TECHNICAL MEMORANDUM

DATE January 19, 2015 **PROJECT No.** 1407256

TO Rick Bargery
Dominion Diamond Ekati Corporation

CC Richard Bargery (DDEC), and Kristine Mason, Steve Strawson, and Amy Langhorne (Golder)

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JAY PROJECT – LAC DE GRAS HYDRODYNAMIC MODEL UPDATES

1.0 INTRODUCTION

Dominion Diamond Ekati Corporation (Dominion Diamond) submitted a Developer's Assessment Report (DAR) (Dominion Diamond 2014) to the Mackenzie Valley Environmental Impact Review Board (MVEIRB) in October 2014. As part of the DAR, a water quality model was developed to identify potential Project effects to surface water quality in Lac du Savage (LdS) and downstream in Lac de Gras (LdG). Site discharge water quality was estimated using a mass-balance water quality model (Appendix 8E of the DAR), which was used as an input to the LdS hydrodynamic model (Appendix 8F of the DAR) to assess changes to water quality in LdS. The projected water quality at the outlet of LdS was subsequently used as an input to the LdG hydrodynamic model. Discharges from the Ekati Mine via Slipper Lake and from the Diavik Mine also reports to LdG and were included into the LdG hydrodynamic model. Dominion Diamond and Diavik Diamond Mines Inc. (DDMI) also met to discuss the modelling approach and the information included in the DAR to calculate future loadings from the Diavik Mine.

Following submission of the DAR, updates to the LdG hydrodynamic model were undertaken:

- Our subsequent review of the LdG hydrodynamic model indicated that the flows used to estimate loadings from Diavik to LdG were out of date and not appropriate for use in the DAR. As a result, the model was updated using the discharge flow rate estimates provided in the December 2013 DDMI Water Management Plan Version 12 (DDMI 2013), which are the most current and appropriate discharge volumes to be used for assessing surface water quality impacts in LdG.
- An updated version of Slipper Lake discharge water quantities and quality was issued by ERM Rescan in November 2014 based on the most current output of the Koala Watershed water quality prediction model.

As a result of these revised source-term inputs, Dominion Diamond retained Golder Associates Ltd. (Golder) to update the LdG hydrodynamic model using the flows provided in the December 2013 DDMI Water Management Plan Version 12 (DDMI 2013) and the revised Slipper Lake discharge water quantities and qualities. This memorandum provides the updated model results, accounting for these changes.

2.0 UPDATED LDG HYDRODYNAMIC MODEL INPUTS

As part of the DAR, a water quality model was developed to estimate site discharge water quality during operations, closure, and post-closure phases of the project, and to predict the effects of discharging this water to LdS. Details of the water quality model are presented in the following appendices of the DAR: Appendix 8E (Site Water Quality Modelling Report); Appendix 8F (LdS and LdG Hydrodynamic Modelling Report); and Appendix 8G (Pit Hydrodynamic Modelling Report).

One of the source-term inputs to LdG under existing conditions and early operations of the Jay Project (2013 to 2023) is treated effluent discharge from the Diavik mine. As part of the model update, the quantity of treated effluent to LdG from the Diavik mine was assigned the actual volume up to the year 2012 and forecasted volume of water from 2013 to 2023 to be directed to the treatment plant as presented in Table 4.4 of the 2013 DDMI Water Management Plan Version 12 (DDMI 2013). Water quality data for the Diavik mine treated effluent were obtained from results of the Surveillance Network Program (SNP) at stations 1645-18 and 1645-18b between 2009 and 2012 (WLWB 2014). For water quality projections between 2013 and 2023, the Diavik Mine treated effluent was assigned a water chemistry profile equal to the 95th percentile concentrations of the reported SNP data for water quality constituents included in the hydrodynamic model (this is as modelled in the DAR).

Slipper Lake drains the Koala watershed, to LdG. This drainage includes discharges from the Ekati Mine. Static median values from monitoring results (BHP Billiton 2011, 2012, 2013) at the Slipper Lake outlet were used to represent the quality of the Slipper Lake discharge to LdG during the calibration period of the model. In the water quality model update, an updated time series was generated based on the most current output of the Koala Watershed water quality prediction model.

In both the DAR and the update, metals were not included as model constituents in the LdG hydrodynamic model in discharges from Slipper Lake and Diavik. Concentrations of these constituents were estimated by including a tracer constituent in the model to track the fate and transport of conservative constituents in LdG. Individual tracers were released at constant concentrations from the following mine discharges:

- the Diavik mine discharge to LdG;
- the Slipper Lake discharge to LdG;
- the seepage from Misery Pit to LdG during post-closure; and,
- the overflow from Misery Pit to LdG during post-closure.

Initial tracer concentrations in the lakes were set to zero. Metals were assumed to behave conservatively in the water column, which means that they do not undergo chemical reactions (i.e., precipitation) or physical processes (i.e., settling) other than advective transport.

To calculate metals concentrations from the tracer concentrations in the lakes, metal concentrations in the mine discharges were assumed to be constant over the period of time that the discharges were active. The constant metal concentrations that were used in the mine discharges were:

- The maximum measured metals concentrations for:
  - the Diavik mine discharge to LdG (WLWB 2014); and,
  - the Slipper Lake discharge to LdG during the calibration period (BHP Billiton 2011, 2012, 2013).

- The maximum of predicted metals concentrations for:
  - the Slipper Lake discharge to LdG (Robb 2014, pers. comm.) during the operations, closure and post-closure periods of the Jay Project;
  - the seepage from Misery Pit to LdG predicted by the hydrogeological model (DAR Appendix 8C); and,
  - the overflow from Misery Pit to LdG predicted by the site water quality model during post-closure.

The following changes were made as part of the water quality model update:

- Concentrations of beryllium, cobalt, mercury, silver, and uranium were set at the maximum measured concentration in the Slipper Lake discharge water quality (BHP Billiton 2011, 2012, 2013). In the DAR, concentrations of these metals were erroneously set as zero.
- Bismuth was also input as a zero concentration in the Slipper Lake discharge water quality model predictions and was input as a zero concentration in the LdG water quality model in the DAR. Since bismuth was not measured at the Slipper Lake discharge monitoring location, the maximum measured concentration at far-field A (FFA) monitoring locations (Figure 1) was used to represent the concentration of bismuth in the Slipper Lake discharge throughout the model period in the update, as these are the closest monitoring points to the Slipper Lake outlet.

During the model update, an additional review of the model source term inputs to the LdG hydrodynamic model was completed by Golder. It was noted that the maximum concentrations of chromium, copper, lead, vanadium, silver, and zinc were not used to represent the Diavik mine treated effluent water quality during the open water season. The maximum observed concentrations of these metals were used in the model update.

It was also noted that during the open water period, minimum total metal baseline concentrations were used to represent the natural runoff water quality at LdG assessment locations LDG-P2 to LDG-P6 instead of the median concentration as per the approach described in Appendix 8F of the DAR. The natural runoff water quality chemistry profile was updated in the model using the median constituent concentrations at these locations.

All other model inputs (i.e., chemistry profiles and flows) remained unchanged in the updated LdG water quality model run. The DAR Section 8 appendices cited above provide details of the conceptual model, boundary conditions, model inputs, and assumptions.

500000
520000
540000
7180000
7160000
7140000

Vulture Lake - Deep
Vulture - Polar (Reference)
Grizzly
Ekati Mine
Kodiak
Leslie
Moose
Nema
Nema Lake
Leslie Lake
Moose Lake
Fox Operation
Slipper Lake
Slipper
S3
Slipper - Lac De Gras
S2
LDG-P6
LDG-P5
LDG-P4
FFA-1
FFA-2
FFA-3
FFA-4
FFA-5
FFB-1
FFB-2
FFB-3
FFB-4
FFB-5
LDG-P3
LDG-P2
FF1-1
FF1-2
FF1-3
FF1-4
FF1-5
Lac de Gras
Existing Misery Road
Misery Operation
MF1-1
MF1-3
MF1-5
MF2-1
MF2-3
MF3-1
MF3-2
MF3-3
MF3-4
MF3-5
MF3-6
MF3-7
NF1
NF2
NF3
NF4
NF5
Diavik Mine
F1
LDS-P1
LDS-P2
LDS-P3
LDG-P1
FF2-1
FF2-2
FF2-3
FF2-4
FF2-5
LDS1
LDS2
LDS3
LDS4
LDS5
LDS6
LDS7
LDS8
LDS9
LDS10
LDS11
LDS12
Cujo
Lake B1 (Christine Lake)
Lake C1
C-L1
C-S1
Counts Outflow (Reference)
Counts Lake - Deep
Counts-1
D-S1
Ad-1
Ad-2
Ae-1
Ae-2
Duchess Lake
Af-1
Af-2
Af-4
Af-7
Af-10
Lake Af1
Lake E1
E-L1-1
E-L1-2
E-S2-1
E-S2-3
E-S2-4
E-S2-5
Paul Lake
PL-1
PL-2
PL-3
PL-4
PL-5
F-S1
G-S1
G-L2
Ac-1
Ac-2
Ac-4
Ac-5
Ac-7
Ac-8
Ab-1
Ab-2
Ab-S1
L-S1
Lac du Sauvage
N

LEGEND

- EKATI MINE FOOTPRINT
- DIAVIK MINE FOOTPRINT
- PROPOSED JAY FOOTPRINT
- WINTER ROAD
- TIBBITT TO CONTWOYTO WINTER ROAD
- NORTHERN PORTION OF TIBBITT TO CONTWOYTO WINTER ROAD
- ELEVATION CONTOUR (20 m INTERVAL)
- ESKER
- WATERCOURSE
- WATERBODY
- BASELINE STATION
- ASSESSMENT LOCATION

REFERENCE

NATIONAL TOPOGRAPHIC BASE DATA (NTDB) 1:250,000
CANVEC © NATURAL RESOURCES CANADA, 2012
NATURAL RESOURCES CANADA, CENTRE FOR TOPOGRAPHIC INFORMATION, 2012
DATUM: NAD83 PROJECTION: UTM ZONE 12N

DOCUMENT

DEVELOPER'S ASSESSMENT REPORT

5 0 5
SCALE 1:200,000 KILOMETRES

PROJECT
DOMINION DIAMOND™
JAY PROJECT
NORTHWEST TERRITORIES, CANADA

TITLE
ASSESSMENT LOCATIONS AND BASELINE STATIONS IN LAC DE GRAS

Golder Associates

PROJECT		13-1328-0041	FILE No. DAR_WQ_009_GIS	
DESIGN	CP	14/08/14	SCALE AS SHOWN	REV 0
GIS	JG	05/12/14	FIGURE 1	
CHECK	CP	05/12/14		
REVIEW	KM	05/12/14		

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3.0 UPDATED HYDRODYNAMIC MODEL RESULTS

Model results that are affected by the updates listed in Section 2.0 are provided in this section. Other results remain unchanged from those presented in the DAR (Dominion Diamond 2014).

Modelled water quality concentrations were predicted for the following assessment locations in LdG during operations, closure, and post-closure: LDG-P1, LDG-P2, LDG-P3, LDG-P4, LDG-P5 and LDG-P6 (Figure 1). At each location, maximum, depth-averaged results were predicted for the open-water and under-ice conditions during the following project phases:

- Early Operations (2019 to 2023);
- Late Operations (2024 to 2029);
- Closure – Pit Back-flooding Period (2030 to 2033); and,
- Post-closure (2034-2060).

Updated water quality projections for all constituents at each assessment location are provided in the following appendices:

- Appendix A, Table A-1: Predicted Maximum Water Column Concentrations in Lac de Gras (replaces Table 8F3.2-1 of the DAR);
- Appendix A, Table A-2: Predicted Maximum Depth-Averaged Concentrations in Lac de Gras (replaces Table 8F3.2-2 of the DAR); and,
- Appendix A, Table A-3: Predicted Maximum Lake Surface Concentrations in Lac de Gras (replaces Table 8F3.2-3 of the DAR).

Timeseries for each parameter at the assessment locations are provided in Appendix B. For discussion purposes, a summary of the maximum, depth-averaged results at each assessment location for the updated constituents are summarized in Table 1 for the open-water and ice-cover periods. TDS, chloride, total phosphorus, and phytoplankton were also included because, based on Golder's experience at diamond mines in the NWT, these are the key potential constituents of concern. Other constituents that were projected to increase in comparison to the projections included in the DAR are also presented. Constituents that were projected to decrease in comparison to concentrations presented in the DAR are not provided in Table 1. For comparison purposes, the original results provided in the Project DAR (Dominion Diamond 2014) are also presented.

As a result of the reduced flow assigned to the treated effluent from the Diavik Mine, projected concentrations of most constituents are lower in LdG in comparison to the predictions provided in the DAR (Table 1). For example, during the early operations project phase (i.e., when discharge from Diavik occurs), phytoplankton concentrations decrease by approximately 50% at all assessment locations in LdG.

In contrast, beryllium, cobalt, copper, lead, mercury, nitrate, silver, vanadium, and zinc concentrations increased during some project phases as a result of the corrections to the input source terms as described in Section 2.0 (Table 1). For all of these metals, except vanadium and zinc during open water conditions, the net change compared to the DAR projections at was a decrease or small (i.e., <25%) increase. Vanadium and zinc concentrations increased more than 25% as a combination of multiple model input changes as discussed in Section 2.0.

The predicted increases in the updated water quality projections do not result in exceedances of constituent screening guidelines and objectives used in the DAR. Therefore, the update to the water quality model does not change the conclusions of the DAR, which are that the Jay Project will not result in significant adverse effects to surface water quality, aquatic health, and the use of water for drinking.

Table 1: Updated Lac de Gras Water Quality

Parameter	Units	Depth Averaged - Maximum Concentration							
		Early Operations (2019 - 2023)		Late Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)	
		Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water
LDG - P1 (DAR)									
TDS	mg/L	24	24	24	23	24	25	21	20
Chloride	mg/L	4.5	4.5	6.3	5.9	6.6	7.3	5.0	4.9
Nitrate	mg-N/L	0.1	0.1	0.059	0.068	0.066	0.074	0.03	0.03
Total Phosphorus	mg-P/L	0.0044	0.0043	0.0043	0.004	0.0036	0.0035	0.003	0.0029
Phytoplankton (as Chlorophyll a)	µg/L	3.9	4.5	3.3	4.0	1.7	2.2	0.82	0.9
Beryllium	µg/L	0.1	0.1	0.1	0.1	0.1	0.1	0.11	0.11
Chromium	µg/L	0.22	0.14	0.18	0.11	0.13	0.09	0.1	0.074
Cobalt	µg/L	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.07
Copper	µg/L	0.45	0.41	0.43	0.38	0.41	0.38	0.39	0.36
Lead	µg/L	0.044	0.041	0.04	0.037	0.037	0.035	0.034	0.032
Mercury	µg/L	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Silver	µg/L	0.066	0.063	0.063	0.059	0.056	0.055	0.054	0.053
Vanadium	µg/L	0.85	0.12	0.68	0.1	0.38	0.087	0.28	0.076
Zinc	µg/L	4.1	0.67	4.1	0.61	4.1	0.57	4.0	0.53
LDG - P1 (Updated Model)									
TDS	mg/L	21	20	23	22	23	24	19	19
Chloride	mg/L	3.5	3.4	5.8	5.5	6.2	6.9	4.5	4.4
Nitrate	mg-N/L	0.073	0.071	0.068	0.078	0.075	0.082	0.028	0.028
Total Phosphorus	mg-P/L	0.0036	0.0035	0.0035	0.0035	0.0033	0.0033	0.0028	0.0028
Phytoplankton (as Chlorophyll a)	µg/L	2.0	2.2	1.9	2.1	1.3	1.7	0.61	0.67
Beryllium	µg/L	0.1	0.1	0.1	0.1	0.1	0.1	0.11	0.11
Chromium	µg/L	0.11	0.11	0.1	0.098	0.086	0.081	0.074	0.068
Cobalt	µg/L	0.07	0.08	0.09	0.09	0.09	0.09	0.08	0.08
Copper	µg/L	0.42	0.4	0.41	0.39	0.4	0.38	0.39	0.36
Lead	µg/L	0.038	0.037	0.036	0.036	0.035	0.034	0.032	0.031
Mercury	µg/L	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Silver	µg/L	0.061	0.061	0.06	0.059	0.055	0.055	0.053	0.053
Vanadium	µg/L	0.63	0.59	0.54	0.52	0.31	0.29	0.24	0.21
Zinc	µg/L	0.63	0.6	0.6	0.58	0.59	0.56	0.55	0.52
LDG - P2 (DAR)									
TDS	mg/L	24	22	24	22	24	23	23	21
Chloride	mg/L	4.2	3.9	4.6	4.2	5.8	5.5	5.5	5.1
Nitrate	mg-N/L	0.06	0.053	0.044	0.036	0.04	0.037	0.026	0.025
Total Phosphorus	mg-P/L	0.0043	0.0037	0.0044	0.0036	0.0034	0.0032	0.0031	0.0029
Phytoplankton (as Chlorophyll a)	µg/L	4.3	5.3	3.6	5.3	1.8	2.5	0.91	1.2
Beryllium	µg/L	0.1	0.1	0.1	0.1	0.1	0.1	0.11	0.11
Chromium	µg/L	0.2	0.12	0.2	0.12	0.14	0.092	0.11	0.078

Table 1: Updated Lac de Gras Water Quality

Parameter	Units	Depth Averaged - Maximum Concentration							
		Early Operations (2019 - 2023)		Late Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)	
		Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water
Cobalt	µg/L	0.08	0.08	0.08	0.08	0.09	0.08	0.08	0.08
Copper	µg/L	0.44	0.39	0.44	0.39	0.42	0.38	0.41	0.37
Lead	µg/L	0.041	0.038	0.041	0.038	0.037	0.035	0.035	0.033
Mercury	µg/L	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Silver	µg/L	0.064	0.06	0.064	0.06	0.057	0.056	0.055	0.054
Vanadium	µg/L	0.75	0.11	0.73	0.11	0.44	0.091	0.32	0.082
Zinc	µg/L	1.5	0.62	1.5	0.62	1.4	0.57	1.4	0.54
LDG - P2 (Updated Model)									
TDS	mg/L	21	19	21	20	22	21	21	20
Chloride	mg/L	3.4	3.1	4.1	3.7	5.2	5.0	4.9	4.6
Nitrate	mg-N/L	0.053	0.048	0.05	0.044	0.048	0.045	0.029	0.027
Total Phosphorus	mg-P/L	0.0035	0.0032	0.0036	0.0033	0.0032	0.003	0.0029	0.0028
Phytoplankton (as Chlorophyll a)	µg/L	2.2	2.8	2.1	3.1	1.3	1.8	0.7	0.9
Beryllium	µg/L	0.1	0.1	0.1	0.1	0.1	0.1	0.11	0.11
Chromium	µg/L	0.11	0.096	0.11	0.10	0.089	0.081	0.08	0.072
Cobalt	µg/L	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08
Copper	µg/L	0.42	0.39	0.42	0.39	0.41	0.38	0.4	0.37
Lead	µg/L	0.037	0.035	0.037	0.036	0.035	0.034	0.033	0.032
Mercury	µg/L	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Silver	µg/L	0.06	0.059	0.06	0.06	0.056	0.055	0.054	0.054
Vanadium	µg/L	0.58	0.5	0.58	0.53	0.36	0.32	0.27	0.24
Zinc	µg/L	1.4	0.77	1.4	0.78	1.4	0.75	1.4	0.73
LDG - P3 (DAR)									
TDS	mg/L	24	21	23	21	23	22	22	20
Chloride	mg/L	4.3	3.9	4.4	4.0	5.5	5.2	5.3	4.8
Nitrate	mg-N/L	0.06	0.05	0.042	0.027	0.037	0.032	0.028	0.025
Total Phosphorus	mg-P/L	0.0043	0.0033	0.0043	0.003	0.0034	0.003	0.003	0.0027
Phytoplankton (as Chlorophyll a)	µg/L	4.4	6.0	3.8	5.7	1.9	2.6	0.92	1.2
Beryllium	µg/L	0.1	0.1	0.1	0.1	0.1	0.1	0.11	0.1
Chromium	µg/L	0.19	0.11	0.19	0.11	0.14	0.089	0.11	0.076
Cobalt	µg/L	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.07
Copper	µg/L	0.44	0.39	0.44	0.38	0.42	0.37	0.41	0.36
Lead	µg/L	0.041	0.037	0.041	0.037	0.037	0.034	0.035	0.033
Mercury	µg/L	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Silver	µg/L	0.063	0.059	0.063	0.059	0.057	0.055	0.055	0.053
Vanadium	µg/L	0.73	0.11	0.72	0.1	0.43	0.09	0.32	0.081
Zinc	µg/L	1.5	0.61	1.5	0.6	1.4	0.56	1.4	0.53
LDG - P3 (Updated Model)									
TDS	mg/L	20	19	20	19	21	20	20	19
Chloride	mg/L	3.4	3.1	3.8	3.4	4.9	4.6	4.7	4.3
Nitrate	mg-N/L	0.052	0.047	0.047	0.038	0.044	0.039	0.029	0.025
Total Phosphorus	mg-P/L	0.0035	0.003	0.0035	0.0029	0.0031	0.0028	0.0029	0.0027
Phytoplankton (as Chlorophyll a)	µg/L	2.3	3.1	2.2	3.3	1.3	1.9	0.68	0.9
Beryllium	µg/L	0.1	0.1	0.1	0.1	0.1	0.1	0.11	0.1

Table 1: Updated Lac de Gras Water Quality

Parameter	Units	Depth Averaged - Maximum Concentration							
		Early Operations (2019 - 2023)		Late Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)	
		Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water
Chromium	µg/L	0.1	0.095	0.11	0.096	0.089	0.079	0.08	0.07
Cobalt	µg/L	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08
Copper	µg/L	0.41	0.39	0.42	0.39	0.41	0.38	0.4	0.37
Lead	µg/L	0.036	0.035	0.037	0.035	0.035	0.033	0.033	0.032
Mercury	µg/L	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Silver	µg/L	0.06	0.059	0.06	0.059	0.056	0.055	0.054	0.053
Vanadium	µg/L	0.54	0.49	0.56	0.5	0.35	0.31	0.27	0.23
Zinc	µg/L	1.4	0.77	1.4	0.77	1.4	0.75	1.4	0.73
LDG - P4 (DAR)									
TDS	mg/L	23	21	22	21	22	21	21	20
Chloride	mg/L	4.3	4.1	4.2	4.1	5.3	4.9	5.1	4.8
Nitrate	mg-N/L	0.054	0.053	0.039	0.033	0.032	0.029	0.029	0.033
Total Phosphorus	mg-P/L	0.0041	0.0031	0.0042	0.003	0.0033	0.0029	0.003	0.0027
Phytoplankton (as Chlorophyll a)	µg/L	4.5	5.8	3.9	5.6	1.9	2.6	1.0	1.3
Beryllium	µg/L	0.1	0.1	0.1	0.1	0.1	0.1	0.11	0.1
Chromium	µg/L	0.18	0.11	0.18	0.11	0.13	0.088	0.11	0.078
Cobalt	µg/L	0.08	0.07	0.08	0.07	0.08	0.08	0.08	0.07
Copper	µg/L	0.44	0.39	0.44	0.39	0.42	0.38	0.41	0.37
Lead	µg/L	0.04	0.037	0.04	0.037	0.036	0.034	0.034	0.033
Mercury	µg/L	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Silver	µg/L	0.062	0.059	0.062	0.059	0.057	0.055	0.055	0.053
Vanadium	µg/L	0.68	0.11	0.67	0.11	0.42	0.096	0.31	0.091
Zinc	µg/L	1.5	0.6	1.5	0.6	1.4	0.56	1.4	0.54
LDG - P4 (Updated Model)									
TDS	mg/L	20	19	20	19	20	19	19	18
Chloride	mg/L	3.4	3.2	3.4	3.2	4.5	4.2	4.4	4.1
Nitrate	mg-N/L	0.051	0.052	0.045	0.042	0.038	0.033	0.028	0.029
Total Phosphorus	mg-P/L	0.0034	0.0029	0.0035	0.0028	0.003	0.0028	0.0028	0.0026
Phytoplankton (as Chlorophyll a)	µg/L	2.4	3.0	2.2	3.2	1.4	1.8	0.72	0.9
Beryllium	µg/L	0.1	0.1	0.1	0.1	0.1	0.1	0.11	0.1
Chromium	µg/L	0.1	0.094	0.1	0.094	0.088	0.079	0.08	0.071
Cobalt	µg/L	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08
Copper	µg/L	0.42	0.39	0.42	0.39	0.41	0.38	0.4	0.38
Lead	µg/L	0.036	0.035	0.036	0.035	0.034	0.032	0.033	0.031
Mercury	µg/L	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Silver	µg/L	0.059	0.058	0.059	0.058	0.055	0.055	0.054	0.053
Vanadium	µg/L	0.53	0.47	0.52	0.47	0.35	0.31	0.27	0.23
Zinc	µg/L	1.4	0.77	1.4	0.77	1.4	0.75	1.4	0.73
LDG - P5 (DAR)									
TDS	mg/L	23	21	22	21	22	21	21	20
Chloride	mg/L	4.4	4.3	4.2	4.2	5.3	5.0	5.1	4.9
Nitrate	mg-N/L	0.054	0.058	0.039	0.037	0.032	0.032	0.03	0.04
Total Phosphorus	mg-P/L	0.0041	0.0036	0.0042	0.0036	0.0033	0.0031	0.003	0.0028
Phytoplankton (as Chlorophyll a)	µg/L	4.6	5.6	4.0	5.4	1.9	2.7	1.0	1.3

Table 1: Updated Lac de Gras Water Quality

Parameter	Units	Depth Averaged - Maximum Concentration							
		Early Operations (2019 - 2023)		Late Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)	
		Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water
Beryllium	µg/L	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Chromium	µg/L	0.19	0.11	0.18	0.11	0.13	0.09	0.11	0.079
Cobalt	µg/L	0.08	0.07	0.08	0.07	0.08	0.08	0.08	0.07
Copper	µg/L	0.44	0.39	0.44	0.39	0.42	0.38	0.41	0.37
Lead	µg/L	0.04	0.037	0.04	0.037	0.036	0.034	0.034	0.033
Mercury	µg/L	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Silver	µg/L	0.062	0.059	0.062	0.059	0.057	0.055	0.055	0.053
Vanadium	µg/L	0.69	0.11	0.67	0.11	0.42	0.099	0.31	0.092
Zinc	µg/L	1.5	0.6	1.5	0.61	1.4	0.57	1.4	0.55
LDG - P5 (Updated Model)									
TDS	mg/L	20	19	20	19	20	19	20	19
Chloride	mg/L	3.4	3.3	3.4	3.3	4.5	4.3	4.4	4.2
Nitrate	mg-N/L	0.052	0.059	0.046	0.045	0.037	0.036	0.028	0.032
Total Phosphorus	mg-P/L	0.0034	0.0031	0.0035	0.0032	0.003	0.0029	0.0028	0.0027
Phytoplankton (as Chlorophyll a)	µg/L	2.4	2.9	2.3	3.1	1.4	1.8	0.73	0.9
Beryllium	µg/L	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Chromium	µg/L	0.11	0.094	0.1	0.096	0.088	0.08	0.081	0.073
Cobalt	µg/L	0.07	0.07	0.07	0.08	0.08	0.08	0.08	0.08
Copper	µg/L	0.42	0.39	0.42	0.4	0.41	0.38	0.41	0.38
Lead	µg/L	0.036	0.035	0.036	0.035	0.034	0.033	0.033	0.032
Mercury	µg/L	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Silver	µg/L	0.059	0.058	0.059	0.059	0.055	0.055	0.054	0.053
Vanadium	µg/L	0.54	0.47	0.52	0.49	0.35	0.32	0.27	0.24
Zinc	µg/L	1.4	0.77	1.4	0.77	1.4	0.75	1.4	0.74
LDG - P6 (DAR)									
TDS	mg/L	27	22	26	21	26	21	25	21
Chloride	mg/L	5.1	4.3	5.0	4.2	6.1	4.9	6.0	4.9
Nitrate	mg-N/L	0.064	0.054	0.044	0.027	0.035	0.031	0.035	0.038
Total Phosphorus	mg-P/L	0.0042	0.0029	0.0044	0.0028	0.0035	0.0027	0.0032	0.0027
Phytoplankton (as Chlorophyll a)	µg/L	4.6	6.2	5.3	6.0	1.9	2.8	1.0	1.5
Beryllium	µg/L	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Chromium	µg/L	0.21	0.11	0.21	0.11	0.15	0.089	0.13	0.08
Cobalt	µg/L	0.08	0.07	0.08	0.07	0.09	0.08	0.08	0.07
Copper	µg/L	0.47	0.39	0.47	0.39	0.44	0.38	0.43	0.37
Lead	µg/L	0.043	0.037	0.042	0.037	0.038	0.034	0.036	0.033
Mercury	µg/L	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Silver	µg/L	0.064	0.059	0.064	0.059	0.058	0.055	0.056	0.053
Vanadium	µg/L	0.79	0.11	0.78	0.11	0.48	0.099	0.36	0.093
Zinc	µg/L	1.5	0.6	1.5	0.61	1.5	0.56	1.4	0.55
LDG - P6 (Updated Model)									
TDS	mg/L	24	19	23	19	23	19	23	18
Chloride	mg/L	4.0	3.3	4.0	3.2	5.2	4.2	5.2	4.2
Nitrate	mg-N/L	0.062	0.057	0.053	0.039	0.042	0.032	0.033	0.031
Total Phosphorus	mg-P/L	0.0036	0.0028	0.0037	0.0027	0.0032	0.0026	0.003	0.0026

Table 1: Updated Lac de Gras Water Quality

Parameter	Units	Depth Averaged - Maximum Concentration							
		Early Operations (2019 - 2023)		Late Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)	
		Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water
Phytoplankton (as Chlorophyll a)	µg/L	2.4	3.3	2.5	3.4	1.4	2.0	0.73	1.0
Beryllium	µg/L	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Chromium	µg/L	0.12	0.093	0.12	0.095	0.1	0.08	0.09	0.072
Cobalt	µg/L	0.07	0.07	0.08	0.08	0.08	0.08	0.08	0.08
Copper	µg/L	0.44	0.4	0.44	0.4	0.43	0.39	0.43	0.38
Lead	µg/L	0.038	0.035	0.038	0.035	0.035	0.033	0.034	0.031
Mercury	µg/L	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Silver	µg/L	0.061	0.058	0.061	0.058	0.056	0.055	0.054	0.053
Vanadium	µg/L	0.62	0.47	0.61	0.48	0.41	0.31	0.31	0.24
Zinc	µg/L	1.4	0.77	1.4	0.77	1.4	0.75	1.4	0.73

4.0 CLOSURE

We trust this memorandum satisfies your current requirements. Should you have any questions or require additional information, please do not hesitate to contact the undersigned.

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Golder (Golder Associates Ltd.). 2012. North Inlet Water Treatment Plant Capacity and Phosphorus Loadings. Diavik Diamond Mine, NWT. April 12, 2012.

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5.1 Personal Communication

Personal Communication. 2014. Email from Tonia Robb (ERM Rescan) to Rachel Gould Re: Response to Request RF1EA-007. Friday, June 27, 2014 3:42 PM.

APPENDIX A

Predicted Maximum Concentrations in Lac De Gras

Table A-1 Predicted Maximum Water Column Concentrations in Lac de Gras
Part A

Parameter	Units	LDG-P1								LDG-P2								LDG-P3							
		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)	
		Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water
Field Measured																									
Water temperature	°C	4.7	14	2.9	17	4.0	13	5.0	16	3.5	16	1.9	17	2.7	15	3.5	17	2.8	15	1.6	15	3.0	15	3.0	15
Dissolved oxygen(a)	mg/L	12	11	12	11	13	11	12	11	11	10	11	9.9	11	10	11	9.5	12	10	11	10	12	11	11	10
Conventional Parameters																									
Total dissolved solids	mg/L	27	22	31	25	29	28	27	20	31	20	29	21	30	22	30	21	29	21	27	21	27	22	27	21
Total suspended solids(b)	mg/L	2.3	1.8	2.3	1.7	1.9	1.5	2.0	1.5	2.6	1.8	2.5	1.8	2.2	1.6	2.3	1.6	2.4	1.8	2.3	1.8	2.0	1.7	2.1	1.6
Major Ions																									
Calcium	mg/L	2.3	1.9	3.6	3.3	3.5	3.9	3.0	2.3	2.7	1.8	2.9	1.9	3.3	2.5	3.3	2.4	2.5	1.9	2.5	1.9	3.0	2.5	2.9	2.3
Chloride	mg/L	4.3	3.8	7.9	7.7	7.7	9.4	6.1	4.7	5.1	3.3	5.7	3.7	6.9	5.3	6.6	4.8	4.8	3.4	4.9	3.5	6.2	5.2	6.0	4.8
Fluoride	mg/L	0.018	0.014	0.017	0.013	0.015	0.012	0.015	0.011	0.02	0.014	0.019	0.014	0.016	0.012	0.017	0.012	0.019	0.014	0.018	0.014	0.015	0.012	0.015	0.012
Magnesium	mg/L	1.5	1.2	1.4	1.1	1.2	0.92	1.1	0.82	1.7	1.1	1.6	1.1	1.2	0.95	1.2	0.87	1.6	1.1	1.5	1.1	1.1	0.97	1.1	0.87
Potassium	mg/L	1.5	1.2	1.4	1.1	1.1	0.88	1.0	0.77	1.7	1.1	1.6	1.2	1.2	0.94	1.2	0.83	1.6	1.2	1.5	1.2	1.1	0.96	1.1	0.83
Sodium	mg/L	2.8	2.4	3.1	2.6	3.0	3.0	2.5	1.9	3.3	2.1	3.0	2.2	2.9	2.2	2.8	2.0	3.1	2.2	2.9	2.3	2.6	2.2	2.6	2.0
Sulphate	mg/L	5.5	4.8	5.0	4.2	3.6	2.9	3.1	2.4	6.4	4.1	5.9	4.3	3.9	3.2	3.6	2.6	5.9	4.2	5.5	4.3	3.7	3.2	3.3	2.6
Nutrients																									
Total nitrogen (calculated)	mg-N/L	0.34	0.32	0.35	0.36	0.34	0.36	0.27	0.26	0.33	0.29	0.31	0.29	0.3	0.28	0.27	0.25	0.32	0.29	0.3	0.28	0.29	0.28	0.26	0.25
Total ammonia	mg-N/L	0.047	0.031	0.049	0.034	0.042	0.034	0.026	0.016	0.051	0.028	0.05	0.03	0.037	0.025	0.024	0.017	0.048	0.028	0.047	0.03	0.034	0.025	0.022	0.017
Nitrate	mg-N/L	0.081	0.081	0.093	0.11	0.091	0.12	0.041	0.032	0.073	0.052	0.057	0.049	0.059	0.047	0.037	0.028	0.066	0.054	0.051	0.046	0.051	0.046	0.034	0.029
Total phosphorus (calculated)	mg-P/L	0.0041	0.0037	0.0039	0.0036	0.0036	0.0034	0.0033	0.0029	0.0044	0.0035	0.0041	0.0036	0.0035	0.0032	0.0035	0.0029	0.0041	0.0034	0.0039	0.0034	0.0034	0.0031	0.0032	0.0028
Dissolved orthophosphate	mg/L	0.0027	0.0023	0.0025	0.0022	0.0022	0.002	0.0019	0.0015	0.003	0.0021	0.0027	0.0022	0.0021	0.0018	0.0021	0.0015	0.0027	0.002	0.0025	0.002	0.002	0.0017	0.0018	0.0014
Phytoplankton (as Chlorophyll a) (µg/L)	µg/L	2.0	2.3	1.9	2.5	2.0	1.9	0.62	0.67	2.2	3.2	2.3	3.5	1.4	2.3	0.71	1.1	2.3	3.1	2.5	3.3	1.3	1.9	0.69	0.89
Silica, reactive	mg/L	0.18	0.13	0.18	0.13	0.18	0.14	0.19	0.14	0.2	0.14	0.19	0.14	0.2	0.15	0.21	0.14	0.18	0.14	0.18	0.14	0.18	0.14	0.19	0.14
Total Metals																									
Aluminum	µg/L	32	31	31	29	28	29	22	19	37	25	33	26	27	22	24	19	34	25	31	26	26	22	23	19
Arsenic	µg/L	0.43	0.41	0.41	0.38	0.35	0.32	0.33	0.3	0.42	0.32	0.4	0.33	0.31	0.27	0.3	0.25	0.41	0.32	0.39	0.33	0.31	0.27	0.29	0.25
Barium	µg/L	8.5	7.2	7.9	6.5	6.9	5.5	6.3	4.8	7.4	5.2	6.9	5.4	5.2	4.2	4.7	3.7	7.0	5.2	6.6	5.4	5.1	4.3	4.6	3.7
Beryllium	µg/L	0.13	0.13	0.12	0.12	0.11	0.11	0.11	0.11	0.13	0.12	0.13	0.12	0.11	0.12	0.11	0.11	0.13	0.12	0.13	0.12	0.11	0.12	0.11	0.11
Bismuth	µg/L	0.014	0.014	0.012	0.011	0.0077	0.0067	0.0054	0.0044	0.017	0.011	0.015	0.012	0.0082	0.0067	0.0061	0.0047	0.016	0.011	0.014	0.011	0.0078	0.0069	0.0058	0.0047
Cadmium	µg/L	0.038	0.036	0.036	0.034	0.034	0.032	0.032	0.03	0.04	0.034	0.039	0.035	0.034	0.031	0.033	0.03	0.039	0.034	0.038	0.035	0.034	0.032	0.033	0.03
Chromium	µg/L	0.13	0.12	0.12	0.1	0.1	0.091	0.087	0.071	0.15	0.1	0.13	0.1	0.1	0.084	0.096	0.074	0.14	0.1	0.13	0.1	0.1	0.086	0.093	0.075
Cobalt	µg/L	0.078	0.081	0.1	0.1	0.097	0.1	0.084	0.08	0.083	0.076	0.091	0.08	0.093	0.085	0.087	0.081	0.08	0.076	0.085	0.081	0.088	0.085	0.085	0.082
Copper	µg/L	0.45	0.41	0.44	0.4	0.43	0.4	0.41	0.37	0.47	0.4	0.46	0.4	0.44	0.38	0.44	0.37	0.47	0.4	0.46	0.4	0.43	0.39	0.43	0.38
Iron	µg/L	41	43	36	36	26	27	20	19	49	35	43	36	27	25	22	20	45	35	41	36	26	25	21	20
Lead	µg/L	0.04	0.039	0.039	0.037	0.037	0.036	0.034	0.032	0.043	0.036	0.041	0.037	0.037	0.034	0.036	0.032	0.042	0.036	0.04	0.037	0.037	0.034	0.035	0.032
Manganese	µg/L	4.2	6.1	4.3	5.9	4.0	5.9	3.4	4.8	5.1	5.7	4.7	5.9	4.3	5.4	3.9	5.1	4.8	5.7	4.5	5.8	4.1	5.5	3.8	5.1
Mercury	µg/L	0.013	0.013	0.012	0.012	0.012	0.012	0.011	0.012	0.013	0.012	0.013	0.012	0.012	0.012	0.012	0.012	0.013	0.012	0.013	0.012	0.012	0.012	0.011	0.012
Molybdenum	µg/L	4.1	3.4	3.7	3.0	2.9	2.2	2.8	1.9	4.6	2.7	4.3	2.9	3.1	2.1	3.0	1.8	4.4	2.8	4.2	2.9	3.1	2.2	2.9	1.9
Nickel	µg/L	1.3	1.1	1.2	1.0	1.2	0.96	1.1	0.88	1.5	1.3	1.5	1.3	1.3	1.2	1.3	1.2	1.5	1.3	1.5	1.3	1.3	1.3	1.3	1.2
Selenium	µg/L	0.16	0.16	0.15	0.14	0.11	0.098	0.095	0.084	0.19	0.13	0.17	0.14	0.12	0.1	0.1	0.087	0.17	0.13	0.16	0.14	0.11	0.1	0.1	0.088
Silver	µg/L	0.063	0.062	0.061	0.06	0.056	0.055	0.054	0.054	0.065	0.06	0.063	0.06	0.057	0.056	0.055	0.054	0.064	0.06	0.063	0.06	0.056	0.056	0.055	0.054
Strontium	µg/L	48	38	134	101	127	105	105	63	47	29	101	52	114	66	107	61	46	30	90	51	105	66	100	61
Uranium	µg/L	0.49	0.48	0.45	0.4	0.37	0.35	0.29	0.25	0.51	0.34	0.45	0.35	0.31	0.25	0.25	0.2	0.46	0.33	0.42	0.35	0.3	0.25	0.24	0.2
Vanadium	µg/L	0.71	0.67	0.6	0.55	0.38	0.32	0.29	0.23	0.84	0.54	0.75	0.57	0.41	0.34	0.34	0.25	0.77	0.54	0.71	0.56	0.41	0.35	0.33	0.26

Table A-1 Predicted Maximum Water Column Concentrations in Lac de Gras
Part A

Parameter	Units	LDG-P1								LDG-P2								LDG-P3							
		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)	
		Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water
Zinc	µg/L	0.67	0.62	0.66	0.6	0.64	0.59	0.6	0.53	1.5	0.78	1.5	0.79	1.4	0.76	1.4	0.74	1.5	0.79	1.5	0.79	1.4	0.77	1.4	0.74
Dissolved Metals																									
Aluminum	µg/L	5.8	4.5	5.5	3.9	5.0	3.5	4.7	2.8	6.9	3.8	6.4	4.0	5.6	3.3	5.6	3.0	6.7	3.9	6.3	4.1	5.4	3.5	5.3	3.1
Arsenic	µg/L	0.12	0.098	0.11	0.084	0.091	0.069	0.082	0.053	0.14	0.081	0.13	0.086	0.1	0.066	0.098	0.057	0.13	0.084	0.13	0.088	0.098	0.07	0.093	0.059
Barium	µg/L	3.4	3.0	3.0	2.5	2.4	2.0	2.0	1.4	4.0	2.4	3.6	2.5	2.6	1.8	2.4	1.5	3.7	2.4	3.5	2.6	2.5	1.9	2.3	1.5
Beryllium	µg/L	0.017	0.02	0.015	0.017	0.01	0.013	0.0085	0.011	0.021	0.017	0.019	0.018	0.011	0.014	0.01	0.012	0.019	0.017	0.018	0.018	0.011	0.015	0.0098	0.013
Bismuth	µg/L	0.0022	0.0021	0.0023	0.0019	0.0021	0.0019	0.0016	0.0011	0.0026	0.0017	0.0023	0.0018	0.002	0.0014	0.0017	0.0012	0.0024	0.0017	0.0022	0.0018	0.0019	0.0015	0.0016	0.0012
Cadmium	µg/L	0.0081	0.0064	0.0078	0.0056	0.007	0.0051	0.0065	0.004	0.0096	0.0054	0.009	0.0058	0.0078	0.0048	0.0077	0.0043	0.0093	0.0056	0.0088	0.0059	0.0075	0.0051	0.0073	0.0045
Chromium	µg/L	0.09	0.08	0.078	0.066	0.054	0.041	0.045	0.032	0.11	0.065	0.097	0.069	0.059	0.044	0.054	0.034	0.1	0.065	0.093	0.069	0.059	0.046	0.052	0.035
Cobalt	µg/L	0.014	0.017	0.042	0.044	0.04	0.045	0.03	0.026	0.016	0.014	0.032	0.024	0.036	0.03	0.033	0.027	0.015	0.015	0.028	0.024	0.033	0.03	0.03	0.028
Copper	µg/L	0.093	0.061	0.11	0.078	0.11	0.078	0.11	0.061	0.11	0.054	0.12	0.062	0.12	0.067	0.13	0.065	0.11	0.058	0.11	0.066	0.12	0.071	0.12	0.068
Iron	µg/L	1.4	0.88	4.3	3.5	4.1	3.7	3.6	2.2	1.7	0.82	3.6	1.9	4.1	2.5	4.0	2.3	1.7	0.89	3.3	1.9	3.9	2.5	3.8	2.4
Lead	µg/L	0.0047	0.0037	0.0066	0.0053	0.0063	0.0053	0.0054	0.0034	0.0056	0.0031	0.0062	0.0035	0.0064	0.0039	0.0062	0.0036	0.0054	0.0032	0.0057	0.0037	0.006	0.004	0.0059	0.0037
Manganese	µg/L	2.7	2.4	3.0	2.5	2.7	2.5	2.1	1.5	3.2	2.0	2.9	2.1	2.7	1.8	2.4	1.6	2.9	2.0	2.7	2.1	2.5	1.9	2.3	1.6
Mercury	µg/L	0.0032	0.0034	0.0027	0.0028	0.0018	0.002	0.0014	0.0016	0.0038	0.0028	0.0034	0.0029	0.002	0.002	0.0016	0.0017	0.0035	0.0028	0.0032	0.003	0.0019	0.0021	0.0016	0.0018
Molybdenum	µg/L	3.6	3.0	3.3	2.5	2.6	1.8	2.4	1.6	4.3	2.5	4.0	2.6	2.9	1.9	2.9	1.7	4.1	2.6	3.9	2.7	2.9	2.1	2.8	1.7
Nickel	µg/L	0.37	0.31	0.35	0.27	0.3	0.23	0.25	0.17	0.44	0.26	0.4	0.27	0.31	0.21	0.3	0.18	0.42	0.26	0.39	0.28	0.31	0.22	0.29	0.18
Selenium	µg/L	0.068	0.061	0.058	0.051	0.04	0.032	0.033	0.024	0.081	0.05	0.073	0.052	0.044	0.033	0.039	0.026	0.075	0.05	0.069	0.052	0.044	0.035	0.037	0.026
Silver	µg/L	0.0073	0.0067	0.0063	0.0057	0.0045	0.0039	0.0039	0.0031	0.0086	0.0055	0.0078	0.0059	0.0049	0.004	0.0046	0.0033	0.0081	0.0056	0.0075	0.0059	0.005	0.0043	0.0044	0.0035
Strontium	µg/L	33	25	119	89	112	93	90	51	39	22	93	44	106	58	99	53	38	23	82	44	97	58	93	54
Uranium	µg/L	0.39	0.38	0.35	0.3	0.28	0.26	0.2	0.15	0.46	0.3	0.41	0.31	0.28	0.21	0.22	0.16	0.42	0.3	0.38	0.31	0.26	0.22	0.21	0.16
Vanadium	µg/L	0.092	0.065	0.089	0.059	0.081	0.053	0.085	0.05	0.11	0.057	0.1	0.061	0.096	0.055	0.1	0.053	0.11	0.061	0.1	0.064	0.094	0.059	0.098	0.056
Zinc	µg/L	0.21	0.16	0.23	0.17	0.22	0.17	0.19	0.12	0.25	0.14	0.23	0.14	0.23	0.14	0.23	0.13	0.24	0.14	0.22	0.15	0.22	0.14	0.21	0.13

a) Dissolved oxygen predictions are minimum concentrations.
b) Total suspended solids were modelled using baseline concentrations.
mg/L = milligrams per litre; mg-N/L = milligrams as nitrogen per litre; mg-P/L = milligrams as phosphorus per litre; µg/L = micrograms per litre; °C = degrees Celsius.

Table A-1 Predicted Maximum Water Column Concentrations in Lac de Gras
Part B

Parameter	Units	LDG-P4								LDG-P5								LDG-P6							
		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)	
		Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water
Field Measured																									
Water temperature	°C	3.7	15	1.9	15	2.7	14	3.9	16	3.2	15	1.8	16	3.0	15	3.4	16	2.7	18	2.0	16	2.8	16	2.8	17
Dissolved oxygen(a)	mg/L	11	10	11	10	12	10	11	10	11	9.8	11	9.9	12	9.8	11	9.8	11	10	11	10	11	10	11	9.9
Conventional Parameters																									
Total dissolved solids	mg/L	30	19	30	19	27	20	29	19	32	20	31	20	29	20	30	19	33	19	30	20	30	20	32	19
Total suspended solids(b)	mg/L	2.5	1.6	2.5	1.6	2.1	1.5	2.2	1.4	2.6	1.6	2.5	1.6	2.2	1.5	2.3	1.4	2.7	1.6	2.5	1.6	2.2	1.5	2.4	1.4
Major Ions																									
Calcium	mg/L	2.6	1.7	2.6	1.7	3.0	2.2	3.2	2.0	2.8	1.8	2.7	1.8	3.2	2.2	3.3	2.1	2.9	1.8	2.6	1.7	3.3	2.2	3.5	2.1
Chloride	mg/L	5.0	3.3	4.9	3.2	6.1	4.4	6.5	4.2	5.3	3.7	5.1	3.6	6.6	4.6	6.7	4.4	5.6	3.4	5.0	3.4	6.8	4.6	7.1	4.4
Fluoride	mg/L	0.019	0.013	0.019	0.012	0.016	0.011	0.016	0.01	0.02	0.013	0.02	0.013	0.016	0.011	0.017	0.011	0.021	0.013	0.019	0.013	0.017	0.011	0.018	0.011
Magnesium	mg/L	1.6	1.0	1.6	1.0	1.2	0.86	1.2	0.77	1.7	1.1	1.6	1.1	1.2	0.89	1.3	0.8	1.8	1.1	1.6	1.1	1.3	0.87	1.3	0.8
Potassium	mg/L	1.7	1.0	1.6	1.0	1.2	0.86	1.2	0.75	1.7	1.1	1.7	1.1	1.2	0.89	1.2	0.83	1.8	1.1	1.7	1.1	1.3	0.88	1.3	0.78
Sodium	mg/L	3.2	2.1	3.2	2.1	2.7	2.0	2.9	1.8	3.5	2.4	3.3	2.3	2.9	2.0	3.0	2.1	3.6	2.2	3.3	2.2	3.0	2.0	3.1	1.9
Sulphate	mg/L	6.0	3.8	6.0	3.8	3.9	2.9	3.6	2.3	6.4	3.9	6.2	4.0	4.1	3.0	3.8	2.5	6.7	3.9	6.0	4.0	4.1	3.0	4.0	2.5
Nutrients																									
Total nitrogen (calculated)	mg-N/L	0.33	0.29	0.31	0.28	0.29	0.27	0.27	0.25	0.34	0.31	0.32	0.29	0.29	0.27	0.27	0.27	0.34	0.29	0.32	0.28	0.29	0.26	0.28	0.25
Total ammonia	mg-N/L	0.05	0.028	0.051	0.029	0.034	0.022	0.024	0.015	0.053	0.028	0.053	0.03	0.035	0.022	0.024	0.016	0.055	0.027	0.051	0.029	0.036	0.022	0.025	0.015
Nitrate	mg-N/L	0.071	0.056	0.053	0.042	0.049	0.036	0.039	0.031	0.076	0.073	0.055	0.052	0.05	0.038	0.042	0.044	0.075	0.057	0.058	0.04	0.049	0.035	0.044	0.031
Total phosphorus (calculated)	mg-P/L	0.0041	0.0033	0.0041	0.0035	0.0034	0.003	0.0034	0.0028	0.0043	0.0034	0.0042	0.0035	0.0035	0.003	0.0034	0.0028	0.0044	0.0029	0.0041	0.0029	0.0035	0.0027	0.0035	0.0026
Dissolved orthophosphate	mg/L	0.0027	0.0019	0.0027	0.0021	0.002	0.0016	0.002	0.0014	0.0029	0.002	0.0028	0.0021	0.0021	0.0016	0.002	0.0014	0.003	0.0015	0.0027	0.0015	0.0021	0.0013	0.0021	0.0012
Phytoplankton (as Chlorophyll a) (µg/L)	µg/L	2.4	3.1	2.5	3.3	1.4	1.9	0.73	0.93	2.4	3.1	2.5	3.3	1.4	1.9	0.73	0.98	2.4	3.3	2.6	3.5	1.4	2.0	0.74	1.0
Silica, reactive	mg/L	0.19	0.13	0.19	0.12	0.18	0.13	0.2	0.13	0.2	0.13	0.19	0.13	0.19	0.13	0.21	0.13	0.21	0.13	0.19	0.13	0.2	0.13	0.22	0.13
Total Metals																									
Aluminum	µg/L	34	23	34	23	27	20	25	18	36	23	35	25	28	21	25	19	37	23	34	24	29	20	26	18
Arsenic	µg/L	0.41	0.3	0.41	0.31	0.33	0.27	0.31	0.24	0.43	0.32	0.42	0.32	0.33	0.28	0.32	0.26	0.44	0.3	0.41	0.31	0.34	0.27	0.32	0.25
Barium	µg/L	7.1	4.9	7.1	4.9	5.4	4.1	5.0	3.6	7.4	5.1	7.2	5.2	5.5	4.3	5.1	3.8	7.7	4.9	7.1	5.1	5.5	4.1	5.2	3.7
Beryllium	µg/L	0.13	0.12	0.13	0.12	0.11	0.12	0.11	0.11	0.13	0.12	0.13	0.12	0.11	0.12	0.11	0.11	0.13	0.12	0.13	0.12	0.11	0.12	0.11	0.11
Bismuth	µg/L	0.015	0.0095	0.015	0.0097	0.0082	0.0061	0.0062	0.0042	0.016	0.0095	0.015	0.01	0.0085	0.0063	0.0064	0.0044	0.017	0.0094	0.015	0.01	0.0085	0.0062	0.0065	0.0044
Cadmium	µg/L	0.04	0.033	0.04	0.034	0.035	0.031	0.034	0.03	0.041	0.034	0.04	0.034	0.036	0.032	0.035	0.031	0.041	0.033	0.04	0.034	0.036	0.031	0.035	0.03
Chromium	µg/L	0.14	0.094	0.14	0.095	0.11	0.08	0.1	0.072	0.15	0.099	0.14	0.1	0.11	0.086	0.1	0.078	0.15	0.094	0.14	0.099	0.11	0.082	0.11	0.074
Cobalt	µg/L	0.08	0.074	0.085	0.077	0.088	0.081	0.086	0.079	0.081	0.077	0.085	0.079	0.09	0.084	0.087	0.082	0.082	0.074	0.084	0.077	0.093	0.083	0.089	0.08
Copper	µg/L	0.48	0.39	0.48	0.4	0.45	0.38	0.45	0.38	0.49	0.41	0.49	0.41	0.46	0.4	0.46	0.39	0.5	0.4	0.48	0.4	0.47	0.39	0.47	0.38
Iron	µg/L	44	31	43	31	27	23	22	18	46	31	44	33	28	24	23	19	48	31	44	33	28	23	24	19
Lead	µg/L	0.042	0.035	0.041	0.035	0.037	0.033	0.036	0.032	0.042	0.035	0.042	0.036	0.038	0.033	0.036	0.032	0.043	0.035	0.041	0.035	0.038	0.033	0.037	0.032
Manganese	µg/L	4.9	5.5	4.8	5.5	4.3	5.2	4.0	5.0	5.0	5.5	4.9	5.6	4.3	5.3	4.1	5.1	5.2	5.5	4.8	5.6	4.5	5.2	4.2	5.0
Mercury	µg/L	0.013	0.012	0.013	0.012	0.012	0.012	0.012	0.012	0.013	0.012	0.013	0.012	0.012	0.012	0.012	0.012	0.013	0.012	0.013	0.012	0.012	0.012	0.012	0.012
Molybdenum	µg/L	4.7	2.7	4.8	2.8	3.5	2.2	3.5	2.0	5.0	3.1	4.9	3.2	3.7	2.6	3.7	2.4	5.2	2.8	4.8	2.9	3.8	2.3	3.9	2.1
Nickel	µg/L	1.5	1.3	1.5	1.3	1.4	1.2	1.3	1.2	1.5	1.3	1.5	1.3	1.4	1.2	1.3	1.2	1.6	1.3	1.5	1.3	1.4	1.2	1.4	1.2
Selenium	µg/L	0.17	0.12	0.17	0.13	0.12	0.099	0.11	0.085	0.18	0.13	0.18	0.13	0.12	0.1	0.11	0.089	0.19	0.12	0.17	0.13	0.12	0.1	0.11	0.087
Silver	µg/L	0.064	0.058	0.063	0.059	0.057	0.055	0.055	0.053	0.064	0.058	0.064	0.059	0.057	0.055	0.055	0.054	0.065	0.058	0.063	0.059	0.057	0.055	0.055	0.054
Strontium	µg/L	49	31	92	47	106	59	109	56	52	35	93	48	114	63	113	62	54	32	90	47	118	61	118	58
Uranium	µg/L	0.46	0.29	0.45	0.3	0.31	0.22	0.25	0.18	0.48	0.29	0.46	0.31	0.31	0.23	0.26	0.18	0.5	0.29	0.45	0.31	0.32	0.22	0.27	0.18
Vanadium	µg/L	0.78	0.48	0.77	0.49	0.44	0.32	0.36	0.24	0.82	0.5	0.79	0.53	0.46	0.35	0.37	0.26	0.85	0.48	0.77	0.51	0.46	0.33	0.39	0.25

Table A-1 Predicted Maximum Water Column Concentrations in Lac de Gras Part B

Parameter	Units	LDG-P4								LDG-P5								LDG-P6							
		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)	
		Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water
Zinc	µg/L	1.5	0.77	1.5	0.78	1.5	0.75	1.4	0.73	1.5	0.79	1.5	0.79	1.5	0.76	1.5	0.75	1.5	0.77	1.5	0.78	1.5	0.75	1.5	0.74
Dissolved Metals																									
Aluminum	µg/L	7.2	3.9	7.4	4.1	6.2	3.5	6.3	3.3	7.7	4.6	7.7	4.7	6.6	4.2	6.7	4.1	8.1	4.1	7.5	4.1	6.8	3.7	7.1	3.5
Arsenic	µg/L	0.14	0.081	0.14	0.084	0.11	0.068	0.11	0.062	0.15	0.093	0.15	0.095	0.12	0.079	0.12	0.074	0.16	0.083	0.15	0.085	0.12	0.07	0.12	0.063
Barium	µg/L	3.9	2.2	3.9	2.3	2.8	1.7	2.6	1.5	4.1	2.5	4.0	2.6	2.9	2.0	2.7	1.7	4.3	2.2	3.9	2.4	3.0	1.8	2.8	1.5
Beryllium	µg/L	0.02	0.018	0.02	0.018	0.013	0.015	0.011	0.014	0.021	0.021	0.02	0.021	0.013	0.018	0.012	0.018	0.022	0.018	0.02	0.018	0.013	0.016	0.012	0.015
Bismuth	µg/L	0.0024	0.0015	0.0023	0.0015	0.0019	0.0013	0.0017	0.0011	0.0025	0.0015	0.0024	0.0016	0.002	0.0013	0.0018	0.0011	0.0026	0.0015	0.0023	0.0016	0.0021	0.0013	0.0018	0.0011
Cadmium	µg/L	0.010	0.0056	0.01	0.0058	0.0086	0.005	0.0087	0.0047	0.011	0.0066	0.011	0.0067	0.0091	0.0059	0.0093	0.0058	0.011	0.0059	0.01	0.0058	0.0094	0.0052	0.0097	0.0049
Chromium	µg/L	0.1	0.06	0.1	0.061	0.066	0.042	0.059	0.034	0.11	0.065	0.11	0.068	0.069	0.048	0.062	0.04	0.11	0.06	0.1	0.064	0.07	0.044	0.065	0.035
Cobalt	µg/L	0.015	0.015	0.028	0.022	0.032	0.027	0.032	0.026	0.016	0.018	0.028	0.024	0.035	0.03	0.033	0.03	0.017	0.016	0.027	0.022	0.036	0.029	0.035	0.027
Copper	µg/L	0.12	0.064	0.13	0.073	0.14	0.075	0.15	0.075	0.13	0.08	0.14	0.083	0.15	0.088	0.16	0.094	0.14	0.07	0.14	0.074	0.15	0.078	0.16	0.078
Iron	µg/L	2.0	1.1	3.6	1.8	4.1	2.3	4.3	2.3	2.2	1.4	3.6	2.0	4.4	2.7	4.6	2.7	2.3	1.2	3.6	1.8	4.6	2.4	4.8	2.3
Lead	µg/L	0.0058	0.0032	0.0064	0.0035	0.0065	0.0038	0.0067	0.0036	0.0062	0.0037	0.0065	0.0039	0.007	0.0043	0.0071	0.0042	0.0065	0.0033	0.0064	0.0035	0.0073	0.0039	0.0074	0.0037
Manganese	µg/L	3.0	1.8	3.0	1.8	2.6	1.6	2.5	1.4	3.2	1.9	3.1	2.0	2.7	1.8	2.6	1.6	3.3	1.8	3.0	1.9	2.9	1.7	2.7	1.5
Mercury	µg/L	0.0035	0.0027	0.0035	0.0028	0.0021	0.0021	0.0017	0.0018	0.0037	0.003	0.0035	0.0031	0.0022	0.0024	0.0018	0.0021	0.0038	0.0027	0.0035	0.0028	0.0021	0.0021	0.0019	0.0018
Molybdenum	µg/L	4.4	2.5	4.5	2.6	3.4	2.1	3.3	1.9	4.7	2.9	4.7	3.0	3.5	2.4	3.5	2.3	4.9	2.6	4.6	2.6	3.6	2.1	3.7	2.0
Nickel	µg/L	0.44	0.25	0.44	0.26	0.34	0.2	0.33	0.18	0.47	0.28	0.46	0.29	0.36	0.23	0.35	0.21	0.49	0.25	0.45	0.26	0.37	0.21	0.37	0.19
Selenium	µg/L	0.077	0.045	0.077	0.046	0.049	0.032	0.043	0.025	0.082	0.049	0.079	0.051	0.051	0.036	0.044	0.029	0.085	0.045	0.078	0.048	0.051	0.033	0.047	0.026
Silver	µg/L	0.0084	0.0053	0.0084	0.0055	0.0056	0.0041	0.0051	0.0036	0.0089	0.006	0.0087	0.0062	0.0058	0.0048	0.0054	0.0042	0.0093	0.0054	0.0085	0.0056	0.0059	0.0042	0.0056	0.0036
Strontium	µg/L	41	23	84	40	98	52	101	49	44	27	85	41	107	56	105	55	46	24	82	39	110	54	110	51
Uranium	µg/L	0.41	0.26	0.4	0.26	0.27	0.19	0.22	0.15	0.43	0.26	0.41	0.28	0.28	0.2	0.23	0.15	0.45	0.25	0.4	0.27	0.28	0.19	0.23	0.15
Vanadium	µg/L	0.12	0.067	0.13	0.072	0.11	0.065	0.12	0.066	0.13	0.083	0.13	0.085	0.12	0.08	0.13	0.084	0.14	0.073	0.13	0.074	0.12	0.069	0.13	0.069
Zinc	µg/L	0.25	0.14	0.26	0.14	0.24	0.14	0.25	0.13	0.27	0.16	0.27	0.16	0.26	0.16	0.26	0.16	0.28	0.14	0.26	0.14	0.27	0.14	0.28	0.13

a) Dissolved oxygen predictions are minimum concentrations.
b) Total suspended solids were modelled using baseline concentrations.
mg/L = milligrams per litre; mg-N/L = milligrams as nitrogen per litre; mg-P/L = milligrams as phosphorus per litre; µg/L = micrograms per litre; °C = degrees Celsius.

Table A-2 Predicted Maximum Depth-Averaged Concentrations in Lac de Gras
Part A

Parameter	Units	LDG-P1								LDG-P2								LDG-P3							
		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)	
		Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water
Field Measured																									
Water temperature	°C	4.6	11	2.8	11	3.8	11	4.8	11	2.8	11	1.2	11	1.6	11	3.1	11	2.1	13	1.4	14	2.6	14	2.9	14
Dissolved oxygen(a)	mg/L	10	9.7	10	9.6	10	9.7	10.0	9.7	9.8	9.2	9.8	8.6	9.9	9.3	9.6	8.6	10	10	10	10.0	10	10	10	9.8
Conventional Parameters																									
Total dissolved solids	mg/L	21	20	23	22	23	24	19	19	21	19	21	20	22	21	21	20	20	19	20	19	21	20	20	19
Total suspended solids(b)	mg/L	1.7	1.7	1.6	1.6	1.5	1.5	1.5	1.4	1.8	1.7	1.8	1.7	1.6	1.6	1.6	1.5	1.7	1.6	1.7	1.6	1.6	1.5	1.5	1.4
Major Ions																									
Calcium	mg/L	1.8	1.8	2.6	2.5	2.8	3.0	2.2	2.2	1.8	1.7	2.1	1.9	2.5	2.4	2.4	2.2	1.8	1.7	1.9	1.8	2.3	2.2	2.3	2.1
Chloride	mg/L	3.5	3.4	5.8	5.5	6.2	6.9	4.5	4.4	3.4	3.1	4.1	3.7	5.2	5.0	4.9	4.6	3.4	3.1	3.8	3.4	4.9	4.6	4.7	4.3
Fluoride	mg/L	0.014	0.014	0.013	0.012	0.011	0.011	0.011	0.01	0.014	0.014	0.014	0.013	0.012	0.012	0.012	0.011	0.014	0.013	0.013	0.013	0.012	0.011	0.011	0.011
Magnesium	mg/L	1.1	1.1	1.0	1.0	0.9	0.89	0.79	0.77	1.1	1.1	1.1	1.1	0.96	0.91	0.88	0.83	1.1	1.0	1.1	1.0	0.92	0.88	0.85	0.8
Potassium	mg/L	1.2	1.1	1.1	1.0	0.85	0.84	0.74	0.72	1.2	1.1	1.2	1.1	0.94	0.89	0.83	0.79	1.1	1.1	1.1	1.1	0.92	0.87	0.81	0.76
Sodium	mg/L	2.2	2.1	2.3	2.2	2.4	2.5	1.9	1.8	2.2	2.0	2.2	2.1	2.2	2.1	2.0	1.9	2.2	2.0	2.2	2.0	2.1	2.0	2.0	1.8
Sulphate	mg/L	4.5	4.2	4.0	3.9	2.8	2.8	2.3	2.2	4.3	3.9	4.3	4.1	3.2	3.0	2.6	2.5	4.1	3.8	4.2	3.9	3.1	2.9	2.5	2.4
Nutrients																									
Total nitrogen (calculated)	mg-N/L	0.31	0.31	0.31	0.32	0.32	0.32	0.25	0.25	0.3	0.28	0.29	0.28	0.28	0.28	0.26	0.25	0.29	0.28	0.29	0.27	0.28	0.27	0.25	0.25
Total ammonia	mg-N/L	0.034	0.028	0.034	0.03	0.034	0.029	0.019	0.016	0.035	0.027	0.034	0.028	0.029	0.024	0.02	0.016	0.034	0.027	0.034	0.028	0.026	0.023	0.018	0.015
Nitrate	mg-N/L	0.073	0.071	0.068	0.078	0.075	0.082	0.028	0.028	0.053	0.048	0.05	0.044	0.048	0.045	0.029	0.027	0.052	0.047	0.047	0.038	0.044	0.039	0.029	0.025
Total phosphorus (calculated)	mg-P/L	0.0036	0.0035	0.0035	0.0035	0.0033	0.0033	0.0028	0.0028	0.0035	0.0032	0.0036	0.0033	0.0032	0.003	0.0029	0.0028	0.0035	0.003	0.0035	0.0029	0.0031	0.0028	0.0029	0.0027
Dissolved orthophosphate	mg/L	0.0022	0.0021	0.0021	0.0021	0.0019	0.0019	0.0014	0.0014	0.0021	0.0018	0.0022	0.0019	0.0018	0.0016	0.0015	0.0014	0.0021	0.0016	0.0021	0.0015	0.0017	0.0014	0.0015	0.0013
Phytoplankton (as Chlorophyll a) (µg/L)	µg/L	2.0	2.2	1.9	2.1	1.3	1.7	0.61	0.67	2.2	2.8	2.1	3.1	1.3	1.8	0.7	0.9	2.3	3.1	2.2	3.3	1.3	1.9	0.68	0.88
Silica, reactive	mg/L	0.13	0.13	0.14	0.13	0.14	0.13	0.13	0.13	0.14	0.13	0.14	0.13	0.14	0.14	0.14	0.14	0.14	0.13	0.13	0.13	0.14	0.13	0.14	0.13
Total Metals																									
Aluminum	µg/L	29	28	25	25	23	24	18	18	26	24	26	25	22	21	19	18	25	23	25	24	22	20	19	18
Arsenic	µg/L	0.41	0.39	0.38	0.37	0.33	0.31	0.31	0.29	0.34	0.31	0.34	0.32	0.29	0.26	0.27	0.24	0.34	0.31	0.34	0.31	0.29	0.26	0.27	0.24
Barium	µg/L	7.9	6.7	7.4	6.3	6.3	5.2	5.8	4.6	5.7	5.0	5.7	5.2	4.6	4.1	4.1	3.6	5.5	4.9	5.6	5.0	4.6	4.0	4.1	3.5
Beryllium	µg/L	0.12	0.12	0.12	0.12	0.11	0.11	0.11	0.11	0.12	0.12	0.12	0.12	0.11	0.11	0.11	0.11	0.12	0.12	0.12	0.12	0.11	0.11	0.11	0.11
Bismuth	µg/L	0.013	0.012	0.011	0.011	0.0062	0.0059	0.0043	0.004	0.012	0.01	0.012	0.011	0.0069	0.0064	0.0049	0.0045	0.011	0.010	0.011	0.01	0.0067	0.0061	0.0048	0.0042
Cadmium	µg/L	0.036	0.035	0.035	0.034	0.032	0.031	0.031	0.029	0.035	0.033	0.035	0.034	0.033	0.031	0.031	0.03	0.035	0.033	0.035	0.034	0.033	0.031	0.031	0.03
Chromium	µg/L	0.11	0.11	0.1	0.098	0.086	0.081	0.074	0.068	0.11	0.096	0.11	0.1	0.089	0.081	0.08	0.072	0.1	0.095	0.11	0.096	0.089	0.079	0.08	0.07
Cobalt	µg/L	0.075	0.077	0.087	0.088	0.088	0.09	0.076	0.078	0.072	0.074	0.079	0.079	0.083	0.083	0.079	0.08	0.071	0.074	0.077	0.078	0.081	0.081	0.078	0.078
Copper	µg/L	0.42	0.4	0.41	0.39	0.4	0.38	0.39	0.36	0.42	0.39	0.42	0.39	0.41	0.38	0.4	0.37	0.41	0.39	0.42	0.39	0.41	0.38	0.4	0.37
Iron	µg/L	37	38	32	34	22	24	16	18	34	33	34	35	23	24	18	19	32	32	32	33	22	23	18	18
Lead	µg/L	0.038	0.037	0.036	0.036	0.035	0.034	0.032	0.031	0.037	0.035	0.037	0.036	0.035	0.034	0.033	0.032	0.036	0.035	0.037	0.035	0.035	0.033	0.033	0.032
Manganese	µg/L	3.8	5.7	3.5	5.4	3.5	5.4	2.8	4.7	3.9	5.6	3.9	5.7	3.7	5.4	3.4	5.0	3.8	5.5	3.8	5.6	3.6	5.2	3.3	5.0
Mercury	µg/L	0.012	0.012	0.012	0.012	0.012	0.012	0.011	0.011	0.012	0.012	0.012	0.012	0.012	0.012	0.011	0.012	0.012	0.012	0.012	0.012	0.011	0.012	0.011	0.012
Molybdenum	µg/L	3.4	3.0	3.1	2.8	2.3	2.0	2.1	1.7	3.1	2.5	3.1	2.7	2.5	2.0	2.2	1.7	3.1	2.6	3.1	2.6	2.5	2.0	2.2	1.7
Nickel	µg/L	1.2	1.1	1.2	1.0	1.1	0.92	1.0	0.87	1.4	1.3	1.4	1.3	1.3	1.2	1.2	1.2	1.4	1.3	1.4	1.3	1.3	1.2	1.2	1.2
Selenium	µg/L	0.15	0.14	0.14	0.13	0.098	0.094	0.086	0.081	0.14	0.13	0.14	0.13	0.11	0.099	0.091	0.086	0.14	0.13	0.14	0.13	0.1	0.098	0.091	0.084

Table A-2 Predicted Maximum Depth-Averaged Concentrations in Lac de Gras
Part A

Parameter	Units	LDG-P1								LDG-P2								LDG-P3							
		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)	
		Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water
Silver	µg/L	0.061	0.061	0.06	0.059	0.055	0.055	0.053	0.053	0.06	0.059	0.06	0.06	0.056	0.055	0.054	0.054	0.06	0.059	0.06	0.059	0.056	0.055	0.054	0.053
Strontium	µg/L	42	35	102	76	105	82	82	60	34	28	74	52	87	62	82	58	34	28	71	50	84	59	81	55
Uranium	µg/L	0.45	0.43	0.39	0.38	0.32	0.3	0.25	0.23	0.35	0.32	0.35	0.33	0.26	0.24	0.21	0.19	0.33	0.31	0.34	0.31	0.25	0.23	0.2	0.18
Vanadium	µg/L	0.63	0.59	0.54	0.52	0.31	0.29	0.24	0.21	0.58	0.5	0.58	0.53	0.36	0.32	0.27	0.24	0.54	0.49	0.56	0.5	0.35	0.31	0.27	0.23
Zinc	µg/L	0.63	0.6	0.6	0.58	0.59	0.56	0.55	0.52	1.4	0.77	1.4	0.78	1.4	0.75	1.4	0.73	1.4	0.77	1.4	0.77	1.4	0.75	1.4	0.73
Dissolved Metals																									
Aluminum	µg/L	4.7	3.9	4.3	3.6	3.8	3.0	3.5	2.6	4.6	3.6	4.6	3.8	4.2	3.2	3.9	2.9	4.6	3.6	4.7	3.7	4.3	3.1	4.0	2.8
Arsenic	µg/L	0.098	0.086	0.089	0.078	0.071	0.06	0.062	0.049	0.095	0.076	0.095	0.081	0.078	0.063	0.07	0.055	0.092	0.077	0.094	0.078	0.079	0.062	0.072	0.053
Barium	µg/L	2.9	2.6	2.5	2.3	1.9	1.7	1.6	1.3	2.7	2.2	2.7	2.4	2.1	1.7	1.8	1.4	2.6	2.2	2.6	2.3	2.1	1.7	1.8	1.4
Beryllium	µg/L	0.015	0.017	0.013	0.016	0.0081	0.012	0.0066	0.01	0.014	0.016	0.014	0.017	0.0094	0.013	0.0076	0.012	0.013	0.016	0.014	0.016	0.0094	0.013	0.0077	0.011
Bismuth	µg/L	0.002	0.0019	0.0017	0.0016	0.0017	0.0015	0.0012	0.001	0.0018	0.0016	0.0018	0.0017	0.0016	0.0014	0.0013	0.0011	0.0017	0.0015	0.0017	0.0016	0.0015	0.0013	0.0013	0.0011
Cadmium	µg/L	0.0066	0.0056	0.0061	0.0052	0.0054	0.0044	0.0048	0.0037	0.0065	0.0051	0.0065	0.0054	0.0059	0.0046	0.0055	0.0041	0.0064	0.0051	0.0065	0.0052	0.0059	0.0045	0.0056	0.004
Chromium	µg/L	0.077	0.07	0.068	0.062	0.043	0.038	0.035	0.029	0.072	0.06	0.072	0.064	0.049	0.042	0.04	0.032	0.069	0.06	0.071	0.061	0.049	0.04	0.04	0.031
Cobalt	µg/L	0.012	0.015	0.031	0.032	0.032	0.034	0.023	0.024	0.011	0.014	0.023	0.023	0.028	0.028	0.025	0.026	0.01	0.014	0.022	0.023	0.026	0.027	0.024	0.025
Copper	µg/L	0.071	0.053	0.084	0.061	0.084	0.063	0.079	0.056	0.073	0.051	0.084	0.059	0.089	0.063	0.089	0.062	0.075	0.053	0.085	0.059	0.091	0.063	0.091	0.061
Iron	µg/L	1.1	0.78	3.2	2.6	3.3	2.8	2.6	2.1	1.1	0.78	2.6	1.8	3.0	2.3	2.9	2.2	1.2	0.82	2.5	1.8	3.0	2.2	2.9	2.1
Lead	µg/L	0.0039	0.0033	0.0049	0.004	0.0049	0.0042	0.004	0.0032	0.0038	0.0029	0.0044	0.0034	0.0048	0.0037	0.0045	0.0034	0.0037	0.003	0.0043	0.0033	0.0048	0.0036	0.0045	0.0033
Manganese	µg/L	2.3	2.1	2.2	1.9	2.2	2.0	1.6	1.4	2.1	1.8	2.1	1.9	2.1	1.7	1.8	1.5	2.0	1.8	2.1	1.8	2.0	1.6	1.8	1.4
Mercury	µg/L	0.0028	0.0029	0.0024	0.0027	0.0014	0.0018	0.0011	0.0014	0.0025	0.0026	0.0025	0.0027	0.0016	0.0019	0.0013	0.0016	0.0024	0.0026	0.0025	0.0026	0.0016	0.0019	0.0013	0.0016
Molybdenum	µg/L	3.0	2.6	2.7	2.4	2.0	1.7	1.8	1.4	2.9	2.3	2.9	2.5	2.3	1.8	2.1	1.6	2.8	2.3	2.9	2.4	2.3	1.8	2.1	1.6
Nickel	µg/L	0.31	0.28	0.28	0.25	0.23	0.19	0.19	0.15	0.3	0.24	0.3	0.26	0.25	0.2	0.22	0.17	0.29	0.24	0.3	0.25	0.25	0.19	0.22	0.16
Selenium	µg/L	0.059	0.054	0.051	0.048	0.032	0.029	0.025	0.022	0.055	0.046	0.055	0.049	0.036	0.032	0.029	0.024	0.052	0.046	0.053	0.047	0.036	0.031	0.029	0.023
Silver	µg/L	0.0062	0.0059	0.0055	0.0053	0.0036	0.0035	0.003	0.0028	0.0058	0.0052	0.0058	0.0055	0.0041	0.0038	0.0034	0.0032	0.0056	0.0052	0.0057	0.0052	0.0041	0.0038	0.0034	0.0031
Strontium	µg/L	27	22	87	64	91	70	68	48	26	20	66	44	79	55	74	51	26	21	63	43	76	52	73	48
Uranium	µg/L	0.35	0.33	0.29	0.28	0.22	0.21	0.16	0.14	0.31	0.28	0.31	0.29	0.22	0.2	0.18	0.16	0.29	0.27	0.3	0.27	0.22	0.19	0.17	0.15
Vanadium	µg/L	0.071	0.057	0.068	0.055	0.063	0.049	0.062	0.045	0.073	0.054	0.073	0.057	0.07	0.052	0.069	0.05	0.074	0.056	0.076	0.057	0.073	0.053	0.072	0.05
Zinc	µg/L	0.17	0.14	0.17	0.13	0.17	0.14	0.14	0.11	0.17	0.13	0.17	0.13	0.17	0.13	0.16	0.12	0.16	0.13	0.17	0.13	0.17	0.13	0.16	0.12

a) Dissolved oxygen predictions are minimum concentrations.
b) Total suspended solids were modelled using baseline concentrations.
mg/L = milligrams per litre; mg-N/L = milligrams as nitrogen per litre; mg-P/L = milligrams as phosphorus per litre; µg/L = micrograms per litre; °C = degrees Celsius.

Table A-2 Predicted Maximum Depth-Averaged Concentrations in Lac de Gras Part B

Parameter	Units	LDG-P4								LDG-P5								LDG-P6							
		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)	
		Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water
Field Measured																									
Water temperature	°C	3.3	13	1.8	12	2.5	12	3.5	13	2.6	12	1.8	13	2.8	13	3.0	13	2.0	14	1.6	14	2.3	13	2.5	14
Dissolved oxygen(a)	mg/L	9.4	9.0	9.3	8.9	9.4	8.9	9.3	8.8	9.2	8.5	9.1	8.2	9.3	8.4	9.0	8.5	10	9.7	10	9.7	11	9.7	10	9.5
Conventional Parameters																									
Total dissolved solids	mg/L	20	19	20	19	20	19	19	18	20	19	20	19	20	19	20	19	24	19	23	19	23	19	23	18
Total suspended solids(b)	mg/L	1.6	1.5	1.6	1.5	1.5	1.4	1.5	1.4	1.7	1.5	1.7	1.6	1.5	1.5	1.5	1.4	2.0	1.5	1.9	1.5	1.8	1.4	1.7	1.4
Major Ions																									
Calcium	mg/L	1.8	1.7	1.8	1.6	2.2	2.0	2.2	2.0	1.8	1.7	1.8	1.7	2.2	2.1	2.2	2.0	2.1	1.7	2.0	1.6	2.5	2.1	2.5	2.0
Chloride	mg/L	3.4	3.2	3.4	3.2	4.5	4.2	4.4	4.1	3.4	3.3	3.4	3.3	4.5	4.3	4.4	4.2	4.0	3.3	4.0	3.2	5.2	4.2	5.2	4.2
Fluoride	mg/L	0.013	0.012	0.013	0.012	0.011	0.011	0.011	0.01	0.013	0.013	0.013	0.012	0.011	0.011	0.011	0.01	0.015	0.012	0.015	0.012	0.013	0.011	0.013	0.01
Magnesium	mg/L	1.1	0.99	1.1	0.98	0.88	0.81	0.81	0.76	1.1	1.0	1.1	1.0	0.87	0.84	0.82	0.77	1.3	0.99	1.2	1.0	1.0	0.82	0.96	0.77
Potassium	mg/L	1.1	1.0	1.1	1.0	0.88	0.82	0.78	0.74	1.1	1.1	1.1	1.1	0.88	0.85	0.8	0.76	1.3	1.1	1.3	1.0	1.0	0.83	0.93	0.76
Sodium	mg/L	2.2	2.1	2.1	2.1	2.0	1.8	1.9	1.8	2.2	2.2	2.2	2.1	2.0	1.9	1.9	1.9	2.6	2.2	2.6	2.1	2.3	1.9	2.3	1.9
Sulphate	mg/L	4.0	3.8	4.0	3.8	3.0	2.7	2.5	2.3	4.1	3.8	4.0	3.9	3.0	2.9	2.5	2.4	4.8	3.8	4.7	3.8	3.5	2.8	2.9	2.3
Nutrients																									
Total nitrogen (calculated)	mg-N/L	0.29	0.29	0.29	0.28	0.27	0.26	0.25	0.25	0.29	0.29	0.29	0.28	0.27	0.26	0.25	0.25	0.31	0.29	0.3	0.28	0.28	0.26	0.26	0.25
Total ammonia	mg-N/L	0.034	0.028	0.034	0.029	0.025	0.022	0.018	0.015	0.035	0.028	0.035	0.029	0.025	0.022	0.019	0.015	0.04	0.027	0.039	0.029	0.029	0.022	0.022	0.015
Nitrate	mg-N/L	0.051	0.052	0.045	0.042	0.038	0.033	0.028	0.029	0.052	0.059	0.046	0.045	0.037	0.036	0.028	0.032	0.062	0.057	0.053	0.039	0.042	0.032	0.033	0.031
Total phosphorus (calculated)	mg-P/L	0.0034	0.0029	0.0035	0.0028	0.003	0.0028	0.0028	0.0026	0.0034	0.0031	0.0035	0.0032	0.003	0.0029	0.0028	0.0027	0.0036	0.0028	0.0037	0.0027	0.0032	0.0026	0.003	0.0026
Dissolved orthophosphate	mg/L	0.002	0.0015	0.0021	0.0014	0.0016	0.0014	0.0014	0.0012	0.002	0.0017	0.0021	0.0018	0.0016	0.0015	0.0014	0.0013	0.0022	0.0014	0.0023	0.0013	0.0018	0.0012	0.0016	0.0012
Phytoplankton (as Chlorophyll a) (µg/L)	µg/L	2.4	3.0	2.2	3.2	1.4	1.8	0.72	0.91	2.4	2.9	2.3	3.1	1.4	1.8	0.73	0.9	2.4	3.3	2.5	3.4	1.4	2.0	0.73	1.0
Silica, reactive	mg/L	0.13	0.12	0.13	0.12	0.13	0.12	0.13	0.12	0.13	0.12	0.13	0.12	0.13	0.13	0.13	0.12	0.15	0.12	0.15	0.12	0.15	0.12	0.16	0.12
Total Metals																									
Aluminum	µg/L	24	23	24	22	21	19	19	17	24	22	24	23	21	20	19	18	28	22	27	23	23	19	21	18
Arsenic	µg/L	0.33	0.3	0.33	0.3	0.29	0.26	0.27	0.24	0.34	0.3	0.33	0.31	0.29	0.27	0.27	0.25	0.36	0.3	0.36	0.31	0.31	0.26	0.29	0.25
Barium	µg/L	5.4	4.9	5.4	4.9	4.5	4.0	4.1	3.6	5.5	4.8	5.4	4.9	4.5	4.1	4.1	3.6	6.1	4.8	6.0	4.9	5.0	4.0	4.5	3.6
Beryllium	µg/L	0.12	0.12	0.12	0.12	0.11	0.12	0.11	0.11	0.12	0.12	0.12	0.12	0.11	0.12	0.11	0.11	0.12	0.12	0.12	0.12	0.11	0.12	0.11	0.11
Bismuth	µg/L	0.01	0.0094	0.01	0.0092	0.0064	0.0057	0.0046	0.004	0.01	0.0093	0.01	0.0096	0.0063	0.006	0.0046	0.0042	0.012	0.0092	0.012	0.0095	0.0074	0.0058	0.0054	0.0042
Cadmium	µg/L	0.035	0.033	0.035	0.033	0.033	0.031	0.031	0.03	0.035	0.033	0.035	0.034	0.033	0.031	0.032	0.03	0.037	0.033	0.037	0.033	0.034	0.031	0.033	0.03
Chromium	µg/L	0.1	0.094	0.1	0.094	0.088	0.079	0.08	0.071	0.11	0.094	0.1	0.096	0.088	0.08	0.081	0.073	0.12	0.093	0.12	0.095	0.098	0.08	0.09	0.072
Cobalt	µg/L	0.07	0.074	0.075	0.077	0.078	0.08	0.076	0.078	0.07	0.074	0.075	0.077	0.078	0.081	0.076	0.079	0.073	0.074	0.077	0.077	0.082	0.08	0.081	0.079
Copper	µg/L	0.42	0.39	0.42	0.39	0.41	0.38	0.4	0.38	0.42	0.39	0.42	0.4	0.41	0.38	0.41	0.38	0.44	0.4	0.44	0.4	0.43	0.39	0.43	0.38
Iron	µg/L	31	31	30	30	21	22	17	18	31	30	30	31	21	23	17	18	36	30	35	31	24	22	20	18
Lead	µg/L	0.036	0.035	0.036	0.035	0.034	0.032	0.033	0.031	0.036	0.035	0.036	0.035	0.034	0.033	0.033	0.032	0.038	0.035	0.038	0.035	0.035	0.033	0.034	0.031
Manganese	µg/L	3.7	5.4	3.7	5.4	3.5	5.1	3.3	4.9	3.8	5.4	3.7	5.5	3.5	5.2	3.3	5.0	4.2	5.4	4.1	5.5	3.8	5.1	3.6	5.0
Mercury	µg/L	0.012	0.012	0.012	0.012	0.011	0.012	0.011	0.012	0.012	0.012	0.012	0.012	0.011	0.012	0.011	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.011	0.012
Molybdenum	µg/L	3.2	2.7	3.2	2.7	2.6	2.2	2.4	2.0	3.3	2.7	3.3	2.8	2.7	2.3	2.5	2.0	3.8	2.8	3.7	2.8	3.1	2.3	2.9	2.1
Nickel	µg/L	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.4	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.4	1.3	1.4	1.3	1.3	1.2	1.3	1.2
Selenium	µg/L	0.13	0.12	0.13	0.12	0.1	0.096	0.091	0.084	0.13	0.12	0.13	0.13	0.1	0.099	0.091	0.086	0.15	0.12	0.15	0.13	0.11	0.097	0.099	0.085
Silver	µg/L	0.059	0.058	0.059	0.058	0.055	0.055	0.054	0.053	0.059	0.058	0.059	0.059	0.055	0.055	0.054	0.053	0.061	0.058	0.061	0.058	0.056	0.055	0.054	0.053
Strontium	µg/L	36	30	67	47	80	57	78	55	37	31	67	47	81	59	79	57	41	32	74	47	93	58	92	56
Uranium	µg/L	0.32	0.29	0.31	0.29	0.23	0.21	0.19	0.17	0.32	0.29	0.31	0.3	0.23	0.22	0.19	0.18	0.37	0.29	0.36	0.29	0.27	0.21	0.22	0.17
Vanadium	µg/L	0.53	0.47	0.52	0.47	0.35	0.31	0.27	0.23	0.54	0.47	0.52	0.49	0.35	0.32	0.27	0.24	0.62	0.47	0.61	0.48	0.41	0.31	0.31	0.24

Table A-2 Predicted Maximum Depth-Averaged Concentrations in Lac de Gras Part B

Parameter	Units	LDG-P4								LDG-P5								LDG-P6							
		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)	
		Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water
Zinc	µg/L	1.4	0.77	1.4	0.77	1.4	0.75	1.4	0.73	1.4	0.77	1.4	0.77	1.4	0.75	1.4	0.74	1.4	0.77	1.4	0.77	1.4	0.75	1.4	0.73
Dissolved Metals																									
Aluminum	µg/L	4.8	3.9	4.9	4.0	4.4	3.5	4.2	3.3	5.0	4.0	5.0	4.1	4.6	3.6	4.4	3.4	5.8	4.1	5.8	4.1	5.3	3.7	5.2	3.4
Arsenic	µg/L	0.095	0.079	0.095	0.081	0.081	0.067	0.075	0.061	0.098	0.081	0.098	0.083	0.082	0.069	0.077	0.062	0.11	0.083	0.11	0.083	0.097	0.069	0.091	0.063
Barium	µg/L	2.6	2.2	2.6	2.2	2.0	1.7	1.8	1.5	2.6	2.2	2.6	2.3	2.1	1.8	1.8	1.5	3.1	2.2	3.0	2.3	2.4	1.7	2.2	1.5
Beryllium	µg/L	0.013	0.017	0.013	0.018	0.0094	0.015	0.0078	0.014	0.014	0.018	0.013	0.018	0.0096	0.015	0.008	0.014	0.016	0.018	0.016	0.018	0.011	0.015	0.0095	0.015
Bismuth	µg/L	0.0016	0.0015	0.0016	0.0015	0.0014	0.0012	0.0013	0.001	0.0016	0.0015	0.0016	0.0015	0.0014	0.0012	0.0012	0.0011	0.0019	0.0015	0.0019	0.0015	0.0016	0.0012	0.0015	0.001
Cadmium	µg/L	0.0067	0.0055	0.0067	0.0056	0.0061	0.0049	0.0059	0.0047	0.0069	0.0057	0.0069	0.0058	0.0063	0.0051	0.0061	0.0048	0.0081	0.0058	0.008	0.0058	0.0074	0.0052	0.0072	0.0049
Chromium	µg/L	0.069	0.059	0.068	0.06	0.05	0.041	0.041	0.034	0.07	0.059	0.069	0.061	0.05	0.043	0.042	0.035	0.082	0.059	0.081	0.06	0.059	0.042	0.05	0.035
Cobalt	µg/L	0.01	0.015	0.02	0.022	0.024	0.027	0.023	0.026	0.01	0.016	0.019	0.022	0.024	0.027	0.023	0.026	0.012	0.016	0.022	0.022	0.028	0.027	0.027	0.026
Copper	µg/L	0.083	0.063	0.094	0.071	0.098	0.073	0.097	0.073	0.087	0.067	0.096	0.071	0.1	0.077	0.1	0.076	0.1	0.07	0.11	0.072	0.12	0.077	0.12	0.077
Iron	µg/L	1.3	1.0	2.5	1.8	3.0	2.3	2.9	2.3	1.4	1.1	2.5	1.8	3.0	2.3	3.0	2.3	1.7	1.2	2.8	1.8	3.6	2.4	3.5	2.3
Lead	µg/L	0.0039	0.0031	0.0045	0.0034	0.0047	0.0037	0.0046	0.0036	0.004	0.0032	0.0045	0.0035	0.0048	0.0038	0.0047	0.0036	0.0047	0.0033	0.0051	0.0035	0.0057	0.0038	0.0056	0.0036
Manganese	µg/L	2.0	1.7	2.0	1.7	1.9	1.6	1.8	1.4	2.0	1.7	2.0	1.8	1.9	1.6	1.8	1.5	2.4	1.7	2.3	1.8	2.2	1.6	2.1	1.4
Mercury	µg/L	0.0023	0.0026	0.0023	0.0027	0.0016	0.002	0.0012	0.0018	0.0024	0.0027	0.0023	0.0027	0.0016	0.0021	0.0013	0.0018	0.0028	0.0027	0.0027	0.0027	0.0019	0.0021	0.0015	0.0018
Molybdenum	µg/L	2.9	2.5	3.0	2.5	2.4	2.0	2.2	1.8	3.0	2.5	3.0	2.6	2.5	2.1	2.3	1.9	3.6	2.6	3.5	2.6	3.0	2.1	2.8	1.9
Nickel	µg/L	0.29	0.24	0.29	0.25	0.25	0.2	0.23	0.18	0.3	0.25	0.3	0.25	0.25	0.21	0.23	0.18	0.35	0.25	0.35	0.25	0.3	0.21	0.28	0.18
Selenium	µg/L	0.052	0.045	0.051	0.045	0.037	0.031	0.03	0.025	0.053	0.045	0.052	0.046	0.037	0.032	0.031	0.026	0.062	0.045	0.06	0.046	0.044	0.032	0.036	0.026
Silver	µg/L	0.0056	0.0052	0.0055	0.0054	0.0042	0.004	0.0035	0.0035	0.0057	0.0053	0.0057	0.0055	0.0042	0.0042	0.0036	0.0036	0.0067	0.0054	0.0066	0.0054	0.005	0.0042	0.0043	0.0036
Strontium	µg/L	27	22	59	40	72	50	70	48	28	23	59	40	73	51	71	50	33	24	66	39	85	50	84	49
Uranium	µg/L	0.28	0.25	0.27	0.25	0.2	0.18	0.16	0.14	0.28	0.25	0.27	0.26	0.2	0.19	0.16	0.15	0.33	0.25	0.32	0.26	0.23	0.18	0.19	0.14
Vanadium	µg/L	0.081	0.065	0.083	0.069	0.079	0.063	0.079	0.063	0.085	0.07	0.086	0.071	0.082	0.067	0.083	0.067	0.099	0.073	0.099	0.072	0.097	0.069	0.097	0.068
Zinc	µg/L	0.17	0.13	0.17	0.14	0.17	0.13	0.17	0.13	0.18	0.14	0.18	0.14	0.18	0.14	0.17	0.13	0.21	0.14	0.2	0.14	0.21	0.14	0.21	0.13

a) Dissolved oxygen predictions are minimum concentrations.
b) Total suspended solids were modelled using baseline concentrations.
mg/L = milligrams per litre; mg-N/L = milligrams as nitrogen per litre; mg-P/L = milligrams as phosphorus per litre; µg/L = micrograms per litre; °C = degrees Celsius.

Table A-3 Predicted Maximum Surface Concentrations in Lac de Gras
Part A

Parameter	Units	LDG-P1								LDG-P2								LDG-P3							
		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)	
		Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water
Field Measured																									
Water temperature	°C	4.2	14	2.7	17	3.4	13	4.4	16	2.3	16	0.71	17	1.1	15	1.9	17	1.8	15	1.0	15	1.9	15	2.3	15
Dissolved oxygen(a)	mg/L	11	11	11	11	11	11	11	11	9.0	8.0	8.9	8.1	9.4	7.9	8.7	7.9	10.0	9.6	9.9	9.6	10	9.5	9.7	9.4
Conventional Parameters																									
Total dissolved solids	mg/L	27	21	31	21	29	23	27	19	31	18	29	18	30	20	30	18	29	19	27	18	27	19	27	19
Total suspended solids(b)	mg/L	2.3	1.7	2.3	1.6	1.9	1.4	2.0	1.4	2.6	1.6	2.5	1.5	2.2	1.4	2.3	1.4	2.4	1.6	2.3	1.6	2.0	1.4	2.1	1.4
Major Ions																									
Calcium	mg/L	2.3	1.9	3.6	2.3	3.5	2.8	3.0	2.1	2.7	1.6	2.9	1.9	3.3	2.2	3.3	2.0	2.5	1.6	2.5	1.8	3.0	2.1	2.9	2.1
Chloride	mg/L	4.3	3.7	7.9	4.9	7.7	6.4	6.1	4.4	5.1	3.0	5.7	3.7	6.9	4.6	6.6	4.1	4.8	3.1	4.9	3.5	6.2	4.4	6.0	4.2
Fluoride	mg/L	0.018	0.014	0.017	0.012	0.015	0.011	0.015	0.01	0.02	0.013	0.019	0.012	0.016	0.011	0.017	0.01	0.019	0.012	0.018	0.012	0.015	0.011	0.015	0.01
Magnesium	mg/L	1.5	1.2	1.4	0.98	1.2	0.87	1.1	0.76	1.7	1.0	1.6	0.96	1.2	0.82	1.2	0.76	1.6	1.0	1.5	0.99	1.1	0.82	1.1	0.77
Potassium	mg/L	1.5	1.2	1.4	1.0	1.1	0.82	1.0	0.71	1.7	1.0	1.6	0.98	1.2	0.8	1.2	0.72	1.6	1.0	1.5	1.0	1.1	0.81	1.1	0.74
Sodium	mg/L	2.8	2.3	3.1	2.1	3.0	2.4	2.5	1.8	3.3	2.0	3.0	1.9	2.9	1.9	2.8	1.7	3.1	2.0	2.9	2.0	2.6	1.9	2.6	1.8
Sulphate	mg/L	5.5	4.6	5.0	3.7	3.6	2.7	3.1	2.2	6.4	3.8	5.9	3.6	3.9	2.7	3.6	2.2	5.9	3.8	5.5	3.7	3.7	2.7	3.3	2.3
Nutrients																									
Total nitrogen (calculated)	mg-N/L	0.33	0.31	0.35	0.3	0.34	0.31	0.27	0.25	0.33	0.28	0.31	0.27	0.3	0.27	0.27	0.24	0.32	0.28	0.3	0.27	0.29	0.27	0.26	0.25
Total ammonia	mg-N/L	0.047	0.029	0.049	0.028	0.042	0.027	0.026	0.016	0.051	0.027	0.05	0.027	0.037	0.024	0.024	0.015	0.048	0.027	0.047	0.028	0.034	0.023	0.022	0.015
Nitrate	mg-N/L	0.071	0.078	0.093	0.06	0.091	0.072	0.041	0.028	0.073	0.044	0.057	0.036	0.059	0.039	0.037	0.023	0.066	0.045	0.051	0.034	0.051	0.036	0.034	0.024
Total phosphorus (calculated)	mg-P/L	0.0041	0.0035	0.0039	0.0032	0.0036	0.003	0.0033	0.0027	0.0044	0.0028	0.0041	0.0028	0.0035	0.0026	0.0035	0.0026	0.0041	0.0029	0.0039	0.0027	0.0034	0.0026	0.0032	0.0027
Dissolved orthophosphate	mg/L	0.0027	0.0021	0.0025	0.0018	0.0022	0.0016	0.0019	0.0013	0.003	0.0014	0.0027	0.0014	0.0021	0.0012	0.0021	0.0012	0.0027	0.0015	0.0025	0.0013	0.002	0.0012	0.0018	0.0013
Phytoplankton (as Chlorophyll a) (µg/L)	µg/L	2.0	2.2	1.9	2.2	2.0	1.9	0.62	0.67	2.2	3.2	2.3	3.5	1.4	2.3	0.68	1.1	2.3	3.1	2.5	3.3	1.3	1.9	0.68	0.89
Silica, reactive	mg/L	0.18	0.13	0.18	0.13	0.18	0.13	0.19	0.13	0.2	0.12	0.19	0.12	0.2	0.13	0.21	0.13	0.18	0.12	0.18	0.12	0.18	0.12	0.19	0.13
Total Metals																									
Aluminum	µg/L	32	31	31	24	28	23	22	18	37	24	33	22	27	20	24	17	34	23	31	23	26	20	23	17
Arsenic	µg/L	0.43	0.4	0.41	0.36	0.35	0.31	0.33	0.29	0.42	0.31	0.4	0.3	0.31	0.25	0.3	0.23	0.41	0.31	0.39	0.3	0.31	0.26	0.29	0.24
Barium	µg/L	8.5	7.1	7.9	6.1	6.9	5.1	6.3	4.6	7.4	5.0	6.9	4.8	5.2	3.8	4.7	3.4	7.0	4.9	6.6	4.9	5.1	3.9	4.6	3.4
Beryllium	µg/L	0.13	0.13	0.12	0.12	0.11	0.11	0.11	0.11	0.13	0.12	0.13	0.12	0.11	0.11	0.11	0.11	0.13	0.12	0.13	0.12	0.11	0.11	0.11	0.11
Bismuth	µg/L	0.014	0.014	0.012	0.0098	0.0077	0.0058	0.0054	0.0039	0.017	0.01	0.015	0.0096	0.0082	0.0056	0.0061	0.0039	0.016	0.010	0.014	0.0098	0.0078	0.0056	0.0058	0.004
Cadmium	µg/L	0.038	0.036	0.036	0.033	0.034	0.031	0.032	0.029	0.04	0.034	0.039	0.033	0.034	0.03	0.033	0.029	0.039	0.033	0.038	0.033	0.034	0.031	0.033	0.03
Chromium	µg/L	0.13	0.11	0.12	0.093	0.1	0.079	0.087	0.067	0.15	0.097	0.13	0.092	0.1	0.076	0.096	0.067	0.14	0.095	0.13	0.094	0.1	0.077	0.093	0.068
Cobalt	µg/L	0.078	0.08	0.1	0.085	0.097	0.088	0.084	0.077	0.083	0.074	0.091	0.079	0.093	0.081	0.087	0.076	0.08	0.074	0.085	0.078	0.088	0.08	0.085	0.077
Copper	µg/L	0.45	0.41	0.44	0.39	0.43	0.38	0.41	0.36	0.47	0.39	0.46	0.38	0.44	0.37	0.44	0.36	0.47	0.39	0.46	0.39	0.43	0.37	0.43	0.37
Iron	µg/L	41	42	36	32	26	23	20	18	49	33	43	31	27	22	22	18	45	32	41	32	26	22	21	18
Lead	µg/L	0.04	0.039	0.039	0.035	0.037	0.034	0.034	0.031	0.043	0.036	0.041	0.035	0.037	0.033	0.036	0.031	0.042	0.035	0.04	0.035	0.037	0.033	0.035	0.031
Manganese	µg/L	4.2	6.0	4.3	5.3	4.0	5.3	3.4	4.7	5.1	5.6	4.7	5.5	4.3	5.2	3.9	4.9	4.8	5.5	4.5	5.5	4.1	5.2	3.8	4.9
Mercury	µg/L	0.013	0.013	0.012	0.012	0.012	0.012	0.011	0.011	0.013	0.012	0.013	0.012	0.012	0.012	0.012	0.011	0.013	0.012	0.013	0.012	0.012	0.012	0.011	0.011
Molybdenum	µg/L	4.1	3.3	3.7	2.7	2.9	2.0	2.8	1.7	4.6	2.5	4.3	2.4	3.1	1.8	3.0	1.5	4.4	2.6	4.2	2.5	3.1	1.9	2.9	1.7
Nickel	µg/L	1.3	1.1	1.2	1.0	1.2	0.92	1.1	0.86	1.5	1.3	1.5	1.3	1.3	1.2	1.3	1.2	1.5	1.3	1.5	1.3	1.3	1.2	1.3	1.2
Selenium	µg/L	0.16	0.15	0.15	0.13	0.11	0.093	0.095	0.081	0.19	0.13	0.17	0.12	0.12	0.093	0.1	0.081	0.17	0.13	0.16	0.13	0.11	0.095	0.1	0.082
Silver	µg/L	0.063	0.062	0.061	0.059	0.056	0.055	0.054	0.053	0.065	0.059	0.063	0.059	0.057	0.055	0.055	0.053	0.064	0.059	0.063	0.059	0.056	0.055	0.055	0.053
Strontium	µg/L	48	37	134	69	127	78	105	59	47	28	101	52	114	58	107	52	46	28	90	50	105	57	100	53
Uranium	µg/L	0.49	0.47	0.45	0.36	0.37	0.3	0.29	0.23	0.51	0.32	0.45	0.3	0.31	0.21	0.25	0.17	0.46	0.31	0.42	0.3	0.3	0.21	0.24	0.17

Table A-3 Predicted Maximum Surface Concentrations in Lac de Gras
Part A

Parameter	Units	LDG-P1								LDG-P2								LDG-P3							
		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)	
		Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water
Vanadium	µg/L	0.71	0.65	0.6	0.48	0.38	0.29	0.29	0.21	0.84	0.51	0.75	0.47	0.41	0.29	0.34	0.21	0.77	0.49	0.71	0.49	0.41	0.29	0.33	0.22
Zinc	µg/L	0.67	0.62	0.66	0.56	0.64	0.55	0.6	0.52	1.5	0.77	1.5	0.76	1.4	0.74	1.4	0.72	1.5	0.77	1.5	0.77	1.4	0.74	1.4	0.72
Dissolved Metals																									
Aluminum	µg/L	5.8	4.3	5.5	3.4	5.0	3.0	4.7	2.6	6.9	3.5	6.4	3.4	5.6	2.8	5.6	2.6	6.7	3.6	6.3	3.6	5.4	3.1	5.3	2.8
Arsenic	µg/L	0.12	0.095	0.11	0.074	0.091	0.058	0.082	0.048	0.14	0.076	0.13	0.072	0.1	0.056	0.098	0.048	0.13	0.077	0.13	0.075	0.098	0.06	0.093	0.052
Barium	µg/L	3.4	2.9	3.0	2.2	2.4	1.6	2.0	1.3	4.0	2.3	3.6	2.1	2.6	1.5	2.4	1.2	3.7	2.2	3.5	2.2	2.5	1.6	2.3	1.3
Beryllium	µg/L	0.017	0.019	0.015	0.015	0.01	0.011	0.0085	0.01	0.021	0.015	0.019	0.015	0.011	0.011	0.01	0.01	0.019	0.016	0.018	0.016	0.011	0.013	0.0098	0.011
Bismuth	µg/L	0.0022	0.0021	0.0023	0.0015	0.0021	0.0015	0.0016	0.001	0.0026	0.0016	0.0023	0.0015	0.002	0.0013	0.0017	0.00099	0.0024	0.0015	0.0022	0.0015	0.0019	0.0012	0.0016	0.001
Cadmium	µg/L	0.0081	0.0062	0.0078	0.0049	0.007	0.0043	0.0065	0.0037	0.0096	0.005	0.009	0.0048	0.0078	0.0041	0.0077	0.0036	0.0093	0.0051	0.0088	0.0051	0.0075	0.0044	0.0073	0.0039
Chromium	µg/L	0.09	0.077	0.078	0.058	0.054	0.037	0.045	0.029	0.11	0.061	0.097	0.057	0.059	0.036	0.054	0.028	0.1	0.06	0.093	0.059	0.059	0.038	0.052	0.03
Cobalt	µg/L	0.014	0.016	0.042	0.029	0.04	0.033	0.03	0.024	0.016	0.013	0.032	0.023	0.036	0.026	0.033	0.023	0.015	0.014	0.028	0.023	0.033	0.026	0.03	0.024
Copper	µg/L	0.093	0.058	0.11	0.06	0.11	0.062	0.11	0.056	0.11	0.05	0.12	0.055	0.12	0.058	0.13	0.055	0.11	0.053	0.11	0.059	0.12	0.064	0.12	0.06
Iron	µg/L	1.4	0.84	4.3	2.3	4.1	2.7	3.6	2.0	1.7	0.75	3.6	1.8	4.1	2.1	4.0	2.0	1.7	0.82	3.3	1.8	3.9	2.2	3.8	2.1
Lead	µg/L	0.0047	0.0036	0.0066	0.0037	0.0063	0.004	0.0054	0.0031	0.0056	0.0029	0.0062	0.0032	0.0064	0.0034	0.0062	0.003	0.0054	0.003	0.0057	0.0033	0.006	0.0035	0.0059	0.0032
Manganese	µg/L	2.7	2.4	3.0	1.8	2.7	1.9	2.1	1.3	3.2	1.8	2.9	1.7	2.7	1.6	2.4	1.3	2.9	1.8	2.7	1.8	2.5	1.6	2.3	1.3
Mercury	µg/L	0.0032	0.0032	0.0027	0.0025	0.0018	0.0017	0.0014	0.0014	0.0038	0.0026	0.0034	0.0024	0.002	0.0017	0.0016	0.0014	0.0035	0.0026	0.0032	0.0025	0.0019	0.0018	0.0016	0.0015
Molybdenum	µg/L	3.6	2.9	3.3	2.2	2.6	1.6	2.4	1.4	4.3	2.3	4.0	2.2	2.9	1.6	2.9	1.4	4.1	2.3	3.9	2.3	2.9	1.8	2.8	1.5
Nickel	µg/L	0.37	0.3	0.35	0.23	0.3	0.19	0.25	0.15	0.44	0.24	0.4	0.23	0.31	0.18	0.3	0.15	0.42	0.24	0.39	0.24	0.31	0.19	0.29	0.16
Selenium	µg/L	0.068	0.059	0.058	0.045	0.04	0.028	0.033	0.021	0.081	0.047	0.073	0.043	0.044	0.028	0.039	0.021	0.075	0.046	0.069	0.045	0.044	0.029	0.037	0.022
Silver	µg/L	0.0073	0.0065	0.0063	0.005	0.0045	0.0034	0.0039	0.0028	0.0086	0.0052	0.0078	0.0049	0.0049	0.0034	0.0046	0.0028	0.0081	0.0052	0.0075	0.0051	0.005	0.0036	0.0044	0.003
Strontium	µg/L	33	25	119	57	112	66	90	46	39	20	93	44	106	51	99	45	38	21	82	42	97	50	93	46
Uranium	µg/L	0.39	0.37	0.35	0.27	0.28	0.2	0.2	0.14	0.46	0.28	0.41	0.26	0.28	0.18	0.22	0.14	0.42	0.27	0.38	0.27	0.26	0.18	0.21	0.14
Vanadium	µg/L	0.092	0.062	0.089	0.053	0.081	0.047	0.085	0.046	0.11	0.053	0.1	0.052	0.096	0.047	0.1	0.045	0.11	0.056	0.1	0.057	0.094	0.053	0.098	0.051
Zinc	µg/L	0.21	0.16	0.23	0.13	0.22	0.13	0.19	0.11	0.25	0.13	0.23	0.12	0.23	0.12	0.23	0.11	0.24	0.13	0.22	0.13	0.22	0.13	0.21	0.11

a) Dissolved oxygen predictions are minimum concentrations.
b) Total suspended solids were modelled using baseline concentrations.
mg/L = milligrams per litre; mg-N/L = milligrams as nitrogen per litre; mg-P/L = milligrams as phosphorus per litre; µg/L = micrograms per litre; °C = degrees Celsius.

Table A-3 Predicted Maximum Surface Concentrations in Lac de Gras
Part B

Parameter	Units	LDG-P4								LDG-P5								LDG-P6							
		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)	
		Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water
Field Measured																									
Water temperature	°C	1.9	15	1.5	15	2.0	14	2.3	16	1.9	15	1.4	16	2.3	15	2.8	16	0.71	18	0.71	16	1.4	16	1.6	17
Dissolved oxygen(a)	mg/L	10	9.8	10	9.8	10	9.7	10	9.6	10	9.6	10	9.6	10	9.5	9.8	9.4	9.7	9.3	9.8	9.3	10	9.2	9.5	9.0
Conventional Parameters																									
Total dissolved solids	mg/L	30	19	30	19	27	19	29	18	32	19	31	19	29	19	30	18	33	19	30	19	30	19	32	18
Total suspended solids(b)	mg/L	2.5	1.5	2.5	1.5	2.1	1.4	2.2	1.4	2.6	1.5	2.5	1.5	2.2	1.4	2.3	1.4	2.7	1.5	2.5	1.5	2.2	1.4	2.4	1.4
Major Ions																									
Calcium	mg/L	2.6	1.7	2.6	1.6	3.0	2.1	3.2	2.0	2.8	1.8	2.7	1.6	3.2	2.1	3.3	2.0	2.9	1.7	2.6	1.6	3.3	2.0	3.5	2.0
Chloride	mg/L	5.0	3.3	4.9	3.2	6.1	4.2	6.5	4.1	5.3	3.6	5.1	3.2	6.6	4.2	6.7	4.1	5.6	3.4	5.0	3.2	6.8	4.2	7.1	4.2
Fluoride	mg/L	0.019	0.012	0.019	0.012	0.016	0.011	0.016	0.01	0.02	0.012	0.02	0.012	0.016	0.011	0.017	0.01	0.021	0.012	0.019	0.012	0.017	0.011	0.018	0.01
Magnesium	mg/L	1.6	0.99	1.6	0.98	1.2	0.81	1.2	0.76	1.7	0.99	1.6	0.99	1.2	0.82	1.3	0.76	1.8	0.99	1.6	1.0	1.3	0.82	1.3	0.77
Potassium	mg/L	1.7	1.0	1.6	1.0	1.2	0.82	1.2	0.75	1.7	1.1	1.7	1.0	1.2	0.82	1.2	0.76	1.8	1.1	1.7	1.0	1.3	0.82	1.3	0.76
Sodium	mg/L	3.2	2.1	3.2	2.1	2.7	1.8	2.9	1.8	3.5	2.3	3.3	2.1	2.9	1.8	3.0	1.8	3.6	2.2	3.3	2.1	3.0	1.8	3.1	1.9
Sulphate	mg/L	6.0	3.7	6.0	3.8	3.9	2.7	3.6	2.3	6.4	3.8	6.2	3.8	4.1	2.7	3.8	2.3	6.7	3.8	6.0	3.8	4.1	2.8	4.0	2.3
Nutrients																									
Total nitrogen (calculated)	mg-N/L	0.33	0.29	0.31	0.28	0.29	0.26	0.27	0.25	0.34	0.31	0.32	0.28	0.29	0.26	0.27	0.25	0.34	0.29	0.32	0.28	0.29	0.26	0.28	0.25
Total ammonia	mg-N/L	0.05	0.027	0.051	0.029	0.034	0.022	0.024	0.015	0.053	0.028	0.053	0.029	0.035	0.022	0.024	0.015	0.055	0.027	0.051	0.029	0.036	0.022	0.025	0.015
Nitrate	mg-N/L	0.071	0.056	0.053	0.04	0.049	0.032	0.039	0.031	0.076	0.072	0.055	0.043	0.05	0.033	0.042	0.032	0.075	0.057	0.058	0.039	0.049	0.032	0.044	0.03
Total phosphorus (calculated)	mg-P/L	0.0041	0.0028	0.0041	0.0027	0.0034	0.0026	0.0034	0.0026	0.0043	0.0029	0.0042	0.0029	0.0035	0.0026	0.0034	0.0026	0.0044	0.0028	0.0041	0.0027	0.0035	0.0026	0.0035	0.0026
Dissolved orthophosphate	mg/L	0.0027	0.0014	0.0027	0.0013	0.002	0.0012	0.002	0.0012	0.0029	0.0015	0.0028	0.0015	0.0021	0.0012	0.002	0.0012	0.003	0.0014	0.0027	0.0013	0.0021	0.0012	0.0021	0.0012
Phytoplankton (as Chlorophyll a) (µg/L)	µg/L	2.3	3.1	2.5	3.3	1.4	1.9	0.72	0.93	2.4	3.1	2.5	3.3	1.4	1.9	0.73	0.97	2.4	3.3	2.5	3.5	1.3	2.0	0.73	1.0
Silica, reactive	mg/L	0.19	0.12	0.19	0.12	0.18	0.12	0.2	0.12	0.2	0.12	0.19	0.12	0.19	0.12	0.21	0.12	0.21	0.12	0.19	0.12	0.2	0.12	0.22	0.12
Total Metals																									
Aluminum	µg/L	34	23	34	22	27	19	25	17	36	22	35	22	28	19	25	17	37	22	34	23	29	19	26	18
Arsenic	µg/L	0.41	0.3	0.41	0.3	0.33	0.26	0.31	0.24	0.43	0.3	0.42	0.3	0.33	0.26	0.32	0.24	0.44	0.3	0.41	0.31	0.34	0.26	0.32	0.25
Barium	µg/L	7.1	4.9	7.1	4.9	5.4	4.0	5.0	3.6	7.4	4.9	7.2	4.9	5.5	4.0	5.1	3.6	7.7	4.8	7.1	4.9	5.5	4.0	5.2	3.6
Beryllium	µg/L	0.13	0.12	0.13	0.12	0.11	0.12	0.11	0.11	0.13	0.12	0.13	0.12	0.11	0.12	0.11	0.11	0.13	0.12	0.13	0.12	0.11	0.12	0.11	0.11
Bismuth	µg/L	0.015	0.0095	0.015	0.0093	0.0082	0.0056	0.0062	0.004	0.016	0.0093	0.015	0.0093	0.0085	0.0057	0.0064	0.0041	0.017	0.0092	0.015	0.0093	0.0085	0.0057	0.0065	0.0042
Cadmium	µg/L	0.04	0.033	0.04	0.033	0.035	0.031	0.034	0.03	0.041	0.033	0.04	0.033	0.036	0.031	0.035	0.03	0.041	0.033	0.04	0.033	0.036	0.031	0.035	0.03
Chromium	µg/L	0.14	0.094	0.14	0.094	0.11	0.079	0.1	0.071	0.15	0.094	0.14	0.094	0.11	0.08	0.1	0.072	0.15	0.093	0.14	0.095	0.11	0.08	0.11	0.072
Cobalt	µg/L	0.08	0.074	0.085	0.077	0.088	0.08	0.086	0.078	0.081	0.074	0.085	0.077	0.09	0.081	0.087	0.078	0.082	0.074	0.084	0.077	0.093	0.081	0.089	0.079
Copper	µg/L	0.48	0.39	0.48	0.4	0.45	0.38	0.45	0.38	0.49	0.4	0.49	0.4	0.46	0.39	0.46	0.38	0.5	0.4	0.48	0.4	0.47	0.39	0.47	0.38
Iron	µg/L	44	31	43	30	27	22	22	18	46	31	44	30	28	22	23	18	48	30	44	31	28	22	24	18
Lead	µg/L	0.042	0.035	0.041	0.035	0.037	0.032	0.036	0.031	0.042	0.035	0.042	0.035	0.038	0.032	0.036	0.031	0.043	0.035	0.041	0.035	0.038	0.032	0.037	0.031
Manganese	µg/L	4.9	5.5	4.8	5.4	4.3	5.1	4.0	4.9	5.0	5.4	4.9	5.4	4.3	5.1	4.1	4.9	5.2	5.4	4.8	5.4	4.5	5.1	4.2	5.0
Mercury	µg/L	0.013	0.012	0.013	0.012	0.012	0.012	0.012	0.012	0.013	0.012	0.013	0.012	0.012	0.012	0.012	0.012	0.013	0.012	0.013	0.012	0.012	0.012	0.012	0.012
Molybdenum	µg/L	4.7	2.7	4.8	2.8	3.5	2.2	3.5	2.0	5.0	2.8	4.9	2.8	3.7	2.5	3.7	2.1	5.2	2.8	4.8	2.8	3.8	2.3	3.9	2.1
Nickel	µg/L	1.5	1.3	1.5	1.3	1.4	1.2	1.3	1.2	1.5	1.3	1.5	1.3	1.4	1.2	1.3	1.2	1.6	1.3	1.5	1.3	1.4	1.2	1.4	1.2
Selenium	µg/L	0.17	0.12	0.17	0.12	0.12	0.096	0.11	0.084	0.18	0.12	0.18	0.12	0.12	0.096	0.11	0.084	0.19	0.12	0.17	0.12	0.12	0.097	0.11	0.085
Silver	µg/L	0.064	0.058	0.063	0.058	0.057	0.055	0.055	0.053	0.064	0.058	0.064	0.058	0.057	0.055	0.055	0.053	0.065	0.058	0.063	0.058	0.057	0.055	0.055	0.053
Strontium	µg/L	49	30	92	47	106	58	109	55	52	32	93	47	114	58	113	56	54	32	90	47	118	58	118	56
Uranium	µg/L	0.46	0.29	0.45	0.29	0.31	0.21	0.25	0.17	0.48	0.29	0.46	0.29	0.31	0.21	0.26	0.17	0.5	0.29	0.45	0.29	0.32	0.21	0.27	0.17
Vanadium	µg/L	0.78	0.48	0.77	0.47	0.44	0.31	0.36	0.23	0.82	0.47	0.79	0.47	0.46	0.31	0.37	0.23	0.85	0.47	0.77	0.48	0.46	0.31	0.39	0.24

Table A-3 Predicted Maximum Surface Concentrations in Lac de Gras
Part B

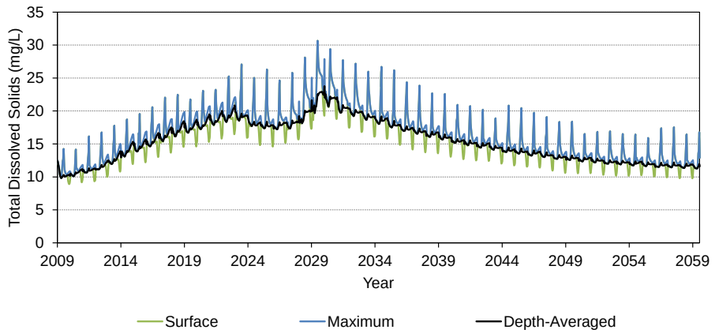
Parameter	Units	LDG-P4								LDG-P5								LDG-P6							
		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)		Pre-Operations (2019 - 2023)		Operations (2024 - 2029)		Closure - Pit Refilling Period (2030 - 2033)		Post-Closure (2034 - 2060)	
		Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water	Under Ice	Open Water
Zinc	µg/L	1.5	0.77	1.5	0.77	1.5	0.75	1.4	0.73	1.5	0.77	1.5	0.77	1.5	0.75	1.5	0.73	1.5	0.77	1.5	0.77	1.5	0.75	1.5	0.73
Dissolved Metals																									
Aluminum	µg/L	7.2	3.9	7.4	4.1	6.2	3.5	6.3	3.3	7.7	4.2	7.7	4.1	6.6	4.1	6.7	3.5	8.1	4.1	7.5	4.1	6.8	3.7	7.1	3.5
Arsenic	µg/L	0.14	0.08	0.14	0.083	0.11	0.067	0.11	0.06	0.15	0.083	0.15	0.083	0.12	0.075	0.12	0.061	0.16	0.083	0.15	0.083	0.12	0.069	0.12	0.063
Barium	µg/L	3.9	2.2	3.9	2.3	2.8	1.7	2.6	1.5	4.1	2.2	4.0	2.3	2.9	1.8	2.7	1.5	4.3	2.2	3.9	2.3	3.0	1.7	2.8	1.5
Beryllium	µg/L	0.02	0.017	0.02	0.018	0.013	0.015	0.011	0.014	0.021	0.019	0.02	0.018	0.013	0.017	0.012	0.016	0.022	0.018	0.02	0.018	0.013	0.015	0.012	0.015
Bismuth	µg/L	0.0024	0.0015	0.0023	0.0015	0.0019	0.0012	0.0017	0.001	0.0025	0.0015	0.0024	0.0015	0.002	0.0012	0.0018	0.001	0.0026	0.0015	0.0023	0.0015	0.0021	0.0012	0.0018	0.001
Cadmium	µg/L	0.010	0.0055	0.01	0.0058	0.0086	0.005	0.0087	0.0046	0.011	0.0059	0.011	0.0058	0.0091	0.0057	0.0093	0.0049	0.011	0.0058	0.01	0.0058	0.0094	0.0052	0.0097	0.0049
Chromium	µg/L	0.1	0.059	0.1	0.06	0.066	0.042	0.059	0.034	0.11	0.059	0.11	0.06	0.069	0.043	0.062	0.034	0.11	0.059	0.1	0.06	0.07	0.043	0.065	0.035
Cobalt	µg/L	0.015	0.015	0.028	0.022	0.032	0.027	0.032	0.026	0.016	0.017	0.028	0.022	0.035	0.028	0.033	0.026	0.017	0.016	0.027	0.022	0.036	0.027	0.035	0.026
Copper	µg/L	0.12	0.064	0.13	0.072	0.14	0.074	0.15	0.074	0.13	0.074	0.14	0.071	0.15	0.087	0.16	0.082	0.14	0.07	0.14	0.073	0.15	0.078	0.16	0.078
Iron	µg/L	2.0	1.1	3.6	1.8	4.1	2.3	4.3	2.2	2.2	1.3	3.6	1.8	4.4	2.4	4.6	2.3	2.3	1.2	3.6	1.8	4.6	2.4	4.8	2.3
Lead	µg/L	0.0058	0.0032	0.0064	0.0035	0.0065	0.0038	0.0067	0.0036	0.0062	0.0034	0.0065	0.0035	0.007	0.0041	0.0071	0.0036	0.0065	0.0033	0.0064	0.0035	0.0073	0.0038	0.0074	0.0037
Manganese	µg/L	3.0	1.7	3.0	1.7	2.6	1.6	2.5	1.4	3.2	1.7	3.1	1.8	2.7	1.6	2.6	1.4	3.3	1.7	3.0	1.8	2.9	1.6	2.7	1.4
Mercury	µg/L	0.0035	0.0026	0.0035	0.0027	0.0021	0.0021	0.0017	0.0018	0.0037	0.0027	0.0035	0.0027	0.0022	0.0022	0.0018	0.0018	0.0038	0.0027	0.0035	0.0027	0.0021	0.0021	0.0019	0.0018
Molybdenum	µg/L	4.4	2.5	4.5	2.6	3.4	2.1	3.3	1.8	4.7	2.6	4.7	2.6	3.5	2.3	3.5	2.0	4.9	2.6	4.6	2.6	3.6	2.1	3.7	1.9
Nickel	µg/L	0.44	0.24	0.44	0.25	0.34	0.2	0.33	0.18	0.47	0.25	0.46	0.25	0.36	0.22	0.35	0.18	0.49	0.25	0.45	0.25	0.37	0.21	0.37	0.18
Selenium	µg/L	0.077	0.045	0.077	0.045	0.049	0.031	0.043	0.025	0.082	0.045	0.079	0.045	0.051	0.032	0.044	0.025	0.085	0.045	0.078	0.046	0.051	0.032	0.047	0.026
Silver	µg/L	0.0084	0.0052	0.0084	0.0054	0.0056	0.0041	0.0051	0.0035	0.0089	0.0054	0.0087	0.0054	0.0058	0.0044	0.0054	0.0035	0.0093	0.0054	0.0085	0.0054	0.0059	0.0042	0.0056	0.0036
Strontium	µg/L	41	23	84	40	98	50	101	48	44	25	85	40	107	50	105	48	46	24	82	39	110	51	110	49
Uranium	µg/L	0.41	0.26	0.4	0.25	0.27	0.18	0.22	0.14	0.43	0.25	0.41	0.25	0.28	0.18	0.23	0.14	0.45	0.25	0.4	0.25	0.28	0.18	0.23	0.14
Vanadium	µg/L	0.12	0.067	0.13	0.072	0.11	0.065	0.12	0.066	0.13	0.077	0.13	0.073	0.12	0.079	0.13	0.079	0.14	0.073	0.13	0.073	0.12	0.069	0.13	0.069
Zinc	µg/L	0.25	0.14	0.26	0.14	0.24	0.14	0.25	0.13	0.27	0.14	0.27	0.14	0.26	0.15	0.26	0.13	0.28	0.14	0.26	0.14	0.27	0.14	0.28	0.13

a) Dissolved oxygen predictions are minimum concentrations.
b) Total suspended solids were modelled using baseline concentrations.
mg/L = milligrams per litre; mg-N/L = milligrams as nitrogen per litre; mg-P/L = milligrams as phosphorus per litre; µg/L = micrograms per litre; °C = degrees Celsius.

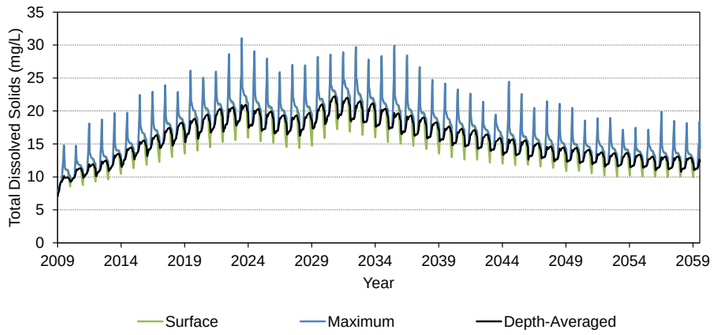
APPENDIX B

Timeseries Plots for Predicted Concentrations in Lac De Gras

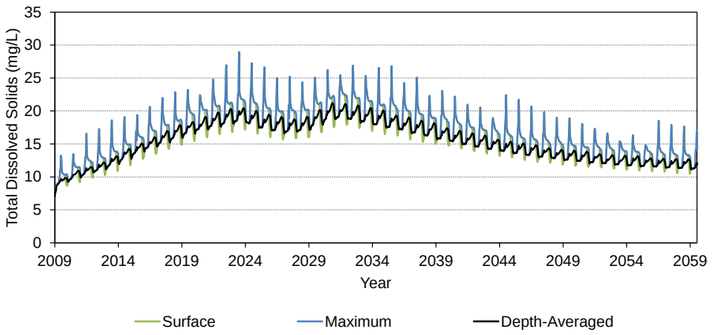
Figure B-1: Predicted Total Dissolved Solids Concentrations in Lac de Gras



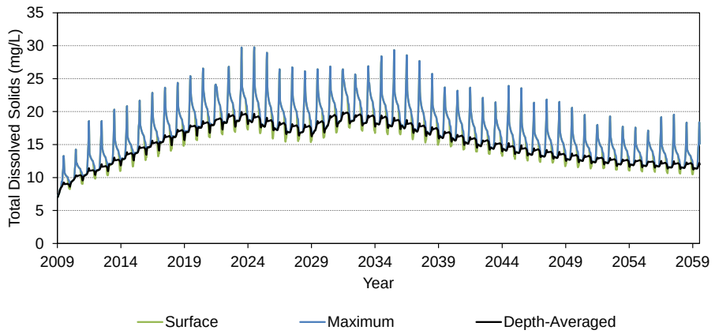
LDG-P1



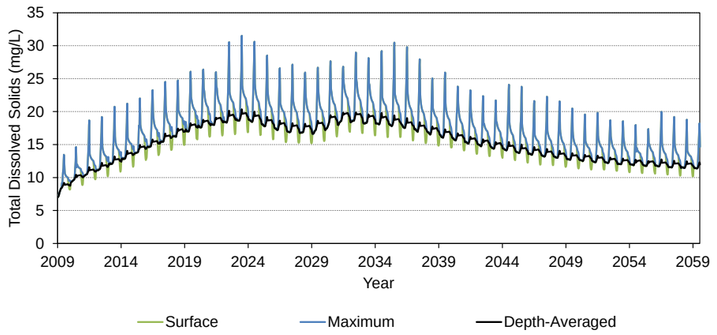
LDG-P2



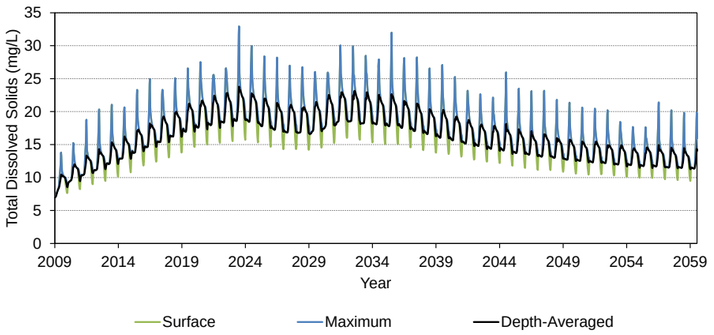
LDG-P3



LDG-P4

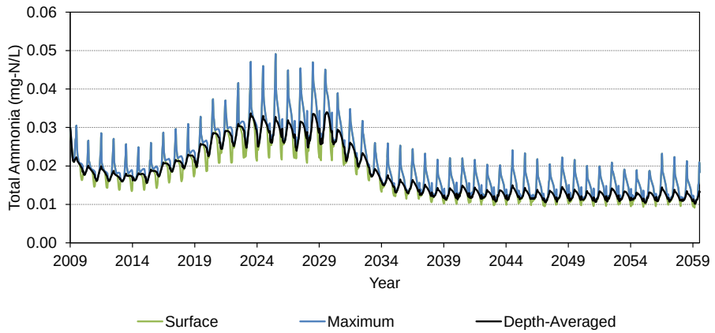


LDG-P5

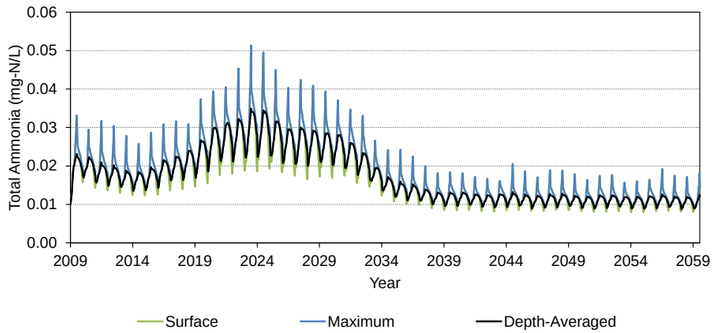


LDG-P6

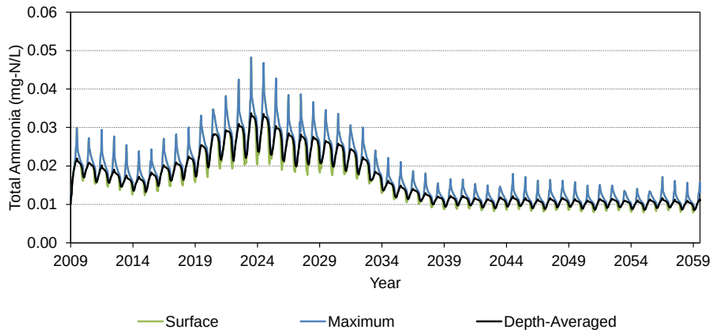
Figure B-2: Predicted Total Ammonia Concentrations in Lac de Gras



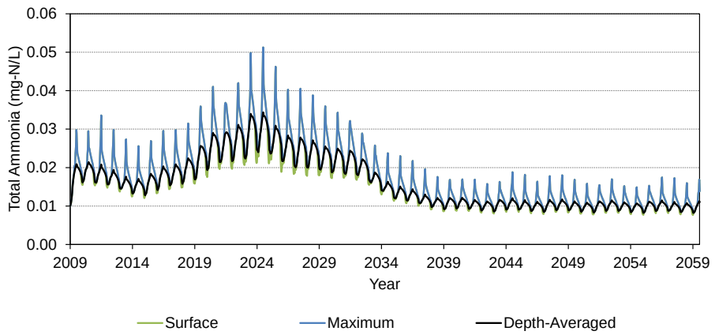
LDG-P1



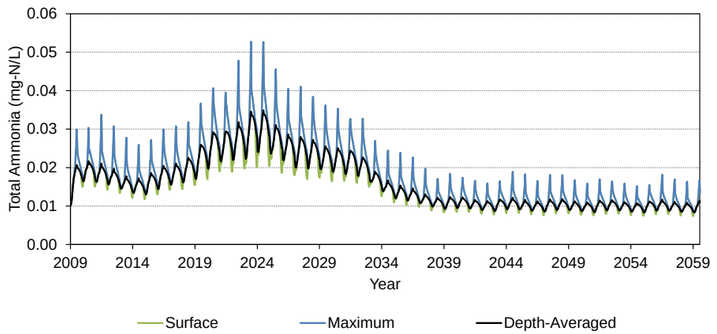
LDG-P2



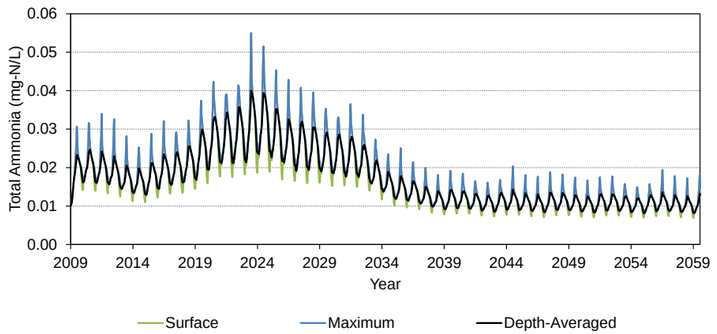
LDG-P3



LDG-P4

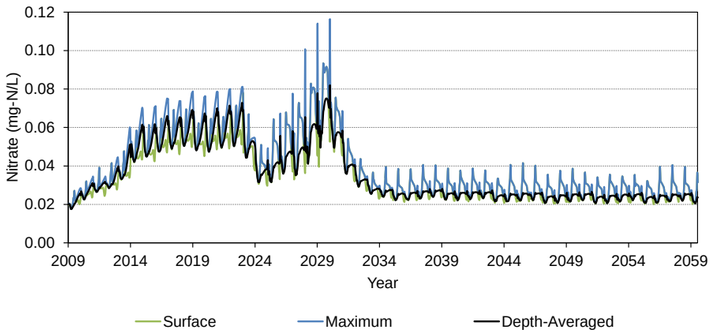


LDG-P5

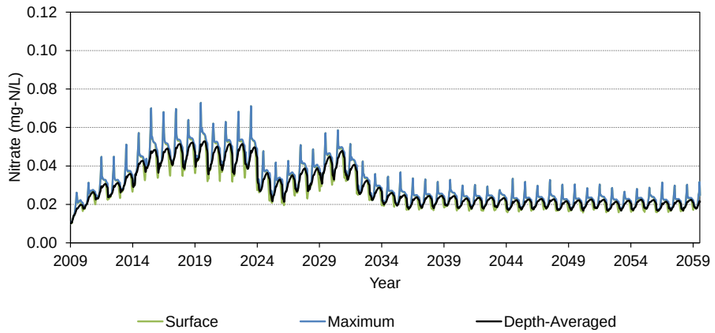


LDG-P6

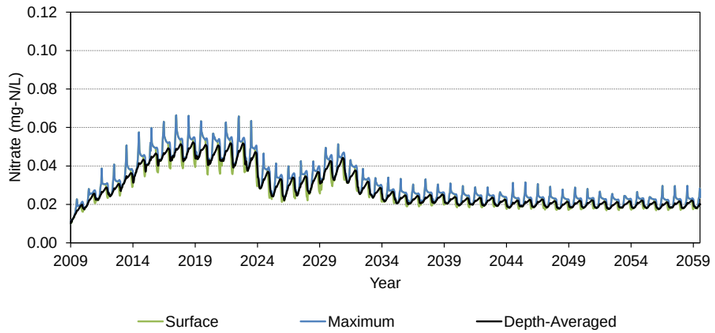
Figure B-3: Predicted Nitrate Concentrations in Lac de Gras



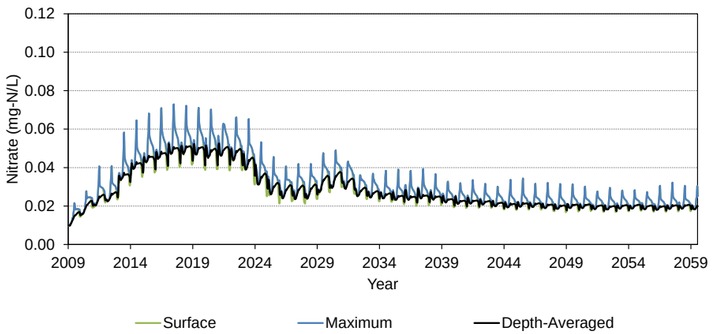
LDG-P1



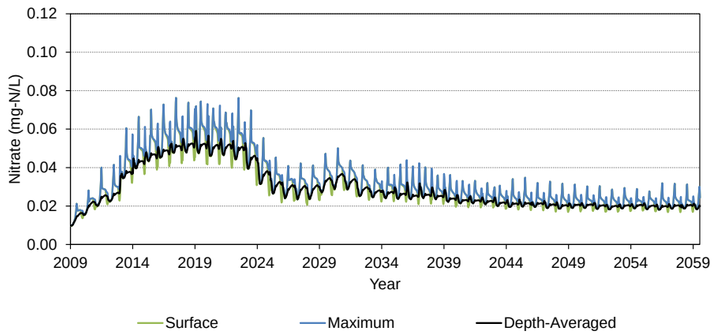
LDG-P2



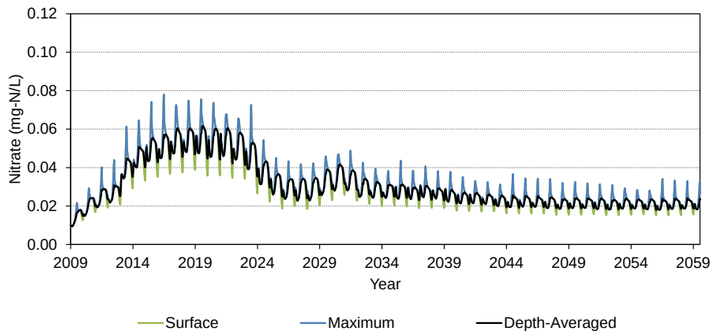
LDG-P3



LDG-P4

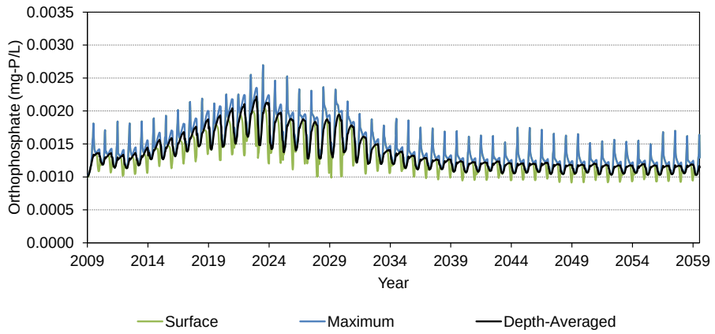


LDG-P5

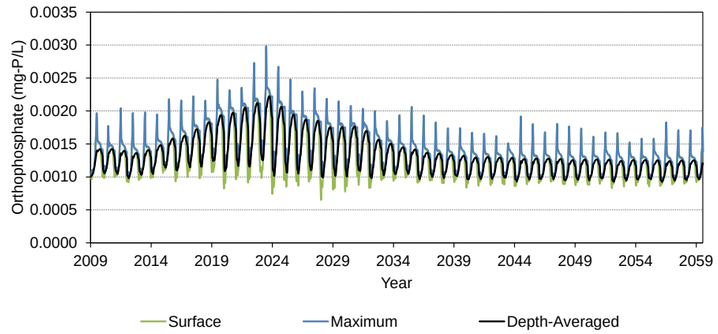


LDG-P6

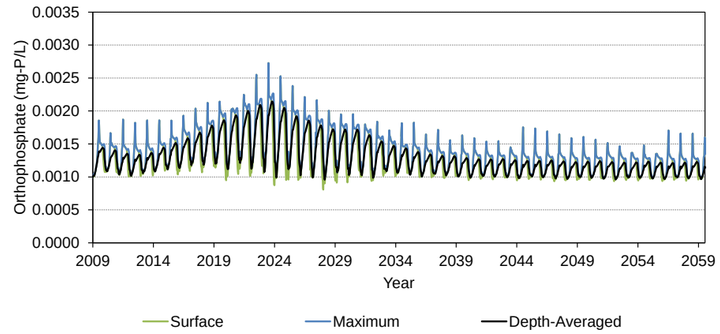
Figure B-4: Predicted Orthophosphate Concentrations in Lac de Gras



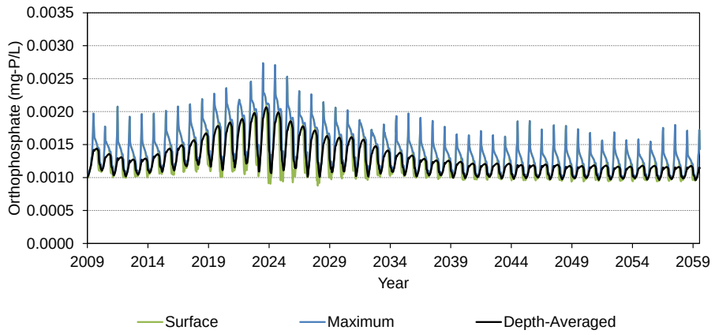
LDG-P1



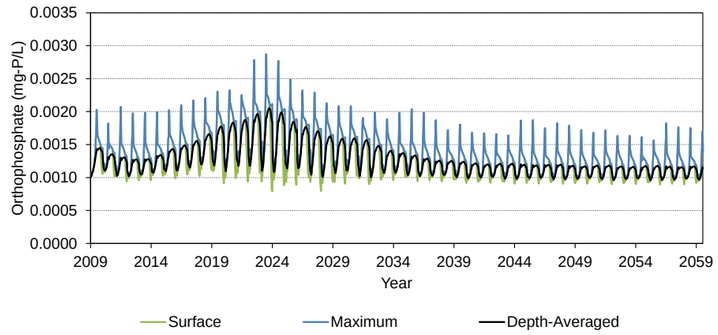
LDG-P2



LDG-P3



LDG-P4



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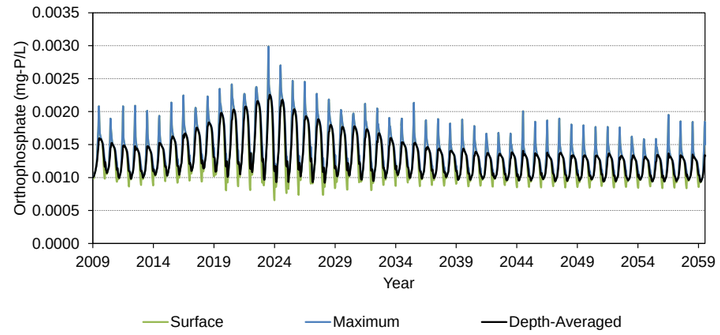
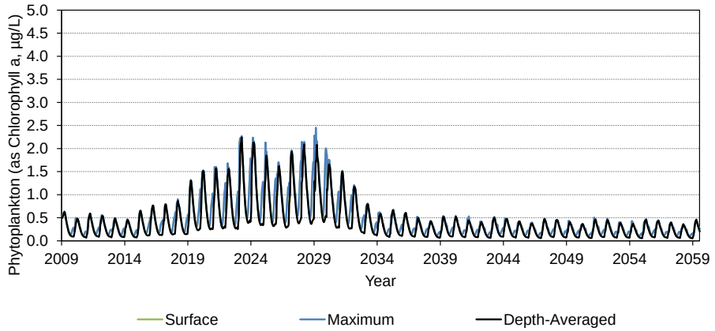


LDG-P6

Figure B-5: Predicted Phytoplankton Concentrations in Lac de Gras



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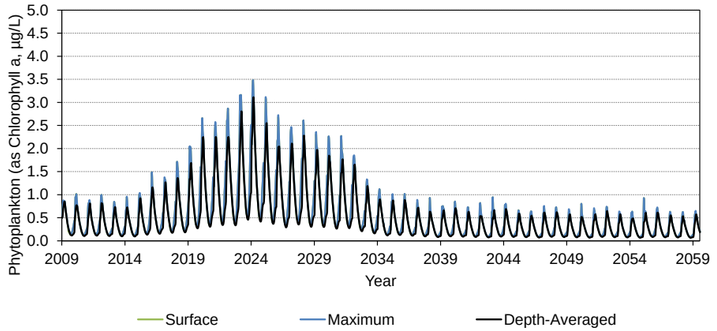

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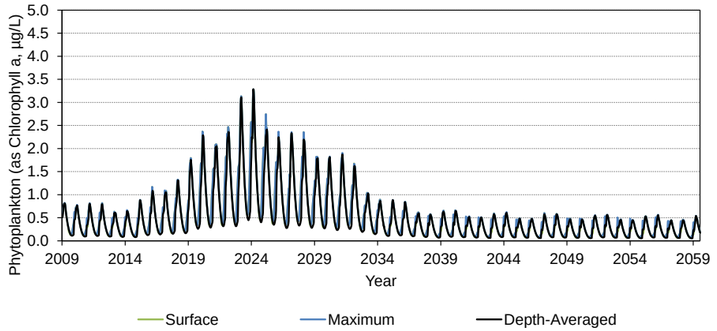

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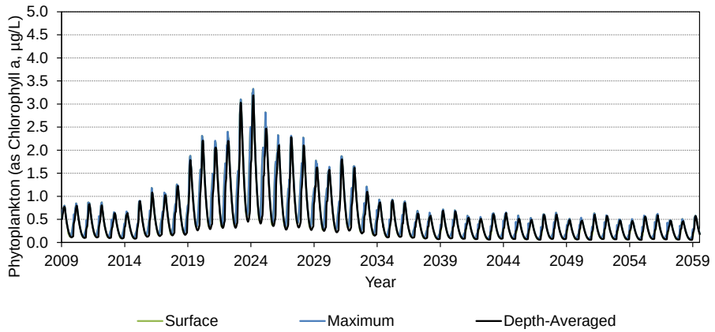

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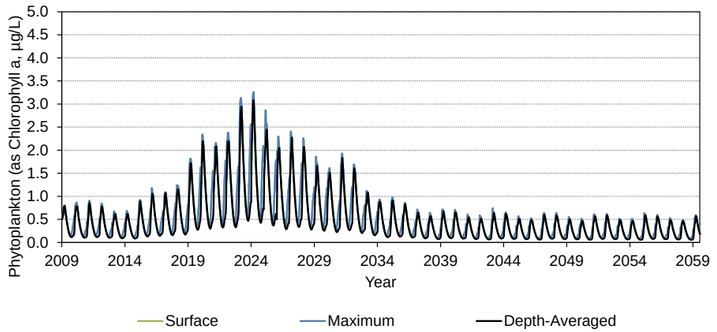

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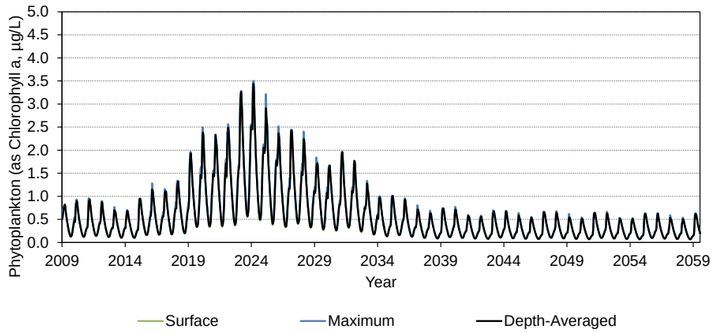
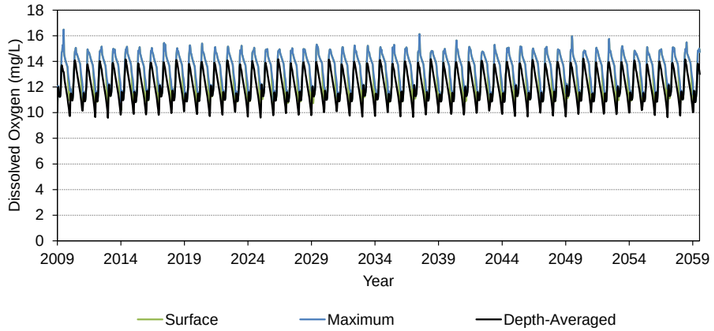


LDG-P6

Figure B-6: Predicted Dissolved Oxygen Concentrations in Lac de Gras



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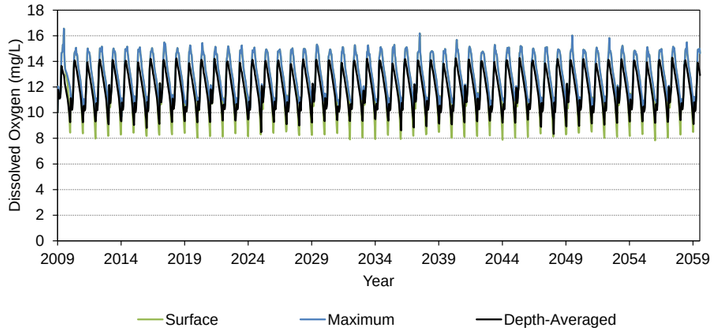

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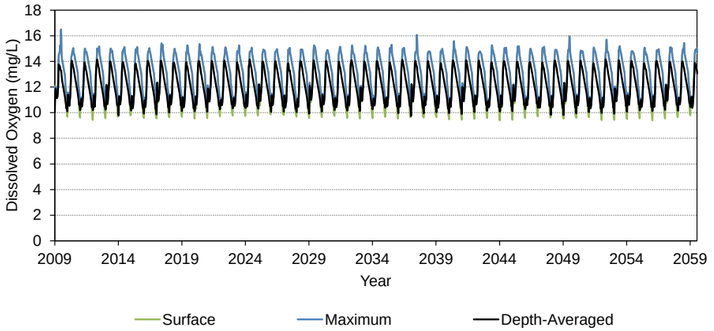

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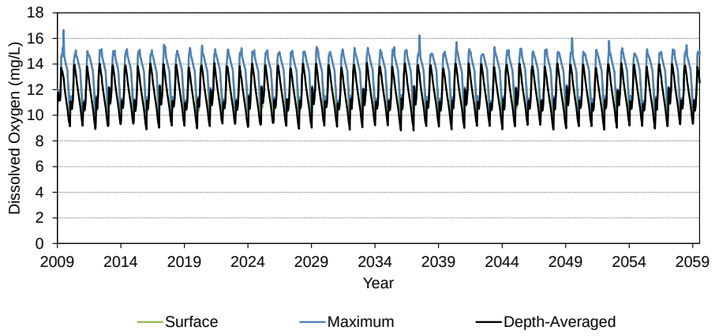

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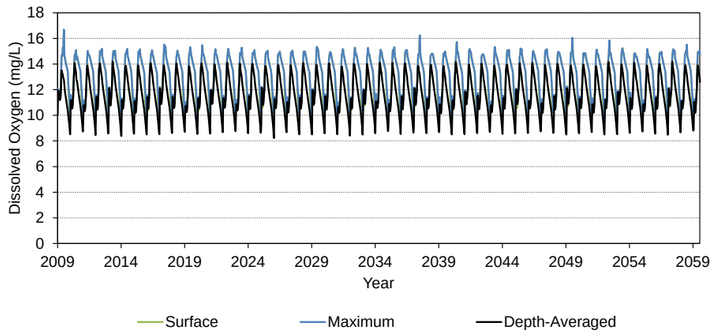

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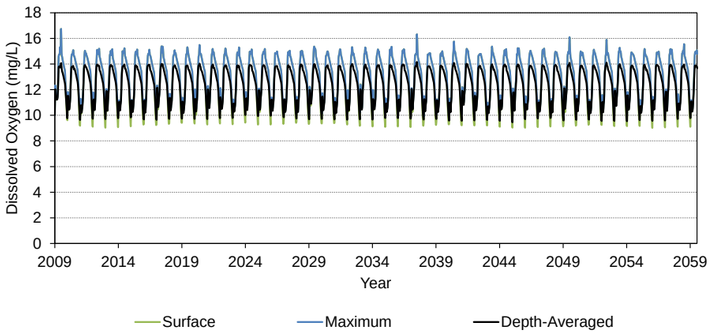
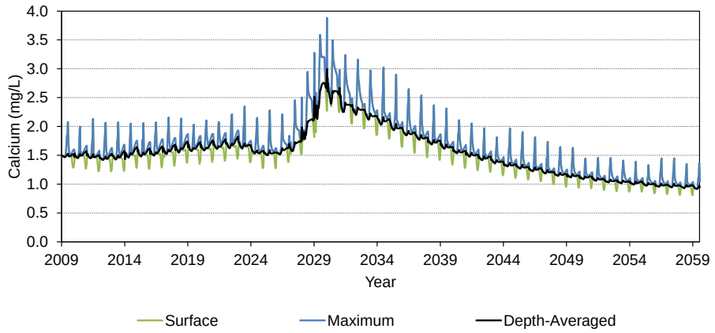


LDG-P6

Figure B-7: Predicted Calcium Concentrations in Lac de Gras



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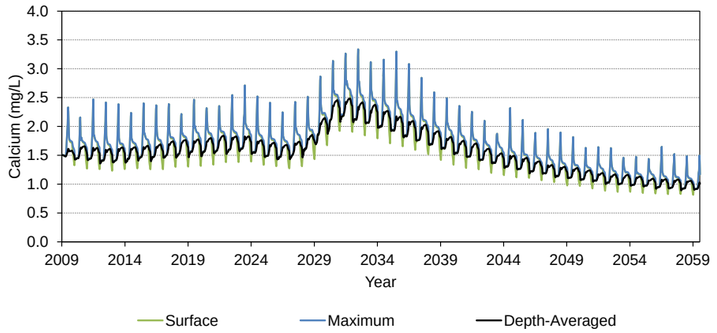

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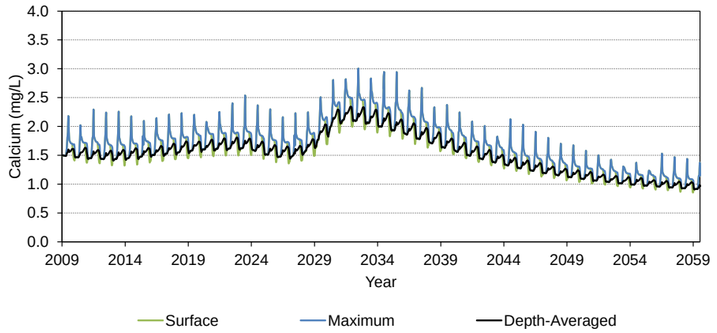

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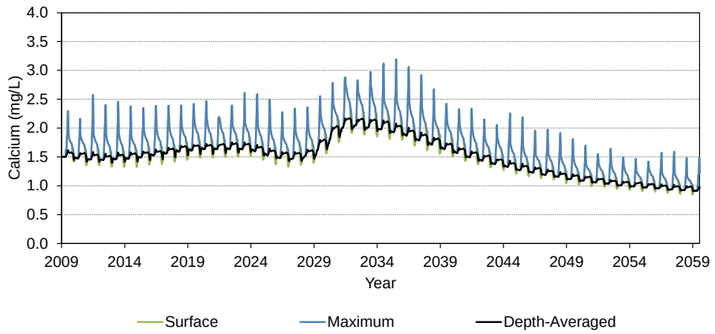

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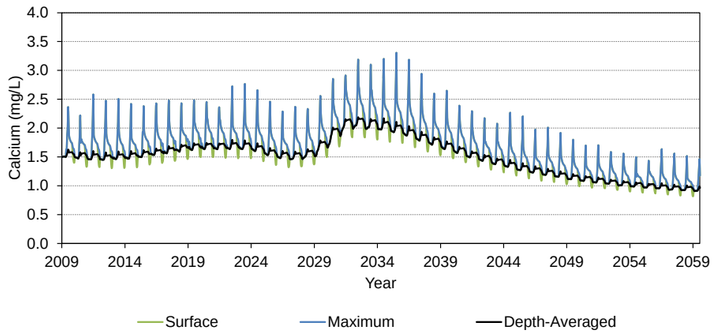

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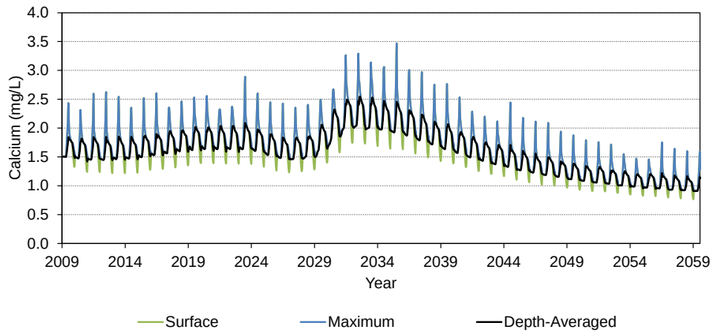
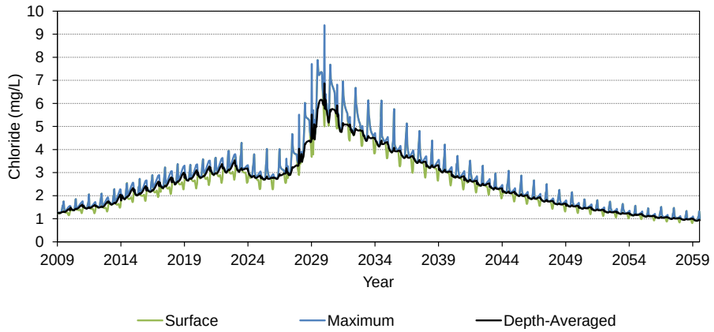


LDG-P6

Figure B-8: Predicted Chloride Concentrations in Lac de Gras



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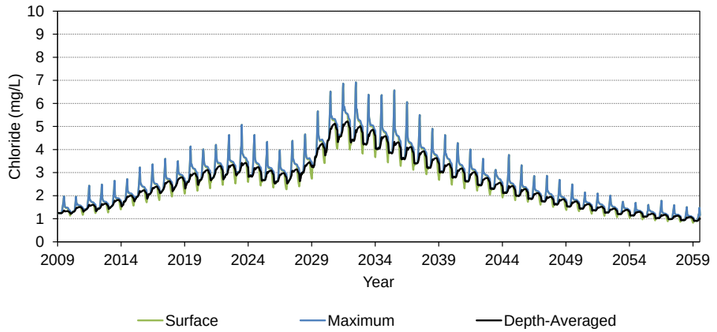

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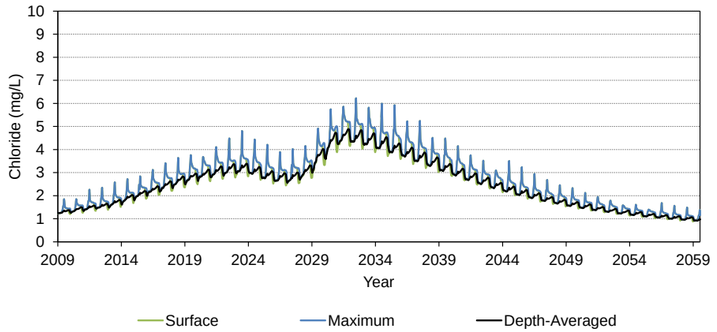

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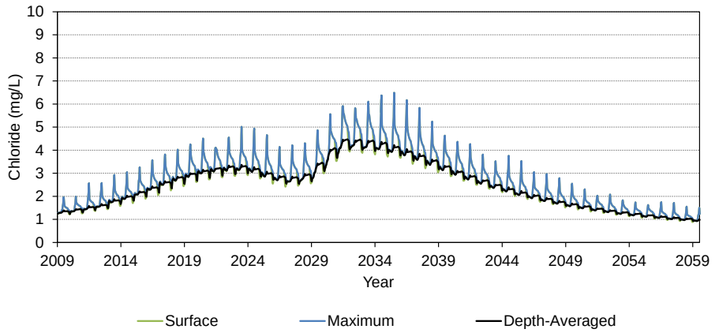

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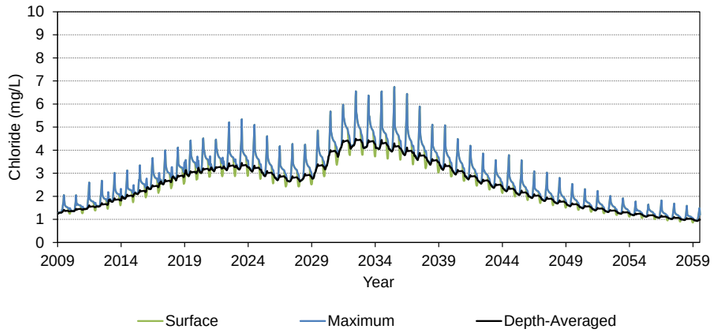

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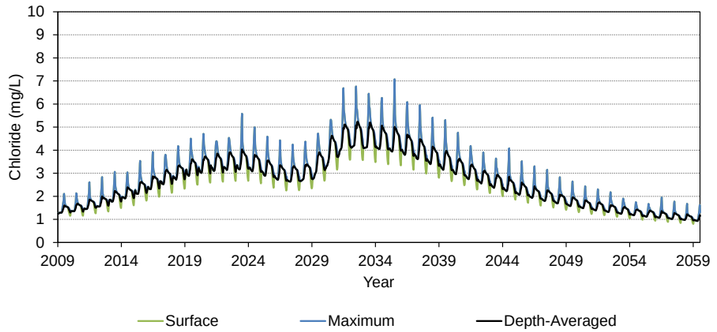
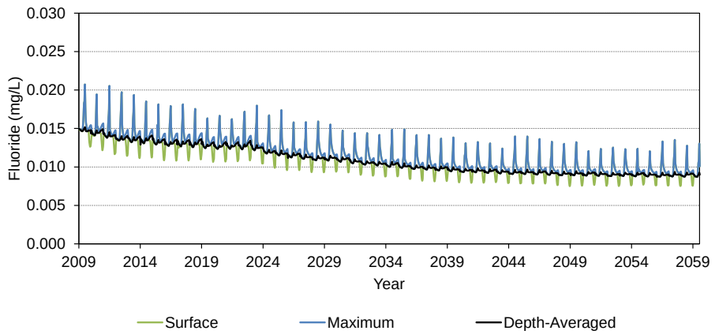


LDG-P6

Figure B-9: Predicted Fluoride Concentrations in Lac de Gras



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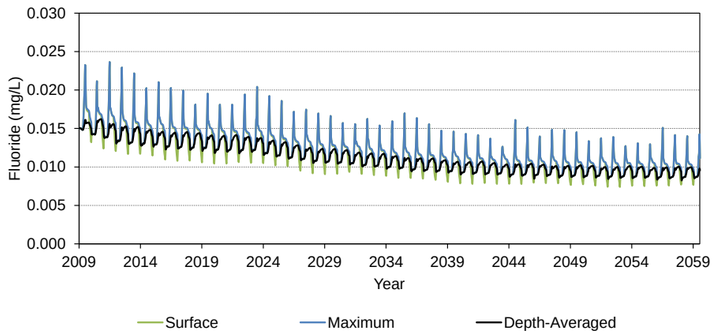

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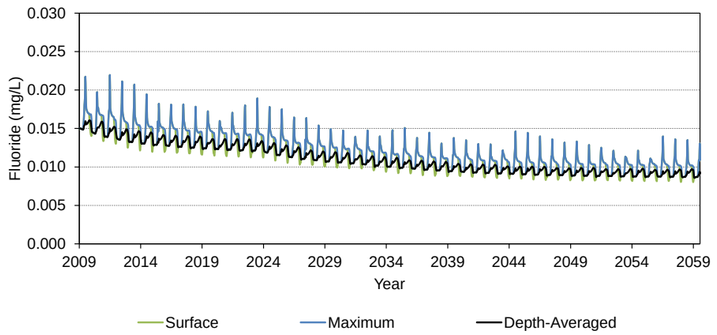

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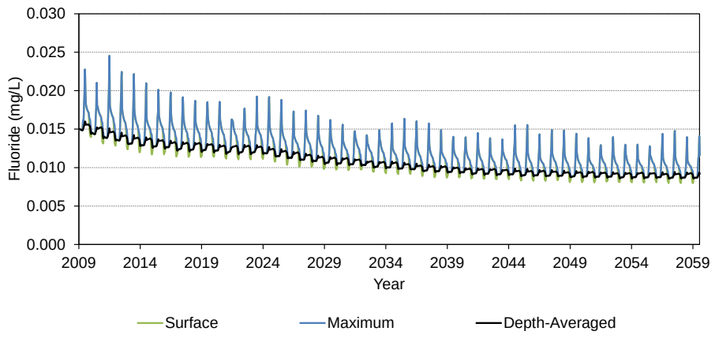

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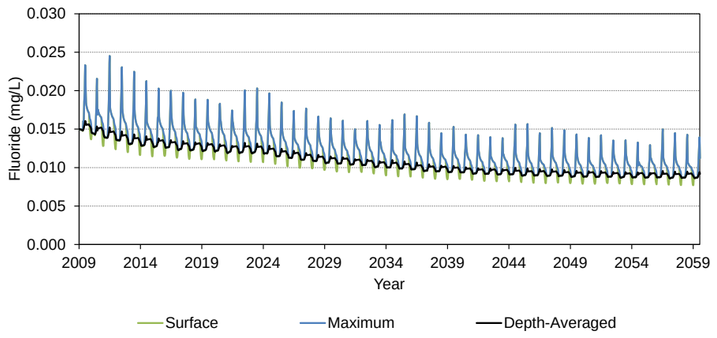

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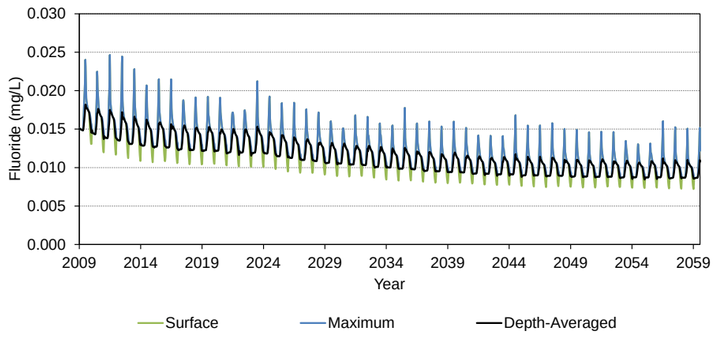
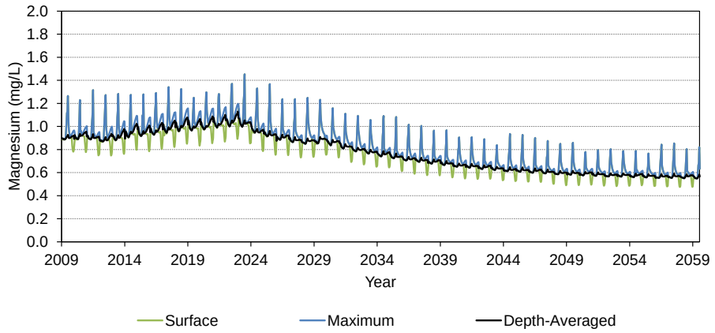


LDG-P6

Figure B-10: Predicted Magnesium Concentrations in Lac de Gras



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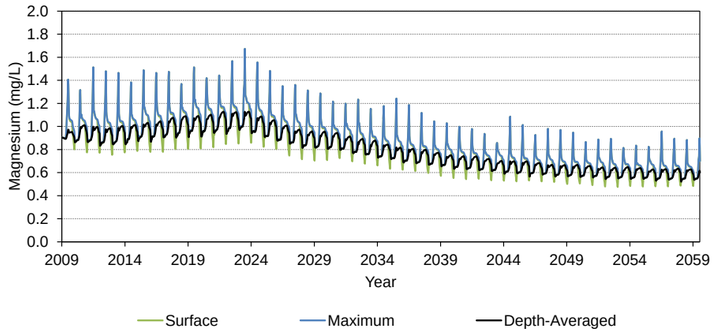
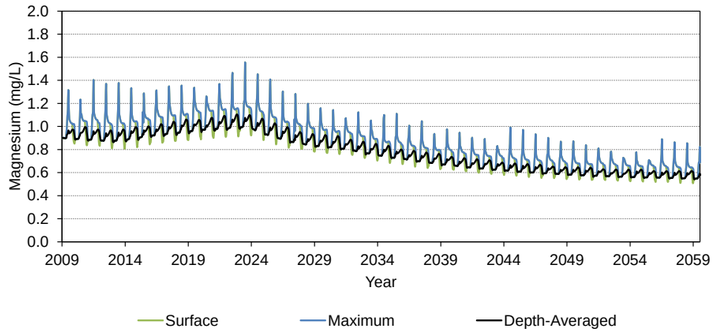


LDG-P2



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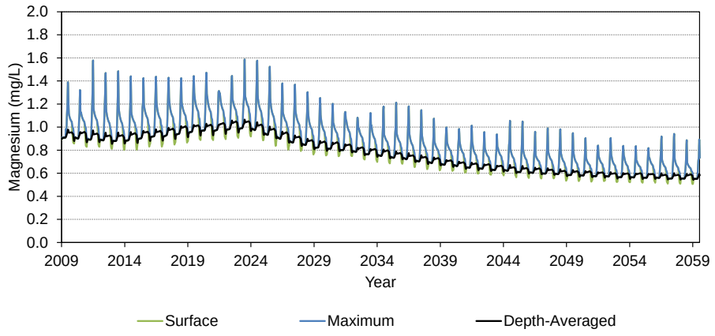

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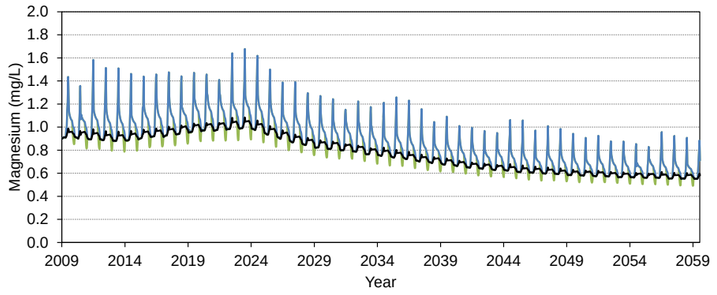

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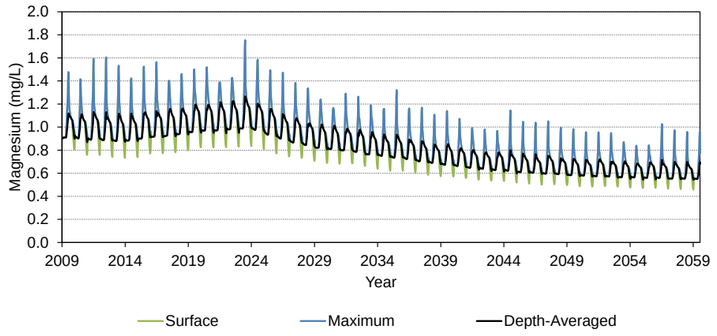
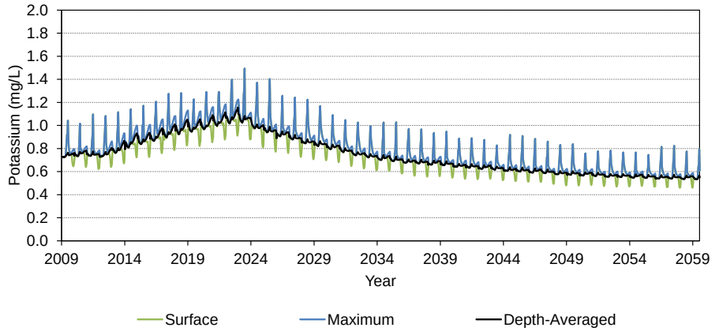
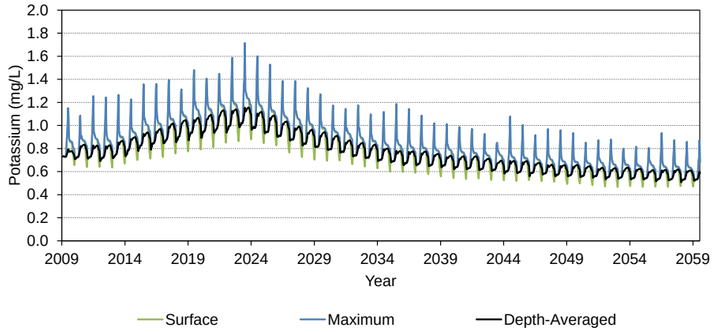


LDG-P6

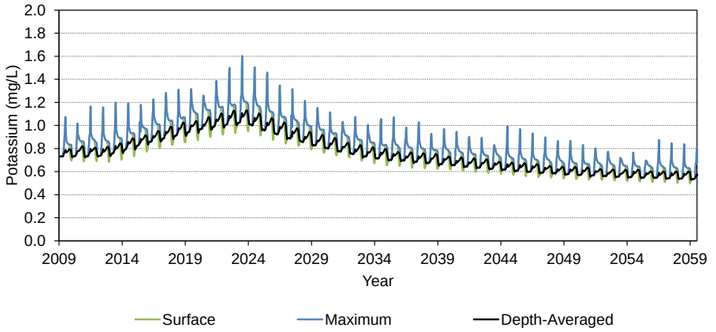
Figure B-11: Predicted Potassium Concentrations in Lac de Gras



LDG-P1



LDG-P2



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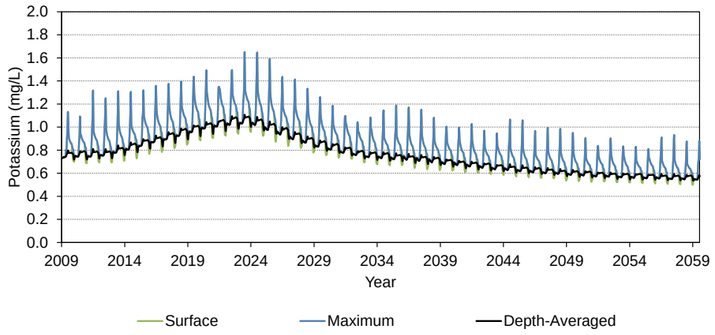

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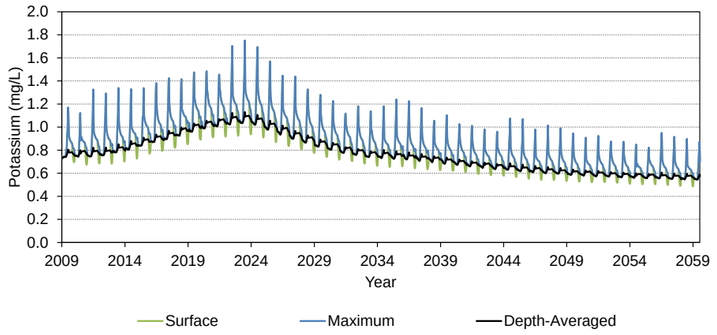

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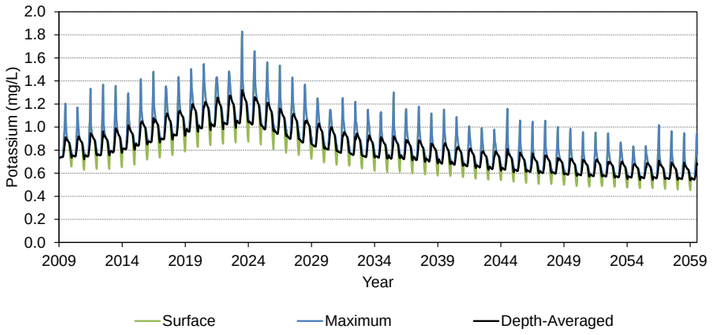
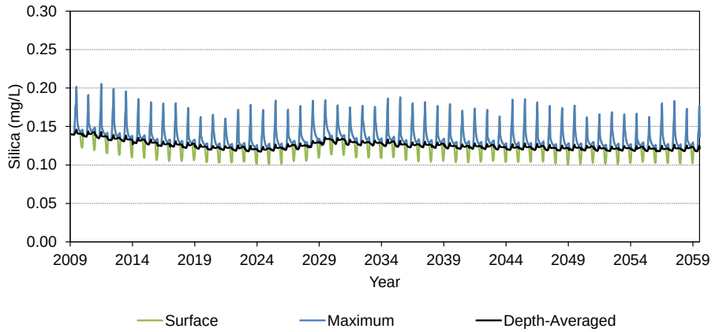
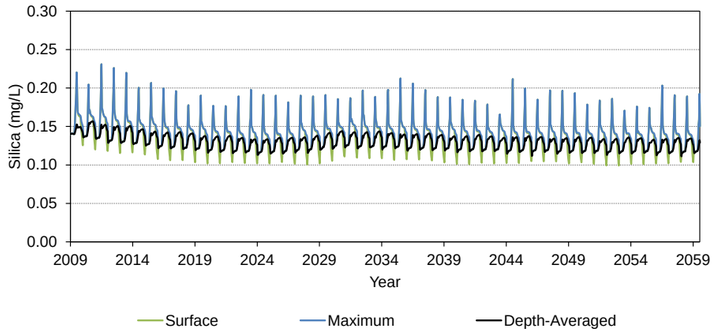


LDG-P6

Figure B-12: Predicted Reactive Silica Concentrations in Lac de Gras



LDG-P1



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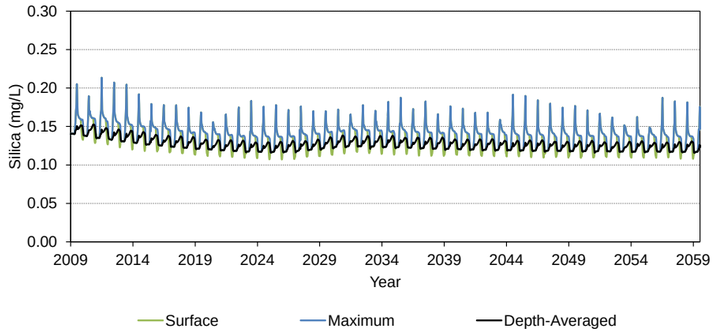

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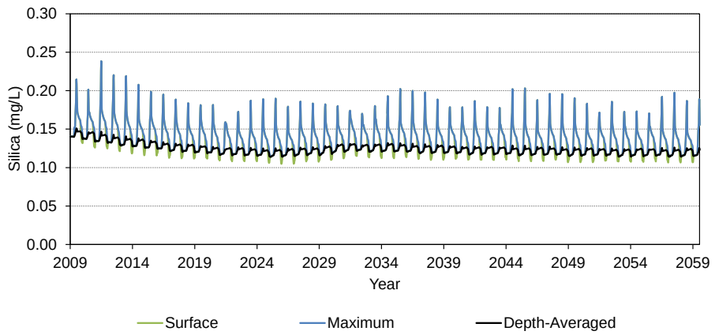

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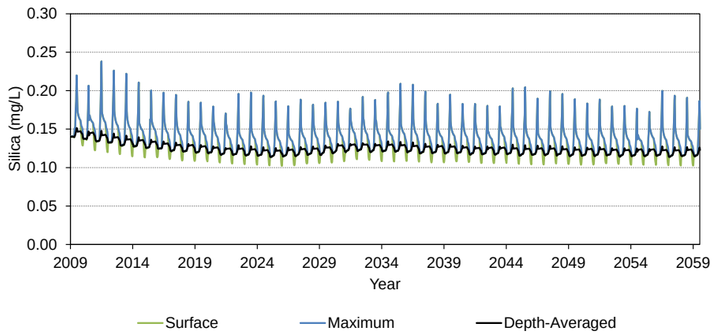

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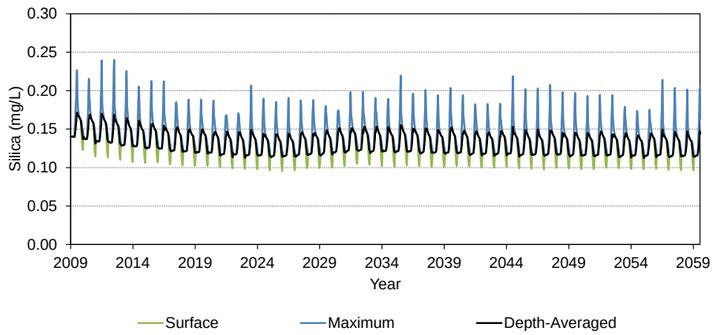
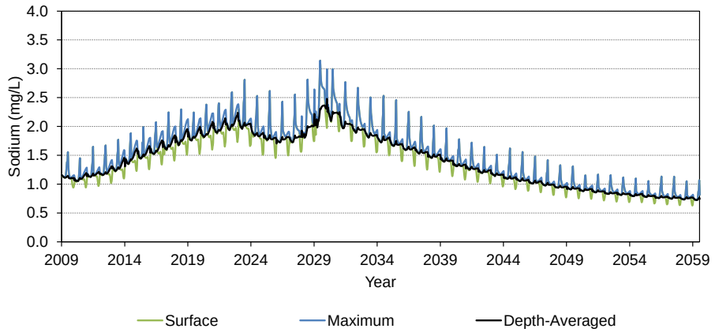


LDG-P6

Figure B-13: Predicted Sodium Concentrations in Lac de Gras



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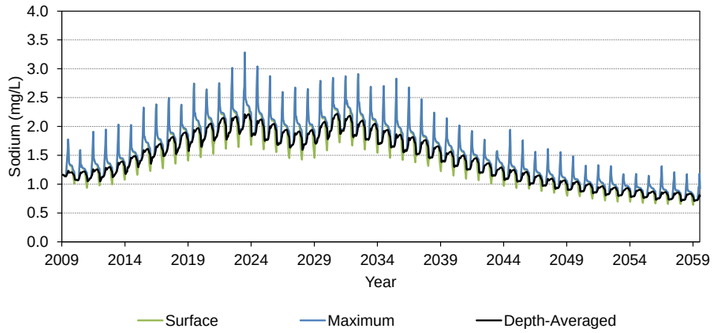

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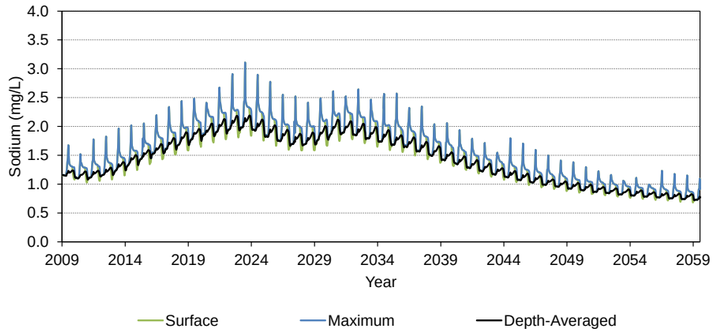

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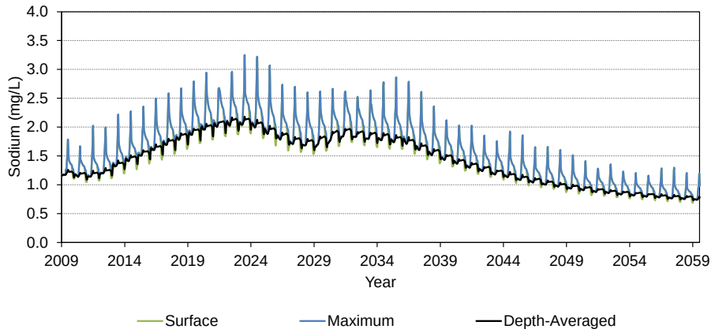

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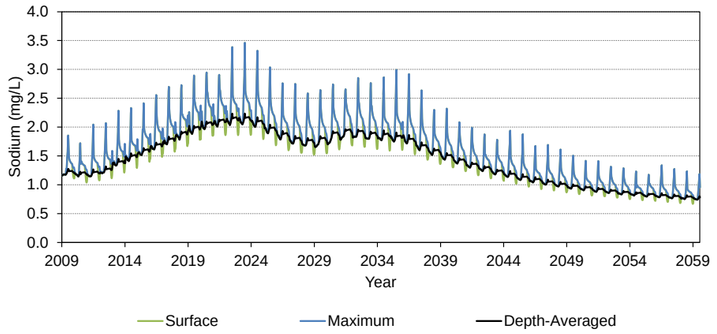

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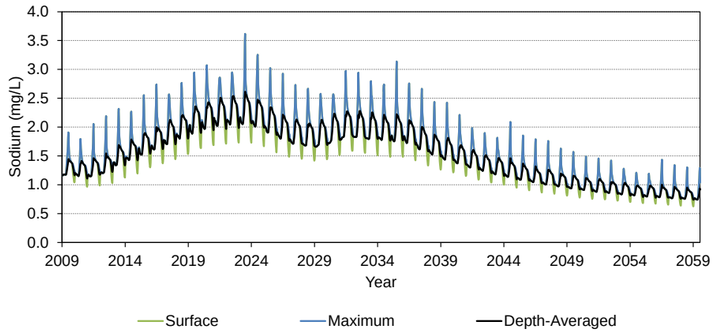
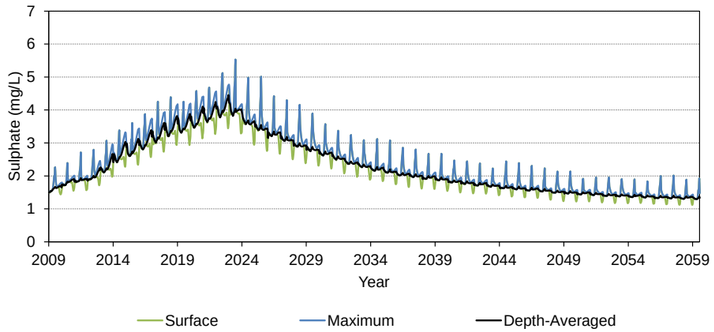
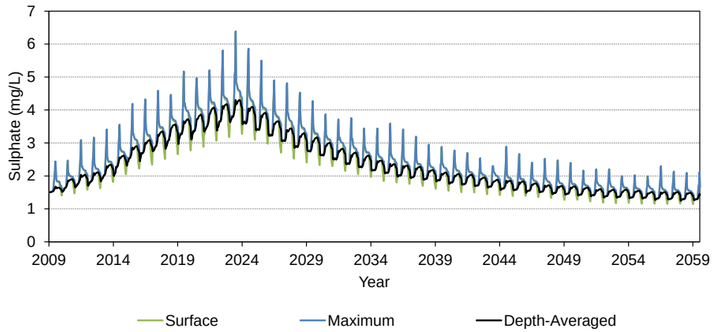


LDG-P6

Figure B-14: Predicted Sulphate Concentrations in Lac de Gras



LDG-P1



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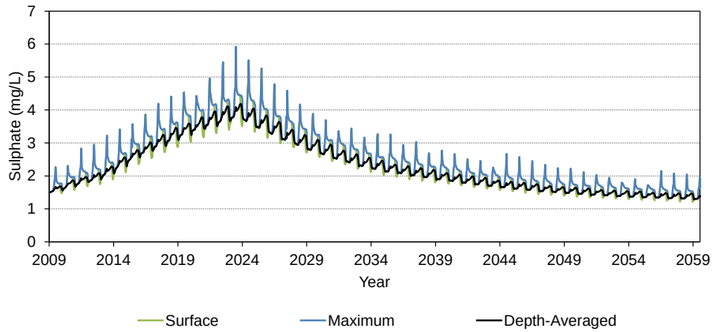

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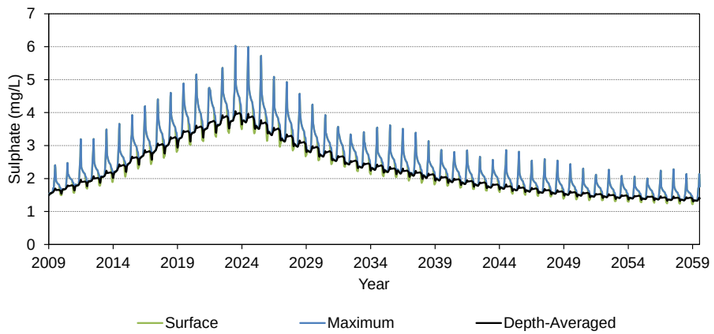

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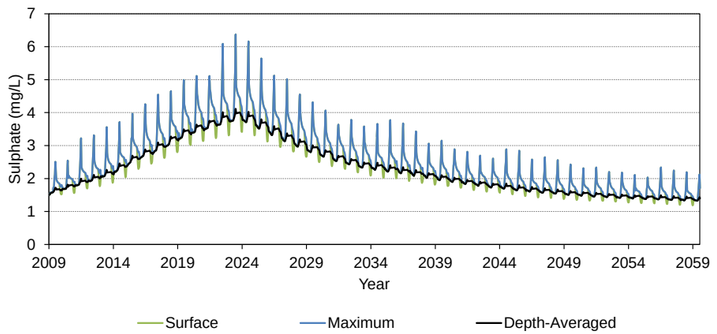
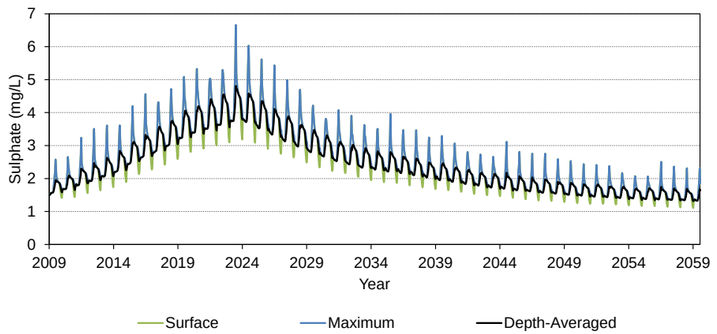
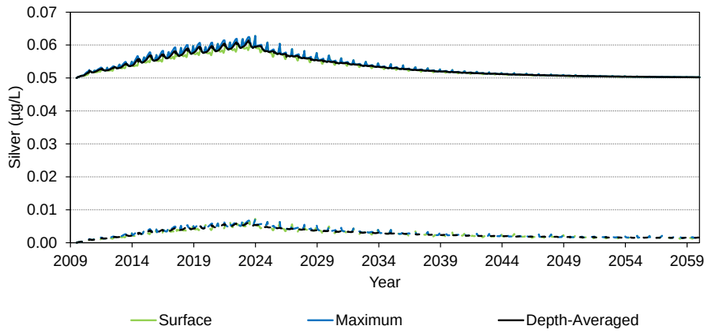


LDG-P5



LDG-P6

Figure B-15: Predicted Total and Dissolved Silver Concentrations in Lac de Gras



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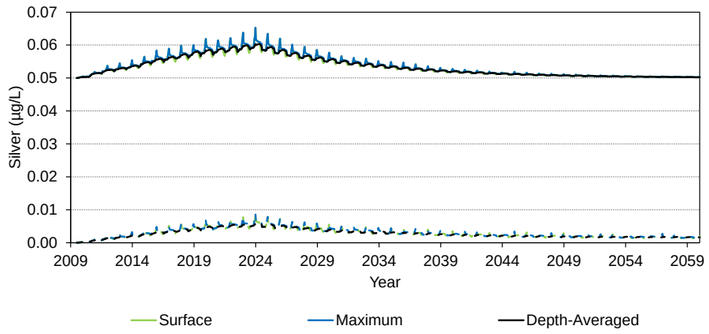

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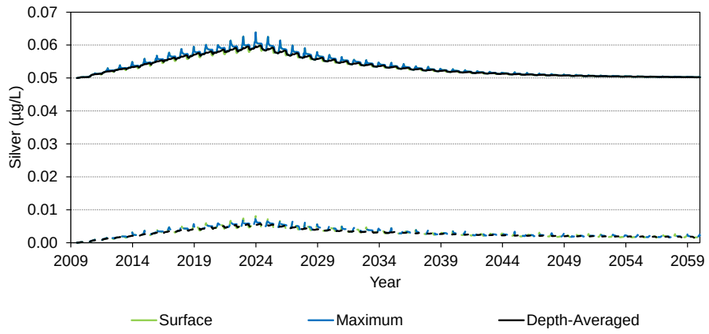

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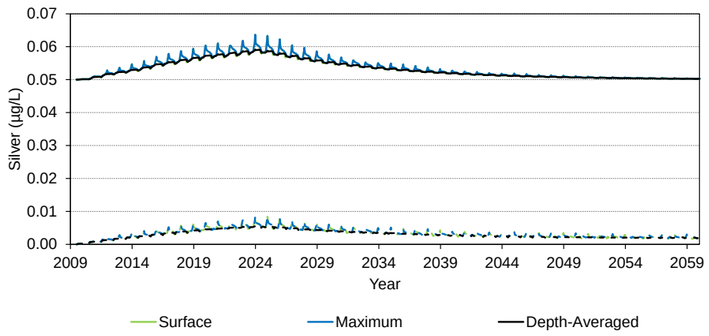

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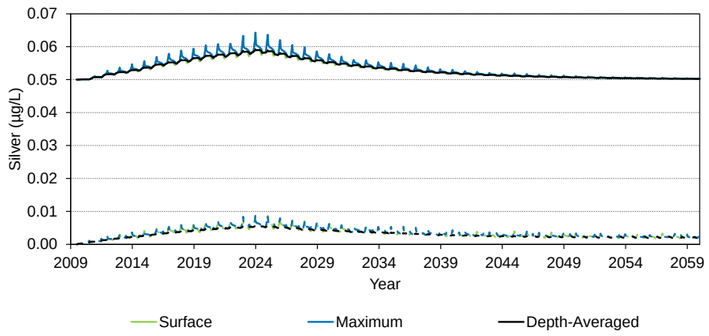

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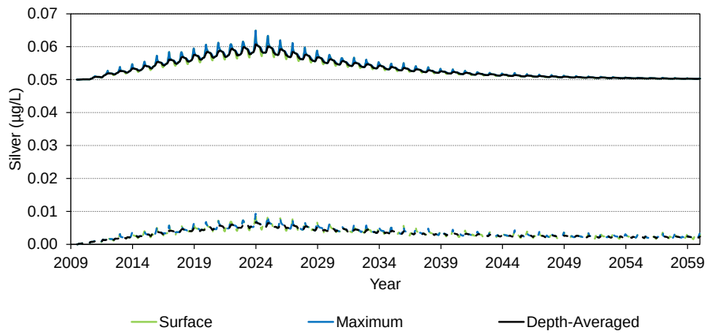
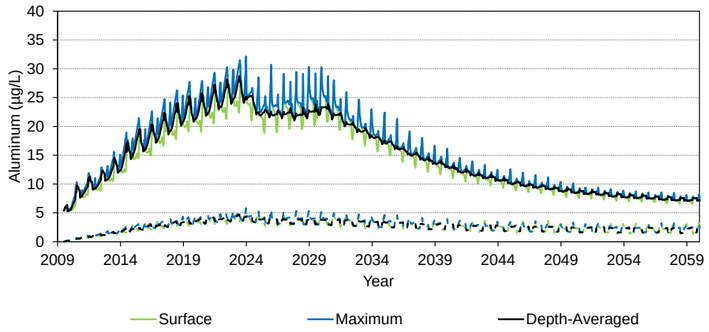


LDG-P6

Figure B-16: Predicted Total and Dissolved Aluminum Concentrations in Lac de Gras



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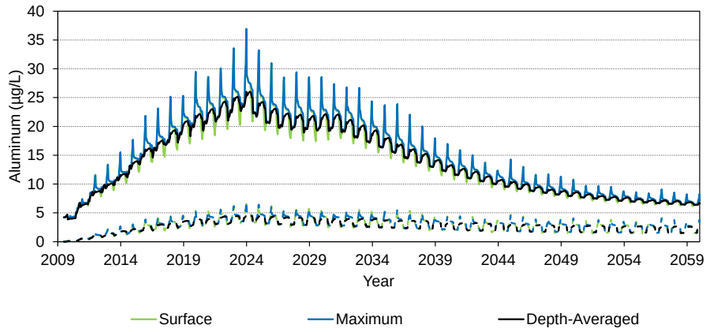
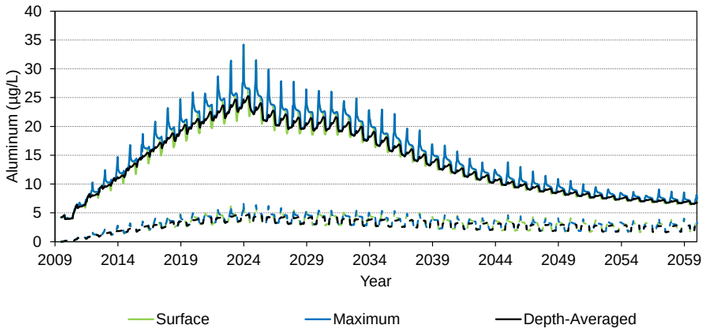


LDG-P2



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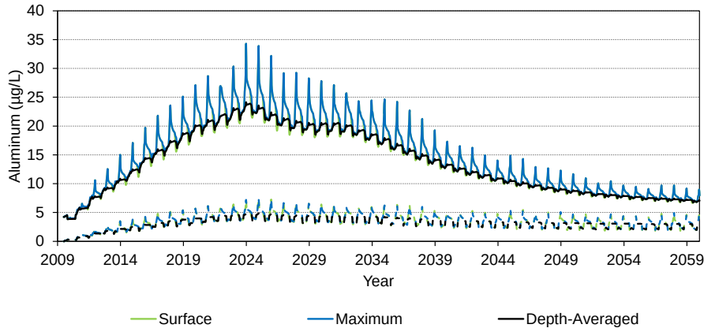
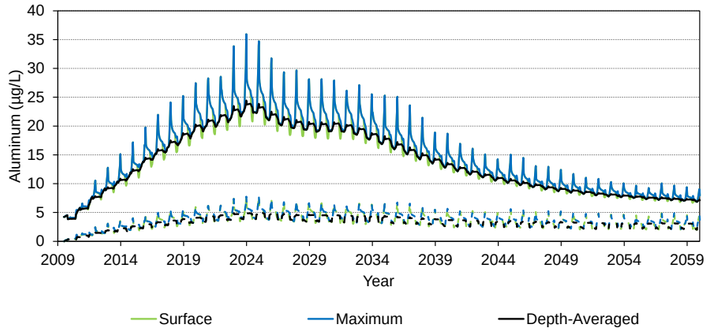


LDG-P4



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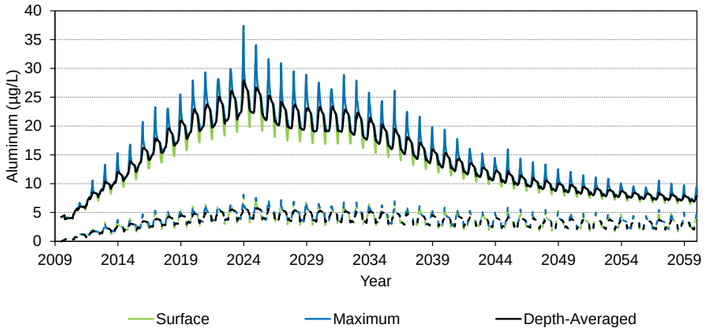
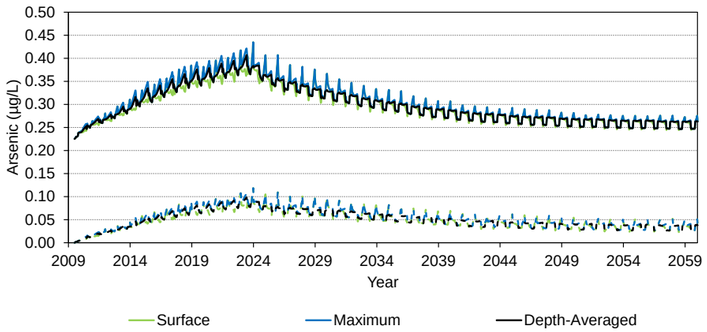


LDG-P6

Figure B-17: Predicted Total and Dissolved Arsenic Concentrations in Lac de Gras



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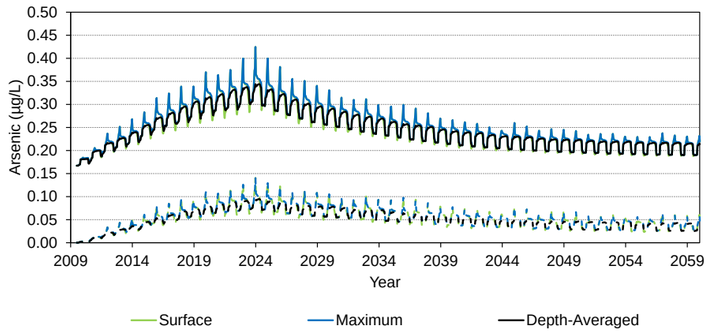

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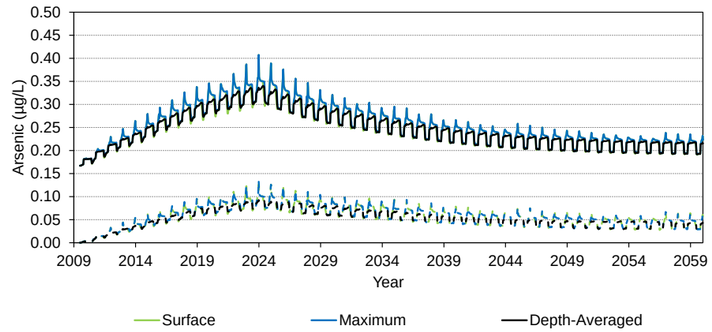

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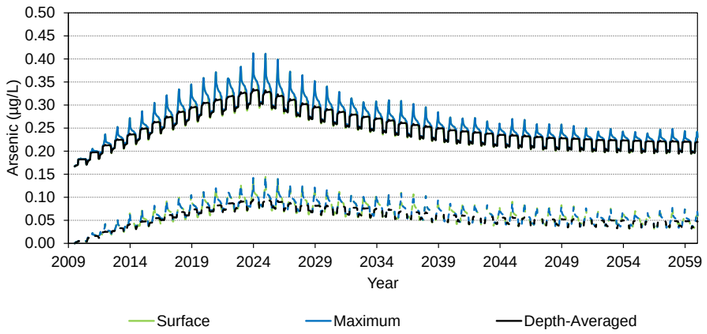

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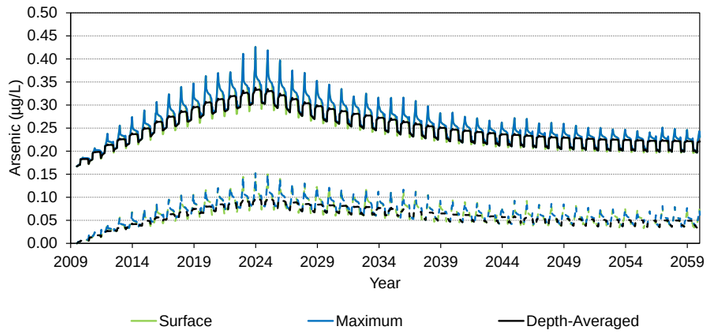

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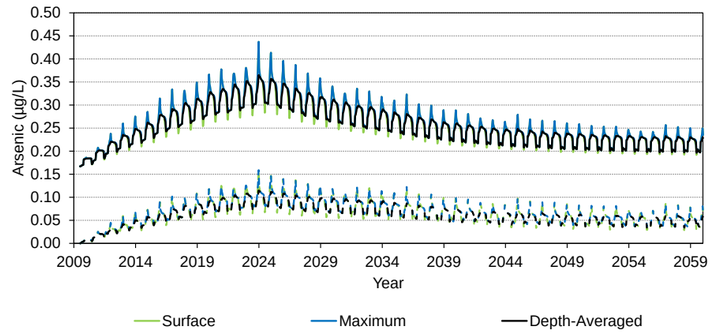
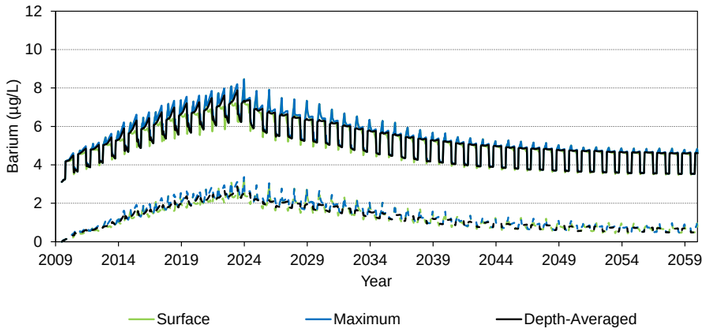


LDG-P6

Figure B-18: Predicted Total and Dissolved Barium Concentrations in Lac de Gras



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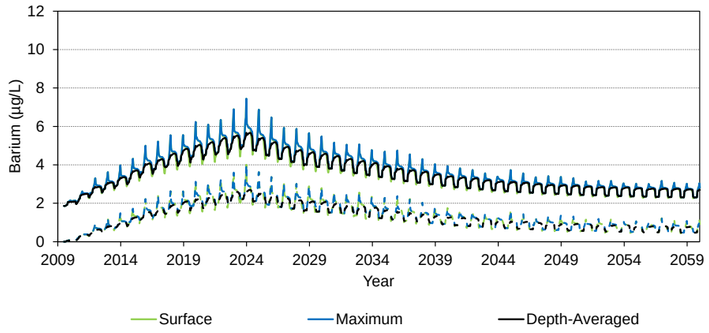

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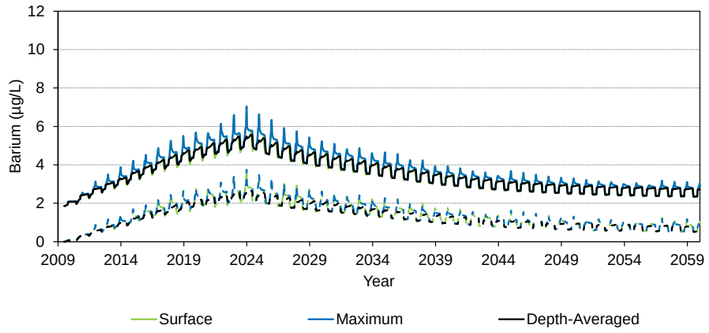

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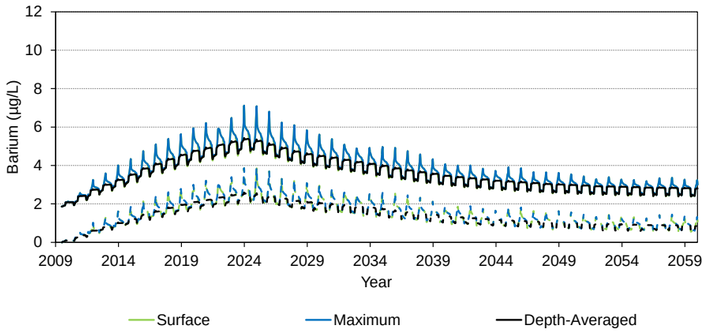

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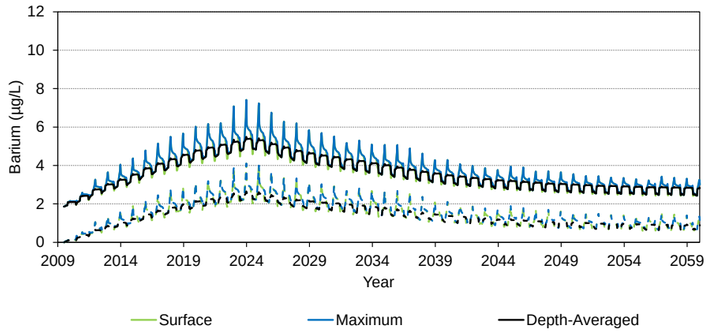

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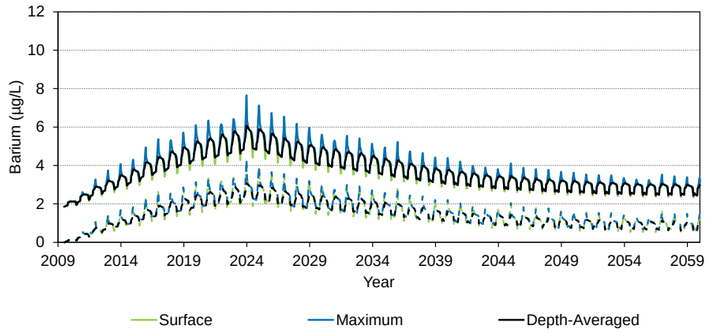
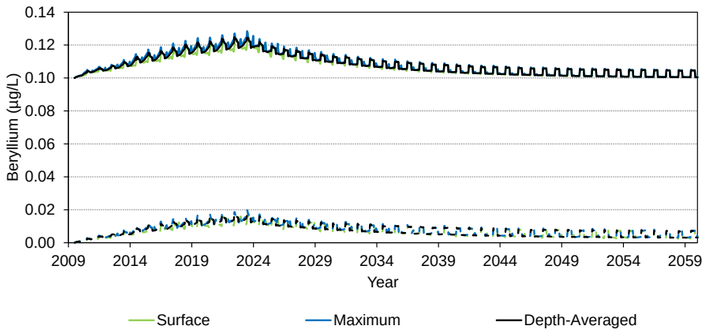
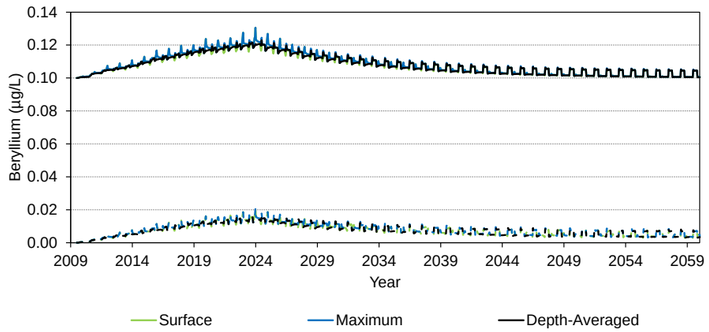


LDG-P6

Figure B-19: Predicted Total and Dissolved Beryllium Concentrations in Lac de Gras



LDG-P1



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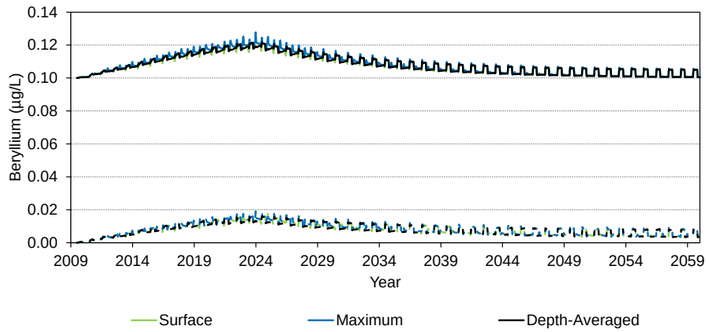

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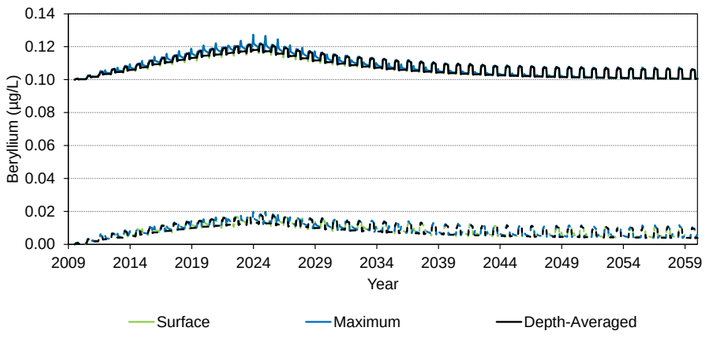

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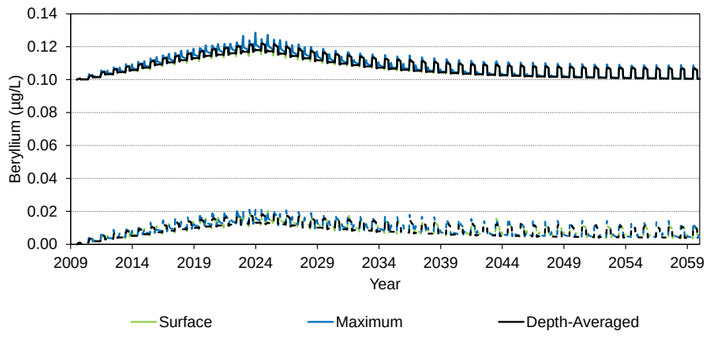

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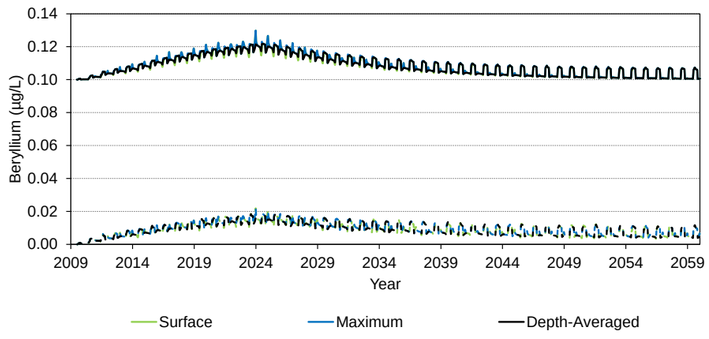
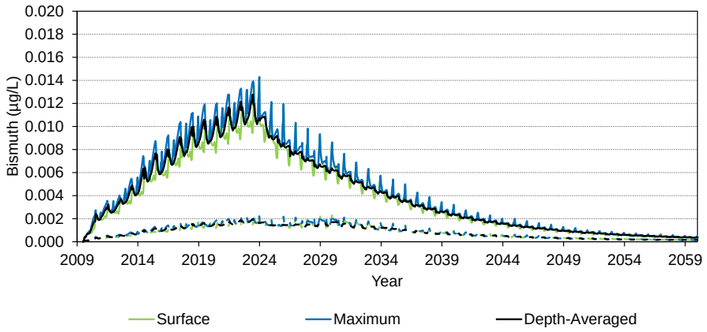
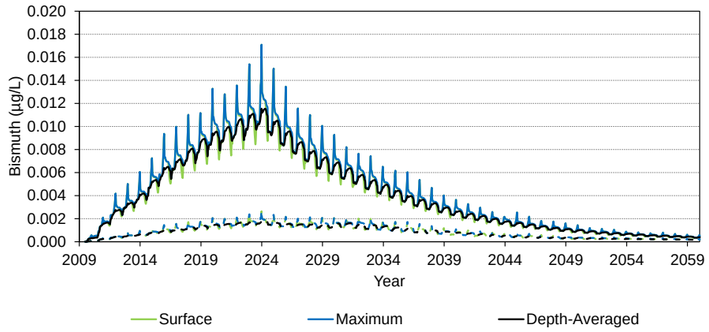


LDG-P6

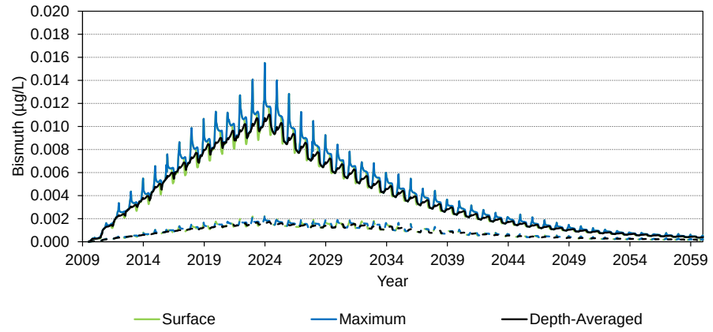
Figure B-20: Predicted Total and Dissolved Bismuth Concentrations in Lac de Gras



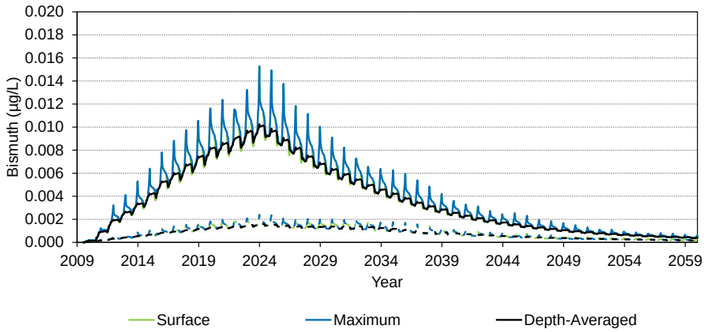
LDG-P1



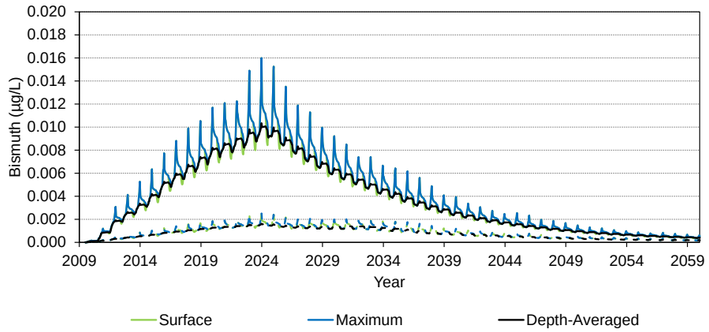
LDG-P2



LDG-P3



LDG-P4



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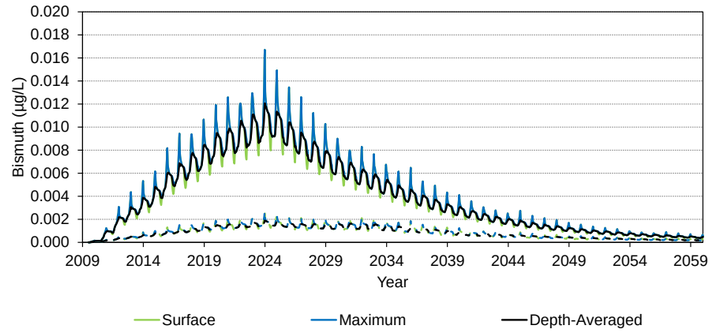
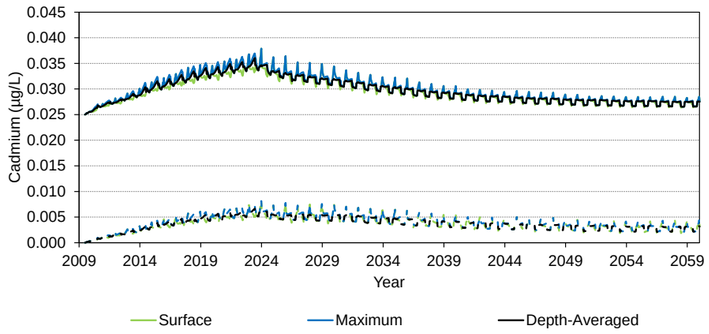
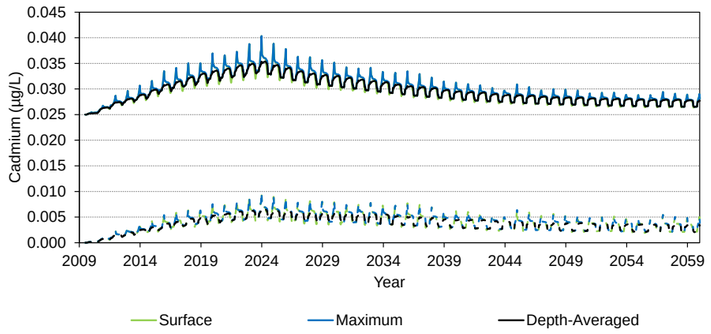


LDG-P6

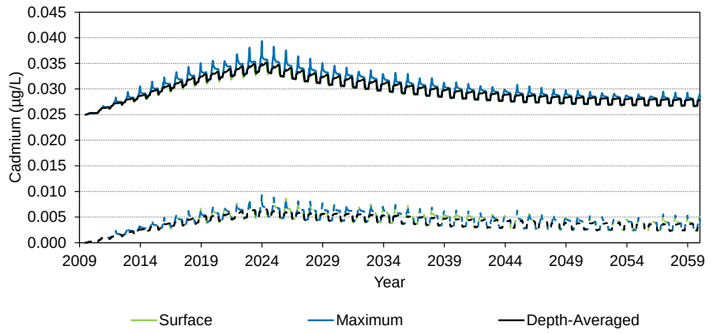
Figure B-21: Predicted Total and Dissolved Cadmium Concentrations in Lac de Gras



LDG-P1



LDG-P2



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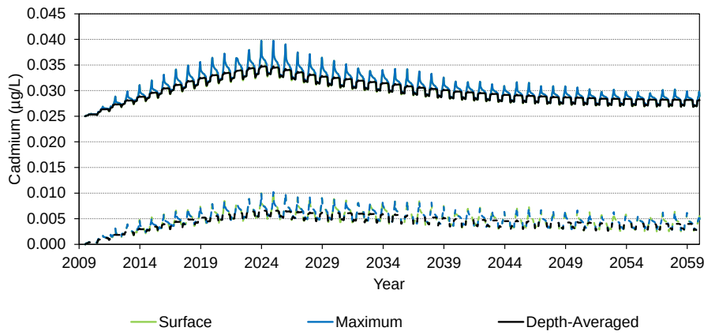
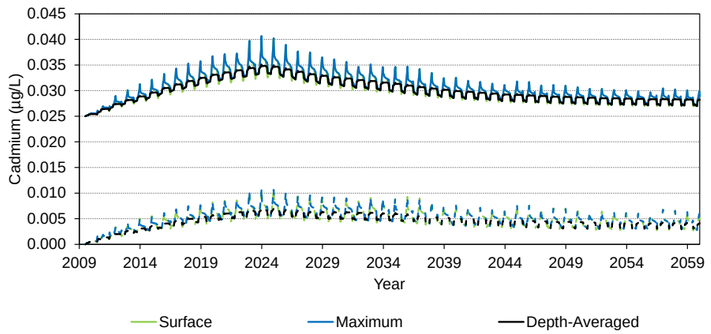


LDG-P4



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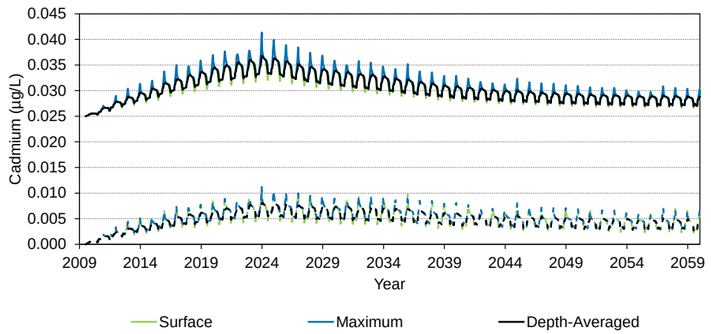
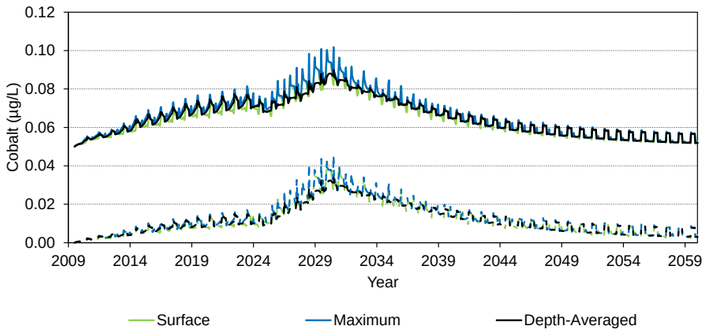
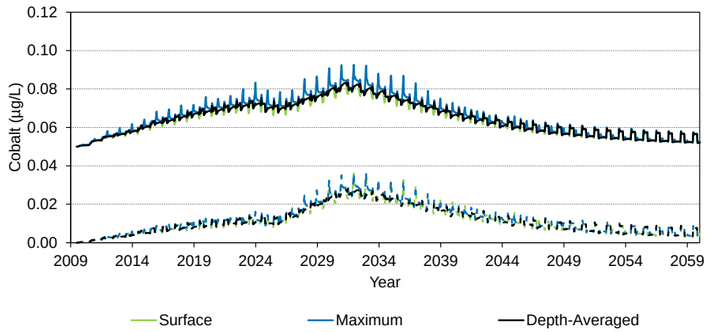


LDG-P6

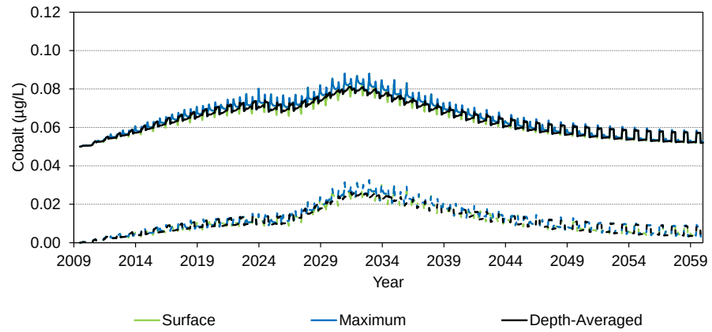
Figure B-22: Predicted Total and Dissolved Cobalt Concentrations in Lac de Gras



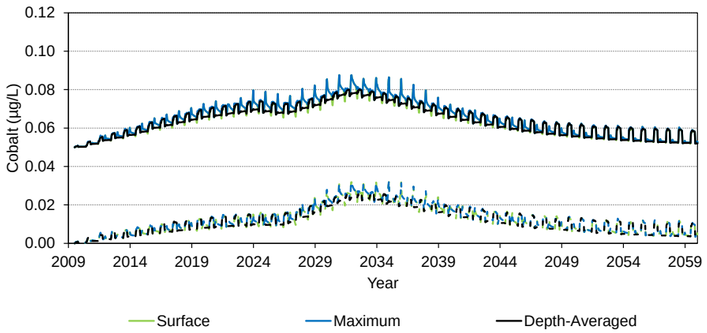
LDG-P1



LDG-P2



LDG-P3



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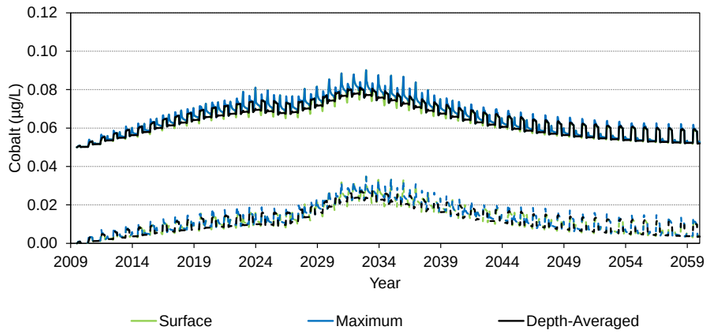

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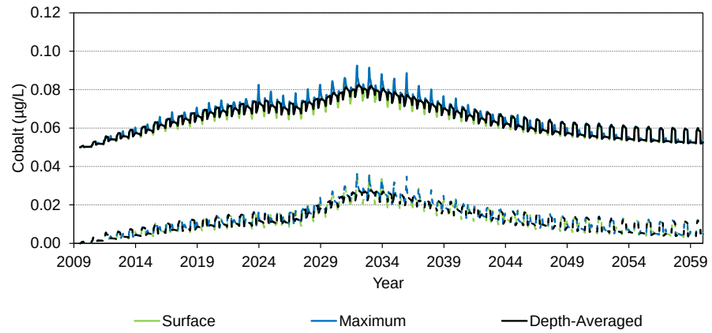
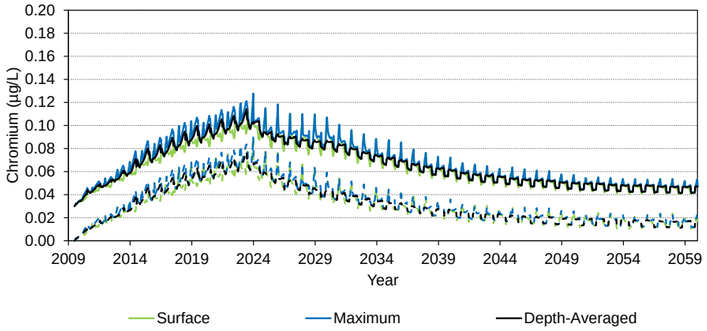
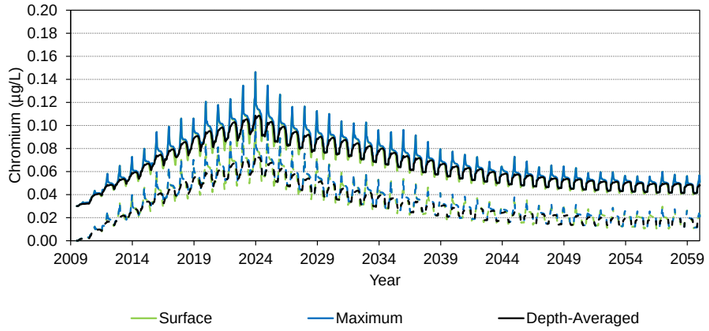


LDG-P6

Figure B-23: Predicted Total and Dissolved Chromium Concentrations in Lac de Gras



LDG-P1



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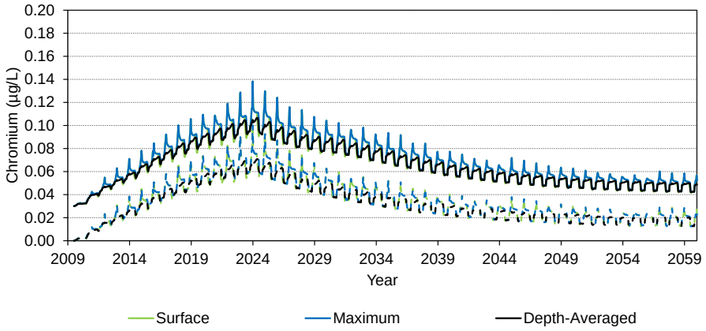

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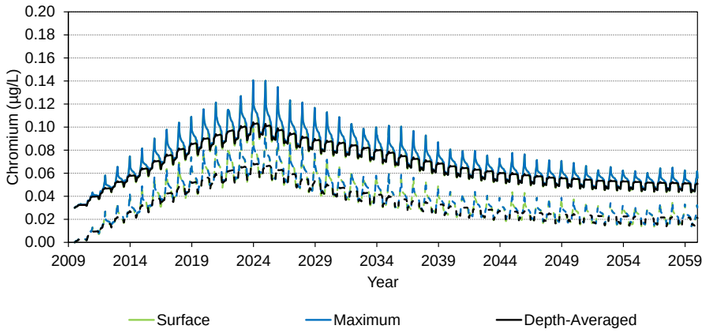
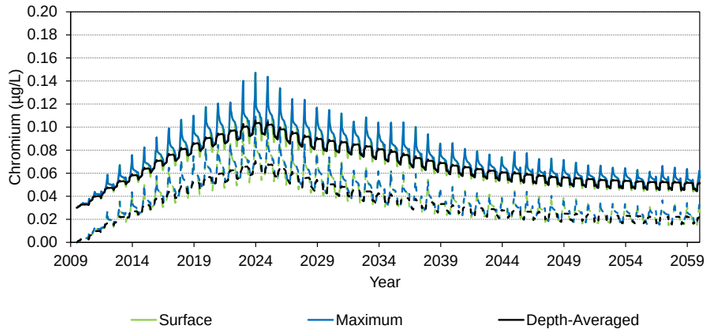
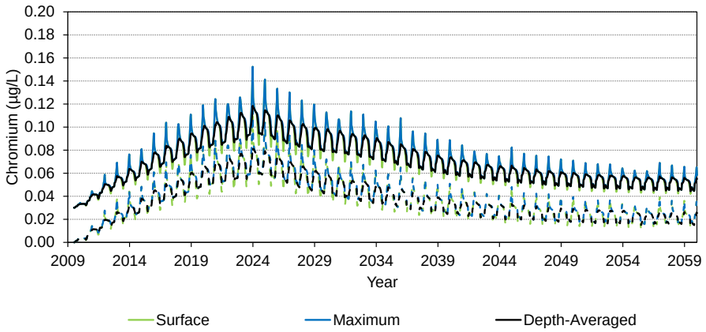


LDG-P4

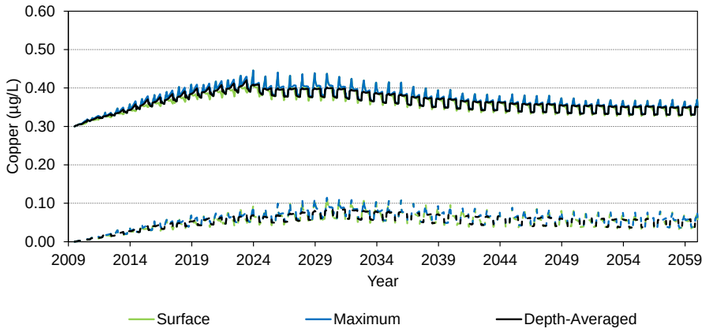


LDG-P5

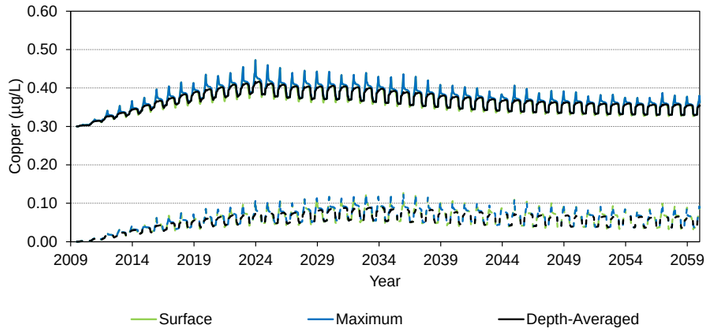


LDG-P6

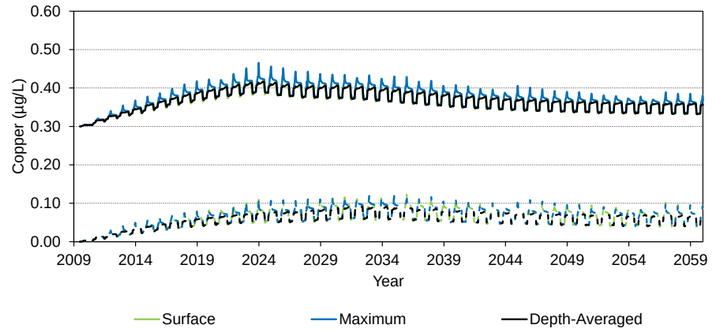
Figure B-24: Predicted Total and Dissolved Copper Concentrations in Lac de Gras



LDG-P1



LDG-P2



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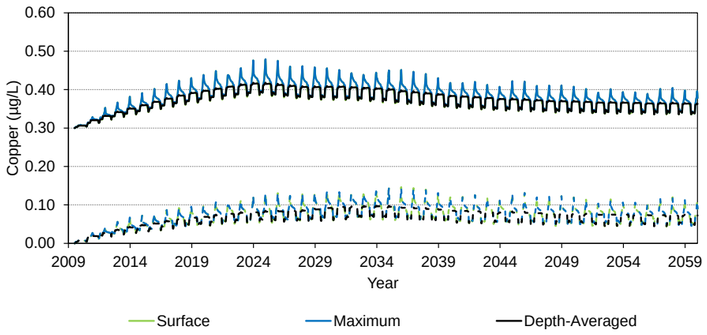

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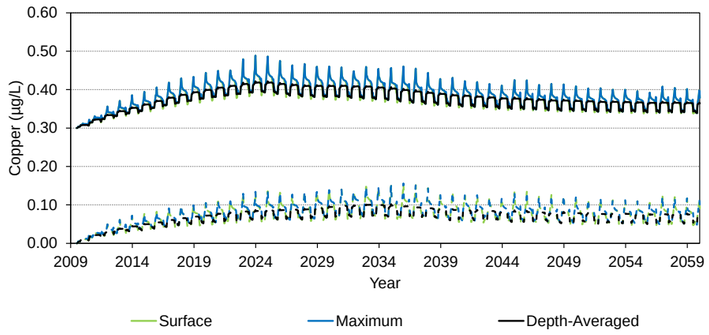

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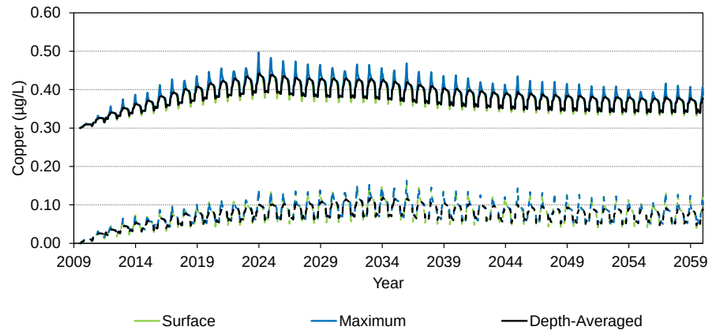
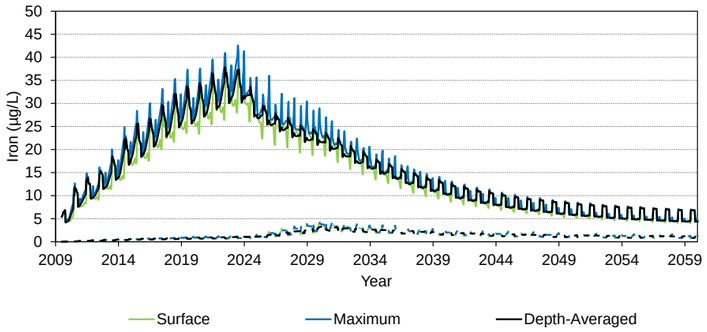
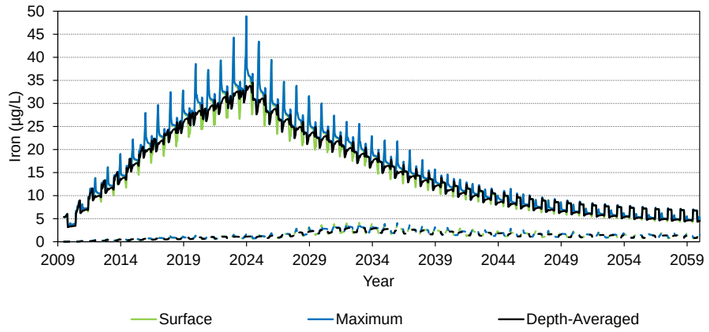


LDG-P6

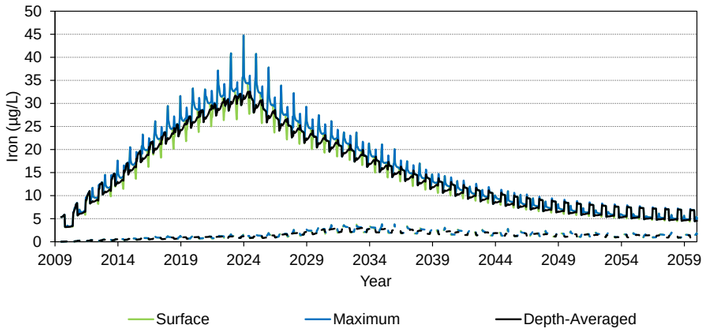
Figure B-25: Predicted Total and Dissolved Iron Concentrations in Lac de Gras



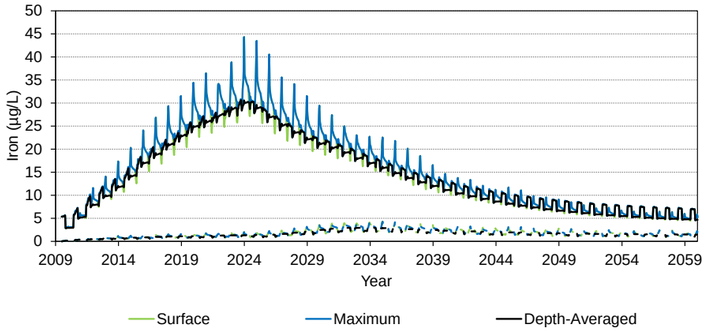
LDG-P1



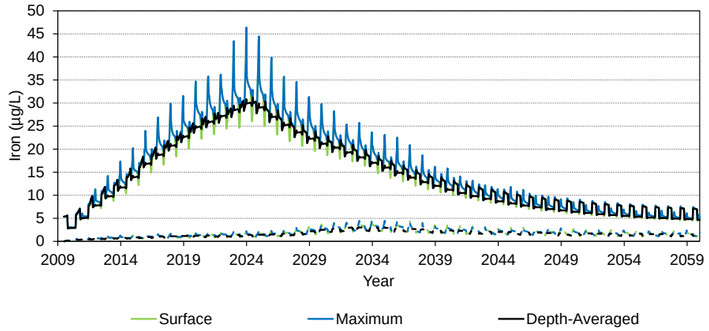
LDG-P2



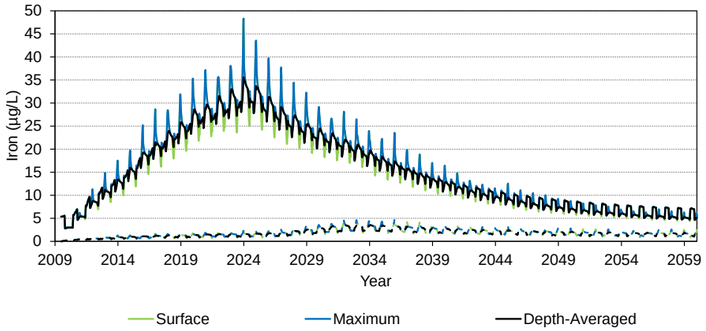
LDG-P3



LDG-P4

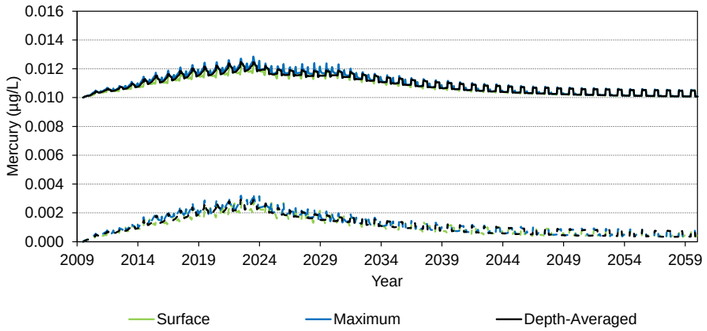


LDG-P5

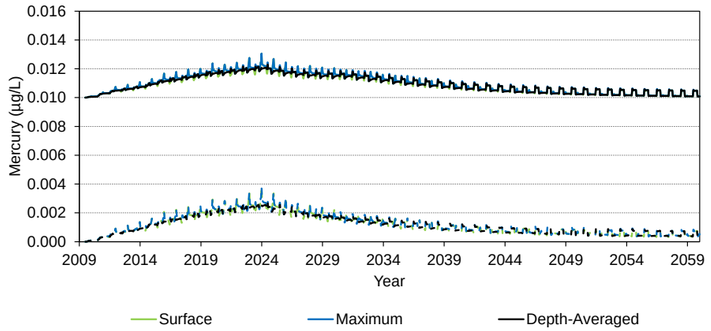


LDG-P6

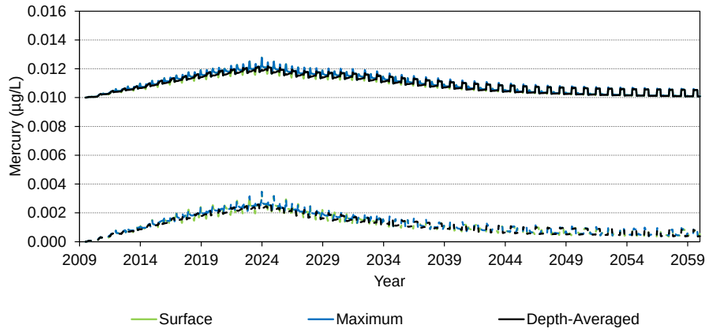
Figure B-26: Predicted Total and Dissolved Mercury Concentrations in Lac de Gras



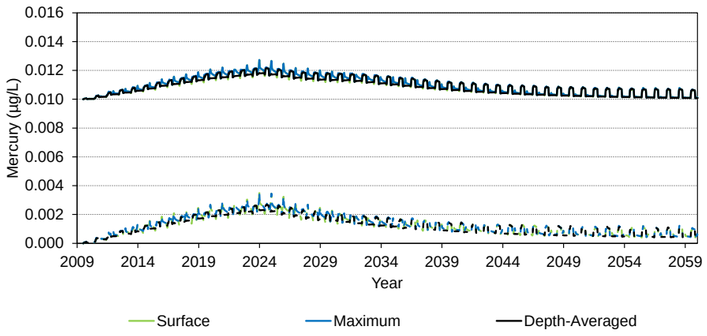
LDG-P1



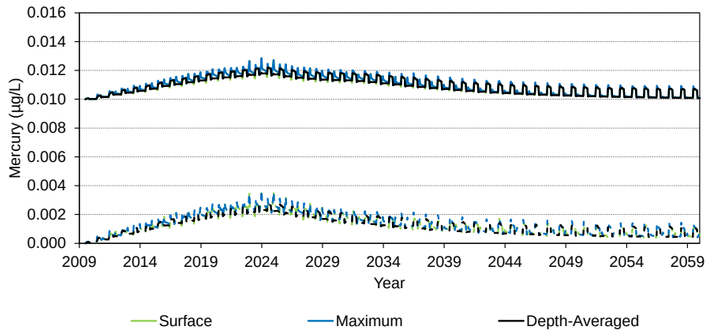
LDG-P2



LDG-P3



LDG-P4



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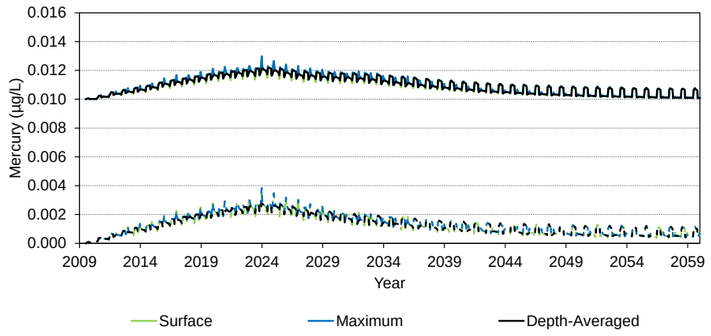
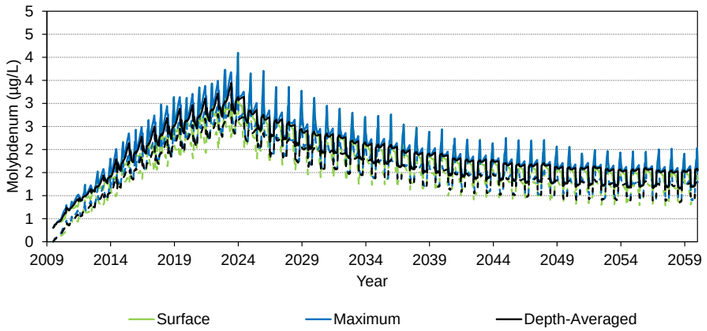
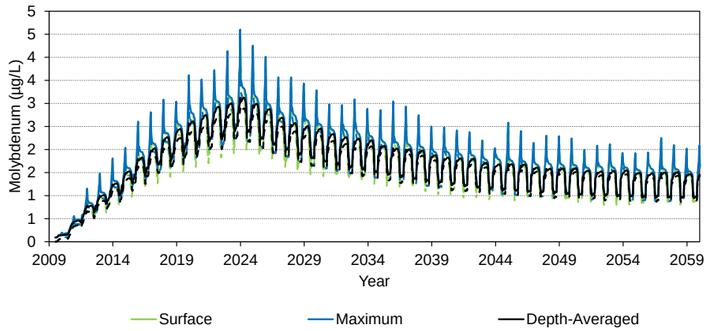


LDG-P6

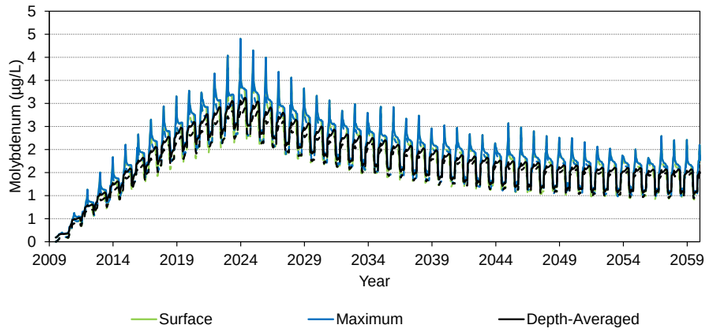
Figure B-28: Predicted Total and Dissolved Molybdenum Concentrations in Lac de Gras



LDG-P1



LDG-P2



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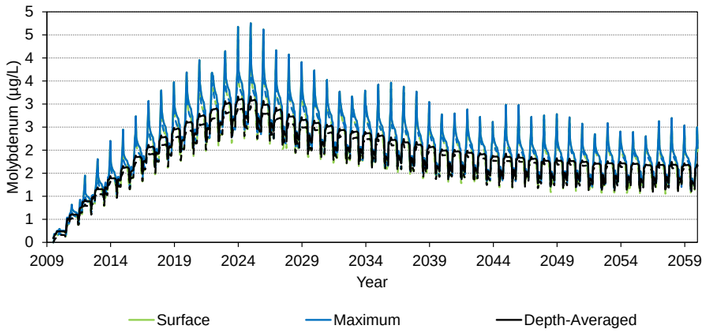
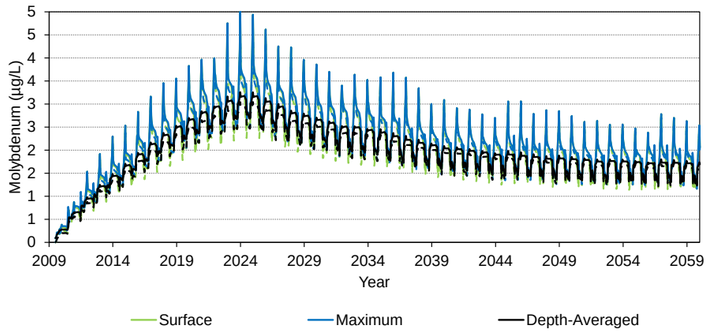


LDG-P4



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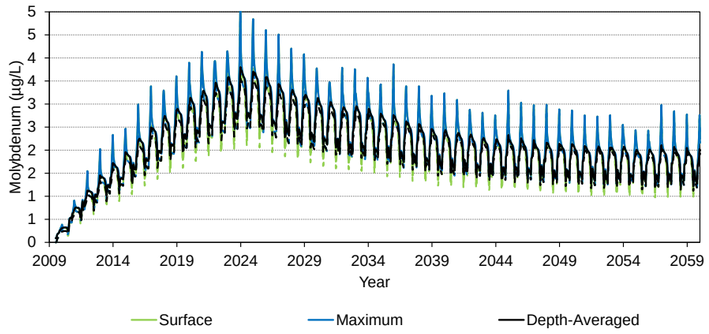
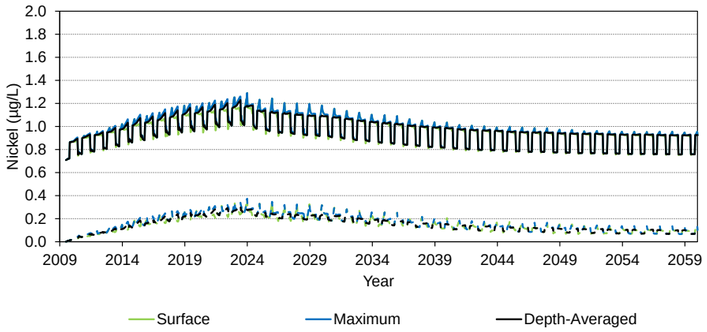
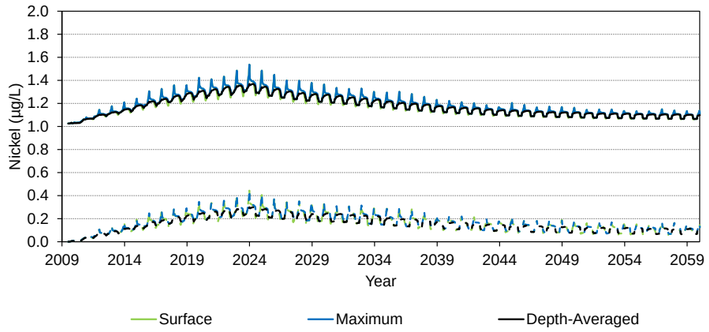


LDG-P6

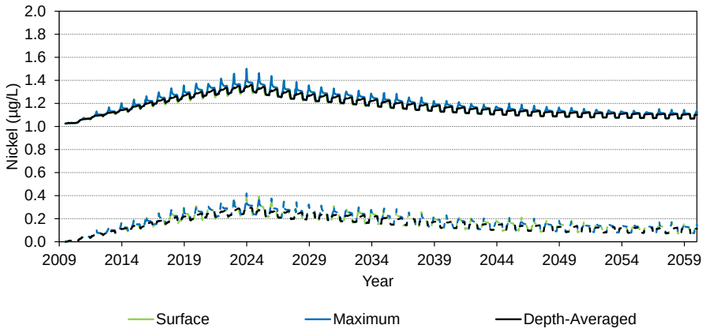
Figure B-29: Predicted Total and Dissolved Nickel Concentrations in Lac de Gras



LDG-P1



LDG-P2



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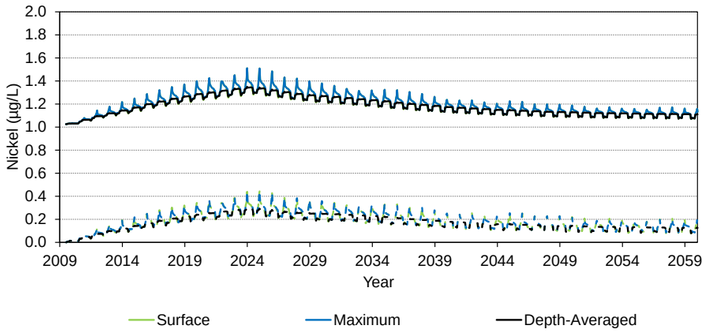

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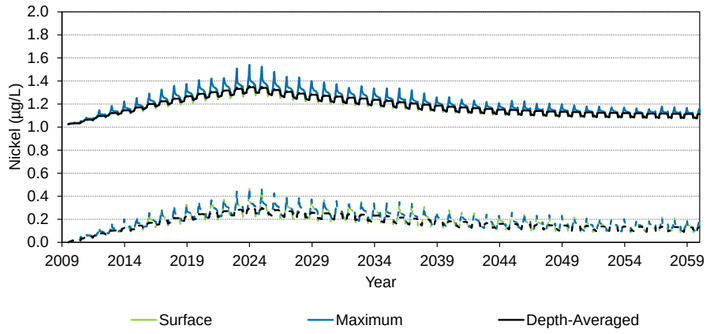

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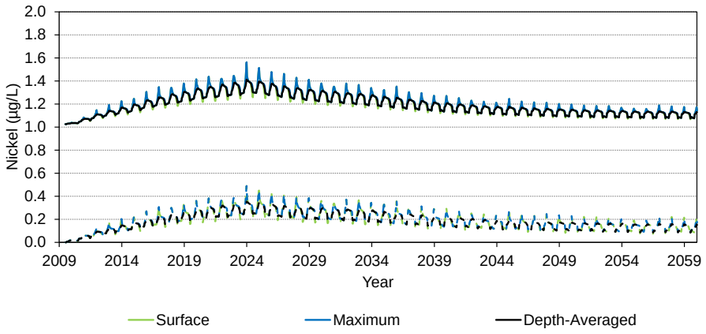
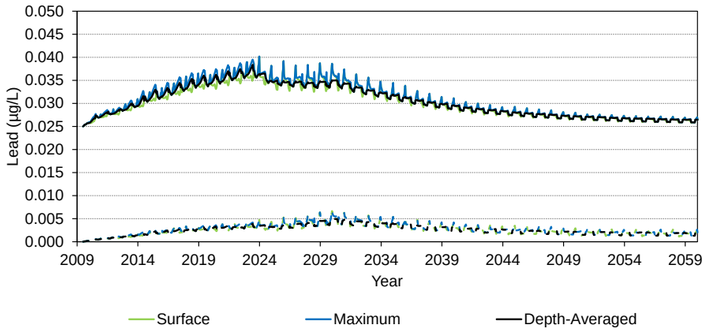
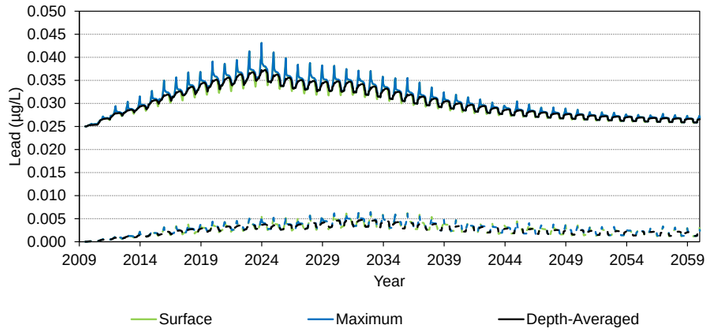


LDG-P6

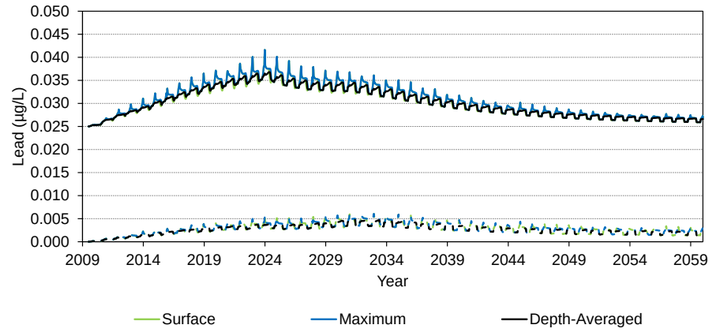
Figure B-30: Predicted Total and Dissolved Lead Concentrations in Lac de Gras



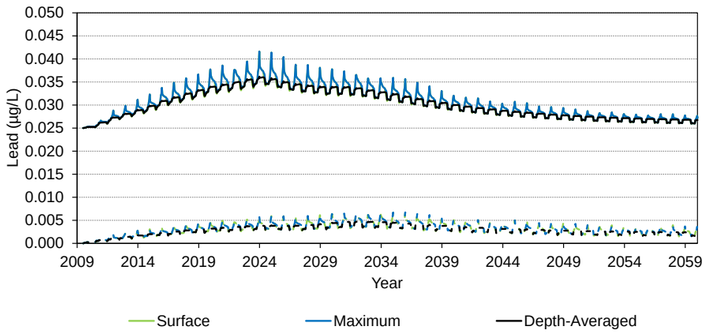
LDG-P1



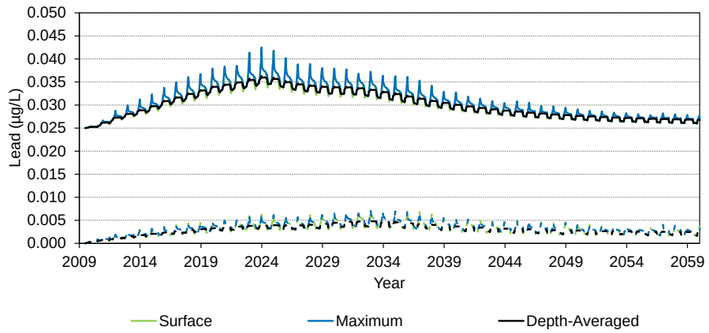
LDG-P2



LDG-P3



LDG-P4



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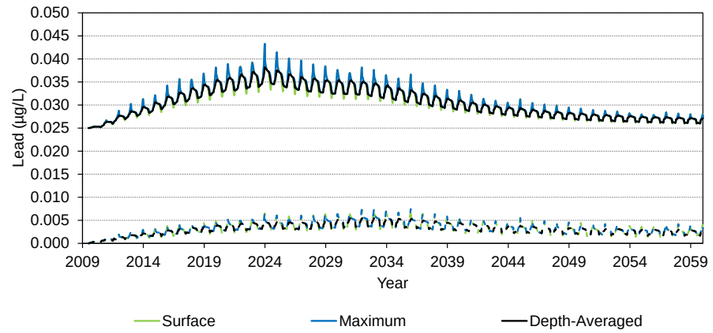
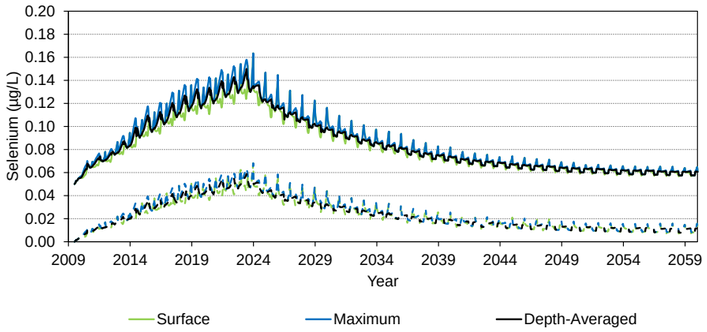
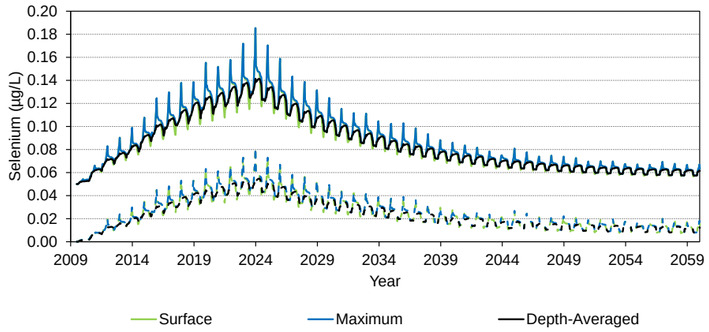


LDG-P6

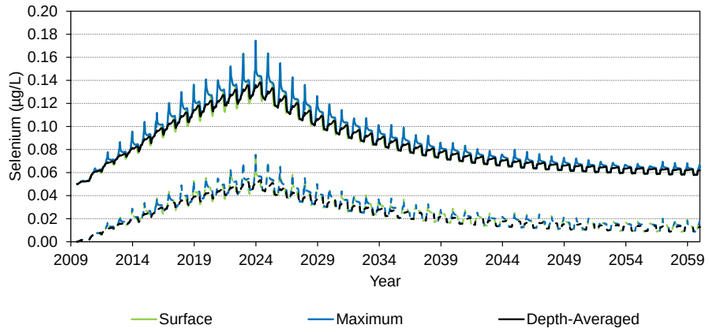
Figure B-31: Predicted Total and Dissolved Selenium Concentrations in Lac de Gras



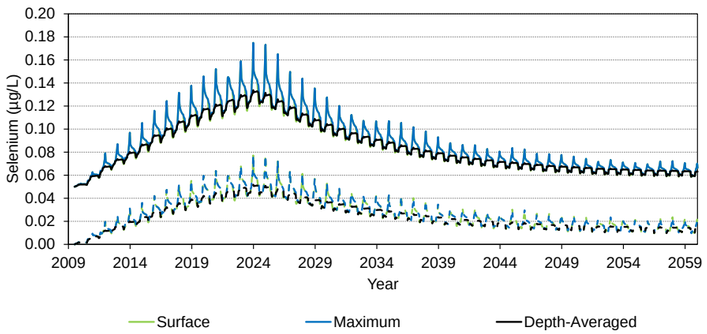
LDG-P1



LDG-P2



LDG-P3



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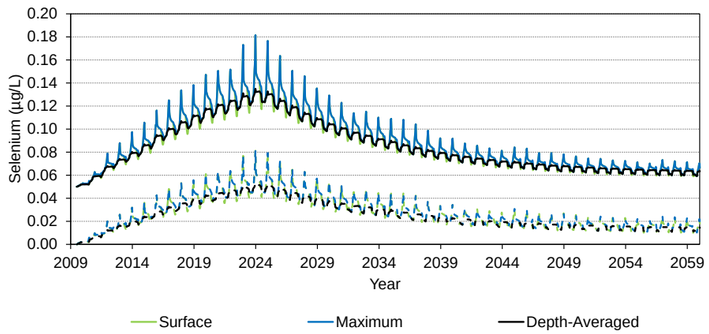

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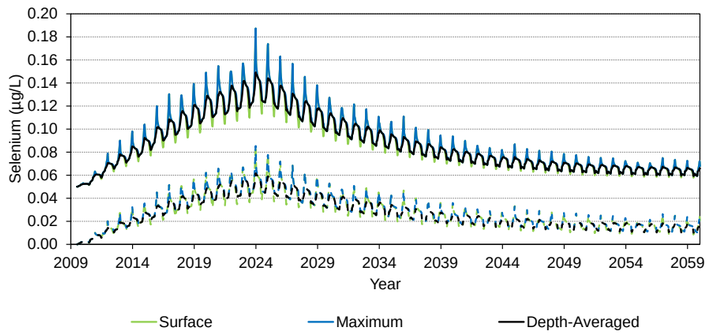
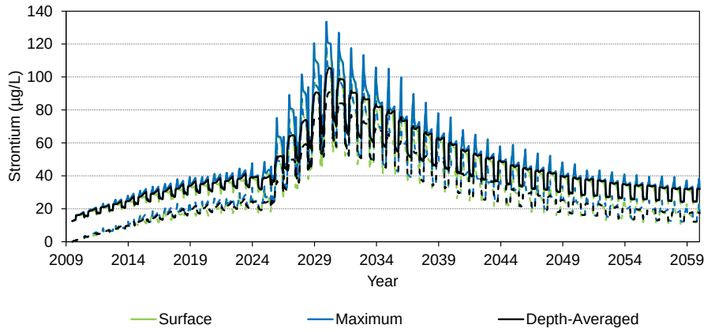
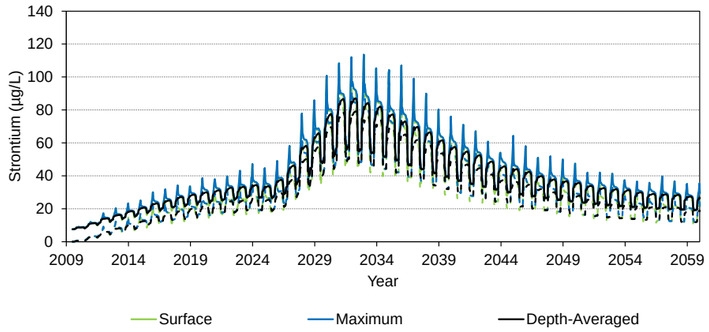


LDG-P6

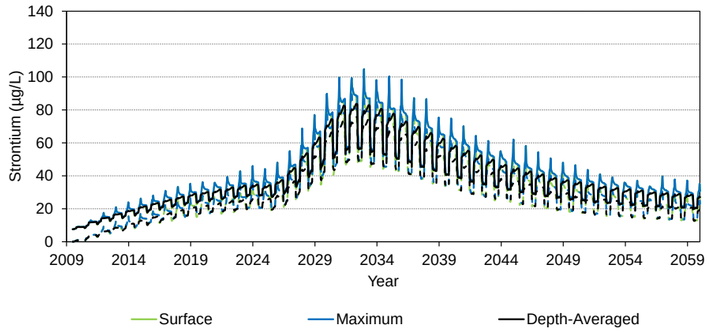
Figure B-32: Predicted Total and Dissolved Strontium Concentrations in Lac de Gras



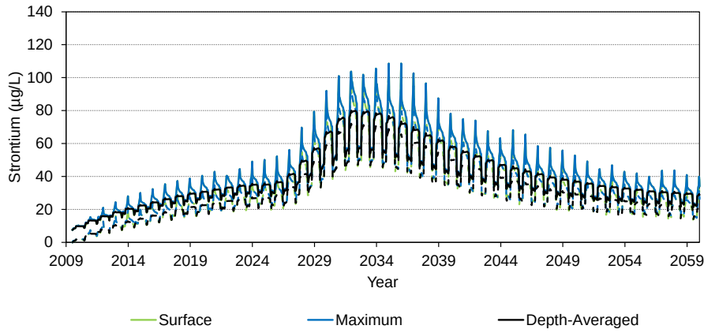
LDG-P1



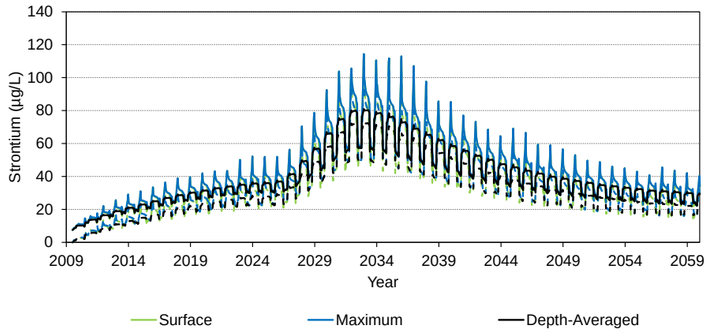
LDG-P2



LDG-P3



LDG-P4



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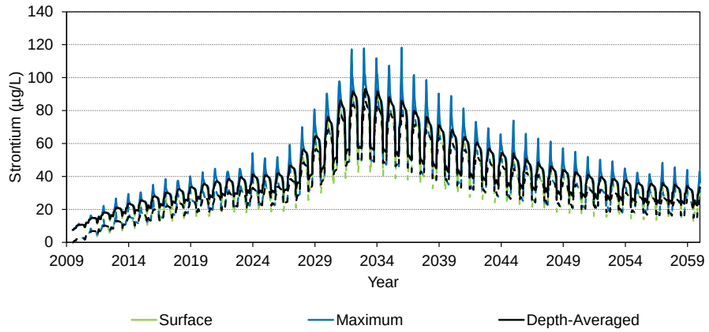
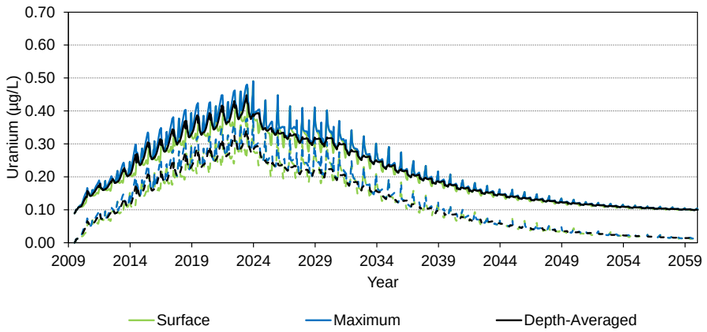
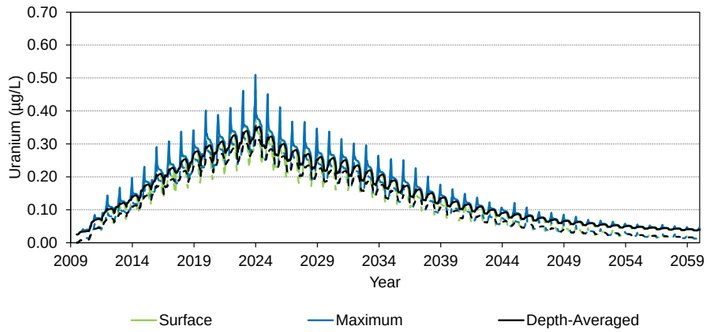


LDG-P6

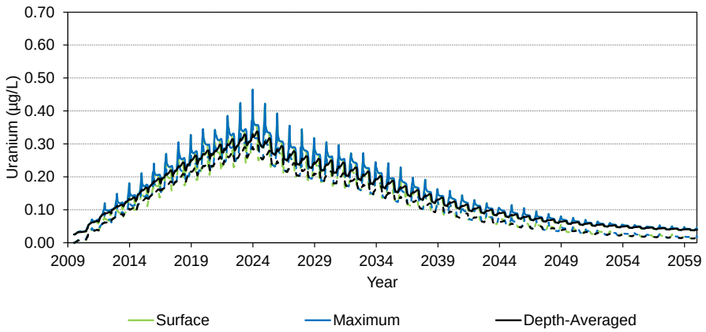
Figure B-33: Predicted Total and Dissolved Uranium Concentrations in Lac de Gras



LDG-P1



LDG-P2



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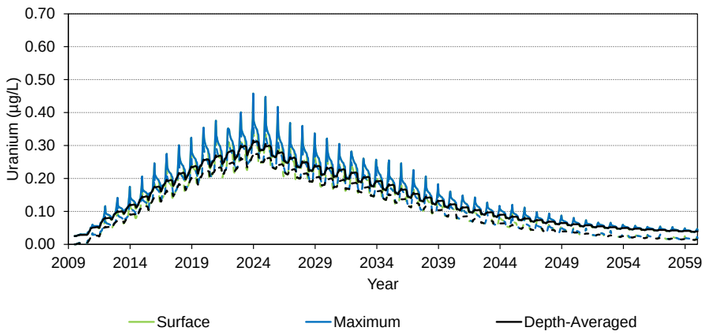
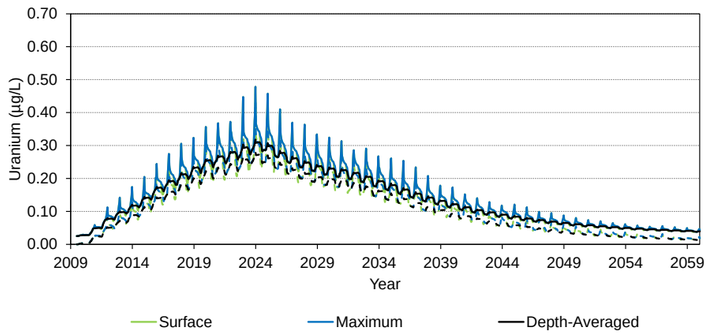


LDG-P4



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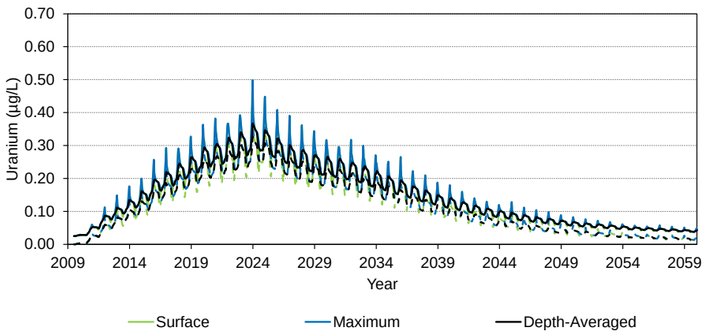
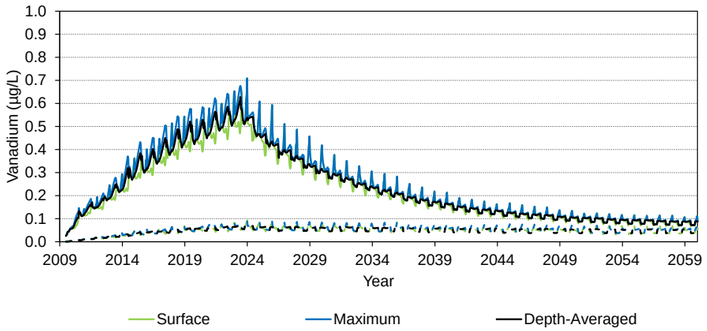
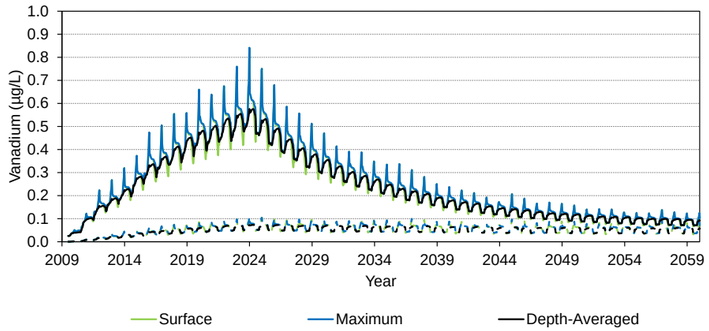


LDG-P6

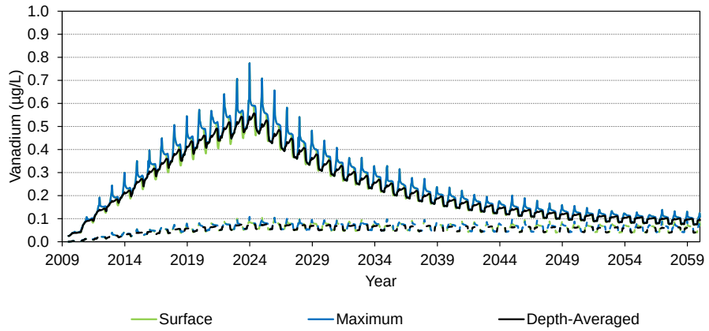
Figure B-34: Predicted Total and Dissolved Vanadium Concentrations in Lac de Gras



LDG-P1



LDG-P2



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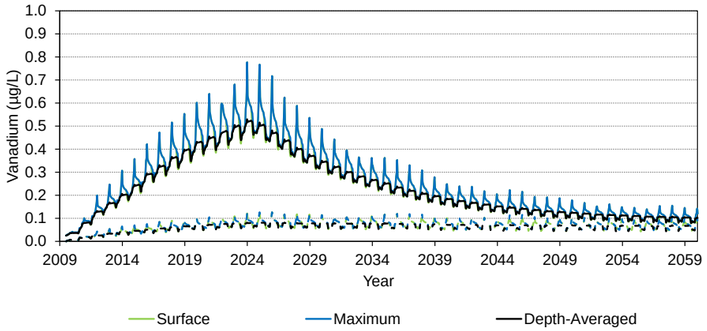
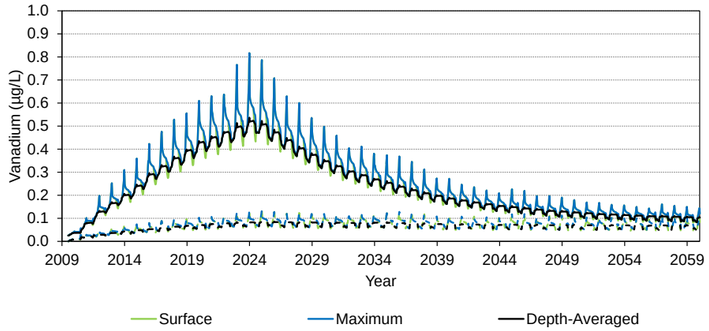


LDG-P4



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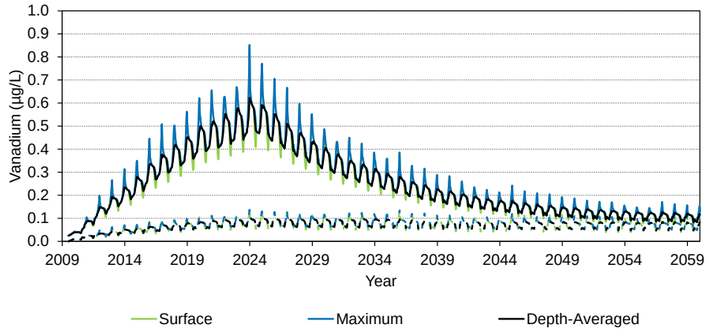
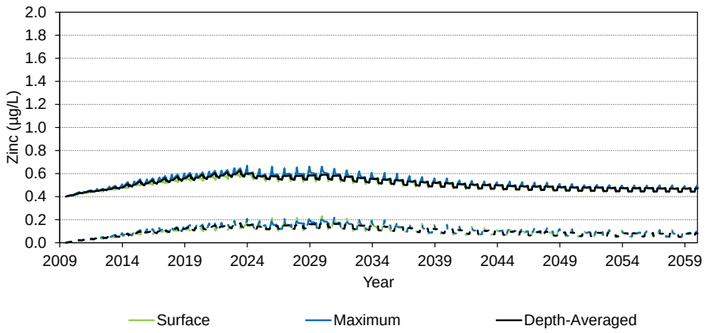


LDG-P6

Figure B-35: Predicted Total and Dissolved Zinc Concentrations in Lac de Gras



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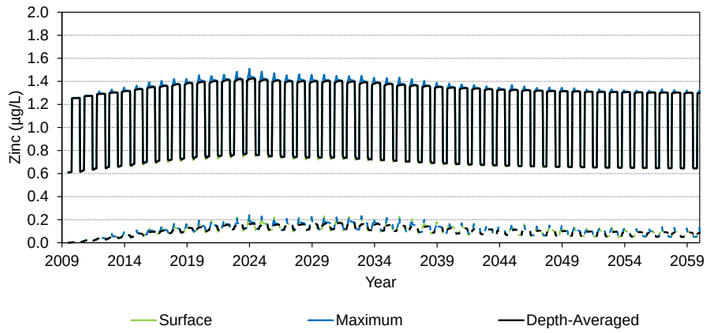

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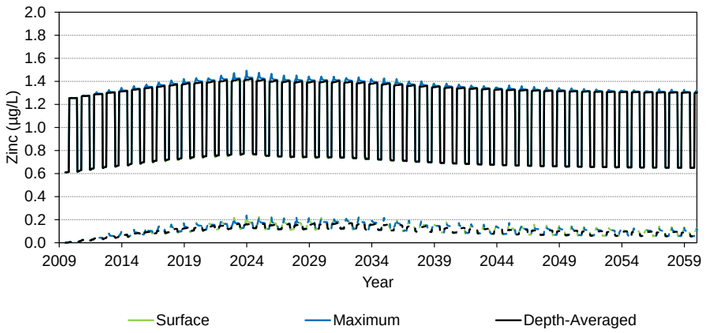
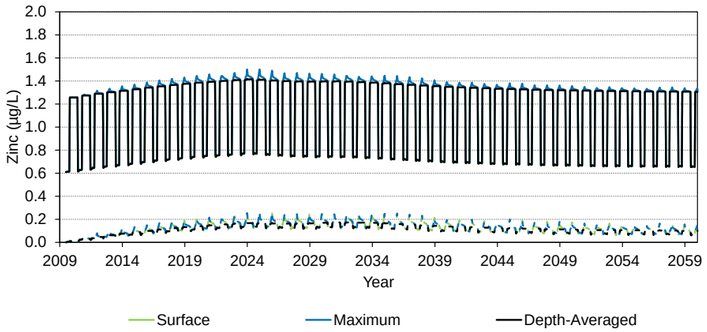


LDG-P3



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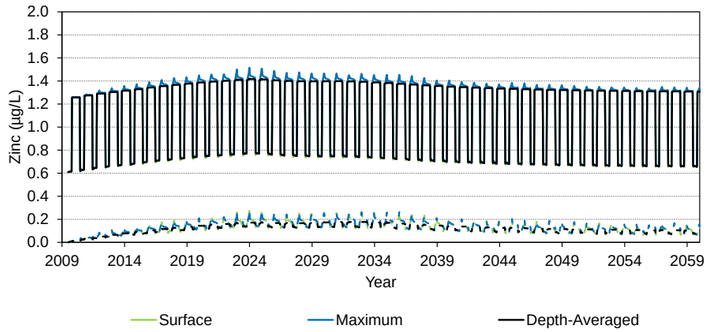
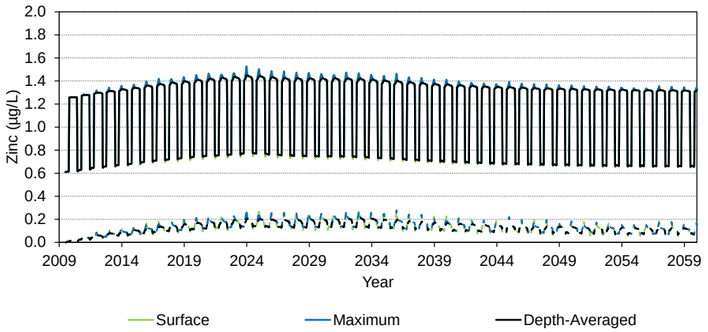


LDG-P5



LDG-P6