Carcass Weight (g)	Gonad Weight (g)	Liver Weight (g)	Lab Age (y)	Age Structures Collected	Age Structures used for Analysis	Assigned Age (y)	Fecundity (eggs/fish)	Muscle Metals Analysis Requested?	Liver Triglyceride, Glycogen and Protein Analysis Requested	Parasites Found	Stomach Fullness (%)
Northeast Lake	SL12UNEL-LKCH-19001	LKCH	Female	1A	PR	Adult	112	122	12.5122	10.6011	0.4726	-	8	1 OT	OT- may not be the Sagital otilith	3	672	-	-	+	20
Northeast Lake	SL12UNEL-LKCH-19002	LKCH	Male	1B	RP	Adult	106	113	11.0562	10.2784	0.0908	0.0832	4	OT	OT	3	-	-	Yes	-	10
Northeast Lake	SL12UNEL-LKCH-19003	LKCH	Unknown	-	IM	Juvenile	50	53	1.0254	0.8946	-	0.0172	-	OT	OT	1	-	-	-	+	10
Northeast Lake	SL12UNEL-LKCH-19004	LKCH	Female	1A	SP	Adult	114	124	13.1260	11.1743	0.4290	0.3955	7	2 OT	OT	3	-	-	-	-	100
Northeast Lake	SL12UNEL-LKCH-19005	LKCH	Female	3	RP	Adult	110	119	12.1810	10.0692	0.5280	0.3094	7	2 OT	OT	3	405	-	-	-	25
Northeast Lake	SL12UNEL-LKCH-19006	LKCH	Female	2	IM	Juvenile	45	48	0.9039	0.7670	0.0038	0.0200	3	1 OT	OT	1	-	-	Yes	-	80
Northeast Lake	SL12UNEL-LKCH-19007	LKCH	Female	3	SP	Adult	115	124	12.3699	10.3355	0.4321	0.3847	6	2 OT	OT	3	-	-	-	-	40
Northeast Lake	SL12UNEL-LKCH-19008	LKCH	Male	1A	RP	Adult	106	121	14.2880	12.8815	0.1653	0.2241	10	2 OT	OT	3	-	Yes	-	-	40
Northeast Lake	SL12UNEL-LKCH-19009	LKCH	Female	1A	RP	Adult	127	136	19.9870	16.2247	1.0982	0.3021	-	1 OT	OT- no structure in env.	3	745	Yes	-	-	50
Northeast Lake	SL12UNEL-LKCH-19010	LKCH	Female	1A	RP	Adult	134	143	23.7410	18.4485	2.8771	0.6690	8	2 OT	OT	4	3722	Yes	-	+	40
Northeast Lake	SL12UNEL-LKCH-19011	LKCH	Male	3	SP	Adult	111	120	16.0743	12.1758	0.0249	0.2581	5	2 OT	OT	3	-	Yes	-	++	40
Northeast Lake	SL12UNEL-LKCH-19012	LKCH	Female	1A	RP	Adult	113	121	13.7674	11.1548	1.1328	0.3986	7	OT	OT	3	368	-	-	-	30
Northeast Lake	SL12UNEL-LKCH-19013	LKCH	Female	1A	PR	Adult	90	97	6.8165	5.7086	0.3092	0.1539	3	2 OT	OT	2	174	-	Yes	-	1
Northeast Lake	SL12UNEL-LKCH-19014	LKCH	Male	2	IM	Juvenile	66	73	2.7260	2.4224	0.0122	0.0499	-	2 OT	OT	2	-	-	-	-	0
Northeast Lake	SL12UNEL-LKCH-19015	LKCH	Female	2	IM	Juvenile	44	47	0.5840	0.4683	0.0046	0.0084	2	2 OT	OT	1	-	-	Yes-pooled with 19006	-	5
Northeast Lake	SL12UNEL-LKCH-19016	LKCH	Female	2	IM	Juvenile	69	75	2.5493	2.2627	0.0153	0.0239	2	2 OT, FR, SC	FR	2	-	-	-	-	0
Northeast Lake	SL12UNEL-LKCH-19017	LKCH	Female	3	SD	Adult	87	96	6.9532	5.9533	0.2794	0.0788	6	OT	OT	2	589	-	-	+	1
Northeast Lake	SL12UNEL-LKCH-19018	LKCH	Male	1B	RP	Adult	92	100	7.1168	6.5684	0.0564	0.0429	5	2 OT	OT	2	-	-	-	+	5
Northeast Lake	SL12UNEL-LKCH-19019	LKCH	Female	1B	PR	Adult	120	129	14.1385	12.0686	0.4257	0.3897	10	2 OT	OT- not the Sagital otilith	3	622	-	-	-	80
Northeast Lake	SL12UNEL-LKCH-19020	LKCH	Female	1A	RP	Adult	122	129	16.5464	13.0897	1.1674	0.4796	11.5	1 OT, FR	OT- too thick- set/cut	3	487	-	Yes	-	10
Northeast Lake	SL12UNEL-LKCH-19021	LKCH	Female	1A	RP	Adult	125	135	20.0450	15.6419	0.9197	0.5246	10	2 OT	OT	3	1176	-	-	-	60
Northeast Lake	SL12UNEL-LKCH-19022	LKCH	Female	3	PR	Adult	86	90	5.3338	4.4146	0.2066	0.0800	5.5	2 OT	OT	2	443	-	Yes	-	0
Northeast Lake	SL12UNEL-LKCH-19023	LKCH	Female	1A	RP	Adult	120	128	15.5960	12.7894	1.3587	0.2355	7	2 OT	OT	3	708	-	-	-	1
Northeast Lake	SL12UNEL-LKCH-19024	LKCH	Male	1B	RP	Adult	88	96	7.4795	6.7598	0.0801	0.0750	-	2 OT	OT- no structure in env.	2	-	-	-	+	1
Northeast Lake	SL12UNEL-LKCH-19025	LKCH	Female	1A	RB	Adult	124	133	16.0761	13.5410	0.3870	0.3685	14	-	OT- too thick- set/cut	3	-	-	Yes	-	80
Northeast Lake	SL12UNEL-LKCH-19026	LKCH	Female	3	RB	Adult	120	129	14.0937	12.7656	0.6389	0.2771	8	2 OT	OT- too thick- set/cut	3	-	-	-	-	80
Northeast Lake	SL12UNEL-LKCH-19027	LKCH	Female	3	PR	Adult	117	126	14.1753	11.8409	0.4056	0.3910	-	1 OT	No results	3	273	-	Yes	-	80
Northeast Lake	SL12UNEL-LKCH-19028	LKCH	Male	1B	RP	Adult	95	103	8.2031	7.2234	0.0845	0.1070	4	1 OT	OT	2	-	-	-	-	50
Northeast Lake	SL12UNEL-LKCH-19029	LKCH	Female	1A	RP	Adult	125	134	19.9778	14.9520	2.3320	0.6095	-	OT	Too thick- set/cut- OT shattered	3	1153	Yes	-	+	1
Northeast Lake	SL12UNEL-LKCH-19030	LKCH	Unknown	-	UN	Unknown	97	106	11.3821	7.1586	-	0.3450	4	1 OT	OT	2	-	-	-	++	50
Northeast Lake	SL12UNEL-LKCH-19031	LKCH	Male	1B	SP	Adult	100	108	9.0860	8.2435	0.0805	0.0845	7	2 OT	OT	2	-	-	Yes	-	20
Northeast Lake	SL12UNEL-LKCH-19032	LKCH	Male	2	MA	Juvenile	69	75	2.8483	2.4933	0.0148	0.0455	3	1 OT	OT	2	-	-	-	-	30
Northeast Lake	SL12UNEL-LKCH-19033	LKCH	Male	1A	RP	Adult	105	113	10.0034	-	0.1841	0.1743	6	2 OT	OT	2	-	-	-	-	0
Northeast Lake	SL12UNEL-LKCH-19034	LKCH	Unknown	n/a	IM	Juvenile	50	54	1.0519	0.9328	0.0016	0.0223	2	OT	OT	1	-	-	-	-	50
Northeast Lake	SL12UNEL-LKCH-19035	LKCH	Unknown	n/a	IM	Juvenile	45	49	0.8394	0.7297	0.0012	0.0081	2	1 OT, FR	OT	1	-	-	-	+	100
Northeast Lake	SL12UNEL-LKCH-19036	LKCH	Female	3	PR	Adult	125	137	17.7294	15.5340	0.7635	0.3335	11	2 OT	OT- not the Sagital otilith	3	727	Yes	-	+	20
Northeast Lake	SL12UNEL-LKCH-19037	LKCH	Male	3	MA	Juvenile	82	89	5.2236	4.5976	0.0050	0.1000	3	1 OT, FR	OT	2	-	-	-	-	70

Table 7I-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake and Lake 13

Area	Fish ID	Species	Sex	Gonad Histology Code [a]	Maturation Stage	Life Stage	Fork Length (mm)	Total Length (mm)	Body Weight (g)	Carcass Weight (g)	Gonad Weight (g)	Liver Weight (g)	Lab Age (y)	Age Structures Collected	Age Structures used for Analysis	Assigned Age (y)	Fecundity (eggs/fish)	Muscle Metals Analysis Requested?	Liver Triglyceride, Glycogen and Protein Analysis Requested	Parasites Found	Stomach Fullness (%)
Northeast Lake	SL12UNEL-LKCH-19038	LKCH	Female	3	PR	Adult	120	129	15.0365	12.8826	0.4440	0.2939	9	1 OT, FR	OT- not the Sagital otilith	3	707	-	-	-	5
Northeast Lake	SL12UNEL-LKCH-19040	LKCH	Unknown	-	IM	Juvenile	44	47	0.8390	0.7601	-	0.0153	2	1 OT, FR	OT	1	-	-	Yes	-	70
Northeast Lake	SL12UNEL-LKCH-19041	LKCH	Female	1A	RP	Adult	122	133	16.1607	12.9728	1.4985	0.4065	-	2 OT	Otolith not whole	3	710	-	-	+	1
Northeast Lake	SL12UNEL-LKCH-19042	LKCH	Unknown	n/a	IM	Juvenile	52	56	1.2217	1.0647	0.0009	0.0264	2	2 OT	OT	1	-	-	Yes	-	50
Northeast Lake	SL12UNEL-LKCH-19043	LKCH	Female	2	IM	Juvenile	44	54	1.0306	0.8584	0.0103	0.0180	2	2 OT	OT	1	-	-	Yes-pooled with 19042	-	1
Northeast Lake	SL12UNEL-LKCH-19044	LKCH	Male	2	IM	Juvenile	42	51	0.8846	0.7823	0.0068	0.0096	3	2 OT	OT	1	-	-	Yes	-	1
Northeast Lake	SL12UNEL-LKCH-19045	LKCH	Female	2	IM	Juvenile	47	50	0.9371	0.7692	0.0012	0.0231	2	2 OT	OT	1	-	-	Yes-pooled with 19044	-	50
Northeast Lake	SL12UNEL-LKCH-19046	LKCH	Unknown	n/a	IM	Juvenile	49	53	1.3089	1.1198	0.0013	0.0109	2	FR, SC	FR	1	-	-	-	-	20
Northeast Lake	SL12UNEL-LKCH-19047	LKCH	Unknown	n/a	IM	Juvenile	44	48	0.8810	0.7560	0.0010	0.0076	3	OT	OT	1	-	-	Yes-pooled with 19040	-	70
Northeast Lake	SL12UNEL-LKCH-19048	LKCH	Male	2	IM	Juvenile	46	50	0.9240	0.8175	0.0009	0.0109	-	1 OT	OT- no structure in env.	1	-	-	-	-	10
Northeast Lake	SL12UNEL-LKCH-19049	LKCH	Female	2	IM	Juvenile	45	49	0.9589	0.8125	0.0028	0.0135	1	2 OT	OT	1	-	-	-	+	25
Northeast Lake	SL12UNEL-LKCH-19050	LKCH	Female	2	IM	Juvenile	49	53	1.0752	0.9525	0.0122	0.0184	3	1 OT, FR	OT	1	-	-	-	-	0
Northeast Lake	SL12UNEL-LKCH-19051	LKCH	Unknown	n/a	IM	Juvenile	50	54	1.1106	0.9656	0.0035	0.0201	4	1 OT, FR	OT	1	-	-	Yes-pooled with 19042	-	30
Northeast Lake	SL12UNEL-LKCH-19052	LKCH	Female	1A	PR	Adult	118	128	16.0227	13.3958	0.6944	0.4969	8	2 OT	OT	3	381	-	-	-	2
Northeast Lake	SL12UNEL-LKCH-19053	LKCH	Male	n/a	IM	Juvenile	49	54	1.0524	0.9340	0.0076	0.0124	-	FR, SC	FR	1	-	-	-	-	50
Northeast Lake	SL12UNEL-LKCH-19054	LKCH	Unknown	n/a	IM	Juvenile	49	53	1.3218	1.1466	0.0011	0.0266	1	1 OT, FR	OT	1	-	-	-	-	90
Northeast Lake	SL12UNEL-LKCH-19055	LKCH	Male	1A	SP	Adult	113	122	11.9468	10.9323	0.0747	0.0863	7	1 OT, FR, SC	FR	3	-	-	-	-	10
Northeast Lake	SL12UNEL-LKCH-19056	LKCH	Unknown	-	IM	Juvenile	45	49	0.8290	0.7343	-	0.0053	1	2 OT	OT	1	-	-	Yes-pooled with 19006	-	25
Northeast Lake	SL12UNEL-LKCH-19057	LKCH	Male	1B	SP	Adult	96	105	7.9934	7.0532	0.0346	0.0615	3	2 OT	OT- not the Sagital otilith	2	-	-	Yes	-	30
Northeast Lake	SL12UNEL-LKCH-19058	LKCH	Unknown	-	IM	Juvenile	46	50	0.9299	0.8071	-	0.0170	3	2 OT	OT	1	-	-	Yes-pooled with 19044	-	20
Northeast Lake	SL12UNEL-LKCH-19059	LKCH	Unknown	-	IM	Juvenile	44	47	0.9642	0.8247	-	0.0145	3	1 OT, FR	OT	1	-	-	Yes-pooled with 19040	-	20
Northeast Lake	SL12UNEL-LKCH-19060	LKCH	Male	1A	SP	Adult	91	100	7.5209	6.7540	0.0538	0.0787	5	2 OT	OT	2	-	-	Yes	-	1
Northeast Lake	SL12UNEL-LKCH-19061	LKCH	Female	1B	SD	Adult	125	135	17.6082	14.9089	0.4672	0.3109	8	2 OT	OT- not the Sagital otilith	3	366	-	-	+	40
Northeast Lake	SL12UNEL-LKCH-19062	LKCH	Female	1B	PR	Adult	123	133	15.7829	12.6696	0.7453	0.2680	9	1 OT, FR, SC	OT- not the Sagital otilith	3	1585	-	-	+	40
Northeast Lake	SL12UNEL-LKCH-19063	LKCH	Female	3	MA	Juvenile	78	84	4.5177	3.9826	0.0392	0.0596	4	2 OT	OT	2	-	-	-	+	50
Northeast Lake	SL12UNEL-LKCH-19064	LKCH	Female	1A	PR	Adult	113	128	14.1483	11.9707	0.7180	0.2104	8	2 OT	OT	3	244	-	-	-	50
Northeast Lake	SL12UNEL-LKCH-19065	LKCH	Female	1A	PR	Adult	83	90	5.3321	4.3994	0.2029	0.1531	5	2 OT	OT	2	148	-	-	-	50
Northeast Lake	SL12UNEL-LKCH-19066	LKCH	Male	1A	SP	Adult	105	115	12.2320	11.1263	0.0841	0.1896	7	2 OT	OT	3	-	Yes	-	+	25
Northeast Lake	SL12UNEL-LKCH-19067	LKCH	Female	3	MA	Juvenile	70	75	3.0617	2.7560	0.0204	0.0530	4	2 OT	OT	2	-	-	-	-	50
Northeast Lake	SL12UNEL-LKCH-19068	LKCH	Female	2	IM	Juvenile	53	56	1.2272	1.0731	0.0146	0.0139	4	2 OT	OT	1	-	-	Yes	-	0
Northeast Lake	SL12UNEL-LKCH-19069	LKCH	Unknown	-	IM	Juvenile	50	54	1.1012	0.9884	-	0.0059	3	2 OT	OT	1	-	-	Yes-pooled with 19068	-	80
Northeast Lake	SL12UNEL-LKCH-19070	LKCH	Unknown	-	IM	Juvenile	51	55	1.3110	1.1870	-	0.0213	3	2 OT, FR	OT	1	-	-	Yes-pooled with 19068	-	0
Northeast Lake	SL12UNEL-LKCH-20001	LKCH	Male	n/a	RP	Adult	105	115	12.1872	11.2573	0.1213	0.1057	6	1 OT, FR, SC	OT	3	-	Yes	-	-	50

Table 7I-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake and Lake 13

Area	Fish ID	Species	Sex	Gonad Histology Code [a]	Maturation Stage	Life Stage	Fork Length (mm)	Total Length (mm)	Body Weight (g)	Carcass Weight (g)	Gonad Weight (g)	Liver Weight (g)	Lab Age (y)	Age Structures Collected	Age Structures used for Analysis	Assigned Age (y)	Fecundity (eggs/fish)	Muscle Metals Analysis Requested?	Liver Triglyceride, Glycogen and Protein Analysis Requested	Parasites Found	Stomach Fullness (%)
Lake 13	SL12ULK13-LKCH-21001	LKCH	Male	1B	SP	Adult	108	119	12.5017	-	0.0919	0.1153	8	OT	OT- not the Sagital otilith	3	-	Yes	Yes	-	1
Lake 13	SL12ULK13-LKCH-21002	LKCH	Male	1B	SP	Adult	98	103	8.8431	8.1188	0.0677	0.0576	5	OT	OT	2	-	-	Yes- Pooled with 21001	-	0
Lake 13	SL12ULK13-LKCH-21003	LKCH	Male	1A	SP	Adult	89	96	6.2557	5.5727	0.0477	0.0658	5	1 OT, FR	OT	2	-	-	-	++	0
Lake 13	SL12ULK13-LKCH-21004	LKCH	Male	1B	RP	Adult	99	107	8.1141	7.4468	0.0635	0.0994	5	OT	OT	2	-	-	Yes	-	10
Lake 13	SL12ULK13-LKCH-21005	LKCH	Male	1B	RP	Adult	101	110	10.1576	9.4507	0.0940	0.0597	5	OT, FR	OT	2	-	-	-	-	10
Lake 13	SL12ULK13-LKCH-21006	LKCH	Male	1B	RP	Adult	95	105	9.3421	8.6480	0.0924	0.1325	4	OT	FR	2	-	-	-	+	2
Lake 13	SL12ULK13-LKCH-21007	LKCH	Female	3	IM	Juvenile	72	79	2.8803	2.4849	0.0377	0.0429	-	2 OT	OT	2	-	-	-	+	0
Lake 13	SL12ULK13-LKCH-21501	LKCH	Male	2	IM	Juvenile	48	51	1.1912	1.0528	0.0012	-	2	FR, SC	FR	1	-	-	-	-	20
Lake 13	SL12ULK13-LKCH-21502	LKCH	Unknown	-	IM	Juvenile	52	55	1.2512	1.0963	-	0.0102	-	2 OT	OT- no structure in env.	1	-	-	Yes	-	10
Lake 13	SL12ULK13-LKCH-21503	LKCH	Female	2	IM	Juvenile	41	49	1.0083	0.8000	0.0123	-	4	2 OT	OT	1	-	-	Yes	-	20
Lake 13	SL12ULK13-LKCH-21504	LKCH	Female	1A	RP	Adult	126	136	17.8670	15.2250	0.6314	0.4420	6	2 OT, FR	OT- not the Sagital otilith	3	1090	Yes	-	+	40
Lake 13	SL12ULK13-LKCH-21505	LKCH	Female	3	SD	Adult	97	104	10.4390	7.3480	0.0796	0.1660	4	1 OT, FR	OT	2	-	Yes	-	++	0
Lake 13	SL12ULK13-LKCH-21506	LKCH	Female	2	IM	Juvenile	51	56	1.0970	0.9840	0.0178	0.0085	3	2 OT, FR	OT	1	-	-	-	+	5
Lake 13	SL12ULK13-LKCH-22501	LKCH	Male	1B	RP	Adult	116	125	13.7949	-	0.1030	0.2386	8	OT	OT	3	-	Yes	-	++	0
Lake 13	SL12ULK13-LKCH-22502	LKCH	Male	1B	RP	Adult	90	99	6.6159	6.0860	0.0561	0.0714	5	OT	OT	2	-	-	-	+	50
Lake 13	SL12ULK13-LKCH-22503	LKCH	Male	1B	RP	Adult	92	99	7.5376	6.8457	0.0790	0.1340	5	OT	OT	2	-	-	-	-	0
Lake 13	SL12ULK13-LKCH-22504	LKCH	Female	1B	RP	Adult	115	124	13.3834	10.4819	1.1614	0.2762	9	OT	OT	3	951	-	Yes	-	0
Lake 13	SL12ULK13-LKCH-22505	LKCH	Female	1A	RP	Adult	140	150	29.2840	23.8548	1.5546	0.7252	11	2 OT	OT	4	1391	Yes	-	-	20
Lake 13	SL12ULK13-LKCH-22506	LKCH	Male	1B	PR	Adult	87	95	6.6340	6.0731	0.0770	0.0264	4	OT	OT- not the Sagital otilith	2	-	-	-	-	10
Lake 13	SL12ULK13-LKCH-22507	LKCH	Female	1A	RP	Adult	103	112	9.9304	8.6600	0.3748	0.1730	10	OT, FR, SC	OT- not the Sagital otilith	2	999	-	Yes	-	0
Lake 13	SL12ULK13-LKCH-22508	LKCH	Female	n/a	IM	Juvenile	51	55	1.3547	1.1650	0.0050	0.0167	-	OT	OT- not the Sagital otilith	1	-	-	-	+	0
Lake 13	SL12ULK13-LKCH-22509	LKCH	Female	2	IM	Juvenile	46	50	1.0918	0.9859	0.0046	0.0178	-	OT	OT- no structure in env.	1	-	-	Yes-Pooled with 21502	-	0
Lake 13	SL12ULK13-LKCH-22510	LKCH	Female	1B	PR	Adult	137	146	20.4158	17.8923	0.7521	0.3608	10	2 OT	OT	4	1158	Yes	-	+	0
Lake 13	SL12ULK13-LKCH-22511	LKCH	Male	1A	RP	Adult	106	114	11.7061	10.9167	0.1064	0.0973	10	2 OT	OT	3	-	-	-	+	10
Lake 13	SL12ULK13-LKCH-22512	LKCH	Male	1B	SP	Adult	112	120	14.0200	13.0489	0.0809	0.1912	8	2 OT	OT	3	-	Yes	-	-	0
Lake 13	SL12ULK13-LKCH-22513	LKCH	Female	3	UN	Adult	89	95	9.5398	6.6109	0.0214	0.1630	5	2 OT	OT	2	-	-	-	++	-
Lake 13	SL12ULK13-LKCH-22514	LKCH	Male	1A	RP	Adult	117	122	14.7591	13.3746	0.1569	0.2140	11	2 OT	OT	3	-	Yes	-	+	60
Lake 13	SL12ULK13-LKCH-22515	LKCH	Male	1A	SD	Adult	98	105	8.0260	7.4260	0.0468	0.0766	3	2 OT, FR	FR	2	-	-	Yes	-	0
Lake 13	SL12ULK13-LKCH-22516	LKCH	Male	1B	SP	Adult	99	107	8.6050	8.1110	0.1008	0.0621	5	2 OT, FR	OT	2	-	-	-	+	5
Lake 13	SL12ULK13-LKCH-22517	LKCH	Male	1B	SP	Adult	104	113	9.1380	8.5340	0.0764	0.0822	5	2 OT, FR	OT	2	-	-	-	-	0
Lake 13	SL12ULK13-LKCH-22518	LKCH	Male	1A	SP	Adult	97	106	8.0140	7.5660	0.1072	0.0604	4.5	2 OT, FR	OT	2	-	-	-	+	10
Lake 13	SL12ULK13-LKCH-22519	LKCH	Male	1B	PR	Adult	97	104	9.2612	8.5953	0.0632	0.0768	4	2 OT	OT	2	-	-	-	+	20
Lake 13	SL12ULK13-LKCH-22520	LKCH	Female	2	IM	Juvenile	50	54	1.2779	1.1158	0.0057	0.0085	2	OT	OT- not the Sagital otilith	1	-	-	-	+	5
Lake 13	SL12ULK13-LKCH-22521	LKCH	Unknown	-	IM	Juvenile	47	50	0.9923	0.9256	-	0.0163	2	1 OT, FR	OT- not the Sagital otilith	1	-	-	Yes	-	50
Lake 13	SL12ULK13-LKCH-22522	LKCH	Female	2	IM	Juvenile	48	52	1.1844	0.9943	-	0.0148	3	OT	OT- not the Sagital otilith	1	-	-	Yes-Pooled with 21503	-	0

Table 7I-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake and Lake 13

Area	Fish ID	Species	Sex	Gonad Histology Code [a]	Maturation Stage	Life Stage	Fork Length (mm)	Total Length (mm)	Body Weight (g)	Carcass Weight (g)	Gonad Weight (g)	Liver Weight (g)	Lab Age (y)	Age Structures Collected	Age Structures used for Analysis	Assigned Age (y)	Fecundity (eggs/fish)	Muscle Metals Analysis Requested?	Liver Triglyceride, Glycogen and Protein Analysis Requested	Parasites Found	Stomach Fullness (%)
Lake 13	SL12ULK13-LKCH-22523	LKCH	Unknown	n/a	IM	Juvenile	48	51	1.0648	0.9613	0.0008	0.0177	2	OT	OT- not the Sagital otilith	1	-	-	Yes-Pooled with 21503	-	0
Lake 13	SL12ULK13-LKCH-22524	LKCH	Unknown	-	IM	Juvenile	50	53	1.2315	1.0497	-	0.0094	1	OT	OT- not the Sagital otilith	1	-	-	Yes-Pooled with 21521	-	0
Lake 13	SL12ULK13-LKCH-22525	LKCH	Female	2	IM	Juvenile	48	53	0.9850	0.8710	0.0119	0.0091	3	2 OT	OT	1	-	-	Yes-Pooled with 21521	-	5
Lake 13	SL12ULK13-LKCH-22526	LKCH	Male	1B	SP	Adult	89	96	6.7740	6.4040	0.0861	0.0620	4	2 OT, FR	OT	2	-	-	-	-	0
Lake 13	SL12ULK13-LKCH-22527	LKCH	Female	1A	RB	Adult	99	108	8.1970	7.2150	0.3159	0.1032	4	2 OT, FR	OT	2	-	-	Yes	-	0
Lake 13	SL12ULK13-LKCH-22528	LKCH	Male	1B	SP	Adult	92	100	6.4960	6.0440	0.0766	0.0248	5	2 OT, FR	OT	2	-	-	-	-	0
Lake 13	SL12ULK13-LKCH-22529	LKCH	Male	1B	RP	Adult	91	99	6.6204	6.1993	0.0660	0.0510	5	2 OT	OT	2	-	-	Yes	-	50
Lake 13	SL12ULK13-LKCH-22530	LKCH	Female	1B	RB	Adult	92	100	6.3672	5.5725	0.2269	0.0733	5	1 OT, FR	OT	2	-	-	Yes	-	0
Lake 13	SL12ULK13-LKCH-22531	LKCH	Female	3	RB	Adult	94	101	7.2601	6.5323	0.3086	0.1264	6	1 OT	OT- Too thick- set/cut	2	-	-	Yes	-	20
Lake 13	SL12ULK13-LKCH-22532	LKCH	Male	1B	SP	Adult	97	104	7.8440	-	0.0813	0.0574	6	2 OT, FR	OT- not the Sagital otilith	2	-	-	-	+	0
Lake 13	SL12ULK13-LKCH-22534	LKCH	Male	1B	SP	Adult	85	93	6.6161	6.0347	0.0726	0.0688	4	1 OT, FR	OT	2	-	-	-	+	50
Lake 13	SL12ULK13-LKCH-22535	LKCH	Male	1A	SP	Adult	93	100	7.2950	6.7244	0.0632	0.0882	4	-	OT	2	-	-	Yes	-	10
Lake 13	SL12ULK13-LKCH-22536	LKCH	Unknown	n/a	IM	Juvenile	47	51	1.0610	0.8803	-	0.0220	2	2 OT	OT	1	-	-	Yes	-	0
Lake 13	SL12ULK13-LKCH-22537	LKCH	Unknown	n/a	IM	Juvenile	50	54	1.0997	0.9608	0.0029	0.0228	3	1 OT, FR, SC	OT	1	-	-	Yes-Pooled with 22536	-	0
Lake 13	SL12ULK13-LKCH-22538	LKCH	Unknown	n/a	IM	Juvenile	58	63	1.9266	1.7443	0.0016	0.0255	3	2 OT	OT	1	-	-	Yes	-	0
Lake 13	SL12ULK13-LKCH-22539	LKCH	Female	2	IM	Juvenile	58	63	1.8986	1.7502	0.0209	0.0411	3	2 OT	OT	1	-	-	-	++	0
Lake 13	SL12ULK13-LKCH-22540	LKCH	Female	2	IM	Juvenile	52	56	1.3646	1.1623	0.0021	0.0139	2	1 OT, FR	FR	1	-	-	Yes-Pooled with 22538	-	0
Lake 13	SL12ULK13-LKCH-22541	LKCH	Male	1A	RP	Adult	93	101	7.3798	6.8876	0.0477	0.0754	4	2 OT, SC	OT	2	-	-	-	-	0
Lake 13	SL12ULK13-LKCH-22542	LKCH	Unknown	-	IM	Juvenile	50	54	1.3110	1.1631	-	0.0147	3	2 OT	OT	1	-	-	-	+	0
Lake 13	SL12ULK13-LKCH-22543	LKCH	Unknown	n/a	IM	Juvenile	49	53	1.1316	1.0064	0.0019	0.0184	-	FR, SC	OT- no structure in env.	1	-	-	Yes-Pooled with 22536	-	0
Lake 13	SL12ULK13-LKCH-22544	LKCH	Female	2	IM	Juvenile	55	59	1.7281	1.5320	0.0120	0.0238	4	2 OT	OT	1	-	-	Yes-Pooled with 22538	-	0
Lake 13	SL12ULK13-LKCH-22545	LKCH	Female	2	IM	Juvenile	50	55	1.1923	1.0164	0.0141	0.0218	4	2 OT	OT	1	-	-	Yes-Pooled with 21502	-	0
Lake 13	SL12ULK13-LKCH-22546	LKCH	Unknown	-	IM	Juvenile	50	54	1.2789	1.1429	-	0.0194	4	2 OT	OT	1	-	-	Yes-Pooled with 21502	-	10

Table 7I-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake and Lake 13

Area	Fish ID	Species	Sex	Gonad Histology Code [a]	Maturation Stage	Life Stage	Body Deformities	Eyes	Gills	Pseudobranchs	Thymus	Skin	Fins	Opercles	Hindgut	Mesen-teric Fat	Liver	Spleen	Gall Bladder	Kidney	Comments
Snap Lake	SL12USL-LKCH-16000	LKCH	Male	1B	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16001	LKCH	Male	1B	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	-	Normal	
Snap Lake	SL12USL-LKCH-16002	LKCH	Male	1B	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16003	LKCH	Male	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Liver seems small; 1 tapeworm

Table 7I-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake and Lake 13

Area	Fish ID	Species	Sex	Gonad Histology Code [a]	Maturation Stage	Life Stage	Body Deformities	Eyes	Gills	Pseudobranchs	Thymus	Skin	Fins	Opercles	Hindgut	Mesen-teric Fat	Liver	Spleen	Gall Bladder	Kidney	Comments
Snap Lake	SL12USL-LKCH-16004	LKCH	Female	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	50%	Normal	Normal	Normal	Normal	Loose eggs; canon 1583 (picture)
Snap Lake	SL12USL-LKCH-16005	LKCH	Male	1B	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16006	LKCH	Male	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Running milt
Snap Lake	SL12USL-LKCH-16007	LKCH	Male	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16008	LKCH	Male	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	50%	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16009	LKCH	Male	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16010	LKCH	Male	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16011	LKCH	Male	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Small gall bladder
Snap Lake	SL12USL-LKCH-16012	LKCH	Male	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16013	LKCH	Male	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	50%	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16014	LKCH	Female	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16015	LKCH	Male	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Light, active erosion	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16016	LKCH	Female	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16017	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	1 parasite; liver accidentaly preserved in formalin; no gonads
Snap Lake	SL12USL-LKCH-16018	LKCH	Male	1B	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Slight inflammation	<50%	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16019	LKCH	Female	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	50%	Normal	Normal	Normal	Normal	Photos=olympus 6083 (ripe female- a lot of eggs); caudal fin missing (lower fork), no hemoraging
Snap Lake	SL12USL-LKCH-16020	LKCH	Unknown	n/a	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Immature but >66mm; Liver left outside for ~10min before putting in dry ice-> MATURING; photos= canon #21588-21591
Snap Lake	SL12USL-LKCH-16021	LKCH	Unknown	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	-	Normal	Gall bladder not found
Snap Lake	SL12USL-LKCH-16022	LKCH	Unknown	2	MA	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	3 small parasites
Snap Lake	SL12USL-LKCH-16023	LKCH	Male	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Swollen	Running milt
Snap Lake	SL12USL-LKCH-16026	LKCH	Unknown	n/a	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Tapeworm collected - photo #1586, 1587 (canon)
Snap Lake	SL12USL-LKCH-16027	LKCH	Male	1B	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16028	LKCH	Male	1B	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Light, active erosion	Normal	Normal	<50%	Normal	Normal	Normal	Mottled	

Table 7I-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake and Lake 13

Area	Fish ID	Species	Sex	Gonad Histology Code [a]	Maturation Stage	Life Stage	Body Deformities	Eyes	Gills	Pseudobranchs	Thymus	Skin	Fins	Opercles	Hindgut	Mesen-teric Fat	Liver	Spleen	Gall Bladder	Kidney	Comments
Snap Lake	SL12USL-LKCH-16029	LKCH	Unknown	n/a	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16030	LKCH	Female	3	MA	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Tapeworm
Snap Lake	SL12USL-LKCH-16031	LKCH	Unknown	n/a	MA	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Parasitic tapeworm
Snap Lake	SL12USL-LKCH-16032	LKCH	Female	1A	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16033	LKCH	Female	1A	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16034	LKCH	Female	1A	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16035	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Gonads too small for weight/preservation
Snap Lake	SL12USL-LKCH-16036	LKCH	Female	6	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	30 eggs preserved & weighted for preservative comparison (wgt=0.0456); Photo # 185-188 canon (otoliths)
Snap Lake	SL12USL-LKCH-16037	LKCH	Female	1A	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16038	LKCH	Female	1B	-	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Very large parasite disturbing eggs therefore difficult to determine stage
Snap Lake	SL12USL-LKCH-16039	LKCH	Female	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	30 egg weight taken=0.0377
Snap Lake	SL12USL-LKCH-16040	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Too small of gonad
Snap Lake	SL12USL-LKCH-16041	LKCH	Female	1A	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Small parasites
Snap Lake	SL12USL-LKCH-16042	LKCH	Female	1A	PR	Adult	-	Normal	Pale	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Swollen	Small parasites in gut
Snap Lake	SL12USL-LKCH-16043	LKCH	Female	1A	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Few loose eggs; Photo # 191-195 canon (gall bladder)
Snap Lake	SL12USL-LKCH-16044	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Too small of gonad
Snap Lake	SL12USL-LKCH-16045	LKCH	Unknown	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16046	LKCH	Unknown	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16047	LKCH	Unknown	n/a	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16048	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Too small of a gonad
Snap Lake	SL12USL-LKCH-16049	LKCH	Female	2	UN	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Other	Normal	Parasites in body cavity
Snap Lake	SL12USL-LKCH-16050	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Too small of a gonad
Snap Lake	SL12USL-LKCH-16051	LKCH	Female	3	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Parasites in gut
Snap Lake	SL12USL-LKCH-16052	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Parasites in hindgut; gonads too small

Table 7I-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake and Lake 13

Area	Fish ID	Species	Sex	Gonad Histology Code [a]	Maturation Stage	Life Stage	Body Deformities	Eyes	Gills	Pseudobranchs	Thymus	Skin	Fins	Opercles	Hindgut	Mesen-teric Fat	Liver	Spleen	Gall Bladder	Kidney	Comments
Snap Lake	SL12USL-LKCH-16053	LKCH	Unknown	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Light, active erosion	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Caudal fin damaged
Snap Lake	SL12USL-LKCH-16054	LKCH	Unknown	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Small parasites
Snap Lake	SL12USL-LKCH-16055	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Fatty	Normal	Normal	Normal	Small parasites in hindgut; gonads too small
Snap Lake	SL12USL-LKCH-16056	LKCH	Unknown	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Fatty	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16057	LKCH	Female	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16058	LKCH	Female	3	SD	Maturing	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Spleen slightly pale
Snap Lake	SL12USL-LKCH-16059	LKCH	Unknown	n/a	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16501	LKCH	Female	2	IM	Juvenile	-	Normal	Pale	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16502	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	General discolouration	Normal	Normal	Normal	No gonad found; gall bladder punctured
Snap Lake	SL12USL-LKCH-16504	LKCH	Unknown	-	IM	Juvenile	-	Normal	Pale	Normal	Normal	Normal	Normal	Normal	Normal	<50%	General discolouration	Normal	-	Normal	Gall bladder and gonad not found
Snap Lake	SL12USL-LKCH-16505	LKCH	Female	1A	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Tapeworm
Snap Lake	SL12USL-LKCH-16506	LKCH	Male	1B	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Parasites	Normal	
Snap Lake	SL12USL-LKCH-16507	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	General discolouration	Normal	Normal	Mottled	Gonad not found
Snap Lake	SL12USL-LKCH-16508	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	General discolouration	Normal	-	Normal	Gall bladder and gonad not found
Snap Lake	SL12USL-LKCH-16512	LKCH	Female	1A	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-16513	LKCH	Male	3	MA	Maturing	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-17501	LKCH	Male	n/a	SD	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Stomach wgt=0.1802g
Snap Lake	SL12USL-LKCH-17502	LKCH	Female	3	SD	Maturing	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Fecundity sample preserved in formalin because there was no Gilson's; stomach wgt=0.1876
Snap Lake	SL12USL-LKCH-17503	LKCH	Female	1A	PR	Adult	-	Normal	2 parasites on right side	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	Parasites on gills
Snap Lake	SL12USL-LKCH-17504	LKCH	Female	1A	RP	Adult	-	Normal	Pale	Normal	Normal	Normal	Moderate, active erosion	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Not dead; ripe female; Hemorragea on tail fin
Snap Lake	SL12USL-LKCH-17505	LKCH	Female	2	IM	Juvenile	-	Normal	Pale	Normal	Normal	Normal	Moderate, active erosion	Normal	Normal	<50%	General discolouration	Normal	Normal	Mottled	Already dead; some hemorrhaging on tail fin; parasites on gonads; pale kidney
Snap Lake	SL12USL-LKCH-17506	LKCH	Male	1A	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	

Table 7I-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake and Lake 13

Area	Fish ID	Species	Sex	Gonad Histology Code [a]	Maturation Stage	Life Stage	Body Deformities	Eyes	Gills	Pseudobranchs	Thymus	Skin	Fins	Opercles	Hindgut	Mesen-teric Fat	Liver	Spleen	Gall Bladder	Kidney	Comments
Snap Lake	SL12USL-LKCH-17507	LKCH	Male	1B	PR	Adult	-	Normal	Pale	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Mottled	
Snap Lake	SL12USL-LKCH-17508	LKCH	Male	1B	SD, PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Brown stomach contents
Snap Lake	SL12USL-LKCH-17509	LKCH	Male	1A	PR	Adult	-	Normal	Pale	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	Parasites consisted of 2 small cysts
Snap Lake	SL12USL-LKCH-17510	LKCH	Unknown	n/a	SD	Unknown	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	-	Normal	Used formalin for fecundity because no Gilson's available; gall bladder not found
Snap Lake	SL12USL-LKCH-17511	LKCH	Unknown	n/a	MA	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-17512	LKCH	Unknown	n/a	MA	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Light, active erosion	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-17513	LKCH	Male	1A	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Severe, active erosion	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Hemoragea back fin
Snap Lake	SL12USL-LKCH-17514	LKCH	Male	3	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Photos 1572-1573=gonads, 1574-1576=otoliths
Snap Lake	SL12USL-LKCH-17515	LKCH	Male	1A	SD	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Flukes in gills (photos 3218-3219)
Snap Lake	SL12USL-LKCH-17517	LKCH	Female	1A	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Swollen	Kidney slightly inflammed- localized; Fecundity subsample preserved in 10% formalin
Snap Lake	SL12USL-LKCH-17518	LKCH	Male	1B	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Parasites	Normal	Potentially parasites in gall bladder (preserved)- photos: canon 1579 & 1580
Snap Lake	SL12USL-LKCH-17519	LKCH	Unknown	n/a	MA	Unknown	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Gonad photos canon # 1577 & 1578
Snap Lake	SL12USL-LKCH-17520	LKCH	Male	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Swollen	2 very large tapeworms filling the body cavity (canon photo: 1582)
Snap Lake	SL12USL-LKCH-17521	LKCH	Female	1A	PR	Adult	-	Blind right	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Fatty	Normal	Normal	Granular	Photos canon #1584-1585
Snap Lake	SL12USL-LKCH-17522	LKCH	Female	1A	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	
Snap Lake	SL12USL-LKCH-17523	LKCH	Male	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-18501	LKCH	Male	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19001	LKCH	Female	1A	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Parasites	Normal	Brown stomach contents; parasites in gall bladder
Northeast Lake	SL12UNEL-LKCH-19002	LKCH	Male	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19003	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Parasites	Normal	Parasites in gall bladder; gonads to small for weight and sample

Table 7I-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake and Lake 13

Area	Fish ID	Species	Sex	Gonad Histology Code [a]	Maturation Stage	Life Stage	Body Deformities	Eyes	Gills	Pseudobranchs	Thymus	Skin	Fins	Opercles	Hindgut	Mesen-teric Fat	Liver	Spleen	Gall Bladder	Kidney	Comments
Northeast Lake	SL12UNEL-LKCH-19004	LKCH	Female	1A	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Missing lower part of caudal fin (clear cut); loose eggs; liver and carcass on dry ice after >20min
Northeast Lake	SL12UNEL-LKCH-19005	LKCH	Female	3	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	Took 20min for liver to get on dry ice; gonad weight not accurate because of running eggs
Northeast Lake	SL12UNEL-LKCH-19006	LKCH	Female	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	-	Normal	Gall bladder not found
Northeast Lake	SL12UNEL-LKCH-19007	LKCH	Female	3	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	Gills starting to get paler; big liver; left over eggs; fish was new mortality-too hot outside!
Northeast Lake	SL12UNEL-LKCH-19008	LKCH	Male	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	Caudal fin split; died shortly due to warm day
Northeast Lake	SL12UNEL-LKCH-19009	LKCH	Female	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Almost dead; running eggs
Northeast Lake	SL12UNEL-LKCH-19010	LKCH	Female	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Parasites	Normal	Lots of eggs; parasite in gall bladder; cannon photos 1603-1613
Northeast Lake	SL12UNEL-LKCH-19011	LKCH	Male	3	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	-	None	Normal	Normal	Normal	Normal	Very small gonads; 1 very big parasite-ligula
Northeast Lake	SL12UNEL-LKCH-19012	LKCH	Female	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	Died shortly before processed so liver was coffee cream colour
Northeast Lake	SL12UNEL-LKCH-19013	LKCH	Female	1A	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	-	Swollen	Gall bladder not found
Northeast Lake	SL12UNEL-LKCH-19014	LKCH	Male	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Mild skin aberrations	Normal	Normal	Normal	None	Fatty	Normal	Normal	Normal	Broken blood vessels on ventral and dorsal
Northeast Lake	SL12UNEL-LKCH-19015	LKCH	Female	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Fatty	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19016	LKCH	Female	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19017	LKCH	Female	3	SD	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Parasites	Normal	Grey gonads; parasites in gall bladder
Northeast Lake	SL12UNEL-LKCH-19018	LKCH	Male	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Parasites	Normal	1 parasite in gall bladder
Northeast Lake	SL12UNEL-LKCH-19019	LKCH	Female	1B	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Enlarged	Normal	
Northeast Lake	SL12UNEL-LKCH-19020	LKCH	Female	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19021	LKCH	Female	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	-	Normal	Liver presever in 10% formalin on accident
Northeast Lake	SL12UNEL-LKCH-19022	LKCH	Female	3	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Swollen	
Northeast Lake	SL12UNEL-LKCH-19023	LKCH	Female	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	

Table 7I-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake and Lake 13

Area	Fish ID	Species	Sex	Gonad Histology Code [a]	Maturation Stage	Life Stage	Body Deformities	Eyes	Gills	Pseudobranchs	Thymus	Skin	Fins	Opercles	Hindgut	Mesen-teric Fat	Liver	Spleen	Gall Bladder	Kidney	Comments
Northeast Lake	SL12UNEL-LKCH-19024	LKCH	Male	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Parasites	Normal	Parasite in gall bladder
Northeast Lake	SL12UNEL-LKCH-19025	LKCH	Female	1A	RB	Adult	-	Normal	Frayed	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	-	Normal	Gall bladder not found
Northeast Lake	SL12UNEL-LKCH-19026	LKCH	Female	3	RB	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19027	LKCH	Female	3	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19028	LKCH	Male	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19029	LKCH	Female	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Parasites	Normal	Parasites in gall bladder
Northeast Lake	SL12UNEL-LKCH-19030	LKCH	Unknown	-	UN	Unknown	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Nodules and general discolouration	Normal	Normal	Swollen	Adult fish but gonads not found- maybe due to parasites; 2 very large parasites
Northeast Lake	SL12UNEL-LKCH-19031	LKCH	Male	1B	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Small gonads
Northeast Lake	SL12UNEL-LKCH-19032	LKCH	Male	2	MA	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19033	LKCH	Male	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	Orange spot at base of fins
Northeast Lake	SL12UNEL-LKCH-19034	LKCH	Unknown	n/a	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Fatty	Normal	Normal	Normal	Spleen is a bit pale
Northeast Lake	SL12UNEL-LKCH-19035	LKCH	Unknown	n/a	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	Parasite on gill
Northeast Lake	SL12UNEL-LKCH-19036	LKCH	Female	3	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Parasites	Normal	Parasite in gall bladder
Northeast Lake	SL12UNEL-LKCH-19037	LKCH	Male	3	MA	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Swollen	
Northeast Lake	SL12UNEL-LKCH-19038	LKCH	Female	3	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	-	Swollen	
Northeast Lake	SL12UNEL-LKCH-19040	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Light, active erosion	Normal	Normal	None	Fatty	Normal	Normal	Normal	Erosion on caudal fin; gonad too small; gall bladder not found
Northeast Lake	SL12UNEL-LKCH-19041	LKCH	Female	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Parasites	Swollen	
Northeast Lake	SL12UNEL-LKCH-19042	LKCH	Unknown	n/a	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Fatty	Normal	Normal	Normal	Gonad photos
Northeast Lake	SL12UNEL-LKCH-19043	LKCH	Female	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19044	LKCH	Male	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19045	LKCH	Female	2	IM	Juvenile	-	Normal	Pale	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19046	LKCH	Unknown	n/a	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Swollen	
Northeast Lake	SL12UNEL-LKCH-19047	LKCH	Unknown	n/a	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19048	LKCH	Male	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Swollen	
Northeast Lake	SL12UNEL-LKCH-19049	LKCH	Female	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Parasites	Normal	
Northeast Lake	SL12UNEL-LKCH-19050	LKCH	Female	2	IM	Juvenile	-	Normal	Pale	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	

Table 7I-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake and Lake 13

Area	Fish ID	Species	Sex	Gonad Histology Code [a]	Maturation Stage	Life Stage	Body Deformities	Eyes	Gills	Pseudobranchs	Thymus	Skin	Fins	Opercles	Hindgut	Mesen-teric Fat	Liver	Spleen	Gall Bladder	Kidney	Comments
Northeast Lake	SL12UNEL-LKCH-19051	LKCH	Unknown	n/a	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	-	-	Fatty	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19052	LKCH	Female	1A	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19053	LKCH	Male	n/a	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19054	LKCH	Unknown	n/a	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	-	Swollen	Gall bladder not found
Northeast Lake	SL12UNEL-LKCH-19055	LKCH	Male	1A	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Photo # 1634 & 1635 (cannon)
Northeast Lake	SL12UNEL-LKCH-19056	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Swollen	Gonad to small for weight and sample
Northeast Lake	SL12UNEL-LKCH-19057	LKCH	Male	1B	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Gall bladder fullness and colour unknown
Northeast Lake	SL12UNEL-LKCH-19058	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Mild skin aberrations	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	Skin hemorrhaging at caudal peduncle; gonad too small for weight and sample
Northeast Lake	SL12UNEL-LKCH-19059	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	Gonad to small for weight and sample
Northeast Lake	SL12UNEL-LKCH-19060	LKCH	Male	1A	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Orange spots on fins
Northeast Lake	SL12UNEL-LKCH-19061	LKCH	Female	1B	SD	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Parasites	Swollen	
Northeast Lake	SL12UNEL-LKCH-19062	LKCH	Female	1B	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Parasites	Normal	Liver slightly pale; photo's # 1647 &1648
Northeast Lake	SL12UNEL-LKCH-19063	LKCH	Female	3	MA	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Parasites	Normal	
Northeast Lake	SL12UNEL-LKCH-19064	LKCH	Female	1A	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19065	LKCH	Female	1A	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19066	LKCH	Male	1A	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19067	LKCH	Female	3	MA	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19068	LKCH	Female	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Fatty	Normal	Normal	Normal	
Northeast Lake	SL12UNEL-LKCH-19069	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Gonads not found
Northeast Lake	SL12UNEL-LKCH-19070	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	No gonads
Northeast Lake	SL12UNEL-LKCH-20001	LKCH	Male	n/a	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	-	Normal	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-21001	LKCH	Male	1B	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-21002	LKCH	Male	1B	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Photos: olympus #49-52
Lake 13	SL12ULK13-LKCH-21003	LKCH	Male	1A	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Parasite in hindgut
Lake 13	SL12ULK13-LKCH-21004	LKCH	Male	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Gonads are small but still ripe-probably at the end of spawning
Lake 13	SL12ULK13-LKCH-21005	LKCH	Male	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Enlarged	Normal	Swollen	

Table 7I-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake and Lake 13

Area	Fish ID	Species	Sex	Gonad Histology Code [a]	Maturation Stage	Life Stage	Body Deformities	Eyes	Gills	Pseudobranchs	Thymus	Skin	Fins	Opercles	Hindgut	Mesen-teric Fat	Liver	Spleen	Gall Bladder	Kidney	Comments
Lake 13	SL12ULK13-LKCH-21006	LKCH	Male	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Parasites	Normal	Parasites in the gall bladder
Lake 13	SL12ULK13-LKCH-21007	LKCH	Female	3	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	Potential parasite in gall bladder
Lake 13	SL12ULK13-LKCH-21501	LKCH	Male	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-21502	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	No gonad
Lake 13	SL12ULK13-LKCH-21503	LKCH	Female	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-21504	LKCH	Female	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	-	Parasites	Normal	Spleen not recorded; 1 parasite in gall bladder
Lake 13	SL12ULK13-LKCH-21505	LKCH	Female	3	SD	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Parasites	Normal	Liver is not healthy looking; parasites in gall bladder and large tapeworms in body cavity (perhaps cause of maturation stage)
Lake 13	SL12ULK13-LKCH-21506	LKCH	Female	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Parasites	Normal	Field crew suspects female; 1 small parasite in gall bladder
Lake 13	SL12ULK13-LKCH-22501	LKCH	Male	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Parasites in hindgut; no carcass wgt. Recorded
Lake 13	SL12ULK13-LKCH-22502	LKCH	Male	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Cysts on hindgut
Lake 13	SL12ULK13-LKCH-22503	LKCH	Male	1B	RP	Adult	-	Normal	Pale	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-22504	LKCH	Female	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Photos: cannon # 106-112
Lake 13	SL12ULK13-LKCH-22505	LKCH	Female	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Moderate skin aberrations	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	Skin aberations likely due to hoop (maybe old age?); photos 117-121
Lake 13	SL12ULK13-LKCH-22506	LKCH	Male	1B	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Enlarged	Normal	Normal	
Lake 13	SL12ULK13-LKCH-22507	LKCH	Female	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-22508	LKCH	Female	n/a	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Parasites	Normal	Potential parasite in gall bladder
Lake 13	SL12ULK13-LKCH-22509	LKCH	Female	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Fatty	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-22510	LKCH	Female	1B	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Split caudal fin; loose stomach-may have lost some eggs (photo #122); small tapeworms on inside of stomach (photo 126); nose injury from net
Lake 13	SL12ULK13-LKCH-22511	LKCH	Male	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Slight inflammation	<50%	Normal	Normal	Parasites	Normal	More mesenteric fat than other LKCH but still <50%

Table 7I-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake and Lake 13

Area	Fish ID	Species	Sex	Gonad Histology Code [a]	Maturation Stage	Life Stage	Body Deformities	Eyes	Gills	Pseudobranchs	Thymus	Skin	Fins	Opercles	Hindgut	Mesen-teric Fat	Liver	Spleen	Gall Bladder	Kidney	Comments
Lake 13	SL12ULK13-LKCH-22512	LKCH	Male	1B	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-22513	LKCH	Female	3	UN	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Small gonads because of very large tapeworm in entire body cavity
Lake 13	SL12ULK13-LKCH-22514	LKCH	Male	1A	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Parasites	Swollen	Dorsal fin frayed; parasite in gall bladder
Lake 13	SL12ULK13-LKCH-22515	LKCH	Male	1A	SD	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-22516	LKCH	Male	1B	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Parasites	Normal	Parasite in gall bladder
Lake 13	SL12ULK13-LKCH-22517	LKCH	Male	1B	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-22518	LKCH	Male	1A	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Parasites	Normal	1 parasite in gall bladder
Lake 13	SL12ULK13-LKCH-22519	LKCH	Male	1B	PR	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Parasites	Normal	Gonad photo # 136-137
Lake 13	SL12ULK13-LKCH-22520	LKCH	Female	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-22521	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	No gonads found
Lake 13	SL12ULK13-LKCH-22522	LKCH	Female	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-22523	LKCH	Unknown	n/a	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-22524	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	No gonads found
Lake 13	SL12ULK13-LKCH-22525	LKCH	Female	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	Field crew think it's likely a female
Lake 13	SL12ULK13-LKCH-22526	LKCH	Male	1B	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-22527	LKCH	Female	1A	RB	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	-	
Lake 13	SL12ULK13-LKCH-22528	LKCH	Male	1B	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-22529	LKCH	Male	1B	RP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Gall bladder small
Lake 13	SL12ULK13-LKCH-22530	LKCH	Female	1B	RB	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Swollen	
Lake 13	SL12ULK13-LKCH-22531	LKCH	Female	3	RB	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-22532	LKCH	Male	1B	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Normal	Normal	Parasites	Normal	Small parasite in gall bladder
Lake 13	SL12ULK13-LKCH-22534	LKCH	Male	1B	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Light, active erosion	Normal	Normal	<50%	Normal	Normal	Normal	Normal	Cyst under pectoral fin
Lake 13	SL12ULK13-LKCH-22535	LKCH	Male	1A	SP	Adult	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Normal	Normal	Normal	Normal	Skin cut from hoop net; milt came out but almost done-skinny gonads
Lake 13	SL12ULK13-LKCH-22536	LKCH	Unknown	n/a	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-22537	LKCH	Unknown	n/a	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-22538	LKCH	Unknown	n/a	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	

Table 7I-1 Snap Lake 2012 AEMP Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake and Lake 13

Area	Fish ID	Species	Sex	Gonad Histology Code [a]	Maturation Stage	Life Stage	Body Deformities	Eyes	Gills	Pseudobranchs	Thymus	Skin	Fins	Opercles	Hindgut	Mesen-teric Fat	Liver	Spleen	Gall Bladder	Kidney	Comments
Lake 13	SL12ULK13-LKCH-22539	LKCH	Female	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	None	Fatty	Normal	-	Normal	Parasites in gut
Lake 13	SL12ULK13-LKCH-22540	LKCH	Female	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-22541	LKCH	Male	1A	RP	Adult	Upper caudal fin deformity	Normal	Normal	Normal	Normal	Normal	Normal	Normal	-	<50%	Normal	Normal	Normal	Normal	Almost spent-gondads small & skinny
Lake 13	SL12ULK13-LKCH-22542	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Mottled	
Lake 13	SL12ULK13-LKCH-22543	LKCH	Unknown	n/a	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-22544	LKCH	Female	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-22545	LKCH	Female	2	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	
Lake 13	SL12ULK13-LKCH-22546	LKCH	Unknown	-	IM	Juvenile	-	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	<50%	Fatty	Normal	Normal	Normal	

Note: '+' = parasites observed (e.g., cysts); '++' = tapeworms observed

(a) Gonad histology codes can be found in Table 7-2 of the 2012 Snap Lake AEMP.

ID = identification; mm = millimetre; g = gram; y = year; % = percent; < = less than; > = more than; # = number; LKCH = Lake Chub; UN = unknown; IM = immature; MA = maturing; SD = seasonal development; PR = pre-spawning; RP = ripe; SP = spent; RB = reabsorbing; OT = otoliths; SC = scales; FR = fin rays; wgt. = weight; ; - = not applicable or no observations recorded; n/a = not available (insufficient tissue to perform analysis). .

Table 7I-2 Snap Lake 2012 AEMP Non-Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake, Lake 13 and Downstream Lake 1

Area	Fish ID	Species	Sex	Maturation Stage	Length Based Life Stage	Fork Length (mm)	Total Length (mm)	Body Weight (g)	Assigned Age (y)	External Exam
Snap Lake	016	LKCH	Unknown	UN	YOY	27	30	0.6000	0	-
Snap Lake	017	LKCH	Unknown	UN	YOY	27	30	0.6000	0	-
Snap Lake	018	LKCH	Unknown	UN	Juvenile	42	45	0.9000	1	-
Snap Lake	027	LKCH	Unknown	UN	YOY	27	30	0.6000	0	-
Snap Lake	028	LKCH	Male	RP	Adult	106	113	17.1124	3	Big parasite
Snap Lake	029	LKCH	Unknown	UN	Unknown	79	86	5.2579	2	-
Snap Lake	030	LKCH	Unknown	UN	Unknown	103	111	9.2757	2	-
Snap Lake	031	LKCH	Unknown	UN	Unknown	76	82	5.1324	2	-
Snap Lake	032	LKCH	Unknown	UN	Unknown	90	96	6.0528	2	-
Snap Lake	033a	LKCH	Unknown	UN	Unknown	95	102	9.3922	2	-
Snap Lake	033b	LKCH	Unknown	UN	Unknown	92	100	5.6489	2	-
Snap Lake	034	LKCH	Unknown	UN	Unknown	90	98	6.4694	2	-
Snap Lake	035	LKCH	Unknown	UN	Juvenile	50	54	1.4543	1	-
Snap Lake	036	LKCH	Unknown	UN	Juvenile	47	51	1.1535	1	-
Snap Lake	037	LKCH	Male	UN	Unknown	82	94	5.2591	2	-
Snap Lake	038	LKCH	Unknown	UN	Juvenile	50	54	1.5455	1	-
Snap Lake	039	LKCH	Unknown	UN	Juvenile	48	51	0.9311	1	-
Snap Lake	040	LKCH	Male	UN	Unknown	90	97	6.1318	2	-
Snap Lake	041	LKCH	Unknown	UN	Juvenile	44	48	0.9258	1	-
Snap Lake	042	LKCH	Unknown	UN	Juvenile	52	61	1.7180	1	-
Snap Lake	043	LKCH	Unknown	UN	Juvenile	50	59	1.4975	1	-
Snap Lake	044	LKCH	Male	UN	Unknown	95	101	7.6297	2	-
Snap Lake	045	LKCH	Male	UN	Unknown	89	95	6.3981	2	-
Snap Lake	048	LKCH	Male	RP	Adult	92	101	6.7010	2	-
Snap Lake	049	LKCH	Male	RP	Adult	102	111	9.5120	2	-
Snap Lake	050	LKCH	Unknown	UN	Unknown	96	105	10.3790	2	Large parasite in gut
Snap Lake	051	LKCH	Male	RP	Adult	85	92	5.0210	2	-
Snap Lake	052	LKCH	Male	RP	Adult	88	96	5.9900	2	-
Snap Lake	053	LKCH	Unknown	UN	Unknown	65	72	2.8760	2	-
Snap Lake	054	LKCH	Unknown	UN	Juvenile	61	66	2.2190	1	-
Snap Lake	055	LKCH	Unknown	UN	Juvenile	51	55	1.1620	1	-
Snap Lake	056	LKCH	Unknown	UN	Juvenile	59	64	1.6390	1	-
Snap Lake	057	LKCH	Unknown	UN	Juvenile	59	64	1.9080	1	-
Snap Lake	058	LKCH	Male	RP	Adult	107	115	11.2290	3	-
Snap Lake	059	LKCH	Unknown	UN	Unknown	83	89	4.6620	2	-
Snap Lake	062	LKCH	Male	RP	Adult	85	92	5.4980	2	-
Snap Lake	063	LKCH	Male	RP	Adult	78	84	4.1480	2	-
Snap Lake	064	LKCH	Male	RP	Adult	92	98	6.7350	2	-
Snap Lake	065	LKCH	Male	RP	Adult	80	88	4.4670	2	-
Snap Lake	066	LKCH	Unknown	UN	Unknown	81	87	4.5350	2	-
Snap Lake	067	LKCH	Male	RP	Adult	96	105	7.5380	2	-
Snap Lake	068	LKCH	Male	RP	Adult	93	101	7.3840	2	-
Snap Lake	069	LKCH	Male	RP	Adult	93	103	6.8690	2	-
Snap Lake	070	LKCH	Male	RP	Adult	95	100	6.8200	2	-
Snap Lake	071	LKCH	Male	RP	Adult	93	100	6.6140	2	-
Snap Lake	072	LKCH	Male	RP	Adult	91	99	6.4940	2	-
Snap Lake	073	LKCH	Male	RP	Adult	92	100	6.4530	2	-
Snap Lake	074	LKCH	Male	UN	Unknown	90	99	6.8620	2	-

Table 7I-2 Snap Lake 2012 AEMP Non-Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake, Lake 13 and Downstream Lake 1

Area	Fish ID	Species	Sex	Maturation Stage	Length Based Life Stage	Fork Length (mm)	Total Length (mm)	Body Weight (g)	Assigned Age (y)	External Exam
Snap Lake	075	LKCH	Male	RP	Adult	91	100	7.0450	2	-
Snap Lake	076	LKCH	Male	RP	Adult	94	102	7.0470	2	-
Snap Lake	077	LKCH	Male	RP	Adult	94	101	6.7880	2	-
Snap Lake	078	LKCH	Unknown	UN	Unknown	79	86	4.1830	2	-
Snap Lake	079	LKCH	Unknown	UN	Juvenile	60	66	1.9890	1	-
Snap Lake	080	LKCH	Unknown	UN	Juvenile	56	60	1.5650	1	-
Snap Lake	081	LKCH	Male	RP	Adult	101	111	9.1550	2	-
Snap Lake	082	LKCH	Male	RP	Adult	88	95	6.0600	2	-
Snap Lake	083	LKCH	Male	RP	Adult	96	105	7.5870	2	-
Snap Lake	084	LKCH	Male	RP	Adult	100	109	9.6450	2	-
Snap Lake	085	LKCH	Male	RP	Adult	95	102	7.0850	2	-
Snap Lake	086	LKCH	Male	RP	Adult	90	98	6.6920	2	-
Snap Lake	087	LKCH	Male	RP	Adult	99	107	8.4650	2	Lower half of caudal fin missing
Snap Lake	088	LKCH	Male	RP	Adult	91	101	6.4100	2	-
Snap Lake	089	LKCH	Male	RP	Adult	95	103	7.6140	2	-
Snap Lake	090	LKCH	Male	SP	Adult	86	94	6.1912	2	-
Snap Lake	091	LKCH	Male	SP	Adult	83	86	5.1550	2	-
Snap Lake	092	LKCH	Male	SP	Adult	100	109	9.0604	2	-
Snap Lake	093	LKCH	Male	SP	Adult	97	105	8.4155	2	-
Snap Lake	094	LKCH	Male	SP	Adult	95	101	7.2683	2	-
Snap Lake	095	LKCH	Male	SP	Adult	79	87	5.0360	2	-
Snap Lake	096	LKCH	Male	SD	Adult	66	71	2.5600	2	-
Snap Lake	097	LKCH	Male	SD	Adult	76	83	4.2470	2	-
Snap Lake	098	LKCH	Male	SD	Adult	81	87	5.0350	2	-
Snap Lake	099	LKCH	Male	SD	Adult	83	92	6.1810	2	-
Snap Lake	100	LKCH	Male	SD	Adult	80	87	4.5940	2	-
Snap Lake	101	LKCH	Male	SD	Adult	80	87	4.3730	2	-
Snap Lake	102	LKCH	Male	MA	Juvenile	62	67	2.4820	1	Parasite
Snap Lake	103	LKCH	Unknown	IM	Juvenile	58	63	1.7600	1	-
Snap Lake	104	LKCH	Male	IM	Juvenile	59	64	2.0700	1	-
Snap Lake	105	LKCH	Male	IM	Juvenile	79	86	4.4160	2	-
Snap Lake	106	LKCH	Male	IM	Juvenile	64	68	2.4320	1	-
Snap Lake	107	LKCH	Unknown	IM	Juvenile	62	67	2.2420	1	-
Snap Lake	108	LKCH	Unknown	IM	Juvenile	66	72	2.8560	2	-
Snap Lake	109	LKCH	Unknown	IM	Juvenile	59	64	1.8270	1	-
Snap Lake	110	LKCH	Unknown	IM	Juvenile	51	60	1.6680	1	-
Snap Lake	111	LKCH	Unknown	IM	Juvenile	57	61	1.9990	1	Eroded caudal fin
Snap Lake	112	LKCH	Unknown	IM	Juvenile	54	59	1.6000	1	-
Snap Lake	113	LKCH	Unknown	UN	Unknown	78	86	4.7570	2	-
Snap Lake	114	LKCH	Male	RP	Adult	98	104	9.0770	2	-
Snap Lake	115	LKCH	Male	RP	Adult	90	99	7.1890	2	-
Snap Lake	116	LKCH	Unknown	UN	Unknown	100	107	9.3660	2	-
Snap Lake	117	LKCH	Male	RP	Adult	95	103	8.2870	2	-
Snap Lake	118	LKCH	Male	RP	Adult	84	91	6.0470	2	-
Snap Lake	119	LKCH	Male	RP	Adult	93	98	7.0330	2	-
Snap Lake	120	LKCH	Unknown	UN	Unknown	89	96	6.4870	2	-
Snap Lake	121	LKCH	Male	RP	Adult	76	81	4.3950	2	-
Snap Lake	122	LKCH	Unknown	UN	Unknown	85	92	6.1570	2	-

Table 7I-2 Snap Lake 2012 AEMP Non-Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake, Lake 13 and Downstream Lake 1

Area	Fish ID	Species	Sex	Maturation Stage	Length Based Life Stage	Fork Length (mm)	Total Length (mm)	Body Weight (g)	Assigned Age (y)	External Exam
Snap Lake	123	LKCH	Unknown	UN	Unknown	76	80	4.9650	2	Black spot on side of fish, size of a penny
Snap Lake	124	LKCH	Male	RP	Adult	86	92	6.5760	2	-
Snap Lake	125	LKCH	Male	RP	Adult	84	90	5.7520	2	-
Snap Lake	126	LKCH	Male	RP	Adult	86	94	6.2970	2	-
Snap Lake	127	LKCH	Male	RP	Adult	91	100	7.7460	2	-
Snap Lake	128	LKCH	Unknown	UN	Unknown	80	87	5.4060	2	-
Snap Lake	129	LKCH	Male	RP	Adult	83	90	5.7760	2	-
Snap Lake	130	LKCH	Unknown	UN	Juvenile	62	68	2.8420	1	-
Snap Lake	131	LKCH	Male	RP	Adult	82	90	5.3280	2	-
Snap Lake	132	LKCH	Male	RP	Adult	90	96	6.6020	2	-
Snap Lake	133	LKCH	Unknown	UN	Unknown	84	91	5.3590	2	-
Snap Lake	134	LKCH	Male	RP	Adult	76	84	4.6060	2	-
Snap Lake	135	LKCH	Male	RP	Adult	94	100	7.6870	2	-
Snap Lake	136	LKCH	Unknown	UN	Unknown	86	95	5.9070	2	-
Snap Lake	137	LKCH	Unknown	UN	Juvenile	54	58	1.6900	1	-
Snap Lake	138	LKCH	Unknown	UN	Unknown	80	87	5.1070	2	-
Snap Lake	139	LKCH	Male	RP	Adult	76	81	4.6520	2	-
Snap Lake	140	LKCH	Male	RP	Adult	81	89	5.4390	2	-
Snap Lake	141	LKCH	Male	RP	Adult	89	96	6.6920	2	-
Snap Lake	142	LKCH	Male	RP	Adult	100	108	8.7980	2	-
Snap Lake	143	LKCH	Male	RP	Adult	94	101	8.2090	2	-
Snap Lake	144	LKCH	Male	RP	Adult	90	99	7.2590	2	-
Snap Lake	145	LKCH	Male	RP	Adult	95	103	7.0920	2	-
Snap Lake	146	LKCH	Male	RP	Adult	89	93	6.0940	2	-
Snap Lake	147	LKCH	Unknown	RP	Juvenile	53	57	1.4360	1	-
Snap Lake	148	LKCH	Male	RP	Adult	86	92	5.8760	2	-
Snap Lake	149	LKCH	Male	RP	Adult	85	94	6.6700	2	-
Snap Lake	150	LKCH	Male	RP	Adult	89	97	6.5820	2	-
Snap Lake	151	LKCH	Unknown	UN	Juvenile	50	52	1.3010	1	-
Snap Lake	152	LKCH	Unknown	UN	Juvenile	62	67	2.6200	1	-
Snap Lake	153	LKCH	Unknown	UN	Unknown	89	96	6.2680	2	-
Snap Lake	154	LKCH	Unknown	UN	Unknown	89	97	7.1010	2	-
Snap Lake	155	LKCH	Unknown	UN	Unknown	81	92	5.9500	2	-
Snap Lake	156	LKCH	Unknown	UN	Unknown	81	88	5.5490	2	-
Snap Lake	157	LKCH	Unknown	UN	Unknown	85	91	5.5760	2	-
Snap Lake	158	LKCH	Unknown	UN	Unknown	94	102	8.1660	2	-
Snap Lake	159	LKCH	Unknown	UN	Unknown	85	93	6.2260	2	-
Snap Lake	160	LKCH	Unknown	UN	Unknown	88	96	6.6740	2	-
Snap Lake	161	LKCH	Unknown	UN	Unknown	81	88	4.8330	2	-
Snap Lake	162	LKCH	Unknown	UN	Unknown	86	98	7.3210	2	Caudal fin damaged
Snap Lake	163	LKCH	Unknown	UN	Unknown	93	100	7.1320	2	-
Snap Lake	164	LKCH	Unknown	UN	Unknown	87	95	6.0003	2	-
Snap Lake	165	LKCH	Male	RP	Adult	89	98	6.7670	2	-
Snap Lake	166	LKCH	Male	RP	Adult	97	107	8.7500	2	-
Snap Lake	167	LKCH	Male	RP	Adult	96	104	8.3970	2	-
Snap Lake	168	LKCH	Unknown	UN	Unknown	89	95	6.2160	2	-
Snap Lake	169	LKCH	Male	RP	Adult	85	92	6.2620	2	-
Snap Lake	170	LKCH	Unknown	UN	Unknown	95	102	7.8470	2	-

Table 7I-2 Snap Lake 2012 AEMP Non-Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake, Lake 13 and Downstream Lake 1

Area	Fish ID	Species	Sex	Maturation Stage	Length Based Life Stage	Fork Length (mm)	Total Length (mm)	Body Weight (g)	Assigned Age (y)	External Exam
Snap Lake	171	LKCH	Unknown	UN	Unknown	67	72	3.1690	2	-
Snap Lake	17524	LKCH	Unknown	UN	Unknown	105	114	8.9480	2	Dead in cooler- no fish health data
Snap Lake	17525	LKCH	Unknown	UN	Unknown	80	86	5.1132	2	Dead in cooler- no fish health data
Northeast Lake	005	LKCH	Unknown	UN	YOY	28	30	0.1730	0	-
Northeast Lake	006	LKCH	Unknown	UN	YOY	27	29	0.1470	0	-
Northeast Lake	007	LKCH	Unknown	UN	YOY	27	30	0.2060	0	-
Northeast Lake	008	LKCH	Unknown	UN	YOY	28	32	0.2650	0	-
Northeast Lake	009	LKCH	Unknown	UN	YOY	33	35	0.4130	0	-
Northeast Lake	011	LKCH	Unknown	UN	Juvenile	47	50	0.8580	1	Nikon photo # 308
Northeast Lake	023	LKCH	Unknown	UN	Juvenile	51	54	1.0470	1	-
Northeast Lake	024	LKCH	Unknown	UN	Juvenile	43	45	0.6906	1	-
Northeast Lake	025	LKCH	Unknown	UN	Juvenile	51	54	1.0531	1	-
Northeast Lake	026	LKCH	Unknown	UN	Juvenile	47	49	0.7308	1	-
Northeast Lake	027	LKCH	Unknown	UN	Juvenile	41	44	0.6893	1	-
Northeast Lake	028	LKCH	Unknown	UN	Juvenile	43	45	0.3934	1	-
Northeast Lake	029	LKCH	Unknown	UN	Juvenile	52	56	1.0494	1	-
Northeast Lake	030	LKCH	Unknown	UN	YOY	31	33	0.3240	0	-
Northeast Lake	031	LKCH	Unknown	UN	Juvenile	47	49	0.7363	1	-
Northeast Lake	032	LKCH	Unknown	UN	Juvenile	44	47	0.7708	1	-
Northeast Lake	044	LKCH	Male	RP	Adult	96	100	9.0810	2	-
Northeast Lake	045	LKCH	Female	RP	Adult	127	139	17.6739	3	-
Northeast Lake	046	LKCH	Male	RP	Adult	89	97	7.5036	2	-
Northeast Lake	047	LKCH	Male	RP	Adult	108	114	7.4210	3	-
Northeast Lake	048	LKCH	Male	RP	Adult	104	111	10.7717	3	-
Northeast Lake	049	LKCH	Unknown	UN	Juvenile	50	54	1.4290	1	-
Northeast Lake	050	LKCH	Male	RP	Adult	94	101	8.6289	2	-
Northeast Lake	051	LKCH	Unknown	UN	Juvenile	49	52	1.1888	1	-
Northeast Lake	052	LKCH	Male	RP	Adult	95	102	8.2925	2	-
Northeast Lake	053	LKCH	Female	PR	Adult	94	102	8.2803	2	-
Northeast Lake	054	LKCH	Female	PR	Adult	83	90	5.4643	2	-
Northeast Lake	055	LKCH	Male	RP	Adult	85	92	6.8841	2	-
Northeast Lake	056	LKCH	Unknown	UN	Unknown	67	74	3.2808	2	-
Northeast Lake	057	LKCH	Unknown	UN	Juvenile	64	69	0.7195	1	-
Northeast Lake	059	LKCH	Unknown	IM	Adult	107	117	12.6360	3	-
Northeast Lake	060	LKCH	Unknown	UN	Juvenile	43	52	1.0360	1	-
Northeast Lake	061	LKCH	Unknown	IM	Juvenile	45	49	0.9320	1	-
Northeast Lake	062	LKCH	Unknown	IM	Juvenile	42	46	0.7680	1	-
Northeast Lake	063	LKCH	Unknown	IM	Juvenile	44	47	-	1	-
Northeast Lake	064	LKCH	Unknown	IM	Juvenile	50	54	1.0877	1	-
Northeast Lake	065	LKCH	Unknown	RP	Adult	131	140	19.3092	4	-
Northeast Lake	066	LKCH	Female	RP	Adult	111	123	12.4386	3	-
Northeast Lake	067	LKCH	Unknown	UN	Unknown	76	82	4.3031	2	-
Northeast Lake	068	LKCH	Unknown	UN	Adult	110	121	12.4044	3	-
Northeast Lake	069	LKCH	Unknown	UN	Unknown	83	89	5.2238	2	-
Northeast Lake	070	LKCH	Unknown	UN	Unknown	85	92	6.2265	2	-
Northeast Lake	072	LKCH	Unknown	IM	YOY	32	38	0.4580	0	-
Northeast Lake	073	LKCH	Unknown	IM	YOY	33	35	0.3330	0	-
Northeast Lake	074	LKCH	Unknown	UN	YOY	35	37	0.4860	0	-

Table 7I-2 Snap Lake 2012 AEMP Non-Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake, Lake 13 and Downstream Lake 1

Area	Fish ID	Species	Sex	Maturation Stage	Length Based Life Stage	Fork Length (mm)	Total Length (mm)	Body Weight (g)	Assigned Age (y)	External Exam
Northeast Lake	075	LKCH	Unknown	RP	Adult	122	135	17.0730	3	-
Northeast Lake	076	LKCH	Unknown	IM	Juvenile	50	55	1.5367	1	-
Lake 13	001	LKCH	Male	UN	Adult	104	111	10.6110	3	-
Lake 13	002	LKCH	Male	UN	Unknown	93	100	8.6560	2	-
Lake 13	003	LKCH	Female	UN	Unknown	78	85	4.2180	2	Big parasite
Lake 13	004	LKCH	Male	UN	Unknown	92	100	7.7680	2	-
Lake 13	005	LKCH	Female	UN	Unknown	101	108	9.9160	2	-
Lake 13	006	LKCH	Unknown	UN	Juvenile	53	57	1.4450	1	-
Lake 13	007	LKCH	Unknown	UN	Unknown	79	86	5.3620	2	-
Lake 13	008	LKCH	Unknown	UN	Unknown	89	96	6.7500	2	-
Lake 13	009	LKCH	Unknown	IM	YOY	30	33	0.3707	0	-
Lake 13	010	LKCH	Unknown	IM	YOY	29	31	0.2618	0	-
Lake 13	011	LKCH	Unknown	IM	YOY	29	30	0.2847	0	-
Lake 13	015	LKCH	Unknown	UN	Unknown	83	90	5.4900	2	-
Lake 13	016	LKCH	Unknown	UN	Unknown	75	81	3.9040	2	-
Lake 13	017	LKCH	Unknown	UN	Juvenile	53	57	1.2980	1	-
Lake 13	018	LKCH	Unknown	UN	Juvenile	51	62	1.7630	1	-
Lake 13	019	LKCH	Unknown	UN	Juvenile	52	56	1.3020	1	-
Lake 13	020	LKCH	Unknown	UN	Juvenile	48	52	1.0500	1	-
Lake 13	021	LKCH	Unknown	UN	Juvenile	49	52	0.9910	1	-
Lake 13	022	LKCH	Unknown	UN	Juvenile	53	58	1.5900	1	-
Lake 13	023	LKCH	Unknown	UN	YOY	27	29	0.2140	0	-
Lake 13	024	LKCH	Unknown	UN	YOY	27	29	0.2480	0	-
Lake 13	026	LKCH	Unknown	UN	YOY	32	34	-	0	-
Lake 13	028	LKCH	Unknown	UN	YOY	34	36	-	0	-
Lake 13	031	LKCH	Unknown	UN	YOY	36	40	0.4810	0	-
Lake 13	032	LKCH	Unknown	UN	Juvenile	50	55	1.2238	1	-
Lake 13	033	LKCH	Unknown	UN	Juvenile	50	54	1.2664	1	-
Lake 13	034	LKCH	Unknown	UN	Juvenile	51	60	1.7210	1	-
Lake 13	035	LKCH	Unknown	UN	Juvenile	52	55	1.3130	1	-
Lake 13	036	LKCH	Unknown	UN	Juvenile	52	55	1.2864	1	-
Lake 13	037	LKCH	Unknown	UN	Juvenile	50	54	1.2530	1	-
Lake 13	038	LKCH	Unknown	UN	Juvenile	48	51	1.1394	1	-
Lake 13	039	LKCH	Unknown	UN	Juvenile	41	50	1.0619	1	-
Lake 13	040	LKCH	Unknown	UN	Juvenile	51	55	1.4240	1	-
Lake 13	041	LKCH	Unknown	UN	Juvenile	48	51	1.0970	1	-
Lake 13	042	LKCH	Unknown	UN	YOY	33	35	0.3620	0	-
Lake 13	043	LKCH	Unknown	UN	YOY	34	35	0.3291	0	-
Lake 13	044	LKCH	Unknown	UN	YOY	34	35	0.2921	0	-
Lake 13	045	LKCH	Unknown	UN	YOY	21	26	0.2198	0	-
Lake 13	046	LKCH	Unknown	UN	YOY	33	36	0.3815	0	-
Lake 13	047	LKCH	Unknown	UN	YOY	30	33	0.3098	0	-
Lake 13	048	LKCH	Unknown	UN	YOY	31	34	0.2800	0	-
Lake 13	049	LKCH	Unknown	UN	YOY	32	35	0.3593	0	-
Downstream Lake 1	001	LKCH	Male	RP	Adult	82	89	4.896	2	-
Downstream Lake 1	002	LKCH	Male	RP	Adult	92	101	7.692	2	-
Downstream Lake 1	003	LKCH	Male	RP	Adult	90	98	6.623	2	-
Downstream Lake 1	004	LKCH	Female	RP	Adult	81	88	5.126	2	-

Table 7I-2 Snap Lake 2012 AEMP Non-Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake, Lake 13 and Downstream Lake 1

Area	Fish ID	Species	Sex	Maturation Stage	Length Based Life Stage	Fork Length (mm)	Total Length (mm)	Body Weight (g)	Assigned Age (y)	External Exam
Downstream Lake 1	005	LKCH	Unknown	UN	Unknown	76	83	4.123	2	-
Downstream Lake 1	006	LKCH	Unknown	UN	Unknown	81	88	5.478	2	-
Downstream Lake 1	007	LKCH	Unknown	UN	Unknown	88	95	6.66	2	-
Downstream Lake 1	008	LKCH	Unknown	UN	Unknown	84	92	5.744	2	-
Downstream Lake 1	009	LKCH	Female	RP	Adult	89	98	6.864	2	-
Downstream Lake 1	010	LKCH	Unknown	UN	Unknown	80	87	5.076	2	-
Downstream Lake 1	011	LKCH	Unknown	UN	Unknown	90	98	6.377	2	-
Downstream Lake 1	012	LKCH	Male	RP	Adult	90	98	7.291	2	-
Downstream Lake 1	013	LKCH	Unknown	UN	Unknown	79	87	5.135	2	-
Downstream Lake 1	014	LKCH	Male	RP	Adult	80	87	4.674	2	-
Downstream Lake 1	015	LKCH	Male	RP	Adult	95	104	8.57	2	-
Downstream Lake 1	016	LKCH	Unknown	UN	Adult	103	111	12.631	3	Parasite-ligula
Downstream Lake 1	017	LKCH	Unknown	UN	Unknown	90	97	6.68	2	-
Downstream Lake 1	018	LKCH	Male	RP	Adult	87	95	6.673	2	-
Downstream Lake 1	019	LKCH	Unknown	RP	Adult	84	89	5.286	2	-
Downstream Lake 1	020	LKCH	Male	RP	Adult	88	91	6.21	2	-
Downstream Lake 1	021	LKCH	Male	RP	Adult	78	85	4.633	2	-
Downstream Lake 1	022	LKCH	Male	RP	Adult	81	90	5.34	2	Fin erosion or injury- upper caudal missing; canon photo # 1660 & 1661
Downstream Lake 1	023	LKCH	Male	RP	Adult	83	90	5.263	2	-
Downstream Lake 1	024	LKCH	Unknown	UN	Unknown	95	101	11.459	2	Parasite- ligula
Downstream Lake 1	025	LKCH	Unknown	UN	Unknown	83	90	5.62	2	-
Downstream Lake 1	026	LKCH	Unknown	UN	Unknown	90	97	7.73	2	-
Downstream Lake 1	027	LKCH	Male	RP	Adult	93	101	7.632	2	-
Downstream Lake 1	028	LKCH	Unknown	UN	Unknown	83	92	5.712	2	-
Downstream Lake 1	029	LKCH	Male	RP	Adult	85	92	6.09	2	-
Downstream Lake 1	030	LKCH	Male	RP	Adult	81	86	5.242	2	-
Downstream Lake 1	031	LKCH	Male	RP	Adult	89	96	6.866	2	-
Downstream Lake 1	032	LKCH	Male	RP	Adult	79	85	5.01	2	-
Downstream Lake 1	033	LKCH	Unknown	UN	Unknown	84	92	6.026	2	-
Downstream Lake 1	034	LKCH	Male	RP	Adult	87	94	5.795	2	-
Downstream Lake 1	035	LKCH	Unknown	UN	Unknown	84	91	5.537	2	-
Downstream Lake 1	036	LKCH	Male	RP	Adult	88	95	6.711	2	-
Downstream Lake 1	037	LKCH	Unknown	UN	Unknown	90	98	9.682	2	Parasite- ligula
Downstream Lake 1	038	LKCH	Male	RP	Adult	87	93	6.366	2	-
Downstream Lake 1	039	LKCH	Male	RP	Adult	83	89	5.109	2	-
Downstream Lake 1	040	LKCH	Male	RP	Adult	88	94	5.715	2	-
Downstream Lake 1	041	LKCH	Male	RP	Adult	85	92	5.965	2	-
Downstream Lake 1	042	LKCH	Unknown	UN	Unknown	75	82	4.617	2	-
Downstream Lake 1	043	LKCH	Male	RP	Adult	78	85	4.816	2	-
Downstream Lake 1	044	LKCH	Male	RP	Adult	90	99	7.48	2	-
Downstream Lake 1	045	LKCH	Unknown	UN	Unknown	85	93	6.035	2	-
Downstream Lake 1	046	LKCH	Male	RP	Adult	93	89	5.189	2	-
Downstream Lake 1	047	LKCH	Unknown	UN	Unknown	91	97	7.313	2	-
Downstream Lake 1	048	LKCH	Male	RP	Adult	86	93	5.93	2	-
Downstream Lake 1	049	LKCH	Male	RP	Adult	86	93	6.594	2	-
Downstream Lake 1	050	LKCH	Unknown	UN	Unknown	87	96	6.58	2	-
Downstream Lake 1	051	LKCH	Unknown	UN	Juvenile	55	60	1.812	1	-
Downstream Lake 1	052	LKCH	Male	RP	Adult	90	96	6.641	2	-

Table 7I-2 Snap Lake 2012 AEMP Non-Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake, Lake 13 and Downstream Lake 1

Area	Fish ID	Species	Sex	Maturation Stage	Length Based Life Stage	Fork Length (mm)	Total Length (mm)	Body Weight (g)	Assigned Age (y)	External Exam
Downstream Lake 1	053	LKCH	Male	RP	Adult	80	86	5.369	2	-
Downstream Lake 1	054	LKCH	Male	RP	Adult	89	96	6.595	2	Split caudal fin
Downstream Lake 1	055	LKCH	Male	RP	Adult	80	86	5.024	2	-
Downstream Lake 1	056	LKCH	Unknown	UN	Unknown	83	90	5.36	2	-
Downstream Lake 1	057	LKCH	Male	RP	Adult	88	96	6.952	2	-
Downstream Lake 1	058	LKCH	Male	RP	Adult	94	102	7.848	2	-
Downstream Lake 1	059	LKCH	Male	RP	Adult	85	93	5.903	2	-
Downstream Lake 1	060	LKCH	Unknown	UN	Unknown	80	86	5.399	2	-
Downstream Lake 1	061	LKCH	Male	RP	Adult	89	97	7.129	2	-
Downstream Lake 1	062	LKCH	Male	RP	Adult	82	90	5.124	2	-
Downstream Lake 1	063	LKCH	Male	RP	Adult	85	92	5.851	2	-
Downstream Lake 1	064	LKCH	Male	RP	Adult	86	99	6.495	2	-
Downstream Lake 1	065	LKCH	Male	RP	Adult	80	86	7.151	2	-
Downstream Lake 1	066	LKCH	Male	RP	Adult	88	96	7.369	2	-
Downstream Lake 1	067	LKCH	Male	RP	Adult	100	113	9.682	2	-
Downstream Lake 1	068	LKCH	Male	RP	Adult	81	94	6.803	2	Torn lower caudal fin
Downstream Lake 1	069	LKCH	Male	RP	Adult	90	96	6.985	2	-
Downstream Lake 1	070	LKCH	Unknown	UN	Unknown	91	97	6.97	2	-
Downstream Lake 1	071	LKCH	Unknown	UN	Unknown	79	86	5.066	2	-
Downstream Lake 1	072	LKCH	Male	RP	Adult	78	84	5.048	2	-
Downstream Lake 1	073	LKCH	Unknown	UN	Unknown	99	105	9.492	2	-
Downstream Lake 1	074	LKCH	Unknown	UN	Unknown	80	85	5.035	2	-
Downstream Lake 1	075	LKCH	Male	RP	Adult	93	100	7.906	2	-
Downstream Lake 1	076	LKCH	Male	RP	Adult	94	101	7.325	2	-
Downstream Lake 1	077	LKCH	Male	RP	Adult	81	89	6.269	2	-
Downstream Lake 1	078	LKCH	Unknown	UN	Unknown	74	80	4.632	2	-
Downstream Lake 1	079	LKCH	Unknown	UN	Unknown	84	93	6.014	2	-
Downstream Lake 1	080	LKCH	Unknown	UN	Unknown	79	86	5.261	2	-
Downstream Lake 1	081	LKCH	Male	RP	Adult	91	98	7.422	2	-
Downstream Lake 1	082	LKCH	Male	RP	Adult	87	94	6.74	2	-
Downstream Lake 1	083	LKCH	Male	RP	Adult	84	91	5.566	2	-
Downstream Lake 1	084	LKCH	Male	RP	Adult	85	92	5.762	2	-
Downstream Lake 1	085	LKCH	Male	RP	Adult	83	91	5.916	2	-
Downstream Lake 1	086	LKCH	Male	RP	Adult	89	95	6.782	2	-
Downstream Lake 1	087	LKCH	Male	RP	Adult	83	91	5.527	2	-
Downstream Lake 1	088	LKCH	Male	RP	Adult	84	90	6.024	2	-
Downstream Lake 1	089	LKCH	Male	RP	Adult	83	91	5.912	2	-
Downstream Lake 1	090	LKCH	Male	RP	Adult	90	96	7.282	2	-
Downstream Lake 1	091	LKCH	Male	RP	Adult	95	103	9.265	2	-
Downstream Lake 1	092	LKCH	Male	RP	Adult	75	81	4.342	2	-
Downstream Lake 1	093	LKCH	Male	RP	Adult	85	93	6.492	2	-
Downstream Lake 1	094	LKCH	Male	RP	Adult	90	100	7.366	2	-
Downstream Lake 1	095	LKCH	Male	RP	Adult	81	87	5.17	2	-
Downstream Lake 1	096	LKCH	Male	RP	Adult	86	93	6.937	2	-
Downstream Lake 1	097	LKCH	Male	RP	Adult	81	87	5.574	2	-
Downstream Lake 1	098	LKCH	Male	RP	Adult	90	97	7.499	2	-
Downstream Lake 1	099	LKCH	Unknown	UN	Unknown	89	95	6.956	2	-
Downstream Lake 1	100	LKCH	Male	RP	Adult	83	91	5.822	2	-

Table 7I-2 Snap Lake 2012 AEMP Non-Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake, Lake 13 and Downstream Lake 1

Area	Fish ID	Species	Sex	Maturation Stage	Length Based Life Stage	Fork Length (mm)	Total Length (mm)	Body Weight (g)	Assigned Age (y)	External Exam
Downstream Lake 1	101	LKCH	Unknown	UN	Unknown	89	97	7.235	2	-
Downstream Lake 1	102	LKCH	Unknown	UN	Unknown	83	90	4.791	2	-
Downstream Lake 1	103	LKCH	Male	RP	Adult	80	85	5.547	2	-
Downstream Lake 1	104	LKCH	Unknown	UN	Unknown	84	92	6.176	2	-
Downstream Lake 1	105	LKCH	Male	RP	Adult	92	100	7.229	2	-
Downstream Lake 1	106	LKCH	Male	RP	Adult	90	97	7.208	2	-
Downstream Lake 1	107	LKCH	Unknown	UN	Unknown	84	92	5.637	2	-
Downstream Lake 1	108	LKCH	Unknown	UN	Unknown	83	90	5.925	2	-
Downstream Lake 1	109	LKCH	Unknown	UN	Unknown	84	91	5.996	2	-
Downstream Lake 1	110	LKCH	Male	RP	Adult	81	88	5.331	2	-
Downstream Lake 1	111	LKCH	Unknown	UN	Unknown	85	92	5.833	2	-
Downstream Lake 1	112	LKCH	Unknown	UN	Unknown	94	101	7.314	2	-
Downstream Lake 1	113	LKCH	Male	RP	Adult	90	96	7.499	2	-
Downstream Lake 1	114	LKCH	Male	RP	Adult	83	90	5.491	2	-
Downstream Lake 1	115	LKCH	Unknown	UN	Unknown	75	82	4.945	2	-
Downstream Lake 1	116	LKCH	Unknown	UN	Unknown	78	83	4.711	2	-
Downstream Lake 1	117	LKCH	Unknown	UN	Unknown	90	95	7.767	2	-
Downstream Lake 1	118	LKCH	Unknown	UN	Unknown	88	95	7.331	2	-
Downstream Lake 1	119	LKCH	Unknown	UN	Unknown	85	94	6.595	2	-
Downstream Lake 1	120	LKCH	Unknown	UN	Unknown	95	105	8.664	2	-
Downstream Lake 1	121	LKCH	Unknown	UN	Unknown	78	83	4.76	2	-
Downstream Lake 1	122	LKCH	Unknown	UN	Unknown	90	99	8.251	2	-
Downstream Lake 1	123	LKCH	Unknown	UN	Unknown	80	89	5.319	2	-
Downstream Lake 1	124	LKCH	Unknown	UN	Unknown	86	94	6.58	2	-
Downstream Lake 1	125	LKCH	Unknown	UN	Unknown	87	96	6.97	2	-
Downstream Lake 1	126	LKCH	Unknown	UN	Unknown	84	92	6.455	2	-
Downstream Lake 1	127	LKCH	Unknown	UN	Unknown	87	93	6.694	2	-
Downstream Lake 1	128	LKCH	Unknown	UN	Unknown	78	86	5.591	2	-
Downstream Lake 1	129	LKCH	Unknown	UN	Unknown	80	84	4.397	2	-
Downstream Lake 1	130	LKCH	Unknown	UN	Unknown	82	87	4.906	2	-
Downstream Lake 1	131	LKCH	Unknown	UN	Unknown	74	80	4.283	2	-
Downstream Lake 1	132	LKCH	Unknown	UN	Unknown	85	93	6.368	2	-
Downstream Lake 1	133	LKCH	Unknown	UN	Unknown	81	88	5.343	2	-
Downstream Lake 1	134	LKCH	Unknown	UN	Juvenile	50	55	1.321	1	-
Downstream Lake 1	135	LKCH	Unknown	UN	Juvenile	43	51	1.195	1	-
Downstream Lake 1	136	LKCH	Unknown	UN	Unknown	100	110	8.036	2	-
Downstream Lake 1	137	LKCH	Unknown	UN	Juvenile	48	52	1.108	1	-
Downstream Lake 1	138	LKCH	Unknown	UN	Juvenile	52	56	1.458	1	-
Downstream Lake 1	139	LKCH	Unknown	UN	Juvenile	52	57	1.469	1	-
Downstream Lake 1	140	LKCH	Unknown	UN	Juvenile	54	59	1.795	1	-
Downstream Lake 1	141	LKCH	Unknown	UN	Juvenile	51	56	1.473	1	-
Downstream Lake 1	142	LKCH	Unknown	UN	Juvenile	48	51	1.057	1	-
Downstream Lake 1	143	LKCH	Unknown	UN	Juvenile	50	54	1.314	1	-
Downstream Lake 1	144	LKCH	Unknown	UN	Juvenile	50	53	1.221	1	-
Downstream Lake 1	145	LKCH	Unknown	UN	Juvenile	56	62	2.094	1	-
Downstream Lake 1	146	LKCH	Unknown	UN	Juvenile	52	57	1.448	1	-
Downstream Lake 1	147	LKCH	Unknown	UN	Juvenile	52	57	1.48	1	-
Downstream Lake 1	148	LKCH	Unknown	UN	Juvenile	52	58	1.443	1	-

Table 7I-2 Snap Lake 2012 AEMP Non-Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake, Lake 13 and Downstream Lake 1

Area	Fish ID	Species	Sex	Maturation Stage	Length Based Life Stage	Fork Length (mm)	Total Length (mm)	Body Weight (g)	Assigned Age (y)	External Exam
Downstream Lake 1	149	LKCH	Unknown	UN	Juvenile	53	58	1.612	1	-
Downstream Lake 1	150	LKCH	Unknown	UN	Juvenile	49	53	1.192	1	-
Downstream Lake 1	151	LKCH	Unknown	UN	Juvenile	50	54	1.235	1	-
Downstream Lake 1	152	LKCH	Unknown	UN	Juvenile	54	59	1.585	1	-
Downstream Lake 1	153	LKCH	Unknown	UN	Juvenile	53	57	1.524	1	-
Downstream Lake 1	154	LKCH	Unknown	UN	Juvenile	53	58	1.583	1	-
Downstream Lake 1	155	LKCH	Unknown	UN	Juvenile	52	58	1.442	1	-
Downstream Lake 1	156	LKCH	Unknown	UN	Juvenile	52	56	1.453	1	-
Downstream Lake 1	157	LKCH	Unknown	UN	Juvenile	55	60	1.32	1	-
Downstream Lake 1	158	LKCH	Unknown	UN	Juvenile	50	54	1.213	1	-
Downstream Lake 1	159	LKCH	Unknown	UN	Juvenile	50	55	1.312	1	-
Downstream Lake 1	160	LKCH	Unknown	UN	Juvenile	44	48	0.945	1	-
Downstream Lake 1	161	LKCH	Unknown	UN	Juvenile	49	53	1.249	1	-
Downstream Lake 1	162	LKCH	Unknown	UN	Juvenile	48	55	1.477	1	-
Downstream Lake 1	163	LKCH	Unknown	UN	Juvenile	55	60	1.623	1	-
Downstream Lake 1	164	LKCH	Unknown	UN	Unknown	92	104	7.291	2	-
Downstream Lake 1	165	LKCH	Unknown	UN	Unknown	101	113	9.31	2	-
Downstream Lake 1	166	LKCH	Male	RP	Adult	95	104	7.735	2	-
Downstream Lake 1	167	LKCH	Male	RP	Adult	90	95	5.557	2	-
Downstream Lake 1	168	LKCH	Unknown	UN	Unknown	81	87	4.203	2	-
Downstream Lake 1	169	LKCH	Unknown	UN	Unknown	93	100	6.401	2	-
Downstream Lake 1	170	LKCH	Unknown	UN	Unknown	91	97	6.012	2	-
Downstream Lake 1	171	LKCH	Male	RP	Adult	92	99	6.667	2	-
Downstream Lake 1	172	LKCH	Unknown	UN	Adult	106	115	10.181	3	-
Downstream Lake 1	173	LKCH	Male	RP	Adult	81	95	5.859	2	-
Downstream Lake 1	174	LKCH	Unknown	UN	Unknown	83	88	4.913	2	-
Downstream Lake 1	175	LKCH	Unknown	UN	Unknown	75	82	4.137	2	-
Downstream Lake 1	176	LKCH	Male	RP	Adult	82	93	6.828	2	-
Downstream Lake 1	177	LKCH	Male	RP	Adult	80	86	4.817	2	-
Downstream Lake 1	178	LKCH	Male	RP	Adult	90	97	6.878	2	-
Downstream Lake 1	179	LKCH	Unknown	UN	Unknown	87	95	5.488	2	-
Downstream Lake 1	180	LKCH	Unknown	UN	Unknown	87	95	6.404	2	-
Downstream Lake 1	181	LKCH	Male	RP	Adult	94	103	7.2	2	-
Downstream Lake 1	182	LKCH	Unknown	UN	Unknown	68	72	2.597	2	-
Downstream Lake 1	183	LKCH	Male	RP	Adult	88	94	5.811	2	-
Downstream Lake 1	184	LKCH	Unknown	UN	Unknown	92	106	8.614	2	-
Downstream Lake 1	185	LKCH	Unknown	UN	Unknown	76	85	4.91	2	-
Downstream Lake 1	186	LKCH	Unknown	UN	Unknown	93	100	6.679	2	-
Downstream Lake 1	187	LKCH	Unknown	UN	Unknown	81	89	5.301	2	-
Downstream Lake 1	188	LKCH	Male	RP	Adult	86	94	5.232	2	-
Downstream Lake 1	189	LKCH	Unknown	UN	Unknown	75	83	4.044	2	-
Downstream Lake 1	190	LKCH	Male	RP	Adult	94	102	6.773	2	-
Downstream Lake 1	191	LKCH	Unknown	UN	Unknown	84	93	6.37	2	-
Downstream Lake 1	192	LKCH	Male	RP	Adult	85	94	5.979	2	-
Downstream Lake 1	193	LKCH	Unknown	UN	Unknown	96	103	8.315	2	-
Downstream Lake 1	194	LKCH	Male	RP	Adult	92	101	7.717	2	-
Downstream Lake 1	195	LKCH	Unknown	UN	Unknown	101	109	9.183	2	-
Downstream Lake 1	196	LKCH	Male	RP	Adult	98	96	6.98	2	-

Table 7I-2 Snap Lake 2012 AEMP Non-Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake, Lake 13 and Downstream Lake 1

Area	Fish ID	Species	Sex	Maturation Stage	Length Based Life Stage	Fork Length (mm)	Total Length (mm)	Body Weight (g)	Assigned Age (y)	External Exam
Downstream Lake 1	197	LKCH	Male	RP	Adult	94	93	5.837	2	-
Downstream Lake 1	198	LKCH	Unknown	UN	Unknown	90	95	7.135	2	-
Downstream Lake 1	199	LKCH	Unknown	UN	Unknown	91	96	5.16	2	-
Downstream Lake 1	200	LKCH	Unknown	UN	Unknown	83	90	5.481	2	-
Downstream Lake 1	201	LKCH	Unknown	UN	Unknown	98	107	9.633	2	-
Downstream Lake 1	202	LKCH	Unknown	UN	Unknown	83	90	5.202	2	-
Downstream Lake 1	203	LKCH	Unknown	UN	Unknown	84	93	6.902	2	-
Downstream Lake 1	204	LKCH	Male	RP	Adult	86	91	5.604	2	-
Downstream Lake 1	205	LKCH	Unknown	UN	Unknown	92	99	6.471	2	-
Downstream Lake 1	206	LKCH	Unknown	UN	Unknown	81	90	5.298	2	-
Downstream Lake 1	207	LKCH	Unknown	UN	Unknown	71	83	4.106	2	-
Downstream Lake 1	208	LKCH	Unknown	UN	Unknown	76	80	4.118	2	-
Downstream Lake 1	209	LKCH	Unknown	UN	Unknown	95	103	6.79	2	-
Downstream Lake 1	210	LKCH	Male	RP	Adult	85	95	5.797	2	-
Downstream Lake 1	211	LKCH	Male	RP	Adult	94	105	9.763	2	-
Downstream Lake 1	212	LKCH	Unknown	UN	Unknown	85	93	5.455	2	-
Downstream Lake 1	213	LKCH	Unknown	UN	Unknown	70	76	3.179	2	-
Downstream Lake 1	214	LKCH	Unknown	UN	Unknown	70	79	4.02	2	-
Downstream Lake 1	215	LKCH	Unknown	UN	Unknown	70	78	3.373	2	-
Downstream Lake 1	216	LKCH	Unknown	UN	Unknown	96	105	6.381	2	-
Downstream Lake 1	217	LKCH	Unknown	UN	Unknown	80	87	5.221	2	-
Downstream Lake 1	218	LKCH	Unknown	UN	Unknown	85	93	6.258	2	-
Downstream Lake 1	219	LKCH	Unknown	UN	Unknown	90	100	10.714	2	-
Downstream Lake 1	220	LKCH	Male	RP	Adult	87	96	6.741	2	-
Downstream Lake 1	221	LKCH	Unknown	UN	Unknown	75	81	3.723	2	-
Downstream Lake 1	222	LKCH	Unknown	UN	Unknown	75	80	4.025	2	-
Downstream Lake 1	223	LKCH	Unknown	UN	Unknown	78	86	5.666	2	-
Downstream Lake 1	224	LKCH	Unknown	UN	Unknown	75	83	4.207	2	-
Downstream Lake 1	225	LKCH	Unknown	UN	Juvenile	65	71	3.423	1	-
Downstream Lake 1	226	LKCH	Unknown	UN	Unknown	82	88	4.614	2	-
Downstream Lake 1	227	LKCH	Unknown	UN	Unknown	83	90	5.592	2	-
Downstream Lake 1	228	LKCH	Unknown	UN	Unknown	80	86	4.739	2	-
Downstream Lake 1	229	LKCH	Unknown	UN	Juvenile	51	54	1.312	1	-
Downstream Lake 1	230	LKCH	Unknown	UN	Juvenile	50	55	1.314	1	-
Downstream Lake 1	231	LKCH	Unknown	UN	Unknown	80	86	4.804	2	-
Downstream Lake 1	232	LKCH	Unknown	UN	Juvenile	50	55	1.391	1	-
Downstream Lake 1	244	LKCH	Unknown	UN	Juvenile	55	61	1.633	1	-
Downstream Lake 1	245	LKCH	Unknown	UN	Unknown	98	106	8.132	2	-
Downstream Lake 1	246	LKCH	Unknown	UN	Unknown	92	98	6.501	2	-
Downstream Lake 1	247	LKCH	Unknown	UN	Juvenile	62	66	2.159	1	-
Downstream Lake 1	248	LKCH	Unknown	UN	Unknown	93	101	8.358	2	-
Downstream Lake 1	250	LKCH	Male	UN	Unknown	92	99	6.509	2	-
Downstream Lake 1	251	LKCH	Male	UN	Unknown	87	95	5.952	2	-
Downstream Lake 1	252	LKCH	Male	UN	Unknown	90	97	7.266	2	-
Downstream Lake 1	253	LKCH	Male	UN	Unknown	80	87	4.591	2	-
Downstream Lake 1	254	LKCH	Unknown	UN	Unknown	71	76	3.295	2	-
Downstream Lake 1	255	LKCH	Male	UN	Unknown	87	95	6.135	2	-
Downstream Lake 1	256	LKCH	Male	UN	Unknown	83	89	5.13	2	-

Table 7I-2 Snap Lake 2012 AEMP Non-Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake, Lake 13 and Downstream Lake 1

Area	Fish ID	Species	Sex	Maturation Stage	Length Based Life Stage	Fork Length (mm)	Total Length (mm)	Body Weight (g)	Assigned Age (y)	External Exam
Downstream Lake 1	257	LKCH	Male	UN	Unknown	93	100	7.135	2	-
Downstream Lake 1	258	LKCH	Unknown	UN	Unknown	85	91	6.473	2	-
Downstream Lake 1	259	LKCH	Unknown	UN	Juvenile	43	49	1.404	1	-
Downstream Lake 1	260	LKCH	Male	UN	Unknown	89	107	7.36	2	-
Downstream Lake 1	261	LKCH	Male	UN	Unknown	87	93	6.333	2	-
Downstream Lake 1	262	LKCH	Unknown	UN	Adult	105	115	12.179	3	-
Downstream Lake 1	263	LKCH	Male	UN	Unknown	83	90	5.654	2	-
Downstream Lake 1	264	LKCH	Male	UN	Unknown	99	106	9.236	2	-
Downstream Lake 1	265	LKCH	Male	UN	Unknown	80	87	5.539	2	-
Downstream Lake 1	266	LKCH	Male	UN	Unknown	86	92	6.37	2	-
Downstream Lake 1	267	LKCH	Male	UN	Unknown	85	95	6.692	2	-
Downstream Lake 1	268	LKCH	Male	UN	Unknown	81	89	5.391	2	-
Downstream Lake 1	269	LKCH	Male	UN	Unknown	85	93	6.011	2	-
Downstream Lake 1	270	LKCH	Male	UN	Unknown	91	99	7.636	2	-
Downstream Lake 1	271	LKCH	Male	UN	Unknown	86	92	5.802	2	-
Downstream Lake 1	272	LKCH	Male	UN	Unknown	83	91	5.645	2	-
Downstream Lake 1	273	LKCH	Male	UN	Unknown	92	100	7.278	2	-
Downstream Lake 1	274	LKCH	Unknown	UN	Unknown	84	92	6.235	2	-
Downstream Lake 1	275	LKCH	Unknown	UN	Juvenile	51	56	1.412	1	-
Downstream Lake 1	276	LKCH	Unknown	UN	Juvenile	49	53	1.187	1	-
Downstream Lake 1	284	LKCH	Unknown	UN	Unknown	93	101	6.337	2	-
Downstream Lake 1	285	LKCH	Unknown	UN	Unknown	83	91	5.677	2	-
Downstream Lake 1	286	LKCH	Unknown	UN	Unknown	90	99	6.248	2	-
Downstream Lake 1	287	LKCH	Male	UN	Unknown	80	87	4.867	2	-
Downstream Lake 1	288	LKCH	Unknown	UN	Unknown	76	83	3.937	2	-
Downstream Lake 1	289	LKCH	Unknown	UN	Juvenile	51	56	1.206	1	-
Downstream Lake 1	290	LKCH	Unknown	UN	Juvenile	47	51	0.956	1	-
Downstream Lake 1	291	LKCH	Unknown	UN	YOY	35	37	0.388	0	-
Downstream Lake 1	292	LKCH	Unknown	UN	Juvenile	44	47	0.863	1	-
Downstream Lake 1	293	LKCH	Unknown	UN	Juvenile	51	55	1.124	1	-
Downstream Lake 1	294	LKCH	Unknown	UN	Juvenile	36	39	0.397	1	-
Downstream Lake 1	295	LKCH	Unknown	UN	Juvenile	53	57	1.283	1	-
Downstream Lake 1	296	LKCH	Unknown	UN	Juvenile	44	48	0.769	1	-
Downstream Lake 1	297	LKCH	Unknown	UN	YOY	31	34	0.343	0	-
Downstream Lake 1	298	LKCH	Unknown	UN	YOY	32	34	0.253	0	-
Downstream Lake 1	299	LKCH	Unknown	UN	Juvenile	64	69	2.357	1	-
Downstream Lake 1	300	LKCH	Unknown	UN	Juvenile	37	52	0.929	1	-
Downstream Lake 1	301	LKCH	Unknown	UN	Juvenile	55	59	1.44	1	-
Downstream Lake 1	302	LKCH	Unknown	UN	Juvenile	48	53	1.128	1	-
Downstream Lake 1	303	LKCH	Unknown	UN	Juvenile	54	57	1.364	1	-
Downstream Lake 1	304	LKCH	Unknown	UN	YOY	31	34	0.275	0	-
Downstream Lake 1	305	LKCH	Unknown	UN	Juvenile	50	55	1.322	1	-
Downstream Lake 1	306	LKCH	Unknown	UN	Unknown	83	90	5.64	2	-
Downstream Lake 1	307	LKCH	Unknown	UN	Juvenile	54	58	1.62	1	-
Downstream Lake 1	308	LKCH	Unknown	UN	Juvenile	55	60	1.622	1	-
Downstream Lake 1	309	LKCH	Unknown	UN	Juvenile	52	56	1.237	1	-
Downstream Lake 1	310	LKCH	Unknown	UN	Juvenile	47	51	0.987	1	-
Downstream Lake 1	311	LKCH	Unknown	UN	Juvenile	51	56	1.334	1	-

Table 7I-2 Snap Lake 2012 AEMP Non-Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake, Lake 13 and Downstream Lake 1

Area	Fish ID	Species	Sex	Maturation Stage	Length Based Life Stage	Fork Length (mm)	Total Length (mm)	Body Weight (g)	Assigned Age (y)	External Exam
Downstream Lake 1	312	LKCH	Unknown	UN	Juvenile	49	53	1.154	1	-
Downstream Lake 1	313	LKCH	Unknown	UN	Unknown	83	91	5.108	2	-
Downstream Lake 1	314	LKCH	Unknown	UN	Juvenile	52	56	1.365	1	-
Downstream Lake 1	315	LKCH	Unknown	UN	Juvenile	54	58	1.436	1	-
Downstream Lake 1	316	LKCH	Unknown	UN	Unknown	76	82	4.152	2	-
Downstream Lake 1	317	LKCH	Male	UN	Unknown	98	106	8.304	2	-
Downstream Lake 1	318	LKCH	Unknown	UN	Juvenile	53	57	1.5	1	-
Downstream Lake 1	319	LKCH	Unknown	UN	Juvenile	56	61	1.693	1	-
Downstream Lake 1	320	LKCH	Male	UN	Unknown	91	100	7.27	2	-
Downstream Lake 1	321	LKCH	Unknown	UN	Unknown	70	77	3.989	2	-
Downstream Lake 1	322	LKCH	Male	UN	Unknown	87	95	5.639	2	-
Downstream Lake 1	323	LKCH	Unknown	UN	Unknown	67	75	3.136	2	-
Downstream Lake 1	324	LKCH	Unknown	UN	Unknown	81	87	4.803	2	-
Downstream Lake 1	325	LKCH	Unknown	UN	Unknown	89	96	6.5	2	-
Downstream Lake 1	326	LKCH	Unknown	UN	Juvenile	56	60	1.733	1	-
Downstream Lake 1	327	LKCH	Unknown	UN	Unknown	74	81	3.886	2	-
Downstream Lake 1	328	LKCH	Unknown	UN	Juvenile	57	62	1.59	1	-
Downstream Lake 1	329	LKCH	Male	UN	Unknown	79	85	4.746	2	-
Downstream Lake 1	330	LKCH	Unknown	UN	Unknown	84	91	4.922	2	-
Downstream Lake 1	331	LKCH	Unknown	UN	Unknown	99	109	8.723	2	-
Downstream Lake 1	332	LKCH	Unknown	UN	Unknown	104	113	7.342	2	-
Downstream Lake 1	333	LKCH	Unknown	UN	Unknown	77	84	4.192	2	-
Downstream Lake 1	334	LKCH	Unknown	UN	Juvenile	54	59	4.454	1	-
Downstream Lake 1	335	LKCH	Unknown	UN	Juvenile	49	53	1.139	1	-
Downstream Lake 1	336	LKCH	Unknown	UN	Unknown	71	77	3.666	2	-
Downstream Lake 1	337	LKCH	Male	UN	Unknown	87	92	5.71	2	-
Downstream Lake 1	338	LKCH	Unknown	UN	Unknown	87	96	6.33	2	-
Downstream Lake 1	339	LKCH	Male	UN	Unknown	87	97	6.176	2	-
Downstream Lake 1	340	LKCH	Male	UN	Unknown	83	89	4.672	2	-
Downstream Lake 1	341	LKCH	Unknown	UN	Unknown	79	87	4.657	2	-
Downstream Lake 1	342	LKCH	Unknown	UN	Unknown	79	86	4.954	2	-
Downstream Lake 1	343	LKCH	Unknown	UN	Unknown	89	97	3.207	2	-
Downstream Lake 1	344	LKCH	Male	UN	Unknown	94	103	7.615	2	-
Downstream Lake 1	345	LKCH	Unknown	UN	Unknown	84	92	5.514	2	-
Downstream Lake 1	346	LKCH	Unknown	UN	Unknown	93	101	7.054	2	-
Downstream Lake 1	347	LKCH	Unknown	UN	Unknown	95	104	7.737	2	-
Downstream Lake 1	348	LKCH	Male	UN	Unknown	82	90	4.682	2	-
Downstream Lake 1	349	LKCH	Unknown	UN	Juvenile	54	59	1.444	1	-
Downstream Lake 1	350	LKCH	Male	UN	Unknown	82	88	5.09	2	-
Downstream Lake 1	351	LKCH	Male	UN	Unknown	84	92	5.325	2	-
Downstream Lake 1	352	LKCH	Unknown	UN	Unknown	84	93	6.133	2	-
Downstream Lake 1	353	LKCH	Male	UN	Unknown	95	103	7.946	2	-
Downstream Lake 1	354	LKCH	Male	UN	Unknown	83	92	5.781	2	-
Downstream Lake 1	355	LKCH	Unknown	UN	Unknown	94	102	7.657	2	-
Downstream Lake 1	356	LKCH	Male	UN	Unknown	93	101	6.706	2	-
Downstream Lake 1	357	LKCH	Unknown	UN	Unknown	91	99	6.584	2	-
Downstream Lake 1	358	LKCH	Male	UN	Unknown	90	97	6.692	2	-
Downstream Lake 1	359	LKCH	Male	UN	Unknown	92	101	7.334	2	-

Table 7I-2 Snap Lake 2012 AEMP Non-Lethally Sampled Lake Chub Raw Data from Snap Lake, Northeast Lake, Lake 13 and Downstream Lake 1

Area	Fish ID	Species	Sex	Maturation Stage	Length Based Life Stage	Fork Length (mm)	Total Length (mm)	Body Weight (g)	Assigned Age (y)	External Exam
Downstream Lake 1	360	LKCH	Male	UN	Unknown	87	94	6.144	2	-
Downstream Lake 1	361	LKCH	Unknown	UN	Unknown	81	88	4.815	2	-
Downstream Lake 1	362	LKCH	Male	UN	Unknown	92	99	7.104	2	-
Downstream Lake 1	363	LKCH	Unknown	UN	Unknown	97	106	8.091	2	-
Downstream Lake 1	364	LKCH	Unknown	UN	Unknown	77	84	4.499	2	-
Downstream Lake 1	365	LKCH	Unknown	UN	Juvenile	54	57	1.559	1	-
Downstream Lake 1	366	LKCH	Male	UN	Unknown	87	94	6.497	2	-
Downstream Lake 1	367	LKCH	Unknown	UN	Unknown	91	97	6.58	2	-
Downstream Lake 1	368	LKCH	Male	RP	Adult	85	93	5.338	2	-
Downstream Lake 1	369	LKCH	Unknown	UN	Unknown	84	91	5.602	2	-
Downstream Lake 1	370	LKCH	Unknown	UN	Unknown	82	90	5.934	2	-
Downstream Lake 1	371	LKCH	Male	RP	Adult	89	100	7.096	2	-
Downstream Lake 1	372	LKCH	Male	RP	Adult	95	104	7.964	2	-
Downstream Lake 1	373	LKCH	Unknown	UN	Unknown	90	96	5.99	2	-
Downstream Lake 1	374	LKCH	Unknown	UN	Unknown	93	102	7.001	2	-
Downstream Lake 1	375	LKCH	Female	RP	Adult	93	97	6.907	2	-
Downstream Lake 1	376	LKCH	Male	RP	Adult	88	91	5.704	2	-
Downstream Lake 1	377	LKCH	Male	RP	Adult	80	87	4.685	2	-
Downstream Lake 1	378	LKCH	Unknown	UN	Unknown	81	87	5.079	2	-
Downstream Lake 1	379	LKCH	Unknown	UN	Unknown	83	89	5.402	2	-
Downstream Lake 1	380	LKCH	Male	RP	Adult	85	93	6.133	2	-
Downstream Lake 1	381	LKCH	Male	RP	Adult	82	89	5.379	2	-
Downstream Lake 1	382	LKCH	Unknown	UN	Unknown	75	83	3.891	2	-
Downstream Lake 1	383	LKCH	Male	RP	Adult	81	86	4.482	2	-
Downstream Lake 1	384	LKCH	Male	RP	Adult	85	94	5.508	2	-
Downstream Lake 1	385	LKCH	Unknown	UN	Unknown	77	83	4.212	2	-
Downstream Lake 1	386	LKCH	Male	RP	Adult	90	97	7.324	2	-
Downstream Lake 1	23501	LKCH	Male	RP	Adult	95	104	7.133	2	Whole body archive
Downstream Lake 1	23502	LKCH	Male	RP	Adult	90	97	6.7449	2	Whole body archive
Downstream Lake 1	23503	LKCH	Male	RP	Adult	90	98	6.6748	2	Whole body archive
Downstream Lake 1	23504	LKCH	Male	RP	Adult	90	98	6.999	2	Whole body archive
Downstream Lake 1	23505	LKCH	Female	PR	Adult	95	103	7.0268	2	Whole body archive; with parasites
Downstream Lake 1	23506	LKCH	Female	PR	Adult	102	111	7.54	2	Whole body archive

ID = identification; mm = millimetre; g = gram; y = year; LKCH = Lake Chub; UN = unknown; IM = immature; MA = maturing; SD = seasonal development; PR = pre-spawning; RP = ripe; SP = spent; RB = reabsorbing; YOY = young-of-year; - = no abnormal observations noted during external exam.

Table 7I-3 Snap Lake 2012 AEMP Non-Target Species Enumerated from Snap Lake, Northeast Lake, Lake 13 and Downstream Lake 1

Area	Species	Fish ID	Fork Length (mm)	Total Length (mm)	Body Weight (g)
Snap Lake	Round Whitefish	001	235	262	131.7
Snap Lake	Longnose Sucker	002	231	243	163.8
Snap Lake	Longnose Sucker	003	305	325	356.6
Snap Lake	Longnose Sucker	011	290	307	310.1
Snap Lake	Longnose Sucker	004	302	315	399.2
Snap Lake	Longnose Sucker	005	225	234	152.3
Snap Lake	Longnose Sucker	006	235	246	162.1
Snap Lake	Longnose Sucker	007	244	260	198.8
Snap Lake	Longnose Sucker	008	131	135	28.5
Snap Lake	Longnose Sucker	009	234	245	176.4
Snap Lake	Longnose Sucker	010	149	155	39.1
Snap Lake	Longnose Sucker	012	274	286	270.3
Snap Lake	Longnose Sucker	013	310	315	499.5
Snap Lake	Longnose Sucker	014	304	401	436.7
Snap Lake	Burbot	015	-	83	4.8
Snap Lake	Longnose Sucker	019	360	370	466.3
Snap Lake	Longnose Sucker	020	265	279	244.7
Snap Lake	Longnose Sucker	021	340	360	463.1
Snap Lake	Arctic Grayling	022	124	132	15.7
Snap Lake	Arctic Grayling	023	111	122	13.8
Snap Lake	Arctic Grayling	024	155	165	45
Snap Lake	Slimy Sculpin	025	-	59	2.6
Snap Lake	Slimy Sculpin	026	-	72	4.4
Snap Lake	Slimy Sculpin	046	-	74	3.9399
Snap Lake	Lake Trout	047	91	99	6.9385
Snap Lake	Ninespine Stickleback	060	-	49	0.483
Snap Lake	Longnose Sucker	061	86	90	7.081
Snap Lake	Arctic Grayling	16503	113	124	13.5665
Northeast Lake	Burbot	001	-	127	14.503
Northeast Lake	Burbot	002	-	130	17.105
Northeast Lake	Burbot	003	-	67	2.204
Northeast Lake	Burbot	004	-	64	2.02
Northeast Lake	Ninespine Stickleback	010	-	34	0.243
Northeast Lake	Ninespine Stickleback	012	-	41	0.483
Northeast Lake	Burbot	013	-	153	23.028
Northeast Lake	Burbot	015	-	123	11.609
Northeast Lake	Burbot	016	-	110	9.11
Northeast Lake	Burbot	017	-	62	1.649
Northeast Lake	Lake Trout	018	91	98	7.955
Northeast Lake	Ninespine Stickleback	019	-	46	0.479
Northeast Lake	Ninespine Stickleback	020	-	44	0.398
Northeast Lake	Ninespine Stickleback	021	-	36	0.365

Table 7I-3 Snap Lake 2012 AEMP Non-Target Species Enumerated from Snap Lake, Northeast Lake, Lake 13 and Downstream Lake 1

Area	Species	Fish ID	Fork Length (mm)	Total Length (mm)	Body Weight (g)
Northeast Lake	Ninespine Stickleback	022	-	41	0.511
Northeast Lake	Lake Trout	033	155	174	38.103
Northeast Lake	Ninespine Stickleback	034	-	31	0.46
Northeast Lake	Burbot	035	-	65	2.195
Northeast Lake	Ninespine Stickleback	036	-	33	0.365
Northeast Lake	Ninespine Stickleback	037	-	40	0.515
Northeast Lake	Burbot	038	-	172	29.64
Northeast Lake	Lake Trout	039	75	81	4.677
Northeast Lake	Burbot	040	-	131	13.227
Northeast Lake	Burbot	041	-	63	1.854
Northeast Lake	Arctic Grayling	042	108	116	13.272
Northeast Lake	Lake Trout	043	161	177	48.647
Northeast Lake	Lake Trout	058	153	170	39.04
Northeast Lake	Ninespine Stickleback	071	-	44	0.6253
Lake 13	Ninespine Stickleback	012	-	52	1.357
Lake 13	Ninespine Stickleback	013	-	44	0.629
Lake 13	Ninespine Stickleback	014	-	44	0.676
Lake 13	Ninespine Stickleback	025	-	46	-
Lake 13	Burbot	027	-	92	-
Lake 13	Ninespine Stickleback	029	-	43	-
Lake 13	Slimy Sculpin	030	-	37	-
Downstream Lake 1	Longnose Sucker	234	82	86	7.464
Downstream Lake 1	Slimy Sculpin	249	-	66	2.732
Downstream Lake 1	Burbot	387	-	88	3.202
Downstream Lake 1	Longnose Sucker	388	84	87	6.586

ID = identification; mm = millimetre; g = gram; - = not applicable .

Table 9A-1 Summary of Results of the Kolmogorov-Smirnov Test of Normal Distributions and Levene's Test of Means for Homogeneity of Variance Between Samples

Variable	Non-Transformed Data			Levene's Test	Log-Transformed Data			Levene's Test	Graphical Difference Observed[(a)]	Statistical Test[(b)]
	Kolmogorov-Smirnov Test				Kolmogorov-Smirnov Test					
	Lake 13	NEL	Snap Lake		Lake 13	NEL	Snap Lake			
Aluminum (Al)	ns	*	*	ns	*	ns	ns	ns	Y	$ANOVA^{log}$
Antimony (Sb)	-	-	-	-	-	-	-	-	N	-
Arsenic (As)	ns	ns	ns	ns	ns	ns	ns	ns	Y	ANOVA
Barium (Ba)	-	-	-	-	-	-	-	-	N	-
Beryllium (Be)	-	-	-	-	-	-	-	-	N	-
Bismuth (Bi)	ns	***	*	**	ns	***	ns	ns	Y	KW
Boron (B)	***	**	***	**	***	**	****	*	Y	KW
Cadmium (Cd)	ns	ns	ns	ns	ns	ns	ns	ns	Y	$ANOVA^{log}$
Calcium (Ca)	ns	ns	ns	ns	ns	ns	ns	ns	Y	ANOVA
Cesium (Cs)	ns	ns	**	ns	ns	ns	ns	ns	Y	$ANOVA^{log}$
Chromium (Cr)	ns	**	ns	ns	*	ns	ns	ns	Y	$ANOVA^{log}$
Cobalt (Co)	ns	ns	ns	ns	ns	ns	ns	ns	Y	$ANOVA^{log}$
Copper (Cu)	ns	ns	ns	ns	ns	ns	ns	ns	Y	ANOVA
Gallium (Ga)	-	-	-	-	-	-	-	-	N	-
Iron (Fe)	ns	ns	ns	ns	ns	ns	ns	ns	Y	ANOVA
Lead (Pb)	***	***	***	ns	***	***	***	ns	Y	KW
Lithium (Li)	-	-	-	-	-	-	-	-	N	-
Magnesium (Mg)	-	-	-	-	-	-	-	-	N	-
Manganese (Mn)	ns	ns	ns	ns	ns	ns	ns	ns	Y	$ANOVA^{log}$
Mercury (Hg)	ns	ns	ns	*	ns	ns	ns	ns	Y	$ANOVA^{log}$
Molybdenum (Mo)	ns	ns	ns	ns	ns	ns	ns	ns	Y	$ANOVA^{log}$
Nickel (Ni)	ns	ns	ns	ns	ns	ns	ns	ns	Y	$ANOVA^{log}$
Phosphorus (P)	-	-	-	-	-	-	-	-	N	-
Potassium (K)	ns	ns	ns	ns	ns	ns	ns	*	Y	ANOVA
Rhenium (Re)	-	-	-	-	-	-	-	-	N	-
Rubidium (Rb)	ns	ns	ns	*	ns	ns	ns	*	Y	KW
Selenium (Se)	ns	ns	ns	ns	ns	ns	ns	ns	Y	$ANOVA^{log}$

Table 9A-1 Summary of Results of the Kolmogorov-Smirnov Test of Normal Distributions and Levene's Test of Means for Homogeneity of Variance Between Samples

Variable	Non-Transformed Data			Levene's Test	Log-Transformed Data			Levene's Test	Graphical Difference Observed[(a)]	Statistical Test[(b)]
	Kolmogorov-Smirnov Test				Kolmogorov-Smirnov Test					
	Lake 13	NEL	Snap Lake		Lake 13	NEL	Snap Lake			
Silver (Ag)	-	-	-	-	-	-	-	-	N	-
Sodium (Na)	ns	ns	ns	ns	ns	*	ns	ns	Y	ANOVA
Strontium (Sr)	ns	ns	ns	ns	ns	ns	ns	ns	Y	$ANOVA^{log}$
Tellurium (Te)	-	-	-	-	-	-	-	-	N	-
Thallium (Tl)	ns	ns	ns	*	ns	ns	ns	ns	Y	$ANOVA^{log}$
Thorium (Th)	-	-	-	-	-	-	-	-	N	-
Tin (Sn)	-	-	-	-	-	-	-	-	N	-
Titanium (Ti)	ns	*	*	ns	ns	ns	ns	ns	Y	$ANOVA^{log}$
Uranium (U)	ns	ns	ns	ns	ns	ns	ns	ns	Y	$ANOVA^{log}$
Vanadium (V)	ns	**	*	*	ns	**	**	ns	Y	KW
Yttrium (Y)	-	-	-	-	-	-	-	-	N	-
Zinc (Zn)	ns	ns	ns	ns	ns	ns	ns	ns	Y	$ANOVA^{log}$
Zirconium (Zr)	-	-	-	-	-	-	-	-	N	-

Note: Probability of Type 1 Error. * = $P<0.05$; ** = $P<0.01$; *** = $P<0.001$; *** = $P<0.0001$; ns = not significant; n/a = not applicable as all samples were less than detect. "-" = statistical analysis not performed.

(a) Analysis only performed for those variables that demonstrated site differences from graphical analysis, as indicated by "Y" = Yes, "N" = No.

(b) ANOVA = Analysis of Variance (log-transformed data indicated by superscript); ANCOVA = Analysis of Covariance (log-transformed data indicated by superscript); K-W = Kruskal Wallis test;

NEL = Northeast Lake.

Table 9A-2 Mercury and Selenium Covariate (fork length, carcass weight) Regression Analyses for Analysis of Covariance Determination, Lake 13, Northeast Lake and Snap Lake, 2012

Variable	Covariate	Log-Transformed Data			Test
		Regression Analysis			
		Lake 13	NEL	Snap Lake	
Selenium	Fork length	ns	ns	**	ANOVA
	Carcass weight	ns	ns	ns	
Mercury	Fork length	*	*	***	$ANCOVA^{log}$ (fork length)
	Carcass weight	ns	*	**	

Note: * = $P< 0.05$; ** = $P< 0.01$; *** = $P <0.001$, ns = not significant.

NEL = Northeast Lake; ANOVA = Analysis of Variance (log-transformed data indicated by superscript); ANCOVA = Analysis of Covariance (log-transformed data indicated by superscript).

Table 9B-1 Fish Tissue Chemistry Data

Variable	Waterbody		Lake 13	Lake 13	Lake 13	Lake 13	Lake 13	Lake 13	Lake 13	Lake 13	NEL	NEL	NEL	NEL
	SCN #		2012-4006	2012-4007	2012-4008	2012-4009	2012-4010	2012-4011	2012-4012	2012-4013	2012-4014	2012-4015	2012-4016	2012-4017
	Fish ID #		SL12ULK13-LKCH-21504	SL12ULK13-LKCH-21505	SL12ULK13-LKCH-22505	SL12ULK13-LKCH-22510	SL12ULK13-LKCH-21001	SL12ULK13-LKCH-22501	SL12ULK13-LKCH-22512	SL12ULK13-LKCH-22514	SL12UNEL-LKCH-19009	SL12UNEL-LKCH-19010	SL12UNEL-LKCH-19036	SL12UNEL-LKCH-19029
	Date Sampled		11-JUL-12	11-JUL-12	11-JUL-12	11-JUL-12	10-JUL-12	10-JUL-12	11-JUL-12	11-JUL-12	07-JUL-12	07-JUL-12	08-JUL-12	07-JUL-12
	Unit	Detection Level												
Moisture	%	0.10	76.1	74.9	79.8	74.1	73.7	72.8	73.8	73.6	77.0	76.2	76.6	77.3
Aluminum (Al)-Total	mg/kg wwt	0.40	1.09	1.12	1.01	0.88	1.92	0.96	<0.40	0.47	0.47	2.09	3.74	0.64
Antimony (Sb)-Total	mg/kg wwt	0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0029	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0038	<0.0020
Arsenic (As)-Total	mg/kg wwt	0.0040	0.0214	0.0148	0.0144	0.0158	0.0337	0.0188	0.0138	0.021	0.0179	0.0205	0.0198	0.0262
Barium (Ba)-Total	mg/kg wwt	0.010	2.80	2.23	2.84	5.31	3.08	6.32	3.19	2.35	7.00	4.65	4.75	4.14
Beryllium (Be)-Total	mg/kg wwt	0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Bismuth (Bi)-Total	mg/kg wwt	0.0020	0.0085	<0.0020	<0.0020	0.0032	0.0097	0.0062	0.0028	<0.0020	<0.0020	0.0024	0.0045	<0.0020
Boron (B)-Total	mg/kg wwt	0.20	0.27	<0.20	<0.20	<0.20	0.56	<0.20	<0.20	<0.20	<0.20	<0.20	1.15	0.64
Cadmium (Cd)-Total	mg/kg wwt	0.0020	0.0152	0.0044	0.0060	0.0160	0.0112	0.0117	0.0054	0.0096	0.0140	0.0150	0.0205	0.0221
Calcium (Ca)-Total	mg/kg wwt	5.0	6580	6610	10700	19800	16000	19500	24500	18000	10400	9690	12500	6590
Cesium (Cs)-Total	mg/kg wwt	0.0010	0.0265	0.0199	0.0140	0.0182	0.0334	0.0260	0.0145	0.0154	0.0183	0.0317	0.0283	0.0411
Chromium (Cr)-Total	mg/kg wwt	0.010	0.023	0.026	0.016	0.014	0.016	0.016	<0.010	0.015	0.010	0.018	0.046	0.012
Cobalt (Co)-Total	mg/kg wwt	0.0040	0.0117	<0.0040	0.0042	0.0060	0.0095	0.0069	<0.0040	0.0057	0.0080	0.0100	0.0154	0.0145
Copper (Cu)-Total	mg/kg wwt	0.010	0.393	0.321	0.271	0.333	0.532	0.495	0.341	0.554	0.263	0.373	0.438	0.341
Gallium (Ga)-Total	mg/kg wwt	0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Iron (Fe)-Total	mg/kg wwt	0.20	6.72	4.16	3.54	8.77	11.2	10.6	9.3	8.13	5.72	15.8	13.5	8.31
Lead (Pb)-Total	mg/kg wwt	0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.0041	<0.0040	<0.0040	<0.0040	<0.0040	0.0067	<0.0040
Lithium (Li)-Total	mg/kg wwt	0.020	0.054	<0.020	0.035	0.071	0.035	0.059	0.033	<0.020	0.042	0.034	0.050	0.027
Magnesium (Mg)-Total	mg/kg wwt	10	330	359	374	653	515	555	596	503	383	363	413	321
Manganese (Mn)-Total	mg/kg wwt	0.0040	5.81	2.32	5.21	9.21	3.85	9.12	3.60	3.38	8.45	5.71	4.60	6.51
Mercury (Hg)-Total	mg/kg wwt	0.0010	0.1010	0.0271	0.0657	0.0666	0.0526	0.0560	0.0545	0.0450	0.0983	0.1230	0.1600	0.1090
Molybdenum (Mo)-Total	mg/kg wwt	0.0040	0.0086	0.0055	0.0113	0.0219	0.0084	0.0098	0.0063	0.0066	0.0091	0.0154	0.0205	0.0144
Nickel (Ni)-Total	mg/kg wwt	0.010	0.028	0.029	0.019	0.066	0.040	0.021	0.013	0.019	0.019	0.052	0.058	0.021
Phosphorus (P)-Total	mg/kg wwt	50	4900	5150	6540	11700	9540	11100	12900	10400	6740	6310	7690	4860
Potassium (K)-Total	mg/kg wwt	200	3390	3540	2450	3140	3620	3520	2760	3320	3040	3210	3260	3040
Rhenium (Re)-Total	mg/kg wwt	0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Rubidium (Rb)-Total	mg/kg wwt	0.010	5.35	4.25	3.17	3.74	7.19	5.38	3.43	5.26	3.86	4.79	5.11	5.66
Selenium (Se)-Total	mg/kg wwt	0.020	0.390	0.246	0.272	0.443	0.749	0.488	0.414	0.610	0.350	0.418	0.388	0.460
Silver (Ag)-Total	mg/kg wwt	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Sodium (Na)-Total	mg/kg wwt	200	870	680	530	1010	1060	960	600	820	1090	1040	1110	1050
Strontium (Sr)-Total	mg/kg wwt	0.010	25	23	33.6	48.5	28.5	56.2	29.6	21.7	45.5	31.1	33.9	27.7
Tellurium (Te)-Total	mg/kg wwt	0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Thallium (Tl)-Total	mg/kg wwt	0.00040	0.00246	0.00099	0.00163	0.00186	0.00206	0.00237	0.00155	0.00180	0.00152	0.00364	0.00316	0.00271
Thorium (Th)-Total	mg/kg wwt	0.0020	0.0033	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Tin (Sn)-Total	mg/kg wwt	0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.0047	<0.0040	<0.0040
Titanium (Ti)-Total	mg/kg wwt	0.010	0.069	0.101	0.026	0.043	0.085	0.04	0.021	0.019	0.019	0.07	0.425	0.017
Uranium (U)-Total	mg/kg wwt	0.00040	0.00908	0.00074	0.00595	0.01050	0.00532	0.00991	0.00288	0.00218	0.01090	0.01050	0.00870	0.01160
Vanadium (V)-Total	mg/kg wwt	0.0040	0.0043	0.0043	<0.0040	0.0058	0.0064	0.0045	<0.0040	<0.0040	<0.0040	0.0149	0.0107	<0.0040
Yttrium (Y)-Total	mg/kg wwt	0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0036	<0.0020
Zinc (Zn)-Total	mg/kg wwt	0.10	48.6	27.5	37.2	56.7	64.3	60.1	46.7	44.4	42.2	48.1	53.0	52.3
Zirconium (Zr)-Total	mg/kg wwt	0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Lipid Content	%	0.5	2.2	4.7	2.1	1.3	1.7	2.1	1.7	3.8	1.6	2.1	1.1	1.9

Table 9B-1 Fish Tissue Chemistry Data

Variable		Waterbody	NEL	NEL	NEL	NEL	Snap	Snap	Snap	Snap	Snap	Snap	Snap	Snap
		SCN #	2012-4018	2012-4019	2012-4020	2012-4021	2012-4022	2012-4023	2012-4024	2012-4025	2012-4026	2012-4027	2012-4028	2012-4029
		Fish ID #	SL12UNEL-LKCH-19008	SL12UNEL-LKCH-19011	SL12UNEL-LKCH-19066	SL12UNEL-LKCH-20001	SL12USL-LKCH-16019	SL12USL-LKCH-16036	SL12USL-LKCH-16037	SL12USL-LKCH-16043	SL12USL-LKCH-16001	SL12USL-LKCH-16002	SL12USL-LKCH-17506	SL12USL-LKCH-17520
		Date Sampled	07-JUL-12	07-JUL-12	13-JUL-12	07-JUL-12	05-JUL-12	14-JUL-12	14-Jul-12	14-JUL-12	05-JUL-12	05-JUL-12	04-JUL-12	05-JUL-12
	Unit	Detection Level												
Moisture	%	0.10	73.2	75.2	75.5	76.7	76.3	73.7	79.4	75.6	75.9	71.3	75.4	74.6
Aluminum (Al)-Total	mg/kg wwt	0.40	1.52	0.68	0.87	0.86	2.61	0.79	1.26	0.85	0.86	0.20	3.00	0.65
Antimony (Sb)-Total	mg/kg wwt	0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0022	<0.0020
Arsenic (As)-Total	mg/kg wwt	0.0040	0.0368	0.0237	0.0257	0.0255	0.0173	0.0422	0.0282	0.0175	0.0246	0.0098	0.0190	0.016
Barium (Ba)-Total	mg/kg wwt	0.010	10.70	4.64	6.16	7.21	2.78	2.64	2.51	3.17	2.02	0.75	1.12	1.14
Beryllium (Be)-Total	mg/kg wwt	0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Bismuth (Bi)-Total	mg/kg wwt	0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0265	0.0072	0.0418	<0.0020	<0.0020	0.0093	0.0074
Boron (B)-Total	mg/kg wwt	0.20	<0.20	<0.20	1.43	<0.20	<0.20	<0.20	0.60	0.43	<0.20	<0.20	<0.20	<0.20
Cadmium (Cd)-Total	mg/kg wwt	0.0020	0.0230	0.0110	0.0117	0.0159	0.0204	0.0401	0.0182	0.0102	0.0142	0.0098	0.0094	0.0050
Calcium (Ca)-Total	mg/kg wwt	5.0	19100	13000	14700	15500	8630	18700	4960	12800	11600	14200	14400	6960
Cesium (Cs)-Total	mg/kg wwt	0.0010	0.0387	0.0383	0.0368	0.0421	0.0225	0.0517	0.0524	0.0299	0.0270	0.0225	0.0250	0.0296
Chromium (Cr)-Total	mg/kg wwt	0.010	0.018	0.015	0.010	0.014	0.020	0.013	0.012	0.011	0.060	0.015	0.029	<0.020
Cobalt (Co)-Total	mg/kg wwt	0.0040	0.0061	0.0067	0.0061	0.0078	0.0101	0.0285	0.0164	0.0101	0.0081	<0.0040	0.0165	0.0040
Copper (Cu)-Total	mg/kg wwt	0.010	0.522	0.567	0.484	0.413	0.375	0.391	0.457	0.333	0.569	0.457	0.514	0.724
Gallium (Ga)-Total	mg/kg wwt	0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Iron (Fe)-Total	mg/kg wwt	0.20	12.6	8.74	8.54	8.04	9.95	6.67	10.2	8.73	9.18	8.63	13.2	8.01
Lead (Pb)-Total	mg/kg wwt	0.0040	0.0046	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.0054	<0.0040	0.0048	<0.0040	<0.0040
Lithium (Li)-Total	mg/kg wwt	0.020	0.050	0.021	0.027	0.030	0.026	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.031
Magnesium (Mg)-Total	mg/kg wwt	10	531	443	489	459	330	509	301	425	430	459	437	321
Manganese (Mn)-Total	mg/kg wwt	0.0040	8.52	2.87	4.93	5.64	10.40	13.10	6.70	6.24	6.24	4.78	4.86	2.58
Mercury (Hg)-Total	mg/kg wwt	0.0010	0.0982	0.0462	0.0571	0.0576	0.1360	0.1450	0.1500	0.1530	0.0891	0.0465	0.0444	0.0544
Molybdenum (Mo)-Total	mg/kg wwt	0.0040	0.0085	0.0064	0.0074	0.0058	0.0173	0.0126	0.016	0.0254	0.0107	0.0090	0.0090	0.0061
Nickel (Ni)-Total	mg/kg wwt	0.010	0.024	0.018	0.015	0.030	0.063	0.027	0.040	0.026	0.062	0.021	0.063	0.058
Phosphorus (P)-Total	mg/kg wwt	50	10700	8040	8720	8870	5300	10700	4100	7910	7270	8520	8130	5180
Potassium (K)-Total	mg/kg wwt	200	3270	3450	3640	3340	3250	3220	3260	3270	3470	3450	3180	3420
Rhenium (Re)-Total	mg/kg wwt	0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Rubidium (Rb)-Total	mg/kg wwt	0.010	5.58	6.86	4.93	7.02	4.07	6.9	6.1	4.33	4.17	3.25	3.82	4.08
Selenium (Se)-Total	mg/kg wwt	0.020	0.500	0.397	0.395	0.380	0.407	0.571	0.368	0.344	0.385	0.319	0.330	0.340
Silver (Ag)-Total	mg/kg wwt	0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Sodium (Na)-Total	mg/kg wwt	200	1030	920	1090	850	1030	1190	1110	990	980	870	800	800
Strontium (Sr)-Total	mg/kg wwt	0.010	58.4	30.1	44.1	46.2	61.3	47.1	41.6	34.9	77.1	53.4	54.8	26.7
Tellurium (Te)-Total	mg/kg wwt	0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Thallium (Tl)-Total	mg/kg wwt	0.00040	0.00244	0.00171	0.00178	0.00221	0.00575	0.00564	0.00647	0.00393	0.00586	0.00168	0.00305	0.00314
Thorium (Th)-Total	mg/kg wwt	0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Tin (Sn)-Total	mg/kg wwt	0.0040	<0.0040	<0.0040	0.0048	0.0065	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Titanium (Ti)-Total	mg/kg wwt	0.010	0.13	0.065	0.015	0.042	0.321	0.032	0.139	0.046	0.043	0.012	0.230	0.024
Uranium (U)-Total	mg/kg wwt	0.00040	0.00856	0.00233	0.00413	0.00593	0.0139	0.03700	0.01960	0.01180	0.00519	0.00388	0.00442	0.00271
Vanadium (V)-Total	mg/kg wwt	0.0040	0.0051	<0.0040	<0.0040	<0.0040	0.0098	0.0103	0.0096	0.0098	0.005	<0.0040	0.0089	<0.0040
Yttrium (Y)-Total	mg/kg wwt	0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc (Zn)-Total	mg/kg wwt	0.10	70.6	36.9	50.4	59.2	53.4	88.1	60.8	55.1	52.5	40.6	45.2	34.5
Zirconium (Zr)-Total	mg/kg wwt	0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Lipid Content	%	0.5	2.3	2.8	1.5	1.4	2.0	2.6	1.4	2	1.6	4.3	1.6	3.4

Snap = Snap Lake; NEL = Northeast Lake; ID = identification; mg/g ww = milligrams per kilogram wet weight; SCN = sample control number; ID = identification; # = number; <= less than; % = percent

Table 9C-1 Mean, Standard Deviation, Standard Error, Maximum concentration, and Minimum Concentration of Metals in Lake Chub from Lake 13, Northeast Lake and Snap Lake, 2012.

Variable	Lake 13					Northeast Lake					Snap Lake				
	Mean	SD	SE	Max	Min	Mean	SD	SE	Max	Min	Mean	SD	SE	Max	Min
% Moisture	74.9	2.2	0.8	79.8	72.8	76.0	1.3	0.5	77.3	73.0	75.5	2.3	0.8	79.4	71.3
Aluminum (Al)	1.0	0.5	0.2	1.7	1.9	1.4	1.1	0.4	3.7	0.5	1.3	1.0	0.4	3.0	0.2
Antimony (Sb)	0.001	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.001	0.001
Arsenic (As)	0.019	0.007	0.002	0.034	0.014	0.025	0.006	0.002	0.368	0.018	0.021	0.011	0.004	0.042	0.008
Barium (Ba)	3.52	1.48	0.52	6.32	2.23	6.16	2.17	0.77	10.70	4.14	2.02	0.90	0.32	3.17	0.75
Beryllium (Be)	0.001	0.000	0.000	0.001	0.001	0.002	0.001	0.000	0.001	0.001	0.001	0.000	0.000	0.001	0.001
Bismuth (Bi)	0.004	0.004	0.001	0.010	0.001	0.002	0.001	0.000	0.005	0.001	0.012	0.015	0.005	0.042	0.001
Boron (B)	0.2	0.2	0.1	0.6	0.1	0.5	0.5	0.2	1.4	0.1	0.2	0.2	0.1	0.6	0.1
Cadmium (Cd)	0.010	0.004	0.002	0.016	0.004	0.017	0.005	0.002	0.023	0.011	0.016	0.011	0.004	0.040	0.005
Calcium (Ca)	15211	6579	2326	24500	6580	12685	3866	1367	19100	6590	11531	4486	1586	18700	4960
Cesium (Cs)	0.021	0.007	0.002	0.033	0.140	0.034	0.008	0.003	0.042	0.018	0.033	0.012	0.004	0.052	0.023
Chromium (Cr)	0.02	0.01	0.00	0.03	0.01	0.02	0.01	0.00	0.05	0.01	0.02	0.02	0.01	0.06	0.01
Cobalt (Co)	0.006	0.003	0.001	0.012	0.002	0.009	0.004	0.001	0.015	0.006	0.012	0.008	0.003	0.029	0.002
Copper (Cu)	0.41	0.11	0.04	0.55	0.27	0.43	0.10	0.04	0.57	0.26	0.48	0.13	0.46	0.72	0.33
Gallium (Ga)	0.002	0.000	0.000	0.020	0.002	0.002	0.000	0.000	0.002	0.002	0.002	0.000	0.000	0.002	0.002
Iron (Fe)	7.8	2.8	1.0	11.2	3.5	10.2	3.4	1.2	15.8	5.7	9.3	1.9	0.7	13.2	6.7
Lead (Pb)	0.002	0.001	0.000	0.004	0.002	0.003	0.002	0.001	0.007	0.002	0.003	0.001	0.001	0.005	0.002
Lithium (Li)	0.04	0.02	0.01	0.07	0.01	0.04	0.01	0.00	0.05	0.02	0.01	0.01	0.00	0.03	0.01
Magnesium (Mg)	486	119	42	653	330	425	69	24	531	321	402	75	26	509	301
Manganese (Mn)	5.313	2.611	0.923	9.210	2.320	5.904	1.914	0.677	8.520	2.870	6.863	3.357	1.187	13.100	2.580
Mercury (Hg)	0.059	0.021	0.008	0.101	0.027	0.094	0.039	0.014	0.160	0.046	0.102	0.049	0.017	0.153	0.044
Molybdenum (Mo)	0.010	0.005	0.002	0.022	0.006	0.011	0.005	0.002	0.021	0.006	0.013	0.006	0.002	0.025	0.006
Nickel (Ni)	0.03	0.02	0.01	0.07	0.01	0.03	0.02	0.01	0.06	0.02	0.05	0.02	0.01	0.06	0.02
Phosphorus (P)	9029	3090	1092	12900	4900	7741	1790	633	10700	4860	7139	2159	763	10700	4100
Potassium (K)	3218	414	147	3620	2450	3281	201	71	3640	3040	3315	113	40	3470	3180
Rhenium (Re)	0.001	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.001	0.001
Rubidium (Rb)	4.72	1.33	0.47	7.19	3.17	5.48	1.06	0.37	7.02	3.86	4.59	1.24	0.44	6.90	3.25
Selenium (Se)	0.45	0.17	0.06	0.75	0.25	0.41	0.05	0.02	0.50	0.35	0.38	0.08	0.03	0.57	0.32
Silver (Ag)	0.001	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.001	0.001
Sodium (Na)	816	196	69	1060	530	1023	91	32	1110	850	971	141	50	1190	800
Strontium (Sr)	33.26	12.55	4.44	56.20	21.70	39.63	10.61	3.75	58.40	27.70	49.61	15.79	5.58	77.10	26.70
Tellurium (Te)	0.002	0.000	0.000	0.002	0.002	0.002	0.000	0.000	0.002	0.002	0.002	0.000	0.000	0.002	0.002
Thallium (Tl)	0.0018	0.0005	0.0002	0.0025	0.0010	0.0024	0.0007	0.0003	0.0036	0.0015	0.0044	0.0017	0.0006	0.0065	0.0017
Thorium (Th)	0.001	0.001	0.000	0.003	0.001	0.001	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.001	0.001
Tin (Sn)	0.002	0.000	0.000	0.002	0.002	0.003	0.002	0.001	0.007	0.002	0.002	0.000	0.000	0.002	0.002
Titanium (Ti)	0.05	0.03	0.01	0.10	0.02	0.10	0.14	0.05	0.43	0.02	0.11	0.11	0.04	0.32	0.01
Uranium (U)	0.0058	0.0037	0.0013	0.0105	0.0007	0.0078	0.0034	0.0012	0.0116	0.0023	0.0123	0.0116	0.0041	0.0370	0.0027
Vanadium (V)	0.004	0.002	0.001	0.006	0.002	0.005	0.005	0.002	0.015	0.002	0.007	0.004	0.001	0.010	0.002
Yttrium (Y)	0.001	0.000	0.000	0.001	0.001	0.001	0.001	0.000	0.004	0.001	0.001	0.000	0.000	0.001	0.001
Zinc (Zn)	48.2	12.2	4.3	64.3	27.5	51.6	10.3	3.6	70.6	36.9	53.8	16.3	5.7	88.1	34.5
Zirconium (Zr)	0.02	0.00	0.00	0.02	0.02	0.02	0.00	0.00	0.02	0.02	0.02	0.00	0.00	0.02	0.02
Lipid Content (%)	2.5	1.2	0.4	4.7	1.3	1.8	0.6	0.2	2.8	1.1	2.4	1.0	0.4	4.3	1.4

SD = standard deviation; SE = standard error; Min = minimum; Max = maximum; % = percent.

Figure 9D-1 Aluminum Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

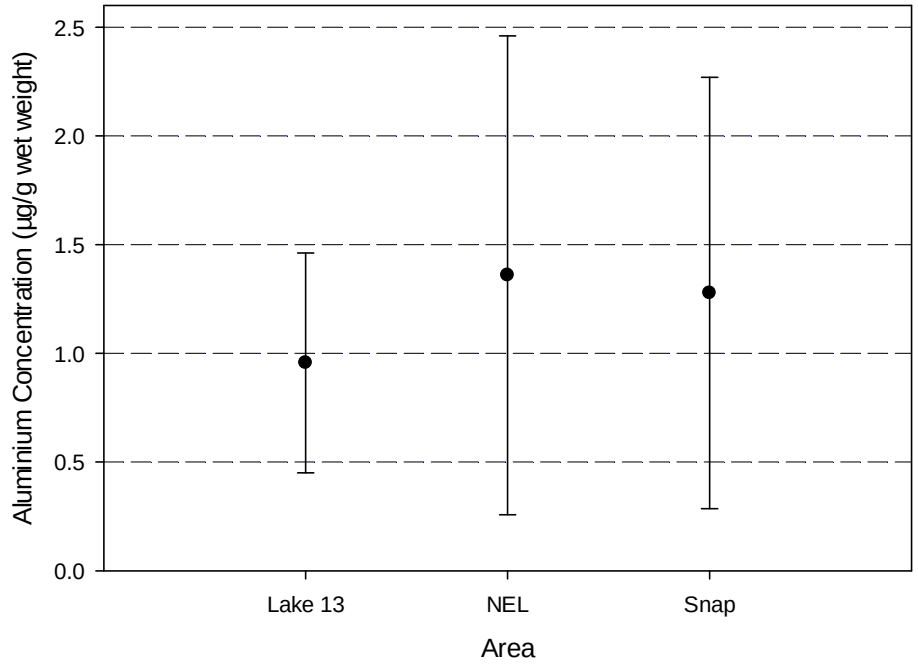


Figure 9D-2 Antimony Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

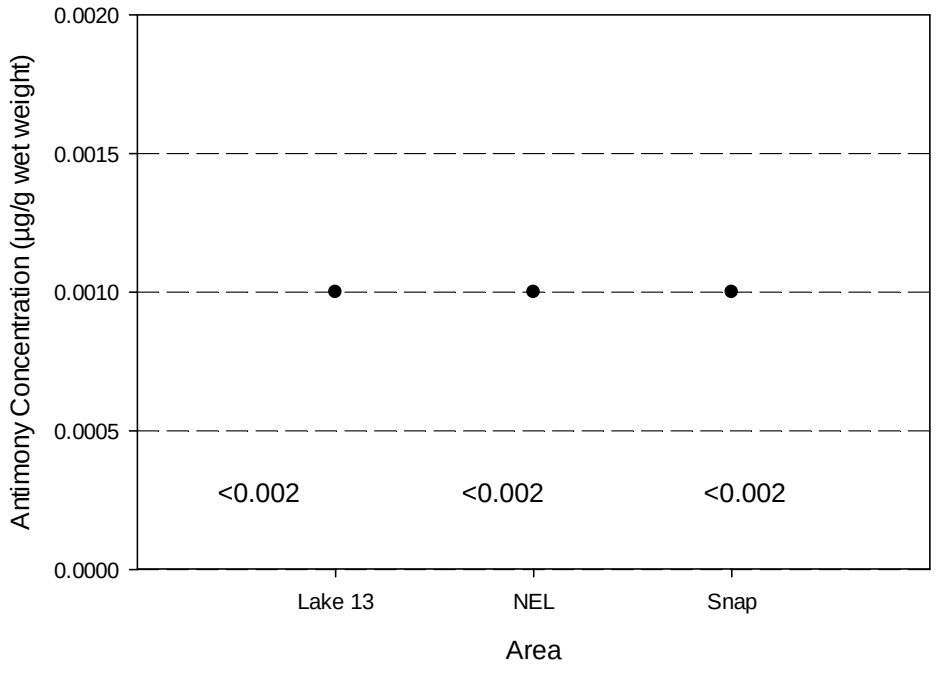


Figure 9D-3 Arsenic Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

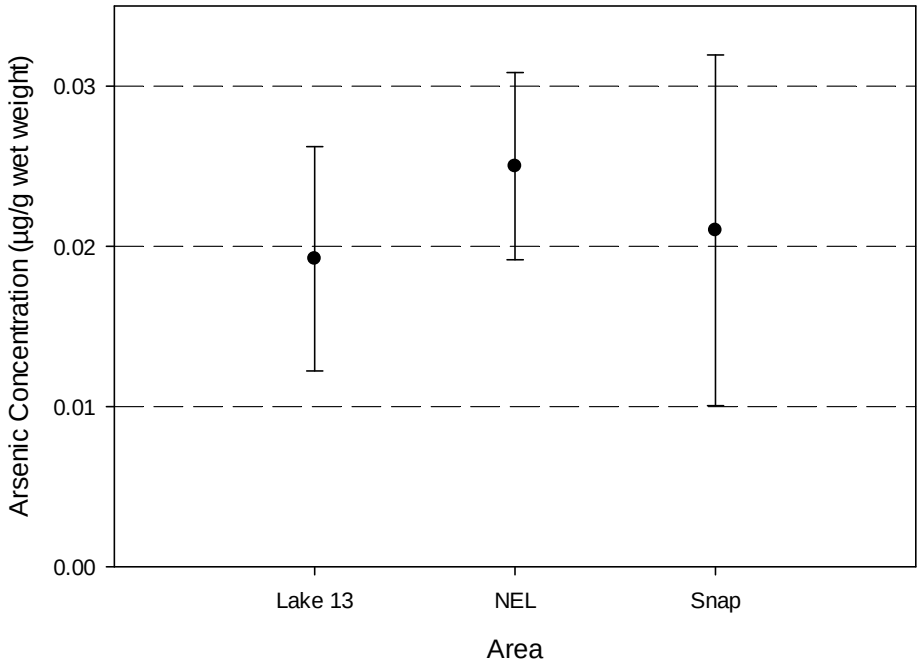


Figure 9D-4 Barium Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

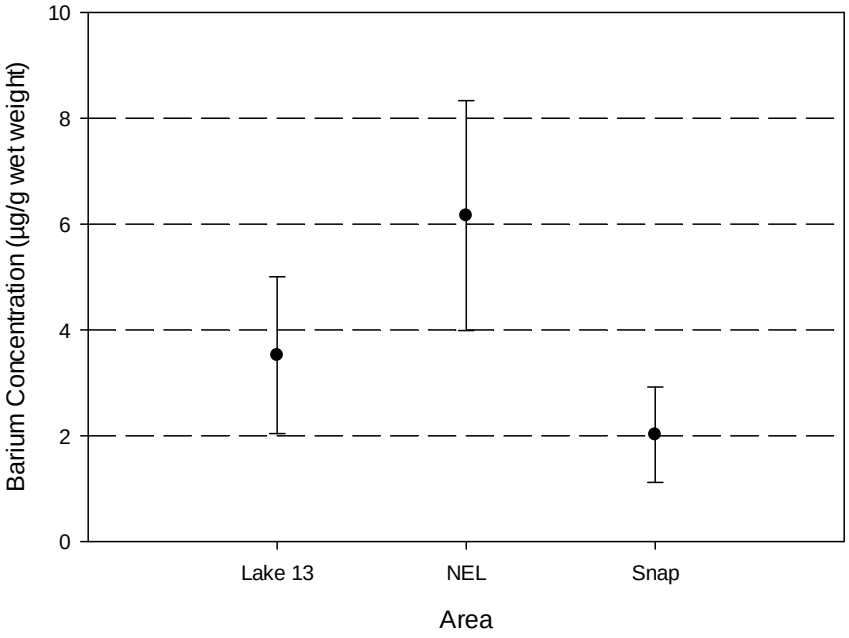


Figure 9D-5 Beryllium Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

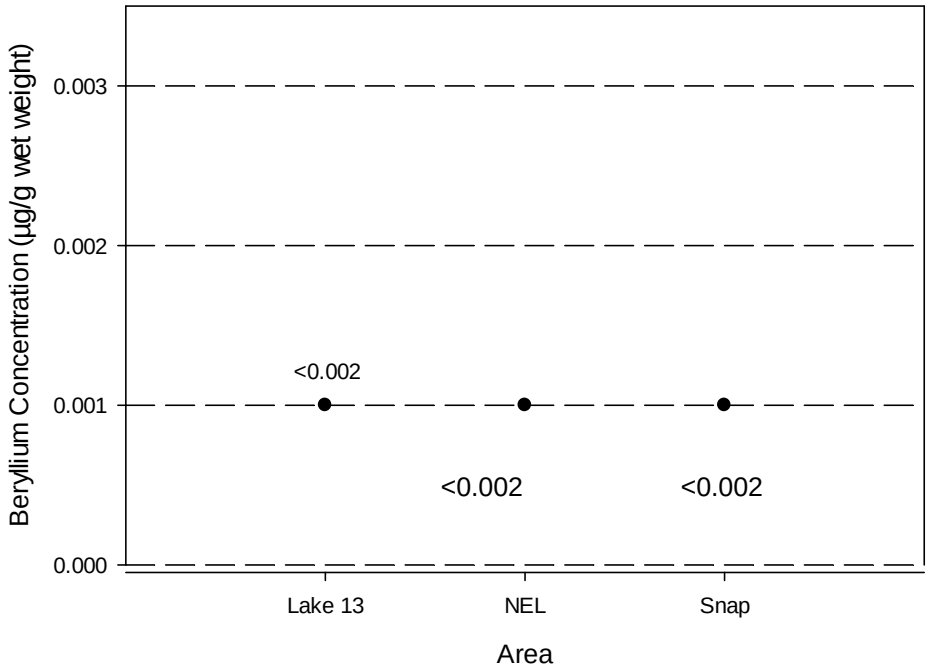


Figure 9D-6 Bismuth Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

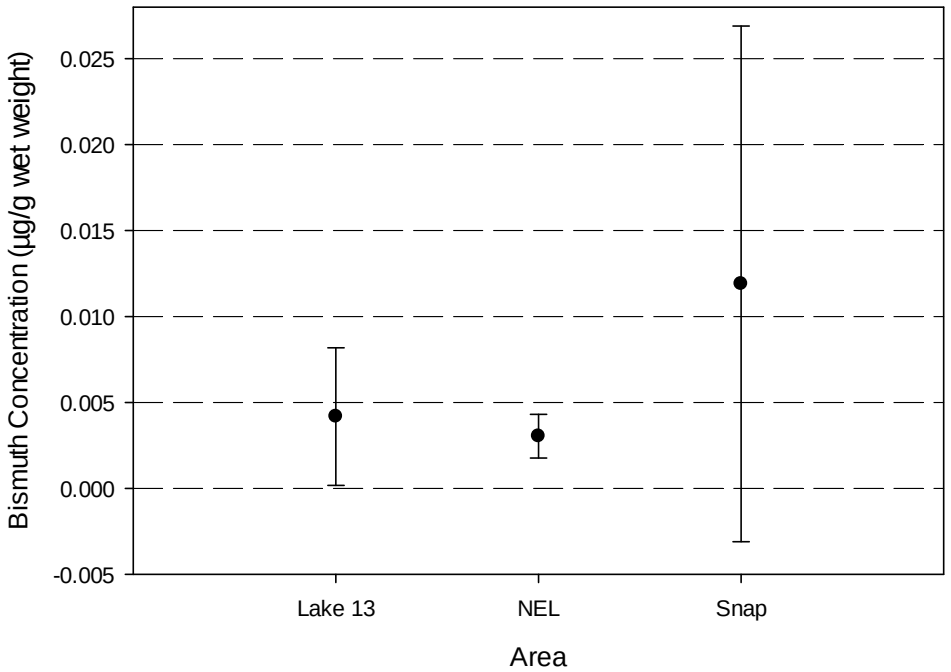


Figure 9D-7 Boron Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

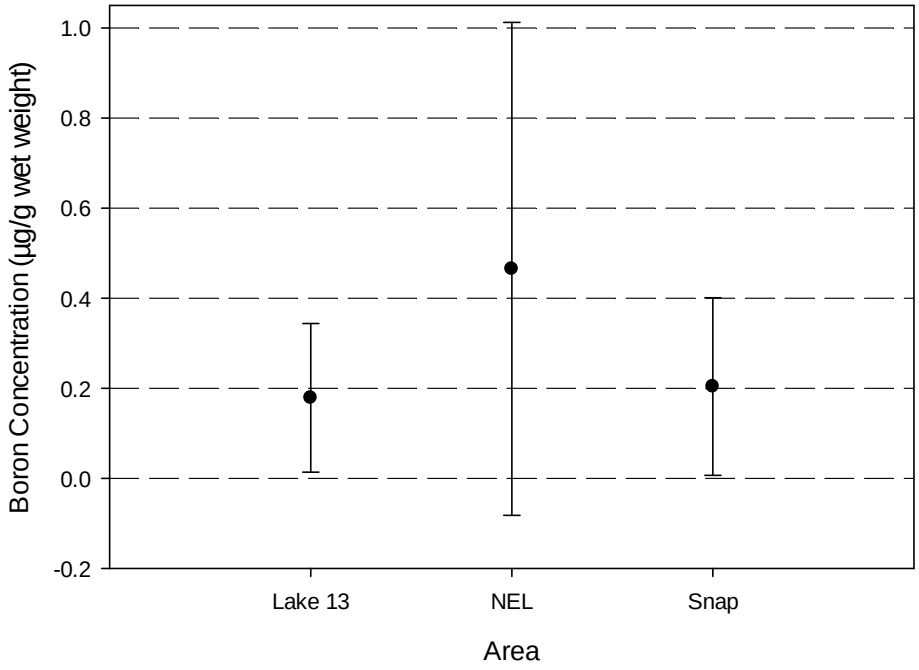


Figure 9D-8 Cadmium Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

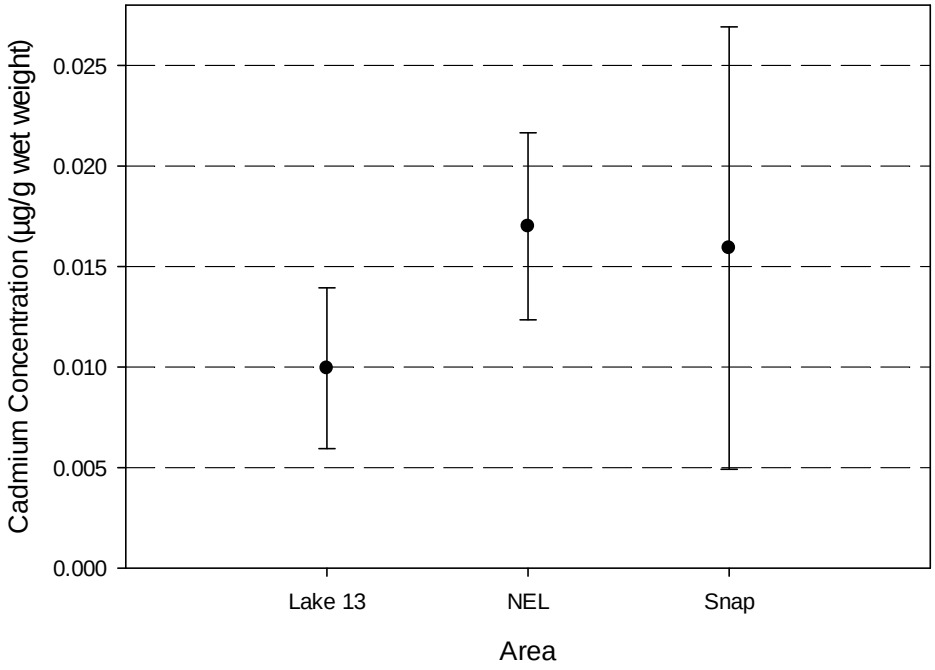


Figure 9D-9 Calcium Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

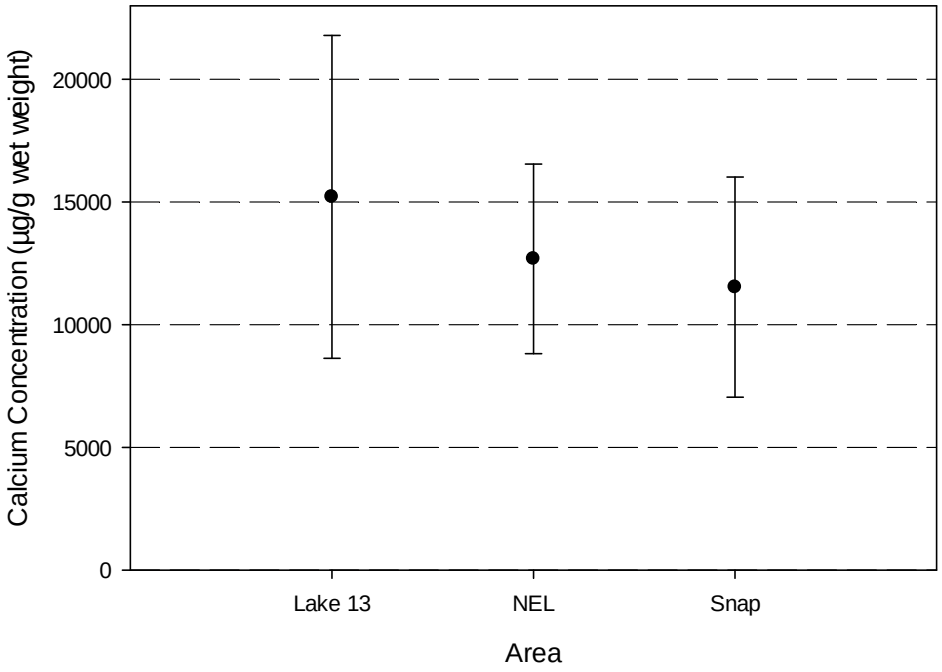


Figure 9D-10 Cesium Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

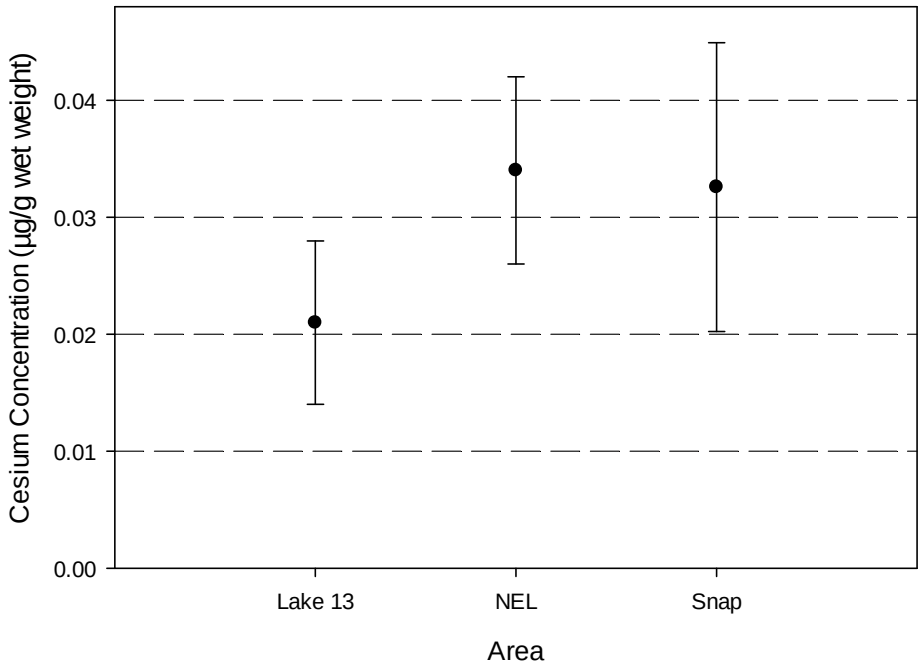


Figure 9D-11 Chromium Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

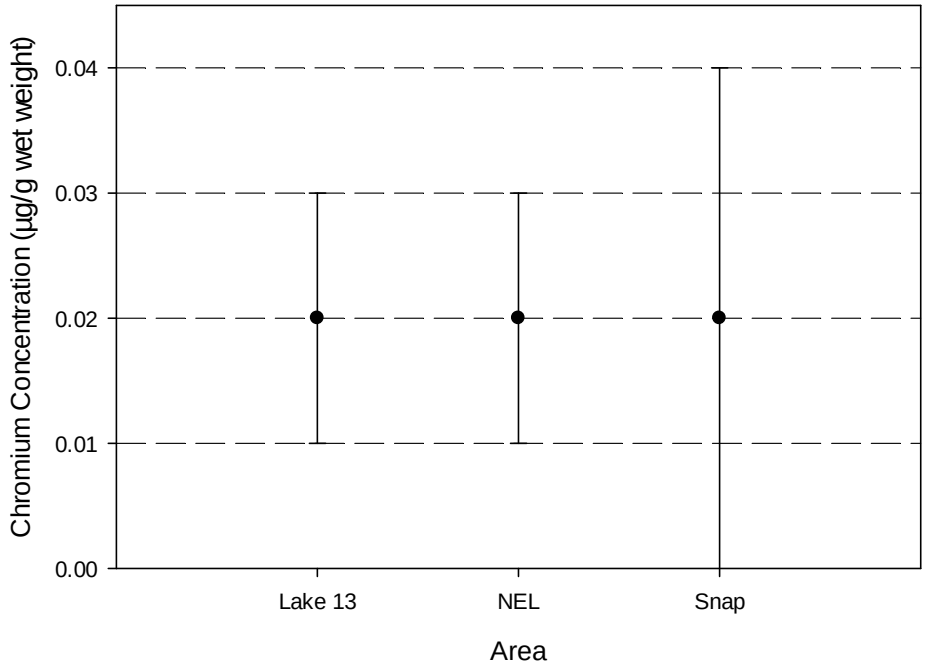


Figure 9D-12 Cobalt Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

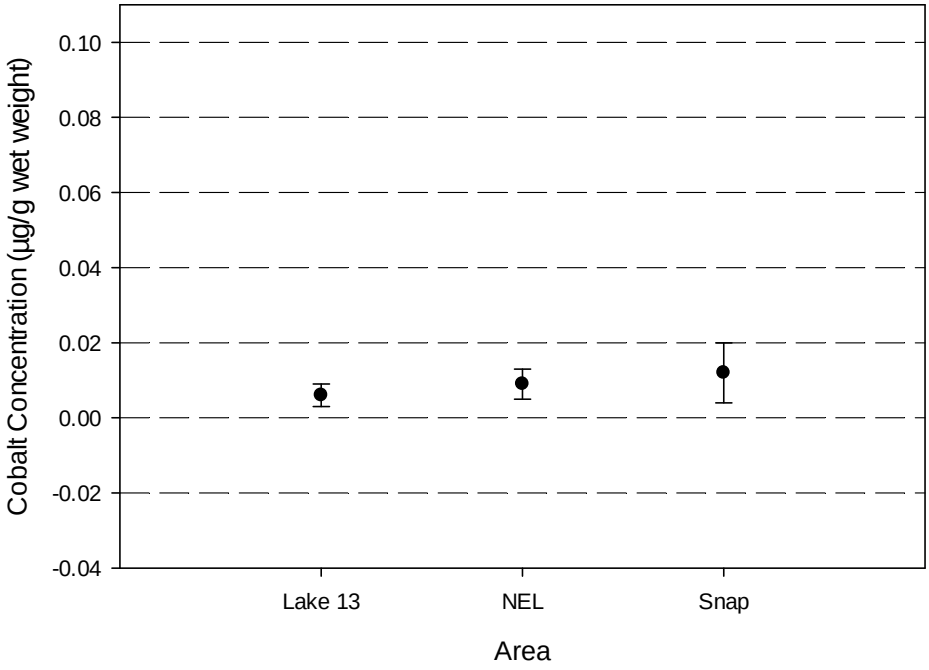


Figure 9D-13 Copper Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

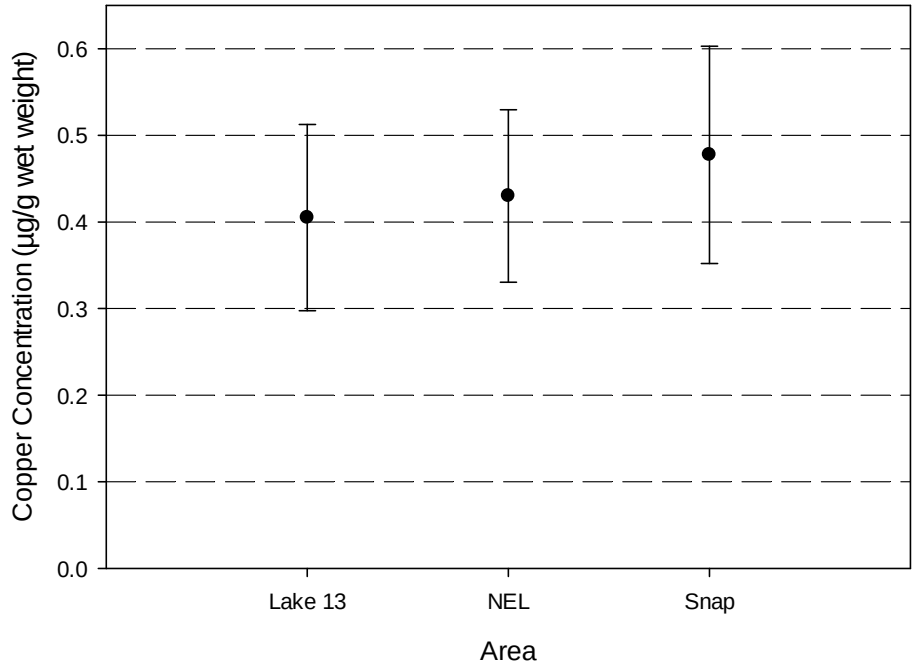


Figure 9D-14 Gallium Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

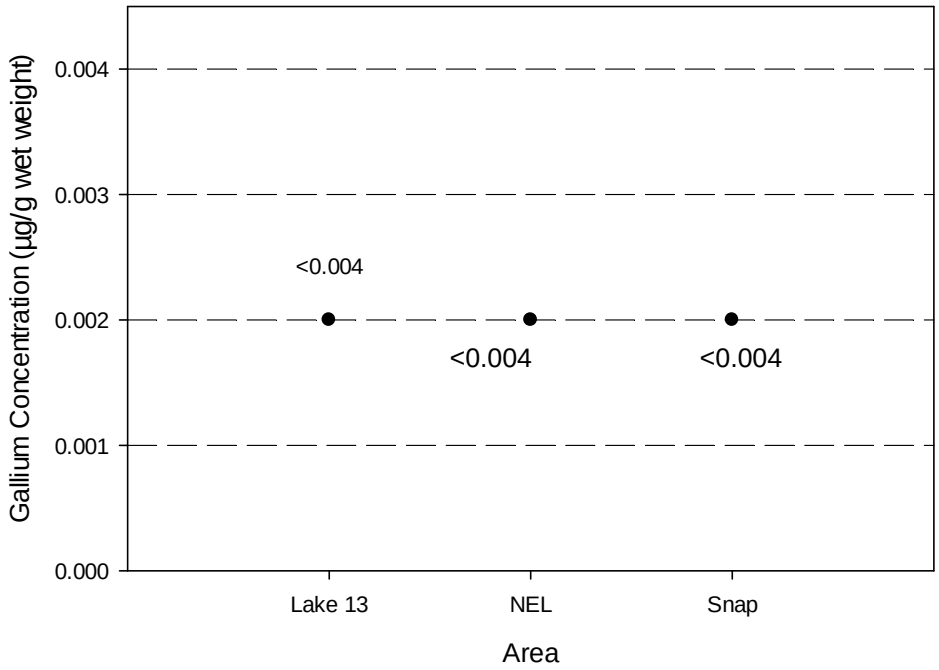


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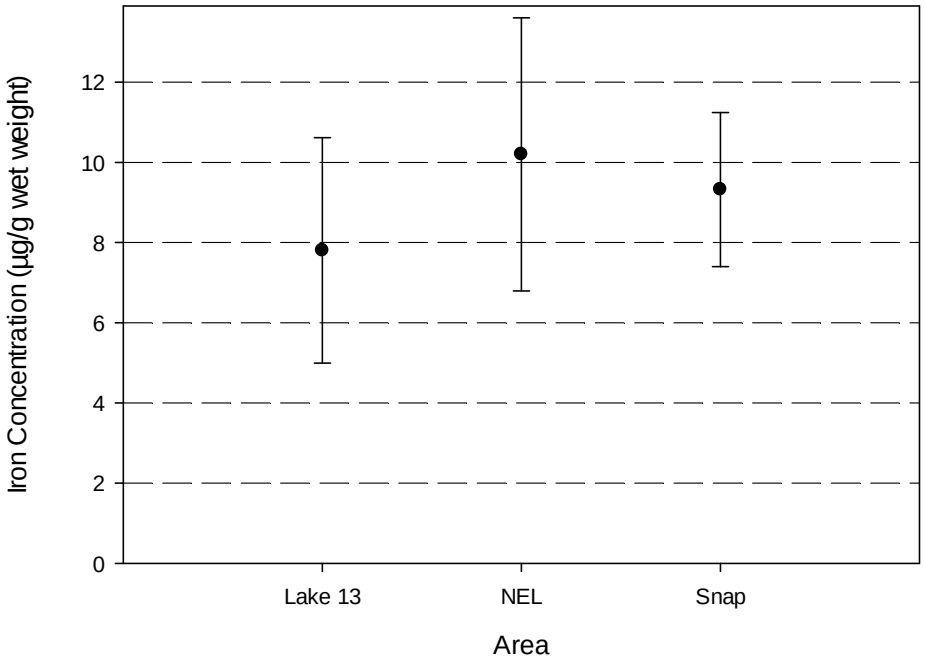


Figure 9D-16 Lead Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

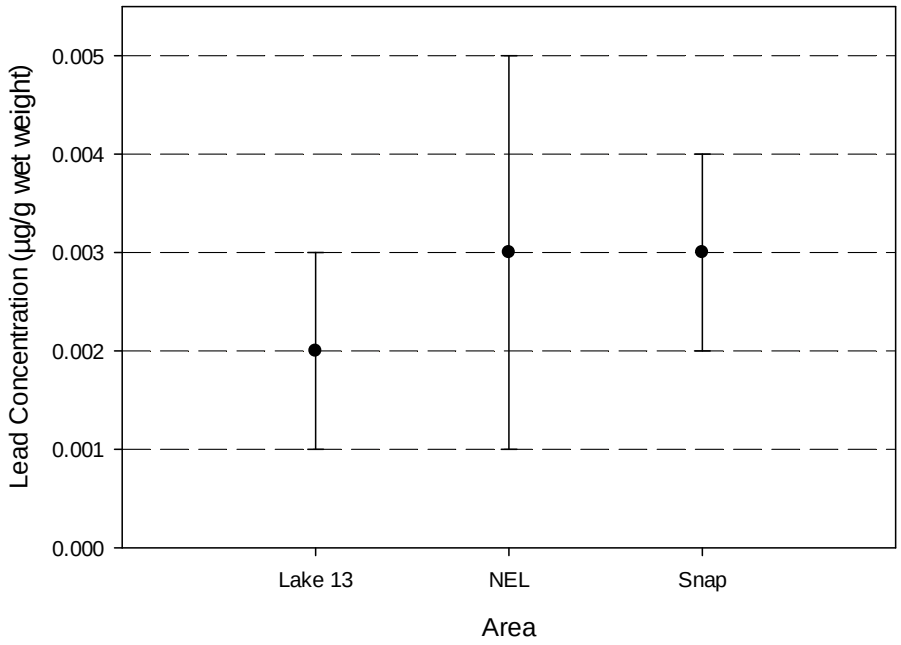


Figure 9D-17 Lithium Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

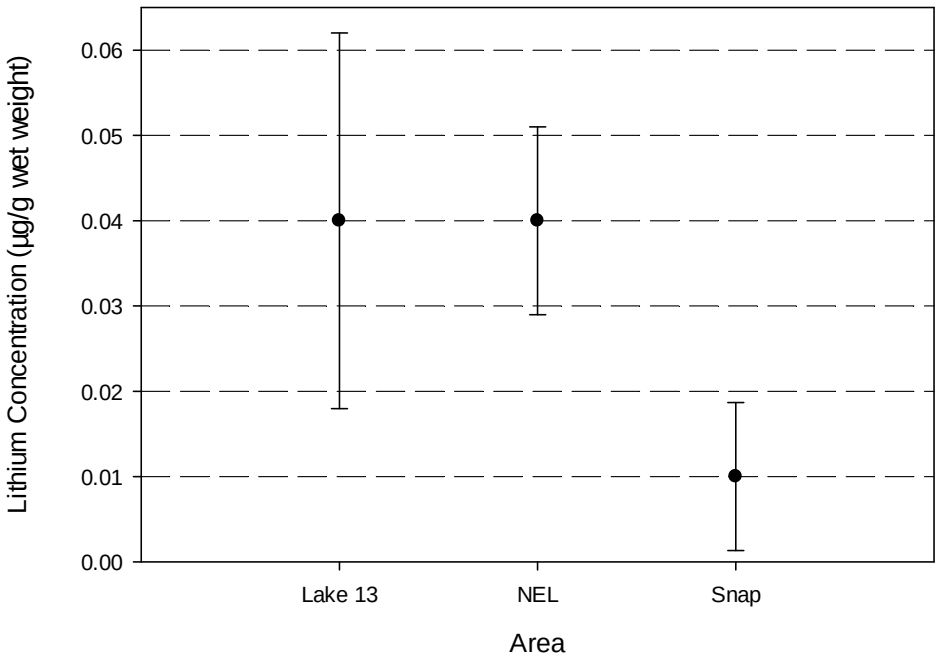


Figure 9D-18 Magnesium Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

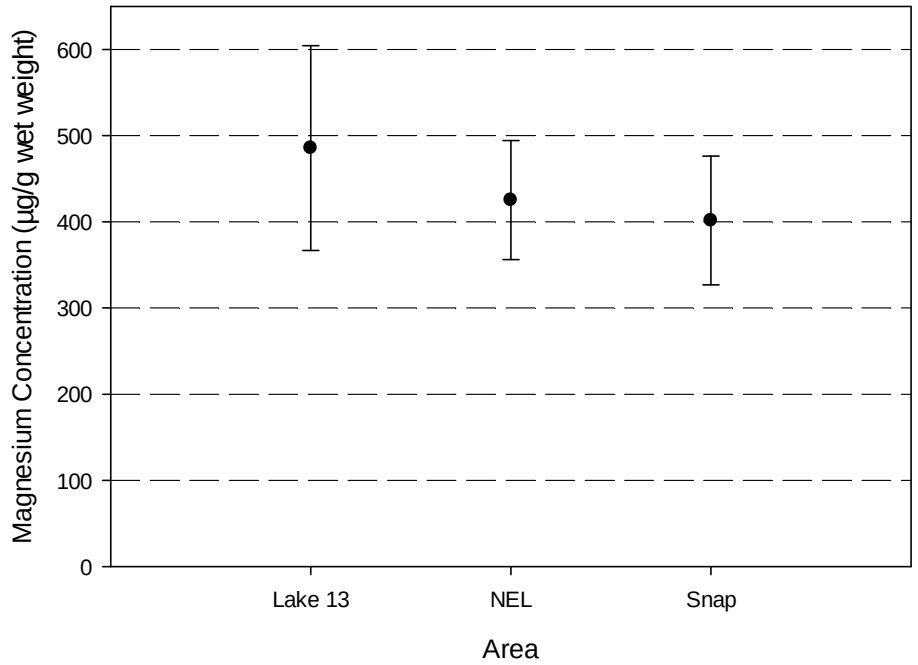


Figure 9D-19 Manganese Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

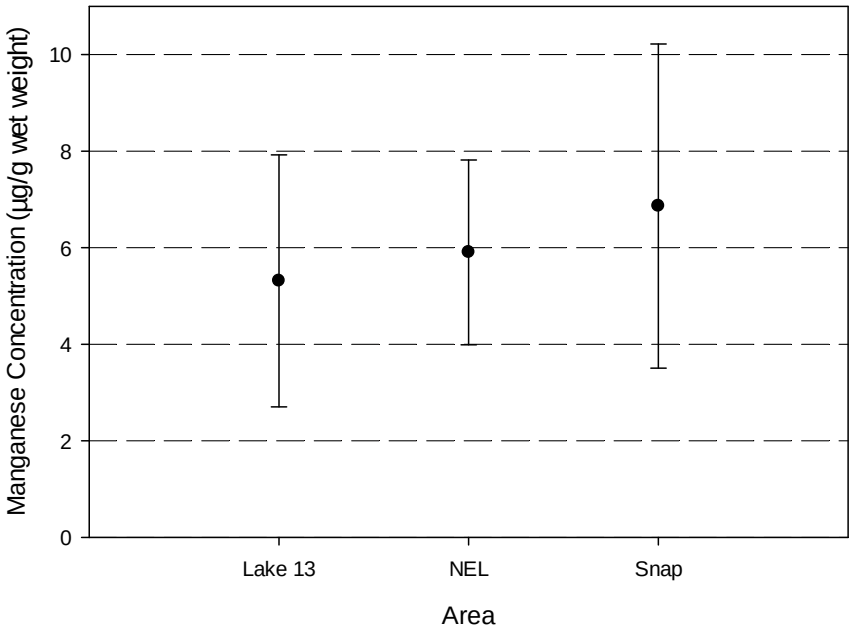


Figure 9D-20 Mercury Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

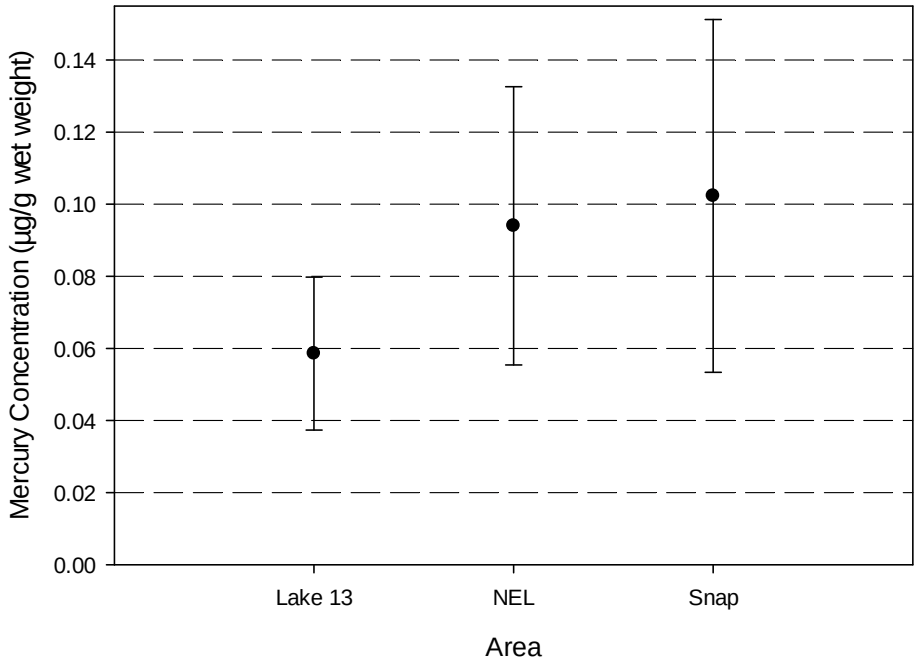


Figure 9D-21 Molybdenum Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast (NEL) and Snap Lake, 2012

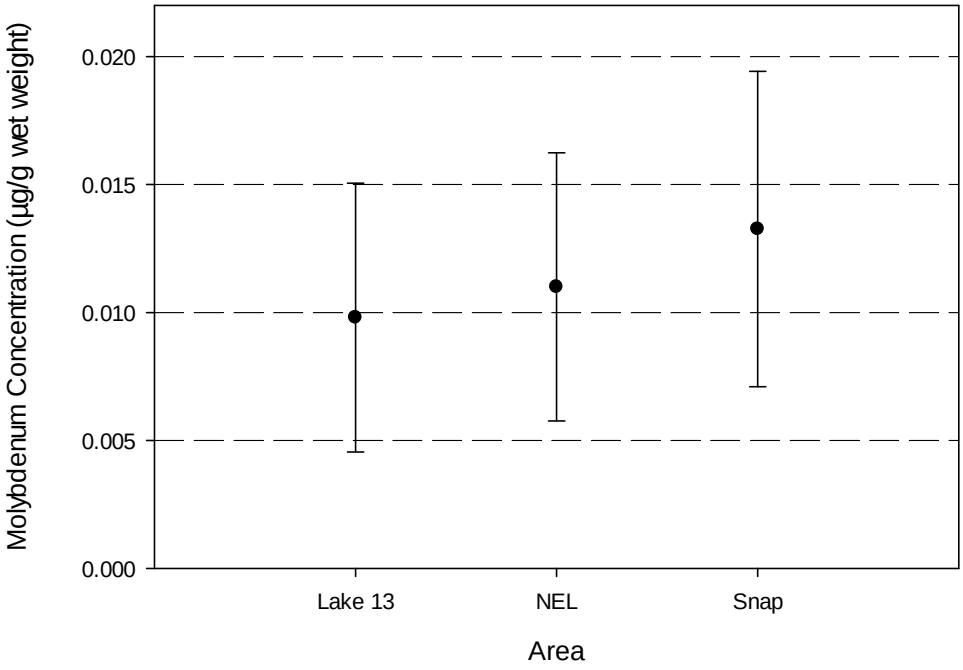


Figure 9D-22 Nickel Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

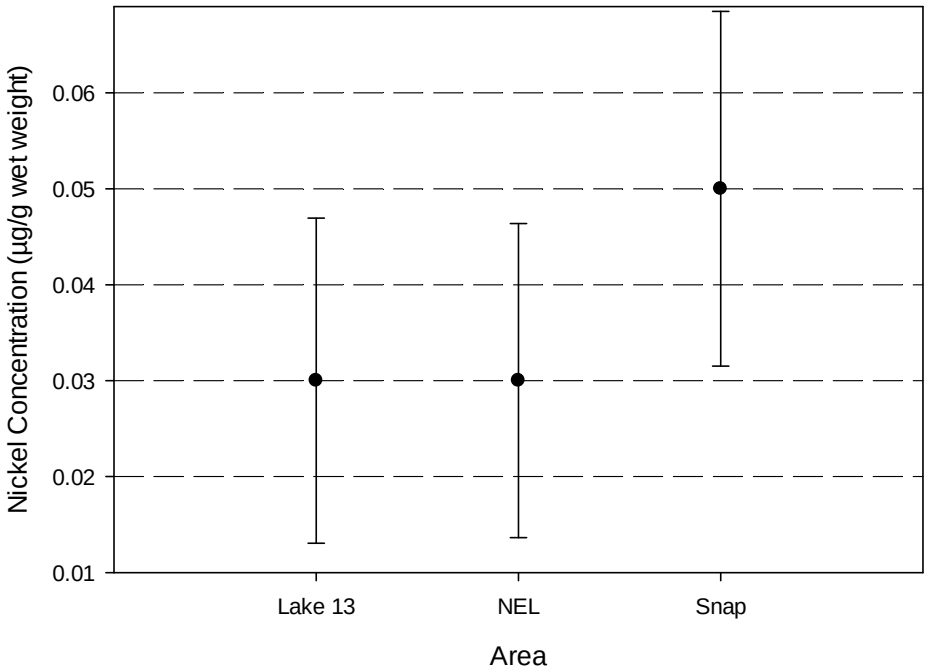


Figure 9D-23 Phosphorous Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

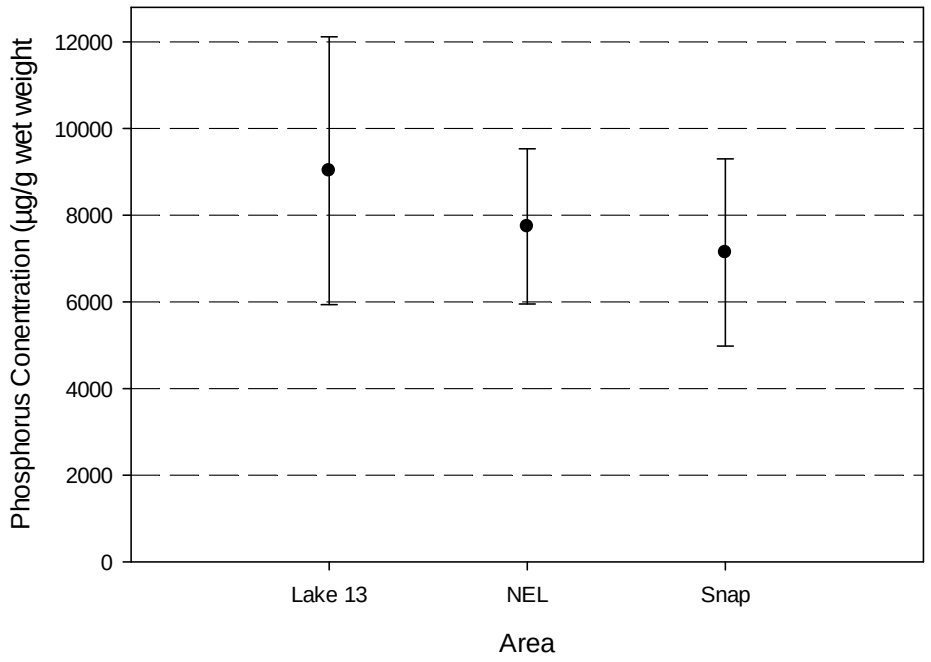


Figure 9D-24 Potassium Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

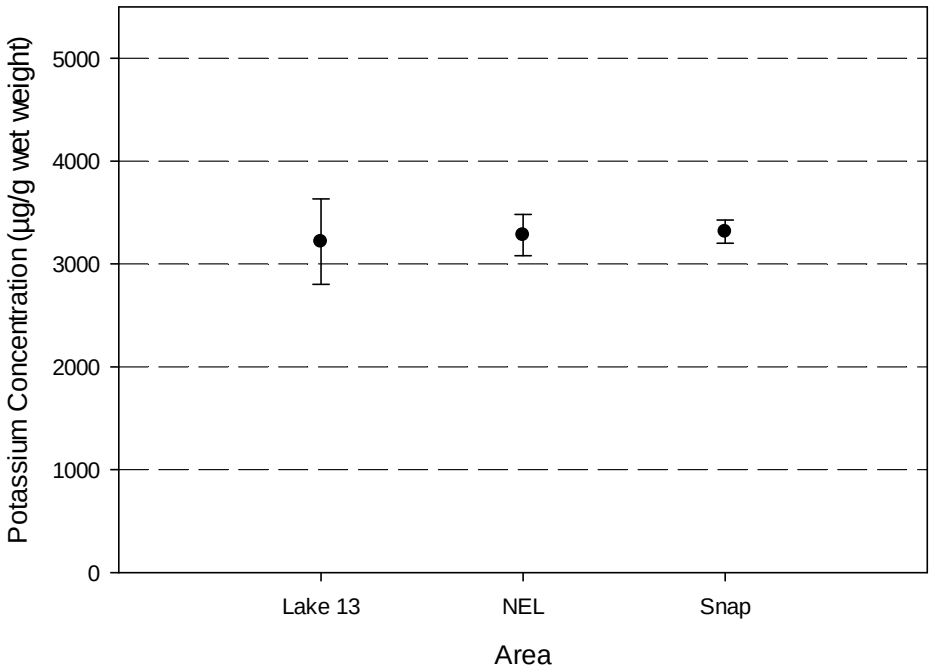


Figure 9D-25 Rhenium Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

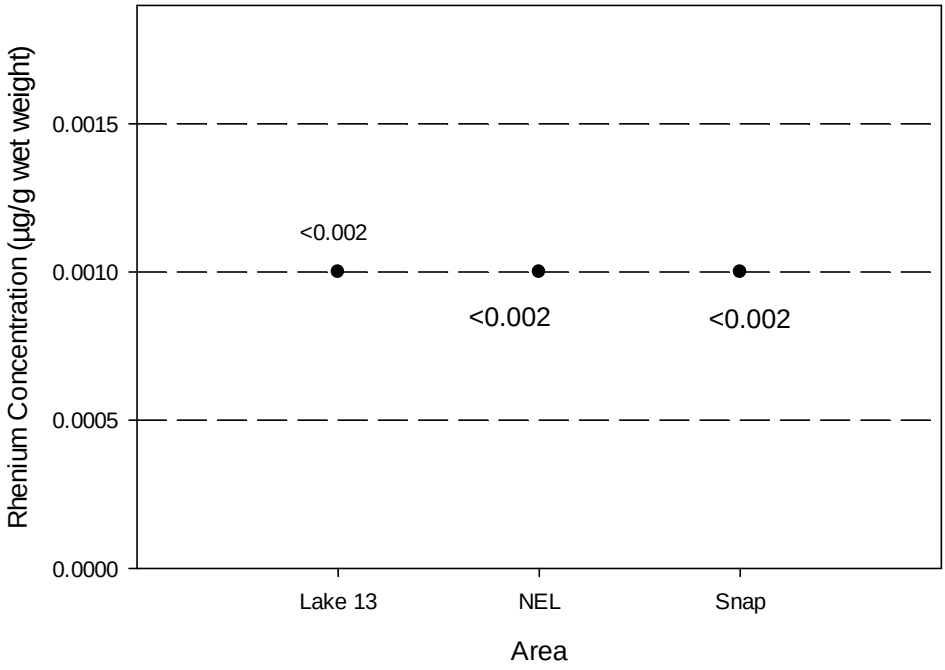


Figure 9D-26 Rubidium Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

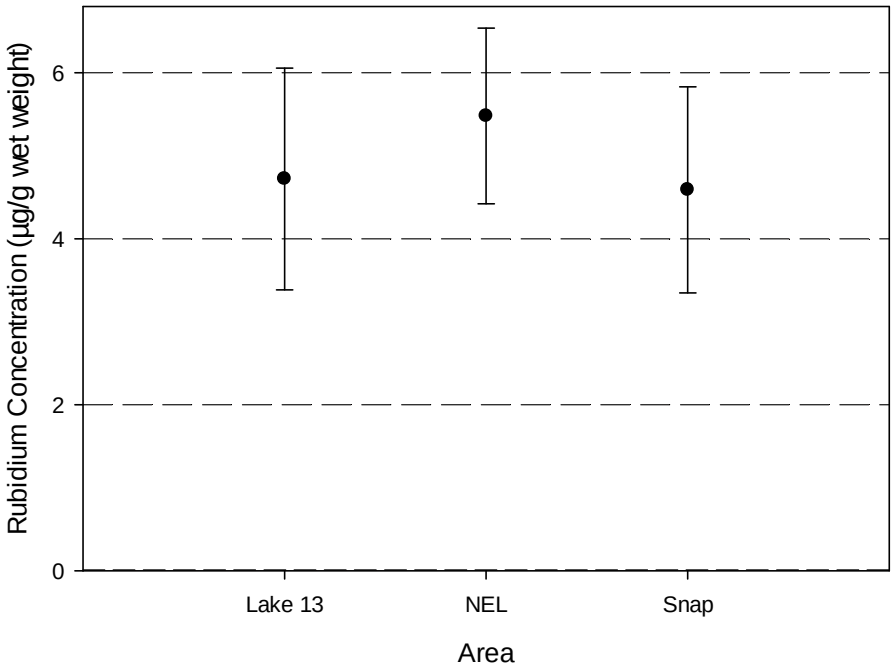


Figure 9D-27 Selenium Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

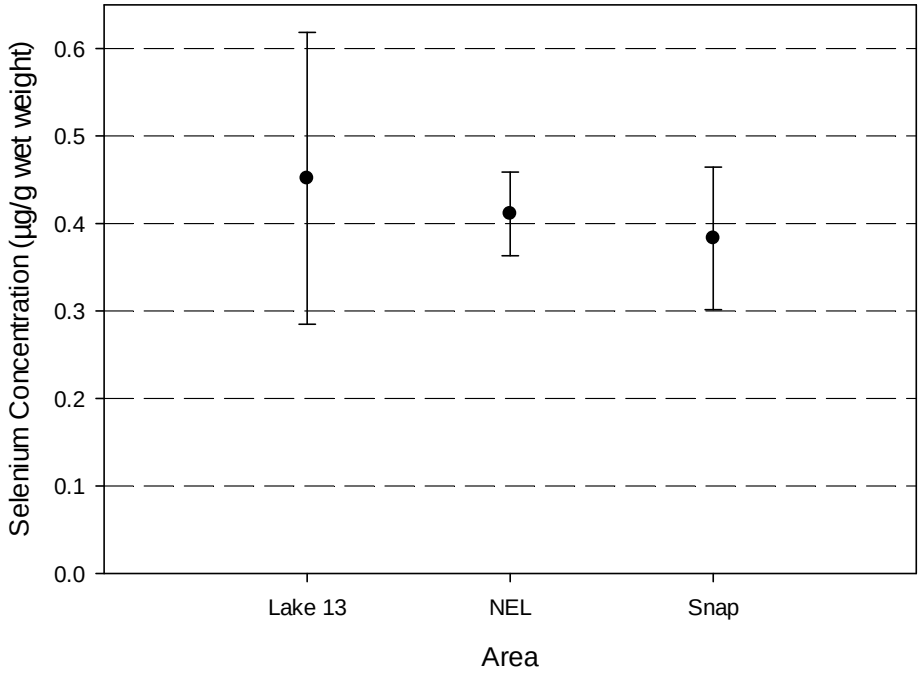


Figure 9D-28 Silver Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

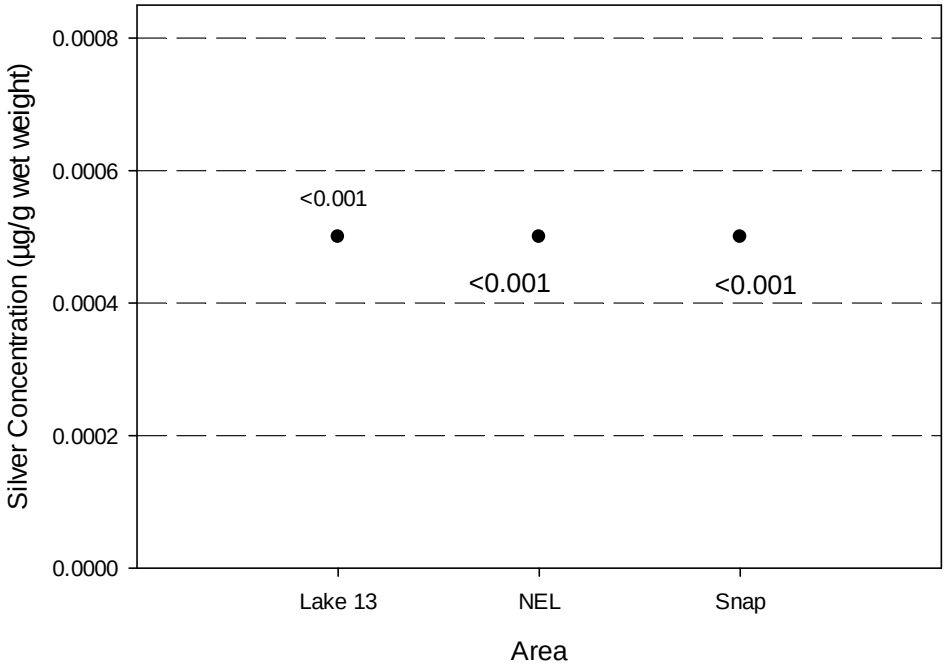


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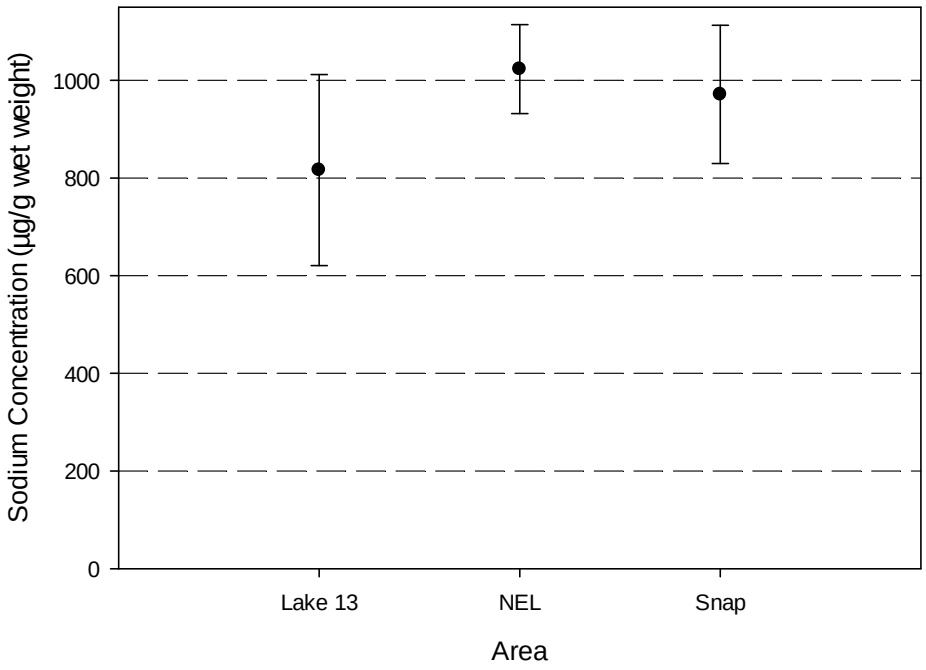


Figure 9D-30 Strontium Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

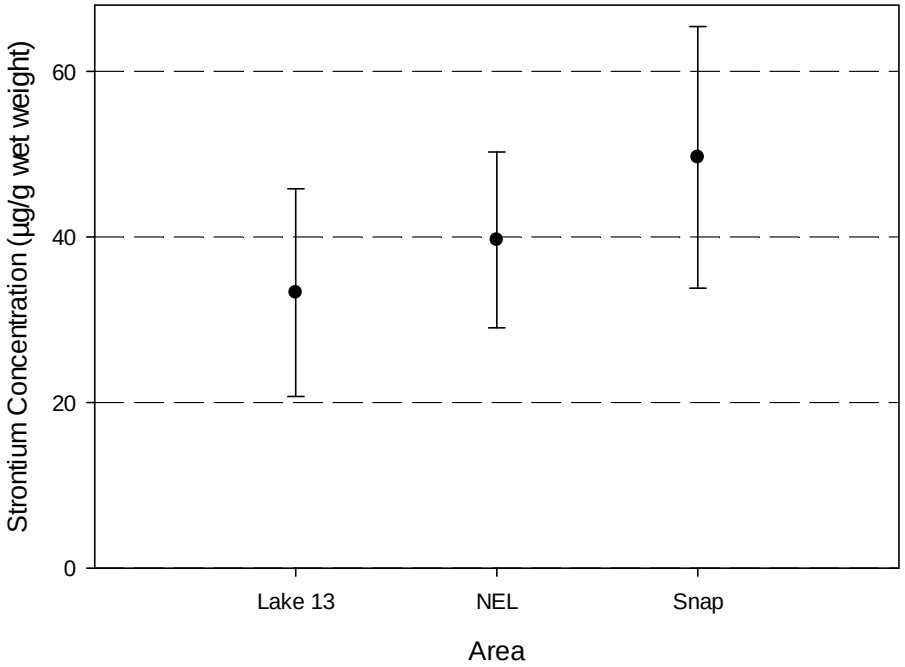


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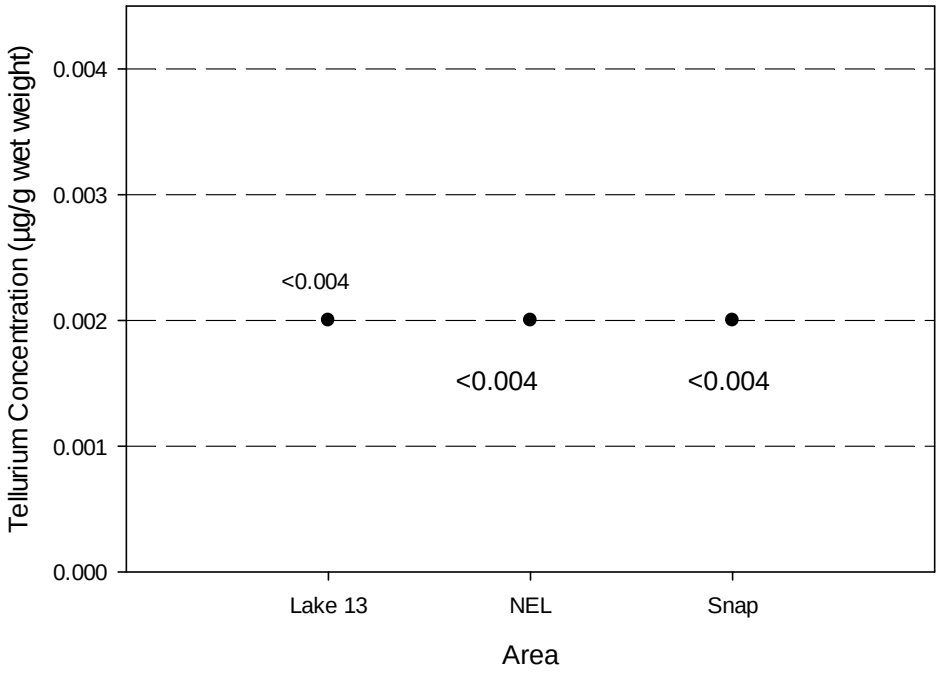


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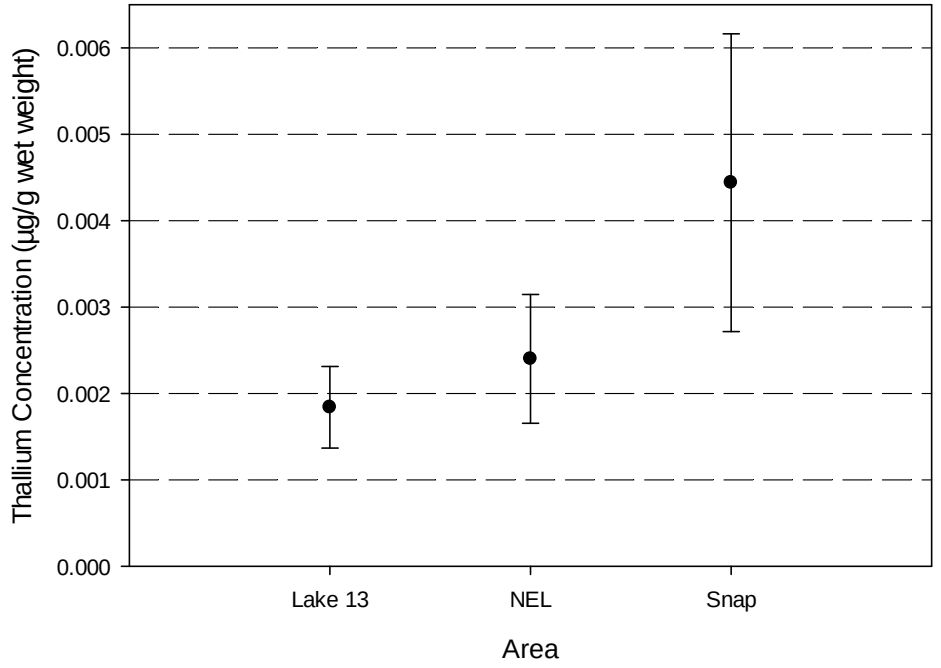


Figure 9D-33 Thorium Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

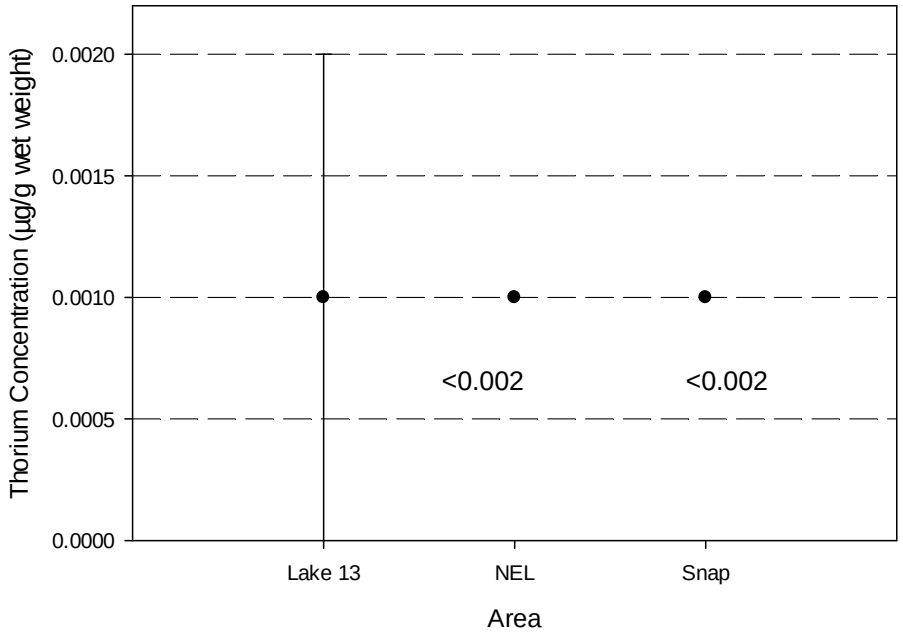


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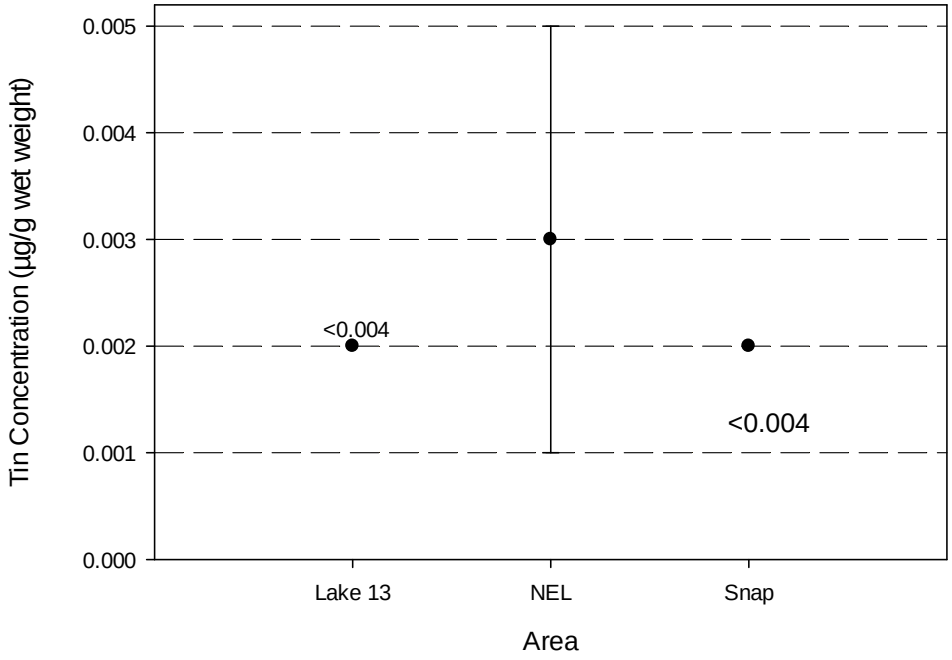


Figure 9D-35 Titanium Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

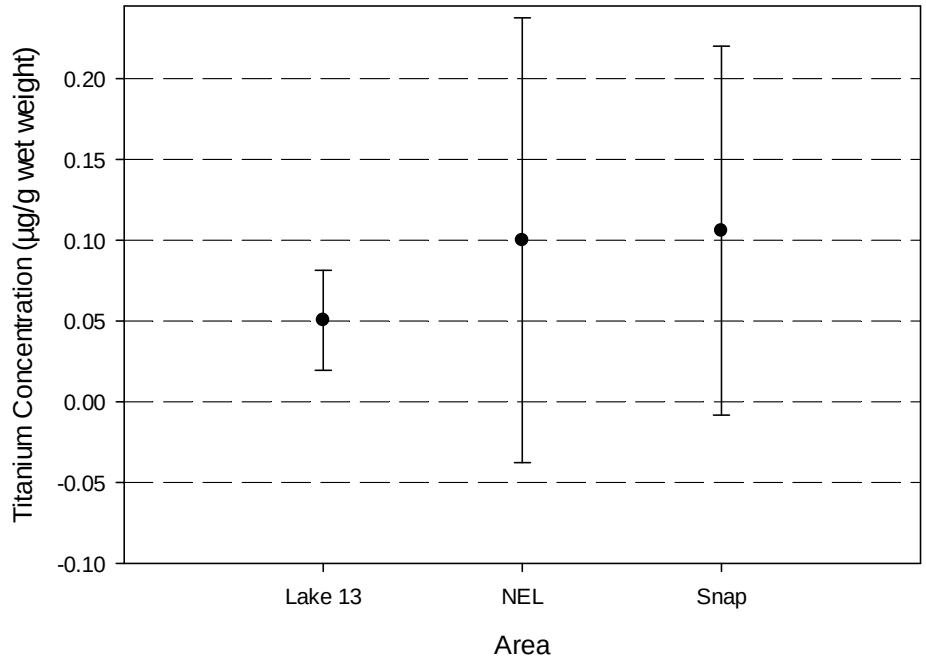


Figure 9D-36 Uranium Concentration (µg/g wet weight) in Lake Chub Collected from Lake 13, Northeast Lake (NEL) and Snap Lake, 2012

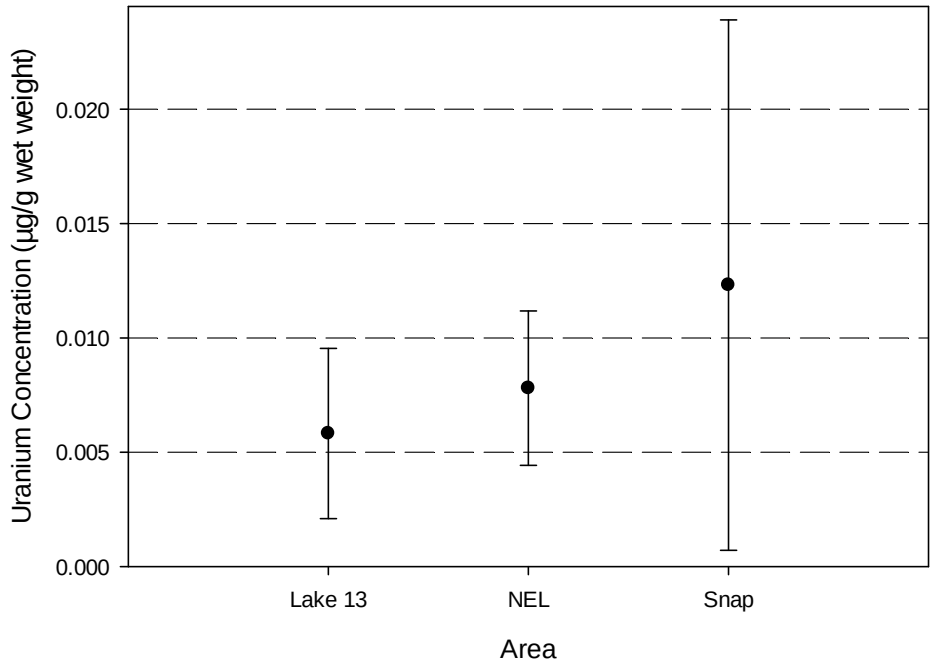


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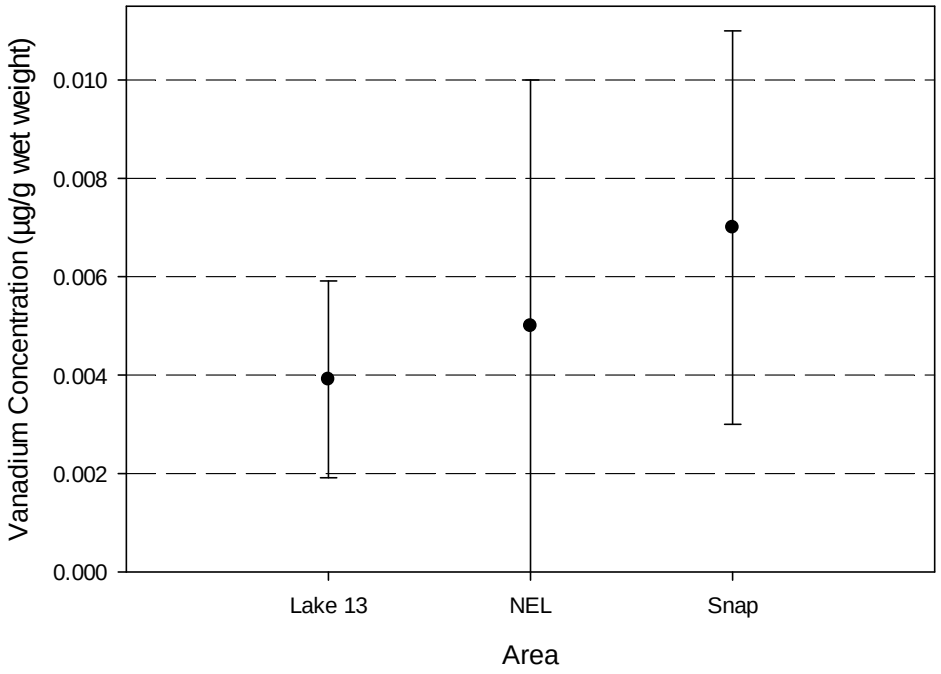


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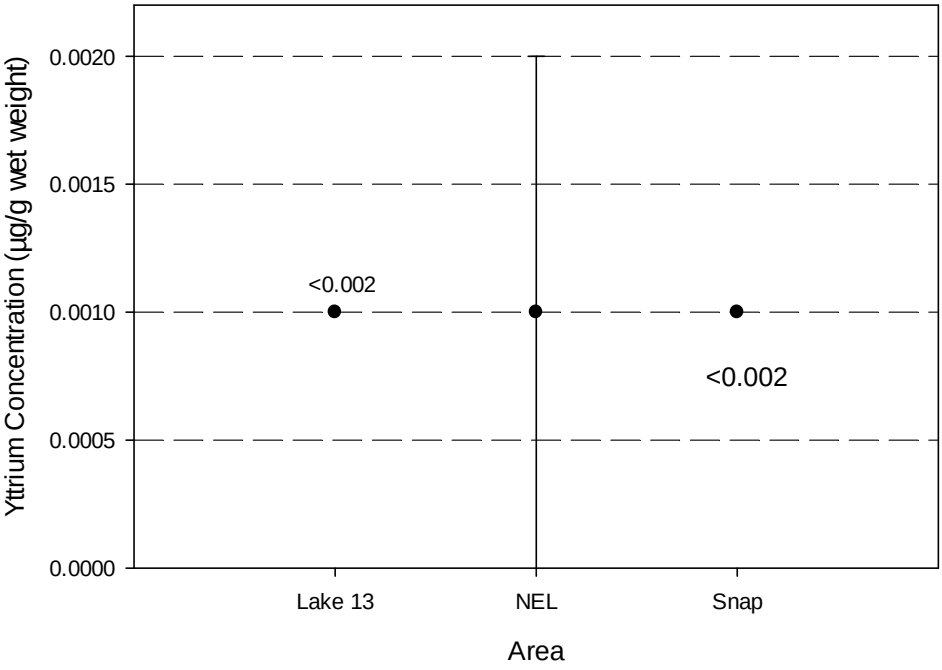


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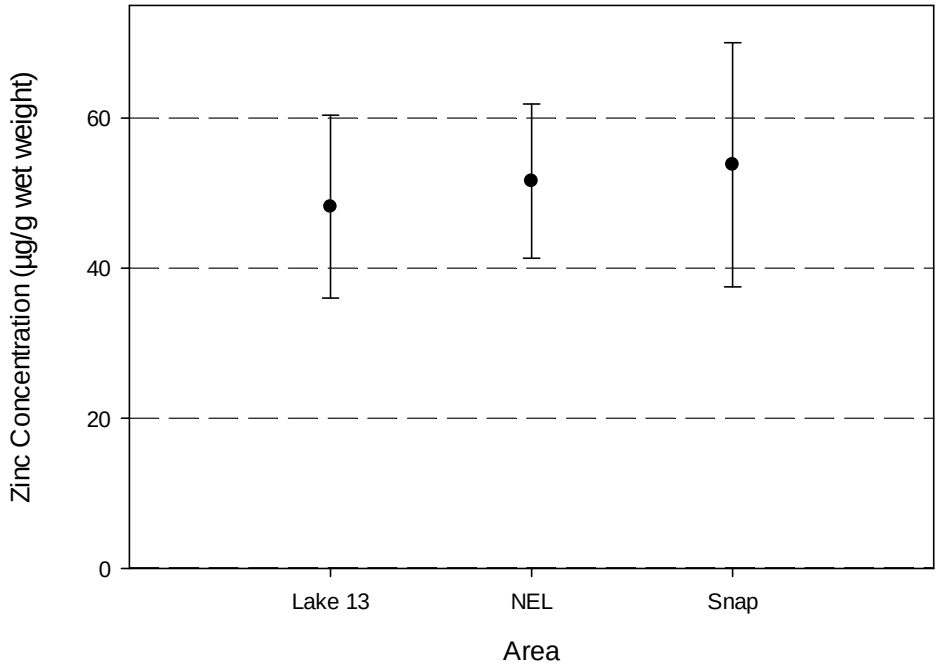


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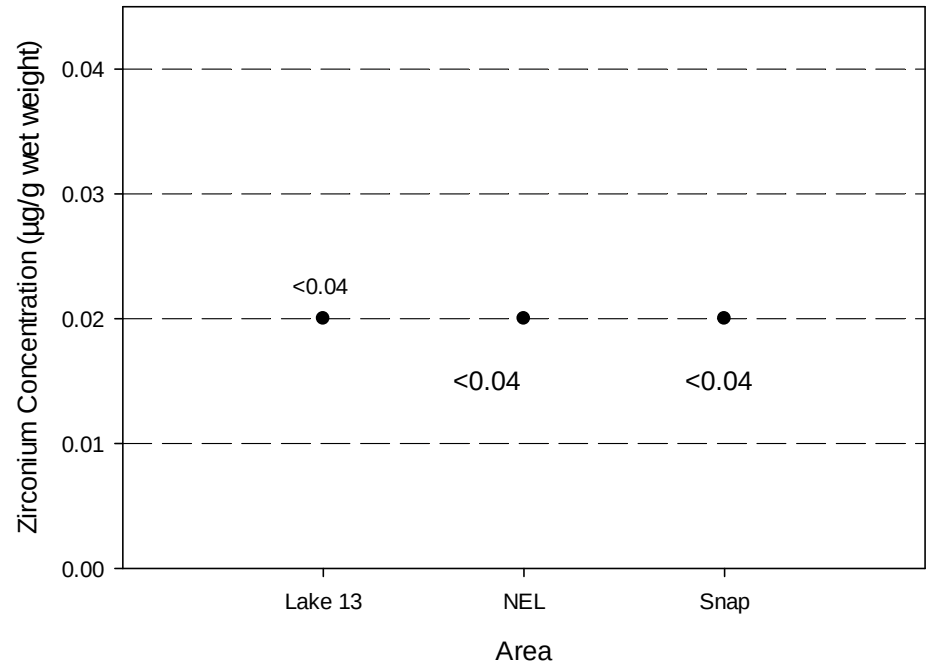


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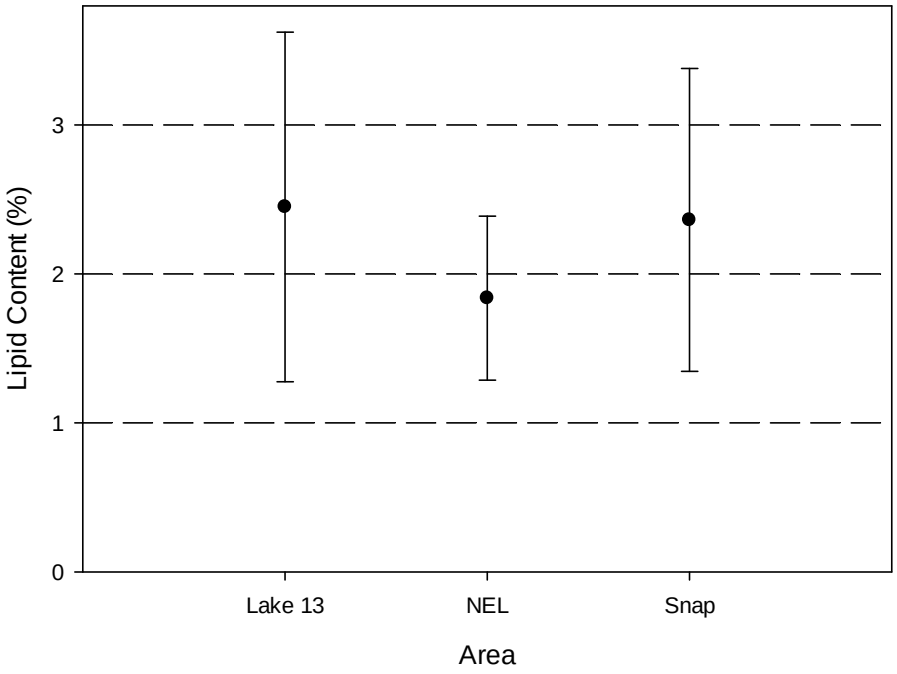


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12A.1 INTRODUCTION

12A.1.1 OVERVIEW

Quality assurance (QA) and quality control (QC) procedures were applied during all aspects of the littoral special study to verify that the data collected were of acceptable quality, and to support the collection of scientifically defensible and relevant data to address the objectives of the Aquatic Effects Monitoring Program (AEMP). The QA/QC protocols were designed to achieve field sampling, laboratory analysis, data entry, data analysis, and report preparation activities that produce technically sound and scientifically defensible results.

12A.1.2 QUALITY ASSURANCE METHODS

To determine that field data were of known and defensible quality, field work was completed by Golder Associates Ltd. (Golder) staff according to specified instructions and QA/QC protocols. These include guidelines for field record keeping and sample tracking, relevant technical procedures, and sample labelling, shipping and tracking protocols.

Due to Golder and De Beers Canada Inc. (De Beers) Health and Safety Procedures and dive restrictions in the Northwest Territories only certified commercial divers could perform the in-lake epilithic collection method as described by Turner et al. (1987) and Hille (2008). The commercial divers were thoroughly briefed on the method; however, the divers were not scientifically-trained, but rather commercial welders. To evaluate whether field data were of defensible quality, all field work preformed by the commercial divers was video-recorded. In addition, photographs of representative 5 square centimetres (cm^2) sampling areas were taken to verify the sampling technique.

In addition, a data management system was in place to create an organized system of data control, analysis and filing. Relevant procedures included reviewing the taxonomy data as they were received from the subconsultants, creating backup files before beginning data analysis and, completing appropriate logic checks to check the accuracy of all calculations. Algae and benthic invertebrate taxonomy data were entered into electronic format by the taxonomist and were double-checked by the same taxonomist upon entry; errors were corrected as necessary before transferring the electronic files to Golder.

12A.1.3 QUALITY CONTROL METHODS

Quality control is a specific aspect of QA, and includes the techniques used to assess data quality and the measures taken when the data quality objectives are not met. The field QC program included collection of field blanks, replicates and split samples to assess potential sample

contamination, and within-station variation/sampling precision. QC samples were submitted to the University of Alberta Biogeochemical Analytical Services Laboratory (UofA) and Plankton R Us for analysis. Field blank samples were submitted for water quality variables such as epilimnetic total phosphorus, total nitrogen, total dissolved phosphorus, total dissolved nitrogen, dissolved inorganic carbon and dissolved organic carbon. Replicate and split samples were submitted for particulate nutrients (phosphorus [P], nitrogen [N] and carbon [C]) and chlorophyll *a*, and an additional two epilithic algal split samples (approximately 10 percent (%) of the total samples submitted) were submitted for re-count by the same taxonomist to verify counting efficiency.

12A.1.3.1 Field Blanks

Field blanks consisted of samples prepared in the field using laboratory-provided de-ionized water to fill a set of sample bottles, which were then submitted blind to the UofA laboratory for the same analyses as the field samples. The field blanks were used to detect potential contamination during collection, shipping and analysis. Analytes should not have been detected in the field blanks. If they were detected, this was reported; their concentrations were considered notable if they were greater than five times the corresponding detection limit (DL). This threshold is based on the Practical Quantitation Limit defined by the United States Environmental Protection Agency (USEPA 2000), which takes into account the potential for data accuracy error when variable concentrations approach or are below the detection limit.

12A.1.3.2 Replicate and Split Nutrient and Chlorophyll a Samples

Replicate particulate nutrient and chlorophyll *a* samples consisted of three samples collected from the same location at the same time, using the same sampling and sample handling procedures. They were labelled and filtered individually, and submitted separately to the laboratory for analyses. The replicate samples are used to check within-station variation and the precision of field sampling methods.

Split samples were prepared by dividing a single sample into two parts and submitting them as two separate samples. The split samples are used to check the precision of the laboratory analysis. For the AEMP QC analysis, differences between variable concentrations in the split samples were considered notable if:

- they had a relative percent difference (RPD) greater than 20%; and,
- concentrations were greater than five times the detection limit for both split samples.

The QC split sample criterion used for the AEMP program was developed and approved to be consistent with the QC criterion set by the laboratories for assessing precision (i.e., the degree of similarity between replicate measurements) between split samples, as well as maintaining

consistency with other regulatory agencies (BCMOE 2006). Each laboratory establishes its own acceptance criteria for assessing precision through analysis of laboratory split samples. Because precision decreases as analyte concentrations approach detection limits, laboratories typically qualify their acceptance criteria so that they only apply when the analyte is detected in both the original and the duplicate or split sample at concentrations at least five times the detection limit.

Data were not automatically rejected if an exceedance of QC acceptance criteria occurred, but were evaluated on a case by case basis. If there were exceedances of the acceptance criteria, the results were flagged, and a variety of follow-up assessments were performed before determining whether QC results were indicative of sampling error (i.e., field contamination, laboratory contamination). These assessments included plotting of data for visual identification of outliers and/or laboratory re-analysis. Only in extreme cases (e.g., if the result was deemed unrealistic based on available replicate data) was a decision made to remove an outlier value from the data set used for analysis.

12A.1.3.3 Taxonomy Split Samples

Approximately 10% of the total samples submitted for taxonomic identification were submitted for re-count by the same taxonomist to verify counting efficiency. The inherent variability associated with the epilithic algal samples makes the establishment of a definite QC threshold value difficult. For the purposes of the Littoral Zone Special Study QC analysis, samples were flagged and assessed further, if there was a greater than 50% difference in total abundance between the original results and split samples.

In addition, the Bray-Curtis index, which is a measure of ecological distance between two communities, was used to assess the overall similarity between the taxonomists split samples. Due to typically high variability in species between original and recounted samples, comparisons of the QC samples using this index were made at the major group level for the abundance data set.

The value of the Bray-Curtis index ranges from 0 (identical communities) to 1 (very dissimilar communities) and is calculated using the formula:

$$b = \frac{\sum_{k=1}^{n} \left| x_{ik} - x_{jk} \right|}{\sum_{k=1}^{n} \left(x_{ik} + x_{jk} \right)}$$

Where x_{ik} and x_{jk} are abundance or biomass from the original and re-counted samples respectively.

12A.1.4 QUALITY ASSURANCE RESULTS – EPILITHON SAMPLE COLLECTION

Due to Golder and De Beers Health and Safety Procedures and dive restrictions in the Northwest Territories, only certified commercial divers were permitted to sample the epilithon using the self-contained underwater breathing apparatus (SCUBA)-based methods described by Turner et al. (1987) and Hille (2008). The divers assigned to conduct sampling were not scientifically-trained, but rather were commercial welders. They were thoroughly briefed in the field on the collection method and the importance of scientifically defensible results.

Achieving a correct and consistent epilithic sampling technique proved to be difficult. An attempt was made to verify that field data were of known and defensible quality, by photographing representative 5 cm^2 sampling areas throughout the program, and taking an underwater video of the sampling procedure. The video and daily photographs were reviewed and in some cases demonstrated inattention to the sampling instructions. Corrective action was taken upon review of the photos and video, but achieving a consistent and correct sampling technique was difficult because of the complicated nature of the technique and the short period available to complete the field portion of the study. This resulted in the collection of samples that were less quantitative and representative of the littoral zone than intended; i.e., variability in a subset of parameters such as particulate P, N, and C and epilithic algal biomass and abundance, were higher than is typical for this type of survey due to sampling error. Based on the experience gained during the first year of this special study, skilled and scientifically trained divers will be needed for subsequent years to increase confidence in the representativeness and integrity of the data collected.

In addition to daily review of photographs and the video by the Golder field crew, the video and photographs were reviewed by a littoral expert (Dr. Michael Turner) following completion of the field program. Dr. Turner also indicated that the sampling technique, as applied by the divers, would result in elevated variability among samples (Figure 12A.1-1). In addition to reviewing the 2012 video and photos, the 2004 baseline data, videos and photographs were also reviewed. It was also determined that the sampling technique used in 2004 was sometimes suboptimal and the samples were also likely to exhibit higher variability than expected for some parameters.

Figure 12A.1-1 presents a number of photographs that indicate sampling issues. Figure 12A.1-1A shows a sample that was collected properly during a separate program; note the symmetrical circle and the seal around the circle in the photograph. Figures12A.1-1B through 12A.1-1D are samples taken in 2012 that indicate poor sampling technique and likely compromised sample integrity.

Negative buoyancy (by 2 to 4 kilograms [kg]) is required to keep the divers positioned and enable them to apply sufficient downward force to keep the scraping-sampler continuously in contact with the rock surface. If sufficient downward force is not applied, contamination by material adjacent to the collection area and loss of scraped material can occur, as the seal between the rock and

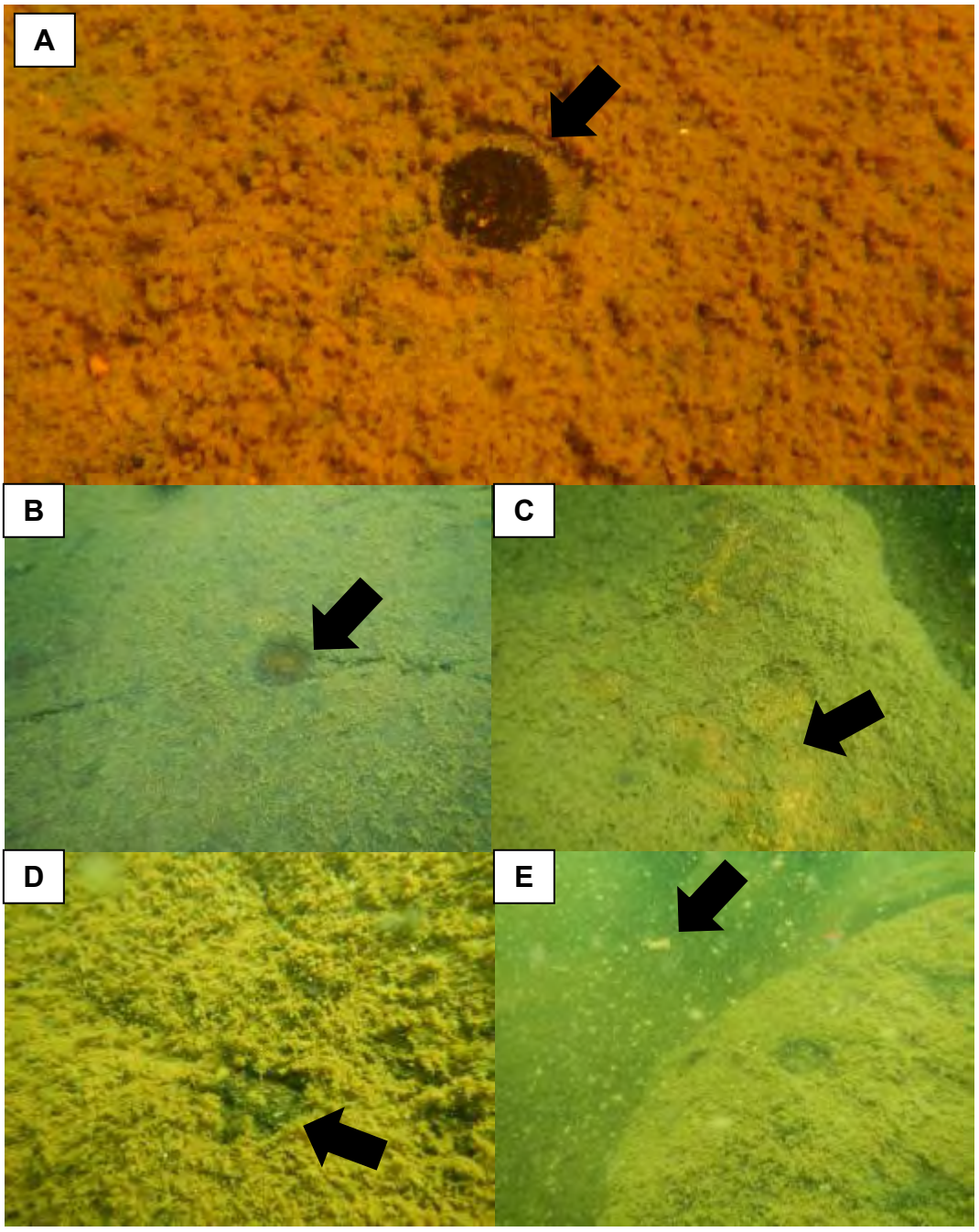
scraper can easily break (Figure 12A.1-1C and D). In addition, if the attempted seal is over a rock fissure hidden by the epilithon (Figure 12A.1-1 B), then contamination by material adjacent to the collection area can occur. If this occurred during sample collection, divers were instructed to discard the sample and select a new sampling area on the same rock; however, this did not occur in 2012. Contamination of the sample by adjacent epilithon will overestimate epilithic algal biomass and particulate nutrient concentrations in the sample.

A key aspect of the sampling technique is to be as non-intrusive as possible, by generating minimal water currents and avoiding touching rock surfaces. Divers did not use fins, and were required to approach the stations from the deep water and move slowly towards shore, to avoid disturbing the sampling area. However, the divers did not consistently adhere to these instructions, which caused disturbance of the sampling area before and during sampling. Figure 12A.1-1 E represents a photo of a 2012 sampling station; note the flocculent particulate matter visible in the water column. This particulate matter indicates that the station was disturbed before or during sampling. Disturbing the area before sampling can cause an underestimate of epilithic algal biomass, especially for flocculent algae and cyanobacteria, as the algae will be dislodged from the substratum by the diver before they can be trapped in the scraping sampler.

Since sampling methods were suboptimal in 2012, there is likely greater variability in the measurements of algal abundance, biomass, particulate nutrients and chlorophyll *a* than would be expected for a study of this nature. The resulting uncertainty diminishes the robustness of the data analyses and the ability to detect Mine-related changes; however, it does not negate the data. To reduce the potential effects of suboptimal sampling methods, data were analyzed proportionally (i.e., as relative percent abundance and biomass, and as molar nutrient ratios of the particulate C: N, C: P, N: P and C: chlorophyll *a*) for both the 2004 and 2012 data. The use of proportional data allows for comparisons to be made between lakes and years.

For future epilithon sampling, a day or half day, prior to the commencement of the program should be spent training the divers in the water on the technique. In addition establishment of a training sampling station is recommended. This should be an area that is generally similar to the stations selected for the special study, but readily accessible, large in extent, homogenous in properties and low in slope, which would allow the trainer to interact with the SCUBA samplers. This station could also be used as a source of material to estimate diver sampling variability. It is suggested that one scientifically-trained diver be used throughout the program for sample collection, while dive support during the program can be provided by a commercial diver that is not scientifically trained.

Figure 12A.1-1 Epilithic Sampling Photographs used for Quality Assurance Evaluation, August 2012



12A.1.5 QUALITY CONTROL RESULTS

Based on results for field blanks and split samples, potential QC issues were identified for particulate carbon, particulate nitrogen, particulate phosphorus and chlorophyll *a* (Tables 12A.1-2

to 12A.1-5). For the epilithic split samples, the values with QC flags are bolded in Table 12A.1-6. The QC results are described below.

12A.1.5.1 Field Blanks

A single field blank sample was collected to evaluate the quality of water quality data collected during the 2012 Littoral Special Study. The field blank was analyzed for the full suite of nutrient analytes (i.e., six analytes). None of the field blank results from 2012 exceeded the QC criterion (Table 12A.1-1).

A thorough examination of the water quality data collected at the littoral sampling stations indicated that two data values showed signs of contamination and were therefore removed from further analyses. The first was total dissolved nitrogen concentration at SNAP LZ01, which was notably higher (3,200 micrograms per litre [µg/L]) than other values in the main basin of Snap Lake, which that ranged from 1,860 µg/L to 1,980 µg/L. The second was dissolved inorganic carbon concentration at SNAP LZ05, which was also notably higher (9,000 µg/L) than other values in the main basin of Snap Lake, which ranged from 3,400 µg/L to 3,800 µg/L. These data were retained in Appendix 12A-3, Table 12A-3.1, but an X qualifier was applied to the table to indicate that the data were removed before analyses.

Table 12A.1-1 Summary of Field Blank Results for Water Quality Parameters, 2012 AEMP

Parameter	QC Results	
Total Nitrogen (µg/L)	DL	10.0
	Result	40.0
	>5*DL	No
Total Dissolved Nitrogen (µg/L)	DL	10.0
	Result	30.0
	>5*DL	No
Total Phosphorus (µg/L)	DL	3.0
	Result	<DL
	>5*DL	No
Total Dissolved Phosphorus (µg/L)	DL	3.0
	Result	1.5
	>5*DL	No
Dissolved Organic Carbon (mg/L)	DL	0.2
	Result	0.9
	>5*DL	No
Dissolved Inorganic Carbon (mg/L)	DL	0.5
	Result	0.5
	>5*DL	No

DL = detection limit; <= less than; >5*DL = less than 5 times the method detection limit; µg/L = micrograms per litre; mg/L = milligram per litre.

12A.1.5.2 Split Nutrient and Chlorophyll a Samples

In total, nine split samples were collected from Northeast Lake and 21 from Snap Lake for each of the following parameters: particulate C, N, P, and chlorophyll *a*. For the particulate nutrients, of the split samples that had concentrations above five times the detection limit, 31 (34% of total) split results showed a relative difference of more than 20%, resulting in QC flags (Table 12A.1-2 to 12A.1-4). The majority of flagged split samples occurred in Northeast Lake including, 8 of 10 QC flags for particulate carbon, 6 of 11 QC flags for particulate phosphorus, and 8 of 10 QC flags for particulate nitrogen.

These data were further analyzed by generating scatter-plots to determine if these data were visual outliers; data were also compared to the previous (2004) study results. The magnitudes of the differences in most of these flagged split samples were considered normal based on typical variability in epilithic data, and only two particulate carbon and two particulate nitrogen samples were considered outliers or unusual data, and were removed from further analysis. The data were retained in Tables 12A.1-2 and 12A.1-4 but an X qualifier was applied to the table to indicate that the data were removed from analyses.

The QC criterion for split chlorophyll *a* samples of more than 20% difference between the splits was applied to concentrations that were greater than five times the detection limit. Seven of the 30 split samples exceeded the 20% criterion, triggering QC flags (Table 12A.1-5). Most of the RPDs obtained between the flagged chlorophyll *a* values were greater than 50%, except for two samples. The five samples that exceeded 50% were evaluated further by generating scatter plots to determine if these data were visual outliers, and comparison to the previous (2004) study results. Of these values, only one value was determined to be an outlier and was removed from further analyses. The data were retained in Table 12A.1-5 but an X qualifier was applied to the table to indicate that the data had been removed from analyses

12A.1.5.3 Taxonomy Samples

Two epilithic algal QC samples were analyzed. The results indicated that the overall occurrence of dominant species was consistent among the field samples and the QC replicate and the Bray-Curtis index values ranged from 0.012 to 0.017 (Table 12A.1-6). Overall, the QC results indicate that the 2012 epilithic algal data are of acceptable quality and no data were invalidated. However, a high biomass value at SNAP LZ02, sample A was higher than other samples in either lake. Therefore, that value was flagged for a follow-up investigation with the taxonomist, which is ongoing.

Table 12A.1-2 Summary of Split Sample Results for Particulate Carbon, 2012 AEMP

Lake	Station	DL ($\mu g/cm^2$)	Result 1 ($\mu g/cm^2$)	Result 2 ($\mu g/cm^2$)	Maximum Result ($\mu g/cm^2$)	Relative Percent Difference (%)	>5×DL	QC Flag
NEL	**LZ01-A**	**5**	**3,734**	**5376**	**5376**	**36**	**Y**	**Y**
NEL	**LZ01-B**	**5**	**6317**	**4656**	**6317**	**30**	**Y**	**Y**
NEL	**LZ01-C**	**5**	**7453**	**4320**	**7453**	**53**	**Y**	**Y**
NEL	**LZ02-A**	**5**	**7325**	**10077**	**10077**	**32**	**Y**	**Y**
NEL	**LZ02-B**	**5**	**6003**	**9088**	**9088**	**41**	**Y**	**Y**
NEL	**LZ02-C**	**5**	**4202**	**5542**	**5542**	**28**	**Y**	**Y**
NEL	**LZ03-A**	**-**	**X-45**	**X-195**	**-**	**-**	**-**	**-**
NEL	**LZ03-B**	**5**	**7469**	**5504**	**7469**	**30**	**Y**	**Y**
NEL	LZ03-C	5	6272	7955	7955	24	N	N
SNAP	LZ01-A	5	654	666	666	2	N	N
SNAP	LZ01-B	5	536	470	536	13	N	N
SNAP	**LZ01-C**	**5**	**370**	**499**	**499**	**30**	**Y**	**Y**
SNAP	LZ02-A	5	4622	4549	4622	2	N	N
SNAP	LZ02-B	5	4501	4934	4934	9	N	N
SNAP	LZ02-C	5	820	747	820	9	N	N
SNAP	LZ03-A	5	751	719	751	4	N	N
SNAP	LZ03-B	5	5371	5554	5554	3	N	N
SNAP	LZ03-C	5	2318	2000	2318	15	N	N
SNAP	LZ04-A	5	1358	1284	1358	6	N	N
SNAP	LZ04-B	5	1784	1637	1784	9	N	N
SNAP	LZ04-C	5	656	684	684	4	N	N
SNAP	LZ05-A	5	1336	1087	1336	21	N	N
SNAP	LZ05-B	5	1114	976	1114	13	N	N
SNAP	LZ05-C	5	1016	1220	1220	18	N	N
SNAP	**LZ06-A**	**-**	**-**	**X-31**	**-**	**-**	**-**	**-**
SNAP	LZ06-B	5	2931	3462	3462	17	N	N
SNAP	**LZ06-C**	**5**	**4246**	**1691**	**4246**	**86**	**Y**	**Y**
SNAP	LZ07-A	5	4467	5262	5262	16	N	N
SNAP	LZ07-B	5	3800	4302	4302	12	N	N
SNAP	LZ07-C	5	5443	5971	5971	9	N	N

Note: Values exceed the quality control criterion are bolded. If a value exceeded the quality control criterion, it was not necessarily removed from the data set. Values removed from the data set are identified by an X.

DL = method detection limit; >5xDL = greater than 5 times the detection limit; "-" = no data; µg/L = micrograms per litre; QC flag = quality control flag; Y= yes; N =no; SNAP = Snap Lake; NEL = Northeast Lake.

Table 12A.1-3 Summary of Split Sample Results for Particulate Nitrogen, 2012 AEMP

Lake	Station	DL (µg/cm^2)	Result 1 (µg/cm^2)	Result 2 (µg/cm^2)	Maximum Result (µg/cm^2)	Relative Percent Difference (%)	>5×DL	QC Flag
NEL	**LZ01-A**	**5**	**332**	**458**	**458**	**32**	**Y**	**Y**
NEL	**LZ01-B**	**5**	**424**	**308**	**424**	**32**	**Y**	**Y**
NEL	**LZ01-C**	**5**	**500**	**291**	**500**	**53**	**Y**	**Y**
NEL	**LZ02-A**	**5**	**511**	**717**	**717**	**34**	**Y**	**Y**
NEL	**LZ02-B**	**5**	**405**	**614**	**614**	**41**	**Y**	**Y**
NEL	**LZ02-C**	**5**	**285**	**377**	**377**	**28**	**Y**	**Y**
NEL	**LZ03-A**	**5**	**X-75**	**509**	**-**	**-**	**-**	**-**
NEL	**LZ03-B**	**5**	**484**	**358**	**484**	**30**	**Y**	**Y**
NEL	LZ03-C	5	410	527	527	25	N	N
SNAP	LZ01-A	5	67	66	67	1	N	N
SNAP	LZ01-B	5	53	46	53	15	N	N
SNAP	**LZ01-C**	**5**	**38**	**52**	**52**	**32**	**Y**	**Y**
SNAP	LZ02-A	5	409	409	409	0	N	N
SNAP	LZ02-B	5	408	450	450	10	N	N
SNAP	LZ02-C	5	78	70	78	11	N	N
SNAP	LZ03-A	5	75	71	75	5	N	N
SNAP	LZ03-B	5	547	558	558	2	N	N
SNAP	LZ03-C	5	232	199	232	15	N	N
SNAP	LZ04-A	5	134	131	134	3	N	N
SNAP	LZ04-B	5	178	166	178	7	N	N
SNAP	LZ04-C	5	73	71	73	3	N	N
SNAP	LZ05-A	5	133	110	133	19	N	N
SNAP	LZ05-B	5	122	112	122	9	N	N
SNAP	LZ05-C	5	116	145	145	22	N	N
SNAP	**LZ06-A**	**5**	**647**	**X-76**	**-**	**-**	**-**	**-**
SNAP	LZ06-B	5	266	320	320	19	N	N
SNAP	LZ06-C	5	766	923	923	19	N	N
SNAP	LZ07-A	5	432	512	512	17	N	N
SNAP	LZ07-B	5	350	392	392	12	N	N
SNAP	LZ07-C	5	517	576	576	11	N	N

Note: Values exceed the quality control criterion are bolded. If a value exceeded the quality control criterion, it was not necessarily removed from the data set. Values removed from the data set are identified by an X.

DL = method detection limit; >5xDL = greater than 5 times the detection limit; "-" = no data; µg/L = micrograms per litre; QC flag = quality control flag; Y= yes; N =no; SNAP = Snap Lake; NEL = Northeast Lake.

Table 12A.1-4 Summary of Split Sample Results for Particulate Phosphorous, 2012 AEMP

Lake	Station	DL ($\mu g/cm^2$)	Result 1 ($\mu g/cm^2$)	Result 2 ($\mu g/cm^2$)	Maximum Result ($\mu g/cm^2$)	Relative Percent Difference (%)	>5×DL	QC Flag
NEL	**LZ01-A**	**1**	**7**	**11**	**11**	**38**	**Y**	**Y**
NEL	LZ01-B	1	12	11	12	2	N	N
NEL	**LZ01-C**	**1**	**13**	**10**	**13**	**23**	**Y**	**Y**
NEL	LZ02-A	1	19	21	21	10	Y	N
NEL	**LZ02-B**	**1**	**12**	**16**	**16**	**28**	**Y**	**Y**
NEL	**LZ02-C**	**1**	**10**	**12**	**12**	**20**	**Y**	**Y**
NEL	**LZ03-A**	**1**	**13**	**10**	**13**	**23**	**Y**	**Y**
NEL	**LZ03-B**	**1**	**15**	**12**	**15**	**28**	**Y**	**Y**
NEL	LZ03-C	1	17	14	17	18	Y	N
SNAP	LZ01-A	1	2	2	2	11	Y	N
SNAP	**LZ01-B**	**1**	**2**	**2**	**2**	**32**	**Y**	**Y**
SNAP	LZ01-C	1	2	2	2	0	N	N
SNAP	LZ02-A	1	9	8	9	15	Y	N
SNAP	LZ02-B	1	11	11	11	4	N	N
SNAP	LZ02-C	1	2	2	2	14	Y	N
SNAP	LZ03-A	1	2	2	2	11	Y	N
SNAP	LZ03-B	1	12	13	13	8	Y	N
SNAP	LZ03-C	1	5	5	5	1	N	N
SNAP	**LZ04-A**	**1**	**3**	**4**	**4**	**29**	**Y**	**Y**
SNAP	LZ04-B	1	4	5	5	14	Y	N
SNAP	**LZ04-C**	**1**	**2**	**2**	**2**	**22**	**Y**	**Y**
SNAP	LZ05-A	1	2	2	2	4	N	N
SNAP	LZ05-B	1	2	3	3	14	Y	N
SNAP	LZ05-C	1	3	2	3	13	Y	N
SNAP	LZ06-A	1	26	23	26	11	Y	N
SNAP	**LZ06-B**	**1**	**13**	**10**	**13**	**25**	**Y**	**Y**
SNAP	LZ06-C	1	42	41	42	4	N	N
SNAP	**LZ07-A**	**1**	**13**	**11**	**13**	**21**	**Y**	**Y**
SNAP	LZ07-B	1	8	10	10	20	Y	N
SNAP	LZ07-C	1	10	10	10	0	N	N

Note: Values exceed the quality control criterion are bolded. If a value exceeded the quality control criterion, it was not necessarily removed from the data set. Values removed from the data set are identified by an X.

DL = method detection limit; >5xDL = greater than 5 times the detection limit; "-" = no data; µg/L = micrograms per litre; QC flag = quality control flag; Y= yes; N =no; SNAP = Snap Lake; NEL = Northeast Lake.

Table 12A.1-5 Summary of Split Sample Results for Chlorophyll *a*, 2012 AEMP

Lake	Station	DL (µg/cm^2)	Result 1 (µg/cm^2)	Result 2 (µg/cm^2)	Maximum Result (µg/cm^2)	Relative Percent Difference (%)	>5×DL	QC Flag
NEL	LZ01-A	0.03	2.41	2.12	2.41	12.8	Y	N
NEL	**LZ01-B**	**0.03**	**5.77**	**2.96**	**5.77**	**64.5**	**Y**	**Y**
NEL	LZ01-C	0.03	3.65	2.42	3.65	40.4	Y	N
NEL	LZ02-A	0.03	3.28	3.85	3.85	16.0	Y	N
NEL	**LZ02-B**	**0.03**	**2.07**	**X-13**	**-**	**-**	**-**	**-**
NEL	LZ02-C	0.03	2.27	2.07	2.27	9.2	Y	N
NEL	LZ03-A	0.02	2.36	1.68	2.36	33.9	Y	N
NEL	LZ03-B	0.03	2.61	2.60	2.61	0.4	Y	N
NEL	LZ03-C	0.03	2.16	2.56	2.56	17.0	Y	N
SNAP	LZ01-A	0.02	0.60	0.39	0.60	43.2	Y	N
SNAP	LZ01-B	0.02	0.62	0.72	0.72	14.6	Y	N
SNAP	LZ01-C	0.02	0.44	0.53	0.53	18.3	Y	N
SNAP	LZ02-A	0.02	3.15	3.56	3.56	12.1	Y	N
SNAP	LZ02-B	0.02	3.60	4.37	4.37	19.4	Y	N
SNAP	**LZ02-C**	**0.02**	**0.61**	**1.36**	**1.36**	**76.0**	**Y**	**Y**
SNAP	LZ03-A	0.02	0.78	1.00	1.00	24.7	Y	N
SNAP	LZ03-B	0.02	2.75	2.65	2.75	3.4	Y	N
SNAP	LZ03-C	0.02	0.89	0.75	0.89	17.6	Y	N
SNAP	LZ04-A	0.02	0.67	0.82	0.82	19.1	Y	N
SNAP	LZ04-B	0.02	0.96	0.93	0.96	3.5	Y	N
SNAP	LZ04-C	0.02	0.36	0.39	0.39	9.2	Y	N
SNAP	LZ05-A	0.02	1.31	1.04	1.31	23.6	Y	N
SNAP	**LZ05-B**	**0.02**	**0.46**	**1.11**	**1.11**	**82.4**	**Y**	**Y**
SNAP	**LZ05-C**	**0.02**	**0.96**	**2.09**	**2.09**	**74.0**	**Y**	**Y**
SNAP	LZ06-A	0.02	5.65	7.07	7.07	22.3	Y	N
SNAP	LZ06-B	0.02	3.14	3.80	3.80	19.1	Y	N
SNAP	LZ06-C	0.02	23.16	29.00	29.00	22.4	Y	N
SNAP	LZ07-A	0.02	14.16	14.29	14.29	0.9	Y	N
SNAP	LZ07-B	0.02	10.41	10.20	10.41	2.0	Y	N
SNAP	LZ07-C	0.02	14.68	12.49	14.68	16.1	Y	N

Note: Values exceed the quality control criterion are bolded. If a value exceeded the quality control criterion, it was not necessarily removed from the data set. Values removed from the data set are identified by an X.

DL = method detection limit; >5xDL = greater than 5 times the detection limit; "-" = no data; µg/L = micrograms per litre; QC flag = quality control flag; Y= yes; N =no; SNAP = Snap Lake; NEL = Northeast Lake.

Table 12A.1-6 Summary of Quality Control Data for Epilithic Algal Split Samples, 2012 AEMP

Taxon or Calculated Parameter	Abundance (cells/cm^2)					
	SNAP LZ01-A			SNAP LZ04-B		
	Sample	Replicate	RPD (%)	Sample	Replicate	RPD (%)
Cyanobacteria	1,177,146	1,223,801	4.0	2,136,090	2,118,863	0.8
Chlorophyceae	50,244	50,244	0.0	43,066	43,066	0.0
Bacillariophyceae	645,995	613,695	5.3	1,421,189	1,541,774	8.5
Total	1,873,385	1,887,741	0.8	3,600,345	3,703,704	2.9
Bray-Curtis Index	0.012			0.017		

RPD = relative percent difference; cells/cm^2 = cells per square centimetre.

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Figure 12A.2-1 Epilithic Algae in the Main Basin of Snap Lake, August 2012

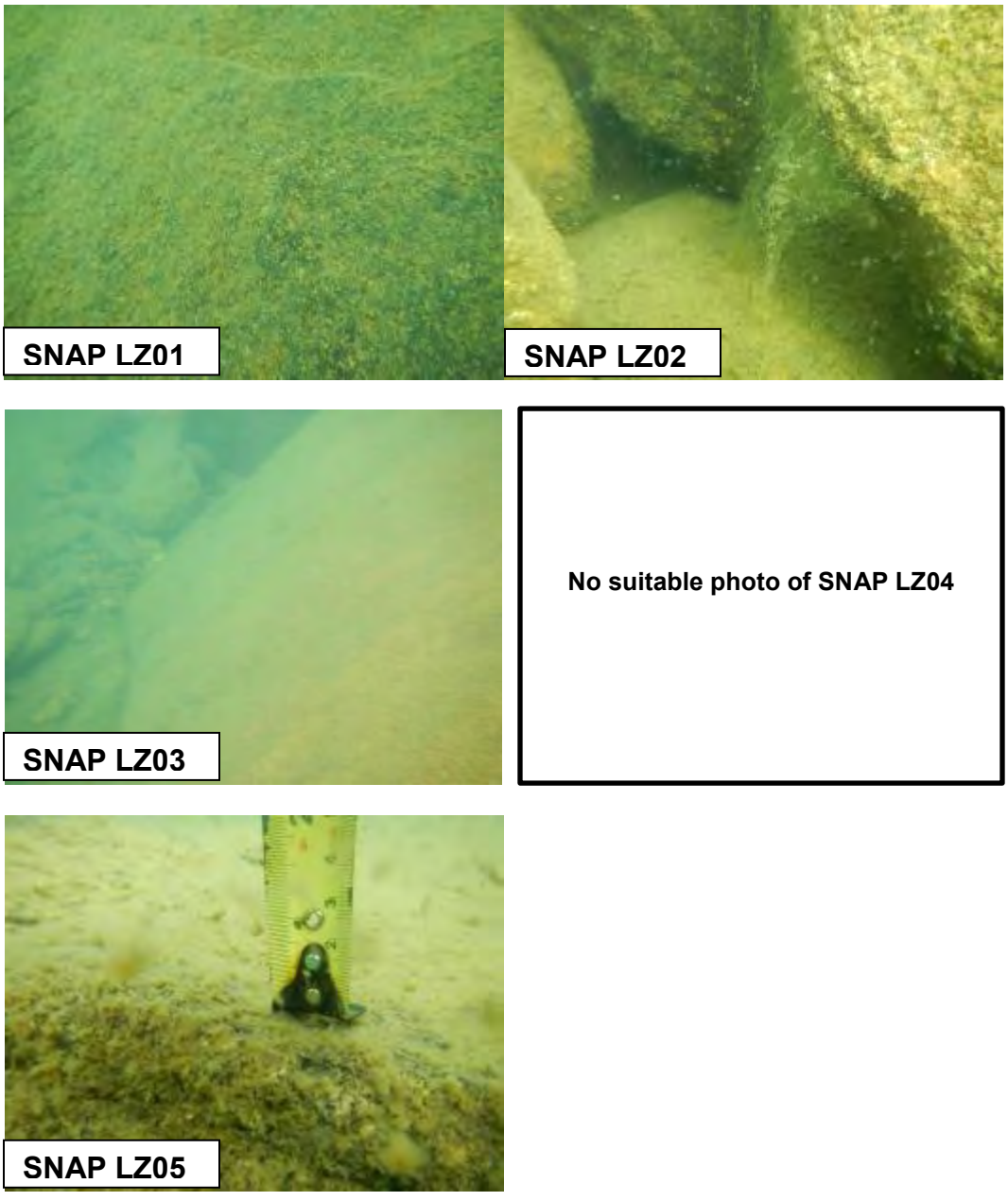


Figure 12A.2-2 Epilithic Algae in the Northwest Arm of Snap Lake, August 2012



Figure 12A.2-3 Epilithic Algae in Northeast Lake, August 2012

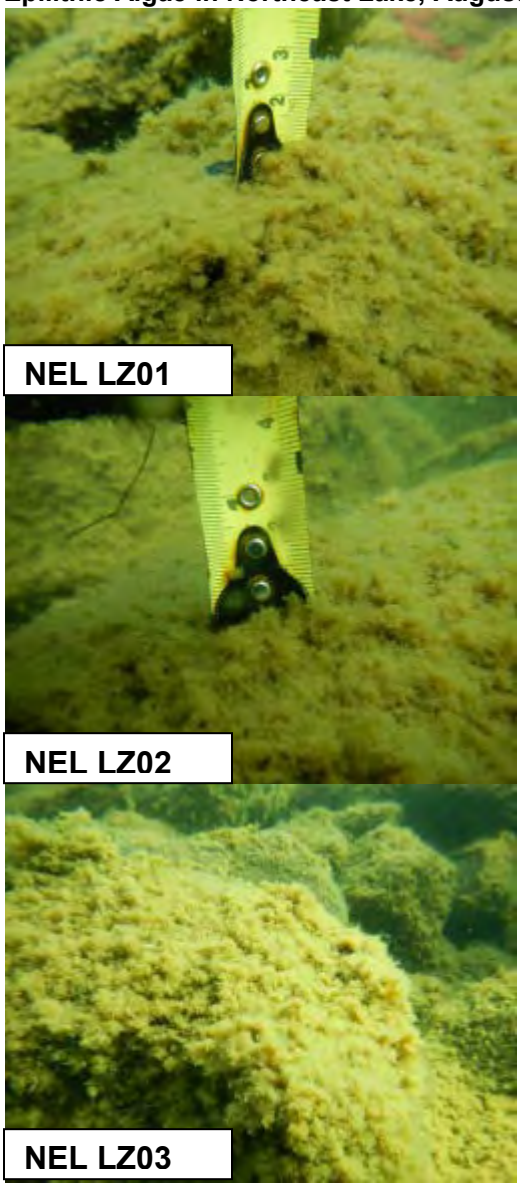


Table 12A.3-2 Particulate Nutrients and Chlorophyll a data in Snap Lake and Northeast Lake, August 2012

Lake	Date (dd/mmm/yy)	Station	Area	Split	Particulate carbon (µg/cm^2)	Particulate Nitrogen (µg/cm^2)	Particulate Phosphorous (µg/cm^2)	Chlorophyll *a* (µg/cm^2)
Main Basin of Snap Lake	12-Aug-12	SNAP LZ 01	A	1	654	67	1.5	0.6
	12-Aug-12		A	2	666	66	1.5	0.4
	12-Aug-12		B	1	536	53	2.4	0.6
	12-Aug-12		B	2	470	46	2.1	0.7
	12-Aug-12		C	1	370	38	2.3	0.4
	12-Aug-12		C	2	499	52	1.7	0.5
	12-Aug-12	SNAP LZ 02	A	1	4622	409	9.4	3.2
	12-Aug-12		A	2	4549	409	8.0	3.6
	12-Aug-12		B	1	4501	408	11.1	3.6
	12-Aug-12		B	2	4934	450	10.7	4.4
	12-Aug-12		C	1	820	78	2.2	0.6
	12-Aug-12		C	2	747	70	1.9	1.4
	13-Aug-12	SNAP LZ 03	A	1	751	75	2.0	0.8
	13-Aug-12		A	2	719	71	2.2	1.0
	13-Aug-12		B	1	5371	547	11.6	2.7
	13-Aug-12		B	2	5554	558	12.6	2.7
	13-Aug-12		C	1	2318	232	4.7	0.9
	13-Aug-12		C	2	2000	199	4.7	0.7
	13-Aug-12	SNAP LZ 04	A	1	1358	134	3.1	0.7
	13-Aug-12		A	2	1284	131	4.2	0.8
	13-Aug-12		B	1	1784	178	3.9	1.0
	13-Aug-12		B	2	1637	166	4.5	0.9
	13-Aug-12		C	1	656	73	2.3	0.4
	13-Aug-12		C	2	684	71	1.9	0.4
	13-Aug-12	SNAP LZ 05	A	1	1336	133	2.4	1.3
	13-Aug-12		A	2	1087	110	2.5	1.0
	13-Aug-12		B	1	1114	122	2.2	0.5
	13-Aug-12		B	2	976	112	2.5	1.1
	13-Aug-12		C	1	1016	116	2.8	1.0
	13-Aug-12		C	2	1220	145	2.5	2.1
Northwest Arm of Snap Lake	15-Aug-12	SNAP LZ 06	A	1	-	647	25.6	5.7
	15-Aug-12		A	2	31	76	22.9	7.1
	15-Aug-12		B	1	2931	266	12.6	3.1
	15-Aug-12		B	2	3462	320	9.8	3.8
	15-Aug-12		C	1	4246	766	42.2	23.2
	15-Aug-12		C	2	1691	923	40.6	29.0
	15-Aug-12	SNAP LZ 07	A	1	4467	432	13.1	14.2
	15-Aug-12		A	2	5262	512	10.6	14.3
	15-Aug-12		B	1	3800	350	8.4	10.4
	15-Aug-12		B	2	4302	392	10.3	10.2
	15-Aug-12		C	1	5443	517	10.1	14.7
	15-Aug-12		C	2	5971	576	10.1	12.5
Northeast Lake	14-Aug-12	NEL LZ 01	A	1	3734	332	7.3	2.4
	14-Aug-12		A	2	5376	458	10.7	2.1
	14-Aug-12		B	1	6317	424	11.6	5.8
	14-Aug-12		B	2	4656	308	11.4	3.0
	14-Aug-12		C	1	7453	500	12.6	3.6
	14-Aug-12		C	2	4320	291	10.0	2.4
	14-Aug-12	NEL LZ 02	A	1	7325	511	18.5	3.3
	14-Aug-12		A	2	10077	717	20.5	3.8
	14-Aug-12		B	1	6003	405	12.0	2.1
	14-Aug-12		B	2	9088	614	15.9	13.9
	14-Aug-12		C	1	4202	285	9.5	2.3
	14-Aug-12		C	2	5542	377	11.7	2.1
	14-Aug-12	NEL LZ 03	A	1	45	75	13.0	2.4
	14-Aug-12		A	2	195	509	10.3	1.7
	14-Aug-12		B	1	7469	484	15.5	2.6
	14-Aug-12		B	2	5504	358	11.7	2.6
	14-Aug-12		C	1	6272	410	16.7	2.2
	14-Aug-12		C	2	7955	527	14.0	2.6

µg/cm^2 = micrograms per square centimetre; - = no data available

Table 12A.3-1 Water Quality Data at Littoral Zone Sampling Stations in Snap Lake and Northeast Lake, August 2012

	Station	Temperature	DO	Conductivity	pH	TN	TP	TDN	TDP	DIC	DOC
		°C	mg/L	µS/cm	-	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Main Basin of Snap Lake	LZ01	17.3	10.0	405	8.1	3,304	2.0	X-3,200	<LOD	3,400	4,500
	LZ02	17.0	10.0	404	7.9	2,260	3.0	1,980	<LOD	3,500	4,600
	LZ03	16.4	9.5	391	7.4	2,130	1.0	1,890	1.0	3,800	4,700
	LZ04	16.3	10.4	387	7.5	2,150	1.0	1,860	<LOD	3,600	4,700
	LZ05	16.1	9.9	398	7.5	2,190	3.0	1,950	<LOD	X-9,000	4,700
Northwest Arm of Snap Lake	LZ06	15.9	10.4	129	7.4	452	3.0	331	1.0	4,600	2,400
	LZ07	15.4	10.4	120	7.4	400	5.0	357	<LOD	4,100	2,300
Northeast Lake	LZ01	16.2	9.8	22	7.3	179	2.0	178	1.0	3,600	1,800
	LZ02	16.3	9.8	22	7.3	161	2.0	161	1.0	3,400	1,800
	LZ03	16.0	9.7	22	7.2	153	3.0	182	1.0	3,200	1,600

Notes: °C = degrees Celsius; mg/L = milligrams per litre; µS/cm = microSiemens per centimetre; µg/L = micrograms per litre; <LOD = less than limit of detection; X = sample removed from analysis; TN = total nitrogen; TP = Total phosphorus; T
TDP = total dissolved phosphorus; DIC = dissolved inorganic carbon; DOC = dissolved organic carbon

ΓDN = total dissolved nitrogen

Table 12A.3-5 Summary Statistics and Variability Among Replicates in the Epilithon in Snap Lake and Northeast Lake, August 2012

Lake	Date	Station	Variable	Replicate			Summary Statistics						
				Area A (µg/cm^2)	Area B (µg/cm^2)	Area C (µg/cm^2)	Maximum (µg/cm^2)	Minimum (µg/cm^2)	Median (µg/cm^2)	Mean (µg/cm^2)	Standard Deviation	Standard Error	%CV
Main Basin of Snap Lake	12-Aug-12	SNAP LZ 01	PN	67	49	45	67	45	49	54	11	7	21.1
			PP	2.3	2.0	1.5	2.3	1.5	2.0	1.9	0.4	0.2	19.3
			PC	660	503	435	660	435	503	532	116	67	21.7
			Chl *a*	0.5	0.7	0.5	0.7	0.5	0.5	0.5	0.1	0.1	18.6
			Biomass	492	544	509	544	492	509	515	27	15	5.1
			Abundance	1,873,385	2,373,433	1,933,199	2,373,433	1,873,385	1,933,199	2,060,006	273,079	157,662	13.3
	12-Aug-12	SNAP LZ 02	PN	409	429	74	429	74	409	304	199	115	65.6
			PP	8.7	10.9	2.1	10.9	2.1	8.7	7.2	4.6	2.7	63.7
			PC	4,586	4,718	783	4,718	783	4,586	3,362	2,234	1,290	66.5
			Chl *a*	3.4	4.0	1.0	4.0	1.0	3.4	2.8	1.6	0.9	57.0
			Biomass	3,878	1,472	429	3,878	429	1,472	1,926	1,769	1,021	33.6
			Abundance	3,703,704	2,289,693	1,494,401	3,703,704	1,494,401	2,289,693	2,495,933	1,118,997	646,053	9.7
	13-Aug-12	SNAP LZ 03	PN	73	553	215	553	73	215	280	246	142	87.9
			PP	2.1	12.1	4.7	12.1	2.1	4.7	6.3	5.2	3.0	82.6
			PC	735	5,462	2,159	5,462	735	2,159	2,786	2,425	1,400	87.1
			Chl *a*	0.9	2.7	0.8	2.7	0.8	0.9	1.5	1.1	0.6	72.7
			Biomass	550	1,283	956	1,283	550	956	929	367	212	39.5
			Abundance	2,264,058	4,547,804	3,548,665	4,547,804	2,264,058	3,548,665	3,453,509	1,144,843	660,975	33.2
	13-Aug-12	SNAP LZ 04	PN	132	172	72	172	72	132	125	50	29	40.3
			PP	3.6	4.2	2.1	4.2	2.1	3.6	3.3	1.1	0.6	33.0
			PC	1,321	1,710	670	1,710	670	1,321	1,234	525	303	42.6
			Chl *a*	0.7	0.9	0.4	0.9	0.4	0.7	0.7	0.3	0.2	42.2
			Biomass	1,391	1,585	655	1,585	655	1,391	1,210	490	283	40.5
			Abundance	2,399,409	3,600,345	1,497,383	3,600,345	1,497,383	2,399,409	2,499,046	1,055,015	609,113	42.2
	13-Aug-12	SNAP LZ 05	PN	122	117	130	130	117	122	123	7	4	5.5
			PP	2.4	2.4	2.6	2.6	2.4	2.4	2.5	0.1	0.1	5.6
			PC	1,211	1,045	1,118	1,211	1,045	1,118	1,125	83	48	7.4
			Chl *a*	1.2	0.8	1.5	1.5	0.8	1.2	1.2	0.4	0.2	31.9
			Biomass	1,301	306	719	1,301	306	719	775	500	288	64.4
			Abundance	3,244,330	1,804,000	3,014,643	3,244,330	1,804,000	3,014,643	2,687,658	773,839	446,776	28.8
Northwest Arm of Snap Lake	15-Aug-12	SNAP LZ 06	PN	647	293	844	844	293	647	595	279	161	46.9
			PP	24.2	11.2	41.4	41.4	11.2	24.2	25.6	15.2	8.8	59.3
			PC	-	3,197	2,969	3,197	2,969	3,083	3,083	161	114	5.2
			Chl *a*	6.4	3.5	26.1	26.1	3.5	6.4	12.0	12.3	7.1	102.8
			Biomass	2,786	1,040	2,266	2,786	1,040	2,266	2,031	896	518	44.1
			Abundance	5,397,646	4,120,012	5,842,664	5,842,664	4,120,012	5,397,646	5,120,107	894,234	516,286	17.5
	15-Aug-12	SNAP LZ 07	PN	472	371	546	546	371	472	463	88	51	19.0
			PP	11.8	9.3	10.1	11.8	9.3	10.1	10.4	1.3	0.7	12.3
			PC	4,865	4,051	5,707	5,707	4,051	4,865	4,874	828	478	17.0
			Chl *a*	14.2	10.3	13.6	14.2	10.3	13.6	12.7	2.1	1.2	16.6
			Biomass	1,467	1,133	1,146	1,467	1,133	1,146	1,249	189	109	15.1
			Abundance	3,413,006	3,385,013	5,555,556	5,555,556	3,385,013	3,413,006	4,117,858	1,245,161	718,894	30.2
Northeast Lake	14-Aug-12	NEL LZ 01	PN	395	366	395	395	366	395	386	17	10	4.3
			PP	9.0	11.5	11.3	11.5	9.0	11.3	10.6	1.4	0.8	13.3
			PC	4,555	5,486	5,886	5,886	4,555	5,486	5,309	683	394	12.9
			Chl *a*	2.3	4.4	3.0	4.4	2.3	3.0	3.2	1.1	0.6	33.0
			Biomass	3,307	1,760	2,135	3,307	1,760	2,135	2,401	807	466	33.6
			Abundance	3,617,571	3,240,741	2,982,343	3,617,571	2,982,343	3,240,741	3,280,218	319,449	184,434	9.7
	14-Aug-12	NEL LZ 02	PN	614	510	331	614	331	510	485	143	83	29.6
			PP	19.5	14.0	10.6	19.5	10.6	14.0	14.7	4.5	2.6	30.6
			PC	8,701	7,546	4,872	8,701	4,872	7,546	7,039	1,964	1,134	27.9
			Chl *a*	3.6	2.1	2.2	3.6	2.1	2.2	2.6	0.8	0.5	32.1
			Biomass	2,339	1,248	980	2,339	980	1,248	1,522	720	416	47.3
			Abundance	3,186,908	2,807,924	2,476,314	3,186,908	2,476,314	2,807,924	2,823,715	355,560	205,283	12.6
	14-Aug-12	NEL LZ 03	PN	509	421	468	509	421	468	466	44	25	9.4
			PP	11.7	13.6	15.3	15.3	11.7	13.6	13.5	1.8	1.1	13.6
			PC	-	6,486	7,114	7,114	6,486	6,800	6,800	443	314	6.5
			Chl *a*	2.0	2.6	2.4	2.6	2.0	2.4	2.3	0.3	0.2	12.7
			Biomass	1,088	1,655	1,166	1,655	1,088	1,166	1,303	308	178	23.6

			Abundance	3,090,009	3,477,606	2,540,913	3,477,606	2,540,913	3,090,009	3,036,176	470,661	271,736	15.5

Notes: - = no sample submitted; µg/cm^2 = number of micrograms per square metre; A = replicate sample A; B = replicate sample B; C = replicate sample C; Aug = August; CV = coefficient of variation; % = percent
Biomass = total epilithic algal biomass; Abundance = total epilithic algal abundance; Chl *a* = chlorophyll *a;* PN = particulate nitrogen; PP = particulate phosphorous; PC = particulate carbon

Table 12A.3-4 Littoral Invertebrate Taxonomy in Snap Lake and Northeast Lake, August 201

Major Taxon	Family	Subfamily/Tribe	Genus/Species	Main Basin of Snap Lake										Northwest Arm of Snap Lake				Northeast Lake					
				LZ-01		LZ-02		LZ-03		LZ-04		LZ-05		LZ-06		LZ-07		LZ-01		LZ-02		LZ-03	
				500 µm	250 µm	500 µm	250 µm	500 µm	250 µm	500 µm	250 µm	500 µm	250 µm	500 µm	250 µm	500 µm	250 µm	500 µm	250 µm	500 µm	250 µm	500 µm	250 µm
Cnidaria	Hydridae	-	*Hydra*	0	0	0	0	0	0	0	0	0	0	0	0	160	0	0	0	0	0	0	0
Nematoda	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	0	0	0	0
Oligochaeta	Enchytraeidae		-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	16	0	0	0	0
	Naididae	Naidinae	-	0	40	0	0	0	40	0	320	0	520	0	200	0	120	0	8	0	0	0	48
Hydracarina	-	-	-	0	280	0	200	42	120	0	480	1	80	40	160	3	40	0	32	1	8	0	0
Ostracoda	-	-	-	0	0	0	120	0	160	0	0	0	0	80	80	0	0	0	32	0	48	0	24
Amphipoda	Hyalellidae	-	*Hyalella azteca*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	2	0
Gastropoda	Lymnaeidae	-	-	1	0	0	0	6	0	3	0	6	0	0	0	0	0	0	0	0	0	0	0
	Planorbidae	-	*Gyraulus*	1	0	47	0	1	0	6	0	34	0	5	0	32	0	0	0	0	0	0	0
	Valvatidae	-	*Valvata sincera*	0	0	15	0	7	40	0	0	8	0	40	0	99	0	0	0	0	0	0	0
Pelecypoda	Pisidiidae	-	*Pisidium*	0	0	1	0	0	0	0	0	0	0	3	0	2	0	0	0	0	0	0	0
		-	*Sphaerium*	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
		-	-	0	0	3	0	4	0	1	0	3	0	46	0	16	0	1	0	0	0	0	0
Ephemeroptera	Caenidae	-	*Caenis*	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0	0	0	0	0
Trichoptera	Leptoceridae	-	*Mystacidaes*	0	0	4	0	1	40	0	0	1	0	0	0	96	40	0	0	0	0	0	0
	Leptoceridae		*Oecetis*	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
Diptera	Ceratopogonidae	Ceratopogoninae	*Bezzia*	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
	Ceratopogonidae	Dasyheleinae	*Dasyhelea*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0
	Empididae - pupa	-	-	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Chironomidae	Tanypodinae	-	0	120	0	200	2	80	0	0	1	0	0	80	40	80	0	24	0	88	0	16
			Ablabesmyia	0	0	0	0	0	40	0	0	0	0	40	40	3	0	0	0	0	0	8	0
			Procladius	0	0	0	0	0	0	0	0	0	0	10	0	40	0	0	0	0	0	0	0
			Thienemannimyia group	44	40	224	0	303	0	206	40	143	80	3	0	3	0	43	0	83		64	8
		Chironomini	*Dicrotendipes*	0	40	1	0	1	40	41	80	45	40	0	0	0	0	0	0	51	32	108	40
			Microtendipes	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
			Polypedilum	0	0	0	0	0	0	0	0	0	0	1	0	40	0	0	0	0	0	0	0
		Pseudochironomini	*Pseudochironomus*	0	0	0	0	0	0	0	0	0	0		0	41	0	0	0	0	0	0	0
		Tanytarsini	*Cladotanytarsus*	40	120		80	40	40	0	0	0	0	0	40	0	40	0	0	0	32	8	0
			Corynocera	0	0	0	0	0	0	0	0	0	0	48	0	0	0	0	0	0	0	0	0
			Micropsectra/Tanytarsus	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Paratanytarsus	0	0	0	40	0	0	0	0	0	0	0	0	40	0	8	0	17		16	8
			Stempellinella	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0	0	0	0	0	0
			Tanytarsus	40	2161	440	5920	280	2440	120	1400	120	920	0	120	4	160	16	48	152	184	288	424
		Orthocladiinae	-	0	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Corynoneura	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Cricotopus / Orthocladius	40	120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	8
			Parasmittia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	8	24
			Psectrocladius	40	0	0	80	0	0	40	40	0	40	1	40	0	40	0	96	0	40	0	32
			Zalutschia	0	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Prodiamesinae	*Monodiamesa*	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL				***206***	***3081***	***776***	***6640***	***688***	***3040***	***417***	***2360***	***362***	***1680***	***321***	***800***	***664***	***520***	***76***	***304***	***315***	***448***	***502***	***632***

Notes: µm = micrometres

Table 12A.3-3 Epilithic Algal Biomass (µg/cm^2) and Abundance (cells/cm^2) in Snap Lake and Northeast Lake, August 2012

Lake	SNAP		SNAP		SNAP		SNAP		SNAP		SNAP		SN
Station	LZ01-A		LZ01-B		LZ01-C		LZ02-A		LZ02-B		LZ02-C		LZ(
Date (dd/mmm/yy)	12-Aug-12		12-Aug-12		12-Aug-12		12-Aug-12		12-Aug-12		12-Aug-12		13-A
	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass
	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2
Species name													
Cyanobacteria	**186**	**1177146**	**192**	**1617380**	**71**	**1196287**	**3365**	**2594746**	**833**	**1550388**	**272**	**943152**	**132**
Anabaena flos-aquae (Lyngb.) Breb. and Bornet	0	0	32	483300	24	459374	0	0	0	0	0	0	0
Anabaenopsis sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Chroococcus turgidus (Kutzing) Nageli	0	0	0	0	6	38281	0	0	0	0	0	0	0
Eucapsis sp.	0	0	0	0	0	0	0	0	0	0	0	0	16
Gloeocapsa punctata Nageli	4	122021	3	76562	1	43066	31	925926	10	301464	8	241171	0
Gloeothece sp.	2	362475	3	579003	2	545507	0	0	0	0	2	133506	4
Heteroleibeinia cf *profunda* Komarek	27	348119	0	0	0	0	2686	279931	14	150732	7	73213	9
Leptolyngbya lemnetica (Anaga.) Anagnostidis and Komarek	151	301464	153	459374	36	95703	576	1281223	396	940281	214	456503	52
Merismopedia punctata Meyen	0	0	0	0	0	0	0	0	0	0	0	0	0
Nostoc sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Phormidium autumnale Agardh	0	0	0	0	0	0	65	10767	38	7178	0	0	51
Pseudoanabaena galeata Bocher	3	43066	1	19141	1	14355	8	96899	1	14355	1	25840	0
Rhabdogloea lineare Schmidle and Lauterborn	0	0	0	0	0	0	0	0	1	57422	0	0	0
Rivularia dura Roth	0	0	0	0	0	0	0	0	373	78955	37	8613	0
Rivularia sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Scytonema sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Snowella sp.	0	0	0	0	0	0	0	0	0	0	3	4307	0
Spirulina laxa G.M. Smith	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorophyceae	**83**	**50244**	**23**	**23926**	**10**	**38281**	**65**	**204565**	**53**	**251220**	**30**	**120586**	**84**
Bulbochaete sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Coelastrum microporum Naegeli	0	0	0	0	0	0	29	10767	0	0	0	0	0
Cosmarium sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Elakatothrix gelatinosa Willen	0	0	0	0	0	0	0	0	0	0	0	0	0
Euastrum spp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Micrasterias sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Mougeotia sp.	0	0	0	0	6	14355	0	0	0	0	0	0	84
Oedogonium sp.	81	28711	0	0	0	0	16	43066	38	114844	30	111972	0
Oocystis gigas Archer	0	0	20	4785	0	0	0	0	0	0	0	0	0
Oocystis lacustris Chodat	1	10767	0	0	4	23926	0	0	0	0	0	0	0
Pediastrum duplex Meyen	0	0	0	0	0	0	20	150732	14	136377	0	0	0
Scenedesmus acuminatus Chodat	1	10767	0	0	0	0	0	0	0	0	1	8613	0
Scenedesmus quadricauda (Turp.) Brebisson	0	0	3	19141	0	0	0	0	0	0	0	0	0
Staurodesmus paradoxum Meyen	0	0	0	0	0	0	0	0	0	0	0	0	0
Ulothrix sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Ulothrix zonata Kutzing	0	0	0	0	0	0	0	0	0	0	0	0	0
Zygnema sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Chrysophyceae	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Dinobryon bavaricum Imhof	0	0	0	0	0	0	0	0	0	0	0	0	0
Bacillariophyceae	**223**	**645995**	**329**	**732127**	**384**	**693846**	**448**	**904393**	**359**	**473730**	**126**	**430663**	**278**
Achnanthes minutissima Kutzing	19	258398	17	234472	8	100488	45	549096	18	222509	11	129199	21
Anomoenies vitrea Ross	3	21533	8	57422	13	100488	5	43066	1	7178	6	43066	8
Asterionella formosa Hassall	0	0	0	0	0	0	0	0	0	0	0	0	0
Cocconies disculus Schum.	0	0	0	0	0	0	0	0	10	7178	0	0	0
Cocconies sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyclotella michiganiana Skvortzow	3	61011	13	143554	12	124414	2	10767	2	21533	12	133506	7
Cyclotella stelligera Cleve and Grunow	17	3589	87	19141	26	14355	123	32300	28	14355	38	8613	0
Cymbella lapponica Grunow ex. Cleve	0	0	0	0	0	0	0	0	0	0	12	8613	0
Cymbella microcephala Grunow	49	143554	22	62207	16	43066	4	10767	29	86133	10	30146	22
Cymbella prostata (Berkeley) Cleve	70	3589	90	9570	0	0	196	10767	116	7178	0	0	148
Diatoma tenue Agardh	0	0	0	0	0	0	0	0	0	0	0	0	0

Lake	SNAP		SNAP		SNAP		SNAP		SNAP		SNAP		SN
Station	LZ01-A		LZ01-B		LZ01-C		LZ02-A		LZ02-B		LZ02-C		LZ(
Date (dd/mmm/yy)	12-Aug-12		12-Aug-12		12-Aug-12		12-Aug-12		12-Aug-12		12-Aug-12		13-A
	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass
	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2
Encyonema silesiacum (Bleisch) D.G. Mann	25	21533	6	4785	12	9570	39	32300	26	21533	20	17227	13
Epithemia argus Kutzing	0	0	0	0	0	0	0	0	0	0	0	0	0
Eucocconeis sp.	17	3589	62	9570	27	4785	0	0	0	0	0	0	0
Eunotia arcus Ehrenberg	2	7178	1	4785	10	9570	3	10767	0	0	0	0	0
Eunotia exigua (Brebisson) Grunow	0	0	0	0	0	0	0	0	0	0	0	0	0
Eunotia meisteri Hustedt	0	0	3	33496	0	0	0	0	0	0	0	0	0
Fragilaria capucina Grunow	8	43066	2	9570	1	4785	16	86133	1	7178	2	12920	4
Fragilaria construens (Ehrenberg) Grunow	1	17944	12	133984	18	224902	5	107666	0	0	2	25840	4
Fragilaria pinata Ehrenberg	0	0	0	0	0	0	0	0	0	0	0	0	0
Frustulia rhomboides (Ehrenberg) de Toni	0	0	0	0	0	0	0	0	0	0	0	0	0
Gomphonema angustum Agardh	0	0	0	0	0	0	0	0	0	0	0	0	0
Gomphonema minutum Agardh	3	14355	0	0	4	9570	0	0	0	0	0	0	4
Gomphonema olivaceum (Lyngbye) Kutzing	0	0	0	0	0	0	0	0	0	0	0	0	0
Navicula pupula Kutzing	0	0	0	0	0	0	0	0	0	0	0	0	0
Navicula radiosa Kutzing	0	0	0	0	0	0	0	0	18	7178	0	0	10
Navicula sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Neidium iridis (Ehrenberg) Cleve	0	0	0	0	0	0	0	0	0	0	0	0	0
Nitzschia clausii Hantzsch	0	0	0	0	0	0	0	0	0	0	0	0	0
Nitzschia fonticola Grunow	4	46655	0	0	4	43066	0	0	0	0	0	4307	3
Nitzschia palea (Kutzing) W. Smith	0	0	0	0	0	0	0	0	0	0	0	0	0
Pinnularia borealis Ehrenberg	0	0	0	0	0	0	0	0	14	7178	0	0	0
Pinnularia flexuosa Cleve	0	0	0	0	231	4785	0	0	0	0	0	0	0
Stauroneis anceps Ehrenberg	0	0	0	0	0	0	0	0	0	0	0	0	29
Stephanodiscus niagarae Ehrenberg	0	0	0	0	0	0	0	0	0	0	0	0	0
Surirella ovata Kutzing	0	0	0	0	0	0	0	0	0	0	0	0	0
Synedra acus Kutzing	0	0	1	4785	0	0	0	0	0	0	1	4307	0
Tabellaria fenestrata (Lyngbye) Kutzing	0	0	6	4785	0	0	10	10767	52	57422	12	12920	5
Tabellaria flocculsa (Roth) Kutzing	0	0	0	0	0	0	0	0	0	0	0	0	0
Pennate diatoms	0	0	0	0	0	0	0	0	43	7178	0	0	0
Dinophyceae	**0**	**0**	**0**	**0**	**45**	**4785**	**0**	**0**	**228**	**14355**	**0**	**0**	**56**
Ceratium hirundenella (Muller) Schrank	0	0	0	0	0	0	0	0	0	0	0	0	0
Peridinium aciculiferum Lemmermann	0	0	0	0	45	4785	0	0	67	7178	0	0	56
Peridinium goslaviense Woloszynska	0	0	0	0	0	0	0	0	0	0	0	0	0
Peridinium pusillum (Penard) Lemmermann	0	0	0	0	0	0	0	0	0	0	0	0	0
Peridinium willei Huitfeldt-Kaas	0	0	0	0	0	0	0	0	161	7178	0	0	0
Total Biomass/Abundance	**492**	**1873385**	**544**	**2373433**	**509**	**1933199**	**3878**	**3703704**	**1472**	**2289693**	**429**	**1494401**	**550**

Notes: Aug = August; µg/cm^2 = micrograms per square centimetre; cells/cm^2 = cells per square centimetre; sp. species (singular); spp. = species (plural)

Table 12A.3-3 Epilithic Algal Biomass (µg/cm²) and Abundance (ce

Lake	NAP	SNAP		SNAP		SNAP		SNAP		SNAP		SNAP	
Station	03-A	LZ03-B		LZ03-C		LZ04-A		LZ04-B		LZ04-C		LZ05-A	
Date (dd/mmm/yy)	ug-12	13-Aug-12		13-Aug-12		13-Aug-12		13-Aug-12		13-Aug-12		15-Aug-12	
	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance
	cells/cm²	µg/cm²	cells/cm²	µg/cm²	cells/cm²	µg/cm²	cells/cm²	µg/cm²	cells/cm²	µg/cm²	cells/cm²	µg/cm²	cells/cm²
Species name													
Cyanobacteria	**1605759**	**614**	**3488372**	**478**	**2980189**	**276**	**1230466**	**516**	**2136090**	**81**	**639369**	**322**	**2591157**
Anabaena flos-aquae (Lyngb.) Breb. and Bornet	0	0	0	0	0	0	0	0	0	0	0	0	0
Anabaenopsis sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Chroococcus turgidus (Kutzing) Nageli	0	0	0	0	0	0	0	0	0	0	0	0	0
Eucapsis sp.	479882	14	344531	18	422050	0	0	0	0	1	19877	4	114844
Gloeocapsa punctata Nageli	0	0	0	0	0	0	0	6	180879	0	0	0	0
Gloeothece sp.	836717	5	1214470	5	1024978	2	406054	3	542636	1	334592	3	796727
Heteroleibeinia cf *profunda* Komarek	104590	56	559862	55	654608	11	116894	17	180879	10	86133	85	868504
Leptolyngbya lemnetica (Anaga.) Anagnostidis and Komarek	178418	417	1205857	312	835487	262	701366	404	1180017	57	178891	225	674706
Merismopedia punctata Meyen	0	0	137812	0	0	0	0	0	0	0	0	5	114844
Nostoc sp.	0	50	8613	0	0	0	0	0	0	0	0	0	0
Phormidium autumnale Agardh	6152	53	8613	0	0	0	0	85	8613	0	0	0	0
Pseudoanabaena galeata Bocher	0	0	0	1	8613	0	6152	1	8613	1	16564	1	21533
Rhabdogloea lineare Schmidle and Lauterborn	0	0	0	0	0	0	0	1	34453	0	0	0	0
Rivularia dura Roth	0	0	0	87	34453	0	0	0	0	0	0	0	0
Rivularia sp.	0	0	0	0	0	0	0	0	0	11	3313	0	0
Scytonema sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Snowella sp.	0	15	8613	0	0	0	0	0	0	0	0	0	0
Spirulina laxa G.M. Smith	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorophyceae	**24609**	**278**	**241171**	**14**	**60293**	**106**	**116894**	**18**	**43066**	**85**	**39754**	**95**	**21533**
Bulbochaete sp.	0	248	51680	0	0	91	55371	0	0	80	19877	0	0
Coelastrum microporum Naegeli	0	0	0	0	0	0	0	0	0	0	0	0	0
Cosmarium sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Elakatothrix gelatinosa Willen	0	0	0	0	0	0	0	0	0	0	0	0	0
Euastrum spp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Micrasterias sp.	0	0	0	0	0	0	0	9	8613	0	0	0	0
Mougeotia sp.	24609	5	25840	0	0	0	0	0	0	0	0	95	21533
Oedogonium sp.	0	10	51680	14	60293	15	61523	9	34453	6	19877	0	0
Oocystis gigas Archer	0	0	0	0	0	0	0	0	0	0	0	0	0
Oocystis lacustris Chodat	0	0	0	0	0	0	0	0	0	0	0	0	0
Pediastrum duplex Meyen	0	15	111972	0	0	0	0	0	0	0	0	0	0
Scenedesmus acuminatus Chodat	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenedesmus quadricauda (Turp.) Brebisson	0	0	0	0	0	0	0	0	0	0	0	0	0
Staurodesmus paradoxum Meyen	0	0	0	0	0	0	0	0	0	0	0	0	0
Ulothrix sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Ulothrix zonata Kutzing	0	0	0	0	0	0	0	0	0	0	0	0	0
Zygnema sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Chrysophyceae	**0**	**0**	**0**	**0**	**0**	**11**	**6152**	**0**	**0**	**0**	**0**	**0**	**0**
Dinobryon bavaricum Imhof	0	0	0	0	0	11	6152	0	0	0	0	0	0
Bacillariophyceae	**627538**	**391**	**818260**	**235**	**499569**	**813**	**1039744**	**1050**	**1421189**	**489**	**818260**	**884**	**631639**
Achnanthes minutissima Kutzing	239941	40	430663	5	60293	23	301464	22	292851	13	172265	7	86133
Anomoenies vitrea Ross	55371	29	180879	3	17227	7	49219	33	232558	25	165640	22	122021
Asterionella formosa Hassall	0	0	0	0	0	0	0	0	0	0	0	0	0
Cocconies disculus Schum.	0	0	0	0	0	0	0	0	0	3	3313	0	0
Cocconies sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyclotella michiganiana Skvortzow	79980	2	17227	4	43066	4	67676	11	94746	16	168952	15	157910
Cyclotella stelligera Cleve and Grunow	0	0	0	0	0	157	43066	31	8613	72	19877	58	14355
Cymbella lapponica Grunow ex. Cleve	0	0	0	0	0	13	12305	35	25840	28	26502	0	0
Cymbella microcephala Grunow	67676	3	8613	20	60293	43	123047	98	301464	18	53005	5	14355
Cymbella prostata (Berkeley) Cleve	6152	145	8613	0	0	135	6152	187	8613	227	9938	0	0
Diatoma tenue Agardh	0	0	0	0	0	0	0	2	8613	7	39754	1	7178

Lake	NAP	SNAP		SNAP		SNAP		SNAP		SNAP		SNAP	
Station	03-A	LZ03-B		LZ03-C		LZ04-A		LZ04-B		LZ04-C		LZ05-A	
Date (dd/mmm/yy)	ug-12	13-Aug-12		13-Aug-12		13-Aug-12		13-Aug-12		13-Aug-12		15-Aug-12	
	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance
	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2
Encyonema silesiacum (Bleisch) D.G. Mann	12305	168	137812	112	94746	65	55371	101	86133	37	33128	33	28711
Epithemia argus Kutzing	0	0	0	0	0	0	0	0	0	7	3313	0	0
Eucocconeis sp.	0	0	0	39	8613	33	6152	38	8613	17	3313	63	14355
Eunotia arcus Ehrenberg	0	0	0	0	0	0	0	0	0	0	0	0	0
Eunotia exigua (Brebisson) Grunow	0	0	0	0	0	0	0	0	0	0	0	0	0
Eunotia meisteri Hustedt	0	0	0	0	0	0	0	0	0	0	0	0	0
Fragilaria capucina Grunow	24609	4	25840	9	51680	22	123047	1	8613	5	26502	9	50244
Fragilaria construens (Ehrenberg) Grunow	61523	0	0	8	103359	11	123047	9	103359	4	43066	1	7178
Fragilaria pinata Ehrenberg	0	0	0	0	0	0	0	0	0	0	0	0	0
Frustulia rhomboides (Ehrenberg) de Toni	0	0	0	0	0	0	0	0	0	0	0	0	0
Gomphonema angustum Agardh	0	0	0	0	0	0	0	18	17227	4	3313	0	0
Gomphonema minutum Agardh	18457	2	8613	9	34453	22	55371	4	17227	0	0	8	35889
Gomphonema olivaceum (Lyngbye) Kutzing	0	0	0	0	0	0	0	0	0	0	0	0	0
Navicula pupula Kutzing	0	0	0	0	0	0	0	0	0	0	3313	0	0
Navicula radiosa Kutzing	6152	0	0	0	0	0	0	28	8613	0	0	23	7178
Navicula sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Neidium iridis (Ehrenberg) Cleve	0	0	0	0	0	0	0	0	0	0	0	0	0
Nitzschia clausii Hantzsch	0	0	0	0	0	0	0	0	0	0	0	0	0
Nitzschia fonticola Grunow	43066	0	0	0	0	3	49219	9	172265	5	43066	8	78955
Nitzschia palea (Kutzing) W. Smith	0	0	0	0	0	0	0	0	0	0	0	0	0
Pinnularia borealis Ehrenberg	0	0	0	0	0	0	0	0	0	0	0	0	0
Pinnularia flexuosa Cleve	0	0	0	0	0	0	0	0	0	0	0	631	7178
Stauroneis anceps Ehrenberg	6152	0	0	0	0	0	0	0	0	0	0	0	0
Stephanodiscus niagarae Ehrenberg	0	0	0	0	0	251	6152	408	8613	0	0	0	0
Surirella ovata Kutzing	0	0	0	0	0	0	0	0	0	0	0	0	0
Synedra acus Kutzing	0	0	0	0	0	0	0	0	0	0	0	0	0
Tabellaria fenestrata (Lyngbye) Kutzing	6152	0	0	15	17227	15	12305	14	17227	0	0	0	0
Tabellaria flocculsa (Roth) Kutzing	0	0	0	12	8613	8	6152	0	0	0	0	0	0
Pennate diatoms	0	0	0	0	0	0	0	0	0	0	0	0	0
Dinophyceae	**6152**	**0**	**0**	**228**	**8613**	**185**	**6152**	**0**	**0**	**0**	**0**	**0**	**0**
Ceratium hirundenella (Muller) Schrank	0	0	0	0	0	0	0	0	0	0	0	0	0
Peridinium aciculiferum Lemmermann	6152	0	0	0	0	0	0	0	0	0	0	0	0
Peridinium goslaviense Woloszynska	0	0	0	0	0	0	0	0	0	0	0	0	0
Peridinium pusillum (Penard) Lemmermann	0	0	0	0	0	0	0	0	0	0	0	0	0
Peridinium willei Huitfeldt-Kaas	0	0	0	228	8613	185	6152	0	0	0	0	0	0
Total Biomass/Abundance	**2264058**	**1281**	**4547804**	**956**	**3548665**	**1391**	**2399410**	**1585**	**3600345**	**655**	**1497383**	**1301**	**3244330**

Notes: Aug = August; µg/cm^2 = micrograms per square centimetre; cells/cm^2 = cells per

Table 12A.3-3 Epilithic Algal Biomass (µg/cm²) and Abundance (ce

Lake	SNAP		SNAP		SNAP		SNAP		SNAP		SNAP		SI
Station	LZ05-B		LZ05-C		LZ06-A		LZ06-B		LZ06-C		LZ07-A		LZ
Date (dd/mmm/yy)	15-Aug-12		15-Aug-12		15-Aug-12		15-Aug-12		15-Aug-12		15-Aug-12		15-A
	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass
	µg/cm²	cells/cm²	µg/cm²	cells/cm²	µg/cm²	cells/cm²	µg/cm²	cells/cm²	µg/cm²	cells/cm²	µg/cm²	cells/cm²	µg/cm²
Species name													
Cyanobacteria	**131**	**1138865**	**180**	**2204996**	**775**	**5038760**	**564**	**3402239**	**987**	**5440712**	**1169**	**2906977**	**406**
Anabaena flos-aquae (Lyngb.) Breb. and Bornet	0	0	0	0	0	0	0	0	0	0	0	0	0
Anabaenopsis sp.	0	0	0	0	1	86133	0	0	0	0	0	0	1
Chroococcus turgidus (Kutzing) Nageli	0	0	0	0	0	0	0	0	0	0	0	0	0
Eucapsis sp.	0	0	9	267011	56	1679587	57	1693942	0	0	0	0	17
Gloeocapsa punctata Nageli	0	0	0	0	0	0	0	0	85	2540913	0	0	0
Gloeothece sp.	3	579003	7	1171404	4	732127	1	114844	2	373241	2	387597	4
Heteroleibeinia cf *profunda* Komarek	24	220117	30	310078	23	229687	0	0	15	186621	52	495263	0
Leptolyngbya lemnetica (Anaga.) Anagnostidis and Komarek	104	339745	131	404823	678	2282515	502	1507321	748	2311226	716	1884152	379
Merismopedia punctata Meyen	0	0	0	0	0	0	0	0	0	0	0	0	0
Nostoc sp.	0	0	0	0	0	0	0	0	39	14355	0	0	0
Phormidium autumnale Agardh	0	0	0	0	0	0	0	0	98	14355	273	32300	0
Pseudoanabaena galeata Bocher	0	0	3	51680	1	14355	5	86133	0	0	3	53833	6
Rhabdogloea lineare Schmidle and Lauterborn	0	0	0	0	0	0	0	0	0	0	0	0	0
Rivularia dura Roth	0	0	0	0	0	0	0	0	0	0	119	43066	0
Rivularia sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Scytonema sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Snowella sp.	0	0	0	0	11	14355	0	0	0	0	0	0	0
Spirulina laxa G.M. Smith	0	0	0	0	0	0	0	0	0	0	3	10767	0
Chlorophyceae	**53**	**258398**	**80**	**172265**	**492**	**157910**	**295**	**186621**	**108**	**143554**	**84**	**53833**	**114**
Bulbochaete sp.	0	0	39	25840	487	71777	0	0	87	43066	84	53833	106
Coelastrum microporum Naegeli	0	0	0	0	0	0	0	0	0	0	0	0	0
Cosmarium sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Elakatothrix gelatinosa Willen	0	0	0	0	0	0	0	0	0	0	0	0	0
Euastrum spp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Micrasterias sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Mougeotia sp.	0	0	15	34453	0	0	126	28711	0	0	0	0	0
Oedogonium sp.	9	66992	27	111972	0	0	0	0	20	86133	0	0	7
Oocystis gigas Archer	0	0	0	0	0	0	0	0	0	0	0	0	0
Oocystis lacustris Chodat	0	0	0	0	0	0	0	0	0	0	0	0	1
Pediastrum duplex Meyen	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenedesmus acuminatus Chodat	1	9570	0	0	4	86133	0	0	0	0	0	0	0
Scenedesmus quadricauda (Turp.) Brebisson	2	38281	0	0	0	0	0	0	2	14355	0	0	0
Staurodesmus paradoxum Meyen	0	0	0	0	0	0	139	14355	0	0	0	0	0
Ulothrix sp.	41	143554	0	0	0	0	29	143554	0	0	0	0	0
Ulothrix zonata Kutzing	0	0	0	0	0	0	0	0	0	0	0	0	0
Zygnema sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Chrysophyceae	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Dinobryon bavaricum Imhof	0	0	0	0	0	0	0	0	0	0	0	0	0
Bacillariophyceae	**123**	**406737**	**459**	**637382**	**798**	**186621**	**181**	**531151**	**1171**	**258398**	**214**	**452196**	**209**
Achnanthes minutissima Kutzing	11	138769	3	34453	4	57422	13	172265	0	0	15	215332	25
Anomoenies vitrea Ross	4	23926	1	8613	8	57422	15	86133	4	28711	6	43066	9
Asterionella formosa Hassall	0	0	0	0	0	0	0	0	0	0	0	0	0
Cocconies disculus Schum.	0	0	0	0	0	0	0	0	0	0	0	0	0
Cocconies sp.	0	0	0	0	0	0	0	0	0	0	0	0	19
Cyclotella michiganiana Skvortzow	11	114844	8	180879	1	14355	5	43066	3	28711	1	10767	1
Cyclotella stelligera Cleve and Grunow	41	9570	133	34453	0	0	32	14355	0	0	51	10767	78
Cymbella lapponica Grunow ex. Cleve	16	14355	0	0	0	0	19	14355	0	0	0	0	10
Cymbella microcephala Grunow	9	23926	3	8613	0	0	0	0	0	0	8	21533	29
Cymbella prostata (Berkeley) Cleve	0	0	182	8613	0	0	0	0	0	0	0	0	0
Diatoma tenue Agardh	1	4785	3	25840	0	0	0	0	0	0	0	0	0

Lake	SNAP		SNAP		SNAP		SNAP		SNAP		SNAP		SI
Station	LZ05-B		LZ05-C		LZ06-A		LZ06-B		LZ06-C		LZ07-A		LZ
Date (dd/mmm/yy)	15-Aug-12		15-Aug-12		15-Aug-12		15-Aug-12		15-Aug-12		15-Aug-12		15-A
	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass
	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2
Encyonema silesiacum (Bleisch) D.G. Mann	11	9570	22	17227	0	0	22	14355	124	100488	23	21533	10
Epithemia argus Kutzing	0	0	0	0	0	0	0	0	0	0	0	0	0
Eucocconeis sp.	0	0	36	8613	78	14355	0	0	0	0	63	10767	0
Eunotia arcus Ehrenberg	0	0	0	0	0	0	0	0	0	0	0	0	0
Eunotia exigua (Brebisson) Grunow	0	0	0	0	0	0	11	14355	0	0	0	0	8
Eunotia meisteri Hustedt	0	0	0	0	0	0	0	0	0	0	0	0	0
Fragilaria capucina Grunow	1	4785	1	8613	0	0	6	43066	8	28711	6	32300	
Fragilaria construens (Ehrenberg) Grunow	3	38281	21	232558	0	0	10	100488	0	0	6	64599	0
Fragilaria pinata Ehrenberg	0	0	0	0	0	0	0	0	0	0	0	0	0
Frustulia rhomboides (Ehrenberg) de Toni	0	0	0	0	41	14355	0	0	42	14355	30	10767	0
Gomphonema angustum Agardh	0	0	0	0	0	0	0	0	0	0	0	0	0
Gomphonema minutum Agardh	2	9570	0	0	0	0	0	0	0	0	0	0	0
Gomphonema olivaceum (Lyngbye) Kutzing	0	0	0	0	0	0	0	0	0	0	0	0	0
Navicula pupula Kutzing	0	0	0	0	0	0	1	14355	0	0	0	0	2
Navicula radiosa Kutzing	0	0	34	8613	0	0	47	14355	0	0	5	10767	0
Navicula sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Neidium iridis (Ehrenberg) Cleve	0	0	0	0	0	0	0	0	0	0	0	0	0
Nitzschia clausii Hantzsch	0	0	10	17227	0	0	0	0	11	14355	0	0	0
Nitzschia fonticola Grunow	1	9570	3	43066	0	0	0	0	0	0	0	0	0
Nitzschia palea (Kutzing) W. Smith	0	0	0	0	0	0	0	0	0	0	0	0	0
Pinnularia borealis Ehrenberg	0	0	0	0	0	0	0	0	0	0	0	0	0
Pinnularia flexuosa Cleve	0	0	0	0	589	14355	0	0	843	14355	0	0	0
Stauroneis anceps Ehrenberg	0	0	0	0	0	0	0	0	69	14355	0	0	0
Stephanodiscus niagarae Ehrenberg	0	0	0	0	0	0	0	0	0	0	0	0	0
Surirella ovata Kutzing	0	0	0	0	76	14355	0	0	68	14355	0	0	0
Synedra acus Kutzing	0	0	0	0	0	0	0	0	0	0	0	0	0
Tabellaria fenestrata (Lyngbye) Kutzing	13	4785	0	0	0	0	0	0	0	0	0	0	17
Tabellaria flocculsa (Roth) Kutzing	0	0	0	0	0	0	0	0	0	0	0	0	0
Pennate diatoms	0	0	0	0	0	0	0	0	0	0	0	0	0
Dinophyceae	**0**	**0**	**0**	**0**	**722**	**14355**	**0**	**0**	**0**	**0**	**0**	**0**	**403**
Ceratium hirundenella (Muller) Schrank	0	0	0	0	722	14355	0	0	0	0	0	0	403
Peridinium aciculiferum Lemmermann	0	0	0	0	0	0	0	0	0	0	0	0	0
Peridinium goslaviense Woloszynska	0	0	0	0	0	0	0	0	0	0	0	0	0
Peridinium pusillum (Penard) Lemmermann	0	0	0	0	0	0	0	0	0	0	0	0	0
Peridinium willei Huitfeldt-Kaas	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Biomass/Abundance	**307**	**1804001**	**720**	**3014643**	**2786**	**5397646**	**1040**	**4120012**	**2267**	**5842665**	**1467**	**3413006**	**1133**

Notes: Aug = August; µg/cm^2 = micrograms per square centimetre; cells/cm^2 = cells per

Table 12A.3-3 Epilithic Algal Biomass (µg/cm²) and Abundance (ce

Lake	NAP	SNAP		NEL		NEL		NEL		NEL		NEL	
Station	07-B	LZ07-C		LZ01-A		LZ01-B		LZ01-C		LZ02-A		LZ02-B	
Date (dd/mmm/yy)	ug-12	15-Aug-12		14-Aug-12		14-Aug-12		14-Aug-12		14-Aug-12		14-Aug-12	
	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance
	cells/cm²	µg/cm²	cells/cm²	µg/cm²	cells/cm²	µg/cm²	cells/cm²	µg/cm²	cells/cm²	µg/cm²	cells/cm²	µg/cm²	cells/cm²
Species name													
Cyanobacteria	**2670112**	**802**	**4941860**	**669**	**2906977**	**658**	**2702412**	**836**	**2325581**	**1333**	**2856733**	**765**	**2523686**
Anabaena flos-aquae (Lyngb.) Breb. and Bornet	0	0	0	0	0	0	0	0	0	0	0	0	0
Anabaenopsis sp.	103359	0	0	9	484496	0	0	18	129199	5	229687	2	137812
Chroococcus turgidus (Kutzing) Nageli	0	0	0	0	0	0	0	0	0	0	0	0	0
Eucapsis sp.	508183	22	645995	13	387597	6	279931	6	204565	0	0	0	0
Gloeocapsa punctata Nageli	0	0	0	0	0	0	0	0	0	10	244042	4	172265
Gloeothece sp.	835487	6	1410422	1	333764	0	0	0	0	0	0	5	525409
Heteroleibeinia cf *profunda* Komarek	0	91	1033592	16	172265	64	602929	21	247631	26	272753	27	249785
Leptolyngbya lemnetica (Anaga.) Anagnostidis and Komarek	1136951	546	1808786	384	1464255	444	1744186	453	1604220	636	1823141	448	1309216
Merismopedia punctata Meyen	0	0	0	0	0	0	0	0	0	0	0	0	0
Nostoc sp.	0	0	0	0	0	27	10767	54	10767	90	14355	0	0
Phormidium autumnale Agardh	0	129	21533	0	0	0	0	104	21533	0	0	0	0
Pseudoanabaena galeata Bocher	86133	1	10767	0	0	0	0	0	0	0	0	1	17227
Rhabdogloea lineare Schmidle and Lauterborn	0	0	0	0	0	0	0	0	0	0	0	0	0
Rivularia dura Roth	0	0	0	0	0	0	0	0	0	0	0	0	0
Rivularia sp.	0	0	0	172	32300	37	10767	89	43066	223	143554	177	51680
Scytonema sp.	0	0	0	74	32300	81	53833	91	64599	343	129199	101	60293
Snowella sp.	0	8	10767	0	0	0	0	0	0	0	0	0	0
Spirulina laxa G.M. Smith	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorophyceae	**129199**	**160**	**172265**	**1897**	**366064**	**222**	**193798**	**507**	**150732**	**96**	**157910**	**168**	**155039**
Bulbochaete sp.	51680	104	32300	0	0	98	64599	0	0	0	0	0	0
Coelastrum microporum Naegeli	0	0	0	0	0	0	0	0	0	0	0	0	0
Cosmarium sp.	0	0	0	15	10767	0	0	0	0	0	0	0	0
Elakatothrix gelatinosa Willen	17227	0	0	0	0	0	0	0	0	0	0	0	0
Euastrum spp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Micrasterias sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Mougeotia sp.	0	26	32300	268	21533	104	32300	404	43066	62	14355	0	0
Oedogonium sp.	34453	30	107666	0	0	19	96899	19	96899	34	143554	22	103359
Oocystis gigas Archer	0	0	0	0	0	0	0	0	0	0	0	0	0
Oocystis lacustris Chodat	25840	0	0	0	0	0	0	0	0	0	0	0	0
Pediastrum duplex Meyen	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenedesmus acuminatus Chodat	0			0	0	0	0	0	0	0	0	0	0
Scenedesmus quadricauda (Turp.) Brebisson	0	0	0	0	0	0	0	0	0	0	0	0	0
Staurodesmus paradoxum Meyen	0	0	0	0	0	0	0	83	10767	0	0	0	0
Ulothrix sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Ulothrix zonata Kutzing	0	0	0	1614	333764	0	0	0	0	0	0	0	0
Zygnema sp.	0	0	0	0	0	0	0	0	0	0	0	146	51680
Chrysophyceae	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Dinobryon bavaricum Imhof	0	0	0	0	0	0	0	0	0	0	0	0	0
Bacillariophyceae	**577089**	**184**	**441430**	**741**	**344531**	**880**	**344531**	**432**	**495263**	**559**	**157910**	**315**	**129199**
Achnanthes minutissima Kutzing	327304	8	96899	1	21533	3	43066	14	161499	2	28711	0	0
Anomoenies vitrea Ross	60293	15	107666	10	64599	6	43066	6	43066	4	28711	9	34453
Asterionella formosa Hassall	0	0	0	0	0	0	0	0	0	0	0	0	0
Cocconies disculus Schum.	0	0	0	0	0	0	0	0	0	0	0	0	0
Cocconies sp.	8613	0	0	0	0	0	0	0	0	0	0	0	0
Cyclotella michiganiana Skvortzow	8613	0	0	0	0	6	53833	3	32300	1	14355	0	0
Cyclotella stelligera Cleve and Grunow	17227	0	0	78	21533	39	10767	34	10767	0	0	0	0
Cymbella lapponica Grunow ex. Cleve	8613	23	21533	29	21533	58	53833	81	75366	17	0	17	17227
Cymbella microcephala Grunow	86133	51	129199	14	43066	7	21533	26	64599	0	0	0	0
Cymbella prostata (Berkeley) Cleve	0	0	0	331	10767	0	0	179	10767	0	0	0	0
Diatoma tenue Agardh	0	0	0	0	0	0	0	0	0	0	0	0	0

Lake	NAP	SNAP		NEL		NEL		NEL		NEL		NEL	
Station	07-B	LZ07-C		LZ01-A		LZ01-B		LZ01-C		LZ02-A		LZ02-B	
Date (dd/mmm/yy)	ug-12	15-Aug-12		14-Aug-12		14-Aug-12		14-Aug-12		14-Aug-12		14-Aug-12	
	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance
	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2
Encyonema silesiacum (Bleisch) D.G. Mann	8613	25	21533	51	43066	35	32300	13	10767	0	0	30	25840
Epithemia argus Kutzing	0	0	0	168	32300	0	0	0	0	18	14355	13	8613
Eucocconeis sp.	0	0	0	0	0	0	0	0	0	0	0	0	0
Eunotia arcus Ehrenberg	0	0	0	0	0	0	0	0	0	0	0	0	0
Eunotia exigua (Brebisson) Grunow	8613	0	0	0	0	0	0	0	0	0	0	0	0
Eunotia meisteri Hustedt	0	0	0	0	0	0	0	0	0	0	0	0	0
Fragilaria capucina Grunow		4	21533	8	32300	2	10767	4	21533	0	0	1	8613
Fragilaria construens (Ehrenberg) Grunow	0	0	0	0	0	0	0	0	0	0	0	0	0
Fragilaria pinata Ehrenberg	0	0	10767	0	0	0	0	0	0	3	43066	0	0
Frustulia rhomboides (Ehrenberg) de Toni	0	0	0	0	0	0	0	0	0	0	0	0	0
Gomphonema angustum Agardh	0	0	0	46	43066	0	0	0	0	0	0	0	0
Gomphonema minutum Agardh	0	0	0	0	0	0	0	0	0	0	0	0	0
Gomphonema olivaceum (Lyngbye) Kutzing	0	0	0	6	10767	0	0	0	0	0	0	0	0
Navicula pupula Kutzing	17227	0	0	0	0	0	0	0	0	0	0	0	0
Navicula radiosa Kutzing	0	26	10767	0	0	34	10767	31	10767	0	0	0	0
Navicula sp.	0	0	0	0	0	0	0	0	0	0	0	4	8613
Neidium iridis (Ehrenberg) Cleve	0	30	10767	0	0	14	10767	0	0	0	0	0	0
Nitzschia clausii Hantzsch	0	0	0	0	0	4	10767	4	10767	0	0	0	0
Nitzschia fonticola Grunow	0	0	0	0	0	0	0	0	0	0	0	0	0
Nitzschia palea (Kutzing) W. Smith	0	0	0	0	0	0	0	7	10767	0	0	12	17227
Pinnularia borealis Ehrenberg	0	0	0	0	0	0	0	0	0	0	0	0	0
Pinnularia flexuosa Cleve	0	0	0	0	0	649	21533	0	0	513	14355	229	8613
Stauroneis anceps Ehrenberg	0	0	0	0	0	0	0	0	0	0	0	0	0
Stephanodiscus niagarae Ehrenberg	0	0	0	0	0	0	0	0	0	0	0	0	0
Surirella ovata Kutzing	0	0	0	0	0	0	0	0	0	0	0	0	0
Synedra acus Kutzing	0	1	10767	0	0	0	0	0	0	0	0	0	0
Tabellaria fenestrata (Lyngbye) Kutzing	25840	0	0	0	0	8	10767	18	21533	0	0	0	0
Tabellaria flocculsa (Roth) Kutzing	0	0	0	0	0	13	10767	13	10767	0	0	0	0
Pennate diatoms	0	0	0	0	0	0	0	0	0	0	0	0	0
Dinophyceae	**8613**	**0**	**0**	**0**	**0**	**0**	**0**	**361**	**10767**	**351**	**14355**	**0**	**0**
Ceratium hirundenella (Muller) Schrank	8613	0	0	0	0	0	0	0	0	0	0	0	0
Peridinium aciculiferum Lemmermann	0	0	0	0	0	0	0	0	0	0	0	0	0
Peridinium goslaviense Woloszynska	0	0	0	0	0	0	0	361	10767	0	0	0	0
Peridinium pusillum (Penard) Lemmermann	0	0	0	0	0	0	0	0	0	0	0	0	0
Peridinium willei Huitfeldt-Kaas	0	0	0	0	0	0	0	0	0	351	14355	0	0
Total Biomass/Abundance	**3385013**	**1146**	**5555556**	**3307**	**3617571**	**1760**	**3240741**	**2135**	**2982343**	**2339**	**3179730**	**1248**	**2807924**

Notes: Aug = August; µg/cm^2 = micrograms per square centimetre; cells/cm^2 = cells per

Table 12A.3-3 Epilithic Algal Biomass (µg/cm^2) and Abundance (ce

Lake	NEL		NEL		NEL		NEL	
Station	LZ02-C		LZ03-A		LZ03-B		LZ03-C	
Date (dd/mmm/yy)	14-Aug-12		14-Aug-12		14-Aug-12		14-Aug-12	
	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance
	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2
Species name								
Cyanobacteria	**875**	**2347115**	**853**	**2702412**	**829**	**3208441**	**635**	**2164083**
Anabaena flos-aquae (Lyngb.) Breb. and Bornet	0	0	0	0	0	0	0	0
Anabaenopsis sp.	5	290698	3	172265	7	409130	3	139966
Chroococcus turgidus (Kutzing) Nageli	13	86133	0	0	0	0	0	0
Eucapsis sp.	0	0	9	258398	4	172265	4	215332
Gloeocapsa punctata Nageli	2	96899	0	0	0	0	0	0
Gloeothece sp.	2	172265	0	0	5	419897	0	0
Heteroleibeinia cf *profunda* Komarek	19	204565	26	312231	68	689061	36	387597
Leptolyngbya lemnetica (Anaga.) Anagnostidis and Komarek	437	1313523	578	1841085	429	1324289	455	1367356
Merismopedia punctata Meyen	0	0	0	0	1	43066	0	0
Nostoc sp.	43	10767	81	10767	77	10767	37	10767
Phormidium autumnale Agardh	0	0	0	0	0	0	61	10767
Pseudoanabaena galeata Bocher	0	0	0	0	0	0	0	0
Rhabdogloea lineare Schmidle and Lauterborn	0	0	0	0	0	0	0	0
Rivularia dura Roth	0	0	0	0	0	0	0	0
Rivularia sp.	0	0	63	32300	0	0	0	0
Scytonema sp.	354	172265	92	75366	237	139966	37	32300
Snowella sp.	0	0	0	0	0	0	0	0
Spirulina laxa G.M. Smith	0	0	0	0	0	0	0	0
Chlorophyceae	**0**	**0**	**46**	**118432**	**156**	**43066**	**27**	**183032**
Bulbochaete sp.	0	0	0	0	0	0	0	0
Coelastrum microporum Naegeli	0	0	0	0	0	0	0	0
Cosmarium sp.	0	0	0	0	0	0	0	0
Elakatothrix gelatinosa Willen	0	0	0	0	0	0	0	0
Euastrum spp.	0	0	20	10767	0	0	0	0
Micrasterias sp.	0	0	0	0	0	0	0	0
Mougeotia sp.	0	0	0	0	109	32300	0	0
Oedogonium sp.	0	0	26	107666	0	0	24	118432
Oocystis gigas Archer	0	0	0	0	0	0	0	0
Oocystis lacustris Chodat	0	0	0	0	0	0	4	64599
Pediastrum duplex Meyen	0	0	0	0	0	0	0	0
Scenedesmus acuminatus Chodat	0	0	0	0	0	0	0	0
Scenedesmus quadricauda (Turp.) Brebisson	0	0	0	0	0	0	0	0
Staurodesmus paradoxum Meyen	0	0	0	0	47	10767	0	0
Ulothrix sp.	0	0	0	0	0	0	0	0
Ulothrix zonata Kutzing	0	0	0	0	0	0	0	0
Zygnema sp.	0	0	0	0	0	0	0	0
Chrysophyceae	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Dinobryon bavaricum Imhof	0	0	0	0	0	0	0	0
Bacillariophyceae	**106**	**129199**	**189**	**269165**	**670**	**226098**	**504**	**193798**
Achnanthes minutissima Kutzing	22	32300	20	53833	3	43066	1	10767
Anomoenies vitrea Ross	3	21533	10	64599	2	10767	0	0
Asterionella formosa Hassall	0	0	0	0	0	0	0	0
Cocconies disculus Schum.	0	0	0	0	0	0	0	0
Cocconies sp.	0	0	0	0	0	0	0	0
Cyclotella michiganiana Skvortzow	3	21533	1	10767	0	0	1	10767
Cyclotella stelligera Cleve and Grunow	0	0	31	10767	30	10767	0	0
Cymbella lapponica Grunow ex. Cleve	12	10767	53	53833	81	75366	67	64599
Cymbella microcephala Grunow	0	0	0	0	0	0	7	21533
Cymbella prostata (Berkeley) Cleve	0	0	0	0	441	10767	0	0
Diatoma tenue Agardh	0	0	0	0	0	0	0	0

Lake	NEL		NEL		NEL		NEL	
Station	LZ02-C		LZ03-A		LZ03-B		LZ03-C	
Date (dd/mmm/yy)	14-Aug-12		14-Aug-12		14-Aug-12		14-Aug-12	
	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance	Biomass	Abundance
	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2	µg/cm^2	cells/cm^2
Encyonema silesiacum (Bleisch) D.G. Mann	13	10767	12	32300	0	0	26	21533
Epithemia argus Kutzing	32	21533	0	0	0	0	0	0
Eucocconeis sp.	0	0	0	0	0	0	0	0
Eunotia arcus Ehrenberg	0	0	0	0	70	21533	0	0
Eunotia exigua (Brebisson) Grunow	0	0	0	0	0	0	0	0
Eunotia meisteri Hustedt	0	0	0	0	0	0	0	0
Fragilaria capucina Grunow	0	0	0	0	0	0	0	0
Fragilaria construens (Ehrenberg) Grunow	0	0	0	0	0	0	0	0
Fragilaria pinata Ehrenberg	0	0	0	0	0	10767	0	0
Frustulia rhomboides (Ehrenberg) de Toni	22	10767	0	0	0	0	0	0
Gomphonema angustum Agardh	0	0	0	0	36	32300	26	21533
Gomphonema minutum Agardh	0	0	0	0	0	0	0	0
Gomphonema olivaceum (Lyngbye) Kutzing	0	0	0	0	0	0	0	0
Navicula pupula Kutzing	0	0	2	10767	0	0	1	10767
Navicula radiosa Kutzing	0	0	52	21533	0	0	40	10767
Navicula sp.	0	0	0	0	0	0	0	0
Neidium iridis (Ehrenberg) Cleve	0	0	0	0	0	0	0	0
Nitzschia clausii Hantzsch	0	0	0	0	0	0	0	0
Nitzschia fonticola Grunow	0	0	0	0	0	0	0	0
Nitzschia palea (Kutzing) W. Smith	0	0	0	0	7	10767	0	0
Pinnularia borealis Ehrenberg	0	0	0	0	0	0	0	0
Pinnularia flexuosa Cleve	0	0	0	0	0	0	325	10767
Stauroneis anceps Ehrenberg	0	0	0	0	0	0	0	0
Stephanodiscus niagarae Ehrenberg	0	0	0	0	0	0	0	0
Surirella ovata Kutzing	0	0	0	0	0	0	0	0
Synedra acus Kutzing	0	0	0	0	0	0	0	0
Tabellaria fenestrata (Lyngbye) Kutzing	0	0	9	10767	0	0	9	10767
Tabellaria flocculsa (Roth) Kutzing	0	0	0	0	0	0	0	0
Pennate diatoms	0	0	0	0	0	0	0	0
Dinophyceae	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Ceratium hirundenella (Muller) Schrank	0	0	0	0	0	0	0	0
Peridinium aciculiferum Lemmermann	0	0	0	0	0	0	0	0
Peridinium goslaviense Woloszynska	0	0	0	0	0	0	0	0
Peridinium pusillum (Penard) Lemmermann	0	0	0	0	0	0	0	0
Peridinium willei Huitfeldt-Kaas	0	0	0	0	0	0	0	0
Total Biomass/Abundance	**981**	**2476314**	**1088**	**3090009**	**1655**	**3477606**	**1166**	**2540913**

Notes: Aug = August; µg/cm^2 = micrograms per square centimetre; cells/cm^2 = cells per



Photo 12B.1-1 Site H1 – downstream view of inlet to flume, May 2012



Photo 12B.1-2 Site H2 – view of inlet to flume A and B, May 2012

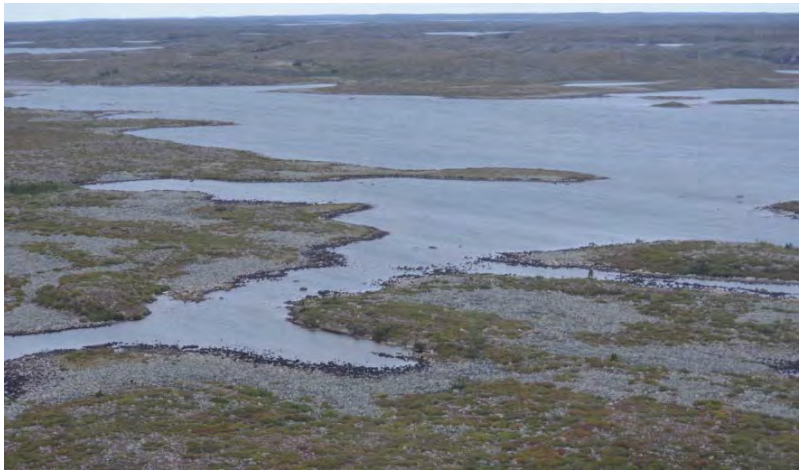


Photo 12B.1-3 Downstream Lake 1 – outlet stream, August 2011



Photo 12B.1-4 Downstream Lake 1 – shoreline view, August 2011



Photo 12B.1-5 Downstream Lake 2 – inlet stream, August 2011



Photo 12B.1-6 Downstream Lake 2 – aerial view, August 2011

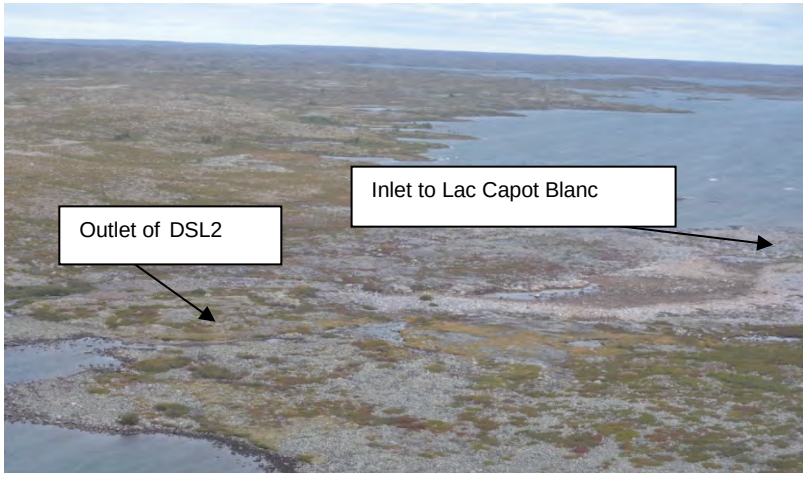
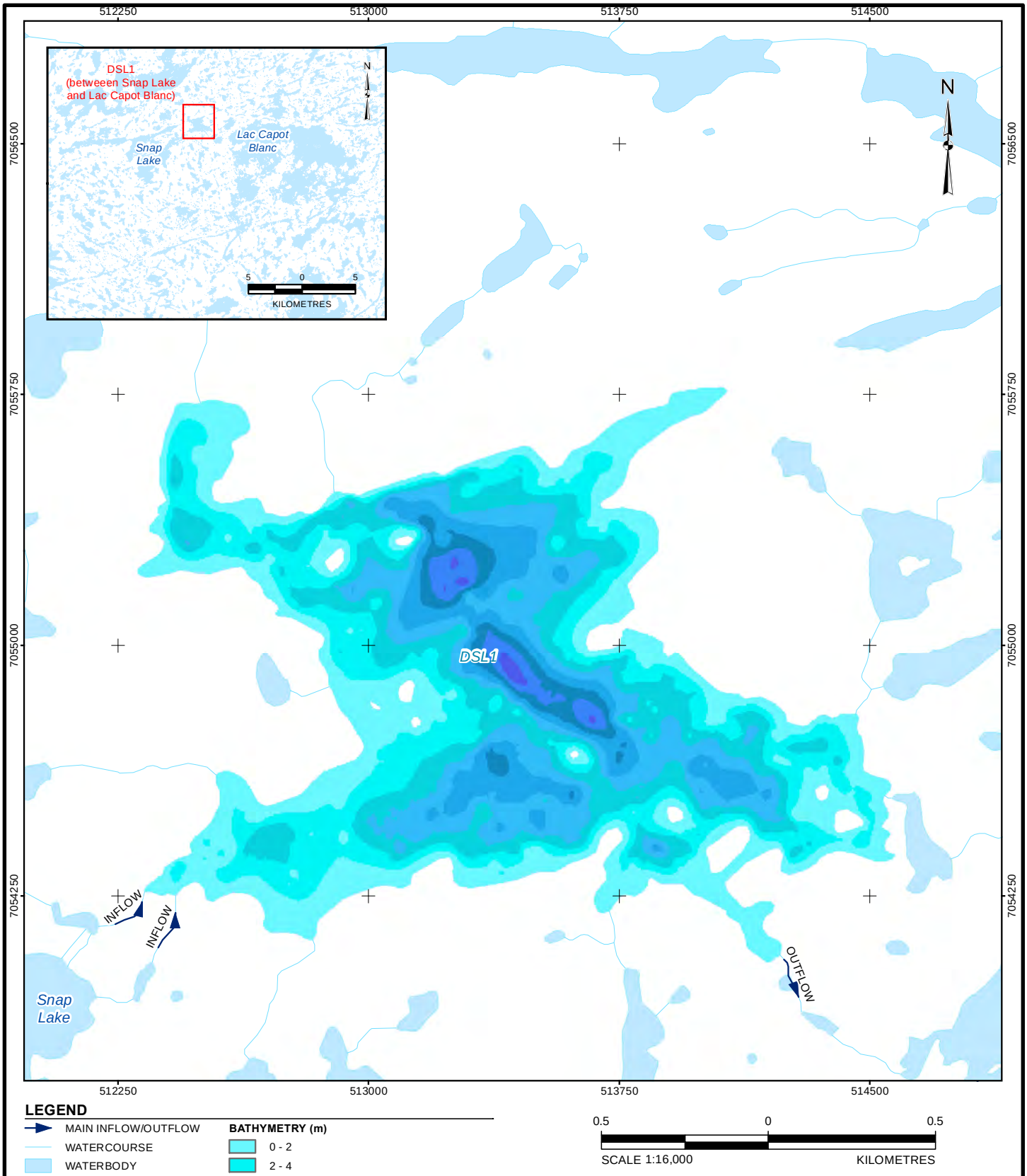


Photo 12B.1-7 Lac Capot Blanc – inlet stream, August 2011



Photo 12B.1-8 Lac Capot Blanc – view from shore, August 2011

Appendix 12B.2 Bathymetry Maps



LEGEND

- MAIN INFLOW/OUTFLOW
- WATERCOURSE
- WATERBODY

BATHYMETRY (m)

- 0 - 2
- 2 - 4
- 4 - 6
- 6 - 8
- 8 - 10
- 10 - 12
- 12 - 14
- 14 - 16

0.5 0 0.5

SCALE 1:16,000 KILOMETRES

NOTE

DSL1: FIRST LAKE DOWNSTREAM OF SNAP LAKE.

REFERENCE

BASE VECTOR DIGITAL CANVEC 1:50K DATA OBTAINED FROM GEOGRATIS ONLINE.
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DATUM: NAD83 PROJECTION: UTM ZONE 12

PROJECT

De Beers
GROUP OF COMPANIES

TITLE

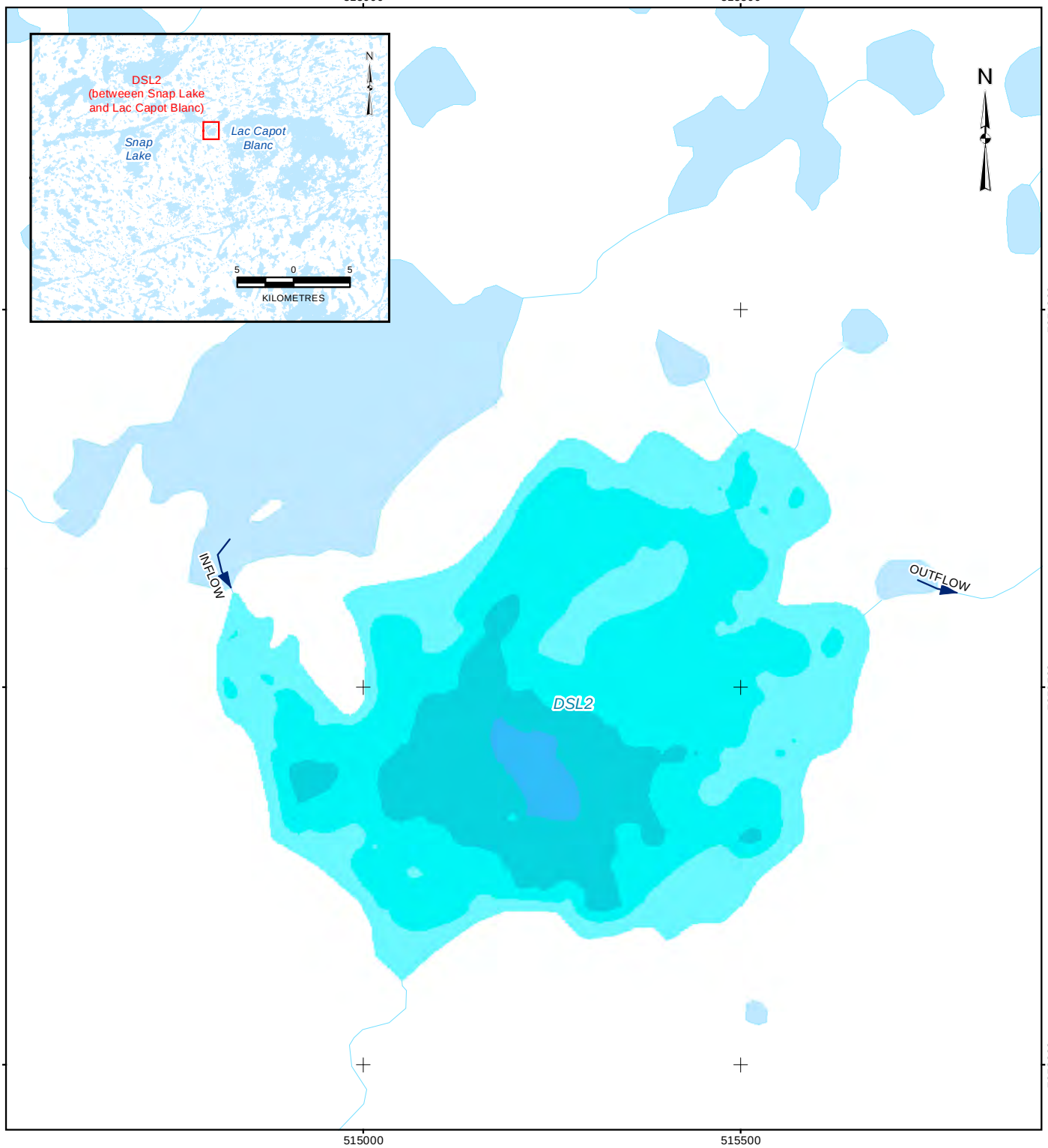
BATHYMETRY, DOWNSTREAM LAKE 1 (DSL1)

Golder Associates

PROJECT	12-1328-0001		FILE No.	
DESIGN	CW	17 May 2012	SCALE AS SHOWN	REV. 0
GIS	CH	01 Mar. 2013		
CHECK	LMB	19 Apr. 2013		
REVIEW	PMC	18 Apr. 2013		

FIGURE: 12B.2-1

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LEGEND

- MAIN INFLOW/OUTFLOW
- WATERCOURSE
- WATERBODY

BATHYMETRY (m)

- 0 - 2
- 2 - 4
- 4 - 6
- 6 - 8

0.25 0 0.25

SCALE 1:7,500 KILOMETRES

PROJECT

De Beers
GROUP OF COMPANIES

TITLE

BATHYMETRY, DOWNSTREAM LAKE 2 (DSL2)

NOTE

DSL2: SECOND LAKE DOWNSTREAM OF SNAP LAKE.

REFERENCE

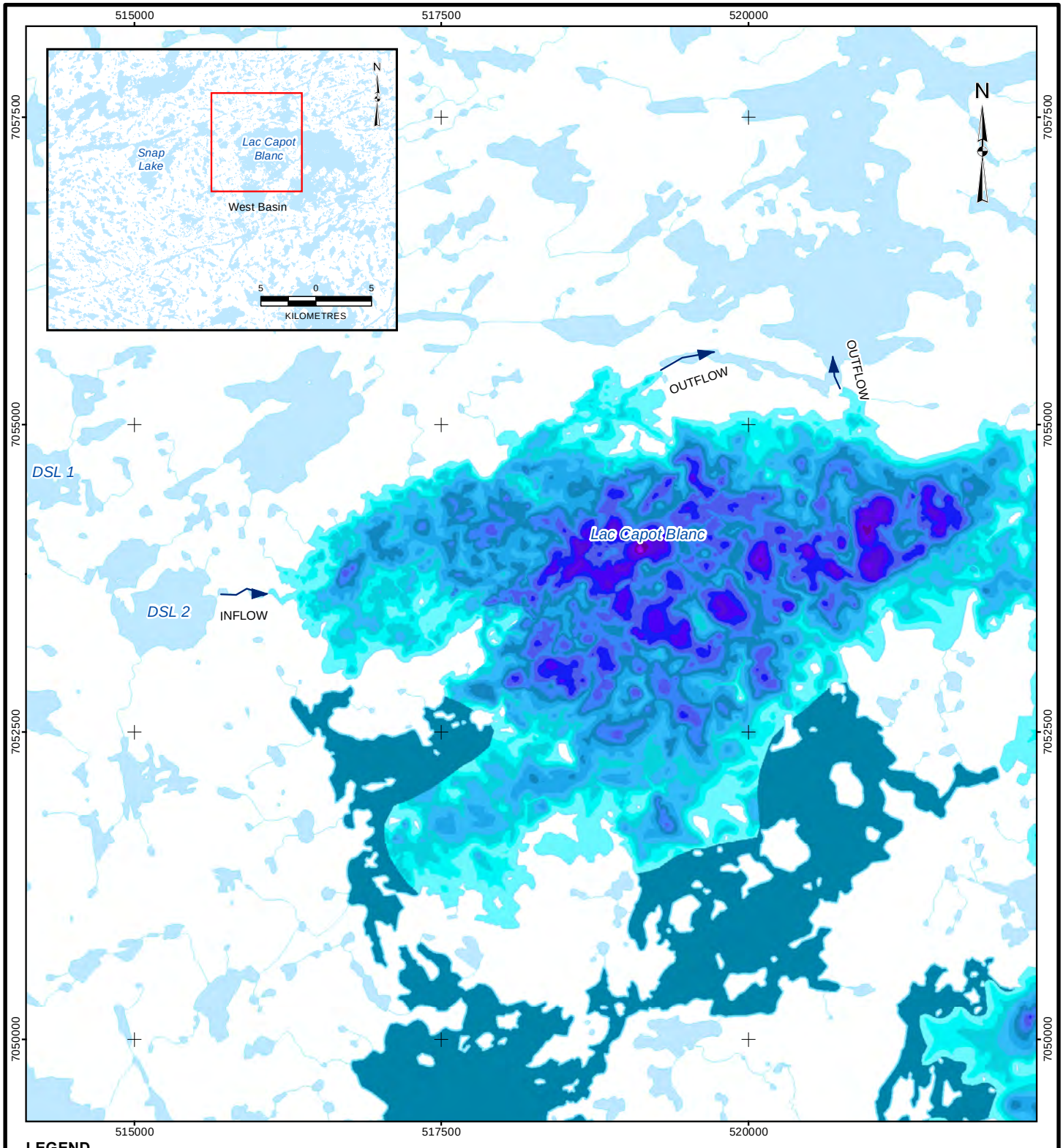
BASE VECTOR DIGITAL CANVEC 1:50K DATA OBTAINED FROM GEOGRATIS ONLINE.
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DATUM: NAD83 PROJECTION: UTM ZONE 12

Golder Associates

PROJECT	12-1328-0001		FILE No.	
DESIGN	CW	17 May 2012	SCALE AS SHOWN	REV. 0
GIS	GI	01 Mar. 2013		
CHECK	LMB	19 Apr. 2013		
REVIEW	PMC	18 Apr. 2013		

FIGURE: 12B.2-2

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LEGEND

- MAIN INFLOW/OUTFLOW
- WATERCOURSE
- LAC CAPOT BLANC (NO BATHYMETRY)
- WATERBODY

BATHYMETRY (m)

0 - 2	18 - 20
2 - 4	20 - 22
4 - 6	22 - 24
6 - 8	24 - 26
8 - 10	26 - 28
10 - 12	28 - 30
12 - 14	30 - 32
14 - 16	32 - 34
16 - 18	34 - 36

1.5 0 1.5

SCALE 1:45,000 KILOMETRES

REFERENCE

BASE VECTOR DIGITAL CANVEC 1:50K DATA OBTAINED FROM GEOGRATIS ONLINE.
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DATUM: NAD83 PROJECTION: UTM ZONE 12

PROJECT

De Beers GROUP OF COMPANIES

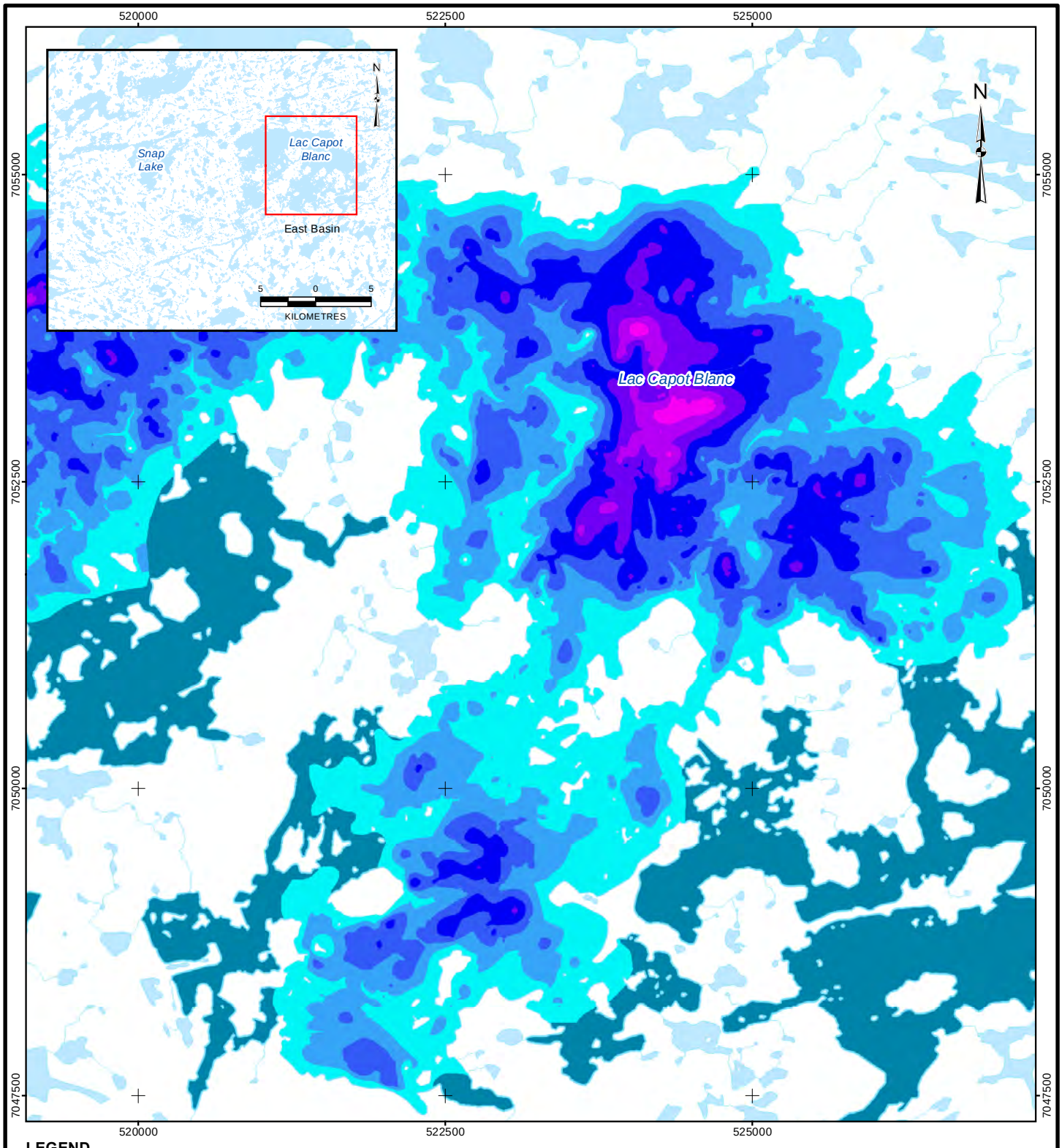
TITLE

BATHYMETRY, LAC CAPOT BLANC WEST BASIN

Golder Associates

PROJECT	12-1328-0001		FILE No.	
DESIGN	CW	17 May 2012	SCALE AS SHOWN	REV. 0
GIS	JC	08 Mar. 2013		
CHECK	LMB	19 Apr. 2013	**FIGURE: 12B.2-3a**	
REVIEW	PMC	18 Apr. 2013		

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LEGEND

- WATERCOURSE
- LAC CAPOT BLANC (NO BATHYMETRY)
- WATERBODY

BATHYMETRY (m)

- 0 - 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 25
- 25 - 30
- 30 - 35

1.5 0 1.5

SCALE 1:45,000 KILOMETRES

NOTE

COARSE BATHYMETRY ON EAST SIDE DUE TO TIME CONSTRAINTS.

REFERENCE

BASE VECTOR DIGITAL CANVEC 1:50K DATA OBTAINED FROM GEOGRATIS ONLINE.
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DATUM: NAD83 PROJECTION: UTM ZONE 12

PROJECT

De Beers GROUP OF COMPANIES

TITLE

BATHYMETRY, LAC CAPOT BLANC EAST BASIN

Golder Associates

PROJECT	12-1328-0001		FILE No.	
DESIGN	CW	17 May 2012	SCALE AS SHOWN	REV. 0
GIS	JC	08 Mar. 2013		
CHECK	LMB	19 Apr. 2013	FIGURE: 12B.2-3b	
REVIEW	PMC	18 Apr. 2013		

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Table 12B.3-1 Naming Convention Used in the 2011 and 2012 Downstream Lakes Field Programs Compared to 2012 Reporting and Subsequent Programs

Lake/Area	Station Name		
	2011 Reconnaissance Program (Old)	2012 Downstream Lakes Program (Old)	2012 Report (New - For Use in Future Programs)
Outlet of Snap Lake	Right Hand Flume	-	-
	Pond Downstream of Right Hand Flume	-	-
	Left Hand Flume	-	-
	Pond Downstream of Left Hand Flume	-	-
Downstream Lake 1	Inlet L1	Inlet L1	Inlet DSL1
	L1 A1	-	-
	L1 A3	-	-
	L1 A5	-	-
	L1 B1	-	-
	L1 B3	L1 B3	DSL1-B3
	L1 B5	-	-
	L1 D1	-	-
	L1 D3	L1 D3A	DSL1-1
	L1 D5	-	-
	L1 E1	-	-
	L1 E2	-	-
	L1 E3	L1 E3	DSL1-E3
	Outlet L1	Outlet L1	Outlet DSL1
Downstream Lake 2	Inlet L2	Inlet L2	Inlet DSL2
	-	L2 01	DSL2-1
	Outlet L2	Outlet L2	Outlet DSL2
Lac Capot Blanc	Inlet L3	Inlet L3	Inlet 1 LCB
	Inlet LCB	Inlet LCB	Inlet 2 LCB
	Bay North of Inlet	-	-
	L3 A1	L3 A1	LCB-A1
	L3 A2	L3 A2	LCB-A2
	L3 A3	L3 A3	LCB-A3
	L3 A4	L3 A4	LCB-A4
	L3 A5	L3 A5	LCB-A5
	-	L3 A5A	LCB A5A
	-	L3 A6	LCB-A6
	L3 B1	L3 B1	LCB-B1
	-	L3 B3A	LCB-B3
	L3 B3	-	-
	L3 B5	L3 B5	LCB-B5
	-	L3 B6	LCB-B6
	L3 C1	L3 C1	LCB-C1
	L3 C3	L3 C3	LCB-C3
	L3 C5	L3 C5	LCB-C5
	-	-	LCB-C7
	L3 D1	L3 D1	LCB-D1
	L3 D3	L3 D3	LCB-1
	L3 D5	-	-
	L3 E1	-	-
	L3 E2	-	-

Table 12B.3-1 Naming Convention Used in the 2011 and 2012 Downstream Lakes Field Programs Compared to 2012 Reporting and Subsequent Programs

Lake/Area	Station Name		
	2011 Reconnaissance Program (Old)	2012 Downstream Lakes Program (Old)	2012 Report (New - For Use in Future Programs)
Lac Capot Blanc (continued)	L3 E3	-	-
	L3 E4	-	-
	L3 E5	-	-
	L3 F1	L3 F1	Outlet 1 LCB
	L3 F2	-	-
	L3 F3	-	-
	Outlet L3	Outlet L3	Outlet 2 LCB
	LCB 1	-	-
	-	LCB 1A	LCB-4
	-	LCB2	LCB-2
	LCB 3	LCB 3A	LCB-3
Unnamed Watercourses	-	FF DS1	FF1
	-	FF DS2	FF2
	-	FF DS3	FF3
	KING01	KING01	KING01

DSL1 = first lake downstream of Snap Lake; DSL2 = second lake downstream of Snap Lake; LCB = Lac Capot Blanc; - = no data collected.

Table 12B.4-1 Comparison of Duplicate Water Quality Sample Results for the Downstream Sampling Program, 2012

			Station:	DSL2-1	Relative Percentage Difference[a]
			Dated Sampled (mm-dd-yyyy):	8/22/2012	8/22/2012	
			Sample Control Number:	2012-9012	2012-9016	
Parameter Name	**Units**	**Detection Limit**	**Sample**	**Duplicate Sample**	
Conventional Parameters					
pH	-	0.1	7.4	7.1	4%
Specific Conductivity	µS/cm	0.2	253	254	0%
Total Dissolved Solids, measured	mg/L	10	164	177	8%
Total Dissolved Solids, calculated (Lab)[b]	mg/L	3.5	123	122	1%
Total Dissolved Solids, calculated (Standard Methods)[b]	mg/L	3.5	120	119	0%
Total Suspended Solids	mg/L	3	<3	<3	-
Turbidity	NTU	0.1	0.31	0.34	-
Major Ions					
Bicarbonate, as HCO_3	mg/L	5	15	15	-
Calcium	mg/L	0.5	25.3	25.3	0%
Carbonate, as CO_3	mg/L	5	<5	<5	-
Chloride	mg/L	0.5	55.5	55.3	0%
Fluoride	mg/L	0.05	0.13	0.12	-
Hardness, as $CaCO_3$	mg/L	1	77	77	0%
Hydroxide, as OH	mg/L	5	<5	<5	-
Magnesium	mg/L	0.1	3.3	3.3	1%
Potassium	mg/L	0.1	1.4	1.4	1%
Reactive Silica, as SiO_2	mg/L	0.5	0.5	0.5	-
Sodium	mg/L	1	14	14.1	1%
Sulphate	mg/L	0.05	10	10	0%
Total Alkalinity, as $CaCO_3$	mg/L	5	12.5	12	-
Nutrients and Carbons					
Dissolved Inorganic Phosphorus	mg/L	0.001	<0.001	<0.001	-
Dissolved Organic Phosphorus, calculated	mg/L	0.0014	0.0024	0.0023	-
Nitrate, as N, calculated	mg/L	0.006	0.428	0.432	1%
Nitrate/Nitrite, as N	mg/L	0.006	0.433	0.436	1%
Nitrite, as N	mg/L	0.002	0.005	0.005	-
ortho-Phosphate, as P	mg/L	0.001	<0.001	<0.001	-
Total Ammonia, as N	mg/L	0.005	<0.005	0.007	-
Total Dissolved Phosphorus	mg/L	0.001	0.002	0.002	-
Total Inorganic Phosphorus	mg/L	0.001	0.002	0.004	-
Total Kjeldahl Nitrogen	mg/L	0.05	0.26	0.27	5%
Total Organic Carbon	mg/L	1	3.4	3.1	-
Total Organic Phosphorus, calculated	mg/L	0.0014	0.0018	<0.0014	-
Total Phosphorus	mg/L	0.001	0.004	0.005	-
Total Metals and Metalloids					
Aluminum	µg/L	0.3	8.1	8	1%
Antimony	µg/L	0.02	0.02	0.02	-
Arsenic	µg/L	0.02	0.08	0.08	-
Barium	µg/L	0.05	10.8	10.7	1%
Beryllium	µg/L	0.01	<0.01	<0.01	-
Bismuth	µg/L	0.01	<0.01	<0.01	-
Boron	µg/L	1	18	18	1%
Cadmium	µg/L	0.005	<0.005	<0.005	-
Cadmium (Alberta Innovates)	µg/L	0.002	<0.002	<0.002	-
Cesium	µg/L	0.1	<0.1	<0.1	-
Hexavalent Chromium	µg/L	1	<1	<1	-

Table 12B.4-1 Comparison of Duplicate Water Quality Sample Results for the Downstream Sampling Program, 2012

			Station:	DSL2-1	Relative Percentage Difference[a]
			Dated Sampled (mm-dd-yyyy):	8/22/2012	8/22/2012	
			Sample Control Number:	2012-9012	2012-9016	
Parameter Name	**Units**	**Detection Limit**	**Sample**	**Duplicate Sample**	
Cobalt	µg/L	0.01	0.01	0.01	-
Copper	µg/L	0.1	0.4	0.4	-
Iron	µg/L	1	23	23	0%
Lead	µg/L	0.01	<0.01	<0.01	-
Lithium	µg/L	0.5	4.2	4.2	0%
Manganese	µg/L	0.05	3.33	3.37	1%
Mercury (Flett)	µg/L	0.0005	<0.0005	<0.0005	-
Molybdenum	µg/L	0.05	0.26	0.25	2%
Nickel	µg/L	0.06	0.15	0.16	-
Rubidium	µg/L	1	2	2	-
Selenium	µg/L	0.04	<0.04	<0.04	-
Silver	µg/L	0.005	<0.005	<0.005	-
Strontium	µg/L	0.05	312	311	0%
Thallium	µg/L	0.01	<0.01	<0.01	-
Titanium	µg/L	0.1	<0.1	<0.1	-
Uranium	µg/L	0.01	0.31	0.3	2%
Vanadium	µg/L	0.05	<0.05	<0.05	-
Zinc	µg/L	0.8	<0.8	1.6	-

(a) Relative percent difference was calculated using the following formula: (│Maximum concentration – minimum concentration│ / average concentration) x 100; - = relative percent difference was not calculated because recorded concentrations in one or both of the duplicate samples was less than five times the corresponding detection limit.

(b) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater, 21st Edition (APHA 2005). "Total dissolved solids, calculated (Standard Methods) concentrations were calculated using formula outlined in APHA (2005). Refer to Appendix 3-A, Section 3A.4.2.2.3 for further details.

DSL2 = second lake downstream of Snap Lake; HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates - Technology Futures; <= less than the detection limit; mm-dd-yyyy = month-day-year; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units; % = percent; µg/L = micrograms per litre; - = not applicable.

Table 12B.4-2 Blank Sample Results for Downstream Sampling Program, 2012

	Blank Sample Type:	Field Blank	Travel Blank
	Dated Sampled (mm-dd-yyyy):	8/22/2012	8/18/2012
	Sample Control number:	2012-9014	2012-9015
Parameter	**Unit**		
Conventional Parameters			
pH	-	5.79 WH	6.15 WH
Specific Conductivity	µS/cm	0.69	1.48
Total Dissolved Solids	mg/L	<10 WH	<10
Total Dissolved Solids, calculated (Lab)[(a)]	mg/L	<3.5	<3.3
Total Dissolved Solids, calculated (Standard Methods)[(a)]	mg/L	<3.5	<3.3
Total Suspended Solids	mg/L	<3.0 WH	<3
Turbidity	NTU	<0.10 WH	<0.10 WH
Major Ions			
Bicarbonate, as HCO_3	mg/L	<5	<5
Calcium	mg/L	<0.5	<0.5
Carbonate, as CO_3	mg/L	<5	<5
Chloride	mg/L	<0.5	<0.5
Fluoride	mg/L	<0.05	<0.05
Hardness, as $CaCO_3$	mg/L	<1	<1
Hydroxide, as OH	mg/L	<5	<5
Magnesium	mg/L	<0.1	<0.1
Potassium	mg/L	<0.1	<0.1
Reactive Silica, as SiO_2	mg/L	<0.5	<0.5
Sodium	mg/L	<1	<1
Sulphate	mg/L	<0.05	<0.05
Total Alkalinity, as CaCO3	mg/L	<5	<5
Nutrients and Carbons			
Dissolved Inorganic Phosphorus	mg/L	<0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg/L	<0.0014	<0.0014
Nitrate, as N, calculated	mg/L	<0.006 WH	<0.006 WH
Nitrate/Nitrite, as N	mg/L	<0.006 WH	<0.006 WH
Nitrite, as N	mg/L	<0.002 WH	<0.002 WH
ortho-Phosphate, as P	mg/L	<0.001 WH	<0.001 WH
Total Ammonia, as N	mg/L	<0.005	<0.005
Total Dissolved Phosphorus	mg/L	<0.001	<0.001
Total Inorganic Phosphorus	mg/L	<0.001	<0.001
Total Kjeldahl Nitrogen	mg/L	<0.05	<0.05
Total Organic Carbon	mg/L	<1	<1
Total Organic Phosphorus, calculated	mg/L	<0.0014	<0.0014
Total Phosphorus	mg/L	<0.001	<0.001
Total Metals and Metalloids			
Aluminum	µg/L	<0.3	<0.3
Antimony	µg/L	<0.02	<0.02
Arsenic	µg/L	<0.02	<0.02
Barium	µg/L	<0.05	<0.05
Beryllium	µg/L	<0.01	<0.01
Bismuth	µg/L	<0.01	<0.01
Boron	µg/L	1.1	4.6
Cadmium	µg/L	<0.005	<0.005
Cadmium (ARC)	µg/L	<0.002	<0.002
Cesium	µg/L	<0.1	<0.1
Chromium	µg/L	<0.06	<0.06
Hexavalent Chromium	µg/L	<1	<1
Cobalt	µg/L	<0.01	<0.01

Table 12B.4-2 Blank Sample Results for Downstream Sampling Program, 2012

	Blank Sample Type:	Field Blank	Travel Blank
	Dated Sampled (mm-dd-yyyy):	8/22/2012	8/18/2012
	Sample Control number:	2012-9014	2012-9015
Parameter	Unit		
Copper	µg/L	<0.1	<0.1
Iron	µg/L	<1	<1
Lead	µg/L	<0.01	<0.01
Lithium	µg/L	<0.5	<0.5
Manganese	µg/L	<0.05	<0.05
Mercury	µg/L	<0.02	<0.02
Mercury (Flett)	µg/L	<0.0005	<0.0005
Molybdenum	µg/L	<0.05	<0.05
Nickel	µg/L	<0.06	<0.06
Rubidium	µg/L	<1	<1
Selenium	µg/L	<0.04	<0.04
Silver	µg/L	<0.005	<0.005
Strontium	µg/L	<0.05	0.103
Thallium	µg/L	<0.01	<0.01
Titanium	µg/L	<0.1	<0.1
Uranium	µg/L	<0.01	<0.01
Vanadium	µg/L	<0.05	<0.05
Zinc	µg/L	0.97	<0.8

Notes: Qualifier flags: WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) "Total dissolved solids, calculated (Lab) " refers to laboratory-calculated total dissolved solids concentrations using a formula inconsistent with Method 1030 E in the Standard Methods for the Examination of Water and Wastewater, 21st Edition (APHA 2005). "Total dissolved solids, calculated (Standard Methods) concentrations were calculated using formula outlined in APHA (2005). Refer to Appendix 3-A, Section 3A.4.2.2.3 for further details.

HCO_3 = bicarbonate; $CaCO_3$ = calcium carbonate; CO_3 = carbonate; OH = hydroxide; SiO_2 = silicate; N = nitrogen; P = phosphorus; Flett = Flett Research Limited; Alberta Innovates = Alberta Innovates - Technology Futures; <= less than the detection limit; mm-dd-yyyy = month-day-year; µS/cm = microSiemens per centimetre; mg/L = milligrams per litre; NTU = nephelometric turbidity units;% = percent; µg/L = micrograms per litre.

Table 12B.5-1 Profile Data Collected Downstream of Snap Lake, 2012

Lake/Area	Station	Date	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH	Specific Conductivity (µS/cm)
Downstream Lake 1	Inlet DSL1	17-Aug-12	0.3	13	9.9	93.8	5.3	377
	DSL1-B3	22-Aug-12	0.3	16.4	10.5	106.8	6.6	291
			1	15.8	10.5	106.1	6.6	319
			1.5	15.5	10.5	105	6.6	345
			2	15.4	10.5	105	6.6	344
	DSL1-1	22-Aug-12	0.3	15.4	10.7	107.2	6.2	276
			1	15.4	10.7	107.2	6.3	276
			2	15.3	10.7	107.4	6.4	276
			3	15.3	10.8	107.5	6.4	276
			4	15.3	10.7	107.2	6.5	276
			5	15.3	10.7	107.3	6.5	276
			6	15.3	10.8	107.4	6.6	276
			7	15.2	10.8	107.3	6.7	276
			8	15.2	10.8	107.2	6.7	276
			9	15.2	10.8	107.3	6.7	276
			10	15.2	10.7	106.8	6.8	276
			11	15.2	10.7	106.7	6.8	276
			12	15.2	10.7	106.4	6.9	276
			13	15.1	10.6	105.3	6.8	276
			14	15	10.1	100.3	6.9	277
	DSL1-E3	22-Aug-12	0.3	15.9	10.6	106.8	9.7 [a]	276
			1	15.7	10.6	107	7	276
			1.5	15.7	10.6	107.4	7	276
	Outlet DSL1	17-Aug-12	0.3	13.1	10.4	98.9	6.2	273
Downstream Lake 2	Inlet DSL2	17-Aug-12	0.3	13	10.4	98.5	6.7	263
	DSL2-1 [b]	22-Aug-12	0.3	15.7	10.6	106.9	7.1	243
			1	15.6	10.7	107.3	7.1	244
			2	15.5	10.7	107.7	7.1	243
			3	15.3	10.8	107.9	7.1	243
			4	15.3	10.8	108.2	7.1	244
			5	15.2	10.8	108	7.1	243
			6	15.2	10.9	108.4	7.1	243
	Outlet DSL2	17-Aug-12	0.3	12.7	9.5	89.2	6.5	241
Lac Capot Blanc	Inlet 1 LCB	17-Aug-12	0.3	12.1	10.3	95.9	6.6	240
	Inlet 2 LCB [c]	23-Aug-12	0.3	16.6	10.8	111	6.8	199
			0.8	16.3	10.9	111.2	6.6	238
	LCB-A1	27-Aug-12	0.3	14.5	10.8	106.3	7	58
			1	14.5	10.8	106	6.9	58
			1.5	14.6	10.8	106.1	7	59
	LCB-A2	27-Aug-12	0.6	14.6	11.1	109	7	81
	LCB-A3	27-Aug-12	0.3	14.6	10.8	106	7	46
			1	14.6	10.7	105.5	7.1	48
			1.5	14.4	10.9	106.7	7	82
			2	14.2	10.4	102.7	6.7	134

Table 12B.5-1 Profile Data Collected Downstream of Snap Lake, 2012

Lake/Area	Station	Date	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH	Specific Conductivity (µS/cm)
Lac Capot Blanc (continued)	LCB-A4	27-Aug-12	0.3	14.6	10.7	105.3	6.9	44
			1	14.6	10.7	104.6	7	44
			1.5	14.5	10.7	104.7	6.9	46
			2	14.4	10.8	105.4	6.9	66
			2.5	14	11.1	108.1	6.9	202
			3	13.8	11.7	112.6	6.7	200
	LCB-A5	27-Aug-12	0.3	14.7	11.6	114.2	7	49
			0.5	14.7	11.5	113.6	7	49
	LCB-A5A[b]	27-Aug-12	0.3	14.6	11.7	114.8	7.5	47
			1	14.4	11.6	113.7	7.1	52
			1.5	14.3	11.6	113.3	7.1	56
			2	13.9	11.7	113.8	6.9	161
			2.5	13.8	11.5	111.5	6.9	168
			3	13.7	11.4	110.5	6.9	189
	LCB-A6 [b]	27-Aug-12	0.3	14.6	11.5	112.9	7.1	40
			3	15.5	11.5	113.3	7.1	44
			3.5	14.5	12	117.8	6.9	50
	LCB-B1 [c]	23-Aug-12	0.3	16.3	10.7	109.1	6.9	46
			2	16.1	10.7	108.6	6.9	48
	LCB-B3	23-Aug-12	0.3	16.2	10.3	105.1	6.9	44
			1	16.2	10.4	105.3	6.9	44
			1.5	16.1	10.4	105.6	6.9	44
			2	16.1	10.5	106.6	6.8	44
			2.5	16.1	10.6	107.1	6.8	44
	LCB-B5 [c]	23-Aug-12	0.3	16.4	10.1	103.2	6.7	47
			5.5	15.9	10.5	106	6.5	85
	LCB-B6 [b]	27-Aug-12	0.3	14.7	11.7	115.4	7	38
			5	14.7	11.5	114	7	40
	LCB-C1	27-Aug-12	0.3	14.8	10.2	100.9	6.8	37
			1	14.7	10.3	101.1	6.8	37
			2	14.7	10.3	101.1	6.8	37
			3	14.7	10.3	101.2	6.7	37
			4	14.6	10.3	101.4	6.7	38
			5	14.6	10.4	101.7	6.7	39
			6	14.5	10.4	101.8	6.7	39
			7	14.5	10.4	102.4	6.7	40
	LCB-C3	23-Aug-12	0.3	16.2	10.4	106	6.9	38
			1	16.1	10.4	105.6	6.9	38
			2	16	10.4	105.5	6.9	39
			3	15.8	10.4	105.2	6.9	40
			4	15.8	10.4	104.9	6.8	38
			5	15.7	10.4	104.8	6.8	37
			6	15.6	10.4	104.4	6.8	36
			7	15.5	10.4	104	6.8	36
			8	15.4	10.4	104	6.8	36
			8.5	15.3	10.3	102.9	6.7	36
			9	15.2	9.5	94.3	6.8	37

Table 12B.5-1 Profile Data Collected Downstream of Snap Lake, 2012

Lake/Area	Station	Date	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH	Specific Conductivity (µS/cm)
Lac Capot Blanc (continued)	LCB-C5 [c]	23-Aug-12	0.3	16.1	10.2	103.7	6.8	39
			3.5	15.8	10.4	104.8	6.8	43
	LCB-C7 [c]	27-Aug-12	0.3	14.7	11.7	115.2	7	38
			4	14.7	11.7	115.6	7	40
	LCB-D1 [c]	23-Aug-12	0.3	16	9.8	98.5	6.7	35
			6.5	15.6	10.1	101.3	6.7	35
	LCB-1	23-Aug-12	0.3	15.5	10	100.5	7.2	35
			1	15.5	10	100.3	7.3	35
			2	15.5	10	100.3	7.3	35
			3	15.5	10	100.2	7.3	35
			4	15.5	10	100.2	7.2	35
			5	15.5	10	100.2	7.2	35
			6	15.4	10	100.2	7.2	35
			7	15.4	10	100.2	7.2	35
			8	15.3	10	100	7.2	35
			9	15.3	10	99.9	7.2	35
			10	15.3	10	99.8	7.2	35
			11	15.3	10	99.7	7.2	35
			12	15.3	10	99.8	7.1	35
			13	15.3	10	99.6	7.2	35
	LCB-2 [b]	26-Aug-12	0.3	14.5	10.2	99.9	6.9	28
			1	14.6	10.1	99.4	7.1	28
			1.5	14.6	10.1	99.4	7.1	28
			2	14.6	10.1	99.4	6.8	28
			2.5	14.6	10.1	99.5	7	28
			3	14.6	10.1	99.6	7	28
			3.5	14.6	10.1	99.7	7	28
			4	14.6	10.1	99.7	7	28
	LCB-3	25-Aug-12	0.3	14.6	10.4	102.5	7	28
			1	14.6	10.4	102	7	28
			2	14.6	10.3	101.7	7	28
			3	14.6	10.3	101.5	7	28
			4	14.7	10.3	101.4	7	28
			5	14.7	10.3	101.4	7	28
			6	14.7	10.3	101.4	7	28
			7	14.7	10.3	101.3	7	28
			8	14.7	10.3	101.3	7	28
			9	14.7	10.3	101.3	7	28
			10	14.7	10.3	101.3	7	28
			11	14.7	10.3	101.2	7	28
			12	14.7	10.3	101.2	7	28
			13	14.7	10.3	101.2	7	28

Table 12B.5-1 Profile Data Collected Downstream of Snap Lake, 2012

Lake/Area	Station	Date	Depth (m)	Temperature (°C)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Sat)	pH	Specific Conductivity (µS/cm)
Lac Capot Blanc (continued)	LCB-4	26-Aug-12	0.3	14.8	10.4	103	7	26
			1	14.8	10.4	102.4	7	26
			2	14.9	10.3	102.1	7	26
			3	14.9	10.3	101.9	7	26
			4	14.9	10.4	101.8	7	26
			5	14.9	10.3	101.8	7	26
			6	14.9	10.3	101.7	7	26
			7	14.9	10.3	101.6	7	26
			8	14.9	10.3	101.6	7	26
			9	14.9	10.3	101.6	7	26
			10	14.9	10.3	101.6	7	26
			11	14.9	10.3	101.5	7	26
			12	14.9	10.3	101.4	7	26
			13	14.9	10.3	101.5	7	26
			14	14.9	10.3	101.4	7	26
			15	14.9	10.3	101.4	7	26
			16	14.8	10.3	101.3	7	26
	Outlet 1 LCB	17-Aug-12	0.3	13.3	10	96	6.9	34
		23-Aug-12	0.3	16.2	10	101.1	7	36
	Outlet 2 LCB	17-Aug-12	0.3	13.7	10	96.5	6.9	33
Unnamed watercourse	FF1	24-Aug-12	0.2	15.2	10	99.3	6.6	30
	FF2	24-Aug-12	0.3	15.4	10	99.4	6.7	29
	FF3	24-Aug-12	0.2	15.2	10	99.5	7	25
King Lake	KING01	24-Aug-12	0.2	15.4	9.9	98.6	6.8	22

(a) This value was assumed to be a transcription error, so the data were excluded from the assessment.

(b) Station not sampled during the 2011 water quality downstream reconnaissance program; new station for 2012.

(c) Only surface and bottom measurements were recorded. The profiles started at 0.30 m below the surface.

m = metre; °C = degree Celsius; mg/L = milligrams per litre;% Sat = percent saturation; µS/cm = microSiemens per centimetre; LCB = Lac Capot Blanc; DSL1 = first lake downstream of Snap Lake; DSL2 = second lake downstream of Snap Lake; FF = far field.

Table 12B.6-1 Benthic Invertebrate Abundance Data (number per sample) in Ekman Grabs Collected From Lake DSL1, Lake DSL2 and Lac Capot Blanc, August, 2012

Major Taxon	Family	Subfamily/ Tribe	Genus/Species	DSL1-1						DSL2-1						LCB-1					
				DSL1-1-A	DSL1-1-B	DSL1-1-C	DSL1-1-D	DSL1-1-E	DSL1-1-F	DSL2-1-A	DSL2-1-B	DSL2-1-C	DSL2-1-D	DSL2-1-E	DSL-2-1-F	LCB-1-A	LCB-1-B	LCB-1-C	LCB-1-D	LCB-1-E	LCB-1-F
Nematoda	-	-	-	0	1	1	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0
Oligochaeta	Lumbriculidae	-	*Lumbriculus*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	Naididae	Naidinae	-	2	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
		Tubificinae	-	5	1	0	4	1	3	0	2	0	3	2	1	0	0	0	1	0	1
Hydracarina	-	-	-	1	0	3	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0
Cladocera	Chydoridae	-	*Eurycercus*	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Macrothricidae	-	-	6	0	3	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0
Copepoda - Cyclopoida	-	-	*Acanthocyclops*	12	2	8	1	7	1	0	0	0	0	0	0	0	0	0	0	0	0
Ostracoda	-	-	-	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Amphipoda	Talitridae	-	*Hyalella azteca*	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastropoda	Valvatidae	-	*Valvata sincera*	2	2	0	4	3	1	0	1	0	0	0	1	0	0	0	1	1	1
Pelecypoda	Pisidiidae	-	*Pisidium*	18	17	24	10	15	5	0	2	0	2	1	1	0	0	0	0	0	5
		-	*Sphaerium*	0	0	0	0	1	0	0	3	0	0	0	0	0	0	0	1	0	1
		-	*Pisidium / Sphaerium*	49	30	28	24	47	8	0	1	2	1	0	0	0	0	0	0	0	2
Diptera	Chironomidae	-	Pupae	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
		Tanypodinae	*Procladius*	7	14	8	3	7	2	0	0	0	3	0	0	0	0	0	0	0	0
		Chironomini	*Cladopelma*	0	1	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0
			Cryptochironomus	2	0	3	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0
			Microtendipes	62	51	76	12	43	4	0	0	0	0	0	0	0	0	0	0	0	1
			Pagastiella	4	2	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
			Sergentia	4	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
			Stictochironomus	1	0	2	1	1	0	0	0	0	0	0	0	0	0	1	1	0	1
		Tanytarsini	*Cladotanytarsus*	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Corynocera	35	31	60	15	59	4	1	0	0	16	0	1	0	1	0	0	0	0
			Tanytarsus	11	9	14	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0
		Orthocladiinae	*Psectrocladius*	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Diamesinae	*Protanypus*	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Total				**224**	**166**	**243**	**78**	**202**	**33**	**1**	**10**	**4**	**27**	**3**	**5**	**0**	**1**	**1**	**4**	**2**	**13**

Notes: Ekman grab bottom sampling area = 0.0232 m^2.

Samples were sieved through a 500 µm mesh sieve in the field.

- = not identified to this taxonomic level; m^2 = square metre; DSL1 = first lake downstream of Snap Lake; DSL2 = second lake downstream of Snap Lake; LCB = Lac Capot Blanc.

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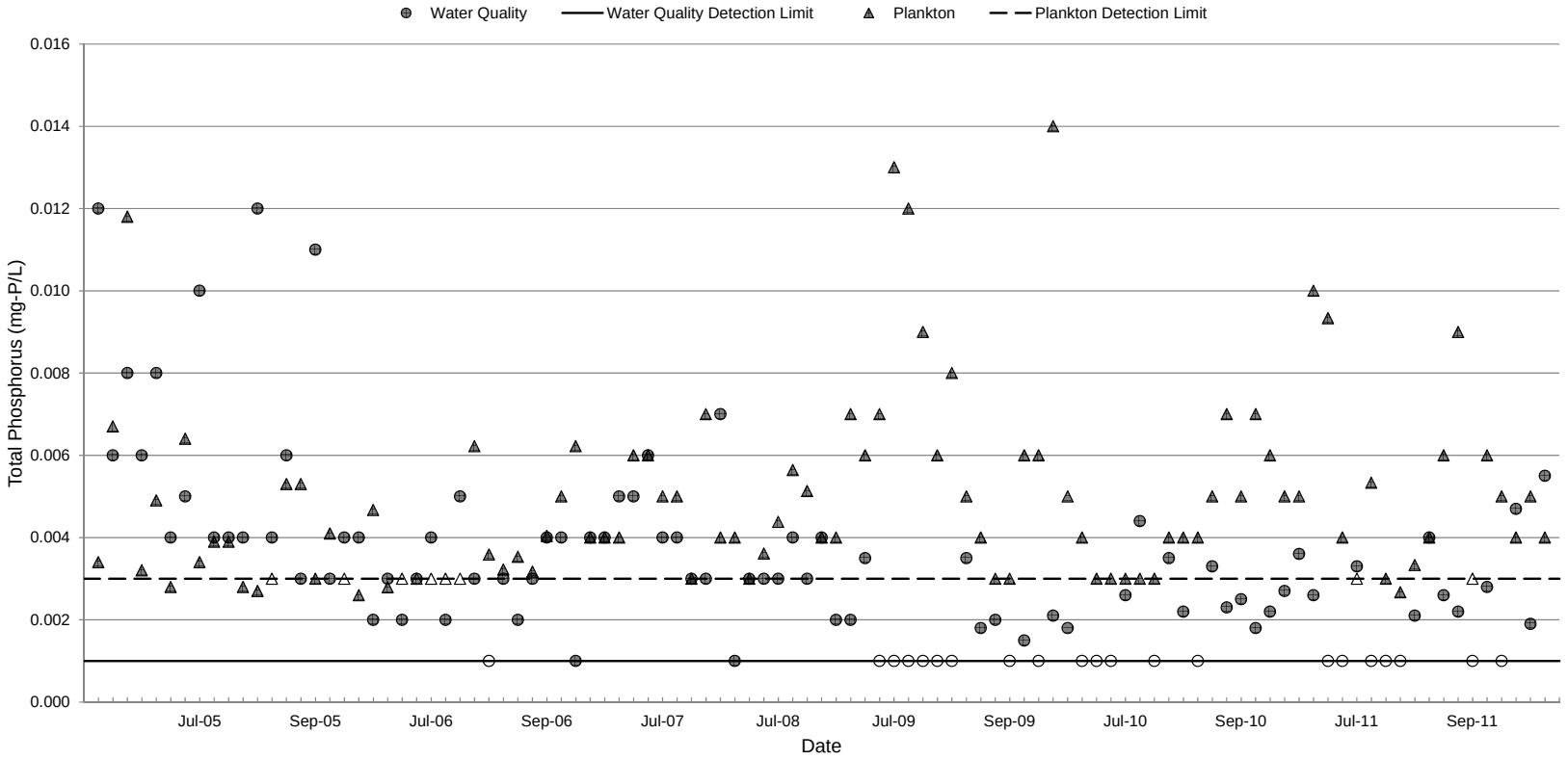
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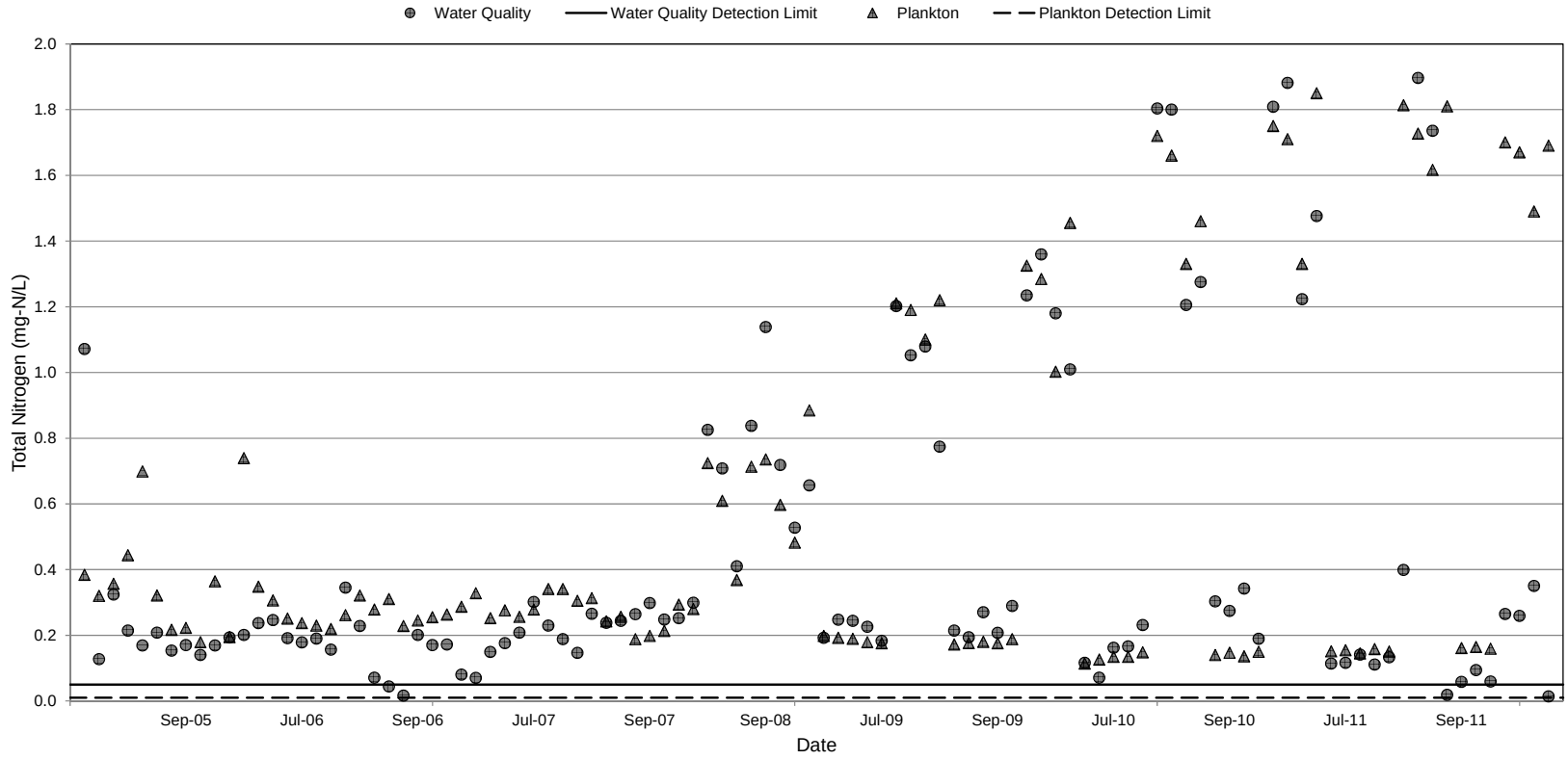
Figure 12D-1 Historical Aquatic Effects Monitoring Program Total Phosphorus Data, All Monitoring Stations, 2005 to 2011 1
Figure 12D-2 Historical Aquatic Effects Monitoring Program Total Nitrogen Data, All Monitoring Stations, 2005 to 2011 2

Figure 12D-1 Historical Aquatic Effects Monitoring Program Total Phosphorus Data, All Monitoring Stations, 2005 to 2011



Notes: The data presented in the figure are from sampling events when the water quality component and the plankton component collected water samples from the same station during the same field sampling program; Water Quality Detection Limit = 0.001 mg-P/L; Plankton Detection Limit = 0.003 mg-P/L; date format is mmm-yy, where y = year and m = month; mg-P/L = milligrams as phosphorus per litre.

Figure 12D-2 Historical Aquatic Effects Monitoring Program Total Nitrogen Data, All Monitoring Stations, 2005 to 2011



Notes: The data presented in the figure are from sampling events when the water quality component and the plankton component collected water samples from the same station during the same field sampling program; Water Quality Detection Limit = 0.05 mg-N/L; Plankton Detection Limit = 0.01 mg-N/L; date format is mmm-yy, where y = year and m = month; mg-N/L = milligrams as nitrogen per litre.

Table 12D-1 Spike Samples Laboratory Data

Parameter	Units	Known Spike Concentration	ALS		Maxxam		UofA	
			Detection Limit	Laboratory Measured Concentration	Detection Limit	Laboratory Measured Concentration	Detection Limit	Laboratory Measured Concentration
SNP-N01								
Dissolved Inorganic Phosphorus	mg-P/L	0	0.001	<0.001	0.002	<0.002	0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Nitrate, as N, calculated[a]	mg-N/L	0	0.006	<0.006	0.002	<0.002	0.001[b]	<0.001
Nitrate/Nitrite, as N	mg-N/L	0	0.006	<0.006	0.002	<0.002	0.001	<0.001
Nitrite, as N	mg-N/L	0	0.002	<0.002	0.002	<0.002	0.001	<0.001
ortho-Phosphate, as P	mg-P/L	0	0.001	<0.001	0.001	<0.001	0.001	<0.001
Total Ammonia, as N	mg-N/L	0	0.005	0.008	0.005	0.005	0.002	<0.002
Total Inorganic Phosphorus	mg-P/L	0	0.001	<0.001	0.002	<0.002	0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	0	0.05	0.08	0.02	<0.02	0.01	<0.01
Total Nitrogen[c]	mg-N/L	0	0.05[d]	0.08	0.02	<0.02	0.01	<0.01
Total Dissolved Phosphorus	mg-P/L	0	0.001	<0.001	0.002	<0.002	0.003	<0.003
Total Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Total Phosphorus	mg-P/L	0	0.001	<0.001	0.002	<0.002	0.003	<0.003
SNP-N02								
Dissolved Inorganic Phosphorus	mg-P/L	0.0015	0.001	0.006	0.002	0.002	0.001	0.020
Dissolved Organic Phosphorus, calculated	mg-P/L	0	0.0014	0.0015	0.002	<0.002	0.003	<0.003
Nitrate, as N, calculated[a]	mg-N/L	0.02	0.006	0.017	0.002	0.022	0.001[b]	0.017
Nitrate/Nitrite, as N	mg-N/L	0.02	0.006	0.017	0.002	0.022	0.001	0.017
Nitrite, as N	mg-N/L	0	0.002	<0.002	0.002	<0.002	0.001	<0.001
ortho-Phosphate, as P	mg-P/L	0.0015	0.001	0.006	0.001	<0.001	0.001	0.020
Total Ammonia, as N	mg-N/L	0.08	0.005	0.085	0.005	0.076	0.002	0.076
Total Inorganic Phosphorus	mg-P/L	0.0015	0.001	0.006	0.002	<0.002	0.001	0.020
Total Kjeldahl Nitrogen	mg-N/L	0.08	0.05	0.13	0.02	0.04	0.01	0.08
Total Nitrogen[c]	mg-N/L	0.1	0.05[d]	0.15	0.02	0.07	0.01	0.09
Total Dissolved Phosphorus	mg-P/L	0.0015	0.001	0.007	0.002	0.002	0.003	0.019
Total Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	0.002	0.003	<0.003
Total Phosphorus	mg-P/L	0.0015	0.001	0.007	0.002	0.002	0.003	0.019
SNP-N03								
Dissolved Inorganic Phosphorus	mg-P/L	0.004	0.001	0.002	0.002	0.005	0.001	0.003

Table 12D-1 Spike Samples Laboratory Data

Parameter	Units	Known Spike Concentration	ALS		Maxxam		UofA	
			Detection Limit	Laboratory Measured Concentration	Detection Limit	Laboratory Measured Concentration	Detection Limit	Laboratory Measured Concentration
Dissolved Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Nitrate, as N, calculated[a]	mg-N/L	2.8	0.006	2.520	0.01[e]	2.88	0.001[b]	2.860
Nitrate/Nitrite, as N	mg-N/L	2.8	0.006	2.520	0.01[e]	2.88	0.001	2.860
Nitrite, as N	mg-N/L	0	0.002	<0.002	0.002	<0.002	0.001	<0.001
ortho-Phosphate, as P	mg-P/L	0.004	0.001	0.003	0.001	0.003	0.001	0.003
Total Ammonia, as N	mg-N/L	0.7	0.005	0.683	0.005	0.689	0.002	0.715
Total Inorganic Phosphorus	mg-P/L	0.004	0.001	0.002	0.002	0.003	0.001	0.003
Total Kjeldahl Nitrogen	mg-N/L	0.7	0.05	0.641[f]	0.2[e]	1.0	0.01	0.81
Total Nitrogen[c]	mg-N/L	3.5	0.05[d]	3.16	0.2[g]	3.8	0.01	3.67
Total Dissolved Phosphorus	mg-P/L	0.004	0.001	0.003	0.002	0.004	0.003	<0.003
Total Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Total Phosphorus	mg-P/L	0.004	0.001	0.003	0.002	0.003	0.003	<0.003
SNP-N04								
Dissolved Inorganic Phosphorus	mg-P/L	0.01	0.001	0.008	0.002	0.011	0.001	0.009
Dissolved Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Nitrate, as N, calculated[a]	mg-N/L	10	0.5[h]	9.2	0.02[e]	10.20	0.001[b]	9.950
Nitrate/Nitrite, as N	mg-N/L	10	0.71[h]	9.15	0.02[e]	10.20	0.001	9.950
Nitrite, as N	mg-N/L	0	0.5[h]	<0.50	0.002	<0.002	0.001	<0.001
ortho-Phosphate, as P	mg-P/L	0.01	0.001	0.008	0.001	0.008	0.001	0.009
Total Ammonia, as N	mg-N/L	2.5	0.005	2.350	0.05[e]	2.490	0.002	2.520
Total Inorganic Phosphorus	mg-P/L	0.01	0.001	0.009	0.002	0.010	0.001	0.009
Total Kjeldahl Nitrogen	mg-N/L	2.5	0.05	1.91[f]	0.2[e]	3.6	0.01	1.95
Total Nitrogen[c]	mg-N/L	12.5	0.05[d]	11.06	0.2[e]	13.8	0.01	11.90
Total Dissolved Phosphorus	mg-P/L	0.01	0.001	0.009	0.002	0.010	0.003	0.007
Total Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Total Phosphorus	mg-P/L	0.01	0.001	0.009	0.002	0.009	0.003	0.007
SNP-N05								
Dissolved Inorganic Phosphorus	mg-P/L	0	0.001	<0.001	0.002	<0.002	0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Nitrate, as N, calculated[a]	mg-N/L	0	0.006	<0.006	0.002	<0.002	0.001[b]	<0.001

Table 12D-1 Spike Samples Laboratory Data

Parameter	Units	Known Spike Concentration	ALS		Maxxam		UofA	
			Detection Limit	Laboratory Measured Concentration	Detection Limit	Laboratory Measured Concentration	Detection Limit	Laboratory Measured Concentration
Nitrate/Nitrite, as N	mg-N/L	0	0.006	<0.006	0.002	<0.002	0.001	<0.001
Nitrite, as N	mg-N/L	0	0.002	<0.002	0.002	<0.002	0.001	<0.001
ortho-Phosphate, as P	mg-P/L	0	0.001	<0.001	0.001	0.002	0.001	<0.001
Total Ammonia, as N	mg-N/L	0	0.005	0.008	0.005	0.030	0.002	<0.002
Total Inorganic Phosphorus	mg-P/L	0	0.001	<0.001	0.002	<0.002	0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	0	0.05	<0.05	0.02	0.07	0.01	0.01
Total Nitrogen[(c)]	mg-N/L	0	0.05[(d)]	<0.05	0.02	0.07	0.01	0.01
Total Dissolved Phosphorus	mg-P/L	0	0.001	<0.001	0.002	<0.002	0.003	<0.003
Total Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Total Phosphorus	mg-P/L	0	0.001	0.001	0.002	<0.002	0.003	<0.003
SNP-N06								
Dissolved Inorganic Phosphorus	mg-P/L	0.0015	0.001	<0.001	0.002	0.002	0.001	0.002
Dissolved Organic Phosphorus, calculated	mg-P/L	0	0.0014	0.0015	0.002	<0.002	0.003	<0.003
Nitrate, as N, calculated[(a)]	mg-N/L	0.02	0.006	0.020	0.002	0.020	0.001[(b)]	0.020
Nitrate/Nitrite, as N	mg-N/L	0.02	0.006	0.020	0.002	0.020	0.001	0.020
Nitrite, as N	mg-N/L	0	0.002	<0.002	0.002	<0.002	0.001	<0.001
ortho-Phosphate, as P	mg-P/L	0.0015	0.001	0.002	0.001	0.002	0.001	0.001
Total Ammonia, as N	mg-N/L	0.08	0.005	0.075	0.005	0.081	0.002	0.076
Total Inorganic Phosphorus	mg-P/L	0.0015	0.001	0.003	0.002	<0.002	0.001	0.001
Total Kjeldahl Nitrogen	mg-N/L	0.08	0.05	0.07	0.02	0.15	0.01	0.08
Total Nitrogen[(c)]	mg-N/L	0.1	0.05[(d)]	0.09	0.02	0.17	0.01	0.10
Total Dissolved Phosphorus	mg-P/L	0.0015	0.001	0.002	0.002	0.002	0.003	<0.003
Total Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	0.002	0.003	<0.003
Total Phosphorus	mg-P/L	0.0015	0.001	0.003	0.002	0.002	0.003	<0.003
SNP-N07								
Dissolved Inorganic Phosphorus	mg-P/L	0.004	0.001	0.001	0.002	0.003	0.001	0.003
Dissolved Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Nitrate, as N, calculated[(a)]	mg-N/L	2.8	0.006	2.770	0.004[(e)]	2.880	0.001[(b)]	2.820
Nitrate/Nitrite, as N	mg-N/L	2.8	0.006	2.770	0.004[(e)]	2.880	0.001	2.820
Nitrite, as N	mg-N/L	0	0.002	<0.002	0.002	<0.002	0.001	<0.001

Table 12D-1 Spike Samples Laboratory Data

Parameter	Units	Known Spike Concentration	ALS		Maxxam		UofA	
			Detection Limit	Laboratory Measured Concentration	Detection Limit	Laboratory Measured Concentration	Detection Limit	Laboratory Measured Concentration
ortho-Phosphate, as P	mg-P/L	0.004	0.001	0.002	0.001	0.004	0.001	0.003
Total Ammonia, as N	mg-N/L	0.7	0.005	0.687	0.005	0.570	0.002	0.692
Total Inorganic Phosphorus	mg-P/L	0.004	0.001	0.003	0.002	0.002	0.001	0.003
Total Kjeldahl Nitrogen	mg-N/L	0.7	0.05	0.66	0.1[e]	1.0	0.01	0.83
Total Nitrogen[c]	mg-N/L	3.5	0.05[d]	3.43	0.1[e]	3.9	0.01	3.65
Total Dissolved Phosphorus	mg-P/L	0.004	0.001	0.002	0.002	0.003	0.003	0.004
Total Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Total Phosphorus	mg-P/L	0.004	0.001	0.003	0.002	0.003	0.003	0.004
SNP-N08								
Dissolved Inorganic Phosphorus	mg-P/L	0.01	0.001	0.008	0.002	0.008	0.001	0.009
Dissolved Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Nitrate, as N, calculated[a]	mg-N/L	10	0.05[h]	10.40	0.02[e]	10.40	0.001[b]	9.900
Nitrate/Nitrite, as N	mg-N/L	10	0.071[h]	10.400	0.02[e]	10.40	0.001	9.900
Nitrite, as N	mg-N/L	0	0.05[h]	<0.05	0.002	<0.002	0.001	<0.001
ortho-Phosphate, as P	mg-P/L	0.01	0.001	0.008	0.001	0.010	0.001	0.009
Total Ammonia, as N	mg-N/L	2.5	0.005	2.410	0.025[e]	2.000	0.002	2.540
Total Inorganic Phosphorus	mg-P/L	0.01	0.001	0.009	0.002	0.008	0.001	0.009
Total Kjeldahl Nitrogen	mg-N/L	2.5	0.05	2.33[f]	0.2[e]	2.9	0.01	2.66
Total Nitrogen[c]	mg-N/L	12.5	0.05[d]	12.73	0.2[e]	13.2	0.01	12.56
Total Dissolved Phosphorus	mg-P/L	0.01	0.001	0.008	0.002	0.009	0.003	0.010
Total Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Total Phosphorus	mg-P/L	0.01	0.001	0.009	0.002	0.008	0.003	0.011
SNP-N09								
Dissolved Inorganic Phosphorus	mg-P/L	0.0015	0.001	0.001	0.002	<0.002	0.001	0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Nitrate, as N, calculated[a]	mg-N/L	0	0.006	<0.006	0.002	<0.002	0.001[b]	0.003
Nitrate/Nitrite, as N	mg-N/L	0	0.006	<0.006	0.002	<0.002	0.001	0.003
Nitrite, as N	mg-N/L	0	0.002	<0.002	0.002	<0.002	0.001	<0.001
ortho-Phosphate, as P	mg-P/L	0.0015	0.001	0.001	0.001	0.003	0.001	0.001
Total Ammonia, as N	mg-N/L	0	0.005	0.011	0.005	0.031	0.002	<0.002

Table 12D-1 Spike Samples Laboratory Data

Parameter	Units	Known Spike Concentration	ALS		Maxxam		UofA	
			Detection Limit	Laboratory Measured Concentration	Detection Limit	Laboratory Measured Concentration	Detection Limit	Laboratory Measured Concentration
Total Inorganic Phosphorus	mg-P/L	0.0015	0.001	0.002	0.002	<0.002	0.001	0.001
Total Kjeldahl Nitrogen	mg-N/L	0	0.05	<0.05	0.02	0.07	0.01	<0.01
Total Nitrogen[(c)]	mg-N/L	0	0.05[(d)]	<0.05	0.02	0.07	0.01	<0.01
Total Dissolved Phosphorus	mg-P/L	0.0015	0.001	0.002	0.002	<0.002	0.003	<0.003
Total Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	0.003	0.003	<0.003
Total Phosphorus	mg-P/L	0.0015	0.001	0.002	0.002	0.003	0.003	<0.003
SNP-N10								
Dissolved Inorganic Phosphorus	mg-P/L	0.004	0.001	0.003	0.002	0.004	0.001	0.004
Dissolved Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Nitrate, as N, calculated[(a)]	mg-N/L	0	0.006	<0.006	0.002	0.003	0.001[(b)]	0.002
Nitrate/Nitrite, as N	mg-N/L	0	0.006	<0.006	0.002	0.003	0.001	0.002
Nitrite, as N	mg-N/L	0	0.002	<0.002	0.002	<0.002	0.001	<0.001
ortho-Phosphate, as P	mg-P/L	0.004	0.001	0.004	0.001	0.005	0.001	0.004
Total Ammonia, as N	mg-N/L	0	0.005	0.008	0.005	0.020	0.002	<0.002
Total Inorganic Phosphorus	mg-P/L	0.004	0.001	0.004	0.002	0.003	0.001	0.004
Total Kjeldahl Nitrogen	mg-N/L	0	0.05	<0.05	0.02	0.10	0.01	<0.01
Total Nitrogen[(c)]	mg-N/L	0	0.05[(d)]	<0.05	0.02	0.11	0.01	<0.01
Total Dissolved Phosphorus	mg-P/L	0.004	0.001	0.004	0.002	0.003	0.003	0.003
Total Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Total Phosphorus	mg-P/L	0.004	0.001	0.004	0.002	0.004	0.003	0.004
SNP-N11								
Dissolved Inorganic Phosphorus	mg-P/L	0.01	0.001	0.009	0.002	0.012	0.001	0.009
Dissolved Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Nitrate, as N, calculated[(a)]	mg-N/L	0	0.006	<0.006	0.002	0.018	0.001[(b)]	0.001
Nitrate/Nitrite, as N	mg-N/L	0	0.006	<0.006	0.002	0.018	0.001	0.001
Nitrite, as N	mg-N/L	0	0.002	<0.002	0.002	<0.002	0.001	<0.001
ortho-Phosphate, as P	mg-P/L	0.01	0.001	0.009	0.001	0.010	0.001	0.009
Total Ammonia, as N	mg-N/L	0	0.005	0.008	0.005	0.038	0.002	<0.002
Total Inorganic Phosphorus	mg-P/L	0.01	0.001	0.009	0.002	0.008	0.001	0.010
Total Kjeldahl Nitrogen	mg-N/L	0	0.05	<0.05	0.02	0.05	0.01	<0.01

Table 12D-1 Spike Samples Laboratory Data

Parameter	Units	Known Spike Concentration	ALS		Maxxam		UofA	
			Detection Limit	Laboratory Measured Concentration	Detection Limit	Laboratory Measured Concentration	Detection Limit	Laboratory Measured Concentration
Total Nitrogen[c]	mg-N/L	0	0.05[d]	<0.05	0.02	0.07	0.01	<0.01
Total Dissolved Phosphorus	mg-P/L	0.01	0.001	0.009	0.002	0.010	0.003	0.009
Total Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Total Phosphorus	mg-P/L	0.01	0.001	0.010	0.002	0.010	0.003	0.010
SNP-N12								
Dissolved Inorganic Phosphorus	mg-P/L	0.0015	0.001	<0.001	0.002	0.002	0.001	<0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	0.0015	0.0014	0.0017	0.002	<0.002	0.003	<0.003
Nitrate, as N, calculated[a]	mg-N/L	0	0.006	<0.006	0.002	<0.002	0.001[b]	0.002
Nitrate/Nitrite, as N	mg-N/L	0	0.006	<0.006	0.002	<0.002	0.001	0.002
Nitrite, as N	mg-N/L	0	0.002	<0.002	0.002	<0.002	0.001	<0.001
ortho-Phosphate, as P	mg-P/L	0.0015	0.001	<0.001	0.001	0.002	0.001	<0.001
Total Ammonia, as N	mg-N/L	0	0.005	0.009	0.005	0.035	0.002	<0.002
Total Inorganic Phosphorus	mg-P/L	0.0015	0.001	0.002	0.002	<0.002	0.001	0.001
Total Kjeldahl Nitrogen	mg-N/L	0	0.05	<0.05	0.02	0.05	0.01	<0.01
Total Nitrogen[c]	mg-N/L	0	0.05[d]	<0.05	0.02	0.05	0.01	<0.01
Total Dissolved Phosphorus	mg-P/L	0.0015	0.001	0.002	0.002	0.002	0.003	<0.003
Total Organic Phosphorus, calculated	mg-P/L	0.0015	0.0014	<0.0014	0.002	0.002	0.003	<0.003
Total Phosphorus	mg-P/L	0.0015	0.001	0.002	0.002	0.002	0.003	<0.003
SNP-N13								
Dissolved Inorganic Phosphorus	mg-P/L	0.004	0.001	0.003	0.002	0.005	0.001	0.003
Dissolved Organic Phosphorus, calculated	mg-P/L	0.004	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Nitrate, as N, calculated[a]	mg-N/L	0	0.006	<0.006	0.002	<0.002	0.001[b]	0.002
Nitrate/Nitrite, as N	mg-N/L	0	0.006	<0.006	0.002	<0.002	0.001	0.002
Nitrite, as N	mg-N/L	0	0.002	<0.002	0.002	<0.002	0.001	<0.001
ortho-Phosphate, as P	mg-P/L	0.004	0.001	0.003	0.001	0.004	0.001	0.003
Total Ammonia, as N	mg-N/L	0	0.005	0.010	0.005	0.035	0.002	<0.002
Total Inorganic Phosphorus	mg-P/L	0.004	0.001	0.004	0.002	0.004	0.001	0.003
Total Kjeldahl Nitrogen	mg-N/L	0	0.05	0.19	0.02	0.08	0.01	<0.01
Total Nitrogen[c]	mg-N/L	0	0.05[d]	0.19	0.02	0.08	0.01	<0.01
Total Dissolved Phosphorus	mg-P/L	0.004	0.001	0.004	0.002	0.004	0.003	0.005

Table 12D-1 Spike Samples Laboratory Data

Parameter	Units	Known Spike Concentration	ALS		Maxxam		UofA	
			Detection Limit	Laboratory Measured Concentration	Detection Limit	Laboratory Measured Concentration	Detection Limit	Laboratory Measured Concentration
Total Organic Phosphorus, calculated	mg-P/L	0.004	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Total Phosphorus	mg-P/L	0.004	0.001	0.004	0.002	0.003	0.003	0.005
SNP-N14								
Dissolved Inorganic Phosphorus	mg-P/L	0.01	0.001	0.008	0.002	0.010	0.001	0.009
Dissolved Organic Phosphorus, calculated	mg-P/L	0.01	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Nitrate, as N, calculated[(a)]	mg-N/L	0	0.006	<0.006	0.002	<0.002	0.001[(b)]	0.001
Nitrate/Nitrite, as N	mg-N/L	0	0.006	<0.006	0.002	<0.002	0.001	0.001
Nitrite, as N	mg-N/L	0	0.002	<0.002	0.002	<0.002	0.001	<0.001
ortho-Phosphate, as P	mg-P/L	0.01	0.001	0.008	0.001	0.010	0.001	0.009
Total Ammonia, as N	mg-N/L	0	0.005	0.012	0.005	0.028	0.002	<0.002
Total Inorganic Phosphorus	mg-P/L	0.01	0.001	0.010	0.002	0.009	0.001	0.010
Total Kjeldahl Nitrogen	mg-N/L	0	0.05	<0.05	0.02	0.06	0.01	<0.01
Total Nitrogen[(c)]	mg-N/L	0	0.05[(d)]	<0.05	0.02	0.06	0.01	0.01
Total Dissolved Phosphorus	mg-P/L	0.01	0.001	0.009	0.002	0.009	0.003	0.011
Total Organic Phosphorus, calculated	mg-P/L	0.01	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Total Phosphorus	mg-P/L	0.01	0.001	0.009	0.002	0.009	0.003	0.010
SNP-N15								
Dissolved Inorganic Phosphorus	mg-P/L	0.0015	0.001	0.001	0.002	<0.002	0.001	0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Nitrate, as N, calculated[(a)]	mg-N/L	0	0.006	<0.006	0.002	<0.002	0.001[(b)]	0.001
Nitrate/Nitrite, as N	mg-N/L	0	0.006	<0.006	0.002	<0.002	0.001	0.001
Nitrite, as N	mg-N/L	0	0.002	<0.002	0.002	<0.002	0.001	<0.001
ortho-Phosphate, as P	mg-P/L	0.0015	0.001	<0.001	0.001	0.003	0.001	0.001
Total Ammonia, as N	mg-N/L	0	0.005	0.008	0.005	0.036	0.002	<0.002
Total Inorganic Phosphorus	mg-P/L	0.0015	0.001	0.002	0.002	<0.002	0.001	0.001
Total Kjeldahl Nitrogen	mg-N/L	0	0.05	<0.05	0.02	0.07	0.01	<0.01
Total Nitrogen[(c)]	mg-N/L	0	0.05[(d)]	<0.05	0.02	0.07	0.01	<0.01
Total Dissolved Phosphorus	mg-P/L	0.0015	0.001	0.002	0.002	<0.002	0.003	<0.003
Total Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Total Phosphorus	mg-P/L	0.0015	0.001	0.002	0.002	<0.002	0.003	<0.003

Table 12D-1 Spike Samples Laboratory Data

Parameter	Units	Known Spike Concentration	ALS		Maxxam		UofA	
			Detection Limit	Laboratory Measured Concentration	Detection Limit	Laboratory Measured Concentration	Detection Limit	Laboratory Measured Concentration
SNP-N16								
Dissolved Inorganic Phosphorus	mg-P/L	0.004	0.001	0.003	0.002	0.004	0.001	0.004
Dissolved Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Nitrate, as N, calculated[a]	mg-N/L	0	0.006	<0.006	0.002	0.004	0.001[b]	0.001
Nitrate/Nitrite, as N	mg-N/L	0	0.006	<0.006	0.002	0.004	0.001	0.001
Nitrite, as N	mg-N/L	0	0.002	<0.002	0.002	<0.002	0.001	<0.001
ortho-Phosphate, as P	mg-P/L	0.004	0.001	0.003	0.001	0.005	0.001	0.004
Total Ammonia, as N	mg-N/L	0	0.005	0.009	0.005	0.033	0.002	<0.002
Total Inorganic Phosphorus	mg-P/L	0.004	0.001	0.004	0.002	0.003	0.001	0.004
Total Kjeldahl Nitrogen	mg-N/L	0	0.05	<0.05	0.02	0.31	0.01	<0.01
Total Nitrogen[c]	mg-N/L	0	0.05[d]	<0.05	0.02	0.31	0.01	<0.01
Total Dissolved Phosphorus	mg-P/L	0.004	0.001	0.003	0.002	0.004	0.003	0.005
Total Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Total Phosphorus	mg-P/L	0.004	0.001	0.004	0.002	0.004	0.003	0.004
SNP-N17								
Dissolved Inorganic Phosphorus	mg-P/L	0.01	0.001	0.009	0.002	0.009	0.001	0.009
Dissolved Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Nitrate, as N, calculated[a]	mg-N/L	0	0.006	<0.006	0.002	<0.002	0.001[b]	0.002
Nitrate/Nitrite, as N	mg-N/L	0	0.006	<0.006	0.002	<0.002	0.001	0.002
Nitrite, as N	mg-N/L	0	0.002	<0.002	0.002	<0.002	0.001	<0.001
ortho-Phosphate, as P	mg-P/L	0.01	0.001	0.009	0.001	0.011	0.001	0.009
Total Ammonia, as N	mg-N/L	0	0.005	0.009	0.005	0.028	0.002	<0.002
Total Inorganic Phosphorus	mg-P/L	0.01	0.001	0.010	0.002	0.009	0.001	0.009
Total Kjeldahl Nitrogen	mg-N/L	0	0.05	<0.05	0.02	0.07	0.01	<0.01
Total Nitrogen[c]	mg-N/L	0	0.05[d]	<0.05	0.02	0.07	0.01	<0.01
Total Dissolved Phosphorus	mg-P/L	0.01	0.001	0.009	0.002	0.008	0.003	0.010
Total Organic Phosphorus, calculated	mg-P/L	0	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Total Phosphorus	mg-P/L	0.01	0.001	0.009	0.002	0.011	0.003	0.011

Table 12D-1 Spike Samples Laboratory Data

Parameter	Units	Known Spike Concentration	ALS		Maxxam		UofA	
			Detection Limit	Laboratory Measured Concentration	Detection Limit	Laboratory Measured Concentration	Detection Limit	Laboratory Measured Concentration
SNP-N18								
Dissolved Inorganic Phosphorus	mg-P/L	0.0015	0.001	<0.001	0.002	0.002	0.001	0.001
Dissolved Organic Phosphorus, calculated	mg-P/L	0.0015	0.0014	0.0018	0.002	<0.002	0.003	<0.003
Nitrate, as N, calculated[a]	mg-N/L	0	0.006	<0.006	0.002	0.004	0.001[b]	0.001
Nitrate/Nitrite, as N	mg-N/L	0	0.006	<0.006	0.002	0.004	0.001	0.001
Nitrite, as N	mg-N/L	0	0.002	<0.002	0.002	<0.002	0.001	<0.001
ortho-Phosphate, as P	mg-P/L	0.0015	0.001	0.001	0.001	0.002	0.001	0.001
Total Ammonia, as N	mg-N/L	0	0.005	0.010	0.005	0.036	0.002	<0.002
Total Inorganic Phosphorus	mg-P/L	0.0015	0.001	0.002	0.002	<0.002	0.001	0.001
Total Kjeldahl Nitrogen	mg-N/L	0	0.05	<0.05	0.02	0.06	0.01	<0.01
Total Nitrogen[c]	mg-N/L	0	0.05[d]	<0.05	0.02	0.06	0.01	<0.01
Total Dissolved Phosphorus	mg-P/L	0.0015	0.001	0.002	0.002	<0.002	0.003	<0.003
Total Organic Phosphorus, calculated	mg-P/L	0.0015	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Total Phosphorus	mg-P/L	0.0015	0.001	0.002	0.002	<0.002	0.003	<0.003
SNP-N19								
Dissolved Inorganic Phosphorus	mg-P/L	0.004	0.001	0.003	0.002	0.004	0.001	0.003
Dissolved Organic Phosphorus, calculated	mg-P/L	0.004	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Nitrate, as N, calculated[a]	mg-N/L	0	0.006	<0.006	0.002	0.003	0.001[b]	0.001
Nitrate/Nitrite, as N	mg-N/L	0	0.006	<0.006	0.002	0.003	0.001	0.001
Nitrite, as N	mg-N/L	0	0.002	<0.002	0.002	<0.002	0.001	<0.001
ortho-Phosphate, as P	mg-P/L	0.004	0.001	0.003	0.001	0.004	0.001	0.003
Total Ammonia, as N	mg-N/L	0	0.005	0.013	0.005	0.027	0.002	<0.002
Total Inorganic Phosphorus	mg-P/L	0.004	0.001	0.004	0.002	0.004	0.001	0.003
Total Kjeldahl Nitrogen	mg-N/L	0	0.05	<0.05	0.02	0.07	0.01	<0.01
Total Nitrogen[c]	mg-N/L	0	0.05[d]	<0.05	0.02	0.07	0.01	<0.01
Total Dissolved Phosphorus	mg-P/L	0.004	0.001	0.004	0.002	0.004	0.003	0.003
Total Organic Phosphorus, calculated	mg-P/L	0.004	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Total Phosphorus	mg-P/L	0.004	0.001	0.004	0.002	0.004	0.003	0.004

Table 12D-1 Spike Samples Laboratory Data

Parameter	Units	Known Spike Concentration	ALS		Maxxam		UofA	
			Detection Limit	Laboratory Measured Concentration	Detection Limit	Laboratory Measured Concentration	Detection Limit	Laboratory Measured Concentration
SNP-N20								
Dissolved Inorganic Phosphorus	mg-P/L	0.01	0.001	0.007	0.002	0.009	0.001	0.009
Dissolved Organic Phosphorus, calculated	mg-P/L	0.01	0.0014	0.0015	0.002	<0.002	0.003	<0.003
Nitrate, as N, calculated[a]	mg-N/L	0	0.006	<0.006	0.002	<0.002	0.001[b]	0.003
Nitrate/Nitrite, as N	mg-N/L	0	0.006	<0.006	0.002	<0.002	0.001	0.003
Nitrite, as N	mg-N/L	0	0.002	<0.002	0.002	<0.002	0.001	<0.001
ortho-Phosphate, as P	mg-P/L	0.01	0.001	0.008	0.001	0.010	0.001	0.009
Total Ammonia, as N	mg-N/L	0	0.005	0.008	0.005	0.032	0.002	<0.002
Total Inorganic Phosphorus	mg-P/L	0.01	0.001	0.009	0.002	0.010	0.001	0.009
Total Kjeldahl Nitrogen	mg-N/L	0	0.05	<0.05	0.02	0.06	0.01	<0.01
Total Nitrogen[c]	mg-N/L	0	0.05[d]	<0.05	0.02	0.06	0.01	<0.01
Total Dissolved Phosphorus	mg-P/L	0.01	0.001	0.009	0.002	0.010	0.003	0.010
Total Organic Phosphorus, calculated	mg-P/L	0.01	0.0014	<0.0014	0.002	<0.002	0.003	<0.003
Total Phosphorus	mg-P/L	0.01	0.001	0.009	0.002	0.009	0.003	0.010

(a) Calculated University of Alberta nitrate concentrations were equal to the combined nitrate and nitrite concentrations minus the measured nitrite concentrations.

(b) The DL for nitrate was equal to the DL for combined nitrate and nitrite values.

(c) ALS TN values were calculated as the sum of measured TKN and measured combined nitrate and nitrite values.

(d) The DL for TN was equal to the DL for TKN.

(e) The sample result from the original analysis was greater than the instrument calibration range; therefore the sample was diluted to bring the result within the instrument calibration range and reanalyzed, as a result the DL was raised by the same factor used in the dilution.

(f) The laboratory result was flagged with the following qualifier: The TKN value was biased low, due to nitrate interference in the sample.

(g) The laboratory result was flagged with the following qualifier: The DL was raised due to sample matrix interference.

(h) The laboratory result was flagged with the following qualifier: The DL was adjusted for sample matrix effects.

ALS = ALS Canada Ltd.; Maxxam = Maxxam Analytics Inc.; UofA = University of Alberta Biogeochemical Analytical Service Laboratory; mg-N/L = milligrams as nitrogen per litre; mg-P/L = milligrams as phosphorus per litre; DL = detection limit; TKN = total Kjeldahl nitrogen; TN = total nitrogen; < = less than.

Table 12D-2 Split Samples Laboratory Data

Sample Point:	Units	Laboratory	SNAP08	SNAP11A	SNP 02-20e	SNP 02-20f	NEL01	NEL05	SNP 02-20d	SNP 02-20e	SNP 02-20f	SNP 02-20f	SNP 02-20d	SNP 02-20e	SNP 02-20f
Date Sampled (yyyy-mm-dd):			2012-02-17	2012-02-17	2012-02-19	2012-02-19	2012-02-21	2012-02-21	2012-03-18	2012-03-18	2012-03-21	2012-05-13	2012-07-09	2012-07-09	2012-07-09
Sample Control Number:			2012-5019	2012-5022	2012-5038/42	2012-5047/48	2012-5026	2012-5030	2012-5066	2012-5062	2012-5069	2012-5131/34	2012-5155	2012-5158	2012-5161
Dissolved Inorganic Phosphorus	mg-P/L	ALS	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
		Maxxam	<0.002	<0.002	<0.002	0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002
		UofA	0.001	0.001	0.001	<0.001	<0.001	0.002	0.002	0.002	0.001	<0.001	0.001	0.002	0.002
Dissolved Organic Phosphorus, calculated	mg-P/L	ALS	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	0.0022	<0.0014	<0.0014	<0.0014
		Maxxam	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.002
		UofA	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Nitrate, as N, calculated[(a)]	mg-N/L	ALS	1.630 WH	2.030 WH	2.080 WH	1.830 WH	<0.006 WH	<0.006 WH	2.550 WH	2.550 WH	2.470 WH	2.050 WH	2.040 WH	1.980 WH	2.060 WH
		Maxxam	1.780 WH	1.810 WH	2.170 WH	2.100 WH	<0.002 WH	<0.002 WH	2.710 WH	2.430 WH	2.660 WH	2.180 WH	1.970 XH	1.920 XH	2.120 WH
		UofA	0.739	1.593	1.178	1.217	0.003	<0.001	2.586	2.516	2.496	1.882	1.931	1.180	1.790
Nitrate/Nitrite, as N	mg-N/L	ALS	1.640 WH	2.050 WH	2.100 WH	1.850 WH	<0.006 WH	<0.006 WH	2.570 WH	2.570 WH	2.490 WH	2.070 WH	2.060 WH	1.990 WH	2.080 WH
		Maxxam	1.790 WH	1.810 WH	2.180 WH	2.110 WH	<0.002 WH	<0.002 WH	2.730 WH	2.450 WH	2.680 WH	2.190 WH	1.990 XH	1.940 XH	2.140 XH
		UofA	0.745	1.610	1.190	1.230	0.003	<0.001	2.610	2.540	2.520	1.900	1.950	1.190	1.810
Nitrite, as N	mg-N/L	ALS	0.007 WH	0.017 WH	0.013 WH	0.013 WH	<0.002 WH	<0.002 WH	0.021 WH	0.023 WH	0.024 WH	0.016 WH	0.019 WH	0.018 WH	0.021 WH
		Maxxam	0.008 WH	0.007 WH	0.013 WH	0.012 WH	<0.002 WH	<0.002 WH	0.022 WH	0.021 WH	0.021 WH	0.011 WH	0.018 XH	0.017 XH	0.022 XH
		UofA	0.006	0.017	0.012	0.013	<0.001	<0.001	0.024	0.024	0.024	0.018	0.019	0.010	0.020
ortho-Phosphate, as P	mg-P/L	ALS	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
		Maxxam	0.002 WH	0.001 WH	<0.001 WH	0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	0.002 WH	<0.001 XH	<0.001 XH	0.003 XH
		UofA	0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.002	0.002	0.001	<0.001	0.001	0.002	0.002
Total Ammonia, as N	mg-N/L	ALS	0.154	0.205	0.139	0.127	0.010	0.011	0.263	0.249	0.251	0.181	0.151	0.135	0.158
		Maxxam	0.140	0.220	0.210	0.140	0.022	0.022	0.270	0.270	0.410	0.230	0.160	0.140	0.160
		UofA	0.194	0.344	0.208	0.221	0.010	0.010	0.260	0.252	0.250	0.180	0.139	0.095	0.135
Total Inorganic Phosphorus	mg-P/L	ALS	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
		Maxxam	<0.002	<0.002	0.003	0.003	0.004	0.004	<0.002	<0.002	<0.002	0.003	0.003	0.003	0.002
		UofA	0.002	0.001	0.002	<0.001	<0.001	<0.001	0.002	0.002	0.002	0.001	0.001	0.002	0.002
Total Kjeldahl Nitrogen	mg-N/L	ALS	0.43	0.51	0.48	0.49	0.15	0.13	0.49	0.48	0.53	0.73	0.57	0.41	0.46
		Maxxam	0.70	0.89	0.51	0.40	0.19	0.16	0.40	0.83	0.60	0.76	0.45	0.19	0.45
		UofA	1.45	0.98	1.14	0.92	0.12	0.11	0.45	0.49	0.48	0.67	0.48	1.15	0.69
Total Nitrogen[(b)]	mg-N/L	ALS	2.07	2.56	2.58	2.34	0.15	0.13	3.06	3.05	3.02	2.80	2.63	2.40	2.54
		Maxxam	2.49	2.70	2.69	2.51	0.19	0.16	3.13	3.28	3.28	2.95	2.44	2.13	2.59
		UofA	2.19	2.59	2.33	2.15	0.12	0.11	3.06	3.03	3.00	2.57	2.43	2.34	2.50
Total Dissolved Phosphorus	mg-P/L	ALS	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001
		Maxxam	0.002	<0.002	<0.002	0.003	0.004	<0.002	0.002	<0.002	<0.002	0.003	<0.002	0.003	<0.002
		UofA	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Total Organic Phosphorus, calculated	mg-P/L	ALS	0.0020	0.0018	0.0022	0.0020	0.0030	0.0041	<0.0014	<0.0014	<0.0014	0.0035	0.0021	0.0025	0.0016
		Maxxam	0.003	0.002	0.008	<0.002	<0.002	<0.002	0.002	0.002	<0.002	<0.002	<0.002	<0.002	<0.002
		UofA	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Total Phosphorus	mg-P/L	ALS	0.002	0.0018	0.0022	0.002	0.003	0.0041	<0.001	<0.001	<0.001	0.0035	0.0021	0.0025	0.0016
		Maxxam	0.003	0.002	0.011	0.003	0.004	0.003	0.002	0.002	<0.002	0.0039	0.0021	0.0023	<0.002
		UofA	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.004	<0.003	0.003	<0.003	<0.003	<0.003	<0.003

Table 12D-2 Split Samples Laboratory Data

Sample Point:	Units	Laboratory	NEL03	NEL04	SNAP08	SNP 02-20d	SNP 02-20e	SNP 02-20f	SNAP08	SNAP02A	SNAP11A	SNP 02-20d	SNP 02-20e	SNP 02-20f
Date Sampled (yyyy-mm-dd):			2012-07-10	2012-07-10	2012-07-13	2012-08-12	2012-08-12	2012-08-12	2012-09-11	2012-09-12	2012-09-13	2012-09-14	2012-09-14	2012-09-14
Sample Control Number:			2012-5178	2012-5179	2012-5197/5202/5204	2012-5207	2012-5210	2012-5213	2012-5243/7005	2012-5251/7001	2012-5246/7002	2012-7031	2012-7033	2012-7032
Dissolved Inorganic Phosphorus	mg-P/L	ALS	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	0.002	0.001	0.001
		Maxxam	0.003	0.009	0.002	<0.002	0.004	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
		UofA	0.006	<0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.002	0.001	0.002	0.002
Dissolved Organic Phosphorus, calculated	mg-P/L	ALS	0.0019	0.0017	<0.0014	0.0022	0.0024	0.0033	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	0.0019
		Maxxam	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	0.004	<0.002
		UofA	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Nitrate, as N, calculated[(a)]	mg-N/L	ALS	<0.006 WH	<0.006 WH	1.420 WH	1.920 WH	1.940 WH	1.990 WH	1.490 WH	0.163 WH	1.660 WH	1.920 WH	1.860 WH	1.960 WH
		Maxxam	<0.002 WH	<0.002 WH	1.670 WH	1.810 WH	1.810 WH	1.820 WH	1.580 WH	0.187 WH	1.800 WH	1.970 WH	1.940 WH	2.130 WH
		UofA	0.012	<0.001	1.492	1.870	1.472	1.711	1.308	0.092	0.869	0.808	0.771	1.378
Nitrate/Nitrite, as N	mg-N/L	ALS	<0.006 WH	<0.006 WH	1.450 WH	1.940 WH	1.960 WH	2.010 WH	1.500 WH	0.166 WH	1.670 WH	1.920 WH	1.875 WH	1.960 WH
		Maxxam	<0.002 WH	<0.002 WH	1.670 WH	1.830 WH	1.830 WH	1.840 WH	1.590 WH	0.189 WH	1.820 WH	1.980 WH	1.950 WH	2.150 WH
		UofA	0.014	<0.001	1.510	1.890	1.490	1.730	1.320	0.093	0.876	0.814	0.778	1.390
Nitrite, as N	mg-N/L	ALS	<0.002 WH	<0.002 WH	0.022 WH	0.020 WH	0.020 WH	0.021 WH	0.012 WH	0.002 WH	0.012 WH	<0.05 WH	0.015 WH	<0.05 WH
		Maxxam	<0.002 WH	<0.002 WH	0.004 WH	0.019 WH	0.020 WH	0.019 WH	0.011 WH	0.002 WH	0.012 WH	0.016 WH	0.015 WH	0.017 WH
		UofA	0.002	<0.001	0.018	0.020	0.018	0.019	0.012	0.001	0.007	0.006	0.007	0.012
ortho-Phosphate, as P	mg-P/L	ALS	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
		Maxxam	<0.001 WH	<0.001 WH	0.001 WH	0.002 WH	0.002 WH	0.001 WH	0.002 WH	0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH
		UofA	0.006	<0.001	0.001	0.001	0.002	0.001	<0.001	0.002	0.002	0.001	0.001	0.002
Total Ammonia, as N	mg-N/L	ALS	<0.005	<0.005	0.090	0.110	0.107	0.112	0.073	0.006	0.058	0.090	0.072	0.092
		Maxxam	0.079	<0.005	0.120	0.100	0.100	0.110	0.084	0.018	0.067	0.110	0.089	0.091
		UofA	0.006	<0.002	0.082	0.101	0.096	0.104	0.070	0.005	0.038	0.060	0.052	0.078
Total Inorganic Phosphorus	mg-P/L	ALS	0.002	0.002	0.001	0.002	0.001	<0.001	0.002	0.002	<0.001	0.002	0.002	0.002
		Maxxam	0.003	0.008	0.003	0.003	0.003	<0.002	<0.002	0.005	<0.002	<0.002	0.003	<0.002
		UofA	0.009	<0.001	0.002	0.001	0.001	0.002	0.002	0.003	<0.001	<0.001	<0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	ALS	0.10	0.15	0.38	0.42	0.41	0.38	0.41	0.28	0.46	0.40	0.35	0.43
		Maxxam	0.28	0.15	0.15	0.49	0.40	0.46	0.27	0.32	0.21	0.30	0.36	0.14
		UofA	0.10	0.11	0.59	0.32	0.73	0.57	0.44	0.29	1.15	1.42	1.49	1.07
Total Nitrogen[(b)]	mg-N/L	ALS	0.10	0.15	1.83	2.36	2.37	2.39	1.91	0.45	2.13	2.32	2.22	2.39
		Maxxam	0.28	0.15	1.82	2.32	2.22	2.30	1.86	0.51	2.03	2.28	2.31	2.28
		UofA	0.12	0.11	2.10	2.21	2.22	2.30	1.76	0.39	2.03	2.23	2.27	2.46
Total Dissolved Phosphorus	mg-P/L	ALS	0.002	0.002	<0.001	0.002	0.002	0.003	<0.001	0.001	<0.001	<0.001	<0.001	0.003
		Maxxam	0.004	0.011	0.002	<0.002	0.005	0.003	<0.002	<0.002	<0.002	0.003	0.004	<0.002
		UofA	0.007	<0.003	<0.003	<0.003	<0.003	<0.003	0.002	0.003	<0.003	<0.003	<0.003	<0.003
Total Organic Phosphorus, calculated	mg-P/L	ALS	<0.0014	<0.0014	0.0097	0.0016	0.0026	0.0036	<0.0014	0.0016	0.0023	<0.0014	<0.0014	<0.0014
		Maxxam	<0.002	<0.002	0.005	<0.002	<0.002	0.003	<0.002	<0.002	0.003	0.005	<0.002	0.003
		UofA	<0.003	0.001	<0.003	0.003	0.013	0.005	<0.003	<0.003	<0.003	0.003	<0.003	0.003
Total Phosphorus	mg-P/L	ALS	0.0018	0.002	0.0107	0.0031	0.0036	0.0036	0.0025	0.0038	0.0023	0.0024	0.002	0.0016
		Maxxam	0.0036	0.0095	0.0079	0.0032	0.0039	0.0026	<0.002	0.0043	0.0031	0.0046	0.0028	0.003
		UofA	0.003	0.001	<0.003	0.004	0.014	0.007	0.004	0.004	<0.003	0.003	<0.003	0.003

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

- WH = warning, hold time was substantially exceeded and may have an effect on results; and,
- XH = data invalidated because holding time was exceeded.

(a) University of Alberta nitrate values are calculated by subtracting measured nitrite values from combined measured nitrate and nitrite values.

(b) ALS TN values calculated as the sum of measured TKN and measured combined nitrate and nitrite values.

ALS = ALS Canada Ltd.; Maxxam = Maxxam Analytics Inc.; UofA = University of Alberta Biogeochemical Analytical Service Laboratory; mg-N/L = milligrams as nitrogen per litre; mg-P/L = milligrams as phosphorus per litre; TN = total nitrogen; TKN = total Kjeldahl nitrogen; - = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day.

Table 12D-3 Euphotic Zone Samples Laboratory Data

Sample Point:	Units	Laboratory	NEL02	NEL04	SNAP02A	SNAP08	SNP 02-20d	SNP 02-20e	SNP 02-20f
Date Sampled (yyyy-mm-dd):			2012-09-08	2012-09-08	2012-09-12	2012-09-11	2012-09-14	2012-09-14	2012-09-14
Sample Control Number:			2012-7013	2012-7014	2012-7011	2012-7009	2012-7034	2012-7036	2012-7035
Dissolved Inorganic Phosphorus	mg-P/L	ALS	<0.001	<0.001	-	-	<0.001	0.001	0.001
		Maxxam	<0.002	<0.002	<0.002	0.003	<0.002	0.003	0.003
		UofA	<0.001	<0.001	-	-	0.002	0.002	0.002
Dissolved Organic Phosphorus, calculated	mg-P/L	ALS	<0.0014	<0.0014	-	-	<0.0014	<0.0014	<0.0014
		Maxxam	0.003	0.004	<0.002	<0.002	0.003	<0.002	<0.002
		UofA	<0.003	0.011	-	-	<0.003	<0.003	<0.003
Nitrate, as N, calculated[(a)]	mg-N/L	ALS	-	-	-	-	1.840 WH	1.890 WH	1.930 WH
		Maxxam	<0.002 WH	<0.002 WH	0.211 WH	1.580 WH	1.970 WH	1.940 WH	2.110 WH
		UofA	0.003	0.001	-	-	0.943	1.815	1.021
Nitrate/Nitrite, as N	mg-N/L	ALS	-	-	-	-	1.856 WH	1.890 WH	1.930 WH
		Maxxam	<0.002 WH	<0.002 WH	0.211 WH	1.590 WH	1.980 WH	1.950 WH	2.130 WH
		UofA	0.003	0.002	-	-	0.950	1.830	1.030
Nitrite, as N	mg-N/L	ALS	-	-	-	-	0.016 WH	<0.05 WH	<0.05 WH
		Maxxam	<0.002 WH	<0.002 WH	<0.002 WH	0.015 WH	0.016 WH	0.016 WH	0.017 WH
		UofA	<0.001	0.001	-	-	0.007	0.015	0.009
ortho-Phosphate, as P	mg-P/L	ALS	<0.001 XH	<0.001 XH	-	-	<0.001 WH	<0.001 WH	<0.001 WH
		Maxxam	-	-	-	-	<0.001 WH	<0.001 WH	<0.001 WH
		UofA	<0.001	<0.001	-	-	0.002	0.002	0.002
Total Ammonia, as N	mg-N/L	ALS	<0.005	0.017	-	-	0.095	0.099	0.106
		Maxxam	0.014	0.012	0.027	0.083	0.099	0.094	0.100
		UofA	<0.002	<0.002	-	-	0.065	0.090	0.073
Total Inorganic Phosphorus	mg-P/L	ALS	0.004	0.007	-	-	0.002	0.002	0.002
		Maxxam	-	-	-	-	0.002	0.003	<0.002
		UofA	0.002	0.005	-	-	<0.001	<0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	ALS	0.19	0.28	-	-	0.45	0.46	0.47
		Maxxam	-	-	-	-	0.36	0.38	0.28
		UofA	0.22	0.21	-	-	1.30	0.47	1.38
Total Nitrogen[(b)]	mg-N/L	ALS	0.19	0.28	-	-	2.31	2.35	2.40
		Maxxam	-	-	-	-	2.34	2.34	2.41
		UofA	0.22	0.21	0.46	1.80	2.25	2.30	2.41

Table 12D-3 Euphotic Zone Samples Laboratory Data

Sample Point:	Units	Laboratory	NEL02	NEL04	SNAP02A	SNAP08	SNP 02-20d	SNP 02-20e	SNP 02-20f
Date Sampled (yyyy-mm-dd):			2012-09-08	2012-09-08	2012-09-12	2012-09-11	2012-09-14	2012-09-14	2012-09-14
Sample Control Number:			2012-7013	2012-7014	2012-7011	2012-7009	2012-7034	2012-7036	2012-7035
Total Dissolved Phosphorus	mg-P/L	ALS	<0.001	<0.001	-	-	<0.001	<0.001	<0.001
		Maxxam	0.003	0.004	<0.002	<0.002	0.003	0.003	0.003
		UofA	<0.003	0.011	0.003	0.003	<0.003	<0.003	<0.003
Total Organic Phosphorus, calculated	mg-P/L	ALS	0.0047	0.0116	-	-	<0.0014	<0.0014	<0.0014
		Maxxam	-	-	-	-	0.003	0.004	0.003
		UofA	0.006	0.012	-	-	0.004	0.004	0.004
Total Phosphorus	mg-P/L	ALS	0.009	0.019	-	-	0.003	0.003	0.002
		Maxxam	<0.002	<0.002	0.007	0.003	0.005	0.007	0.003
		UofA	0.008	0.017	0.015	0.006	0.004	0.004	0.004

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

- WH = warning, hold time was substantially exceeded and may have an effect on results; and
- XH = data invalidated because holding time was exceeded.

(a) University of Alberta nitrate values are calculated by subtracting measured nitrite values from combined measured nitrate and nitrite values.

(b) ALS TN values calculated as the sum of measured TKN and measured combined nitrate and nitrite values.

ALS = ALS Canada Ltd.; Maxxam = Maxxam Analytics Inc.; UofA = University of Alberta Biogeochemical Analytical Service Laboratory; mg-N/L = milligrams as nitrogen per litre; mg-P/L = milligrams as phosphorus per litre; TN = total nitrogen; TKN = total Kjeldahl nitrogen; - = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day.

Table 12D-4 Mid-Depth Samples Laboratory Data

Sample Point:	Units	Laboratory	NEL02	NEL04	SNAP02A	SNAP08	SNP 02-20d	SNP 02-20e	SNP 02-20f
Date Sampled (yyyy-mm-dd):			2012-09-08	2012-09-08	2012-09-12	2012-09-11	2012-12-14	2012-09-14	2012-09-14
Sample Control Number:			2012-5255/7003	2012-5257/7004	2012-5251/7001	2012-5243/7005	2012-7031	2012-7033	2012-7032
Dissolved Inorganic Phosphorus	mg-P/L	ALS	<0.001	<0.001	<0.001	0.002	0.002	0.001	0.001
		Maxxam	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
		UofA	<0.001	<0.001	0.001	0.002	0.001	0.002	0.002
Dissolved Organic Phosphorus, calculated	mg-P/L	ALS	0.0026	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014	0.0019
		Maxxam	0.002	0.003	<0.002	<0.002	0.003	0.004	<0.002
		UofA	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Nitrate, as N, calculated[(a)]	mg-N/L	ALS	<0.006 WH	<0.006 WH	0.163 WH	1.490 WH	1.920 WH	1.860 WH	1.960 WH
		Maxxam	-	-	0.187 WH	1.580 WH	1.970 WH	1.940 WH	2.130 WH
		UofA	0.002	0.003	0.092	1.308	0.808	0.771	1.378
Nitrate/Nitrite, as N	mg-N/L	ALS	<0.006 WH	<0.006 WH	0.166 WH	1.500 WH	0.808 WH	2.721 WH	1.378 WH
		Maxxam	-	-	0.189 WH	1.590 WH	1.980 WH	1.950 WH	2.150 WH
		UofA	0.002	0.003	0.093	1.320	0.814	0.778	1.390
Nitrite, as N	mg-N/L	ALS	<0.002 WH	<0.002 WH	0.002 WH	0.012 WH	<0.05 WH	0.015 WH	<0.05 WH
		Maxxam	-	-	0.002 WH	0.011 WH	0.016 WH	0.015 WH	0.017 WH
		UofA	<0.001	<0.001	0.001	0.012	0.006	0.007	0.012
ortho-Phosphate, as P	mg-P/L	ALS	<0.001 WH	<0.001 WH	<0.001 WH	<0.001 WH	<0.001WH	<0.001 WH	<0.001 WH
		Maxxam	-	-	0.001 WH	0.002 WH	<0.001 WH	<0.001 WH	<0.001 WH
		UofA	<0.001	<0.001	0.002	<0.001	0.001	0.001	0.002
Total Ammonia, as N	mg-N/L	ALS	<0.005	<0.005	0.006	0.073	0.090	0.072	0.092
		Maxxam	-	-	0.018	0.084	0.110	0.089	0.091
		UofA	<0.002	<0.002	0.005	0.070	0.060	0.052	0.078
Total Inorganic Phosphorus	mg-P/L	ALS	0.002	0.001	0.002	0.002	0.002	0.002	0.002
		Maxxam	-	-	0.005	<0.002	<0.002	0.003	<0.002
		UofA	<0.001	<0.001	0.003	0.002	<0.001	<0.001	<0.001
Total Kjeldahl Nitrogen	mg-N/L	ALS	0.13	0.10	0.28	0.41	0.40	0.35	0.43
		Maxxam	-	-	0.32	0.27	0.30	0.36	0.14
		UofA	0.14	0.12	0.29	0.44	1.42	1.49	1.07
Total Nitrogen[(b)]	mg-N/L	ALS	0.13	0.10	0.45	1.91	2.32	2.22	2.39
		Maxxam	-	-	0.51	1.86	2.28	2.31	2.28

Table 12D-4 Mid-Depth Samples Laboratory Data

Sample Point:	Units	Laboratory	NEL02	NEL04	SNAP02A	SNAP08	SNP 02-20d	SNP 02-20e	SNP 02-20f
Date Sampled (yyyy-mm-dd):			2012-09-08	2012-09-08	2012-09-12	2012-09-11	2012-12-14	2012-09-14	2012-09-14
Sample Control Number:			2012-5255/7003	2012-5257/7004	2012-5251/7001	2012-5243/7005	2012-7031	2012-7033	2012-7032
		UofA	0.14	0.13	0.39	1.76	2.23	2.27	2.46
Total Dissolved Phosphorus	mg-P/L	ALS	0.003	0.001	0.001	<0.001	<0.001	<0.001	0.003
		Maxxam	0.002	0.003	<0.002	<0.002	0.003	0.004	<0.002
		UofA	0.003	<0.003	0.003	<0.003	<0.003	<0.003	<0.003
Total Organic Phosphorus, calculated	mg-P/L	ALS	0.0016	0.0019	0.0016	<0.0014	<0.0014	<0.0014	<0.0014
		Maxxam	-	-	<0.002	<0.002	0.005	<0.002	0.003
		UofA	0.005	0.003	<0.003	<0.003	0.003	<0.003	0.003
Total Phosphorus	mg-P/L	ALS	0.003	0.003	0.004	0.003	0.002	0.002	0.002
		Maxxam	-	-	0.004	<0.002	0.005	0.003	0.003
		UofA	0.005	0.003	0.004	0.004	0.003	<0.003	0.003

Notes:

Qualifier flags assigned by Golder include (refer to Appendix 3A for further details):

· WH = warning, hold time was substantially exceeded and may have an effect on results.

(a) University of Alberta nitrate values are calculated by subtracting measured nitrite values from combined measured nitrate and nitrite values.

(b) ALS TN values calculated as the sum of measured TKN and measured combined nitrate and nitrite values.

ALS = ALS Canada Ltd.; Maxxam = Maxxam Analytics Inc.; UofA = University of Alberta Biogeochemical Analytical Service Laboratory; mg-N/L = milligrams as nitrogen per litre; mg-P/L = milligrams as phosphorus per litre; TN = total nitrogen; TKN = total Kjeldahl nitrogen; - = no data; < = less than the detection limit; yyyy-mm-dd = year-month-day.