APPENDIX H – WUA CURVE REASONABLENESS TESTS

1. Northern Pike Spawning

WUA curves for northern pike spawning in riverine habitats associated with Trudel Creek are illustrated in Figure 1.

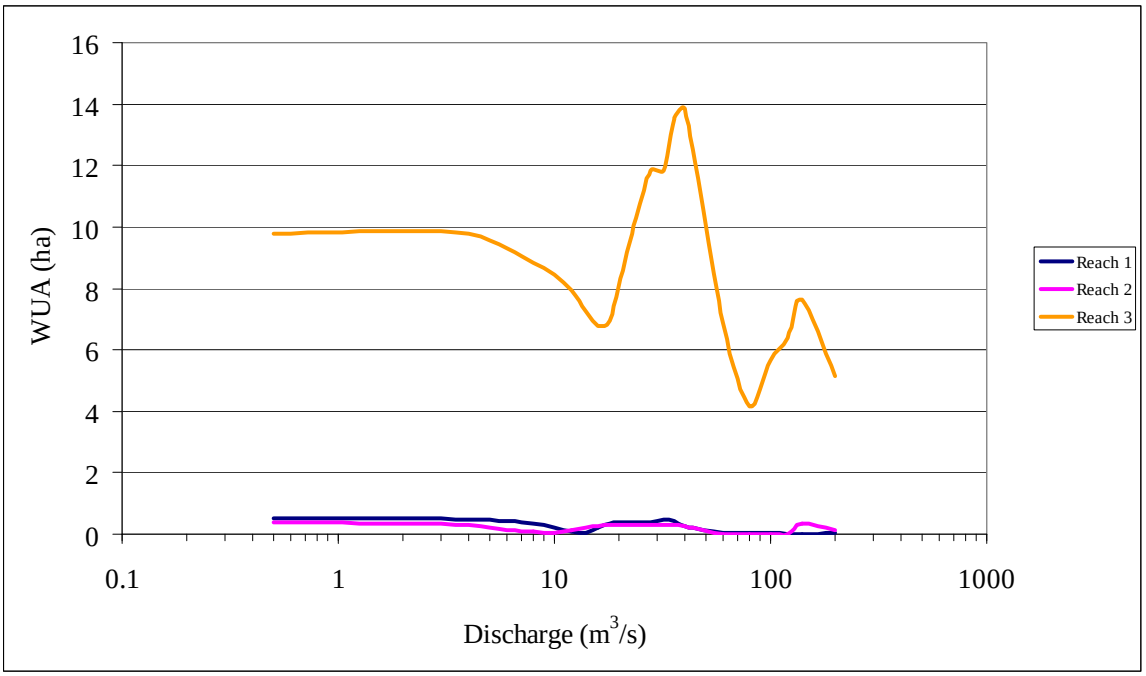

Figure 1 - Northern Pike Spawning WUA Curve for Riverine Habitats

In general, the preferred spawning habitat of northern pike includes slow moving, shallow areas with dense submergent vegetation and fine substrates. These parameters, which are incorporated into the WUA model, are confined to a small habitat range and are sensitive to change as illustrated in the HSI curve.

The WUA curve for Reach 1 indicates that the preferred depth and velocity conditions for northern pike spawning at 200 m^3/s is marginal and will remain limited at all discharge levels. In review of the existing physical habitat conditions, Reach 1 is characterized by sections of rapids and chutes that exceed the preferred velocity conditions for spawning. The aerial photos identified one section (2,100 m long) upstream of the first set of rapids from the confluence with the Taltson River that contains small protected areas that may provide spawning potential for northern pike. These protected areas were also observed during the field study programs and were noted to contain submergent / emergent vegetation and the preferred habitat characteristics for spawning, although sporadically distributed. Sampling efforts resulted in low catch numbers, indicating Reach 1 has limited use by northern pike for both adults and juveniles. The WUA curve for Reach 1 is

considered reasonable as limited spawning potential currently exists based on the channel morphology, field observations and catch numbers.

The WUA curve for riverine sections of Reach 2 is similar to that of Reach 1 and indicates that there will be marginal changes to the preferred habitat conditions at any discharge. Transect data indicates Reach 2 is dominated by stream margins that are steeply sloped to depths that exceed the preferred conditions for spawning ,with the exception of one small wetland area adjacent to the mainstem channel, immediately downstream of the outlet of Trudel Lake. This was confirmed through the aerial photos and field observations. The wetland is only inundated during flows at, or higher than, the maximum mean monthly flow. Therefore, pike have limited seasonal access to this area. The field sampling programs suggests northern pike usage of this riverine section for spawning is limited due to the low catch numbers and lack of preferred habitat. Due to the close proximity of Gertrude and Trudel Lake, adult northern pike may utilize Reach 2, likely do so as a migration channel to more suitable conditions in the lacustrine areas. The WUA curve for Reach 2 is considered reasonable as it represents the lack of preferred habitat for the life-stage and the catch numbers associated with the field sampling programs.

The WUA curve for Reach 3 indicates that there would be an increase in the preferred depth and velocity conditions for northern pike spawning as discharges decrease from approximately 200 m^3/s to 40 m^3/s. This increase is followed by a decline as discharges drop to approximately 15 m^3/s. As discharges continue to approach 0 m^3/s, the WUA curve indicates that northern pike spawning preferred depth and velocity conditions increase. In review of the WUA output data, the rise in spawning habitat availability during declining water levels is primarily associated with a decrease in water velocities to within the preferred spawning velocity range. The decline in available spawning habitat at discharges between 15 to 40 m^3/s is attributed to a change in depth conditions. The stream margins of Reach 3 contain many flat bench type habitats that extend 20 to 30 m into the mainstem channel. As these areas begin to dewater, indicated by the WUA curve between a discharge of 15 to 40 m^3/s, the WUA values are anticipated to decline. At lower discharge rates (<10 m^3/s), water velocities and depths within the mainstem channel would drop to within the preferred habitat conditions for northern pike spawning.

The WUA model also attributes Reach 3 to have the highest quantity of available spawning habitat in riverine areas, which the transect data, catch numbers and aerial photos support. Side channels and shallow benches provide sheltered slow moving habitats and submergent / emergent vegetation is established throughout the reach at depths between 0.0 to 2.0 m (greater than 2 m in some areas) providing cover for spawning purposes. The WUA curve for Reach 3 is considered reasonable; however, it was assumed that with the reduced flows associated with the Expansion Project, submergent and emergent vegetation would establish along the shifted stream margins. This assumption was based on observations of existing submergent / emergent vegetation that is currently below the anticipated change in water level elevation. This was taken

into consideration when discussing the implications of the Project on northern pike spawning in the Effects Assessment section of this report.

Figure 2 illustrates WUA curves for northern pike spawning in lacustrine habitats associated with lakes in Trudel Creek.

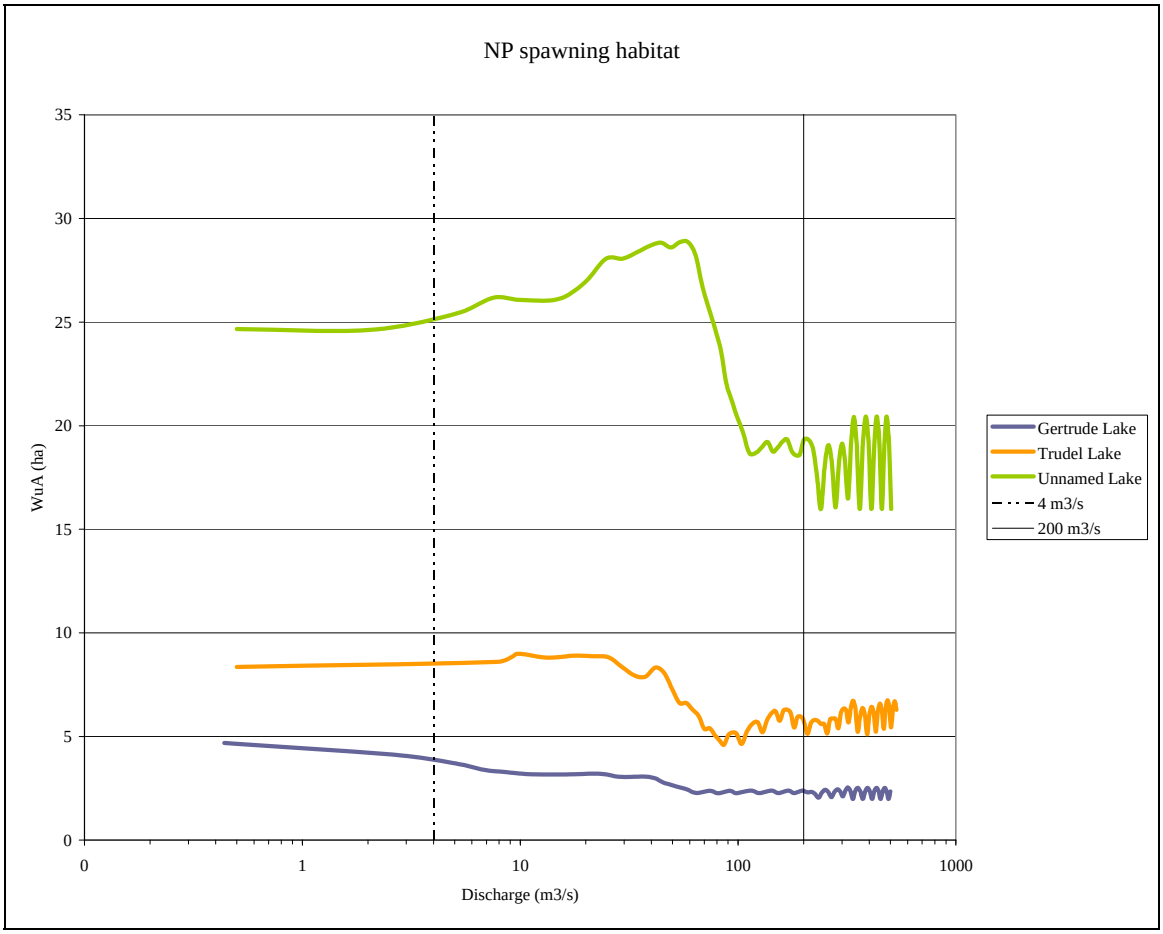

Figure 2 - Northern Pike Spawning WUA Curve for Lacustrine Habitats.

As in riverine habitats, northern pike spawning occurs along the shorelines of lakes where dense submergent and emergent vegetation has established.

The WUA curve for Gertrude Lake indicates that as discharges decrease, there will be an increase in the preferred depth conditions for northern pike spawning. In review of the physical habitat conditions, Gertrude Lake is characterized by shallow bench type habitats consisting of slow moving waters and dense in-stream vegetation interspersed

between bedrock cliffs. The general increase in habitat availability is associated with an increase in bench type habitats at a preferred depth. As discharges decrease and water elevation levels drop, these habitats become available. Adult and juvenile northern pike were observed to utilize the bench type habitats with Gertrude Lake during the field study programs and are anticipated to utilize similar areas for spawning. The WUA curve for Gertrude Lake is considered reasonable as spawning potential within the system exists and the depth profiles identify a potential increase in bench habitats with a decreased discharge.

The WUA curve for Trudel Lake indicates that there is a general increase in the preferred northern pike spawning conditions as discharges decrease from 500 m^3/s to 30 m^3/s. As discharges continue to decrease towards 1 m^3/s, the WUA remains relatively consistent. The physical habitat conditions of Trudel Lake are characterized by rocky exposed shorelines, usually with a steep slope and sporadically distributed vegetation; the sections of the shoreline that are protected from winds, current and wave actions contain dense submergent vegetation. The average depth of the lake is 3.8 m, with some pockets reaching depths of 11 m. As water level elevations drop, more bench type habitat will be come available. The field programs indicate northern pike are currently utilizing Trudel Lake for spawning, mainly at the downstream end of the lake where dense in-stream vegetation and a long prominent bench type habitat exists. The WUA curve for Trudel lake is considered reasonable as spawning potential within the system exists and the depth profiles indicate an increase in the preferred depth conditions.

The WUA curve for Un-named Lake indicate a general increase in the preferred northern pike spawning conditions as discharges decreased from approximately 500 m^3/s to 50 m^3/s, followed by a decline as discharges drop to approximately 2 m^3/s. As discharges continue to approach 0 m^3/s, the WUA curve indicates that the preferred northern pike spawning conditions remain relatively consistent. Again, within the lake system, the largest influence in pike spawning success is depth and cover. Within Un-named Lake, the shorelines are steeply sloped at bedrock cliffs and gradually sloped at wetland areas. Depths associated with steeply sloped shorelines exceed the preferred conditions for northern pike spawning. As discharge levels drop and the lake water level decreases, depth conditions in these areas become more suitable for pike spawning.

The WUA curve also indicates that Un-named Lake provides the highest value of preferred habitat conditions of the 3 lakes for pike spawning. It should be noted that the depth conditions associated with Un-named Lake are not necessarily better than that in Gertrude or Trudel Lake; however, the size of Un-named Lake accounts for the higher WUA values generated by the model. The WUA curve for Un-named Lake is considered reasonable as spawning potential within the system exists and the depth profiles identify a potential increase in bench habitats with a decreased discharge. As noted earlier, it was assumed that vegetation would re-establish along the shifted stream margins and shorelines of the riverine and lacustrine habitats respectively.

2. Northern Pike Juvenile Rearing

WUA curves for northern pike juvenile rearing in riverine habitats associated with Trudel Creek are illustrated in Figure 3.

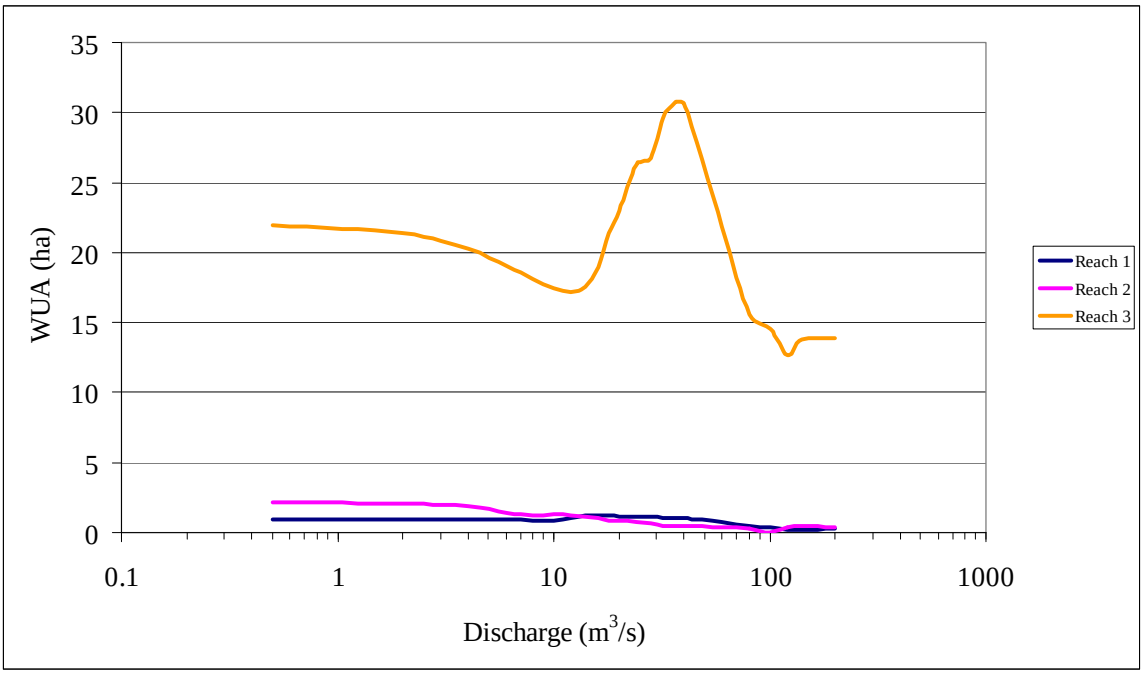

Figure 3 - Northern Pike Juvenile Rearing WUA Curve for Riverine Habitats

The preferred habitat conditions for northern pike juvenile rearing are very similar to pike spawning. Juvenile pike prefer slow moving areas in depths less than 2 m, over mud and silt substrate with submergent vegetation as cover. As northern pike are ambush predators, cover in the form of aquatic vegetation, tree stumps or fallen logs are critical to this life-stage. Therefore, the preferred habitat conditions, as illustrated in the HSI curve, are confined within a small habitat range and are sensitive to alterations.

As the preferred habitat requirements for northern pike juvenile rearing and spawning are similar, the WUA curves generated for each life-stage follow similar trends. The WUA curves for Reach 1 indicates that the availability of preferred depth and velocity conditions for juvenile rearing habitat under existing flow conditions is marginal and will remain limited at all discharge levels. The physical habitat conditions of Reach 1 are characterized by rapids and chutes that exceed the preferred velocity conditions and offers limited habitat with submergent vegetation critical to this life-stage. Field observations and review of the aerial photomosaic identified one small section in Reach 1, immediately above the first set of rapids from the confluence with the Taltson River that offers potential juvenile rearing habitat. This section contains sporadically distributed

habitat areas containing sufficient boulders and submergent vegetation to provide cover for juvenile rearing. Sampling efforts in these preferred habitat condition areas resulted in low catch numbers, indicating juvenile usage of this reach to be limited. Based on the sporadic pockets of juvenile rearing habitat, the WUA curve is reasonable as it fits the conditions observed throughout the field programs and the data collected at the transect locations.

The WUA curve for Reach 2 is similar to Reach 1, in that limited juvenile rearing depth and velocity conditions are available at any discharge. Reach 2 is dominated by stream margins that are steeply sloped to depths that exceed the preferred depth conditions for juvenile rearing and the lack of benches prevents submergent vegetation from extending into the mainstem channel. The aerial photomosaic analysis identified no side channels or protected areas and limited bench type habitats. Sampling efforts revealed limited use of this area by northern pike in comparison to the lacustrine habitats immediately up and downstream. Therefore, the WUA curve for Reach 2 is reasonable as it fits the descriptive data collected in the field.

The WUA curve for Reach 3 indicates that there would be an increase in the preferred depth and velocity conditions for juvenile rearing as discharges decreased from 200 m^3/s to 40 m^3/s, followed by a sudden decline as discharges drop to 15 m^3/s. As discharges continue to approach 0 m^3/s, the WUA curve indicates that depth and velocity conditions for juvenile rearing become more favourable. This trend follows the identical patterns as northern pike spawning and for the same reasons. In general, as discharge levels drop there will be a decrease in water velocities to within the preferred rearing conditions. The decline in preferred rearing conditions at discharges between 15 to 40 m^3/s is attributed to a change in depth conditions, predominately the dewatering of bench type habitats. At lower discharge rates (<10 m^3/s), water velocities and depths associated with the mainstem channel would drop to within the preferred habitat conditions for rearing.

According the WUA curve, Reach 3 offers the highest quantity of juvenile rearing habitat in comparison to both Reach 1 and Reach 2. Review of the aerial photomosaic and catch numbers during the field research programs confirms this, as the habitat complexities, dense submergent / emergent vegetation and slower moving velocities are all within the preferred habitat conditions for juvenile rearing. The WUA curve for Reach 3 is considered reasonable. Again, it was assumed that with the reduced flows associated with the Project, submergent and emergent vegetation would establish along the shifted stream margins. If this does not occur, the habitat availability at lower flows may be over estimated.

WUA curves for northern pike juvenile rearing in lacustrine habitats associated with Trudel Creek are illustrated in Figure 4.

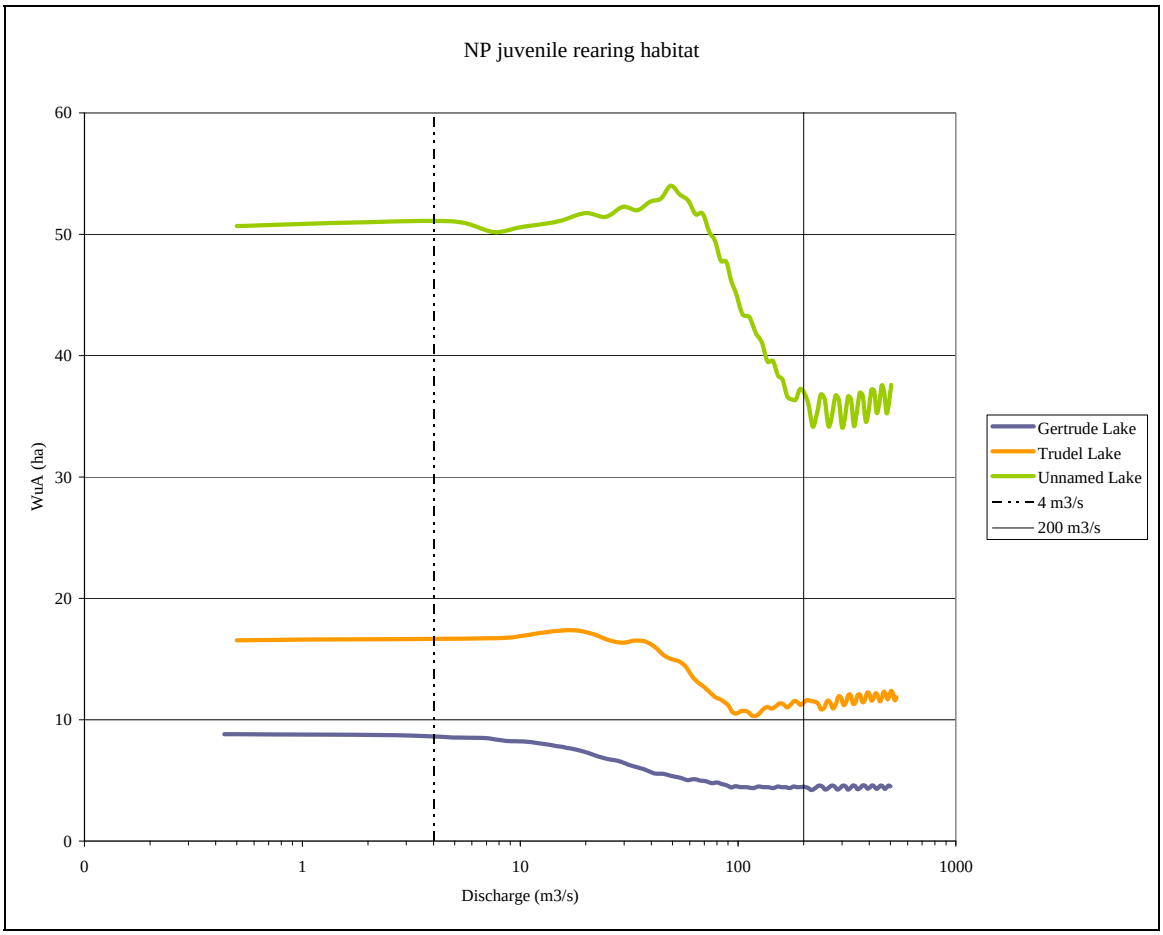

Figure 4 - Northern Pike Juvenile Rearing WUA Curve for Lacustrine Habitats

The WUA curve for Gertrude Lake indicates that there will be an increase in the preferred depth conditions for juvenile rearing as discharges decrease. The photomosaic catalogue and depth profiles identify steeply sloped shorelines adjacent to bedrock cliffs interspersed with wetland habitats. As the water elevation level decreases, depth conditions adjacent to the bedrock cliffs will be within the preferred depth conditions for juvenile rearing. The WUA curve for northern pike rearing in Gertrude Lake is considered reasonable as it fits the anticipated patterns of the depth profiles. It was assumed that submergent and emergent vegetation would establish along the bedrock cliff areas. If this does not occur, the WUA values generated for the Expansion Project era will be overestimated. This was taken into consideration when analyzing the magnitude of the effect in the Effects Assessment section of the report.

The WUA curve for Trudel Lake follows a similar trend to that of Gertrude Lake where there is a general increase in preferred depth conditions as discharges decrease. Habitat conditions within Trudel Lake are also similar to Gertrude Lake as each system is

characterized by wetland habitat interspersed between bedrock cliffs. As water level elevations decrease, the depth conditions adjacent to some of the bedrock cliffs will be within the preferred depth conditions for juvenile rearing. The WUA curve for juvenile rearing is considered reasonable as it fits the depth profiles and physical data collected during the field program. It was assumed that submergent and emergent vegetation would establish along the bedrock cliff areas. If this does not occur, the WUA values generated for the Expansion Project era will be overestimated. This was taken into consideration when analyzing the magnitude of the effect in the Effects Assessment section of the report.

The WUA curve for Un-named Lake indicates that there would be an increase in the preferred depth conditions for juvenile rearing as discharges decreased from approximately 500 m^3/s to 50 m^3/s, followed by a decline as discharges drop to approximately 8 m^3/s. As discharges continue to approach 0 m^3/s, the WUA curve indicates that the preferred conditions for northern pike spawning remain relatively consistent. Un-named Lake is the shallowest of the three lakes within the Trudel system. As discharges over the SVS decrease and the water elevation levels drop, depth conditions within the lake will become more favourable. Again, it should be noted that the preferred habitat conditions in Un-named Lake are not necessarily of higher value than Gertrude or Trudel Lake. The size of Un-named Lake accounts for the discrepancies in magnitude. Therefore, the WUA curve for Un-named Lake is considered reasonable.

3. Lake Whitefish Juvenile Rearing

WUA curves for lake whitefish juvenile rearing in riverine habitats associated with Trudel Creek are illustrated in Figure 5.

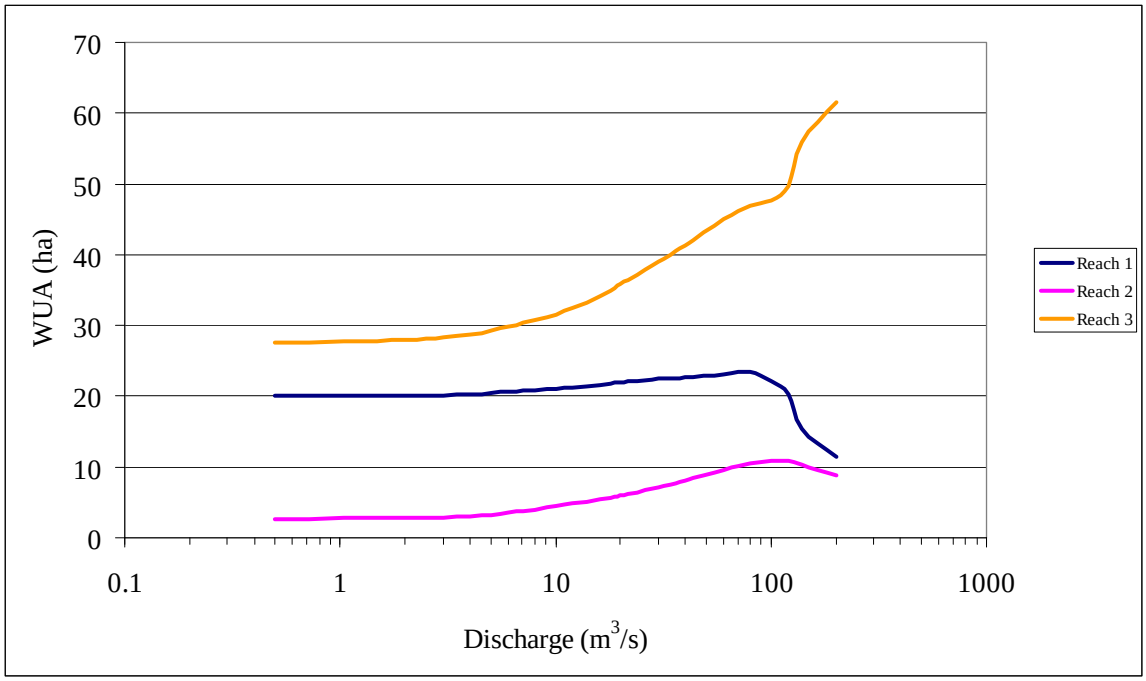

Figure 5 - Lake Whitefish Juvenile Rearing WUA Curve for Riverine Habitats

Shortly after emergence, lake whitefish utilize shallow water areas with boulder, cobble and sand substrates in association with emergent vegetation and large woody debris. As water temperatures warm during the latter half of the summer months, juveniles will move to deeper habitats, between 3 – 15 m in depth. In review of the HSI curves generated for juvenile rearing, the preferred velocity conditions are confined to within a small range (0.5 – 1.0 m^3/s) whereas the range of preferred depth conditions is much broader (2.5m or greater). Juvenile lake whitefish are typically associated with lacustrine type habitats and are not anticipated to rely on the riverine sections of Trudel Creek.

The WUA curve for Reach 1 indicates that there would be an increase in preferred depth and velocity conditions as flows decrease from 200 to 100 m^3/s, followed by a gradual decline as flows approach 1 m^3/s. The initial increase in preferred habitat conditions is primarily attributed to a reduction in velocities. Reach 1 contains higher velocity sections in comparison to Reaches 2 and 3 and as these velocities are reduced with a decreased discharge, the WUA for juvenile rearing increases. The decrease is WUA between 100 m^3/s and 0.5 m^3/s is associated with the reduction in depth conditions. Field observations and transect data suggests that average depth at approximately 200 m^3/s are 3.5 m. Therefore, with a reduced discharge the water depths will approach the lower limit of the preferred conditions in the deepest sections of the mainstem channel and the shallower sections will be reduced to a depth outside the preferred conditions. Sampling efforts to date indicate adult lake whitefish utilize Reach 1 for rearing purposes; however, no juvenile lake whitefish have been captured within the entire Trudel system. As the

preferred habitat conditions of adult rearing lake whitefish are very similar to juvenile rearing (minimum depth for adult rearing is approximately 1.2 m deeper), it can be assumed that Reach 1 provides habitat for juvenile rearing lake whitefish. In review of the aerial photomosaic catalogue, the section upstream of the first set of rapids from the confluence with the Taltson River provides ideal juvenile rearing habitat. The WUA curve for Reach 1 is considered reasonable as it fits the conditions observed during the field research programs and the life history requirements of juvenile lake whitefish.

The WUA curves for riverine habitats of Reach 2 decrease proportionately as the discharge levels decrease. The velocity conditions within this reach are likely within the preferred habitat conditions indicating that the limiting factor is depth. Transect data suggests that the average depth at approximately 200 m^3/s is 2.9 m, slightly less than Reach 1. For that reason, any decrease in discharge will reduce the WUA as depths will reach the lower limits or go below the preferred habitat conditions. Sampling efforts have indicated that adult lake whitefish use Reach 2 for rearing purposes; however no juveniles have been captured. It was assumed that if the preferred depth conditions within this reach are available for adult rearing, they are also available for juvenile rearing. Review of the physical channel conditions support this as the steep slopes at the stream margins fit well with their preferred habitat conditions. Therefore, the WUA curve for Reach 2 is considered reasonable as it represents the available habitat and the catch numbers associated with the field sampling programs.

The WUA curves for Reach 3 follows a similar trend to Reach 2 in that they both decrease proportionately as the discharge decreases, directly a result of a reduction in depth. The transect data indicates that many of the stream margins in Reach 3 extend towards the mainstem channel before sloping off to the thalweg. As these benched areas dewater, large portions of the riverine section will be outside the preferred habitat conditions, which is indicated by the decline on the WUA curve. Catch numbers indicate adults utilize the area for rearing and although no juveniles were captured, it is assumed that the preferred habitat conditions are present. Reach 3 offers the greatest quantity of habitat availability, predominately associated with the length of the reach and not a condition of better habitat. Therefore, the WUA curve for Reach 3 is considered reasonable as it represents the available habitat, follows a declining trend anticipated due to the bench type habitats, and is consistent with the catch numbers associated with the field sampling programs.

WUA curves for lake whitefish juvenile rearing in lacustrine habitats associated with Trudel Creek are illustrated in are Figure 6.

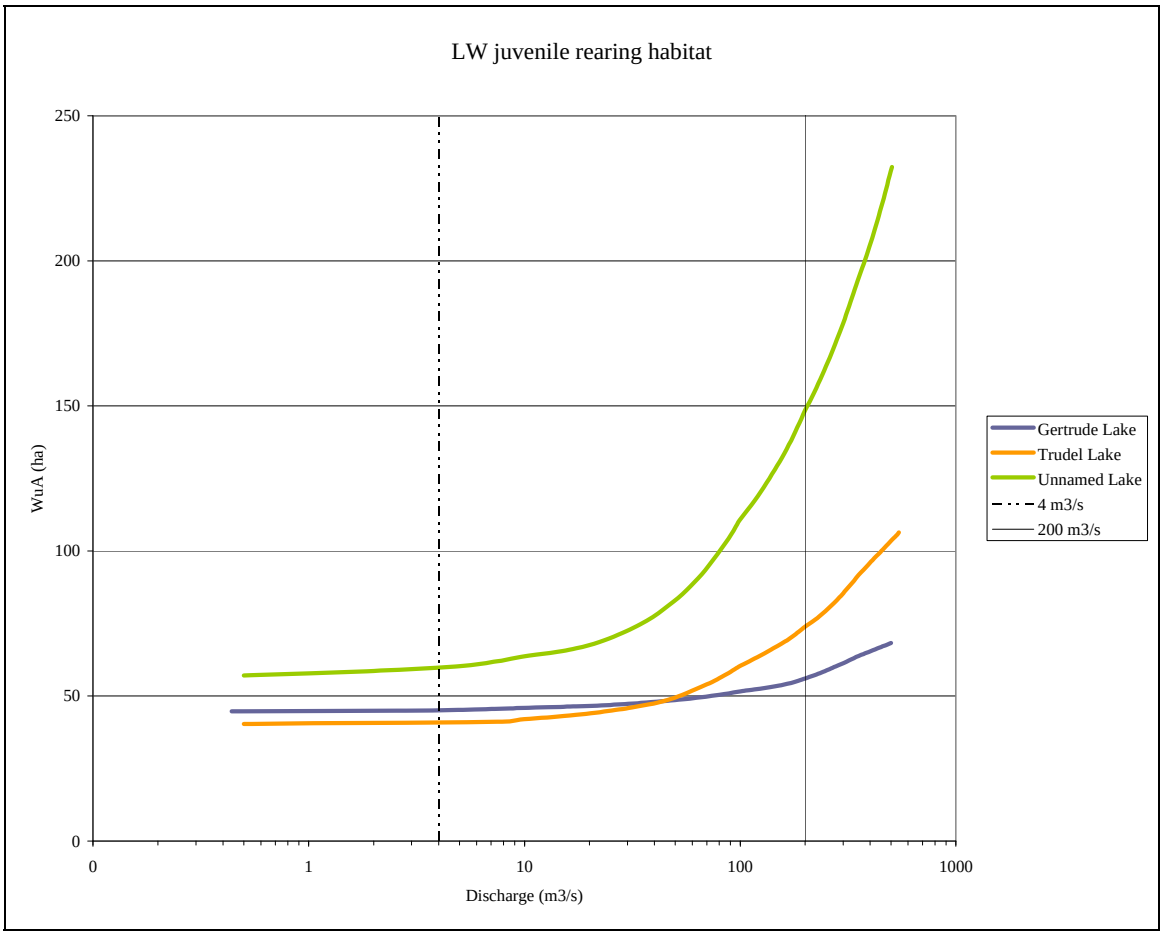

Figure 6 - Lake Whitefish Juvenile Rearing WUA Curve for Lacustrine Habitats

The WUA curves for Gertrude Lake, Trudel Lake and Un-named Lake all follow similar patterns and indicate there will be a decrease in the preferred depth conditions for juvenile rearing as discharges decrease from 500 to 0.5 m^3/s. Life histories and the HSI curves indicate that juvenile lake whitefish rearing habitat is primarily a condition of depth. Therefore, as the water elevation level within the lake systems drop, it can be assumed there will be a proportionate decrease in preferred depth conditions. Gertrude Lake is the deepest lake on average (5.5 m) in the Trudel system and experiences a gradual decline in preferred habitat conditions as discharges drop. Trudel Lake is 3.8 m deep on average and therefore experiences a slightly steeper decline in the preferred habitat conditions than Gertrude Lake. Un-named Lake is the shallowest of the three lake systems and therefore experiences the steepest decline in preferred habitat conditions. The WUA curves for Gertrude Lake, Trudel Lake and Un-named Lake are considered reasonable as they fit the preferred depth conditions of juvenile rearing lake whitefish and the depth profiles.

4. Lake Whitefish Adult Rearing

WUA curves for lake whitefish adult rearing in riverine habitats associated with Trudel Creek are illustrated in Figure 7.

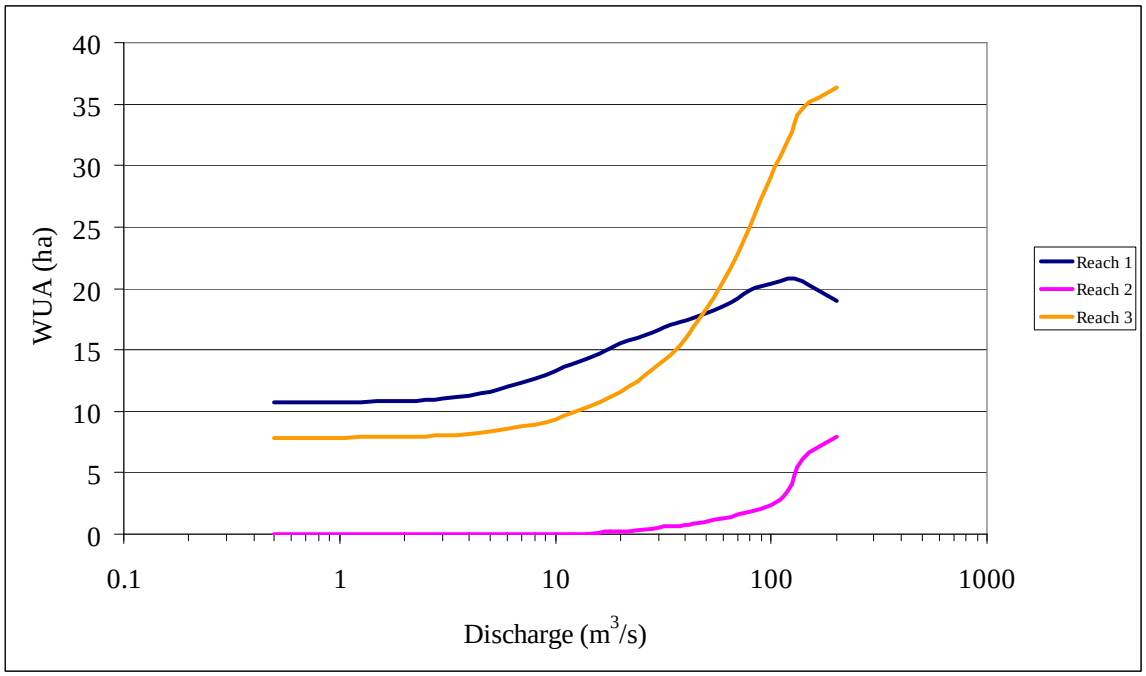

Figure 7 - Lake Whitefish Adult Rearing WUA Curve for Riverine Habitats

Similar to juvenile lake whitefish rearing, adult rearing is predominately a condition of depth. Lake whitefish utilize shallower habitats for spawning; however, will return to deep water habitats, typically lake systems, to rear and over-winter. The overall trends associated with the lake whitefish adult rearing WUA curves are nearly identical to the juvenile lake whitefish, in that the WUA decreases proportionately as the discharge decreases. Based on catch numbers and transect data, the adult rearing WUA curves are considered reasonable as they represent the available habitat conditions and depth conditions associated with the transect data.

WUA curves for lake whitefish adult rearing in lacustrine habitats associated with Trudel Creek are illustrated in Figure 8.

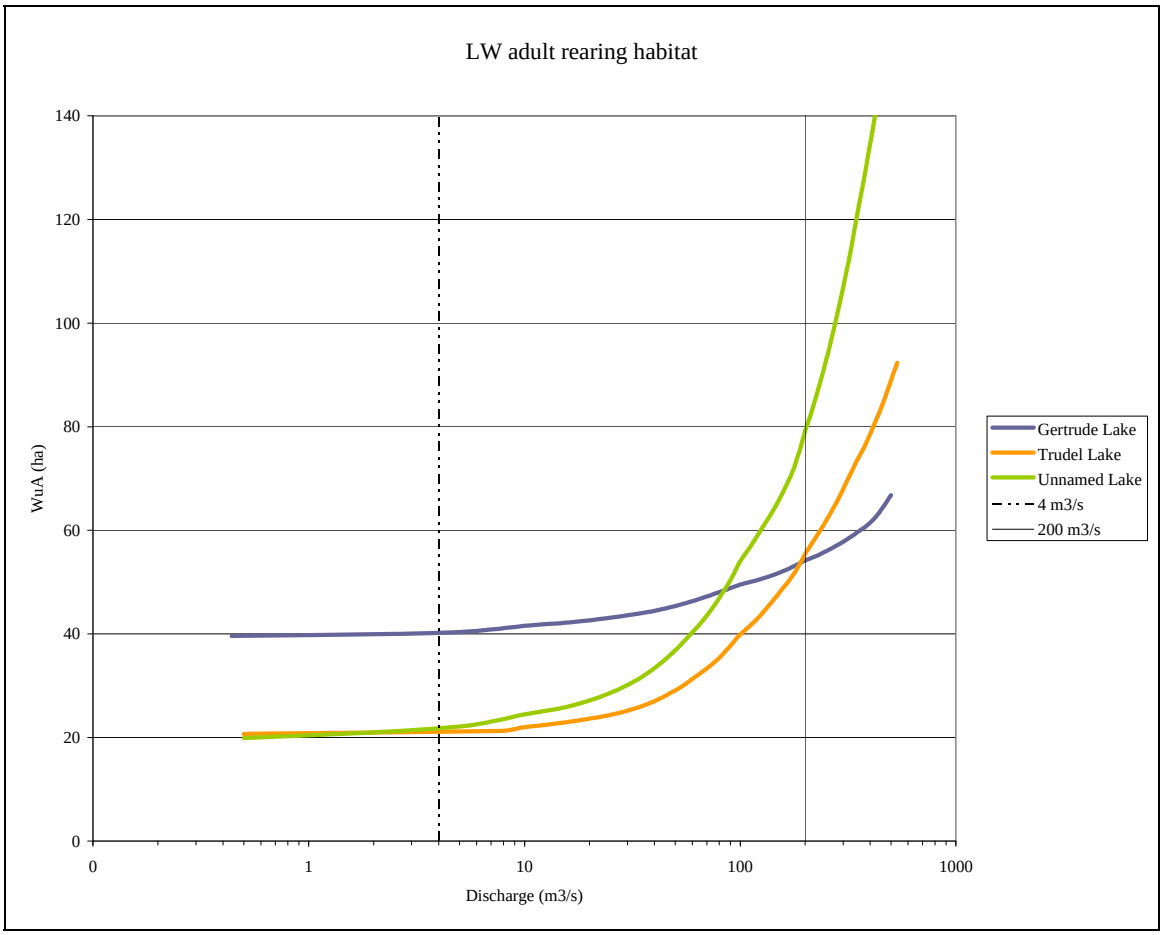

Figure 8 - Lake Whitefish Adult Rearing WUA Curve for Lacustrine Habitats

Lake whitefish adult rearing preferred habitat conditions are nearly identical to juvenile rearing conditions, with the exception of a preference for slightly deeper waters. Therefore, based on the known bathymetry of each of the lake systems, as discharges and water level elevations drop there will be a proportionate in preferred depth conditions. The WUA curves generated are considered reasonable as they follow the depth characteristics associated with each lake and the life-stage requirements outlined in the HSI curves.

5. Lake Whitefish Spawning

WUA curves for lake whitefish spawning in riverine habitats associated with Trudel Creek are illustrated in Figure 9.

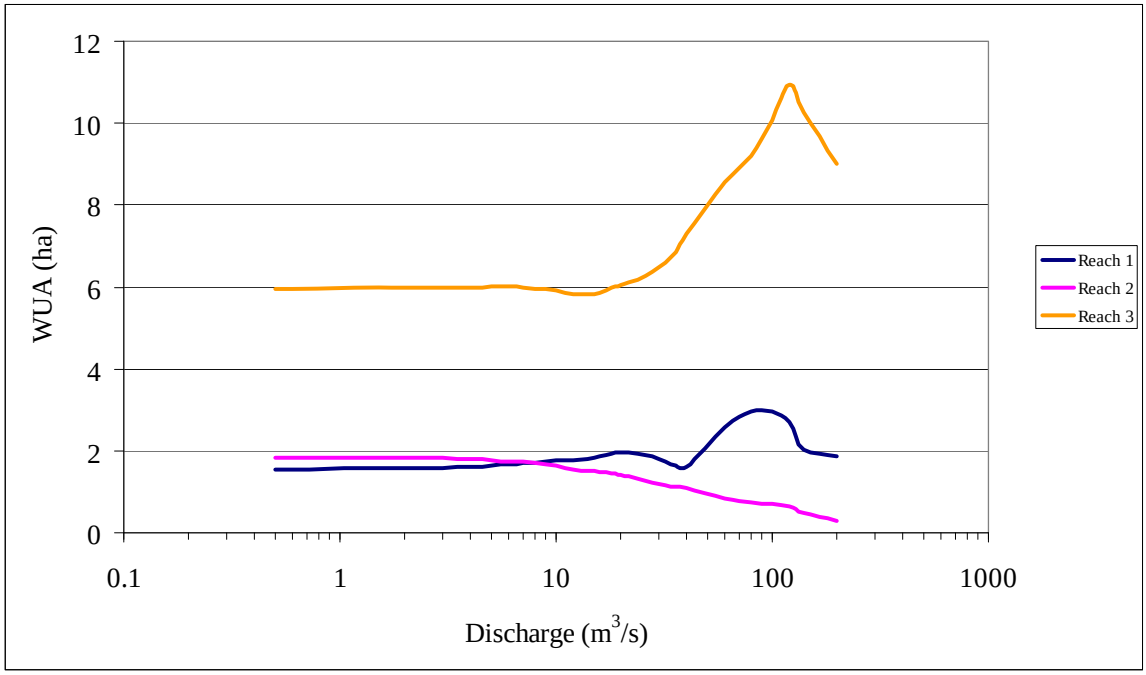

Figure 9 - Lake Whitefish Spawning WUA Curve for Riverine Habitats

Lake whitefish spawning typically occurs in shallow slow moving water at depths between 1.5 to 4 m, over cobbles and gravels and occasionally over sand. The depth, velocity, cover and substrate conditions for lake whitefish spawning are relatively broad and are tolerant to small alterations in their preferred habitat conditions.

The WUA curve for Reach 1 indicates that there is an initial increase in the preferred conditions for spawning as discharge rates decrease from 120 m^3/s to 90 m^3/s, followed by a decline as discharges drop to 40 m^3/s. As discharges continue to approach 0 m^3/s the changes in the preferred habitat conditions remain relatively consistent. The initial rise in habitat availability during declining water levels is due to the decrease in water velocities to within the preferred habitat conditions. The decline in habitat availability at discharges between 40 – 90 m^3/s is attributed to a change in depth conditions along the stream margins. In review of the aerial photomosaic catalogue and transect data, the section upstream of the first set of rapids from the confluence with the Taltson River provides the highest value spawning habitat in Reach 1. Transect data indicate depths and velocity conditions along this section are likely within the preferred habitat range during most discharges. Catch numbers identified no juveniles within this section; however, adult whitefish were observed to use this section for rearing purposes. Therefore, it was assumed that lake whitefish utilize Reach 1 for spawning. The WUA curve for Reach 1 is considered reasonable as the transect data fits with the preferred habitat conditions.

The WUA curve for Reach 2 indicates an increase in the preferred depth and velocity conditions for spawning as discharge rates decrease. Reach 2 riverine habitat is dominated by stream margins that are steeply sloped to depths that slightly exceed the preferred habitat conditions. As discharge decreases and water level elevations drop, there will be an increase in WUA for lake whitefish spawning. Catch numbers indicate that adults utilize this area for rearing purposes and possibly for spawning; however, the close proximity of "higher quality" spawning habitat in both Gertrude Lake (downstream) and Trudel Lake (upstream) may limit the use of this small reach for spawning purposes. The WUA curve for Reach 2 is considered reasonable as the transect data fit with the preferred habitat conditions.

The WUA curve for Reach 3 indicates that there would be an increase in lake whitefish preferred spawning conditions as discharges decreased from approximately 200 m^3/s to 100 m^3/s, followed by a decline as discharges drop to 20 m^3/s. As discharges approach 0 m^3/s, the WUA curve indicates that lake whitefish preferred spawning conditions will be relatively unaltered. In review of the WUA output data, the rise in spawning habitat availability during declining water levels is primarily associated with a decrease in water velocities to within the preferred spawning conditions. The decline in available spawning habitat at discharges between approximately 20 to 100 m^3/s is attributed to a change in depth conditions. The stream margins of Reach 3 contain many flat bench type habitats that extend 20 m to 30 m into the mainstem channel. As these areas begin to dewater, the WUA values are anticipated to decline. At lower discharge rates (<20 m^3/s), water velocities and depths would remain within the preferred habitat conditions for lake whitefish spawning as indicated by the flat line on the WUA curve. The WUA curve for lake whitefish spawning in Reach 3 is considered reasonable as the transect data fit and generated curves fit the preferred habitat conditions.

WUA curves for lake whitefish spawning in lacustrine habitats associated with Trudel Creek are illustrated in Figure 10.

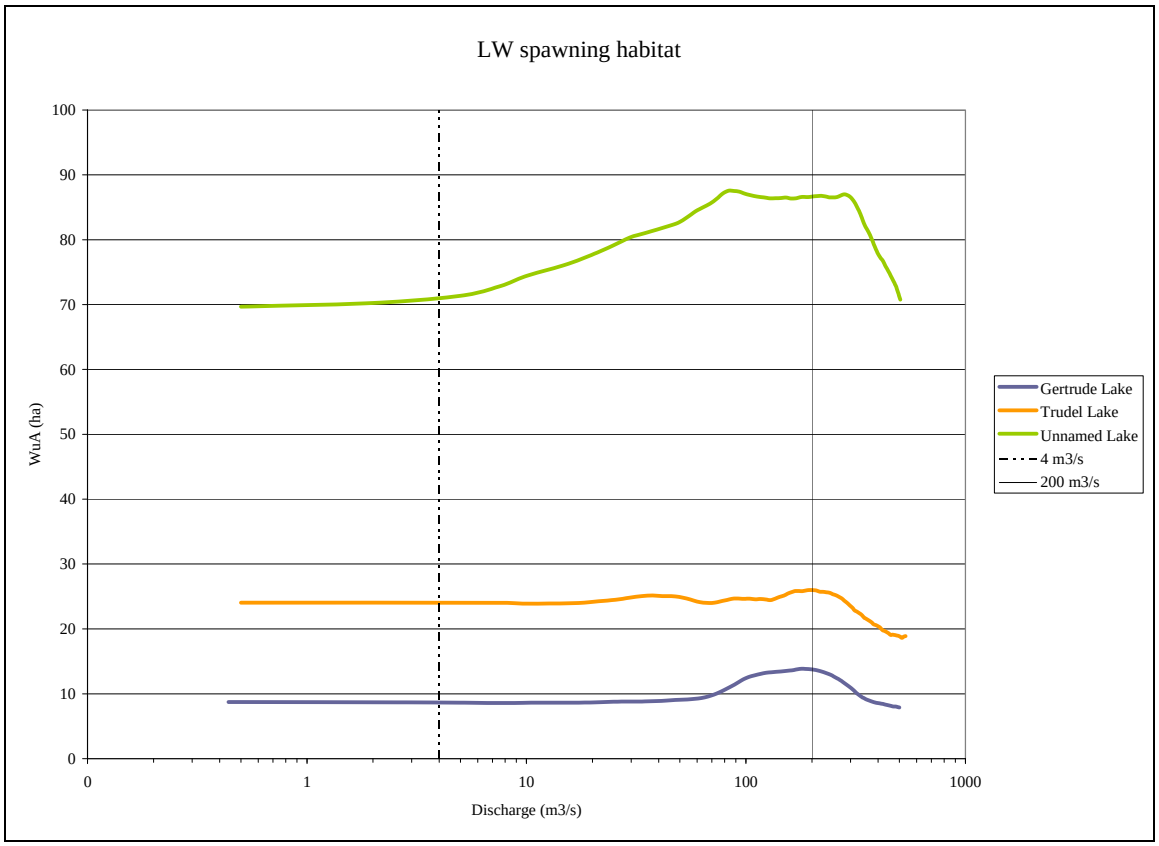

Figure 10 - Lake Whitefish Spawning WUA Curve for Lacustrine Habitats

As in riverine habitats, lake whitefish spawning typically occurs in shallow slow moving water at depths between 1.5 to 4 m, over cobbles and gravels and occasionally over sand. The depth, velocity, cover and substrate conditions for lake whitefish spawning are relatively broad and are relatively tolerant to small alterations in their preferred habitat conditions.

The WUA curve for Gertrude Lake indicates that preferred lake whitefish spawning conditions will remain relatively consistent at any discharge with one small peak occurring at approximately 200 m^3/s. The depth profiles suggest that the lake shoreline consists of bench type habitats associated with wetland areas and steeper sloped habitats associated with bedrock cliffs. Lake whitefish, for the most part, can utilize both as long as suitable substrates are present. As these habitats types are found consistently around the shoreline at almost all discharges the trend of the WUA curve is considered reasonable.

The WUA curve for Trudel Lake indicates that the preferred lake whitefish spawning conditions will increase as the discharge drops from 500 m^3/s to approximately 100 m^3/s. As discharges continue to approach 0 m^3/s, the WUA remains relatively consistent.

Much like Gertrude Lake, the depth profiles indicate that the shoreline of Trudel Lake contains both bench and cliff type habitats. Lake whitefish can utilize both of these habitat conditions as long as suitable substrates are present. As these habitats are found consistently around the shoreline at almost all discharges, the trend of the WUA curve is considered reasonable.

The WUA curve for Un-named Lake indicates that there would be an increase in the preferred lake whitefish spawning conditions as discharges decrease from approximately 500 m^3/s to 300 m^3/s, where it plateaus until 90 m^3/s. The WUA from 90 m^3/s declines as discharges continue to approach 0 m^3/s. The initial increase in preferred habitat conditions is associated with the decrease in depth. As some of the deeper sections of the lake become shallower, they become available for lake whitefish spawning. Again, as Un-named Lake has an average depth of 3.0 m, as depths continue to decrease the shallower sections of Un-named Lake will drop below the preferred depth conditions. Therefore, the WUA curve for lake whitefish spawning in Un-named Lake is considered reasonable.