REPORT

Tazi Twé
Hydroelectric Project

October 2013

ANNEX III - SURFACE WATER BASELINE REPORT

Tazi Twé Hydroelectric Project

Submitted to:
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Golder Associates

List of Abbreviations

Term	Definition
ADCP	Acoustic Doppler Current Profiler
BIC	benthic invertebrate community
BLFN	Black Lake First Nation
CBFWA	Columbia Basin Fish and Wildlife Authority
CCME	Canadian Council of Ministers of the Environment
COC	chain-of-custody
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CPUE	catch-per-unit-effort
CWQG	Canadian Water Quality Guidelines
DEM	digital elevation model
DO	dissolved oxygen
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
ELC	ecological landscape classification
GPS	Global Positioning System
ISQG	Interim Sediment Quality Guidelines
LiDAR	Light Detection and Ranging
LOI	loss of ignition
LSA	local study area
MOE	Saskatchewan Ministry of Environment
NTS	National Topographic System
PEL	Probable Effects Level
PIT	passive integrated transponder
Project	Tazi Twé Hydroelectric Project
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
QC	quality control
RSA	regional study area
SBF	small-bodied fish
SPRR	Saskatchewan Parks and Renewable Resources
SRC	Saskatchewan Research Council
TDS	total dissolved solids
TKN	total Kjeldahl nitrogen
TOC	total organic carbon
TOR	Terms of Reference
TSS	total suspended solids

List of Units

Term	Definition
°C	degrees Celsius
µg/g	micrograms per gram
µm	micrometre
cm	centimetres
cm/s	centimeters per second
cm^2	square centimetres
g	grams
kHz	kilohertz
km	kilometre
km^2	square kilometre
L	litre
m	metre
m/s	metres per second
m^2	square metres
m^3/s	cubic metres per second
mg/L	milligrams per litre
mg/m^3	milligrams per cubic metre
MHz	megahertz
mL	millilitre
mm	millimetres
MW	megawatt
µS/cm	microSiemens per centimetre

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Appendix III.12
Fish Movement

1.0 INTRODUCTION

1.1 Project Proponent

In response to an increasing demand for energy in northern Saskatchewan, Black Lake First Nation (BLFN) together with Saskatchewan Power Corporation (SaskPower) are the Proponents of the Tazi Twé Hydroelectric Project (Project). Black Lake First Nation's interest in the Project is held through the Elizabeth Falls Hydro Limited Partnership (EFHLP).

1.2 Project Overview

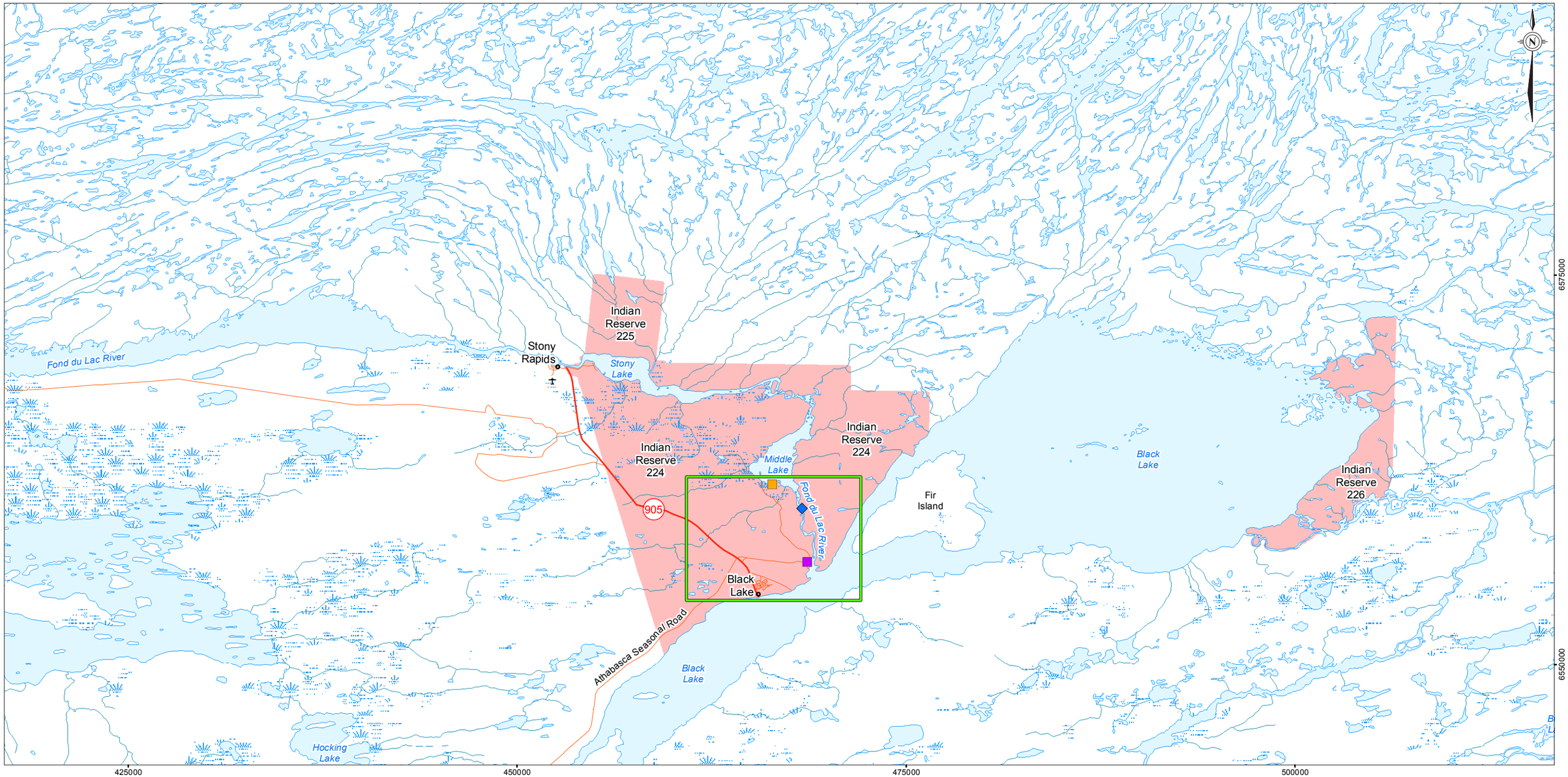
The proposed Project will be a 50 megawatt (MW) water diversion type electrical generating station. The Project is located on the Chicken Indian Reserve 224, approximately 7 kilometres (km) from the community of Black Lake adjacent to the Fond du Lac River between Black Lake and Middle Lake (Figure 1.2-1). Black Lake has an approximate area of 418 square kilometres (km^2) and discharges an average flow of 305 cubic metres per second (m^3/s) into the Fond du Lac River. The Fond du Lac River traverses Elizabeth Falls on its way to Middle Lake. Water from Black Lake will be diverted through an intake and power tunnel to the powerhouse before being released through a tailrace channel into the Fond du Lac River, which ultimately discharges into Middle Lake.

The principal components of the Project consist of the following:

- gravel, all-season access road to the Project site from the all-season road between the communities of Stony Rapids and Black Lake;
- bridge over the Fond du Lac River;
- powerhouse and associated infrastructure;
- water intake and power tunnel to convey flow from Black Lake to the powerhouse;
- tailrace channel from the powerhouse to the Fond du Lac River just upstream of Middle Lake;
- submerged weir located in the Fond du Lac River at the outlet of Black Lake at Grayling Island;
- transmission lines and switching stations to connect to the northern Saskatchewan electrical grid; and
- all related physical works and physical activities required to carry out these works, including the associated coffer dams, access roads, laydown areas, construction camp, borrow areas, waste rock piles, concrete batch plant, fuel storage facility and fueling areas, explosives storage, construction camp, and sewage treatment and potable water facilities.

1.3 Objective of the Baseline Report

The objective of this baseline report is to provide information on the aquatic environment associated with the Project. This information will be used to assist Project design and mitigation planning and to support assessment of the environmental effects of the proposed Project on the aquatic environment in the area. This baseline annex integrates local and regional data from a variety of sources, including previous studies, literature, and Project-specific baseline investigations.



LEGEND

- VILLAGE
- RUNWAY
- HIGHWAY
- ROAD
- RIVER
- WETLAND
- WATERBODY
- INDIAN RESERVE
- ELIZABETH FALLS
- CAMP GRAYLING
- PERMANENT RESIDENT'S CABIN
- GENERAL PROJECT LOCATION

REFERENCE

DMTI HIGHWAYS AND ROADS
NTS MAPSHEET 74I, 74J, 74O, 74P
DATUM: NAD 83 PROJECTION: UTM ZONE 13

5 0 5
SCALE 1:250,000 KILOMETRES

PROJECT
TAZI TWÉ HYDROELECTRIC PROJECT

TITLE
GENERAL PROJECT LOCATION

Golder Associates
Saskatoon, Saskatchewan

PROJECT	10-1365-0004		FILE No.	
DESIGN			SCALE AS SHOWN	REV. 1
GIS	SM	12/07/13		
CHECK	BC	12/07/13		
REVIEW	BC	25/07/13		

FIGURE: 1.2-1

Baseline data and information presented in this document is intended to provide a detailed description of existing conditions for the purpose of addressing the issues and concerns identified during the public engagement process and from provincial and federal government agencies. Principal issues of concern that were identified included hydrology, water and sediment quality, lower trophic communities, fish habitat, and fish populations. To capture the baseline characteristics associated with these topics, specific studies were completed including detailed bathymetric and topographic mapping, water level and flow rate monitoring, characterization of aquatic habitat and fish communities, spring and fall spawning surveys, mark-recapture population estimates, fish migration and movement studies, water and sediment quality sampling, and benthic invertebrate community surveys. Baseline studies focussed on waterbodies and watercourses that may be indirectly or directly affected by the Project, particularly the Fond du Lac River, Black Lake, and Middle Lake.

2.0 STUDY AREAS

2.1 Local Study Area

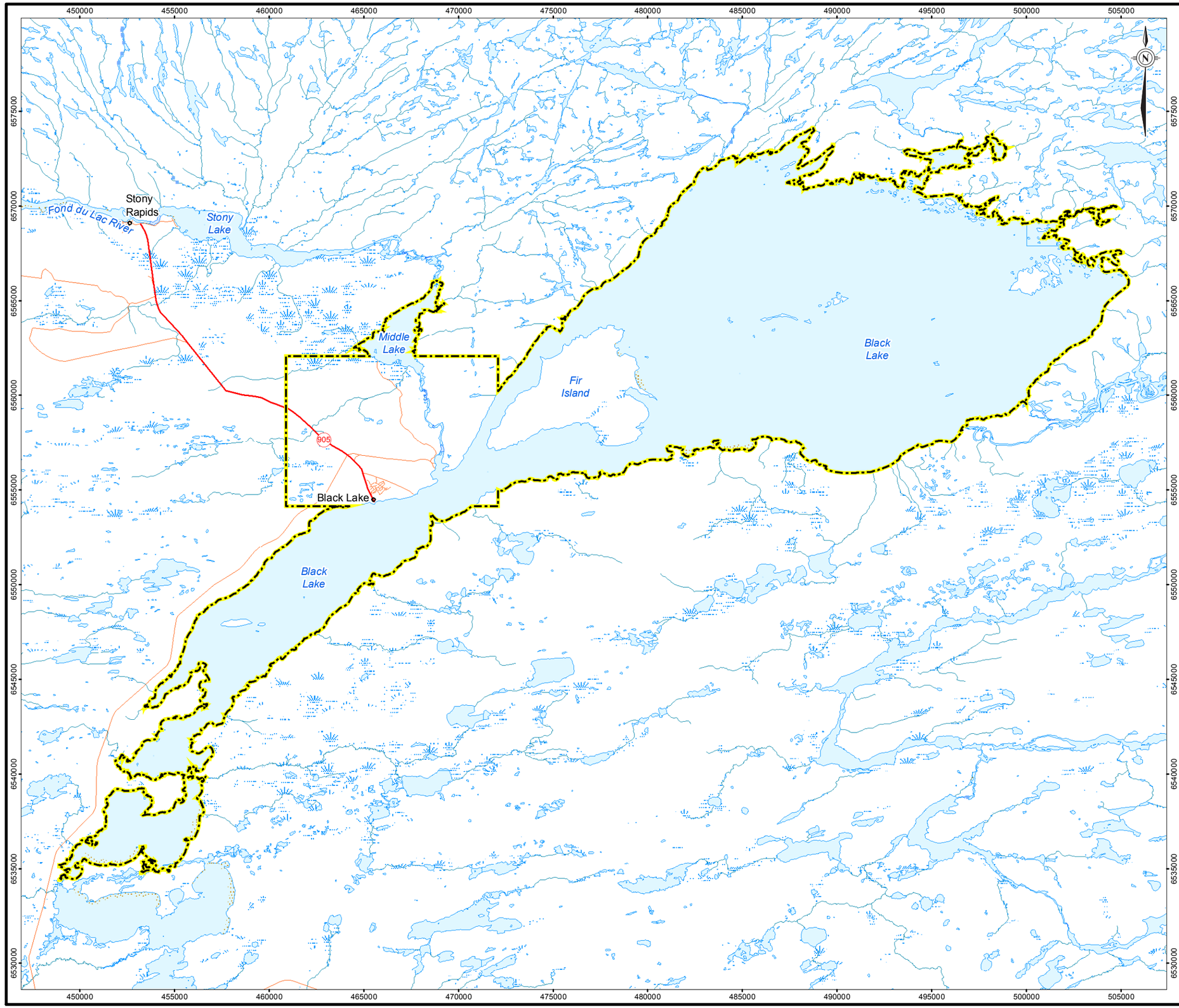
The local study area (LSA) for the surface water environment is based on the predicted direct and small-scale indirect effects from the Project on hydrology, surface water quality, and fish and fish habitat. For example, direct effects may include changes to flow rates while small-scale indirect effects may include changes to surface water quality from dust deposition.

Potential direct effects and small-scale indirect effects to the surface water environment from the Project are predicted to occur in three major waterbodies: Black Lake, the section of the Fond du Lac River between Black Lake and Middle Lake, and Middle Lake. Effects may also occur in smaller waterbodies and watercourses in upland areas within the project footprint and immediately downstream. Thus, the LSA for the aquatic environment includes Black Lake, the Fond du Lac River (between Black Lake and Middle Lake), Middle Lake, and upland areas associated with site infrastructure and their corresponding downstream areas (Figure 2.1-1).

2.2 Regional Study Area

The regional study area (RSA) for the surface water environment is based on the potential larger-scale direct and indirect effects from the Project. For example, larger-scale direct and indirect effects may include cumulative and incremental Project effects.

While no direct or indirect effects are predicted to occur upstream of Black Lake, larger-scale direct effects and indirect effects may propagate into the downstream environment. Lake Athabasca is the receiving waterbody of the Fond du Lac River and is considered to be the downstream extent of the RSA. Thus, the RSA for the aquatic environment is defined as Black Lake, the Fond du Lac River, and Lake Athabasca to the community of Fond du Lac, including all areas in the LSA (Figure 2.2-1).



LEGEND

- VILLAGE
- HIGHWAY
- ROAD
- RIVER
- WETLAND
- WATERBODY
- LOCAL STUDY AREA

REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 13
NTS MAPSHEETS: 73P/3,4,5,6
IMAGERY: ESRI, I-CUBED, USDA, USGS, AEX, GEOEYE, GETMAPPING, AEROGRID, IGN, IGP, AND THE GIS USER COMMUNITY

5 0 5
SCALE 1:200,000 KILOMETRES

PROJECT

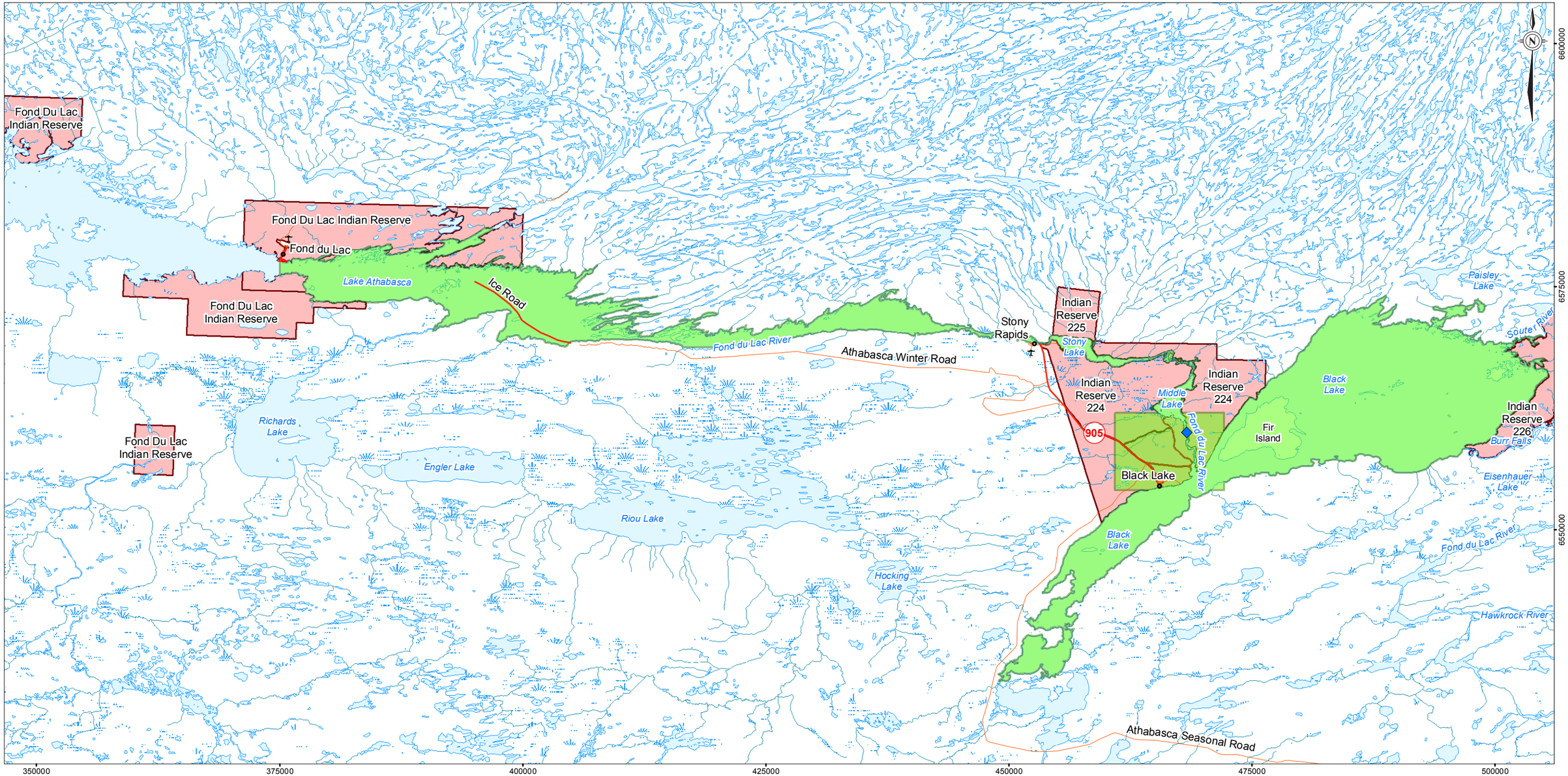
TAZI TWÉ HYDROLELECTRIC PROJECT

TITLE

AQUATIC ENVIRONMENT LOCAL STUDY AEA

Golder Associates
Saskatoon, Saskatchewan

PROJECT	10-1365-0004		FILE No.		
DESIGN			SCALE AS SHOWN	REV.	0
GIS	SM/LR	10/07/13	FIGURE: 2.1-1		
CHECK	LJ	25/07/13			
REVIEW	BC	25/07/13			



LEGEND

- VILLAGE
- HIGHWAY
- ROAD
- RIVER
- WETLAND
- WATERBODY
- INDIAN RESERVE
- ELIZABETH FALLS
- REGIONAL STUDY AREA

REFERENCE

DMTI HIGHWAYS AND ROADS
NTS MAPSHEET 74I, 74J, 74O, 74P
DATUM: NAD 83 PROJECTION: UTM ZONE 13

10 0 10
SCALE 1:400,000 KILOMETRES

PROJECT

TAZI TWÉ HYDROLELECTRIC PROJECT

TITLE

AQUATIC ENVIRONMENT REGIONAL STUDY AREA

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 2
GIS	SM	10/07/13		
CHECK	LJ	25/07/13	FIGURE: 2.2-1	
REVIEW	BC	25/07/13		

3.0 HYDROLOGY

3.1 Introduction

Hydrology refers to the movement, distribution, and quantity of water through the various stages of the surface water cycle. It provides the link between the atmosphere and groundwater and includes components such as precipitation, evaporation, transpiration, infiltration, and sublimation. Areas receive inputs from precipitation and runoff from upstream and upland areas, and lose water through direct losses to the atmosphere (e.g., evaporation) or to the groundwater system. Shallow infiltration provides soil moisture and feedback to streams, while deep infiltration or percolation recharges groundwater systems.

Hydrology is an important environmental component of the surface water environment due to its integral role in providing habitat for aquatic and terrestrial plants and animals, its influence on groundwater, terrain and soils, and its importance in Project design.

The hydrology baseline is intended for use in the Environmental Impact Assessment (EIA) to determine potential effects from the Project in the LSA and RSA, and as a basis for the design of surface water diversion and control structures associated with the Project. The hydrology baseline focuses on characterizing the spatial and temporal distribution of the surface water occurring in the LSA and RSA. Waterbodies in the LSA and RSA were investigated to a distance that was conservatively estimated to be free of potential adverse Project effects. Field data were collected in 2010, 2011, and 2012, and compiled with other regional and local hydrological data sources to describe the local hydrology in detail. The hydrology baseline studies were designed to address three objectives:

- to compile hydrology data from hydrometric stations established within the region for the purpose of characterizing local runoff conditions;
- to present the morphology, flow rates, and water levels for waterbodies in the LSA and RSA (i.e., Black Lake, Fond du Lac River, Middle Lake, and Lake Athabasca); and
- to determine flood and low flow duration and frequency statistics.

3.2 Methods

3.2.1 Field Methods

3.2.1.1 Bathymetric Surveys

Depth surveys were completed for waterbodies in the LSA using a Garmin GPSMAP or an M9 River Surveyor using the following specifications:

- Garmin GPSMAP 178C chartplotter: The Garmin GPSMAP 178C chartplotter is a depth sounder equipped with a dual-frequency depth transducer (50 to 200 kilohertz [kHz]). The unit was configured to log geo-referenced water depths at one or three second intervals. Transects at 300 m intervals, oriented perpendicular to the shore, were plotted prior to data collection. During data collection, at the end of each transect, the survey continued parallel to the shoreline in 0.5 to 1.0 m of water until the start of the next transect. The Garmin unit was mounted to a 4.9 m (16') aluminum boat.
- Sontek M9 RiverSurveyor: The M9 unit is an Acoustic Doppler Current Profiler (ADCP) equipped with differential Global Positioning System (GPS). The unit was mounted to a hydroboard or trimaran, towed from an inflatable boat and further manoeuvred using lead ropes, or towed from a helicopter. Transects

and longitudinal river profiles were completed as safety on the river permitted; channel geometry in fast rapids or water falls was not measured.

Bathymetric data for Black Lake, the Fond du Lac River, and Middle Lake were obtained using one of the above methods, or from digitizing depth data points available from Johnson (1971), and contouring the surface. The equipment, methods, and timing of data collection on each waterbody in the LSA varied according to the descriptions in Table 3.2-1.

Table 3.2-1: Bathymetric Data Collection

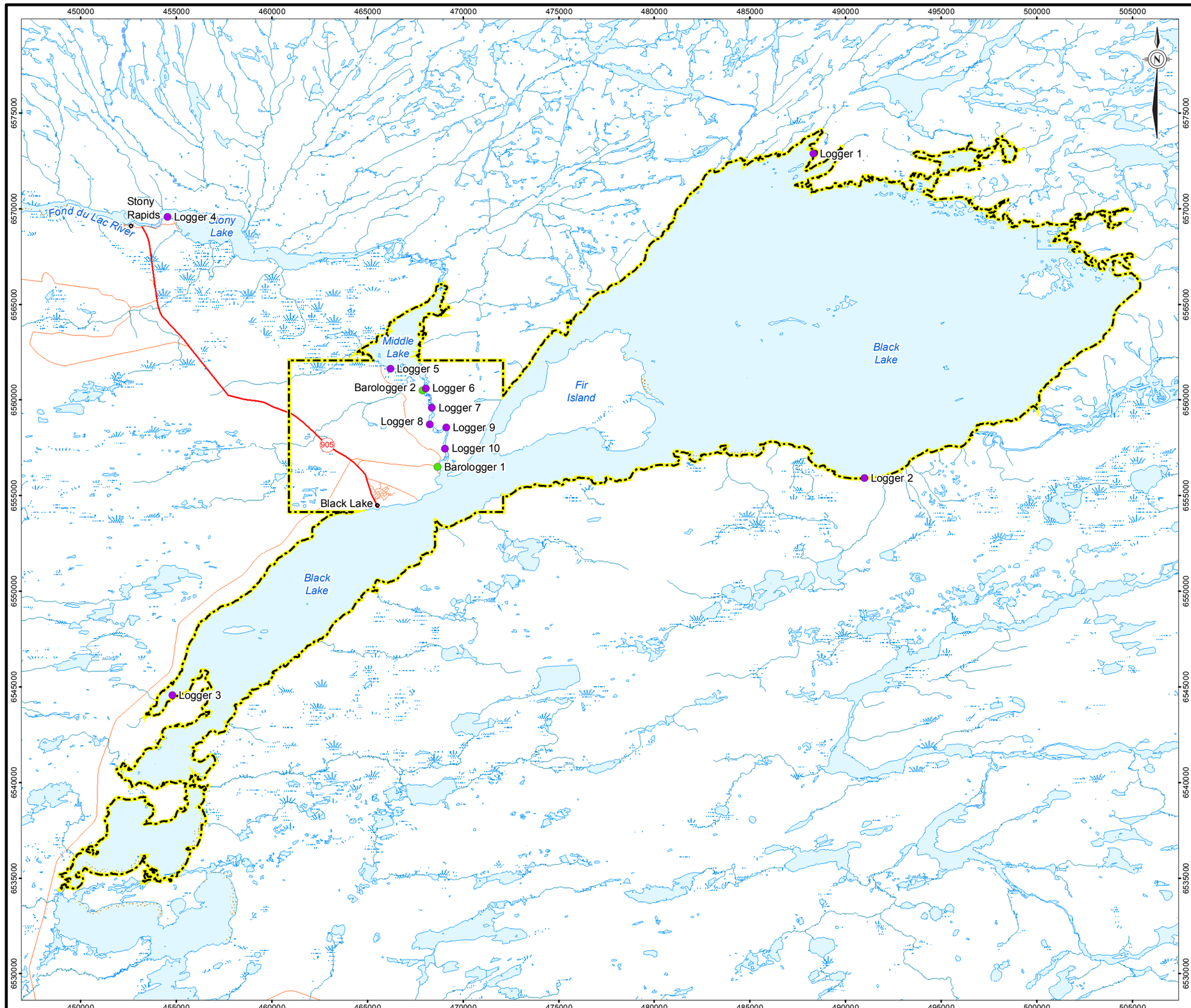
Waterbody	Area	Equipment/Data Source	Dates
Black Lake	main basin	Johnson (1971)	1969
	vicinity of the outlet bay and Fir Island	Garmin GPSMAP 178 C chartplotter	August 11 – August 24, 2010
	Chipman Bay		
	Pluto Bay		
	near the islands in the center of the main basin		
	Cree Bay (south section)		
Fond du Lac River	all accessible areas between Black Lake and Middle Lake	Sontek M9 RiverSurveyor	August 16 – August 21, 2010 June 9-June 12, 2012
Middle Lake	main basin	Garmin GPSMAP 178 C chartplotter	August 22, 2010
	perimeter/shallows	Sontek M9 RiverSurveyor	June 13, 2012

All depth data were integrated into the Digital Elevation Model (DEM) developed from Light Detection and Ranging (LiDAR) (Eagle Mapping 2010) and NASA topographic data (NASA 2000) through water level measurements using WSC water levels at Black Lake (EC 2012) and/or the following survey-grade GPS equipment:

- A Sokkia GRX1 base station receiver with integrated GPS and GLONASS tracking in conjunction with Satel differential correction external radio. A radio signal repeater was used to increase the accuracy and range of the survey.
- A Sokkia GRX1 RTK rover receiver with integrated GPS and GLONASS tracking in conjunction with Satel differential correction internal radio mounted to a fixed height carbon fibre range pole.

3.2.1.2 Water Level Measurements

Water surface elevations were measured on a continuous basis during the 2010 monitoring period using a Levelogger pressure transducer/data logger system, manufactured by Solinst Canada Ltd. The Levelogger sensors were programmed to record water levels at 30 minute intervals. Ten leveloggers were deployed in Black Lake, the Fond du Lac River, and Middle Lake, between June 1 and 4 and October 23 and 24, 2010 at the locations depicted in Figure 3.2-1. The leveloggers were set inside a bracket consisting of a small aluminum pipe that was welded to an aluminum plate. The plate was fixed in place in the streambed, at or near the discharge measurement cross section.



LEGEND

- VILLAGE
- HIGHWAY
- ROAD
- RIVER
- WETLAND
- WATERBODY
- BAROLOGGER MONITOROING LOCATION
- LEVELOGGER MONITORING LOCATION
- LOCAL STUDY AREA

REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 13
NTS MAPSHEETS: 73P/3,4,5,6

5 0 5
SCALE 1:200,000 KILOMETRES

PROJECT
TAZI TWÉ HYDROLELECTRIC PROJECT

TITLE
BASELINE WATER LEVEL MONITORING LOCATIONS

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.		
DESIGN			SCALE AS SHOWN	REV.	0
GIS	LMR/SM	12/12/12			
CHECK	AD	12/12/12			
REVIEW	BT	12/12/12			

FIGURE: 3.2-1

To compensate for atmospheric pressure, two Solinst barologgers were deployed in the LSA. The barologger was installed in a 1 m long buried polyvinyl chloride (PVC) pipe, with holes drilled into the sides to allow atmospheric pressure to act on the sensor, or placed in a vented building at the locations depicted in Figure 3.2-1.

The levelogger records total pressure (atmospheric pressure and water pressure) acting on the sensor and internally compensates for temperature. Atmospheric pressure was subtracted from the total pressure through a software process that combined data from the levelogger and data from a Barologger to provide water depth data at the monitoring locations.

To monitor potential movement of the sensor during the monitoring season, elevation measurements were collected at installation (June 1 to 4), mid-monitoring period (August 16 to 21), and at retrieval (October 23 and 24) using an engineer's rod and level. The elevation survey was completed relative to a local benchmark that was also surveyed using a Sokkia survey grade GPS (as discussed above), and thus with a known elevation.

3.2.2 Data Analyses

3.2.2.1 Morphology

A DEM created using data from LiDAR (Eagle Mapping 2010), collected on October 20, 2010, NASA (2000) topographic data, and the abovementioned bathymetric data points, was used to contour bathymetric surfaces and determine the morphometric characteristics for each waterbody in the LSA. Shorelines were delineated using geo-referenced satellite imagery (ESERI 2012 and GeoEye 2010). ARC-GIS and AutoCAD were used to merge datasets and create a DEM, calculate statistics (including lake stage-storage curves), and ArcHydro was used to delineate drainage boundaries and flow pathways.

Wetlands in the upland area were determined using spectral signals and remote sensing software and were ground-truthed. For more detailed methods, see the discussion regarding ecological landscape classifications (ELC) in Annex IV Section 4.2.2. Ponds were delineated from satellite imagery, and streams were extracted from National Topographic System (NTS) maps.

Channel units along the Fond du Lac River were classified according to the descriptions in Table 3.2-2 using geo-referenced satellite imagery, bathymetry, and field inspections.

3.2.2.2 Flow Rates

A dataset of flow rates for the Fond du Lac River was created using archived historical hydrometric data from the WSC (EC 2012). The WSC (EC 2012) has archived historical data for the Fond du Lac River at two sites; 07LE001 is downstream of the Project near Stony Rapids and has a data record for September 1946 to 1963 while 07LE002 is at the outflow of Black Lake and has a data record for 1963-present. The data from the two stations were compiled to produce a dataset for the Fond du Lac River for 1947-2010 which is used to describe the local flow conditions and produce statistics. Although this dataset is reasonably complete, 1946, 1995, 1998, 1999, and 2000 are missing data and were therefore not used for high flow and low flow flood frequency and distribution analyses. However, to produce a continuous baseline flow record over 1947-2010, coincident daily flow rates for the Fond du Lac River and the Waterfound River (WSC station number 07LB002) were correlated and the equation was used to infill missing data in the Fond du Lac River dataset; infilled data did not constitute any annual peak values.

Table 3.2-2: Channel Unit Classification System

Channel Unit	Map Symbol	Physical Features
Falls	FA	- water descends over a vertical drop - highest water velocity
Cascade	CA	- water descends over consecutive rock steps - extremely high gradient and velocity - extremely turbulent with entire water surface broken - may have short vertical sections (RA/CH)
Chute	CH	- a narrow passage - area of channel constriction - usually due to bedrock intrusions - associated with channel deepening and increased velocity
Rapids	RA	- steep channel gradient between a run and a cascade - turbulent flow - extremely high velocity - deeper than riffle - substrate extremely coarse (cobble/boulder)
Riffle	RF	- very shallow areas with broken surface due to submerged or exposed bed material - high velocity/gradient relative to runs - shallow relative to other channel units - coarse substrate
Run (glide)	R	- surface largely unbroken - moderate to high velocity - usually deeper than riffles - substrate size dependent on hydraulics - runs can be differentiated into one of 4 types: deep/slow, deep/fast, shallow/slow, or shallow/fast
	R1	- surface largely unbroken - generally deep/slow (deepest run) - coarse substrate
	R2	- surface largely unbroken - generally deep/fast or moderately deep/slow
	R3	- surface largely unbroken - generally shallow/slow
	R4	- surface largely unbroken - generally shallow/fast.
Flat	FL	- low velocity with near-laminar flow - differentiated from pools by high channel uniformity - more depositional than R3
Pool	P	- large, deep area with relatively low velocity
	P1	- large and/or deep
	P2	- smaller and/or shallower than P1
	P3	- shallow and/or small
Impoundment	IP	- pools which are formed behind dams - tend to accumulate sediment/organic debris more than pools - identified as Class 1, 2, or 3 as for pools
Backwater	BW	- discrete, localized area of variable size exhibiting reverse flow direction - generally produced by bank irregularities - velocities variable but generally lower than main flow - substrate similar to adjacent channel with higher percentage of fines

Table 3.2-2: Channel Unit Classification System (continued)

Channel Unit	Map Symbol	Physical Features
Snye	SN	- discrete section of non-flowing water connected to a flowing channel only at its downstream end - generally formed in a side-channel or behind a peninsula
Boulder Garden	BG	- significant occurrence of large boulders - always in association with an overall channel unit such as a riffle (RF/BG) or run (e.g., R1/BG)
Shoal	SH	- long and narrow sandbar or gravelbar - area of deposition and reduced velocity
Slough,Oxbows	SL	- swamp or remnant crescent-shaped bend in the river - little to no flow

(Adapted from R.L.&L 1986 and Hawkins et al. 1993).

3.2.2.2.1 High Flow

To produce flood flow frequency and distribution statistics, the annual daily peak discharge values for the Fond du Lac River flow dataset were ranked in descending order and plotted according to the frequency, which is calculated according to the following Equation (3.2-1) (Pilon and Harvey 1994):

$$T_{w=} \frac{(number\ of\ samples) - a}{(Rank) - b}$$

Where : T_w = plot position
a = 0.2
b = 0.4

Three-Parameter Lognormal, General Extreme Value, Log-Pearson III, and Weibull Distributions were fit to the data and the Anderson-Darling statistic (NIST/SEMATECH 2012) was used to determine the best fit. The resulting equation was used to calculate the flood flow frequency and distribution estimates.

3.2.2.2.2 Low Flow

To produce low flow frequency and distribution statistics, the annual daily low flow rates for the compiled Fond du Lac River dataset were ranked in ascending order plotted according to the frequency as described in Equation (3.2-1). Three-Parameter Lognormal, General Extreme Value, Log-Pearson III, and Weibull Distributions were fit to the data and the Anderson-Darling statistic (NIST/SEMATECH 2012) were used to determine the best fit. The resulting equation was used to calculate the low flow frequency and distribution estimates.

3.2.2.3 Water Level

Baseline water level records were created corresponding to the 20 years of flow data available for the Fond du Lac River for Black Lake, the Fond du Lac River, and Middle Lake according to the following methods.

3.2.2.3.1 Black Lake

Baseline water levels in Black Lake were calculated by integrating the discharge record for the Fond du Lac River and the stage-discharge lookup table provided by Environment Canada (EC 2012; Hein 2012). The available stage-discharge lookup table only covered discharge values up to 775 m^3/s while the observed data

reached 860 m^3/s. Therefore, regression analyses was completed on stage and discharge data between 500 and 775 m^3/s to produce a logarithmic equation suitable to extrapolate the lookup table to 860 m^3/s.

3.2.2.3.2 Middle Lake

Baseline water levels in Middle Lake were calculated by using a stage-discharge equation that was developed based on four water level and corresponding discharge measurements between 220 and 290 m^3/s (Golder 2012). A power equation was used to describe the relationship and allow for extrapolation. The water level record for Middle Lake was calculated using the stage-discharge equation and the flow record for the Fond du Lac River.

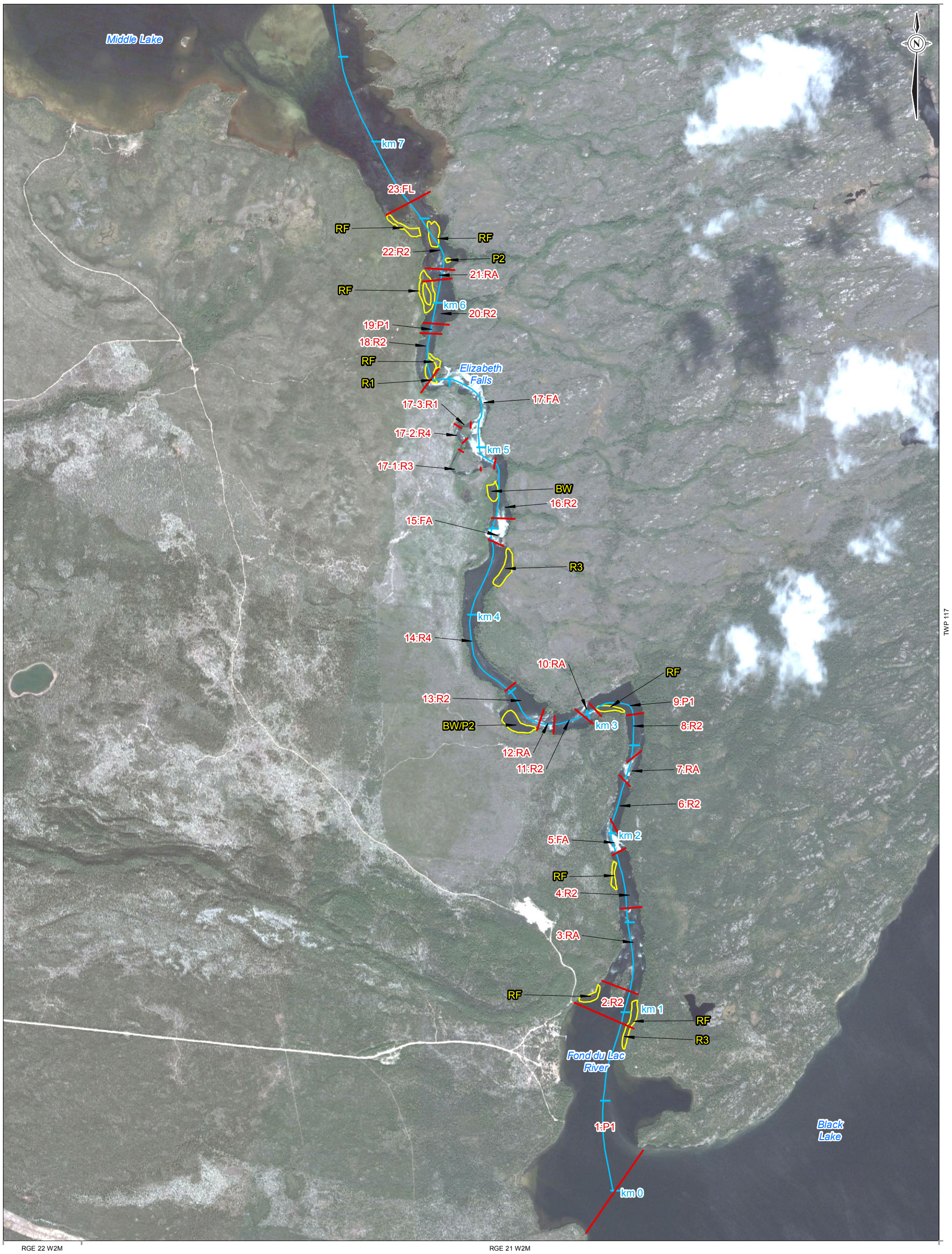
3.3 Results

3.3.1 Fond du Lac River

3.3.1.1 Morphology

The Fond du Lac River is in the Athabasca River Basin and originates at the outflow of Wollaston Lake, and flows approximately 275 km before reaching Lake Athabasca, approximately 50 km downstream of the Project. At the outlet of Black Lake, the Fond du Lac River has an upstream drainage area of 50,800 square kilometres (km^2) and receives very minimal additional runoff (10.6 km^2) at the inflow to Middle Lake.

The channel bottom and surface water level at a flow rate of approximately 261 m^3/s are presented in Appendix III.1, as well as the sections of the river in which bathymetric data were collected. The channel units along the Fond du Lac River and corresponding morphometric characteristics are presented in Figure 3.3-1 and Table 3.3-1. The Fond du Lac River between Black Lake and Middle Lake has a total length of 6.1 km and a total change in elevation of approximately 36 m. The dominant primary channel units identified from the outflow of Black Lake (end of reach 2) to Middle Lake (reach 23) on the Fond du Lac River included Class 2 Runs (R2; n=10, d=2,600 m), Class 4 Runs (R4; n=2, d=1,020 m), Falls (FA; n=3, d=1,000 m), Rapids (RA, n=5, d=800 m), Class 1 Pools (P1, n=2, d=350 m), Class 3 Runs (R3, n=1, d=260 m), and Class 1 Runs (R1, n=1, d=70 m) (Table 3.3-1).



LEGEND

- PRIMARY CLASSIFICATION (REACH NUMBER : CLASSIFICATION)
- DISTANCE CHAIN (0.5 KM INTERVAL)
- SECONDARY CLASSIFICATION (CLASSIFICATION)

400 0 400
SCALE 1:20,000 METRES

REFERENCE

GOOGLE EARTH IMAGE © 2010 DIGITAL GLOBE
NAD 83 UTM ZONE 13

PROJECT
TAZI TWÉ HYDROLELECTRIC PROJECT

TITLE
FOND DU LAC RIVER
CHANNEL UNIT CLASSIFICATION

Golder Associates
Saskatoon, Saskatchewan

PROJECT	10-1365-0004		FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
GIS	LMR/SM	08/07/13		
CHECK	AD	24/07/13		
REVIEW	BT	24/07/13		

FIGURE: 3.3-1

Table 3.3-1: Fond du Lac River Channel Units and Morphology

Reach #	Primary Channel Unit	Secondary Channel Unit(s)	From Location (km)	To Location (km)	Length (m)	Maximum Depth (m)	Average Depth	Mean Width (m)	Area (m^2)	Water Surface Elevation Change (m)	Average Gradient (%)
1	P1	R3	0.00	0.95	950	20.8	5.8	538	511,000	0.08	0.0
2	R2	RF,RF	0.95	1.12	180	14.3	2.8	200	36,070	0.08	0.0
3	RA	-	1.12	1.58	460	5.1	1.0	101	46,460	2.09	0.5
4	R2	RF	1.58	1.89	310	6.1	2.7	92	28,370	1.30	0.4
5	FA	-	1.89	2.06	170	7.0	2.1	58	9,940	1.65	1.0
6	R2	-	2.06	2.30	240	8.8	4.7	59	14,200	1.60	0.7
7	RA	-	2.30	2.43	130	7.3	3.4	73	9,550	0.08	0.1
8	R2	-	2.43	2.63	200	8.6	4.4	87	17,320	0.04	0.0
9	P1	RF	2.63	2.93	300	14.2	6.4	89	26,770	1.45	0.5
10	RA	-	2.93	3.00	70	4.1	1.8	82	5,750	0.38	0.5
11	R2	-	3.00	3.17	170	5.5	2.7	100	17,030	1.05	0.6
12	RA	-	3.17	3.25	80	4.4	1.2	83	6,610	1.10	1.4
13	R2	BW/P2	3.25	3.51	260	7.8	2.6	161	41,800	2.95	1.1
14	R4	R3	3.51	4.44	930	5.6	1.0	92	85,900	3.83	0.4
15	FA	-	4.44	4.57	130	4.6	0.4	103	13,360	0.87	0.7
16	R2	BW	4.57	4.88	310	8.4	1.7	73	22,620	0.50	0.2
17	FA	-	4.88	5.58	700	N/A	N/A	85	59,300	13.70	2.0
17-1	R3	-	N/A	N/A	260	N/A	N/A	14	3,611	3.20	1.2
17-2	R4	-	N/A	N/A	92	N/A	N/A	22	1,995	1.55	1.7
17-3	R1	-	N/A	N/A	70	N/A	N/A	18	1,228	-0.02	0.0
18	R2	R1, RF	5.58	5.84	260	13.4	2.0	85	22,200	1.36	0.5
19	P1	-	5.84	5.90	50	17.2	8.6	120	5,980	-0.11	-0.2
20	R2	RF	5.90	6.14	250	14.6	1.5	172	43,090	1.11	0.4
21	RA	RF	6.14	6.20	60	6.1	2.1	158	9,460	0.04	0.1
22	R2	RF, RF, P2	6.20	6.62	420	7.8	1.4	183	77,000	1.17	0.3
23	FL	-	6.62	11.75	5130	11.1	3.2	1,453	7,454,000	0.00	0.0

m = metres; km = kilometres; % = percent; m^2 = square metres; N/A = not applicable; bathymetric data are not available.
Note: Classification and morphologies are derived at a flow rate of 261 m^3/s; channel units are defined in Table 3.2-2.

3.3.1.2 Flow Rates

The mean, maximum and minimum monthly discharge values for the Fond du Lac River are presented in Table 3.3-2 and the daily hydrographs representing the mean discharge (1947 to 2010), maximum annual volume (1977), minimum annual volume (1957), maximum annual peak (1997), and minimum annual peak (1952) are presented in Figure 3.3-2 and Figure 3.3-3. Results indicate a historical monthly mean flow of 302 m^3/s, with monthly low flows approximately one third of this rate, and monthly high flows approximately double this rate. While the hydrograph typically displays low flows during the winter, peak flows in the spring, and a slow receding limb throughout the summer and fall, there is considerable variability in the magnitude and timing of flow events.

Table 3.3-2: Mean and Extreme Discharges for the Fond du Lac River (1947-2010)

Month	Mean (m^3/s)	Min (m^3/s)	Max (m^3/s)
January	241	145	416
February	216	132	371
March	204	125	352
April	215	128	359
May	321	195	485
June	421	255	681
July	397	240	760
August	356	215	607
September	335	208	584
October	335	202	786
November	312	187	604
December	275	171	476
Average	302	163	540

Source: EC 2010
m^3/s = cubic metres per second

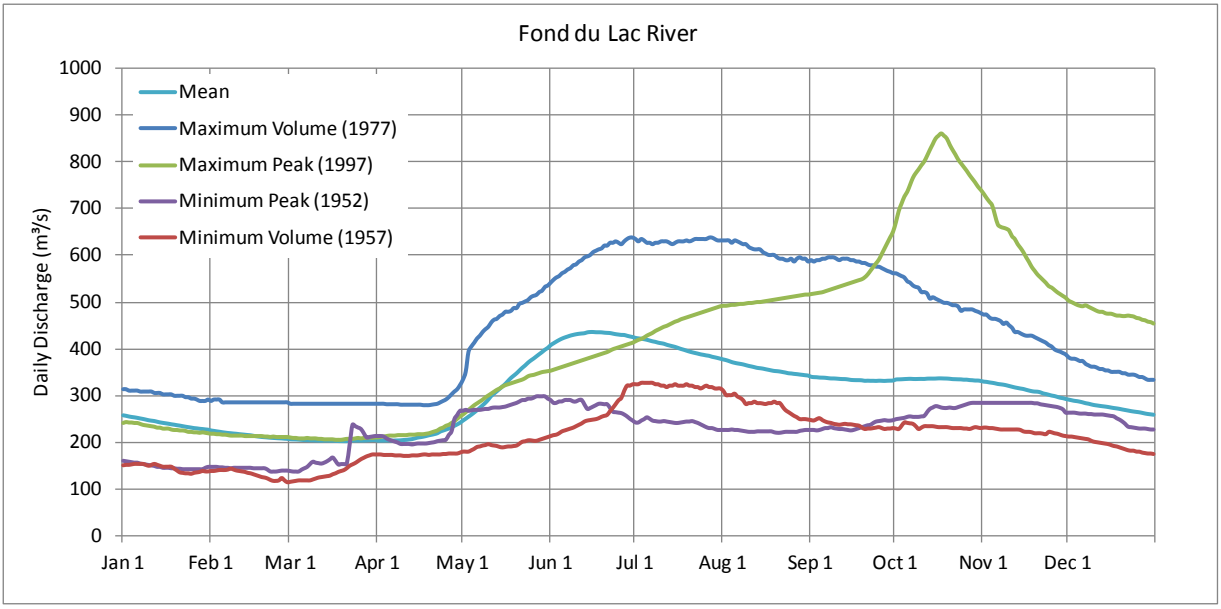


Figure 3.3-2: Mean, Maximum and Minimum Daily Hydrographs for Fond du Lac River

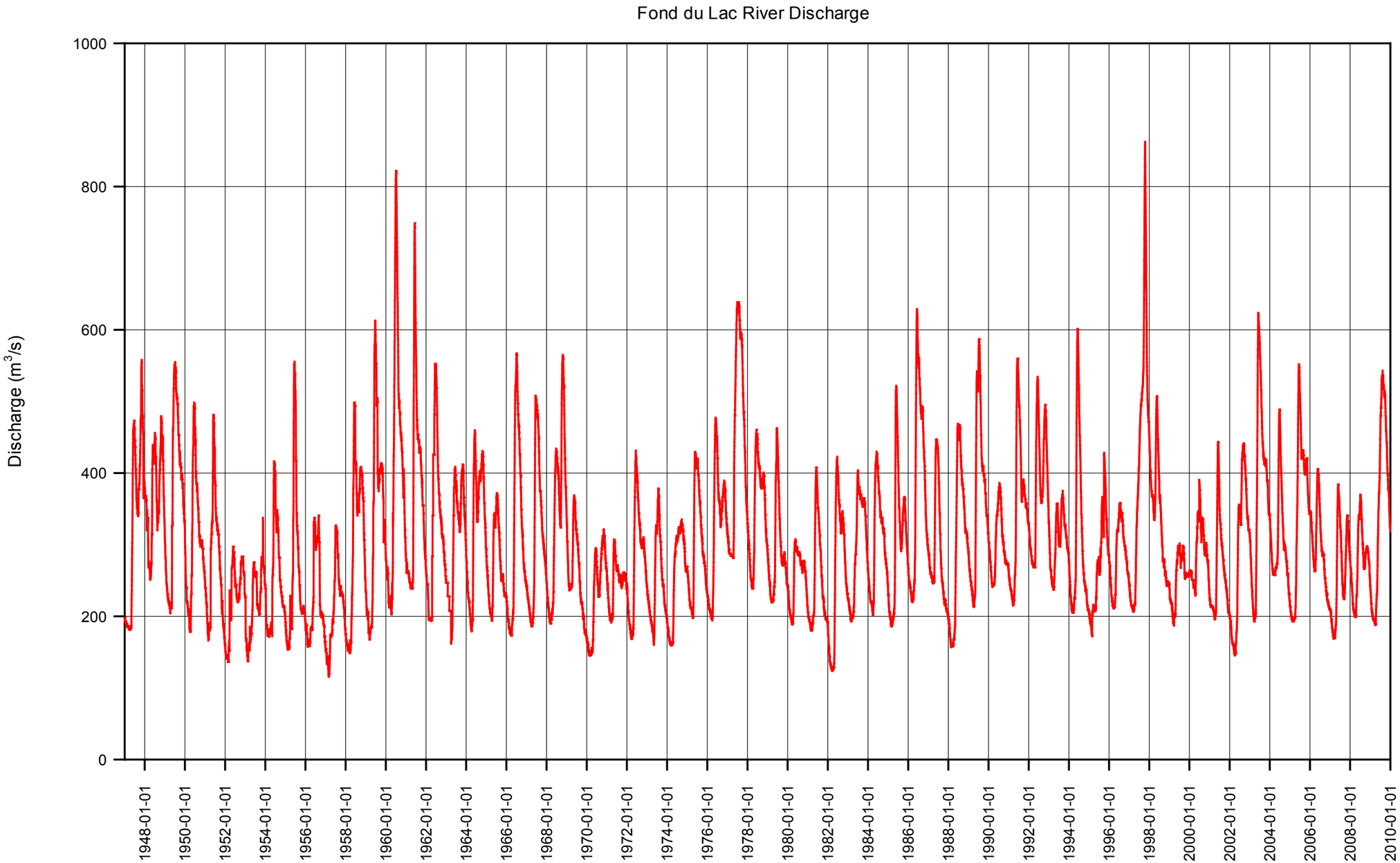


Figure 3.3-3: Fond du Lac River Baseline Discharge

3.3.1.2.1 High Flow

During the period of record for the Fond du Lac River, the highest daily flow rate is 860 m^3/s and the mean annual daily peak flow rate is 468 m^3/s. The peak flow rates were used to complete flood frequency statistics according to the methods described in Section 3.2.2.2.1. The General Extreme Value distribution provided the best fit for the Fond du Lac River peak flows (Figure 3.3-4) according to the Anderson-Darling statistic (NIST/SEMATECH 2012). The estimated flood frequency and distribution estimates are provided in Table 3.3-3.

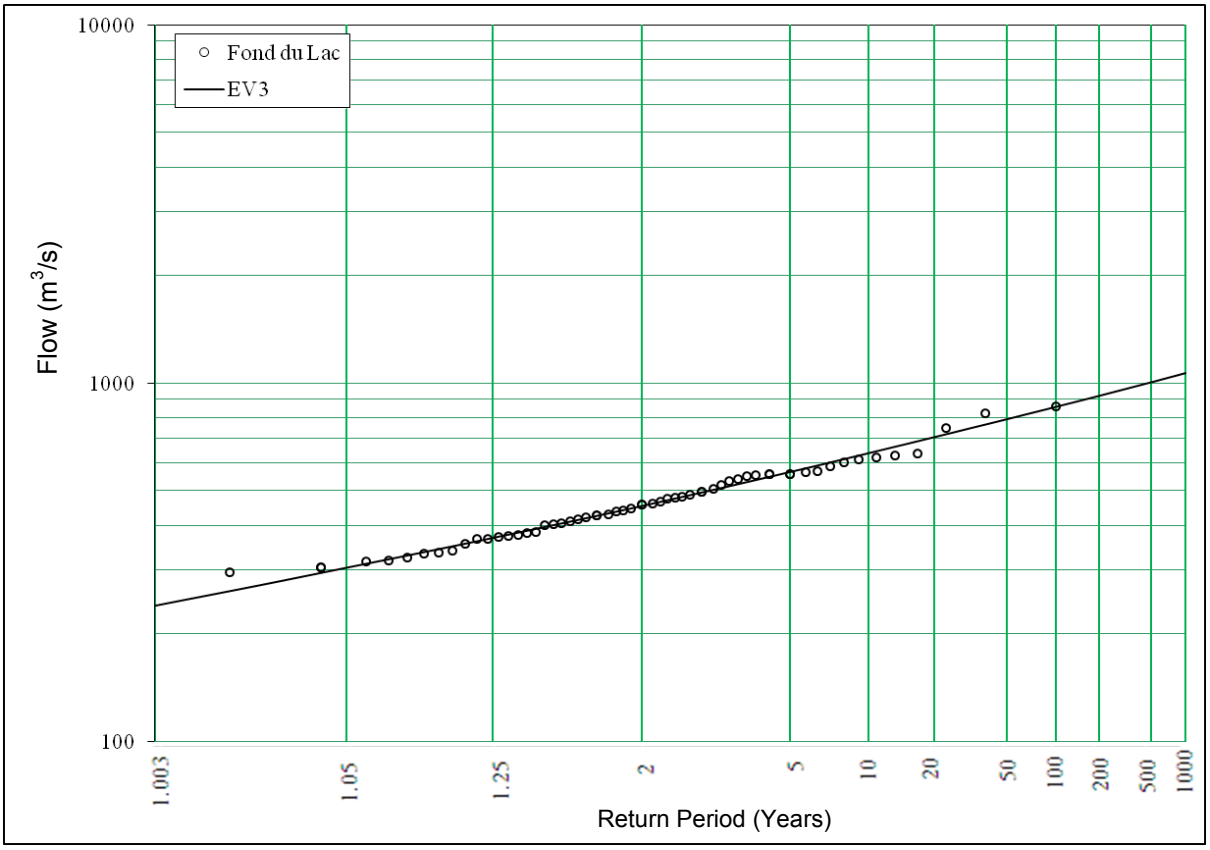


Figure 3.3-4: Flood Frequency and Magnitude Distribution with General Extreme Value (EV3) Curve for the Fond du Lac River

Table 3.3-3: Flood Magnitude and Frequency Statistics for the Fond du Lac River Dataset

Frequency (years)	Flood Magnitude (m^3/s)
2	453
5	564
10	636
20	705
50	792
100	856

m^3/s = cubic metres per second

Figure 3.3-5 presents a frequency histogram that describes the timing of the annual high flow event for the 60 annual high flows on record for the Fond du Lac River. The histogram indicates that most peak flow events occur during the first two weeks of June, with a distribution between approximately mid-May and mid-July. While no annual peak flow events have been recorded during most of August, 12 of the 60 occurred during the late summer to fall (August – December), while the remaining occurred during the spring to early summer (May through July). Figure 3.3-5 also presents the magnitude of flows for each event, indicating that the range in magnitude during the fall peak events is similar to the range in magnitude for the spring peak events.

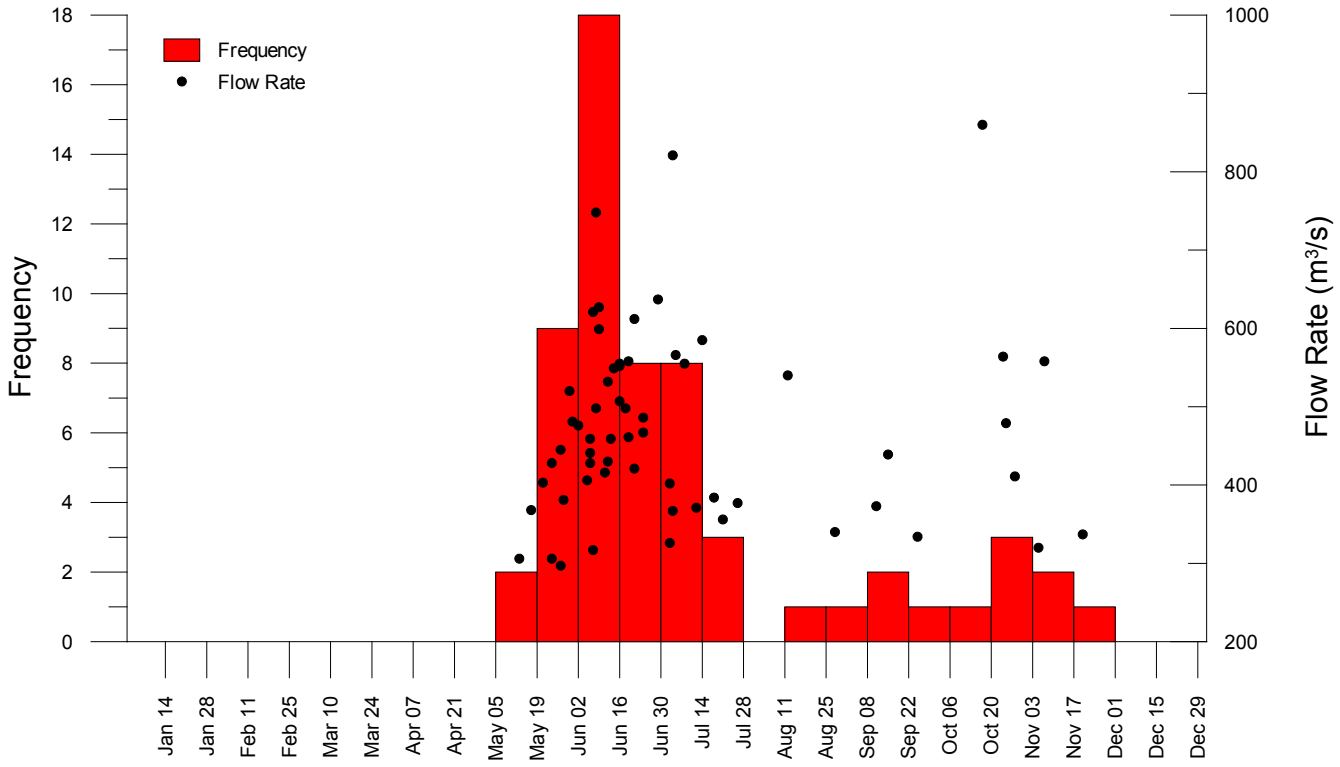


Figure 3.3-5: Flood Flow Magnitude and Timing for the Fond du Lac River

3.3.1.2.2 Low Flow

Over the period of record for the Fond du Lac River, the lowest daily flow rate is 115 m^3/s and the mean annual daily low flow rate is 188 m^3/s. The historical low flow values, Equation (2), and a 3 Parameter Lognormal curve (Figure 3.3-6) were used to estimate low flow frequency and distribution estimates, as provided in Table 3.3-4.

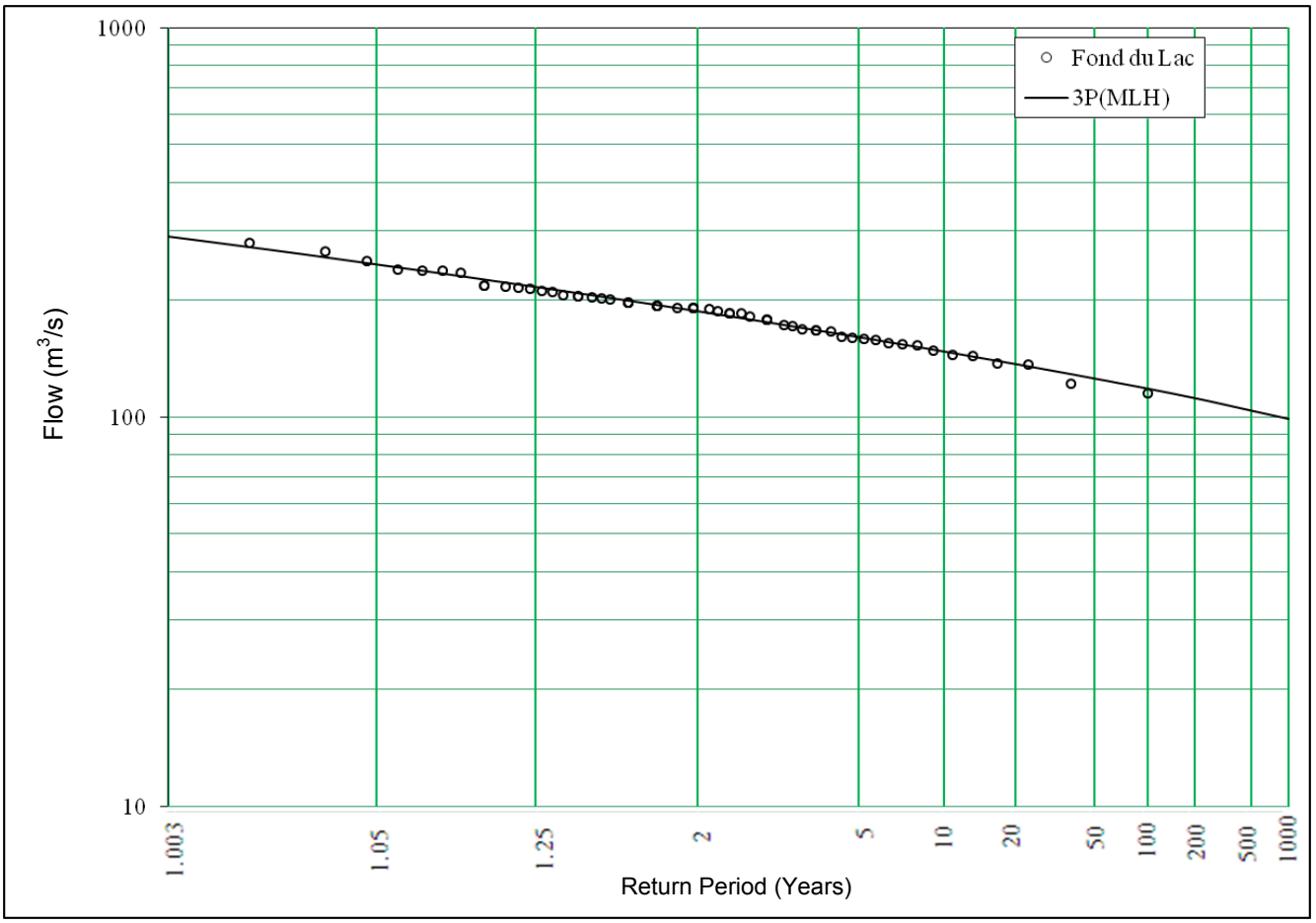


Figure 3.3-6: Low Flow Frequency and Magnitude Distribution with 3 Parameter Lognormal Curve (3P [MLH]) for the Fond du Lac River.

Table 3.3-4: Low Flow Magnitude and Frequency Statistics for the Fond du Lac River Dataset

Frequency (years)	Low Flow Magnitude (m^3/s)
2	187
5	160
10	147
20	137
50	125
100	118

m^3/s = cubic metres per second

Figure 3.3-7 presents a frequency histogram that describes the timing of the annual low flow event for the 60 annual low flows on record for the Fond du Lac River. The histogram indicates that all annual low flow events occurred during winter (December to May), in contrast to the annual peak flow events which occurred during June through November. Figure 3.3-7 also presents the flow magnitude for each event, indicating that the most extreme low flow events on record occurred in February and March.

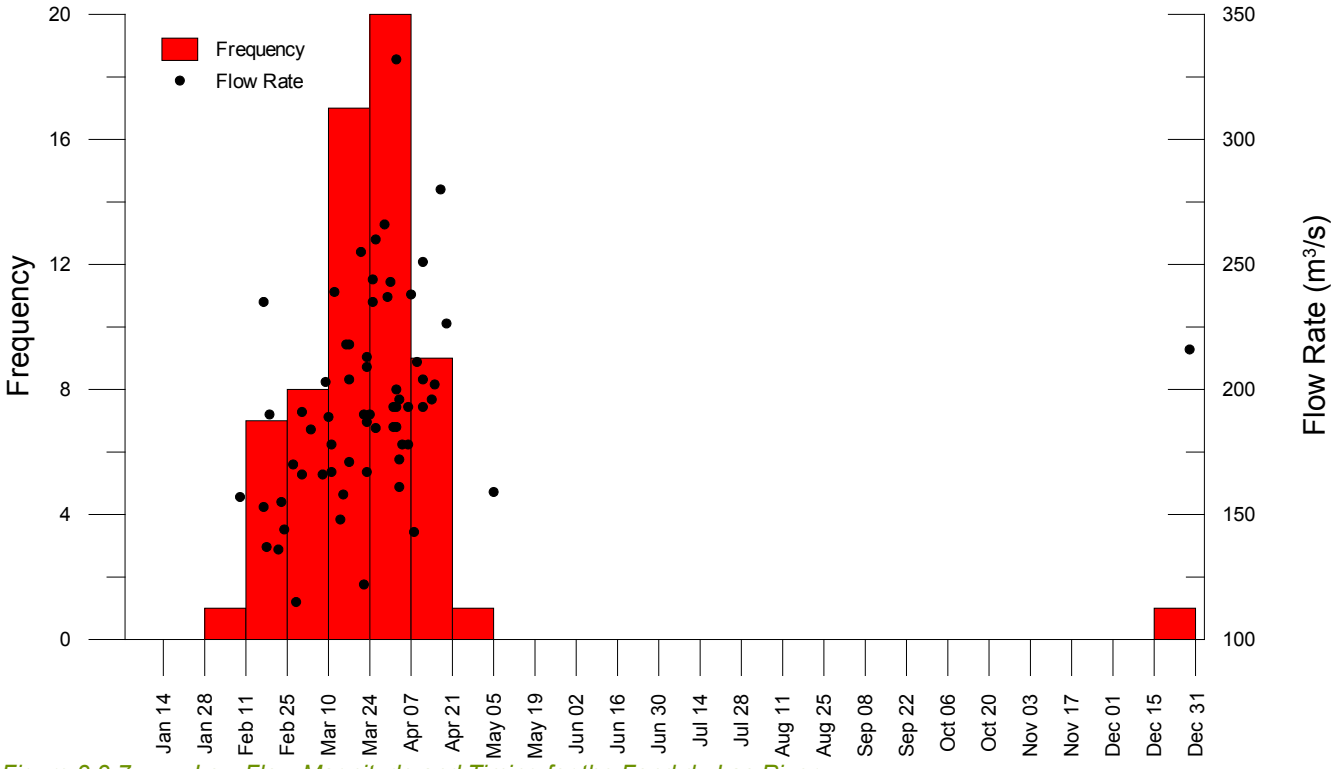


Figure 3.3-7: Low Flow Magnitude and Timing for the Fond du Lac River

3.3.1.3 Water Level

Variations in water level are a function of the local hydraulic conditions and topography at each cross section along the river. The topography and high energy of the river results in a variety of water level trends along its profile with differing stage-discharge relationships. For example, some locations with a strictly confined channel, vertical banks and turbulent water may change considerably more in level in response to changes in discharge than wider unconfined channel sections, with laminar flow and broad floodplains. Water levels for the 2010 monitoring season are presented in Appendix III.2 and show changes over this four month period of up to 0.899 m.

3.3.2 Black Lake

3.3.2.1 Morphology

Black Lake is at the upstream end of the Project and flows into the bypassed section of the Fond du Lac River and eventually into Lake Athabasca. Black Lake has two lobes; one to the southwest of the outflow and a larger one to the northeast. The southwest lobe is approximately 25 km long and has a maximum width of less than

5 km, while the northeast lobe is approximately 40 km long and has a maximum width of less than 20 km. Black Lake has a total surface area of 418,000,000 square metres (m^2) and has mean and maximum depths of 13.7 m and 57.6 m. Morphometric statistics are presented in Table 3.3-5. The bathymetry for Black Lake is presented along with detailed maps of specific areas of interest in Appendix III.1. The calculated Black Lake stage-volume and stage-area curves are provided in Figure 3.3-8.

Table 3.3-5: Black Lake Morphometric Characteristics

Lake Surface Area (m^2)	418,000,000
Volume (m^3)	6,610,000,000
Maximum depth (m)	57.6
Mean depth (m)	13.7
Maximum Length (km)	62.7
Perimeter shore length (km)	276.7
Island shore length (km)	106.5

m^2 = square metres; m^3 = cubic metres; m = metres; km = kilometres

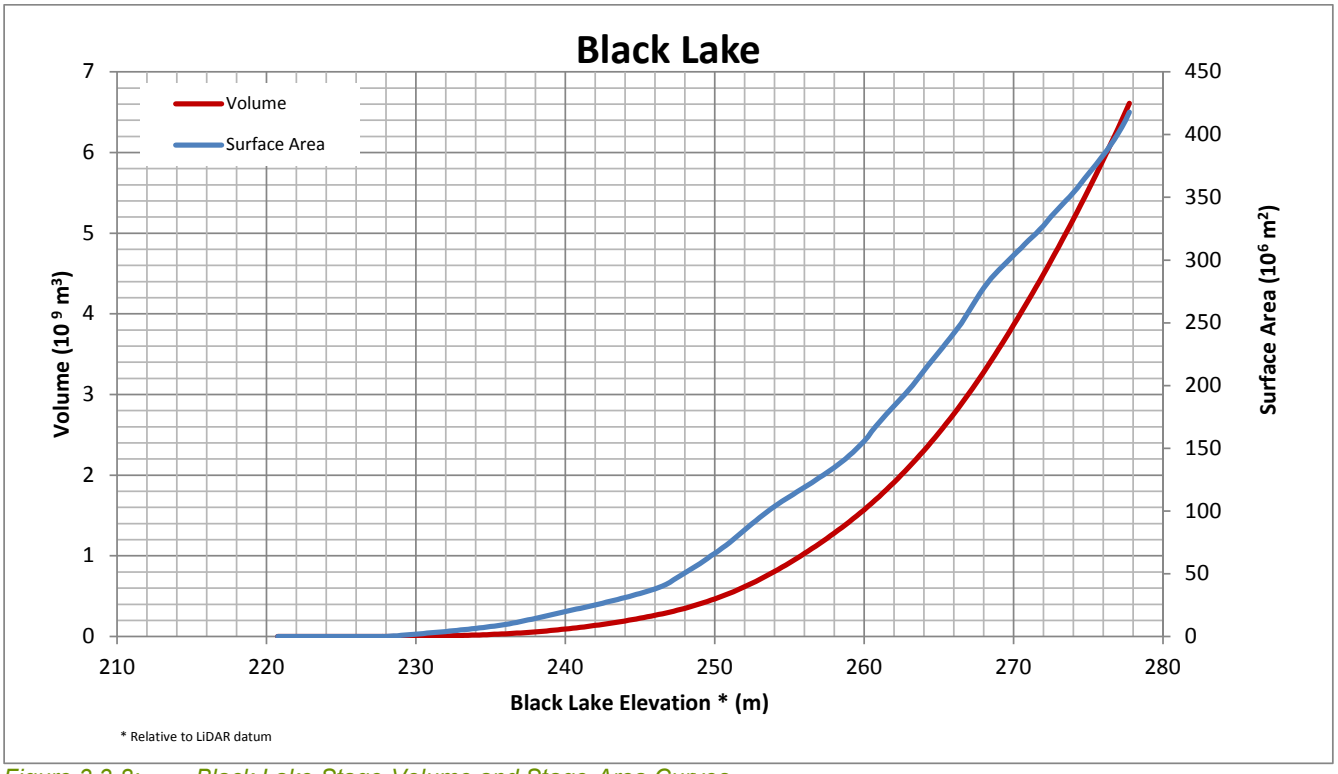


Figure 3.3-8: Black Lake Stage-Volume and Stage-Area Curves

Black Lake has three notable inflows: The Fond du Lac River, the Cree River, and the Chipman River, and one outflow: the Fond du Lac River (Figure 3.3-9; Table 3.3-6). The Chipman River flows from the north and enters Black Lake at its most northern point. The Fond du Lac River is the largest inflow, with headwaters upstream of Wollaston Lake. Wollaston Lake is a bifurcation lake with two outflows; the Fond du Lac flows to the northwest, and the Cochrane River flows to the northeast into the Churchill River system. While the effective drainage area for the Fond du Lac River can be variable, depending on the water level in Wollaston Lake, it is estimated to drain an average area of approximately 21,900 km^2. The Cree River is the second largest inflow to Black Lake and drains an area of 20,700 km^2 to the southwest. The third largest inflow is the Chipman River in the north, which drains a total area of 5,440 km^2, followed by the Souter River with a drainage area of 1,200 km^2. An additional 1,600 km^2 of area is estimated to drain directly into Black Lake through overland flow or via local streams.

Table 3.3-6: Black Lake Inflows and Outflow

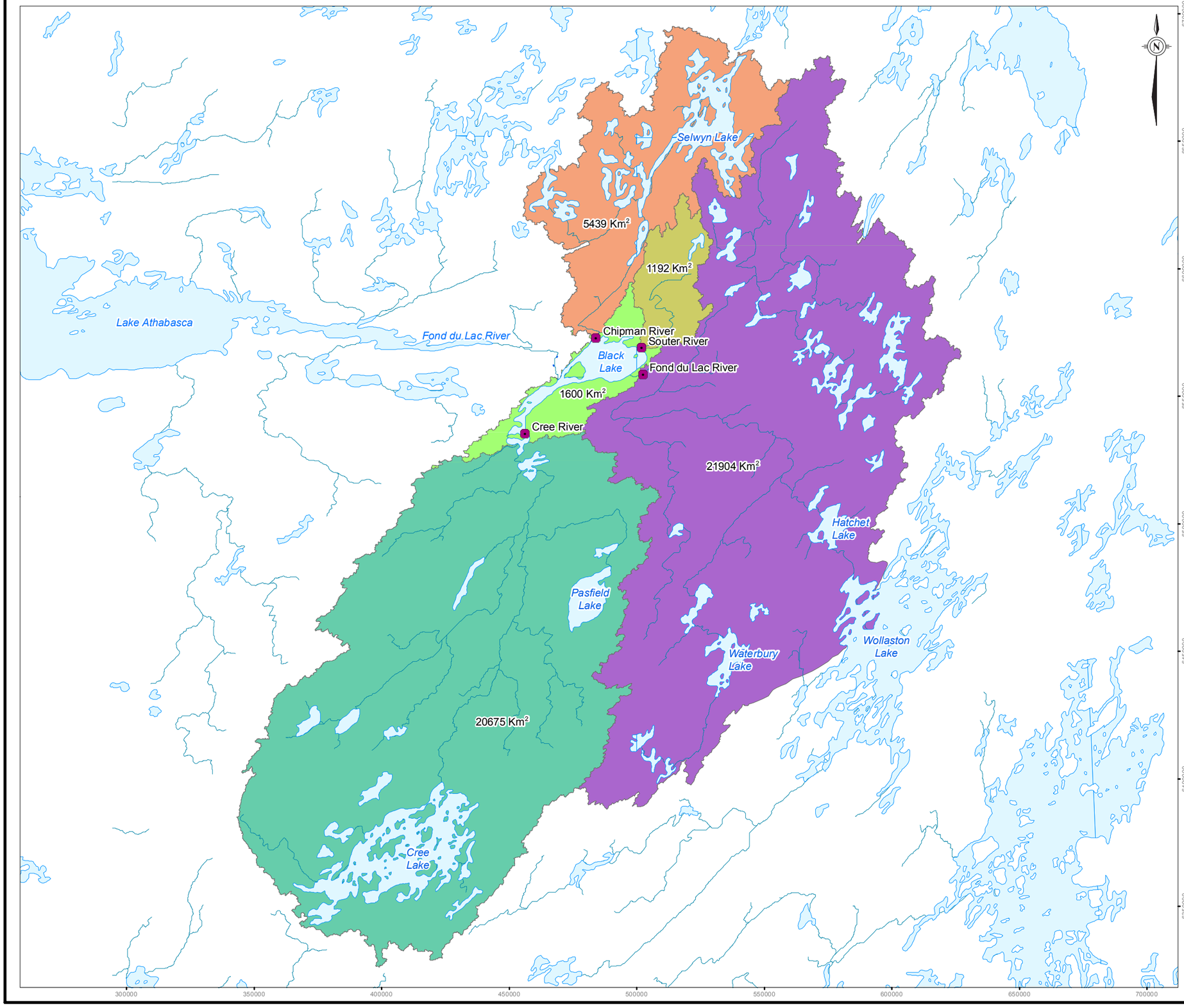
Watershed Name	Black Lake Inflow/Outflow	Location (UTM)		Drainage Area (km^2)	Percent of Outflow Drainage Area (%)
		Easting	Northing		
Fond du Lac River	Inflow	502356	6558561	21,900	43
Chipman River	Inflow	483949	6572818	5,400	11
Cree River	Inflow	456037	6535396	20,700	41
Souter River	Inflow	501857	6569143	1,200	2
Other	Inflow	Various locations		1,600	3
Fond du Lac River	Outflow	468976	6556654	50,800	100

UTM = Universal Transverse Mercator; km^2 = square kilometres; % = percent
All UTM locations are in North American Datum (NAD) 83, Zone 13.

3.3.2.2 Water Level

Water levels in Black Lake follow a seasonal pattern similar to that of the Fond du Lac River (as discussed in Section 3.3.1.2). Peak levels typically occur during the spring, while low levels occur during the late winter. Environment Canada has monitored the outflow of Black Lake and provided a stage-discharge relationship, which has been extrapolated to higher flows according to the lookup table available in Appendix III.3.

Water levels in Black Lake follow a seasonal pattern, as presented in Figure 3.3-10. Peak levels typically occur during the spring, while low levels occur during the late winter. Water in Black Lake has a historical mean elevation of 277.165 m. The lake fluctuates an average of 0.865 m within a year; however, 1997 experienced the maximum variation within a year with a minimum level of 276.830 m and a maximum level of 278.257 m, a difference of 1.427 m. Over the period of record, lake levels have reached a historical minimum of 276.470 m (on February 28, 1957) and a historical maximum of 278.257 m (on October 17, 1997), a difference of 1.787 m.



LEGEND

- DRAINAGE LINE
- WATERBODY
- INFLOW LOCATION

WATERSHED

- CHIPMAN RIVER
- CREE RIVER
- FOND DU LAC RIVER
- SOUTER RIVER
- OTHER

REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 13
NTS MAPSHEET: 74P/03, 04
WATERSHED AND DRAINAGE LINES: GOLDER WATERSHED ANALYSIS

50 0 50
SCALE 1:1,500,000 KILOMETRES

PROJECT
TAZI TWÉ HYDROELECTRIC PROJECT

TITLE
BLACK LAKE INFLOWS

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
GIS	SM	08/07/13		
CHECK	AD	24/07/13		
REVIEW	BT	24/07/13		

FIGURE: 3.3-9

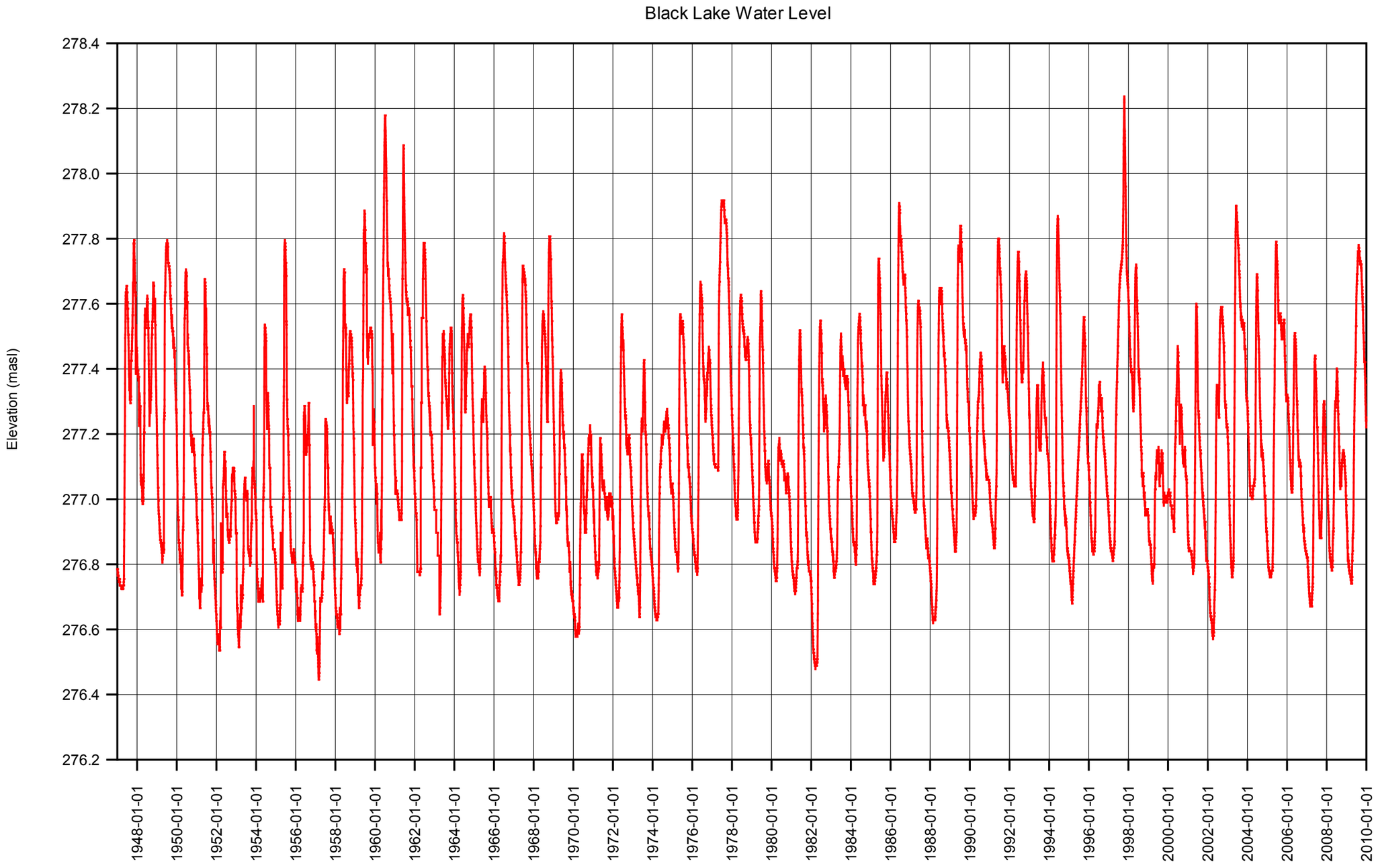


Figure 3.3-10: Black Lake Baseline Water Levels

3.3.3 Middle Lake

3.3.3.1 Morphology

Middle Lake is at the downstream end of the LSA and is effectively a widening of the Fond du Lac River before it flows through Woodcock Rapids eventually into Lake Athabasca. Middle Lake has a total surface area of 7,510,000 m^2 and has mean and maximum depths of 2.65 and 14.4 m. Morphometric characteristics are presented in Table 3.3-7. The bathymetry and topography for Middle Lake is available in Appendix III.1. The stage-volume and stage-area curves for Middle Lake are provided in Figure 3.3-11.

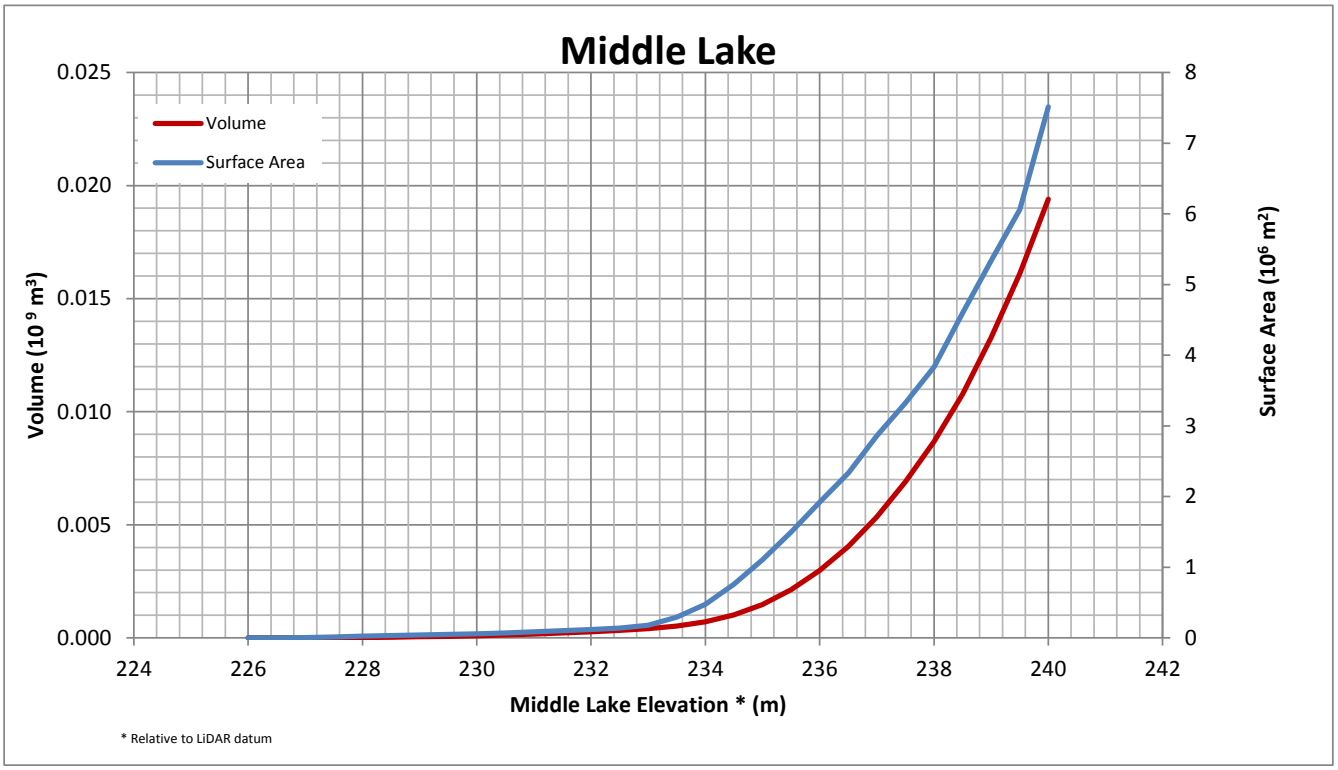


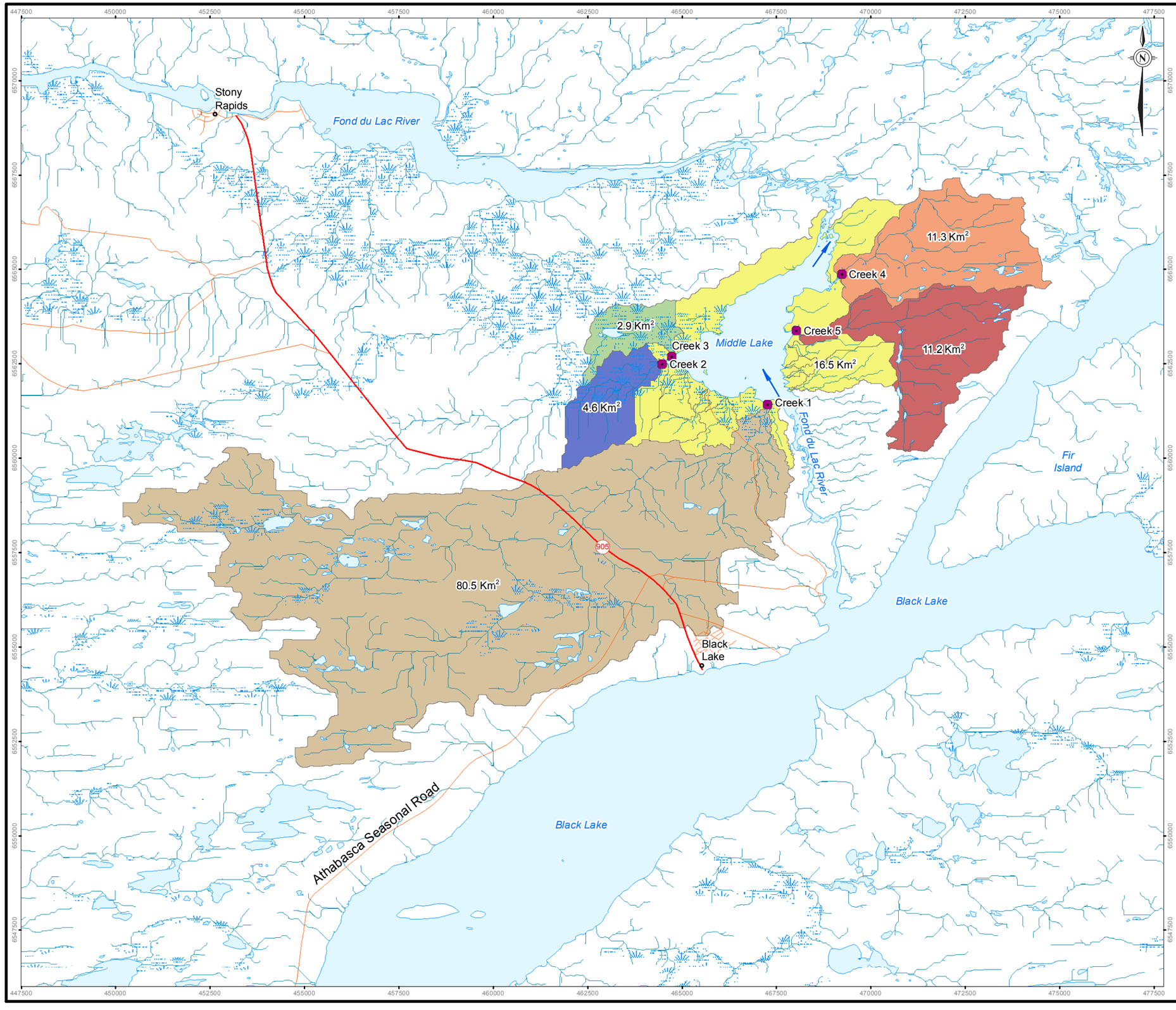
Figure 3.3-11: Middle Lake Stage-Volume and Stage-Area Curves

Table 3.3-7: Middle Lake Morphology

Lake Surface Area (m^2)	7,510,000
Volume (m^3)	19,400,000
Maximum depth (m)	14.4
Mean depth (m)	2.65
Maximum Length (km)	4.3
Perimeter shore length (km)	19.7
Island shore length (km)	0.832

m^2 = square metres; m^3 = cubic metres; m = metres; km = kilometres

In addition to the Fond du Lac River, Middle Lake has seven notable inflow streams with drainage areas in excess of 3 km^2 (Figure 3.3-12; Table 3.3-8). However, due to the relative volume and drainage area of the Fond du Lac River, these inflows are negligible in the overall water balance of Middle Lake.



LEGEND

- VILLAGE
- HIGHWAY
- ROAD
- DRAINAGE LINE
- WETLAND
- WATERBODY
- INFLOW LOCATION

WATERSHED

- CREEK 1
- CREEK 2
- CREEK 3
- CREEK 4
- CREEK 5
- OTHER

REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 13
NTS MAPSHEET: 74P/03, 04
WATERSHED AND DRAINAGE LINES: GOLDER WATERSHED ANALYSIS

2.5 0 2.5
SCALE 1:100,000 KILOMETRES

PROJECT
TAZI TWÉ HYDROELECTRIC PROJECT

TITLE
MIDDLE LAKE INFLOWS

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
GIS	SM	08/07/13		
CHECK	AD	24/07/13		
REVIEW	BT	24/07/13		

FIGURE: 3.3-12

Table 3.3-8: Black Lake Inflows and Outflow

Watershed Name	Middle Lake Inflow/Outflow	Location (UTM)		Drainage Area (km^2)	Percent of Outflow Drainage Area (%)
		Easting	Northing		
Fond du Lac	Inflow	468055	6560636	50,803	99.8
Creek 1	Inflow	467261	6561427	80.5	0.16
Creek 2	Inflow	464468	6562486	4.6	<0.01
Creek 3	Inflow	464721	6562696	2.9	<0.01
Creek 4	Inflow	469227	6564872	11.3	<0.01
Creek 5	Inflow	467717	6562916	11.2	<0.01
Other	Inflow	Various Locations		16.5	<0.01
Fond du Lac	Outflow	468827	6565821	50,930	100

UTM = Universal Transverse Mercator; km^2 = square kilometres; % = percent; < = less than
All UTM locations are in North American Datum (NAD) 83, Zone 13

3.3.3.2 Water Level

Water levels in Middle Lake follow a seasonal pattern similar to that of the Fond du Lac River and Black Lake. Peak levels typically occur during the spring, while low levels occur during the late winter. While observed historical water level data are not available for Middle Lake, water level was monitored during the 2010 monitoring season, and an estimated stage-discharge curve was created based on channel geometry at the outlet. Results indicate that Middle Lake levels fluctuate according to the following estimated stage-discharge relationship:

$$H = 237.2 + (\frac{Q}{9.25})^{1/2.68}$$

Where Q = discharge between 0 m^3/s and 1,126 m^3/s
H = Elevation in m ASL, adjusted to the LiDAR datum.

Historical water levels for Middle Lake are presented in Figure 3.3-13. According to this record, Middle Lake has an estimated historical mean elevation of 240.824 m. The lake is calculated to fluctuate an average of 1.220 m within a year; however, 1997 experienced the maximum variation within a year with a minimum level of 240.368 m and a maximum level of 242.619 m, a difference of 2.251 m. Over the period of record, lake levels have reached a historical minimum of 239.758 m (on February 28, 1957) and a historical maximum of 242.619 m(on October 17, 1997), a difference of 2.861 m. Water level in Middle Lake was measured during the 2010 monitoring season; these data are available in Appendix III.2.

3.3.4 Upland Area

3.3.4.1 Morphology

The Project Footprint covers a total of 90 km^2, of which approximately 75 km^2 is upland area (i.e., not including Black Lake, Fond du Lac River, or Middle Lake). The upland area is largely devoid of surface water, with the exception of 0.2 km^2 of small ponds, 9.5 km^2 of wetland areas, and 15 km of streams (Figure 3.3-14). There are a total of 3 streams in the upland area, the largest of which drains an area of 80.5 km^2 and flows into the south end of Middle Lake. Most of the Project Footprint upland area (44 km^2) drains north into Middle Lake, while 13 km^2 drains directly into Black Lake and 16 km^2 drains directly into the Fond du Lac River (Figure 3.3-14) through overland flow and small streams.

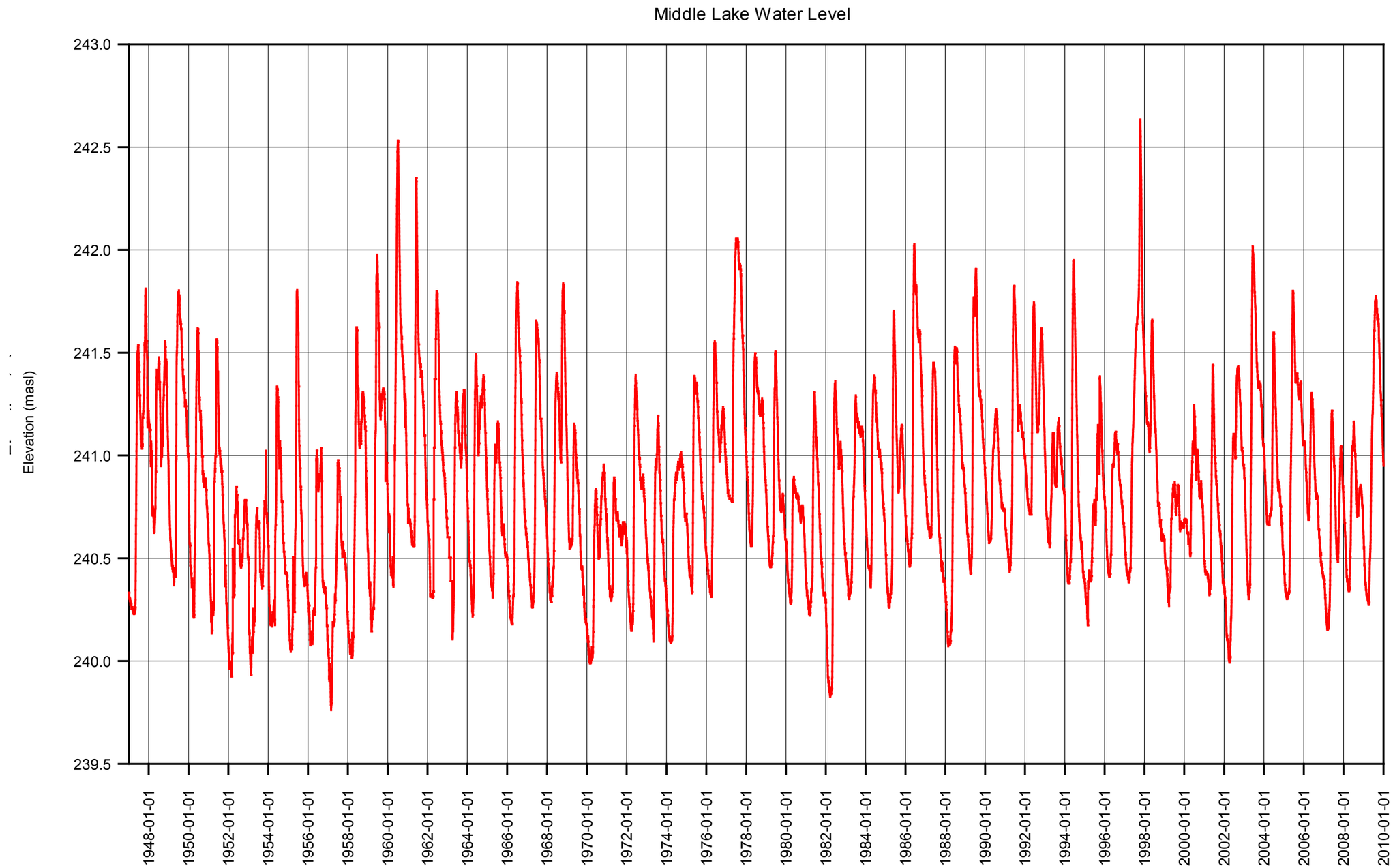
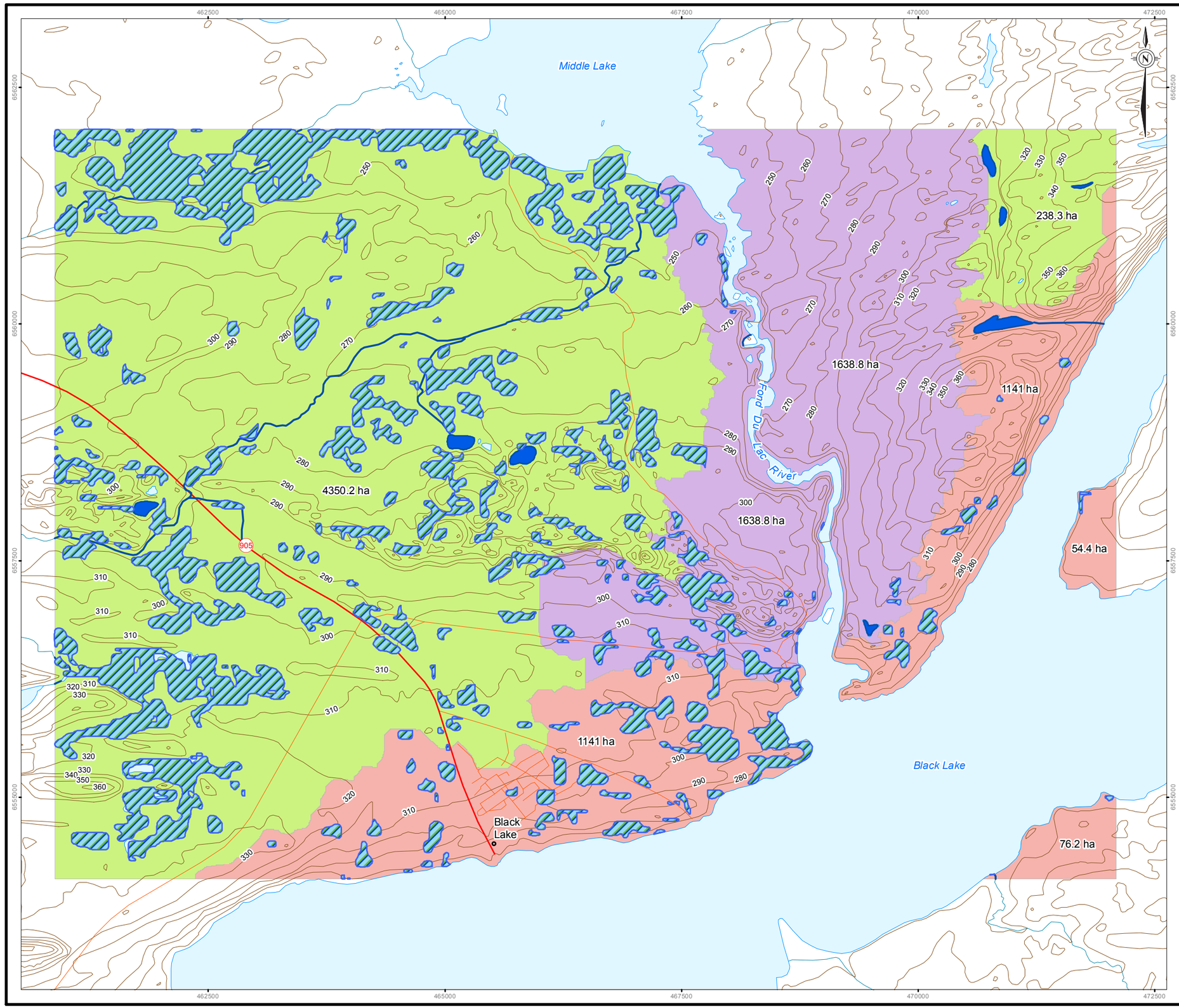


Figure 3.3-13: Middle Lake Baseline Water Levels



LEGEND

- VILLAGE
- HIGHWAY
- ROAD
- RIVER
- WATERBODY
- UPLAND AREA STREAM
- CONTOUR LINE (10M INTERVAL)
- DRAINS TO BLACK LAKE
- DRAINS TO FOND DU LAC RIVER
- DRAINS TO MIDDLE LAKE
- UPLAND AEA WATERBODY
- UPLAND AREA WETLAND

REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 13
NTS MAPSHEET: 74P/03, 04

1 0 1
SCALE 1:40,000 KILOMETRES

PROJECT

TAZI TWÉ HYDROELECTRIC PROJECT

TITLE

UPLAND AREA WATERBODIES

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
GIS	SM	08/07/13		
CHECK	AD	24/07/13	FIGURE: 3.3-14	
REVIEW	BT	24/07/13		

3.3.4.2 Flow Rates

The small watershed areas associated with the upland area means that few streams and little surface runoff passes through this area. Figure 3.3-14 presents the flow paths and watershed boundaries for the upland area. The only defined stream in the upland area flows into Middle Lake. Although the flow has not been measured on this stream, according to the watershed area (80.5 km^2) and regional runoff statistics (Appendix III.4), an annual average of approximately 0.45 m^3/s is predicted to flow through this stream. However, due to the small watershed size associated with this stream and lack of upstream waterbodies, flows may be very low during late winter.

3.3.5 Lake Athabasca

3.3.5.1 Morphology

Lake Athabasca is in the RSA and is the receiving waterbody of the Fond du Lac River. Lake Athabasca is Saskatchewan's largest lake with a surface area of 7,900 km^2, a volume of approximately 205 10^9 m^3, and a shoreline length of 1,900 km; the morphometric statistics for Lake Athabasca are presented in Table 3.3-9.

Table 3.3-9: Lake Athabasca Morphometric Characteristics

Lake Surface area (km^2)	7,900
Maximum depth (m)	120
Mean depth (m)	26.0
Volume (10^9 m^3)	205
Length of shoreline (km)	1,900
Length of island Shoreline	248

Source: Koshinsky 1970
m^2 = square metres; m^3 = cubic metres; m = metres; km = kilometres

Lake Athabasca has many notable river inflows, including the Fond du Lac River at the east end of the lake and the Athabasca River at the west end. Lake Athabasca has a total drainage area of 271,000 km^2, and flows north into the Slave River.

3.3.5.2 Water Level

Water Level in Lake Athabasca fluctuates seasonally with a minimum, mean, and maximum annual variability of 0.64, 1.50, and 3.74 m. Over the 53 years of continuous water level data available, water level has fluctuated within 4.55 m. The particularly high variability in Lake Athabasca is primarily due to the high inflow and outflow rates and their temporal variability, and the lake's interaction with large rivers to the west.

4.0 WATER AND SEDIMENT QUALITY

4.1 Introduction

This section describes the available water and sediment quality information for the Project. These data include physical limnology, as well as water and sediment chemistry for waterbodies and watercourses in the LSA. The information gathered as a result of the water and sediment quality baseline will be used in the EIA to determine potential effects of the Project on the surface water environment.

The water and sediment quality section has the following objectives:

- to describe and discuss the baseline water and sediment conditions in waterbodies and watercourses that may be potentially affected by the Project;

- to discuss seasonal and spatial variation of water and sediment quality parameters; and
- to compare baseline water quality data with applicable guidelines for the protection of aquatic life.

4.1.1 Water and Sediment Quality Parameters

Physical and chemical parameters were used to describe the water and sediment quality of the Fond du Lac River, and of upstream and downstream lake environments (Black Lake and Middle Lake, respectively). Parameters can be classed into major categories that are used to describe different aspects of the water or sediment. The major categories of parameters used in the water quality baseline are provided as follows.

4.1.1.1 Field-Measured Parameters

Field measured parameters, including water temperature, dissolved oxygen (DO), specific conductivity, and pH are measured in-situ using a water quality multi-parameter meter (multi-meter). This category of parameters was used to describe the physical limnology of Black Lake and Middle Lake, as well as for the Fond du Lac River.

4.1.1.2 Conventional Parameters

Conventional parameters include those that are monitored to provide a general characterization of the water column. These parameters directly and indirectly reflect the chemical, physical, and biological processes taking place in lakes and streams. The conventional parameters assessed include:

- The pH is a measure of acidity or alkalinity of water. A value of 7.0 indicates that the water is neutral while values lower than 7.0 are acidic and values over 7.0 are alkaline.
- Specific conductivity is indicative of the amount of ions found in the water. It is a measure of the water's ability to conduct electrical current. It is normalized to 25 degrees Celsius (°C) to provide comparative values that are independent of temperature effects on conductivity.
- Total dissolved solids (TDS) are strongly correlated to specific conductivity and are a measure of the concentration of dissolved anions and cations found in the water.
- Hardness is a measure of the quantity of cations, usually calcium and magnesium, found in the water.
- Alkalinity is a measure of the quantity of anions, such as bicarbonate, found in the water and expresses the capacity of the water to buffer acidic inputs.
- Major anions (bicarbonate, carbonate, chloride, and sulphate) and cations (calcium, magnesium, sodium, and potassium) are individually measured to determine the water input source (i.e., groundwater baseflow or surface runoff) and to describe the major ionic properties of the water. Major ions account for most of the TDS measured in the water.

4.1.1.3 Nutrients

Phosphorus and nitrogen compounds, which limit plant growth, are measured to determine the biological productivity of a waterbody. This group of parameters is used to classify the trophic status of a waterbody, which can range from oligotrophic (low biological productivity) to eutrophic (high biological productivity).

The nutrient parameters include:

- Nitrogen compounds are usually present in several forms in the water, such as inorganic (ammonia, nitrate, and nitrite) and organic forms.
- Total Kjeldahl nitrogen (TKN) is a common measurement of the nitrogen available for plant uptake, which is the measure of the concentrations of ammonia and organic nitrogen. It is also very close to the amount of total nitrogen.
- Phosphorus is another very important nutrient and can range in concentration from 0.001 milligrams per litre (mg/L) in unproductive waters to over 0.1 mg/L in highly productive waters.

4.1.1.4 Major Ions

This group comprises dissolved ions that can occur naturally at relatively high concentrations in freshwater systems. These ions account for the majority of TDS. Major ions include bicarbonate, calcium, carbonate, chloride, hydroxide, magnesium, potassium, sodium, sulphate, and sum of ions.

4.1.1.5 Metals

Metals (often referred to as trace elements) are a component of all waterbodies and are present in small amounts in the water and in larger quantities within the sediment. The toxicity of certain metals is dependent on factors such as the hardness of the water, the pH, and the relative concentration of certain major ions.

4.1.1.6 Radionuclides

Radionuclides are radioactive minerals in water that may be naturally occurring or synthetic. Radionuclides enter water as it comes in contact with radioactive materials in the soil, bedrock or local groundwater system.

4.1.1.7 Texture and Carbon Content

This group of parameters is measured in the laboratory and indicates the major constituents of the sediment. The following parameters were analyzed:

- Texture is a measurement of the proportion of sand, silt, and clay in the sediment and is also indicative of the chemical constituents that may be adsorbed to the sediment.
- Total organic carbon and total inorganic carbon measure the amount of organic matter and inorganic material, respectively, found in the sediment.

4.1.2 Water Quality Trends

Most surface water quality parameters exhibit temporal and spatial variability as a result of seasonal cycles, local or regional geology, and hydrology. Understanding natural variability is an important component of the baseline water quality assessment required to identify potential changes in water quality as a result of the Project.

4.1.2.1 Seasonal Cycles

Seasonality is an important feature in lakes of northern Saskatchewan, where temperature and precipitation vary widely throughout the year. Long, cold winters result in ice build-up that can affect water quality. Ice is formed from pure water and concentrates dissolved solids (salts) in solution. Thus, winter water quality is usually characterized by higher TDS than in summer. Oxygen depletion by sediments and organisms is also common in

winter months. Since ice forms a barrier between the atmosphere and the water (i.e., in lake environments), oxygen is not replenished from the atmosphere until open water conditions return.

During the spring freshet, surface runoff from snowmelt and precipitation is usually low in dissolved substances. As the volume of inputs from surface runoff increases, the TDS tends to decrease proportionally. If large or fast moving flow is generated by spring runoff, scouring of river beds and banks can increase total suspended solids (TSS) levels and aluminum in the system.

Mid-to late-summer water quality is usually influenced by lower flow conditions. Aquatic plants and algae grow faster in warm water and productivity levels can increase depending on the availability of nutrients. Dissolved oxygen can also decline in the summer because its solubility decreases with increasing temperature. As the air temperature warms lakes can become stratified, meaning that the surface layer of water mixes separately from the bottom layer of water. This separation can result in limited oxygen input into the bottom layer and result in significant differences in water quality between layers.

Fall water quality depends to a large extent on the level of productivity during the summer. If the river or lake was highly productive during the summer, then the plants and algae can contribute significant amounts of oxygen demand to the waterbody when they die-off in the fall. Lakes undergo fall turnover, where the surface and bottom layers are mixed and any stratification is lost and the water chemistry becomes more homogenous.

4.1.2.2 Spatial Trends

Spatial heterogeneity of typical water quality features originate from differences in lake morphometry, the varying importance of surface water versus groundwater flows, the amount of surface inflow and outflow, and other factors. Seasonal effects also contribute to spatial differences, particularly in vertical distribution of water quality parameters (e.g., stratification effects).

4.2 Methods

4.2.1 Sample Location and Timing

Water and sediment samples were collected at several locations in the LSA between spring 2010 and winter 2011. A summary of the location, timing, and frequency of sampling of each waterbody or watercourse is provided in Table 4.2-1. Whenever possible, sites were established in locations that were similar to those used in historical surveys completed in the Elizabeth Falls area (i.e., Envirocon 1974; Johnson 1971). Samples for surface water quality and sediment quality were collected at three locations in Black Lake and at two locations in Middle Lake (see Figure 4.2-1). Water quality samples were collected seasonally, during separate spring, summer, fall and winter field programs. Sediment quality samples were collected concurrently with benthic invertebrate community (BIC) sampling (see Section 5.0) during the September 2010 field program. In general, these samples were collected at established water quality sampling locations. However, in some cases sediment sampling was carried out at a nearby location, where sediments were suitable to fill the entire grab sampler. Limnology profiles or *in situ* surface water quality measurements were taken at surface and sediment quality sampling locations in Black Lake and Middle Lake, and at all fish sampling sites in the LSA during recent baseline sampling (2010–2012).

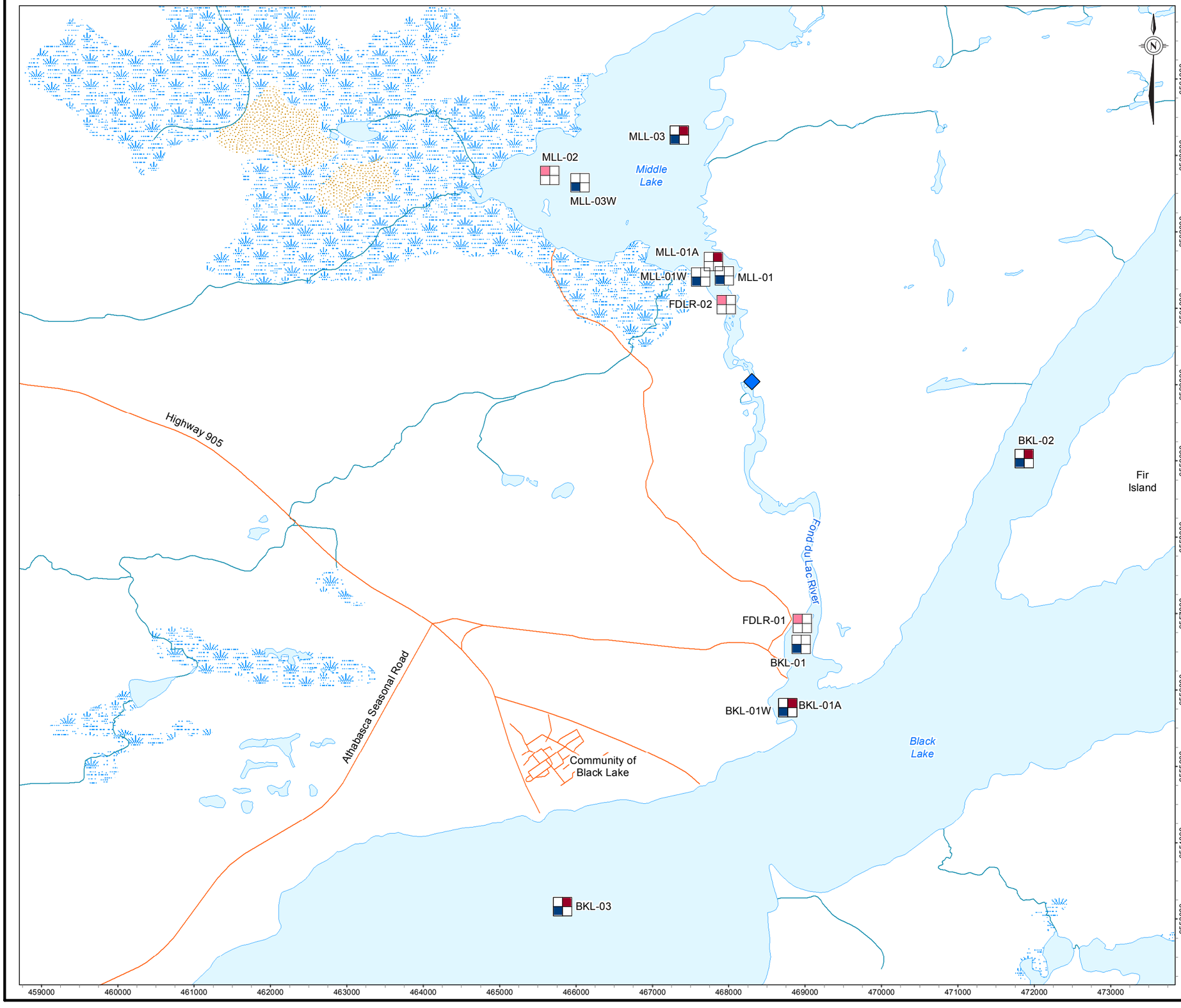
Table 4.2-1: Summary of Surface Water and Sediment Chemistry Sample Locations and Timing (Season), 2010-2011

Area of Interest	UTM Coordinates		Water Depth[c] (m)	Limnology	Water Chemistry	Sediment Chemistry
	Easting	Northing				
Fond du Lac River						
FDLR-01	468960	6556877	0.3	F	-	-
FDLR-02	467964	6561051	0.3	F	-	-
Middle Lake						
MLL-01	467939	6561428	6	SP, SU, F	SP, SU, F	-
MLL-01A[a]	467796	6561613	4.8	F	-	F
M LL-01W[b]	467630	6561411	0.3	W	W	-
MLL-02	465656	6562744	2.1	SP, SU, F	-	-
MLL-03	467351	6563272	6.8	SP, SU, F	SP, SU, F	F
MLL-03W[b]	466052	6562646	1.8	W	W	-
MLL-04	468720	6565163	7.8	SP, SU, F	-	-
Black Lake						
BKL-01	468947	6556602	8.7	SP, SU, F	SP, SU, F	-
BKL-01A[a]	468750	6555783	11.4	F		F
BKL-01W[b]	468771	6555772	11.7	W	W	-
BKL-02	471869	6559036	31	SP, SU, F, W	SP, SU, F, W	F
BKL-03	465823	6553167	25.4	SP, SU, F, W	SP, SU, F, W	F

All Universal Transverse Mercator (UTM) are from Zone 13, North American Datum 1983 (NAD 83).
[a] Sediment samples were collected at stations MLL-01A and BKL01A in Fall 2010 because a suitable sample could not be collected at the primary locations
[b] Stations MLL-01W , MLL-03W, and BKL-01W were sampled in Winter 2010 because the primary sampling stations could not be accessed due to thin ice conditions
[c] Minor differences in water depth occurred depending on the sampling season. Value reported was maximum depth measured.
m = metre; S = spring; U = summer; F = fall; W = winter; E = easting; N = northing.

4.2.1.1 Water Temperature Data Loggers

Water temperature data loggers were deployed at two locations in the Fond du Lac River in 2010, and at one location in 2012. The 2010 data logger locations included a site along the left downstream bank in the Black Lake outlet area near Grayling Island, and a second location in the Middle Lake Inflow area along the left downstream bank. In 2012, a temperature data logger was deployed in the middle section of the Fond du Lac River above Elizabeth Falls along the west bank. In 2010, water temperature loggers were deployed between June 20 and October 24, and in 2012, data loggers were deployed between June 1 and October 10. Data loggers were programed to record water temperature on an hourly basis (i.e., 24 measurements per day; 168 measurements per week) for the full period of deployment.



LEGEND

- ROAD
- RIVER
- WETLAND
- WATERBODY
- ELIZABETH FALLS

AQUATIC SAMPLE LOCATION KEY

LIMNOLOGY — SEDIMENT CHEMISTRY

WATER CHEMISTRY

REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 13
DMTI HIGHWAYS AND ROADS

1 0 1
SCALE 1:50,000 KILOMETRES

PROJECT

TAZI TWÉ HYDROELECTRIC PROJECT

TITLE

WATER AND SEDIMENT QUALITY SAMPLING LOCATIONS, 2010 AND 2011

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 2
GIS	SM/LR	10/07/13		
CHECK	LT	24/07/13		
REVIEW	BC	24/07/13		

FIGURE: 4.2-1

4.2.2 Sampling and Analytical Methods

4.2.2.1 Physical Limnology

Limnology profiles or *in situ* surface measurements (i.e., pH, specific conductivity, dissolved oxygen, and water temperature) were obtained using a calibrated, hand-held YSI 600 QS-O-M multi-parameter sonde. *In situ* spot measurements were taken near the water surface for sample sites in the Fond du Lac River and vertical profile sampling was completed at 0.5 to 1.0 m increments throughout the water column at most lake environment sample locations (i.e., Black Lake and Middle Lake). Vertical profile sampling could not be completed in Middle Lake during winter because deep sample locations could not be accessed due to thin ice conditions. Secchi depth was taken concurrently with limnology sampling to determine the clarity of surface waters.

4.2.2.2 Water Quality

Water samples for chemical analysis were obtained at each sampling station using a depth integrated profile sampling technique; individual samples were collected below the water surface, near the lake bottom, and in the middle of the water column, and then combined to produce a single composite sample for analysis. Samples were collected using a Kemmerer water sampler. Water samples were stored in certified clean water sample bottles and preserved as required with materials provided by the analytical laboratory. Each sample container was tripled rinsed with sample water prior to filling. Water samples were filtered and preserved (as appropriate), according to the analytical laboratory's protocols. Samples were stored in coolers with ice packs during storage and transport. Water samples were submitted to the Saskatchewan Research Council (SRC) Environmental Analytical Laboratory for analysis. Water chemistry samples were assessed for:

- physical parameters (i.e., field measured DO, pH, specific conductivity, and water temperature);
- conventional parameters (i.e., laboratory measured specific conductivity, pH, total alkalinity, total hardness, TDS, and TSS);
- nutrients (i.e., ammonia as nitrogen, nitrate, nitrite+nitrate as nitrogen, total Kjeldahl nitrogen, total nitrogen, and total and dissolved phosphorous);
- major ions (i.e., bicarbonate, calcium, carbonate, chloride, magnesium, potassium, sodium, sulphate, and sum of ions);
- total metals (i.e., aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, thallium, tin, titanium, uranium, vanadium, and zinc); and
- radionuclides (i.e., lead-210, radium-226, and thorium-230).

A detailed description of water quality parameters assessed is provided in Section 4.1.1.

4.2.2.3 Sediment Quality

Sediment grab samples were collected using an Ekman dredge or Petit Ponar sampler. The contents of the grab sampler were emptied into a clean plastic pail, mixed to homogenize the sample, and transferred into clean polyethylene sample bags provided by the laboratory. Sediment samples were packed into coolers with frozen cold packs and delivered to SRC Environmental Analytical Laboratory (most parameters) and ALS Laboratory

Group (benthic invertebrate sediment for particle size analysis) with appropriate chain-of-custody (COC) records, for analysis.

Sediment quality samples were analyzed for:

- nutrients (i.e., nitrite+nitrate as nitrogen, total Kjeldahl nitrogen, total nitrogen, total organic carbon, and total phosphorus);
- total metals (i.e., aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, selenium, silver, strontium, thallium, tin, titanium, uranium, vanadium, and zinc); and
- radionuclides (i.e., lead-210, polonium-210, radium-226, and thorium-230).

Sediment samples collected during the benthic invertebrate sampling program were analyzed for physical properties including particle size distribution, loss on ignition (LOI), and moisture content.

A detailed description of the sediment quality parameters assessed is provided in Section 4.1.1.

4.2.2.4 Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) programs are sampling and analytical procedures that are followed to limit the introduction of error into analytical data. Quality assurance/quality control protocols followed during the baseline studies were designed to produce data of known and defensible quality, and included the following techniques. Field blanks were used to detect sample contamination during the collection, shipping, and analysis of samples; trip blanks were used to detect sample contamination during transport; duplicate field samples were used to detect variability at a site and verify field-sampling methods. Duplicate laboratory samples were used to assess the reproducibility of the laboratory results (i.e., lab methodology and analyses). The laboratory also used standard quality assurance/quality control procedures (e.g., method blanks and spiked samples) as internal checks on the accuracy of their methods and to confirm the absence of contamination in their methods and equipment.

Quality control samples collected during baseline sampling included one duplicate water sample collected during three of the four water quality sampling programs, as well as a trip blank and a field blank collected during each sampling event. The duplicate water sample was a separate sample (i.e., not a split sample) collected at the same location as the field sample. The trip blanks were samples prepared by SRC using distilled water and carried in the field (unopened) during the field program. The field blanks were samples prepared while in the field using distilled water provided by SRC. The field blanks were treated the same way as field-collected samples.

4.2.2.5 Data Analysis

Water quality exhibits temporal variability (seasonality) and spatial heterogeneity both vertically in the water column (surface, intermediate, or bottom layer) and among sample locations. Therefore, analyses focused on discussion of any seasonal and/or spatial trends that are apparent in the distribution of the leading physical limnology and water quality parameters, and included a discussion of any notable spatial trends that were evident within and among the waterbodies/watercourses considered. To provide a clear understanding of the baseline water and sediment quality conditions, limnological profiles of temperature and oxygen were prepared for each deep sampling station in each waterbody (i.e., Black Lake and Middle Lake), and summary water and

sediment quality tables have been provided. For the Fond du Lac River, weekly minimum, average, and maximum water temperature was calculated from temperature logger data collected in the Black Lake outlet area, in the middle section, and at the river's outlet to Middle Lake inflow areas of the river. These data were then graphed to provide an understanding of water temperature variability among sampling areas.

4.2.2.5.1 Comparison of Analytical Results with Guidelines

The field and analytical data obtained as a result of baseline water and sediment chemistry sampling were compared to established guidelines for the protection of aquatic life. The province of Saskatchewan uses the surface water quality objectives provided by the Canadian Council of Ministers of the Environment (CCME). In general, the CCME guidelines (CCME 2012) are applied by the Saskatchewan Ministry of Environment (MOE) unless the federal guideline is lower than the upper limit of background data in Saskatchewan waterbodies, or the guideline was derived using a receptor or environmental factor not typically found in Saskatchewan (Saskatchewan Environment 2006). The results of the sediment sampling programs were compared to the CCME Interim Sediment Quality Guidelines (ISQG) for the protection of aquatic life (CCME 2002).

Water and sediment quality guidelines are nationally and provincially endorsed indicators of environmental quality for the protection of aquatic ecosystems (CCME 2012, CCME 2002). The aquatic life guidelines are based on the most current, scientifically defensible toxicological data and are intended to be protective of all forms and life stages of aquatic life (CCME 2012, CCME 2002). Exceedance of a guideline does not, therefore, automatically imply unacceptable or harmful conditions. Observed guideline exceedances that may be present under baseline conditions are a result of naturally occurring conditions and are thus not of concern, as local flora and fauna will be adapted to these natural conditions in the environment.

4.3 Results

4.3.1 Fond du Lac River

4.3.1.1 Physical Limnology

A summary of limnology and supporting environmental data collected for the Fond du Lac River is provided in Appendix III.5, Tables III.5-1 to III.5-4, for spring, summer and fall 2010 and spring and summer 2012 sample periods. Surface limnology data were not collected in the Fond du Lac River during winter in either year. A summary of temperature logger data for the Black Lake outlet, middle section of the Fond du Lac River, and at the river's outlet to Middle Lake Inflow sample locations are provided in Table 4.3-1.

For the period of record between May 20 and October 24, 2010 water temperature in the Fond du Lac River reflected weather conditions at the time of sampling and varied between 1.1 and 21.1°C at the Black Lake outlet area, and from 1.4 to 19.4°C at the Fond du Lac River outflow to Middle Lake inflow Location (Figure 4.3-1; Table 4.3-1). In general, water temperature was slightly warmer in 2010 (weekly average difference = 0.3°C) at the Black Lake outlet area compared to the outflow to Middle Lake location (Figure 4.3-1; Table 4.3-1). At the middle river section sampling location, temperature logger data were available for the period between June 1 and October 10 2012. Water temperature was measured between 5.8 and 25.9°C during this period. In general, water temperature in the middle section of the Fond du Lac River was slightly warmer between mid-spring and early summer and slightly cooler between late summer and early fall 2012, when compared with values measured at the Black Lake outlet and outflow to Middle Lake areas in 2010.

Table 4.3-1: Weekly Water Temperature Measured at Black Lake Outlet, Middle Section, and Outflow to Middle Lake Temperature Logger Locations in the Fond du Lac River, 2010 and 2012. Data are provided as Mean (Minimum – Maximum) Values

Week (2010)	Temperature °C	
	Black Lake Outlet	Outflow to Middle Lake
May 20 - May 23	2.6 (1.1 - 3.8)	2.6 (1.4 - 3.5)
May 24 - May 30	3.6 (1.48 - 6.1)	3.6 (1.6 - 5.5)
May 31 - June 6	7.3 (5.1 - 9.4)	7.3 (5.1 - 9.6)
June 7 - June 13	8.5 (6.9 - 10.7)	8.4 (6.8 - 9.9)
June 14 - June 20	11.7 (8.9 - 14)	11.2 (9.1 - 13.8)
June 21 - June 27	14.1 (11 - 16.2)	13.4 (10.7 - 15.5)
June 28 - July 4	15.1 (12.8 - 16.3)	14.9 (12.6 - 16)
July 5 - July 11	13.6 (10.4 - 15.8)	13.2 (10.7 - 14.3)
July 12 - July 18	16.8 (14.7 - 18.6)	16.1 (13.9 - 17.8)
July 19 - July 25	18.2 (15.7 - 20.9)	17.4 (15 - 19.3)
July 26 - August 1	19.2 (17.7 - 21.1)	18.3 (16.7 - 19.4)
August 2 - August 8	18.6 (17.1 - 20.4)	16.6 (12.2 - 19.2)
August 9 - August 15	18 (16.1 - 20.8)	17.6 (16.3 - 19)
August 16 - August 22	15.9 (14.6 - 17.3)	16.1 (15.2 - 16.8)
August 23 - August 29	14.3 (11.5 - 17)	14.2 (11.7 - 15.9)
August 30 - September 5	13.4 (12 - 15.3)	13.2 (12.1 - 13.7)
September 6 - September 12	13 (11.8 - 14.8)	13 (12 - 13.5)
September 13 - September 19	11.2 (10.1 - 12.8)	11.4 (10.5 - 12.1)
September 20 - September 26	10.5 (10 - 11.5)	10.5 (10.2 - 10.9)
September 27 - October 3	10.3 (9.7 - 11.5)	10.3 (10 - 10.7)
October 4 - October 10	9.8 (9.3 - 10.6)	9.8 (9.5 - 10.2)
October 11 - October 17	8.8 (7.6 - 10.1)	8.9 (7.8 - 9.8)
October 18 - October 24	6.8 (5.7 - 7.8)	6.8 (5.9 - 7.9)

Week (2012)	Temperature°C
	Middle Section
June 1 - June 3	6.8 (5.8 - 7.8)
June 4 - June 10	7.0 (5.9 - 8)
June 11 - June 17	8.8 (7.3 - 10.3)
June 18 - June 24	10.4 (9.2 - 11.9)
June 25 - July 1	13.2 (9.9 - 15.2)
July 2 - July 8	14.4 (12.1 - 16.4)
July 9 - July 15	16.1 (12.3 - 17.6)
July 16 - July 22	16.3 (14.9 - 17.9)
July 23 - July 29	17.2 (15.8 - 18.6)
July 30 – August 5	18.3 (15.9 - 19.5)
August 6 - August 12	16.4 (7.9 - 18.4)
August 13 - August 19	16.2 (13.4 - 20.3)
August 20 - August 26	16.3 (11.8 - 21.8)
August 27 - September 2	16.4 (13 - 25.9)
September 3 - September 9	14.6 (13.9 - 16.1)
September 10 - September 16	13.6 (12.5 - 14.6)
September 17 - September 23	12.4 (11.9 - 13.1)
September 24 - September 30	11.8 (11.6 - 12.1)
October 1 - October 7	10.8 (9.9 - 11.8)
October 8 - October 10	10.8 (9.9 - 11.8)

°C = degrees Celsius

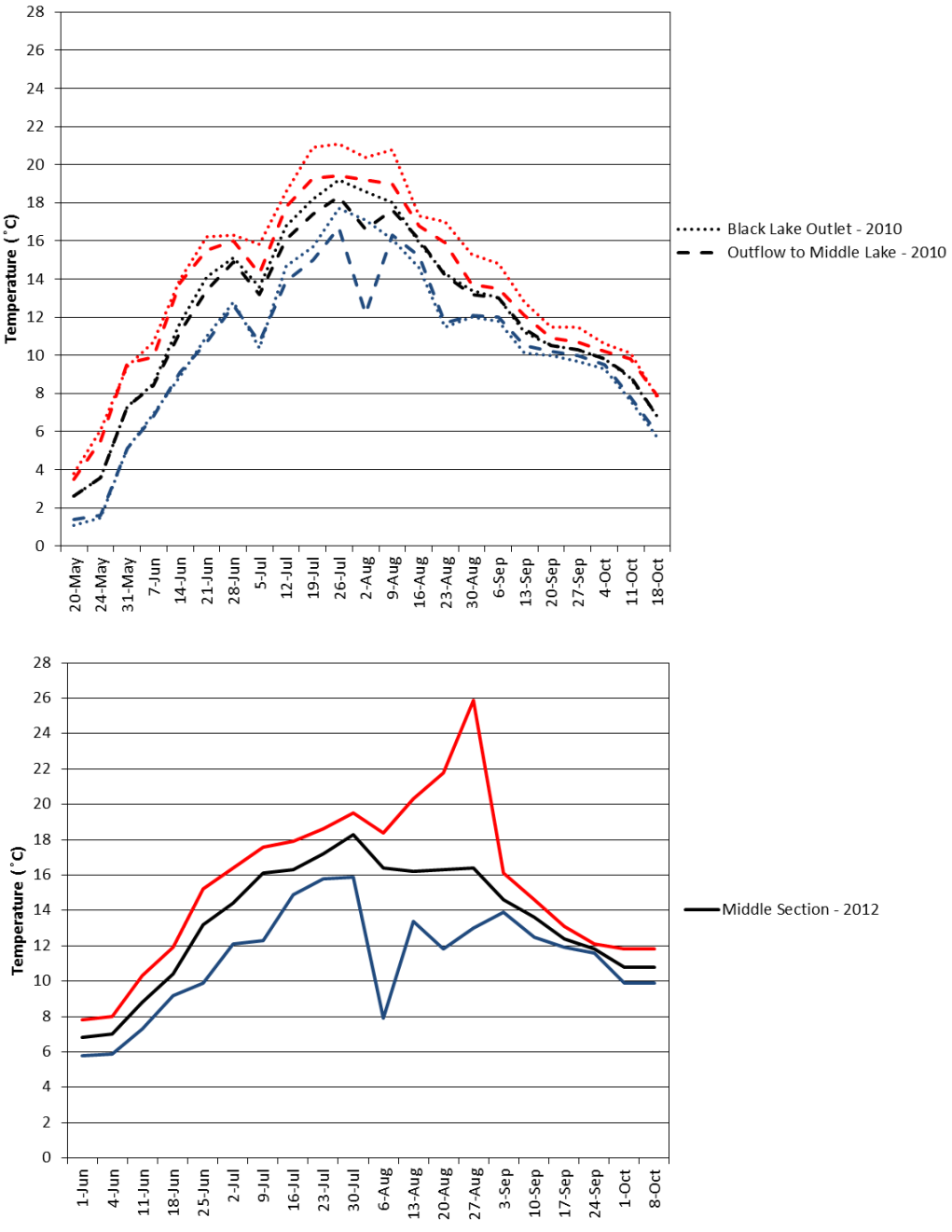


Figure 4.3-1: Weekly Minimum (Blue), Average (Black) and Maximum (Red) Water Temperature Measured at Black Lake Outlet, Middle Section, and outflow to Middle Lake Temperature Logger Locations in the Fond du Lac River, 2010 and 2012

Dissolved oxygen (DO) levels in the Fond du Lac River were generally high during spring (12.0 to 14.2 mg/L) and fall 2010 (10.4 to 11.1 mg/L), with lower concentrations measured in summer (8.5 to 10.7 mg/L). During summer 2010, dissolved oxygen levels at approximately half of the sample locations were below the lower limit specified for the protection of early life stages of aquatic life in a cold-water ecosystem (9.5 mg/L).

Specific conductivity values in the river ranged between 31 and 36 microSiemens per centimetre (µS/cm) in 2010, and were generally similar between seasons. The pH of the water was slightly acidic during the spring 2010 sampling event and ranged from 5.7 to 6.7. The pH values at most sampling stations were below the Canadian Water Quality Guidelines (CWQG) for pH (6.5 to 9) for the protection of aquatic life during spring 2010 sampling. The pH values were generally higher in summer and fall 2010 ranging from neutral to alkaline (7.1 to 8.3).

4.3.1.2 Surface Water Quality

Chlorophyll *a*, a measure of system productivity, was the only water quality parameter measured in the Fond du Lac River. Water chemistry parameters in the river are generally expected to be similar to those measured at the Black Lake outlet and Middle Lake inflow sample locations (Stations BKL-01 and MLL-01; see Sections 4.3.2 and 4.3.3 for a description of water quality results for these locations). A water sample for chlorophyll *an* analysis was collected during the fall 2010 sample period at two locations in the Fond du Lac River (FDL-01 and FDLR-02) where benthic invertebrate samples were taken. The chlorophyll *a* concentrations near the Black Lake outlet and Middle Lake inflow sampling locations were 2.9 milligrams per cubic metre (mg/m^3) and 5.2 mg/m^3 (respectively).

4.3.2 Black Lake

4.3.2.1 Physical Limnology and Vertical Structure

A summary of limnology and supporting environmental data collected for Black Lake is provided in Appendix III.5, Tables III.5-1 to III.5-4, for spring, summer, fall 2010, and winter 2011 sample periods.

Temperature profiles within Black Lake were vertically homogeneous during the spring and fall 2010 sampling events (Figures 4.3-2 to 4.3-4). This indicated that the water column in Black Lake was typically well mixed by temperature and density-driven lake turnover occurring in spring and fall. Water temperature reflected weather conditions at the time of sampling and varied between 3.5°C and 5.4°C in spring, and between 10.4°C and 10.8°C in fall. The development of a seasonal thermocline was evident during the summer 2010 sampling session. A thermocline was observed at the deeper sample locations (BKL-02 and BKL-03) between 12 m and 16 m depth. During the summer, water temperature in Black Lake ranged between 8.6°C and 15.7°C. During the winter sampling period, Black Lake was inversely stratified (Figures 4.3-2 to 4.3-4), whereby, cooler waters approaching 0°C occurred immediately below the ice with temperatures gradually increasing with increased depth. Water temperature in Black Lake ranged between 0.4°C and 3.2°C during winter 2011 sampling.

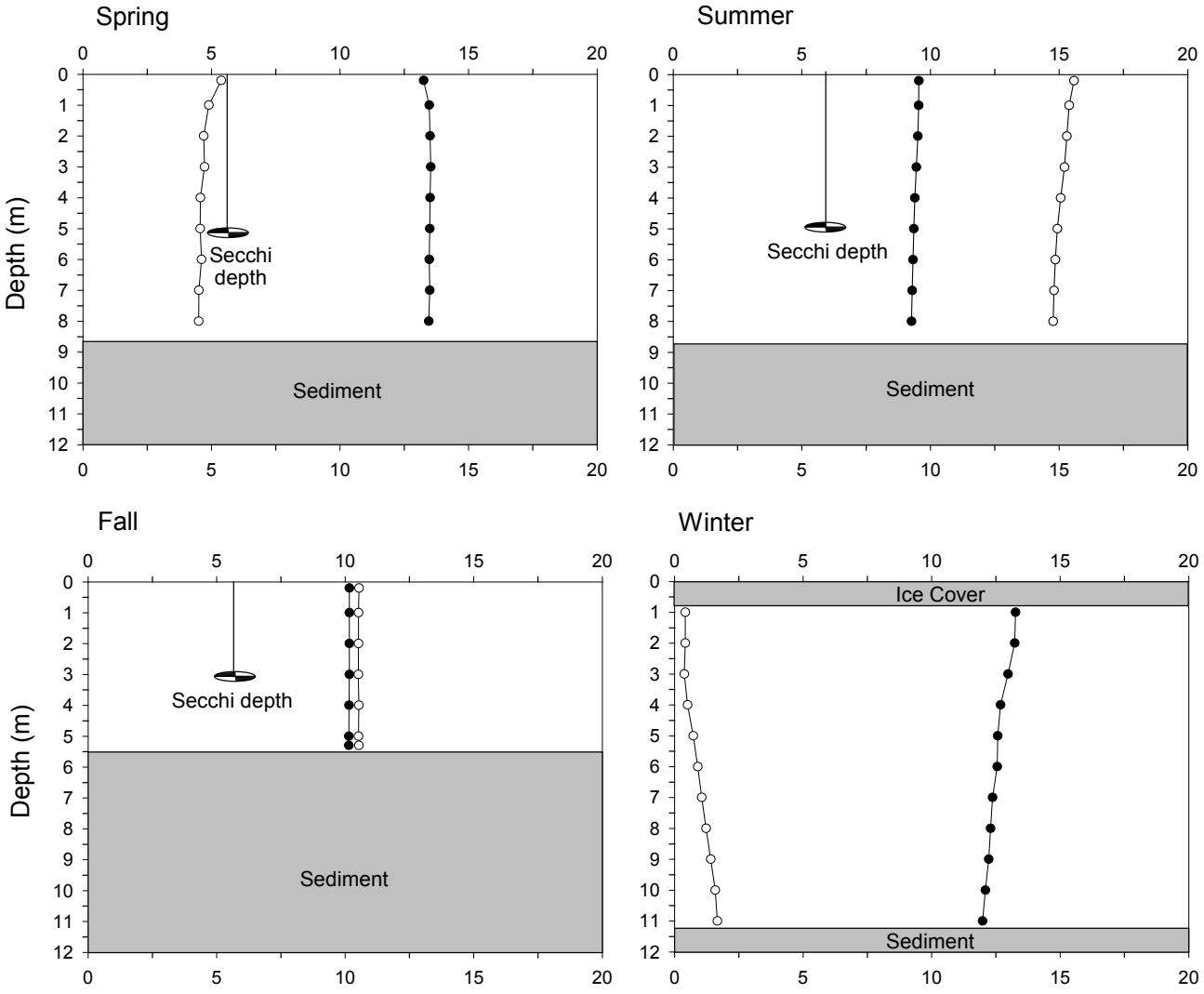


Figure 4.3-2: Spring, Summer, Fall, and Winter Limnology Profiles Taken at Station BKL-01. Black Markers Represent Dissolved Oxygen Concentrations (mg/L); White Markers Represent Temperature Data (°C)

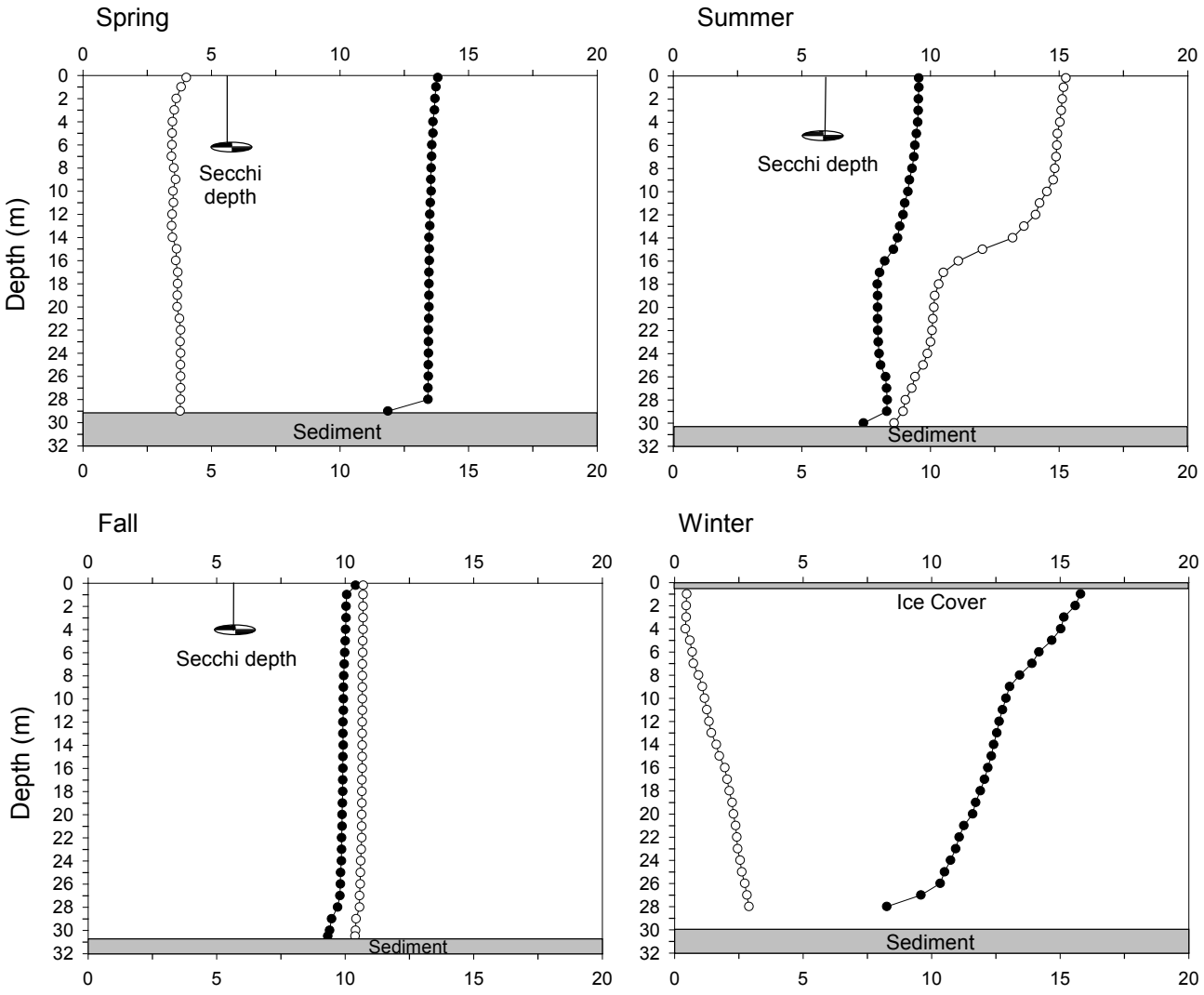


Figure 4.3-3: Spring, Summer, Fall, and Winter Limnology Profiles Taken at Station BKL-02. Black Markers Represent Dissolved Oxygen Concentrations (mg/L); White Markers Represent Temperature Data (°C).

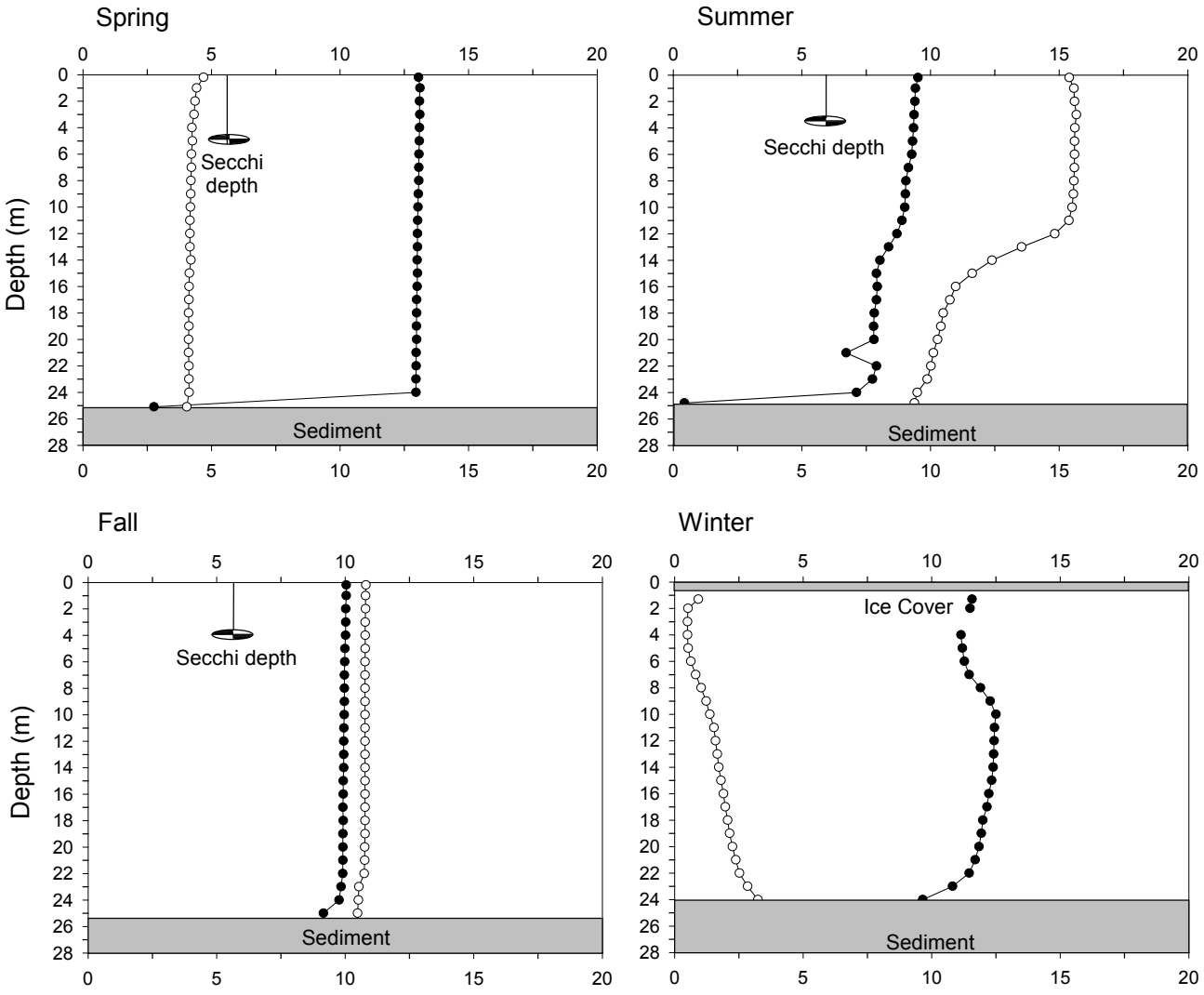


Figure 4.3-4: Spring, Summer, Fall, and Winter Limnology Profiles Taken at Station BKL-03. Black Markers Represent Dissolved Oxygen Concentrations (mg/L); White Markers Represent Temperature Data (°C).

Dissolved oxygen (DO) profiles for Black Lake displayed similar patterns among sampling locations but were variable between seasons (2010-2011). During spring and fall, DO concentrations were typically uniform throughout the water column, with generally higher DO levels observed in spring compared to fall. Decreases in DO concentration associated with the summer temperature thermoclines discussed above were observed at depths greater than 12 m at deep stations (i.e., BKL-02 and BKL-03). Dissolved oxygen (DO) levels were generally lowest in summer, and were below the lower limit specified for the protection of cold-water aquatic life (9.5 mg/L) at most sample depths. High oxygenation was measured at the ice-water interface during the winter sampling period. Dissolved oxygen (DO) concentrations generally declined with increasing depth during winter but were above objective values for the protection of cold-water aquatic life (9.5 mg/L) at all sampled depths, with the exception of a single measurement taken immediately above lake-bottom at station BKL-02 during the winter 2011 sampling program.

Specific conductivity measurements taken in different seasons (2010-2011) indicated that Black Lake was low in ionic concentrations (29-58 µS/cm). Conductivity levels were generally higher in spring (29 to 41 µS/cm) and winter (32 to 58 µS/cm) compared to summer (31 to 39 µS/cm) and fall (30 to 39 µS/cm). In general, conductivity levels were similar among sampled stations and depths within Black Lake.

Field measured pH in Black Lake was moderately acidic during spring, ranging from 5.4 to 7.5. In general, pH levels were below the lower limit specified for the protection of aquatic life (pH = 6.5) during the spring 2010 sampling event. The pH of Black Lake was generally higher during summer (6.6 to 7.8), fall (6.9-7.6) and winter (6.7 to 7.8) sampling, and measurements were above guideline values specified for the protection of aquatic life. Although pH levels varied among sampling events, values were generally similar among sampled stations and depths.

4.3.2.2 Water Quality Parameters

A summary of water chemistry results for Black Lake is provided in Table 4.3-2. Detailed water chemistry results, including results for quality control (QC) samples collected during the baseline program are provided in Appendix III.6, Table III.6-1. Black Lake has water quality typical of lakes in northern Saskatchewan, where the concentrations of dissolved and suspended substances are low. Hardness and alkalinity were low (medians of 13 and 15 mg/L, respectively, during open water conditions [i.e., spring, summer, and fall]), indicating that the water in Black Lake is soft and has low buffering capacity. The concentrations of TDS were generally low during the open water season and under-ice conditions, (medians of 28 and 36 mg/L, respectively), indicating a small amount of dissolved substances in the water. Total suspended solids (TSS) concentrations were generally measured slightly above the detection limit or were not detected (detection limit of 1 mg/L), indicating that Black Lake water is very clear and contained low concentrations of suspended substances (maximum TSS of 3 mg/L).

Bicarbonate was the dominant ion measured in Black Lake, while hydroxide and carbonate concentrations were below the detection limit during most sample periods. No notable spatial difference in the concentration of major ions within Middle Lake was evident, and levels did not vary appreciably between seasonal sampling events.

The concentration of inorganic nitrogen, such as ammonia, nitrate, and nitrite were generally below the detection limit or present in very low concentrations. Total and dissolved phosphorus levels were generally below their detection limit of 0.01 mg/L. Total nitrogen was measured at low concentrations (medians of 0.2 mg/L and 0.25 mg/L during open water and under ice conditions, respectively). Nutrient levels were not different between the sample areas in Black Lake, and were present at similar concentrations during spring, summer, fall and winter sampling sessions. Chlorophyll *a* levels were measured at or below the detection limit (0.1 mg/m^3) during under ice conditions and were detected at low levels during the open water period (median concentration = 2.9 mg/m^3). The observed concentrations of nutrients indicate that Black Lake has an oligotrophic status; biological productivity is considered to be low.

The concentrations of most metals were generally measured below their detection limits or at low concentrations, with little variability measured seasonally or between sample sites. No exceedances of applicable aquatic life guidelines were observed within Black Lake, with one exception. Baseline concentrations of cadmium exceeded the current CWQG for protection of aquatic life (0.006 µg/L) because the method detection limit (0.01 µg/L) also exceeds the guideline (CCME 2012); however, this highly conservative guideline is currently under federal review and revision.

Table 4.3-2: Summary of Water Chemistry Results for Samples Collected from Black Lake, Spring 2010 to Winter 2011

Parameters	Unit	Guidelines		Detection Limit	BKL-01			BKL-01W	BKL-02				BKL-03			
		SSWQO[a]	CWQG[b]		5/29/2010	8/25/2010	9/25/2010	2/21/2011	5/29/2010	8/25/2010	9/26/2010	2/21/2011	5/29/2010	8/25/2010	9/26/2010	2/20/2011
					n = 2	n = 1	n = 2	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 2
Conventional Parameters (Field-Measured)																
Dissolved Oxygen	mg/L	6.5/9.5[c]	6.5/9.5[c]	-	13.5	9.6	10.2	13.3	13.8	9.6	10.0	9.6	13.1	9.5	10.0	9.7
pH	pH Unit	-	6.5-9.0	-	6.5	7.2	7.6	6.8	6.4	7.3	7.0	7.2	6.0	7.8	7.3	7.8
Specific Conductivity	µS/cm	-	-	-	30	35	37	58	31	34	32	41	41	39	39	56
Water Temperature	°C	-	-	-	5.38	15.58	10.54	1.67	4.02	9.88	10.7	2.89	4.69	9.87	10.8	3.24
Conventional Parameters (Laboratory-Measured)																
pH	pH Unit	-	6.5-9.0	0.07	7.15	7.29	7.27	6.98	7.13	7.24	7.30	7.09	7.11	7.23	7.24	7.05
Specific Conductivity	µS/cm	-	-	1	31	36	38	51	30	34	32	37	40	40	39	48
Total Alkalinity	mg/L	-	-	1	17	22	15	22	21	12	13	20	13	16	11	24
Total Hardness	mg/L	-	-	1	11	13	14	17	11	12	12	14	13	13	13	16
Total Dissolved Solids	mg/L	-	-	1	28	28	29	43	25	29	24	25	32	31	28	36
Total Suspended Solids	mg/L	-	-	1	3	<1	2	<1	2	<1	1	<1	2	<1	<1	<1
Nutrients																
Ammonia as Nitrogen	mg/L	0.855[d]	0.855[d]	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	<0.01	<0.01	<0.01
Nitrate	mg/L	-	13	0.04	0.13	<0.04	<0.04	0.04	0.13	<0.04	<0.04	0.13	0.09	<0.04	<0.04	0.11
Nitrite+Nitrate as Nitrogen	mg/L	-	-	0.01	0.03	0.08	<0.01	0.01	0.03	0.02	<0.01	0.03	0.02	0.02	<0.01	0.03
Total Kjeldahl Nitrogen	mg/L	-	-	0.05	0.25	0.20	0.13	0.24	1.4	0.15	0.20	0.24	0.82	0.16	0.20	0.20
Total Nitrogen	mg/L	-	-	0.05	0.28	0.28	0.13	0.25	1.4	0.17	0.20	0.27	0.84	0.18	0.20	0.22
Total Phosphorus	mg/L	-	-	0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dissolved Phosphorus	mg/L	-	-	0.01	0.01[n]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	0.01
Major Ions																
Bicarbonate	mg/L	-	-	1	21	27	18	27	26	15	16	24	16	20	13	29
Calcium	mg/L	-	-	0.1	2.9	3.2	3.3	4.0	2.9	3.0	3.0	3.3	3.1	3.3	3.2	3.8
Carbonate	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloride	mg/L	-	120	0.1	1.2	2.1	5.05[m]	6.8	0.8	1.6	2	2.4	5.0	3.3	7	6.0
Hydroxide	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	-	-	0.1	1.0	1.1	1.3	1.7	1.0	1.1	1.1	1.3	1.2	1.2	1.3	1.6
Potassium	mg/L	-	-	0.1	0.5	0.7	0.7	0.9	0.5	0.6	0.6	0.8	0.7	0.7	0.7	0.9
Sodium	mg/L	-	-	0.1	1.3	1.6	1.7	2.4	1.2	1.4	1.3	1.6	1.9	1.8	1.8	2.3
Sulfate	mg/L	-	-	0.2	1.4	1.3	1.3	1.4	1.4	1.3	1.4	1.5	1.1	1.2	1.2	1.4
Sum of Ions	mg/L	-	-	1	29	37	31	44	34	24	25	35	29	32	28	44
Organics																
Chlorophyll a	mg/m^3	-	-	0.1	1.0[m]	3.0	3.0	0.1	1.8	2.8	2.4	<0.1	3.3	4.6	2.9	<0.1
Total Metals																
Aluminum	mg/L	0.005-0.1[e]	0.005-0.1[e]	0.0005	0.0031	0.0036	0.0026	0.0035	0.0031	0.0035	0.0040	0.0024	0.0017	0.0030	0.0025	0.0054[m]
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	µg/L	5	5	0.1	0.2	0.1	0.1	0.1	0.1	<0.1	<0.1	0.1	0.1	0.1	0.1	0.2

Table 4.3-2: Summary of Water Chemistry Results for Samples Collected from Black Lake, Spring 2010 to Winter 2011 (continued)

Parameters	Unit	Guidelines		Detection Limit	BKL-01			BKL-01W	BKL-02				BKL-03			
		SSWQO[a]	CWQG[b]		5/29/2010	8/25/2010	9/25/2010	2/21/2011	5/29/2010	8/25/2010	9/26/2010	2/21/2011	5/29/2010	8/25/2010	9/26/2010	2/20/2011
					n = 2	n = 1	n = 2	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1	n = 2
Barium	mg/L	-	-	0.0005	0.0042	0.0044	0.0043	0.0042	0.0040	0.0048	0.0043	0.0045	0.0045	0.0047	0.0041	0.0048
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	1.5	0.01	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.01	0.02
Cadmium	mg/L	0.000017[f]	0.000006[f]	0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	0.00001	0.00001	<0.00001
Chromium	mg/L	-	0.0010/0.0089[g]	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.002[h]	0.002[h]	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Iron	mg/L	0.3	0.3	0.0005	0.055	0.017	0.021	0.040	0.046	0.018	0.024	0.010	0.086	0.026	0.020	0.040
Lead	mg/L	0.001[i]	0.001[i]	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Manganese	mg/L	-	-	0.0005	0.0097	0.010	0.019	0.0044	0.0061	0.015	0.0051	0.0040	0.034	0.028	0.022	0.0062
Mercury	µg/L	0.026[j]	0.026[j]	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum	mg/L	-	0.073	0.0001	0.0002	0.0001	0.0001	<0.0001	0.0002	0.0001	0.0002	0.0001	<0.0001	<0.0001	0.0001	<0.0001
Nickel	mg/L	0.025[k]	0.025[k]	0.0001	0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001[n]
Selenium	mg/L	0.001[l]	0.001[l]	0.0001	<0.0001	<0.0001	0.0002	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Silver	mg/L	0.0001	0.0001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Strontium	mg/L	-	-	0.0005	0.021	0.035	0.042	0.061	0.018	0.029	0.022	0.032	0.052	0.048	0.048	0.064
Thallium	mg/L	-	0.0008	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	mg/L	-	-	0.0001	0.0010	0.0005	0.0008	<0.0001	0.0008	0.0008	0.0009	<0.0001	0.0013	0.0008	0.0010	<0.0001
Titanium	mg/L	-	-	0.0002	0.0002[n]	0.0003	<0.0002	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002[n]
Uranium	µg/L	15	15	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	mg/L	0.03	0.03	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005
Radionuclides																
Lead-210	Bq/L	-	-	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Radium-226	Bq/L	-	-	0.005	0.008	0.008	<0.005[o]	<0.005	0.005	0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005
Thorium-230	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Notes: Values that are equal to or exceed the SSWQO are **bolded**. Values that are equal to or exceed the CWQG are underlined. Non-detected values that are higher than one or more guideline are *italicized*. Date: mm/dd/yyyy.

[a] Saskatchewan Environment's (2006) Saskatchewan Surface Water Quality Objectives (SSWQO).

[b] Canadian Council of Ministers of the Environment's (CCME) Canadian water quality guidelines (CWQG) for the protection of aquatic life - freshwater (CCME 2012).

[c] The guidelines for dissolved oxygen for cold-water biota are 9.5 mg/L for early life stages and 6.5 mg/L for other life stages.

[d] The guidelines for ammonia are dependent on temperature and pH; therefore, the guideline for each station was calculated and the lowest overall value was used for screening.

[e] The guidelines for aluminum are pH-dependent; the guideline is 0.005 mg/L at pH<6.5; 0.1 mg/L at pH>6.5. Field pH values were used in the screening.

[f] The SSWQO for cadmium is hardness-dependent; for hardness ranging from 0 to 48.5 mg/L as $CaCO_3$, the guideline is 0.017 µg/L. The CWQG is also hardness dependent; this guideline was calculated using the equation ($10^{0.86 \times [\log10(\text{hardness})] - 3.2}$); based on a mean hardness of 13.3 mg/L as $CaCO_3$ for Black Lake, the guideline is 0.006 µg/L.

[g] The guideline for chromium is speciation-dependent; the guideline is 0.0089 mg/L for trivalent chromium and 0.0010 mg/L for hexavalent chromium.

[h] The guidelines for copper are hardness-dependent; at hardnesses ranging from 0 to 120 mg/L as $CaCO_3$, the guideline is 0.002 mg/L.

[i] The guidelines for lead are hardness-dependent; at hardnesses ranging from 0 to 60 mg/L as $CaCO_3$, the guideline is 0.001 mg/L.

[j] Mercury objective is for inorganic mercury only.

[k] The guidelines for nickel are hardness-dependent; at hardnesses ranging from 0 to 60 mg/L as $CaCO_3$, the guideline is 0.025 mg/L.

[l] Selenium guideline is based on waterborne exposure. However, selenium has a bioaccumulation pathway similar to mercury; therefore, the guideline may not be protective of effects through reproductive impairment due to material transfer, resulting in embryo toxicity and teratogenicity (Chapman et al. 2009).

[m] Data variable and outside QAQC limits.

[n] When results were less than detection limit, non-detect values were replaced with one half the detection limit to calculate the mean.

[o] Average was less than the detection limit, but one value was detected.

mg/L = milligrams per litre; µS/cm = microSiemens per centimetre; ºC = degrees Celsius; mg/m^3 = milligrams per cubic metre; µg/L = micrograms per litre; Bq/L = Becquerels per litre; mm/dd/yyyy = month/day/year; n = number of samples; mg $CaCO_3$/L = milligrams of calcium carbonate per litre; < = less than; - = not applicable or not collected.

Radionuclide levels were generally measured at or below detection limits in Black Lake. Concentrations of Radium 226 were slightly higher than the detection limit in the spring 2010 sample.

4.3.2.3 Sediment Quality

Sediment chemistry results collected during the fall sampling session from Black Lake are presented in Table 4.3-3. These results were screened against the CCME ISQG and Probable Effects Level (PEL) guidelines (CCME 2002). Sediment particle size composition differed between sample locations in Black Lake. Fine sand was the dominant substrate present at BKL-01, with coarse sand, and silt also present in the sediment. The sediment at stations BKL-02 and BKL-03 was mainly composed of silt (77% to 79%) with some clay present at these locations (13% to 22%). Moisture content in the sediments was lower at BKL-01 due to the amount of sand present. Total organic carbon levels were low in each of the sediment samples. Nutrient levels varied between sampling stations, nitrogen was the dominant nutrient present in the sediment at stations BKL-02 and BKL-03 (2,450 to 3,950 micrograms per gram [µg/g]), and phosphorus was dominant at station BKL-01 (1,540 µg/g). Metal concentrations were variable between the sample locations in Black Lake. Arsenic exceeded the ISQG guideline value of 5.9 µg/g at BKL-01 (17.0 µg/g) and BKL-02 (7.9 µg/g). No other exceedances were observed during the baseline sediment sampling.

Table 4.3-3: Sediment Chemistry Results for Samples Collected from Black Lake, Fall (September) 2010

Parameter Group	Parameter	Unit	CCME ISQG[(a)]	PEL[(b)]	Detection Limit	Stations		
						BLK-01A	BLK-02	BLK-03
						09/25/2010	09/26/2010	09/26/2010
Physical Properties	Gravel	%	-	-	0.10	<0.10	<0.10	<0.10
	Coarse Sand	%	-	-	0.10	18.5	0.48	0.11
	Fine Sand	%	-	-	0.10	50.3	7.83	1.00
	Silt	%	-	-	0.10	28.9	78.5	77.0
	Clay	%	-	-	0.10	2.30	13.2	21.9
	Loss on Ignition	%	-	-	-	14.81	6.49	41.08
	Moisture Content	%	-	-	0.01	67.88	75.30	76.60
Nutrients	Nitrite+Nitrate Nitrogen	µg/g	-	-	0.5	<0.5	<0.5	<0.5
	Total Kjeldahl Nitrogen	µg/g	-	-	5	115	2,450	3,950
	Total Nitrogen	µg/g	-	-	5	115	2,450	3,950
	Total Organic Carbon	%	-	-	-	2.29	2.76	5.39
	Total Phosphorus	µg/g	-	-	1 - 50	1,540	1,100	750
Metals	Aluminum	µg/g	-	-	20	5,300	10,400	9,200
	Antimony	µg/g	-	-	0.2	<0.2	<0.2	<0.2
	Arsenic	µg/g	5.9	17	0.1	**17**	**7.9**	4.2
	Barium	µg/g	-	-	0.5 - 20	520	140	97
	Beryllium	µg/g	-	-	0.1	0.6	0.6	0.6
	Boron	µg/g	-	-	1	<1	<1	<1
	Cadmium	µg/g	0.6	3.5	0.1	0.2	0.3	0.2
	Chromium	µg/g	37.3	90	0.5	14	32	24
	Cobalt	µg/g	-	-	0.2	9.9	9.3	4.4
	Copper	µg/g	35.7	197	0.5	6.2	13	9.3

Table 4.3-3: Sediment Chemistry Results for Samples Collected from Black Lake, Fall (September) 2010 (continued)

Parameter Group	Parameter	Unit	CCME ISQG[a]	PEL[b]	Detection Limit	Stations		
						BLK-01A	BLK-02	BLK-03
						09/25/2010	09/26/2010	09/26/2010
Metals	Iron	µg/g	-	-	20	46,000	33,100	21,700
	Lead	µg/g	35	91.3	0.1	7.5	9.5	8.8
	Manganese	µg/g	-	-	20	7,500	3,100	540
	Molybdenum	µg/g	-	-	0.1	5.6	2.7	1.4
	Nickel	µg/g	-	-	0.1	12	22	13
	Selenium	µg/g	-	-	0.1	0.4	0.6	0.6
	Silver	µg/g	-	-	0.1	<0.1	<0.1	<0.1
	Strontium	µg/g	-	-	0.5	42	56	58
	Thallium	µg/g	-	-	0.2	0.2	0.2	<0.2
	Tin	µg/g	-	-	0.1	0.5	0.3	0.6
	Titanium	µg/g	-	-	20	370	910	510
	Uranium	µg/g	-	-	0.1	3.3	5.9	4.3
	Vanadium	µg/g	-	-	0.1	37	48	36
	Zinc	µg/g	123	315	0.5	42	60	42
Radionuclides	Lead-210	Bq/g	-	-	0.04	0.40	0.27	0.46
	Polonium-210	Bq/g	-	-	0.01	0.50	0.31	0.44
	Radium-226	Bq/g	-	-	0.01	0.23	0.11	0.07
	Thorium-230	Bq/g	-	-	0.02	0.04	0.03	0.03

Note: Values greater than or equal to ISQGs are **bolded**. Values greater than or equal to PELs are **bolded** and underlined.
Non-detect values that have detection limits that are greater than guidelines are *italicized*.
[a] ISQG = Interim Freshwater Sediment Quality Guidelines (CCME 2002).
[b] PEL = Probable Effect levels (CCME 2002).
CCME = Canadian Council of Ministers of the Environment; % = percentage; µg/g = micrograms per gram; Bq/g = Becquerels per gram; < = less than; - = not applicable.

4.3.3 Middle Lake

4.3.3.1 Physical Limnology and Vertical Structure

A summary of limnology and supporting environmental data collected for Middle Lake is provided in Appendix III.5, Tables III.5-1 to III.5-4 for Spring, Summer, and Fall 2010, as well as Winter 2011 sample periods.

Water temperature during the open water season varied between 3°C and 15°C with increases during the spring, followed by decreases in the fall. Winter water temperature measured at the ice water interface at two shallow water stations was 0.1°C. Temperature profiles were vertically homogeneous during spring, summer and fall sampling events (Figures 4.3-5 to 4.3-8). This indicated that the water column in Middle Lake is well mixed throughout the open water season. The uniform temperature conditions observed in Middle Lake are likely to be a reflection of its shallow depth, as well as the movement of water from the Fond du Lac River through its widening at Middle Lake. Profile sampling could not be completed in Middle Lake during the winter field session because deeper areas (including previously sampled stations) could not be accessed due to thin ice or open water conditions.

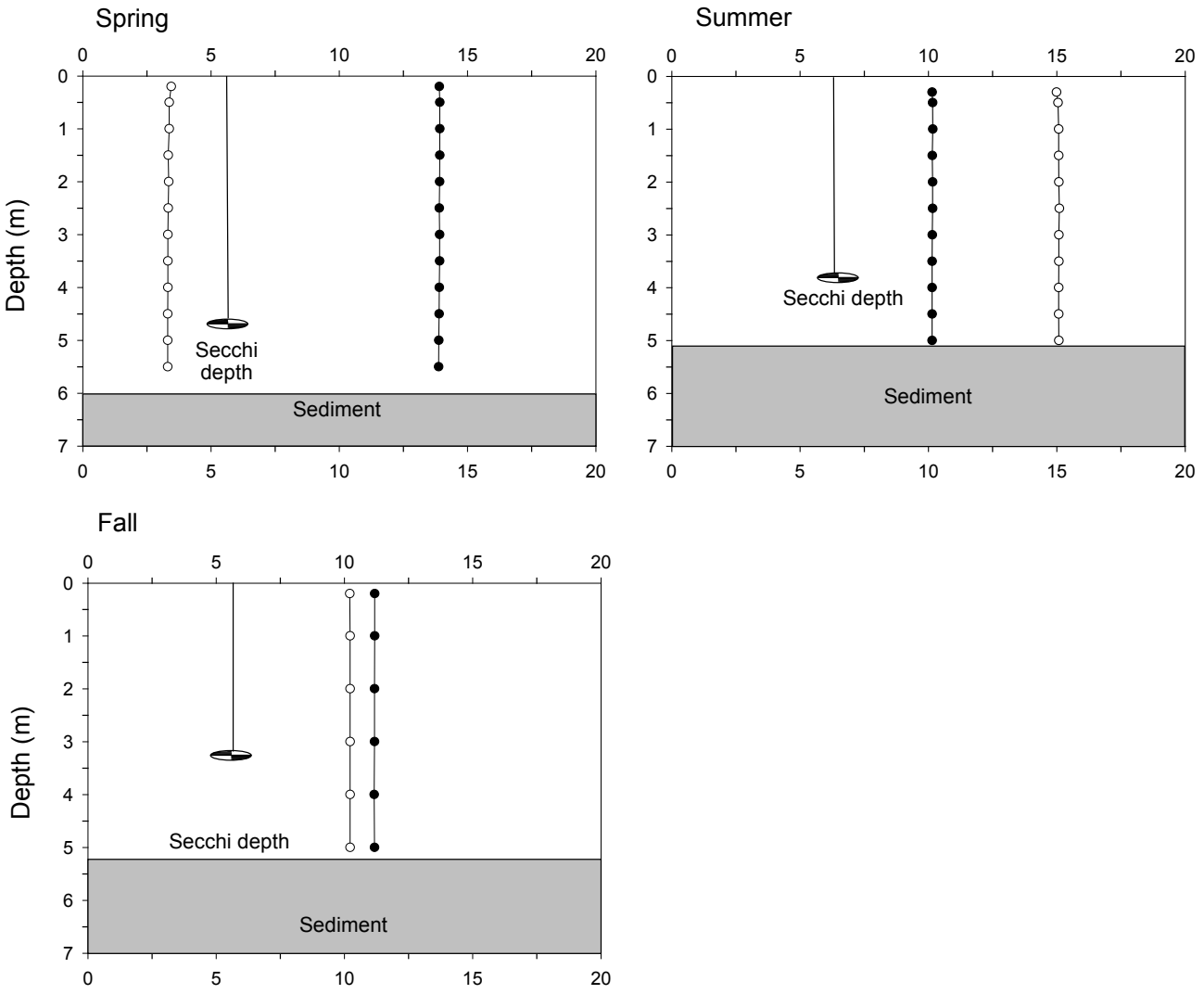


Figure 4.3-5: Spring, Summer, and Fall Limnology Profiles Taken at Station MLL-01. Vertical Depth Profile Sampling Was Not Completed in Middle during Winter. Black Markers Represent Dissolved Oxygen Concentrations (mg/L); White Markers Represent Temperature Data (°C).

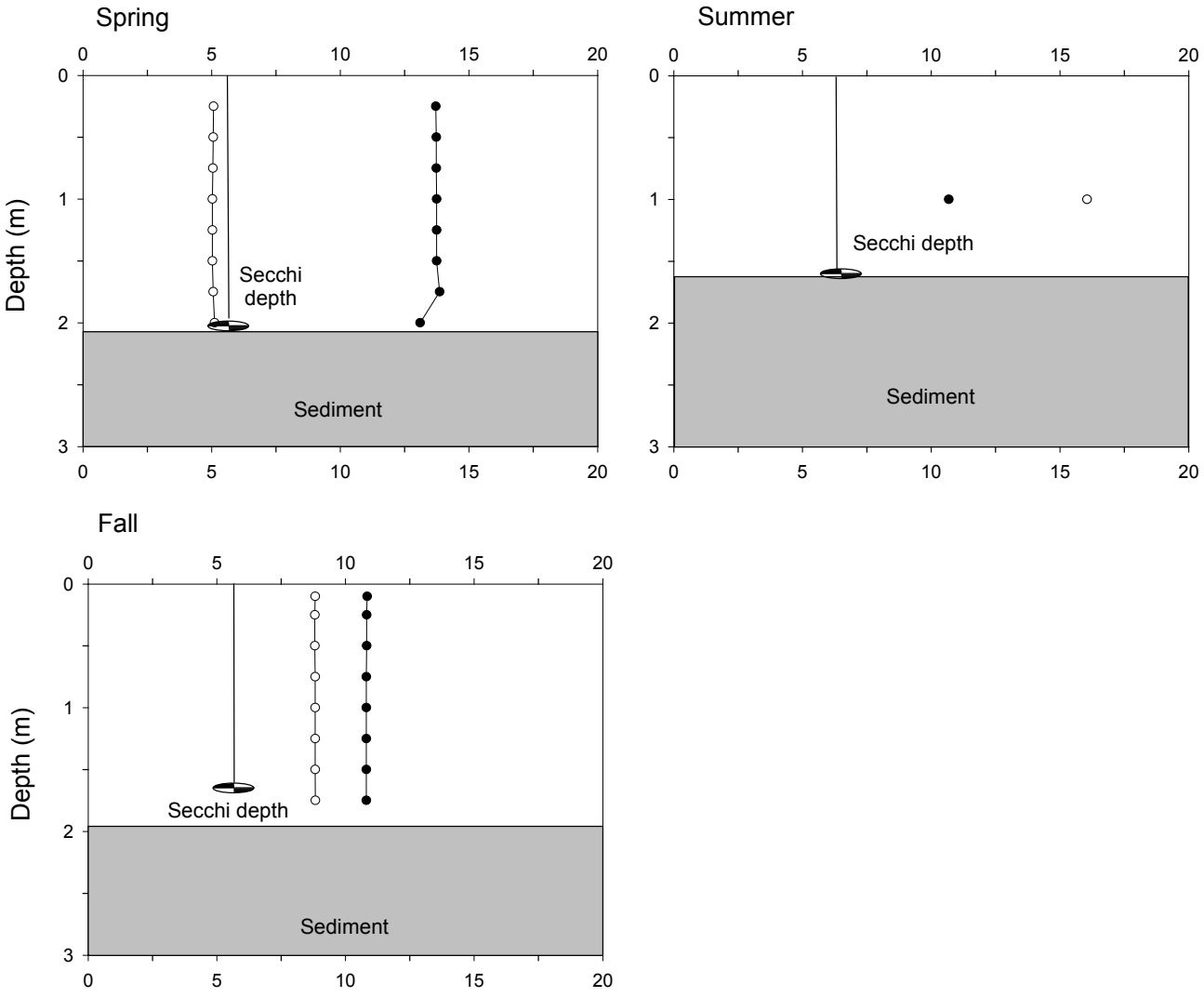


Figure 4.3-6: Spring, Summer, and Fall Limnology Profiles Taken at Station MLL-02. Vertical Depth Profile Sampling Was Not Completed in Middle Lake during Winter. Black Markers Represent Dissolved Oxygen Concentrations (mg/L); White Markers Represent Temperature Data (°C).

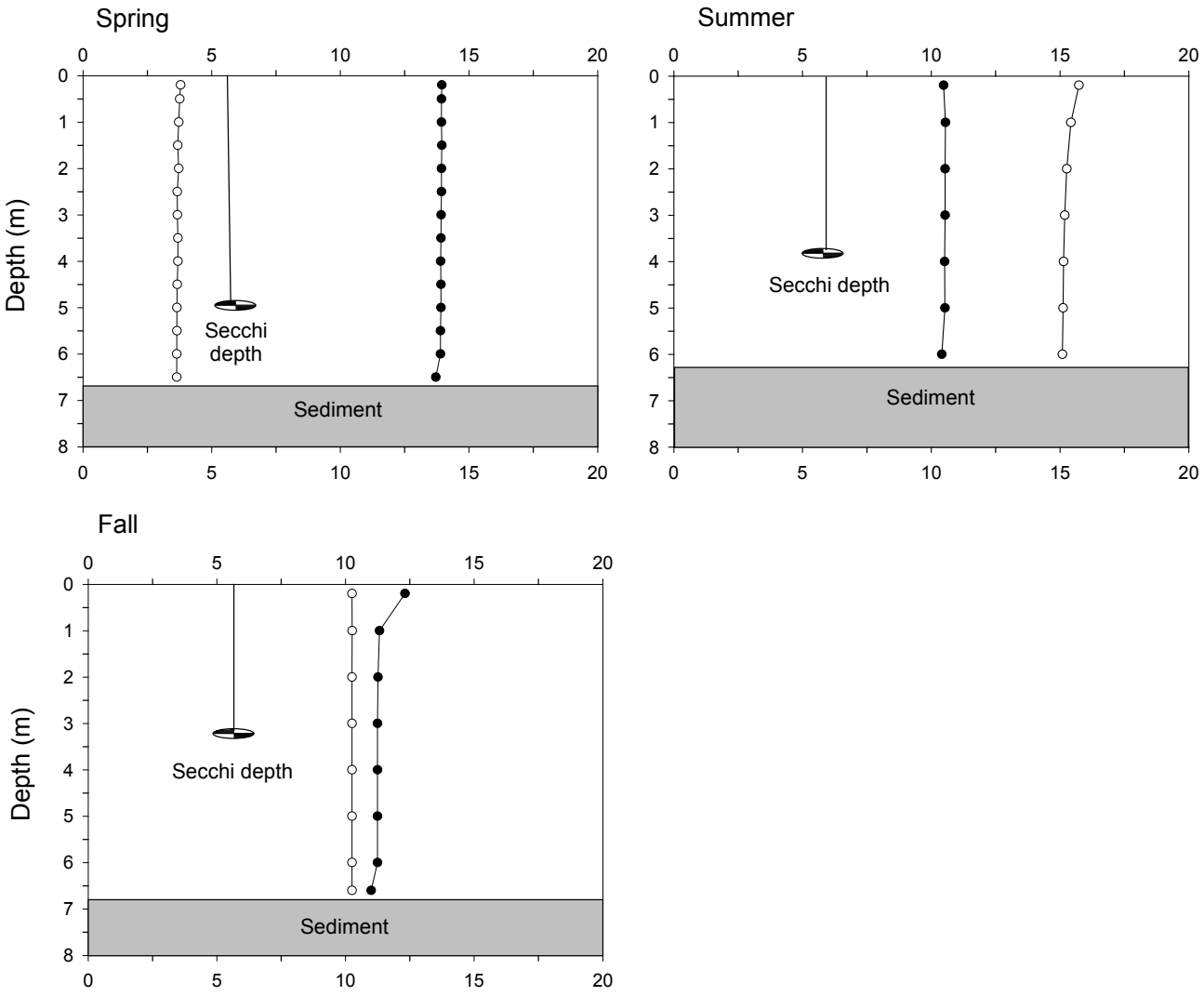


Figure4.3-7: Spring, Summer, and Fall Limnology Profiles Taken at Station MLL-03. Vertical Depth Profile Sampling Was Not Completed in Middle Lake during Winter. Black Markers Represent Dissolved Oxygen Concentrations (mg/L); White Markers Represent Temperature Data (°C).

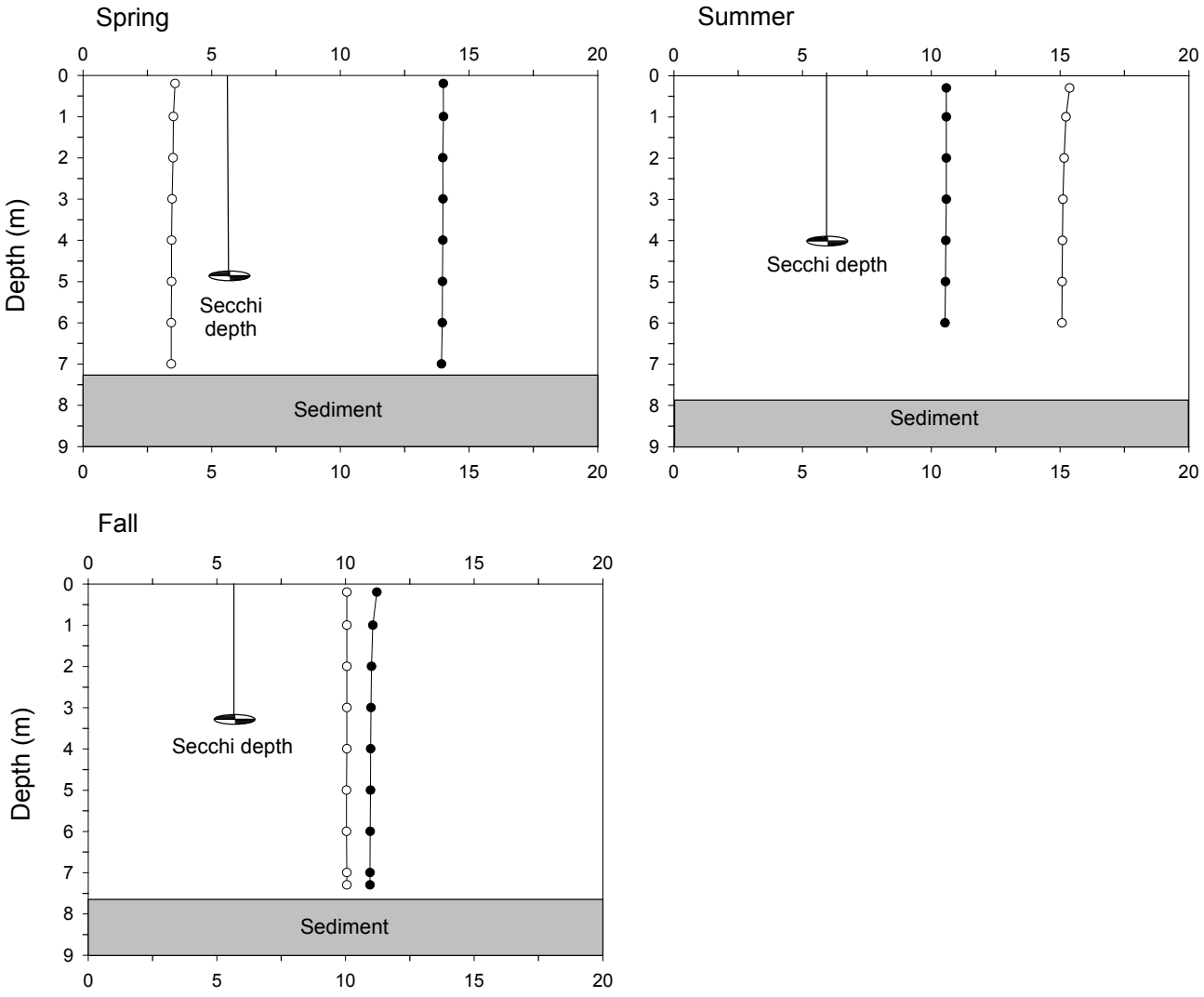


Figure 4.3-8: Spring, Summer, and Fall Limnology Profiles Taken at Station MLL-04. Vertical Depth Profile Sampling Was Not Completed in Middle Lake during Winter. Black Markers Represent Dissolved Oxygen Concentrations (mg/L); White Markers Represent Temperature Data (°C).

Dissolved oxygen concentrations in Middle Lake were high during all sampling events, indicating that the lake is well oxygenated year round. Dissolved oxygen (DO) levels during the open water season were generally higher in spring (13.1 to 14 mg/L) compared to summer (10.0 to 10.7 mg/L) and fall (10.8 to 12.3 mg/L). Profile sampling during spring, summer and fall indicated that DO concentrations were uniform throughout the water column at all sampled stations. High oxygenation was measured at the ice-water interface during winter, with concentrations ranging from 14.4 to 14.8 mg/L.

Conductivity levels in Middle Lake were low, indicating that the water is of low ionic strength. Conductivity levels during the open water season ranged between 32 and 36 µS/cm and were similar at all sampled stations and depths. Conductivity was slightly higher in winter and ranged between 42 and 44 µS/cm.

The pH of Middle Lake followed a similar pattern to that observed in Black Lake, with slightly lower pH levels measured in spring (6.6 to 6.7) compared to summer (7.3 to 7.5), fall (7.0 to 7.1) and winter (7.4). Although pH was lower in spring, values were above the lower limit specified for the protection of aquatic life (6.5).

4.3.3.2 Surface Water Quality

A summary of the available water chemistry data for Middle Lake is provided in Table 4.3-4. Detailed water chemistry results, including results of quality control samples collected during the baseline sampling are provided in Appendix III.6, Table III.6-1.

Water quality conditions in Middle Lake were similar to those observed in Black Lake. The water in Middle Lake is soft, having a median hardness of 11.7 mg/L during open water conditions and 14.6 mg/L during under-ice conditions (Table 4.3-4). The concentrations of TDS were generally low during the open water season (i.e., spring summer and fall) and under-ice conditions, (medians of 29.8 and 41.5 mg/L, respectively), indicating a small amount of dissolved substances present in the water. Total suspended solids were generally measured at or below the detection limit (1.0 mg/L) during under ice and open water conditions, indicating that Middle Lake water is very clear and contains very little suspended substances.

Bicarbonate was the dominant ion measured within middle Lake, and hydroxide was measured at or below the detection limit during most sampling events. Calcium and chloride were the major cations measured in Middle Lake. There was no notable spatial difference in the concentration of major ions within Middle Lake and concentrations did not vary appreciably between under ice and open water sampling periods.

The concentrations of inorganic nitrogen compounds, such as ammonia, nitrate, and nitrite were generally low within Middle Lake, or fell below detection, during open water and under ice conditions. Total and dissolved phosphorus levels were generally below their detection limit of 0.01 mg/L, while nitrogen levels ranged from below the detection limit to 0.25 mg/L. Nutrient levels were generally similar between the three sample locations and did not vary appreciably between spring, summer, fall and winter sample sessions. Likewise, chlorophyll *a* concentrations fell below the detection limit during winter and were detected at low levels during the open water period (median of 2.5 mg/m^3). The observed concentrations of nutrients and chlorophyll *a* indicate that Middle Lake is an oligotrophic waterbody, having low biological productivity.

The concentrations of most metals were generally near or below detection limits, with little variability measured between sample sites. No exceedances of applicable aquatic life guidelines were observed within Middle Lake with one exception. Baseline concentrations of cadmium exceeded the current CWQG for protection of aquatic life (0.006 µg/L) because the method detection limit (0.01 µg/L) also exceeds the guideline (CCME 2012); however, this highly conservative guideline is currently under federal review and revision.

Radionuclide levels were generally measured at or below detection limits in Middle Lake. Concentrations of Radium 226 were slightly higher than the detection limit in the spring 2010 sample.

Table 4.3-4: Summary of Water Chemistry Results for Samples Collected from Middle Lake, Spring 2010 to Winter 2011

Parameters	Unit	Guidelines		Detection Limit	Middle Lake							
					MLL-01			MLL-01W	MLL-03			MLL-03W
		SSWQO[a]	CWQG[b]		5/27/2010	8/26/2010	9/27/2010	2/22/2011	5/27/2010	8/26/2010	9/27/2010	2/22/2011
					n=1	n = 2	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1
Conventional Parameters (Field-Measured)												
Dissolved Oxygen	mg/L	6.5/9.5[c]	6.5/9.5[c]	-	13.9	10.2	11.2	14.5	13.9	10.6	12.3	14.8
pH	pH Unit	-	6.5-9.0	-	6.6	7.3	7.1	7.4	6.6	7.5	7.1	7.4
Specific Conductivity	µS/cm	-	-	-	35	35	35	44	36	35	35	43
Water Temperature	°C	-	-	-	3.45	15.1	10.22	0.09	3.79	15.73	10.26	0.14
Conventional Parameters (Laboratory-Measured)												
pH	pH Unit	-	6.5-9.0	0.07	7.15	7.28	7.28	7.11	7.13	7.23	7.26	7.11
Specific Conductivity	µS/cm	-	-	1	38	38	36	42	38	36	36	44
Total Alkalinity	mg/L	-	-	1	20	17	12	25	12	15	14	26
Total Hardness	mg/L	-	-	1	13	13	13	15	13	13	13	16
Total Dissolved Solids	mg/L	-	-	1	31	31	26	41	31	29	25	42
Total Suspended Solids	mg/L	-	-	1	2	<1	1	<1	1	<1	1	<1
Nutrients												
Ammonia as Nitrogen	mg/L	0.855[d]	0.855[d]	0.01	<0.01	0.02[n]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate	mg/L	-	13	0.04	0.13	0.165[m]	<0.04	0.09	0.09	<0.04	<0.04	0.09
Nitrite+Nitrate as Nitrogen	mg/L	-	-	0.01	0.03	0.04	<0.01	0.02	0.02	0.01	<0.01	0.02
Total Kjeldahl Nitrogen	mg/L	-	-	0.05	0.22	0.19	0.15	0.19	0.16	0.15	0.14	0.26
Total Nitrogen	mg/L	-	-	0.05	0.25	0.23	0.15	0.21	0.18	0.16	0.14	0.28
Total Phosphorus	mg/L	-	-	0.01	0.02	0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01
Dissolved Phosphorus	mg/L	-	-	0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01
Major Ions												
Bicarbonate	mg/L	-	-	1	24	21	15	30	15	18	17	32
Calcium	mg/L	-	-	0.1	3.1	3.2	3.1	3.6	3.1	3.1	3.1	3.9
Carbonate	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1
Chloride	mg/L	-	120	0.1	3.6	2.5	2.4	3.7	4.0	2.4	2.5	4.0
Hydroxide	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	-	-	0.1	1.2	1.2	1.2	1.5	1.2	1.2	1.2	1.5
Potassium	mg/L	-	-	0.1	0.6	0.7	0.7	0.8	0.6	0.7	0.6	0.8
Sodium	mg/L	-	-	0.1	1.7	1.6	1.5	1.9	1.8	1.6	1.5	1.9
Sulfate	mg/L	-	-	0.2	1.2	1.3	1.3	1.4	1.2	1.2	1.3	1.5
Sum of Ions	mg/L	-	-	1	36	32	25	43	27	28	27	46
Organics												
Chlorophyll a	mg/m^3	-	-	0.1	2.4	2.6	2.4	<0.1	3.1	2.2	3.6	<0.1
Total Metals												
Aluminum	mg/L	0.005-0.1[e]	0.005-0.1[e]	0.0005	0.0032	0.0033	0.0030	0.0044	0.0016	0.0024	0.0028	0.0042
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	µg/L	5	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Table 4.3-4: Summary of Water Chemistry Results for Samples Collected from Middle Lake, Spring 2010 to Winter 2011 (continued)

Parameters	Unit	Guidelines		Detection Limit	Middle Lake							
					MLL-01			MLL-01W	MLL-03			MLL-03W
		SSWQO[a]	CWQG[b]		5/27/2010	8/26/2010	9/27/2010	2/22/2011	5/27/2010	8/26/2010	9/27/2010	2/22/2011
					n=1	n = 2	n = 1	n = 1	n = 1	n = 1	n = 1	n = 1
Barium	mg/L	-	-	0.0005	0.0044	0.0041	0.0042	0.0049	0.0045	0.0037	0.0042	0.0050
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	1.5	0.01	0.01	<0.01	0.01	0.01	0.01	<0.01	0.01	0.01
Cadmium	mg/L	0.000017[f]	0.000006[f]	0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Chromium	mg/L	-	0.0010/0.0089[g]	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.002[h]	0.002[h]	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Iron	mg/L	0.3	0.3	0.0005	0.075	0.011	0.017	0.035	0.078	0.0096	0.017	0.034
Lead	mg/L	0.001[i]	0.001[i]	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Manganese	mg/L	-	-	0.0005	0.025	0.0092	0.013	0.0042	0.027	0.0085	0.013	0.0039
Mercury	µg/L	0.026[j]	0.026[j]	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum	mg/L	-	0.073	0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001
Nickel	mg/L	0.025[k]	0.025[k]	0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001
Selenium	mg/L	0.001[l]	0.001[l]	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001
Silver	mg/L	0.0001	0.0001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Strontium	mg/L	-	-	0.0005	0.040	0.038	0.036	0.045	0.044	0.033	0.036	0.047
Thallium	mg/L	-	0.0008	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	mg/L	-	-	0.0001	0.0011	0.0006	0.0007	<0.0001	0.0008	0.0004	0.0008	<0.0001
Titanium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Uranium	µg/L	15	15	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	mg/L	0.03	0.03	0.0005	0.0014	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Radionuclides												
Lead-210	Bq/L	-	-	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Radium-226	Bq/L	-	-	0.005	0.01	0.005[n]	<0.005	<0.005	0.01	<0.005	<0.005	<0.005
Thorium-230	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Notes: Values that are equal to or exceed the SSWQO are **bolded**. Values that are equal to or exceed the CWQG are underlined. Non-detected values that are higher than one or more guideline are *italicized*. Date: mm/dd/yyyy.

[a] Saskatchewan Environment's (2006) Saskatchewan Surface Water Quality Objectives (SSWQO).

[b] Canadian Council of Ministers of the Environment's (CCME) Canadian water quality guidelines (CWQG) for the protection of aquatic life - freshwater (CCME - 2012).

[c] The guidelines for dissolved oxygen for cold-water biota are 9.5 mg/L for early life stages and 6.5 mg/L for other life stages.

[d] The guidelines for ammonia are dependent on temperature and pH; therefore, the guideline for each station was calculated and the lowest overall value was used for screening.

[e] The guidelines for aluminum are pH-dependent; the guideline is 0.005 mg/L at pH<6.5; 0.1 mg/L at pH>6.5. Field pH values were used in the screening.

[f] The SSWQO for cadmium is hardness-dependent; for hardness ranging from 0 to 48.5 mg/L as $CaCO_3$, the guideline is 0.017 µg/L. The CWQG is also hardness dependent; this guideline was calculated using the equation ($10^{0.86 \times [\log10(\text{hardness})] - 3.2}$); based on a mean hardness of 13.6 mg/L as $CaCO_3$ for Middle Lake, the guideline is 0.006 µg/L.

[g] The guideline for chromium is speciation-dependent; the guideline is 0.0089 mg/L for trivalent chromium and 0.0010 mg/L for hexavalent chromium.

[h] The guidelines for copper are hardness-dependent; at hardnesses ranging from 0 to 120 mg/L as $CaCO_3$, the guideline is 0.002 mg/L.

[i] The guidelines for lead are hardness-dependent; at hardnesses ranging from 0 to 60 mg/L as $CaCO_3$, the guideline is 0.001 mg/L.

[j] Mercury objective is for inorganic mercury only.

[k] The guidelines for nickel are hardness-dependent; at hardnesses ranging from 0 to 60 mg/L as $CaCO_3$, the guideline is 0.025 mg/L.

[l] Selenium guideline is based on waterborne exposure. However, selenium has a bioaccumulation pathway similar to mercury; therefore, the guideline may not be protective of effects through reproductive impairment due to material transfer, resulting in embryotoxicity and teratogenicity (Chapman et al. 2009).

[m] Data variable and outside QAQC limits.

[n] When results were less than detection limit, non-detect values were replaces with one half the detection limit to calculate the mean.

mg/L = milligrams per litre; µS/cm = microSiemens per centimetre; ºC = degrees Celsius; mg/m^3 = milligrams per cubic metre; µg/L = micrograms per litre; Bq/L = Becquerels per litre; mm/dd/yyyy = month/day/year; n = number of samples; mg $CaCO_3$/L = milligrams of calcium carbonate per litre; < = less than; - = not applicable or not collected.

4.3.3.3 Sediment Quality

Sediment chemistry results for Middle Lake are presented in Table 4.3-5. These results were screened against the CCME ISQGs and PEL objective values (CCME 2002). Middle Lake sediments were generally composed of sand (77% to 95%) with some silt (3% to 22%). Organic carbon was low in Middle Lake (0.23% to 1.74%), which is reflective of the amount of sand present in the samples. Nitrogen and phosphorus were present at higher concentrations at MLL-03. The dominant metals in the sediment were iron and aluminum. The concentrations of other metals in the sediment were variable between the two sediment sampling locations; however, no exceedances were observed during the sediment screening.

Table 4.3-5: Sediment Chemistry Results for Samples Collected from Middle Lake, Fall 2010

Parameter Group	Parameter	Unit	CCME ISQG[(a)]	PEL[(b)]	Detection Limit	Stations	
						MLL-01A	MLL-03
Physical Properties	Gravel	%	-	-	0.10	1.96	<0.10
	Coarse Sand	%	-	-	0.10	82.8	15.6
	Fine Sand	%	-	-	0.10	11.9	61.6
	Silt	%	-	-	0.10	3.20	21.7
	Clay	%	-	-	0.10	0.14	1.06
	Loss on Ignition	%	-	-	-	0.78	4.00
	Moisture Content	%	-	-	0.01	44.14	50.55
Nutrients	Nitrite+Nitrate Nitrogen	µg/g	-	-	0.5	<0.5	<0.5
	Total Kjeldahl Nitrogen	µg/g	-	-	5	204	1,450
	Total Nitrogen	µg/g	-	-	5	204	1,450
	Total Organic Carbon	%	-	-	-	0.23	1.74
	Total Phosphorus	µg/g	-	-	1	140	970
Metals	Aluminum	µg/g	-	-	0.5 - 20	4,830	6,600
	Antimony	µg/g	-	-	0.2	<0.2	<0.2
	Arsenic	µg/g	5.9	17	0.1	0.9	5.1
	Barium	µg/g	-	-	0.5	24	61
	Beryllium	µg/g	-	-	0.1 - 5	<5	0.6
	Boron	µg/g	-	-	1	9	4
	Cadmium	µg/g	0.6	3.5	0.1	<0.1	<0.1
	Chromium	µg/g	37.3	90	0.5	10	27
	Cobalt	µg/g	-	-	0.2	1.7	5.0
	Copper	µg/g	35.7	197	0.5	1.5	3.7
	Iron	µg/g	-	-	20	3,400	17,900
	Lead	µg/g	35	91.3	0.1	2.0	3.9
	Manganese	µg/g	-	-	0.5 - 20	93	370
	Molybdenum	µg/g	-	-	0.1	<0.1	0.9
	Nickel	µg/g	-	-	0.1	6.1	14

Table 4.3-5: Sediment Chemistry Results for Samples Collected from Middle Lake, Fall 2010 (continued)

Parameter Group	Parameter	Unit	CCME ISQG[a]	PEL[b]	Detection Limit	Stations	
						MLL-01A	MLL-03
	Selenium	µg/g	-	-	0.1	<0.1	0.2
	Silver	µg/g	-	-	0.1	<0.1	<0.1
	Strontium	µg/g	-	-	0.5	27	30
	Thallium	µg/g	-	-	0.2	<0.2	<0.2
	Tin	µg/g	-	-	0.1	0.4	0.3
	Titanium	µg/g	-	-	20	160	420
	Uranium	µg/g	-	-	0.1	0.7	2.0
	Vanadium	µg/g	-	-	0.1	9.4	29
	Zinc	µg/g	123	315	0.5	11	51
	Lead-210	Bq/g	-	-	0.04	<0.04	0.13
Radionuclides	Polonium-210	Bq/g	-	-	0.01	0.02	0.08
	Radium-226	Bq/g	-	-	0.01	0.03	0.04
	Thorium-230	Bq/g	-	-	0.02	<0.02	<0.02

Note: Values greater than or equal to ISQGs are **bolded**. Values greater than or equal to PELs are **bolded** and underlined.
Non-detect values that have detection limits that are greater than guidelines are *italicized*.
[a] ISQG = Interim Freshwater Sediment Quality Guidelines (CCME 2002).
[b] PEL = Probable Effect levels (CCME 2002).
CCME = Canadian Council of Ministers of the Environment; % = percentage; µg/g = micrograms per gram; Bq/g = Becquerels per gram; < = less than; - = not applicable.

5.0 LOWER TROPHIC COMMUNITIES

5.1 Introduction

The lower trophic community surveys completed in the LSA during the aquatic baseline program included sampling of periphyton, benthic invertebrates, phytoplankton, and zooplankton. These components were surveyed during the Spring, Summer and Fall 2010 field sessions in the following LSA waterbodies: Fond du Lac River, Middle Lake, and Black Lake. A brief description of each of the major functional groups assessed in the lower tropic baseline sampling is provided as follows.

5.1.1 Periphyton

Periphyton is the complex matrix of biotic (i.e., algae, cyanobacteria, and heterotrophic microbes) and abiotic material (i.e., detritus) that is attached to submerged surfaces (i.e., plants, rocks, and other bottom substrates) in aquatic ecosystems. It serves as an important food source for aquatic invertebrates, amphibians, and some fish. Periphyton is also an important indicator of water quality, and the responses of this community may serve as an indicator that is reflective of the health of the ecosystem as a whole. Periphyton sampling was completed in the Fond du Lac River to provide a baseline estimate of abundance and species composition.

5.1.2 Benthic Invertebrate Communities

Benthic invertebrates are aquatic organisms that live in or on the bottom sediments of rivers and lakes. They are an important source of food for forage fish and larvae of piscivorous fish. Many are immature stages of insects such as mayflies (Ephemeroptera), stoneflies (Plecoptera), caddisflies (Trichoptera), and midges (Diptera: Chironomidae). Benthic invertebrates also include non-insect groups such as aquatic worms (Oligochaeta),

leeches (Hirudinea), snails (Gastropoda), clams (Pelecypoda), crustaceans (e.g., Amphipoda), and mites (Acari). The variety and abundance of these animals is strongly affected by their environment (i.e., water and sediment quality conditions, hydrologic conditions, and physical habitat). For these reasons, benthic invertebrate communities serve as a biological indicator that reflects the overall condition of the aquatic environment. Characterization of baseline benthic communities contributes to the understanding of fish habitat in the Project area and provides information that is necessary to allow the assessment of future Project-related effects.

Benthic invertebrate community sampling was completed in the Fond du Lac River, Middle Lake and Black Lake. This information was used to characterize benthic invertebrate community composition, including species composition, abundance, and biomass. For the purpose of the current assessment, benthic invertebrates are classified into three groups based on their primary habitat requirements. These include erosional benthic invertebrates that live in the bottom substrates of flowing water habitat (i.e., riverine environments) and depositional benthic invertebrates, which are found in the lake bottom sediments (i.e., lacustrine environments). Drifting aquatic invertebrates refer to animals that are captured within the water column of flowing water habitat.

5.1.3 Plankton Communities

The plankton community present within a lake can be divided into two separate functional groups based on trophic level status. These include phytoplankton and zooplankton. Phytoplankton are photosynthesizing, microscopic organisms that inhabit the upper sunlit layer of waterbodies. Phytoplankton may be unicellular, colonial, or filamentous in form. Their mobility is limited and their distribution within a waterbody is largely determined by water movement and wind. Zooplankton are microscopic animals that are primarily transported by ambient water currents, although many have limited locomotion. Zooplankton are an important food resource for forage fish and larvae of piscivorous fish, such as lake trout.

Plankton communities in freshwater lakes have the potential to be useful early indicators of environmental change because of their rapid turnover rates. Seasonal succession within the plankton community can be highly variable and natural variation from year to year is a potential confounding factor (Paterson 2002; Wetzel 2001). Seasonal and inter-annual variability are influenced by changes in water temperatures; primary production; plankton community abundance and species composition; and the presence and abundance of predators (i.e., predaceous zooplankton and planktivorous fish) (Olson et al. 2004; Shuter and Ing 1997).

Phytoplankton and zooplankton samples were collected from lakes in the LSA to characterize the baseline plankton community and provide an estimate of species composition, abundance, and biomass. Chlorophyll *a* concentrations were also assessed within Middle Lake and Black Lake to provide an index of phytoplankton biomass, which can be used as a measure of the general productivity (i.e., trophic status) of the lakes (e.g., oligotrophic, mesotrophic, or eutrophic). Chlorophyll *a* is the primary photosynthetic pigment contained in phytoplankton, although there are a number of secondary pigments (e.g., chlorophyll *b*, chlorophyll *c*, and carotenoids) (Wetzel 2001).

5.2 Methods

5.2.1 Sample Location and Timing

Depositional benthic invertebrates were sampled concurrently with sediment sampling (see Section 4.0), in fall 2010 at two locations in Middle Lake and at three locations in Black Lake. In general, depositional benthic invertebrate sampling was completed at established water quality stations in Black Lake and Middle Lake; however, in some cases sampling was carried out at a nearby location, where sediments were suitable to fill the

entire grab sampler. Erosional benthic invertebrates, drifting aquatic invertebrates, and periphyton samples were collected during fall 2010 from two stations in the Fond du Lac River.

Zooplankton and phytoplankton samples were collected during two separate field programs and at several sites within each waterbody to document the variability that is typically observed in plankton communities throughout the open-water season. Sampling was completed during the spring and summer 2010 field programs (Table 5.2-1) at three locations in Black Lake and at two locations in Middle Lake (see Figure 5.2-1).

5.2.2 Sample Collection and Analysis

5.2.2.1 Periphyton

Periphyton sampling locations in the Fond du Lac River were situated in areas of reduced water velocity where water depths were less than 0.5 m. Three rocks (each considered to be a replicate sample) were collected from a 225 square centimetre (cm^2) area (i.e., 15 centimetres [cm] x 15 cm quadrant) associated with each primary sample location (n = 2). A periphyton sample was scraped off of a 20 cm^2 area on each rock (determined by the aid of a plastic template) and transferred into separate 150 millilitre (mL) Nalgene® bottles. Samples were preserved with 2 mL of Lugol's solution. Distilled water was used to submerge the sample and facilitate the addition of the preservative.

Periphyton samples were submitted to TG-Eco-Logic LLC (Darren Brandt/John Stockner), Spokane Valley, Washington, for processing (i.e., taxonomic identification and enumeration). Periphyton components were identified to the lowest practical taxonomic level, which was either genus or species. Cell density (number of cells per square centimetre) and algal biovolume (cubic micrometres per square metre) were calculated for each taxon identified.

5.2.2.2 Benthic Invertebrate Communities

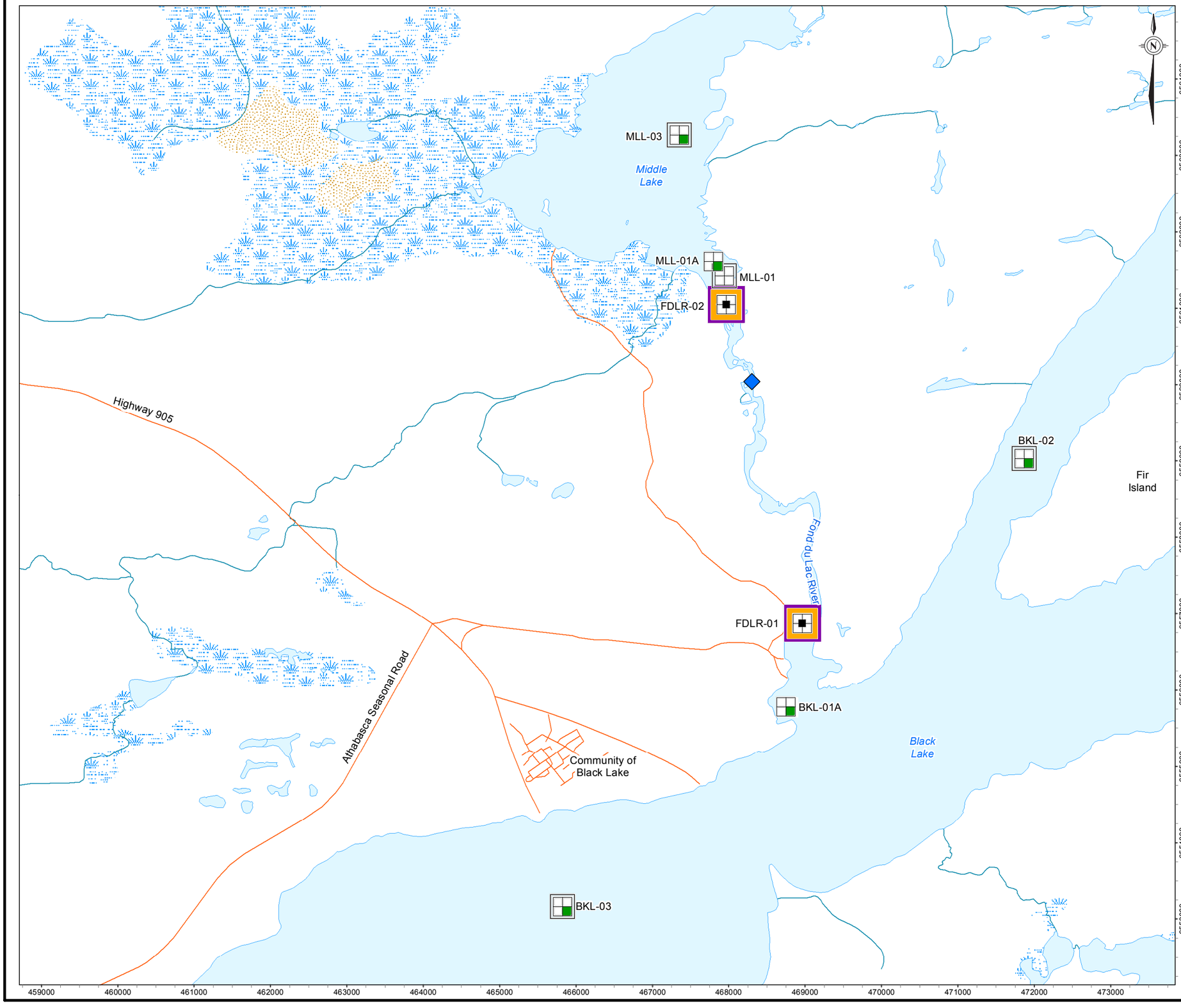
5.2.2.2.1 Lake Environment Sampling

Benthic invertebrate sampling in lake environments (i.e., depositional areas) was completed using a standard Ekman dredge or Petit Ponar grab (area of 0.0232 m^2). At each sample location, five replicate grab samples were collected and combined into a pail to produce a single composite sample. The total volume of sediment was then screened using a 500 micrometre (µm) mesh sieve. The final screened sample was transferred into a 1-litre (L) Nalgene® bottle and preserved with 10% buffered formalin. An additional grab sample was collected at each site for particle size analysis to support benthic habitat characterization (see Section 4.2). Substrate characteristics were also qualitatively assessed at each individual Ekman grab sample location (visual evaluation of colour and texture). Particle size sediment samples were stored in polyethylene bags provided by the analytical lab, double bagged, labelled, and kept cool. Physical properties of the sediment samples, including particle size, LOI, and moisture content, were analyzed by ALS Laboratory Group. Chemical properties of the sediment samples, including total organic carbon (TOC) content, were analyzed by SRC.

Table 5.2-1: Summary of Periphyton, Benthic Invertebrate, and Plankton Sample Locations and Timing (Season)

Area of Interest	UTM Coordinates[a]		Water Depth[b] (m)	Periphyton	Depositional Benthic Invertebrates	Erosional Benthic Invertebrates	Drifting Aquatic Invertebrates	Plankton
	Easting	Northing						
Fond du Lac River								
FDLR-01	468960	6556877	0.3	F	-	F	F	-
FDLR-02	467964	6561051	0.3	F	-	F	F	-
Middle Lake								
MLL-01	467939	6561428	6	-	-	-	-	SP, SU
MLL-01A	467796	6561613	4.8	-	F	-	-	-
MLL-03	467351	6563272	6.8	-	F	-	-	SP, SU
Black Lake								
BKL-01A	468750	6555783	11.4	-	F	-	-	-
BKL-02	471869	6559036	31	-	F	-	-	SP, SU
BKL-03	465823	6553167	25.4	-	F	-	-	SP, SU

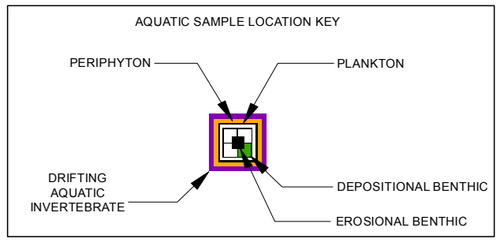
[a] All Universal Transverse Mercator (UTM) are from zone 13, North American Datum 1983 (NAD 83).
[b] Minor differences in water depth occur depending on the sampling season. Value reported was maximum depth measured.
m = metre; SP = spring; SU = summer; F = fall; W = winter; E = easting; N = northing; "-" = not sampled



LEGEND

- ROAD
- RIVER
- WATERBODY
- WETLAND
- ELIZABETH FALLS

AQUATIC SAMPLE LOCATION KEY



REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 13
DMTI HIGHWAYS AND ROADS

1 0 1
SCALE 1:50,000 KILOMETRES

PROJECT

TAZI TWÉ HYDROELECTRIC PROJECT

TITLE

LOWER TROPHIC SAMPLING LOCATIONS, 2010

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.		
DESIGN			SCALE AS SHOWN	REV.	2
GIS	SM/LR	10/07/13	FIGURE: 5.2-1		
CHECK	LT	24/07/13			
REVIEW	BC	24/07/13			

5.2.2.2.2 Riverine Environment Sampling

Two sampling methods were used to collect riverine benthic invertebrates. The first involved the use of a Neil Cylinder to characterize erosional benthic invertebrate communities present on representative stream substrates. Secondly, drift nets were used to sample drifting invertebrates in the water column. Invertebrates commonly enter the water column (i.e., as drift) to move among habitats and to escape unfavourable habitats (Rosenberg and Resh 1984).

A Neil Cylinder equipped with a 250 micrometre (µm) mesh sieve and dolphin bucket were used to collect erosional benthic invertebrates from two sample locations in the Fond du Lac River where water depth and substrate were suitable for lowering the sampler to the stream bottom (i.e., shallow, cobble/gravel areas).

Replicate samples from three sub-stations (spaced approximately 10 m apart) were collected at each of two locations. Substrate captured within the Neil Cylinder (i.e., at each replicate station) was agitated, allowing water flowing through the Neil Cylinder to concentrate displaced material into the terminal bucket. The contents of the terminal bucket were then transferred into 1 lite (L) Nalgene® bottles (one bottle per replicate station for a total of three bottles per site) and preserved with 10% sugar buffered formalin. Supporting information collected at each replicate station included water depth (m), water velocity (m/s), and substrate composition.

Drifting aquatic invertebrate samples were collected concurrently with erosional benthic invertebrate sampling. Drifting aquatic invertebrates were collected using three drift nets, deployed at each of the two sample locations within the Fond du Lac River. Drift nets consisted of 243 µm mesh with an overall length of 103 cm and a rectangular opening measuring 30 cm x 46 cm. Each drift net was positioned at a depth that allowed for approximately 60% to 70% of the net opening to be submerged. The nets were positioned to face upstream and were anchored to the river bottom. Drift nets were deployed within a 100 m^2 area of the primary sample location and left for approximately eight hours. Each net was checked three times during the sample period and the contents of each drift net were emptied into 1 L Nalgene® bottles (i.e., one per drift net) to create a single composite sample (one per net check, totalling three samples per location).

Laboratory analyses of benthic invertebrate samples were conducted in the same manner for both lake and riverine samples. Samples were analysed by Environmental Research and Consulting (Jack Zloty, Ph.D.), Summerland, British Columbia. Invertebrates were identified to the lowest practical taxonomic level, typically family or genus for most invertebrates within the Class Insecta.

5.2.2.3 Plankton Communities

Phytoplankton and chlorophyll *a* samples were collected from within the euphotic zone at each lake environment sample location using a Kemmerer water sampler. The euphotic zone refers to the depth of the water in a lake that is exposed to sufficient sunlight for photosynthesis to occur. Typically, the euphotic depth is considered to be about twice the Secchi depth. Phytoplankton samples were collected every 2 m from the water surface to the bottom of the euphotic zone, and then combined into a carboy to create a composite sample. Sub-samples for phytoplankton community analysis (200 mL) were transferred into 250-mL amber Nalgene® bottles and preserved with 10 mL of DeFano's solution and 10 mL of Lugol's solution. An additional 300 to 400 mL of the remaining composite water sample was filtered through a glass fibre filter in the field to obtain a chlorophyll *a* sample. The filter was placed in a petri dish, wrapped with tinfoil, and frozen prior to being sent for analysis.

Zooplankton samples were collected at each station in Black Lake and Middle Lake using a 30 cm diameter, 63 µm mesh Wisconsin zooplankton net. The zooplankton net was lowered so that the net opening was as

close to the lake bottom as possible without disturbing the bottom sediments, and then pulled vertically (at a rate of about 0.5 m per second) through the water column to the lake surface. Two replicate vertical net hauls were completed at each sampling location and the contents of each sample were combined to produce a single composite sample for each location. The interior of the zooplankton net and terminal bucket were rinsed each time with ambient water. Replicate samples were then concentrated so that collectively, they would fill a 250 mL Nalgene® bottle. Live zooplankton were anesthetised using Alka-Seltzer, and preserved with 5 mL of 10% buffered formalin.

Plankton samples were shipped to Bio-Limno Research and Consulting (Michael Agbeti), Halifax, Nova Scotia for processing (i.e., taxonomic identification and enumeration). Zooplankton and phytoplankton were analyzed to the lowest practical taxonomic level, which was generally either genus or species. For phytoplankton, cell density (number of cells per millilitre) and algal biovolume (cubic micrometres per litre) were calculated for each taxon identified. For zooplankton, animal density (number of individuals per L) and biomass (µg dry weight/L) were calculated for each taxon identified.

5.2.3 Data Analysis

5.2.3.1 Lower Trophic Community Summary Variables

The lower trophic baseline included assessment of the following community descriptors: richness, density, and biomass and/or biovolume. The term richness refers to the number of species or representative taxa (i.e., family, genus) that are present in a sample. Density refers to the abundance of individuals represented per unit area. Biomass describes the total weight of a representative group of organisms per unit volume. Similarly, biovolume refers to the total volume of a representative group per unit area. In general, both density and biomass or biovolume were examined to provide an assessment of the importance of individual taxa. Some taxa may be numerous, but account for a small proportion of biomass due to their relatively small size. Conversely, larger-sized taxa may constitute a greater portion of biomass, but may not be numerically abundant.

Specific data handling and analysis procedures for each of the major functional groups assessed are provided in the following sections.

5.2.3.1.1 Periphyton

Total and average richness, algal cell density, and biovolume were calculated for each sample location in the Fond du Lac River and graphed for comparative purposes. Mean algal density and biovolume were also calculated and graphed independently for each major taxonomic group (Bacillariophyceae, Chlorophyceae, Chryso-&Cryptophyceae, Cyanobacteria, and Dinophyceae) identified.

5.2.3.1.2 Benthic Invertebrates

Total and average richness and mean density were calculated for each waterbody and sampling location. Mean density was also calculated and graphed independently for each major taxonomic group (i.e., Amphipoda, Gastropoda, Pelecypoda, and Diptera) identified.

5.2.3.1.3 Plankton

Total richness, mean algal cell density, and biovolume were calculated for each waterbody and sampling location. Mean algal cell density and biovolume were also calculated and graphed independently for each major taxonomic group identified (Bacillariophyceae, Chlorophyceae, Chryso-&Cryptophyceae, Cyanobacteria, and Dinophyceae).

Total and average zooplankton richness and mean density were calculated for each major taxonomic group (i.e., Rotifera and Crustacea) at each waterbody and sampling location. These results were graphed for comparative purposes. For crustaceans and zooplankton, the relative contribution of each taxonomic group (Chydoridae, Cladocera, Calanoida, Copepoda, and nauplii) identified in each sample was calculated independently.

5.3 Results

5.3.1 Fond du Lac River

5.3.1.1 Periphyton

Periphyton results collected from the Fond du Lac River during the fall 2010 sampling session are provided in Appendix III.7, Table III.7-1 and summarized in Figures 5.3-1 to 5.3-3. Three replicate samples were collected from each of two Fond du Lac River sampling stations. Results were summarized and the mean was presented for each station.

Periphyton total and mean richness were higher at FDL-02 relative to FDL-01 (Figure 5.3-1). Similarly, periphyton density and biomass were higher at FDL-02 relative to FDL-01, but both density and biomass were more variable at FDL-02 (Figure 5.3-2).

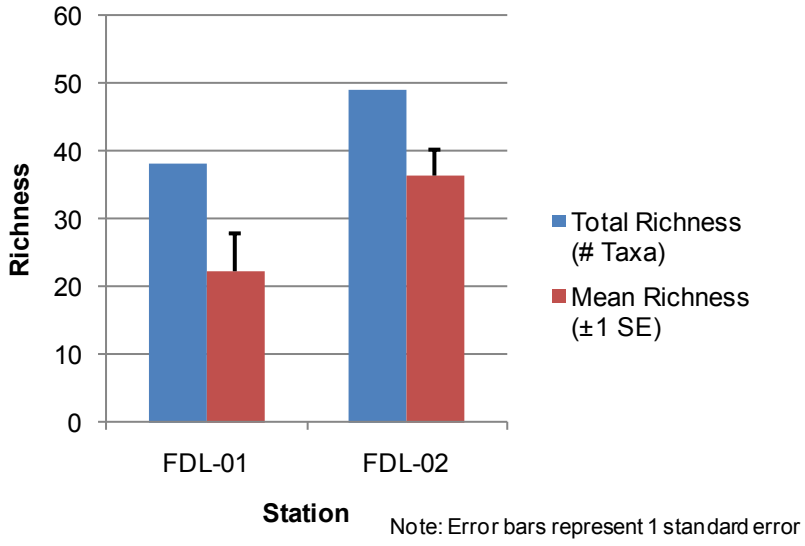


Figure 5.3-1: Periphyton Total and Mean Richness in the Fond du Lac River, Fall 2010

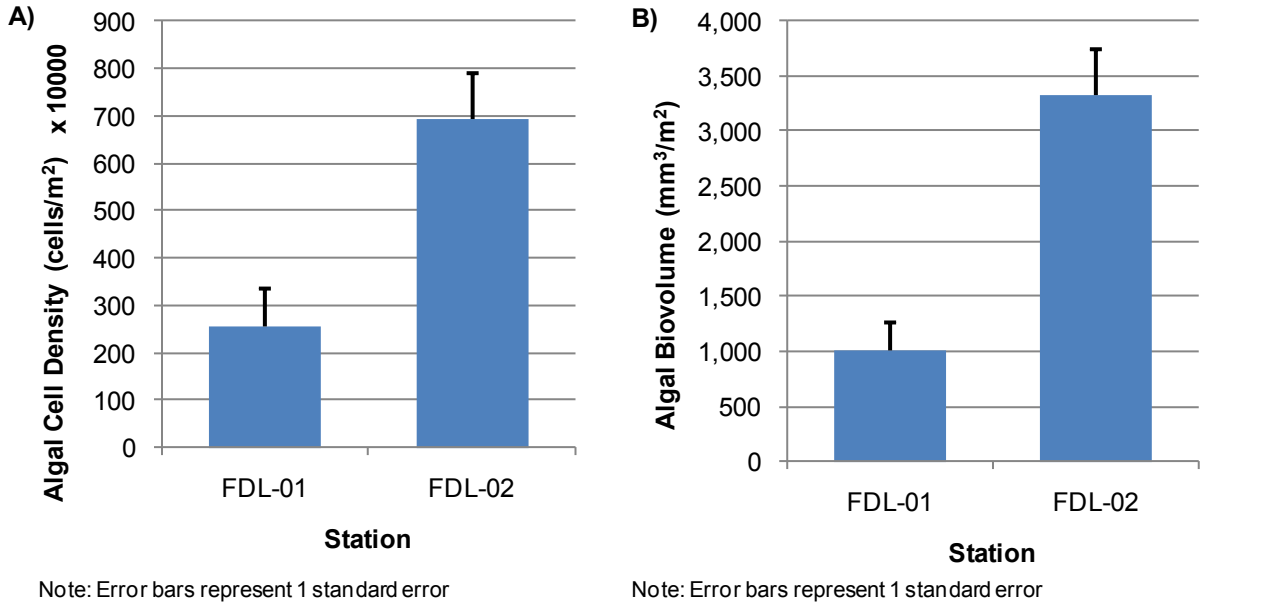


Figure 5.3-2: Periphyton Mean Density (A) and Mean Biomass (B) in the Fond du Lac River, Fall 2010

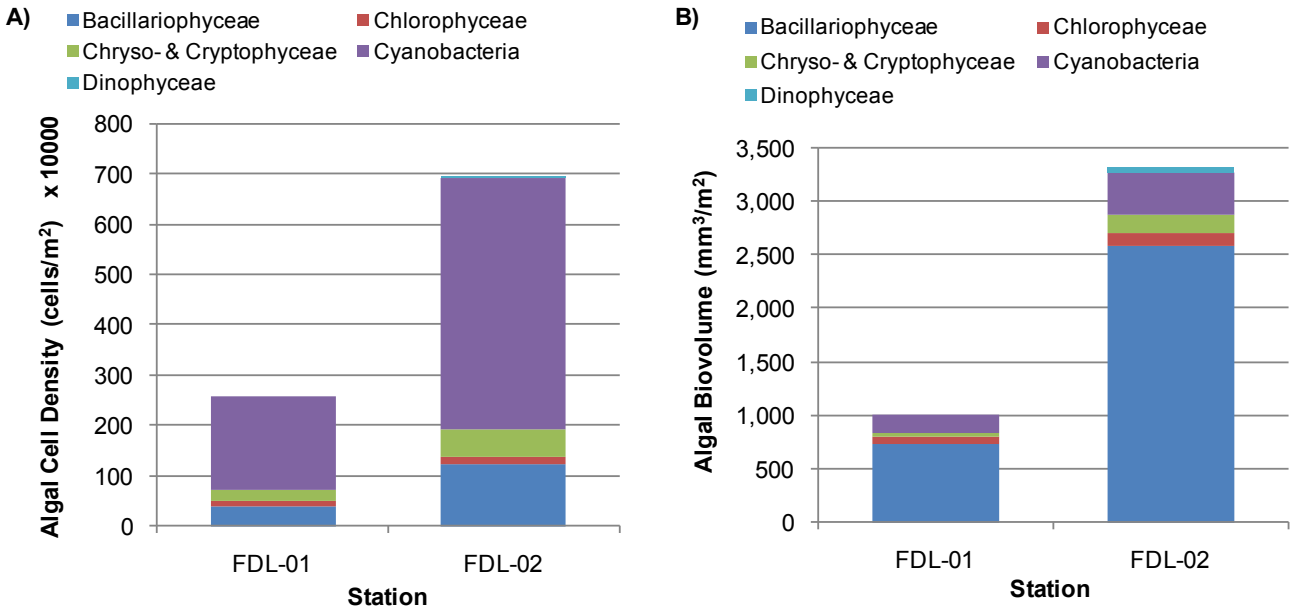


Figure 5.3-3: Periphyton Mean Density (A) and Mean Biovolume (B), by Algal Group, in the Fond du Lac River, Fall 2010

Cyanobacteria (blue-green algae) contributed the most to periphyton cell density (average of 70% at each station) (Figure 5.3-3A); Bacillariophyceae (diatoms) contributed the most to periphyton algal biovolume (average of 75% at each station) (Figure 5.3-3B). *Synechococcus* sp. was the dominant blue-green algae based

on cell density at both FDL-01 and FDL-02. The next most abundant blue-green algae were *Lyngbya* sp. and *Planktothrix* sp. at FDL-01, and *Lyngbya* sp. at FDL-02.

Diatoms contributed the most to periphyton biovolume and richness at all stations. Three diatom taxa were equally dominant at FDL-01: *Tabellaria fenestrata, Didymosphenia geminata* and *Navicula* sp. At FDL-02, two diatom taxa were equally dominant: *Cymbella* sp. and *D. geminata.* Chlorophyceae (green algae), Chyrsophyceae (golden-brown algae), Cryptophyceae (cryptophytes), and Dinophyceae (dinoflagellates) were not abundant at these stations in terms of cell density or biovolume.

5.3.1.2 Erosional Benthic Invertebrates

Results for benthic invertebrates collected from the Fond du Lac River during the fall sampling session are provided in Appendix III.7, Table III.7-2 and in Figures 5.3-4 and 5.3-5. Three replicate samples were collected from each of two stations in the Fond du Lac River. Benthic invertebrate richness and density were summarized as the mean for each station. Water depth, velocity, and substrate composition were similar between sampling stations (Table 5.3-1). Both stations had substrates dominated by cobble and gravel, but there was some organic matter in the substrate at FDL-02.

Table 5.3-1: Physical Characteristics of Erosional Benthic Invertebrate Sampling Sites in the Fond du Lac River

Sample Location	Depth (m)	Velocity (m/s)	Substrate Composition (1 = highest; 5 = lowest)					
			Co	Gr	Sa	Si	Cl	Org
FDL-01-A	0.7	-	1	2	3	4	-	-
FDL-01-B	0.7	-	1	2	3	4	-	-
FDL-01-C	0.5	-	1	2	3	4	-	-
FDL-02-A	0.5	0.75	1	2	3	4	-	5
FDL-02-B	0.5	0.75	1	2	3	4	-	5
FDL-02-C	0.5	0.75	1	2	3	4	-	5

Note: Co = cobble; Gr = gravel; Sa = sand; Si = silt; Cl = clay; Org = organic material; m = metre; m/s = metres per second

Total and mean invertebrate richness were higher at FDL-02 than at FDL-01 (Figure 5.3-4). Invertebrate richness ranged from 19 to 25 taxa at FDL-01 and 34 to 38 taxa at FDL-02 in individual samples. At all stations, richness was highest within the Diptera order, followed by the Trichoptera and Ephemeroptera orders.

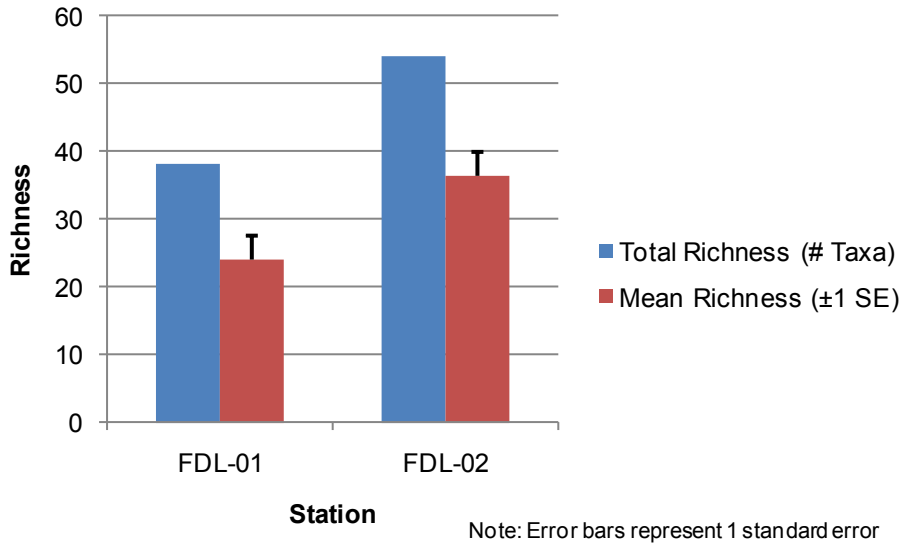


Figure 5.3-4: Total and Mean Richness at Erosional Benthic Invertebrate Sampling Sites in the Fond du Lac River, Fall 2010

Mean total invertebrate density was higher and more variable at FDL-01 compared to FDL-02 (Figure 5.3-5). Diptera, dominated by Thienemannimyia group (midges), contributed the most to invertebrate density at all stations. At FDL-01, Trichoptera (caddisflies) was the sub-dominant taxon and was mostly represented by *Cheumatopsyche* sp. At FDL-02, Pelecypoda (clams) was the sub-dominant taxon and was mostly represented by Pisidiidae. Overall benthic community composition was similar between stations.

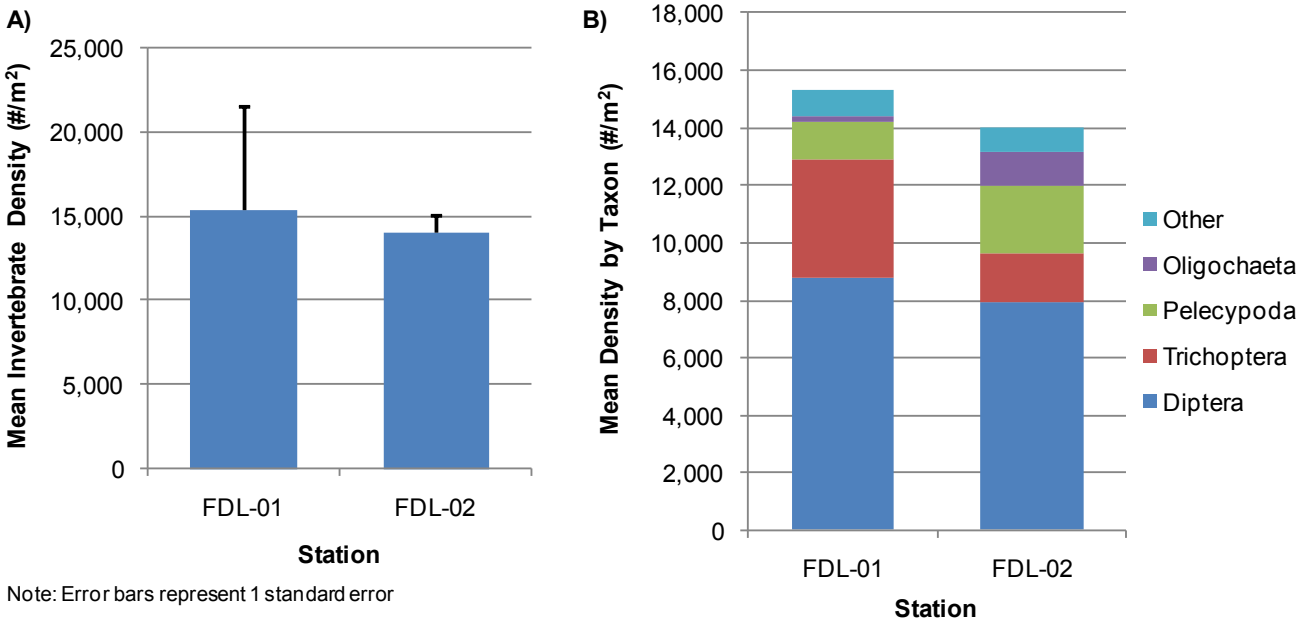


Figure 5.3-5: Erosional Benthic Invertebrate Density in the Fond du Lac River, Fall 2010; Shown as Mean Density (+SE) (A) and Mean Density by Order (B)

5.3.1.3 Drifting Aquatic Invertebrates

Results for drifting aquatic invertebrates collected from the Fond du Lac River during the fall 2010 sampling session are provided in Appendix III.7, Table III.7-1 and Figures 5.3-6 and 5.3-7. Three replicate samples were collected from each of two stations in the Fond du Lac River. Samples were collected over an eight-hour period.

Water depth was similar at the two sampling stations, but velocity varied between sites. FDL-02 had faster currents (Table 5.3-2). Substrate composition was consistent among the replicate sampling locations at FDL-01; substrate data are not available for FDL-02.

Table 5.3-2: Depths and Velocities at the Invertebrate Drift Sampling Sites in the Fond du Lac River, Fall 2010

Location	Depth (m)	Velocity (m/s)	Substrate Composition (1 = highest; 5 = lowest)					
			Co	Gr	Sa	Si	Cl	Org
FDL-01-A	0.65	0.50	1	2	3	4	5	-
FDL-01-B	0.75	0.24	1	2	3	4	5	-
FDL-01-C	0.65	0.23	1	2	3	4	5	-
FDL-02-A	0.61	0.61	-	-	-	-	-	-
FDL-02-B	0.49	0.78	-	-	-	-	-	-
FDL-02-C	0.48	1.04	-	-	-	-	-	-

Note: Co = cobble; Gr = gravel; Sa = sand; Si = silt; Cl = clay; Org = organic material; - = not available; m = metre; m/s = metres per second

Richness and density results are provided as total and/or mean values for each station. These are results for the entire sample and not numbers per hour. Total richness of drifting invertebrates was higher at FDL-01 compared to FDL-02, but mean richness was similar between stations (Figure 5.3-6). Richness in replicate samples ranged between 11 to 21 taxa at FDL-01 and 13 to 21 taxa at FDL-02.

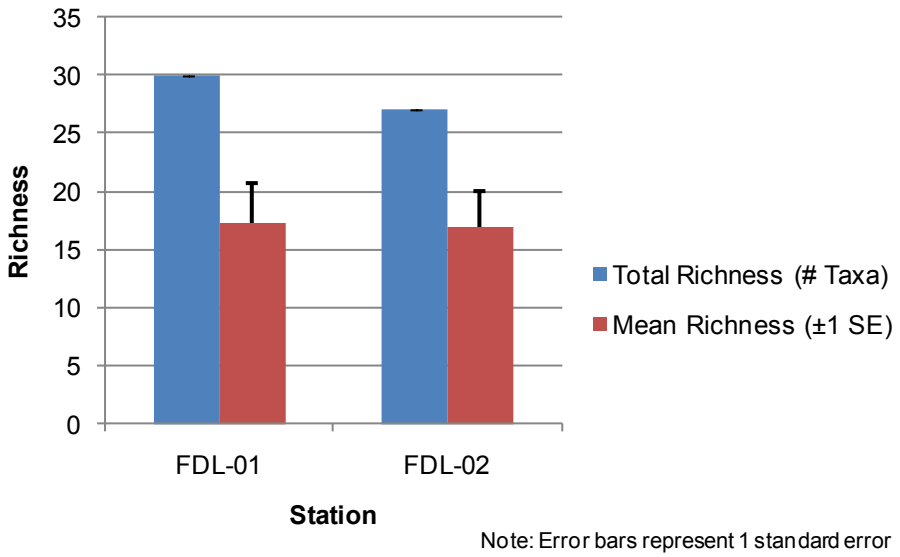
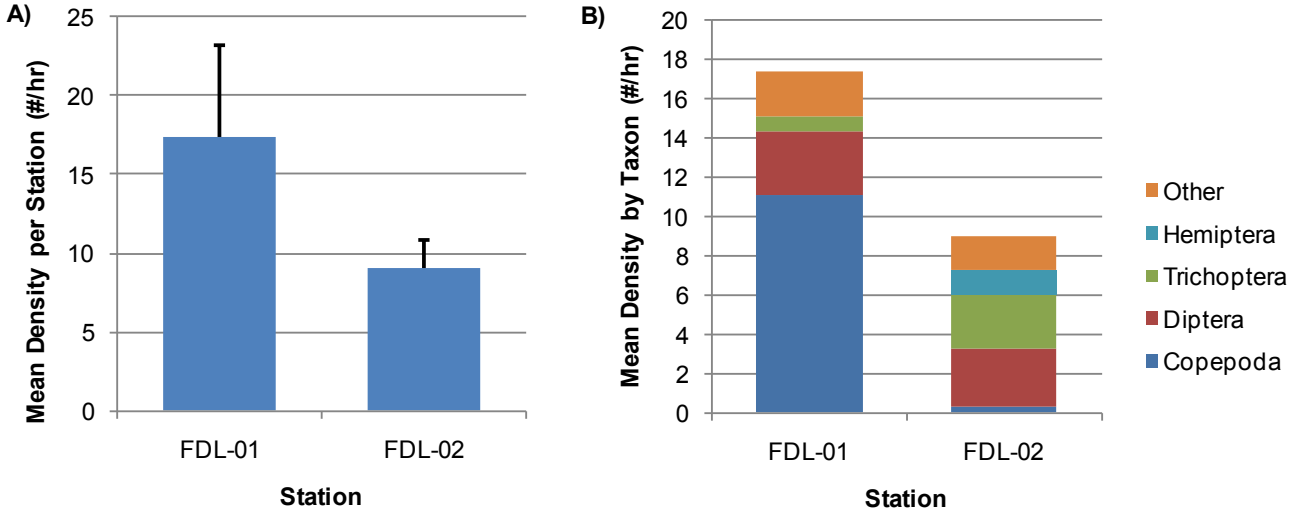


Figure 5.3-6: Total and Mean Richness of Drifting Invertebrates in the Fond du Lac River, Fall 2010

Invertebrate density was higher but more variable at FDL-01 than at FDL-02 (Figure 5.3-7). The number of organisms captured per hour varied between 11 and 27 at FDL-01, and between 7 and 10 at FDL-02. Community composition varied greatly between the stations. At FDL-01, the community was dominated by calanoid copepods, while at FDL-02, the community was co-dominated by Diptera (midge groups Tanypodinae and Orthocladiinae) and Trichoptera (Hydropsychidae).



Note: Error bars represent 1 standard error

Figure 5.3-7: Drifting Invertebrate Density in the Fond du Lac River, Fall 2010. Presented as Mean ± SE (A) and Mean by Order (B)

5.3.2 Middle Lake

5.3.2.1 Phytoplankton

Phytoplankton data collected from Middle Lake during the spring (May) and summer (August) 2010 sampling sessions are provided in Appendix III.7, Table III.7-3 and summarized in Figures 5.3-8 and 5.3-9. One composite sample was collected from each station during each sampling period.

Algal taxon richness was the same at MLL-01 in both spring and summer (36 species) but at MLL-03, richness was lower in spring (26 species) relative to summer (38 species) (Figure 5.3-8). Combined taxon richness (the total number of unique species found in the spring and summer samples) was slightly higher at MLL-01 (n=50) relative to MLL-03 (n=45). Diversity in the phytoplankton community was mostly due to a larger number of diatoms and golden-brown algae, compared to dinoflagellates, green algae, and blue-green algae.

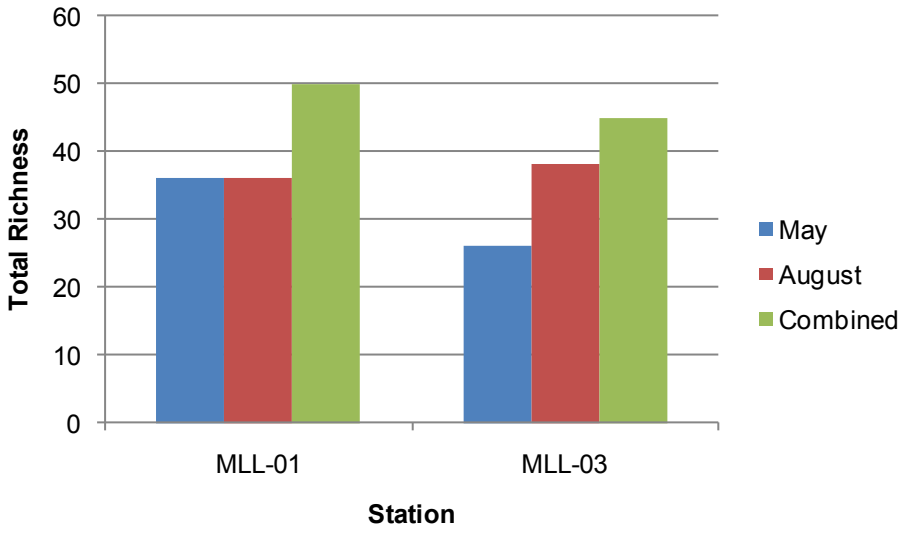


Figure 5.3-8: Phytoplankton Total Richness for Spring, Summer, and Spring + Summer Samples Collected from Middle Lake, 2010

Phytoplankton density and biovolume were higher in summer than in spring at both sampling stations on Middle Lake (Figure 5.3-9). Based on cell density (i.e., number of cells per mL), diatoms and golden-brown algae were most abundant in the spring while blue-green algae were most abundant in the summer (Figure 5.3-9A). Based on algal biovolume (i.e., total algal cell volume per L), diatoms and golden-brown algae were dominant in the spring at both stations, but blue-green algae were dominant in the summer at MLL-01, and diatoms, golden-brown algae, and green algae were equally abundant in the summer at MLL-03 (Figure 5.3-9B).

At both stations, *Microcystis* sp. (blue-green algae) was present in the summer sample but not in the spring samples. This genus represented more than half of the algal cells (Figure 5.3-9A) but less than 1% of the algal biovolume (Figure 5.3-9B) in the summer samples. *Pseudoanabaena* sp. (blue-green algae) was present as 33% of algal biovolume in the MLL-01 summer sample, and *Planktosphaeria* sp. (green algae) was present as more than 25% of total algal biovolume in the MLL-03 summer sample.

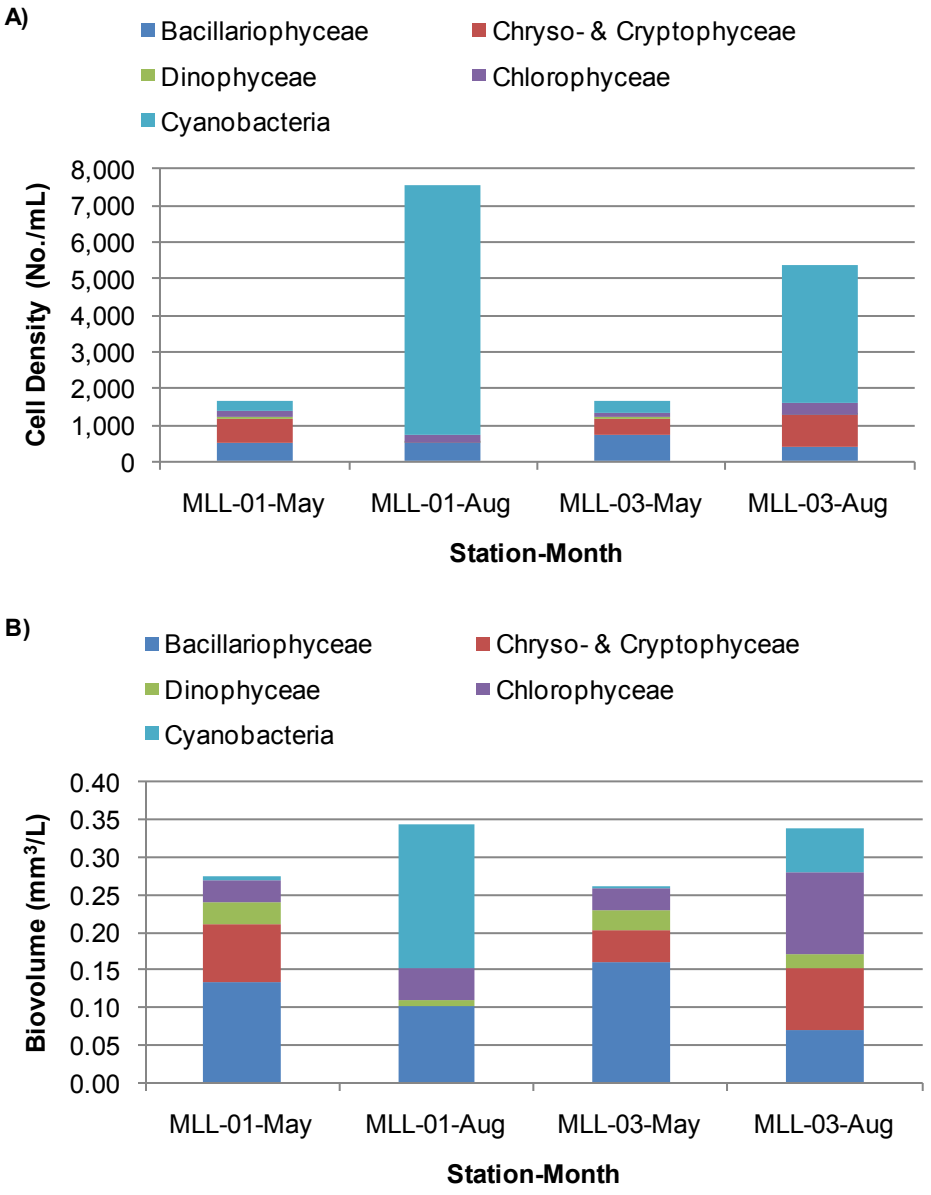


Figure 5.3-9: Phytoplankton by Algal Class for Density (A) and Biovolume (B) in Middle Lake, Spring and Summer 2010.

5.3.2.2 Zooplankton

Zooplankton results collected from Middle Lake during the spring and summer sampling sessions are provided in Appendix III.7, Table III.7-4 and presented in Figures 5.3-10 and 5.3-11. Two samples were collected from each of two stations in Middle Lake during the spring (May) and summer (August) sampling sessions. Mean values are provided in Figures 5.3-10 and 5.3-11 below.

Total zooplankton richness was similar between stations and between months within a station (Figure 5.3-10A and B). Richness was lowest at MLL-03 in summer and highest at MLL-01 in summer.

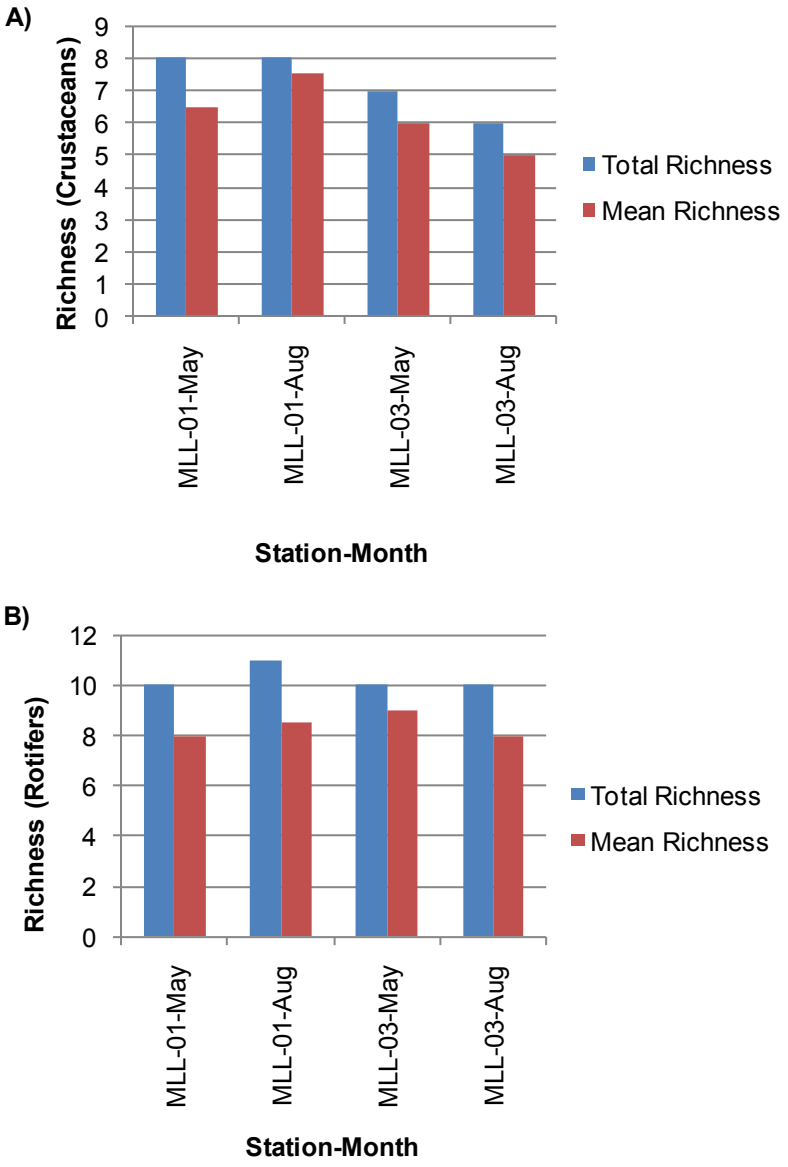


Figure 5.3-10: Total and Mean Zooplankton Richness for Crustaceans (A) and Rotifers (B) in Middle Lake, Spring and Summer 2010

Total zooplankton abundance was higher in summer than in spring at MLL-01, but was higher at MLL-03 in spring relative to summer (Figure 5.3-11). Rotifer abundance was similar at MLL-03 for spring and summer; at MLL-01 rotifer abundance was higher in the summer sample. For the crustacean taxa, abundance in summer was higher than in spring at MLL-01, but lower at MLL-03. For the spring samples, the number of observed rotifers was evenly distributed across six species for both stations; however, in summer the community was overwhelmingly dominated by *Keratella cochlearis*.

Nauplii were the dominant crustacean zooplankton in the spring samples, representing half of the zooplankton abundance (Figure 5.3-11A). By summer, there were still many nauplii present but their densities decreased to

approximately 45% and 25% of zooplankton density at MLL-01 and MLL-03, respectively. Likewise, total nauplii biomass decreased to 35% and 30% of zooplankton biomass at MLL-01 and MLL-03, respectively. Copepods, primarily *Microcyclops rubellus*, were present in MLL-01 and MLL-03 in spring at a similar abundance (as proportion of total zooplankton abundance). By summer, the abundance of *M. rubellus* did not change much at MLL-01, but it became the dominant group at MLL-03, representing 60% of total zooplankton.

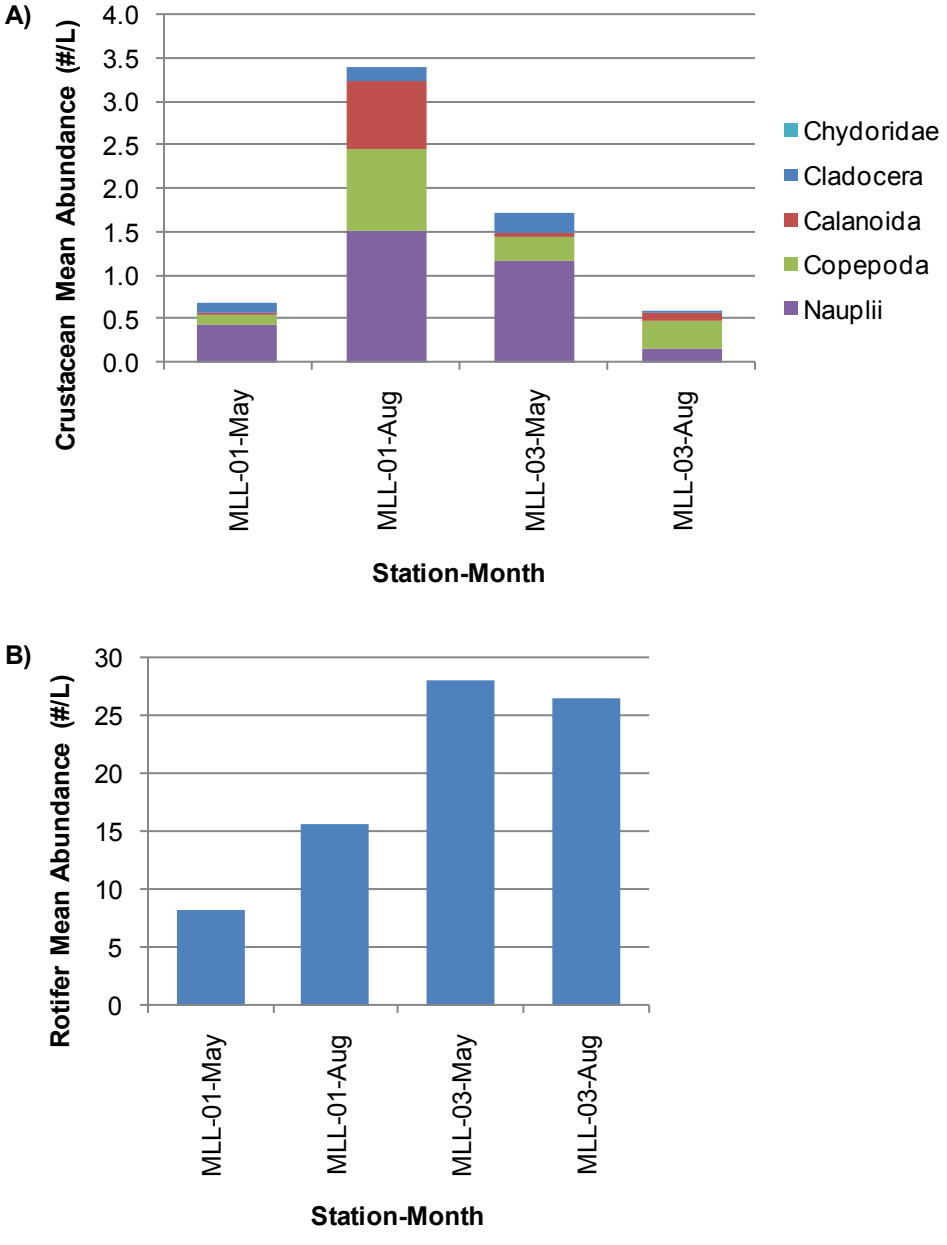


Figure 5.3-11: Mean Abundance for Crustaceans, by Taxon (A), and Rotifers (B) in Middle Lake, Spring and Summer 2010

5.3.2.3 Benthic Invertebrates

Benthic invertebrate results collected from Middle Lake during the fall sampling session are provided in Appendix III.7, Table III.7-2 as well as Figures 5.3-12 and 5.3-13. Three replicate samples were collected at MLL-01 and one sample was collected at MLL-03. Results for MLL-01 are shown as a mean for the station.

Total richness was 21 taxa at MLL-01 (three samples) with a mean of 13.7 taxa, while total richness was 15 taxa at MLL-03 (one sample) (Figure 5.3-12). In all four samples, the order Diptera contributed the most (at least 40%) to total richness.

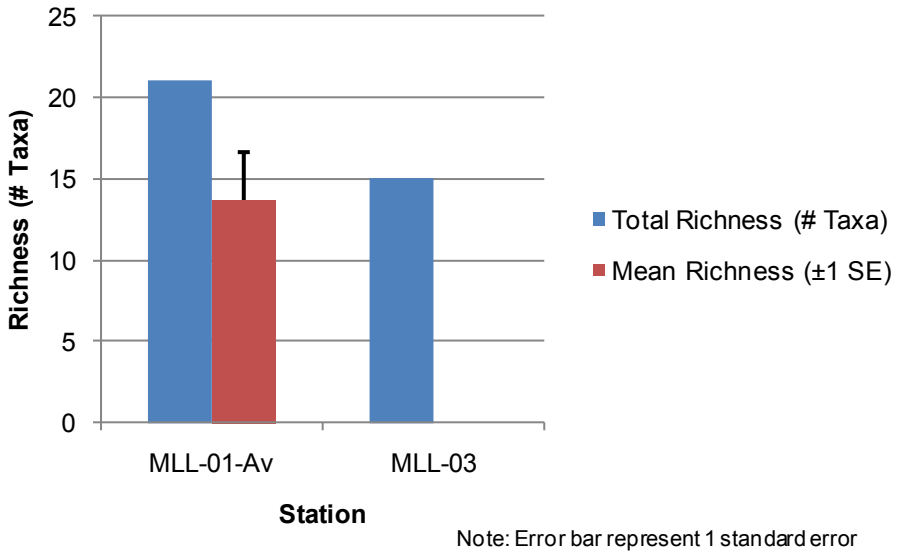


Figure 5.3-12: Benthic Invertebrate Richness by Order in Middle Lake, Fall 2010

Benthic invertebrate density was higher at MLL-03 than at MLL-01 (Figure 5.3-13A). Density at MLL-01 ranged from 1,956 to 5,482 per m^2 and was 7,827 per m^2 in the single sample at MLL-03. Density by invertebrate order also differed greatly between the two stations. In all three samples from MLL-01, dipterans (primarily the midge *Tanytarsus*) contributed an average of 70% to total density (Figure 5.3-13B). In two of the replicates, Pelecypoda (primarily Pisidiidae) contributed the next highest amount to total benthic invertebrate density. At MLL-03, Pelecypoda (clams) contributed more than 70% to total invertebrate density.

At MLL-01, Nematoda, Ostracoda, Amphipoda, Ephemeroptera, and Trichoptera were present in one or two replicate samples, but not all three replicate samples. The only taxa present in all three replicates from MLL-01 were Oligochaeta, Gastropoda, Pelecypoda, and Diptera. At MLL-03, Nematoda and Ostracoda were not recorded.

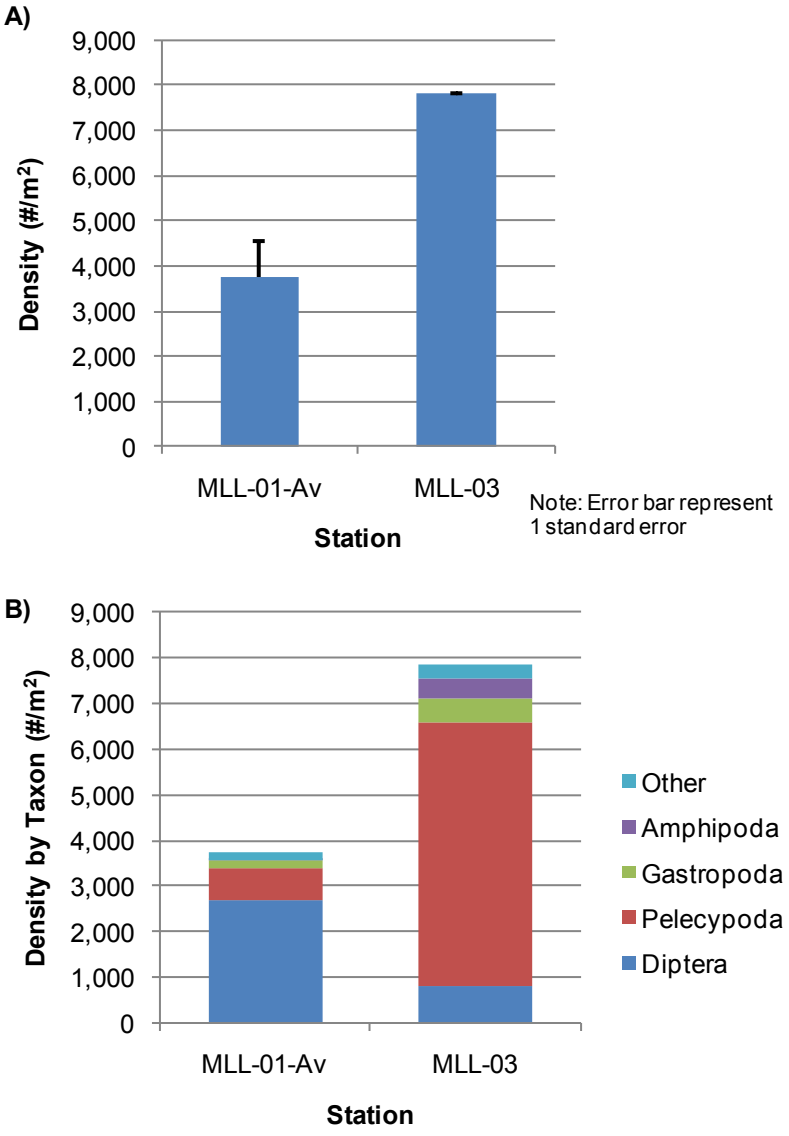


Figure 5.3-13: Benthic Invertebrate Density in Middle Lake, Fall 2010. Presented as Mean ± SE (A) and Mean by Order (B)

5.3.3 Black Lake

5.3.3.1 Phytoplankton

Phytoplankton results collected from Black Lake during the spring and summer sampling sessions are provided in Appendix III.7, Table III.7-3 and summarized in Figures 5.3-14 and 5.3-15. Total species richness was similar during both months within a station and overall richness was higher at BKL-02 compared to BKL-03 (Figure 5.3-14). Richness by algal class was also generally similar during the spring (May) and summer (August) sampling, but at both stations the number of blue-green algal taxa was higher in summer relative to spring.

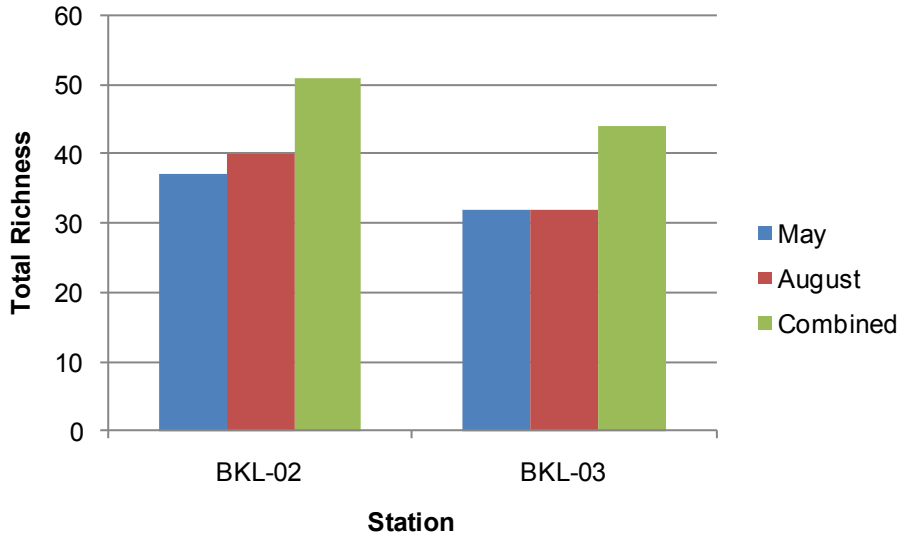


Figure 5.3-14: Phytoplankton Total Richness in Black Lake for Spring (May), Summer (August), and Spring + Summer Combined, 2010

Phytoplankton cell density and algal biovolume were higher at BKL-02 in summer relative to spring (Figure 5.3-15). Cell density at BKL-03 was much higher in summer compared to spring, but total biovolume was slightly lower in summer than in spring. Based on cell density, diatoms and golden-brown algae were more abundant in the spring at both stations, while blue-green algae were more abundant in the summer. Based on algal biovolume, diatoms, golden-brown and green algae were co-dominant in the spring at both stations, while blue-green algae increased in dominance in the summer. This change was more pronounced at BKL-03 than at BKL-02.

In the spring samples, small, flagellated golden-brown algae were the most abundant algae by number of cells, but *Aulacoseira* sp. (diatom) were the most abundant algae by biovolume. This was observed at both stations. In summer, *Microcystis* sp. (blue-green alga) was the most abundant algae (by cell density) at both stations, but by biovolume the most abundant algae were diatoms (BKL-02) and cyanobacteria (BKL-03).

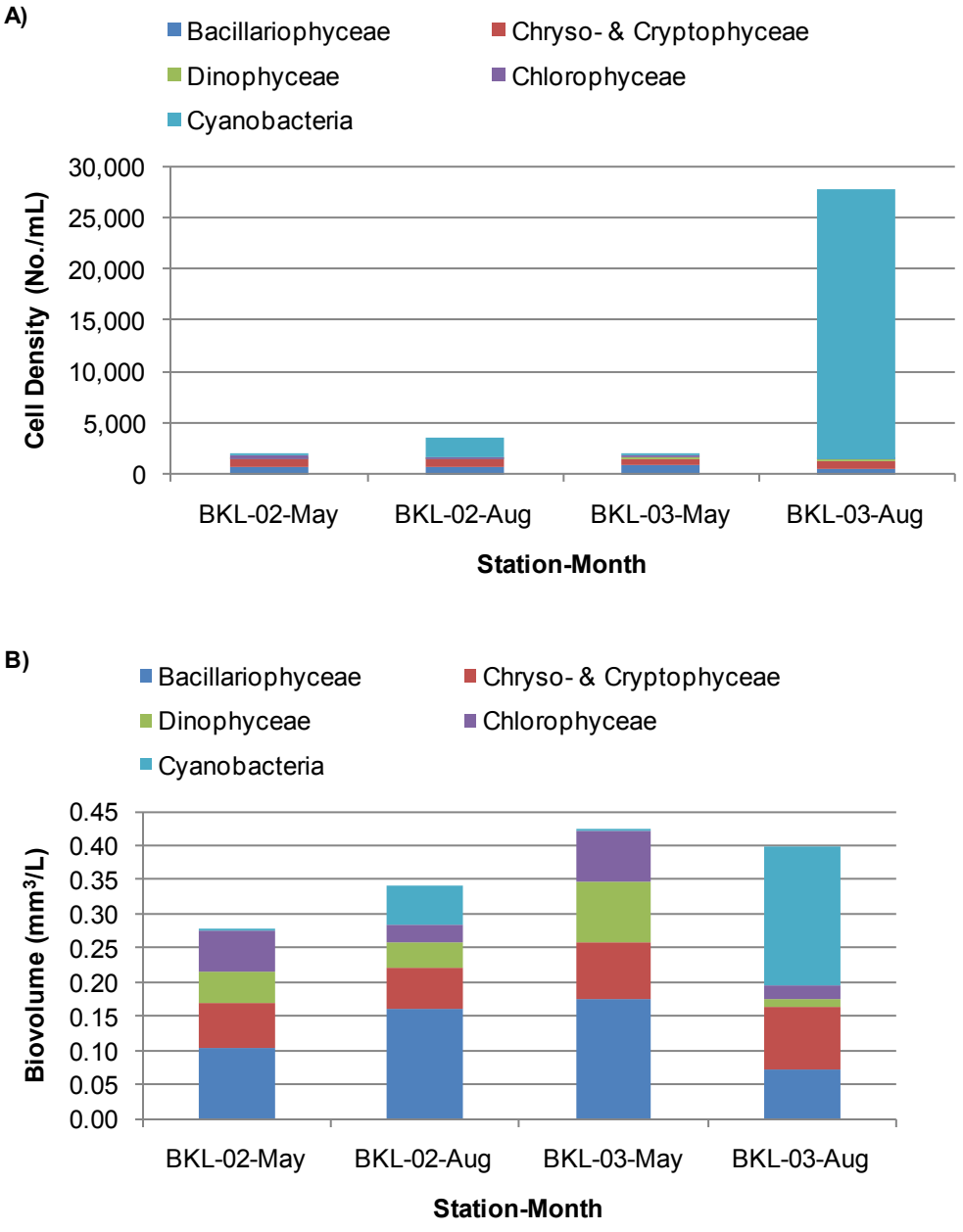


Figure 5.3-15: Phytoplankton by Algal Class for Density (A) and Biovolume (B) in Black Lake, Spring and Summer 2010

5.3.3.2 Zooplankton

Zooplankton results collected from Black Lake during the spring and summer sampling sessions are provided in Appendix III.7, Table III.7-4 as well as in Figures 5.3-16 and 5.3-17. Two samples were collected from two stations in Black Lake during spring (May) and summer (August) sampling. Mean results are provided for each station.

Total zooplankton richness, and richness values for crustaceans and rotifers, were similar between stations and between months within a station (Figure 5.3-16). Richness was lowest in spring at both stations and was highest overall in one replicate sample from BKL-02 in summer.

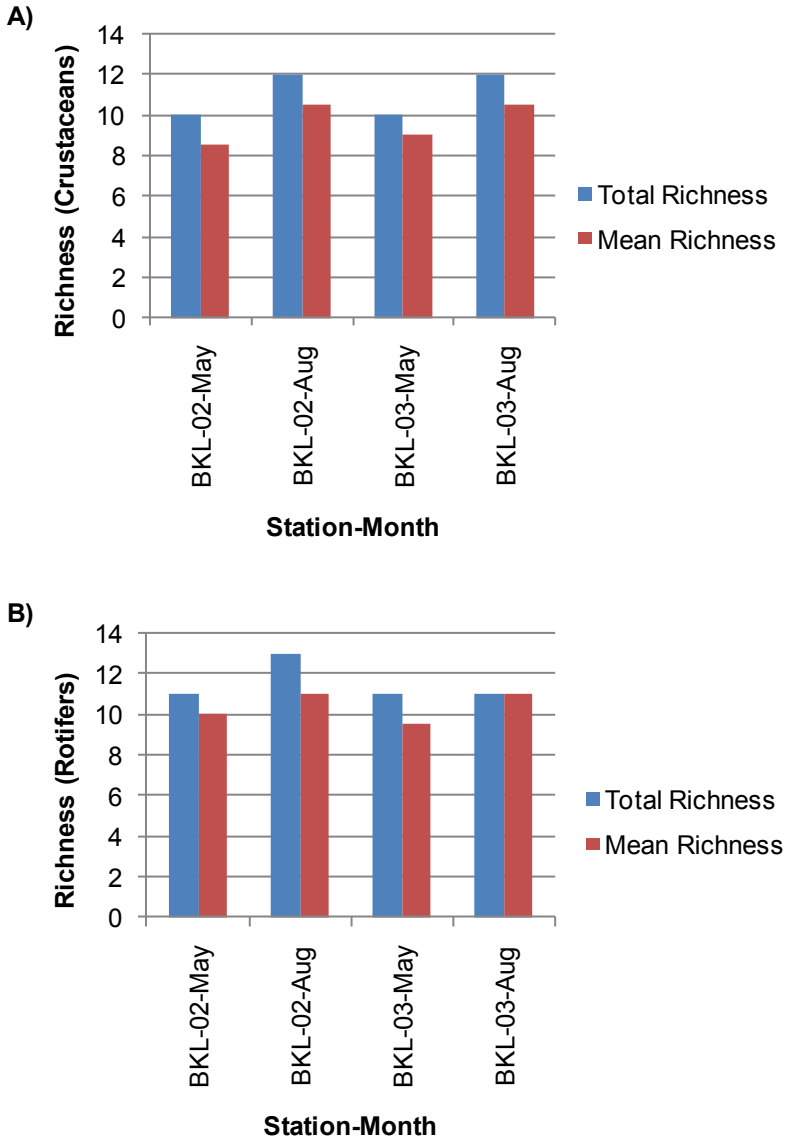


Figure 5.3-16: Total and Mean Zooplankton Richness for Crustaceans (A) and Rotifers (B) in Black Lake, Spring and Summer, 2010.

Abundance of crustaceans and rotifers were higher in summer relative to spring at BKL-02, but at BKL-03, rotifer abundance in summer was much lower while crustacean abundance was slightly higher (Figure 5.3-17). Zooplankton community composition was similar between the stations, but differed between the two sampling sessions. In spring, the zooplankton community was dominated by a copepod, *M. rubellus*, and two rotifer species (*Kellicotti longispina* and *Keratella cochlearis*). By summer, there was a shift in the zooplankton community; the dominant organisms were nauplii and two rotifers, *K. cochlearis* and *Polyartha* sp.

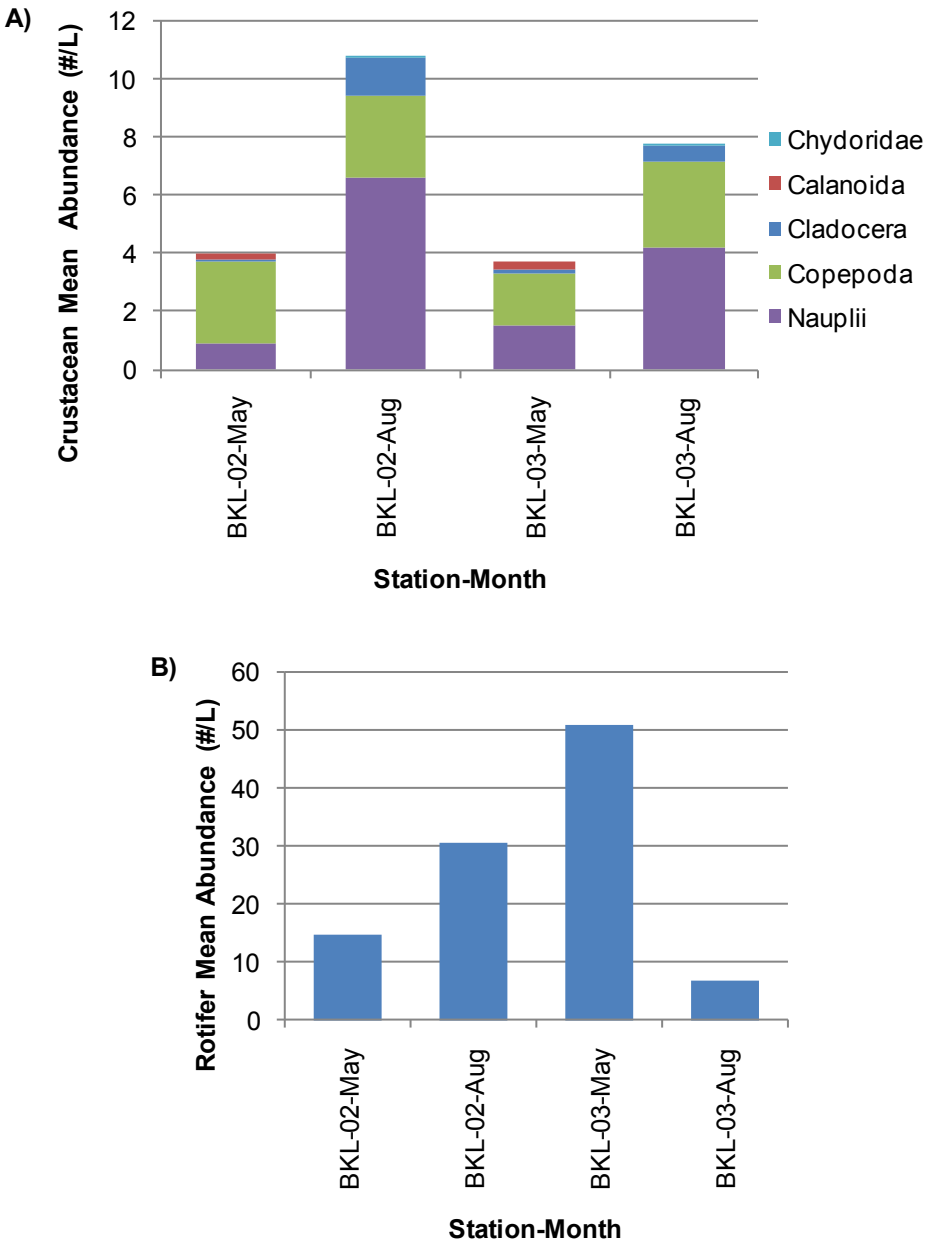


Figure 5.3-17: Zooplankton Abundance of Crustaceans by Taxon (A) and Rotifers (B) in Black Lake, Spring and Summer 2010

5.3.3.3 Benthic Invertebrates

Benthic invertebrate results collected from Black Lake during the fall sampling session are provided in Appendix III.7, Table III.7-2 and in Figure 5.3-18. One sample was collected at each of the three BKL stations. Total richness ranged from 5 to 7 taxa in these samples (Figure 5.3-18A) with no more than three taxa per invertebrate order at any one station. Diptera was the most abundant taxon at BKL-01-A and BKL-03; Pelecypoda was the most abundant taxon at BKL-02.

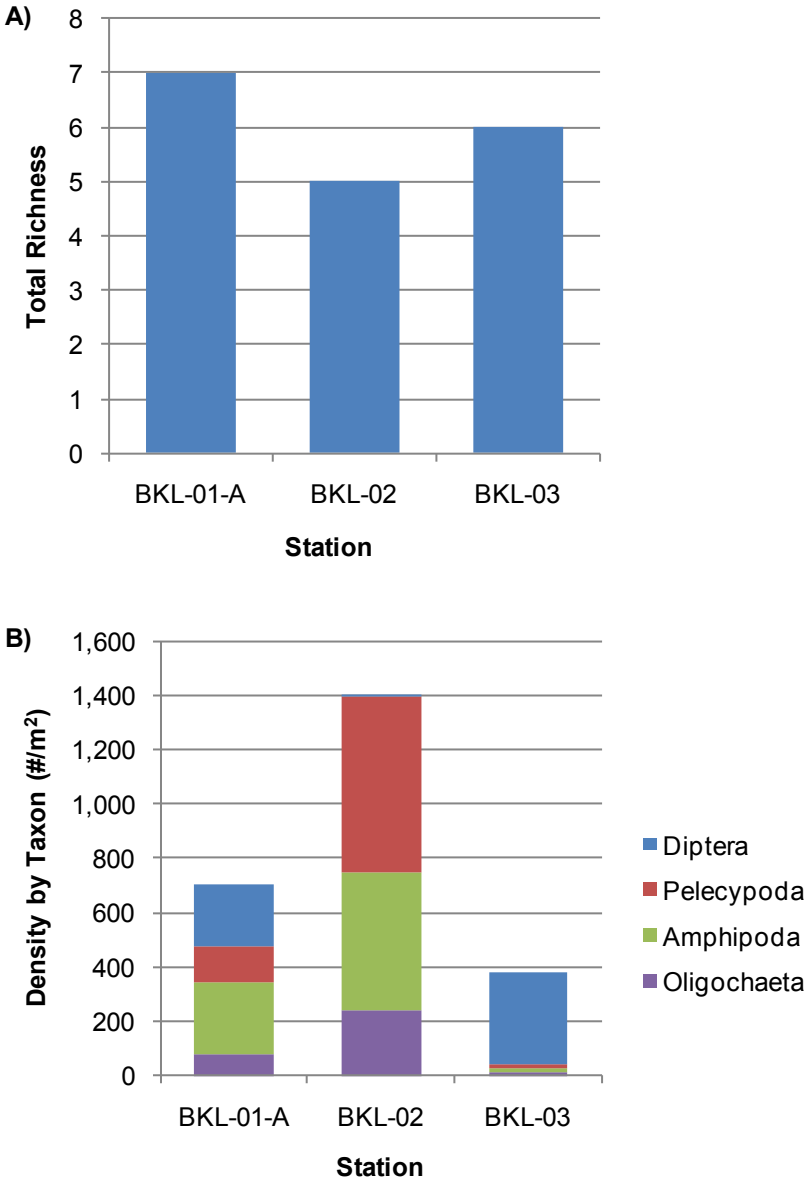


Figure 5.3-18: Benthic Invertebrate Total Richness (A) and Density by Taxon (B) in Black Lake, Fall 2010

Benthic invertebrate density was highest at BKL-02 (Figure 5.3-18B). The most abundant taxa, by density, at BKL-01-A, BKL-02, and BKL-03 were *Diporeia hoyi* (Amphipoda), Pisidiidae (Pelecypoda), and *Chironomus*

(Diptera), respectively. Based on the results of one sample from each sampling station, species composition, biomass and richness were very different among stations.

6.0 FISH AND FISH HABITAT

6.1 Introduction

The purpose of the fish and fish habitat baseline is to provide information on the fisheries and aquatic habitat resources in the Fond du Lac River and in waterbodies located upstream and downstream of the proposed power plant. This information will be used in the Project Environmental Impact Assessment (EIA) to evaluate effects of the hydropower facility on aquatic resources in the LSA/RSA.

Fisheries investigations for the Project were completed between May 2010 and October 2012. Studies focused on the Fond du Lac River, Black Lake, and Middle Lake. While early investigations provided an initial understanding of the present condition of fisheries resources and fish habitat in the LSA, studies were added throughout the Project design phase to fill identified data gaps and to collect information needed to assess potential effects arising from updates to the design plan. Any relevant historical information regarding fish and fish habitat characteristics of LSA waterbodies has been integrated in the baseline results.

Baseline studies completed in the LSA included characterization of aquatic habitat and fish communities in the Fond du Lac River, Black Lake and Middle Lake; spawning surveys of principal fish species in the Fond du Lac River and in upstream Black Lake; mark-recapture population estimates of Arctic grayling in the Fond du Lac River; and mark-recapture and radio telemetry fish movement studies in the Fond du Lac River. A description of the rationale and purpose for each of these studies is provided in the following sections.

6.1.1 Aquatic Habitat Surveys

Fish habitat assessments were carried out in the LSA to document lake and river morphometry and to classify the types and distribution of fish habitat available in the Fond du Lac River, Black Lake, and Middle Lake. Aquatic habitat assessment provides an ecologically relevant record of the type and diversity of habitats found in the LSA. The value of various habitats to the fish species and different life-stages present in the LSA can then be determined and the potential effects of the Project on individual species and life-stages can be assessed.

6.1.2 Fish Community Surveys

Baseline fish community sampling was completed in the LSA to describe the species composition and relative abundance of fish species in the Fond du Lac River, Black Lake, and Middle Lake. These data provide a general representation of the fish community prior to development of the Project and will be used to assess effects of the Project on fisheries resources in the LSA. In general, fish community surveys were carried out in conjunction with other focussed investigations (i.e., spawning surveys, population estimates, fish movement studies) that were completed in the LSA during the aquatic baseline program.

6.1.3 Spawning Surveys

Spring spawning surveys and habitat assessments were completed for Arctic grayling in the Fond du Lac River to identify important spawning and rearing areas that may potentially be affected by reduced flows and water levels associated with the operation of the Project. This information will be used to evaluate the effect of the Project on Arctic grayling that use the river for spawning and rearing activities, and to document baseline habitat conditions in these areas.

Fall and winter spawning surveys were completed in Black Lake to identify the most likely locations of lake trout, lake whitefish, and burbot spawning habitat so that potential effects of the Project on spawning and rearing habitats of these species can be assessed. During the early design phase of the Project, it was anticipated that water levels within Black Lake would be altered as a result of the operation of the hydropower facility. Therefore spawning surveys were completed to identify potentially sensitive, shallow water fish habitats that would provide suitable spawning and rearing habitat for Black Lake fish species.

6.1.4 Fish Population Estimates

Mark-recapture population estimates for Arctic grayling within the Fond du Lac River were conducted in 2010 to determine the size of fish populations potentially affected by the operation of the power facility. It is anticipated that reduced flows and water levels in the sections of the Fond du Lac River between Black Lake and Middle Lake will result in a loss of aquatic habitat, which could affect the population size of Arctic grayling in the river. The information gathered as a result of the mark-recapture studies will be used to provide baseline estimates of fish abundance and will provide a benchmark for future comparison (i.e., during Project operations or post closure).

6.1.5 Fish Movement Studies

Fish migration studies were undertaken during the aquatic baseline program to determine the extent of movement of principal fish species in the LSA. Two approaches were used to gather information on fish movement patterns: mark-recapture of tagged large-bodied fish that were released as a result of fishing efforts during the baseline program, and tracking of radio-tagged Arctic grayling released in October 2011.

The purpose of the mark-recapture fish migration study was to document movement patterns of large-bodied fish species within the Fond du Lac River, as well as in upstream and downstream lake environments (i.e., Black Lake and Middle Lake), and nearby tributaries. Understanding the movement patterns of large-bodied fish species in the Elizabeth Falls area was an important component of the aquatic baseline because operation of the hydropower facility has the potential to reduce flows in the bypassed section of the Fond du Lac River and may therefore alter habitat availability and fish movements.

A radio-telemetry study was carried out in the Fond du Lac River to gather detailed information on Arctic grayling movement patterns in the bypassed section of the river, and to document Arctic grayling use of this area for adult holding, feeding, and overwintering activities. Results of the radio-telemetry study were also used to evaluate the importance of potential barriers to fish movement (i.e., Elizabeth Falls and other high velocity flow areas) in structuring the distribution of Arctic grayling populations in the river.

6.2 Methods

6.2.1 Overview of Baseline Investigations

An overview of the baseline fisheries investigations carried out in the LSA, including information relating to sample period (season) and survey locations (waterbody/watercourse) for each survey type is provided in Table 6.2-1. Fisheries investigations included general aquatic habitat surveys and fish community sampling carried out in the LSA, as well as a number of focused investigations within the Fond du Lac River and Black Lake.

Table 6.2-1: Summary of Fisheries Field Investigations Conducted in the Local Study Area 2010-2012

Area of Interest	Survey Type	Survey Components	Sample Period		
			2010	2011	2012
Fond du Lac River	Aquatic Habitat Survey	River Sounding[b]	SP	-	SU
		Arctic Grayling Spawning Habitat Surveys	SP	-	SP
	Fish Community Survey[a]	-	SP, SU, F	-	SP, SU
	Spawning Survey	Arctic Grayling Spawning Survey	SP	-	SP
	Population Estimates	MarkRecapture Population Estimate	SU	-	-
	Fish Movement Studies	Radio-Telemetry Movement study[c]	-	F	W, SP, SU, F
		Mark-Recapture Movement study[d]	SP, SU, F	W	SP, SU
Black Lake	Aquatic Habitat Survey	Bathymetry	SU	-	SU
		Fish Habitat Assessments	SU	-	SU
		Tributary Assessments	SP	-	-
	Fish Community Survey[a]	-	SP, SU, F	W	SU
	Spawning Survey	Lake Trout Spawning Survey	F	-	-
		Lake Whitefish Spawning Survey	F	-	-
		Burbot Spawning Survey	-	W	-
	Fish Movement Study	Mark-Recapture Movement study[d]	SP, SU, F	W	-
Middle Lake	Aquatic Habitat Survey	Bathymetry	SU	-	SU
		Fish Habitat Assessments	SU	-	-
	Fish Community Survey[a]	-	SP, SU	W	-
	Fish Movement Study	Mark-Recapture Movement study[d]	SP, SU	W	-

[a] Fish sampling completed for all survey types was compiled to provide a general understanding of the fish community within each waterbody or watercourse
[b] River sounding was completed during the hydrology baseline sampling (see Section 3).
[c] fish were tagged or checked for tags during these sample periods.
[d] fish were tagged or radio-tracked during this sample period.
SP = spring; SU = summer; W = Winter; F = fall; - = not investigated.

The methods used in each respective survey-type are provided in the following sections and have been organized according to the following structure:

- aquatic habitat surveys within Fond du Lac River, Black Lake, and Middle Lake;
- fish community surveys of Fond du Lac River, Black Lake, and Middle Lake;
- focussed investigations;
  - local study area;
    - mark-recapture fish movement study;
  - Fond du Lac River;
    - spring Arctic grayling spawning surveys;
    - summer Arctic grayling fry surveys;
    - Arctic grayling mark-recapture population estimate study;
    - Arctic grayling radio-telemetry movement study; and
  - Black Lake;
    - spawning surveys for principal fish species in Black Lake.

6.2.2 General Fisheries Sampling Areas

Fish and fish habitat investigations in the LSA focussed on the waterbodies that will be most affected by the development of the Project and included surveys within Black Lake, Fond du Lac River, and Middle Lake. Sampling was completed in a variety of representative habitats within Black Lake, Middle Lake and Fond du Lac River, and included detailed surveys in areas that may be directly affected by project infrastructure such as the proposed water intake area in Black Lake, and the tailrace outflow structure in the Fond du Lac River.

Baseline fisheries investigations in the Fond du Lac River included sampling of three general locations within the River. These general locations included the outlet of Black Lake (Grayling Island area), the Fond du Lac River below Grayling Island but above Elizabeth Falls (middle section), and the Fond du Lac River near its outflow into Middle Lake. Sampling areas in the Fond du Lac River were identified based on the presence of several high velocity flow areas in the river which are likely to act as geographic barriers restricting fish movements among isolated fish assemblages. These three areas are likely to represent separate fish populations occurring in the river, and were therefore considered separately in the baseline study design and in the interpretation of results. The Black Lake outlet and Middle Lake inflow sample locations are similar to those used during the historic surveys completed in the Elizabeth Falls area of the Fond du Lac River. The occurrence of a third isolated area in the middle section of the river was first identified in 2011, and was included in sampling efforts thereafter.

6.2.3 Aquatic Habitat Surveys

Aquatic habitat assessments were carried out in the LSA to document lake and river morphometry and to classify the types and distribution of fish habitat available in the Fond du Lac River, Black Lake and Middle Lake. Historical habitat information in the LSA is limited and includes bathymetry maps of Black Lake and Middle Lake, as well as some qualitative information on lake and riverine habitat.

The objectives of the recent fish habitat investigations were to fill identified data gaps, to verify the accuracy of the historical habitat information in the LSA, and to gather quantitative and qualitative fish habitat information needed to assess potential effects from the Project. Aquatic habitat assessment provides an ecologically relevant record of the type and diversity of habitats found within the study area. The value of different habitats to the fish species and various life-stages can then be determined. Features examined included availability of refuge or cover habitat, overwintering habitat, spawning and rearing habitat, and adult foraging habitat.

Fish habitat in the LSA was assessed in 2010 and 2012 using a variety of techniques. Riverine and lake habitat characteristics were evaluated from interpretation of satellite imagery data, as well as from results gathered during aquatic habitat ground-truthing surveys completed in Black Lake, Middle Lake, and in accessible sections of the Fond du Lac River. A bathymetry survey was completed concurrently with habitat data collection for sections of Black Lake and for Middle Lake. The bathymetry survey is addressed in the hydrology baseline in Section 3. Descriptions of the specific habitat investigations carried out in each waterbody as well as methods used during these surveys are provided in the following sections.

6.2.3.1 Satellite Imagery of the LSA

Satellite imagery of the Fond du Lac River and a portion of Black Lake was obtained to provide a digital photo of aquatic habitat in the LSA. This information was used to identify and delineate different habitat types in Black Lake and the Fond du Lac River, and to provide a general assessment of fish habitat. A combination of Google Earth (Image © 2010 Digital Globe) imagery and high resolution IKONOs satellite imagery (Image © 2010 Terra Metrics) were used to describe habitat. A description of the available imagery for each type is provided as follows.

Google Earth imagery was available for the Fond du Lac River and the southwest portion of Black Lake. Generally, the resolution was sufficient to allow for the approximate delineation of littoral zones and other shallow water habitat. Satellite imagery available for the main basin of Black Lake was of poor quality due to the heavy ice cover that was present over the lake when the satellite images were taken. As a result, much of the littoral habitat associated with islands in Black Lake, as well as the numerous shoals located within the main basin of Black Lake, could not be determined in the Google Earth imagery.

IKONOs imagery was available for the northeast section of Black Lake (including some of the islands in the centre of the main basin) and the southwest section of Black Lake (Cree Bay). Attempts were made to obtain imagery for the entire LSA, however, dense cloud cover and smoke from forest fires burning in the LSA during the baseline field programs prevented acquisition of imagery for other areas.

6.2.3.2 Fond du Lac River

6.2.3.2.1 Historical Summary

Historical fish habitat information for the Elizabeth Falls section of the Fond du Lac River was generally limited to qualitative observations of substrate and/or flow characteristics at historic sampling sites as well as some

general information regarding locations of Arctic grayling spawning habitat in the river. The Fond du Lac River is known to contain important spawning habitat for Arctic grayling and other fish species, including white sucker and longnose sucker. Generally, these areas are located in shallow sections of the river, often near the shorelines, and therefore may be affected by reduced water levels in the Fond du Lac River.

6.2.3.2.2 Recent Sampling

A general understanding of fish habitat in the Fond du Lac River was acquired through interpretation of satellite imagery, river morphometry data (see Section 3) and fish habitat ground-truthing surveys. More detailed, ground-level habitat assessments were also completed in areas of the Fond du Lac River that are expected to be directly affected by project infrastructure, including the proposed tailrace outlet area. The methods used in these studies are discussed in the following sections. Detailed spawning and rearing habitat surveys were carried out at several locations in the Fond du Lac River, where Arctic grayling are known to spawn. The methods used in these assessments are discussed separately in Sections 6.2.5.2.1 (Arctic grayling spawning surveys) and 6.2.5.2.2 (Arctic grayling fry surveys)

6.2.3.2.2.1 General Riverine Habitat

Geo-referenced satellite imagery and bathymetry data obtained for the Fond du Lac River between Middle Lake and Black Lake were used to delineate the river channel into 23 reaches based on river morphometry characteristics, dominant channel unit types (e.g., run, riffle, pool), and general flow conditions. Detailed methods used in this assessment are discussed in the hydrology baseline (see Section 3). The river morphometry and flow conditions described for the Fond du Lac River were used to develop a generalized fish habitat map for the Fond du Lac River. Additional aquatic habitat features discernible from the satellite imagery data were noted, including information about substrate types; aquatic vegetation; and the presence of secondary channels and other off-channel habitats (i.e., wetlands, snyes, etc.).

Fish habitat ground-truthing of the Fond du Lac River was attempted in May 2010; however, much of the river could not be safely accessed due to the fast current and water depth. The river cannot be crossed by wading at any location between Middle Lake and Black Lake, regardless of season. Likewise, boat access into the middle section of the river is very limited due to the dense brush and minimal trail access between Black Lake and Middle Lake. A 1.5 km section of the river was accessible by boat from Middle Lake, and a general reconnaissance survey of this area was completed in Spring 2010. An additional four reaches of the river were accessible from Black Lake and were surveyed during the spring 2010 field program. Habitat data collection in these areas was primarily qualitative and included information regarding substrate and channel unit types and general flow conditions.

6.2.3.2.2.2 Proposed Tailrace Outlet Location

Detailed aquatic habitat data were collected in the vicinity of the proposed tailrace outflow into the Fond du Lac River upstream of Middle Lake to document baseline conditions in this area prior to the construction of the Project. A side-scan sonar (Humminbird 997c SI) was used to collect detailed underwater substrate information in the shoreline area and shallow water habitat surrounding the future power tunnel discharge area (tailrace outlet).

By combining data gathered from the Google Earth satellite imagery, the 2012 bathymetric survey (see Section 3), side-scan sonar results, and visual field observations, a qualitative habitat assessment was completed for the shoreline area and the shallow water littoral zone near the proposed tailrace outflow. This

information was used to create a detailed habitat map of the Fond du Lac River for the area that will be affected by the tailrace outflow channel.

6.2.3.3 Lake Habitat

6.2.3.3.1 Previous Studies

Limited information was available in the historical documents regarding the aquatic habitat characteristics of Black Lake and Middle Lake. Lake morphometry of Black Lake was assessed by Johnson (1971), which resulted in the production of a coarse bathymetry map for the lake. A bathymetry map for Middle Lake was also produced as a result of the Envirocon survey in 1973-1974 (Envirocon 1974). Historical bathymetry data for Black Lake and Middle Lake are provided in the hydrology baseline in Section 3. In addition to the bathymetry data, limited aquatic habitat data are available for Black Lake and Middle Lake (Envirocon 1974). These data include qualitative information regarding substrate characteristics within each lake as well as the presence of aquatic vegetation.

6.2.3.3.2 Recent Sampling

A bathymetric survey and fish habitat assessment was completed for Middle Lake and Black Lake during the summer 2010 and summer 2012 field programs. The objectives of these surveys were to update and enhance existing bathymetry data, and to describe the shallow water fish habitats (i.e., shorelines, littoral zones, shoals, islands, and tributary confluences) that are present. In addition, detailed bathymetry and fish habitat surveys were completed in the vicinity of the water intake area of Black Lake to describe baseline conditions in this area.

6.2.3.3.2.1 Study Areas

Black Lake

Aquatic habitat surveys of Black Lake included sampling of littoral habitat associated with the main basin islands and shallow bays (including Fir Island); the Fond du Lac River outflow bay area; Chapman Bay; Pluto Bay and Cree Bay. These locations were chosen during the early design phase of the Project when lake levels within Black Lake may potentially have been altered due to the incorporation of a dam into the Project development. Detailed aquatic habitat sampling of the proposed water intake area was completed in summer 2010, and again in summer 2012 (i.e., once the final water intake location for the power tunnel was identified) to document baseline conditions in this area prior to the construction of the Project.

Middle Lake

Habitat assessment of Middle Lake was carried out in summer 2010. Fish habitat data collection was carried out for all shallow water areas identified within the lake.

6.2.3.3.2.2 Habitat Data Collection Methods

Aquatic habitat data collected during the Black Lake and Middle Lake surveys included information on:

- dominant substrate types;
- submergent vegetation;
- emergent vegetation;
- shoreline slope and composition;

- bank stability;
- riparian vegetation immediately adjacent to shore;
- distance to shoreline; and
- water depth.

Habitat information collected during the field surveys were transferred to a GIS platform to create habitat maps of the surveyed areas. Field based information was cross referenced with available satellite imagery data for the areas of interest within Black Lake and Middle Lake.

Proposed Water Intake and Tailrace Outlet Areas

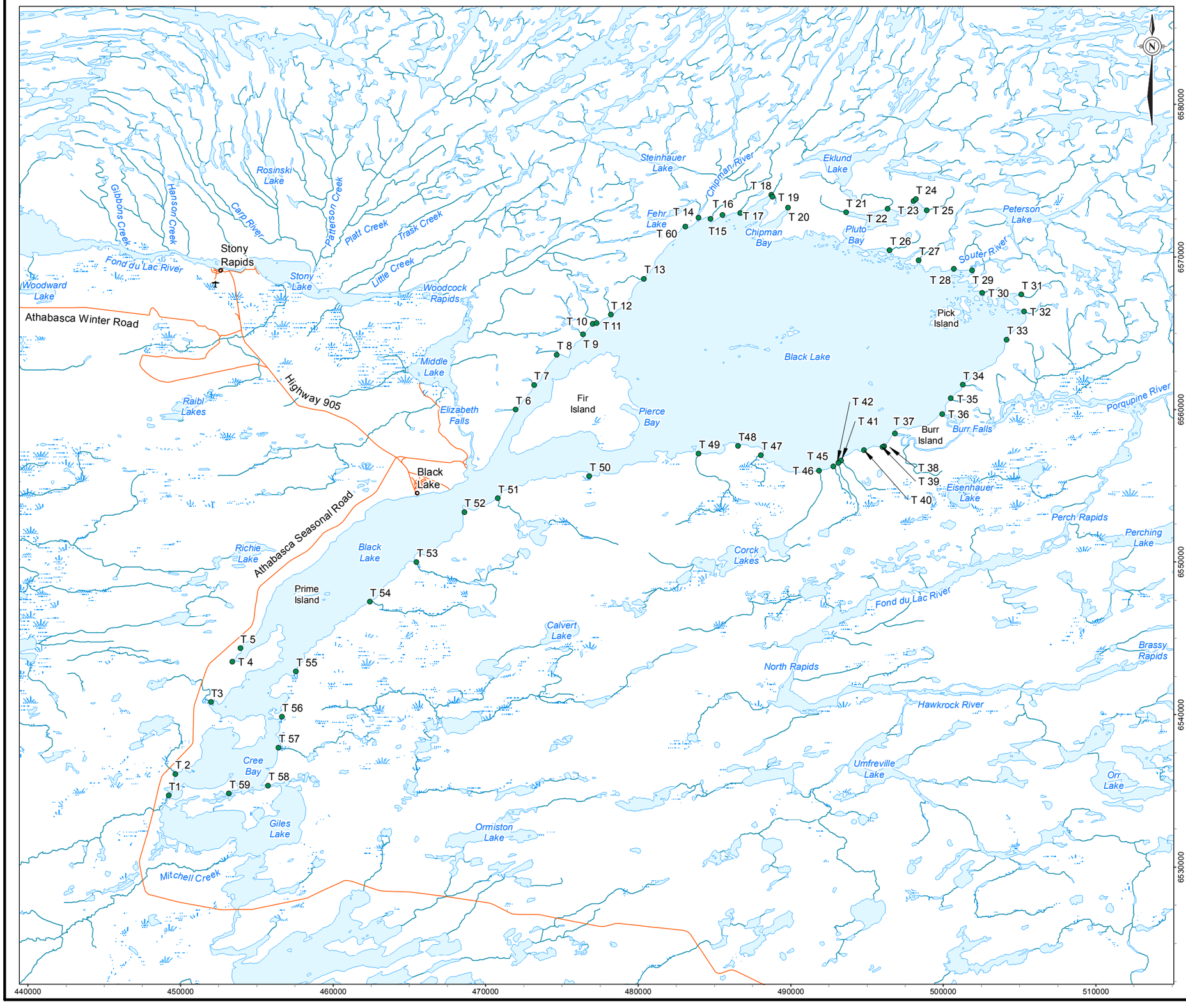
A side-scan sonar (Humminbird 997c SI) was used to collect detailed underwater substrate information in the shoreline areas and shallow water habitats surrounding the future intake area (Black Lake) and power tunnel discharge area (Fond du Lac River). By combining data gathered from the Google Earth satellite imagery, the 2012 bathymetric surveys (see Section 3), side-scan sonar results, and visual field observations, a qualitative habitat assessment was completed for the shoreline area and the shallow water littoral zone near the proposed intake and tailrace outflow. This information was used to create detailed habitat maps of the intake area of Black Lake and the Fond du Lac River in the area of that will be affected by the tailrace outflow structure. Methods used in the detailed bathymetry survey completed concurrently with habitat sampling are provided in Section 3.

6.2.3.4 Black Lake Tributary Assessment

During the early design phase of the Project, it was anticipated that a flow control structure (i.e., a low or high head dam) may be necessary within Black Lake to support the operation of the power tunnel. This would have had the potential to change water levels and fish habitat within Black Lake, as well as in its upstream tributaries. Therefore an assessment of the tributary streams that flow into Black Lake was undertaken to document baseline habitat conditions, and to identify important spawning and/or rearing areas for spring spawning species such as white sucker, longnose sucker, and northern pike.

The 1:50,000 scale National Topographic System (NTS) maps that are available for Black Lake indicate that 58 tributary streams flow into the lake (Figure 6.2-1). These streams are located at various locations around its perimeter and vary in terms of size. Thirty-two of these streams were surveyed in the field between 2 and 6 June 2010 in order to provide a general assessment of fish habitat potential. An additional 27 streams were evaluated based on interpretation of the available satellite imagery. The tributary assessment was completed during the June 2010 field program because the majority of Black Lake was ice free and longnose and white sucker were spawning during that time.

Prior to commencing fieldwork, UTM coordinates for the confluence of each tributary were uploaded into a hand-held GPS and cross-referenced with satellite imagery from Google Earth (Image © 2010 Digital Globe and Image © 2010 Terra Metrics). Field personnel consulted with Black Lake First Nation assistants to identify tributaries with fish bearing potential. Generally, the tributaries that were assessed in the field were larger, lake-headed streams, or entered Black lake in the immediate vicinity of the Project area (i.e., near the proposed intake location). Tributaries were accessed by boat and assessed for the presence of water, presence of fish (visual observation), and basic habitat conditions.



LEGEND

- ROAD
- RIVER
- WATERBODY
- WETLAND
- TRIBUTARY LOCATION

REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 13
DMTI HIGHWAYS AND ROADS
NTS MAPSHEET: 74I, 74J, 74O, 74P

5 0 5
SCALE 1:250,000 KILOMETRES

PROJECT
TAZI TWÉ HYDROELECTRIC PROJECT

TITLE
LOCATION OF BLACK LAKE TRIBUTARY STREAMS

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.		
DESIGN			SCALE AS SHOWN	REV.	2
GIS	SM/LR	10/07/13			
CHECK	LT	24/07/13	**FIGURE: 6.2-1**		
REVIEW	BC	24/07/13			

6.2.4 Fish Community Surveys

Fish community sampling of Black Lake, Fond du Lac River, and Middle Lake was completed over several field programs, which occurred between May 2010 and July 2012. In general, fish community surveys were carried out concurrently with other focused investigations that were undertaken during the aquatic baseline program (i.e., mark-recapture population estimate studies, spawning surveys, and fish movement studies). The information gathered during these focussed investigations was used in combination with results of general fish sampling to provide an understanding of the distribution and abundance of fish species in the LSA. The specific objectives and methods used in the completion of these separate investigations are described in Sections 6.2.5 and 6.3.3. The following sections provide general fish capture and handling methods, including sample location and timing used in the fish community assessment.

6.2.4.1 Fish Capture Methods

Fish capture and handling methods used during the aquatic baseline surveys varied according to the timing (i.e., season), location (lake versus river environment), and objective of sampling (i.e., spawning survey, fish community investigations). A summary of the specific capture methods used within each waterbody or watercourse is provided in Table 6.2-2 for each field program. Detailed information regarding gear type specifications, sample locations and timing of sampling is provided for the Fond du Lac River, Black Lake and Middle Lake in the following sections.

For each fishing effort, the following information was recorded:

- specifications of fishing equipment (e.g., gill net mesh size and net length);
- sampling date and time (start and end times);
- Universal Transverse Mercator (UTM) coordinates of each sampling station;
- number of fish species captured and observed;
- general habitat description for the site sampled;
- ambient weather conditions;
- water depth; and
- limnology measurements (i.e., water temperature, DO, specific conductivity, and pH).

Table 6.2-2: Fish Capture Methods Used in the Fond du Lac River, Black Lake, and Middle Lake During the Aquatic Baseline Field Surveys

Area of Interest	Year	Sampling Period	Hoop Netting	Backpack Electrofishing	Boat Electrofishing	Angling	Gillnetting	Baited Set Line	Baited Cod Trap
Fond du Lac River	2010	Spring	√[(a)]	-	-	√[(d)]	-	-	-
		Summer	√[(a)]	√[(b)]	-	√[(d)]	-	-	-
		Fall	√[(a)]	-	-	-	-	-	-
	2012	Spring	√[(a)]	-	-	-	-	-	-
		Summer	-	-	-	√[(d)]	√[(e)]	√	-
Black Lake	2010	Spring	√[(a)]	-	-	-	√[(f)]	-	-
		Summer	√[(a)]	√[(b)]	√[(c)]	-	√[(g)]	-	-
		Fall	-	-	-	√[(d)]	√[(g)]	-	-
	2011	Winter	-	-	-	-	√[(h)]	√	√
	2012	Summer	-	-	-	-	-	-	-
Middle Lake	2010	Spring	-	-	-	-	√[(f)]	-	-
		Summer	-	-	√[(c)]	-	-	-	-
	2011	Winter	-	-	-	-	√[(h)]	-	-

[(a)] 2.54 cm and/or 0.64 cm stretched mesh.
[(b)] Smith-Root model 24B.
[(c)] Smith-Root Type V1-A.
[(d)] using flies and/or lures.
[(e)] short-duration single panel monofilament gillnet sets (net dimensions were 15 m long by 1.6 m high, 10.2 cm stretched mesh)
[(f)] short-duration, single panel monofilament gillnet sets (net dimensions were 40 m long by 1.8 m high, 5.08 cm stretched mesh), and short-duration multi-panel gillnet gangs (net dimensions were 135 m long by 1.8 m high, 1.9 cm, 3.8 cm, 6.4 cm, 7.6 cm, 8.9 cm, 10.2 cm, 11.4 cm, 12.7 cm, 14 cm stretched mesh)
[(g)] short-duration multi-panel gillnet gangs (net dimensions were 135 m long by 1.8 m high, 1.9 cm, 3.8 cm, 6.4 cm, 7.6 cm, 8.9 cm, 10.2 cm, 11.4 cm, 12.7 cm, 14 cm stretched mesh)
[(h)] overnight multi-panel gillnet gangs (net dimensions were 135 m long by 1.8 m high, 1.9 cm, 3.8 cm, 6.4 cm, 7.6 cm, 8.9 cm, 10.2 cm, 11.4 cm, 12.7 cm, 14 cm stretched mesh)
√ indicates that a particular gear type was used

6.2.4.1.1 Fond du Lac River

Fish community sampling in the Fond du Lac River was carried out over several field programs which occurred during spring, summer and fall 2010, and spring and summer 2012 (Table 6.2-1). Sampling included general fish community investigations in the river as well as information gathered during spring Arctic grayling spawning surveys (2010 and 2012), population estimates (summer 2012) and fish movement studies. Fish sampling of the Fond du Lac River focussed on three general locations, including the Black Lake outlet area, the middle section of the river, and the river outflow to Middle Lake (see Section 6.2.2 for a description of Fond du Lac River sampling areas). Specific sample locations within the Fond du Lac River are provided in Figures 6.2-2 to 6.2-6 for each respective field program.

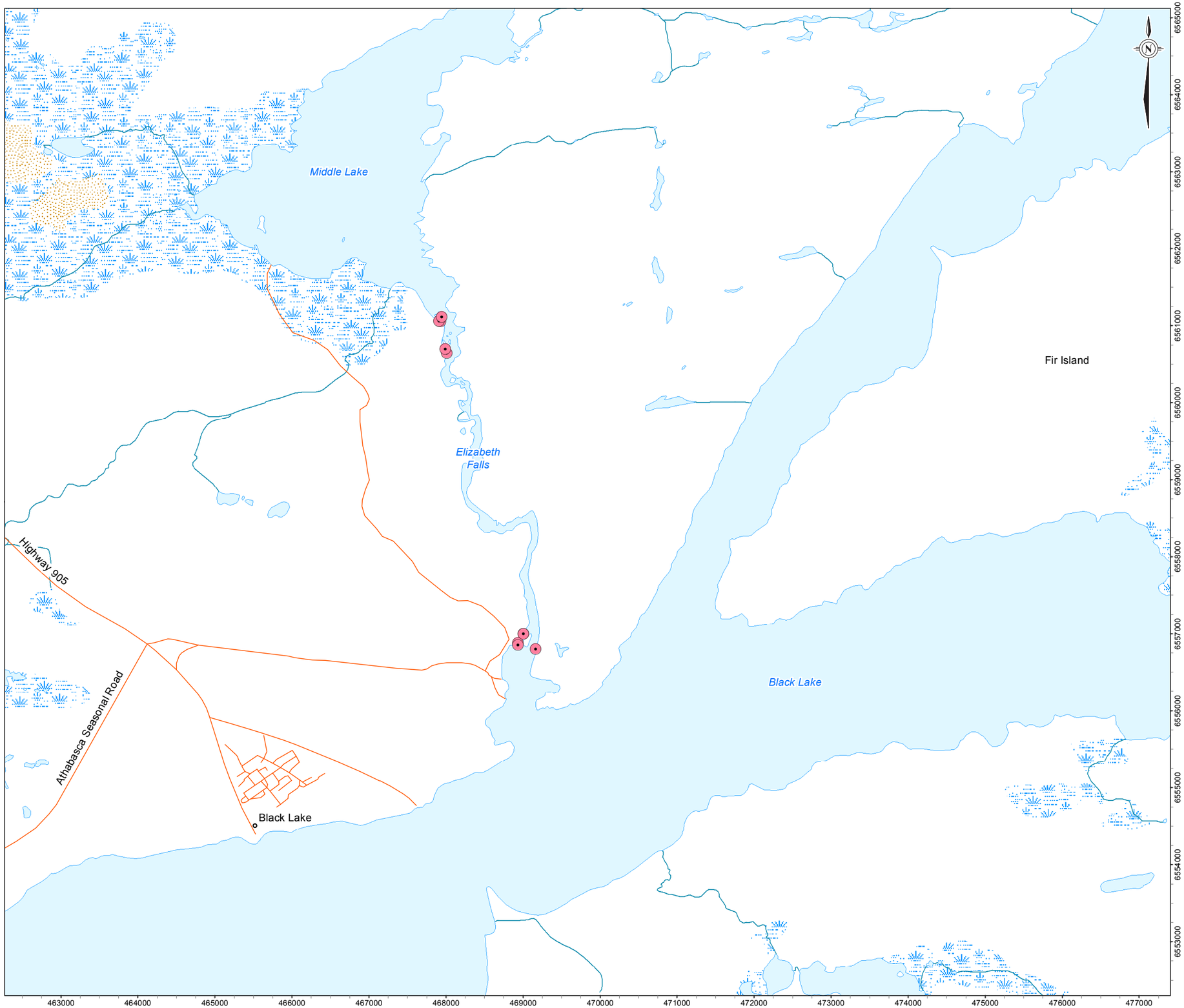
Fish capture methods used in the Fond du Lac River included hoop netting, backpack electrofishing, angling, gillnetting, and the use of baited set lines. Specific capture methods and associated gear-type specifications that were used during each respective field session are provided in Table 6.2-2.

Hoop nets were used during the spring 2010 and 2012 field programs to capture spawning Arctic grayling, and in summer and fall 2010 field sessions during general fish community sampling. Hoop nets were set in the Black Lake outlet area and Middle Lake inflow area in 2010 and 2012, and in the middle section of the river in 2012.

Backpack electrofishing was carried out at four locations in the Fond du Lac River during general fish community sampling completed in summer 2010. These included a secondary channel located adjacent to the main west shoreline of the river; along the left downstream bank upstream of the Middle Lake inflow; and approximately 400 m upstream of the Middle Lake inflow in a secondary channel adjacent to the left-downstream-bank. Backpack electrofishing was also completed in a side channel adjacent to Elizabeth Falls.

Angling using dry flies was employed to capture adult Arctic grayling during the spring 2010 Arctic grayling spawning survey and summer 2010 population estimate study. Sampling was carried out along the left downstream bank of the Fond du Lac River near Grayling Island, along the perimeter of Grayling Island, and upstream of the Fond du Lac River outflow into Middle Lake. Angling was also carried out in the middle section of the Fond du Lac River during general fish community sampling completed in summer 2012.

Gill nets and baited set lines were set in pool habitats in the Fond du Lac River, during general fish community sampling in summer 2012. Sampling efforts were focussed on the middle section of the Fond du Lac River between Grayling Island and Elizabeth Falls, and in the downstream section of the Fond du Lac River near the outflow to Middle Lake. Due to the fast flowing nature of the river, sampling was limited to deep, slower moving pool areas which could be accessed using a small inflatable boat.



LEGEND

- VILLAGE
- ROAD
- RIVER
- WATERBODY
- WETLAND
- FOND DU LAC RIVER SPRING FISH SAMPLING LOCATION

REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 13
DMTI HIGHWAYS AND ROADS
NTS MAPSHEET: 74P/03

1 0 1
SCALE 1:50,000 KILOMETRES

PROJECT

TAZI TWÉ HYDROELECTRIC PROJECT

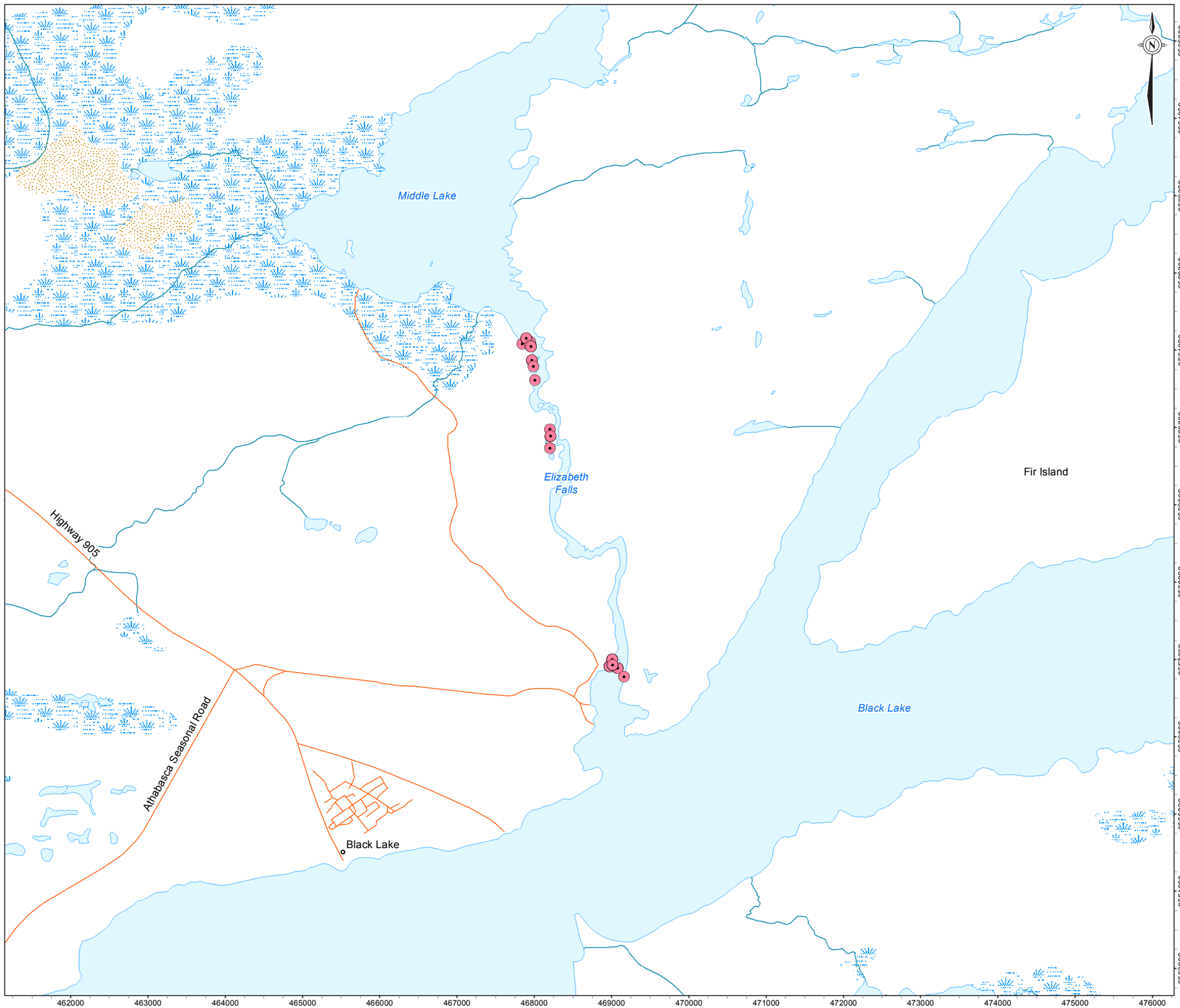
TITLE

ARCTIC GRAYLING SPAWNING SURVEY AND GENERAL FISH COMMUNITY SAMPLING LOCATIONS IN FOND DU LAC RIVER, SPRING (MAY) 2010

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 2
GIS	SM/LR	10/07/13		
CHECK	LT	24/07/13		
REVIEW	BC	24/07/13		

FIGURE: 6.2-2



LEGEND

- VILLAGE
- ROAD
- RIVER
- WATERBODY
- WETLAND
- FOND DU LAC RIVER SUMMER FISH SAMPLING LOCATION

REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 13
DMTI HIGHWAYS AND ROADS
NTS MAPSHEET: 74P/03

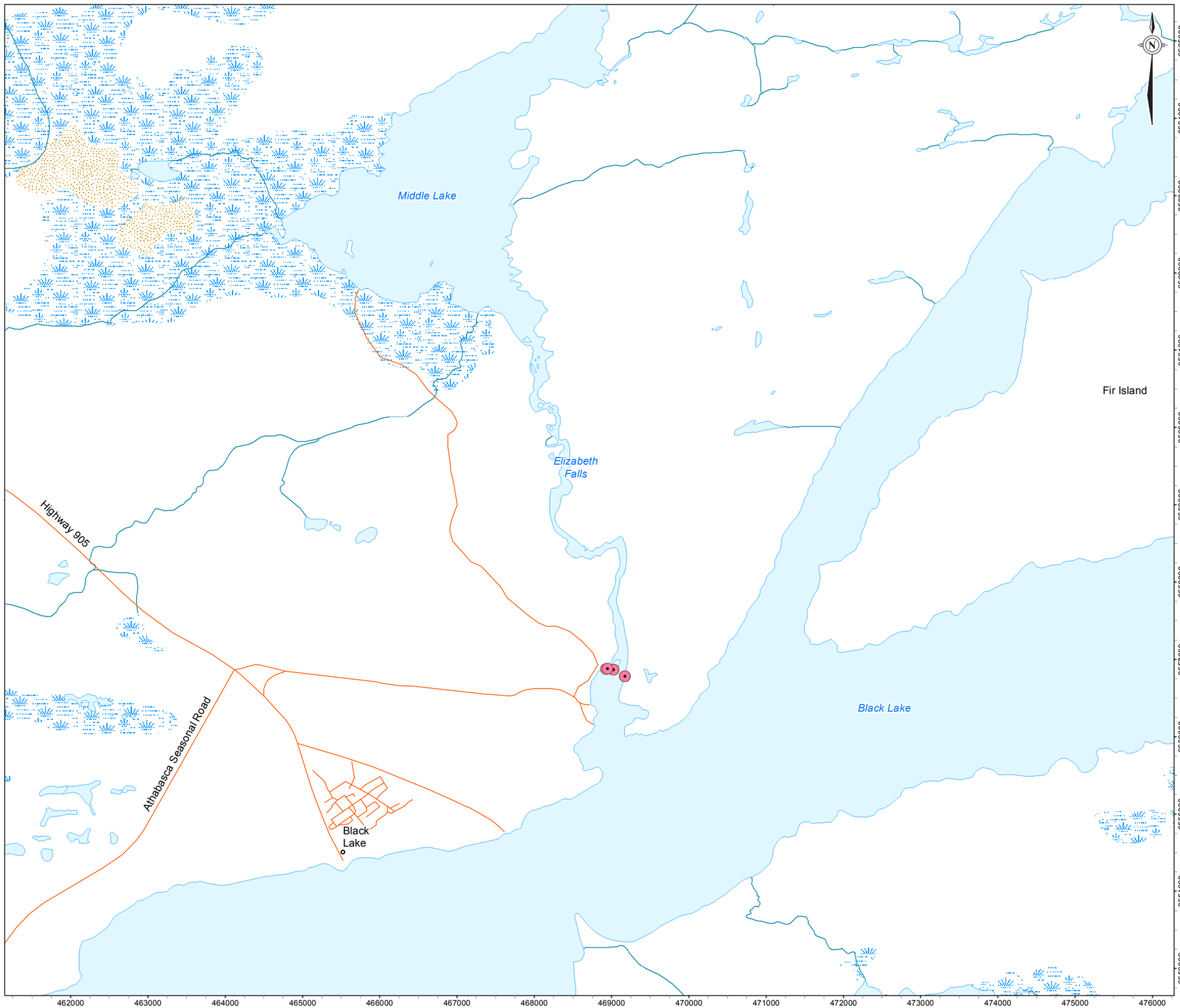
1 0 1
SCALE 1:50,000 KILOMETRES

PROJECT
TAZI TWÉ HYDROELECTRIC PROJECT

TITLE
ARCTIC GRAYLING MARK-RECAPTURE POPULATION ESTIMATE AND GENERAL FISH COMMUNITY SAMPLING LOCATIONS IN FOND DU LAC RIVER, SUMMER (AUGUST) 2010

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.		
DESIGN			SCALE AS SHOWN	REV.	2
GIS	SM/LR	10/07/13	**FIGURE: 6.2-3**		
CHECK	LT	24/07/13			
REVIEW	BC	24/07/13			



LEGEND

- VILLAGE
- ROAD
- RIVER
- WATERBODY
- WETLAND
- FOND DU LAC RIVER FALL FISH SAMPLING LOCATION

REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 13
DMTI HIGHWAYS AND ROADS
NTS MAPSHEET: 74P/03

1 0 1
SCALE 1:50,000 KILOMETRES

PROJECT

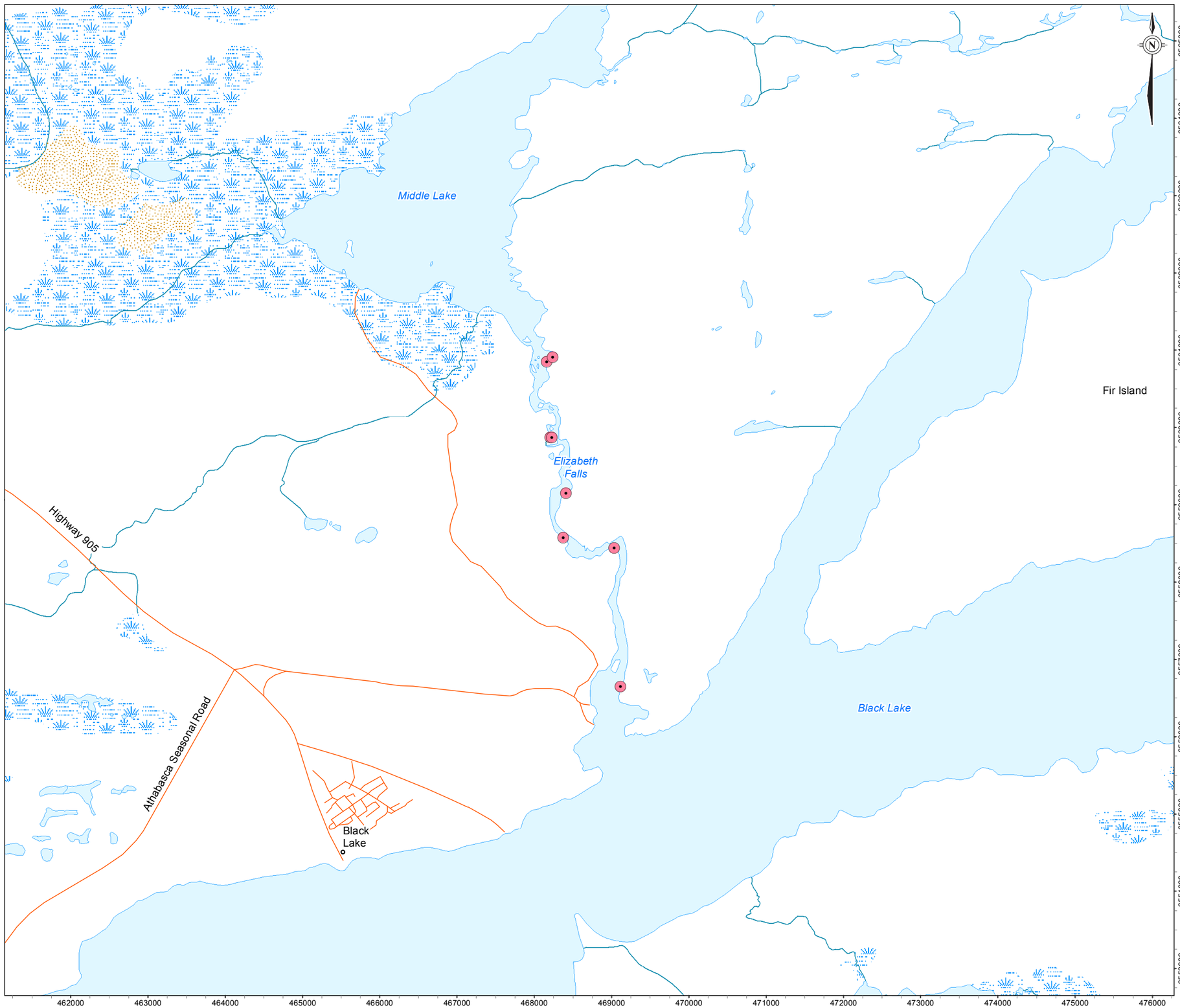
TAZI TWÉ HYDROELECTRIC PROJECT

TITLE

FISH COMMUNITY SAMPLING LOCATIONS IN FOND DU LAC RIVER, FALL (OCTOBER) 2010

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 2
GIS	SM/LR	10/07/13	FIGURE: 6.2-4	
CHECK	LT	24/07/13		
REVIEW	BC	24/07/13		



LEGEND

- VILLAGE
- ROAD
- RIVER
- WATERBODY
- WETLAND
- FOND DU LAC RIVER SPRING FISH SAMPLING LOCATION

REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 13
DMTI HIGHWAYS AND ROADS
NTS MAPSHEET: 74P/03

1 0 1
SCALE 1:50,000 KILOMETRES

PROJECT

TAZI TWÉ HYDROELECTRIC PROJECT

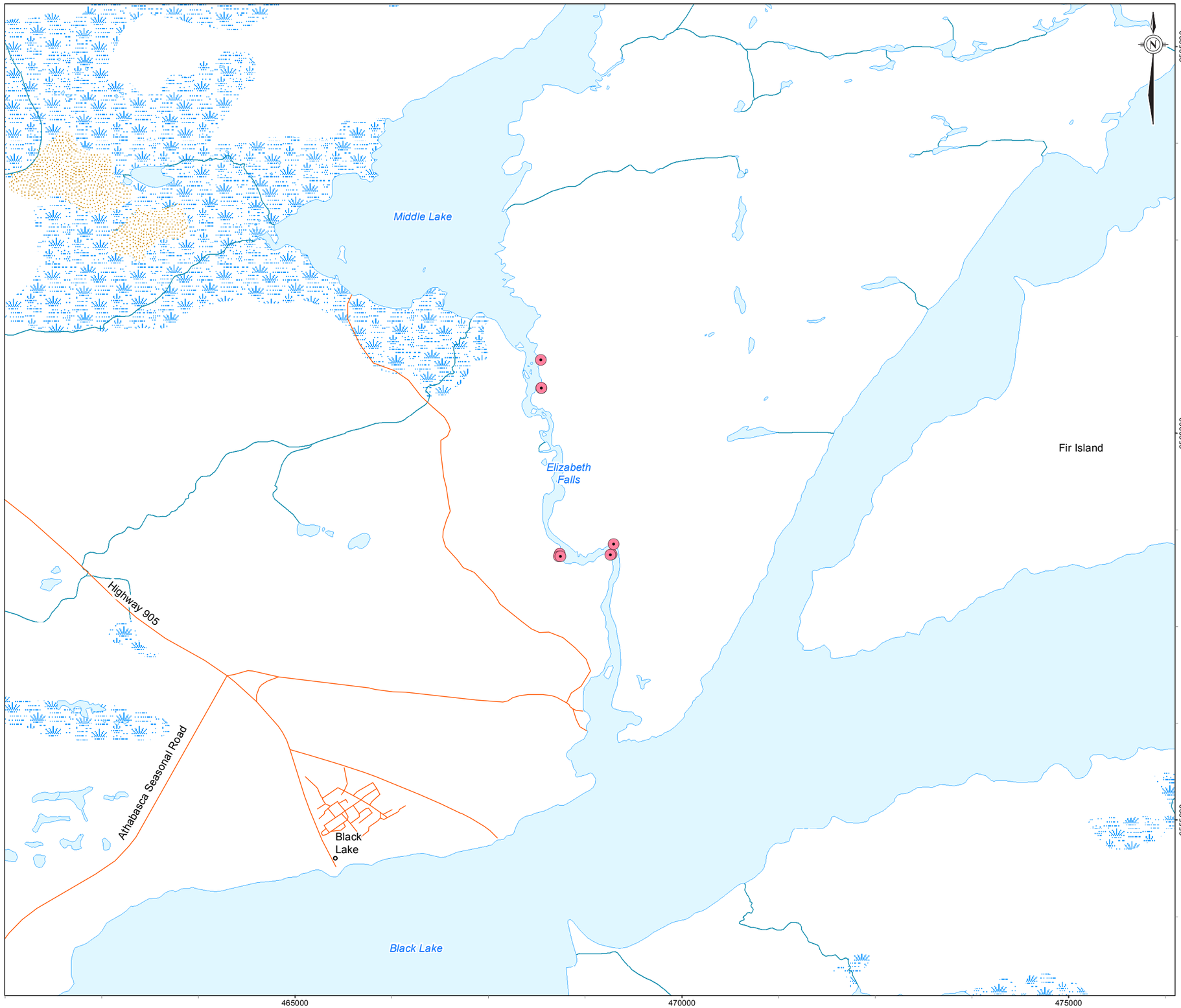
TITLE

ARCTIC GRAYLING SPAWNING SURVEY AND GENERAL FISH COMMUNITY SAMPLING LOCATIONS IN FOND DU LAC RIVER, SPRING (MAY) 2012

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 2
GIS	SM/LR	10/07/13		
CHECK	LT	24/07/13		
REVIEW	BC	24/07/13		

FIGURE: 6.2-5



LEGEND

- VILLAGE
- ROAD
- RIVER
- WATERBODY
- WETLAND
- FOND DU LAC RIVER SPRING FISH SAMPLING LOCATION

REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 13
DMTI HIGHWAYS AND ROADS
NTS MAPSHEET: 74P/03, 04, 05, 06

1 0 1
SCALE 1:50,000 KILOMETRES

PROJECT

TAZI TWÉ HYDROELECTRIC PROJECT

TITLE

FISH COMMUNITY SAMPLING LOCATIONS IN FOND DU LAC RIVER, SUMMER (JULY) 2012

Golder Associates
Saskatoon, Saskatchewan

PROJECT	10-1365-0004		FILE No.	
DESIGN			SCALE AS SHOWN	REV. 3
GIS	SM/LR	10/07/13		
CHECK	LT	24/07/13		
REVIEW	BC	24/07/13		

FIGURE: 6.2-6

6.2.4.1.2 Black Lake

Fish community sampling of Black Lake was completed over six field programs that occurred during spring, summer, and fall (September and October sessions) 2010, winter 2011, and summer 2012 (Table 6.2-1). Field surveys included general fish community sampling of representative habitats within Black Lake (including detailed sampling of the proposed water intake area), as well as information gathered during fall and winter spawning surveys of principle fish species. Sample locations in Black Lake are provided in Figures 6.2-7 to 6.2-12 for each respective field program.

Fish capture methods used in Black Lake consisted of hoop netting, backpack electrofishing, boat electrofishing, angling, gillnetting, and the use of baited set lines and cod traps. Specific capture methods and associated gear-type specifications that were used during each respective field session are provided in Table 6.2-2.

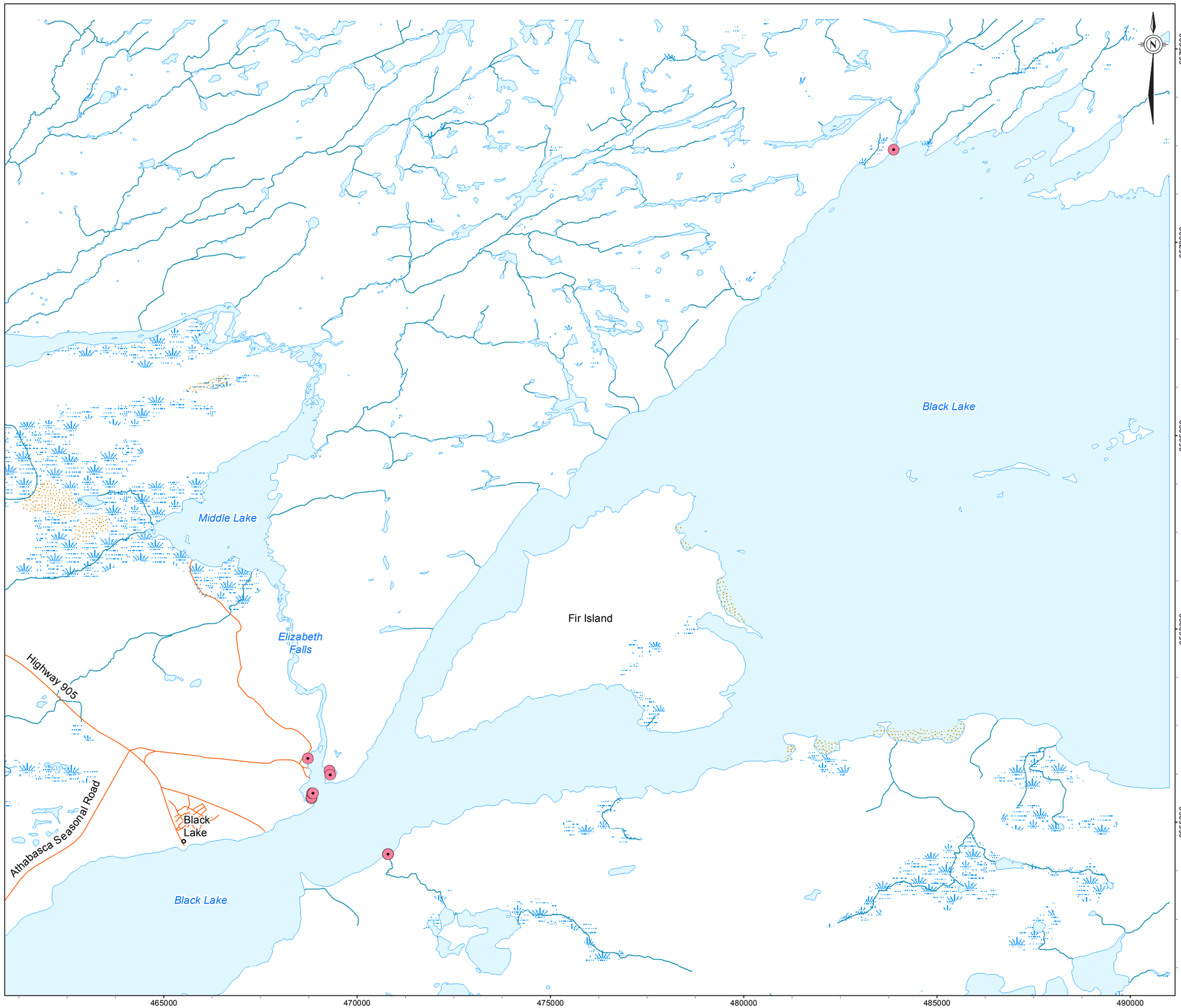
Hoop nets were deployed at four locations in Black Lake, including a site near the mouth of an unnamed tributary across from the Fond du Lac River outflow bay; in shallow water habitat near the mouth of the Chipman River; on the left-downstream-bank of the outflow bay to the Fond du Lac River; and on isolated shoals northeast of Fir Island.

Backpack electrofishing was completed along the Black Lake shoreline in summer 2010 in the vicinity of the proposed water intake, as well as at a secondary location, which at the time of the survey was under consideration as an alternative site for the intake. This entire section of shoreline encompassing both of the potential water intake locations was also sampled by boat electrofishing during summer 2010. Shoreline habitats along the Black Lake–Fond du Lac River outflow bay were sampled by boat electrofishing, and included one nighttime fishing effort to document species presence during the activity peak associated with the period following dusk. In addition, a shallow water sand flat located directly south of the Black Lake outflow, as well as a rocky shoreline area located on the southwest point of Fir Island, were also sampled.

Angling was used primarily to capture lake trout during the September 2010 field program.

Gillnets were set in Black Lake in spring and summer 2010 and in summer 2012 during general fish community sampling carried out in the main basin of Black Lake and in the vicinity of the proposed water intake location. Gillnetting was also carried out at several locations in the lake to capture lake trout, lake whitefish and burbot during the fall 2010 and winter 2011 spawning surveys.

Baited set lines and baited cod traps were used during the winter 2011 burbot spawning survey to sample shallow water habitats where gill nets could not be deployed.



LEGEND

- VILLAGE
- ROAD
- RIVER
- WATERBODY
- WETLAND
- BLACK LAKE SPRING FISH SAMPLING LOCATION

REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 13
DMTI HIGHWAYS AND ROADS
NTS MAPSHEET: 74P/03, 04, 05, 06

2 0 2
SCALE 1:100,000 KILOMETRES

PROJECT

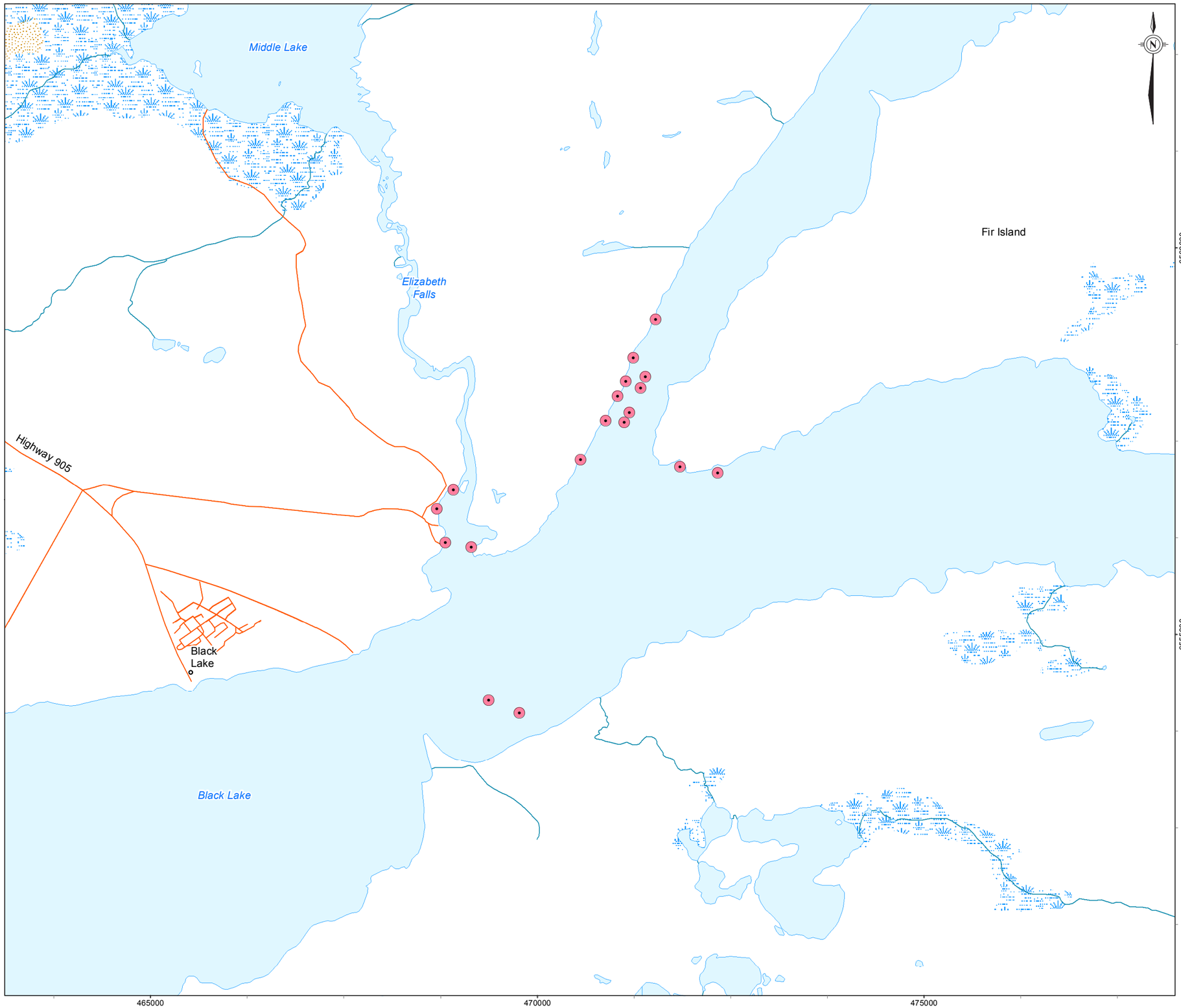
TAZI TWÉ HYDROELECTRIC PROJECT

TITLE

FISH COMMUNITY SAMPLING LOCATIONS IN BLACK LAKE, SPRING (JUNE) 2010

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 2
GIS	SM/LR	10/07/13	FIGURE: 6.2-7	
CHECK	LT	24/07/13		
REVIEW	BC	24/07/13		



LEGEND

- VILLAGE
- ROAD
- RIVER
- WATERBODY
- WETLAND
- BLACK LAKE SUMMER FISH SAMPLING LOCATION

REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 13
DMTI HIGHWAYS AND ROADS
NTS MAPSHEET: 74P/03

1 0 1
SCALE 1:50,000 KILOMETRES

PROJECT

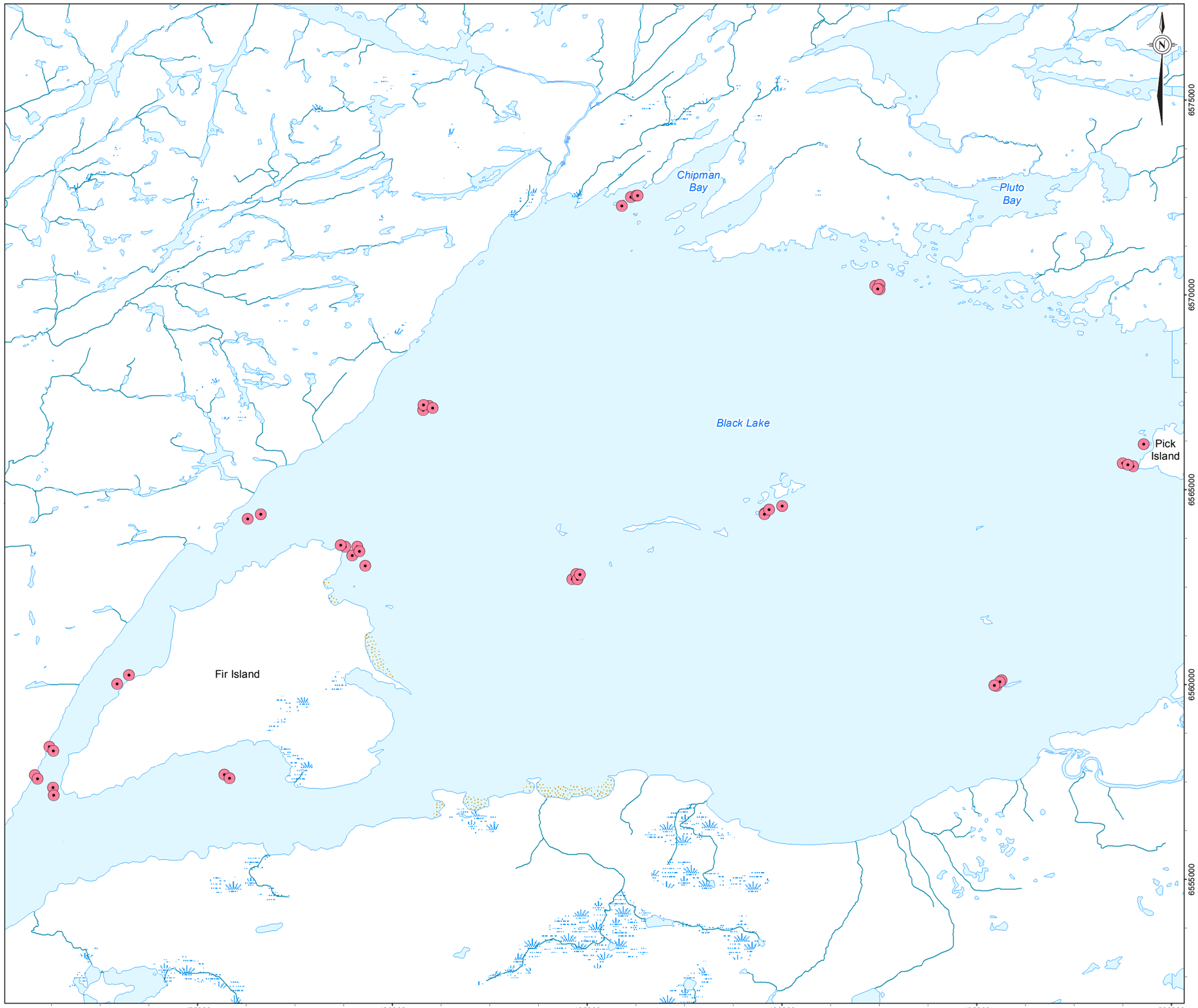
TAZI TWÉ HYDROELECTRIC PROJECT

TITLE

FISH COMMUNITY SAMPLING LOCATIONS IN BLACK LAKE, SUMMER (AUGUST) 2010

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 2
GIS	SM/LR	10/07/13	FIGURE: 6.2-8	
CHECK	LT	24/07/13		
REVIEW	BC	24/07/13		



LEGEND

- VILLAGE
- RIVER
- WATERBODY
- WETLAND
- SEPTEMBER 2010 FISH SAMPLING LOCATION

REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 13
DMTI HIGHWAYS AND ROADS
NTS MAPSHEET: 74P/03

2 0 2
SCALE 1:100,000 KILOMETRES

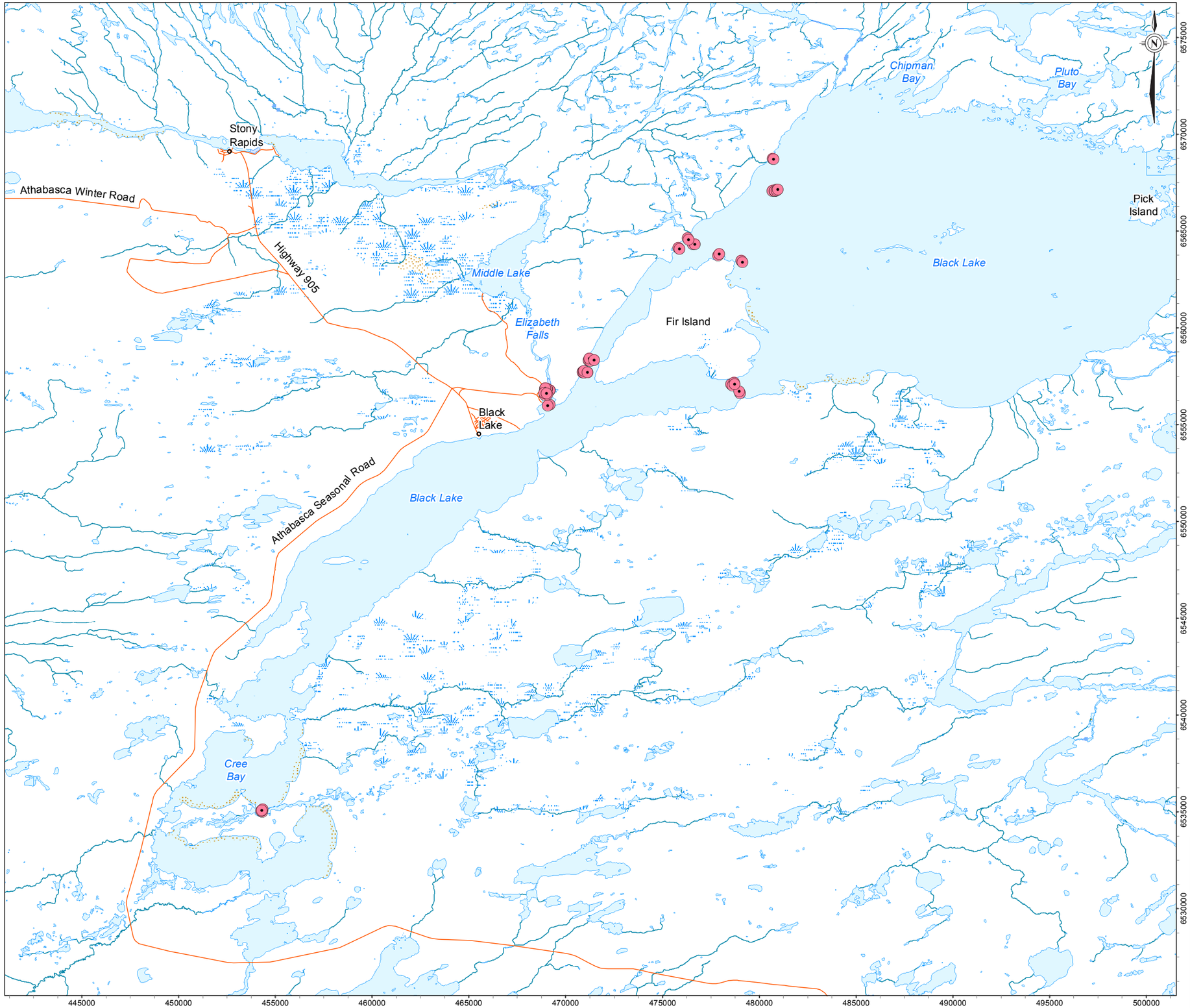
PROJECT
TAZI TWÉ HYDROELECTRIC PROJECT

TITLE
LAKE TROUT SPAWNING SURVEY AND GENERAL FISH COMMUNITY SAMPLING LOCATIONS IN BLACK LAKE, FALL (SEPTEMBER) 2010

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 2
GIS	SM/LR	10/07/13		
CHECK	LT	24/07/13		
REVIEW	BC	24/07/13		

FIGURE: 6.2-9



LEGEND

- VILLAGE
- ROAD
- RIVER
- WATERBODY
- WETLAND
- OCTOBER 2010 FISH SAMPLING LOCATION

REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 13
DMTI HIGHWAYS AND ROADS
NTS MAPSHEET: 74P/02, 03, 04, 05, 06, 07; 74O/01, 06; 74I/13, 14, 15; 74J/16

4 0 4
SCALE 1:200,000 KILOMETRES

PROJECT

TAZI TWÉ HYDROELECTRIC PROJECT

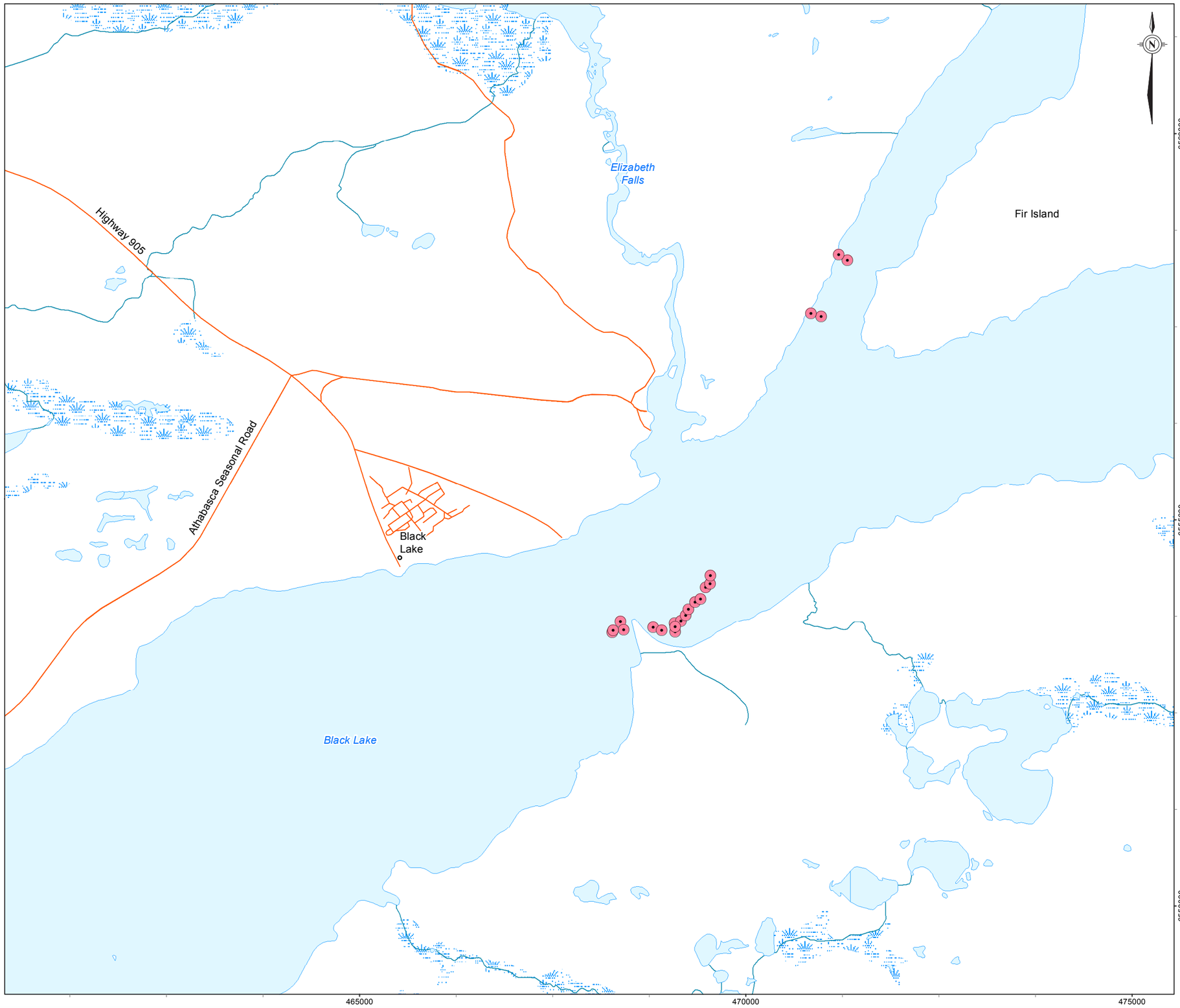
TITLE

LAKE WHITEFISH SPAWNING SURVEY AND GENERAL FISH COMMUNITY SAMPLING LOCATIONS IN BLACK LAKE, FALL (OCTOBER) 2010

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.		
DESIGN			SCALE AS SHOWN	REV.	2
GIS	SM/LR	10/07/13			
CHECK	LT	24/07/13			
REVIEW	BC	24/07/13			

FIGURE: 6.2-10



LEGEND

- VILLAGE
- ROAD
- RIVER
- WATERBODY
- WETLAND
- BLACK LAKE FEBRUARY 2011 SAMPLING LOCATION

REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 13
DMTI HIGHWAYS AND ROADS
NTS MAPSHEET: 74P/03, 04

1 0 1
SCALE 1:50,000 KILOMETRES

PROJECT

TAZI TWÉ HYDROELECTRIC PROJECT

TITLE

BURBOT SPAWNING SURVEY AND GENERAL FISH COMMUNITY SAMPLING LOCATIONS IN BLACK LAKE, WINTER (FEBRUARY) 2011

Golder Associates
Saskatoon, Saskatchewan

PROJECT	10-1365-0004		FILE No.	
DESIGN			SCALE AS SHOWN	REV. 2
GIS	SM/LR	10/07/13		
CHECK	LT	24/07/13		
REVIEW	BC	24/07/13		

FIGURE: 6.2-11

LEGEND

- VILLAGE
- ROAD
- RIVER
- WATERBODY
- WETLAND
- BLACK LAKE SUMMER GILL NET LOCATION

REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 13
DMTI HIGHWAYS AND ROADS
NTS MAPSHEET: 74P/03, 04, 05, 06

1 0 1
SCALE 1:50,000 KILOMETRES

PROJECT

TAZI TWÉ HYDROELECTRIC PROJECT

TITLE

FISH COMMUNITY SAMPLING LOCATIONS IN BLACK LAKE, SUMMER (JULY) 2012

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 2
GIS	SM/LR	10/07/13		
CHECK	LT	24/07/13	FIGURE: 6.2-12	
REVIEW	BC	24/07/13		

6.2.4.1.3 Middle Lake

General fish community sampling of Middle Lake was completed over three field programs which occurred during spring and summer 2010, and winter 2011 (Table 6.2-1). Fisheries investigations within Middle Lake focussed exclusively on gathering information about the local fish community. Sample locations in Middle Lake are provided in Figure 6.2-13.

Fish sampling methods used in Middle Lake included boat electrofishing and gillnetting. Specific capture methods and associated gear-type specifications used during each respective field session are provided in Table 6.2-2.

Boat electrofishing was carried out in the near shore area along the right-downstream-bank, in the vicinity of the Middle Lake inflow. Gill nets were deployed in the same area, but at a deeper depth contours. Additional boat electrofishing was carried out in littoral habitats near the Fond du Lac River outflow to Middle Lake.

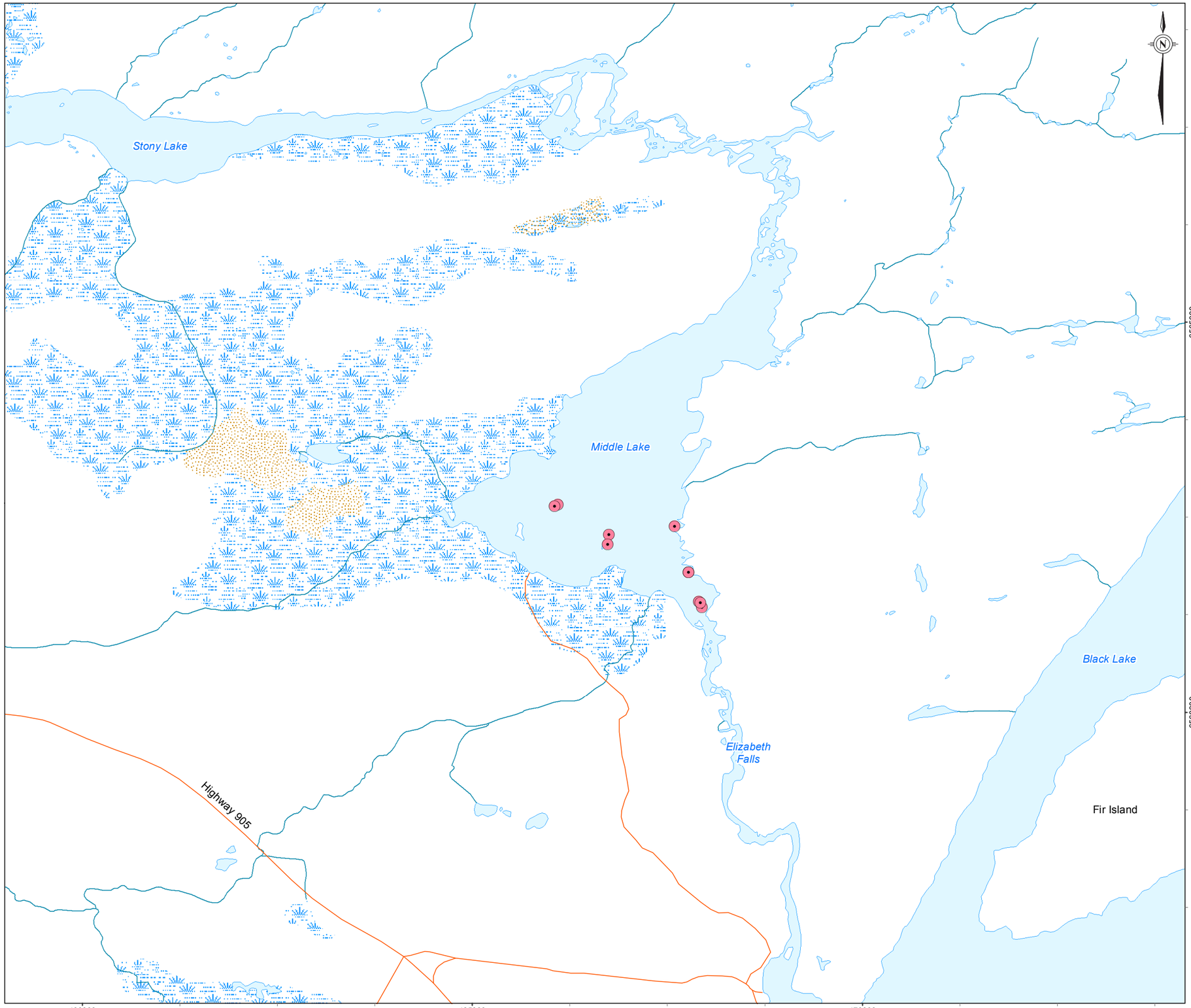
6.2.4.2 Fish Handling Methods

Large-bodied fish species captured during the baseline program were identified to species, enumerated, and measured for fork length or total length (depending on the species) and weight. Small-bodied fish (SBF) were enumerated by species and released. A cursory external health examination was completed on all large-bodied fish captured, and detailed observations were made on any external feature that did not appear normal (i.e., body deformities, wounds, lesions, or tumours on the skin, etc.). Reproductive status (e.g., life-stage and maturity; see Table 6.2-3) and sex were determined when possible, by attempting to express gametes (i.e., eggs or milt) with gentle pressure on the abdomen.

The fish fate (i.e., released or sacrificed) was recorded for each capture. Released fish were observed until the fish swam away. Carcasses of incidental mortalities were disposed of at a suitable facility or given to the local community. Non-lethal aging structures were collected from a representative sample of live-released fish, while preferred structures were collected from incidental mortalities (Table 6.2-4). During the 2010 field programs, a subset of large-bodied fish captured in Black Lake, Fond du Lac River and Middle Lake were tagged with a Floy T bar anchor tag and/or internal passive integrated transponder (PIT) tag for inclusion in fish migration studies (see Section 6.2.7.1.1).

6.2.4.2.1 Identification of Black Lake Cisco Species

Historical fisheries information for Black Lake indicates that both shortjaw cisco (*Coregonus zenithicus*) and the common cisco (i.e., northern cisco or lake herring; *Coregonus artedi*); have been recorded in Black Lake. Shortjaw cisco is categorized as a threatened species by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) (COSEWIC 2012), and is being considered for listing under the *Species at Risk Act*. Shortjaw cisco are difficult to distinguish from other cisco species based on external appearance, but can be identified by the presence of fewer gill rakers relative to other ciscoes. Given the challenges associated with cisco identification, detailed photographs and voucher species were collected to facilitate accurate species identification. Voucher species were sent for identification to a Golder Fisheries Biologist with expertise in cisco biology (Paul Vecsei, Yellowknife, YT). Detailed methods used in the Black Lake cisco taxonomic assessment are provided in Appendix III.8.



LEGEND

- ROAD
- RIVER
- WATERBODY
- WETLAND
- MIDDLE LAKE FISH SAMPLING LOCATIONS MAY 2010 TO FEBRUARY 2011

REFERENCE

DATUM: NAD83 PROJECTION: UTM ZONE 13
DMTI HIGHWAYS AND ROADS
NTS MAPSHEET: 74P/03

1 0 1
SCALE 1:50,000 KILOMETRES

PROJECT

TAZI TWÉ HYDROELECTRIC PROJECT

TITLE

MIDDLE LAKE FISH SAMPLING LOCATIONS, SPRING (MAY) 2010 TO WINTER (FEBRUARY) 2011

Golder Associates
Saskatoon, Saskatchewan

PROJECT	10-1365-0004		FILE No.	
DESIGN			SCALE AS SHOWN	REV. 2
GIS	SM/LR	10/07/13		
CHECK	LT	24/07/13	FIGURE: 6.2-13	
REVIEW	BC	24/07/13		

Table 6.2-3: Fish Maturity Codes and Definitions

Code	Maturity	Description
IM	Immature	Fish has never spawned and will not spawn in the coming season; testes/ovaries transparent, very small and close under the vertebral column, determination of sex may be difficult.
MA	Maturing	Fish has not spawned before, will spawn in the coming season; gonads developed primarily in the anterior body cavity.
SD	Seasonal development	Fish sexually mature, has spawned before, gonads developing for coming season.
PR	Pre-spawning	Fish sexually mature, gonads filling ventral cavity, testes white, eggs round - some translucent.
RP	Ripe	Fish with roe/milt extruded with very slight pressure on belly.
SP	Spent	Fish with spawning completed, re-absorption of residual ovarian tissue not yet completed.
RS	Resting	Fish sexually mature, has spawned before; gonads not developing for the coming season; alternate year spawner.
RB	Reabsorbing	Fish sexually mature, gonads developed for current season but did not spawn; interrupted spawning effort; eggs become atretic (small, hard and white).
UN	Unknown	Fish with external examination only or unable to determine maturity following internal examination.

Table 6.2-4: Preferred Lethal and Non-lethal Ageing Structures by Fish Species

Species	Lethal	Non-Lethal	Comments
Arctic grayling	Otoliths	Scales	■ remove 10-15 scales from the left side of the fish between the adipose fin and the lateral line; ■ attempt to keep the scales separated and place on wax paper; and ■ place otoliths on wax paper or parafilm, fold once, and place in envelope.
Burbot	Otoliths	none	■ place otoliths on wax paper or parafilm, fold once, and place in envelope.
Cisco	Otoliths	Scales	■ remove 10-15 scales from the left side of the fish between the adipose fin and the lateral line; ■ attempt to keep the scales separated and place on wax paper; and ■ place otoliths on wax paper or parafilm, fold once, and place in envelope.
Lake trout	Otoliths	Pelvic fin rays, scales (if immature)	■ proximal end of the first three pelvic fin rays (clipped close to the fish); ■ wrap fin ray in wax paper prior to placing in envelope and freeze; and ■ place otoliths on wax paper or parafilm, fold once, and place in envelope.
Lake whitefish	Otoliths	Scales or pelvic fin ray	■ remove 10-15 scales from the left side of the fish between the adipose fin and the lateral line; ■ attempt to keep the scales separated and place on wax paper; ■ wrap fin ray in wax paper prior to placing in the envelope and freeze; ■ attempt to keep the scales separated and place on wax paper; and ■ place otoliths on wax paper or parafilm, fold once, and place in envelope.

6.2.4.3 Data Analysis

Mean length, weight, and condition factor (*K*) were calculated separately for all large-bodied fish species and life stages (adult, fry, and juvenile) captured during each respective field program. Given that sampling occurred over several different seasons and that the objectives of each field survey varied, a formal comparison of relative

abundance was not made. Focussed sampling, such as during spawning periods, tends to increase the susceptibility of spawning fish to capture and would bias the comparability of relative abundance estimates. However, catch-per-unit-effort (CPUE) values were calculated for reference purposes and are provided as an Appendix to the baseline Annex (Appendix III.9, Tables III.9-1 to III.9-7). Catch-per-unit-effort (CPUE) values were calculated separately for each species captured in each gear type, during each fishing effort. For the Fond du Lac River, fish body size summaries and CPUE appendices were prepared separately for each of the three key sampling locations identified within the river (i.e., Black Lake outlet area, middle section, Middle Lake outflow area).

6.2.5 Focussed Fisheries Investigations

Several focussed investigations were completed in the LSA to gather information needed to document the present state of fisheries resources in the Project area and to meet the baseline data collection requirements outlined in the draft Project-specific Terms of Reference (TOR). Specific fisheries investigations included fish movement studies in the LSA; mark-recapture population estimates of Arctic Grayling in the Fond du Lac River, spawning surveys of principal fish species in Black Lake and the Fond du Lac River; and Arctic grayling fry surveys in the Fond du Lac River.

The sample collection and data analysis methods used for each study are provided in the following sections. Investigations are organized according to the maximum spatial scale of the survey (LSA, Fond du Lac River, and Black Lake; there were no focussed surveys limited to Middle Lake). General information pertaining to fish capture techniques (i.e., gear type specifications and detailed sampling procedures) and standard fish handling methods (fish species identification and field processing methods) are provided in Sections 6.2.4.1 and 6.2.4.2.

6.2.5.1 Local Study Area

6.2.5.1.1 Mark-Recapture Fish Movement Study

Directed migrations of adult fish occur on a regular basis to access spawning, foraging, or overwintering habitats. For fish species found the LSA, these habitats may occur in the Elizabeth Falls section of the Fond du Lac River, as well as in upstream and downstream lake environments (i.e., Black Lake and Middle Lake), and nearby tributaries of the Fond du Lac River system. Understanding the seasonal movement patterns of large-bodied fish species in the Elizabeth Falls area was an important component of the aquatic baseline because the operation of the hydropower facility has the potential to reduce flows in the bypassed section of the Fond du Lac River, and may therefore alter fish movements that are associated with habitat availability and use. The objectives of the fish migration studies were to determine the extent of movement of large-bodied fish species within the Fond du Lac River, Black Lake, and Middle Lake, as well as into other areas upstream or downstream of the future bypass river section.

6.2.5.1.2 Fish Tagging Methods

The fisheries baseline investigations included a number of surveys during which fish were tagged and/or examined for previous tags to determine fish movements. During the 2010 field programs, a subset of the large-bodied fish captured were tagged and released. Sampling programs that incorporated tagging of large-bodied fish species included general fish community sampling within Black Lake, the Fond du Lac River and Middle Lake; spawning surveys completed in Black Lake and the Fond du Lac River; and mark-recapture sampling of Arctic grayling for the Fond du Lac River population estimate studies. Sampling locations and fish capture methods used for these surveys are provided in Section 6.2.4.

Fish of sufficient size (i.e., generally longer than 150 mm [millimetre] fork length) and in good physical condition were tagged with a Floy T bar anchor tag (FD-94; Floy Tag and Manufacturing Inc., Seattle, Washington) and/or internal PIT tag. Floy tags were applied behind and to the side of the dorsal fin, while PIT tags were inserted abdominally. Once tagging and general fish processing (see Section 6.2.4.2) was completed, fish were returned to the same waterbody from where they were caught. Fish captured during the marking phase and in subsequent sampling were scanned for the presence of PIT and/or Floy tags to identify recaptured fish.

6.2.5.1.3 Creel Survey

To increase the amount of fishing effort expended to recapture tagged fish, a creel survey was initiated in spring 2010 to encourage local fishermen fishing in LSA waterbodies to report captures of tagged fish. Posters requesting that local residents and clients of Camp Grayling contact the Golder office in Saskatoon should they capture tagged fish were distributed at popular fishing locations, at Camp Grayling, and in the community of Black Lake. The recapture information provided by local fishermen was included in the assessment of migration patterns in the LSA.

6.2.5.1.4 Data Analysis

Movements of recaptured fish (i.e., both those reported by local fishermen or recaptured during the baseline sampling) were determined by comparing marking and recapture locations of tagged individuals. Fish capture, locations, time at large, and distance traveled were used to provide an understanding of fish movements between habitat types, as well as within and among waterbodies.

6.2.5.2 Fond du Lac River

6.2.5.2.1 Spring Arctic Grayling Spawning Surveys

The operation of the Project has the potential to alter water flow and fish habitat in the Fond du Lac River, which could potentially affect fish species, such as Arctic grayling, that use the river for spawning and rearing. As part of the baseline investigations, spring spawning surveys were completed to identify spawning areas used by Arctic grayling and to assess habitat conditions in these areas. The spring spawning survey included fish sampling of known and suspected spawning areas, as well as egg sampling to confirm that spawning occurred. This information was used collectively to describe spawning habitat quality of sampling locations. Arctic grayling spawning surveys were carried out at three general locations in the Fond du Lac River in 2010 and 2012. These included the outlet of Black Lake (Grayling Island area), the Fond du Lac River below Grayling Island but above Elizabeth Falls (middle section), and the Fond du Lac River near its outflow into Middle Lake.

6.2.5.2.1.1 Spawning Fish Sampling

Fish sampling was completed in late May 2010 and 2012 during the Arctic grayling spawning aggregation. Google Earth imagery, along with reconnaissance gathered from previous field surveys, identified a number of shallow water habitats with potential to be used by Arctic grayling as spawning habitat. Hoop nets (2.54 cm stretched mesh equipped with 10 m wings) were deployed at a number of potential spawning sites. One angling effort was also completed during 2010.

Sampling Locations and Timing

Arctic grayling spawning surveys near the Black Lake outlet (Grayling Island area) focused on shallow water habitat near the Black Lake outflow. In 2010 hoop nets were deployed at four locations near the Black Lake outflow area (Figure 6.2-2). One angling effort was also completed near Grayling Island in 2010. In 2012 one hoop net was deployed near the Black Lake outflow (Figure 6.2-6).

Arctic grayling spawning surveys were conducted in the middle section of the Fond du Lac River near its outflow to Middle Lake in late May 2012. No surveys were conducted during 2010 in this section of the Fond du Lac River. Hoop nets were deployed at three locations in 2012 (Figure 6.2-6).

Arctic grayling spawning surveys completed in the lower Fond du Lac River focussed on shallow water habitat. In 2010 hoop nets were deployed at five locations downstream of Elizabeth Falls (Figure 6.2-2). In 2012 four hoop nets were deployed between Elizabeth Falls and Middle Lake (Figure 6.2-6).

Fish Handling Methods

Processing methods used during the spring 2010 and spring 2012 Arctic grayling spawning surveys followed the procedures described in Section 6.2.4.2. Additional care was taken during the examination of fish to determine the sex and sexual maturity of each individual (whenever possible). Non-lethal aging structures were collected from adult Arctic grayling during both the 2010 and 2012 surveys. In cases of incidental mortality, otoliths were also collected. Aging structures collected during the 2010 sampling session were analyzed by Consulting Fisheries Age Interpretation (Louise Stanley, Welland Ontario).

Data Analysis

Mean lengths, weights, and condition factors (*K*) were calculated for adult male and female Arctic grayling captured during the spawning surveys. Length-frequency distributions were prepared from the available body size data. Age-frequency distributions and size-at-age plots were also prepared for male and female Arctic grayling captured from each sampling location. Size-at-age plots were assessed separately for males and females.

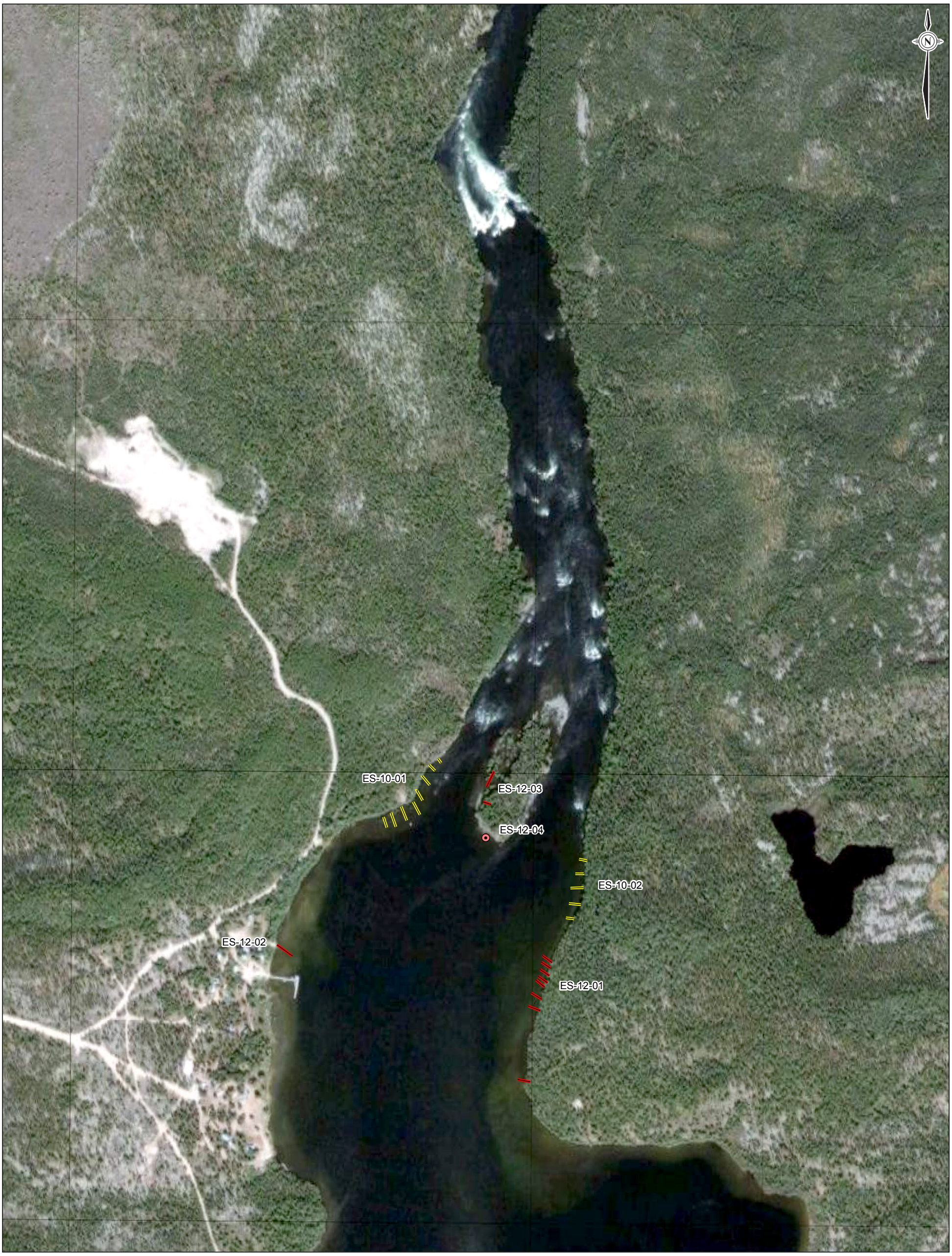
6.2.5.2.1.2 Egg Searches and Habitat Assessments

Detailed habitat assessments, including egg counts were completed at Arctic grayling spawning locations identified in each of the three general sampling areas of the Fond du Lac River (outlet of Black Lake, middle section, and outflow to Middle Lake) (Figures 6.2-14, to 6.2-16). Egg searches were carried out where Arctic grayling were captured, or where conditions suggested Arctic grayling spawning might have occurred. Egg searches were completed during the same general time period that sampling of spawning Arctic grayling occurred (late May to early June 2010 and 2012).

Sampling Locations and Timing

Sampling efforts near the Black Lake outflow focussed on shallow water habitat around Grayling Island (Figure 6.2-14). In 2010 sampling focused on two general areas located along the left and right downstream banks adjacent to Grayling Island (Figure 6.2-14). In 2012, sampling was carried out further upstream near Camp Grayling, and at three locations adjacent to the west and south shorelines of Grayling Island (Figure 6.2-14).

Egg sampling efforts in the middle section of the Fond du Lac River focussed on near shore habitats between the large westward bend of the river at kilometre 2.8 and upstream of Elizabeth Falls. In 2012 sampling was carried out at two locations along the left downstream bank and at four locations along the right downstream bank (Figure 6.2-15). Egg searches were not carried out in the middle section of the river in 2010.



LEGEND

- SPOT SAMPLE LOCATION
- 2012 TRANSECT LOCATION
- 2010 TRANSECT LOCATION

100 0 100

SCALE 1:5,000 METRES

REFERENCE

2012 GOLDER FIELD SURVEY
GOOGLE EARTH IMAGERY 2012 DIGITALGLOBE
DATUM: NAD83 PROJECTION: UTM ZONE 13

PROJECT

TAZI TWÉ HYDROELECTRIC PROJECT

TITLE

2010 AND 2012 BLACK LAKE OUTLET EGG SEARCH LOCATIONS

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
GIS	SM/LR	10/07/13		
CHECK	LT	24/07/13	**FIGURE: 6.2-14**	
REVIEW	BC	24/07/13		

LEGEND

- SPOT SAMPLE LOCATION
- 2012 TRANSECT LOCATION
- 2010 TRANSECT LOCATION

100 0 100

SCALE 1:5,000 METRES

REFERENCE

2012 GOLDER FIELD SURVEY
GOOGLE EARTH IMAGERY 2012 DIGITALGLOBE
DATUM: NAD83 PROJECTION: UTM ZONE 13

PROJECT

TAZI TWÉ HYDROELECTRIC PROJECT

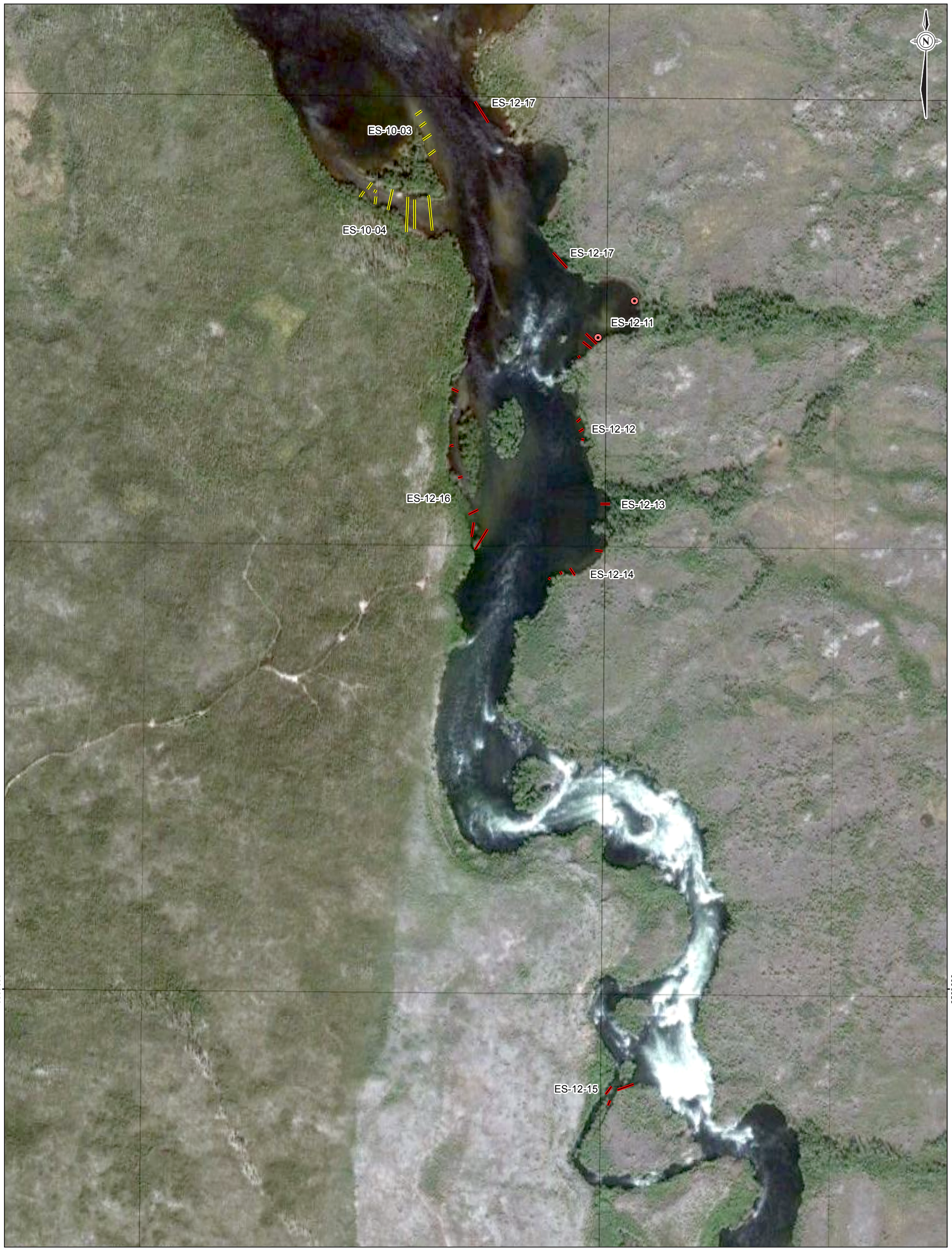
TITLE

2012 MIDDLE SECTION EGG SEARCH LOCATIONS

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
GIS	SM/LMR	10/07/13		
CHECK	LT	25/07/13		
REVIEW	BC	25/07/13		

FIGURE: 6.2-15



LEGEND

- SPOT SAMPLE LOCATION
- 2012 TRANSECT LOCATION
- 2010 TRANSECT LOCATION

100 0 100
SCALE 1:5,000 METRES

REFERENCE

2012 GOLDER FIELD SURVEY
GOOGLE EARTH IMAGERY 2012 DIGITALGLOBE
DATUM: NAD83 PROJECTION: UTM ZONE 13

PROJECT

TAZI TWÉ HYDROELECTRIC PROJECT

TITLE

2010 AND 2012 MIDDLE LAKE INFLOW EGG SEARCH LOCATIONS

Golder Associates
Saskatoon, Saskatchewan

PROJECT	10-1365-0004		FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
GIS	SM/LR	10/07/13		
CHECK	LT	25/07/13		
REVIEW	BC	25/07/13		

FIGURE: 6.2-16

Sampling near the Fond du Lac River outflow to Middle Lake in 2010 was carried out along the east bank of the island located at the mouth of Middle Lake and in the side channel between the island and the left downstream bank (Figure 6.2-16). In 2012, egg searches were completed at six locations along the right downstream bank including sites in the vicinity of the proposed tailrace outflow bay. Two additional sampling locations in the lower Fond du Lac River near Middle Lake included a section of the side channel west of Elizabeth Falls and along the left downstream bank, approximately half way between the base of Elizabeth Falls and the inlet of Middle Lake (Figure 6.2-16).

Sampling Design

Egg searches and habitat data were collected along evenly distributed transects located in potential shallow water spawning habitats (Table 6.2-5). Transects extended from shore and were oriented perpendicular to the flow. Transects ended when water depth and/or flow velocity could no longer be safely waded. The number of transects, egg sampling stations per transect, and distance between transects was determined by the size of the area to be sampled. A summary of the number of transects and stations sampled at each sampling area in the Fond du Lac River is provided in Table III.11-1 in Appendix III.11 and contains the coordinates of all transect stations, as well as dates of surveys.

Habitat Data Collection

The following habitat parameters were recorded at each egg sampling station:

- water depth (m);
- water velocity (m/s) (Swoffer Model 2100); and
- 10 substrate measurements (Modified Wentworth Classification).

A modified Wentworth substrate classification (Table 6.2-6) was used to describe substrates along each transect. Additional substrate measurements were collected for each egg search station (10 observations). The basic approach involved making a series of categorical observations describing the size of dominant substrates. A 5 m length of lead line was marked in 10 cm increments with contrasting colors, and was stretched along the transects. At each 10 cm increment, the dominant substrate type was assessed and recorded with the corresponding modified Wentworth sample code category. These categorical observations can be treated as data for future statistical description of substrate and may assist with the design of future habitat compensation plans.

Table 6.2-5: Arctic Grayling Egg Sampling Efforts Carried Out in the Fond du Lac River, Spring 2010 and Spring 2012

Area of Interest	Year	Sampling Location[a]	Number of Transects	Number of Stations[b]
Black Lake Outlet Area	2010	ES-10-01	8	25
		ES-10-02	5	5
	2012	ES-12-01	8	24
		ES-12-02	1	3
		ES-12-03	2	4
		ES-12-04	1	1
	Total		**25**	**62**
Middle Section	2012	ES-12-05	3	20
		ES-12-06	3	9
		ES-12-07	4	14
		ES-12-08	1	2
		ES-12-09	1	3
		ES-12-10	1	1
	Total		**13**	**49**
Lower Section Above Middle Lake	2010	ES-10-03	4	9
		ES-10-04	6	37
	2012	ES-12-11	3	15
		ES-12-12	3	8
		ES-12-13	1	3
		ES-12-14	4	10
		ES-12-15	1	10
		ES-12-16	6	16
		ES-12-17	2	7
	Total		**30**	**115**

[a] Sampling locations are provided in Figures 6.2-16 to 6.2-18.
[b] The number of stations sampled is provided collectively over the total number of transects. Coordinates of individual stations are provided in Appendix III.11, Table III.11-1

Table 6.2-6: Modified Wentworth Classification of Substrate Types by Size.

Substrate Type	Particle Size Range (millimetre)	Category Code
Silt and clay	<0.059	0
Sand	0.06-1	1
Gravel	2-15	2
Pebble	16-63	3
Cobble	64-256	4
Boulder	>256	5

< = less than; > = greater than.

Dissolved oxygen (mg/L), pH, temperature (°C), and conductivity (µS/cm) were also measured at each station in 2010 using a YSI 600 QS-O-M multimeter. In 2012 water quality measurements were recorded for each search area.

Kick Net Surveys

Egg searches were conducted with a kick net at approximately 5 m intervals along each transect described above. A 900 cm^2 area of substrate was agitated for approximately one minute immediately upstream of the sample net. The contents of the net were emptied into a white tray and the number of eggs sampled was tallied.

Data Analysis

Mean and total egg counts at each sampling location, as well as mean values of habitat variables (water depth, temperature and velocity) were calculated for each prospective spawning area. These data were used in combination with information gathered during spawning surveys (Section 6.2.7.2.1.1) to provide a qualitative description of the relative importance of identified Arctic grayling spawning areas in each of three general study areas of the Fond du Lac River.

6.2.5.2.2 Arctic Grayling Fry Surveys

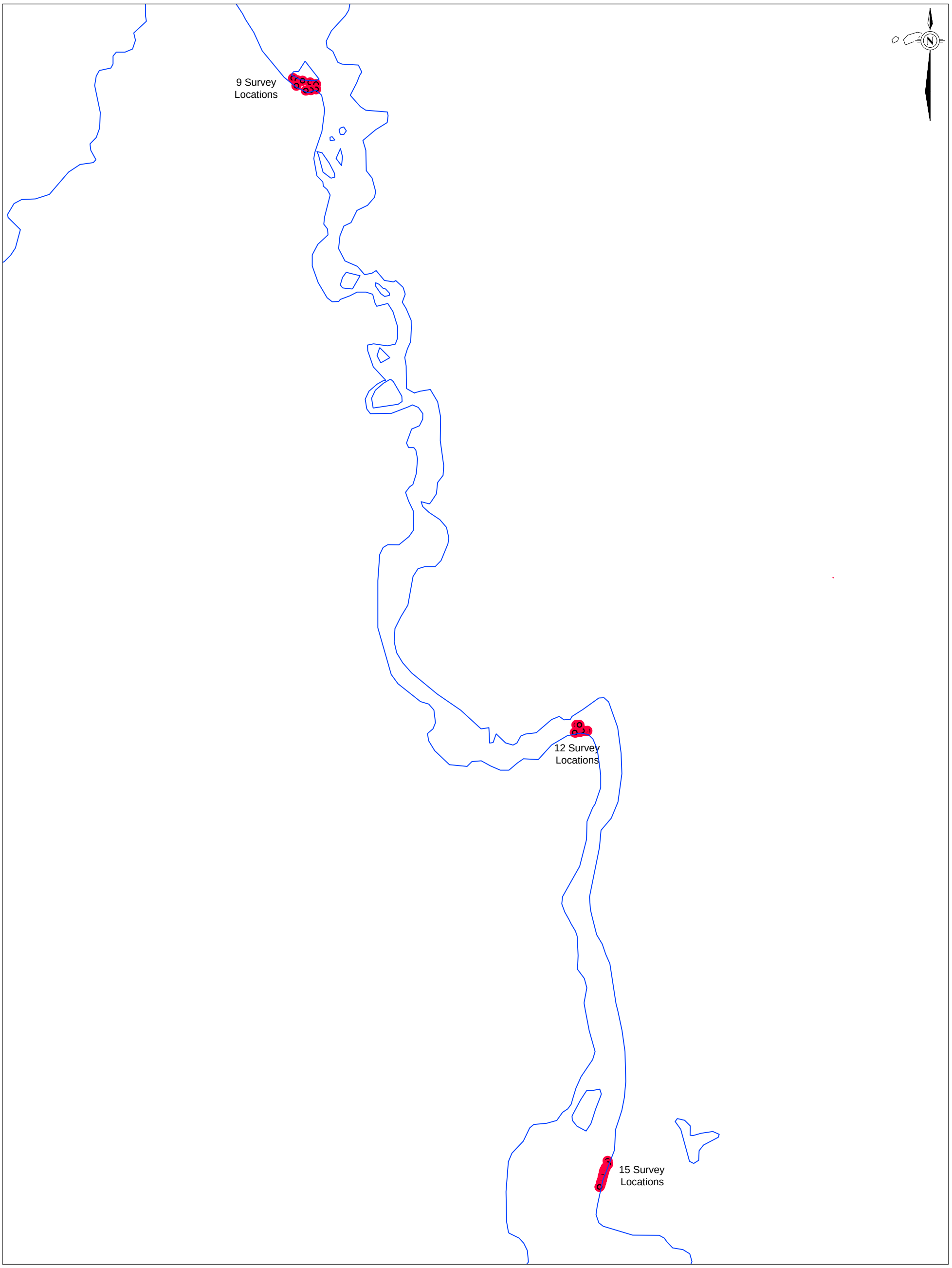
Field studies conducted in spring of 2010 and 2012 identified a number of shallow water Arctic grayling spawning areas along the Fond du Lac River. Spawning sites were identified using a combination of hoop net sets for spawning adults and kick net surveys for deposited eggs (see Section 6.2.7.2.1). Three important spawning areas were evaluated in summer 2012 for the presence of Arctic grayling fry (young-of-the-year). These included a spawning location at the Black Lake outlet area, another area in the middle section of the river, and a third survey area just upstream of the river outflow to Middle Lake inflow (Figure 6.2-17). Water depths (m) and velocities (m/s; Swoffer Model 2100) were measured in areas where Arctic grayling fry were observed.

6.2.5.2.3 Arctic Grayling Mark-Recapture Population Estimates

Population estimates for Arctic grayling in the Fond du Lac River were completed to determine the size of the populations potentially affected by reduced flows within the bypassed section of river and to provide baseline estimates of fish abundance (*n*) to which future estimates could be compared (i.e., during Project operations or post-closure).

6.2.5.2.3.1 Previous Studies

Population estimates for Arctic grayling were previously attempted in 1974 (Envirocon) and again in 1989 (Merkowsky). In 1974, Peterson-type mark-recapture experiments (Ricker 1975) were used to estimate fish *n*. In 1989, the population estimate was made following the Schnabel method (Merkowsky 1989). Population sizes of Arctic grayling were estimated at two locations in the bypass section of the Fond du Lac River based on of the assumption that Elizabeth Falls was a likely barrier to upstream fish passage within the river. Sampling was carried out upstream of Elizabeth Falls in the vicinity of the Black Lake outflow and downstream of the falls near the Fond du Lac River outflow to Middle Lake. In each study, mark and recapture sampling of Arctic grayling was carried out during the spring spawning aggregation at the Black Lake outlet to the Fond du Lac River and the river's outlet to Middle Lake.



LEGEND

FRY SURVEY LOCATIONS

REFERENCE

Google Earth Image: Image © 2007 DigitalGlobe

PROJECT

TAZI TWÉ HYDROELECTRIC POWER PROJECT

TITLE

ARCTIC GRAYLING FRY SURVEY LOCATIONS, SUMMER 2012

Golder Associates
Saskatoon, Saskatchewan

PROJECT	10-1365-0004		FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
CADD	BDS/TAH	03/01/13	FIGURE: 6.2-17	
CHECK	LT	24/07/13		
REVIEW	BC	24/07/13		

6.2.5.2.3.2 Recent Studies

Population estimates for Arctic grayling were attempted again in 2010. Similar to the previous studies, mark-recapture experiments were used to estimate Arctic grayling population size at two locations within the river (i.e., based on the principle that distinct Arctic grayling populations are likely to exist above and below Elizabeth Falls). At the time of the 2010 sampling, the likely presence of a third, self-supporting Arctic grayling population in the mid-section of the river was not yet known.

Sampling Locations and Timing

Arctic grayling population estimates were determined based on a standard mark-recapture sampling design. The mark-recapture experiments were completed over a three week period in summer (August) 2010. Fish were captured and tagged during the first week of sampling, allowed to mix with the rest of the population during the second week, and then recaptured during the third week. The marking component began on August 6, 2010 and ended August 10, 2010. The recapture component began August 17, 2010 and ended August 21, 2010.

Upstream sampling was concentrated in the Black Lake outflow area of the Fond du Lac River near Camp Grayling. Sampling was carried out on the left downstream bank, as well as along the perimeter of Grayling Island. Downstream sampling was carried out in the vicinity of the Fond du Lac River outflow to Middle Lake, along a section of shoreline on the left downstream bank. These sampling locations are generally similar to those used during the Envirocon survey (Envirocon 1974), and by Merkowsky (1989).

Fish Capture and Tagging Methods

Angling using dry flies was the chosen capture method to collect fish for the population estimates. The fishing effort expended at each of the sampling locations was generally similar and consisted of a crew of 5 to 6 individuals who contributed both to angling and/or fish processing.

Captured Arctic grayling that were determined to be in good condition were implanted with individually numbered internal passive integrated transponder (PIT; 14 mm, 125 kHz; AVID Marketing, Inc., Norco, California) tags, and then scanned with an electronic tag reader to record the PIT tag number prior to their being released back into the Fond du Lac River. Passive integrated transponder (PIT) tags were injected into the abdominal cavity of each captured fish according to the methods described in the Columbia Basin Fish and Wildlife Authority (CBFWA) PIT Tag Marking Procedures Manual (CBFWA 1999). All fish captured during the recapture phase of the experiment were identified to species, examined for previous Floy® tags, scanned for PIT tags inserted during previous sampling, measured for fork length, and weighed. Only those individuals that measured greater than 150 mm in length were tagged due to the size of the tags. Whenever possible, incidental mortalities were examined for sex and maturity, and aging structures (otoliths) was taken for age interpretation.

Data Analysis

The number of fish tagged during the Arctic grayling marking component, the total number of fish examined for tags, and the number of fish recaptured during the recapture component were determined for each location sampled in 2010 (i.e., upstream and downstream of Elizabeth Falls).

Two population size estimation methods for each sample location (i.e., upstream and downstream of Elizabeth Falls) were employed to determine fish abundance from the 2010 mark-recapture data. The Petersen method (Everhart and Youngs 1981) is one of the simplest, most practical, and commonly used methods of estimating fish population size. The Chapman estimator is also widely used and is simple to calculate. Because the Chapman method is more statistically sound, it is the single census mark-recapture estimator currently recommended for use by the American Fisheries Society (Hayes et al. 2007). Arctic grayling population size

estimates were compared with results of the previous mark-recapture studies completed in the section of the Fond du Lac River between Black lake and Middle Lake (see Section 6.3.3.2.2).

To provide a general description of the Arctic grayling populations associated with the upstream and downstream sample locations, mean length, weight, and condition factor (*K*) were calculated for each sample group.

6.2.5.2.4 Arctic Grayling Radio-Telemetry Movement Study

The operation of the proposed Project has the potential to affect the section of the Fond du Lac River between Black Lake and Middle Lake by altering water levels. This section of river contains important spawning habitat for Arctic grayling (*Thymallus arcticus*) near the Black Lake outflow, through its length, and near its outflow to Middle Lake. This section of river also contains numerous deep pools, runs, and glides that provide over-wintering habitat, as well as a series of rapids and waterfalls that may prevent the upstream movement of fish.

The purpose of the Arctic grayling radio telemetry study was to determine the extent of Arctic grayling use of the Fond du Lac River and to determine if Arctic grayling marked downstream of Elizabeth Falls are able to move upstream past the numerous falls and rapids in the Elizabeth Falls canyon.

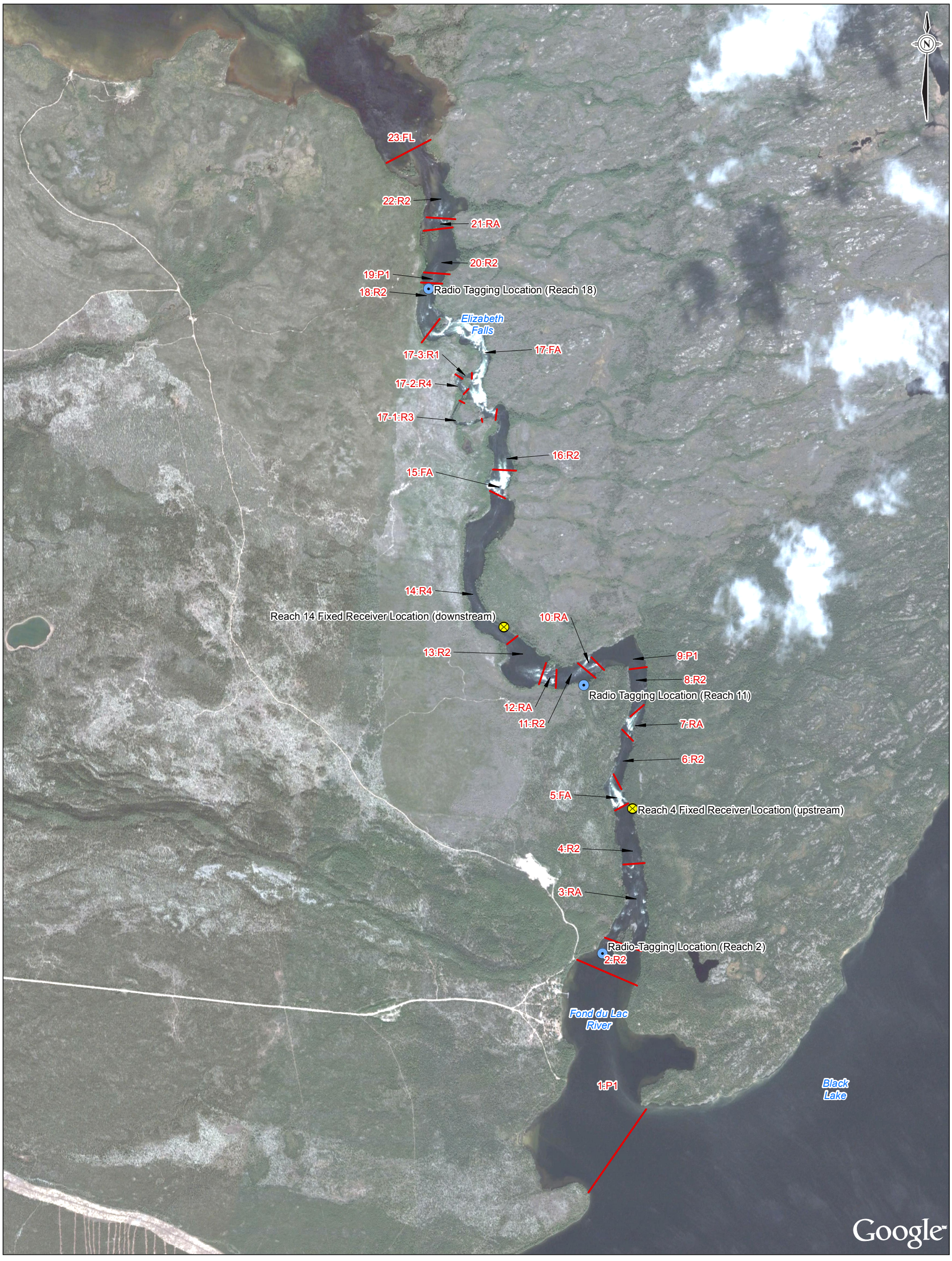
Pulse-coded microprocessor radio transmitters (Lotek Wireless Inc. Model MCFT2-3EM) were used to monitor the movements of 30 Arctic grayling. The radio transmitters measured 12 mm x 53 mm, weighed 10 grams (g), and were fitted with whip antennae. Transmitters emitted Very High Frequency radio signals in the 148 megahertz (MHz) frequency range.

Fish tagging locations were selected to include the river reaches with potential to be affected by modified water flows. The tagging locations were also located close to important spawning habitat (e.g., Reach 2, Reach 9, and Reach 22), and were separated by potential fish passage barriers.

6.2.5.2.4.1 Fish Capture and Tagging Methods

Arctic grayling were captured by angling with dry flies from three locations along the Fond du Lac River (Figure 6.2-18). Ten Arctic grayling were radio tagged in Reach 2 (Black Lake outflow), 10 Arctic grayling were radio tagged in Reach 11 (approximately 1.8 km downstream of Grayling Island), and 10 Arctic grayling were radio tagged in Reach 18 (approximately 700 m upstream of the outflow to Middle Lake).

Surgical procedures followed those described by Blackman (2002) and Wagner et al. (2000). Arctic grayling were anesthetised with a clove oil, ethanol, and water mixture at a concentration of 40 parts per million (Anderson et al. 1997 and Blackman 2002). Biological information collected from radio tagged fish included fork length (mm), total length (mm), weight (g), sex, age structure (scale) and a cursory, external health examination. After the surgery was completed, fish were placed in individual holding pens submerged in ambient river water where they were allowed to recover. Once deemed to be fully recovered, fish were transferred from the holding pen to an area of minimal current where they could disperse at will.



LEGEND

- FIXED RECEIVER LOCATION
- RADIO TAGGING LOCATION
- PRIMARY CLASSIFICATION (REACH NUMBER : CLASSIFICATION)

SYMBOL KEY

P	-	POOL 1
R	-	RUN 1, 2 ,3 ,4
RA	-	RAPIDS
FA	-	FALLS
FL	-	FLAT

REFERENCE

GOLDER ASSOCIATES © 2012
GOOGLE EARTH IMAGE © 2010 DIGITAL GLOBE
NAD 83 UTM ZONE 13

400 0 400
SCALE 1:20,000 METRES

PROJECT
TAZI TWÉ HYDROELECTRIC PROJECT

TITLE
ARCTIC GRAYLING RADIO TAGGING LOCATIONS AND FIXED RECEIVER LOCATIONS, FOND DU LAC RIVER, OCTOBER 2011 TO OCTOBER 2012

Golder Associates
Saskatoon, Saskatchewan

PROJECT	10-1365-0004		FILE No.	
DESIGN			SCALE AS SHOWN	REV. 2
GIS	LMR/SM	10/07/13		
CHECK	LT	25/07/13	**FIGURE: 6.2-18**	
REVIEW	BC	25/07/13		

6.2.5.2.4.2 Tracking

Three methods were used to obtain the locations of the radio-tagged Arctic grayling. These methods included a mobile ground survey, aerial surveys, and the installation of fixed receivers, antennas, and switching gear at two locations along the Fond du Lac River between Black Lake and Middle Lake.

Mobile Ground Survey

A mobile ground survey was completed by a 2-person crew listening for radio-tagged fish at various locations along the Fond du Lac River. Mobile ground surveys were not used extensively because of difficult access to many sections of the river.

Aerial Telemetry Surveys

Five aerial telemetry surveys were completed from a Bell 206 helicopter equipped with a single four-element "Yagi" antenna and a Lotek SRX 400 receiver. These flights took place in January, February, May, July and October 2012. A three person crew (pilot, receiver operator, and data recorder) flew the Fond du Lac River from the outlet of Black Lake to the community of Stony Rapids at an altitude of approximately 100 m. During the spring, summer, and fall flights, the search area was expanded to include the north shore and central portions of the main basin of Black Lake. During the January and February flights the Black Lake shoreline was flown north to the proposed intake location and south to within 1 km of the community of Black Lake. Finally, during the May flight, the Black Lake search area was expanded to include the Chipman River, Pederson River, and the Fond du Lac River inflow (Burr Falls) to look for fish that were not located in the main survey area (Figure 6.2-19).

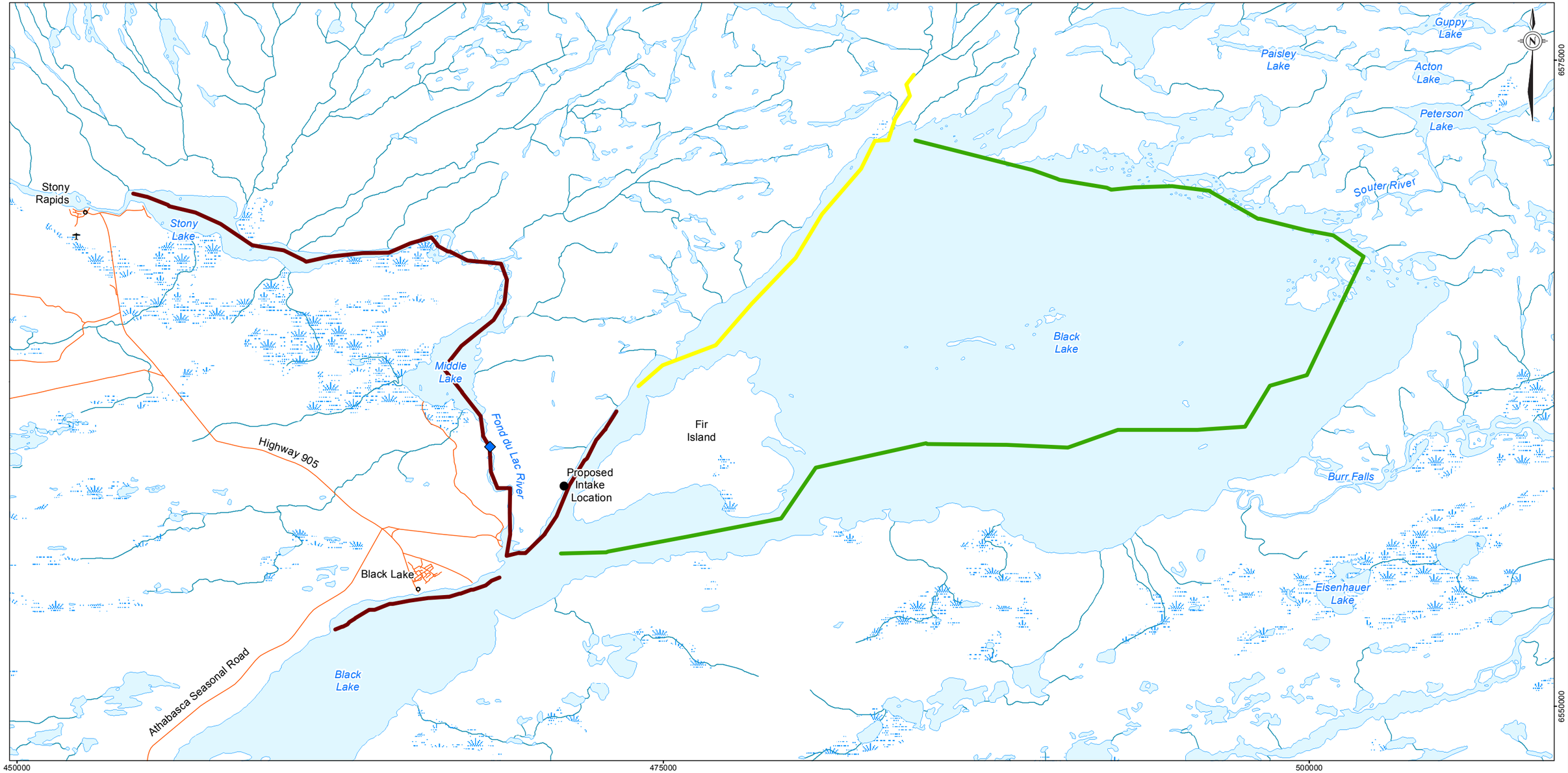
When radio-tagged fish were detected, "circuits" were repeatedly flown at reduced speeds and altitude while the receiver operator monitored codes and corresponding signal strengths. Once the location of tagged fish was determined based on the signal strength, the data recorder "marked" the position with a GPS unit.

Fixed Receiver Locations

Telemetry equipment at each of the fixed receiver locations consisted of two, 6-element directional antennas, a Lotek Antenna Switching Unit (ASP-8), and continuous data logging receiver (Lotek SRX-400 or SRX 600). The telemetry receivers and ASP-8 were powered by two 12-volt deep cycle batteries housed inside a weatherproof box. The batteries were connected to a solar panel (40 watt or 60 watt) for continuous daily recharging. At each location, one directional antenna was oriented upstream at an angle 45° to the river, and the other the antenna was oriented downstream at an angle 45° to the river flow.

Receiver gain was tested and adjusted by deploying sample radio tags at different locations on the opposite side of the river. Receivers were periodically downloaded throughout their deployment to a weatherproof field computer (Toshiba Toughbook Model CF-19).

Two fixed receiver locations were established in May 2012. The upstream fixed receiver (Lotek SRX 400) was located in Reach 4 along the right-downstream-facing bank of the Fond du Lac River immediately upstream of the Reach 5 waterfall. The channel width at this receiver location was approximately 90 m with an estimated water depth of >3 m.



LEGEND

- VILLAGE
- ELIZABETH FALLS
- ROAD
- RIVER
- WATERBODY
- WETLAND

AERIAL TELEMETRY FLIGHT ROUTES

- SPRING
- SPRING, SUMMER, FALL
- WINTER 1, WINTER 2, SPRING, SUMMER, FALL

REFERENCE

DMTI HIGHWAYS AND ROADS
NTS MAPSHEET 74I, 74J, 74O, 74P
NAD 83 ZONE 13

3 0 3
SCALE 1:150,000 KILOMETRES

PROJECT
TAZI TWÉ HYDROELECTRIC PROJECT

TITLE
EXTENT OF AERIAL TELEMETRY SURVEYS CONDUCTED FOR RADIO TAGGED ARCTIC GRAYLING JANUARY 2012 TO OCTOBER 2012

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 2
GIS	LR/SM	10/07/13		
CHECK	LT	25/07/13		
REVIEW	BC	25/07/13		

FIGURE: 6.2-19

The second fixed receiver (Lotek SRX 600) was located 1.6 km further downstream in Reach 14. The channel width was approximately 70 m at this location and the water depth was estimated to be about 2.0 m.

Data downloaded from the fixed receiver locations was screened for false records arising from electronic noise. Primary screening criteria included the following:

- a power level of ≥50 based on a scale of 1 to 232);
- ≥5 detections (power level ≥50) within a 3 minute time period;
- no simultaneous records of the same radio-tag at the other fixed receiver location; and
- cross-referencing fixed receiver data with locations obtained from other methods.

6.2.5.3 6.2.5.3 Black Lake

6.2.5.3.1 Spawning Surveys

Fall and winter (2010) spawning surveys were completed in Black Lake to collect biological information from principle fish species in the lake and to identify the location of important spawning/staging areas. During the early design of the Project, it was anticipated that a flow control structure (i.e., a dam) would be required in Black Lake to support the operation of the hydropower facility. This would have potentially resulted in a measurable change to water levels and fish habitat within Black Lake, including spawning habitat for lake trout, lake whitefish, cisco, and burbot. Spawning surveys were completed during the aquatic baseline program to identify potentially sensitive locations of spawning and rearing habitat within Black Lake. Changes to the design of the Project, however, have eliminated the need for a control structure within Black Lake. Water levels will instead be regulated by the development of a submerged weir at the Black Lake outflow to the Fond du Lac River and through active management of flows directed though the power tunnel. Results of spawning surveys completed during the baseline are therefore provided to supplement the general fisheries information available for Black Lake and to provide detailed information regarding spawning habitat in the vicinity of the proposed water intake.

6.2.5.3.1.1 Target species

Lake trout, lake whitefish, and cisco are fall spawners and spawn primarily in lake environments. Lake dwelling burbot populations spawn during mid-winter or early spring, before the ice is off the water. In Black Lake, lake trout and burbot are key predator species that occur in the lake, whereas lake whitefish and cisco are important lower trophic level forage species which feed primarily on invertebrates. Forage species such as lake whitefish and cisco are an important food source for sport fish and other predatory species in the lake. Specific methods used for each species surveyed are provided in the following sections.

6.2.5.3.1.2 Sample Locations and Timing

Spawning surveys were carried out during the appropriate timing window for each target species; lake trout and lake whitefish surveys were completed during fall (September and October, respectively) 2010, while the burbot spawning survey was completed during winter (February) 2011. Sampling locations for each survey were selected based on input from members of the Black Lake First Nation and the operators of Camp Grayling, as well as information from previous studies. Spawning habitat characteristics, including preferred substrate and depth characteristics for each fish species were also considered during site selection. In each survey, a sampling location near the proposed water intake was also identified to document baseline conditions at this potentially sensitive area.

Lake Trout

Sample locations for the lake trout spawning survey are provided in Figure 6.2-9. Fieldwork associated with the lake trout spawning survey was carried out between 14 September 2010 and 24 September 2010. This timing was considered appropriate to determine possible lake trout spawning locations because water temperatures during this period were within the preferred temperature range for lake trout spawning (5.5°C to 14°C) (Wismer and Christie 1987). Also, this timing overlapped with the commencement of lake trout spawning observed within Black Lake in previous years.

Lake Whitefish and Cisco

Fieldwork associated with the lake whitefish and cisco spawning surveys was carried out between 20 October and 26 October 2010. This timing was selected based on the preferred temperature range that is associated with the commencement of spawning for lake whitefish and cisco. Lake whitefish typically spawn during the weeks prior to freeze-up when the water temperature is below 8°C (Ayles 1976). Ciscoes typically spawn when water temperatures drop to between 2°C and 5°C (Nelson and Paetz 1992). In some lakes however, spawning activities of both species may commence or extend later into the season during the early ice formation period.

At the time of the October 2010 survey, Black Lake water temperature varied between 3.6°C and 7.2°C (at depths of 1 to 10 m). These temperatures fall within the range preferred by spawning lake whitefish and are at the upper range of temperatures preferred by cisco. Initial sampling of Black Lake indicated that lake whitefish were not yet in spawning condition, and had not yet migrated into presumed spawning areas. Likewise, fishing efforts at several suspected cisco spawning locations did not result in the capture of any cisco, despite their known presence in the area. It is possible that sampling was initiated prior to the commencement of the active spawning period of both species. However, due to the challenging conditions that develop on Black Lake in late October and November (i.e., thin ice conditions and cold weather), it was determined that sampling could not be delayed. Therefore, fishing efforts were concentrated in the Black Lake outflow bay where lake whitefish schools were determined to be present. Sample locations for the lake whitefish and cisco spawning surveys are provided in Figure 6.2-10.

Burbot

Fieldwork associated with the winter burbot spawning survey was carried out between February 18, 2011 and February 20, 2011. Burbot typically spawn in February or March when the water temperature is between 1°C and 4°C. At the time of sampling, Black Lake water temperature was slightly cooler than the preferred range specified for burbot, varying between 0.4°C and 0.5°C at suitable spawning depth contours. Sampling was focussed on near shore areas in the vicinity of the water intake locations and in shallow water habitat along the south shore of Black Lake, south of the Fond du Lac River outflow bay. Sample locations for the winter 2010 burbot spawning survey are provided in Figure 6.2-11.

6.2.5.3.1.3 Fish Capture and Handling Methods

Fish collection methods for the lake trout spawning survey consisted of short-duration gill nets sets and angling in areas of Black Lake identified as potential lake trout spawning habitats (see Table 6.2-2 for detailed information regarding gear type specifications used during the Black Lake spawning surveys). Fish collection methods used during the fall lake whitefish spawning survey consisted of short-duration gill net sets and hoop nets. Fish sampling methods used during the winter burbot spawning survey consisted of two overnight gill net sets. In addition, eight baited cod traps and eight baited setlines were deployed to capture spawning burbot.

General fish processing methods used during the spawning surveys are described in Section 6.2.4.2. Additional care was taken during the examination of fish to determine the sex and sexual maturity of each individual (whenever possible). Aging structures were collected from a subset of the catch for lake trout and lake whitefish. Aging structures were analyzed by Consulting Fisheries Age Interpretation (Louise Stanley, Welland Ontario).

6.2.5.3.1.4 Data Analysis

Mean lengths, weights and condition factors (*K*) were calculated for adult male and female lake trout, lake whitefish, and burbot captured during the spawning surveys. Length-frequency distributions were prepared from the available body size data for adult male and female lake trout, lake whitefish, and burbot collected during their respective sampling periods. Age-frequency distributions and size-at-age plots were also prepared for each species assessed. Size-at-age plots were assessed separately for males and females.

6.3 Results

Results of fish and fish habitat investigations completed in the LSA are discussed in the following sections and have been organized according to the following components:

- summary of available aquatic habitat data for Fond du Lac River, Black Lake, and Middle Lake;
- fish community summary based on recent (2010 to 2012) and historic data including fish presence and abundance information for the Fond du Lac River, Black Lake, and Middle Lake;
- summary of mark-recapture fish movement studies completed in the LSA;
- summary of focussed investigations completed in the Fond du Lac River;
  - spring Arctic grayling spawning surveys;
  - summer Arctic grayling fry survey;
  - Arctic grayling radio telemetry movement studies;
- summary of focussed investigations completed in Black Lake;
  - spawning assessments for lake trout, lake whitefish, and burbot in Black Lake.

6.3.1 Aquatic Habitat

6.3.1.1 Fond du Lac River

The following section provides a summary of the available fish habitat data for the Fond du Lac River. Aquatic habitat data are organised according to the following components: results of the channel unit characterization study completed for the bypass section of the Fond du Lac River; results of detailed habitat assessments completed in the tail-race outflow area. Results of detailed fish habitat assessments and egg searches completed during the spring Arctic grayling spawning assessments in the Fond du Lac River (2010 and 2012) are provided in Section 6.3.3.2.1.

6.3.1.1.1 General Riverine Habitat

A map showing reach break delineation results and general aquatic habitat features of the Fond du Lac River between Black Lake and Middle Lake is provided in Figure 6.3-1. Twenty-three channel units (reach breaks) were identified between Middle Lake (Reach 23) and the outflow of Black Lake (Reach 1) (see Figure 6.3-1). The most common channel unit types identified in the river included deep fast flowing runs (R2; n =10 reaches),

rapids (RA; n = 5 reaches), deep pools (P1; n = 3 reaches) and falls (FA; n = 3 reaches). In terms of the relative area contribution of each channel unit type identified, flat water habitat located primarily at the Fond du Lac River outflow to Middle Lake was the most common channel unit type, followed by deep pool habitat located in the Black Lake outflow area and in several other reaches. Deep, fast flowing run habitat; shallow, fast flowing run habitat; falls; and rapids were also common in the river based on relative area contribution. (Table 6.3-1).

In general, channel unit designations were identified based on dominant features present within each of the respective reaches. However, the presence of large islands in Reach 20 and Reach 22 created secondary channels with extensive riffle habitat. Reaches 17.1 to 17.3 were located in a side channel adjacent to the left-downstream-facing bank of Reach 17 (Elizabeth Falls). Additionally, deep pools and back eddies are present in many of the other reaches (e.g. Reach 13 and 16).

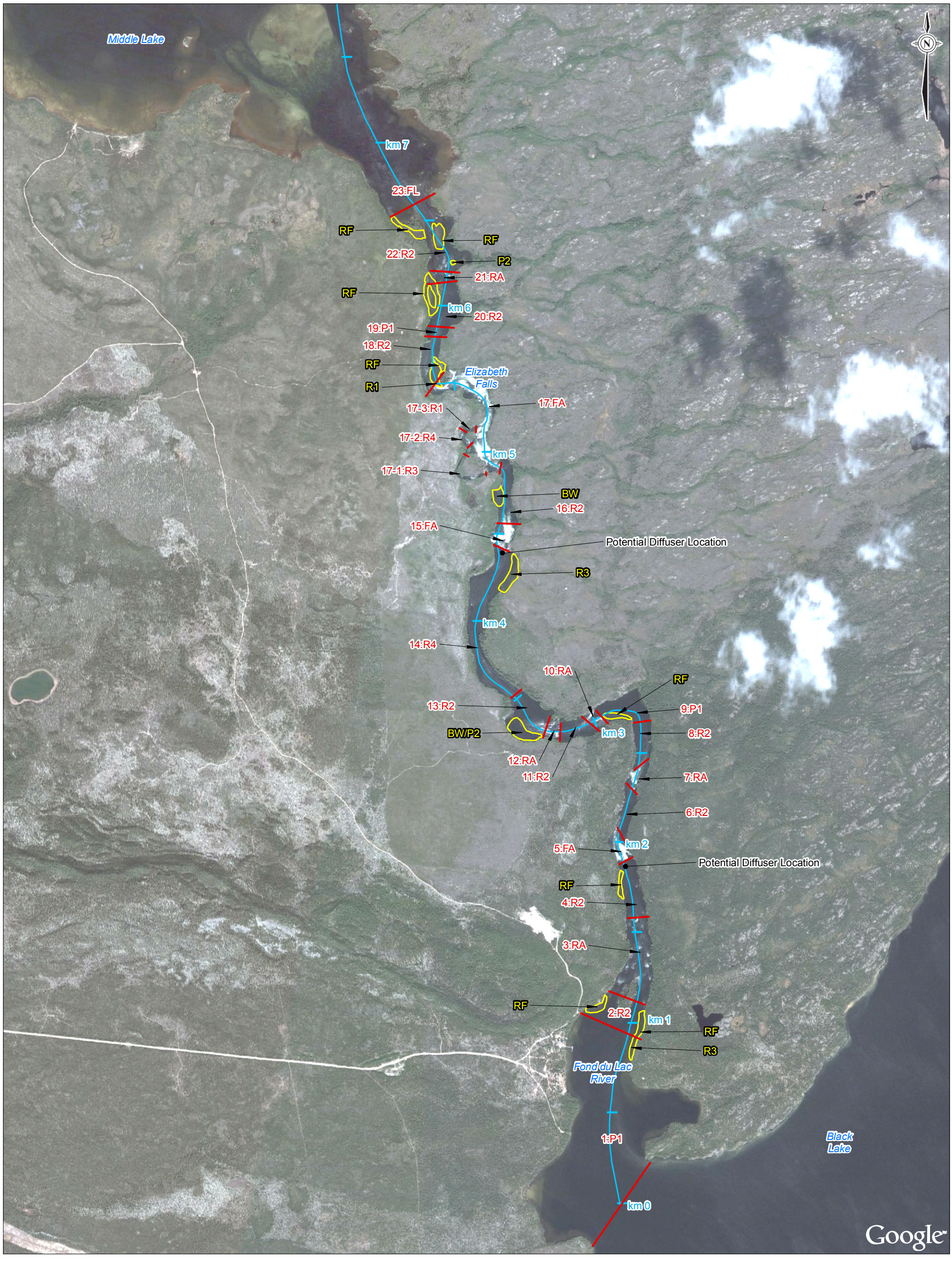
Reach 17 (Elizabeth Falls), Reach 15, and Reach 5 are likely barriers to the upstream migration of fish. Fish and fish habitat sampling completed in the Fond du Lac River indicate that several reaches contain extensive shallow water habitat used during the spawning period by Arctic grayling, and possibly white sucker and/or longnose sucker. Areas containing known Arctic grayling spawning habitat include the following reaches: 1, 2, 3, 9, 13, 14, 17.1, 17.2, 20, 21, and 22. These areas which were surveyed during the Arctic grayling spawning habitat assessments completed in spring 2010 and spring 2012 are discussed in detail in Section 6.3.3.2.1.

6.3.1.1.2 Proposed Tailrace Outflow Area

A detailed habitat map of the shoreline area in the vicinity of the proposed tailrace outflow bay is provided in Figure 6.3-2. The tailrace outlet bay is located just upstream of Middle Lake. This area is composed of a large slack water area along the east shore, and an area with faster flows along the downstream outlet of the bay. In general, the bay is characterised by slack water resulting in a predominantly sand and silt substrate. The bay also contains large woody debris and emergent vegetation around its perimeter. The mouth of the bay is exposed to river currents, and as a result is dominated by gravel, cobble and boulder substrates. Fish sampling efforts conducted in the bay found northern pike and whitefish in the slack water, and Arctic grayling in the faster flows near the mouth of the bay. Results of Arctic grayling egg searches and spawning habitat assessments completed in this area are provided in Section 6.3.3.2.1.

6.3.1.2 Black Lake

The following information is a summary of the available fish habitat data for Black Lake. The results provided are a compilation of field data collected during the bathymetric and aquatic habitat surveys of Black Lake completed in summer 2010 and 2012, and information obtained through interpretation of available satellite imagery. Results are organized according to the geographic areas assessed, and include the proposed water intake area, the main basin of Black Lake and Fir Island; Cree Bay; Chipman Bay, and Pluto Bay. Results of the bathymetric survey, including bathymetric maps for areas of interest, are provided in Appendix III.1.



LEGEND

- PRIMARY CLASSIFICATION (REACH NUMBER : CLASSIFICATION)
- DISTANCE CHAIN (0.5 KM INTERVAL)
- SECONDARY CLASSIFICATION (CLASSIFICATION)

SYMBOL KEY

P - POOL 1, 2
R - RUN 1, 2, 3, 4
RA - RAPIDS
FA - FALLS
FL - FLAT
RF - RIFFLE
BW - BACKWATER/EDDY

REFERENCE

GOOGLE EARTH IMAGE © 2010 DIGITAL GLOBE
NAD 83 UTM ZONE 13

400 0 400
SCALE 1:20,000 METRES

PROJECT
TAZI TWÉ HYDROELECTRIC PROJECT

TITLE
LOCATION OF FOND DU LAC RIVER REACH BREAKS AND ASSOCIATED HABITAT CLASSIFICATION

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
GIS	LR/SM	10/07/13	FIGURE: 6.3-1	
CHECK	LT	25/07/13		
REVIEW	BC	25/07/13		

Table 6.3-1: Reach Descriptions and Habitat Classifications for the Fond du Lac River between Middle Lake and the Black Lake Outflow; 2010 Baseline Program

Reach #	Primary Channel Unit[(a)]	Secondary Channel Unit(s)[(a)]	Length (m)	Maximum Depth (m)	Average Depth (m)	Mean Width (m)	Likely fish Passage Barrier?
1	P1	R3	950	20.8	5.8	538	-
2	R2	RF,RF	180	14.3	2.8	200	-
3	RA	-	460	5.1	1	101	-
4	R2	RF	310	6.1	2.7	92	-
5	FA	-	170	7	2.1	58	Yes
6	R2	-	240	8.8	4.7	59	-
7	RA	-	130	7.3	3.4	73	-
8	R2	-	200	8.6	4.4	87	-
9	P1	RF	300	14.2	6.4	89	-
10	RA	-	70	4.1	1.8	82	-
11	R2	-	170	5.5	2.7	100	-
12	RA	-	80	4.4	1.2	83	-
13	R2	BW/P2	260	7.8	2.6	161	-
14	R4	R3	930	5.6	1	92	-
15	FA	-	130	4.6	0.4	103	Yes
16	R2	BW	310	8.4	1.7	73	-
17	FA	-	700	N/A	N/A	85	Yes
17-1	R3	-	260	N/A	N/A	14	-
17-2	R4	-	92	N/A	N/A	22	-
17-3	R1	-	70	N/A	N/A	18	-
18	R2	R1, RF	260	13.4	2	85	-
19	P1	-	50	17.2	8.6	120	-
20	R2	RF	250	14.6	1.5	172	-
21	RA	RF	60	6.1	2.1	158	-
22	R2	P2, RF, RF	420	7.8	1.4	183	-
23	FL	-	5,130	11.1	3.2	1,453	-

m = square metres; N/A = bathymetry data were not available for these reaches; "-" = Not Applicable
Note: Classification and morphologies are derived for a river flow rate of 261 m^3/s (the flow rate that occurred on & July, 2004, the date of Google Earth Imagery); channel unit definitions and descriptions are provided in Section 3.2; Table 3.2-2.

Photo A: July 2012

A

EM

INV

LWD

EM

LWD

Gr/Co/Bo

Sa/Si/Bo

EM

INV

Fond du Lac River

Flow Direction

EM

B

LWD

Co/Bo

Gr/Co/Bo

Co/Bo

CF

CF

Photo B: May 2012

REFERENCE
NAD83 UTM ZONE 13

20 0 20
SCALE 1:1000 METRES

PROJECT
TAZI TWÉ HYDROELECTRIC POWER PROJECT

TITLE
AQUATIC HABITAT MAP OF PROPOSED TAILRACE OUTLET AREA IN THE FOND DU LAC RIVER

Golder Associates
Saskatoon, Saskatchewan

PROJECT	10-1365-0004		FILE No.		
DESIGN			SCALE	AS SHOWN	REV. 0
CADD	TAH/AL	10/06/13	FIGURE: 6.3-2		
CHECK	LT	24/07/13			
REVIEW	BC	24/07/13			

Legend - Rivers and Streams

Substrate Types	
Cl	Clay
Si	Silt
Sa	Sand
Gr	Gravel
Co	Cobble
Bo	Boulder
Bd	Bedrock
Or	Organic

Habitat Features		
XXXX	BD	Beaver Dam
	MD	Man-Made Dam
	BL	Beaver Lodge
	BG	Boulder Garden
		Bridge
		Culvert
	DP	Debris Pile
	EM	Emergent Vegetation
		Flow Direction
	ISC	Instream Cover
	IV	Instream Vegetation
	INV	Inundated Vegetation
	LWD	Large Woody Debris
	LE	Ledge
	LJ	Log Jam
	LS	Landslide
	MIL	Multiple Island
	OHV	Overhanging Vegetation
	OHC	Overhead Cover
	RW	Root Wad
		Sand Bar
	SIL	Singular Island
	SWD	Small Woody Debris
	SM	Submergent Vegetation
	UCB	Undercut Bank
	USB	Unstable Bank

Sample Type Symbols	
	Water
	Sediment
	Benthic
	Fish

General	
C	Photo Location/Direction
	Habitat Type Divider
	Fish Bearing/Potential Bearing Watercourse
	Width
	Depth

Site Summary Symbol

River (R) or Stream (S)
Average Wetted Width (m)
Average Bankful Width (m)
Average Depth (m)
Habitat Classification
Substrate Type

Fish Species

Notes:
m = metres

Bank/Upland Vegetation Types		
	BA	Bare Ground
	OT	Open Tundra
	MU	Muskeg/Bog
	DF	Deciduous Forest
	CF	Coniferous Forest
	MW	Mixedwood Forest
	GS	Grassland
	GF	Grass/Forbs
	GF/SH	Grass/Forbs/Shrubs
	SE	Sedge
	SH	Shrubs
	EM	Emergent Vegetation
	MO	Moss
	OR	Organic

Bank Slope	
	Shallow Slope (0-5%)
	Intermediate Slope (6-30%)
	Steep Slope (31-70%)
	Very Steep Slope (>70%)

Bank Instability Ratings	
A	Aggrading
E	Eroding
S	Slumping
G	Gullying

Capture Methods		
	BP	Electrofishing - Backpack
	EF	Electrofishing - Boat
	GN	Gill Net
	SN	Seine
	FF	Fish Fence
	MT	Minnow Trap
	AN	Angling
	HN/TN	Hoop Net/Trap Net

Habitat Classification and Rating System			
Fast Water	Turb.	FA	Falls
		CA	Cascade
		CH	Chute
		RA	Rapids
		RF	Riffle
		RF/BG	Riffle/Boulder Garden
	Non-Turb.	R	Run (glide)
		R1	Run Class 1
		R2	Run Class 2
		R3	Run Class 3
		FL	Flat
Slow Water	Pool	P	Pool
		P1	Pool Class 1
		P2	Pool Class 2
		P3	Pool Class 3
	Impound (dammed pool)	IP	Impound
		IP1	Impound Class 1
		IP2	Impound Class 2
		IP3	Impound Class 3
Other Features		BW	Backwater
		SN	Snye
		BG	Boulder Garden
		SH	Shoal
		SL	Slough, Oxbows

6.3.1.2.1 Proposed Water Intake Area

A map showing the aquatic habitat features present in the vicinity of the proposed water intake location in Black Lake is provided in Figure 6.3-3. The shoreline near the proposed water intake is relatively homogeneous, dominated by a cobble and boulder shelf which extends out from shore a short distance (about 50 m), before dropping off rapidly into 25 to 30 m of water. Along the shelf the substrate size increases as the depth increases and becomes boulder dominant at the drop-off. At depths of 25 to 30 m the bottom levels out and becomes more depositional resulting in a finer sand/silt substrate. Fish sampling efforts conducted in the area suggest that the large cobble and boulder substrate along the shelf provides suitable cover for small-bodied fish including lake chub, and juvenile large-bodied fish including yellow perch. The habitat along the steep drop-off was also found to support a variety of adult large-bodied fish including cisco, lake trout, round whitefish, lake whitefish, longnose sucker, white sucker, and walleye. Areas of emergent vegetation are present along the shoreline, and the terrestrial shoreline vegetation in the vicinity of the water intake consisted predominantly of low shrubs.

6.3.1.2.2 Main Basin and Fir Island

A habitat map showing the areas surveyed within the main basin of Black Lake, including Fir Island, is provided in Figure 6.3-4. An extensive shallow water littoral area consisting of cobble, boulder, and occasional sand substrates occurs off the southwestern point of Fir Island. A maximum water depth of 38 m was observed further offshore, beyond the southwest point of Fir Island.

Numerous cobble and boulder shoals are located off the northeast shore of Fir Island. Most occur within 1.5 km of Fir Island; however, two isolated shoals are located further into the main basin of Black Lake. The first is located 1.7 km north-northwest of the north-eastern point of Fir Island and the second is located 4.3 km north-northeast of Fir Island. Several other shallow water shoals are present in the south channel between Fir Island and Black Lake. Most of these areas are located along the north side of the channel and are comprised primarily of cobble and boulder substrates. A second shoal was located along the south side of the channel and consisted predominantly of gravel and cobble substrates.

Submergent and emergent aquatic vegetation was present at various locations throughout the surveyed area. Large areas of emergent vegetation are located along the north shore of Fir Island near the approximate mid-point of the island. Submergent vegetation was prevalent between the south shore of Black Lake and Fir Island.

The south shore of Black Lake directly across from the outflow bay provides extensive littoral habitat with substrates consisting primarily of sand, gravel, cobble, and occasional boulder components. The littoral zone transitions quickly into water depths of 10 to 15 m.

The Fond du Lac River outflow area of Black Lake is characterized by a deep channel that flows through the centre of the outflow bay. The maximum observed depth in the immediate outflow area was 16 m. Beds of submergent vegetation occur along both sides of the channel, and become very dense within 500 m of the immediate outflow area. Substrate material along the shoreline of the outflow bay consisted primarily of silt and sand.

6.3.1.2.3 Cree Bay

A habitat map of Cree Bay is provided in Figure 6.3-5. Cree Bay is located in the south-western portion of Black Lake. Much of Cree Bay is relatively shallow; however, water depths up to 17 m were observed (see Section 3 and Appendix III.1). Extensive shallow water littoral zones comprised of fine substrates such as silt and sand occur along the south and west shorelines of Cree Bay. Submergent aquatic vegetation was abundant in the channel that joins the southern area of Cree Bay to the north bay.

Photo A: July 2012

Photo B: August 2010

REFERENCE
NAD83 UTM ZONE 13

200 0 200
SCALE 1:10,000 METRES

PROJECT
TAZI TWÉ HYDROELECTRIC POWER PROJECT

TITLE
AQUATIC HABITAT MAP OF PROPOSED WATER INTAKE AREA IN BLACK LAKE

Golder Associates
Saskatoon, Saskatchewan

PROJECT	10-1365-0004		FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
CADD	TAH/AL	10/06/13	FIGURE: 6.3-3	
CHECK	LT	24/07/13		
REVIEW	BC	24/07/13		

Legend - Lakes, Wetlands, Ponds

Substrate Types	
Cl	Clay
Si	Silt
Sa	Sand
Gr	Gravel
Co	Cobble
Bo	Boulder
Bd	Bedrock
Or	Organic

Habitat Features		
XXXX	BD	Beaver Dam
	MD	Man-Made Dam
	BL	Beaver Lodge
	BG	Boulder Garden
		Bridge
		Culvert
	DP	Debris Pile
	EM	Emergent Vegetation
		Flow Direction
	ISC	Instream Cover
	IV	Instream Vegetation
	INV	Inundated Vegetation
	LWD	Large Woody Debris
	LE	Ledge
	LJ	Log Jam
	LS	Landslide
	MIL	Multiple Island
	OHV	Overhanging Vegetation
	OHC	Overhead Cover
	RW	Root Wad
		Sand Bar
	SIL	Singular Island
	SWD	Small Woody Debris
	SM	Submergent Vegetation
	UCB	Undercut Bank
	USB	Unstable Bank

Sample Type Symbols	
	Water
	Sediment
	Benthic
	Fish

Bank/Upland Vegetation Types		
	BA	Bare Ground
	OT	Open Tundra
	MU	Muskeg/Bog
	DF	Deciduous Forest
	CF	Coniferous Forest
	MW	Mixedwood Forest
	GS	Grassland
	GF	Grass/Forbs
	GF/SH	Grass/Forbs/Shrubs
	SE	Sedge
	SH	Shrubs
	EM	Emergent Vegetation
	MO	Moss
	OR	Organic

Bank Slope	
	Shallow Slope (0-5%)
	Intermediate Slope (6-30%)
	Steep Slope (31-70%)
	Very Steep Slope (>70%)

Bank Instability Ratings	
A	Aggrading
E	Eroding
S	Slumping
G	Gullying

Capture Methods		
	BP	Electrofishing - Backpack
	EF	Electrofishing - Boat
	GN	Gill Net
	SN	Seine
	FF	Fish Fence
	MT	Minnow Trap
	AN	Angling
	HN/TN	Hoop Net/Trap Net

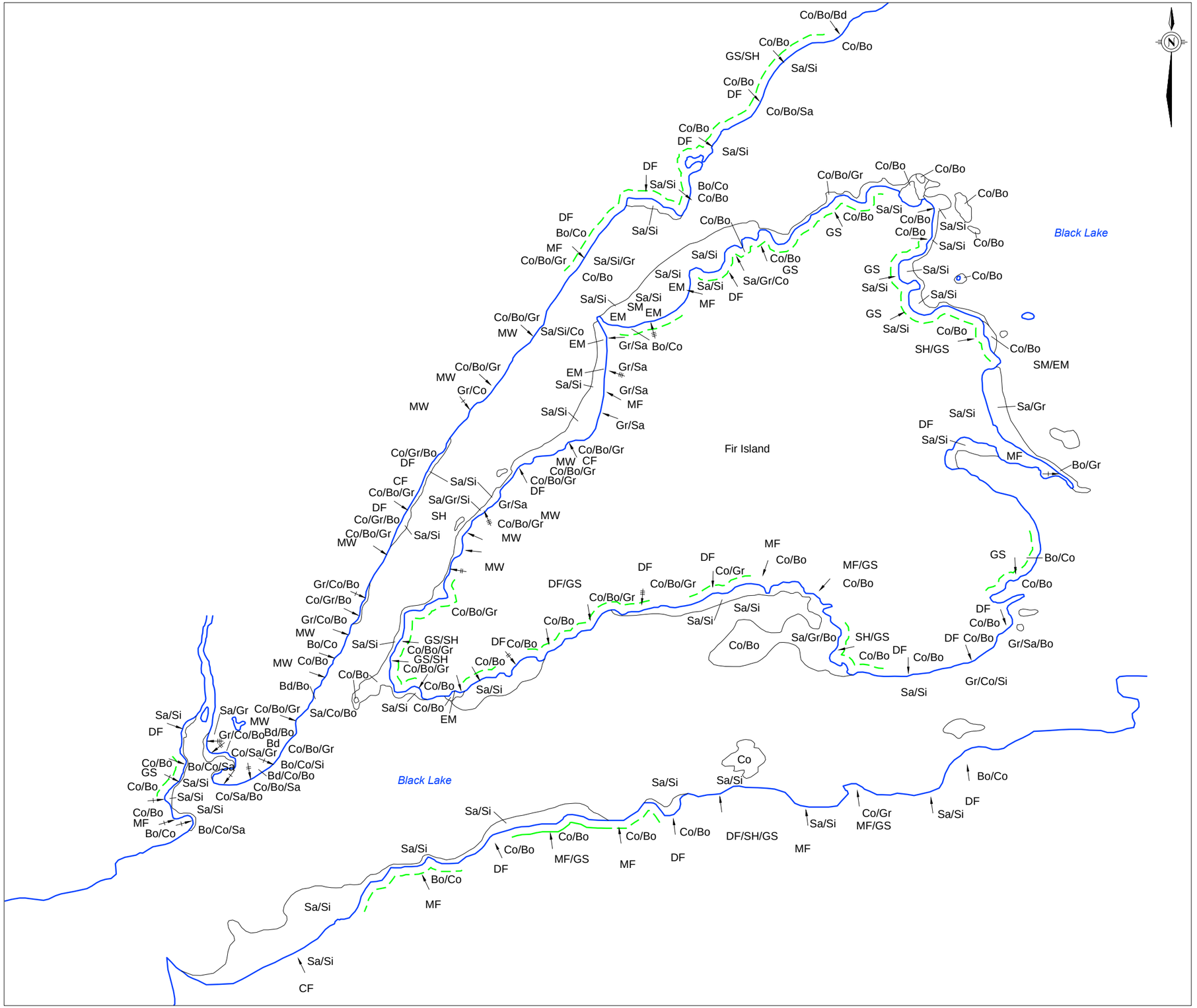
General	
C	Photo Location/Direction
	Habitat Type Divider
	Fish Bearing/Potential Bearing Watercourse
	Width
	Depth

Site Summary Symbol

Lake (L), Wetland (W) or Pond (P)
Surface Area (ha)
Main Shoreline Perimeter (m)
Max Depth (m)
Secchi Depth (m)
Dissolved Oxygen (mg/L)
Conductivity (µS/cm)
pH

Fish Species

Notes:
ha = hectares
m = metres
mg/L = milligrams per litre
µS/cm = microseimens per centimetre
Max depth was the depth recorded at sampling locations.



REFERENCE
NAD83 UTM ZONE 13

1 0 1
SCALE 1:50,000 KILOMETRES

PROJECT
TAZI TWÉ HYDROELECTRIC POWER PROJECT

TITLE
AQUATIC HABITAT MAP OF THE FIR ISLAND AREA OF BLACK LAKE

Golder Associates
Saskatoon, Saskatchewan

PROJECT	10-1365-0004		FILE No.		
DESIGN			SCALE	AS SHOWN	REV. 0
CADD	TAH/AL	10/06/13	FIGURE: 6.3-4		
CHECK	LT	24/07/13			
REVIEW	BC	24/07/13			

Legend - Lakes, Wetlands, Ponds

Substrate Types	
Cl	Clay
Si	Silt
Sa	Sand
Gr	Gravel
Co	Cobble
Bo	Boulder
Bd	Bedrock
Or	Organic

Habitat Features		
XXXX	BD	Beaver Dam
	MD	Man-Made Dam
	BL	Beaver Lodge
	BG	Boulder Garden
		Bridge
		Culvert
	DP	Debris Pile
	EM	Emergent Vegetation
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	ISC	Instream Cover
	IV	Instream Vegetation
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	LJ	Log Jam
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		Sand Bar
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	SM	Submergent Vegetation
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Sample Type Symbols	
	Water
	Sediment
	Benthic
	Fish

Bank/Upland Vegetation Types		
	BA	Bare Ground
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	MU	Muskeg/Bog
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	CF	Coniferous Forest
	MW	Mixedwood Forest
	GS	Grassland
	GF	Grass/Forbs
	GF/SH	Grass/Forbs/Shrubs
	SE	Sedge
	SH	Shrubs
	EM	Emergent Vegetation
	MO	Moss
	OR	Organic

Bank Slope	
	Shallow Slope (0-5%)
	Intermediate Slope (6-30%)
	Steep Slope (31-70%)
	Very Steep Slope (>70%)

Bank Instability Ratings	
A	Aggrading
E	Eroding
S	Slumping
G	Gullying

Capture Methods		
	BP	Electrofishing - Backpack
	EF	Electrofishing - Boat
	GN	Gill Net
	SN	Seine
	FF	Fish Fence
	MT	Minnow Trap
	AN	Angling
	HN/TN	Hoop Net/Trap Net

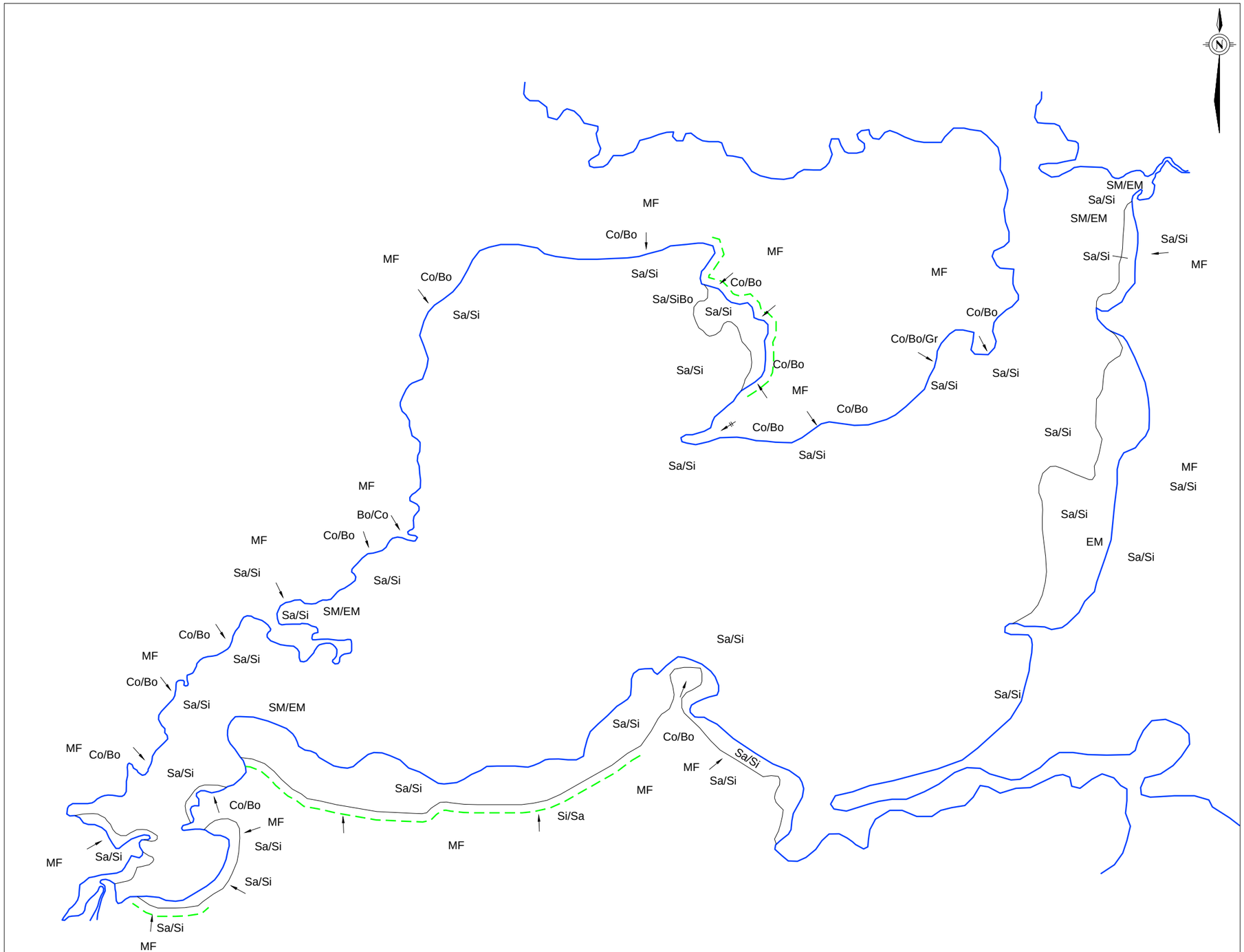
General	
C	Photo Location/Direction
	Habitat Type Divider
	Fish Bearing/Potential Bearing Watercourse
	Width
	Depth

Site Summary Symbol

Lake (L), Wetland (W) or Pond (P)
Surface Area (ha)
Main Shoreline Perimeter (m)
Max Depth (m)
Secchi Depth (m)
Dissolved Oxygen (mg/L)
Conductivity (µS/cm)
pH

Fish Species

Notes:
ha = hectares
m = metres
mg/L = milligrams per litre
µS/cm = microseimens per centimetre
Max depth was the depth recorded at sampling locations.



REFERENCE
NAD83 UTM ZONE 13

500 0 500
SCALE 1:30,000 METRES

PROJECT
TAZI TWÉ HYDROELECTRIC POWER PROJECT

TITLE
AQUATIC HABITAT MAP OF THE CREE BAY AREA OF BLACK LAKE

Golder Associates
Saskatoon, Saskatchewan

PROJECT	10-1365-0004		FILE No.		
DESIGN			SCALE	AS SHOWN	REV. 0
CADD	TAH/AL	10/06/13	FIGURE: 6.3-5		
CHECK	LT	24/07/13			
REVIEW	BC	24/07/13			

Legend - Lakes, Wetlands, Ponds

Substrate Types	
Cl	Clay
Si	Silt
Sa	Sand
Gr	Gravel
Co	Cobble
Bo	Boulder
Bd	Bedrock
Or	Organic

Habitat Features		
XXXX	BD	Beaver Dam
	MD	Man-Made Dam
	BL	Beaver Lodge
	BG	Boulder Garden
		Bridge
		Culvert
	DP	Debris Pile
	EM	Emergent Vegetation
		Flow Direction
	ISC	Instream Cover
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	LWD	Large Woody Debris
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Sample Type Symbols	
	Water
	Sediment
	Benthic
	Fish

Bank/Upland Vegetation Types		
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	MU	Muskeg/Bog
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	MW	Mixedwood Forest
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	GF/SH	Grass/Forbs/Shrubs
	SE	Sedge
	SH	Shrubs
	EM	Emergent Vegetation
	MO	Moss
	OR	Organic

Bank Slope	
	Shallow Slope (0-5%)
	Intermediate Slope (6-30%)
	Steep Slope (31-70%)
	Very Steep Slope (>70%)

Bank Instability Ratings	
A	Aggrading
E	Eroding
S	Slumping
G	Gullying

Capture Methods		
	BP	Electrofishing - Backpack
	EF	Electrofishing - Boat
	GN	Gill Net
	SN	Seine
	FF	Fish Fence
	MT	Minnow Trap
	AN	Angling
	HN/TN	Hoop Net/Trap Net

General	
C	Photo Location/Direction
	Habitat Type Divider
	Fish Bearing/Potential Bearing Watercourse
	Width
	Depth

Site Summary Symbol

Lake (L), Wetland (W) or Pond (P)
Surface Area (ha)
Main Shoreline Perimeter (m)
Max Depth (m)
Secchi Depth (m)
Dissolved Oxygen (mg/L)
Conductivity (µS/cm)
pH

Fish Species

Notes:
ha = hectares
m = metres
mg/L = milligrams per litre
µS/cm = microseimens per centimetre
Max depth was the depth recorded at sampling locations.

6.3.1.2.4 Chipman Bay

A habitat map of Chipman Bay is provided in Figure 6.3-6. Chipman Bay is located on the north shore of the main basin of Black Lake. The south eastern section of Chipman Bay contains extensive littoral habitat relative to other parts of the bay. Water depths ranging between one and four m are typical. A maximum water depth of 46 m was observed near the bay's south entrance (see Section 3 and Appendix III.1).

Substrate composition in Chipman Bay is primarily sand and other fine materials with occasional (<20%) boulder components. Aquatic vegetation was observed throughout the bay and very dense beds of emergent vegetation occur in the southeast section of the bay.

6.3.1.2.5 Pluto Bay

A habitat map of Pluto Bay is provided in Figure 6.3-7. Pluto Bay is located on the north shore of the main basin of Black Lake, approximately 7 km east of Chipman Bay. The eastern section of Pluto Bay is connected by a narrow channel from the main bay. This area could not be surveyed because of low water levels in the channel, which prevented boat access. In the surveyed area, a maximum water depth of 23 m was observed near the south shore of the bay (see Section 3 and Appendix III.1). The littoral zone substrate of Pluto Bay consisted primarily of fines and sand. Emergent and submergent aquatic vegetation occurred throughout the bay.

6.3.1.3 Tributary Assessment

Habitat results obtained from the field-based tributary assessments completed for Black Lake are provided in Table 6.3-2 for each of the 32 streams that were ground-truthed. A map showing the locations of tributary streams is provided in Figure 6.2-1. Approximately half of the streams contained water at the time of the assessment and the remainder were either dry or had narrow, intermittent channels. Of the streams that were dry or had very low flow, several have the potential to provide suitable spawning and/or rearing habitat for Black Lake fish species during high water years.

Table 6.3-2: Black Lake Tributaries Assessed between June 2, 2010 and June 6, 2010

Tributary #	Waterbody Name	UTM Coordinates (NAD 83, Zone 13)		Comments
		Easting	Northing	
4		453413	6543471	Shallow water littoral area in lake at confluence with sand substrate. Possible rearing habitat for various fish species.
5		453927	6544346	No visible channel.
6		471963	6559998	No visible channel.
7		473178	6561597	No visible channel. High gradient valley wall.
8		474665	6563592	No visible channel however, low-lying depression may provide rearing habitat during high-water years.
9		476393	6564936	No visible channel.
10		477030	6565603	No visible channel.
11		477273	6565668	No visible channel.
12		478210	6566229	No visible channel.
14	Chipman River	483946	6572564	Excellent fish habitat. Fast flowing water. Gravel/cobble/boulder substrate.
15		484746	6572504	Willow riparian area. No well-defined channel with flowing water.
16		485524	6572741	Willow riparian area. No well-defined channel with flowing water.
17		486708	6572876	Boulder shoreline. No well-defined channel with flowing water.

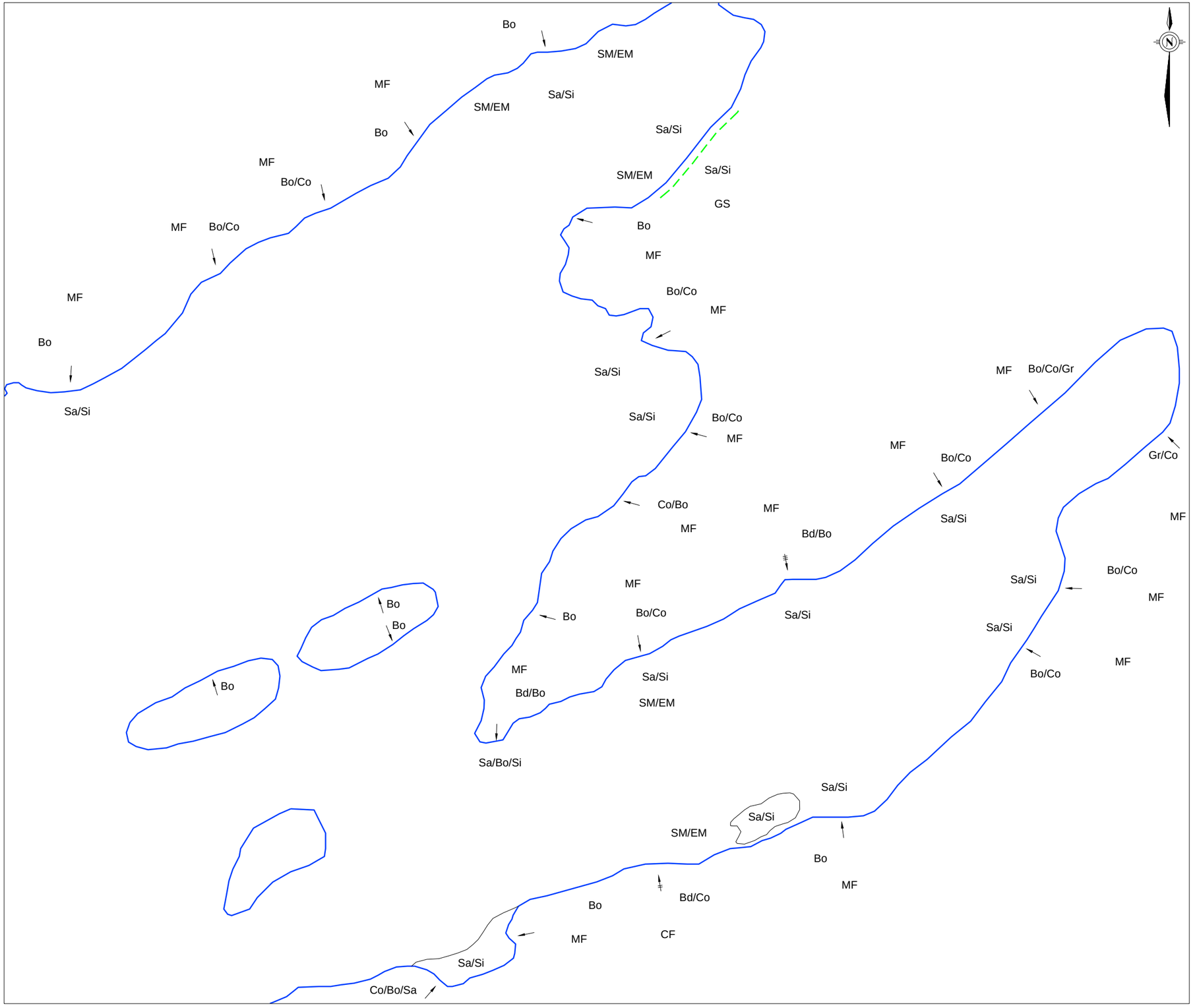
Table 6.3-2: Black Lake Tributaries Assessed between June 2, 2010 and June 6, 2010 (continued)

Tributary #	Waterbody Name	UTM Coordinates (NAD 83, Zone 13)		Comments
		Easting	Northing	
18		488745	6574076	Sedge dominated shoreline. Narrow, intermittent channel (<1 m) with very little water.
22		496345	6573160	Abundant emergent vegetation in lake on either side of channel. 20 m wide channel extends upstream from confluence for approximately 200 m. Silt, sand, and submergent vegetation present in channel. Water becomes too shallow to boat beyond. Good spawning/rearing habitat for pike in general area.
23		498042	6573664	No visible channel.
24		498203	6573789	Emergent vegetation near confluence. Narrow, intermittent channel with no flowing water.
25		498928	6573053	Low, slow-flowing water. Silt/sand substrate. Possible rearing habitat. Emergent vegetation on either side of channel.
29	Souter River	501897	6569114	Downstream sections of the river are generally shallow and sandy. Channel gradient increases significantly 1.7 km upstream of confluence. Cobble/boulder substrate. Fish passage barrier located at this point (Falls/Chute).
31		505117	6567535	No well-defined channel. Emergent vegetation near approximate confluence. Willow riparian area.
36	Fond du Lac River (main channel)	499938	6559686	Generally deep and slow flowing. Falls located approximately 1.4 km upstream of confluence.
37	Fond du Lac River (South Channel)	496831	6558433	Downstream sections are deep and slow flowing. Channel gradient increases further upstream and provides good spawning habitat for suckers. Large numbers of longnose sucker reported to spawn in those areas.
41		493306	6556646	Channel not well defined. No evidence of flowing water. Extensive, shallow sand flat in lake near confluence.
46		491864	6555975	Well defined channel, approximately 15 m wide with sand substrate and mean depths of 1 to 1.5 m. No fish observed in area. Extensive shallow sand flat in lake at confluence.
50		476803	6555635	Sand shoreline. No evidence of a defined channel and flowing water entering the lake.
51		470803	6554180	Large numbers of white sucker observed staging near confluence. Generally, poor spawning habitat for substrate spawners at confluence but likely improves further upstream.
52		468613	6553262	No visible channel.
53		465474	6550004	No well-defined channel. Possible rearing habitat during high water years.
54		462417	6547404	No visible channel.
56		456647	6539862	Extensive shallow water littoral area in lake at confluence. Numerous northern pike and forage fish species in area. Defined channel further upstream but too shallow for boat access. Upstream reaches could contain habitat for spring spawning fish species.
57		456429	6537816	Extensive shallow water sand flat in littoral area at confluence. No well-defined channel. Willow dominated riparian area in vicinity of confluence.
58	Cree River	455751	6535348	Relatively deep, slow flowing river between Black Lake and Giles Lake. Isolated patches of emergent vegetation along shorelines.

Table 6.3-3: Black Lake Tributaries with Limited Fish Habitat Potential

Tributary #	UTM Coordinates (NAD 83, Zone 13)		Comments
	Easting	Northing	
1	449233	6534694	Channel connecting Giles Lake to Black Lake. Approximately 700 m long and 16 m wide. May contain spawning and rearing habitat for fish species such as northern pike.
2	449660	6536102	Channel not well defined because of thick terrestrial vegetation. Likely to contain flow during spring melt and for short periods of time. Low fish habitat potential.
3	452010	6540812	100 m of defined channel. Remaining sections drain a fen.
13	480376	6568567	No visible channel.
19	488797	6573947	No visible channel. Suspect drainage course conveys seasonal over-flow from small lake located at upstream end.
20	489825	6573227	Channel not well defined. Broad, low-lying area that drains surrounding fens.
21	493628	6572923	Channel not well defined.
26	496491	6570435	No defined channel.
27	498391	6569783	Low –lying are between Black Lake and several small lakes. No well-defined channel connecting Black Lake to the smaller lakes evident.
28	500703	6569209	No visible channel.
30	502549	6567652	No well-defined channel.
32	505297	6566422	No well-defined channel.
33	504153	6564566	No well-defined channel.
34	501291	6561624	No visible channel.
35	500488	6560745	No visible channel.
38	496116	6557587	No well-defined channel.
39	496012	6557545	No well-defined channel.
40	494810	6557343	No well-defined channel.
42	493125	6556499	No well-defined channel.
45	492790	6556270	No visible channel.
47	488048	6557003	No well-defined channel.
48	486556	6557614	No well-defined channel.
49	483957	6557094	Linear drainage course with a series of very small lakes. However, no defined channel connecting drainage area to Black Lake.
53	465474	6550004	Fish habitat potential limited to first 30 m. No well-defined channel past 30 m due to thick vegetation.
55	457579	6542830	Wide fen. Very small, intermittent channel, just prior to immediate confluence.
59	453180	6534822	No well-defined channel.

UTM = Universal Transverse Mercator; NAD = North American Datum; m = metres; km = kilometres; < = less than



REFERENCE
NAD83 UTM ZONE 13

200 0 200
SCALE 1:10,000 METRES

PROJECT
TAZI TWÉ HYDROELECTRIC POWER PROJECT

TITLE
AQUATIC HABITAT MAP OF THE CHIPMAN BAY AREA OF BLACK LAKE

Golder Associates
Saskatoon, Saskatchewan

PROJECT	10-1365-0004		FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
CADD	TAH/AL	10/06/13		
CHECK	LT	24/07/13		
REVIEW	BC	24/07/13		

FIGURE: 6.3-6

Legend - Lakes, Wetlands, Ponds

Substrate Types	
Cl	Clay
Si	Silt
Sa	Sand
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Co	Cobble
Bo	Boulder
Bd	Bedrock
Or	Organic

Habitat Features		
XXXX	BD	Beaver Dam
	MD	Man-Made Dam
	BL	Beaver Lodge
	BG	Boulder Garden
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	DP	Debris Pile
	EM	Emergent Vegetation
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Sample Type Symbols	
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Bank/Upland Vegetation Types		
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	Habitat Type Divider
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Conductivity (µS/cm)
pH

Fish Species

Notes:
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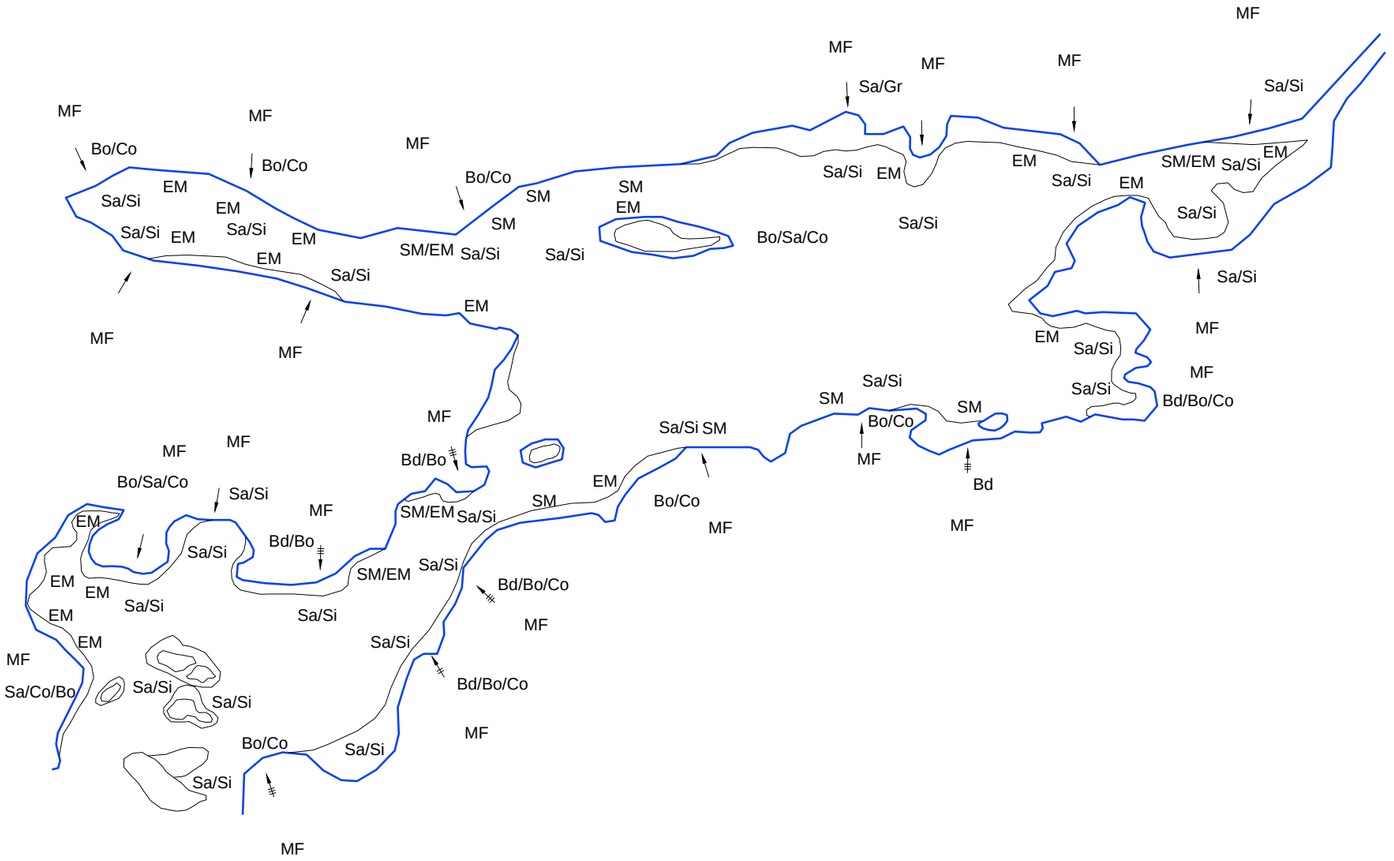

REFERENCE
NAD83 UTM ZONE 13

500 0 500
SCALE 1:20,000 METRES

PROJECT
TAZI TWÉ HYDROELECTRIC POWER PROJECT

TITLE
AQUATIC HABITAT MAP OF THE PLUTO BAY AREA OF BLACK LAKE

Golder Associates
Saskatoon, Saskatchewan

PROJECT	10-1365-0004		FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
CADD	TAH/AL	10/06/13	FIGURE: 6.3-7	
CHECK	LT	24/07/13		
REVIEW	BC	24/07/13		

Legend - Lakes, Wetlands, Ponds

Substrate Types	
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Habitat Features		
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	Habitat Type Divider
	Fish Bearing/Potential Bearing Watercourse
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	Depth

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Max Depth (m)
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Fish Species

Notes:
ha = hectares
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µS/cm = microseimens per centimetre
Max depth was the depth recorded at sampling locations.

Of the streams that were flowing during the field assessment, several tributaries (or their respective confluence areas) were actively being used as spawning and/or staging areas by spring spawning species (e.g., longnose sucker, white sucker, and northern pike). Large numbers of longnose sucker, white sucker, and northern pike were observed staging in the lake near the confluence of Tributary 51 (located on the south shore of Black Lake directly across from the outflow). Large numbers of longnose sucker and white sucker were also observed near the Chipman River confluence with many individuals actively spawning in the channel (Tributary 14). Recreational fishing clients at Camp Grayling reported a large number of longnose suckers spawning near the upstream end of the south channel of the Fond du Lac River inflow (Tributary 37). The same guests also indicated that the Souter River (known locally as the Pederson River [Tributary 29]) contained large numbers of spawning lake trout in late August and early September, approximately 1.7 km upstream of its confluence with Black Lake.

The remaining 27 tributaries, although not assessed in the field, were cross-referenced with available satellite imagery to provide a general interpretation of spawning/rearing potential (Table 6.3-3). Many of these tributaries are linear depressions in the topography which have become vegetated with terrestrial plants and appear to lack fluvial bed material. Most of these flow pathways are likely to convey only small amounts of water for short periods of time, such as during the annual spring melt or as a result of significant precipitation events. Collectively, these streams appear to have very limited fish habitat potential.

6.3.1.4 Middle Lake

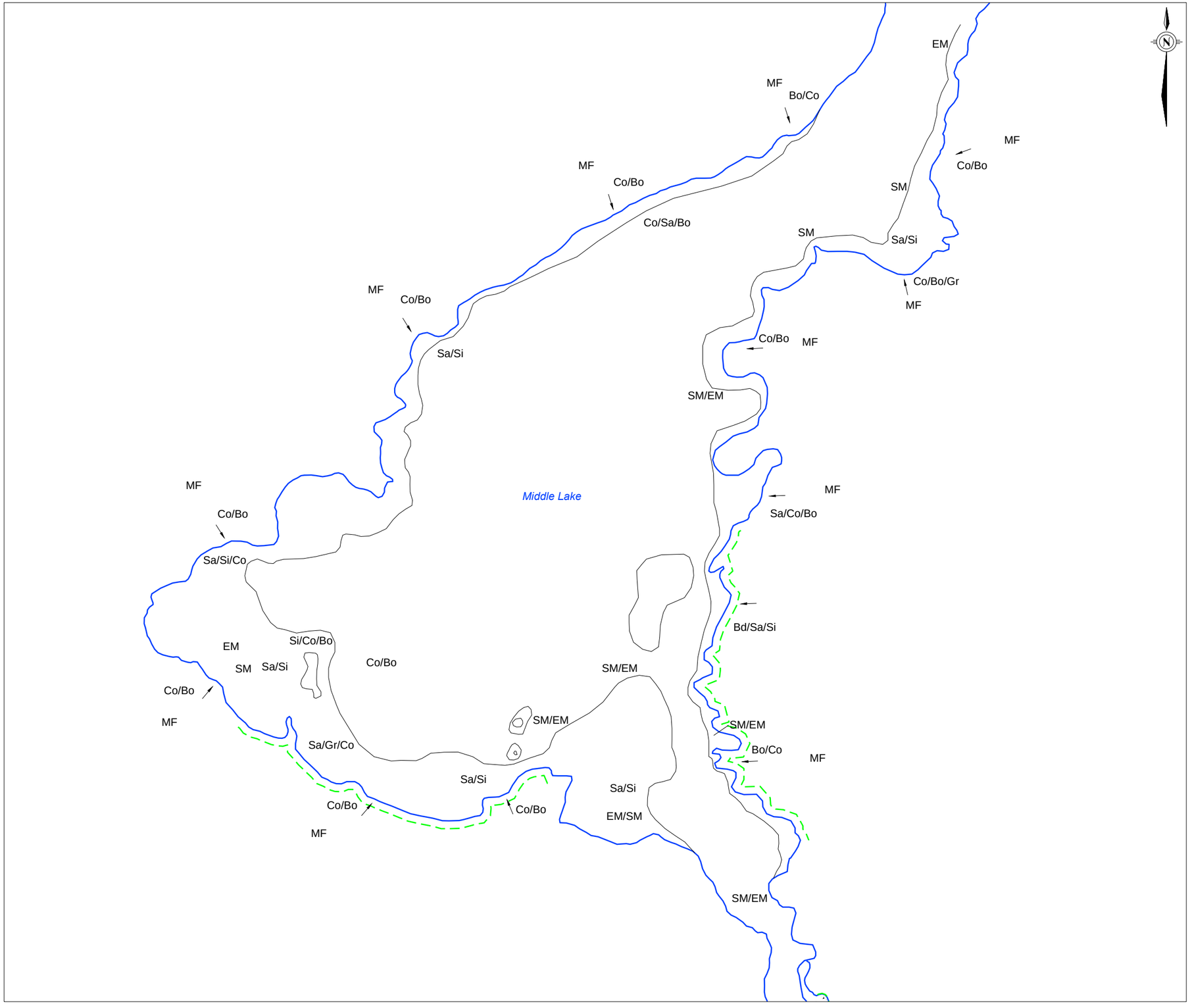
An aquatic habitat map for Middle Lake is provided in Figure 6.3-8. A maximum water depth of 14 m was observed in Middle Lake near its outflow into the Fond du Lac River (see Section 3 for detailed bathymetry results). Much of Middle Lake, however, is shallow with a mean depth of less than 2.5 m. The western portion of the lake is especially shallow with observed depths ranging between 1 m and 5 m. Middle Lake is generally deeper along the Fond du Lac River channel, which flows adjacent to the eastern shore. Substrate within Middle Lake was variable, consisting of sand and silt components with areas of cobble and boulder. Aquatic vegetation was present throughout much of the lake and became very dense along both sides of the main channel.

6.3.2 Fish Community Summary

This section provides a summary of fish presence and distribution in the LSA based on capture information from the period between 1969 and 2012. Fish abundance and body size information is limited to recent data collected between 2010 and 2012. A number of focussed surveys were completed between 2010 and 2012 to assess spawning, species composition, population size, and migration patterns. The results of these surveys have been compiled to develop a general understanding of fish distribution, species abundance, and community composition.

6.3.2.1 Local Study Area

Seventeen fish species (Arctic grayling, burbot, lake chub, longnose sucker, white sucker, lake whitefish, northern pike, walleye, spottail shiner, trout-perch, cisco, lake trout, ninespine stickleback, round whitefish, yellow perch, longnose dace, and slimy sculpin) were captured or observed in the LSA during the aquatic baseline field programs. Two additional species, shortjaw cisco (Saskatchewan Parks and Renewable Resources (SPRR) and deepwater sculpin (SPRR 1991; Johnson 1971), have also been reported in the LSA by historical sources. A summary of species composition and abundance for each waterbody/watercourse sampled is provided in the following sections.



REFERENCE
NAD83 UTM ZONE 13

500 0 500
SCALE 1:20,000 METRES

PROJECT
TAZI TWÉ HYDROELECTRIC POWER PROJECT

TITLE
AQUATIC HABITAT MAP OF MIDDLE LAKE

Golder Associates
Saskatoon, Saskatchewan

PROJECT	10-1365-0004		FILE No.		
DESIGN			SCALE	AS SHOWN	REV. 0
CADD	TAH/AL	10/06/13	**FIGURE: 6.3-8**		
CHECK	LT	24/07/13			
REVIEW	BC	24/07/13			

Legend - Lakes, Wetlands, Ponds

Substrate Types	
Cl	Clay
Si	Silt
Sa	Sand
Gr	Gravel
Co	Cobble
Bo	Boulder
Bd	Bedrock
Or	Organic

Habitat Features		
XXXX	BD	Beaver Dam
	MD	Man-Made Dam
	BL	Beaver Lodge
	BG	Boulder Garden
		Bridge
		Culvert
	DP	Debris Pile
	EM	Emergent Vegetation
		Flow Direction
	ISC	Instream Cover
	IV	Instream Vegetation
	INV	Inundated Vegetation
	LWD	Large Woody Debris
	LE	Ledge
	LJ	Log Jam
	LS	Landslide
	MIL	Multiple Island
	OHV	Overhanging Vegetation
	OHC	Overhead Cover
	RW	Root Wad
		Sand Bar
	SIL	Singular Island
	SWD	Small Woody Debris
	SM	Submergent Vegetation
	UCB	Undercut Bank
	USB	Unstable Bank

Sample Type Symbols	
	Water
	Sediment
	Benthic
	Fish

Bank/Upland Vegetation Types		
	BA	Bare Ground
	OT	Open Tundra
	MU	Muskeg/Bog
	DF	Deciduous Forest
	CF	Coniferous Forest
	MW	Mixedwood Forest
	GS	Grassland
	GF	Grass/Forbs
	GF/SH	Grass/Forbs/Shrubs
	SE	Sedge
	SH	Shrubs
	EM	Emergent Vegetation
	MO	Moss
	OR	Organic

Bank Slope	
	Shallow Slope (0-5%)
	Intermediate Slope (6-30%)
	Steep Slope (31-70%)
	Very Steep Slope (>70%)

Bank Instability Ratings	
A	Aggrading
E	Eroding
S	Slumping
G	Gullying

Capture Methods		
	BP	Electrofishing - Backpack
	EF	Electrofishing - Boat
	GN	Gill Net
	SN	Seine
	FF	Fish Fence
	MT	Minnow Trap
	AN	Angling
	HN/TN	Hoop Net/Trap Net

General	
C	Photo Location/Direction
	Habitat Type Divider
	Fish Bearing/Potential Bearing Watercourse
	Width
	Depth

Site Summary Symbol

Lake (L), Wetland (W) or Pond (P)
Surface Area (ha)
Main Shoreline Perimeter (m)
Max Depth (m)
Secchi Depth (m)
Dissolved Oxygen (mg/L)
Conductivity (µS/cm)
pH

Fish Species

Notes:
ha = hectares
m = metres
mg/L = milligrams per litre
µS/cm = microseimens per centimetre
Max depth was the depth recorded at sampling locations.

6.3.2.2 Fond du Lac River

Fish species captured from the Fond du Lac River included Arctic grayling, burbot, cisco, lake whitefish, longnose dace, longnose sucker, northern pike, round whitefish, slimy sculpin, spottail shiner, trout-perch, walleye, and white sucker. Lake chub, ninespine stickleback, and yellow perch have also been reported in the Fond du Lac River (SPRR 1991), but were not captured during the aquatic baseline surveys. Brief life history summaries of large bodied fish species known to occur in the Fond du Lac River are provided in the following sections. These summaries are not intended to be exhaustive literature reviews, but to provide information that will assist in placing the data collected in the fisheries studies into context.

Arctic grayling

Arctic grayling are found in many large, fast-flowing rivers in northern Saskatchewan (Scott and Crossman 1998). They are known to occur in both lake and river environments (Richardson et al. 2001). In Saskatchewan, the preferred habitat is clear, fast-flowing rivers.

Male and female Arctic grayling reach maturity at age four, but most spawners are between six and nine years of age (Bishop 1971; Scott and Crossman 1998). Arctic grayling spawn numerous times throughout their lifespan; however, spawning may not occur each year. Most spawners over the age of nine are typically female. Maximum age for both males and females is about 11 or 12 years (Scott and Crossman 1998).

Arctic grayling spawning occurs shortly after ice break up. Timing varies based on latitude and ranges from April to June (Scott and Crossman 1998). During the spring break up, adults migrate from foraging and overwintering areas into smaller streams, tributaries or lower flow areas with suitable substrates for spawning (typically gravel or cobble). Arctic grayling do not prepare a redd; however, males are territorial on the spawning grounds and will chase away other intruding males by displaying their large raised dorsal fin (Scott and Crossman 1998).

Spawning may occur several times during spring. In migratory populations, post-spawning adults return to the lakes or rivers from which they migrated (Scott and Crossman 1998). Arctic grayling eggs hatch after an incubation period of approximately 13 to 18 days. The alevin require an additional eight days to completely absorb the egg sac. Newly hatched fry display rapid growth (Scott and Crossman 1998). Lakes often provide important rearing habitat for young-of-the-year Arctic grayling, and are associated with increased growth of young-of-the-year Arctic grayling compared with sub-basins containing fewer or no lakes (Luecke and MacKinnon 2008). In the Fond du Lac River, young-of-the-year Arctic grayling were captured in the summer months in slow flowing shallow water habitat near the spawning areas.

Young-of-the year Arctic grayling feed primarily on immature insects (Hubert et al. 1985). Adult grayling are primarily planktivores (Schmidt and O'Brien 1982), but also consume aquatic and terrestrial insects (Scott and Crossman 1998), including caddisflies, midges, bees, wasps, grasshoppers, ants and beetles. Arctic grayling also reported to feed on small fishes, eggs, and crustaceans (Scott and Crossman 1998).

The Fond du Lac River between Black Lake and Middle Lake contains high quality, year round habitat for Arctic grayling. Arctic grayling populations in this section of the Fond du Lac River have been studied by several investigators (Rawson 1950, Johnson 1971, Envirocon 1973, Kratt 1977, Kratt and Smith 1977, Merkowsky 1989). The Fond du Lac River Arctic grayling population between Black Lake and Middle Lake

typically begin spawning between the third week of May and the middle of June when water temperatures consistently exceed 3°C. Spawning often coincides with the majority of Black Lake becoming ice-free. The Black Lake outflow contains extensive shallow water habitat that is used by Arctic grayling for spawning. Arctic grayling also spawn in riffle habitat near the outflow to Middle Lake, and in similar habitats throughout the Fond du Lac River between Black Lake and Middle Lake.

Results of the Arctic grayling tagging and radio telemetry studies completed in the Fond du Lac River during the recent baseline investigations indicated that most Arctic grayling generally make only small, localized movements within the River. Recaptures of upstream tagged fish in the mid-section of the Fond du Lac River suggest that some proportion of the Grayling Island Arctic grayling population move downstream to access foraging and spawning habitat in the middle section of the river. Suitable over-wintering habitat is available in the Fond du Lac River as the channel remains ice-free during the winter months. Additionally, there are a number of large pools that exceed 5 meters in depth.

Burbot

Burbot occur in deep-water lakes and large, cool rivers throughout Saskatchewan (Scott and Crossman 1998). In northern Saskatchewan burbot can be found in turbid rivers which rarely exceed 18°C during the summer (McPhail 1997). In the north, burbot using river habitats are associated with the turbid waters in the main channels, and then enter tributaries in autumn (Breeser et al. 1988). Studies show that they prefer areas of moderate to high turbidity, low velocities (under 46 centimeters per second [cm/s]) and shallow depths (under 76 cm) (Suchanek et al. 1984). Due to their body shape, adult burbot struggle to maintain position in current velocities greater than 0.25 metres per second (m/s) (McPhail and Paragamian 2000). The turbidity of the water is used as cover (Ford et al. 1995). Adult burbot tend to avoid shallow water sandbars and side channels except during high water conditions (Ford et al. 1995). In the Qu'Appelle River system in southern Saskatchewan, adult burbot are found over rocky substrates in non-vegetated areas of the river (SERM – unpublished data 2001).

Burbot grow rapidly during their first four years and usually reach sexual maturity at 3 to 4 years of age (Scott and Crossman 1998). Burbot spawning occurs in winter usually between January and March in Canada when the water temperature is between 1°C and 4°C (Nelson and Paetz 1992; Scott and Crossman 1998). River spawning typically occurs in shallow (<2 m) quiet water areas behind depositional bars of fine gravel, sand, or silt (McPhail 1997). In areas with higher water velocities the eggs can be transported and deposited in silty substrates causing eggs to suffocate (Sorokin 1971). After fertilization, the eggs settle into interstices of the substrate (Ford et al. 1995; Scott and Crossman 1998). The eggs incubate from three weeks to three months depending on water temperature (Goodyear et al. 1982; Scott and Crossman 1998). Upon hatching sac-fry are found primarily in the quiet water areas and deep pools, congregating over sand and rubble substrates (McPhail 1997; Ford et al. 1995). Young of the year burbot are also known to seek shelter under stones, debris, weed beds, undercut banks, and woody debris during the day (Girsa 1972). In the Fond du Lac River a large number of juvenile burbot were captured on cobble substrate in a shallow channel between the shore and an island. Juvenile burbot are known to forage on benthic invertebrates in shallow regions of rivers and streams (Hartmann 1977). Burbot are known to be sensitive to sub-surface illumination; they will seek shelter under stones, roots and in aquatic vegetation during the day (McPhail and Lindsey 1970).

Burbot become more active and feed predominantly at night. Young burbot will feed on aquatic insects, crayfish, molluscs and invertebrates. Adults feed on eggs, invertebrates and numerous species of fish (Scott and Crossman 1998).

Cisco

Cisco are also known as lake herring, and are commonly referred to simply as cisco in many reports. It has the most extensive North American distribution of any cisco species and is found throughout much of Canada (Scott and Crossman 1998). Cisco are a predominantly lacustrine but may occur in larger rivers. Cisco primarily inhabit the pelagic zone of lakes but move below the thermocline in the summer and into shallow waters as the water cools in the fall (Scott and Crossman 1998). Rivers are not normally considered as cisco habitat. In the Qu'Appelle drainage system of southern Saskatchewan, adult cisco were found in emergent vegetation over silty substrate in spring and in non-vegetated sand and rock areas in the fall (SERM – Unpublished data 2001). Low numbers of juvenile and fry cisco were captured in a small side channel near the Fond du Lac River inflow to Middle Lake. The cisco were captured in emergent macrophytes over a cobble and boulder substrate.

Cisco mature at about three years of age and begin spawning in the fall when water temperatures drop to between 2°C and 5°C (Nelson and Paetz 1992). During the spawn large numbers of fish gather in shallow water (one to four m) to deposit their eggs over gravel or stony substrates (Nelson and Paetz 1992; Scott and Crossman 1998). Due to low winter temperatures the eggs do not hatch until the breakup of surface ice in the spring (Scott and Crossman 1998). In the Qu'Appelle system juveniles were located in habitats of sparse vegetation over rocky substrates (SERM – Unpublished data 2001).

A wide variety of food items comprise the diet of the cisco. Once hatched the fry begin feeding on dead zooplankton, algae and copepods (Scott and Crossman 1998). The young are reported to feed on algae, copepods and Cladocera (Pritchard 1930). As adults they feed on copepods, small minnows, crustaceans, aquatic insects (mayflies and caddisflies), water mites, zooplankton, their own eggs and those of other fish species (Scott and Crossman 1998).

Cisco are a significant part of the diet of many other fishes, including being a preferred food source for lake trout (Scott and Crossman 1998).

Lake Whitefish

Lake whitefish are found throughout much of Saskatchewan (McPhail and Lindsey 1970; Scott and Crossman 1998). They are most commonly found in lakes, although they may be found in larger rivers and brackish waters. They are known to exhibit lacustrine, adfluvial and "anadromous" life history types (Richardson et al. 2001). Lacustrine populations have been shown to occur in two differing forms, normal and dwarf, as noted by Richardson et al. (2001); however, the literature does not show differential habitat use between the two forms, and it has been assumed they exhibit similar habitat preferences (Richardson et al. 2001). During the 2010 and 2012 aquatic baseline data collection programs, lake whitefish were captured in Black Lake, the Fond du Lac River, and Middle Lake. In the Fond du Lac River, lake whitefish were captured in deep pools, and in shallow, slow-flowing back water habitats.

In northern populations, lake whitefish individuals may only spawn once every two or three years (Scott and Crossman 1998). Lake whitefish may spawn anywhere from late summer to December; however, spawning usually occurs from mid-September to mid-October in northern regions (Richardson et al. 2001). They are known to spawn in both lake and river systems over a variety of substrates from large boulders to gravel and occasionally sand (Richardson et al. 2001). Although lake whitefish appear to avoid using soft bottomed substrates for spawning locations, several authors have noted spawning in areas with silt substrates or emergent vegetation (Richardson et al. 2001).

Spawning usually takes place in shallow water areas at depths less than eight m, but deeper spawning has been reported (Scott and Crossman 1998). Eggs are released randomly over the hard or stony substrate (Scott and Crossman 1998). The eggs settle into crevices where they incubate for several months before hatching in approximately March to May (Richardson et al. 2001).

Juveniles are commonly found near the surface in shallow water areas close to spawning areas. Within these shallow water zones, young lake whitefish are frequently associated with boulder, cobble or sand substrates in association with emergent vegetation and woody debris (Ford et al. 1995).

Adult lake whitefish tend to leave the spawning grounds shortly after spawning, and return immediately to deepwater habitat to over winter (Ford et al. 1995). They are often found at depths greater than 10 m for most of the year and can occur at depths in excess of 100 m (McPhail and Lindsey 1970). Despite being primarily bottom dwelling, they may be found in the pelagic zone of lakes as well (Ford et al. 1995).

Lake whitefish are known to have nocturnal onshore movements into shallow water habitats at night to feed (McPhail and Lindsey 1970). The diet of lake whitefish includes: snails, clams, terrestrial insects, aquatic insects, plankton, and small fishes (Scott and Crossman 1998). The types of food consumed by lake whitefish are associated with the number and length of gill rakers. Food type has been correlated with gill raker length to such a strong degree that fish with shorter and more plentiful rakers have been shown to eat a higher proportion of benthic food sources (Scott and Crossman 1998).

Lake whitefish are preyed upon by lake trout and burbot, and by whitefish themselves at the egg stage (Scott and Crossman 1998). They are also deemed to be one of the most valuable commercial freshwater fish species in Canada (Scott and Crossman 1998).

Longnose sucker

The longnose sucker occurs throughout Saskatchewan and is found in a variety of freshwater habitats including lakes, rivers and streams throughout their geographic range. Longnose sucker are known to exhibit lacustrine, adfluvial, and riverine life history types (Richardson et al. 2001).

Sexual maturity occurs at approximately five years for males and six years for females (Richardson et al. 2001). Longnose suckers spawn in the spring, from April to June, shortly after melting of ice cover on lakes (Richardson et al. 2001). Longnose suckers spawn primarily in streams and rivers and are broadcast spawners. Small schools of longnose sucker were observed in riffle habitat with cobble substrate in the Fond du Lac River between Black Lake and Middle Lake in May 2010. However, none were observed actively spawning as water temperatures were only around 3°C. Preferred spawning temperatures are greater than 5°C (Scott and Crossman 1998).

Lake spawning can occur along shallow, rocky, wind-swept shoreline. Spawning usually occurs in water depths of 15 to 30 cm, over gravel or sand substrates (Richardson et al. 2001). Eggs are adhesive and require 11 to 15 days of incubations before hatching (Richardson et al. 2001). Young remain in the gravel substrate for seven to fourteen days before emerging (depending upon water temperature). They will then occupy shallow areas of

lakes, in association with vegetation and sandy substrates. Juveniles are also known to inhabit shallow weedy areas (Richardson et al. 2001). Young-of-the-year longnose sucker were collected from riffle habitat at different locations in the Fond du Lac River between Black Lake and Middle Lake during 2010 baseline surveys. During the same period, juvenile longnose sucker where found along shorelines in Black Lake where large cobble and boulder substrates were prevalent. Adult longnose suckers often inhabit deeper waters than other species of sucker, and have been known to occur at water depths of up to 183 m (Richardson et al. 2001). In Black Lake, longnose sucker were collected near the potential intake location at depths approaching 30 m during both summer and winter sampling programs.

The diet of longnose sucker consists mostly of amphipods, chironomids, midge larvae, caddisfly larvae and sphaeriid clams (Richardson et al. 2001). Their ventral mouth and large papillose lips aid in suction as they primarily feed on invertebrates from stream and lake beds (Mecklenburg et al. 2002).

Round whitefish

Round whitefish populations can be fluvial, adfluvial, or anadromous. In Saskatchewan, round whitefish occur throughout the north in larger rivers and lakes. In the Project area, round whitefish were captured in Black Lake near the Fond du Lac River outflow and in middle reaches of the Fond du Lac River between Black Lake and Middle Lake.

Round whitefish spawning occurs from autumn to early winter when water temperatures cool to <2.5°C. Gravel and rubble (cobble sized material) substrates are preferred by round whitefish for spawning purposes (Normandeau 1969; Richardson et al. 2001). Males will usually arrive on the spawning grounds first; once the females arrive the fish will pair up instead of large spawning schools occurring (Scott and Crossman 1998). Round whitefish broadcast spawn their eggs over the chosen substrate, in 15 to 200 cm of water (Normandeau 1969). Hatching time will vary depending upon water temperatures, but generally occurs between March and May (Goodyear et al. 1982). After emerging from the eggs the young are generally found near the lake or stream bottom and are associated with rock, sand and gravel substrates (Goodyear et al. 1982).

Adult round whitefish tend to be found over rocky substrates often in association with boulders (McPhail and Lindsey 1970). They are commonly found in shallows of lakes or slow flowing rivers and streams, and even in brackish waters (McPhail and Lindsey 1970; Scott and Crossman 1998). During the summer, round whitefish of the Fond du Lac River (between Black Lake and Middle Lake), were captured in deep pools.

The diet of round whitefish consists of a variety of benthic invertebrates, primarily mayfly, caddisfly and chironomids larvae, as well as small crustaceans, fishes and molluscs (Scott and Crossman 1998). Round whitefish are also suspected to feed on the eggs of other species of fish (Scott and Crossman 1998). In the north, they are known to be a component of the diet of lake trout; however, they do not make up a large portion of the diet (Scott and Crossman 1998).

Slimy Sculpin

Slimy sculpin are can be found throughout northern Saskatchewan (Scott and Crossman 1998). The slimy sculpin exhibits both lacustrine and riverine life-histories and can be found in deep lakes, cool water rivers, and rocky or gravely streams (Craig and Wells 1976; Lee et al. 1980; McPhail and Lindsey 1970; Scott and Crossman 1998). Slimy sculpin are usually associated with coarser substrates which provide in-situ cover

(Nelson and Paetz 1992). During the 2010 and 2012 aquatic baseline data collection programs, slimy sculpin were captured in Black Lake, the Fond du Lac River, and Middle Lake. In the Fond du Lac River, slimy sculpin were captured in large numbers in shallow water areas dominated by cobble substrate.

Slimy sculpin mature at approximately three years of age and spawn in May, usually over sand, gravel and rock substrates in shallow water areas when water temperatures reach 5°C to 10°C (Scott and Crossman 1998). Males select a spawning site under a rock or submerged root, one or more females deposits her adhesive eggs to the ceiling which the male then fertilizes. The male then guards the eggs for approximately four weeks until they hatch (Goodyear et al. 1982; Lee et al. 1980; Scott and Crossman 1998). After emerging the fry are found over shallow gravel and sand substrates, as they mature they move to deeper waters (Mohr 1984; Mohr 1985).

Adult slimy sculpin feed on a variety of benthic invertebrates, small fishes and some plant materials (McPhail and Lindsey 1970; Mohr 1984; Scott and Crossman 1998).

Slimy sculpin are eaten by a variety of predaceous fishes including burbot, lake trout and northern pike (Scott and Crossman 1998).

Walleye

Walleye occur in rivers and lakes throughout Saskatchewan. Walleye can be found in large lakes and rivers provided the depth or turbidity of the water provides cover from the bright sun (Scott and Crossman 1998). In rivers walleye move into deep still pools up to 3.5 m deep, shallow current breaks, and regions with slight currents over gravel, cobble, and boulder substrates (Colby et al. 1979; McPhail 2007; Paragamian 1989; Scott and Crossman 1998). Sampling in the Fond du lac River found adult walleye in deep pools over boulder substrates. In Black Lake walleye were also found along a deep drop off near the proposed water intake location.

Male walleye reach maturity at two to four years and females at three to six years of age (Scott and Crossman 1998). Spawning occurs in the early spring shortly after ice cover breaks up, when water temperatures reach 6.7°C to 8.9°C (Scott and Crossman 1998). Northern populations may not spawn some years if water temperatures do not remain favourable (Scott and Crossman 1998). Spawning in rivers occurs at night in rocky areas below white water and impassable falls (Scott and Crossman 1998). Eggs fall into crevices of the substrate where they remain for 12 to 18 days before hatching (Scott and Crossman 1998). Once hatched, the fry remain in the low flow areas for 10 to 15 days until they disperse and become pelagic and begin feeding in the limnetic zone (Pratt and Fox 2001). In the latter part of the summer the young-of-the-year walleye move toward the bottom and are found in about 3 to 9 m of water where they forage on invertebrates (Scott and Crossman 1998).

Walleye are known to feed throughout the day in turbid waters; in clear water feeding is restricted to twilight or dark (Scott and Crossman 1998). Walleye feed primarily on other forage and juvenile fish but have been known to feed on mayflies, chironomids, crayfish, frogs and snails (Scott and Crossman 1998).

Juvenile walleye are preyed upon by a variety of predatory fish species, as well as by walleye themselves (Scott and Crossman 1998). Walleye are considered the most valuable and sought after species in Canada's inland waters (Scott and Crossman 1998).

White Sucker

White sucker are found in lakes, streams and rivers throughout Saskatchewan (Scott and Crossman 1998). White sucker are commonly found along the bottom in deep pools of rivers and in deep water areas of lakes (Durbin and Fernet 1979; Bradbury et al. 1999). In lakes white sucker are often associated with rubble, sand, silt-clay and detritus substrates (SERM – Unpublished data 2001). During the 2010 and 2012 aquatic baseline data collection programs, white sucker were captured in Black Lake, the Fond du Lac River, and Middle Lake. In the Fond du Lac River, adult white sucker were captured in deep pools, and in a shallow riffle near the river's outflow to Middle Lake. Juvenile and fry white sucker were found in shallow water areas of the river.

White sucker mature at 5 to 6 years of age and spawn in mid-May to early July when water temperatures reach about 10°C (Nelson and Paetz 1992). During the spawn fish usually move from the lakes into streams. Spawning takes place over gravel in shallow sections of the stream, less than 1 m in depth (Scott and Crossman 1998). In riverine systems spawning occurs most often in shallow gravel areas although it has also been documented in fast rapid areas, greater than 0.6 m/s (Schneberger 1972; Symons 1976). Eggs are released into the water where they either adhere to the substrate or drift downstream (Bradbury et al. 1999). Eggs hatch after approximately two weeks (Scott and Crossman 1998), and after four weeks fry begin moving out of the small streams back into the lakes (Bradbury et al. 1999). In the Fond du Lac River fry were observed congregating in areas with lower water currents like pools, eddies and backwaters.

White sucker fry have a terminal mouth which allows them to feed near the surface on plankton and other small invertebrates. As the fry mature their mouths become ventrally located causing a shift in diet to benthic invertebrates (Scott and Crossman 1998). Feeding occurs throughout the day but peaks during sunrise and sunset when white sucker move into shallow water areas of the lakes to forage (Scott and Crossman 1998).

White sucker are a very valuable food source to many predatory fish species including northern pike, walleye and burbot (Scott and Crossman 1998).

Yellow Perch

In Saskatchewan yellow perch occur in every major river drainage of the province (Atton and Merkowsky 1983). Yellow perch inhabit a wide variety of habitats from large lakes to slow rivers and small ponds (Nelson and Paetz 1992). Yellow perch are a shallow water species (<10.5 m) which prefer warmer water temperatures between 21°C and 24°C (Scott and Crossman 1998). Yellow perch can be commonly found in schools over gravel, clay, sand, and silt substrates and less commonly over rubble, boulder, and cobble substrates (Lane et al. 1996; SERM – Unpublished data 2001). No yellow perch were located in the Fond du Lac River, however several juvenile perch were captured in Black Lake suggesting their potential presence in the river.

Spawning usually occurs in the spring along shorelines of lakes and in tributary rivers in water temperatures ranging from 6.7°C to 12.2°C (Scott and Crossman 1998). Spawning occurs most commonly at night or early morning over submerged vegetation, fallen woody debris and in-situ cover, and occasionally over sand or gravel (Scott and Crossman 1998). Eggs are laid in large masses that adhere to the vegetation or substrate and undulate with the water current (Scott and Crossman 1998; SERM – Unpublished data 2001). Incubation lasts on average 8 to 10 days and upon hatching the juvenile perch remain in waters less than 5 m deep throughout the spring, until summer when schools of 50 to 200 fish form (Scott and Crossman 1998).

Yellow perch feed on a variety of food items including insects, invertebrates and the eggs and young of a variety of fish species. Feeding occurs throughout the day and into the early evening but does not occur during the night (Scott and Crossman 1998).

Both adult and juvenile perch serve as a food source for a variety of predatory fishes including northern pike and lake trout (Scott and Crossman 1998).

The most common fish species captured in the Fond du Lac River at each of the three general sampling areas (Black Lake outlet, middle section, and lower section above the Middle Lake outflow) was Arctic grayling, which accounted for 96.9%, 72.9%, and 39.1% (respectively) of the total catch (Table 6.3-4). At the Black Lake outlet sampling location, white sucker was the second most common fish species captured, comprising 2.9% of the total catch. Burbot, longnose sucker, slimy sculpin and walleye were also captured at the Black Lake outlet area, but collectively contributed less than one percent of the total catch. In the middle section of the Fond du Lac River, and in the lower section near the outflow to Middle Lake slimy sculpin was the second most common species captured, comprising 25.1% and 27.1% (respectively) of the total catch. The incidence of lake whitefish (0.2%), longnose sucker (0.3%), round whitefish (1.0%), walleye (0.3%), and white sucker (0.2%) in the middle section of the Fond du Lac River were at or below 1.0%. Sucker species were abundant in the lower section of the river near the outflow to Middle Lake, accounting for 26.5% of the total catch, collectively. Burbot (1.0%), cisco (1.5%), lake whitefish (1.1%), longnose dace (2.1%), northern pike (0.6%), spottail shiner (0.8%), trout-perch (0.1%), and walleye (0.2%) were also present at the outflow to Middle Lake inflow sampling location. Relative abundance and CPUE data for fish captured from the Fond du Lac River during the field surveys are organized and presented for each gear type used in Appendix III.9, Tables III.9-1, III.9-2, III.9-5, and III.9-6.

The relatively high abundance of Arctic grayling observed within the baseline catch at these locations was likely influenced by intensive sampling for this species during spawning surveys and fish movement studies. Although the incidence of Arctic grayling in the Fond du Lac River is likely to be high relative to most other species captured, percent catch data presented in Table 6.3-4 may not directly reflect the relative abundance of this species in the Fond du Lac River.

A summary of fish capture results and body size data (average length, weight, and condition factor [*K*]) for large-bodied fish species captured at each sampling area of the Fond du Lac River locations (Black Lake outlet, middle section, and lower section above Middle Lake) is provided in Tables 6.3-4 to 6.3-16 for each life stage (young of the year, juvenile, adult) and sampling period. Lengths and weights were not measured for fish captured from the Black Lake outlet area of the Fond du Lac River during general fish community sampling carried out in fall 2010. Detailed fish health information, including individual lengths and weights of all processed fish from the Fond du Lac River are provided in Appendix III.10, Table III.10-1.

Table 6.3-4: Fish Species Captured from the Fond du Lac River, Spring 2010 to Summer 2012

Common Name	Scientific Name	Species Code	Black Lake Outlet		Middle Section		Lower Section Above Middle Lake	
			Total Number Captured	Percent of Catch	Total Number Captured	Percent of Catch	Total Number Captured	Percent of Catch
Arctic grayling	*Thymallus arcticus*	ARGR	1,545	96.9	433	72.9	612	39.1
Burbot	*Lota lota*	BURB	1	0.1	-	-	15	1.0
Cisco	*Coregonus artedi*	CISC	-	-	-	-	24	1.5
Lake whitefish	*Coregonus clupeaformis*	LKWH	-	-	1	0.2	18	1.1
Longnose dace	*Rhinichthys cataractae*	LNDC	-	-	-	-	33	2.1
Longnose sucker	*Catostomus catostomus*	LNSC	1	0.1	2	0.3	247	15.8
Northern pike	*Esox lucius*	NRPK	-	-	-	-	10	0.6
Round whitefish	*Prosopium cylindraceum*	RNWH	-	-	6	1.0	-	-
Slimy sculpin	*Cottus cognatus*	SLSC	1	0.1	149	25.1	424	27.1
Spottail shiner	*Notropsis hudsonius*	SPSH	-	-	-	-	12	0.8
Trout-perch	*Percopsis omiscomaycus*	TRPR	-	-	-	-	1	0.1
Walleye	*Sander vitreus*	WALL	1	0.1	2	0.3	3	0.2
White sucker	*Catostomus commersonii*	WHSC	46	2.9	1	0.2	168	10.7

Table 6.3-5: Summary of Biological Information Collected from Fish Species Captured in the Fond du Lac River, Near the Black Lake Outflow, During the Spring 2010 Arctic Grayling Spawning Survey

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Arctic grayling	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	436	254	387	331-496	773	350-1210	1.33
Burbot	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	1	1	689	N/A	2,290	N/A	0.7
Longnose sucker	young-of-the-year	-	-	-	-	-	-	-
	juvenile	1	1	200	N/A	300	N/A	3.75
	adult	-	-	-	-	-	-	-

(a) K = weight (g)/length (cm)^3(100)
mm = millimetre; g = gram; N/A = not applicable; No. = number

Table 6.3-6: Summary of Biological Information Collected from Fish Species Captured in the Fond du Lac River, Near the Outflow to Middle Lake, During the Spring 2010 Arctic Grayling Spawning Survey

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Arctic grayling	young-of-the-year	-	-	-	-	-	-	-
	juvenile	1	1	199	N/A	-	-	-
	adult	330	240	377	328-446	730	490-1,200	1.36

(a) K = weight (g)/length (cm)^3(100)
mm = millimetre; g = gram; N/A = not applicable; No. = number; "-" = none sampled

Table 6.3-7: Summary of Biological Information Collected from Fish Species Captured in the Fond du Lac River, Near the Black Lake Outflow, During General Fish Community Sampling and Arctic Grayling Mark Recapture Population Estimate Study, Summer 2010

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Arctic grayling	young-of-the-year	400	187	66	44-84	3.4	1.0-7.4	1.18
	juvenile	14	14	162	143-179	54.1	34.3-75.0	1.26
	adult	309	304	388	237-447	825	200-1,200	1.41
White sucker	young-of-the-year	42	42	59	35-76	3.0	0.66-5.4	1.30
	juvenile	3	3	92	84-98	10.5	8.4-12.3	1.34
	adult	1	-	-	-	-	-	-

[(a)] K = weight (g)/length (cm)^3(100)
mm = millimetre; g = gram; No. = number; "-" = none sampled

Table 6.3-8: Summary of Biological Information Collected From Fish Species Captured in the Fond du Lac River, Near the Outflow to Middle Lake, During General Fish Community Sampling and Arctic Grayling Mark Recapture Population Estimate Study, Summer 2010

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Arctic grayling	young-of-the-year	165	164	62	40-80	2.7	0.63-6.2	1.13
	juvenile	2	2	143	140-145	37.6	31.2-44.0	1.31
	adult	88	87	392	344-448	747	390-1,128	1.23
Burbot	young-of-the-year	7	7	111	90-140	10.1	6.6-16.7	0.73
	juvenile	8	8	163	111-230	31.8	10.7-69	0.66
	adult	-	-	-	-	-	-	-
Cisco	young-of-the-year	23	13	51	40-62	1.4	0.55-2.3	0.99
	juvenile	1	1	94	NA	9.2	NA	1.11
	adult	-	-	-	-	-	-	-
Lake whitefish	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	3	3	333	260-432	613	250-1,200	1.42
Longnose sucker	young-of-the-year	147	147	40	30-55	0.89	0.51-1.6	1.38
	juvenile	100	-	-	-	-	-	-
	adult	-	-	-	-	-	-	-

Table 6.3-8: Summary of Biological Information Collected From Fish Species Captured in the Fond du Lac River, Near the Outflow to Middle Lake, During General Fish Community Sampling and Arctic Grayling Mark Recapture Population Estimate Study, Summer 2010 (continued)

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Northern pike	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	3	3	600	583-620	1,500	1,400-1,700	0.69
Walleye	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	3	3	481	423-591	1,293	890-2,100	1.11
White sucker	young-of-the-year	157	133	42	32-88	1.0	0.50-8.2	1.37
	juvenile	11	11	110	70-146	18.3	5.0-38.2	1.29
	adult	-	-	-	-	-	-	-

[(a)] K = weight (g)/length (cm)^3(100)
mm = millimetre; g = gram; No. = number; "-" = none sampled

Table 6.3-9: Summary of Biological Information Collected from Fish Species Captured in the Fond du Lac River, Near the Black Lake Outflow, During General Fish Community Sampling, Fall 2011

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Arctic grayling	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	15	14	376	243-446	681	194-912	1.24

[(a)] K = weight (g)/length (cm)^3(100)
mm = millimetre; g = gram; No. = number; "-" = none sampled

Table 6.3-10: Summary of Biological Information Collected from Fish Species Captured in the Middle Section of the Fond du Lac River, During General Fish Community Sampling, Fall 2011

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Arctic grayling	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	10	10	402	361-421	890	595-1,147	1.36

[(a)] K = weight (g)/length (cm)^3(100)
mm = millimetre; g = gram; No. = number; "-" = none sampled

Table 6.3-11: Summary of Biological Information Collected from Fish Species Captured in the Fond du Lac River, Near the Outflow to Middle Lake, During General Fish Community Sampling, Fall 2011

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Arctic grayling	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	12	12	392	366-413	786	626-911	1.30

[(a)] K = weight (g)/length (cm)^3(100)
mm = millimetre; g = gram; No. = number; "-" = none sampled

Table 6.3-12: Summary of Biological Information Collected from Fish Species Captured in the Fond du Lac River, Near the Black Lake Outflow, During the Spring 2012 Arctic Grayling Spawning Survey

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Arctic grayling	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	369	62	388	318-429	695	413-1,017	1.18

[(a)] K = weight (g)/length (cm)^3(100)
mm = millimetre; g = gram; No. = number; "-" = none sampled

Table 6.3-13: Summary of Biological Information Collected from Fish Species Captured from the Middle Section of the Fond du Lac River, During the Spring 2012 Arctic Grayling Spawning Survey

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Arctic grayling	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	309	159	415	328-448	896	445-1,136	1.25

[(a)] K = weight (g)/length (cm)^3(100)
mm = millimetre; g = gram; No. = number; "-" = none sampled

Table 6.3-14: Summary of Biological Information Collected from Fish Species Captured in the Fond du Lac River, Near the Outflow to Middle Lake, During the Spring 2012 Arctic Grayling Spawning Survey

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Arctic grayling	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	14	14	381	300-4,321	642	480-891	1.17
Northern pike	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	1	1	755	NA	NR	NA	NA

[(a)] K = weight (g)/length (cm)^3(100)
mm = millimetre; g = gram; No. = number; "-" = none sampled

Table 6.3-15: Summary of Biological Information Collected from Fish Species Captured from the Middle Section of the Fond du Lac River, During General Fish Community Sampling of Pool Habitat, Summer 2012

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Arctic grayling	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	5	5	405	388-428	939	866-1,115	1.41
Lake whitefish	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	1	1	360	NA	784	NA	1.68
Longnose sucker	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	1	1	408	NA	918	NA	1.35
Round whitefish	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	6	6	422	382-440	928	710-1,148	1.23

Table 6.3-15: Summary of Biological Information Collected from Fish Species Captured from the Middle Section of the Fond du Lac River, During General Fish Community Sampling of Pool Habitat, Summer 2012 (continued)

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Walleye	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	2	2	521	490-552	1,456	1,286-1,625	1.03
White sucker	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	1	1	392	N/A	989	N/A	1.64

[(a)] K = weight (g)/length (cm)^3(100)
mm = millimetre; g = gram; N/A = not applicable; No. = number; "-" = none sampled

Table 6.3-16: Summary of Biological Information Collected from Fish Species Captured in the Fond du Lac River, Near the outflow to Middle Lake, During General Fish Community Sampling of Pool Habitat, Summer 2012

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Lake whitefish	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	15	15	427	372-500	920	757-1,101	1.30
Northern pike	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	6	6	680	596-780	2,062	1,499-2,549	0.70

[(a)] K = weight (g)/length (cm)^3(100)
mm = millimetre; g = gram; No. = number; "-" = none sampled

6.3.2.3 Black Lake

Fish species captured in Black Lake included Arctic grayling, burbot, lake chub, lake trout, lake whitefish, longnose sucker, ninespine stickleback, northern pike, round whitefish, slimy sculpin, spottail shiner, trout perch, walleye, white sucker and yellow perch (Table 6.3-17). Deepwater sculpin have also been reported in Black Lake, but were not captured during the 2010-2012 aquatic baseline surveys. Historical records for Black Lake also indicate that shortjaw cisco (*Coregonus zenithicus*) and lake cisco (*Coregonus artedi*) occur in the lake. Fifteen cisco individuals were captured in Black Lake as a result of the recent baseline sampling. A detailed taxonomic assessment of these individuals, which included measurement of 30 morphometric/meristic characteristics, indicated that cisco captured from Black Lake are similar to shortjaw cisco in terms of body shape, gillraker number, mouth size and orientation, but that gillraker length was generally more typical of lake cisco. Given the observed overlap between the two known cisco species, the final taxonomic assignment of the

Black Lake cisco specimens was considered inconclusive. Detailed results of the Black Lake cisco taxonomic assessment are provided in Appendix III.8. Catch-per-unit-effort (CPUE) for fish species captured from Black Lake during the field surveys are provided in Appendix III.9, Tables III.9-1 to III.9-7 for each gear type used.

Table 6.3-17: Fish Species Captured from Black Lake, Spring 2010 to Summer 2012

Common Name	Scientific Name	Species Code	Total Number Captured	Percent of Catch
Arctic grayling	*Thymallus arcticus*	ARGR	46	2.3
Burbot	*Lota lota*	BURB	112	5.6
Cisco	Uncertain classification[(a)]	CISC	15	0.7
Lake chub	*Couesius plumbeus*	LKCH	135	6.7
Lake trout	*Salvelinus namaycush*	LKTR	519	25.9
Lake whitefish	*Coregonus clupeaformis*	LKWH	305	15.2
Longnose sucker	*Catostomus catostomus*	LNSC	272	13.6
Ninespine stickleback	*Pungitius pungitius*	NNST	13	0.6
Northern pike	*Esox lucius*	NRPK	44	2.2
Round whitefish	*Prosopium cylindraceum*	RNWH	23	1.1
Slimy sculpin	*Cottus cognatus*	SLSC	86	4.3
Spottail shiner	*Notropsis hudsonius*	SPSH	6	0.3
Trout-perch	*Percopsis omiscomaycus*	TRPR	7	0.3
Walleye	*Sander vitreus*	WALL	40	2.0
White sucker	*Catostomus commersonii*	WHSC	375	18.7
Yellow perch	*Perca flavescens*	YLPR	7	0.3

[(a)] taxonomic assessment of Black Lake cisco species indicated numerous morphometric and meristic overlaps between shortjaw cisco and lake cisco. The final taxonomic assignment of the Black Lake cisco specimens was considered inconclusive (Appendix III.8).

The most common fish species captured in Black Lake during baseline sampling was lake trout, which comprised 26% of the total catch. The second most common fish species captured was white sucker, comprising approximately 19% of the catch, followed by lake whitefish and longnose sucker which represented approximately 15% and 14% to the total catch, respectively. The incidence of lake chub (6.7%), burbot (5.6%), slimy sculpin (4.3%), Arctic grayling (2.3%), northern pike (2.2%), walleye (2.0%) and round whitefish (1.1%) within the catch was generally lower. Ninespine stickleback, cisco, trout perch, and spottail shiner each contributed less than 1% of the total catch.

The relatively high abundance of lake trout and lake whitefish observed was likely influenced by focussed sampling for these species during their respective spawning surveys, and, therefore may not be directly reflective of their relative abundance in the lake. Lake trout catch during the baseline sampling was nearly three times higher than the value reported by Johnson (1971) for Black Lake in 1969 (9%). By contrast, the relative abundance of lake whitefish was higher in 1969 (58%) compared to recent sampling. Percent contribution of other large-bodied fish species, including longnose sucker, northern pike, walleye, round whitefish and burbot were generally similar to the historic surveys.

A summary of fish capture results and body size data (average length, weight, and condition factor [*K*]) for large-bodied fish species captured in Black Lake is provided in Tables 6.3-18 to 6.3-23 for each life stage (young of the year, juvenile, adult) and each sampling period. Detailed fish health information, including individual lengths and weights of all processed fish from Black Lake are provided in Appendix III.10, Table III.10-1.

Table 6.3-18: Summary of Biological Information Collected from Fish Species Captured in Black Lake, During General Fish Community Sampling, Spring 2010

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Arctic grayling	young-of-the-year	-	-	-	-	-	-	-
	juvenile	7	7	194	183-210	124	60-200	1.66
	unknown	1	1	270	N/A	300	N/A	1.52
	adult	26	26	371	320-438	701	450-1,100	1.36
Lake trout	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	4	4	461	425-530	1318	1,000-1,900	1.32
Lake whitefish	young-of-the-year	-	-	-	-	-	-	-
	juvenile	3	3	216	200-244	169	103-255	1.61
	adult	2	2	345	310-380	700	500-900	1.66
Longnose sucker	young-of-the-year	-	-	-	-	-	-	-
	juvenile	1	1	150	N/A	90	N/A	2.67
	adult	42	42	458	352-565	1,459	690-2,400	1.50
Northern pike	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	8	8	574	450-695	1,566	700-2,500	0.81
White sucker	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	41	41	473	402-554	1,820	1,100-2,700	1.70

[(a)] K = weight (g)/length (cm) ^{3}(100)
mm = millimetre; g = gram; N/A = not applicable; No. = number

Table 6.3-19: Summary of Biological Information Collected from Fish Species Captured in Black Lake During General Fish Community Sampling, Summer 2010

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Arctic grayling	young-of-the-year	9	9	68	55-90	3.2	1.7-6.4	0.96
	juvenile	-	-	-	-	-	-	-
	adult	-	-	-	-	-	-	-
Burbot	young-of-the-year	48	48	62	42-130	2.3	0.59-14.4	0.77
	juvenile	34	34	161	90-390	35.2	4.0-189	0.61
	adult	-	-	-	-	-	-	-
Cisco	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	6	6	180	158-220	67.6	48.7-117	1.14
Lake trout	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	3	3	464	406-541	1,337	900-2,000	1.29
Longnose sucker	young-of-the-year	48	48	40	36-47	0.73	0.48-1.1	1.18
	juvenile	59	59	102	48-160	16.4	1.4-53.6	1.27
	adult	4	4	331	310-355	565	490-670	1.56
Northern pike	young-of-the-year	-	-	-	-	-	-	-
	juvenile	17	17	185	115-325	92.6	8.5-410	0.78
	adult	-	-	-	-	-	-	-
White sucker	young-of-the-year	154	154	40	29-68	0.82	0.35-3.6	1.26
	juvenile	166	166	95	49-201	14.9	1.7-114	1.29
	adult	2	2	377	363-390	1,160	990-1,330	2.16
Yellow perch	young-of-the-year	6	6	42	35-51	0.96	0.45-1.45	1.26
	juvenile	-	-	-	-	-	-	-
	adult	-	-	-	-	-	-	-

[(a)] K = weight (g)/length (cm) ^{3}(100)
mm = millimetre; g = gram; No. = number; "-" = none sampled

Table 6.3-20: Summary of Biological Information Collected from Fish Species Captured in Black Lake During Lake Trout and Lake Whitefish Spawning Surveys, Fall 2010

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Lake trout	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	476	375	533	395-727	1841	790-4,300	1.20
Lake whitefish	young-of-the-year	-	-	-	-	-	-	-
	juvenile	84	84	242	187-315	199	35-475	1.37
	adult	137	77	397	277-554	950	220-2,425	1.41
Round whitefish	young-of-the-year	-	-	-	-	-	-	-
	juvenile	6	6	275	234-301	216	110-300	1.01
	adult	12	12	362	320-410	569	275-805	1.17
Walleye	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	24	23	372	325-468	631	390-1,320	1.17

[(a)] K = weight (g)/length (cm) ^{3}(100)
mm = millimetre; g = gram; No. = number; "-" = none sampled

Table 6.3-21: Summary of Biological Information Collected from Fish Species Captured in Black Lake During Winter 2011 Burbot Spawning Surveys

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Burbot	young-of-the-year	-	-	-	-	-	-	-
	juvenile	1	1	260	N/A	NR	N/A	N/A
	adult	29	29	536	388-733	1,285	410-2,750	0.79
Cisco	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	unknown	3	3	178	170-284	50	N/A	0.89
	adult	-	-	-	-	-	-	-
Lake trout	young-of-the-year	-	-	-	-	-	-	-
	juvenile	4	4	358	338-375	560	500-650	1.22
	unknown	4	4	334	322-350	568	500-600	1.54
	adult	18	18	466	398-558	1352	800-2,400	1.30

Table 6.3-21: Summary of Biological Information Collected from Fish Species Captured in Black Lake During Winter 2011 Burbot Spawning Surveys (continued)

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Lake whitefish	young-of-the-year	-	-	-	-	-	-	-
	juvenile	25	25	219	164-282	149	50-300	1.42
	unknown	4	4	315	300-338	408	350-500	1.30
	adult	16	16	358	220-442	676	100-1,200	1.31
Longnose sucker	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	63	63	376	272-540	887	300-2,500	1.57

[(a)] K = weight (g)/length (cm)^3(100)
mm = millimetre; g = gram; N/A = not applicable; NR = not recorded; No. = number; "-" = none sampled

Table 6.3-22: Summary of Biological Information Collected from Fish Species Captured in Black Lake During General Fish Community Sampling Conducted Near the Proposed Water Intake Location, Summer 2012

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Cisco	young-of-the-year	-	-	-	-	-	-	-
	juvenile	4	4	82	78-84	5.5	5.0-6.0	1.01
	adult	2	2	165	160-169	43.5	41.0-46.0	0.99
Lake chub	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	5	5	83	78-90	6.4	4.0-8.0	1.13
Lake trout	young-of-the-year	-	-	-	-	-	-	-
	juvenile	3	3	307	244-356	363	166-525	1.17
	adult	7	7	501	444-550	1533	992-2,196	1.19
Lake whitefish	young-of-the-year	-	-	-	-	-	-	-
	juvenile	15	15	202	154-286	106	41.0-298	1.10
	adult	19	19	365	271-471	728	243-1,691	1.34
Longnose sucker	young-of-the-year	-	-	-	-	-	-	-
	juvenile	3	3	75	70-78	5.7	5.0-6.0	1.33
	adult	2	2	449	434-464	1302	1,248-1,356	1.45

Table 6.3-22: Summary of Biological Information Collected from Fish Species Captured in Black Lake During General Fish Community Sampling Conducted Near the Proposed Water Intake Location, Summer 2012 (continued)

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Round whitefish	young-of-the-year	-	-	-	-	-	-	-
	juvenile	2	2	130	103-156	25.5	8.0-43.0	0.93
	adult	3	3	385	342-410	619	547-725	1.11
Walleye	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	16	16	405	309-458	727	340-1,142	1.07
White sucker	young-of-the-year	-	-	-	-	-	-	-
	juvenile	3	3	155	82-252	84.7	5.0-225	1.14
	adult	-	-	-	-	-	-	-
Yellow perch	young-of-the-year	-	-	-	-	-	-	-
	juvenile	1	1	80	N/A	5.0	N/A	0.98
	adult	-	-	-	-	-	-	-

[(a)] K = weight (g)/length (cm) ^{3}(100)
mm = millimetre; g = gram; N/A = not applicable; No. = number; "-" = none sampled

6.3.2.4 Middle Lake

Fish species captured in Middle Lake included Arctic grayling, burbot, lake chub, lake whitefish, longnose sucker, ninespine stickleback, northern pike, slimy sculpin and white sucker (Table 6.3-23). Historical information for Middle Lake also indicates that walleye occur in the lake (Envirocon 1974; SPRR 1991), however, none were captured during the recent baseline sampling. Catch-per-unit-effort (CPUE) for fish species captured from Middle Lake during the field surveys are provided in Appendix III.9, Tables III.9-1 to III.9-7 for each gear type used.

Table 6.3-23: Fish Species Captured from Middle Lake, Spring 2010 to Winter 2011

Common Name	Scientific Name	Species Abbreviation	Total Number Captured	Percent of Catch
Arctic grayling	*Thymallus arcticus*	ARGR	7	2.8
Burbot	*Lota lota*	BURB	25	10.0
Lake chub	*Couesius plumbeus*	LKCH	4	1.6
Lake whitefish	*Coregonus clupeaformis*	LKWH	32	12.9
Longnose sucker	*Catostomus catostomus*	LNSC	23	9.2

Table 6.3-23: Fish Species Captured from Middle Lake, Spring 2010 to Winter 2011 (continued)

Common Name	Scientific Name	Species Abbreviation	Total Number Captured	Percent of Catch
Ninespine stickleback	*Pungitius pungitius*	NNST	28	11.2
Northern pike	*Esox lucius*	NRPK	49	19.7
Slimy sculpin	*Cottus cognatus*	SLSC	31	12.4
White sucker	*Catostomus commersonii*	WHSC	50	20.1

White sucker and northern pike were the most frequently captured species during the 2010-2011 fisheries surveys in Middle Lake, each accounting for 20% of the total catch. Lake whitefish (12.9%), slimy sculpin (12.4%), ninespine stickleback (11.2%), burbot (10%), and longnose sucker (9.2%) were also abundant. Arctic grayling and lake chub were also captured in Middle Lake, but contributed less than 5% (collectively) to the total catch.

Recent percent abundance estimates for large-bodied fish species in Middle Lake were generally similar to historic survey results (i.e., Envirocon 1974) for northern pike and Arctic grayling, but were appreciably lower for lake whitefish and longnose sucker. Burbot and white sucker were captured at higher densities during the recent sampling compared to the historic survey results. Walleye were abundant in Middle Lake during the Envirocon survey (contributing approximately 20% to the total catch), but were not captured during the 2010-2011 baseline sampling.

A summary of fish capture results and body size data (average length, weight, and condition factor [*K*]) for large-bodied fish species captured in Middle Lake is provided in Tables 6.3-24 to 6.3-26 for each life stage (young of the year, juvenile, adult) and each sampling period. Detailed fish health information, including individual lengths and weights of all processed fish from Middle Lake are provided in Appendix III.10, Table III.10-1.

Table 6.3-24: Summary of Biological Information Collected from Fish Species Captured in Middle Lake During General Fish Community Sampling, Spring 2010

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Cisco	young-of-the-year	-	-	-	-	-	-	-
	juvenile	1	1	195	N/A	200	N/A	2.70
	adult	6	6	377	346-400	755	600-900	1.41
Lake whitefish	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	23	23	432	371-465	1,278	800-1,590	1.57
Northern pike	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	2	2	560	512-608	1,260	1,020-1,500	0.72

[(a)] K = weight (g)/length (cm)^3(100)
mm = millimetre; g = gram; N/A = not applicable; No. = number; "-" = none sampled

Table 6.3-25: Summary of Biological Information Collected from Fish Species Captured in Middle Lake During General Fish Community Sampling, Summer 2010

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Burbot	young-of-the-year	2	2	61	57-65	2.2	1.6-2.7	0.93
	juvenile	23	23	158	100-280	29.3	6.7-110	0.60
	adult	-	-	-	-	-	-	-
Lake whitefish	young-of-the-year	-	-	-	-	-	-	-
	juvenile	2	2	325	305-344	452	378-525	1.31
	adult	1	1	423	N/A	1,290	N/A	1.70
Longnose sucker	young-of-the-year	12	12	39	33-46	0.97	0.60-1.6	1.61
	juvenile	4	4	58	48-79	2.9	1.5-6.7	1.31
	adult	-	-	-	-	-	-	-
Northern pike	young-of-the-year	-	-	-	-	-	-	-
	juvenile	30	30	176	93-319	66.1	5.8-300	0.69
	adult	13	13	557	475-671	1,188	680-2,100	0.67
White sucker	young-of-the-year	46	46	38	26-49	0.82	0.17-1.6	1.39
	juvenile	4	4	96	54-154	17.5	1.3-44.2	1.15
	adult	-	-	-	-	-	-	-

[(a)] K = weight (g)/length (cm)^3(100)
mm = millimetre; g = gram; N/A = not applicable; No. = number; "-" = none sampled

Table 6.3-26: Summary of Biological Information Collected from Fish Species Captured in Middle Lake During General Fish Community Sampling, Winter 2011

Species	Life Stage	Total No. Captured	Total No. Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Lake whitefish	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	6	6	383	304-464	936	490-1,550	1.55
Longnose sucker	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	7	7	527	492-592	2424	1,700-3,500	1.63
Northern pike	young-of-the-year	-	-	-	-	-	-	-
	juvenile	-	-	-	-	-	-	-
	adult	4	4	555	484-611	1,418	900-1,950	0.81

[(a)] K = weight (g)/length (cm)^3(100)
mm = millimetre; g = gram; NA = not applicable; No. = number

6.3.3 Focussed Fisheries Investigations

The following sections present the results of directed fish and fish habitat studies completed in the LSA. Investigations are organized according to the spatial scale of the survey (LSA, Fond du Lac River, and Black Lake; there were no focussed surveys limited to Middle Lake).

6.3.3.1 Local Study Area

6.3.3.1.1 Mark-Recapture Fish Movement Study

6.3.3.1.1.1 Marking Component

A total of 1071 fish were tagged in the LSA during the baseline field investigations completed in 2010. Of these, 773 fish were tagged in the Fond du Lac River, 264 fish were tagged in Black Lake, and 38 fish were tagged in Middle Lake. Fish species tagged as a result of fishing efforts in the Fond du Lac River included Arctic grayling, burbot, longnose sucker, walleye, and northern pike (Table 6.3-27). Fish species tagged in Black Lake included lake trout, lake whitefish, longnose sucker, northern pike, and round whitefish (Table 6.3-28). Fish species tagged in Middle Lake included lake whitefish and northern pike (Table 6.3-29).

Table 6.3-27: Number of Floy Tags and PIT Tags Applied to Fish Captured from the Fond du Lac River, Upstream and Downstream of Elizabeth Falls, during the 2010 Open Water Seasons

Species	Black Lake Outflow Area			Outflow to Middle Lake Area		
	Number of Floy Tags	Number of PIT Tags	Total Number of Tags	Number of Floy Tags	Number of Pit Tags	Total Number of Tags
Arctic grayling	450	417	450	319	0	319
Burbot	1	1	1	0	0	0
Longnose sucker	1	1	1	0	0	0
Walleye	0	0	0	1	1	1
Northern pike	0	0	0	1	0	1
Total	**452**	**419**	**452**	**321**	**1**	**321**

PIT = passive integrated transponder

Table 6.3-28: Number of Floy Tags and PIT Tags Applied to Fish Captured from Black Lake during the 2010 Open Water Seasons

Species	Number of Floy Tags	Number of PIT Tags	Total Number of Tags
Lake trout	152	124	152
Lake whitefish	7	7	7
Longnose sucker	46	0	46
Northern pike	11	3	11
Round whitefish	5	5	5
White sucker	43	2	43
Total	**264**	**141**	**264**

PIT = passive integrated transponder

Table 6.3-29: Number of Floy Tags and PIT Tags Applied to Fish Captured from Middle Lake during the 2010 Open Water Seasons

Species	Number of Floy Tags	Number of PIT Tags	Total Number of Tags
Lake whitefish	22	0	22
Northern pike	16	5	16
Total	**38**	**5**	**38**

PIT = passive integrated transponder

6.3.3.1.1.2 Recapture Component

A total of 35 Arctic grayling were recaptured in the LSA during baseline fish sampling or by local anglers who reported captures of tagged fish (i.e., for the study period between spring 2010 and fall 2012) (Table 6.3-30). No other fish species that were tagged during the baseline program (see Tables 6.3-27 to 6.3-29) were recaptured as a result of baseline sampling efforts or by local anglers who reported their catch. Accounts of additional tag recaptures, including lake trout from Black Lake, were conveyed by members of the community of Black Lake; however, these were not formally reported to Golder, and are not included in the assessment. None of the fish that were captured, tagged, and released into Black Lake or Middle Lake were recaptured as a result of the baseline sampling or angler returns. It is likely that the majority of tag returns occurred in the Fond du Lac River due to the greater tagging and fishing efforts that were expended there (i.e., relative to the upstream and downstream lakes), and because much of the fish tagging occurred at a popular, accessible fishing location near Camp Grayling.

Table 6.3-30: Fish Recaptured in the Local Study Area, 2010 to 2012

Initial Capture							Recapture					Days at Large	Minimum Distance Travelled (m)
Tag #	Species	Date	Waterbody/Watercourse	Location	Survey Type	Fishing Effort	Date	Waterbody/Watercourse	Location	Survey Type	Fishing Effort		
54	Arctic grayling	2010-05-18	Fond du Lac River	Grayling Island	Spawning Survey	AN-01	2010-05-28	Fond du Lac River	Grayling Island	Angler Return	-	10	145
51	Arctic grayling	2010-05-18	Fond du Lac River	Grayling Island	Spawning Survey	AN-01	2010-08-10	Fond du Lac River	Grayling Island	Population Estimate	AN-07	84	134
230	Arctic grayling	2010-05-19	Fond du Lac River	Grayling Island	Spawning Survey	HN-02	2010-06-22	Fond du Lac River	Grayling Island	Angler Return	-	34	<100
239	Arctic grayling	2010-05-19	Fond du Lac River	Grayling Island	Spawning Survey	HN-02	2010-07-01	Fond du Lac River	Grayling Island	Angler Return	-	43	<100
356	Arctic grayling	2010-05-19	Fond du Lac River	Grayling Island	Spawning Survey	HN-02	2010-05-28	Fond du Lac River	Grayling Island	Angler Return	-	9	<100
358	Arctic grayling	2010-05-19	Fond du Lac River	Grayling Island	Spawning Survey	HN-01	2010-05-28	Fond du Lac River	Grayling Island	Angler Return	-	9	<100
264	Arctic grayling	2010-05-19	Fond du Lac River	Grayling Island	Spawning Survey	HN-2	2010-08-17	Fond du Lac River	Grayling Island	Population Estimate	AN-9	90	130
227	Arctic grayling	2010-05-19	Fond du Lac River	Grayling Island	Spawning Survey	HN-02	2010-08-20	Fond du Lac River	Grayling Island	Population Estimate	AN-14	93	<100
416	Arctic grayling	2010-05-20	Fond du Lac River	Grayling Island	Spawning Survey	HN-02	2010-05-20	Fond du Lac River	Grayling Island	Angler Return	-	0	<100
5	Arctic grayling	2010-05-20	Fond du Lac River	Grayling Island	Spawning Survey	HN-02	2012-05-28	Fond du Lac River	Middle Section	Spawning Survey	HN-13	737	1,900
82	Arctic grayling	2010-05-21	Fond du Lac River	Grayling Island	Spawning Survey	HN-02	-	Fond du Lac River	Grayling Island	Angler Return	-	-	<100
117	Arctic grayling	2010-05-21	Fond du Lac River	Grayling Island	Spawning Survey	HN-04	2010-09-07	Fond du Lac River	Grayling Island	Angler Return	-	109	225
26	Arctic grayling	2010-05-21	Fond du Lac River	Grayling Island	Spawning Survey	HN-2	2010-08-18	Fond du Lac River	Grayling Island	Population Estimate	AN-10	89	145
109	Arctic grayling	2010-05-21	Fond du Lac River	Grayling Island	Spawning Survey	HN-4	2010-08-18	Fond du Lac River	Grayling Island	Population Estimate	AN-10	89	120
104	Arctic grayling	2010-05-21	Fond du Lac River	Grayling Island	Spawning Survey	HN-04	2010-08-07	Fond du Lac River	Grayling Island	Population Estimate	AN-02	78	225
176	Arctic grayling	2010-05-21	Fond du Lac River	Grayling Island	Spawning Survey	HN-04	2010-08-07	Fond du Lac River	Grayling Island	Population Estimate	AN-03	78	120
135	Arctic grayling	2010-05-21	Fond du Lac River	Grayling Island	Spawning Survey	HN-04	2012-05-28	Fond du Lac River	Middle Section	Spawning Survey	HN-13	738	1,900
150	Arctic grayling	2010-05-21	Fond du Lac River	Grayling Island	Spawning Survey	HN-04	2012-05-28	Fond du Lac River	Middle Section	Spawning Survey	HN-13	738	1,900
1100	Arctic grayling	2010-08-06	Fond du Lac River	Grayling Island	Population Estimate	AN-01	2010-08-18	Fond du Lac River	Grayling Island	Population Estimate	AN-10	12	110
1239	Arctic grayling	2010-08-07	Fond du Lac River	Grayling Island	Population Estimate	AN-14	2010-09-07	Fond du Lac River	Grayling Island	Angler Return	-	31	<100
1030	Arctic grayling	2010-08-07	Fond du Lac River	Grayling Island	Population Estimate	AN-03	2012-05-27	Fond du Lac River	Middle Section	Spawning Survey	HN-10	659	1,600
1228	Arctic grayling	2010-08-08	Fond du Lac River	Grayling Island	Population Estimate	AN-04	2010-08-20	Fond du Lac River	Grayling Island	Population Estimate	AN-14	12	110
1230	Arctic grayling	2010-08-08	Fond du Lac River	Grayling Island	Population Estimate	AN-04	2010-08-18	Fond du Lac River	Grayling Island	Population Estimate	AN-11	10	110
1335	Arctic grayling	2010-08-10	Fond du Lac River	Grayling Island	Population Estimate	AN-07	2012-05-11	Fond du Lac River	Grayling Island	Angler Return	-	640	140
1342	Arctic grayling	2010-08-10	Fond du Lac River	Grayling Island	Population Estimate	AN-08	-	Fond du Lac River	Camp Grayling	Angler Return	-	-	546
1334	Arctic grayling	2010-08-10	Fond du Lac River	Grayling Island	Population Estimate	AN-7	2012-08-18	Fond du Lac River	Grayling Island	Population Estimate	AN-10	8	<100
1055	Arctic grayling	2010-08-10	Fond du Lac River	Grayling Island	Population Estimate	AN-08	2011-10-06	Fond du Lac River	Grayling Island	Radio Tagging	AN-04	422	<100
1458	Arctic grayling	2010-08-20	Fond du Lac River	Grayling Island	Population Estimate	AN-14	2012-05-12	Fond du Lac River	Grayling Island	Angler Return	-	630	<100
1046	Arctic grayling	2010-08-21	Fond du Lac River	Grayling Island	Population Estimate	AN-15	2012-05-13	Fond du Lac River	Grayling Island	Angler Return	-	630	130
200	Arctic grayling	2010-05-22	Fond du Lac River	Middle Lake Confluence	Spawning Survey	HN-05	2010-08-20	Fond du Lac River	Middle Lake Confluence	Population Estimate	AN-13	90	185
390	Arctic grayling	2010-05-22	Fond du Lac River	Middle Lake Confluence	Spawning Survey	HN-05	2010-08-20	Fond du Lac River	Middle Lake Confluence	Population Estimate	AN-13	90	185
191	Arctic grayling	2010-05-22	Fond du Lac River	Middle Lake Confluence	Spawning Survey	HN-05	2011-10-07	Fond du Lac River	Downstream of Elizabeth Falls	Angler Return (Golder)	-	503	820
218	Arctic grayling	2010-05-25	Fond du Lac River	Middle Lake Confluence	Spawning Survey	HN-06	2010-08-09	Fond du Lac River	Middle Lake Confluence	Population Estimate	AN-06	76	81
205	Arctic grayling	2010-05-25	Fond du Lac River	Middle Lake Confluence	Spawning Survey	HN-06	2010-08-19	Fond du Lac River	Middle Lake Confluence	Population Estimate	AN-12	86	190
1136	Arctic grayling	2010-08-19	Fond du Lac River	Middle Lake Confluence	Population Estimate	AN-12	2010-08-20	Fond du Lac River	Middle Lake Confluence	Population Estimate	AN-13	1	<100

AN = angling; HN = hoop net; < = less than; m = metres

Fishing effort code is comprised of two letter capture method code followed by one or two digit sampling effort identification code.

Recaptured Arctic grayling in the Fond du Lac River included 23 individuals that were tagged during the spring 2010 Arctic grayling spawning survey and an additional 12 individuals that were tagged during the Arctic grayling population estimate study carried out in summer 2010. Of these, 29 individuals were tagged in the vicinity of Grayling Island (i.e., upstream of Elizabeth falls), and six individuals were tagged downstream of Elizabeth Falls near the outflow of the Fond du Lac River to Middle Lake. Of the recaptured individuals that were tagged near the Fond du Lac River outflow to Middle Lake, all fish remained below Elizabeth Falls, in the general vicinity (<250 m) of the initial marking location. Of the 29 Arctic grayling that were tagged near Grayling Island, 24 were recaptured in the immediate vicinity (<250 m) of the initial tagging location, and one individual was recaptured further upstream, in the Black Lake outflow bay near Camp Grayling. The remaining four individuals were recaptured between 1.5 km and 2 km downstream of the initial tagging site, in the middle section of the river above Elizabeth Falls. Arctic grayling that migrated to the middle section of the river were generally at large for a longer period (average 24 months) than other recaptured fish (average 4.5 months).

Although the number of recaptured fish was limited, data from tag recaptures indicate that Arctic grayling in the Fond du Lac River generally make only small localized movements within the river. In general, the data suggest that Arctic grayling that use the Black Lake outlet and outflow to Middle Lake areas of the Fond du Lac River for spawning in spring generally remain at these locations throughout summer and fall (recapture data were not available for winter months). Recaptures of upstream tagged fish in the mid-section of the Fond du Lac River (during the 2012 spring spawning survey) suggest that at least some proportion of the Grayling Island Arctic grayling population move downstream to access foraging and spawning habitat in the middle section of the river. None of the recaptured fish that were tagged in downstream areas of the river moved more than 1,000 m upstream of the initial tagging location, and none of the recaptures had moved above major flow barriers such as Elizabeth Falls.

Results of the recent mark-recapture movement studies compare favourably with those obtained by historic surveys completed by Merkowsky 1989 and Envirocon 1974. These studies indicated that recaptured Arctic grayling tagged in the Fond du Lac River generally remained in the same area where they were tagged. No individuals captured at the historic upstream sampling locations (i.e., Fond du Lac River in the vicinity of Grayling Island) were recaptured downstream (near the outflow to Middle Lake) or vice versa.

6.3.3.2 Fond du Lac River

6.3.3.2.1 Spring Arctic Grayling Spawning Surveys

6.3.3.2.1.1 Spawning Fish Surveys

Fish capture data and sexual maturity of Arctic grayling captured during the spring 2010 and spring 2012 spawning surveys are provided in Table 6.3-31 for each of the three key sampling areas in the Fond du Lac River (outflow of Black Lake, middle section, and outflow to Middle Lake). Catch per unit effort results for fishing efforts associated with these surveys are provided in Appendix III.9.

Black Lake Outlet Area

A total of 436 Arctic grayling were captured near the outflow of Black Lake during the spring 2010 spawning surveys, and 369 individuals were captured at this location in spring 2012. During the 2010 survey, 60% (n = 151) of Arctic grayling processed were considered “ripe”, while 34% (n = 86) were considered to be in “pre-spawning” condition. The remaining Arctic grayling processed in 2010 were classified as “spent” (6%; n = 16).

Table 6.3-31: Fish Capture Results and Sexual Maturity of Arctic Grayling Captured during the Spring 2010 and Spring 2012 Spawning Surveys Completed in the Fond du Lac River

Sample Location	Year	Fishing Effort No.	Date (dd/mm/yyyy)	UTM		Total No. Captured	Total No. Processed	Total No. of Ripe Fish	Total No. of Pre-Spawn Fish	Total No. of Spent Fish
				Easting	Northing					
Black Lake outlet	2010	FDLR-HN-01	18/05/2010	469008	6557001	30	30	20	6	4
		FDLR-HN-02	18/05/2010	468933	6556882	151	151	111	29	11
		FDLR-HN-03	19/05/2010	468934	6556859	7	7	6	0	1
		FDLR-HN-04	20/05/2010	469165	6556805	245	63	12	51	0
		FDLR-AN01	18/05/2010	469008	6557001	3	3*	2	0	0
		Total				**436**	**254**	**151**	**86**	**16**
	2012	FDLR-HN-13	27/05/2012	468375	6558583	369	62	50	12	0
		Total				**369**	**62**	**50**	**12**	**0**
Middle Section	2012	FDLR-HN-10	26/05/2012	469034	6558442	92	71	67	4	0
		FDLR-HN-11	26/05/2012	468375	6558583	114	86	73	12	1
		FDLR-HN-12	27/05/2012	468408	6559154	101	101	101	0	0
		Total				**307**	**258**	**241**	**16**	**1**
Outflow to Middle Lake	2010	FDLR-HN-05	20/05/2010	467931	6561059	86	42*	16	25	0
		FDLR-HN-06	24/05/2010	467908	6561062	106	106	71	35	0
		FDLR-HN-07	20/05/2010	467969	6561031	113	67	31	36	0
		FDLR-HN-08	25/05/2010	468010	6560647	8	8	5	3	0
		FDLR-HN-09	25/05/2010	467989	6560702	18	18	14	4	0
		Total				**331**	**241**	**137**	**103**	**0**
	2012	FDLR-HN-14	29/05/2012	468161	6560857	14	14	9	4	1
		FDLR-HN-15	29/05/2012	468204	6559876	2	2	2	0	0
		FDLR-HN-16	30/05/2012	468235	6560913	0	0	0	0	0
		FDLR-HN-17	30/05/2012	468229	6559875	0	0	0	0	0
		Total				**16**	**16**	**11**	**4**	**1**

Note: All UTM coordinates are in North American Datum (NAD) 83, UTM Zone 13 V; UTM = Universal Transverse Mercator; FDLR = Fond du Lac River; HN = hoop net; AN = angling; ARGR = Arctic grayling; No. = number.
*= One unknown maturity.

During the 2012 surveys, 81% (n = 50) of Arctic grayling were considered “ripe”, and the remaining 19% (n = 12) were considered to be in “pre-spawning” condition.

Middle Section

In 2012, a total of 307 Arctic grayling were captured in the middle section of the Fond du Lac River. Ninety four percent (n = 241) of Arctic grayling processed during the 2012 surveys were considered to be "ripe", while 6% (n = 16) were considered to be in "pre-spawning" condition. Less than 1 % of individuals captured in 2010 were classified as "spent" (n = 1). The middle section of the Fond du Lac River was not sampled in 2010.

Outflow to Middle Lake Area

Fish sampling carried out near the outflow to Middle Lake resulted in the capture of 331 Arctic grayling in 2010 and 16 Arctic grayling in 2012. During the 2010 survey, 57% (n = 137) of Arctic grayling processed were considered ripe, while the remaining 43% (n = 103) were considered to be in pre spawning condition. During the 2012 surveys, 69% (n = 11) of Arctic grayling were considered "ripe", 25% (n = 4) were considered to be in "pre spawning" condition, and 6% (n = 1) were classified as "spent".

A summary of lengths and weights collected from Arctic grayling captured during the spring 2010 and spring 2012 spawning surveys are provided in Table 6.3-32 for each of the three key sampling areas in the Fond du Lac River.

Table 6.3-32: Length-Weight Summary for Arctic Grayling Captured during the Spring 2010 and Spring 2012 Spawning Surveys Completed in the Fond du Lac River

Sample Location	Year	Sex	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Condition Factor (K) [(a)]
Black Lake outlet	2010	Male	386	331-496	747	350-1,100	1.29
		Female	390	337-475	842	505-1,210	1.41
		Unknown	350	NA	640	NA	1.49
	2012	Male	387	318-429	668	413-864	1.14
		Female	389	338-425	722	495-1,017	1.22
		Unknown	-	-	-	-	-
Middle section	2012	Male	420	328-448	890	445-1,098	1.20
		Female	411	370-437	903	651-1,136	1.29
		Unknown	-	-	-	-	-
Outflow to Middle Lake	2010	Male	377	333-446	713	490-1,200	1.32
		Female	376	328-435	774	500-1,190	1.45
		Unknown	199	N/A	N/A	N/A	N/A
	2012	Male	386	300-435	684	480-1,006	1.20
		Female	379	364-410	625	562-813	1.14
		Unknown	-	-	-	-	-

[(a)] K = weight (g)/length (cm) ^{3}(100)
mm = millimetres; g = grams; N/A = not applicable

Male Arctic grayling captured at Black Lake outlet and near the outflow to Middle Lake in 2010 fell between 331 and 496 mm and 333 and 446 mm (fork length), respectively (Table 6.3-32). Female Arctic grayling captured at

the Black Lake outlet sampling locations in 2010 ranged from 337 to 475 mm; fork lengths of females captured near the outflow to Middle Lake were between 328 and 435 mm (Table 6.3-32).

In spring 2012, male Arctic grayling captured at Black Lake outlet sampling sites ranged from 318 to 429 mm. Males captured at middle section sites in 2012 ranged from 328 and 448 mm and males captured near the outflow to Middle Lake inflow area were between 300 and 432 mm (Table 6.3-32). In 2012, female Arctic grayling captured from Black Lake outlet, middle section, and outflow to Middle Lake sampling locations ranged from 338 to 425 mm, 370 to 437 mm, and 370 to 410 mm, respectively (Table 6.3-32).

Length-frequency distributions prepared for male and female Arctic grayling captured during the 2010 and 2012 spring spawning surveys are provided in Figures 6.3-9 to 6.3-12. In general, length frequency distributions of male and female Arctic grayling exhibited a unimodal distribution at each of the three sample locations (Black Lake outlet, middle section, and outflow to Middle Lake) in 2010 and 2012. In both years there was a tendency toward smaller body size among females captured at downstream sites compared with those captured at the Black Lake outlet. This trend, however, was not evident for males. In 2012, both male and female Arctic grayling captured at middle section sites were generally larger than those captured upstream or downstream.

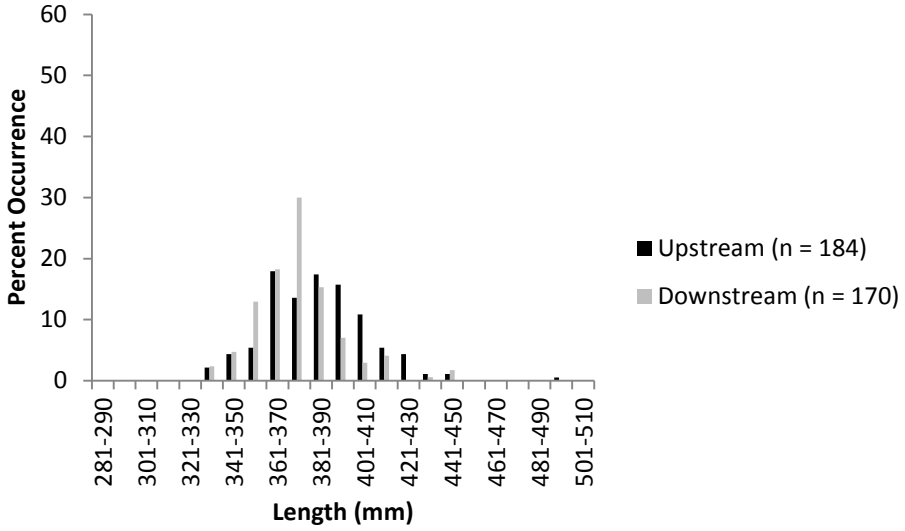


Figure 6.3-9: Length-Frequency Distribution of Male Arctic Grayling Captured in the Fond du Lac River, Spring 2010

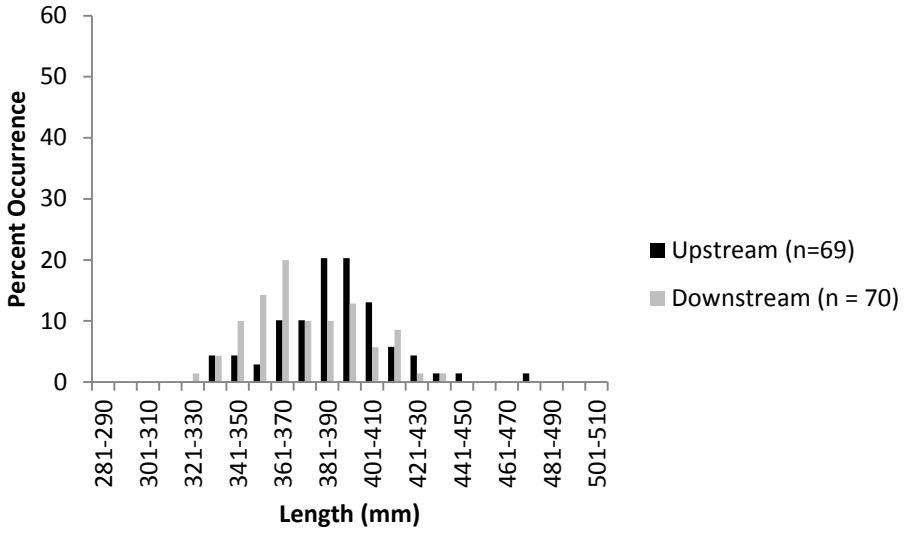


Figure 6.3-10: Length-Frequency Distribution of Female Arctic Grayling Captured in the Fond du Lac River, Spring 2010

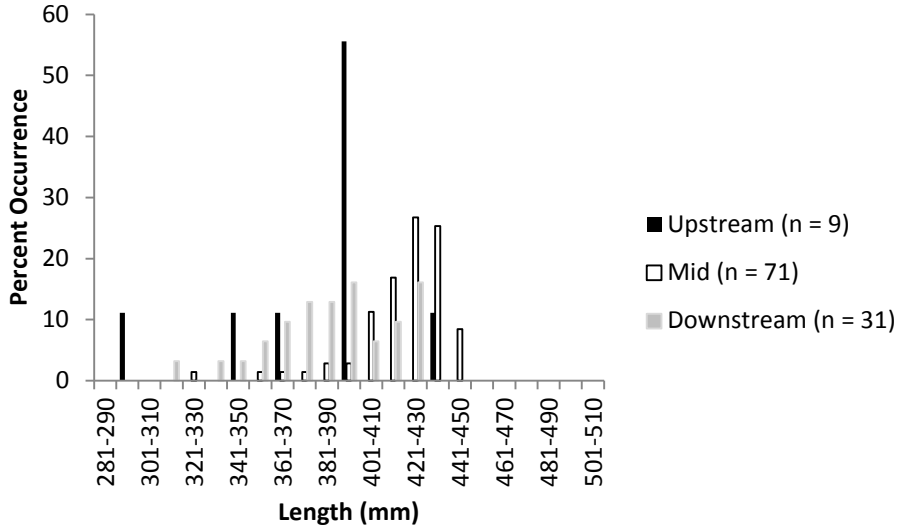


Figure 6.3-11: Length-Frequency Distribution of Male Arctic Grayling Captured in the Fond du Lac River, Spring 2012

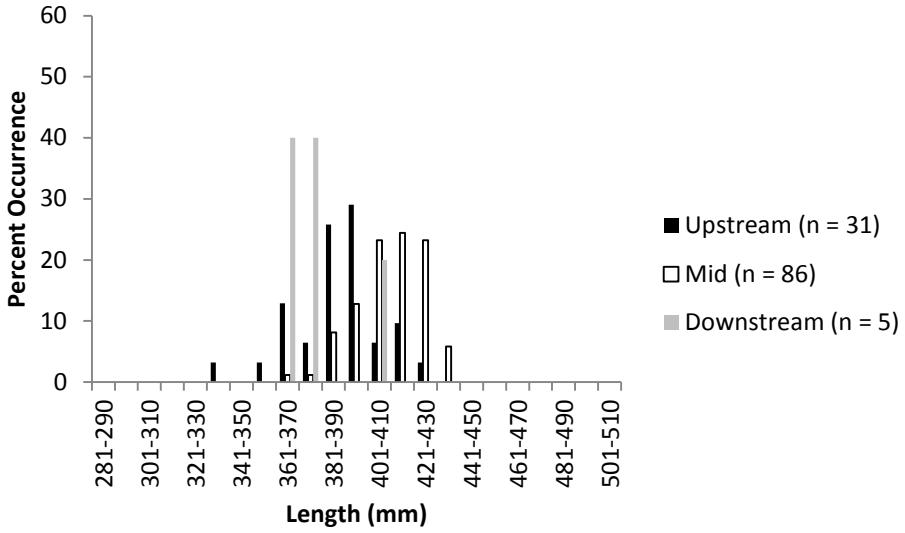


Figure 6.3-12: Length-Frequency Distribution of Female Arctic Grayling Captured in the Fond du Lac River, Spring 2012

Age-frequency distributions for Arctic grayling captured at upstream and downstream sample locations in 2010 are provided in Figure 6.3-13. Age data were not available for Arctic grayling captured in 2012. Arctic grayling age ranged from 4 to 9 years at the downstream (below Elizabeth Falls) sample location and between 4 and 8 years at the upstream (Black Lake outflow) site. Age-frequency distributions were generally similar between the Black Lake outlet and outflow to Middle Lake sample areas, with high percent occurrence of individuals within the age 5 and age 6 age class groups. Detailed aging results obtained for the subset of Arctic grayling that were aged during the 2010 spring spawning survey are provided in Appendix III.10 Table III.10-1.

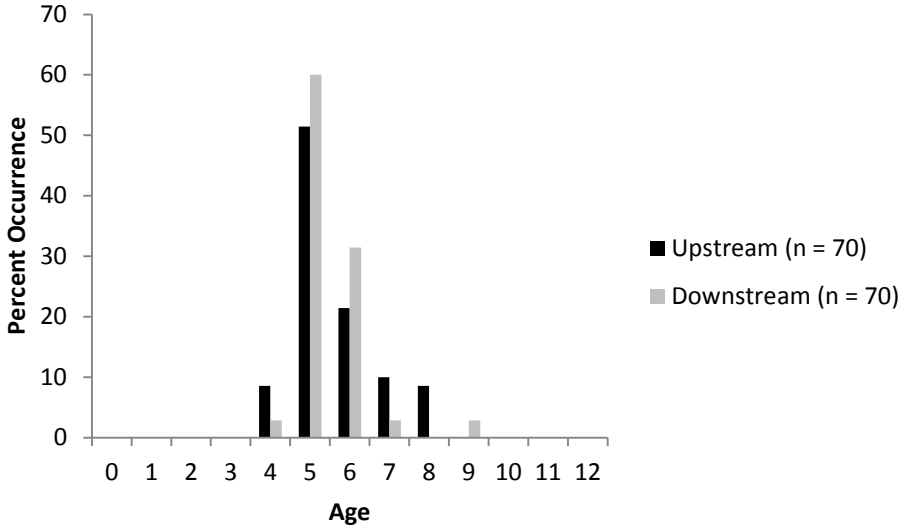


Figure 6.3-13: Percent Occurrence of Arctic Grayling Age Class Groups Captured in the Fond du Lac River at Upstream (Black Lake Outflow) and Downstream (Middle Lake Inflow) Sampling Locations during the Spring 2010 Arctic Grayling Spawning Investigation

Statistical comparisons of mean age indicated that female Arctic grayling were, on average, older than males (p = 0.007, n = 140). Mean age, however, was similar between the Black Lake outlet and outflow to Middle Lake sample locations for both sexes (males: p = 0.866, n = 106; females; p = 0.768, n = 34).

Scatter plots of body size (fork length)-at-age for male and female Arctic grayling captured at Black Lake outlet and the outflow to Middle Lake sample locations are provided in Figure 6.3-14. Statistical comparisons of length-at-age for Arctic grayling captured at the outflow to Middle Lake sampling sites indicated that females were significantly smaller at a given age than males. There was no statistical difference in body size-at-age among male and female Arctic grayling at the Black Lake outlet sample location. Comparisons of body size-at-age between the two sample sites indicated that female Arctic grayling are smaller at a given age at the outflow to Middle Lakesite compared to the Black Lake outlet site (p = 0.039, n = 33). Male size-at-age was also smaller at the Middle Lake inflow site, but this difference was not statistically significant (p = 0.15, n = 105).

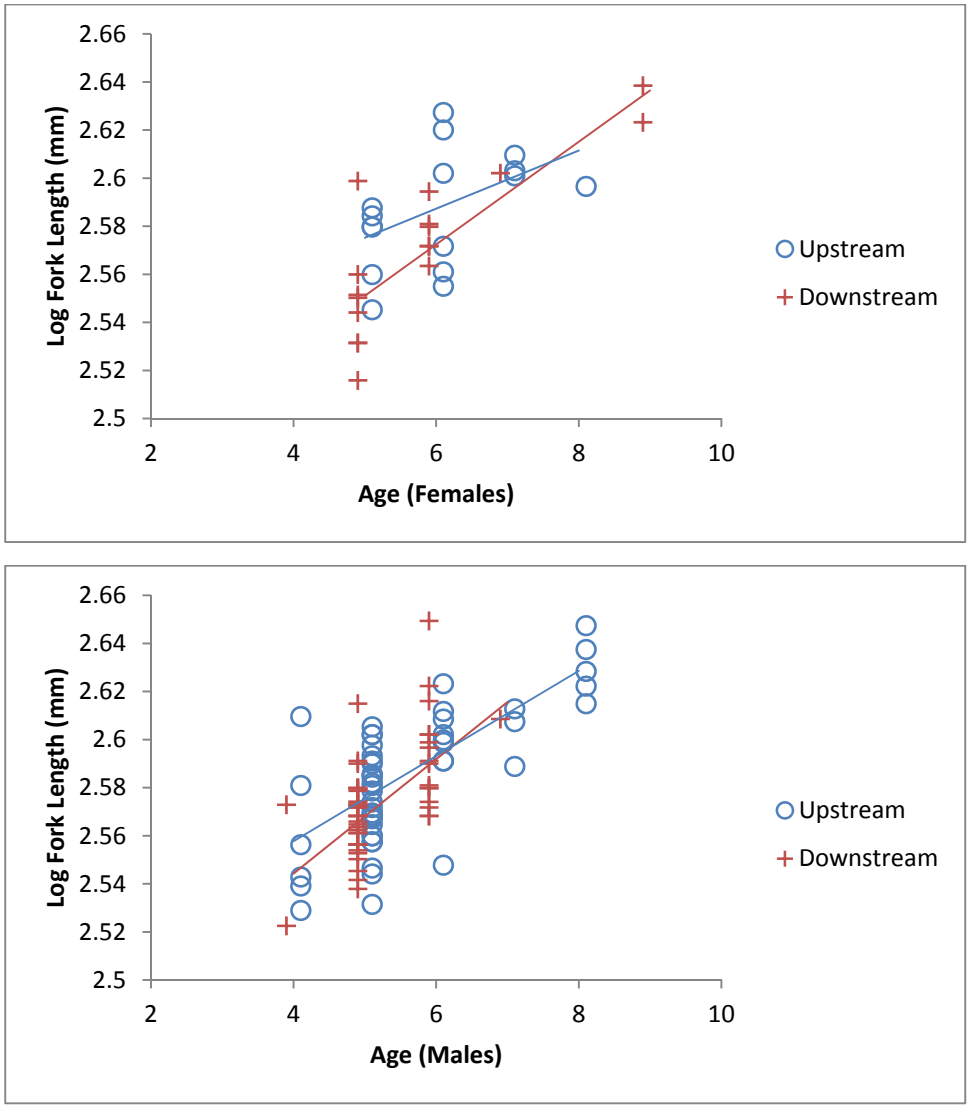


Figure 6.3-14: Body Size (Fork Length)-at-Age Plots for Female and Male Arctic Grayling Captured in the Fond du Lac River at Upstream (Black Lake Outflow) and Downstream (Outflow to Middle Lake) Sampling Locations during the Spring 2010 Arctic Grayling Spawning Investigation

6.3.3.2.1.2 Arctic Grayling Egg Searches

A summary of the spring 2010/2012 Arctic grayling egg search results are provided in Table 6.3-33. Detailed results of Arctic grayling egg searches, including egg counts and habitat data for each transect and station sampled are provided in Appendix III.11-1.

Black Lake Outlet Area

In 2010, two areas were searched along both the east and west banks of the river resulting in 528 eggs being found in predominantly pebble, gravel, and cobble substrates. Average depth and velocity at the west bank sample location (ES-10-01) was 0.3 m and 0.29 m/s, respectively. At the east bank sample location (ES-10-02), average depth and velocity were 0.5 m and 0.41 m/s, respectively. Water temperature was approximately 2.5°C.

In 2012, three areas around the west side of Grayling Island were searched resulting in 268 eggs being found in pebble, gravel, and cobble substrates. Average depth and velocity at these locations ranged from 0.2 to 0.5 m and from 0.09 to 0.17 m/s, respectively. Water temperature was approximately 7.5°C at the time of the survey. One individual spot survey was conducted at location ES-12-04 off the south end of Grayling Island. A total of 20 eggs were found at this location.

Middle Section

Egg searches carried out in in the middle section of the Fond du Lac River in 2012 resulted in 834 eggs being found in predominantly cobble, pebble and boulder substrates. Average depth and velocity at sample locations ranged from 0.4 to 0.7 m and from 0.23 to 0.68 m/s, respectively. Water temperature was approximately 6°C during the time of the survey. Egg searches were not conducted in the middle section of the river in 2010.

Outflow to Middle Lake Area

In 2010, egg searches completed in the vicinity of the island situated near the river's outlet to Middle Lake resulted in 151 eggs being found in pebble and cobble substrates. Average depth and velocity at the sampling location along the northeast shoreline of the island (ES-10-03) was 0.3 m and 0.39 m/s, respectively. At the west bank sample location (ES-10-04), average depth and velocity were 0.4 m and 0.54 m/s, respectively. Water temperature was between 2°C and 3°C.

Egg searches carried out at 7 sampling locations near the river outflow to Middle Lake in 2012 resulted in 105 eggs being found in predominately cobble, pebble and boulder substrates. Average depth and velocity at sample locations ranged from 0.3 to 0.5 m and from 0.11 to 0.74 m/s, respectively. Water temperature was between 5°C and 7.5°C during the time of the survey.

Table 6.3-33: Results of Spring 2010/2012 Arctic Grayling Egg Searches and Spawning Habitat Assessments. Values are Provided as Mean (Minimum – Maximum)

Area of Interest	Year	Sampling Location	Depth (m)	Velocity (m/s)	Temperature (°C)	Number of Eggs	Total Number of Eggs	Dominant Substrate
Black Lake Outlet Area	2010	ES-10-01	0.3 (0.1 - 0.6)	0.29 (0.01 - 0.95)	2.6 (1.2 - 3.9)	14 (0 - 160)	339	pebble and cobble
		ES-10-02	0.5 (0.4 - 0.6)	0.41 (0.15 - 0.7)	2.3 (2.2 - 2.4)	38 (0 - 130)	189	pebble, gravel, and cobble
	2012	ES-12-01	0.5 (0.2 - 0.8)	0.17 (0 - 0.43)	7.1	5 (0 - 22)	121	sand, gravel, and pebble
		ES-12-02	0.5 (0.3 - 0.7)	0.09 (0.02 - 0.13)	7.5	23 (0 - 37)	68	pebble and cobble
		ES-12-03	0.2 (0.2 - 0.3)	0.13 (0.02 - 0.24)	-	20 (0 - 75)	79	cobble and boulder
		ES-12-04	-	-	-	20	20	-
Middle Section	2012	ES-12-05	0.5 (0.4 - 0.8)	0.4 (0 - 0.69)	5.6	16 (0 - 70)	319	cobble, pebble, and boulder
		ES-12-06	0.6 (0.2 - 0.9)	0.41 (0.03 - 1.12)	5.7	34 (0 - 105)	307	pebble, cobble, and boulder
		ES-12-07	0.5 (0.3 - 0.8)	0.23 (0.01 - 1.13)	5.9	4 (0 - 37)	56	cobble and boulder
		ES-12-08	0.4 (0.3 - 0.5)	0.3 (0.16 - 0.43)	5.9	48 (34 - 61)	95	cobble, pebble, and boulder
		ES-12-09	0.5 (0.4 - 0.7)	0.68 (0.44 - 1.05)	6	25 (7 - 51)	76	cobble and pebble
		ES-12-10	-	-	-	57	57	gravel
Outflow to Middle Lake Area	2010	ES-10-03	0.3 (0.1 - 0.5)	0.39 (0.08 - 0.9)	2.1 (2.1 - 2.2)	8 (0 - 70)	72	pebble and cobble
		ES-10-04	0.4 (0.1 - 0.8)	0.54 (0 - 1.14)	2.9 (2.8 - 3.3)	2 (0 - 26)	79	pebble and cobble
	2012	ES-12-11	0.5 (0.4 - 0.9)	0.34 (0.02 - 0.65)	5.2	5 (0 - 17)	79	pebble, cobble, and boulder
		ES-12-12	0.5 (0.3 - 0.8)	0.25 (0.06 - 0.56)	5.2	0 (0 - 1)	1	cobble and boulder
		ES-12-13	0.3 (0.2 - 0.5)	0.11 (0.09 - 0.15)	5.2	0	0	cobble, pebble, and boulder
		ES-12-14	0.4 (0.2 - 0.6)	0.28 (0 - 0.66)	5.1	0 (0 - 3)	4	cobble, boulder, and pebble
		ES-12-15	0.5 (0.4 - 0.9)	0.22 (0.02 - 0.58)	5.2	0 (0 - 1)	1	pebble, cobble, and boulder
		ES-12-16	0.5 (0.2 - 0.8)	0.74 (0.05 - 1.33)	7.4 (7.4 - 7.6)	1 (0 - 10)	15	boulder, cobble, and pebble
		ES-12-17	0.4 (0.3 - 0.6)	0.34 (0.06 - 0.64)	7.6	1 (0 - 5)	5	boulder, cobble, and pebble

m = metres; m/s = metres per second; °C = degrees Celsius

6.3.3.2.1.3 Arctic Grayling Spawning Areas

The following information is a summary of Arctic grayling spawning habitat locations identified in the three general sampling areas of the Fond du Lac River (Black Lake outlet area, middle section, and outflow to Middle Lake area). Relative importance of spawning areas was determined qualitatively from information obtained from spring 2010/2012 fish sampling and egg searches described in Sections 6.3.3.2.1.1 and 6.3.3.2.1.2.

Black Lake Outlet Area

Arctic grayling spawning areas identified in the Black Lake outlet area of the Fond du Lac River are presented in Figure 6.3-15 and Table 6.3-34.

Two large areas in the Black Lake outlet area were determined to be important Arctic grayling spawning locations based on the ripe condition of most fish captured in these areas and on the number of eggs found in kick net surveys. These areas are located along the east (SS-01; 6,017 m^2) and west (SS-02; 8,564 m^2) banks of the Fond du Lac River, beginning about halfway along Grayling Island, extending upstream, towards Black Lake (Figure 5.1-1). These areas are used by Arctic grayling under both average water conditions (in 2012) as well as lower flows (in 2010). In 2010 spawning was found to occur on mainly cobble, pebble, and gravel substrates along both the east and west banks. In 2012 spawning was confirmed on the 2010 spawning sites and also on predominantly sand substrates along the east bank. Spawning occurred along the east bank until flow velocities diminished to an average of 0.03 m/s.

In 2012, spawning was found to occur in a small area (590 m^2) over gravel substrates associated with the boat launch located on the west shoreline upstream of Grayling Island (SS-03). Arctic grayling spawning was also confirmed in sand along the east shore of the Fond du Lac River, however egg searches conducted on sand along the west bank of the Fond du Lac River found no eggs.

Finally, Arctic grayling spawning was also found to occur off the upstream end of Grayling Island, and along its west side (SS-04). The area (1,704 m^2) along the west of the island was predominantly cobble and boulder, which was submerged due to higher flow conditions during spring 2012. The centre of the island was also flooded, however no eggs were found in this area. Under lower than average flow conditions, these areas would remain above the water, suggesting that spawning occurs opportunistically when spawning conditions are suitable.

Middle Section

Arctic grayling spawning areas identified in the middle section of the Fond du Lac River are presented in Figure 6.3-16 and Table 6.3-34.

The shallow water area located along the west bank of the river near the large elbow-shaped bend (SS-05) was determined to be important Arctic grayling spawning habitat based on the results of hoop net sampling efforts and egg searches in this area. The majority of the eggs at this location were found along transects located on the downstream end (2,164 m^2) of the search area. This area was shallower, faster flowing, and contained more suitable spawning substrates compared to upstream transects. The upstream portion (1,004 m^2) of the sample area was, therefore categorized as marginal spawning habitat.

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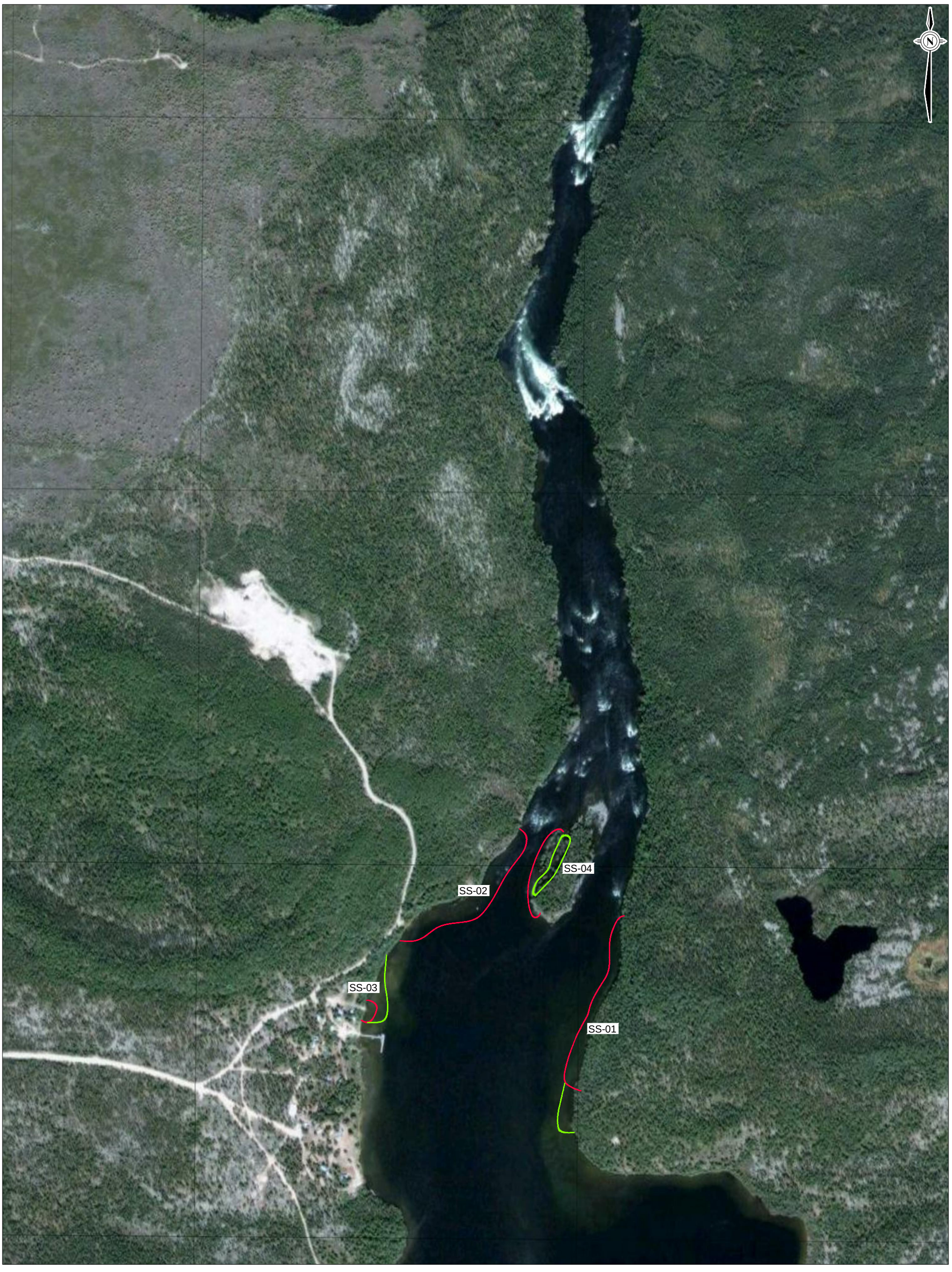

100 0 100
SCALE 1:6,000 METRES

LEGEND

- NO EGGS FOUND
- LOW TO MODERATE EGG NUMBERS
- HIGH EGG NUMBERS

REFERENCE

Google Earth Image: Image © 2007 DigitalGlobe

PROJECT

TAZI TWÉ HYDROELECTRIC POWER PROJECT

TITLE

BLACK LAKE OUTLET ARCTIC GRAYLING SPAWNING LOCATIONS, 2010 - 2012

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
CADD	BDS	22/06/12	FIGURE: 6.3-15	
CHECK	LT	24/07/13		
REVIEW	BC	24/07/13		

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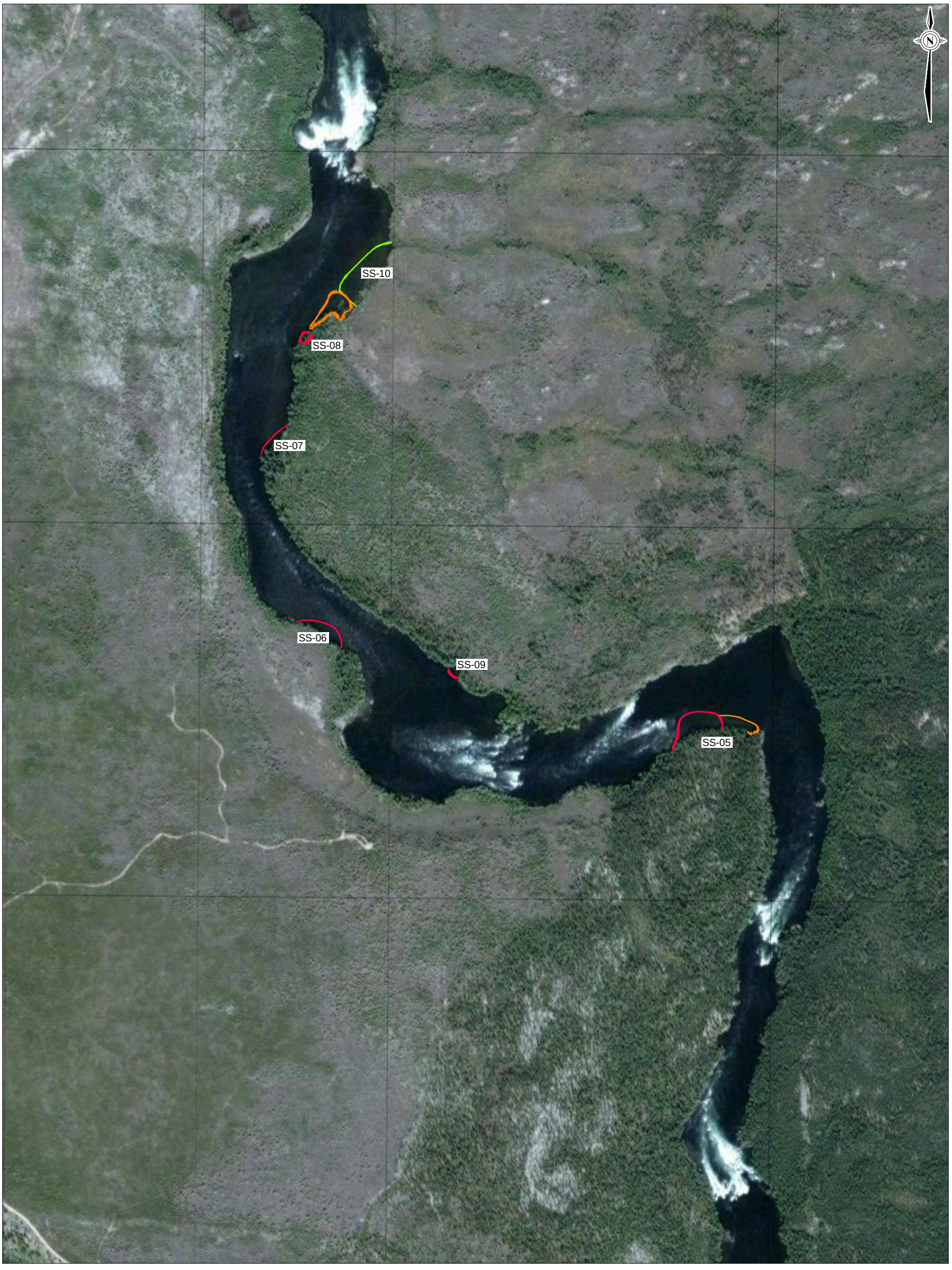

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LEGEND

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- LOW TO MODERATE EGG NUMBERS
- HIGH EGG NUMBERS

REFERENCE

Google Earth Image: Image © 2007 DigitalGlobe

PROJECT

TAZI TWÉ HYDROELECTRIC POWER PROJECT

TITLE

MIDDLE SECTION ARCTIC GRAYLING SPAWNING LOCATIONS, 2012

Golder Associates
Saskatoon, Saskatchewan

PROJECT	10-1365-0004		FILE No.	
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CHECK	LT	24/07/13		
REVIEW	BC	24/07/13		

Area SS-06 is located along the west bank of the river. Egg searches completed in this area indicated that Arctic grayling spawning occurs primarily nearer to shore, where water depths and current velocities are lower. No eggs were found, nor was spawning observed in deeper, faster moving water. Average river flows in 2012 may have limited Arctic grayling spawning to shallower areas with lower flow velocities. Had river flows been below average, areas further from shore may become suitable for spawning. The area of high quality spawning habitat was estimated to be 1406 m^2.

Area, SS-07 is located upstream of Elizabeth Falls along the east bank of the river. This spawning area was smaller (744 m^2) than the first two sample areas (SS-05 and SS-06), but is most likely used each year, providing a spawning area of moderate importance.

Two other heavily used spawning areas were identified in the middle section of the river. These, areas are smaller in size, making them less important for Arctic grayling spawning. The first area (SS-08) is located in a small side-channel along the east bank. Although a large number of eggs were found, the size of the channel (254 m^2) and the likelihood that it may contain water only in average or higher flow years, suggests that it is of relatively minor importance. The second area (SS-09) was located in a small gravel bay on the east bank of the river. The small size of the area (265 m^2) suggests it is not critical spawning habitat.

Finally, egg searches conducted in a large flooded area upstream of Elizabeth Falls (SS-10) resulted in only a few eggs being found, however, hoop net efforts in the upstream portion of the search area resulted in the capture of 101 spawning (ripe) Arctic grayling. Though the fish capture results suggest the upstream area may be important spawning habitat, egg search results indicated that under the average flow conditions observed in 2012, the area represents only marginal spawning habitat, although it is quite large (1,593 m^2). The surveyed area downstream of the marginal habitat area is also large (3,823 m^2), however the highly embedded nature of the substrate makes the area less than optimal for spawning. Under prolonged high flow conditions it is possible this area may scour and become more suitable for spawning.

Outflow to Middle Lake Area

Arctic grayling spawning areas identified in the Fond du Lac River near the outflow to Middle Lake are presented in Figure 6.3-17 and Table 6.3-34.

Egg searches conducted during 2010 under lower than average flow conditions were carried out on both sides of a large island, near the outflow to Middle Lake. Searches completed along the east shore (SS-11) of the island resulted in two eggs being found. Under average or higher flow conditions the flow velocity in this area would likely increase and may become unsuitable for Arctic grayling spawning. Though the area is large (3,597 m^2) it represents only marginal spawning habitat even under favourable flow conditions.

The second area (SS-12), surveyed for Arctic grayling eggs was located in a side channel located between the west bank of the river and the large island. Based on the high number of Arctic grayling captured in the area, the number of eggs located, and the large size of the area (4,114 m^2) this area is considered to be an important spawning location for the lower section of the Fond du Lac River.

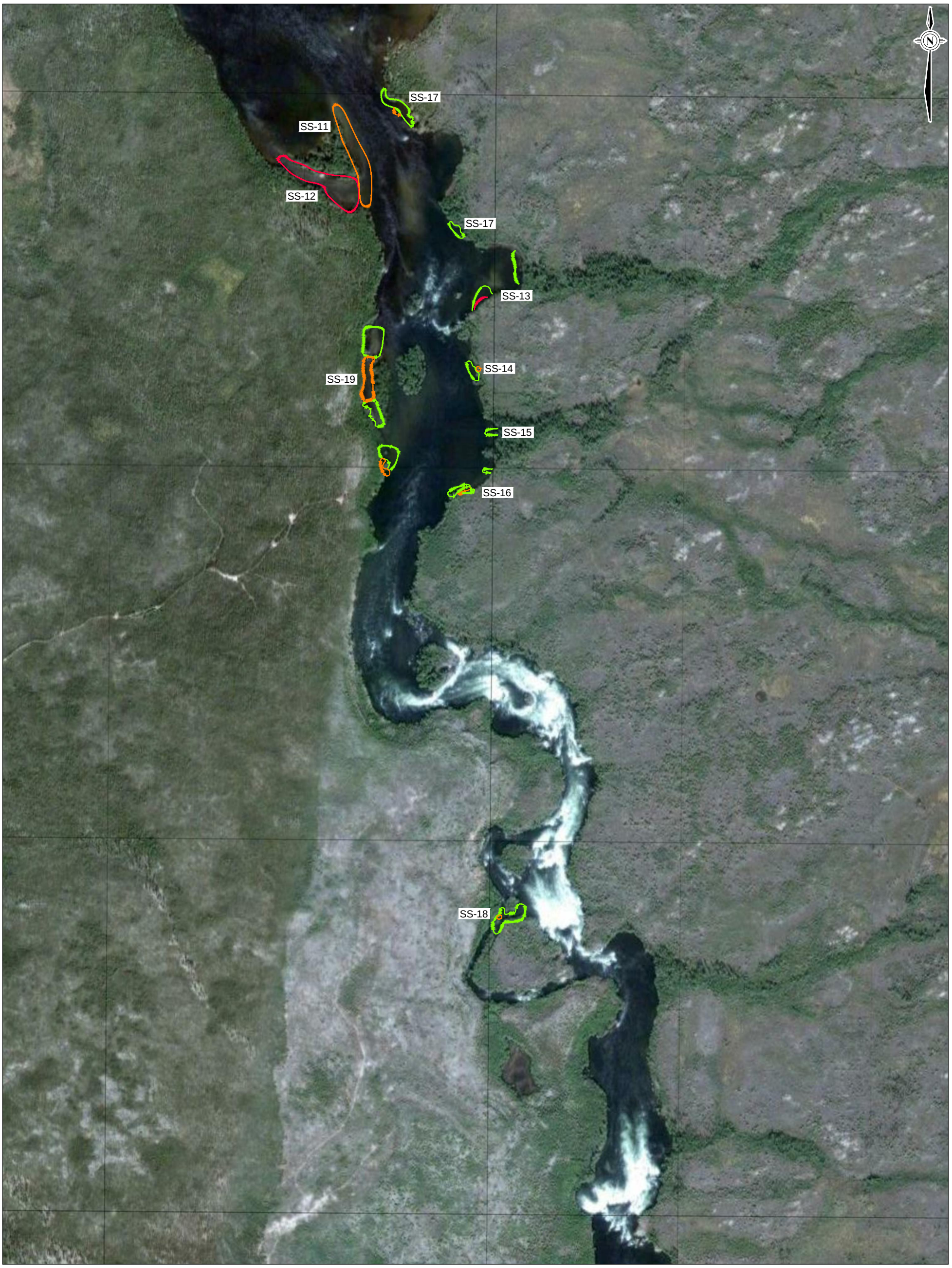
In 2012 Arctic grayling egg searches were conducted in the proposed tail race outlet bay (SS-13). A total of 69 eggs were found and 14 spawning (ripe) Arctic grayling captured near the upstream side of the bay. However, no eggs or spawning fish were found in the downstream portion of SS-13. Though the number of eggs found was relatively high, the small number of Arctic grayling captured along with the small size of the spawning area (144 m^2) suggests it is of marginal importance as spawning habitat. The majority of the bay does not provide Arctic grayling spawning habitat.

Table 6.3-34: Arctic Grayling Spawning Locations in the Fond du Lac River, 2010 and 2012

Area of Interest	Spawning Area[a]		Size (m^2)	Average Water Velocities During the Spawning Period (m/s)	Substrate Type	Relative Importance as Spawning Habitat[b]	Description of Location	Reach[c]
Black Lake Outlet Area	SS-01	-	6,017	-	cobble, pebble, gravel, some sand	High	east Bank near Grayling Island	1, 2
	SS-02	-	8,564	-	cobble, pebble, gravel	High	west Bank near Grayling Island	1, 2
	SS-03	-	590	-	gravel, sand	Moderate	west Bank near boat launch	1
	SS-04	-	1,704	-	cobble, boulder	Low	upstream end and west side of Grayling Island	2,3
Middle Section	SS-05	upstream portion	1,004	<0.08	sand	Moderate	west bank near elbow-shaped bend	9
		downstream portion	2,164	0.48	cobble, pebble, boulder	High		
	SS-06	-	1,406	0.33	cobble, pebble, boulder	High	west bank	14
	SS-07	-	744	0.68	cobble, pebble	Moderate	east bank	14
	SS-08	-	254	0.30	cobble, pebble, boulder	Low	side-channel on east bank	14
	SS-09	-	265	No flow	gravel	Low	small bay on east bank	13
	SS-10	upstream portion	1,593	0.41	cobble, boulder	Moderate	flooded area upstream of Elizabeth Falls	14
		downstream portion	3,823	0.05	embedded cobble	Low		
Outflow to Middle Lake Area	SS-11	-	3,597	0.39	pebble, cobble	Low	east shore of island near inflow of Middle Lake	22
	SS-12	-	4,114	0.54	pebble, cobble	High	secondary channel west of island at Middle Lake inflow	22
	SS-13	-	144	0.34	pebble, cobble, boulder	Low	east bank in proposed tail race outlet bay	22
	SS-14	-	42	0.25	cobble, boulder	Low	east bank in proposed tail race outlet bay	20
	SS-15	-	191	0.11	cobble, pebble, boulder	Low	east bank in bay upstream of proposed tailrace outlet	20
	SS-16	-	109	0.28	cobble, pebble, boulder	Low	east bank downstream of Elizabeth Falls Canyon	20
	SS-17	-	87	-		Low	east bank downstream of Elizabeth Falls Canyon	22
	SS-18	-	38	0.22	cobble, pebble, boulder	Low	secondary channel west of Elizabeth Falls Canyon	17.1, 17.2
	SS-19	-	1,274	0.74	cobble, pebble, boulder	Low	west bank downstream of Elizabeth Falls Canyon	20, 21

[a] Locations of spawning areas are provided in Figures 6.3-15 to 6.3-17.
[b] Relative importance of each spawning area was determined qualitatively, based on the number of spawning (ripe) Arctic grayling captured, results of egg search surveys, the overall size of the area, and the suitability of the area for use on an annual basis.
[c] Locations of Fond du Lac River reaches are provided in Table 6.3-1 and Figure 6.3-1.
m^2 = square metres; m/s = metres per second

\\golder.gds\gal\Saskatoon\GGIS\CLIENTS\SASKPOWER\Elizabeth Falls Power Project\Figures\10-1365-0004 SaskPower Elizabeth Falls EA\13500 Aquatics Baseline 2012\Task 30\Baseline\10-1365-0004 Arctic Grayling Spawning Locations.dwg 6/10/2013 3:12 PM



100 0 100

SCALE 1:6,000 METRES

LEGEND

- NO EGGS FOUND
- LOW TO MODERATE EGG NUMBERS
- HIGH EGG NUMBERS

REFERENCE

Google Earth Image: Image © 2007 DigitalGlobe

PROJECT

TAZI TWÉ HYDROELECTRIC POWER PROJECT

TITLE

LOWER FOND DU LAC RIVER ARCTIC GRAYLING SPAWNING LOCATIONS, 2010 - 2012

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
CADD	BDS	22/06/12	FIGURE: 6.3-17	
CHECK	LT	24/07/13		
REVIEW	BC	24/07/13		

Egg searches upstream of the proposed tailrace outlet, SS-14, resulted in one egg being found in one of eight locations searched. The habitat where the single egg was found was quite small (42 m^2). The area is considered of marginal importance as spawning habitat.

Searches were conducted in a bay further upstream from the proposed tailrace outlet location (SS-15) however, no eggs were found in the survey. Though the habitat appeared to be suitable for Arctic grayling spawning, no eggs were located.

Egg searches were conducted at SS-16 along the east bank of the river resulting in four eggs being found. The total area searched was 537 m^2; however the area containing eggs was only 109 m^2. Due to the small size of the effective area, and the small number of eggs located in the survey, this area is considered to be marginal for Arctic grayling spawning.

Finally, an egg search was conducted at SS-17 along the east bank of the river downstream of the tailrace outlet bay. Egg searches resulted in five eggs being found in a small area. In total the searches covered 1,281 m^2; however, eggs were confined to a small 87 m^2 area. Based on the small area being used, this location is considered to be marginal spawning habitat.

Results from the field surveys suggest that Arctic grayling spawning habitat is sparse along the east bank of the lower Fond du Lac River, and that any habitat present is of marginal importance.

Two areas were also examined along the west bank in the lower section of the Fond du Lac River. The first area (SS-18) consisted of a side channel adjacent to the Elizabeth Falls Canyon. Searches were conducted both in the fast moving side channel, as well as in a more sheltered area behind an island. Two ripe grayling were captured in the higher velocity area and egg searches resulted in one egg being found. The area searched was 1,140 m^2, but the area of habitat where the egg was found was small (38 m^2). The substrate and velocity of the area would suggest that the area is capable of supporting grayling spawning, however based on the 2012 survey it was determined the area represents marginal spawning habitat used only by a few fish.

The second area searched (SS-19) along the west bank of the river was located downstream of the Elizabeth Falls Canyon. In total, 15 eggs were found in two areas. The first area is located on the upstream end of a small island and the second area was between the west bank of the river and another island. In total 4,242 m^2 of area was surveyed, however only an estimated 1,274 m^2 area contained eggs. The area was considered marginal spawning habitat when it was surveyed in 2012 under average spring flow conditions; however if flow velocities in the area were reduced under lower than average flows, the area may offer more favourable spawning conditions.

During 2010 the field crew also observed a large gravel bar in the center of the river just below the proposed tailrace bay. In the lower flow conditions of 2010, the area appeared to be potential Arctic grayling spawning habitat. However, during the average spring flow conditions of 2012 the bar was completely submerged and did not offer suitable spawning habitat. In lower water conditions this area may be used by grayling for spawning habitat.

6.3.3.2.2 Arctic Grayling Fry Habitat Surveys

6.3.3.2.2.1 Black Lake Outlet Area

Fifteen sites were surveyed where the presence of Arctic grayling fry was documented along the east bank of the Fond du Lac River upstream of Grayling Island. Arctic grayling spawning had been confirmed in the survey area by hoop net and kick net efforts conducted in the spring of 2012. The substrate of the survey area was

predominantly sand and gravel. The 15 survey sites covered approximately 110 m of shoreline. Site coordinates, and water depths and velocities for each survey site are listed in Table 6.3-35.

Table 6.3-35: Black Lake Outlet - Fry Habitat Survey Results

Survey Location	Survey Site	UTM Easting	UTM Northing	Water Depth (m)	Water Velocity (m/s)
East bank of the Fond du Lac River upstream of Grayling Island	1	469140	6556706	0.25	0.06
	2	469142	6556693	0.26	0.01
	3	469133	6556680	0.31	0.08
	4	469130	6556673	0.33	0.23
	5	469127	6556668	0.31	0.16
	6	469125	6556661	0.21	0.08
	7	469124	6556656	0.32	0.02
	8	469122	6556648	0.30	0.02
	9	469120	6556640	0.23	0.16
	10	469117	6556629	0.31	0.13
	11	469115	6556622	0.31	0.02
	12	469114	6556618	0.26	0.00
	13	469113	6556614	0.28	0.08
	14	469110	6556605	0.27	0.05
	15	469107	6556600	0.31	0.08

All UTM coordinates are in North American Datum (NAD) 83, Zone 13 V
UTM = Universal Transverse Mercator; m = metres, m/s = metres per second

The water depth for the areas sampled ranged from 0.21 m to 0.31 m, with an average depth of 0.28 m. Water velocities at the survey sites ranged from 0.00 m/s to 0.23 m/s, with an average velocity of 0.08 m/s.

6.3.3.2.2.2 Middle Section

Twelve sites were surveyed along the west bank of the Fond du Lac River on the inside of the large elbow-shaped bend in the river where the presence of Arctic grayling fry had been documented. Arctic grayling spawning in the area had been confirmed either by hoop net or kick net efforts conducted in the spring of 2012. The substrate of the surveyed area was predominantly cobble and boulder. The 12 survey sites covered approximately 60 m of shoreline. Site coordinates, and water depths and velocities are listed in Table 6.3-36.

Water depths for the surveyed area ranged from 0.18 m to 0.75 m, with an average water depth of 0.36 m. Water velocities ranged from 0.00 to 0.49 m/s, with an average velocity of 0.15 m/s.

Table 6.3-36: Middle Section of Fond du Lac River - Fry Habitat Survey Results

Survey Location	Survey Site	UTM Easting	UTM Northing	Water Depth (m)	Water Velocity (m/s)
West bank of the Fond du Lac River, on the inside of the large elbow-shaped bend	1	469052	6558433	0.37	0.04
	2	469041	6558432	0.50	0.00
	3	469032	6558436	0.45	0.19
	4	469017	6558431	0.20	0.09
	5	469022	6558428	0.18	0.05
	6	469023	6558430	0.19	0.15
	7	469030	6558433	0.24	0.06
	8	469008	6558428	0.30	0.11
	9	469005	6558426	0.20	0.19
	10	469001	6558426	0.21	0.18
	11	469008	6558457	0.75	0.49
	12	469020	6558457	0.73	0.27

All UTM coordinates are in North American Datum (NAD) 83. Zone 13 V
UTM = Universal Transverse Mercator; m = metres, m/s = metres per second

6.3.3.2.2.3 Outflow to Middle Lake Area

Nine sites were surveyed where Arctic grayling fry were documented in a side channel between the west bank of the Fond du Lac River and a large island near the Fond du Lac River outflow to Middle Lake. Arctic grayling spawning in the area had been confirmed in spring 2012 by hoop net and kick net sampling efforts. The substrate of the surveyed area was predominantly cobble and pebble. The nine sample sites covered approximately 200 m of shoreline on both the island and mainland sides of the side channel. Site coordinates, and water depths and velocities are presented in Table 6.3-37.

Table 6.3-37: Fond du Lac River Outflow to Middle Lake - Fry Habitat Survey Results

Survey Location	Survey Site	UTM Easting	UTM Northing	Water Depth (m)	Water Velocity (m/s)
Side channel between the west bank and a large island near the Fond du Lac River outflow into Middle Lake	1	467853	6561101	0.17	0.02
	2	467870	6561092	0.15	0.00
	3	467891	6561090	0.15	0.47
	4	467922	6561083	0.20	0.03
	5	467946	6561076	0.15	0.36
	6	467946	6561035	0.35	0.00
	7	467925	6561032	0.36	0.00
	8	467904	6561042	0.21	0.07
	9	467866	6561067	0.20	0.12

All UTM coordinates are in North American Datum (NAD) 83. Zone 13 V
UTM = Universal Transverse Mercator; m = metres; m/s = metres per second

Water depths for the surveyed area ranged from 0.15 to 0.36 m, with an average depth of 0.22 m. Water velocities ranged from 0.00 to 0.47 m/s, with an average velocity of 0.12 m/s.

6.3.3.2.3 Arctic Grayling Mark-Recapture Population Estimates

A total of 199.2 angler hours were expended to capture 397 Arctic grayling during the summer 2010 mark-recapture study. Of these, 39 percent were captured during the marking component of the field program, and 61% were captured during the recapture phase. Of the Arctic grayling captured during the marking component, 143 individuals were of a suitable size and in satisfactory condition to be included in the mark-recapture study (i.e., tagged and released). During the recapture phase, five tagged individuals were recaptured at the upstream (Black Lake outflow) sample location and one tagged individual was recaptured at the downstream (outflow to Middle Lake) sampling location. A complete summary of mark-recapture data is provided in Table 6.3-38.

Table 6.3-38: Arctic Grayling Mark-Recapture Summary for the Fond du Lac River, Near the Black Lake Outflow Area and Downstream of Elizabeth Falls Near the Outflow to Middle Lake, Summer 2010

Mark/ Recapture Component	Black Lake Outflow Area			Outflow to Middle Lake Area		
	Total No. of Arctic Grayling Captured	Total No. of Arctic Grayling Tagged	Total No. of Summer Marked Arctic Grayling Recaptured	Total No. of Arctic Grayling Captured	Total No. of Arctic Grayling Tagged	Total No. of Summer Marked Arctic Grayling Recaptured
Marking Component (August 6 -10)	133	125	0	23	18	0
Recapture Component (August 17- 21)	177	71	5	64	60	1
Total	**310**	**196**	**5**	**87**	**78**	**1**

No. = number

Arctic grayling population estimates for the Fond du Lac River were derived using Petersen and Chapman calculation methods, and are provided in Table 6.3-39 for sample locations upstream and downstream of Elizabeth Falls. Results from previous mark-recapture studies by Envirocon (1974) and Merkowsky (1989) are also provided for comparison. The high and low estimates provided in Table 6.3-39 were generated based on the variance (i.e., 95% confidence interval) associated with the input data and provide an indication of the potential maximum and minimum size of the populations assessed.

The 2010 Fond du Lac River Arctic grayling population estimates for both the Grayling Island area near the outlet of Black Lake and the section of Fond du Lac River just upstream of Middle Lake compare favourably with population estimates from the two previous studies at these locations. Based on a comparison of the 2010 results with those from the 1989 and 1974 reports, the 2010 population estimate suggests that Arctic grayling populations in the Fond du Lac River are healthy and relatively stable.

Table 6.3-39: Arctic Grayling Population Estimates for the Fond du Lac River

Mark-Recapture Study (year)	Grayling Island Area			Lower Fond du Lac River		
	Population Estimate	High Estimate[(a)]	Low Estimate[(a)]	Population Estimate	High Estimate[(a)]	Low Estimate[(a)]
Envirocon (1974)	7,776	9,292	6,260	5,269	6,509	4,029
Merkowsky (1989)	5,024	50,240	897	3,844	12,012	1,643
Golder - Petersen Method (2010)	9,067	14,498	3,635	4,558	9,951	-833.8
Golder - Chapman Method (2010)	9,090	13,671	4,509	4,575	8,097	1,053

[(a)] High and low population estimates (confidence intervals) were determined such that the actual population size will fall between these values 19 times out of 20 (P=0.95).

6.3.3.2.4 Arctic Grayling Radio-Telemetry Movement Study

6.3.3.2.4.1 Fish Capture

A total of 30 Arctic grayling were radio tagged in October 2011. Ten radio-tags were implanted into fish captured from Reach 2 (near Grayling Island), 10 radio-tags were implanted into fish captured from Reach 11 (approximately 1.8 km downstream of the Black Lake outflow bay), and 10 radio-tags were implanted into fish captured from Reach 18, approximately 800 m upstream of the Fond du Lac River outflow to Middle Lake.

Reach 2 - Black Lake Outlet Area

Fish tagging was completed between October 5 and 6, 2011. A combined total of 4.1 angler hours were expended to capture a total of 15 Arctic grayling (3.7 fish per angler hour). Biological information collected from the ten Arctic grayling that were implanted with radio-tags is provided in (Table 6.3-40).

Table 6.3-40: Summary of Biological Information Collected from Arctic Grayling Implanted with Radio-Tags near Grayling Island (Reach 2). October 2011

Code Number	Sex	Fork Length (mm)	Weight (g)	Condition Factor (K)
26	Male	446	726	0.82
27	Female	398	787	1.25
28	Male	419	912	1.24
29	Male	398	804	1.28
30	Male	348	545	1.29
31	Female	393	840	1.38
32	Female	408	912	1.34
33	Male	404	893	1.35
34	Female	401	778	1.21
35	Male	430	774	0.97

mm = millimetres; g = grams; K = condition factor (weight (g)/fork length (cm^3)*100)

Reach 11 - Middle Section of the Fond du Lac River

Fish sampling in Reach 11 of the Fond du Lac River was completed between October 6 and October 7, 2012. A combined total of 4.9 angler hours was expended to capture 10 Arctic grayling (2.0 fish per angler hour). A summary of the biological information for Arctic grayling collected from the middle section of the Fond du Lac River is summarized in Table 6.3-41.

Table 6.3-41: Summary of Biological Information Collected from Arctic Grayling Implanted with Radio-Tags in Reach 11 of the Fond du Lac River. October 2011

Code Number	Sex	Fork Length (mm)	Weight (g)	Condition Factor (K)
16	Male	361	595	1.26
21	Female	389	835	1.42
22	Male	411	930	1.34
23	Male	417	997	1.37
25	Male	404	858	1.3
36	Female	416	998	1.39
37	Female	399	842	1.33
38	Female	421	1,147	1.54
39	Male	401	845	1.31
40	Female	403	854	1.3

mm = millimetres; g = grams; K = condition factor (weight (g)/fork length (cm^3)*100).

Reach 18 - Upstream of the Fond du Lac River Outflow to Middle Lake

Fish sampling in Reach 18 of the Fond du Lac River was completed on October 8, 2012. A combined total of 1.7 angler-hours were expended to capture 12 Arctic grayling (7.1 fish per angler hour) of which 10 were radio-tagged. Biological information collected from radio-tagged Arctic grayling is summarized in Table 6.3-42.

Table 6.3-42: Summary of Biological Information Collected from Arctic Grayling Implanted with Radio-Tags in Reach 18 (near the outflow to Middle Lake). October 2011

Code Number	Sex	Fork Length (mm)	Weight (g)	Condition Factor (K)
11	Male	400	826	1.29
12	Male	390	694	1.17
13	Male	408	902	1.33
14	Female	397	875	1.4
15	Male	410	848	1.23
17	Male	390	700	1.18
18	Female	371	626	1.23
19	Female	390	790	1.33
20	Male	413	911	1.29
24	Female	380	741	1.35

mm = millimetres; g = grams; K = condition factor (weight (g)/fork length (cm^3)*100).

Arctic Grayling Capture Summary

Upon completion of the capture and tag implanting component of the telemetry program, a total of 17 male Arctic grayling and 13 female Arctic grayling had been outfitted with radio-tags (1.3:1.0 male to female ratio). The mean fork length of male and female Arctic grayling was 403 mm and 397 mm respectively (Table 6.3-43).

Table 6.3-43: Summary of Biological Information Collected From Male and Female Arctic Grayling Radio-Tagged in the Fond du Lac River. October 2011

Parameter	Upstream		Middle Section		Downstream	
	Male	Female	Male	Female	Male	Female
Number Radio-Tagged	6	4	5	5	6	4
Mean Length (mm)	408	400	399	406	402	385
Range (mm)	348-446	393-408	361-417	389-421	390-413	371-397
Standard Deviation (mm)	31	5	20	12	9	10
Mean Weight (g)	776	829	845	935	814	758
Range (g)	545-912	778-912	595-997	835-1,147	694-911	626-875
Standard Deviation (g)	122	53	136	122	87	90
Mean Condition Factor (K)	1.2	1.3	1.3	1.4	1.2	1.3
Range (K)	0.8-1.4	1.2-1.4	1.3-1.4	1.3-1.5	1.2-1.3	1.2-1.4
Standard Deviation (K)	0.20	0.10	0.04	0.1	0.1	0.1

mm = millimetres; g = grams; k = condition factor ((weight (g)/fork length (cm^3)*100)

6.3.3.2.4.2 Radio Tracking

Missing Fish and Mortalities

Six fish were considered potential mortalities by the end of the telemetry study. These fish included code numbers 30, 35, 16, 37, 21, and 12.

Codes 30 and 35 fish were radio-tagged in Reach 2 (Black Lake outlet area). Code 30 fish was not located during the January flight, but was detected during all subsequent flights in Black Lake, 2.4 km upstream of Reach 2 (initial radio tagging location) within 50 m of the shoreline at the same location. The Code 35 fish was detected mid-channel in Reach 4, at the same location during all telemetry flights approximately 400 m downstream of Grayling Island.

Of the Arctic grayling radio-tagged in Reach 11 (middle section of the Fond du Lac River), Code 16 and 37 fish were detected at or near the same location during subsequent flights. The code 37 fish was located 2.9 km downstream of its initial capture point, and 300 m downstream of the base of the Elizabeth Falls Canyon in Reach 20. Code 37 fish was first found at this location one day after it was radio-tagged, suggesting a potential capture and tagging related mortality. The Code 16 fish was located slightly upstream of its initial tagging location in Reach 9. Code 16 fish remained at this location for the duration of the telemetry study.

During the winter survey flights, Code 21 fish (radio-tagged in Reach 11) was detected within 300 m of the initial tagging location. No location for Code 21 was obtained in May 2012. However, Code 21 fish was detected near the west shoreline of Middle Lake during the July and October 2012 aerial surveys (approximately 4.7 downstream of Reach 11). During these surveys, Code 21 fish was detected in an area which is characterized by shallow water depth, very little current, and numerous patches of dense aquatic vegetation. Code 12 (radio-tagged in Reach 18) was relocated downstream in Middle Lake near its outflow. Code 12 fish remained at this location for the duration of the telemetry study. All fish considered to be potential mortalities were excluded from the text and tables in the following sections.

Aerial Telemetry Surveys

Reach 2 - Black Lake Outlet Area

During the January 2012 aerial survey, locations were obtained for seven of the ten fish that were radio-tagged near Grayling Island (Table 6.3-44). Arctic grayling were detected, on average, 300 m upstream of their initial tagging location in the outflow bay of Black Lake. During the February flight, locations were obtained for seven fish. Four fish moved upstream an average of 300 m. Code 26 fish was detected 100 m downstream of where it was found in January and Code 28 fish was detected within 100 m of its January location.

During the May aerial survey, locations were recorded for seven fish. Code 29 fish was detected in the Chipman River, 26 km north of the Black Lake outflow bay; Code 29 fish remained in the Chipman River for the remainder of the study.

The remaining six fish moved downstream into the Fond du Lac River an average distance of 1,300 m from where they were located in February. Three fish made substantial downstream movements past the Reach 5 waterfalls. Code 28 fish was detected in Reach 14 and Codes 33 and 34 fish were detected in Reach 9. Code 32 fish was located near the upstream end of Reach 1 near the eastern shoreline of the Black Lake outflow bay. Codes 26 and 31 fish were detected in Reach 2 on the east side of the channel between the shoreline and Grayling Island.

During the July 2012 aerial survey, Code 29 fish was detected in the Chipman River 1.5 km downstream of its location in May. Codes 28 and 34 fish moved upstream in the Fond du Lac River to the downstream end of the Reach 5 waterfalls. Code 33 fish also moved upstream past the Reach 5 waterfalls and was detected in Reach 1 between the west side of the channel and Grayling Island.

During the final October 2012 aerial survey, locations for five fish were obtained. Code 31 fish moved downstream 800 m into Reach 2. Locations of remaining fish were within 100 metres of where they were located in July with the exception of Codes 28 and 32 fish. Code 32 fish was located on the opposite side of the channel near the eastern shoreline of the Black Lake outflow bay, while Code 28 fish moved upstream 2,000 m from Reach 14 to Reach 2 near its initial radio-tagging location.

Table 6.3-44: Movement of Arctic Grayling Radio-Tagged in Reach 2 of the Fond du Lac River Near Grayling Island Between Aerial Telemetry Surveys. October 2011 to October 2012[(a)]

Code #	January 20, 2012			February 21, 2012			May 30, 2012			July 20, 2012			October 11, 2012		
	Distance Moved (m)			Distance Moved (m)			Distance Moved (m)			Distance Moved (m)			Distance Moved (m)		
	↑	↓	↔	↑	↓	↔	↑	↓	↔	↑	↓	↔	↑	↓	↔
26	200	-	-	-	100	-	-	100	-	-	500	-	NL	NL	NL
28	-	-	0	-	-	0	-	2,400	-	-	300	-	2,000	-	-
29	200	-	-	300	-	-	26,200	-	-	-	1,500	-	-	-	0
31	500	-	-	100	-	0	-	500	-	600	-	-	-	800	-
32	300	-	-	200	-	-	-	400	-	-	-	200	-	-	300
33	400	-	-	-	-	200	-	2,100	-	1,700	-	-	-	100	-
34	200	-	-	400	-	-	-	2,400	-	1,000	-	-	NL	NL	NL

[(a)] October 5 and 6, 2011 was date of radio-tagging
m = metres; ↑ = upstream; ↓ = downstream; ↔ = lateral movement; NL = Not Located

Reach 11 - Middle Section of the Fond du Lac River

During the January 2012 aerial survey, locations were obtained for six of the ten fish radio-tagged in this section of the Fond du Lac River (Table 6.3-45). Three fish moved upstream an average distance of 300 m and three fish moved downstream an average of 300 m.

During the February aerial survey, locations were obtained for six fish. Three fish were located upstream of the January locations an average of 100 m and four fish moved downstream an average of 400 m.

During the May aerial survey, locations of six fish were recorded. Three fish were located an average of 300 m upstream from where they were found in February; the remaining three fish were found, on average, 800 m downstream of where they were located in February.

In July, locations of seven fish were recorded. Two fish moved upstream an average of 400 m while three fish moved downstream an average of 300 m.

During the final October 2012 aerial survey, locations of seven fish were obtained. Two fish moved 500 m upstream of their July locations and two fish moved downstream an average 400 m. The locations of the three remaining fish did not change from where they were last located.

Table 6.3-45: Movement of Arctic Grayling Radio-Tagged in Reach 11 of the Fond du Lac River (Middle Section) Between Aerial Telemetry Surveys. October 2011 to October 2012[(a)]

Code #	January 20, 2012			February 21, 2012			May 30, 2012			July 20, 2012			October 11, 2012		
	Distance Moved (m)			Distance Moved (m)			Distance Moved (m)			Distance Moved (m)			Distance Moved (m)		
	↑	↓	↔	↑	↓	↔	↑	↓	↔	↑	↓	↔	↑	↓	↔
22	200	-	-	-	100	-	-	700	-	400	-	-	-	200	-
23	-	400	-	100	-	-	NL	NL	NL	-	-	0	-	-	0
25	NL	NL	NL	NL	NL	NL	-	1,200	-	-	-	0	-	-	0
36	100	-	-	-	300	-	300	-	-	-	500	-	500	-	-
38	-	400	-	100	-	-	-	400	-	-	200	-	-	0	-
39	700	-	-	-	800	-	100	-	-	300	-	-	-	500	-
40	-	200	-	100	-	-	500	-	-	-	200	-	500	-	-

[(a)] October 6 and 7, 2011 was date of radio-tagging
m = metres; ↑ = upstream; ↓ = downstream; ↔ = lateral movement; NL = Not Located

Reach 18 - Upstream of the Outflow to Middle Lake

During the January 2012 aerial survey, locations for all nine fish that were successfully radio-tagged in Reach 19 were obtained (Table 6.3-46). Seven fish were found downstream of their original tagging location, moving an average distance of 1,000 m. The other two fish moved upstream an average distance of 200 m.

In February, locations were obtained for eight fish. Of the radio-tagged fish that were found in different locations, three moved upstream an average of 200 m and four moved downstream an average of 400 m.

In May, nine fish were located. Five fish were detected upstream an average of 400 m from their February locations, and three fish were detected downstream an average of 500 m. Code 24 fish was located on the opposite side of the river in a side channel where spawning in known to occur.

During the July aerial survey, locations were obtained for nine fish. Five fish were detected an average of 600 m upstream of their previous locations and three fish were detected an average of 300 m downstream.

In October, locations were obtained for nine fish. Three fish moved upstream of their July locations an average of 300 m and four fish moved downstream an average of 2,200 m. Code 18 fish was found near the outlet of Middle Lake and Code 11 fish was found near the west side of Middle Lake.

Table 6.3-46: Movement of Arctic Grayling Radio-Tagged in Reach 18 of the Fond du Lac River, Upstream of Middle Lake, Between Aerial Telemetry Surveys. October 2011 to October 2012[(a)]

Code #	January 20, 2012			February 21, 2012			May 30, 2012			July 20, 2012			October 11, 2012		
	Distance Moved (m)			Distance Moved (m)			Distance Moved (m)			Distance Moved (m)			Distance Moved (m)		
	↑	↓	↔	↑	↓	↔	↑	↓	↔	↑	↓	↔	↑	↓	↔
11	-	800	-	-	500	-	500	-	-	1,000	-	-	-	2,200	-
13	200	-	-	NL	NL	NL	-	500	-	100	-	-	200	-	-
14	-	1,300	-	400	-	-	400	-	-	-	200	-	-	-	0
15	-	1,100	-	-	500	-	300	-	-	-	400	-	-	-	300
17	-	1,500	-	200	-	-	-	700	-	400	-	-	-	100	-
18	100	-	-	-	200	-	-	300	-	500	-	-	-	5,900	-
19	-	200	-	-	-	0	100	-	-	-	100	-	300	-	-
20	-	1,700	-	100	-	-	800	-	-	1,100	-	-	-	400	-
24	-	700	-	-	400	-	-	-	300	-	-	200	300	-	-

(a) October 8, 2011 was date of radio-tagging
m = metres; ↑ = upstream; ↓ = downstream; ↔ = lateral movement; NL = Not Located

Fixed Radio Receiver Locations

Reach 4 - Upstream Receiver

This radio receiver started operation on May 11, 2012 and data was downloaded on May 25, June 3, June 25, July 13, and July 19. The last download from this receiver was October 11, 2012, the date of decommissioning. This receiver was operational for a total of 80 days (52% of the time). Receiver down time was attributed to its memory banks being filled to capacity by radio-tagged fish remaining within detection distance of the receiver for prolonged periods of time. In July, the receiver was configured to "filter" these fish to conserve memory space. The last location logged to this receiver was in September 2012. The upstream receiver logged considerably more error codes than the downstream receiver. This difference was thought to be due to electronic interference (possibly caused by the phone system used by the local fishing outfitter located approximately one kilometre away).

Three of the fish radio=tagged in Reach 2 near Grayling Island were detected at the upstream fixed receiver location. These included fish codes 26, 28, and 34. No fish radio-tagged downstream of this fixed receiver location were detected. The Code 26 fish was continually detected by the upstream oriented antenna. It is likely that Code 26 fish spent most of its time downstream of Grayling Island in Reach 4.

The Code 28 fish moved downstream of the Reach 4 fixed receiver location and past the Reach 5 falls on May 15, 2012. Code 28 fish was detected at the downstream fixed receiver location approximately three hours later. Code 28 fish remained between the two fixed receiver locations until July 30. Starting on July 30, the

downstream oriented antenna of the upstream fixed receiver location began detecting Code 28 fish again. Code 28 fish remained within detection range of the downstream facing antenna of the upstream fixed receiver location for the remainder of the receiver's operational period suggesting this fish was holding in the river below the Reach 5 waterfall.

The Code 34 fish was detected by a mobile ground survey on May 13 in Reach 8 prior to commissioning the fixed receiver installations. Once the fixed receivers were commissioned, Code 34 fish was regularly detected by the Reach 4 fixed receiver (downstream oriented antenna) beginning May 27, 2012. Code 34 fish remained within detection range of the downstream oriented antenna for the remaining operational period of the receiver.

Reach 14 - Downstream Receiver

The downstream fixed radio receiver was deployed from May 13, 2012 to October 11, 2012. It was located approximately in Reach 14, 500 m downstream of Reach 11 (radio-tagging location for the middle section of the Fond du Lac River). The receiver at this location remained operational for the entire survey period (152 days). Data was downloaded on May 13, May 26, June 1, July 14, and October 11, 2012 (decommissioning date).

Of the ten fish captured and radio-tagged in the middle section of the Fond du Lac River, six fish codes were detected by the downstream fixed receiver. These codes included 16, 22, 23, 36, 38, and 40. Code 16 fish was detected once, on the upstream oriented antenna, on July 2, 2012. Of the remaining fish codes that were detected, most were consistently logged to the upstream oriented antenna throughout the survey period. The Code 21 fish was never detected at this receiver location, but was detected during the July and October 2012 aerial surveys downstream in Middle Lake.

Two fish (Codes 28 and 33) that were radio-tagged upstream in Reach 2 (Black Lake outlet) were detected at this fixed-receiver location. Both detections occurred on May 16 and were logged by the upstream oriented antenna. These fish did not move downstream of this receiver location. No Arctic grayling radio-tagged downstream in Reach 19 were detected at this location.

6.3.3.2.4.3 Summary of Arctic Grayling Movements

Upstream passage of Arctic grayling through Reaches 15 to 17 was not documented during this study. However, one Arctic grayling radio-tagged in Reach 2 (Black Lake outlet) was detected downstream of the Reach 5 waterfalls, then detected again upstream of Reach 5, indicating that the Reach 5 waterfall is not a complete barrier to the upstream migration of Arctic grayling (Appendix III.12; Figures III.12-1 to III.12-30).

Generally, most radio-tagged Arctic grayling remained near their initial point of capture. This was particularly evident with Arctic grayling radio-tagged in Reach 11 (the middle section of the Fond du Lac River) where fish remained within 1.6 km of their initial radio-tagging location. Substantial downstream movement of radio-tagged Arctic grayling through Reach 4, 16, and 18 was observed. In addition, seasonal movement of Arctic grayling that were radio-tagged in Reach 2 (near Grayling Island) and Arctic grayling that were radio tagged in Reach 18 (near the outflow to Middle Lake) was observed during the winter months. Some of the Arctic grayling radio-tagged in Reach 2 were detected upstream in the Black Lake outflow bay, and some of the Arctic grayling radio-tagged in Reach 18 were detected downstream in Middle Lake during the winter period.

Reach 2 - Black Lake Outlet Area

Generally, Arctic grayling radio-tagged in Reach 2 remained in the Reach throughout the year. However, some substantial movements were documented. For example, Code 29 fish was detected near Grayling Island on May 13, 2012 during a mobile ground survey. Code 29 fish was then located during the May 30 aerial survey in the Chipman River located some 26 km north of the Black Lake outflow bay (Figure 6.3-18). At that time Code 29 fish was detected approximately 1.6 km upstream of the Chipman River outlet to Black Lake at the base of a large waterfall. Code 29 fish remained in the Chipman River for the duration of the study; however, it was subsequently detected further downstream in a large, deep pool close to the Chipman River outlet to Black Lake.

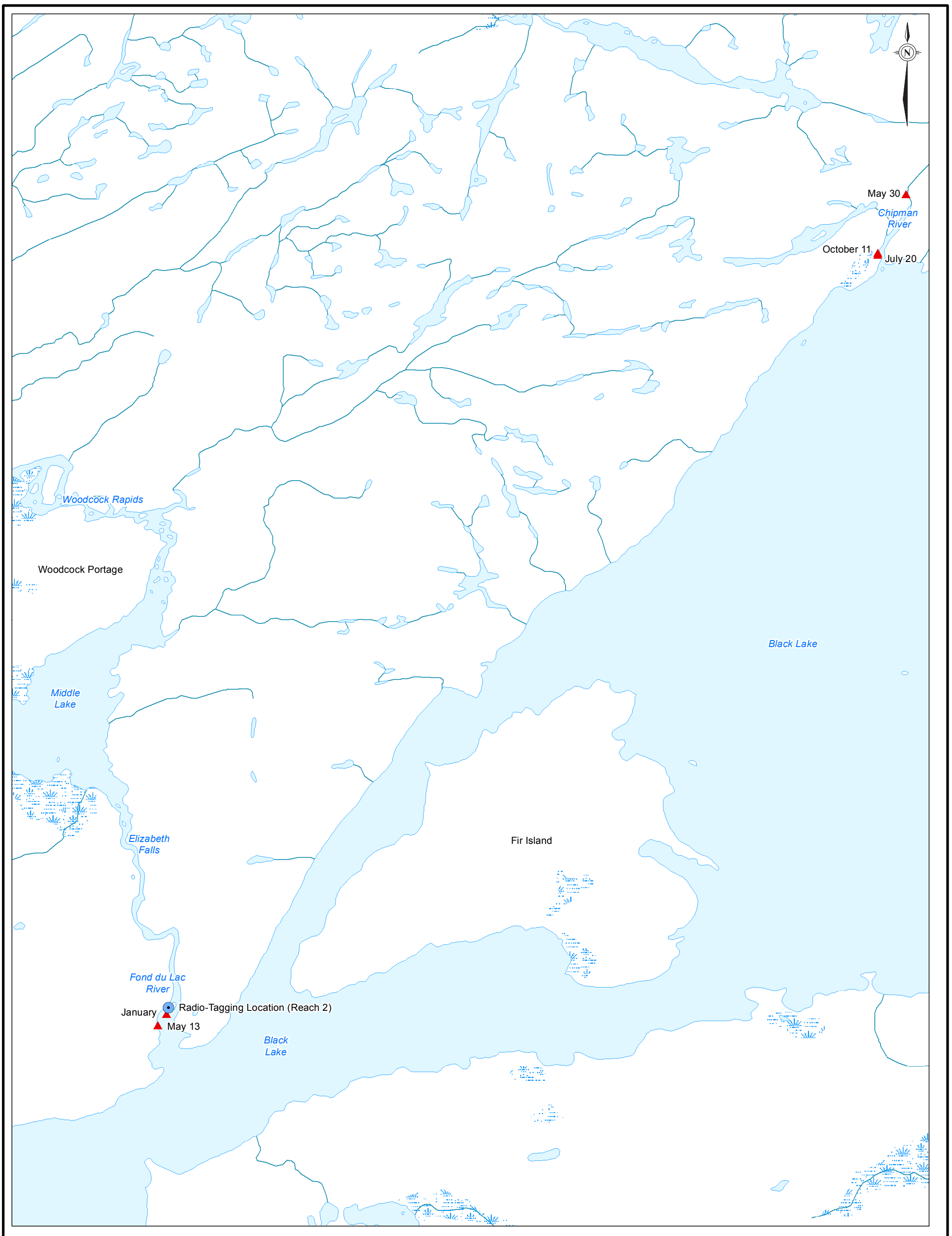
Previous tagging studies have documented Arctic grayling movement between the Fond du Lac River and the Chipman River (Envirocon 1974). The lower reaches of the Chipman River are reported to contain excellent grayling spawning habitat. However, the upstream distribution of fish originating from Black Lake is most likely limited to the base of the waterfall situated approximately 1.6 km upstream of the Black Lake confluence.

Code 28 Arctic grayling was detected in Reach 2 near Grayling Island on May 13, 2012 during a mobile ground survey (Figure 6.3-19). On May 15, Code 28 fish was detected in Reach 4 at the upstream fixed receiver location. On May 16, Code 28 fish was detected at the downstream fixed-receiver location in Reach 14. In addition, a mobile-ground survey on May 16 detected Code 28 fish in Reach 14. Code 28 fish remained within detection range of the Reach 14 fixed receiver location until July 30. Thereafter, Code 28 fish moved back upstream into Reach 5 (downstream end of the falls) and within detection range of the downstream oriented antenna of the Reach 4 fixed receiver. Code 28 fish remained at the downstream end of Reach 5 for the remainder of the study.

Code 33 fish was detected in Reach 2 (near Grayling Island) during the January and February aerial surveys (Figure 6.3-20). A mobile ground survey conducted on May 14, the aerial survey completed on May 30, 2012, and the Reach 14 fixed receiver detected Code 33 fish downstream in Reach 9. Aerial surveys completed in July and October, 2012 showed Code 33 fish had moved upstream to Reach 2 near Grayling Island, indicating that the Reach 5 waterfalls are not a completely impassable barrier to Arctic grayling.

Code 34 fish was detected in Reach 1 during the January and February aerial surveys and in Reach 2 by a mobile ground survey on May 13. On May 27, the downstream oriented antenna of the Reach 4 fixed receiver location logged a number of detections (Figure 6.3-21). These detections suggest the fish was likely holding at or near the downstream end of Reach 5.

On May 30, the aerial survey detected Code 34 fish considerably further downstream in Reach 9 near Arctic grayling spawning habitat. On June 29, the downstream oriented antenna of the Reach 4 fixed receiver location began logging Code 34 fish detections. Code 34 fish remained at this location, presumably at the base of the falls (downstream end of Reach 5) until July 19. At this time, a Code 34 “filter” was applied to the Reach 4 receiver to conserve memory as the downstream oriented antenna of the receiver was generating a large number of detections from Code 34 fish. The July 20 aerial survey detected Code 34 fish near the downstream end of Reach 5 (falls). Code 34 fish was not detected during the final October 11, 2012 flight.



LEGEND

- RECORDED CODE 29 MOVEMENTS
- RADIO-TAGGING LOCATION

1,500 0 1,500
SCALE 1:75,000 METRES

REFERENCE

GOLDER ASSOCIATES © 2012
GOOGLE EARTH IMAGE © 2010 DIGITAL GLOBE
NAD 83 UTM ZONE 13

PROJECT
TAZI TWÉ HYDROELECTRIC PROJECT

TITLE
CODE 29 FISH MOVEMENTS WITHIN THE FOND DU LAC RIVER AND BLACK LAKE OCTOBER 2011 TO OCTOBER 2012

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
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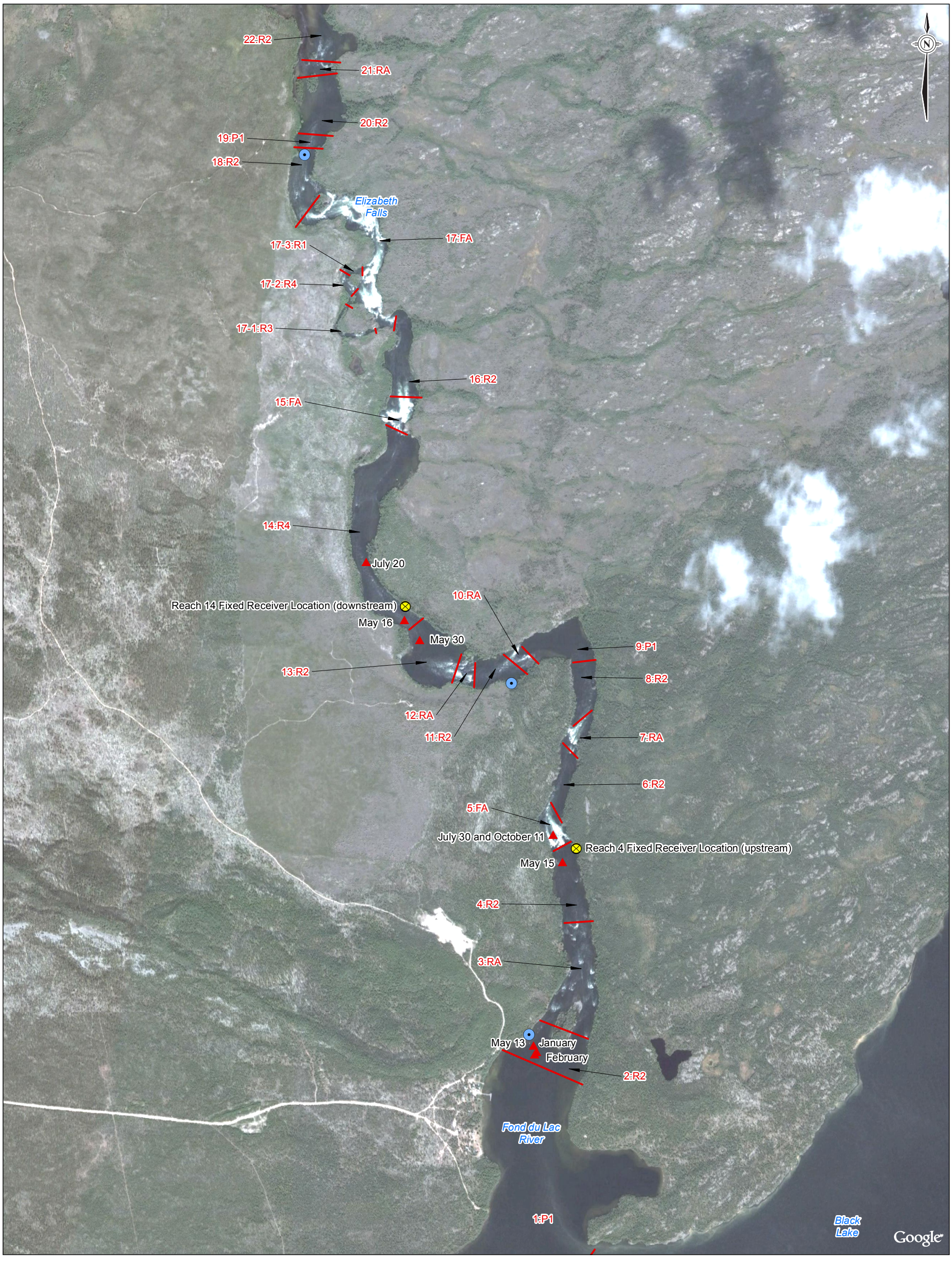
CHECK	LT	25/07/13	**FIGURE: 6.3-18**	
REVIEW	BC	25/07/13		



LEGEND

- RECORDED CODE 28 LOCATION
- FIXED RECEIVER LOCATION
- RADIO-TAGGING LOCATION
- PRIMARY CLASSIFICATION (REACH NUMBER : CLASSIFICATION)

400 0 400
SCALE 1:15,000 METRES

REFERENCE

GOLDER ASSOCIATES © 2012
GOOGLE EARTH IMAGE © 2010 DIGITAL GLOBE
NAD 83 UTM ZONE 13

PROJECT

TAZI TWÉ HYDROELECTRIC PROJECT

TITLE

CODE 28 FISH MOVEMENTS WITHIN THE MIDDLE AND UPPER REACHES OF THE FOND DU LAC RIVER OCTOBER 2011 TO OCTOBER 2012

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 2
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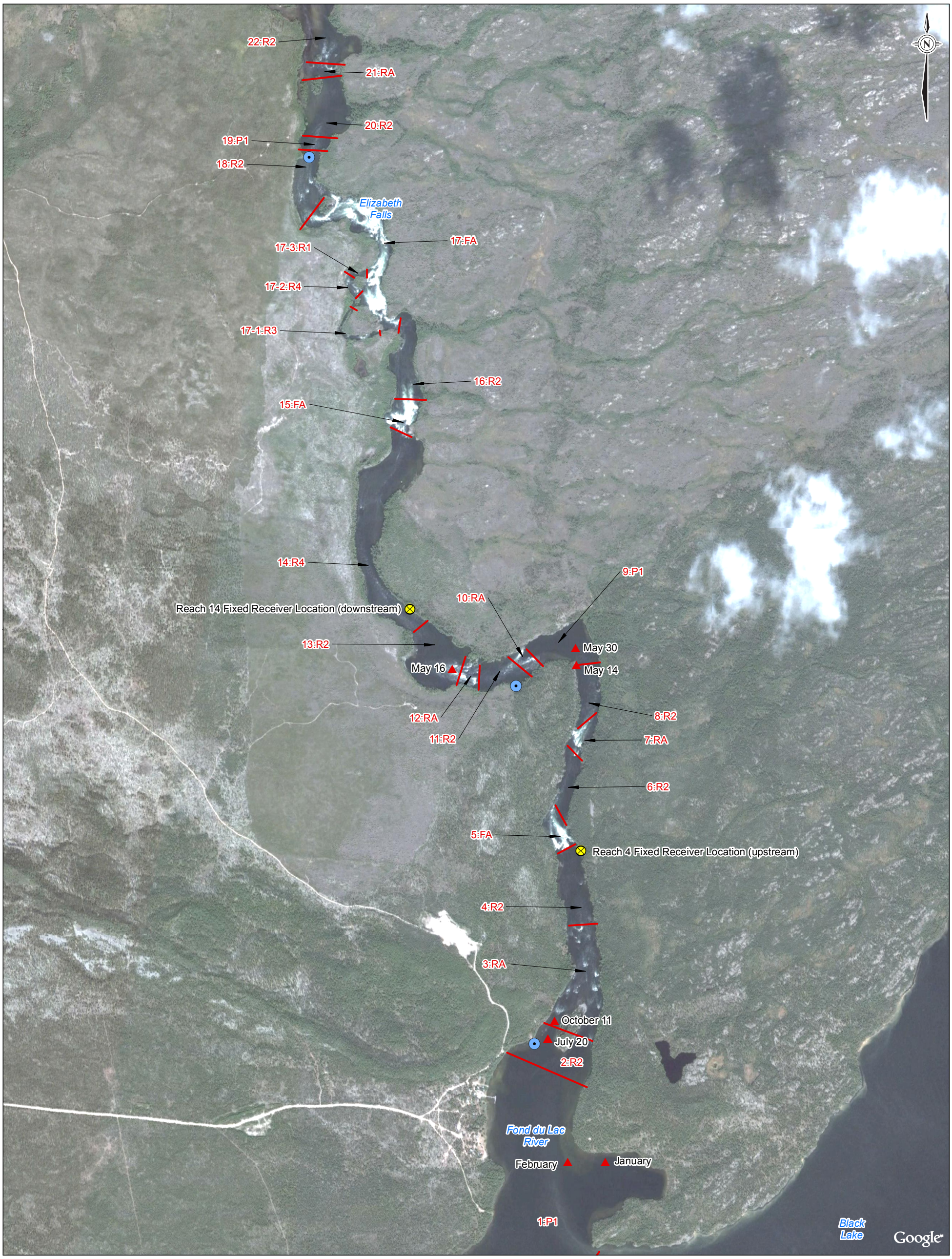
CHECK	LT	25/07/13		
REVIEW	BC	25/07/13		

FIGURE: 6.3-19



LEGEND

- FIXED RECEIVER LOCATION
- RADIO-TAGGING LOCATION
- RECORDED CODE 33 LOCATION
- PRIMARY CLASSIFICATION (REACH NUMBER : CLASSIFICATION)

400 0 400
SCALE 1:15,000 METRES

REFERENCE

GOLDER ASSOCIATES © 2012
GOOGLE EARTH IMAGE © 2010 DIGITAL GLOBE
NAD 83 UTM ZONE 13

PROJECT
TAZI TWÉ HYDROELECTRIC PROJECT

TITLE
CODE 33 FISH MOVEMENTS WITHIN THE MIDDLE AND UPPER REACHES OF THE FOND DU LAC RIVER OCTOBER 2011 TO OCTOBER 2012

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
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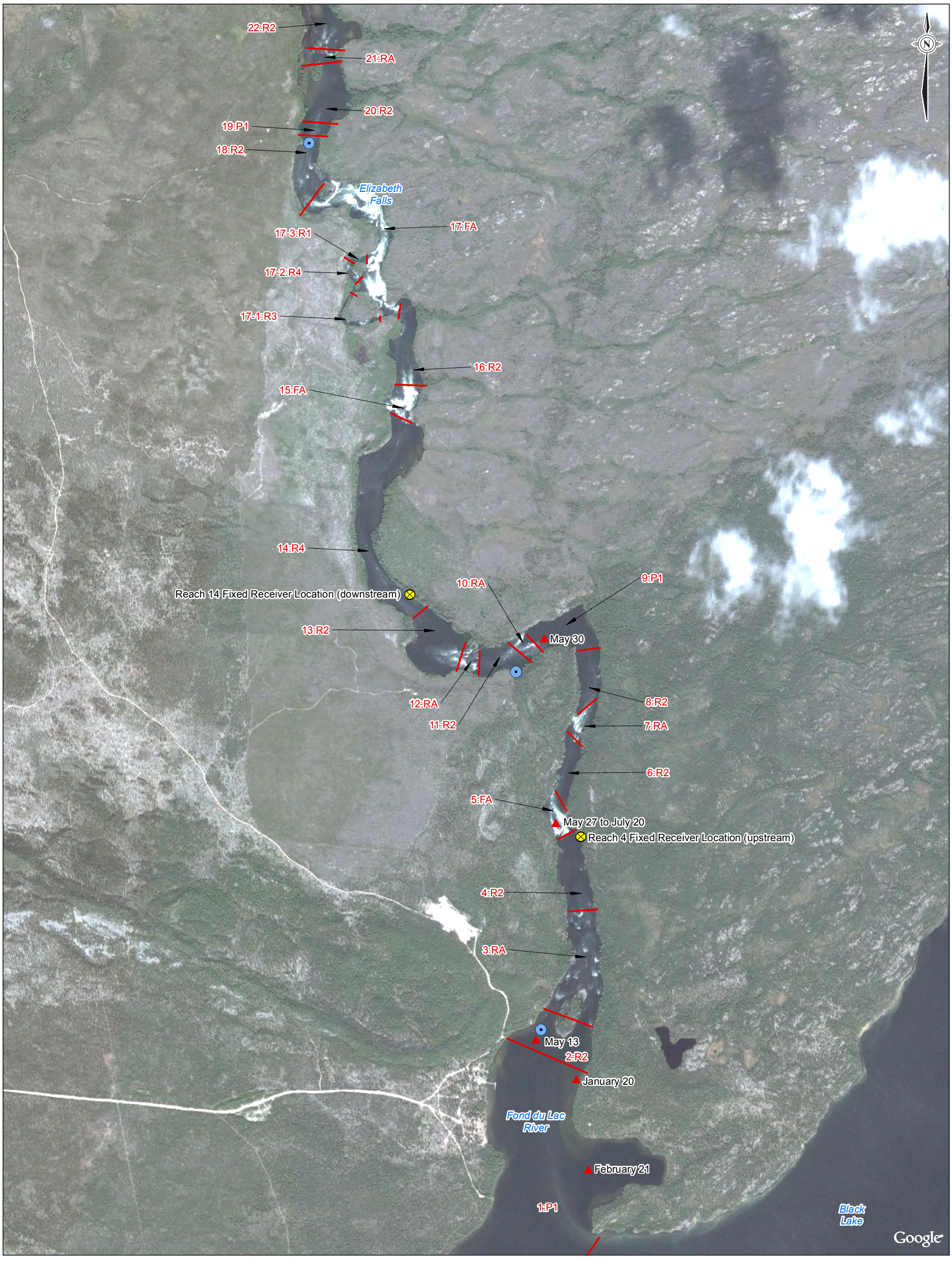
CHECK	LT	25/07/13	**FIGURE: 6.3-20**	
REVIEW	BC	25/07/13		



LEGEND

- FIXED RECEIVER LOCATION
- RADIO-TAGGING LOCATION
- RECORDED CODE 34 LOCATION
- PRIMARY CLASSIFICATION (REACH NUMBER : CLASSIFICATION)

400 0 400

SCALE 1:15,000 METRES

REFERENCE

GOLDER ASSOCIATES © 2012
GOOGLE EARTH IMAGE © 2010 DIGITAL GLOBE
NAD 83 UTM ZONE 13

PROJECT

TAZI TWÉ HYDROELECTRIC PROJECT

TITLE

CODE 34 FISH MOVEMENTS WITHIN THE MIDDLE AND UPPER REACHES OF THE FOND DU LAC RIVER OCTOBER 2011 TO OCTOBER 2012

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
GIS	LMR/SM	10/07/13		
CHECK	LT	25/07/13		
REVIEW	BC	25/07/13		

FIGURE: 6.3-21

Reaches 8-15 - Middle Section of the Fond du Lac River

Arctic grayling radio-tagged in Reach 11 were generally detected between Reach 7 and 15 throughout the study. No fish radio-tagged in Reach 11 made significant, upstream movements (i.e., upstream through Reach 4). Two fish radio-tagged in Reach 11, were detected downstream in Middle Lake. Code 37 fish was found in Reach 19 one day after its initial capture and was detected at the same location during subsequent flights. Code 21 fish was recorded in Middle Lake during the July and October aerial surveys but was not detected during the May aerial survey or by the Reach 14 fixed receiver location. Code 21 fish may have moved downstream of Reach 14 prior to commissioning of the fixed-receiver location.

Reach 18 - Downstream of Elizabeth Falls

No Arctic grayling radio-tagged in Reach 18, were detected upstream of Reaches 17, 16 or 15 during the 2011/2012 telemetry study. During the January and February 2012 aerial surveys, many of the radio-tagged Arctic grayling were detected a substantial distance downstream of their initial point of capture just upstream of Middle Lake. Code 12 fish was repeatedly detected within 1.5 km of the Fond du Lac River outflow to Middle Lake but was considered a potential mortality.

6.3.3.3 Black Lake

6.3.3.3.1 Spawning Surveys for Principal Fish Species

6.3.3.3.1.1 Fall Lake Trout Spawning Survey

A total of 426 lake trout were captured during the fall (September) 2010 spawning survey. A summary of lengths and weights collected from these fish is provided in Table 6.3-47. The fork lengths of adult male lake trout ranged from 423 mm to 727 mm (Figure 6.3-22). The fork lengths of adult female lake trout ranged from 479 mm to 687 mm (Figure 6.3-23).

The reproductive condition of most of the female lake trout captured was classified as “ripe” (n = 83). Two female individuals were classified as “spent” and one that was not in spawning condition was classified as “seasonal development”. Similarly, the reproductive condition of the majority of male lake trout were classified as “ripe” (n = 255). The remaining males were classified as “spent” (n = 12) and one male was not in spawning condition at the time of the survey and was classified as “resting”.

In general, spawning lake trout were captured on rocky shoals or in littoral areas associated with islands in the main basin of Black Lake. Based on traditional knowledge, the southwest section of Black Lake is generally considered to contain limited spawning habitat for lake trout.

Table 6.3-47: Length-Weight Summary for Lake Trout Captured during Spawning Surveys Conducted in Black Lake, Fall 2010

Sex	Total Number Captured	Total Number Processed	Mean Fork Length (mm)	Fork Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Male	276	268	530	423-727	1,794	850-4,250	1.19
Female	91	86	548	479-687	2,044	1,150-4,300	1.23
Unknown	59	11	523	395-578	1,628	790-2,200	1.13

[(a)] K = weight (g)/length (cm) ^{3}(100)
g = gram; mm = millimetre

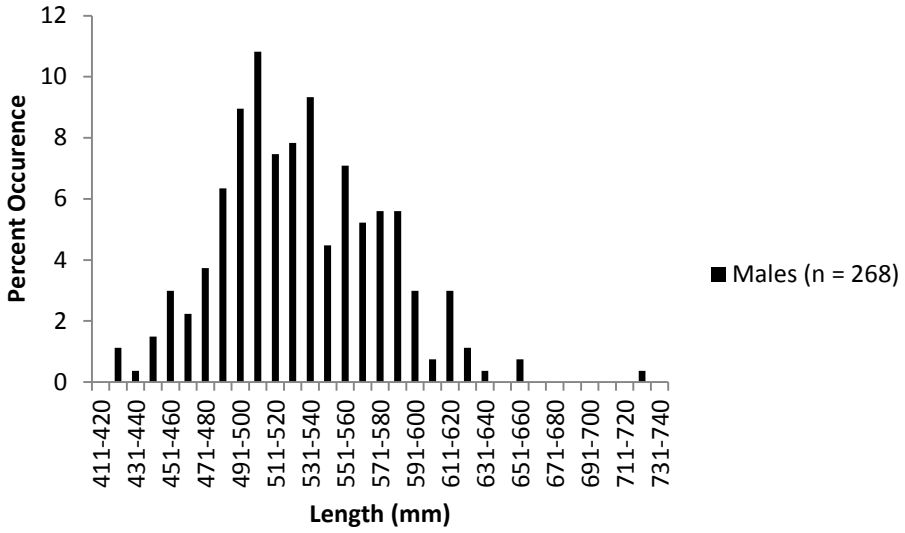


Figure 6.3-22: Length-Frequency Distribution of Male Lake Trout Captured during the Black Lake Spawning Survey, Fall 2010

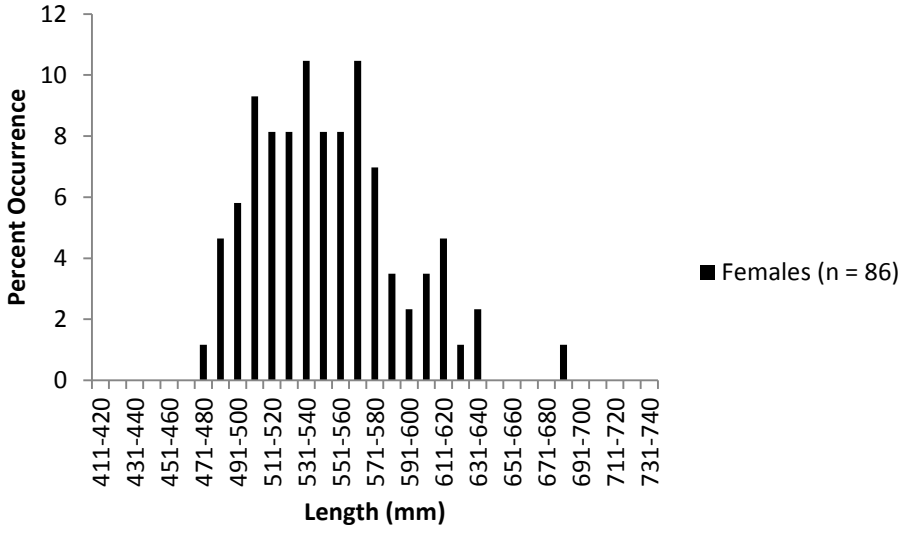


Figure 6.3-23: Length-Frequency Distribution of Female Lake Trout Captured during the Black Lake Spawning Survey, Fall 2010

Age-frequency of lake trout captured in Black Lake is provided in Figure 6.3-24. Mean age was not significantly different among female and male lake trout captured during the fall spawning survey ($p = 0.764$, $n = 47$), therefore age-frequency data were plotted collectively for both sexes. Lake trout age ranged between 5 and 24 years, with the largest number of individuals occurring within the 1998 (age 12) year class. Relatively high occurrence of individuals was also noted in the age 10 and age 18 age class groups. The absence of individuals captured within the age 15, 16, 20 and 21 class groups suggests potential year class failures in those years (1994, 1995, 1989 and 1990). Detailed aging results obtained for lake trout captured during the fall 2010 spawning survey are provided in Appendix III.10, Table III.10-1.

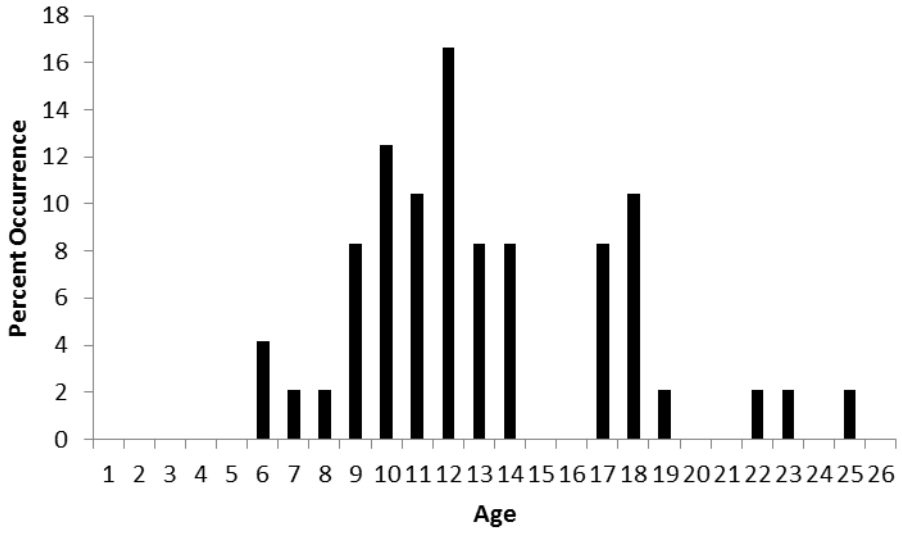


Figure 6.3-24: Percent Occurrence of Lake Trout Age Class Groups Captured from Black Lake during the Fall 2010 Lake Trout Spawning Survey

6.3.3.3.1.2 Fall Lake Whitefish Spawning Survey

A total of 130 lake whitefish were captured during the fall 2010 spawning survey; no cisco were captured. A length and weight summary for captured lake whitefish is provided in Table 6.3-48. The fork lengths of male lake whitefish ranged from 352 to 515 mm. The length-frequency distribution of these fish is provided in Figure 6.3-25. The fork lengths of female lake whitefish ranged from 324 to 554 mm. The length-frequency distribution of these fish is provided in Figure 6.3-26.

Table 6.3-48: Length-Weight Summary for Lake Whitefish Captured from Black Lake during the Fall 2010 Spawning Survey

Sex	Total Number	Number Processed	Mean Fork Length (mm)	Range	Weight (g)	Range	Mean Condition Factor (K)[(a)]
Male	25	25	419	352-515	1,106	640-1,925	1.48
Female	21	21	426	324-554	1,206	445-2,425	1.49
Unknown	84	83	250	187-421	235	35-1,125	1.40

[(a)] K = weight (g)/length (cm) ^{3}(100)
mm = millimetre; g = gram.

The reproductive condition of 15 male lake whitefish was classified as “ripe”. The remaining male lake whitefish were classified as “resting” (n = 8), “pre-spawning” (n = 1), and “seasonal development” (n = 1). Ten female lake whitefish were not in reproductive condition and were classified as “resting”. The remainder were classified as “pre-spawning” (n = 9) and ripe (n = 2).

Generally, lake whitefish were not captured on shoals, but in deeper water. Deep water sets were based on recommendations from the field assistants. However, some of the lake whitefish were in spawning condition. All lake whitefish were captured in gill nets deployed near the entrance to the Black Lake outflow bay.

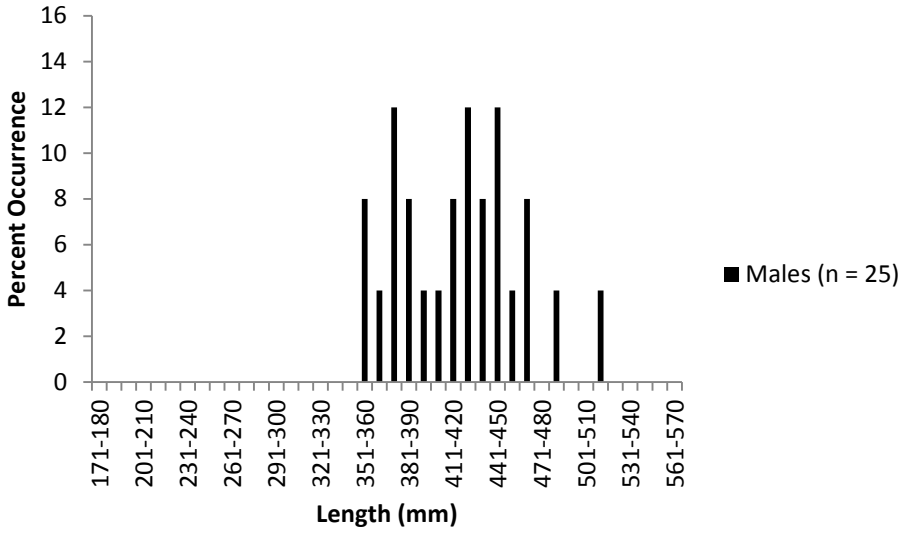


Figure 6.3-25: Length-Frequency Distribution of Male Lake Whitefish Captured during the Black Lake Spawning Survey, Fall 2010

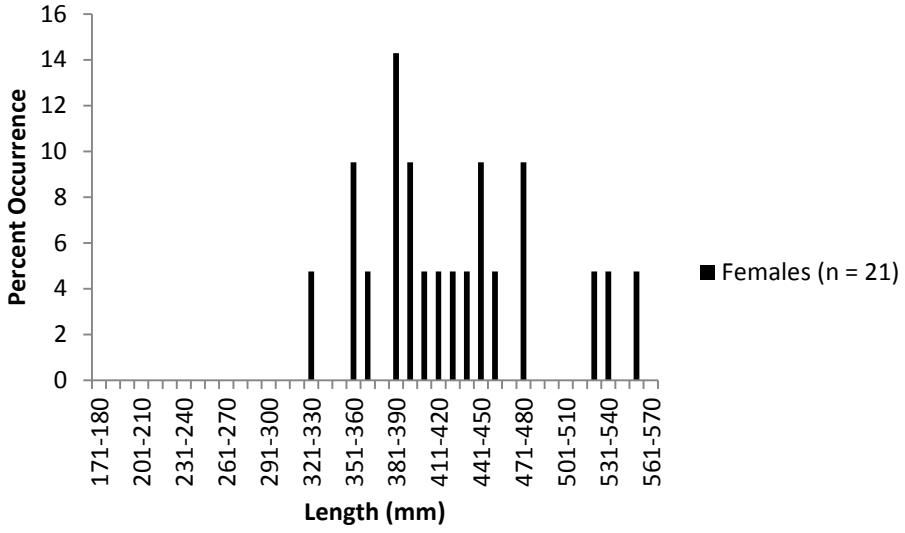


Figure 6.3-26: Length-Frequency Distribution of Female Lake Whitefish Captured during the Black Lake Spawning Survey, Fall 2010

Age-frequency of lake whitefish captured in Black Lake is provided in Figure 6.3-27. Mean age was not significantly different among female and male lake whitefish captured ($p = 0.764$, $n = 47$), therefore age-frequency data were plotted collectively for both sexes. Lake whitefish age ranged between one and 30 years, with the largest number of individuals occurring within the 2005 (age five), 2004 (age four) and 2003 (age three) year classes. Relatively high occurrence of individuals was also noted in the 2008 (age eight) year class. Detailed aging results obtained for lake whitefish captured during the fall spawning survey are provided in Appendix III.10, Table III.10-1.

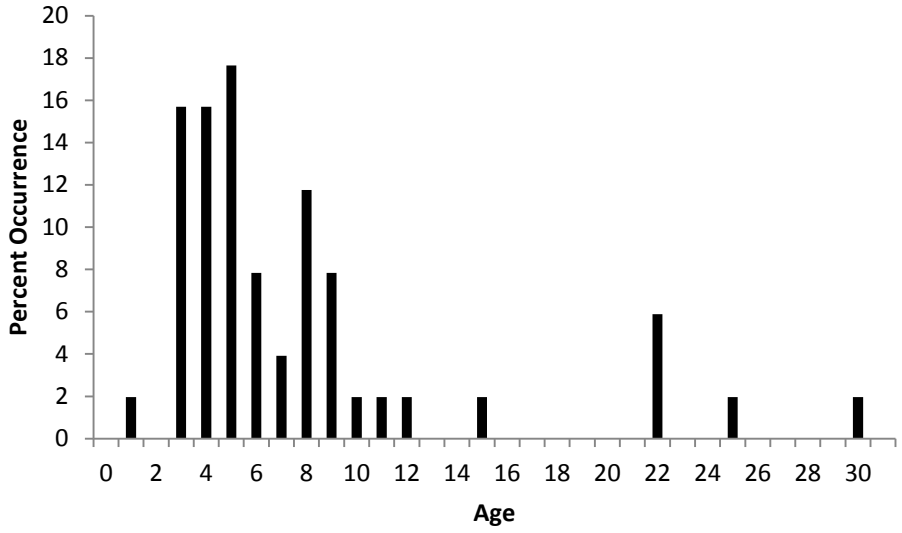


Figure 6.3-27: Percent Occurrence of Lake Whitefish Age Class Groups Captured from Black Lake during the Fall 2010 Lake Whitefish Spawning Survey

6.3.3.3.1.3 Winter Burbot Spawning Survey

A total of 30 burbot were captured during the winter 2011 spawning survey in Black Lake. A summary of average body size and condition factors for male and female burbot are provided in Table 6.3-49. The mean weights of female and male burbot were 1,459 and 1,241 g, respectively (Table 6.3-49). Female burbot had a mean total length of 556 mm and a condition factor of 0.79. On average, male burbot captured were 523 mm long and had a condition factor of 0.84. Due to the low abundance of burbot captured during the spawning survey, a combined length-frequency distribution for female, male and unknown sex burbot is provided in Figure 6.3-28.

The reproductive condition of eight female burbot was classified as “pre-spawning”; four were not in reproductive condition and were classified as “resting”. The reproductive condition of five male burbot was classified as “pre-spawning”, four were classified as “ripe”, and the remainder were not in reproductive condition and were classified as “resting”.

The low numbers of fish captured during the study and their variable conditions of sexual maturity make it difficult to determine spawning locations of burbot in Black Lake, which was one of the objectives of this study. Low catch numbers may be due to the lower metabolism, reduced movements, and feeding rates that burbot (and other temperate fish species) typically display in winter.

Table 6.3-49: Length-Weight Summary for Burbot Captured in Black Lake during Winter 2011

Sex	Total Number	Number Processed	Mean Total Length (mm)	Total Length Range (mm)	Mean Weight (g)	Weight Range (g)	Mean Condition Factor (K)[(a)]
Male	11	11	523	422-590	1,241	600-1,800	0.84
Female	12	12	556	410-733	1,459	500-2,750	0.79
Unknown	7	7	481	260-710	1,017	410-1,790	0.71

[(a)] K = weight (g)/length (cm) ^{3}(100)
mm = millimetre; g = gram

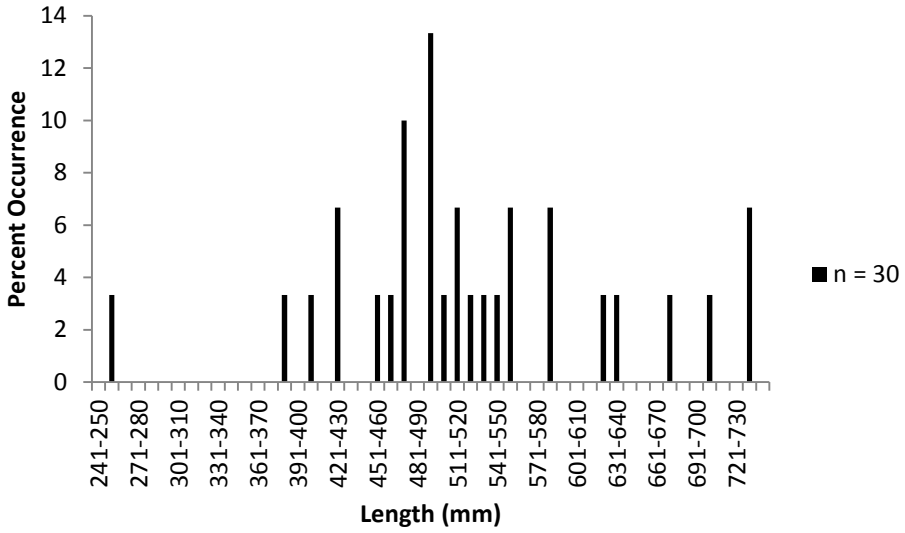


Figure 6.3-28: Length-Frequency Distribution of Burbot Captured in Black Lake, Winter 2011

7.0 REFERENCES

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8.0 GLOSSARY

Term	Definition
Bathymetry	Measurement of the depth of a waterbody
Channel	The main component of a given watercourse, it typically has flowing water, on at least a seasonal basis, and is usually defined by the area of the stream substrate.
Creek	Branch or small tributary of a river.
Discharge	The volume rate of water flow passing through a given cross-sectional area of a stream channel. The units typically used to express discharge are cubic meters per second (m^3/s).
Ephemeral	A phenomenon or feature that lasts only a short time (e.g., an ephemeral stream is only present for short periods during a year).
Evaporation	The process by which water is changed from a liquid to a vapour.
Flow Pathway	Flow preferred path in a drainage area.
Hydrology	The branch of science referring to the properties of surface water, including the spatial and temporal distribution.
Hydrometric Data	Data related with the components of the hydrological cycle, for example, precipitation, snow, rainfall, groundwater characteristics, or flow characteristics of surface water.
Hydrometric Station	A station where measurement of hydrological parameters is performed.
LiDAR	Light Detection and Ranging.
Mean	Centroid value of data population when viewing its probability distribution function (or historgram) as a mass distribution.
Morphology	Describes the physical form and structure of a waterbody or watercourse.
NTS	National Topographic System
Runoff	The portion of water from rain and snow that flows over land to streams, ponds or other surface waterbodies. It is the portion of water from precipitation that does not infiltrate into the ground, or evaporate.
Stage-discharge relationship	Typically refers to a curve or lookup table showing the relation between the discharge of a stream and the water level in the stream.
Topography	Description or representation of physical geographic features such as land surfaces and shapes.
Transect	A line of travel (usually straight) across or within a lake that is either boated or waded allowing for a particular set of parameters to be measured at various points along the distance travelled.
Waterbody	A general term that refers to ponds, bays, lakes, estuaries and marine areas.
Watercourse	A general term that refers to riverine systems such as creeks, brooks, streams and rivers.
Watershed Area	A region of land that eventually contributes water to a river or lake.
Watershed	The area of land bounded by topographic features that drains water to a larger waterbody such as a river, wetlands or lake. Watersheds can range in size from a few hectares to thousands of kilometres.

Report Signature Page

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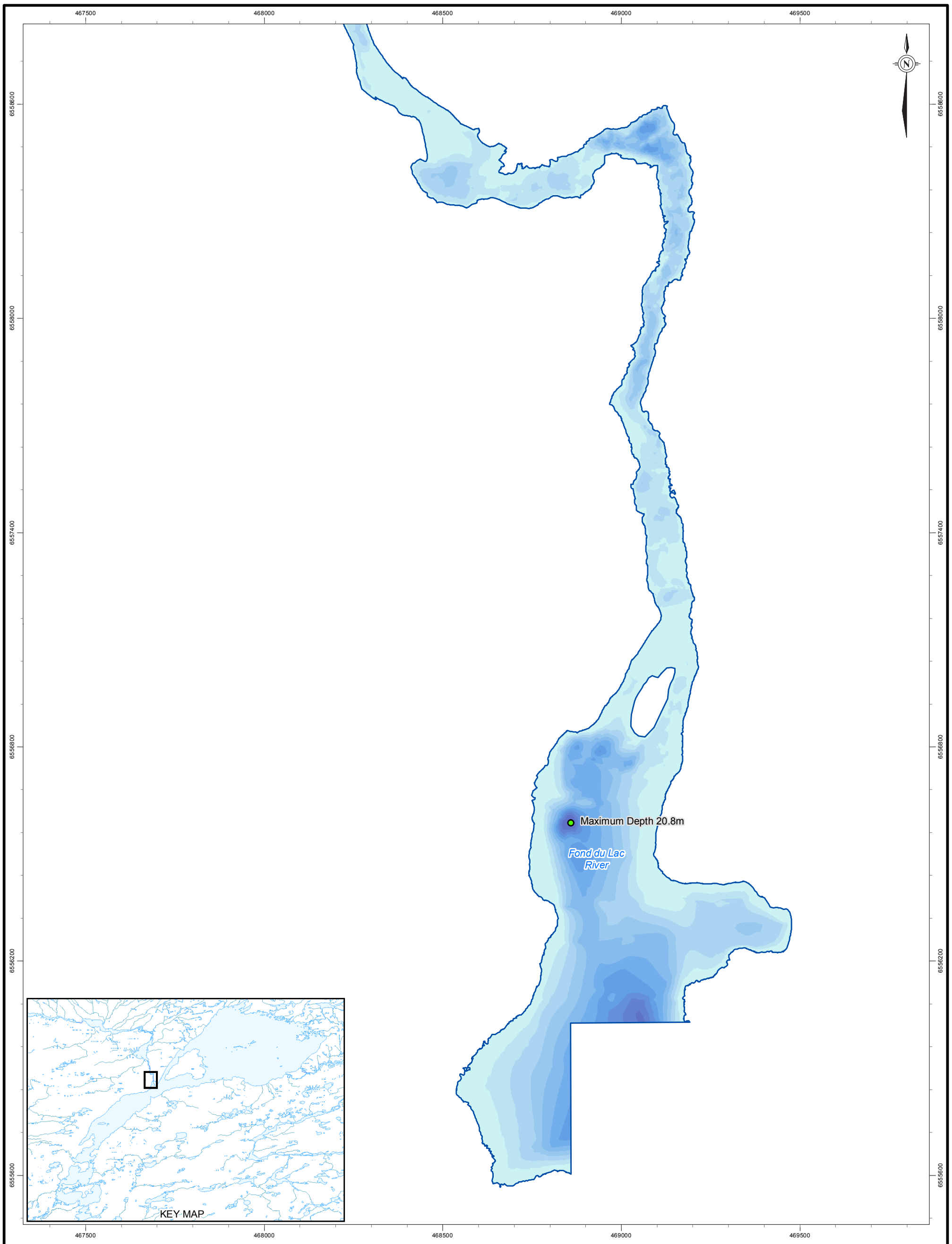
APPENDIX III.1

Bathymetric Maps



LEGEND

WATER DEPTH (M)	
0 - 2	13 - 14
3 - 4	15 - 16
5 - 6	17 - 18
7 - 8	19 - 20
9 - 10	21 - 22
11 - 12	23 - 24
	NO CHANNEL DEPTH DATA COLLECTED

NOTE

WATER SURFACE AND STATISTICS CORRESPOND TO
A WATER LEVEL AT TIME OF LIDAR SURVEY
AND A FLOW RATE OF 261 M^3/S
BATHYMETRIC CONTOUR LINES ADJUSTED TO LIDAR ELEVATION DATUM

REFERENCE

ESRI WORLD IMAGERY (USDA, USGS, AEX, GEOEYE, GETMAPPING, AERGRID, IGN, IGP)
GEOEYE IMAGERY , JULY 2010
DATUM: NAD83 PROJECTION: UTM ZONE 13
NTS MAPSHEETS: 73P

250 0 250
SCALE 1:10,000 METRES

PROJECT
TAZI TWÉ HYDROELECTRIC PROJECT

TITLE
FOND DU LAC RIVER BATHYMETRY SOUTH SEGMENT

Golder Associates
Saskatoon, Saskatchewan

PROJECT	10-1365-0004		FILE No.	
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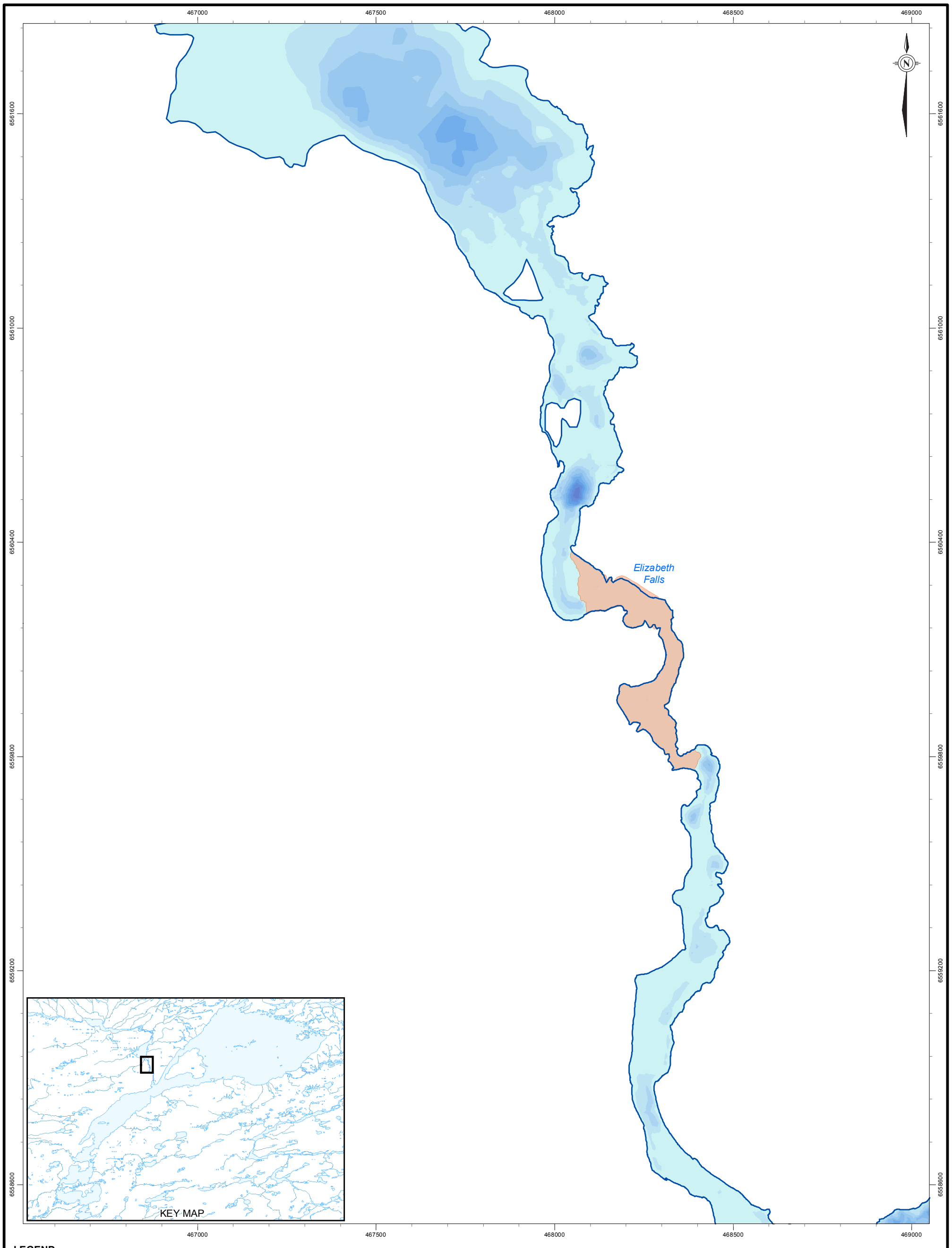
REVIEW	BT	24/07/13		



LEGEND

WATER DEPTH (M)	
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3 - 4	15 - 16
5 - 6	17 - 18
7 - 8	19 - 20
9 - 10	21 - 22
11 - 12	23 - 24
	NO CHANNEL DEPTH DATA COLLECTED

NOTE

WATER SURFACE AND STATISTICS CORRESPOND TO
A WATER LEVEL AT TIME OF LIDAR SURVEY
AND A FLOW RATE OF 261 M^3/S
BATHYMETRIC CONTOUR LINES ADJUSTED TO LIDAR ELEVATION DATUM

REFERENCE

ESRI WORLD IMAGERY (USDA, USGS, AEX, GEOEYE, GETMAPPING, AERGRID, IGN, IGP)
GEOEYE IMAGERY , JULY 2010
DATUM: NAD83 PROJECTION: UTM ZONE 13
NTS MAPSHEETS: 73P

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SCALE 1:10,000 METRES

PROJECT

TAZI TWÉ HYDROELECTRIC PROJECT

TITLE

FOND DU LAC RIVER BATHYMETRY NORTH SEGMENT

Golder Associates
Saskatoon, Saskatchewan

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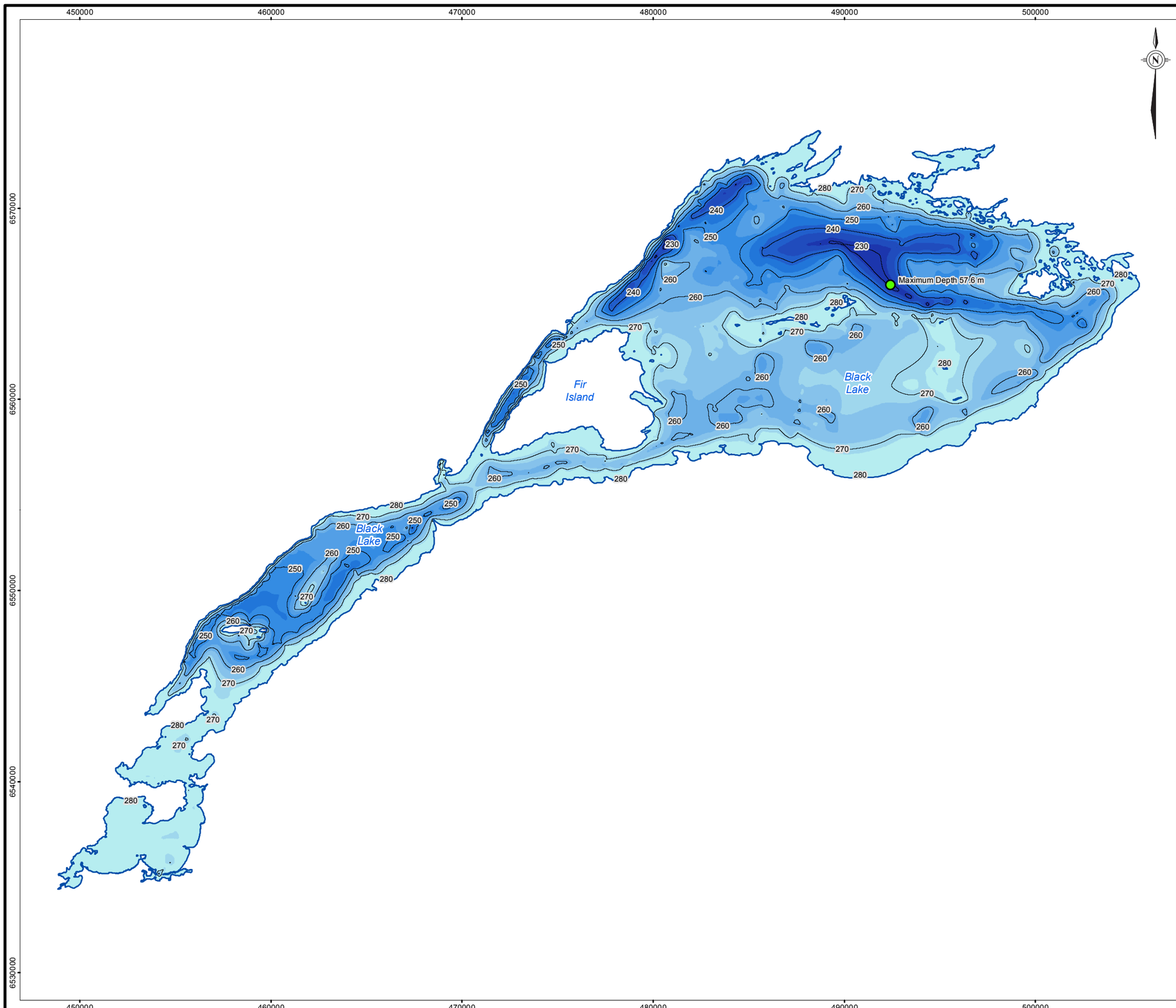

LEGEND

WATER DEPTH (m)

- 0 - 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 25
- 25 - 30
- 30 - 35
- 35 - 40
- 40 - 45
- 45 - 50
- 50 - 55
- 55 - 60

BATHYMETRIC / TOPOGRAPHIC SURFACE (MASL)

STATISTICS AT TIME OF SURVEY

MAXIMUM LENGTH: 62.7 km
MEAN DEPTH: 15.16 m
MAXIMUM DEPTH: 57.6 m
PERIMETER, MAIN SHORE: 276,669 m
PERIMETER, ISLANDS: 106,522 m
VOLUME: 13.2X10^9 m^3

NOTE

WATER SURFACE AND STATISTICS CORRESPOND TO
WATER LEVEL 277.158 M AND AN OUTFLOW RATE OF 357 M^3/S
BATHYMETRIC CONTOUR LINES ADJUSTED TO LIDAR ELEVATION DATUM

REFERENCE

TOPOGRAPHY SOURCE: NASA DEM, 2010 LIDAR SURVEY
ESRI WORLD IMGERY (USDA, USGS, AEX, GEOEYE, GETMAPPING, AERGRID, IGN, IGP)
GEOEYE IMAGERY , JULY 2010
DATUM: NAD83 PROJECTION: UTM ZONE 13
NTS MAPSHEETS: 73P

5 0 5
SCALE 1:200,000 KILOMETRES

PROJECT

TAZI TWÉ HYDROELECRIC PROJECT

TITLE

BLACK LAKE BATHYMETRY

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
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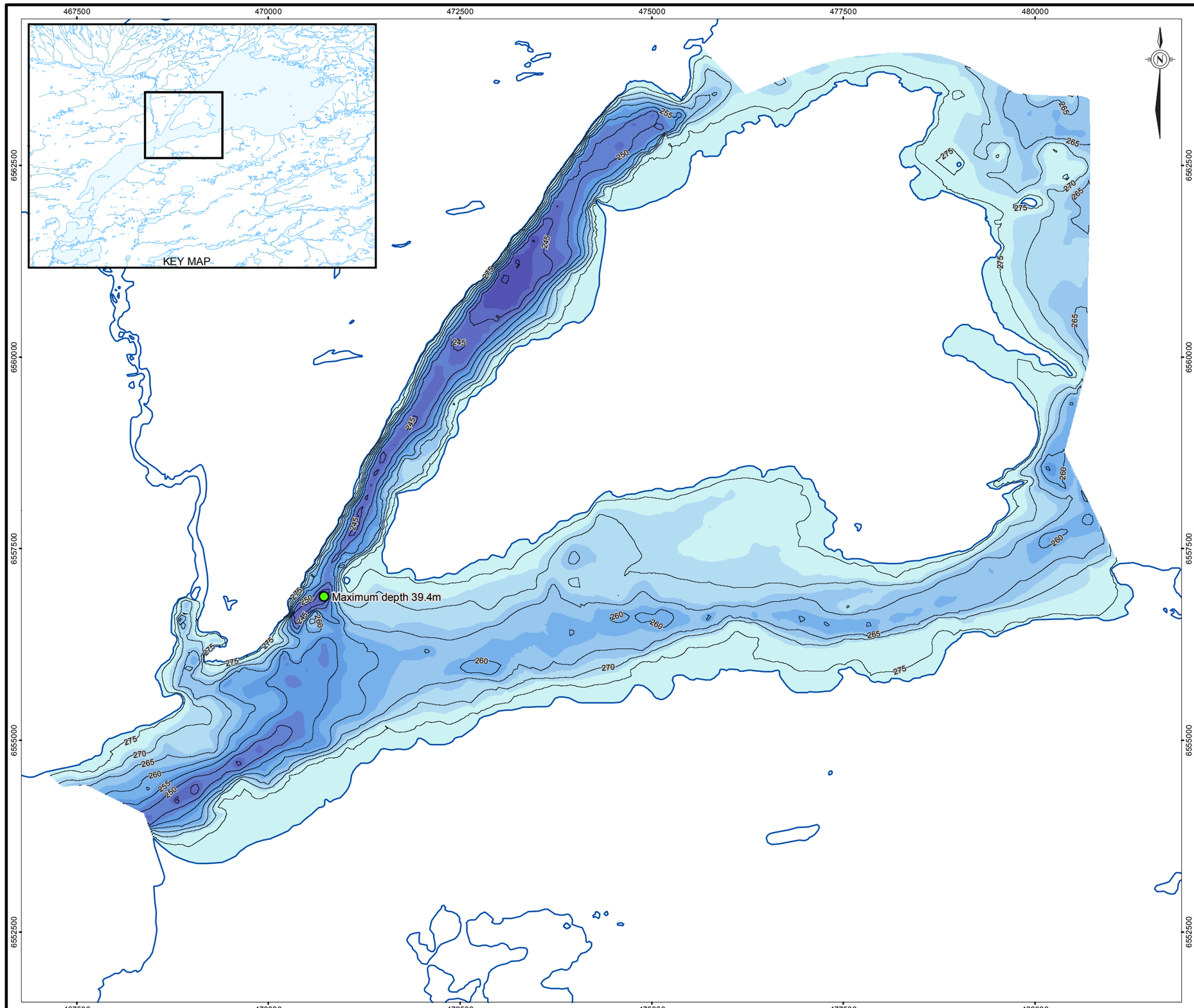

LEGEND

WATER DEPTH (m)

- 0 - 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 25
- 25 - 30
- 30 - 35
- 35 - 40

BATHYMETRIC / TOPOGRAPHIC SURFACE (MASL)

NOTE

WATER SURFACE AND STATISTICS CORRESPOND TO
WATER LEVEL 277.158 M AND AN OUTFLOW RATE OF 357 M^3/S
BATHYMETRIC CONTOUR LINES ADJUSTED TO LIDAR ELEVATION DATUM

REFERENCE

ESRI WORLD IMAGERY (USDA, USGS, AEX, GEOEYE, GETMAPPING, AERGRID, IGN, IGP)
GEOEYE IMAGERY , JULY 2010
DATUM: NAD83 PROJECTION: UTM ZONE 13
NTS MAPSHEETS: 73P

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SCALE 1:50,000 KILOMETRES

TAZI TWÉ HYDROELECTRIC PROJECT

BLACK LAKE - FIR ISLAND BATHYMETRY

Golder Associates
Saskatoon, Saskatchewan

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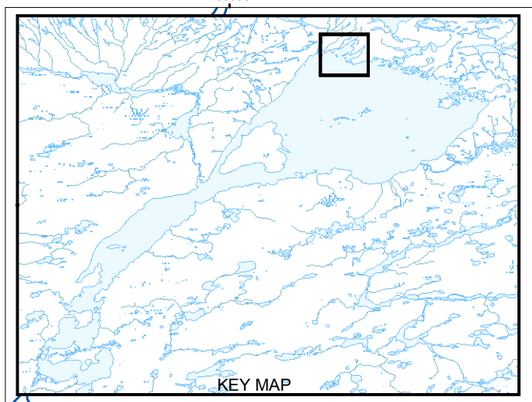

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6572500
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LEGEND

WATER DEPTH (M)

- 0 - 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 25
- 25 - 30
- 30 - 35
- 35 - 40
- 40 - 45
- 45 - 50

BATHYMETRIC / TOPOGRAPHIC SURFACE (MASL)

NOTE

WATER SURFACE AND STATISTICS CORRESPOND TO
WATER LEVEL 277.158 M AND AN OUTFLOW RATE OF 357 M^3/S
BATHYMETRIC CONTOUR LINES ADJUSTED TO LIDAR ELEVATION DATUM

REFERENCE

ESRI WORLD IMAGERY (USDA, USGS, AEX, GEOEYE, GETMAPPING, AERGRID, IGN, IGP)
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500 0 500
SCALE 1:20,000 METRES

PROJECT

TAZI TWÉ HYDROELECTRIC PROJECT

TITLE

BLACK LAKE - CHIPMAN BAY BATHYMETRY

Golder Associates
Saskatoon, Saskatchewan

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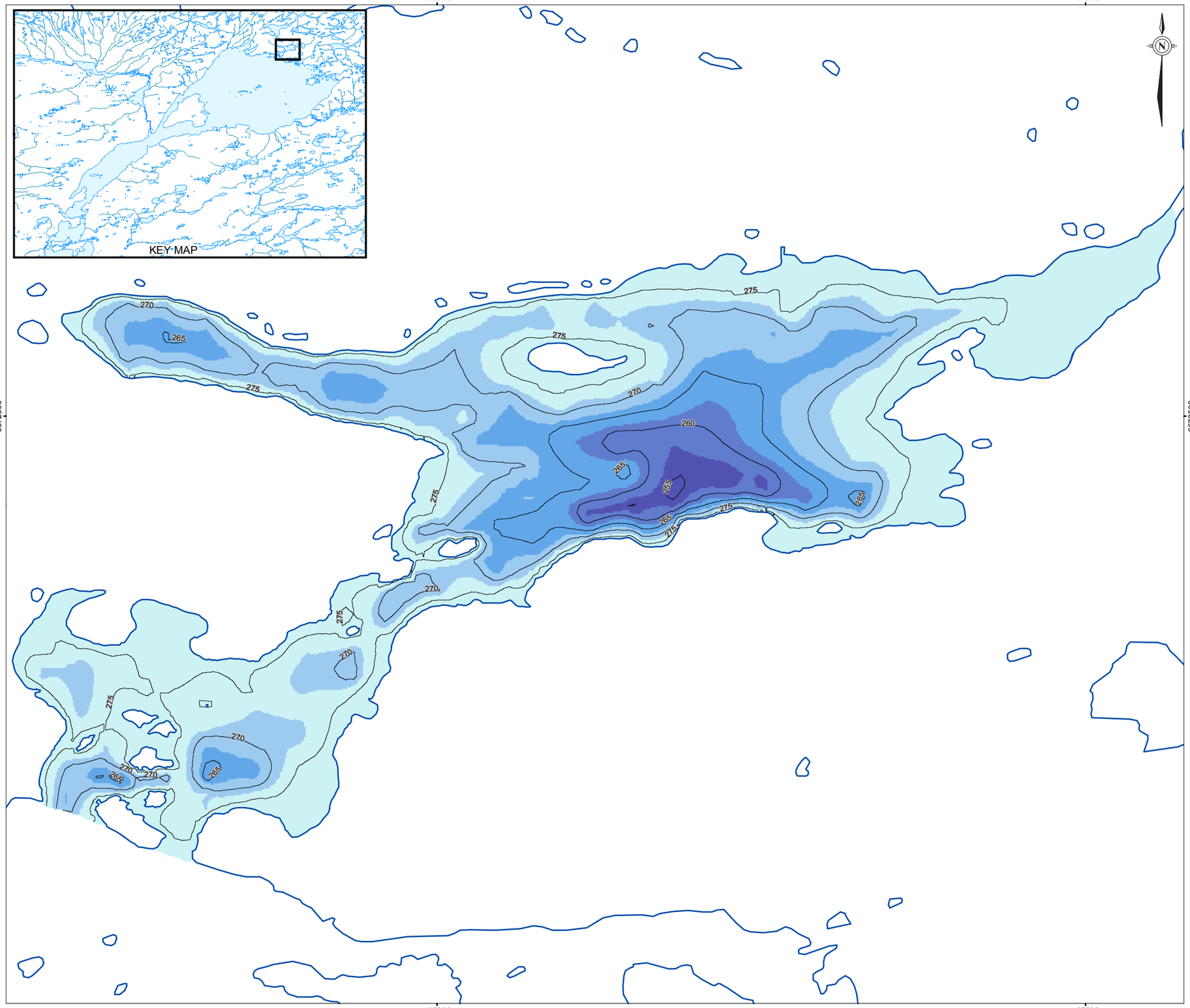
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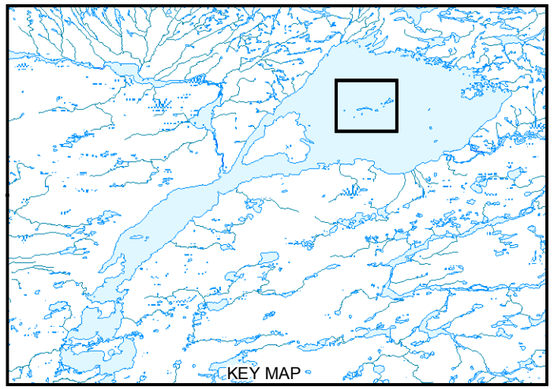
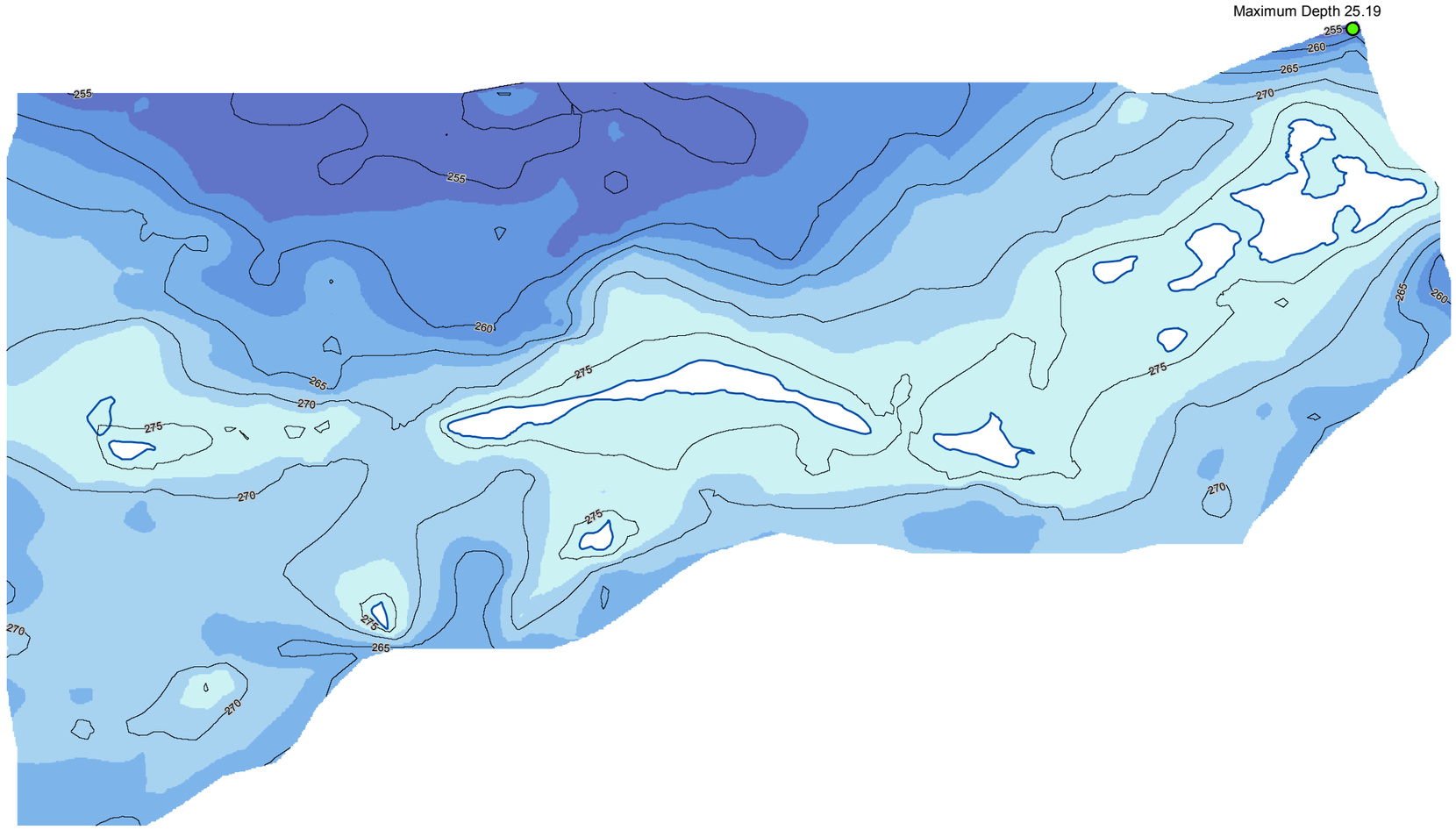




LEGEND

WATER DEPTH (M)

- 0 - 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 25
- 25 - 30

BATHYMETRIC / TOPOGRAPHIC SURFACE (MASL)

NOTE

WATER SURFACE AND STATISTICS CORRESPOND TO
WATER LEVEL 277.158 M AND AN OUTFLOW RATE OF 357 M^3/S
BATHYMETRY CONTOUR LINES ADJUSTED TO LIDAR ELEVATION DATUM

REFERENCE

ESRI WORLD IMAGERY (USDA, USGS, AEX, GEOEYE, GETMAPPING, AERGRID, IGN, IGP)
GEOEYE IMAGERY , JULY 2010
DATUM: NAD83 PROJECTION: UTM ZONE 13
NTS MAPSHEETS: 73P

500 0 500
SCALE 1:25,000 METRES

PROJECT

TAZI TWÉ HYDROELECTRIC PROJECT

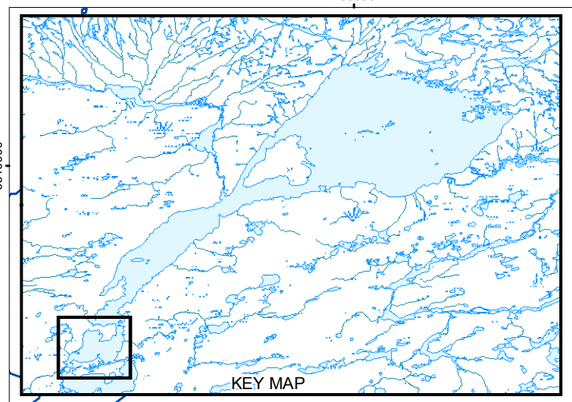
TITLE

BLACK LAKE - ISLANDS IN MAIN BASIN BATHYMETRY

Golder Associates
Saskatoon, Saskatchewan

PROJECT	10-1365-0004		FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
GIS	SM	02/07/13		
CHECK	AD	24/07/13		
REVIEW	BT	24/07/13		

FIGURE: III.1-7



450000
452500
455000
6540000
6537500
6535000

270
275
Maximum Depth 17.5 m

LEGEND

WATER DEPTH (m)
- 0 - 5
- 5 - 10
- 10 - 15
- 15 - 20

BATHYMETRIC / TOPOGRAPHIC SURFACE (MASL)

NOTE

WATER SURFACE AND STATISTICS CORRESPOND TO
WATER LEVEL 277.158 M AND AN OUTFLOW RATE OF 357 M^3/S
BATHYMETRY CONTOUR LINES ADJUSTED TO LIDAR ELEVATION DATUM

REFERENCE

ESRI WORLD IMAGERY (USDA, USGS, AEX, GEOEYE, GETMAPPING, AERGRID, IGN, IGP)
GEOEYE IMAGERY , JULY 2010
DATUM: NAD83 PROJECTION: UTM ZONE 13
NTS MAPSHEETS: 73P

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SCALE 1:30,000 METRES

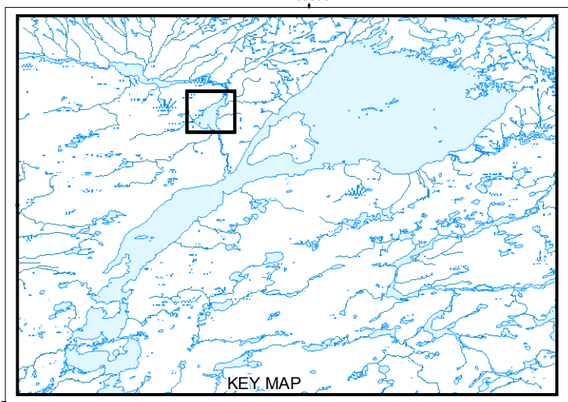
PROJECT
TAZI TWÉ HYDROELECTRIC PROJECT

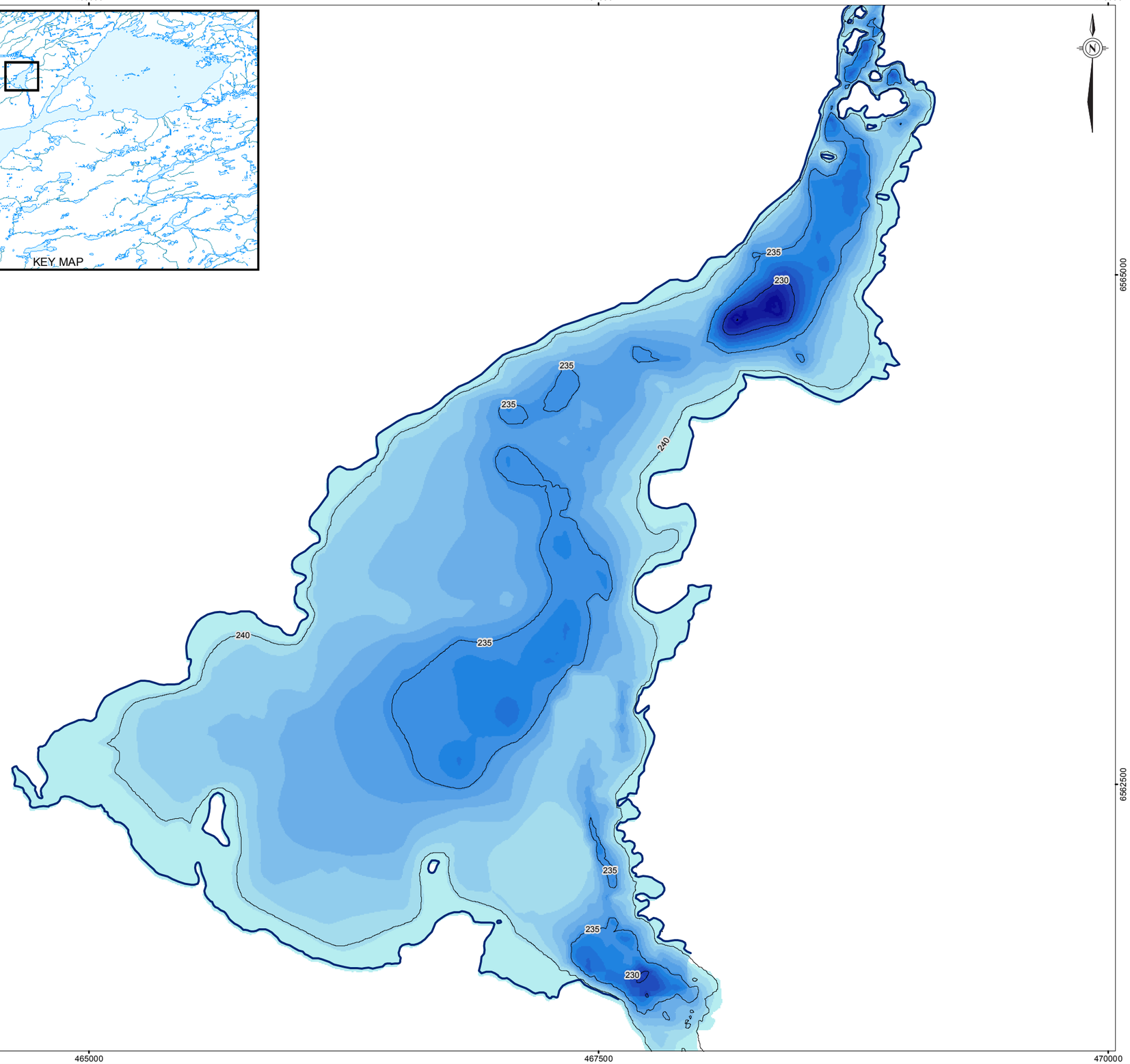
TITLE
BLACK LAKE - CREE BAY BATHYMETRY

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
GIS	SM	02/07/13		
CHECK	AD	24/07/13		
REVIEW	BT	24/07/13		

FIGURE: III.1-8





LEGEND

WATER DEPTH (m)

- 0 - 1
- 1 - 2
- 2 - 3
- 3 - 4
- 4 - 5
- 5 - 6
- 6 - 7
- 7 - 8
- 8 - 9
- 9 - 10
- 10 - 11
- 11 - 12
- 12 - 13
- 13 - 14
- 14 - 15

BATHYMETRIC / TOPOGRAPHIC SURFACE (MASL

STATISTICS AT TIME OF SURVEY

MAXIMUM LENGTH: 4.3 km
MEAN DEPTH: 2.65 m
MAXIMUM DEPTH: 14.42 m
PERIMETER, MAIN SHORE: 19,746 m
PERIMETER, ISLANDS: 832 m

NOTE

WATER SURFACE AND STATISTICS CORRESPOND TO
WATER LEVEL 240.447 M AND INFLOW RATE OF 218 M^2S
BATHYMETRY COMNTOUR LINES ADJUSTED TO LIDAR ELEVATION DATUM

REFERENCE

ESRI WORLD IMAGERY (USDA, USGS, AEX, GEOEYE, GETMAPPING, AERGRID, IGN, IGP)
GEOEYE IMAGERY , JULY 2010
DATUM: NAD83 PROJECTION: UTM ZONE 13
NTS MAPSHEETS: 73P

500 0 500
SCALE 1:20,000 METRES

PROJECT

TAZI TWÉ HYDROELECTRIC PROJECT

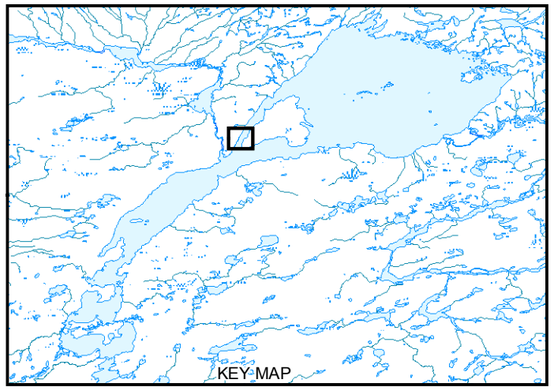
TITLE

MIDDLE LAKE BATHYMETRY

Golder Associates
Saskatoon, Saskatchewan

PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
GIS	SM	02/07/13		
CHECK	AD	24/07/13		
REVIEW	BT	24/07/13		

FIGURE: III.1-9



470000

472500

6557500

275
250
265
270
270
255
245
260
265
275
255
275
280
Maximum Depth 36.3m

Fir Island

LEGEND

WATER DEPTH (M)

- 0 - 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 25
- 25 - 30
- 30 - 35
- 35 - 40

BATHYMETRIC / TOPOGRAPHIC SURFACE (MASL)

NOTE

WATER SURFACE AND STATISTICS CORRESPOND TO
WATER LEVEL 277.158 M AND AN OUTFLOW RATE OF 357 M^3/S
BATHYMETRY CONTOUR LINES ADJUSTED TO LIDAR ELEVATION DATUM

REFERENCE

ESRI WORLD IMAGERY (USDA, USGS, AEX, GEOEYE, GETMAPPING, AERGRID, IGN, IGP)
GEOEYE IMAGERY , JULY 2010
DATUM: NAD83 PROJECTION: UTM ZONE 13
NTS MAPSHEETS: 73P

250 0 250
SCALE 1:10,000 METRES

PROJECT

TAZI TWÉ HYDROELECTRIC PROJECT

TITLE

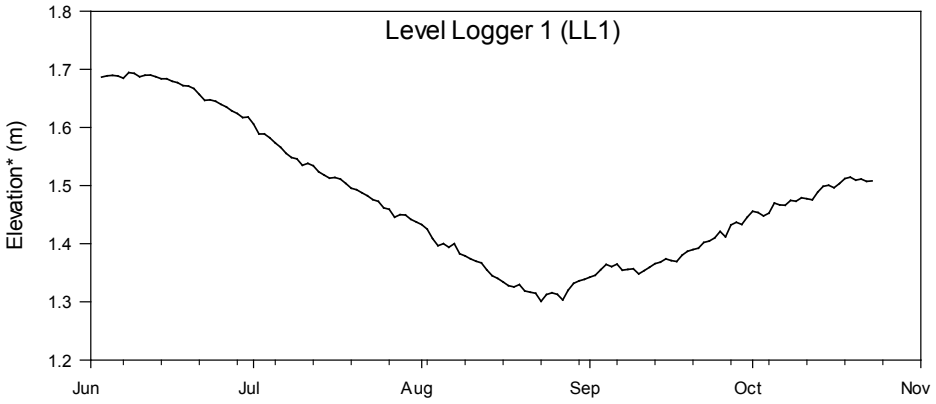
BLACK LAKE - WATER INTAKE AREA BATHYMETRY

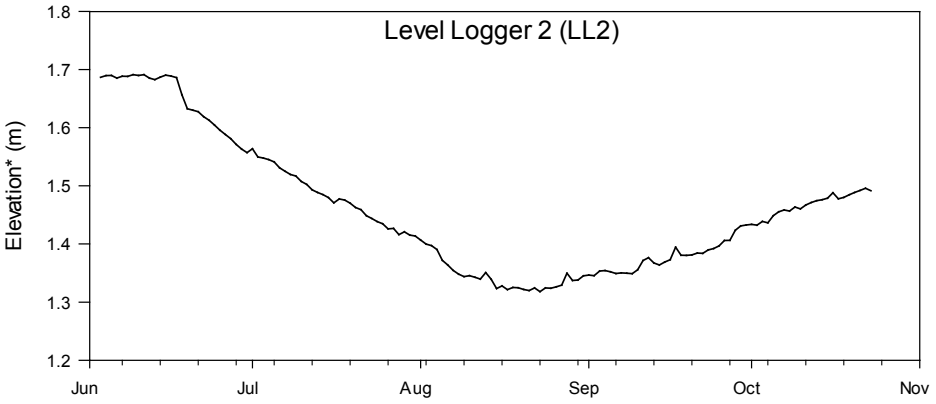
Golder Associates
Saskatoon, Saskatchewan

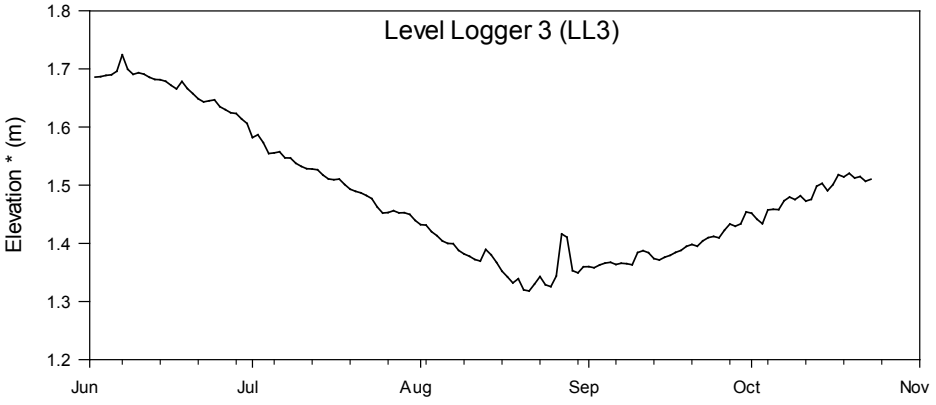
PROJECT		10-1365-0004	FILE No.	
DESIGN			SCALE AS SHOWN	REV. 0
GIS	SM	02/07/13		
CHECK	AD	24/07/13	**FIGURE: III.1-10**	
REVIEW	BT	24/07/13		

APPENDIX III.2

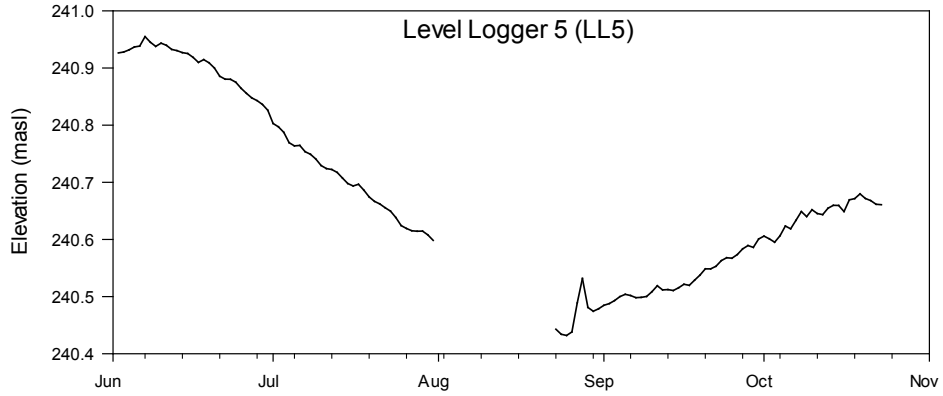
2010 Water Levels

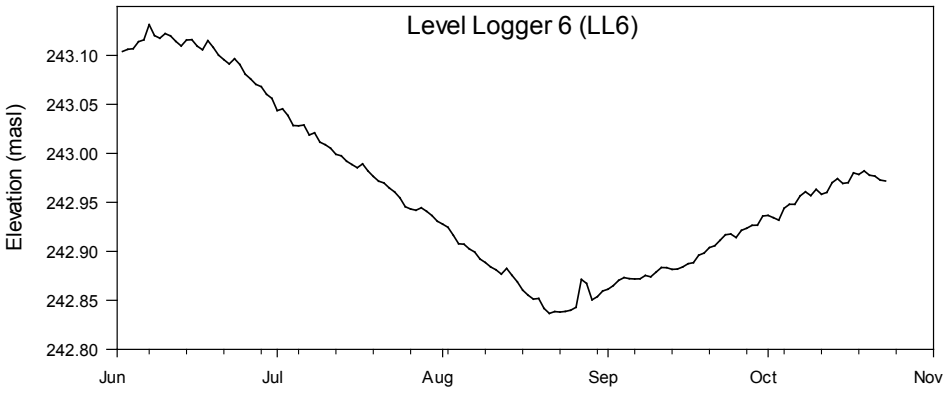


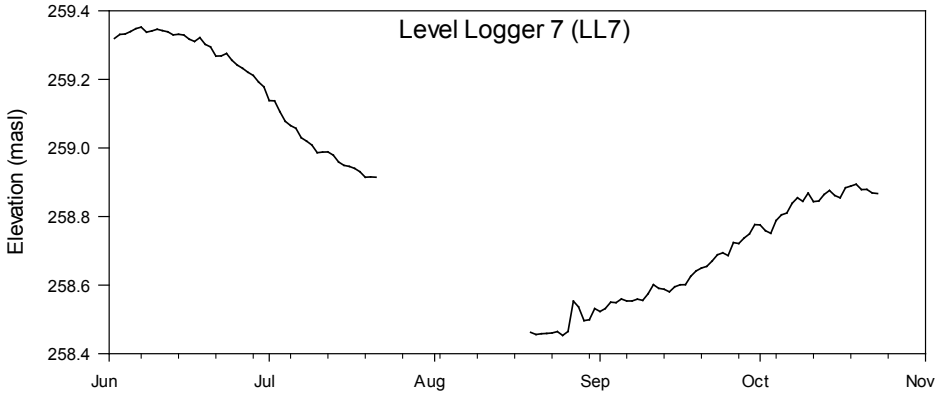


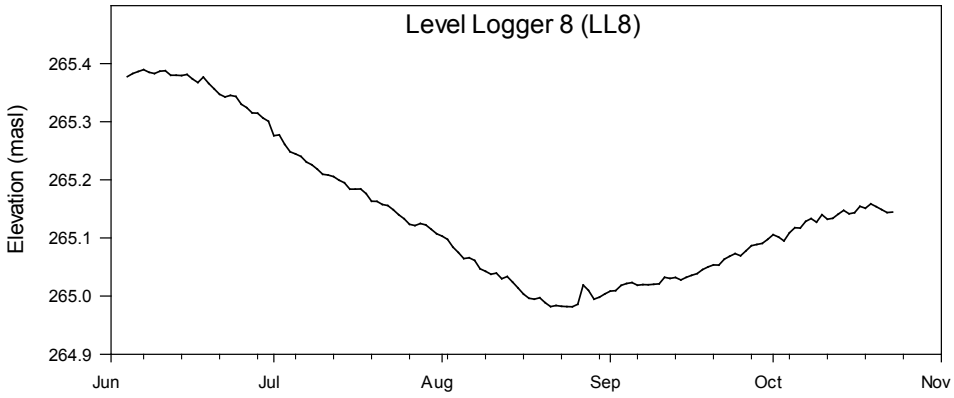


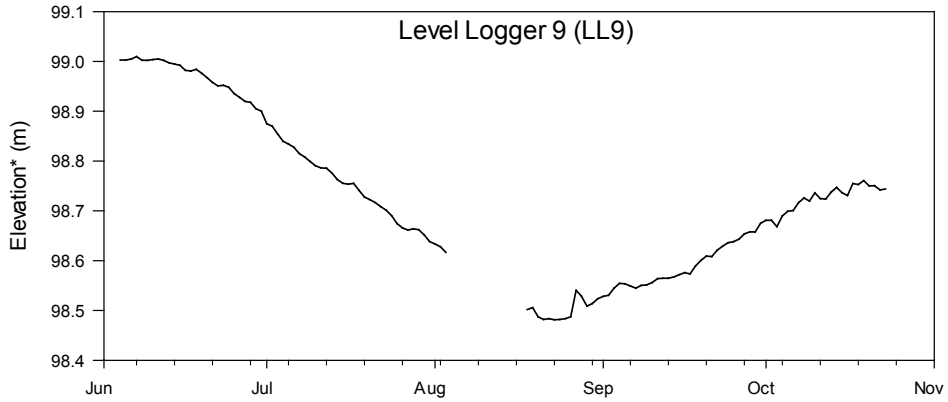
*Relative to an arbitrary datum

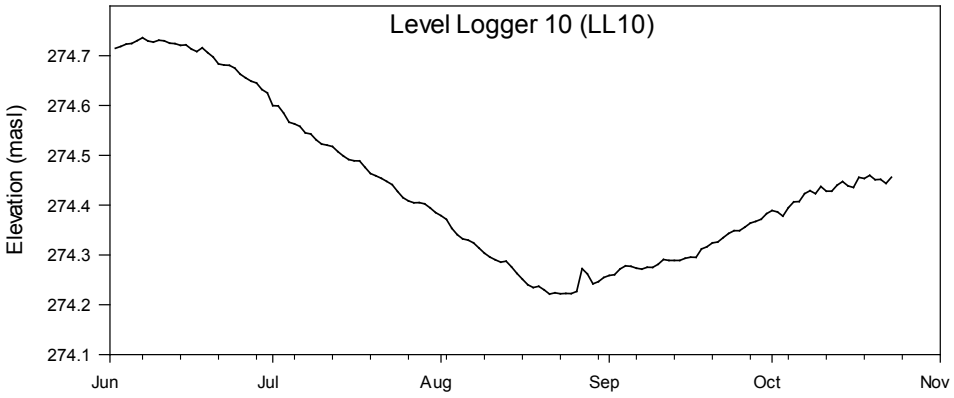

Level Logger 5 (LL5)
Elevation (masl)
241.0
240.9
240.8
240.7
240.6
240.5
240.4
Jun
Jul
Aug
Sep
Oct
Nov


Level Logger 6 (LL6)
Elevation (masl)
243.10
243.05
243.00
242.95
242.90
242.85
242.80
Jun
Jul
Aug
Sep
Oct
Nov


Level Logger 7 (LL7)
Elevation (masl)
259.4
259.2
259.0
258.8
258.6
258.4
Jun
Jul
Aug
Sep
Oct
Nov







*Relative to an arbitrary datum

APPENDIX III.3

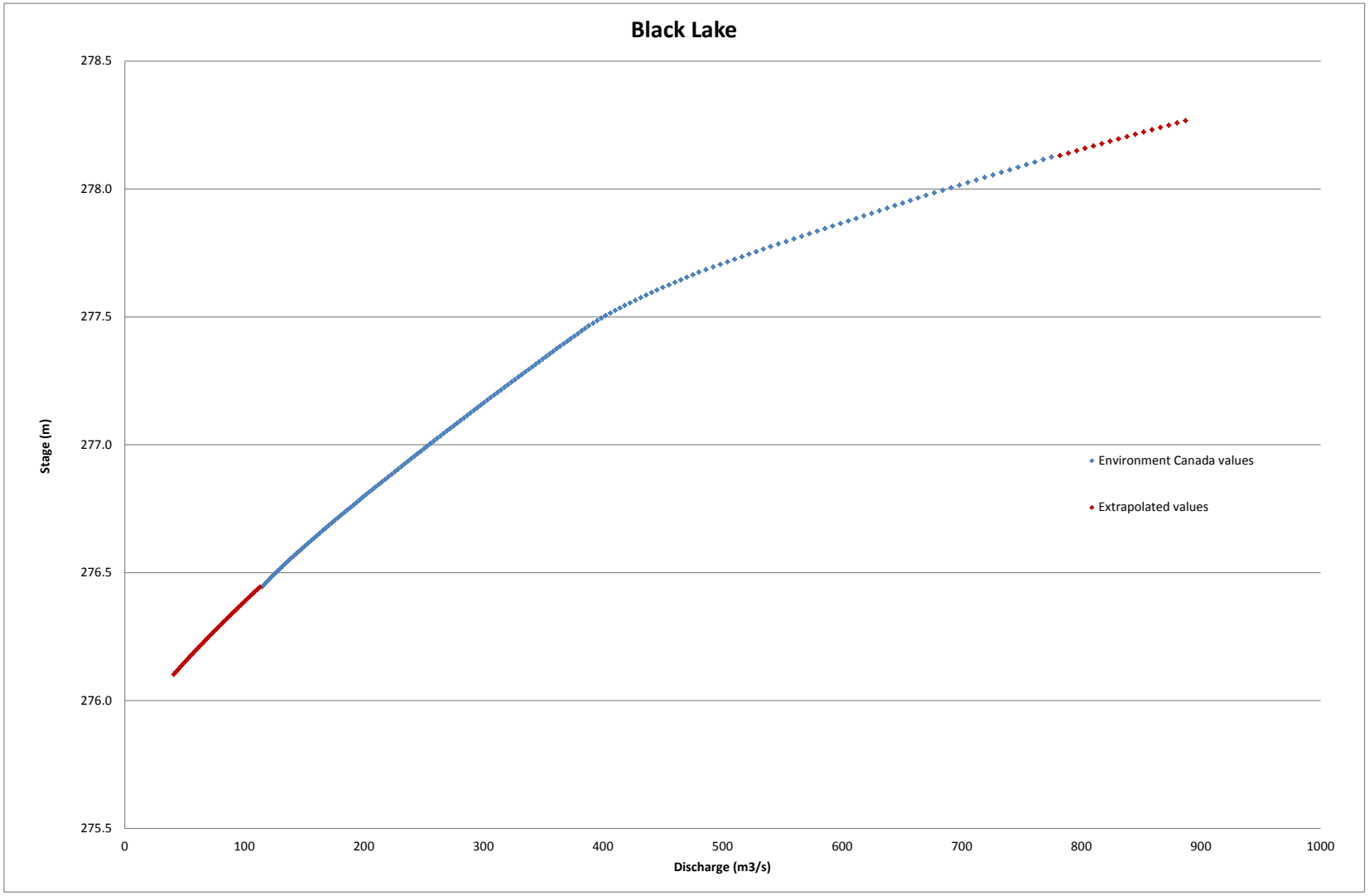
Black Lake Discharge Information

Table 1: Black Lake Stage-Discharge Table

Discharge (m^3/s)	Stage (m)
115.0	276.45
117.0	276.46
119.0	276.47
121.0	276.48
123.0	276.49
125.2	276.50
127.4	276.51
129.6	276.52
131.8	276.53
134.0	276.54
136.4	276.55
138.8	276.56
141.2	276.57
143.6	276.58
146.0	276.59
148.4	276.60
150.8	276.61
153.2	276.62
155.7	276.63
158.2	276.64
160.7	276.65
163.2	276.66
165.7	276.67
168.2	276.68
170.7	276.69
173.2	276.70
175.7	276.71
178.3	276.72
180.9	276.73
183.5	276.74
186.1	276.75
188.7	276.76
191.3	276.77
193.9	276.78
196.5	276.79
199.1	276.80
201.7	276.81
204.3	276.82
207.0	276.83
209.7	276.84
212.4	276.85
215.1	276.86
217.8	276.87
220.5	276.88
223.2	276.89
225.9	276.90
228.6	276.91
231.3	276.92
234.0	276.93
236.7	276.94
239.4	276.95
242.1	276.96
244.8	276.97
247.5	276.98
250.2	276.99
252.9	277.00
255.6	277.01
258.4	277.02
261.2	277.03
264.0	277.04
266.8	277.05
269.6	277.06
272.4	277.07
275.2	277.08
278.0	277.09
280.8	277.10
283.6	277.11
286.4	277.12
289.2	277.13
292.0	277.14
294.8	277.15
297.6	277.16
300.4	277.17
303.2	277.18
306.0	277.19
308.9	277.20
311.8	277.21
314.7	277.22
317.6	277.23
320.5	277.24
323.4	277.25
326.3	277.26
329.2	277.27
332.1	277.28
335.0	277.29
337.9	277.30
340.8	277.31
343.7	277.32
346.6	277.33
349.5	277.34
352.4	277.35
355.3	277.36
358.2	277.37
361.1	277.38
364.0	277.39
367.0	277.40
370.0	277.41
373.0	277.42
376.0	277.43
379.0	277.44
382.0	277.45
385.0	277.46
388.0	277.47
391.5	277.48
395.0	277.49
398.5	277.50
402.0	277.51
406.0	277.52
410.0	277.53
414.0	277.54
418.0	277.55
422.5	277.56
427.0	277.57
431.5	277.58
436.0	277.59
440.5	277.60
445.0	277.61
450.0	277.62
455.0	277.63
460.0	277.64
465.0	277.65
470.0	277.66
475.0	277.67
480.0	277.68
486.0	277.69
492.0	277.70
498.0	277.71
504.0	277.72
510.0	277.73
516.0	277.74
522.0	277.75
528.0	277.76
534.0	277.77
540.0	277.78
546.5	277.79
553.0	277.80
559.5	277.81
566.0	277.82
572.5	277.83
579.0	277.84
585.5	277.85
592.0	277.86
598.5	277.87
605.0	277.88
611.5	277.89
618.0	277.90
624.5	277.91
631.0	277.92
637.5	277.93
644.0	277.94
650.5	277.95
657.0	277.96
663.5	277.97
670.0	277.98
677.0	277.99
684.0	278.00
691.0	278.01
698.0	278.02
705.0	278.03
712.0	278.04
719.0	278.05
726.0	278.06
733.0	278.07
740.0	278.08
747.0	278.09
754.0	278.10
761.0	278.11
768.0	278.12
775.0	278.13
782.0	278.13*
789.0	278.14*
796.0	278.15*
803.0	278.16*
810.0	278.17*
817.0	278.18*
824.0	278.19*
831.0	278.20*
838.0	278.20*
845.0	278.21*
852.0	278.22*
859.0	278.23*
866.0	278.24*

* Extrapolated values
m^3/s = cubic metres per second; m = metre

Figure 1: Black Lake Stage Discharge Figure



APPENDIX III.4

Regional Hydrology Assessment

Introduction

Long-term regional flow and level records provide information on average and extreme flow conditions, as a wider range of conditions are experienced in the watershed over time. Regionalization methods assume that watersheds in the same region exhibit many of the same patterns of runoff generation over long periods of time, due to similarities in climate, surficial geology, soils and vegetation types. In effect, space is substituted for time to increase the sample size.

The Water Survey of Canada (WSC) monitors a number of streams and lakes in northern Saskatchewan, which provide long-term regional hydrometric data (EC 2010; EC 2012). Regional hydrometric data used in this assessment were limited to those in the Tiaga Shield or the adjacent Boreal Shield ecozones and within 275 kilometres (km) of the Project. Each of these regional stations has a varying period of record, and many have been discontinued.

Stream Flow

The regional analysis for this study includes nineteen stream flow hydrometric stations monitored by the WSC (Table 1). These hydrometric stations are in the Athabasca River, Slave River, or Churchill River basins and reflect drainage areas ranging between 738 square kilometres (km²) (Marten River above Thoa River) to 51,800 km² (Fond du Lac River at Stony Rapids). The mean unit area runoff rate is relatively consistent between stations, with a mean value of 0.0056 cubic metres per second per square kilometre (m³/s/km²), a 25th percentile of 0.0047 m³/s/km², and a 75th percentile of 0.060 m³/s/km² (Table 1).

Table 1: Water Survey of Canada Regional Stream Flow Hydrometric Stations

Station ID	Station Description	Major Basin	Period of Record	Distance from Project (km)	Drainage Basin (km^2)	Mean Annual Discharge (m^3/s)	Mean Annual Discharge Volume (dam^3/yr)	Mean Drainage Basin Yield (mm/yr)	Mean Unit Area Runoff ($m^3/s/km^2$)
07LE002	Fond du Lac River at outlet of Black Lake	Athabasca River	1963-2008	0	50,700	305	9,630,000	190	0.0060
07LE001	Fond du Lac River at Stony Rapids	Athabasca River	1946-1963	20	51,800	299	9,440,000	182	0.0058
07LC002	Chipman River above Black Lake	Athabasca River	1973-1995	23	6,580	12.9	407,000	61.9	0.0020
07LD002	Cree River at outlet of Wapata Lake	Athabasca River	1972-1995	36	20,700	124	3,900,000	188	0.0060
07LE003	Grease River below Fontaine Lake	Athabasca River	1973-1995	66	6,150	28.7	904,000	147	0.0047
07LC003	Porcupine River at outlet of Grove Lake	Athabasca River	1973-1995	75	7,300	69.4	2,190,000	300	0.0095
07LB002	Waterfound River below Theriau Lake	Athabasca River	1973-2008	101	3,160	21.1	666,000	211	0.0067
07LD003	Pipestone River below Ratariu Lake	Athabasca River	1978-1995	107	964	3.62	113,000	117	0.0038
07LE004	Otherside River at outlet of Mercredi Lake	Athabasca River	1976-1995	114	2,700	16.5	520,000	193	0.0061
07MB001	Macfarlane River at outlet of Davy Lake	Athabasca River	1967-2008	152	3,120	53.9	1,700,000	186	0.0059
07QC006	Tazin river above Tazin Lake	Slave River	1988-1996	173	2,170	10.0	316,000	146	0.0046
06DA005	Wheeler River below Russell Lake	Churchill River	1973-2008	189	3,030	17.3	545,000	180	0.0057
06DA004	Geikie River below Wheeler River	Churchill River	1966-2008	191	7,730	45.3	1,430,000	185	0.0059
07MA004	William River above Carswell River	Athabasca River	1976-1995	202	4,030	19.1	602,000	149	0.0047
07QC005	Abitau River above Cuming Lake	Slave River	1988-1996	205	3,780	18.0	568,000	150	0.0048
07QC004	Marten River above Thoa River	Slave River	1977-1990	251	738	5.08	160,000	217	0.0069
07MA003	Douglas River near Cluff Lake	Athabasca River	1975-2008	262	1,690	9.71	306,000	181	0.0057
06DA002	Cochrane River near Brochet	Churchill River	1968-2008	272	28,400	168	5,300,000	187	0.0059
07QC003	Thoa River near Inlet to Hill Island Lake	Slave River	1968-1995	275	8,830	43.5	1,370,000	155	0.0049
Mean								175	0.0056
Median								182	0.0058
25th Percentile								150	0.0047
75th Percentile								189	0.0060

Source: EC 2010

ID = identification code; km = kilometre; km^2 = square kilometre; m^3/s = cubic metres per second; dam^3/yr = cubic decametres per year (1 cubic decametre per year = 1000 cubic metres per year); mm/yr = millimetres per year; $m^3/s/km^2$ = cubic metres per second per square kilometre

The empirical relationship between mean annual discharge and drainage area is presented in the plot in Figure 1. The linear relationship is described by Equation (1), where Q is the mean annual discharge (m³/s) and A is the drainage area (km²).

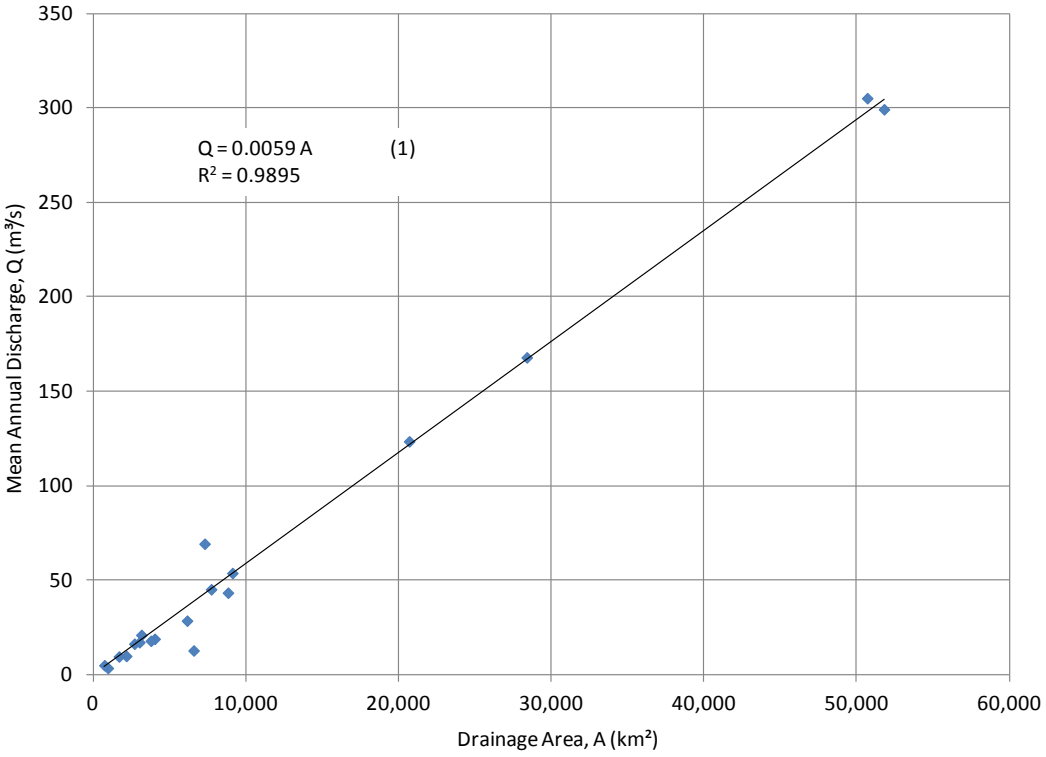


Figure 1: Mean Annual Discharge and Drainage Area for Regional Hydrometric Stations.

Water Level

The regional study for lake level includes five large lakes monitored by the WSC (Table 2) which reflect drainage basins between 6,190 km^2 (Cree Lake) and 271,000 km^2 (Lake Athabasca) (EC 2012). Water level statistics are included in Table 2 and show that mean annual level variability ranges between 0.28 metres (m) at Cree Lake to 1.5 m at Lake Athabasca. The largest variability within a lake over the dataset was 4.55 m. The particularly high variability in Lake Athabasca is partially due to the upstream Bennet Dam which controls a portion of the inflow to Lake Athabasca.

Table 2: Water Survey of Canada Regional Lake Level Hydrometric Stations

Station ID	Station Description	Distance from Project (km)	Drainage Basin (km²)	Period of Record	Compiled Record		Minimum Annual Variability	Mean Annual Variability	Maximum Annual Variability	Variability in dataset
					Years	Number of Years	(m)			
06DA001 06DA003	Wollaston Lake	150	16,400	1971-2009 1952-1972	1954-1971, 1973, 1975-2009	54	0.16	0.37	0.67	1.42
07MC002 07MC003 07MD001 07MD002	Lake Athabasca	50	271,000	1936-1970 1956-2009 1930-2009 1975-1995	1956,1958-2009	53	0.64	1.50	3.74	4.55
07LD001	Cree Lake	225	6,190	1965-1995	1971, 1973-1979, 1981-1994	22	0.16	0.28	0.43	0.36
07QC002	Tazin Lake	230	9,609	1939-present	1975, 1976, 1978-1995, 2008,2009	22	0.39	0.80	1.36	3.07
06DB001	Reindeer Lake	270	62,500	1930-present	1971,1973,1974,1977-1979, 1981,1983,1985,1991-1997,1999-2009	27	0.34	0.70	1.24	2.24
Average							0.34	0.73	1.49	2.33

ID = identification code; km = kilometre; km^2 = square kilometre; m = metres

References

Environment Canada (EC). 2010. *Water Survey of Canada – Archived Hydrometric Data*. Available at: http://www.wsc.ec.gc.ca/hydat/H2O/index_e.cfm?cname=main_e.cfm. Accessed: March 2010.

Environment Canada (EC). 2012. *Water Survey of Canada – Archived Hydrometric Data*. Available at: http://www.wsc.ec.gc.ca/hydat/H2O/index_e.cfm?cname=main_e.cfm. Accessed: June 2012.

APPENDIX III.5

Limnology

Table III.5-1 Supporting Environmental Variables and Limnology Data for Fond du Lac River, Black Lake, and Middle Lake, Spring 2010

Waterbody/ Watercourse	Station Code[(a)]	Date (mm/dd/yyyy)	Air Temperature (°C)	Cloud Cover (%)	Wind Direction	Wind Rate	Precipitation Type	Precipitation Rate	Secchi Depth (m)	Max Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
Fond du Lac River	FDLR-AN-01	5/18/2010	15	50-75%	North Northeast	Moderate	None	-	-	-	0.3	4.5	12.6	34	**5.7**
	FDLR-HN-01	5/18/2010	12	75-100%	North Northeast	Moderate	None	-	-	0.4	0.3	4.5	12.6	34	**5.7**
	FDLR-HN-02	5/18/2010	12	75-100%	North Northeast	Moderate	None	-	-	0.6	0.2	6.7	12.0	35	**5.9**
	FDLR-HN-03	5/19/2010	7	75-100%	East Northeast	Moderate	Rain	Light	-	0.6	0.2	6.1	13.1	34	6.6
	FDLR-HN-04	5/20/2010	8	75-100%	East Northeast	Light	Rain	Light	-	0.8	0.3	3.4	12.7	32	6.7
	FDLR-HN-05	5/20/2010	9	75-100%	South East	Moderate	Rain	Moderate	-	0.5	0.3	3.4	13.3	31	**5.9**
	FDLR-HN-06	5/24/2010	14	25-50%	-	Calm	None	-	-	0.6	0.2	2.5	14.2	34	**6.4**
	FDLR-HN-07	5/20/2010	9	75-100%	South East	Moderate	Rain	Moderate	-	0.9	0.3	3.5	13.2	31	6.5
	FDLR-HN-08	5/25/2010	12	25-50%	North East	Light	None	-	-	0.6	0.3	2.7	14.1	32	**6.2**
	FDLR-HN-09	5/25/2010	12	25-50%	North East	Light	None	-	-	0.6	0.3	2.7	14.1	32	**6.2**
Black Lake	BKL-01	5/29/2010	15	<25%	East Northeast	Light	None	-	5.0	8.6	0.2	5.4	13.3	29	**6.5**
											1.0	4.9	13.5	29	**6.5**
											2.0	4.7	13.5	30	**6.4**
											3.0	4.7	13.5	29	**6.4**
											4.0	4.6	13.5	30	**6.4**
											5.0	4.6	13.5	30	**6.3**
											6.0	4.6	13.5	30	**6.4**
											7.0	4.5	13.5	30	**6.4**
											8.0	4.5	13.5	30	**6.4**
	BKL-02	5/29/2010	15	<25%	East	Light	None	-	6.0	29.0	0.2	4.0	13.8	29	**6.4**
											1.0	3.8	13.7	29	**6.3**
											2.0	3.6	13.7	29	**6.2**
											3.0	3.6	13.7	29	**6.2**
											4.0	3.5	13.6	29	**6.1**
											5.0	3.5	13.6	29	**6.1**
											6.0	3.5	13.6	29	**6.1**
											7.0	3.4	13.6	29	**6.1**
											8.0	3.5	13.5	29	**6.1**
											9.0	3.6	13.5	29	**6.1**
											10.0	3.5	13.5	29	**6.2**
											11.0	3.5	13.5	29	**6.2**
											12.0	3.5	13.5	29	**6.2**
											13.0	3.5	13.5	29	**6.2**
											14.0	3.5	13.5	29	**6.2**
											15.0	3.6	13.5	29	**6.2**
											16.0	3.6	13.5	29	**6.2**
											17.0	3.7	13.5	29	**6.3**
											18.0	3.7	13.5	29	**6.3**
											19.0	3.7	13.5	29	**6.2**
											20.0	3.7	13.5	29	**6.2**
											21.0	3.8	13.5	29	**6.3**
											22.0	3.8	13.4	29	**6.2**
											23.0	3.8	13.4	29	**6.3**
											24.0	3.8	13.4	29	**6.3**
											25.0	3.8	13.4	29	**6.3**
											26.0	3.8	13.4	29	**6.3**
											27.0	3.8	13.4	29	**6.3**
											28.0	3.8	13.4	29	**6.3**
											29.0	3.8	11.9	31	**6.3**

Table III.5-1 Supporting Environmental Variables and Limnology Data for Fond du Lac River, Black Lake, and Middle Lake, Spring 2010

Waterbody/ Watercourse	Station Code[(a)]	Date (mm/dd/yyyy)	Air Temperature (°C)	Cloud Cover (%)	Wind Direction	Wind Rate	Precipitation Type	Precipitation Rate	Secchi Depth (m)	Max Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
Black Lake	BKL-03	5/29/2010	15	<25%	-	Calm	None	-	5.0	25.1	0.2	4.7	13.1	39	**5.4**
											1.0	4.4	13.1	39	**5.5**
											2.0	4.4	13.1	39	**5.6**
											3.0	4.3	13.1	39	**5.6**
											4.0	4.2	13.1	39	**5.7**
											5.0	4.3	13.1	39	**5.7**
											6.0	4.2	13.1	39	**5.7**
											7.0	4.2	13.1	39	**5.7**
											8.0	4.2	13.1	39	**5.8**
											9.0	4.2	13.0	39	**5.8**
											10.0	4.2	13.0	39	**5.8**
											11.0	4.2	13.0	39	**5.9**
											12.0	4.2	13.0	39	**5.9**
											13.0	4.2	13.0	39	**5.9**
											14.0	4.2	13.0	39	**5.9**
											15.0	4.1	13.0	39	**5.9**
											16.0	4.1	13.0	39	**5.9**
											17.0	4.1	13.0	39	**5.9**
											18.0	4.1	13.0	39	**6.0**
											19.0	4.1	13.0	39	**5.9**
											20.0	4.1	13.0	39	**6.0**
											21.0	4.1	13.0	39	**6.0**
											22.0	4.1	13.0	39	**6.0**
											23.0	4.1	13.0	39	**6.0**
											24.0	4.1	13.0	39	**6.0**
											25.1	4.0	**2.8**	41	**5.8**
	BKL-GN-01	5/30/2010	15	<25%	East	Light	None	-	-	7.0	0.3	6.2	12.3	33	6.8
	BKL-GN-02	5/30/2010	18	<25%	North East	Light	None	-	-	3.0	0.3	6.2	12.3	33	6.8
	BKL-GN-03	5/31/2010	15	<25%	North	Light	None	-	-	11.0	0.3	6.1	12.7	33	6.8
	BKL-HN-01	5/30/2010	12	25-50%	North	Light	None	-	-	1.0	0.3	6.2	12.3	33	6.8
	BKL-HN-02	6/3/2010	12	25-50%	South	Light	None	-	-	1.0	0.3	19.5	11.3	50	7.5
	BKL-HN-03	6/3/2010	12	25-50%	South	Moderate	None	-	-	1.0	0.3	19.5	11.3	50	7.5
	BKL-HN-04	6/5/2010	15	<25%	East Southeast	Light	None	-	-	1.2	0.3	13.3	9.8	33	7.5
Middle Lake	MLL-01	5/27/2010	1	75-100%	North	Light	Snow	Light	4.9	6.0	0.2	3.5	13.9	35	6.6
											0.5	3.4	13.9	35	6.6
											1.0	3.4	13.9	35	6.6
											1.5	3.3	13.9	35	6.6
											2.0	3.4	13.9	35	6.6
											2.5	3.3	13.9	35	6.6
											3.0	3.3	13.9	35	6.6
											3.5	3.3	13.9	35	6.6
											4.0	3.3	13.9	35	6.6
											4.5	3.3	13.9	35	6.6
											5.0	3.3	13.9	35	6.6
											5.5	3.3	13.9	35	6.6
	MLL-02	5/27/2010	4	50-75%	North	Light	None	-	2.1	2.1	0.3	5.1	13.7	32	6.6
											0.5	5.1	13.7	32	6.7
											0.8	5.1	13.7	32	6.7
											1.0	5.0	13.7	32	6.7
											1.3	5.0	13.7	32	6.7
											1.5	5.0	13.7	32	6.7
											1.8	5.1	13.9	32	6.7
											2.0	5.1	13.1	32	6.7

Table III.5-1 Supporting Environmental Variables and Limnology Data for Fond du Lac River, Black Lake, and Middle Lake, Spring 2010

Waterbody/ Watercourse	Station Code[(a)]	Date (mm/dd/yyyy)	Air Temperature (°C)	Cloud Cover (%)	Wind Direction	Wind Rate	Precipitation Type	Precipitation Rate	Secchi Depth (m)	Max Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
Middle Lake	MLL-03	5/27/2010	5	<25%	North East	Light	None	-	5.0	6.6	0.2	3.8	13.9	36	6.6
											0.5	3.8	13.9	36	6.6
											1.0	3.7	13.9	36	6.6
											1.5	3.7	13.9	36	6.6
											2.0	3.7	13.9	36	6.6
											2.5	3.7	13.9	36	6.6
											3.0	3.7	13.9	36	6.6
											3.5	3.7	13.9	36	6.6
											4.0	3.7	13.9	36	6.6
											4.5	3.7	13.9	36	6.6
											5.0	3.7	13.9	36	6.6
											5.5	3.7	13.9	36	6.6
											6.0	3.6	13.9	36	6.6
											6.5	3.6	13.7	36	6.6
	MLL-04	5/27/2010	4	50-75%	North	Light	None	-	5.0	7.3	0.2	3.6	14.0	34	6.6
											1.0	3.5	14.0	34	6.7
											2.0	3.5	14.0	34	6.7
											3.0	3.5	14.0	34	6.7
											4.0	3.4	14.0	34	6.7
											5.0	3.4	14.0	34	6.7
											6.0	3.4	14.0	34	6.7
											7.0	3.4	13.9	34	6.7
	MLL-GN-01	5/28/2010	10	<25%	North	Light	None	-	-	2.5	0.3	8.4	15.3	34	6.8
	MLL-GN-02	5/28/2010	10	<25%	North	Light	None	-	-	4.5	0.3	8.4	15.3	34	6.8

Note: Dissolved Oxygen concentrations that were less than the Canadian Water Quality Guidelines (CWQG) and the Saskatchewan Surface Water Quality Objectives (SSWQO) of 9.5 mg/L for the protection of early life stages of aquatic life in cold water ecosystem are **bolded**

Values of pH that were outside the CWQG rangeof pH 6.5 to 9 for the protection of aquatic life are **bolded**.

Fishing efforts conducted concurrently (e.g., hoop netting, gill netting) may share similar or identical weather and limnology data attributes.

[(a)]Station code is comprised of three/four letter waterbody code and station number for water quality stations and three/four letter waterbody code, fish sampling method, and fishing effort number for fishing stations.

mm/dd/yyyy = month/day/year; °C = degree Celsius; % = percent; m = metre; mg/L = milligram per litre; µS/cm = microSiemens per centimetre; - = not applicable or not available.

Table III.5-2 Supporting Environmental Variables and Limnology Data for Fond du Lac River, Black Lake, and Middle Lake, Summer 2010

Waterbody/ Watercourse	Station Code[(a)]	Date (mm/dd/yyyy)	Air Temperature (°C)	Cloud Cover (%)	Wind Direction	Wind Rate	Precipitation Type	Precipitation Rate	Secchi Depth (m)	Max Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
Fond du Lac River	FDLR-AN-01	8/6/2010	17.0	75-100%	-	Light	None	-	-	-	0.2	18.7	10.7	37	7.9
	FDLR-AN-02	8/7/2010	18.5	50-75%	-	Light	None	-	-	-	0.2	18.4	**9.0**	32	8.0
	FDLR-AN-03	8/7/2010	18.4	25-50%	-	Light	None	-	-	-	0.2	18.4	**9.0**	32	8.0
	FDLR-AN-04	8/8/2010	19.0	75-100%	-	Calm	None	-	-	-	0.2	18.4	**9.2**	32	8.3
	FDLR-AN-05	8/8/2010	20.4	50-75%	-	Calm	None	-	-	-	0.5	18.4	9.7	32	7.8
	FDLR-AN-06	8/9/2010	17.2	75-100%	-	Light	None	-	-	-	0.6	17.8	9.7	36	7.7
	FDLR-AN-07	8/10/2010	17.5	75-100%	-	Calm	None	-	-	-	0.3	17.8	**9.0**	34	7.4
	FDLR-AN-08	8/10/2010	23.0	75-100%	-	Calm	None	-	-	-	0.3	19.2	**9.1**	35	7.6
	FDLR-AN-09	8/17/2010	15.0	50-75%	-	Light	None	-	-	-	0.3	16.6	**9.2**	35	7.5
	FDLR-AN-10	8/18/2010	23.7	<25%	-	Light	None	-	-	-	0.3	17.0	**9.2**	36	7.6
	FDLR-AN-11	8/18/2010	23.7	<25%	-	Light	None	-	-	-	0.3	17.0	**9.2**	36	7.6
	FDLR-AN-12	8/19/2010	12.0	75-100%	-	Light	None	-	-	-	0.4	16.4	9.8	37	7.7
	FDLR-AN-13	8/20/2010	13.4	75-100%	-	Light	None	-	-	-	0.2	15.7	9.8	32	7.8
	FDLR-AN-14	8/20/2010	19.7	75-100%	-	Light	Rain	Heavy	-	-	0.3	16.0	**9.3**	32	7.6
	FDLR-AN-15	8/21/2010	12.4	75-100%	-	Light	None	-	-	-	0.2	15.0	**8.6**	26	7.9
	FDLR-BP-01	8/11/2010	21.8	25-50%	-	Light	None	-	-	0.3	0.2	18.8	**9.5**	32	7.6
	FDLR-BP-02	8/11/2010	21.8	25-50%	-	Light	None	-	-	0.5	0.2	18.8	**9.5**	32	7.6
	FDLR-BP-03	8/13/2010	16.3	75-100%	-	Light	Rain	Light	-	1.0	0.2	18.1	**9.4**	34	7.6
	FDLR-BP-04	8/13/2010	16.3	75-100%	-	Light	None	-	-	1.0	0.2	17.0	**8.5**	68	7.1
	FDLR-BP-05	8/17/2010	14.2	25-50%	-	Light	None	-	-	1.0	0.2	16.3	10.1	33	7.4
	FDLR-HN-01	8/6/2010	17.0	75-100%	-	Light	None	-	-	0.8	0.2	18.7	10.7	37	7.9
	FDLR-HN-02	8/7/2010	18.5	50-75%	-	Light	None	-	-	0.8	0.2	18.4	**9.0**	32	8.0
	FDLR-HN-03	8/9/2010	17.2	75-100%	-	Light	None	-	-	0.8	0.6	17.8	9.7	36	7.7
	FDLR-HN-04	8/9/2010	17.2	75-100%	-	Light	None	-	-	0.8	0.6	17.8	9.7	36	7.7
	FDLR-HN-05	8/11/2010	20.6	25-50%	-	Light	None	-	-	0.8	0.2	18.9	**9.2**	33	7.9
	FDLR-HN-06	8/11/2010	21.8	25-50%	-	Light	None	-	-	0.8	0.2	18.8	**9.5**	32	7.6
Black Lake	BKL-01	8/25/2010	17.0	75-100%	East	Light	None	-	5.0	8.7	0.2	15.6	9.6	35	7.0
											1.0	15.4	**9.5**	35	7.0
											2.0	15.3	**9.5**	35	7.1
											3.0	15.2	**9.5**	35	7.1
											4.0	15.1	**9.4**	34	7.1
											5.0	14.9	**9.4**	33	7.2
											6.0	14.9	**9.3**	33	7.2
											7.0	14.8	**9.3**	33	7.2
											8.0	14.8	**9.3**	33	7.2
	BKL-02	8/25/2010	17.0	75-100%	East	Moderate	None	-	5.5	30.2	0.2	15.3	**9.5**	31	7.2
											1.0	15.2	9.6	31	7.2
											2.0	15.1	**9.5**	31	7.2
											3.0	15.1	**9.5**	31	7.3
											4.0	15.0	**9.5**	32	7.3
											5.0	14.9	**9.5**	32	7.3
											6.0	14.9	**9.4**	32	7.3
											7.0	14.9	**9.4**	32	7.3
											8.0	14.8	**9.3**	32	7.3
											9.0	14.8	**9.2**	33	7.3
											10.0	14.5	**9.1**	32	7.2
											11.0	14.2	**9.0**	32	7.2
											12.0	14.1	**8.9**	32	7.2
											13.0	13.6	**8.8**	32	7.1
											14.0	13.2	**8.7**	32	7.1
											15.0	12.0	**8.6**	33	7.0
											16.0	11.1	**8.2**	34	7.0
											17.0	10.5	**8.0**	34	6.9

Table III.5-2 Supporting Environmental Variables and Limnology Data for Fond du Lac River, Black Lake, and Middle Lake, Summer 2010

Waterbody/ Watercourse	Station Code[a]	Date (mm/dd/yyyy)	Air Temperature (°C)	Cloud Cover (%)	Wind Direction	Wind Rate	Precipitation Type	Precipitation Rate	Secchi Depth (m)	Max Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
Black Lake	BLK-02	8/25/2010	17.0	75-100%	East	Moderate	None	-	5.5	30.2	18.0	10.3	**7.9**	34	6.8
											19.0	10.2	**7.9**	34	6.8
											20.0	10.1	**7.9**	34	6.8
											21.0	10.1	**7.9**	34	6.7
											22.0	10.1	**8.0**	34	6.7
											23.0	10.0	**8.0**	34	6.7
											24.0	9.9	**8.0**	34	6.7
											25.0	9.7	**8.1**	33	6.6
											26.0	9.4	**8.3**	32	6.6
											27.0	9.3	**8.3**	32	6.6
											28.0	9.0	**8.3**	31	6.6
											29.0	8.9	**8.3**	31	6.6
											30.0	8.6	**7.4**	31	6.6
	BKL-03	8/25/2010	17.0	75-100%	-	Calm	None	-	3.5	24.8	0.2	15.4	**9.5**	39	7.8
											1.0	15.6	**9.4**	39	7.7
											2.0	15.6	**9.4**	39	7.6
											3.0	15.7	**9.4**	39	7.6
											4.0	15.6	**9.3**	39	7.6
											5.0	15.6	**9.3**	39	7.5
											6.0	15.6	**9.3**	39	7.5
											7.0	15.6	**9.1**	39	7.5
											8.0	15.6	**9.0**	39	7.4
											9.0	15.6	**9.0**	39	7.4
											10.0	15.5	**9.0**	39	7.4
											11.0	15.4	**8.9**	38	7.4
											12.0	14.8	**8.7**	38	7.3
											13.0	13.5	**8.4**	37	7.2
											14.0	12.4	**8.0**	36	7.1
											15.0	11.6	**7.9**	35	7.0
											16.0	11.0	**7.9**	36	6.9
											17.0	10.8	**7.9**	35	6.9
											18.0	10.5	**7.8**	35	6.8
											19.0	10.4	**7.8**	35	6.8
											20.0	10.3	**7.8**	35	6.8
											21.0	10.1	**6.7**	36	6.7
											22.0	10.0	**7.9**	36	6.7
											23.0	9.9	**7.7**	36	6.7
											24.0	9.5	**7.1**	36	6.6
											24.8	9.4	**0.4**	36	7.0
	BKL-BP-01	8/15/2010	14.9	<25%	-	Moderate	None	-	-	1.0	0.3	17.5	**9.2**	29	7.6
	BKL-BP-02	8/15/2010	14.9	<25%	-	Light	None	-	-	1.0	0.2	17.8	**9.4**	32	7.5
	BKL-EF-01	8/14/2010	11.3	75-100%	-	Light	None	-	-	2.0	0.3	17.3	**9.1**	34	7.6
	BKL-EF-02	8/15/2010	14.9	<25%	-	Light	None	-	-	2.0	0.2	17.8	**9.4**	32	7.5
	BKL-EF-03	8/16/2010	13.3	50-75%	North East	Light	None	-	-	2.0	0.2	16.4	**9.2**	32	7.5
	BKL-EF-04	8/24/2010	15.0	25-50%	-	Light	None	-	-	2.0	0.1	15.3	9.8	30	7.3
	BKL-EF-05	8/24/2010	16.9	25-50%	-	Light	None	-	-	2.0	0.1	15.3	9.8	30	7.3
	BKL-GN-01	8/21/2010	13.5	75-100%	-	Light	None	-	-	33.0	0.3	16.0	9.6	30	7.9
	BKL-GN-02	8/21/2010	13.5	75-100%	-	Light	None	-	-	30.0	0.3	16.0	9.6	30	7.9

Table III.5-2 Supporting Environmental Variables and Limnology Data for Fond du Lac River, Black Lake, and Middle Lake, Summer 2010

Waterbody/ Watercourse	Station Code[(a)]	Date (mm/dd/yyyy)	Air Temperature (°C)	Cloud Cover (%)	Wind Direction	Wind Rate	Precipitation Type	Precipitation Rate	Secchi Depth (m)	Max Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
Middle Lake	MLL-01	8/26/2010	17.0	50-75%	East	Moderate	None	-	4.0	5.1	0.3	15.0	10.1	35	7.3
											0.5	15.1	10.2	35	7.3
											1.0	15.1	10.2	35	7.3
											1.5	15.1	10.2	34	7.3
											2.0	15.1	10.2	35	7.3
											2.5	15.1	10.2	35	7.3
											3.0	15.1	10.2	35	7.3
											3.5	15.1	10.1	35	7.3
											4.0	15.1	10.1	35	7.3
											4.5	15.1	10.1	35	7.3
											5.0	15.1	10.1	35	7.3
	MLL-02	8/26/2010	17.0	50-75%	East	Moderate	None	-	1.6	1.6	1.0	16.1	10.7	32	7.5
	MLL-03	8/26/2010	17.0	50-75%	East	Moderate	None	-	4.0	6.3	0.2	15.7	10.5	34	7.5
											1.0	15.4	10.6	35	7.4
											2.0	15.3	10.5	35	7.4
											3.0	15.2	10.5	35	7.4
											4.0	15.1	10.5	35	7.4
											5.0	15.1	10.5	35	7.4
											6.0	15.1	10.4	35	7.4
	MLL-04	8/26/2010	17.0	50-75%	East	Moderate	None	-	4.0	7.8	0.3	15.4	10.6	34	7.3
											1.0	15.2	10.6	34	7.3
											2.0	15.2	10.6	34	7.3
											3.0	15.1	10.6	34	7.3
											4.0	15.1	10.6	34	7.3
											5.0	15.1	10.6	34	7.3
											6.0	15.1	10.5	34	7.3
	MLL-04	8/26/2010	17.0	50-75%	East	Moderate	None	-	4.0	7.8	7.0	15.1	10.5	34	7.4
	MLL-EF-01	8/22/2010	19.3	25-50%	-	Moderate	None	-	-	2.0	0.3	14.1	10.4	35	7.6
	MLL-EF-02	8/23/2010	11.0	75-100%	East	Moderate	Rain	Light	-	2.0	-	-	-	-	-

Note: Dissolved Oxygen concentrations that were less than the Canadian Water Quality Guidelines (CWQG) and the Saskatchewan Surface Water Quality Objectives (SSWQO) of 9.5 mg/L for the protection of early life stages of aquatic life in cold water ecosystem are **bolded**.
Values of pH that were outside the CWQG range of pH 6.5 to 9 for the protection of aquatic life are **bolded**.
Fishing efforts conducted concurrently (e.g., hoop netting, gill netting) may share similar or identical weather and limnology data attributes.
[(a)]Station code is comprised of three/four letter waterbody code and station number for water quality stations and three/four letter waterbody code, fish sampling method, and fishing effort number for fishing stations
mm/dd/yyyy = month/day/year; °C = degree Celsius; % = percent; m = metre; mg/L = milligram per litre; µS/cm = microSiemens per centimetre; - = not applicable or not available

Table III.5-3 Supporting Environmental Variables and Limnology Data for Fond du Lac River, Black Lake, and Middle Lake, Fall 2010

Waterbody/ Watercourse	Station Code[(a)]	Date (mm/dd/yyyy)	Air Temperature (°C)	Cloud Cover (%)	Wind Direction	Wind Rate	Precipitation Type	Precipitation Rate	Secchi Depth (m)	Max Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
Fond du Lac River	FDLR-01	9/17/2010	1	75-100%	West	Moderate	Snow	Light	-	0.3	0.3	11.1	10.2	34	7.3
	FDLR-02	9/28/2010	11	<25%	South West	Light	None	-	-	0.3	0.3	10.6	11.1	36	7.2
	FDLR-HN-01	10/20/2010	-5	<25%	-	Calm	None	-	-	1.0	0.3	6.9	11.2	32	7.5
	FDLR-HN-02	10/20/2010	-5	0	-	Calm	None	-	-	1.0	0.3	7.3	10.4	35	7.3
	FDLR-HN-03	10/20/2010	-5	0	-	Calm	None	-	-	1.0	0.3	7.2	11.4	36	7.4
	FDLR-HN-04	10/20/2010	-5	0	-	Calm	None	-	-	1.0	0.3	7.2	11.4	36	7.4
Black Lake	BKL-01	9/25/2010	15	75-100%	South West	Moderate	None	-	3.0	5.5	0.2	10.5	10.2	37	7.6
											1.0	10.5	10.2	36	7.6
											2.0	10.5	10.2	36	7.6
											3.0	10.5	10.2	36	7.6
											4.0	10.5	10.2	36	7.5
											5.0	10.5	10.1	36	7.5
											5.3	10.5	10.1	36	7.5
	BKL-01A	9/25/2010	15	75-100%	South	Moderate	Rain	Moderate	3.0	11.4	0.3	10.6	10.2	36	7.6
											1.0	10.5	10.2	36	7.6
	BKL-01A	9/25/2010	15	75-100%	South	Moderate	Rain	Moderate	3.0	11.4	2.0	10.5	10.2	36	7.6
											3.0	10.5	10.2	36	7.6
											4.0	10.5	10.2	36	7.5
											5.0	10.5	10.2	36	7.5
											6.0	10.5	10.2	36	7.5
											7.0	10.5	10.2	36	7.5
											8.0	10.5	10.2	36	7.5
											9.0	10.5	10.2	36	7.5
											10.0	10.5	10.2	36	7.5
											10.5	10.5	10.2	36	7.5
	BKL-02	9/26/2010	7	75-100%	North East	Light	None	-	3.8	31.0	0.2	10.7	10.4	30	7.0
											1.0	10.7	10.1	30	6.9
											2.0	10.7	10.0	30	6.9
											3.0	10.7	10.0	30	6.9
											4.0	10.7	10.0	30	6.9
											5.0	10.7	10.0	30	6.9
											6.0	10.7	10.0	31	6.9
											7.0	10.7	10.0	31	6.9
											8.0	10.7	9.9	31	6.9
											9.0	10.7	9.9	31	6.9
											10.0	10.7	9.9	31	6.9
											11.0	10.7	9.9	31	6.9
											12.0	10.7	9.9	31	6.9
											13.0	10.7	9.9	31	6.9
											14.0	10.7	9.9	31	6.9
											15.0	10.7	9.9	31	6.9
											16.0	10.7	9.9	31	6.9
											17.0	10.7	9.9	31	6.9
											18.0	10.7	9.9	31	6.9
											19.0	10.7	9.9	31	6.9
											20.0	10.6	9.9	31	6.9
											21.0	10.6	9.9	31	6.9
											22.0	10.6	9.9	31	6.9
											23.0	10.6	9.9	31	6.9
											24.0	10.6	9.9	31	6.9
											25.0	10.6	9.8	31	6.9
											26.0	10.6	9.8	31	6.9
											27.0	10.6	9.8	31	6.9
											28.0	10.6	9.7	31	6.9
											29.0	10.4	**9.5**	32	6.9
											30.0	10.4	**9.4**	32	6.9
											30.5	10.4	**9.3**	32	6.9

Table III.5-3 Supporting Environmental Variables and Limnology Data for Fond du Lac River, Black Lake, and Middle Lake, Fall 2010

Waterbody/ Watercourse	Station Code[(a)]	Date (mm/dd/yyyy)	Air Temperature (°C)	Cloud Cover (%)	Wind Direction	Wind Rate	Precipitation Type	Precipitation Rate	Secchi Depth (m)	Max Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
Black Lake	BKL-03	9/26/2010	7	75-100%	North East	Light	None	-	3.8	25.4	0.2	10.8	10.0	38	7.3
											1.0	10.8	10.0	39	7.3
											2.0	10.8	10.0	38	7.2
											3.0	10.8	10.0	38	7.2
											4.0	10.8	10.0	38	7.2
											5.0	10.8	10.0	38	7.2
											6.0	10.8	10.0	38	7.2
											7.0	10.8	10.0	38	7.2
											8.0	10.8	10.0	38	7.2
											9.0	10.8	10.0	38	7.2
											10.0	10.8	10.0	38	7.1
											11.0	10.8	10.0	38	7.1
											12.0	10.8	9.9	38	7.1
											13.0	10.8	9.9	38	7.1
											14.0	10.8	9.9	38	7.1
											15.0	10.8	9.9	38	7.1
											16.0	10.8	9.9	38	7.1
											17.0	10.8	9.9	38	7.1
											18.0	10.8	9.9	38	7.1
											19.0	10.8	9.9	38	7.1
											20.0	10.8	9.9	38	7.1
											21.0	10.8	9.9	38	7.1
											22.0	10.7	9.9	38	7.1
											23.0	10.5	9.8	37	7.1
											24.0	10.5	9.8	37	7.0
											25.0	10.5	**9.2**	38	7.0
	BKL-AN-01	9/14/2010	12	25-50%	South West	Light	None	-	-	-	0.2	11.8	10.5	30	7.6
	BKL-AN-02	9/15/2010	10	75-100%	-	Calm	Rain	Light	-	-	0.3	11.0	10.5	32	7.8
	BKL-AN-03	9/15/2010	10	75-100%	East	Moderate	Rain	Light	-	3.0	0.3	11.0	10.5	32	7.8
	BKL-AN-04	9/16/2010	11	75-100%	South West	Moderate	Sleet	Moderate	-	2.0	0.3	11.2	10.8	33	7.7
	BKL-AN-05	9/18/2010	9	75-100%	North West	Light	None	-	-	2.5	0.2	11.1	10.1	30	7.5
	BKL-AN-06	9/19/2010	4	50-75%	East	Light	None	-	-	-	0.5	12.2	11.0	31	7.5
	BKL-AN-07	9/20/2010	3	75-100%	East	Light	Rain	Light	-	-	0.3	10.5	10.8	29	7.5
	BKL-AN-08	9/21/2010	5	25-50%	West	Light	None	-	-	-	0.2	10.8	10.7	31	7.6
	BKL-AN-09	9/22/2010	5	75-100%	West	Light	None	-	-	-	0.2	10.5	11.0	27	7.6
	BKL-AN-10	9/23/2010	6	25-50%	West	Light	None	-	-	-	0.2	11.6	9.8	31	7.4
	BKL-AN-11	9/23/2010	6	25-50%	West	Light	None	-	-	-	0.2	11.6	9.8	31	7.4
	BKL-AN-12	9/24/2010	15	<25%	West	Light	None	-	-	2.0	0.2	10.7	10.6	32	7.3
	BKL-AN-13	9/24/2010	15	<25%	West	Light	None	-	-	-	0.2	10.7	10.6	32	7.3
	BKL-GN-01	9/14/2010	12	75-100%	South West	Moderate	None	-	-	9.0	0.2	11.8	10.5	30	7.6
	BKL-GN-01	10/21/2010	-5	-	-	-	-	-	-	8.0	0.2	6.8	11.1	30	7.6
	BKL-GN-02	9/18/2010	9	75-100%	North West	Light	None	-	-	5.1	0.2	11.1	10.1	30	7.5
	BKL-GN-02	10/21/2010	-5	-	-	-	-	-	-	7.2	0.2	6.8	11.1	30	7.6
	BKL-GN-03	9/19/2010	4	50-75%	East	Light	None	-	-	4.9	0.5	12.2	11.0	31	7.5
	BKL-GN-03	10/21/2010	-5	-	-	-	-	-	-	4.1	0.2	6.8	11.1	30	7.6
	BKL-GN-04	9/20/2010	3	75-100%	East	Light	Rain	Light	-	6.1	0.3	10.5	10.8	29	7.5
	BKL-GN-04	10/21/2010	-5	-	-	-	-	-	-	10.1	0.2	6.8	11.1	30	7.6
	BKL-GN-05	9/21/2010	5	25-50%	West	Light	None	-	-	3.4	0.2	10.8	10.7	31	7.6
	BKL-GN-05	10/22/2010	-3	75-100%	North	Light	None	-	-	4.5	0.3	5.6	10.8	30	7.5
	BKL-GN-06	9/22/2010	5	75-100%	West	Light	None	-	-	2.4	0.2	10.5	11.0	27	7.6
	BKL-GN-06	10/22/2010	-3	75-100%	North	Light	None	-	-	2.4	0.3	5.6	10.8	30	7.5
	BKL-GN-07	9/23/2010	6	25-50%	West	Light	None	-	-	3.1	0.2	11.6	9.8	31	7.4
	BKL-GN-07	10/22/2010	-3	75-100%	North	Light	None	-	-	6.0	0.3	5.6	10.8	30	7.5
	BKL-GN-08	9/23/2010	15	25-50%	West	Light	None	-	-	4.5	0.3	11.7	10.7	31	7.5
	BKL-GN-08	10/22/2010	-3	75-100%	North	Light	None	-	-	16.2	0.3	5.6	10.8	30	7.5
	BKL-GN-09	9/24/2010	15	<25%	West	Light	None	-	-	25.0	0.2	10.7	10.6	32	7.3
	BKL-GN-09	10/22/2010	-3	75-100%	North	Light	None	-	-	3.9	0.3	5.6	10.8	30	7.5
	BKL-GN-10	9/24/2010	15	<25%	West	Light	None	-	-	50.0	0.2	10.7	10.6	32	7.3
	BKL-GN-10	10/23/2010	-1	-	-	-	-	-	-	27.0	0.3	5.6	11.3	31	7.6
	BKL-GN-11	10/23/2010	-1	-	-	-	-	-	-	22.7	0.3	5.6	11.3	31	7.6
	BKL-GN-12	10/23/2010	-1	-	-	-	-	-	-	12.5	0.3	5.6	11.3	31	7.6

Table III.5-3 Supporting Environmental Variables and Limnology Data for Fond du Lac River, Black Lake, and Middle Lake, Fall 2010

Waterbody/ Watercourse	Station Code[(a)]	Date (mm/dd/yyyy)	Air Temperature (°C)	Cloud Cover (%)	Wind Direction	Wind Rate	Precipitation Type	Precipitation Rate	Secchi Depth (m)	Max Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
Black Lake	BKL-GN-13	10/23/2010	-1	-	-	-	-	-	-	33.0	0.3	5.6	11.3	31	7.6
	BKL-GN-14	10/23/2010	-1	-	-	-	-	-	-	6.6	0.3	5.6	11.3	31	7.6
	BKL-GN-15	10/23/2010	-1	-	-	-	-	-	-	27.0	0.3	5.6	11.3	31	7.6
	BKL-GN-16	10/24/2010	-5	75-100%	East	Moderate	Snow	Light	-	12.2	0.3	4.9	13.4	31	7.4
	BKL-GN-17	10/24/2010	-5	75-100%	East	Moderate	Snow	Light	-	14.5	0.3	4.9	13.4	31	7.4
	BKL-GN-18	10/24/2010	-5	75-100%	East	Moderate	Snow	Light	-	11.5	0.3	4.9	13.4	31	7.4
	BKL-GN-19	10/25/2010	-1	75-100%	East	Heavy	None	-	-	18.0	0.3	5.8	10.9	31	7.3
	BKL-GN-20	10/25/2010	-1	75-100%	East	Heavy	None	-	-	13.0	0.3	8.8	10.9	31	7.3
	BKL-GN-21	10/25/2010	-1	75-100%	East	Heavy	None	-	-	6.0	0.3	5.8	10.9	31	7.3
	BKL-GN-22	10/26/2010	-5	75-100%	East	Moderate	None	-	-	13.0	0.3	3.6	11.5	44	7.1
	BKL-GN-23	10/26/2010	-5	75-100%	East	Moderate	None	-	-	10.0	0.3	3.6	11.5	44	7.1
	BKL-HN-01	10/20/2010	-5	0	-	Calm	None	-	-	1.0	0.2	7.2	11.1	30	7.3
	BKL-HN-02	10/20/2010	-5	0	-	Calm	None	-	-	1.5	0.2	7.2	11.1	30	7.3
Middle Lake	MLL-01	9/27/2010	6	25-50%	South East	Light	None	-	3.5	5.2	0.2	10.2	11.2	35	7.1
											1.0	10.2	11.2	35	7.1
											2.0	10.2	11.2	35	7.1
											3.0	10.2	11.2	35	7.1
											4.0	10.2	11.2	35	7.1
											5.0	10.2	11.2	35	7.1
	MLL-01A	9/27/2010	6	50-75%	South East	Light	None	-	3.5	4.8	0.2	10.2	11.2	35	7.0
											1.0	10.2	11.2	35	7.0
											2.0	10.2	11.2	35	7.0
											3.0	10.2	11.2	35	7.0
											4.0	10.2	11.2	35	7.0
											4.6	10.2	11.2	35	7.0
	MLL-02	9/27/2010	6	50-75%	South East	Light	None	-	1.8	1.9	0.1	8.8	10.8	36	7.0
											0.3	8.8	10.8	36	7.0
											0.5	8.8	10.8	36	7.0
											0.8	8.8	10.8	36	7.1
											1.0	8.8	10.8	36	7.0
											1.3	8.8	10.8	36	7.0
											1.5	8.8	10.8	36	7.0
											1.8	8.8	10.8	36	7.0
	MLL-03	9/27/2010	6	50-75%	South East	Light	None	-	3.5	6.8	0.2	10.3	12.3	35	7.1
											1.0	10.3	11.3	35	7.1
											2.0	10.3	11.3	35	7.0
											3.0	10.3	11.2	35	7.0
											4.0	10.3	11.2	35	7.0
											5.0	10.3	11.2	35	7.0
											6.0	10.3	11.2	35	7.0
											6.6	10.3	11.0	35	7.0
	MLL-04	9/27/2010	6	50-75%	South East	Light	None	-	3.5	7.6	0.2	10.1	11.2	35	7.1
											1.0	10.1	11.1	35	7.0
											2.0	10.1	11.0	35	7.0
											3.0	10.1	11.0	35	7.0
											4.0	10.1	11.0	35	7.0
											5.0	10.0	11.0	35	7.0
											6.0	10.0	11.0	35	7.0
											7.0	10.1	11.0	35	7.0
											7.3	10.1	11.0	35	7.0

Note: Dissolved Oxygen concentrations that were less than the Canadian Water Quality Guidelines (CWQG) and the Saskatchewan Surface Water Quality Objectives (SSWQO) of 9.5 mg/L for the protection of early life stages of aquatic life in cold water ecosystem are **bolded**.
Values of pH that were outside the CWQG range of pH 6.5 to 9 for the protection of aquatic life are **bolded**.
Fishing efforts conducted concurrently (e.g., hoop netting, gill netting) may share similar or identical weather and limnology data attributes.
[(a)]Station code is comprised of three/four letter waterbody code and station number for water quality stations and three/four letter waterbody code, fish sampling method, and fishing effort number for fishing stations.
mm/dd/yyyy = month/day/year; °C = degree Celsius; % = percent; m = metre; mg/L = milligram per litre; µS/cm = microSiemens per centimetre; - = not applicable or not available.

Table III.5-4 Supporting Environmental Variables and Limnology Data for Black Lake and Middle Lake, Winter 2011

Waterbody	Station Code[a]	Date (mm/dd/yyyy)	Air Temperature (°C)	Cloud Cover (%)	Wind Direction	Wind Rate	Precipitation Type	Precipitation Rate	Snow Depth (cm)	Thickness of ice (m)	Depth-Ice to Bottom (m)	Secchi Depth (m)	Max Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
Black Lake	BKL-01W	2/21/2011	-15	50-75%	North	Moderate	None	-	70	0.7	11.0	-	11.7	1.0	0.4	13.3	58	6.7
														2.0	0.4	13.2	58	6.7
														3.0	0.4	13.0	56	6.7
														4.0	0.5	12.7	56	6.7
														5.0	0.7	12.6	51	6.7
														6.0	0.9	12.6	49	6.7
														7.0	1.1	12.4	47	6.7
														8.0	1.2	12.3	45	6.7
														9.0	1.4	12.2	43	6.8
														10.0	1.6	12.1	41	6.7
														11.0	1.7	12.0	40	6.7
	BKL-02	2/21/2011	-15	50-75%	West	Light	None	-	40	0.7	27.6	-	28.3	1.0	0.5	15.8	40	7.2
														2.0	0.5	15.6	38	7.2
														3.0	0.5	15.1	38	7.2
														4.0	0.4	15.0	38	7.2
														5.0	0.6	14.7	35	7.2
														6.0	0.7	14.2	34	7.2
														7.0	0.7	13.9	34	7.2
														8.0	0.9	13.4	33	7.2
														9.0	1.1	13.0	32	7.2
														10.0	1.2	12.9	32	7.2
														11.0	1.3	12.8	32	7.2
														12.0	1.3	12.6	32	7.2
														13.0	1.4	12.5	33	7.1
														14.0	1.6	12.4	35	7.1
														15.0	1.7	12.3	37	7.1
														16.0	2.0	12.2	39	7.1
														17.0	2.0	12.1	39	7.1
														18.0	2.1	11.9	39	7.1
														19.0	2.2	11.7	39	7.1
														20.0	2.3	11.6	39	7.0
														21.0	2.4	11.3	41	7.0
														22.0	2.4	11.1	41	7.0
														23.0	2.5	10.9	41	7.0
														24.0	2.6	10.7	41	6.9
														25.0	2.6	10.5	41	6.9
														26.0	2.7	10.3	40	6.9
														27.0	2.8	9.6	41	6.9
														28.0	2.9	**8.3**	41	6.8
	BKL-03	2/20/2011	-20	50-75%	West	Moderate	None	-	45	0.8	24.0	-	24.8	1.3	0.9	11.6	56	7.8
														2.0	0.5	11.5	54	7.7
														3.0	0.5	[b]	54	7.6
														4.0	0.5	11.1	53	7.5
														5.0	0.5	11.2	53	7.5
														6.0	0.6	11.3	53	7.4
														7.0	0.8	11.5	51	7.4
														8.0	1.0	11.9	48	7.4
														9.0	1.2	12.3	46	7.4

Table III.5-4 Supporting Environmental Variables and Limnology Data for Black Lake and Middle Lake, Winter 2011

Waterbody	Station Code[a]	Date (mm/dd/yyyy)	Air Temperature (°C)	Cloud Cover (%)	Wind Direction	Wind Rate	Precipitation Type	Precipitation Rate	Snow Depth (cm)	Thickness of ice (m)	Depth-Ice to Bottom (m)	Secchi Depth (m)	Max Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
Black Lake	BKL-03	2/20/2011	-20	50-75%	West	Moderate	None	-	45	0.8	24.0	-	24.8	10.0	1.4	12.5	45	7.4
														11.0	1.5	12.4	43	7.4
														12.0	1.6	12.4	43	7.3
														13.0	1.7	12.4	44	7.3
														14.0	1.7	12.4	43	7.3
														15.0	1.8	12.3	43	7.3
														16.0	1.9	12.2	43	7.3
														17.0	2.0	12.2	43	7.3
														18.0	2.1	12.0	43	7.3
														19.0	2.1	11.9	43	7.2
														20.0	2.3	11.8	43	7.2
														21.0	2.4	11.7	43	7.2
														22.0	2.5	11.5	43	7.2
														23.0	2.8	10.8	43	7.1
														24.0	3.2	9.7	46	7.1
	BKL-CT-01	2/18/2011	-42	0	-	Calm	None	-	40	0.6	2.5	-	3.0	2.0	0.4	13.2	58	6.7
	BKL-CT-02	2/18/2011	-42	0	-	Calm	None	-	50	0.6	2.4	-	3.0	2.0	0.4	13.2	58	6.7
	BKL-CT-03	2/18/2011	-42	0	-	Calm	None	-	60	0.6	2.4	-	3.0	2.0	0.4	13.2	58	6.7
	BKL-CT-04	2/18/2011	-42	0	-	Calm	None	-	50	0.6	2.4	-	3.0	2.0	0.4	13.2	58	6.7
	BKL-CT-05	2/18/2011	-42	0	-	Calm	None	-	60	0.7	2.3	-	3.0	2.0	0.4	13.2	58	6.7
	BKL-CT-06	2/18/2011	-42	0	-	Calm	None	-	40	0.7	1.3	-	2.0	2.0	0.4	13.2	58	6.7
	BKL-CT-07	2/18/2011	-42	0	-	Calm	None	-	60	0.7	2.8	-	3.5	2.0	0.4	13.2	58	6.7
	BKL-CT-08	2/18/2011	-42	0	-	Calm	None	-	50	0.6	13.4	-	14.0	2.0	0.4	13.2	58	6.7
	BKL-GN-01	2/17/2011	-30	0	-	Calm	None	-	40	0.6	2.5	-	3.0	1.0	0.5	15.8	40	7.2
	BKL-GN-02	2/17/2011	-30	0	-	Calm	None	-	70	0.6	29.4	-	30.0	1.0	0.5	15.8	40	7.2
	BKL-SL-01	2/18/2011	-42	0	-	Calm	None	-	30	0.6	4.4	-	5.0	1.5	0.4	13.5	57	6.7
	BKL-SL-02	2/18/2011	-42	0	-	Calm	None	-	40	0.5	0.5	-	1.0	1.5	0.4	13.5	57	6.7
	BKL-SL-03	2/18/2011	-42	0	-	Calm	None	-	40	0.5	2.0	-	2.5	1.5	0.4	13.5	57	6.7
	BKL-SL-04	2/18/2011	-42	0	-	Calm	None	-	60	0.6	1.4	-	2.0	1.5	0.4	13.5	57	6.7
	BKL-SL-05	2/18/2011	-42	0	-	Calm	None	-	50	0.6	1.5	-	2.0	1.5	0.4	13.5	57	6.7
	BKL-SL-06	2/18/2011	-42	0	-	Calm	None	-	40	0.7	2.4	-	3.0	1.5	0.4	13.5	57	6.7
	BKL-SL-07	2/18/2011	-42	0	-	Calm	None	-	40	0.7	1.1	-	1.8	1.5	0.4	13.5	57	6.7
	BKL-SL-08	2/18/2011	-42	0	-	Calm	None	-	60	0.7	0.4	-	1.0	1.0	0.4	13.5	57	6.7
	BKL-SL-09	2/18/2011	-42	0	-	Calm	None	-	65	0.7	0.6	-	1.3	1.0	0.4	13.5	57	6.7
Middle Lake	MLL-01W	2/22/2011	-20	50-75%	North West	Moderate	None	-	0	0	0.3	-	0.3	0.3	0.1	14.5	44	7.4
	MLL-03W	2/22/2011	-20	50-75%	North West	Moderate	None	-	50	0.8	1.1	-	1.8	1.0	0.1	14.4	43	7.4
														1.5	0.1	14.8	42	7.4
	MLL-GN-01	2/22/2011	-20	25-50%	North	Moderate	None	-	55	0.7	1.8	-	2.5	1.0	0.1	14.4	43	7.4

Note: Dissolved Oxygen concentrations that were less than the Canadian Water Quality Guidelines (CWQG) and the Saskatchewan Surface Water Quality Objectives (SSWQO) of 9.5 mg/L for the protection of early life stages of aquatic life in cold water ecosystem are **bolded**.

Values of pH that were outside the CWQG range of pH 6.5 to 9 for the protection of aquatic life are **bolded**.

Fishing efforts conducted concurrently (e.g., hoop netting, gill netting) may share similar or identical weather and limnology data attributes.

[a]Station code is comprised of three/four letter waterbody code and station number for water quality stations and three/four letter waterbody code, fish sampling method, and fishing effort number for fishing stations.

[b]Value removed due to data recording error.

mm/dd/yyyy = month/day/year; °C = degree Celsius; % = percent; cm = centimetre; m = metre; mg/L = milligram per litre; µS/cm = microSiemens per centimetre; - = not applicable or not available.

Table III.5-5 Supporting Environmental Variables and Limnology Data for Fond du Lac River, Spring 2012

Waterbody/ Watercourse	Station Code[(a)]	Date (mm/dd/yyyy)	Air Temperature (°C)	Cloud Cover (%)	Wind Direction	Wind Rate	Precipitation Type	Precipitation Rate	Secchi Depth (m)	Max Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
Fond du Lac River	FDLR-HN-10	5/26/2012	10	<25%	South East	Light	None	-	-	0.4	0.3	3.37	12.48	40	7.59
	FDLR-HN-11	5/26/2012	15	<25%	South East	Light	None	-	-	1.0	0.3	3.68	12.62	42	7.50
	FDLR-HN-12	5/27/2012	20	<25%	South East	Light	None	-	-	1.0	0.3	4.5	12.6	36	7.14
	FDLR-HN-13	5/27/2012	20	25-50%	-	Calm	None	-	-	1.0	0.3	5.42	12.39	36	7.37
	FDLR-HN-14	5/29/2012	18	0	-	Calm	None	-	-	0.75	0.3	4.64	13.28	40	7.65
	FDLR-HN-15	5/29/2012	20	25-50%	-	Calm	None	-	-	0.9	0.3	5	-	-	-
	FDLR-HN-16	5/30/2012	20	<25%	-	Light	None	-	-	0.75	0.3	5.2	-	-	-
	FDLR-HN-17	5/30/2012	20	<25%	-	Light	None	-	-	0.75	0.3	5.23	12.49	38	7.35

Note: Dissolved Oxygen concentrations that were less than the Canadian Water Quality Guidelines (CWQG) and the Saskatchewan Surface Water Quality Objectives (SSWQO) of 9.5 mg/L for the protection of early life stages of aquatic life in cold water ecosystem are **bolded**

Values of pH that were outside the CWQG of pH 6.5 to 9 for the protection of aquatic life are **bolded**.

Fishing efforts conducted concurrently (e.g., hoop netting, gill netting) may share similar or identical weather and limnology data attributes.

[(a)]Station code is comprised of three/four letter waterbody code and station number for water quality stations and three/four letter waterbody code, fish sampling method, and fishing effort number for fishing stations.

mm/dd/yyyy = month/day/year; °C = degree Celsius; % = percent; m = metre; mg/L = milligram per litre; µS/cm = microSiemens per centimetre; - = not applicable or not available.

Table III.5-6 Supporting Environmental Variables and Limnology Data for Fond du Lac River and Black Lake, Summer 2012

Waterbody/ Watercourse	Station Code[(a)]	Date (mm/dd/yyyy)	Air Temperature (°C)	Cloud Cover (%)	Wind Direction	Wind Rate	Precipitation Type	Precipitation Rate	Secchi Depth (m)	Max Depth (m)	Profile Depth (m)	Water Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	pH
Fond du Lac River	FDLR-AN-01	7/14/2012	15	75-100%	South East	Calm	Rain	Light	-	-	0.3	16.48	**9.39**	41	7.65
	FDLR-AN-02	7/14/2012	15	75-100%	South East	Calm	Rain	Light	-	-	0.3	16.48	**9.39**	41	7.65
	FDLR-AN-03	7/15/2012	25	<25%	South East	Moderate	None	-	-	-	0.3	17.7	**9.47**	42	7.53
	FDLR-AN-04	7/15/2012	25	<25%	South East	Moderate	None	-	-	-	0.3	17.7	**9.47**	42	7.53
	FDLR-AN-05	7/16/2012	25	25-50%	South East	Moderate	None	-	-	-	0.3	15.67	11.28	34	7.13
	FDLR-AN-06	7/16/2012	25	25-50%	South East	Moderate	None	-	-	-	0.3	15.67	11.28	34	7.13
	FDLR-GN-01	7/14/2012	17	75-100%	-	Calm	Rain	Light	-	-	0.3	16.48	**9.39**	41	7.65
	FDLR-GN-02	7/14/2012	17	75-100%	-	Calm	Rain	Light	-	-	0.3	16.48	**9.39**	41	7.65
	FDLR-GN-03	7/14/2012	15	75-100%	-	Calm	Rain	Light	-	-	0.3	16.48	**9.39**	41	7.65
	FDLR-GN-04	7/15/2012	18	0	South East	Moderate	None	-	-	-	0.3	17.7	**9.47**	42	7.53
	FDLR-GN-05	7/15/2012	18	0	South East	Moderate	None	-	-	-	0.3	17.7	**9.47**	42	7.53
	FDLR-GN-06	7/15/2012	25	0	South East	Moderate	None	-	-	-	0.3	17.7	**9.47**	42	7.53
	FDLR-GN-07	7/16/2012	25	25-50%	South East	Light	None	-	-	1.5	0.3	15.67	11.28	34	7.13
	FDLR-GN-08	7/16/2012	25	25-50%	South East	Light	None	-	-	1.5	0.3	15.67	11.28	34	7.13
	FDLR-GN-09	7/18/2012	20	75-100%	South	Heavy	None	-	-	-	0.3	16.69	10.88	40	7.54
Black Lake	BKL-GN-01	7/17/2012	19	75-100%	North East	Light	None	-	-	32	0.3	16.71	10.10	36	7.30
	BKL-GN-02	7/17/2012	19	75-100%	North East	Light	None	-	-	1	0.3	16.71	10.10	36	7.30

Note: Dissolved Oxygen concentrations that were less than the Canadian Water Quality Guidelines (CWQG) and the Saskatchewan Surface Water Quality Objectives (SSWQO) of 9.5 mg/L for the protection of early life stages of aquatic life in cold water ecosystem are **bolded**

Values of pH that were outside the CWQG of pH 6.5 to 9 for the protection of aquatic life are **bolded**.

Fishing efforts conducted concurrently (e.g., hoop netting, gill netting) may share similar or identical weather and limnology data attributes.

[(a)]Station code is comprised of three/four letter waterbody code and station number for water quality stations and three/four letter waterbody code, fish sampling method, and fishing effort number for fishing stations

mm/dd/yyyy = month/day/year; °C = degree Celsius; % = percent; m = metre; mg/L = milligram per litre; µS/cm = microSiemens per centimetre; - = not applicable or not available.

APPENDIX III.6

Water Chemistry

Table III.6-1 Water Chemistry Data for Black Lake and Middle Lake, Spring 2010 to Winter 2011

Parameters	Unit	Guidelines		Detection Limit	Black Lake															
					BKL-01*					BKL-01W*	BKL-02*					BKL-03*				
					5/29/2010		8/25/2010	9/25/2010		2/21/2011	5/29/2010	8/25/2010	9/26/2010	2/21/2011	5/29/2010	8/25/2010	9/26/2010	2/20/2011	
		SSWQO[a]	CWQG[b]		Primary	Duplicate	Primary	Primary	Duplicate	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Duplicate
Conventional Parameters (Field-Measured)																				
Dissolved Oxygen	mg/L	6.5/9.5[c]	6.5/9.5[c]	-	13.5	-	9.6	10.2	-	13.3	13.8	9.6	10.0	9.6	**2.8**	9.5	10.0	9.7	-
pH	pH Unit	-	6.5-9.0	-	6.5	-	7.2	7.6	-	6.8	6.4	7.3	7.0	7.2	6.0	7.8	7.3	7.8	-
Specific Conductivity	µS/cm	-	-	-	30	-	35	37	-	58	31	34	32	41	41	39	39	56	-
Water Temperature	°C	-	-	-	5.38	-	15.58	10.54	-	1.67	4.02	9.88	10.7	2.89	4.69	9.87	10.8	3.24	-
Conventional Parameters (Laboratory-Measured)																				
pH	pH Unit	-	6.5-9.0	0.07	7.14	7.15	7.29	7.30	7.24	6.98	7.13	7.24	7.30	7.09	7.11	7.23	7.24	7.05	7.04
Specific Conductivity	µS/cm	-	-	1	31	31	36	38	38	51	30	34	32	37	40	40	39	48	47
Total Alkalinity	mg/L	-	-	1	13	21	22	15	14	22	21	12	13	20	13	16	11	23	24
Total Hardness	mg/L	-	-	1	11	11	13	14	13	17	11	12	12	14	13	13	13	16	15
Total Dissolved Solids	mg/L	-	-	1	27	28	28	29	28	43	25	29	24	25	32	31	28	36	36
Total Suspended Solids	mg/L	-	-	1	2	3	<1	2	1	<1	2	<1	1	<1	2	<1	<1	<1	<1
Nutrients																				
Ammonia as Nitrogen	mg/L	0.855[d]	0.855[d]	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate	mg/L	-	13	0.04	0.13	0.13	<0.04	<0.04	<0.04	0.04	0.13	<0.04	<0.04	0.13	0.09	<0.04	<0.04	0.09	0.13
Nitrite+Nitrate as Nitrogen	mg/L	-	-	0.01	0.03	0.03	0.08	<0.01	<0.01	0.01	0.03	0.02	<0.01	0.03	0.02	0.02	<0.01	0.02	0.03
Total Kjeldahl Nitrogen	mg/L	-	-	0.05	0.22	0.27	0.20	0.14	0.11	0.24	1.4	0.15	0.20	0.24	0.82	0.16	0.20	0.21	0.18
Total Nitrogen	mg/L	-	-	0.05	0.25	0.30	0.28	0.14	0.11	0.25	1.4	0.17	0.20	0.27	0.84	0.18	0.20	0.23	0.21
Total Phosphorus	mg/L	-	-	0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dissolved Phosphorus	mg/L	-	-	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	0.01	0.01
Major Ions																				
Bicarbonate	mg/L	-	-	1	16	26	27	18	17	27	26	15	16	24	16	20	13	28	29
Calcium	mg/L	-	-	0.1	2.9	2.9	3.2	3.3	3.2	4.0	2.9	3.0	3.0	3.3	3.1	3.3	3.2	3.8	3.7
Carbonate	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloride	mg/L	-	120	0.1	1.1	1.2	2.1	7[m]	3.1[m]	6.8	0.8	1.6	2	2.4	5.0	3.3	7	5.8	6.1
Hydroxide	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	-	-	0.1	1.0	1.0	1.1	1.3	1.2	1.7	1.0	1.1	1.1	1.3	1.2	1.2	1.3	1.6	1.5
Potassium	mg/L	-	-	0.1	0.5	0.5	0.7	0.7	0.7	0.9	0.5	0.6	0.6	0.8	0.7	0.7	0.7	0.9	0.8
Sodium	mg/L	-	-	0.1	1.3	1.3	1.6	1.7	1.7	2.4	1.2	1.4	1.3	1.6	1.9	1.8	1.8	2.3	2.2
Sulfate	mg/L	-	-	0.2	1.4	1.4	1.3	1.2	1.3	1.4	1.4	1.3	1.4	1.5	1.1	1.2	1.2	1.5	1.2
Sum of Ions	mg/L	-	-	1	24	34	37	33	28	44	34	24	25	35	29	32	28	44	44
Organics																				
Chlorophyll a	mg/m^3	-	-	0.1	1.8[m]	0.2[m]	3.0	2.5	3.4	0.1	1.8	2.8	2.4	<0.1	3.3	4.6	2.9	<0.1	<0.1
Total Metals																				
Aluminum	mg/L	0.005-0.1[e]	0.005-0.1[e]	0.0005	0.0027	0.0035	0.0036	0.0026	0.0026	0.0035	0.0031	0.0035	0.0040	0.0024	0.0017	0.0030	0.0025	0.0070[m]	0.0038[m]
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	µg/L	5	5	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	<0.1	<0.1	0.1	0.1	0.1	0.1	0.2	0.1
Barium	mg/L	-	-	0.0005	0.0042	0.0041	0.0044	0.0043	0.0042	0.0042	0.0040	0.0048	0.0043	0.0045	0.0045	0.0047	0.0041	0.0049	0.0047
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	1.5	0.01	<0.01	<0.01	<0.01	0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.01	0.02	0.02
Cadmium	mg/L	0.000017[f]	0.000017[f]	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	0.00001	0.00001	<0.00001	<0.00001
Chromium	mg/L	-	0.0010/0.0089[g]	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.002[h]	0.002[h]	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Iron	mg/L	0.3	0.3	0.0005	0.055	0.055	0.017	0.020	0.021	0.040	0.046	0.018	0.024	0.010	0.086	0.026	0.020	0.035	0.044
Lead	mg/L	0.001[i]	0.001[i]	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Manganese	mg/L	-	-	0.0005	0.0096	0.0097	0.010	0.019	0.019	0.0044	0.0061	0.015	0.0051	0.0040	0.034	0.028	0.022	0.0056	0.0068
Mercury	µg/L	0.026[j]	0.026[j]	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum	mg/L	-	0.073	0.0001	0.0002	0.0002	0.0001	0.0001	0.0001	<0.0001	0.0002	0.0001	0.0002	0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001
Nickel	mg/L	0.025[k]	0.025[k]	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001
Selenium	mg/L	0.001[l]	0.001[l]	0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0002	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Silver	mg/L	0.0001	0.0001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Strontium	mg/L	-	-	0.0005	0.021	0.020	0.035	0.042	0.042	0.061	0.018	0.029	0.022	0.032	0.052	0.048	0.048	0.064	0.064
Thallium	mg/L	-	0.0008	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	mg/L	-	-	0.0001	0.0010	0.0010	0.0005	0.0009	0.0006	<0.0001	0.0008	0.0008	0.0009	<0.0001	0.0013	0.0008	0.0010	<0.0001	<0.0001
Titanium	mg/L	-	-	0.0002	0.0002	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002
Uranium	µg/L	15	15	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	mg/L	0.03	0.03	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	<0.0005
Radionuclides																				
Lead-210	Bq/L	-	-	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Radium-226	Bq/L	-	-	0.005	0.008	0.007	0.008	<0.005	0.006	<0.005	0.005	0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005
Thorium-230	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Table III.6-1 Water Chemistry Data for Black Lake and Middle Lake, Spring 2010 to Winter 2011

Parameters	Unit	Guidelines		Detection Limit	Middle Lake								
					MLL-01*				MLL-01W*	MLL-03*			MLL-03W*
					5/27/2010	8/26/2010		9/27/2010	2/22/2011	5/27/2010	8/26/2010	9/27/2010	2/22/2011
		SSWQO[a]	CWQG[b]		Primary	Primary	Duplicate	Primary	Primary	Primary	Primary	Primary	Primary
Conventional Parameters (Field-Measured)													
Dissolved Oxygen	mg/L	6.5/9.5[c]	6.5/9.5[c]	-	13.9	10.2	-	11.2	14.5	13.9	10.6	12.3	14.8
pH	pH Unit	-	6.5-9.0	-	6.6	7.3	-	7.1	7.4	6.6	7.5	7.1	7.4
Specific Conductivity	µS/cm	-	-	-	35	35	-	35	44	36	35	35	43
Water Temperature	°C	-	-	-	3.45	15.1	-	10.22	0.09	3.79	15.73	10.26	0.14
Conventional Parameters (Laboratory-Measured)													
pH	pH Unit	-	6.5-9.0	0.07	7.15	7.28	7.28	7.28	7.11	7.13	7.23	7.26	7.11
Specific Conductivity	µS/cm	-	-	1	38	38	37	36	42	38	36	36	44
Total Alkalinity	mg/L	-	-	1	20	17	17	12	25	12	15	14	26
Total Hardness	mg/L	-	-	1	13	13	13	13	15	13	13	13	16
Total Dissolved Solids	mg/L	-	-	1	31	31	30	26	41	31	29	25	42
Total Suspended Solids	mg/L	-	-	1	2	<1	<1	1	<1	1	<1	1	<1
Nutrients													
Ammonia as Nitrogen	mg/L	0.855[d]	0.855[d]	0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate	mg/L	-	13	0.04	0.13	<0.04[m]	0.31[m]	<0.04	0.09	0.09	<0.04	<0.04	0.09
Nitrite+Nitrate as Nitrogen	mg/L	-	-	0.01	0.03	0.01	0.07	<0.01	0.02	0.02	0.01	<0.01	0.02
Total Kjeldahl Nitrogen	mg/L	-	-	0.05	0.22	0.21	0.17	0.15	0.19	0.16	0.15	0.14	0.26
Total Nitrogen	mg/L	-	-	0.05	0.25	0.22	0.23	0.15	0.21	0.18	0.16	0.14	0.28
Total Phosphorus	mg/L	-	-	0.01	0.02	0.01	0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01
Dissolved Phosphorus	mg/L	-	-	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01
Major Ions													
Bicarbonate	mg/L	-	-	1	24	21	21	15	30	15	18	17	32
Calcium	mg/L	-	-	0.1	3.1	3.2	3.2	3.1	3.6	3.1	3.1	3.1	3.9
Carbonate	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloride	mg/L	-	120	0.1	3.6	2.5	2.5	2.4	3.7	4.0	2.4	2.5	4.0
Hydroxide	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	-	-	0.1	1.2	1.2	1.2	1.2	1.5	1.2	1.2	1.2	1.5
Potassium	mg/L	-	-	0.1	0.6	0.6	0.7	0.7	0.8	0.6	0.7	0.6	0.8
Sodium	mg/L	-	-	0.1	1.7	1.6	1.6	1.5	1.9	1.8	1.6	1.5	1.9
Sulfate	mg/L	-	-	0.2	1.2	1.3	1.3	1.3	1.4	1.2	1.2	1.3	1.5
Sum of Ions	mg/L	-	-	1	36	31	32	25	43	27	28	27	46
Organics													
Chlorophyll a	mg/m^3	-	-	0.1	2.4	2.3	2.8	2.4	<0.1	3.1	2.2	3.6	<0.1
Total Metals													
Aluminum	mg/L	0.005-0.1[e]	0.005-0.1[e]	0.0005	0.0032	0.0029	0.0037	0.0030	0.0044	0.0016	0.0024	0.0028	0.0042
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	µg/L	5	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Barium	mg/L	-	-	0.0005	0.0044	0.0040	0.0041	0.0042	0.0049	0.0045	0.0037	0.0042	0.0050
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	1.5	0.01	0.01	0.01	<0.01	0.01	0.01	0.01	<0.01	0.01	0.01
Cadmium	mg/L	0.000017[f]	0.000017[f]	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Chromium	mg/L	-	0.0010/0.0089[g]	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.002[h]	0.002[h]	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Iron	mg/L	0.3	0.3	0.0005	0.075	0.010	0.012	0.017	0.035	0.078	0.0096	0.017	0.034
Lead	mg/L	0.001[i]	0.001[i]	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Manganese	mg/L	-	-	0.0005	0.025	0.0088	0.0095	0.013	0.0042	0.027	0.0085	0.013	0.0039
Mercury	µg/L	0.026[i]	0.026[i]	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum	mg/L	-	0.073	0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001
Nickel	mg/L	0.025[k]	0.025[k]	0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001
Selenium	mg/L	0.001[i]	0.001[i]	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001
Silver	mg/L	0.0001	0.0001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Strontium	mg/L	-	-	0.0005	0.040	0.037	0.038	0.036	0.045	0.044	0.033	0.036	0.047
Thallium	mg/L	-	0.0008	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	mg/L	-	-	0.0001	0.0011	0.0006	0.0005	0.0007	<0.0001	0.0008	0.0004	0.0008	<0.0001
Titanium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Uranium	µg/L	15	15	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	mg/L	0.03	0.03	0.0005	0.0014	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Radionuclides													
Lead-210	Bq/L	-	-	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Radium-226	Bq/L	-	-	0.005	0.01	0.007	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	<0.005
Thorium-230	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Table III.6-1 Water Chemistry Data for Black Lake and Middle Lake, Spring 2010 to Winter 2011

Parameters	Unit	Guidelines		Detection Limit	Quality Assurance/Quality Control							
					Field Blank				Trip Blank			
		SSWQO[a]	CWQG[b]		5/29/2010	8/25/2010	9/25/2010	2/21/2011	5/27/2010	8/31/2010	9/25/2010	3/2/2011
Conventional Parameters (Field-Measured)												
Dissolved Oxygen	mg/L	6.5/9.5[c]	6.5/9.5[c]	-	-	-	-	-	-	-	-	-
pH	pH Unit	-	6.5-9.0	-	-	-	-	-	-	-	-	-
Specific Conductivity	µS/cm	-	-	-	-	-	-	-	-	-	-	-
Water Temperature	°C	-	-	-	-	-	-	-	-	-	-	-
Conventional Parameters (Laboratory-Measured)												
pH	pH Unit	-	6.5-9.0	0.07	5.21	5.58	5.30	5.46	5.24	6.04	5.42	5.29
Specific Conductivity	µS/cm	-	-	1	1	<1	<1	<1	1	<1	<1	<1
Total Alkalinity	mg/L	-	-	1	1	5	3	<1	1	4	4	<1
Total Hardness	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1
Total Dissolved Solids	mg/L	-	-	1	<1	<1	<1	6	1	<1	<1	<1
Total Suspended Solids	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1
Nutrients												
Ammonia as Nitrogen	mg/L	0.855[d]	0.855[d]	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nitrate	mg/L	-	13	0.04	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Nitrite+Nitrate as Nitrogen	mg/L	-	-	0.01	0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
Total Kjeldahl Nitrogen	mg/L	-	-	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Nitrogen	mg/L	-	-	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Phosphorus	mg/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01	<0.01
Dissolved Phosphorus	mg/L	-	-	0.01	<0.01	-	-	-	-	-	-	-
Major Ions												
Bicarbonate	mg/L	-	-	1	1	6	4	<1	1	5	5	<1
Calcium	mg/L	-	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Carbonate	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1
Chloride	mg/L	-	120	0.1	<0.1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.1
Hydroxide	mg/L	-	-	1	<1	<1	<1	<1	<1	<1	<1	<1
Magnesium	mg/L	-	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L	-	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sodium	mg/L	-	-	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sulfate	mg/L	-	-	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of Ions	mg/L	-	-	1	1	6	4	<1	1	5	5	<1
Organics												
Chlorophyll a	mg/m^3	-	-	0.1	<0.1	-	-	-	-	-	-	-
Total Metals												
Aluminum	mg/L	0.005-0.1[e]	0.005-0.1[e]	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Antimony	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	µg/L	5	5	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Barium	mg/L	-	-	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Beryllium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Boron	mg/L	-	1.5	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	mg/L	0.000017[f]	0.000017[f]	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Chromium	mg/L	-	0.0010/0.0089[g]	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cobalt	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.002[h]	0.002[h]	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Iron	mg/L	0.3	0.3	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Lead	mg/L	0.001[i]	0.001[i]	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Manganese	mg/L	-	-	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Mercury	µg/L	0.026[j]	0.026[j]	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Molybdenum	mg/L	-	0.073	0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Nickel	mg/L	0.025[k]	0.025[k]	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Selenium	mg/L	0.001[l]	0.001[l]	0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Silver	mg/L	0.0001	0.0001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00002	<0.00001	<0.00001	<0.00001
Strontium	mg/L	-	-	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Thallium	mg/L	-	0.0008	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Tin	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Titanium	mg/L	-	-	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Uranium	µg/L	15	15	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Vanadium	mg/L	-	-	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	mg/L	0.03	0.03	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Radionuclides												
Lead-210	Bq/L	-	-	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04
Radium-226	Bq/L	-	-	0.005	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	0.008
Thorium-230	Bq/L	-	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Notes: Values that are equal to or exceed the SSWQO are **bolded**. Values that are equal to or exceed the CWQG are underlined. Non-detected values that are higher than one or more guideline are *italicized*. Date: mm/dd/yyyy.

[a] = Saskatchewan Environment's (2006) Saskatchewan Surface Water Quality Objectives (SSWQO).

[b] = Canadian Council of Ministers of the Environment's (CCME) Canadian water quality guidelines (CWQG) for the protection of aquatic life - freshwater (CCME - 2007).

[c] = The guidelines for dissolved oxygen for cold-water biota are 9.5 mg/L for early life stages and 6.5 mg/L for other life stages.

[d] = The guidelines for ammonia are dependent on temperature and pH; therefore, the guideline for each station was calculated and the lowest overall value was used for screening.

[e] = The guidelines for aluminum are pH-dependent; the guideline is 0.005 mg/L at pH<6.5; 0.1 mg/L at pH>6.5. Field pH values were used in the screening.

[f] = The guidelines for cadmium are hardness-dependent; at hardnesses ranging from 0 to 48.5 mg/L as $CaCO_3$, the guideline is 0.000017 mg/L.

[g] = The guideline for chromium is speciation-dependent; the guideline is 0.0089 mg/L for trivalent chromium and 0.0010 mg/L for hexavalent chromium.

[h] = The guidelines for copper are hardness-dependent; at hardnesses ranging from 0 to 120 mg/L as $CaCO_3$, the guideline is 0.002 mg/L.

[i] = The guidelines for lead are hardness-dependent; at hardnesses ranging from 0 to 60 mg/L as $CaCO_3$, the guideline is 0.001 mg/L.

[j] = Mercury objective is for inorganic mercury only.

[k] = The guidelines for nickel are hardness-dependent; at hardnesses ranging from 0 to 60 mg/L as $CaCO_3$, the guideline is 0.025 mg/L.

[l] = Selenium guideline is based on waterborne exposure. However, selenium has a bioaccumulation pathway similar to mercury; therefore, the guideline may not be protective of effects through reproductive impairment due to material transfer, resulting in embryotoxicity and teratogenicity (Chapman et al. 2009).

[m] = Data variable and outside QAQC limits.

mg/L = milligrams per litre; µS/cm = microSiemens per centimetre; °C = degrees Celsius; mg/m^3 = milligrams per cubic metre; µg/L = micrograms per litre; Bq/L = Becquerels per litre; mm/dd/yyyy = month/day/year; mg $CaCO_3$/L = milligrams of calcium carbonate per litre; < = less than; - = not applicable or not collected.

* Station code is comprised of three letter waterbody code and two or three letter water quality station code.

APPENDIX III.7

Lower Trophic Communities

Table III.7-1 Periphyton Data Collected from Fond du Lac River, 2010

		Fond du Lac River											
Site Location and Name [a]		10SKPOFFDLRPE01A		10SKPOFFDLRPE01B		10SKPOFFDLRPE01C		10SKPOFFDLRPE02A		10SKPOFFDLRPE02B		10SKPOFFDLRPE02C	
Station [b]		FDLR-01A		FDLR-01B		FDLR-01C		FDLR-02A		FDLR-02B		FDLR-02C	
Date		17-Sep-10		17-Sep-10		17-Sep-10		28-Sep-10		28-Sep-10		28-Sep-10	
Class	**Taxon**	**Cells/cm^2**	**Biovolume (mm^3/m^2)**	**Cells/cm^2**	**Biovolume (mm^3/m^2)**	**Cells/cm^2**	**Biovolume (mm^3/m^2)**	**Cells/cm^2**	**Biovolume (mm^3/m^2)**	**Cells/cm^2**	**Biovolume (mm^3/m^2)**	**Cells/cm^2**	**Biovolume (mm^3/m^2)**
Bacillariophyceae (diatoms)	*Achnanthidium sp.*	30,053.57	24.04	60,107.14	48.09	40,071.43	32.06	60,107.14	48.09	130,232.14	104.19	150,267.86	120.21
Bacillariophyceae (diatoms)	*Amphora (small)*					10,017.86	25.04	20,035.71	50.09	20,035.71	50.09	90,160.71	225.40
Bacillariophyceae (diatoms)	*Asterionella formosa*					30,053.57	30.05	20,035.71	20.04	60,107.14	60.11	50,089.29	50.09
Bacillariophyceae (diatoms)	*Aulacoseira italica*	30,053.57	45.08			60,107.14	90.16	240,428.57	360.64	40,071.43	60.11	90,160.71	135.24
Bacillariophyceae (diatoms)	*Cyclotella comta*							10,017.86	35.06	30,053.57	105.19	50,089.29	175.31
Bacillariophyceae (diatoms)	*Cyclotella glomerata*							20,035.71	10.02			10,017.86	5.01
Bacillariophyceae (diatoms)	*Cyclotella stelligera*					30,053.57	45.08						
Bacillariophyceae (diatoms)	*Cymbella sp. (large)*					10,017.86	50.09	10,017.86	50.09	10,017.86	50.09	30,053.57	150.27
Bacillariophyceae (diatoms)	*Cymbella sp. (medium)*	20,035.71	50.09	20,035.71	50.09			100,178.57	250.45	130,232.14	325.58	210,375.00	525.94
Bacillariophyceae (diatoms)	*Cymbella sp. (small)*							80,142.86	80.14				
Bacillariophyceae (diatoms)	*Diatoma sp.*									30,053.57	30.05	10,017.86	10.02
Bacillariophyceae (diatoms)	*Didymosphenia geminata*					10,017.86	125.22	20,035.71	250.45	20,035.71	250.45	10,017.86	125.22
Bacillariophyceae (diatoms)	*Epithemia sp.*			10,017.86	35.06	10,017.86	35.06	20,035.71	70.13				
Bacillariophyceae (diatoms)	*Fragilaria capucina*	150,267.86	112.70	60,107.14	45.08	90,160.71	67.62	80,142.86	60.11	230,410.71	172.81	140,250.00	105.19
Bacillariophyceae (diatoms)	*Fragilaria crotonensis*			10,017.86	7.01	20,035.71	14.03			70,125.00	49.09	100,178.57	70.13
Bacillariophyceae (diatoms)	*Gomphonema sp. (large)*							30,053.57	225.40	20,035.71	150.27		
Bacillariophyceae (diatoms)	*Gomphonema sp. (medium)*			10,017.86	50.09	10,017.86	50.09					30,053.57	150.27
Bacillariophyceae (diatoms)	*Hannaea arcus*							20,035.71	45.08			10,017.86	22.54
Bacillariophyceae (diatoms)	*Navicula sp. (medium)*			10,017.86	50.09	40,071.43	200.36	20,035.71	100.18				
Bacillariophyceae (diatoms)	*Nitzschia sp. (large)*					10,017.86	40.07	10,017.86	40.07	10,017.86	40.07		
Bacillariophyceae (diatoms)	*Nitzschia sp. (medium)*	10,017.86	20.04	10,017.86	20.04	10,017.86	20.04						
Bacillariophyceae (diatoms)	*Staurosia construens*					40,071.43	8.01	190,339.29	38.07	40,071.43	8.01	20,035.71	4.01
Bacillariophyceae (diatoms)	*Stephanodiscus sp. (large)*					10,017.86	100.18						
Bacillariophyceae (diatoms)	*Synedra acus*					20,035.71	20.04	10,017.86	10.02	10,017.86	10.02	10,017.86	10.02
Bacillariophyceae (diatoms)	*Synedra rumpens*	60,107.14	72.13	10,017.86	12.02	60,107.14	72.13	20,035.71	24.04	40,071.43	48.09	20,035.71	24.04
Bacillariophyceae (diatoms)	*Synedra ulna*			10,017.86	30.05	30,053.57	90.16	10,017.86	30.05	10,017.86	30.05	20,035.71	60.11
Bacillariophyceae (diatoms)	*Tabellaria fenestrata*			70,125.00	245.44	50,089.29	175.31	190,339.29	666.19	480,857.14	1,683.00	30,053.57	105.19
Bacillariophyceae (diatoms)	***Group Total***	***300,535.71***	***324.08***	***280,500.00***	***593.06***	***591,053.57***	***1,290.80***	***1,182,107.14***	***2,464.39***	***1,382,464.29***	***3,227.25***	***1,081,928.57***	***2,074.20***
Chlorophyceae (coccoid greens, desmids, etc.)	*Acanthosphaera sp.*											10,017.86	7.51
Chlorophyceae (coccoid greens, desmids, etc.)	*Actinastrum hantschii*					60,107.14	18.03						
Chlorophyceae (coccoid greens, desmids, etc.)	*Ankistrodesmus sp.*					10,017.86	8.01	20,035.71	16.03			20,035.71	16.03
Chlorophyceae (coccoid greens, desmids, etc.)	*Coelastrum sp. (cells)*									40,071.43	20.04		
Chlorophyceae (coccoid greens, desmids, etc.)	*Cosmarium sp.*			10,017.86	50.09					30,053.57	150.27	10,017.86	50.09
Chlorophyceae (coccoid greens, desmids, etc.)	*Crucigenia sp.*									40,071.43	12.02	40,071.43	12.02
Chlorophyceae (coccoid greens, desmids, etc.)	*Dichtyosphaerium (cells)*											180,321.43	45.08
Chlorophyceae (coccoid greens, desmids, etc.)	*Nephroselmis*											10,017.86	10.42
Chlorophyceae (coccoid greens, desmids, etc.)	*Scenedesmus sp.*	10,017.86	6.01			10,017.86	6.01	10,017.86	6.01	10,017.86	6.01	10,017.86	6.01
Chlorophyceae (coccoid greens, desmids, etc.)	*Staurodesmus sp.*					10,017.86	30.05						
Chlorophyceae (coccoid greens, desmids, etc.)	*Ulothrix*			130,232.14	32.56	100,178.57	25.04	20,035.71	5.01				
Chlorophyceae (coccoid greens, desmids, etc.)	***Group Total***	***10,017.86***	***6.01***	***140,250.00***	***82.65***	***190,339.29***	***87.16***	***50,089.29***	***27.05***	***120,214.29***	***188.34***	***280,500.00***	***147.16***

		Fond du Lac River											
Site Location and Name [a]		10SKPOFFDLRPE01A		10SKPOFFDLRPE01B		10SKPOFFDLRPE01C		10SKPOFFDLRPE02A		10SKPOFFDLRPE02B		10SKPOFFDLRPE02C	
Station [b]		FDLR-01A		FDLR-01B		FDLR-01C		FDLR-02A		FDLR-02B		FDLR-02C	
Date		17-Sep-10		17-Sep-10		17-Sep-10		28-Sep-10		28-Sep-10		28-Sep-10	
Class	**Taxon**	**Cells/cm^2**	**Biovolume (mm^3/m^2)**	**Cells/cm^2**	**Biovolume (mm^3/m^2)**	**Cells/cm^2**	**Biovolume (mm^3/m^2)**	**Cells/cm^2**	**Biovolume (mm^3/m^2)**	**Cells/cm^2**	**Biovolume (mm^3/m^2)**	**Cells/cm^2**	**Biovolume (mm^3/m^2)**
Chryso- & Cryptophyceae (flagellates)	*Chilomonas sp.*							20,035.71	50.09	30,053.57	75.13	20,035.71	50.09
Chryso- & Cryptophyceae (flagellates)	*Chroomonas acuta*					10,017.86	5.01			10,017.86	5.01	10,017.86	5.01
Chryso- & Cryptophyceae (flagellates)	*Chrysococcus*	20,035.71	15.03	20,035.71	15.03	40,071.43	30.05	30,053.57	22.54	70,125.00	52.59	70,125.00	52.59
Chryso- & Cryptophyceae (flagellates)	*Dinobryon sp. (medium)*											10,017.86	12.02
Chryso- & Cryptophyceae (flagellates)	*Kephyrion sp.*									100,178.57	50.09	10,017.86	5.01
Chryso- & Cryptophyceae (flagellates)	*Mallonomopsis sp.*											10,017.86	12.52
Chryso- & Cryptophyceae (flagellates)	*Ochromonas sp.*			10,017.86	15.03			20,035.71	30.05				
Chryso- & Cryptophyceae (flagellates)	*Small microflagellates*	140,250.00	7.01	120,214.29	6.01	310,553.57	15.53	450,803.57	22.54	550,982.14	27.55	210,375.00	10.52
Chryso- & Cryptophyceae (flagellates)	***Group Total***	***160,285.71***	***22.04***	***150,267.86***	***36.06***	***360,642.86***	***50.59***	***520,928.57***	***125.22***	***761,357.14***	***210.38***	***340,607.14***	***147.76***
Cyanophyceae (blue-greens)	*Anabaena sp.*	260,464.29	130.23					430,767.86	215.38	120,214.29	60.11		
Cyanophyceae (blue-greens)	*Chroococcus sp. (cells)*	100,178.57	125.22			10,017.86	12.52			160,285.71	200.36	100,178.57	125.22
Cyanophyceae (blue-greens)	*Lyngbya sp. (cells)*	350,625.00	7.01			821,464.29	16.43	1,903,392.86	38.07	1,823,250.00	36.47	621,107.14	12.42
Cyanophyceae (blue-greens)	*Microcystis sp. (cells)*					180,321.43	3.61	1,001,785.71	20.04	1,602,857.14	32.06	350,625.00	7.01
Cyanophyceae (blue-greens)	*Planktothrix agardhii*									1,302,321.43	195.35	400,714.29	60.11
Cyanophyceae (blue-greens)	*Planktothrix sp.*					410,732.14	61.61						
Cyanophyceae (blue-greens)	*Pseudoanabaena sp.*			260,464.29	65.12								
Cyanophyceae (blue-greens)	*Synechococcus sp. (coccoid)*	170,303.57	6.81	180,321.43	7.21	410,732.14	16.43	601,071.43	24.04	550,982.14	22.04	410,732.14	16.43
Cyanophyceae (blue-greens)	*Synechococcus sp. (rod)*	721,285.71	28.85	210,375.00	8.42	1,412,517.86	56.50	1,081,928.57	43.28	1,202,142.86	48.09	1,332,375.00	53.30
Cyanophyceae (blue-greens)	***Group Total***	***1,602,857.14***	***298.13***	***651,160.71***	***80.74***	***3,245,785.71***	***167.10***	***5,018,946.43***	***340.81***	***6,762,053.57***	***594.46***	***3,215,732.14***	***274.49***
Dinophyceae (dinoflagellates)	*Gymnodinium sp. (medium)*							10,017.86	40.07	20,035.71	80.14	10,017.86	40.07
Dinophyceae (dinoflagellates)	***Group Total***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***0.00***	***10,017.86***	***40.07***	***20,035.71***	***80.14***	***10,017.86***	***40.07***
Periphyton	***Total***	***2,073,696.43***	***650.26***	***1,222,178.57***	***792.52***	***4,387,821.43***	***1,595.64***	***6,782,089.29***	***2,997.54***	***9,046,125.00***	***4,300.57***	***4,928,785.71***	***2,683.68***

cm^2 = square centimetre; mm^3 = cubic millimetre; m^2 = square metre

(a) site location and name code is comprised of the two letter year code (i.e., 10 for 2010), client code (SKPO), season (i.e., F for fall), watercourse code (i.e., FDLR for the Fond du Lac River), event code (i.e., PE for periphyton), sample number, and replicate number.
(b) station code is comprised of the four letter waterbody code and the three character lower trophic sampling station code. (sample number and replicate letter).

Table III.7-2 Benthic Invertebrate Abundance Data for the Fond du Lac River, Middle Lake and Black Lake, 2010

				Fond du Lac River												Black Lake				Middle Lake		
				September, 2010												September 2010				September 2010		
				Erosional Habitat						Drifting Invertebrates						Depositional Habitat						
				No./0.04 m2						No. per sample (collected over 8 hours)						No./0.116 m2						
Major Taxon	Family	Subfamily/Tribe	Genus/Species	FDLR-E-01A [a]	FDLR-E-01B	FDLR-E-01C	FDLR-E-02A	FDLR-E-02B	FDLR-E-02C	FDLR-01A Drift	FDLR-01B Drift	FDLR-01C Drift	FDLR-02A Drift	FDLR-02B Drift	FDLR-02C Drift	BKL-01A	BKL-02	BKL-03	MILL-01A #1	MILL-01A #2	MILL-01A #3	MLL-03
Tricladida	Dugesiidae		*Dugesia tigrina*				1	1														
Nematoda				1	24	1	8	3	5	1	2	3		1						2		
Oligochaeta	Enchytraeidae					1			3		1											
Oligochaeta	Naididae			1	20	3	54	27	58		3	4	4	4	1							
Oligochaeta	Lumbriculidae						1		2		1											
Oligochaeta	Tubificidae						1				2					9	28	1	18	25	1	31
Hydracarina				3	7		9	6	4		1				1							
Ostracoda																			8			
Copepoda - Calanoida				1		1	1	1		199	33	34	4	4	1							
Copepoda - Harpacticoida					12																	
Cladocera	Chydoridae		*Eurycercus*							1	2	4			1							
Cladocera	Chydoridae (d)										1											
Gastropoda	Lymnaeidae (d)								1			1										
Gastropoda	Planorbidae		*Gyraulus*		1		5	6	1	2	7	3		1	1				1	8		1
Gastropoda	Valvatidae		*Valvata sincera*		1						1								15	24	5	63
Pelecypoda	Pisidiidae		*Pisidium*				4	1								3	1		10	7	3	75
Pelecypoda	Pisidiidae		*Sphaerium*	2		1	29	5											2	2		
Pelecypoda	Pisidiidae (d)			18	128	7	146	84	12		10	2	9		6	12	74	2	73	136	10	593
Amphipoda	Pontoporeiidae		*Diporeia hoyi*													31	59	2		1		48
Amphipoda	Hyalellidae		*Hyalella azteca*									1										
Ephemeroptera	Baetidae		*Baetis*	2	10	36	4	1	13	2			4		7							
Ephemeroptera	Baetiscidae		*Baetisca*																			1
Ephemeroptera	Caenidae		*Caenis*																	8		
Ephemeroptera	Ephemerellidae		*Drunella grandis*		2		1	4	6													
Ephemeroptera	Ephemerellidae		*Ephemerella*		4		3	1	1													
Ephemeroptera	Heptageniidae		*Heptagenia*	1				1	2													
Ephemeroptera	Leptophlebiidae		*Leptophlebia*		4			2				1										
Plecoptera	Nemouridae		*Zapada*						1													
Plecoptera	Perlodidae		*Isoperla*				3	1	1				1									
Trichoptera (d)				4			1															
Trichoptera	Glossosomatidae		*Glossosoma*				1	5							1							
Trichoptera	Hydropsychidae		*Cheumatopsyche*	79	177	105	16	38	28	3	5	3	2	5	12							
Trichoptera	Hydropsychidae		*Hydropsyche*	10	57	42	14	11	73	2	2	1	10	12	24							
Trichoptera	Hydroptilidae		*Hydroptila*				1	1														
Trichoptera	Hydroptilidae		*Oxyethira*							1												
Trichoptera	Lepidostomatidae		*Lepidostoma*					7	1													1
Trichoptera	Leptoceridae		*Ceraclea*	5	8	4		3						1								
Trichoptera	Leptoceridae		*Mystacides*																	2		
Trichoptera	Leptoceridae		*Oecetis*				2															
Trichoptera	Molannidae		*Molanna*																1			
Trichoptera	Molannidae		*Molannodes*																			1
Coleoptera	Dytiscidae		*Oreodytes*												1							
Hemiptera	Corixidae		*Callicorixa*										4	10	1							
Hemiptera	Corixidae		*Sigara*										7	5	2							

Major Taxon	Family	Subfamily/Tribe	Genus/Species	FDLR-E-01A [a]	FDLR-E-01B	FDLR-E-01C	FDLR-E-02A	FDLR-E-02B	FDLR-E-02C	FDLR-01A Drift	FDLR-01B Drift	FDLR-01C Drift	FDLR-02A Drift	FDLR-02B Drift	FDLR-02C Drift	BKL-01A	BKL-02	BKL-03	MILL-01A #1	MILL-01A #2	MILL-01A #3	MLL-03
Diptera	Ceratopogonidae	Ceratopogoninae	*Bezzia*																	8		
Diptera	Ceratopogonidae	Ceratopogoninae	*Probezzia*																11	34	17	17
Diptera	Empididae		*Chelifera*													4						
Diptera	Empididae		*Hemerodromia*				4		2											1		
Diptera	Empididae		*Wiedemannia*					1	1													
Diptera	Simuliidae (d)					1																
Diptera	Tipulidae		*Antocha*					1														
Diptera	Trichoceridae		*Trichocera*																			40
Diptera	Chironomidae - pupa			3	12	2	5	1	5		2	1	5		4							
Diptera	Chironomidae	Tanypodinae (d)		14	8	11	12	5	19			4							9			
Diptera	Chironomidae	Tanypodinae	*Nilotanypus*		12		1	2	1													
Diptera	Chironomidae	Tanypodinae	*Procladius*									4				15		8	6	2	20	12
Diptera	Chironomidae	Tanypodinae	*Thienemannimyia* group	98	358	46	157	130	183	4	15	13	12		11				8	1	1	
Diptera	Chironomidae	Chironomini (d)							2													
Diptera	Chironomidae	Chironomini	*Chironomus*															21				1
Diptera	Chironomidae	Chironomini	*Cryptochironomus*					1											1		1	8
Diptera	Chironomidae	Chironomini	*Microtendipes*	4				1	4										1	2		
Diptera	Chironomidae	Chironomini	*Paracladopelma*								1											
Diptera	Chironomidae	Chironomini	*Sergentia*															10				
Diptera	Chironomidae	Chironomini	*Stictochironomus*													8						
Diptera	Chironomidae	Chironomini	*Xenochironomus*		8			1					4									
Diptera	Chironomidae	Tanytarsini (d)					2															
Diptera	Chironomidae	Tanytarsini	*Micropsectra*						1													
Diptera	Chironomidae	Tanytarsini	*Micropsectra / Tanytarsus*		4		4		2													
Diptera	Chironomidae	Tanytarsini	*Paratanytarsus*	1																		
Diptera	Chironomidae	Tanytarsini	*Rheotanytarsus*				2							4								
Diptera	Chironomidae	Tanytarsini	*Stempellinella*		8																	
Diptera	Chironomidae	Tanytarsini	*Sublettea*	1			19	7	9													
Diptera	Chironomidae	Tanytarsini	*Tanytarsus*								1								273	373	169	16
Diptera	Chironomidae	Orthocladiinae (d)		1	16	1	23	7														
Diptera	Chironomidae	Orthocladiinae	*Cardiocladius*											1	1							
Diptera	Chironomidae	Orthocladiinae	*Corynoneura*				1															
Diptera	Chironomidae	Orthocladiinae	*Cricotopus/Orthocladius*	18	180	42	77	71	86	1	10	13	8	4	5							
Diptera	Chironomidae	Orthocladiinae	*Nanocladius*	1	1										1							
Diptera	Chironomidae	Orthocladiinae	*Parakiefferiella*				1															
Diptera	Chironomidae	Orthocladiinae	*Psectrocladius*							2												
Diptera	Chironomidae	Orthocladiinae	*Pseudosmittia*	1					2			1										
Diptera	Chironomidae	Orthocladiinae	*Synorthocladius*		5		1															
Diptera	Chironomidae	Orthocladiinae	*Tvetenia*	12	64	19		1	4		1			4								
Diptera	Chironomidae	Diamesinae	*Diamesa*												2							
Diptera	Chironomidae	Diamesinae	*Pagastia*				15	12	13						1							
Diptera	Chironomidae	Diamesinae	*Potthastia gaedii*	6	84	7	11	15	8													
Diptera	Chironomidae	Diamesinae	*Potthastia longimana* gr.	3	2	1	3	5	13		4	2	1		1							
Diptera	Chironomidae	Diamesinae	*Protanypus*														1					
Terrestrial				1			5	1	1	6	1		27	39	26							
			TOTAL	**291**	**1217**	**331**	**648**	**471**	**568**	**224**	**106**	**95**	**102**	**95**	**111**	**82**	**163**	**44**	**437**	**636**	**227**	**908**
			Taxon Count	***26***	***28***	***19***	***39***	***38***	***35***	***12***	***22***	***18***	***15***	***14***	***22***	***7***	***5***	***6***	***15***	***17***	***9***	***15***

d = damaged or small organisms; m^2 = square metre; No. = number

(a) station codes are comprised of a three/four letter waterbody code followed by a two/three letter sample location code.

Table III.7-3 Phytoplankton Data Collected from Middle Lake and Black Lake, 2010

Lake		Black Lake								Middle Lake							
Station		BKL-02 [(a)]				BKL-03 [(a)]				MLL-01 [(a)]				MLL-03 [(a)]			
Month		May		August		May		August		May		August		May		August	
Class	Species	No. Cells/mL	BioV. mm^3/L	No. Cells/mL	BioV. mm^3/L	No. Cells/mL	BioV. mm^3/L	No. Cells/mL	BioV. mm^3/L	No. Cells/mL	BioV. mm^3/L	No. Cells/mL	BioV. mm^3/L	No. Cells/mL	BioV. mm^3/L	No. Cells/mL	BioV. mm^3/L
Bacillariophyceae (diatoms)	*Achnanthidium spp.*	20.27	0.0016	12.67	0.0010	172.33	0.0172			10.14	0.0008	12.67	0.0010	202.74	0.0162	25.34	0.0020
Bacillariophyceae (diatoms)	*Asterionella formosa*	91.23	0.0091	278.76	0.0279			266.09	0.0266	141.92	0.0142	152.05	0.0152			88.70	0.0089
Bacillariophyceae (diatoms)	*Fragilaria construens*	101.37	0.0122							10.14	0.0008					76.03	0.0061
Bacillariophyceae (diatoms)	*Fragilaria capucina*	101.37	0.0101	38.01	0.0038	60.82	0.0061	12.67	0.0013	30.41	0.0030	50.68	0.0051	30.41	0.0030	50.68	0.0051
Bacillariophyceae (diatoms)	*Synedra acus var angustissima*	20.27	0.0030			10.14	0.0015									12.67	0.0019
Bacillariophyceae (diatoms)	*Synedra nana*	40.55	0.0030			30.41	0.0023	25.34	0.0019	30.41	0.0023	38.01	0.0029	10.14	0.0008	50.68	0.0038
Bacillariophyceae (diatoms)	*Synedra acus*	50.68	0.0051	12.67	0.0013	20.27	0.0020	101.37	0.0101			38.01	0.0038			25.34	0.0025
Bacillariophyceae (diatoms)	*Aulacoseira granulata*	182.46	0.0456			283.83	0.0710	76.03	0.0190	202.74	0.0507	63.36	0.0158	344.65	0.0862	25.34	0.0063
Bacillariophyceae (diatoms)	*Aulacoseira gran. angustissima*					182.46	0.0639							141.92	0.0497		
Bacillariophyceae (diatoms)	*Aulicoseira distans*									50.68	0.0177						
Bacillariophyceae (diatoms)	*Cyclotella comta*	20.27	0.0071	25.34	0.0089			25.34	0.0089	10.14	0.0035	12.67	0.0044			12.67	0.0044
Bacillariophyceae (diatoms)	*Cyclotella glomerata*			38.01	0.0019												
Bacillariophyceae (diatoms)	*Cyclotella stelligera*	20.27	0.0030	38.01	0.0057			25.34	0.0038			25.34	0.0038			25.34	0.0038
Bacillariophyceae (diatoms)	*Stephanodiscus sp.*									20.27	0.0304					12.67	0.0190
Bacillariophyceae (diatoms)	*Navicula sp.*	10.14	0.0051	25.34	0.0127	10.14	0.0051			10.14	0.0051	25.34	0.0127	10.14	0.0051	12.67	0.0063
Bacillariophyceae (diatoms)	*Nitzschia sp.*									10.14	0.0020						
Bacillariophyceae (diatoms)	*Tabellaria flocculosa*			152.05	0.0760	10.14	0.0051										
Bacillariophyceae (diatoms)	*Tabellaria fenestrata*			38.01	0.0190							76.03	0.0380				
Bacillariophyceae (diatoms)	*Rhizosolenia sp.*			50.68	0.0025												
Bacillariophyceae (diatoms)	*Cymbella sp.*									10.14	0.0025						
Bacillariophyceae (diatoms)	***Group total***	**658.90**	**0.1050**	**709.58**	**0.1607**	**780.54**	**0.1741**	**532.19**	**0.0716**	**537.25**	**0.1331**	**494.17**	**0.1027**	**739.99**	**0.1609**	**418.15**	**0.0702**
Chryso- & Cryptophyceae (flagellates)	*Chromulina sp.*	10.14	0.0002	12.67	0.0003	10.14	0.0002	12.67	0.0003	10.14	0.0002	12.67	0.0003	10.14	0.0002	12.67	0.0003
Chryso- & Cryptophyceae (flagellates)	*Chrysochromulina sp.*	60.82	0.0046	50.68	0.0038	60.82	0.0046	50.68	0.0038	60.82	0.0046	50.68	0.0038	30.41	0.0023	25.34	0.0019
Chryso- & Cryptophyceae (flagellates)	*Chryptomonas spp.*	40.55	0.0203	12.67	0.0063	60.82	0.0304	76.03	0.0380	40.55	0.0203	25.34	0.0127	30.41	0.0152	25.34	0.0127
Chryso- & Cryptophyceae (flagellates)	*Boda spp.*	10.14	0.0010	25.34	0.0025	10.14	0.0010	12.67	0.0013	40.55	0.0041	25.34	0.0025	20.27	0.0020	25.34	0.0025
Chryso- & Cryptophyceae (flagellates)	*Chroomonas acuta*	50.68	0.0038	63.36	0.0048	40.55	0.0030	38.01	0.0029	30.41	0.0023	63.36	0.0048	20.27	0.0015	38.01	0.0029
Chryso- & Cryptophyceae (flagellates)	*Ochromonas sp.*	70.96	0.0177	76.03	0.0190	20.27	0.0051	12.67	0.0032	50.68	0.0127	63.36	0.0158	50.68	0.0127	101.37	0.0253
Chryso- & Cryptophyceae (flagellates)	*Mallomonas sp.*			12.67	0.0089	40.55	0.0284			20.27	0.0142					25.34	0.0177
Chryso- & Cryptophyceae (flagellates)	*Dinobryon sp.*	10.14	0.0020	25.34	0.0051			190.07	0.0380	40.55	0.0081	50.68	0.0101			50.68	0.0101
Chryso- & Cryptophyceae (flagellates)	*Small microflagellates*	446.02	0.0067	418.15	0.0063	415.61	0.0062	405.47	0.0061	293.97	0.0044	418.15	0.0063	263.56	0.0040	519.51	0.0078
Chryso- & Cryptophyceae (flagellates)	*Chrysococcus sp.*	60.82	0.0061			60.82	0.0061			60.82	0.0061			30.41	0.0030		
Chryso- & Cryptophyceae (flagellates)	*Pseudokephrion sp.*	10.14	0.0010													12.67	0.0013
Chryso- & Cryptophyceae (flagellates)	*Uroglena sp.*			12.67	0.0022							25.34	0.0044				
Chryso- & Cryptophyceae (flagellates)	***Group total***	**770.40**	**0.0634**	**709.58**	**0.0591**	**719.72**	**0.0850**	**798.28**	**0.0934**	**648.76**	**0.0768**	**734.92**	**0.0607**	**456.16**	**0.0409**	**836.29**	**0.0825**
												734.92	**0.0607**				
Dinophyceae (dinoflagellates)	*Peridinium spp.*	20.27	0.0071	38.01	0.0133	30.41	0.0106	12.67	0.0044	30.41	0.0106			20.27	0.0071	12.67	0.0044
Dinophyceae (dinoflagellates)	*Gymnodinium sp. (large).*	20.27	0.0304	12.67	0.0190	40.55	0.0608			10.14	0.0152			10.14	0.0152		
Dinophyceae (dinoflagellates)	*Gymnodinium sp. (small)*	20.27	0.0101	12.67	0.0063	**30.41**	**0.0152**	12.67	0.0063	10.14	0.0051	12.67	0.0063	10.14	0.0051	25.34	0.0127
Dinophyceae (dinoflagellates)	***Group total***	**60.82**	**0.0476**	**63.36**	**0.0386**	**101.37**	**0.0867**	**25.34**	**0.0108**	**50.68**	**0.0309**	**12.67**	**0.0063**	**40.55**	**0.0274**	**38.01**	**0.0171**

Table III.7-3 Phytoplankton Data Collected from Middle Lake and Black Lake, 2010

Lake		Black Lake								Middle Lake							
Station		BKL-02 [(a)]				BKL-03 [(a)]				MLL-01 [(a)]				MLL-03 [(a)]			
Month		May		August		May		August		May		August		May		August	
Class	Species	No. Cells/mL	BioV. mm^3/L	No. Cells/mL	BioV. mm^3/L	No. Cells/mL	BioV. mm^3/L	No. Cells/mL	BioV. mm^3/L	No. Cells/mL	BioV. mm^3/L	No. Cells/mL	BioV. mm^3/L	No. Cells/mL	BioV. mm^3/L	No. Cells/mL	BioV. mm^3/L
Chlorophyceae (coccoid greens, desmids, etc.)	*Ankistrodesmus sp.*	20.27	0.0016	38.01	0.0030	20.27	0.0016	50.68	0.0041	20.27	0.0016	88.70	0.0071	10.14	0.0008	50.68	0.0041
Chlorophyceae (coccoid greens, desmids, etc.)	*Chlorella sp.*	60.82	0.0012	88.70	0.0018	70.96	0.0014	38.01	0.0008	30.41	0.0006	76.03	0.0015	50.68	0.0010	63.36	0.0013
Chlorophyceae (coccoid greens, desmids, etc.)	*Dichtyosphaerium*	10.14	0.0091											10.14	0.0091		
Chlorophyceae (coccoid greens, desmids, etc.)	*Oocystis sp.*	10.14	0.0051							30.41	0.0152						
Chlorophyceae (coccoid greens, desmids, etc.)	*Scenedesmus sp.*									10.14	0.0006						
Chlorophyceae (coccoid greens, desmids, etc.)	*Coelastrum sp.*	20.27	0.0101	12.67	0.0063	10.14	0.0051	12.67	0.0063	10.14	0.0051						
Chlorophyceae (coccoid greens, desmids, etc.)	*Nephroselmis sp.*	50.68	0.0063			50.68	0.0063	12.67	0.0016	20.27	0.0025			20.27	0.0025	25.34	0.0032
Chlorophyceae (coccoid greens, desmids, etc.)	*Gyromitus sp.*	60.82	0.0137	12.67	0.0029	30.41	0.0068			10.14	0.0023			10.14	0.0023		
Chlorophyceae (coccoid greens, desmids, etc.)	*Ulothrix sp.*					20.27	0.0142							20.27	0.0142		
Chlorophyceae (coccoid greens, desmids, etc.)	*Phacus sp.*	10.14	0.0071			50.68	0.0355					25.34	0.0177				
Chlorophyceae (coccoid greens, desmids, etc.)	*Cosmarium sp.*	10.14	0.0051	12.67	0.0063												
Chlorophyceae (coccoid greens, desmids, etc.)	*Monoraphidium sp.*							12.67	0.0025								
Chlorophyceae (coccoid greens, desmids, etc.)	*Scourfieldia sp.*	10.14	0.0007														
Chlorophyceae (coccoid greens, desmids, etc.)	*Petalomonas sp.*					20.27	0.0051										
Chlorophyceae (coccoid greens, desmids, etc.)	*Elakatothrix sp.*															12.67	0.0032
Chlorophyceae (coccoid greens, desmids, etc.)	*Crucigenia sp.*			25.34	0.0051							12.67	0.0025			50.68	0.0101
Chlorophyceae (coccoid greens, desmids, etc.)	*Planctosphaeria sp.*															88.70	0.0887
Chlorophyceae (coccoid greens, desmids, etc.)	*Monomastic sp.*							12.67	0.0038								
Chlorophyceae (coccoid greens, desmids, etc.)	*Tetraedron sp.*			12.67	0.0006							12.67	0.0006				
Chlorophyceae (coccoid greens, desmids, etc.)	*Gleotila sp.*											12.67	0.0010				
Chlorophyceae (coccoid greens, desmids, etc.)	*Pediastrum sp.*											12.67	0.0127				
Chlorophyceae (coccoid greens, desmids, etc.)	***Group total***	**263.56**	**0.0600**	**202.74**	**0.0260**	**273.70**	**0.0760**	**139.38**	**0.0191**	**131.78**	**0.0279**	**240.75**	**0.0431**	**121.64**	**0.0300**	**291.44**	**0.1105**
Cyanophyceae (blue-greens)	*Synechococcus sp. (coccoid)*	141.92	0.0007	152.05	0.0008	70.96	0.0004	532.19	0.0027	70.96	0.0004	1267.11	0.0063	162.19	0.0008	88.70	0.0004
Cyanophyceae (blue-greens)	*Synechococcus sp (rod)*	91.23	0.0018	164.72	0.0033	121.64	0.0024	557.53	0.0112	111.51	0.0022	392.80	0.0079	81.09	0.0016	228.08	0.0046
Cyanophyceae (blue-greens)	*Synechocystis sp.*	70.96	0.0007	88.70	0.0009	30.41	0.0003	164.72	0.0016	81.09	0.0008	215.41	0.0022	50.68	0.0005	126.71	0.0013
Cyanophyceae (blue-greens)	*Pseudoanabaena sp.*			25.34	0.0076			177.40	0.0532	10.14	0.0030	443.49	0.1330			76.03	0.0228
Cyanophyceae (blue-greens)	*Anabaena spp.*			25.34	0.0228			76.03	0.0684			25.34	0.0228			12.67	0.0114
Cyanophyceae (blue-greens)	*Planktolyngbya sp.*							50.68	0.0139			12.67	0.0035			38.01	0.0105
Cyanophyceae (blue-greens)	*Aphanothecae sp.*			25.34	0.0025			88.70	0.0089			12.67	0.0013			50.68	0.0051
Cyanophyceae (blue-greens)	*Microcystis sp.*			1267.11	0.0013			24708.63	0.0247			4434.88	0.0044			3167.77	0.0032
Cyanophyceae (blue-greens)	*Aphanizomenon sp.*							12.67	0.0190								
Cyanophyceae (blue-greens)	*Gomphosphaeria sp.*			12.67	0.0095							12.67	0.0095				
Cyanophyceae (blue-greens)	*Planktothrix agardhii*			12.67	0.0095												
Cyanophyceae (blue-greens)	***Group total***	**304.11**	**0.0032**	**1773.95**	**0.0582**	**223.01**	**0.0031**	**26368.54**	**0.2036**	**273.70**	**0.0064**	**6817.05**	**0.1909**	**293.97**	**0.0029**	**3788.66**	**0.0592**
Phytoplankton	***GRAND TOTAL***	**2057.79**	**0.2793**	**3459.21**	**0.3426**	**2098.33**	**0.4249**	**27863.73**	**0.3985**	**1642.17**	**0.2753**	**8299.56**	**0.4038**	**1652.31**	**0.2621**	**5372.54**	**0.3395**

mL = millilitre; mm^3 = cubic millimetre; L = litre; No. = number; BioV. = biovolume

(a) station code is comprised of a three letter waterbody code followed by a two letter sample location code.

Table III.7-4 . Zooplankton Data Collected from Black Lake and Middle Lake, 2010

							Daphnia longiremus				*Daphnia* Eggs		*Holopedium gibberum*				*Holepedium* Eggs	
Lake	**Date**	**Station [(a)]**	**Tow Length (m)**	**Dilution (mL)**	**Sub-sample Vol. (mL)**	**Tot Vol. (L)**	**Count**	**No./L**	**Dry Wt (µg)**	**Biomass (µg/L)**	**Count**	**No./L**	**Count**	**No./L**	**Dry Wt (µg)**	**Biomass (µg/L)**	**Count**	**No./L**
Black Lake	29-May-10	BKL-02A	28	60	4	1978.2	0	0.000	0.00	0.000	1	0.008	0	0.000	0.00	0.000	1	0.008
		BKL-02B	28	60	4	1978.2	0	0.000	0.00	0.000	0	0.000	1	0.008	0.78	0.006	0	0.000
	25-Aug-10	BKL-02A	28	120	4	1978.2	20	0.303	1.24	0.376	0	0.000	21	0.318	2.96	0.943	6	0.091
		BKL-02B	28	200	8	1978.2	24	0.303	1.07	0.325	0	0.000	27	0.341	2.84	0.969	2	0.025
	29-May-10	BKL-03A	24	80	4	1695.6	1	0.012	1.89	0.022	0	0.000	1	0.012	2.46	0.029	0	0.000
		BKL-03B	24	80	4	1695.6	1	0.012	1.22	0.014	1	0.012	6	0.071	2.95	0.209	0	0.000
	25-Aug-10	BKL-03A	23	200	8	1625.0	22	0.338	1.58	0.535	3	0.046	8	0.123	2.52	0.310	0	0.000
		BKL-03B	23	200	12	1625.0	34	0.349	1.79	0.624	3	0.031	3	0.031	2.53	0.078	1	0.010
Middle Lake	26-May-10	MLL-01A	4	100	100	282.6	0	0.000	0.00	0.000	0	0.000	0	0.000	0.00	0.000	3	0.011
		MLL-01B	4	100	100	282.6	2	0.007	1.31	0.009	0	0.000	1	0.004	1.35	0.005	0	0.000
	26-Aug-10	MLL-01A	4	60	16	282.6	3	0.040	1.60	0.064	1	0.013	0	0.000	0.00	0.000	0	0.000
		MLL-01B	4	60	16	282.6	3	0.040	0.97	0.039	1	0.013	1	0.013	3.28	0.044	0	0.000
	26-May-10	MLL-03A	5	100	100	353.3	3	0.008	2.65	0.023	0	0.000	1	0.003	1.48	0.004	0	0.000
		MLL-03B	5	100	100	353.3	0	0.000	0.00	0.000	0	0.000	0	0.000	0.00	0.000	0	0.000
	26-Aug-10	MLL-03A	5	100	100	353.3	0	0.000	1.79	0.000	0	0.000	0	0.000	0.00	0.000	0	0.000
		MLL-03B	5	100	100	353.3	0	0.000	1.98	0.000	0	0.000	1	0.003	2.65	0.008	0	0.000

							Asplanchna sp.		*Bipalpus hudsoni*		*Collotheca* (pelagica)		*Conochilus unicornis*		*Euchlanis* sp		*Filinia terminalis*	
Lake	**Date**	**Station**	**Tow Length (m)**	**Dilution (mL)**	**Sub-sample Vol. (mL)**	**Tot Vol. (L)**	**Count**	**No./L**	**Count**	**No./L**	**Count**	**No./L**	**Count**	**No./L**	**Count**	**No./L**	**Count**	**No./L**
Black Lake	29-May-10	BKL-02A	28	90	2	1978.2	1	0.023	0	0.000	1	0.023	3	0.068	0	0.000	0	0.000
		BKL-02B	28	100	2	1978.2	1	0.025	0	0.000	0	0.000	3	0.076	0	0.000	1	0.025
	25-Aug-10	BKL-02A	28	200	2	1978.2	0	0.000	19	0.960	0	0.000	54	2.730	0	0.000	0	0.000
		BKL-02B	28	300	2	1978.2	0	0.000	7	0.531	8	0.607	49	3.715	1	0.076	0	0.000
	29-May-10	BKL-03A	24	100	2	1695.6	11	0.324	1	0.029	0	0.000	30	0.885	0	0.000	0	0.000
		BKL-03B	24	125	2	1695.6	6	0.221	0	0.000	0	0.000	32	1.180	0	0.000	2	0.074
	25-Aug-10	BKL-03A	23	300	2	1625.0	0	0.000	5	0.462	15	1.385	34	3.139	0	0.000	0	0.000
		BKL-03B	23	300	2	1625.0	0	0.000	5	0.462	9	0.831	24	2.215	0	0.000	0	0.000
Middle Lake	26-May-10	MLL-01A	4	20	2	282.6	1	0.035	0	0.000	0	0.000	13	0.460	0	0.000	0	0.000
		MLL-01B	4	40	2	282.6	0	0.000	0	0.000	0	0.000	19	1.345	0	0.000	0	0.000
	26-Aug-10	MLL-01A	4	60	2	282.6	0	0.000	3	0.318	0	0.000	3	0.318	0	0.000	0	0.000
		MLL-01B	4	80	2	282.6	0	0.000	0	0.000	1	0.142	0	0.000	0	0.000	0	0.000
	26-May-10	MLL-03A	5	60	2	353.3	0	0.000	0	0.000	0	0.000	10	0.849	0	0.000	0	0.000
		MLL-03B	5	60	2	353.3	0	0.000	0	0.000	0	0.000	23	1.953	0	0.000	1	0.085
	26-Aug-10	MLL-03A	5	80	2	353.3	0	0.000	0	0.000	0	0.000	1	0.113	0	0.000	0	0.000
		MLL-03B	5	90	2	353.3	0	0.000	1	0.127	0	0.000	2	0.255	0	0.000	0	0.000

Table III.7-4 . Zooplankton Data Collected from Black Lake and Middle Lake, 2010

			Bosmina longirotris				*Bosmina* eggs		*Osphranticum labronectum*				*Leptodiaptomus sicilis*				*Leptodiaptomus* eggs	
Lake	**Date**	**Station**	**Count**	**No./L**	**Dry Wt (µg)**	**Biomass (µg/L)**	**Count**	**No./L**	**Count**	**No./L**	**Dry Wt (µg)**	**Biomass (µg/L)**	**Count**	**No./L**	**Dry Wt (µg)**	**Biomass (µg/L)**	**Count**	**No./L**
Black Lake	29-May-10	BKL-02A	6	0.045	0.57	0.026	0	0.000	17	0.129	2.20	0.284	2	0.015	5.54	0.084	0	0.000
		BKL-02B	2	0.015	0.41	0.006	0	0.000	29	0.220	2.76	0.607	1	0.008	6.35	0.048	0	0.000
	25-Aug-10	BKL-02A	30	0.455	0.72	0.328	0	0.000	0	0.000	0.00	0.000	49	0.743	1.50	1.115	4	0.061
		BKL-02B	52	0.657	0.48	0.315	2	0.025	0	0.000	0.00	0.000	63	0.796	1.18	0.939	0	0.000
	29-May-10	BKL-03A	3	0.035	0.78	0.028	1	0.012	20	0.236	1.92	0.453	0	0.000	0.00	0.000	0	0.000
		BKL-03B	5	0.059	0.82	0.048	0	0.000	28	0.330	3.30	1.090	0	0.000	0.00	0.000	0	0.000
	25-Aug-10	BKL-03A	3	0.046	1.79	0.083	0	0.000	0	0.000	0.00	0.000	21	0.323	2.30	0.743	0	0.000
		BKL-03B	10	0.103	1.01	0.104	8	0.082	0	0.000	0.00	0.000	34	0.349	1.79	0.624	0	0.000
Middle Lake	26-May-10	MLL-01A	2	0.007	3.41	0.024	9	0.032	6	0.021	1.10	0.023	0	0.000	0.00	0.000	0	0.000
		MLL-01B	7	0.025	0.72	0.018	35	0.124	7	0.025	3.36	0.083	0	0.000	0.00	0.000	0	0.000
	26-Aug-10	MLL-01A	9	0.119	1.17	0.140	0	0.000	81	1.075	1.84	1.978	0	0.000	0.00	0.000	0	0.000
		MLL-01B	5	0.066	0.36	0.024	0	0.000	36	0.478	2.28	1.089	0	0.000	0.00	0.000	0	0.000
	26-May-10	MLL-03A	8	0.023	1.18	0.027	48	0.136	14	0.040	1.43	0.057	0	0.000	0.00	0.000	0	0.000
		MLL-03B	5	0.014	2.90	0.041	100	0.283	9	0.025	1.15	0.029	0	0.000	0.00	0.000	0	0.000
	26-Aug-10	MLL-03A	6	0.017	0.33	0.006	0	0.000	34	0.096	1.36	0.131	0	0.000	0.00	0.000	0	0.000
		MLL-03B	1	0.003	1.33	0.004	0	0.000	28	0.079	0.94	0.075	0	0.000	0.00	0.000	0	0.000

			Gastropus sp.		*Kellicottia bostoniensis*		*Kellicotti longispina*		*Keratella cochlearis*		*Keratella hiemalis*		*Lecane* sp.		*Monostyla* sp.		*Notholca labis*	
Lake	**Date**	**Station**	**Count**	**No./L**	**Count**	**No./L**	**Count**	**No./L**	**Count**	**No./L**	**Count**	**No./L**	**Count**	**No./L**	**Count**	**No./L**	**Count**	**No./L**
Black Lake	29-May-10	BKL-02A	4	0.091	0	0.000	74	1.683	71	1.615	13	0.296	0	0.000	0	0.000	18	0.409
		BKL-02B	4	0.101	0	0.000	73	1.845	50	1.264	14	0.354	0	0.000	0	0.000	16	0.404
	25-Aug-10	BKL-02A	0	0.000	0	0.000	50	2.528	232	11.728	0	0.000	0	0.000	0	0.000	2	0.101
		BKL-02B	0	0.000	0	0.000	25	1.896	204	15.469	1	0.076	1	0.076	0	0.000	1	0.076
	29-May-10	BKL-03A	2	0.059	0	0.000	138	4.069	57	1.681	51	1.504	0	0.000	0	0.000	28	0.826
		BKL-03B	0	0.000	0	0.000	102	3.760	107	3.944	77	2.838	0	0.000	0	0.000	16	0.590
	25-Aug-10	BKL-03A	5	0.462	0	0.000	27	2.492	280	25.847	0	0.000	0	0.000	0	0.000	4	0.369
		BKL-03B	3	0.277	0	0.000	17	1.569	146	13.477	0	0.000	0	0.000	0	0.000	6	0.554
Middle Lake	26-May-10	MLL-01A	0	0.000	3	0.106	31	1.097	16	0.566	8	0.283	0	0.000	0	0.000	19	0.672
		MLL-01B	0	0.000	0	0.000	43	3.043	44	3.114	27	1.911	0	0.000	0	0.000	23	1.628
	26-Aug-10	MLL-01A	0	0.000	0	0.000	18	1.911	109	11.571	0	0.000	0	0.000	0	0.000	4	0.425
		MLL-01B	0	0.000	0	0.000	19	2.689	215	30.432	1	0.142	0	0.000	0	0.000	1	0.142
	26-May-10	MLL-03A	0	0.000	1	0.085	56	4.756	34	2.887	20	1.699	0	0.000	0	0.000	19	1.614
		MLL-03B	0	0.000	0	0.000	45	3.822	32	2.718	34	2.887	0	0.000	0	0.000	30	2.548
	26-Aug-10	MLL-03A	0	0.000	0	0.000	4	0.453	53	6.001	0	0.000	0	0.000	0	0.000	0	0.000
		MLL-03B	0	0.000	0	0.000	19	2.420	316	40.255	0	0.000	1	0.127	1	0.127	0	0.000

Table III.7-4 . Zooplankton Data Collected from Black Lake and Middle Lake, 2010

			Microcyclops rubellus				*Mircoyclops* eggs		*Ergasilus* sp.				Nauplii				Chydroidea & others			
Lake	Date	Station	Count	No./L	Dry Wt (µg)	Biomass (µg/L)	Count	No./L	Count	No./L	Dry Wt (µg)	Biomass (µg/L)	Count	No./L	Dry Wt (µg)	Biomass (µg/L)	Count	No./L	Dry Wt (µg)	Biomass (µg/L)
Black Lake	29-May-10	BKL-02A	277	2.100	1.71	3.592	42	0.318	35	0.265	2.91	0.772	106	0.804	1.06	0.852	0	0.000	0.00	0.000
		BKL-02B	351	2.662	2.19	5.829	20	0.152	23	0.174	2.75	0.480	130	0.986	1.03	1.015	0	0.000	0.00	0.000
	25-Aug-10	BKL-02A	70	1.062	1.27	1.348	21	0.318	6	0.091	1.94	0.177	513	7.780	1.01	7.858	1	0.015	0.96	0.015
		BKL-02B	123	1.554	0.90	1.399	79	0.998	8	0.101	2.55	0.258	427	5.396	1.01	5.450	0	0.000	0.00	0.000
	29-May-10	BKL-03A	132	1.557	2.14	3.332	20	0.236	3	0.035	3.30	0.117	115	1.356	1.12	1.519	0	0.000	0.00	0.000
		BKL-03B	124	1.463	1.75	2.560	27	0.318	1	0.012	3.12	0.037	144	1.699	1.09	1.851	0	0.000	0.00	0.000
	25-Aug-10	BKL-03A	178	2.739	1.38	3.779	11	0.169	13	0.200	2.20	0.440	229	3.523	0.98	3.453	2	0.031	1.34	0.041
		BKL-03B	157	1.610	1.34	2.158	27	0.277	15	0.154	2.26	0.348	478	4.903	0.97	4.756	0	0.000	0.00	0.000
Middle Lake	26-May-10	MLL-01A	9	0.032	1.27	0.040	0	0.000	0	0.000	0.00	0.000	50	0.177	0.94	0.166	0	0.000	0.00	0.000
		MLL-01B	59	0.209	0.71	0.148	0	0.000	0	0.000	0.00	0.000	192	0.679	1.02	0.693	0	0.000	0.00	0.000
	26-Aug-10	MLL-01A	91	1.208	1.26	1.521	0	0.000	1	0.013	2.00	0.027	181	2.402	0.94	2.258	0	0.000	0.00	0.000
		MLL-01B	51	0.677	1.25	0.846	0	0.000	1	0.013	3.27	0.043	46	0.610	0.98	0.598	0	0.000	0.00	0.000
	26-May-10	MLL-03A	113	0.320	1.11	0.355	0	0.000	0	0.000	0.00	0.000	268	0.759	1.00	0.759	0	0.000	0.00	0.000
		MLL-03B	87	0.246	1.01	0.249	0	0.000	0	0.000	0.00	0.000	555	1.571	1.03	1.618	0	0.000	0.00	0.000
	26-Aug-10	MLL-03A	128	0.362	1.42	0.515	0	0.000	0	0.000	0.00	0.000	30	0.085	0.99	0.084	0	0.000	0.00	0.000
		MLL-03B	107	0.303	1.50	0.454	0	0.000	3	0.008	2.34	0.020	76	0.215	0.98	0.211	0	0.000	0.00	0.000

			Ploesoma truncatum		*Polyarthra* sp. (2)		*Synchaeta* sp. (2)		*Tylotrocha monopus*		*Trichocerca cylindrica*	
Lake	Date	Station	Count	No./L	Count	No./L	Count	No./L	Count	No./L	Count	No./L
Black Lake	29-May-10	BKL-02A	0	0.000	23	0.523	95	2.161	0	0.000	0	0.000
		BKL-02B	0	0.000	30	0.758	110	2.780	0	0.000	0	0.000
	25-Aug-10	BKL-02A	25	1.264	156	7.886	40	2.022	0	0.000	18	0.910
		BKL-02B	19	1.441	132	10.009	32	2.426	0	0.000	12	0.910
	29-May-10	BKL-03A	0	0.000	82	2.418	140	4.128	0	0.000	0	0.000
		BKL-03B	0	0.000	78	2.875	111	4.091	0	0.000	0	0.000
	25-Aug-10	BKL-03A	26	2.400	74	6.831	20	1.846	0	0.000	38	3.508
		BKL-03B	15	1.385	71	6.554	19	1.754	0	0.000	24	2.215
Middle Lake	26-May-10	MLL-01A	0	0.000	10	0.354	0	0.000	0	0.000	0	0.000
		MLL-01B	0	0.000	20	1.415	1	0.071	5	0.354	0	0.000
	26-Aug-10	MLL-01A	0	0.000	31	3.291	0	0.000	2	0.212	3	0.318
		MLL-01B	1	0.142	22	3.114	2	0.283	0	0.000	4	0.566
	26-May-10	MLL-03A	0	0.000	16	1.359	2	0.170	21	1.783	0	0.000
		MLL-03B	0	0.000	38	3.227	3	0.255	17	1.444	0	0.000
	26-Aug-10	MLL-03A	0	0.000	12	1.359	4	0.453	0	0.000	16	1.812
		MLL-03B	4	0.510	37	4.713	3	0.382	0	0.000	14	1.783

m = metre; mL = millilitre; L = litre; µg = microgram; µg/L = microgram per litre; vol. = volume; No. = number; sp. = species

(a) station code is comprised of a three letter waterbody code followed by a three letter sample location code.

APPENDIX III.8

Black Lake Cisco Taxonomic Assessment

Introduction

Ciscoes exhibit considerable life history, ecological, and morphological variation throughout their range (McPhail 2007, Bernatchez 2004, Koelz 1929). The objective of this study was to provide a taxonomic assessment of nine individual ciscoes captured from Black Lake, Saskatchewan.

Methods

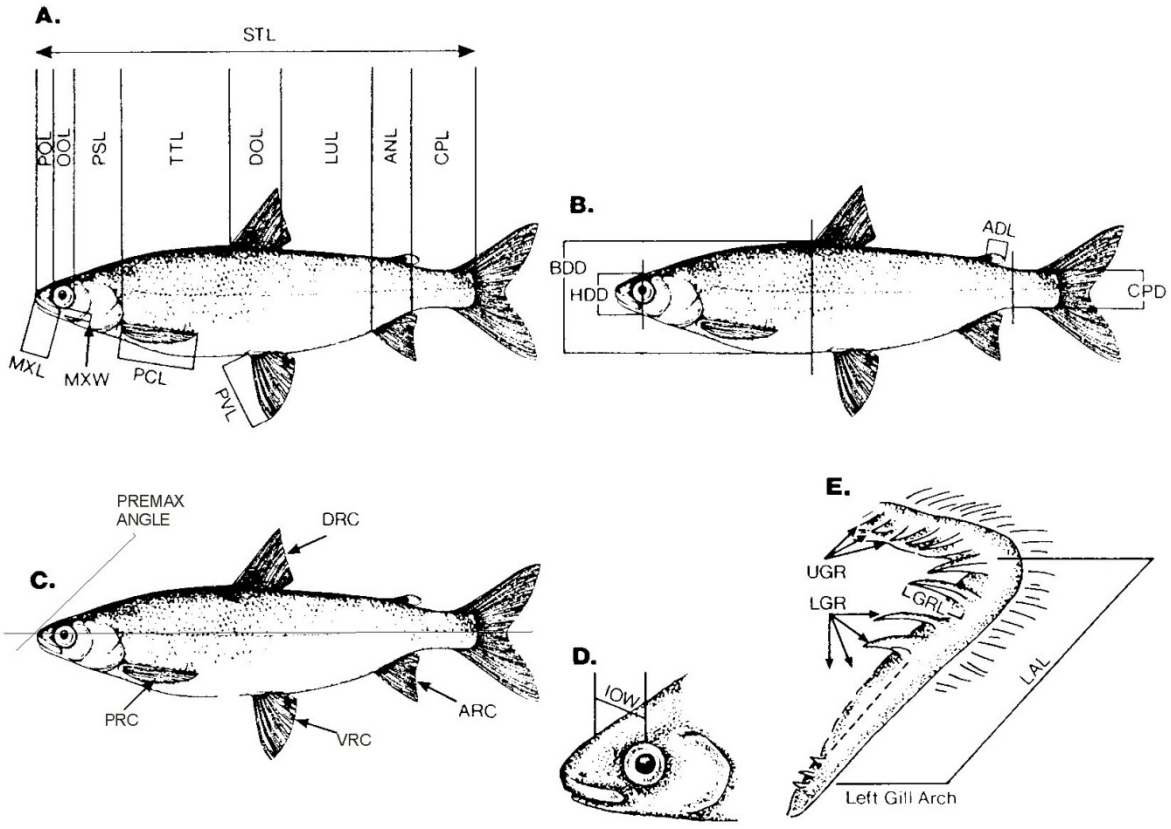
Laboratory Processing of Fish

Twenty-three linear morphometric and seven meristic characteristics were made (Figure 1). Linear measurements were made point-to-point on the left side of the fish using digital calipers (± 0.01 mm). After measurements were made, the first left gill arch was extracted. Gill raker enumeration was completed using a Leica ES2 dissection scope with reflected light at a magnification of 10X and 30X. All rakers were counted including rudimentary rakers at the base of the arch. For fin ray enumeration, the anterior rays were excluded unless they were two-thirds the length of the longest ray. When the shortest ray was split at the base it was counted as a single ray. After morphometric and meristic measurements were completed, specimens were cut ventrally and the body cavity was examined for sex determination.

Photographs of gillrakers were taken by positioning a Canon A620 camera behind one ocular (eyepiece) of the dissection scope. Photos were taken at x10 magnification. Lateral views of specimens were also photographed.

Taxonomic Assessment

The results from the morphometric and meristic measures were tabulated and compared with the literature of other members of the Coregonid family. Emphasis was on current information concerning shortjaw cisco (*Coregonus zenithicus)*.



STL - Standard Length
POL - Preordital length
OOL - Orbital length
PSL - Postordital length
TTL - Trunk length
DOL - Dorsal length
LUL - Lumbar length
ANL - Anal Length
CPL - Caudal peduncle length
HDD - Head depth
BDD - Body depth
CPD - Caudal peduncle depth
IOW - Interorbital width
MXL - Maxillary length
MXW - Maxillary width

PCL - Pectoral length
PVL - Pelvic length
ADL - Adipose length
GRL - Middle gillraker length
LAL - Lower arch length
DRC - Dorsal ray count
ARC - Anal ray count
PRC - Pectoral ray count
VRC - Pelvic ray count
UGR - Upper gillraker count
LGR - Lower gillraker count
PREMAX ANGLE - Premaxillary angle

Figure 1: Morphometric Measurements and Meristic Counts used to Assess Black Lake Cisco

Results

Detailed results of morphometric and meristic measurements are provided in Tables 1 and 2.

Description- Body small, fusiform, and streamlined; to 165 mm Fork length. Lumbar region moderate (LUL: 14-16.4% STL) (See Figure 1 for definitions). Caudal peduncle elongate (CPL: 10.5-13.8% STL) and narrow (CPD: 6.2-7.5% STL). Body depth shallow, but variable (BDD: 13.8-21.4% STL). Dorsal aspect of head moderately convex in profile (i.e., straight line from the premaxilla to the occipital). Head shallow (HDD: 33.5-43.6% HLL (total head length), 3-4 times into STL. Mouth terminal; maxillary relatively long (MXL: 34.7-42.9% HLL) to middle of eye and narrow (MXW: 7.4-12.8% HLL); Eyes mid set (POL: 23.3-28% HLL), typically centered on head along or slightly above midline of body, moderate size (OOL: 25.2-30.7% HLL). Interorbital distance moderate (IOW: 13.6-2.25% HLL). Gillraker number low, ranging in total number, 28-40, 10-13 on upper arch and 17-27 on lower arch. Gillrakers long to very long in length (GRL: 12.4-17.4% HLL), a distinguishing feature. Dorsal fin moderate in length and height with angular outer margin; rays 10-11. Anal fin short at base; rays 11-12. Caudal fin forked and tips angular. Pectoral fin outer margin slightly concave; rays variable 16-17. Pelvic fins medium sized and origin below branched dorsal rays 2 or 3; rays 10-11; pelvic ancillary process present. Adipose small. Lateral line complete.

The nine Black Lake ciscoes appeared to be similar to one another and consisted of juveniles and two individuals that were either resting adults or maturing sub-adults. Based on body shape, gillraker number, mouth size and orientation, Black Lake ciscoes appear to have some affiliation with shortjaw cisco (Figure 2). Gillraker numbers were within the range documented for shortjaw cisco, albeit on the lower end of the spectrum but gillraker length was more typical of lake cisco. A single specimen (juvenile #082 had longer and more numerous gillrakers and may be another species/form or an example of interspecific variability (Figure 3).

Figure 2: Black Lake Cisco (above) Compared to a Small C. Artedi-like Cisco from Great Slave Lake Watershed (below)

Figure 3: Gillrakers of Black Lake Specimen #082 Showing Low Number of Long Gillrakers

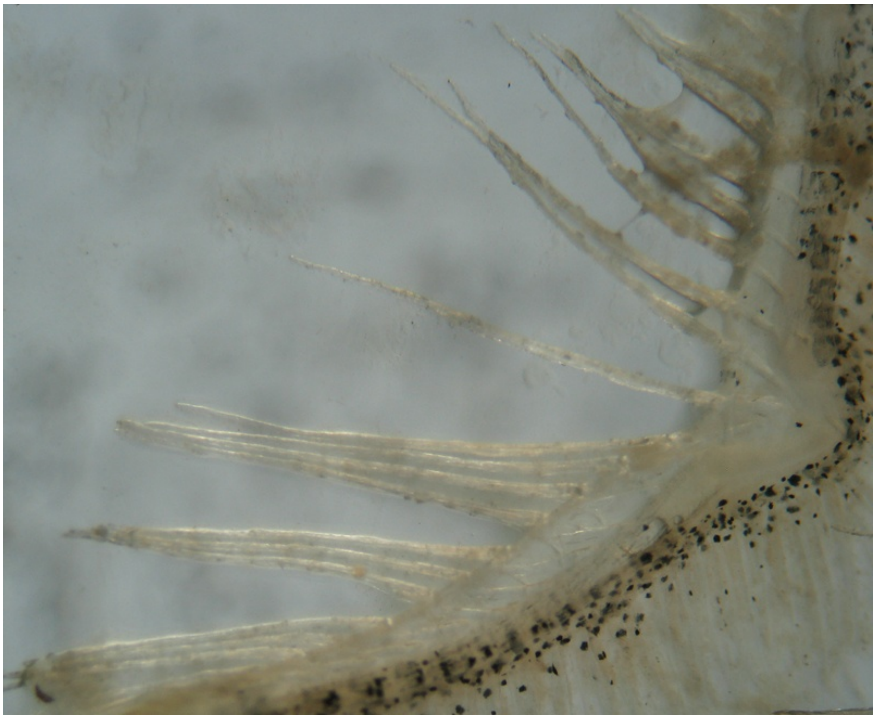


Figure 4: Gillrakers of Black Lake Specimen #SMJ04 Showing Low Number of Long Gillrakers

Discussion

Numerous morphometric proportional and meristic overlaps with known species were observed. Categorizing the Black Lake ciscoes is difficult, however, due to the plasticity of cisco species throughout their ranges and due to local adaptations seen within Coregonids throughout Canada.

Individuals currently identified as shortjaw cisco are those historically described by investigators in the Great Lakes region but can also be individuals outside of the Great Lakes that show character traits similar to shortjaw cisco. This can be explained in two ways:

1) True shortjaw cisco exist only in the Great Lakes, but "shortjaw-like" characters evolved independently in lakes where a founding lake cisco radiated into multiple forms to take advantage of available niches, or;

2) Shortjaw cisco is more widely distributed and increased sampling throughout central and western Canada has identified these new and now isolated stocks.

Given the observed morphometric and meristic overlaps between cisco species and the uncertainties related to the evolution and distribution of shortjaw cisco in Canada, the final taxonomic assignment of the Black Lake specimens was inconclusive. Regardless of the taxonomic rank given to Black Lake ciscoes, their uniqueness as evolutionary significant units is recognized. They are not typical lake cisco but their level of differentiation is unclear.

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McPhail, J.D. (2007): The Freshwater Fishes of British Columbia. The University of Alberta Press. 620 pp.

Table 1: Morphometrics and Meristics

Trait Measured	Specimen 080	Specimen 081	Specimen 082	Specimen 083	Specimen 084	Specimen SMJ01	Specimen SMJ02	Specimen SMJ03	Specimen SMJ04
Fork length (FRL)	159	165	85	77.3	86	58.3	57.6	54.2	55.6
Standard length (STL)	144	151	76	69	77	54.6	53.2	49.8	50.2
Preorbital length (POL)	9.69	9.66	5.17	6.03	5.02	4.21	3.57	3.32	3.81
Orbital length (OOL)	9.35	9.98	5.7	6.15	6.31	4.8	4.67	3.95	4.61
Post orbital length (PSL)	16.95	19.98	9.42	9.09	10.23	7.41	7.11	6.22	7.7
Trunk length (TTL)	35.26	35.08	17.77	15.38	17.53	13.57	12.84	11.28	11.3
Dorsal fin length (DOL)	17.17	16.3	8.27	7.27	8.31	4.84	4.3	4.26	4.33
Dorsal fin height DOH)	27.89	30.39	n/a	14.31	n/a	10.24	8.88	9.1	9.25
Lumbar length LUL)	23.21	22.28	10.99	10.06	10.78	8.2	8.12	8.14	8.16
Anal length (ANL)	15.1	16.67	6.75	7.98	6.82	6.38	6.1	4.78	4.85
Caudal peduncle length (CPL)	15.22	19.96	8.81	8.93	8.84	7.59	7.03	6.38	6.08
Head depth (HDD)	15.28	17.17	8.8	8.69	9.38	5.88	5.8	5.44	5.42
Body depth (BDD)	27.77	30.39	16.13	12.67	16.15	8.41	8.46	6.89	7.93
Caudal peduncle depth (CPD)	10.2	10.68	5.65	5.19	5.63	3.42	3.48	3.38	3.34
Interorbital width IOW)	9.81	8.55	4.36	3.55	4.4	2.33	2.52	2.28	2.19
Maxillary length (MXL)	12.9	16.56	7.82	7.91	7.72	5.68	5.66	5.82	5.72
Maxillary width (MXW)	4.56	4.79	1.96	1.88	2	1.64	1.43	1.03	1.38
Pectoral fin length (PCL)	22.47	24.76	12.19	12.26	12.2	7.7	7.65	7.41	7.43
Pelvic fin length PVL)	22.23	24.39	13.52	12.3	12.48	9.72	8.62	8.5	8.58
Adipose length (ADL)	7.18	9.98	3.83	n/a	4.68	n/a	n/a	n/a	n/a
Middle gillraker length (GRL)	5.78	4.95	3.36	3.16	2.94	2.79	n/a	n/a	2.78
Lower arch length (LAL)	17.42	19.69	9.09	8.05	n/a	6.2	n/a	n/a	6.01
Premaxillary angle (PMA)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dorsal ray count (DRC)	11	10	11	11	11	10	10	10	10
Anal ray count (ARC)	12	12	12	11	12	11	11	11	11
Pectoral ray count (PRC)	17	17	16	16	17	n/a	n/a	n/a	15
Pelvic ray count (VRC)	11	11	11	11	11	10	n/a	n/a	11
Upper gillraker count (URG)	12	11	13	12	11	10	n/a	n/a	11
Lower gillraker count (LGR)	22	20	27	19	20	18	n/a	n/a	17
Lateral line scales (LLS)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Suprapelvic scales (SPS)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Scales above lateral line (ULS)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 2: Measurements used for Identification and Description

Morphometric Measurement [a]	Specimen 080	Specimen 081	Specimen 082	Specimen 083	Specimen 084	Specimen SMJ01	Specimen SMJ02	Specimen SMJ03	Specimen SMJ04
	Measurements in mm								
LUL	23.2	22.3	11	10.1	10.8	8.2	8.1	8.1	8.2
CPL	15.2	20	8.8	8.9	8.8	7.6	7	6.4	6.1
CPD	10.2	10.7	5.6	5.2	5.6	3.4	3.5	3.4	3.3
BDD	27.7	30.4	16.3	12.7	16.13	8.4	8.5	6.9	7.9
HDD	15.3	17.1	8.8	8.7	9.4	5.9	5.8	5.4	5.4
MXL	12.9	16.6	7.8	7.9	7.7	5.7	5.6	5.8	5.7
MXW	4.6	4.8	2	1.9	2	1.6	1.4	1	1.4
POL	9.7	9.6	5.17	6	5.2	4.2	3.57	3.3	3.8
OOL	9.3	10	5.7	6.1	6.3	4.8	4.7	4	4.6
IOW	9.8	8.5	4.4	3.5	4.4	2.3	2.5	2.3	2.2
GRL	5.78	4.9	3.4	3.2	2.9	2.8			2.8
STL	144	151	76	69	77	55	53	50	50
HLL	35.9	39.6	20.3	21.27	21.56	16.42	15.35	13.5	16.12
	Ratios in %								
LUL	16.11	14.8	14.5	14.6	14	14.9	15.3	16.2	16.4
CPL	10.55	13.24	11.6	12.9	11.4	13.8	13.2	12.8	12.2
CPD	7.1	7.08	7.3	7.5	7.27	6.18	6.6	6.8	6.6
BDD	19.2	20.1	21.4	18.4	21	15.2	16	13.8	15.8
HDD	42.6	43.2	43.34	40.9	43.59	35.93	37.8	40	33.5
MXL	35.93	41.9	38.4	37.14	35.7	34.7	36.48	42.96	35.35
MXW	12.8	12.1	9.8	8.9	9.3	9.7	9.1	7.4	8.7
POL	27	24	25.4	28	24	25	23.3	24	23.6
OOL	25.9	25.2	28	28.6	29.2	29.2	30.7	29.6	28.6
IOW	24.5	21.25	21.7	16.4	20.4	14	16.3	17	13.6
GRL	16.1	12.4	16.7	15	13.4	17			17.4

[a] morphometric measurement definitions are presented in Figure 1 of this Appendix.

mm = millimetre; % = percent

APPENDIX III.9

Catch-Per-Unit Effort

Table III.9-1: Catch Per Unit Effort for Fish Species Captured in the LSA by Angling, 2010 to 2012

Angling	Season	Year	Start Date	Fishing Effort	Coordinates (UTM NAD83)		Time		Duration (h)	ARGR		LKTR		NRPK		Total	Total
Area of Interest					Northing Start	Easting Start	Start	End		n	CPUE (No. of Fish/h)	n	CPUE (No. of Fish/h)	n	CPUE (No. of Fish/h)	n	CPUE (No. of Fish/h)
FDLR - Upstream	Spring	2010	2010/05/18	FDLR-US-AN-01, Angler 1	6557001	469008	08:30	09:00	0.50	3	6.00	0	0.00	0	0.00	3	6.00
				FDLR-US-AN-01, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
	Summer		2010/08/06	FDLR-US-AN-01, Angler 1	6556922	468972	14:00	18:15	4.25	9	2.12	0	0.00	0	0.00	9	2.12
				FDLR-US-AN-01, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
			2010/08/07	FDLR-US-AN-02, Angler 1	6556922	468972	09:30	13:30	4.00	27	6.75	0	0.00	0	0.00	27	6.75
				FDLR-US-AN-02, Angler 2			09:45		3.75	0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-US-AN-03, Angler 1	6556887	469078	14:05	18:00	3.92	23	5.87	0	0.00	0	0.00	23	5.87
				FDLR-US-AN-03, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-US-AN-03, Angler 3						0	0.00	0	0.00	0	0.00	0	0.00
			2010/08/08	FDLR-US-AN-04, Angler 1			09:00	11:55	2.92	11	3.77	0	0.00	0	0.00	11	3.77
				FDLR-US-AN-04, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-US-AN-04, Angler 3						0	0.00	0	0.00	0	0.00	0	0.00
			2010/08/10	FDLR-US-AN-07, Angler 1			08:30	13:15	4.75	22	4.63	0	0.00	0	0.00	22	4.63
				FDLR-US-AN-07, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-US-AN-07, Angler 3						0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-US-AN-08, Angler 1	6556922	468972	14:00	17:30	3.50	41	11.71	0	0.00	0	0.00	41	11.71
				FDLR-US-AN-08, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-US-AN-08, Angler 3						0	0.00	0	0.00	0	0.00	0	0.00
			2010/08/17	FDLR-US-AN-09, Angler 1			14:00	18:00	4.00	24	6.00	0	0.00	0	0.00	24	6.00
				FDLR-US-AN-09, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-US-AN-09, Angler 3						0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-US-AN-09, Angler 4						0	0.00	0	0.00	0	0.00	0	0.00
			2010/08/18	FDLR-US-AN-10, Angler 1	6556887	469078	08:30	14:30	6.00	54	9.00	0	0.00	0	0.00	54	9.00
				FDLR-US-AN-10, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-US-AN-10, Angler 3						0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-US-AN-10, Angler 4						0	0.00	0	0.00	0	0.00	0	0.00
			2010/08/20	FDLR-US-AN-11, Angler 1	6556922	468972	14:46	18:00	3.23	24	7.42	0	0.00	0	0.00	24	7.42
				FDLR-US-AN-11, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-US-AN-11, Angler 3						0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-US-AN-11, Angler 4						0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-US-AN-14, Angler 1			14:30	18:45	4.25	25	5.88	0	0.00	0	0.00	25	5.88
				FDLR-US-AN-14, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
			2010/08/21	FDLR-US-AN-15, Angler 1	6556887	469078	08:45	12:15	3.50	50	14.29	0	0.00	0	0.00	50	14.29
				FDLR-US-AN-15, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
	Fall	2011	2011/10/05	FDLR-US-AN-01, Angler 1	6556878	468956	14:00	14:15	0.25	3	12.00	0	0.00	0	0.00	3	12.00
				FDLR-US-AN-01, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-US-AN-02, Angler 1			15:00	15:15		3	12.00	0	0.00	0	0.00	3	12.00
				FDLR-US-AN-02, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
			2011/10/06	FDLR-US-AN-03, Angler 1			09:00	09:15		4	16.00	0	0.00	0	0.00	4	16.00
				FDLR-US-AN-03, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-US-AN-04, Angler 1			10:25	10:44	0.32	2	6.32	0	0.00	0	0.00	2	6.32
				FDLR-US-AN-04, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-US-AN-05, Angler 1			11:06	12:05	0.98	3	3.05	0	0.00	0	0.00	3	3.05
				FDLR-US-AN-05, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
FDLR - Mid Section		2010	2011/10/07	FLDR-MS-AN-01, Angler 1	6558339	468797	15:30	16:15	0.75	3	4.00	0	0.00	0	0.00	3	4.00
				FLDR-MS-AN-01, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				FLDR-MS-AN-02, Angler 1			09:45	10:00	0.25	4	16.00	0	0.00	0	0.00	4	16.00
				FLDR-MS-AN-03, Angler 1			11:10	12:45	1.58	3	1.89	0	0.00	0	0.00	3	1.89
				FLDR-MS-AN-03, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
	Summer	2012	2012/07/14	FLDR-MS-AN-01, Angler 1	6558424	469077	12:15	12:10	23.92	0	0.00	0	0.00	0	0.00	0	0.00
				FLDR-MS-AN-02, Angler 1						0	0.00	0	0.00	0	0.00	0	0.00
			2012/07/15	FLDR-MS-AN-03, Angler 1	6558449	468423	14:30	08:00	17.50	0	0.00	0	0.00	0	0.00	0	0.00
				FLDR-MS-AN-04, Angler 1						0	0.00	0	0.00	0	0.00	0	0.00
FDLR - Downstream	Summer	2010	2010/08/08	FDLR-DS-AN-05, Angler 1	6560879	467970	14:30	18:15	3.75	9	2.4	0	0	0	0	9	2.40
				FDLR-DS-AN-05, Angler 2						0	0	0	0	0	0	0	0.00
				FDLR-DS-AN-05, Angler 3						0	0	0	0	0	0	0	0.00
			2010/08/09	FDLR-DS-AN-06, Angler 1			09:00	17:00	8.00	14	1.75	0	0	0	0	14	1.75
				FDLR-DS-AN-06, Angler 2			09:15		7.75	0	0	0	0	0	0	0	0.00
				FDLR-DS-AN-06, Angler 3						0	0	0	0	0	0	0	0.00
			2010/08/19	FDLR-DS-AN-12, Angler 1			10:10	16:15	6.08	53	8.71	0	0	0	0	53	8.71
				FDLR-DS-AN-12, Angler 2						0	0	0	0	0	0	0	0.00
				FDLR-DS-AN-12, Angler 3						0	0	0	0	0	0	0	0.00
				FDLR-DS-AN-12, Angler 4						0	0	0	0	0	0	0	0.00
			2010/08/20	FDLR-DS-AN-13, Angler 1			09:30	13:30	4.00	11	2.75	0	0	0	0	11	2.75
				FDLR-DS-AN-13, Angler 2				13:00	3.50	0	0	0	0	0	0	0	0.00
	Fall	2011	2011/10/08	FDLR-DS-AN-01, Angler 1	6560477	468006	09:15	09:35	0.33	4	12	0	0	0	0	4	12.00
				FDLR-DS-AN-01, Angler 2						0	0	0	0	0	0	0	0.00
				FDLR-DS-AN-02, Angler 1			11:20	11:31	0.18	4	21.82	0	0	0	0	4	21.82
				FDLR-DS-AN-02, Angler 2						0	0	0	0	0	0	0	0.00
				FDLR-DS-AN-03, Angler 1			14:00	14:20	0.33	4	12	0	0	0	0	4	12.00
				FDLR-DS-AN-03, Angler 2						0	0	0	0	0	0	0	0.00
	Summer	2012	2012/07/16	FDLR-DS-AN-05, Angler 1	6560535	467978	12:15	10:00	45.75	0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-DS-AN-06, Angler 1						0	0.00	0	0.00	0	0.00	0	0.00

Table III.9-1: Catch Per Unit Effort for Fish Species Captured in the LSA by Angling, 2010 to 2012

Angling	Season	Year	Start Date	Fishing Effort	Coordinates (UTM NAD83)		Time		Duration (h)	ARGR		LKTR		NRPK		Total	Total
Area of Interest					Northing Start	Easting Start	Start	End		n	CPUE (No. of Fish/h)	n	CPUE (No. of Fish/h)	n	CPUE (No. of Fish/h)	n	CPUE (No. of Fish/h)
Black Lake	Fall	2010	2010/09/14	BKL-AN-01, Angler 1	6562847	484726	14:23	14:56	0.55	0	0.00	14	25.45	0	0.00	14	25.45
				BKL-AN-01, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-01, Angler 3						0	0.00	0	0.00	0	0.00	0	0.00
			2010/09/15	BKL-AN-02, Angler 1	6563547	478795	10:30	11:30	1.00	0	0.00	10	10.00	0	0.00	10	10.00
				BKL-AN-02, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-02, Angler 3						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-03, Angler 1	6563323	478978	11:45	12:48	1.05	0	0.00	22	20.95	0	0.00	22	20.95
				BKL-AN-03, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-03, Angler 3						0	0.00	0	0.00	0	0.00	0	0.00
			2010/09/16	BKL-AN-04, Angler 1	6557703	475697	10:25	14:07	3.23	0	0.00	30	9.28	0	0.00	30	9.28
				BKL-AN-04, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-04, Angler 3						0	0.00	0	0.00	0	0.00	0	0.00
			2010/09/18	BKL-AN-05, Angler 1	6570267	492506	14:20	15:05	0.75	0	0.00	24	32.00	0	0.00	24	32.00
				BKL-AN-05, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-05, Angler 3						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-05, Angler 4						0	0.00	0	0.00	0	0.00	0	0.00
			2010/09/19	BKL-AN-06, Angler 1	6560117	495635	10:30	12:00	1.50	0	0.00	26	17.33	1	0.67	27	18.00
				BKL-AN-06, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-06, Angler 3						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-06, Angler 4						0	0.00	0	0.00	0	0.00	0	0.00
			2010/09/20	BKL-AN-07, Angler 1	6565685	498740	10:00	12:20	2.33	0	0.00	45	19.29	0	0.00	45	19.29
				BKL-AN-07, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-07, Angler 3						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-07, Angler 4						0	0.00	0	0.00	0	0.00	0	0.00
			2010/09/21	BKL-AN-08, Angler 1	6572291	485894	09:15	12:40	3.42	0	0.00	34	9.95	4	1.17	38	11.12
				BKL-AN-08, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-08, Angler 3						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-08, Angler 4						0	0.00	0	0.00	0	0.00	0	0.00
			2010/09/22	BKL-AN-09, Angler 1	6564386	489550	10:15	11:45	1.50	0	0.00	34	22.67	0	0.00	34	22.67
				BKL-AN-09, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-09, Angler 3						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-09, Angler 4						0	0.00	0	0.00	0	0.00	0	0.00
			2010/09/23	BKL-AN-11, Angler 1	6564266	476292	09:00	09:30	0.50	0	0.00	0	0.00	1	2.00	1	2.00
				BKL-AN-11, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-11, Angler 3						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-11, Angler 4						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-10, Angler 1	6567177	480799	10:00	12:05	2.08	0	0.00	8	3.84	1	0.48	9	4.32
				BKL-AN-10, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-10, Angler 3						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-10, Angler 4						0	0.00	0	0.00	0	0.00	0	0.00
			2010/09/24	BKL-AN-12, Angler 1	6560248	473245	09:00	09:30	0.50	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-12, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-13, Angler 1	6557367	471290	10:45	12:05	1.33	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-AN-13, Angler 2						0	0.00	0	0.00	0	0.00	0	0.00
Middle Lake	Not Sampled																

Notes:
UTM = Univeral Transverse Mercator; NAD = North American Datum; h = hour; n = number of fish captured; CPUE = Catch Per Unit Effort; No. = Number; AN = Angling
FDLR = Fond Du Lac River; US = Upstream; MS = Mid Section; DS = Downstream; BKL = Black Lake
ARGR = Arctic grayling (*Thymallus arcticus*); LKTR = lake trout (*Salvelinus namaycush*); NRPK = northern pike (*Esox lucius*)
Gear type specifications can be found in Section 6, Table 6-2

Table III.9-2 Catch Per Unit Effort for Fish Species Captured by Backpack Electrofishing, Summer 201

Backpack Electrofishing Area of Interest	Season	Year	Start Date	Fishing Effort	Coordinates (UTM NAD 83) Northing Start	Coordinates (UTM NAD 83) Easting Start	Median Depth (m)	Length of Shoreline Sampled (m)	Time Start	Time End	Electrofishing Seconds (s)	ARGR n	ARGR CPUE (No. of Fish/100 Electrofishing Seconds)	BURB n	BURB CPUE (No. of Fish/100 Electrofishing Seconds)	CISC n	CISC CPUE (No. of Fish/100 Electrofishing Seconds)
FDLR - Upstream	Not Sampled																
FDLR - Mid Section	Summer	2010	2010/08/13	FDLR-MS-BP-03, Pass 1	6559976	468202	0.2	150	10:16	11:08	914	0	0	0	0.00	0	0.00
				FDLR-MS-BP-04, Pass 1	6559884	468205	0.8	230	12:07	12:52	1012	109	10.77	0	0.00	0	0.00
FDLR - Downstream			2010/08/11	FDLR-DS-BP-01, Pass 1	6561085	467846	0.3	125	13:51	14:41	995	1	0.10	10	1.01	9	0.90
				FDLR-DS-BP-02, Pass 1	6561079	467955	0.4	75	16:00	16:14	242	0	0.00	0	0.00	1	0.41
			2010/08/17	FDLR-DS-BP-05, Pass 1	6560794	467988	0.4	200	09:35	10:23	1044	3	0.29	5	0.48	0	0.00
Black Lake			2010/08/15	BKL-BP-01, Pass 1	6557770	470886	0.3	148	12:32	13:59	2872	0	0.00	8	0.28	10	0.35
				BKL-BP-02, Pass 1	6558277	471144	0.5	320	15:36	16:37	2695	0	0.00	4	0.15	31	1.15
Middle Lake	Not Sampled																

Table III.9-2 Catch Per Unit Effort for Fish Species Captured by Backpack Electrofishing, Summer 201

Backpack Electrofishing Area of Interest	Season	Year	Start Date	Fishing Effort	Coordinates (UTM NAD 83) Northing Start	Coordinates (UTM NAD 83) Easting Start	Median Depth (m)	Length of Shoreline Sampled (m)	Time Start	Time End	Electrofishing Seconds (s)	LKCH n	LKCH CPUE (No. of Fish/100 Electrofishing Seconds)	LNSC n	LNSC CPUE (No. of Fish/100 Electrofishing Seconds)	SLSC n	SLSC CPUE (No. of Fish/100 Electrofishing Seconds)
FDLR - Upstream	Not Sampled																
FDLR - Mid Section	Summer	2010	2010/08/13	FDLR-MS-BP-03, Pass 1	6559976	468202	0.2	150	10:16	11:08	914	0	0.00	1	0.11	137	14.99
				FDLR-MS-BP-04, Pass 1	6559884	468205	0.8	230	12:07	12:52	1012	0	0.00	0	0	12	1.19
FDLR - Downstream			2010/08/11	FDLR-DS-BP-01, Pass 1	6561085	467846	0.3	125	13:51	14:41	995	0	0.00	14	1.41	113	11.36
				FDLR-DS-BP-02, Pass 1	6561079	467955	0.4	75	16:00	16:14	242	0	0.00	0	0.00	54	22.31
			2010/08/17	FDLR-DS-BP-05, Pass 1	6560794	467988	0.4	200	09:35	10:23	1044	0	0.00	0	0.00	255	24.43
Black Lake			2010/08/15	BKL-BP-01, Pass 1	6557770	470886	0.3	148	12:32	13:59	2872	10	0.35	10	0.35	4	0.14
				BKL-BP-02, Pass 1	6558277	471144	0.5	320	15:36	16:37	2695	31	1.15	31	1.15	25	0.93
Middle Lake	Not Sampled																

Table III.9-2 Catch Per Unit Effort for Fish Species Captured by Backpack Electrofishing, Summer 201(

Backpack Electrofishing	Season	Year	Start Date	Fishing Effort	Coordinates (UTM NAD 83)		Median Depth (m)	Length of Shoreline	Time		Electrofishing	TRPR		WHSC		Total	Total
Area of Interest					Northing Start	Easting Start		Sampled (m)	Start	End	Seconds (s)	n	CPUE (No. of Fish/100 Electrofishing Seconds)	n	CPUE (No. of Fish/100 Electrofishing Seconds)	n	CPUE (No. of Fish/100 Electrofishing Seconds)
FDLR - Upstream	Not Sampled																
FDLR - Mid Section	Summer	2010	2010/08/13	FDLR-MS-BP-03, Pass 1	6559976	468202	0.2	150	10:16	11:08	914	0	0.00	0	0.00	138	15.10
				FDLR-MS-BP-04, Pass 1	6559884	468205	0.8	230	12:07	12:52	1012	0	0.00	0	0.00	121	11.96
FDLR - Downstream			2010/08/11	FDLR-DS-BP-01, Pass 1	6561085	467846	0.3	125	13:51	14:41	995	0	0.00	14	1.41	147	14.77
				FDLR-DS-BP-02, Pass 1	6561079	467955	0.4	75	16:00	16:14	242	0	0.00	0	0.00	55	22.73
			2010/08/17	FDLR-DS-BP-05, Pass 1	6560794	467988	0.4	200	09:35	10:23	1044	1	0.10	76	7.28	264	25.29
Black Lake			2010/08/15	BKL-BP-01, Pass 1	6557770	470886	0.3	148	12:32	13:59	2872	1	0.03	1	0.03	43	1.50
				BKL-BP-02, Pass 1	6558277	471144	0.5	320	15:36	16:37	2695	8	0.30	8	0.30	130	4.82
Middle Lake	Not Sampled																

Notes:
UTM = Univeral Transverse Mercator; NAD = North American Datum; m = metre; s = seconds; n = number of fish captured; CPUE = Catch Per Unit Effort; No. = Number; BP = backpack electrofishe
FDLR = Fond Du Lac River; MS = Mid Section; DS = Downstream; BKL = Black Lake
ARGR = Arctic grayling (*Thymallus arcticus*); BURB = burbot (*Lota lota*); CISC = cisco (*Coregonus artedi*); LKCH = lake chub (*Couesius plumbeus*); LNSC = longnose sucker (*Catostomus catostomus*); SLSC = slimy sculpin (*Cottus cognatus*); TRPR = troutperch (*Percopsis omiscomaycus*); WHSC = white sucker (*Catostomus commersonii*)
Gear type specifications can be found in Section 6, Table 6-2

Table III.9-3: Catch Per Unit Effort for Fish Species Captured by Boat Electrofishing, Summer 2010

Boat Electrofishing Area of Interest	Season	Year	Start Date	Fishing Effort	Coordinates (UTM NAD 83) Northing Start	Coordinates (UTM NAD 83) Easting Start	Median Depth (m)	Length of Shoreline Sampled (m)	Time Start	Time End	Electrofishing Seconds (s)	ARGR n	ARGR CPUE (No. of Fish/100 Electrofishing Seconds)	BURB n	BURB CPUE (No. of Fish/100 Electrofishing Seconds)	LKCH n	LKCH CPUE (No. of Fish/100 Electrofishing Seconds)
FDLR - Upstream	Not Sampled																
FDLR - Mid Section	Not Sampled																
FDLR - Downstream	Not Sampled																
Black Lake	Summer	2010	2010/08/14	BKL-EF-01, Pass 1	6556137	469150	1	550	10:28	12:30	4378	4	0.09	4	0.09	0	0.00
			2010/08/15	BKL-EF-02, Pass 1	6556629	468703	1	500	21:30	22:00	721	3	0.42	1	0.14	8	1.11
			2010/08/16	BKL-EF-03, Pass 1	6557264	470562	1	2100	10:19	12:33	4667	1	0.02	48	1.03	63	1.35
			2010/08/24	BKL-EF-04, Pass 1	6554156	469369	1	900	09:32	10:38	3236	1	0.03	2	0.06	0	0.00
				BKL-EF-05, Pass 1	6557174	471844	1	550	11:45	12:47	2184	0	0.00	15	0.69	18	0.82
Middle Lake			2010/08/22	MLL-EF-01, Pass 1	6562389	467595	1	1000	12:08	13:23	2925	0	0.00	10	0.34	3	0.10
			2010/08/23	MLL-EF-02, Pass 1	6561797	467773	1	930	10:23	11:20	2048	0	0.00	15	0.73	1	0.05

Table III.9-3: Catch Per Unit Effort for Fish Species Captured by Boat Electrofishing, Summer 2010

Boat Electrofishing Area of Interest	Season	Year	Start Date	Fishing Effort	Coordinates (UTM NAD 83)		Median Depth (m)	Length of Shoreline Sampled (m)	Time		Electrofishing Seconds (s)	LKWH		LNSC		NNST	
					Northing Start	Easting Start			Start	End		n	CPUE (No. of Fish/100 Electrofishing Seconds)	n	CPUE (No. of Fish/100 Electrofishing Seconds)	n	CPUE (No. of Fish/100 Electrofishing Seconds)
FDLR - Upstream	Not Sampled																
FDLR - Mid Section	Not Sampled																
FDLR - Downstream	Not Sampled																
Black Lake	Summer	2010	2010/08/14	BKL-EF-01, Pass 1	6556137	469150	1	550	10:28	12:30	4378	0	0.00	48	1.10	1	0.02
			2010/08/15	BKL-EF-02, Pass 1	6556629	468703	1	500	21:30	22:00	721	0	0.00	0	0.00	0	0.00
			2010/08/16	BKL-EF-03, Pass 1	6557264	470562	1	2100	10:19	12:33	4667	0	0.00	0	0.00	0	0.00
			2010/08/24	BKL-EF-04, Pass 1	6554156	469369	1	900	09:32	10:38	3236	0	0.00	3	0.09	9	0.28
				BKL-EF-05, Pass 1	6557174	471844	1	550	11:45	12:47	2184	0	0.00	56	2.56	3	0.14
Middle Lake			2010/08/22	MLL-EF-01, Pass 1	6562389	467595	1	1000	12:08	13:23	2925	2	0.07	12	0.41	6	0.21
			2010/08/23	MLL-EF-02, Pass 1	6561797	467773	1	930	10:23	11:20	2048	1	0.05	4	0.20	22	1.07

Table III.9-3: Catch Per Unit Effort for Fish Species Captured by Boat Electrofishing, Summer 2010

Boat Electrofishing	Season	Year	Start Date	Fishing Effort	Coordinates (UTM NAD 83)		Median Depth (m)	Length of Shoreline Sampled (m)	Time		Electrofishing Seconds (s)	NRPK		SLSC		SPSH	
Area of Interest					Northing Start	Easting Start			Start	End		n	Fish/100 Electrofish	n	CPUE (No. of Fish/100 Electrofishing Seconds)	n	CPUE (No. of Fish/100 Electrofishing Seconds)
FDLR - Upstream	Not Sampled																
FDLR - Mid Section	Not Sampled																
FDLR - Downstream	Not Sampled																
Black Lake	Summer	2010	2010/08/14	BKL-EF-01, Pass 1	6556137	469150	1	550	10:28	12:30	4378	3	0.07	12	0.27	0	0.00
			2010/08/15	BKL-EF-02, Pass 1	6556629	468703	1	500	21:30	22:00	721	0	0.00	3	0.42	4	0.55
			2010/08/16	BKL-EF-03, Pass 1	6557264	470562	1	2100	10:19	12:33	4667	8	0.17	30	0.64	0	0.00
			2010/08/24	BKL-EF-04, Pass 1	6554156	469369	1	900	09:32	10:38	3236	0	0.00	1	0.03	2	0.06
				BKL-EF-05, Pass 1	6557174	471844	1	550	11:45	12:47	2184	6	0.27	11	0.50	0	0.00
Middle Lake			2010/08/22	MLL-EF-01, Pass 1	6562389	467595	1	1000	12:08	13:23	2925	18	0.62	13	0.44	0	0.00
			2010/08/23	MLL-EF-02, Pass 1	6561797	467773	1	930	10:23	11:20	2048	25	1.22	18	0.88	0	0.00

Table III.9-3: Catch Per Unit Effort for Fish Species Captured by Boat Electrofishing, Summer 2010

Boat Electrofishing	Season	Year	Start Date	Fishing Effort	Coordinates (UTM NAD 83)		Median Depth (m)	Length of Shoreline Sampled (m)	Time		Electrofishing Seconds (s)	TRPR		WHSC		YLPR		Total	Total
Area of Interest					Northing Start	Easting Start			Start	End		n	ish/100 Electrofis	n	CPUE (No. of Fish/100 Electrofishing Seconds)	n	CPUE (No. of Fish/100 Electrofishing Seconds)	n	CPUE (No. of Fish/100 Electrofishing Seconds)
FDLR - Upstream	Not Sampled																		
FDLR - Mid Section	Not Sampled																		
FDLR - Downstream	Not Sampled																		
Black Lake	Summer	2010	2010/08/14	BKL-EF-01, Pass 1	6556137	469150	1	550	10:28	12:30	4378	1	0.02	139	3.17	2	0.05	214	4.89
			2010/08/15	BKL-EF-02, Pass 1	6556629	468703	1	500	21:30	22:00	721	6	0.83	33	4.58	0	0.00	58	8.04
			2010/08/16	BKL-EF-03, Pass 1	6557264	470562	1	2100	10:19	12:33	4667	0	0.00	60	1.29	2	0.04	212	4.54
			2010/08/24	BKL-EF-04, Pass 1	6554156	469369	1	900	09:32	10:38	3236	0	0.00	21	0.65	2	0.06	41	1.27
				BKL-EF-05, Pass 1	6557174	471844	1	550	11:45	12:47	2184	0	0.00	60	2.75	0	0.00	169	7.74
Middle Lake			2010/08/22	MLL-EF-01, Pass 1	6562389	467595	1	1000	12:08	13:23	2925	0	0.00	10	0.34	0	0.00	74	2.53
			2010/08/23	MLL-EF-02, Pass 1	6561797	467773	1	930	10:23	11:20	2048	0	0.00	40	1.95	0	0.00	126	6.15

Notes:
UTM = Univeral Transverse Mercator; NAD = North American Datum; m = metre; s = seconds; n = number of fish captured; CPUE = Catch Per Unit Effort; No. = Number; EF = boat electrofisher
FDLR = Fond Du Lac River; BKL = Black Lake; MLL = Middle Lake
ARGR = Arctic grayling (*Thymallus arcticus*); BURB = burbot (*Lota lota*); LKCH = lake chub (*Couesius plumbeus*); LKWH = lake whitefish (*Coregonus clupeaformis*); LNSC = longnose sucker (*Catostomus catostomus*); NNST = ninespine stickleback (*Pungitius pungitius*); NRPK = northern pike (*Esox lucius*); SLSC = slimy sculpin (*Cottus cognatus*);
SPSH = spottail shiner (*Notropis hudsonius*); TRPR = troutperch (*Percopsis omiscomaycus*); WHSC = white sucker (C*atostomus commersonii*); YLPR = yellow perch (*Perca flavescens*)
Gear type specifications can be found in Section 6, Table 6-2

Table III.9-4: Catch Per Unit Effort for Fish Species Captured in Counting Fences and/or Fish Traps, Winter 2011

Fence/Trap	Season	Year	Start Date	Fishing Effort	Coordinates (UTM NAD83)		Start Depth (m)	Time		Duration (h)	BURB		Total	
Area of Interest					Northing Start	Easting Start		Start	End		n	CPUE (No. of Fish/h)	n	CPUE (No. of Fish/h)
FDLR - Upstream	Not Sampled													
FDLR - Mid Section	Not Sampled													
FDLR - Downstream	Not Sampled													
Black Lake	Winter	2011	2011/02/18	BKL-CT-01, Check 1	6553549	468269	3	11:12	12:25	49.22	0	0.00	0	0.00
				BKL-CT-02, Check 1	6553616	468800	3	11:48	12:37	48.82	0	0.00	0	0.00
				BKL-CT-03, Check 1	6553573	468912	3	12:14	12:47	48.55	0	0.00	0	0.00
				BKL-CT-04, Check 1	6553666	469078	3	13:04	13:27	48.38	1	0.02	1	0.02
				BKL-CT-05, Check 1	6553693	469161	3	14:39	14:27	47.80	0	0.00	0	0.00
				BKL-CT-06, Check 1	6553765	469220	2	14:57	14:50	47.88	0	0.00	0	0.00
				BKL-CT-07, Check 1	6553844	469257	3.5	15:10	14:51	47.68	0	0.00	0	0.00
				BKL-CT-08, Check 1	6553938	469345	14	15:35	15:03	47.47	0	0.00	0	0.00
Middle Lake	Not Sampled													

Notes:
UTM = Univeral Transverse Mercator; NAD = North American Datum; m = metre; h = hours; n = number of fish captured; CPUE = Catch Per Unit Effort; No. = Number; CT = Fence/Trap
FDLR = Fond Du Lac River; BKL = Black Lake
BURB = burbot (*Lota lota*)
Gear type specifications can be found in Section 6, Table 6-2

Table III.9-5: Catch Per Unit Effort for Fish Species Captured in Gill Nets, 2010 to 2012

Gill Net	Season	Year	Date	Fishing Effort	Coordinates (UTM NAD83)		Depth (m)		Net		Time		Soak Time (h)	ARGR		BURB		CISC		LKCH	
Area of Interest					Northing Start	Easting Start	Start	End	Height (m)	Length (m)	Start	End		n	CPUE (No. of Fish/100 m of Net-h)	n	CPUE (No. of Fish/100 m of Net-h)	n	CPUE (No. of Fish/100 m of Net-h)	n	CPUE (No. of Fish/100 m of Net-h)
FDLR - Upstream	Not Sampled																				
FDLR - Mid Section	Summer	2012	2012/07/14	FDLR-MS-GN-01, Check 1	6558449	468423	-	-	1.6	15	10:25	13:17	2.87	4	9.30	0	0.00	0	0.00	0	0.00
				FDLR-MS-GN-02, Check 1	6558416	468412					11:05	13:20	2.25	0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-MS-GN-03, Check 1	6558417	468429					14:34	17:00	2.43	0	0.00	0	0.00	0	0.00	0	0.00
			2012/07/15	FDLR-MS-GN-04, Check 1	6558443	469090					12:40	15:15	2.58	1	2.58	0	0.00	0	0.00	0	0.00
				FDLR-MS-GN-05, Check 1	6558431	469075					12:50	15:30	2.67	0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-MS-GN-06, Check 1	6558569	469118					16:00	17:00	1.00	0	0.00	0	0.00	0	0.00	0	0.00
FDLR - Downstream			2012/07/16	FDLR-DS-GN-07, Check 1	6560589	468185	1.5	1.5			13:00	13:15	0.25	0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-DS-GN-08, Check 1							13:55	14:30	0.58	0	0.00	0	0.00	0	0.00	0	0.00
			2012/07/18	FDLR-DS-GN-09, Check 1	6560951	468178	-	-			12:20	16:35	4.25	0	0.00	0	0.00	0	0.00	0	0.00
Black Lake	Spring	2010	2010/05/30	BKL-GN-01, Check 1	6555638	468821	1	7	1.6	135	08:30	10:00	1.50	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-02, Check 1	6556349	469285		3		45	11:51	15:00	3.15	0	0.00	0	0.00	0	0.00	0	0.00
			2010/05/31	BKL-GN-03, Check 1	6555655	468823		11		135	09:16	11:30	2.23	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-03, Check 2							11:30	15:00	3.50	0	0.00	0	0.00	0	0.00	0	0.00
	Summer		2010/08/21	BKL-GN-01, Check 1	6557874	471190	33	32			15:04	17:07	2.05	0	0.00	0	0.00	2	0.72	0	0.00
				BKL-GN-02, Check 1	6558194	471338	30	27.4			15:18	17:20	2.03	0	0.00	0	0.00	4	1.46	0	0.00
	Fall		2010/09/14	BKL-GN-01, Check 1	6562717	484619	9	2	2		14:13	15:45	1.53	0	0.00	0	0.00	0	0.00	0	0.00
			2010/09/18	BKL-GN-02, Check 1	6570242	492394	4.5	5.1			14:10	14:48	0.63	0	0.00	0	0.00	0	0.00	0	0.00
			2010/09/19	BKL-GN-03, Check 1	6559977	495508	1.7	4.9			11:00	11:50	0.83	0	0.00	0	0.00	0	0.00	0	0.00
			2010/09/20	BKL-GN-04, Check 1	6565612	499007	4.9	6.1			11:05	12:15	1.17	0	0.00	0	0.00	0	0.00	0	0.00
			2010/09/21	BKL-GN-05, Check 1	6572521	486131	1.9	3.4			10:15	11:45	1.50	0	0.00	0	0.00	0	0.00	0	0.00
			2010/09/22	BKL-GN-06, Check 1	6564401	489564	2.4	2.4			10:45	11:45	1.00	0	0.00	0	0.00	0	0.00	0	0.00
			2010/09/23	BKL-GN-07, Check 1	6567155	480944	3.1	2.1			10:00	12:05	2.08	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-08, Check 1	6563556	479101		4.5			14:45	15:55	1.17	0	0.00	0	0.00	0	0.00	0	0.00
			2010/09/24	BKL-GN-09, Check 1	6557684	470828	1	10			09:00	11:00	2.00	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-10, Check 1	6558412	471202		12			09:15	11:15	2.00	0	0.00	0	0.00	0	0.00	0	0.00
			2010/10/21	BKL-GN-01, Check 1	6567086	480681	8	4.8	1.83	91	10:55	13:45	2.83	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-02, Check 1	6567086	480795	4.8	7.2			13:50	15:43	1.88	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-03, Check 1	6567154	480905	1.5	4.1		45	13:52	15:52	2.00	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-04, Check 1	6568759	480698	2.8	10.1			14:00	16:02	2.03	0	0.00	0	0.00	0	0.00	0	0.00
			2010/10/22	BKL-GN-05, Check 1	6564319	476573	1.4	4.5		91	10:18	11:37	1.32	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-06, Check 1	6563495	479071	2.4	2.1			10:27	11:48	1.35	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-06, Check 2							11:48	14:10	2.37	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-07, Check 1	6563748	477868	2.8	6			12:05	14:00	1.92	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-08, Check 1	6564147	475821	2.4	16.2			14:15	16:10	1.92	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-09, Check 1	6564645	476299	2.2	3.9			14:30	16:10	1.67	0	0.00	0	0.00	0	0.00	0	0.00
			2010/10/23	BKL-GN-10, Check 1	6558362	471183	1	27			09:53	11:41	1.80	1	0.61	0	0.00	0	0.00	0	0.00
				BKL-GN-11, Check 1	6557751	470880		22.7			10:03	12:05	2.03	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-12, Check 1	6557705	470873	10.5	12.5			13:37	17:06	3.48	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-13, Check 1	6557708	471119	33	33		45	13:50	17:14	3.40	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-14, Check 1	6558327	471184	6	6.6		91	13:58	16:42	2.73	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-15, Check 1	6558359	471420	27	22	1.82	45	14:19	16:50	2.52	0	0.00	0	0.00	0	0.00	0	0.00
			2010/10/24	BKL-GN-16, Check 1	6557100	478548	5.4	12.2	1.83	91	09:30	12:35	3.08	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-17, Check 1	6556624	479000	3.5	14.5			09:40	13:00	3.33	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-18, Check 1	6557191	478712	4.5	11.5			13:20	15:30	2.17	0	0.00	0	0.00	0	0.00	0	0.00
			2010/10/25	BKL-GN-19, Check 1	6556029	469171	2	18			09:45	12:32	2.78	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-20, Check 1	6556541	468910	13	4.9			09:51	13:00	3.15	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-21, Check 1	6556593	469057	1.6	6		45	10:00	13:22	3.37	2	1.32	0	0.00	0	0.00	0	0.00
			2010/10/26	BKL-GN-22, Check 1	6535146	454343		13		91	10:09	11:53	1.73	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-23, Check 1	6535001	454329	4.5	10			10:25	12:15	1.83	0	0.00	0	0.00	0	0.00	0	0.00
	Winter	2011	2011/02/17	BKL-GN-01, Check 1	6557679	470842	2.5	30	1.8	135	13:20	11:37	46.28	0	0.00	8	0.13	0	0.00	0	0.00
				BKL-GN-02, Check 1	6558433	471202	3				17:30	15:30	46.00	0	0.00	21	0.34	3	0.05	0	0.00
	Summer	2012	2012/07/17	BKL-GN-01, Check 1	6558469	471191	0.5	32	1.6		09:31	12:23	11.42	0	0.00	0	0.00	6	1.55	0	0.00
				BKL-GN-02, Check 1	6558438	471187	1	-			10:00	13:00	11.42	0	0.00	0	0.00	0	0.00	5	1.23
Middle Lake	Spring	2010	2010/05/28	MLL-GN-01, Check 1	6562158	466733	2.5	2.5		60	09:15	11:30	2.25	6	1.98	0	0.00	0	0.00	0	0.00
				MLL-GN-02, Check 1	6561405	467923	0.5	2.4		135	09:40	12:45	3.08	1	0.81	0	0.00	0	0.00	0	0.00
	Winter	2011	2011/02/22	MLL-GN-01, Check 1	6562646	466052	0.3	4.2		40	11:00	10:40	23.67	0	0.00	0	0.00	0	0.00	0	0.00

Table III.9-5: Catch Per Unit Effort for Fish Species Captured in Gill Nets, 2010 to 2012

Gill Net	Season	Year	Date	Fishing Effort	Coordinates (UTM NAD83)		Depth (m)		Net		Time		Soak Time (h)	LKTR		LKWH		LNSC		NRPK	
Area of Interest					Northing Start	Easting Start	Start	End	Height (m)	Length (m)	Start	End		n	CPUE (No. of Fish/100 m of Net-h)	n	CPUE (No. of Fish/100 m of Net-h)	n	CPUE (No. of Fish/100 m of Net-h)	n	CPUE (No. of Fish/100 m of Net-h)
FDLR - Upstream	Not Sampled																				
FDLR - Mid Section	Summer	2012	2012/07/14	FDLR-MS-GN-01, Check 1	6558449	468423	-	-	1.6	15	10:25	13:17	2.87	0	0.00	4	9.30	1	2.33	0	0.00
				FDLR-MS-GN-02, Check 1	6558416	468412					11:05	13:20	2.25	0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-MS-GN-03, Check 1	6558417	468429					14:34	17:00	2.43	0	0.00	0	0.00	0	0.00	0	0.00
			2012/07/15	FDLR-MS-GN-04, Check 1	6558443	469090					12:40	15:15	2.58	0	0.00	1	2.58	0	0.00	0	0.00
				FDLR-MS-GN-05, Check 1	6558431	469075					12:50	15:30	2.67	0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-MS-GN-06, Check 1	6558569	469118					16:00	17:00	1.00	0	0.00	0	0.00	0	0.00	0	0.00
FDLR - Downstream			2012/07/16	FDLR-DS-GN-07, Check 1	6560589	468185	1.5	1.5			13:00	13:15	0.25	0	0.00	2	53.33	0	0.00	1	26.67
				FDLR-DS-GN-08, Check 1							13:55	14:30	0.58	0	0.00	2	22.86	0	0.00	2	22.86
			2012/07/18	FDLR-DS-GN-09, Check 1	6560951	468178	-	-			12:20	16:35	4.25	0	0.00	11	17.25	0	0.00	3	4.71
Black Lake	Spring	2010	2010/05/30	BKL-GN-01, Check 1	6555638	468821	1	7	1.6	135	08:30	10:00	1.50	0	0.00	3	1.48	0	0.00	0	0.00
				BKL-GN-02, Check 1	6556349	469285		3		45	11:51	15:00	3.15	0	0.00	0	0.00	0	0.00	0	0.00
			2010/05/31	BKL-GN-03, Check 1	6555655	468823		11		135	09:16	11:30	2.23	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-03, Check 2							11:30	15:00	3.50	4	0.85	2	0.42	0	0.00	0	0.00
	Summer		2010/08/21	BKL-GN-01, Check 1	6557874	471190	33	32			15:04	17:07	2.05	2	0.72	0	0.00	2	0.72	0	0.00
				BKL-GN-02, Check 1	6558194	471338	30	27.4			15:18	17:20	2.03	1	0.36	0	0.00	2	0.73	0	0.00
	Fall		2010/09/14	BKL-GN-01, Check 1	6562717	484619	9	2	2		14:13	15:45	1.53	43	20.77	16	7.73	0	0.00	0	0.00
			2010/09/18	BKL-GN-02, Check 1	6570242	492394	4.5	5.1			14:10	14:48	0.63	42	49.12	8	9.36	2	2.34	0	0.00
			2010/09/19	BKL-GN-03, Check 1	6559977	495508	1.7	4.9			11:00	11:50	0.83	28	24.89	13	11.56	7	6.22	0	0.00
			2010/09/20	BKL-GN-04, Check 1	6565612	499007	4.9	6.1			11:05	12:15	1.17	6	3.81	3	1.90	0	0.00	0	0.00
			2010/09/21	BKL-GN-05, Check 1	6572521	486131	1.9	3.4			10:15	11:45	1.50	9	4.44	6	2.96	0	0.00	0	0.00
			2010/09/22	BKL-GN-06, Check 1	6564401	489564	2.4	2.4			10:45	11:45	1.00	40	29.63	7	5.19	0	0.00	0	0.00
			2010/09/23	BKL-GN-07, Check 1	6567155	480944	3.1	2.1			10:00	12:05	2.08	3	1.07	5	1.78	0	0.00	0	0.00
				BKL-GN-08, Check 1	6563556	479101		4.5			14:45	15:55	1.17	5	3.17	1	0.63	0	0.00	0	0.00
			2010/09/24	BKL-GN-09, Check 1	6557684	470828	1	10			09:00	11:00	2.00	2	0.74	13	4.81	4	1.48	0	0.00
				BKL-GN-10, Check 1	6558412	471202		12			09:15	11:15	2.00	1	0.37	19	7.04	21	7.78	0	0.00
			2010/10/21	BKL-GN-01, Check 1	6567086	480681	8	4.8	1.83	91	10:55	13:45	2.83	0	0.00	1	0.39	0	0.00	0	0.00
				BKL-GN-02, Check 1	6567086	480795	4.8	7.2			13:50	15:43	1.88	1	0.58	1	0.58	0	0.00	0	0.00
				BKL-GN-03, Check 1	6567154	480905	1.5	4.1		45	13:52	15:52	2.00	2	2.22	3	3.33	0	0.00	0	0.00
				BKL-GN-04, Check 1	6568759	480698	2.8	10.1			14:00	16:02	2.03	5	5.46	7	7.65	0	0.00	0	0.00
			2010/10/22	BKL-GN-05, Check 1	6564319	476573	1.4	4.5		91	10:18	11:37	1.32	1	0.83	0	0.00	0	0.00	0	0.00
				BKL-GN-06, Check 1	6563495	479071	2.4	2.1			10:27	11:48	1.35	1	0.81	0	0.00	0	0.00	0	0.00
				BKL-GN-06, Check 2							11:48	14:10	2.37	0	0.00	1	0.46	0	0.00	0	0.00
				BKL-GN-07, Check 1	6563748	477868	2.8	6			12:05	14:00	1.92	3	1.72	1	0.57	0	0.00	0	0.00
				BKL-GN-08, Check 1	6564147	475821	2.4	16.2			14:15	16:10	1.92	4	2.29	2	1.15	0	0.00	0	0.00
				BKL-GN-09, Check 1	6564645	476299	2.2	3.9			14:30	16:10	1.67	12	7.91	3	1.98	0	0.00	0	0.00
			2010/10/23	BKL-GN-10, Check 1	6558362	471183	1	27			09:53	11:41	1.80	2	1.22	19	11.60	1	0.61	0	0.00
				BKL-GN-11, Check 1	6557751	470880		22.7			10:03	12:05	2.03	1	0.54	16	8.65	0	0.00	0	0.00
				BKL-GN-12, Check 1	6557705	470873	10.5	12.5			13:37	17:06	3.48	0	0.00	2	0.63	0	0.00	0	0.00
				BKL-GN-13, Check 1	6557708	471119	33	33		45	13:50	17:14	3.40	0	0.00	7	4.58	9	5.88	0	0.00
				BKL-GN-14, Check 1	6558327	471184	6	6.6		91	13:58	16:42	2.73	1	0.40	1	0.40	0	0.00	0	0.00
				BKL-GN-15, Check 1	6558359	471420	27	22	1.82	45	14:19	16:50	2.52	3	2.65	3	2.65	4	3.53	0	0.00
			2010/10/24	BKL-GN-16, Check 1	6557100	478548	5.4	12.2	1.83	91	09:30	12:35	3.08	4	1.43	9	3.21	0	0.00	0	0.00
				BKL-GN-17, Check 1	6556624	479000	3.5	14.5			09:40	13:00	3.33	1	0.33	12	3.96	0	0.00	0	0.00
				BKL-GN-18, Check 1	6557191	478712	4.5	11.5			13:20	15:30	2.17	9	4.56	1	0.51	0	0.00	0	0.00
			2010/10/25	BKL-GN-19, Check 1	6556029	469171	2	18			09:45	12:32	2.78	0	0.00	23	9.08	2	0.79	2	0.79
				BKL-GN-20, Check 1	6556541	468910	13	4.9			09:51	13:00	3.15	0	0.00	6	2.09	0	0.00	1	0.35
				BKL-GN-21, Check 1	6556593	469057	1.6	6		45	10:00	13:22	3.37	0	0.00	3	1.98	0	0.00	1	0.66
			2010/10/26	BKL-GN-22, Check 1	6535146	454343		13		91	10:09	11:53	1.73	0	0.00	4	2.54	0	0.00	6	3.80
				BKL-GN-23, Check 1	6535001	454329	4.5	10			10:25	12:15	1.83	0	0.00	5	3.00	0	0.00	2	1.20
	Winter	2011	2011/02/17	BKL-GN-01, Check 1	6557679	470842	2.5	30	1.8	135	13:20	11:37	46.28	18	0.29	29	0.46	23	0.37	0	0.00
				BKL-GN-02, Check 1	6558433	471202	3				17:30	15:30	46.00	8	0.13	16	0.26	40	0.64	0	0.00
	Summer	2012	2012/07/17	BKL-GN-01, Check 1	6558469	471191	0.5	32	1.6		09:31	12:23	11.42	6	1.55	27	6.98	2	0.52	0	0.00
				BKL-GN-02, Check 1	6558438	471187	1	-			10:00	13:00	11.42	4	0.99	7	1.73	3	0.74	0	0.00
Middle Lake	Spring	2010	2010/05/28	MLL-GN-01, Check 1	6562158	466733	2.5	2.5		60	09:15	11:30	2.25	0	0.00	21	6.91	0	0.00	2	0.66
				MLL-GN-02, Check 1	6561405	467923	0.5	2.4		135	09:40	12:45	3.08	0	0.00	2	1.62	0	0.00	0	0.00
	Winter	2011	2011/02/22	MLL-GN-01, Check 1	6562646	466052	0.3	4.2		40	11:00	10:40	23.67	0	0.00	6	0.42	7	0.49	4	0.28

Table III.9-5: Catch Per Unit Effort for Fish Species Captured in Gill Nets, 2010 to 2012

Gill Net	Season	Year	Date	Fishing Effort	Coordinates (UTM NAD83)		Depth (m)		Net		Time		Soak Time	RNWH		WALL		WHSC		YLPR		Total	
Area of Interest					Northing Start	Easting Start	Start	End	Height (m)	Length (m)	Start	End	(h)	n	CPUE (No. of Fish/100 m of Net-h)	n	CPUE (No. of Fish/100 m of Net-h)	n	CPUE (No. of Fish/100 m of Net-h)	n	CPUE (No. of Fish/100 m of Net-h)	n	CPUE (No. of Fish/100 m of Net-h)
FDLR - Upstream	Not Sampled																						
FDLR - Mid Section	Summer	2012	2012/07/14	FDLR-MS-GN-01, Check 1	6558449	468423	-	-	1.6	15	10:25	13:17	2.87	2	4.65	0	0.00	0	0.00	0	0.00	11	25.58
				FDLR-MS-GN-02, Check 1	6558416	468412					11:05	13:20	2.25	1	2.96	0	0.00	0	0.00	0	0.00	1	2.96
				FDLR-MS-GN-03, Check 1	6558417	468429					14:34	17:00	2.43	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
			2012/07/15	FDLR-MS-GN-04, Check 1	6558443	469090					12:40	15:15	2.58	3	7.74	2	5.16	1	2.58	0	0.00	8	20.65
				FDLR-MS-GN-05, Check 1	6558431	469075					12:50	15:30	2.67	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-MS-GN-06, Check 1	6558569	469118					16:00	17:00	1.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
FDLR - Downstream			2012/07/16	FDLR-DS-GN-07, Check 1	6560589	468185	1.5	1.5			13:00	13:15	0.25	0	0.00	0	0.00	0	0.00	0	0.00	3	80.00
				FDLR-DS-GN-08, Check 1							13:55	14:30	0.58	0	0.00	0	0.00	0	0.00	0	0.00	4	45.71
			2012/07/18	FDLR-DS-GN-09, Check 1	6560951	468178	-	-			12:20	16:35	4.25	0	0.00	0	0.00	0	0.00	0	0.00	14	21.96
Black Lake	Spring	2010	2010/05/30	BKL-GN-01, Check 1	6555638	468821	1	7		135	08:30	10:00	1.50	0	0.00	0	0.00	0	0.00	0	0.00	3	13.33
				BKL-GN-02, Check 1	6556349	469285		3		45	11:51	15:00	3.15	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
			2010/05/31	BKL-GN-03, Check 1	6555655	468823				135	09:16	11:30	2.23	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-GN-03, Check 2				11			11:30	15:00	3.50	0	0.00	0	0.00	0	0.00	0	0.00	6	11.43
	Summer		2010/08/21	BKL-GN-01, Check 1	6557874	471190	33	32			15:04	17:07	2.05	0	0.00	0	0.00	0	0.00	0	0.00	6	19.51
				BKL-GN-02, Check 1	6558194	471338	30	27.4			15:18	17:20	2.03	0	0.00	0	0.00	0	0.00	0	0.00	7	22.95
	Fall		2010/09/14	BKL-GN-01, Check 1	6562717	484619	9	2	2	135	14:13	15:45	1.53	0	0.00	1	0.48	0	0.00	0	0.00	60	260.87
			2010/09/18	BKL-GN-02, Check 1	6570242	492394	4.5	5.1			14:10	14:48	0.63	0	0.00	0	0.00	0	0.00	0	0.00	52	547.37
			2010/09/19	BKL-GN-03, Check 1	6559977	495508	1.7	4.9			11:00	11:50	0.83	0	0.00	0	0.00	0	0.00	0	0.00	48	384.00
			2010/09/20	BKL-GN-04, Check 1	6565612	499007	4.9	6.1			11:05	12:15	1.17	0	0.00	0	0.00	0	0.00	0	0.00	9	51.43
			2010/09/21	BKL-GN-05, Check 1	6572521	486131	1.9	3.4			10:15	11:45	1.50	0	0.00	0	0.00	0	0.00	0	0.00	15	66.67
			2010/09/22	BKL-GN-06, Check 1	6564401	489564	2.4	2.4			10:45	11:45	1.00	0	0.00	0	0.00	0	0.00	0	0.00	47	313.33
			2010/09/23	BKL-GN-07, Check 1	6567155	480944	3.1	2.1			10:00	12:05	2.08	0	0.00	0	0.00	0	0.00	0	0.00	8	25.60
				BKL-GN-08, Check 1	6563556	479101		4.5			14:45	15:55	1.17	0	0.00	0	0.00	0	0.00	0	0.00	6	34.29
			2010/09/24	BKL-GN-09, Check 1	6557684	470828	1	10			09:00	11:00	2.00	0	0.00	7	2.59	0	0.00	0	0.00	26	86.67
				BKL-GN-10, Check 1	6558412	471202		12			09:15	11:15	2.00	0	0.00	16	5.93	2	0.74	0	0.00	59	196.67
			2010/10/21	BKL-GN-01, Check 1	6567086	480681	8	4.8	1.83	91	10:55	13:45	2.83	0	0.00	0	0.00	0	0.00	0	0.00	1	2.35
				BKL-GN-02, Check 1	6567086	480795	4.8	7.2			13:50	15:43	1.88	0	0.00	0	0.00	0	0.00	0	0.00	2	7.08
				BKL-GN-03, Check 1	6567154	480905	1.5	4.1		45	13:52	15:52	2.00	0	0.00	0	0.00	0	0.00	0	0.00	5	16.67
				BKL-GN-04, Check 1	6568759	480698	2.8	10.1			14:00	16:02	2.03	0	0.00	0	0.00	0	0.00	0	0.00	12	39.34
			2010/10/22	BKL-GN-05, Check 1	6564319	476573	1.4	4.5		91	10:18	11:37	1.32	0	0.00	0	0.00	0	0.00	0	0.00	1	5.06
				BKL-GN-06, Check 1	6563495	479071	2.4	2.1			10:27	11:48	1.35	0	0.00	0	0.00	0	0.00	0	0.00	1	4.94
				BKL-GN-06, Check 2							11:48	14:10	2.37	0	0.00	0	0.00	0	0.00	0	0.00	1	2.82
				BKL-GN-07, Check 1	6563748	477868	2.8	6			12:05	14:00	1.92	0	0.00	0	0.00	0	0.00	0	0.00	4	13.91
				BKL-GN-08, Check 1	6564147	475821	2.4	16.2			14:15	16:10	1.92	0	0.00	0	0.00	0	0.00	0	0.00	6	20.87
				BKL-GN-09, Check 1	6564645	476299	2.2	3.9			14:30	16:10	1.67	0	0.00	0	0.00	0	0.00	0	0.00	15	60.00
			2010/10/23	BKL-GN-10, Check 1	6558362	471183	1	27			09:53	11:41	1.80	1	0.61	0	0.00	0	0.00	0	0.00	24	88.89
				BKL-GN-11, Check 1	6557751	470880		22.7			10:03	12:05	2.03	1	0.54	0	0.00	0	0.00	0	0.00	18	59.02
				BKL-GN-12, Check 1	6557705	470873	10.5	12.5			13:37	17:06	3.48	0	0.00	0	0.00	0	0.00	0	0.00	2	3.83
				BKL-GN-13, Check 1	6557708	471119	33	33		45	13:50	17:14	3.40	0	0.00	0	0.00	0	0.00	0	0.00	16	31.37
				BKL-GN-14, Check 1	6558327	471184	6	6.6		91	13:58	16:42	2.73	0	0.00	0	0.00	0	0.00	0	0.00	2	4.88
				BKL-GN-15, Check 1	6558359	471420	27	22	1.82	45	14:19	16:50	2.52	0	0.00	1	0.88	0	0.00	0	0.00	11	29.14
			2010/10/24	BKL-GN-16, Check 1	6557100	478548	5.4	12.2	1.83	91	09:30	12:35	3.08	0	0.00	0	0.00	0	0.00	0	0.00	13	28.11
				BKL-GN-17, Check 1	6556624	479000	3.5	14.5			09:40	13:00	3.33	0	0.00	0	0.00	0	0.00	0	0.00	13	26.00
				BKL-GN-18, Check 1	6557191	478712	4.5	11.5			13:20	15:30	2.17	0	0.00	0	0.00	0	0.00	0	0.00	10	30.77
			2010/10/25	BKL-GN-19, Check 1	6556029	469171	2	18			09:45	12:32	2.78	15	5.92	0	0.00	6	2.37	0	0.00	48	114.97
				BKL-GN-20, Check 1	6556541	468910	13	4.9			09:51	13:00	3.15	1	0.35	0	0.00	0	0.00	0	0.00	8	16.93
				BKL-GN-21, Check 1	6556593	469057	1.6	6		45	10:00	13:22	3.37	0	0.00	0	0.00	0	0.00	0	0.00	6	11.88
			2010/10/26	BKL-GN-22, Check 1	6535146	454343		13		91	10:09	11:53	1.73	0	0.00	0	0.00	0	0.00	0	0.00	10	38.46
				BKL-GN-23, Check 1	6535001	454329	4.5	10			10:25	12:15	1.83	0	0.00	0	0.00	0	0.00	0	0.00	7	25.45
	Winter	2011	2011/02/17	BKL-GN-01, Check 1	6557679	470842	2.5	30	1.8	135	13:20	11:37	46.28	0	0.00	0	0.00	0	0.00	0	0.00	78	11.24
				BKL-GN-02, Check 1	6558433	471202	3				17:30	15:30	46.00	0	0.00	0	0.00	0	0.00	0	0.00	88	12.75
	Summer	2012	2012/07/17	BKL-GN-01, Check 1	6558469	471191	0.5	32			09:31	12:23	11.42	2	0.52	0	0.00	0	0.00	0	0.00	43	25.10
				BKL-GN-02, Check 1	6558438	471187	1	-			10:00	13:00	11.42	3	0.74	16	3.95	3	0.74	1	0.25	42	24.52
Middle Lake	Spring	2010	2010/05/28	MLL-GN-01, Check 1	6562158	466733	2.5	2.5	1.6	60	09:15	11:30	2.25	0	0.00	0	0.00	0	0.00	0	0.00	29	85.93
				MLL-GN-02, Check 1	6561405	467923	0.5	2.4		135	09:40	12:45	3.08	0	0.00	0	0.00	0	0.00	0	0.00	3	6.49
	Winter	2011	2011/02/22	MLL-GN-01, Check 1	6562646	466052	0.3	4.2		40	11:00	10:40	23.67	0	0.00	0	0.00	0	0.00	0	0.00	17	4.79

Notes:
UTM = Univeral Transverse Mercator; NAD = North American Datum; m = metre; h = hours; n = number of fish captured; CPUE = Catch Per Unit Effort; No. = Number; CT = Fence/Trap
FDLR = Fond Du Lac River; MS = Mid Section; DS = Downstream; BKL = Black Lake; MLL = Middle Lake
ARGR = Arctic grayling (*Thymallus arcticus*); BURB = burbot (*Lota lota*); CISC = cisco (*Coregonus artedi*); LKCH = lake chub (*Couesius plumbeus*); LKTR = lake trout (*Salvelinus namaycush*); LKWH = lake whitefish (*Coregonus clupeaformis*); LNSC = longnose sucker (*Catostomus catostomus*); NRPK = northern pike (*Esox lucius*); RNWH = round whitefish (*Prosopium cylindraceum*); WALL = walleye (*Sander vitreus*);
WHSC = white sucker (*Catostomus commersonii*); YLPR = yellow perch (*Perca flavescens*)
Gear type specifications can be found in Section 6, Table 6-2

Table III.9-6: Catch Per Unit Effort for Fish Species Captured in Hoop Nets, 2010 to 2012

Hoop Net (circular)	Season	Year	Date	Fishing Effort	Coordinates (UTM NAD83)		Depth (m)		Time		Duration (h)	ARGR		BURB		CISC		LKWH		LNDC		LNSC		NRPK		SLSC		SPSH		WALL		WHSC		Total	
Area of Interest					Northing Start	Easting Start	Start	End	Start	End		n	CPUE (No. Fish/h)	n	CPUE (No. Fish/h)	n	CPUE (No. Fish/h)	n	CPUE (No. Fish/h)	n	CPUE (No. Fish/h)	n	CPUE (No. Fish/h)	n	CPUE (No. Fish/h)	n	CPUE (No. Fish/h)	n	CPUE (No. Fish/h)	n	CPUE (No. Fish/h)	n	CPUE (No. Fish/h)	n	CPUE (No. Fish/h)
FDLR - Upstream	Spring	2010	2010/05/18	FDLR-US-HN-01, Check 1	6557001	469008	0.4	0.4	11:30	16:30	5.00	10	2.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	10	2.00
				FDLR-US-HN-02, Check 1	6556882	468933	0.5	0.6	14:30	18:30	4.00	3	0.75	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	3	0.75
				FDLR-US-HN-01, Check 2	6557001	469008	0.4	0.4	16:30	16:45	24.25	20	0.82	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	20	0.82
				FDLR-US-HN-02, Check 2	6556882	468933	0.5		18:30	11:30	17.00	65	3.82	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	65	3.82
			2010/05/19	FDLR-US-HN-03, Check 1	6556859	468934	0.6	0.6	09:30	17:30	8.00	7	0.88	0	0.00	0	0.00	0	0.00	0	0.00	1	0.13	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	8	1.00
				FDLR-US-HN-02, Check 3	6556882	468933	0.5		11:30	16:30	29.00	36	1.24	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	36	1.24
			2010/05/20	FDLR-US-HN-04, Check 1	6556805	469165	0.8	0.8	11:00	16:33	29.55	245	8.29	1	0.03	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	246	8.32
				FDLR-US-HN-02, Check 4	6556882	468933	0.5	0.6	16:30	08:00	15.50	47	3.03	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	47	3.03
	Summer		2010/08/06	FDLR-US-HN-01, Check 1	6556916	468974			19:30	08:00	12.50	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
			2010/08/07	FDLR-US-HN-01, Check 2	6556916	468974	0.8	0.8	08:00	08:30	24.50	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-US-HN-02, Check 1	6556784	469164			08:30	08:30	24.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.04	1	0.04	2	0.08
			2010/08/11	FDLR-US-HN-05, Check 1	6556916	468974			10:20	09:00	22.67	413	18.22	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.04	0	0.00	0	0.00	45	1.99	459	20.25
	Fall			FDLR-US-HN-01, Check 1	6556785	469175			11:47	09:21	21.57	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
			2010/10/20	FDLR-US-HN-02, Check 1	6556869	469025			13:00	09:28	20.47	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-US-HN-03, Check 1	6556879	468930			14:16	09:33	43.28	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-US-HN-04, Check 1	6556884	468949	1	1	14:36	09:33	42.95	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
			2010/10/21	FDLR-US-HN-01, Check 2	6556785	469175			09:21	09:30	24.15	1	0.04	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.04
				FDLR-US-HN-02, Check 2	6556869	469025			09:28	09:40	24.20	1	0.04	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.04	0	0.00	1	0.04
FDLR - Mid Section	Spring	2012	2012/05/27	FDLR-US-HN-13, Check 1	6556648	469114			18:10	09:26	15.27	369	24.17	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	369	24.17
			2012/05/26	FDLR-MS-HN-10, Check 1	6558442	469035	0.4	0.4	11:12	16:39	5.45	5	0.92	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	5	0.92
				FDLR-MS-HN-10, Check 2					16:39	12:21	19.70	87	4.42	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	87	4.42
				FDLR-MS-HN-11, Check 1	6558583	468375	1	1	12:38	17:38	5.00	48	9.60	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	48	9.60
				FDLR-MS-HN-11, Check 2					17:38	09:47	16.15	66	4.09	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	66	4.09
			2012/05/27	FDLR-MS-HN-12, Check 1	6559154	468407			16:30	15:00	22.50	101	4.49	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	101	4.49
			2012/05/29	FDLR-MS-HN-15, Check 1	6559876	468204	0.9	0.9	14:00	13:00	23.00	2	0.09	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	0.09
			2012/05/30	FDLR-MS-HN-17, Check 1	6559875	468229	0.75	0.75	13:50	16:00	26.17	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
FDLR - Downstream	Spring	2010	2010/05/20	FDLR-DS-HN-05, Check 1	6561059	467931	0.5	0.5	14:00	17:24	27.40	44	1.61	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	44	1.61
				FDLR-DS-HN-07, Check 1	6561119	467946	0.56	0.9	14:14	17:40	27.43	46	1.68	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	46	1.68
			2010/05/21	FDLR-DS-HN-05, Check 2	6561059	467931	0.5	0.5	17:24	13:30	20.10	40	1.99	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	40	1.99
				FDLR-DS-HN-07, Check 2	6561119	467946	0.56	0.9	17:40		21.83	13	0.60	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	13	0.60
			2010/05/22	FDLR-DS-HN-05, Check 3	6561059	467931	0.5	0.5	13:30	15:30	26.00	2	0.08	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	2	0.08
				FDLR-DS-HN-07, Check 3	6561119	467946	0.56	0.9			24.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
			2010/05/23	FDLR-DS-HN-05, Check 4	6561059	467931	0.5	0.5	15:30	11:30	20.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
				FDLR-DS-HN-07, Check 4	6561119	467946	0.56	0.9		14:00	22.50	5	0.22	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	5	0.22
			2010/05/24	FDLR-DS-HN-06, Check 1	6561062	467908	0.6	0.5	13:20	14:13	24.88	106	4.26	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	106	4.26
				FDLR-DS-HN-07, Check 5	6561119	467946	0.56	0.9	14:00	14:15	24.25	49	2.02	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	49	2.02
			2010/05/25	FDLR-DS-HN-08, Check 1	6560647	468010	0.6	0.5	17:00	09:30	16.50	8	0.48	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	8	0.48
				FDLR-DS-HN-09, Check 1	6560702	467989			17:20	10:00	16.67	18	1.08	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	18	1.08
	Summer		2010/08/09	FDLR-DS-HN-03, Check 1	6561051	467958			09:00	12:00	51.00	1	0.02	0	0.00	0	0.00	3	0.06	0	0.00	0	0.00	3	0.06	0	0.00	3	0.06	0	0.00	10	0.20
				FDLR-DS-HN-04, Check 1	6561109	467948	0.8	0.8		12:15	51.25	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
			2010/08/11	FDLR-DS-HN-06, Check 1	6561051	467958			11:30	15:30	4.00	0	0.00	0	0.00	0	0.00	33	8.25	0	0.00	2	0.50	0	0.00	0	0.00	0	0.00	0	0.00	35	8.75
				FDLR-DS-HN-06, Check 2					15:30	13:30	22.00	163	7.41	0	0.00	14	0.64	0	0.00	0	0.00	233	10.59	0	0.00	12	0.55	0	0.00	78	3.55	500	22.73
	Spring	2012	2012/05/29	FDLR-DS-HN-14, Check 1	6560857	468161	0.75	0.75	11:11	10:13	23.03	14	0.61	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	14	0.61
			2012/05/30	FDLR-DS-HN-16, Check 1	6560913	468235			11:35	09:50	22.25	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.04	0	0.00	0	0.00	0	0.00	0	0.00	1	0.04
Black Lake	Spring	2010	2010/05/30	BKL-HN-01, Check 1	6556659	468734	1	1	20:00	18:00	22.00	12	0.55	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	12	0.55
			2010/05/31	BKL-HN-01, Check 2					18:00	20:00	26.00	22	0.85	0	0.00	0	0.00	0	0.00	1	0.04	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	23	0.88
			2010/06/03	BKL-HN-02, Check 1	6554180	470803			09:00	14:30	5.50	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	3	0.55	0	0.00	0	0.00	0	0.00	0	0.00	5	0.91	8	1.45
				BKL-HN-03, Check 1	6554188	470799			10:15	14:00	3.75	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	5	1.33	0	0.00	0	0.00	0	0.00	0	0.00	21	5.60	26	6.93
			2010/06/05	BKL-HN-04, Check 1	6572403	483873	1.2	1.2	10:00	11:30	1.50	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	42	28.00	0	0.00	0	0.00	0	0.00	0	0.00	15	10.00	57	38.00
	Fall		2010/10/20	BKL-HN-01, Check 1	6567108	480707	1	1	16:04	10:30	18.43	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
				BKL-HN-02, Check 1	6567095	480797	1.5	1.5	16:11	10:40	18.48	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Middle Lake	Not Sampled																																	

Notes:
UTM = Univeral Transverse Mercator; NAD = North American Datum; h = hours; n = number of fish captured; CPUE = Catch Per Unit Effort; No. = Number; HN = Hoop Net
FDLR = Fond Du Lac River; US = Upstream; MS = Mid Section; DS = Downstream; BKL = Black Lake
ARGR = Arctic grayling (*Thymallus arcticus*); BURB = burbot (*Lota lota*); CISC = cisco (*Coregonus artedi*); LKWH = lake whitefish (*Coregonus clupeaformis*); LNDC = longnose dace (*Rhinichthys cataractae*); LNSC = longnose sucker (*Catostomus catostomus*); NRPK = northern pike (*Esox lucius*); SLSC = slimy sculpin (*Cottus cognatus*); SPSH = spottail shiner (*Notropis hudsonius*); WALL = walleye (*Sander vitreus*); WHSC = white sucker (*Catostomus commersonii*)
Gear type specifications can be found in Section 6, Table 6-2

Table III.9-7: Catch Per Unit Effort for Fish Captured in Set Lines, Winter 2011

Set Line Area of Interest	Season	Year	Start Date	Fishing Effort	Coordinates (UTM NAD83) Northing Start	Coordinates (UTM NAD83) Easting Start	Time Start	Time End	Duration (h)	Total n	Total CPUE (No. Fish/h)
FDLR - Upstream	Not sampled										
FDLR - Mid Section	Not sampled										
FDLR - Downstream	Not sampled										
Black Lake	Winter	2011	2011/02/18	BKL-SL-01, Hook 1	6553690	468379	09:47	11:51	50.07	0	0.00
				BKL-SL-01, Hook 2						0	0.00
				BKL-SL-02, Hook 1	6553581	468418	10:07	12:08	50.02	0	0.00
				BKL-SL-02, Hook 2						0	0.00
				BKL-SL-03, Hook 1	6553574	468282	10:48	12:50	50.03	0	0.00
				BKL-SL-03, Hook 2						0	0.00
				BKL-SL-04, Hook 1	6553554	469084	12:25	13:05	48.67	0	0.00
				BKL-SL-04, Hook 2						0	0.00
				BKL-SL-05, Hook 1	6553618	469085	12:41	13:20	48.65	0	0.00
				BKL-SL-05, Hook 2						0	0.00
				BKL-SL-06, Hook 1	6553979	469417	15:56	15:14	47.30	0	0.00
				BKL-SL-06, Hook 2						0	0.00
				BKL-SL-07, Hook 1	6554126	469481	16:13	15:25	47.20	0	0.00
				BKL-SL-07, Hook 2						0	0.00
				BKL-SL-08, Hook 1	6554179	469537	16:25	15:36	47.18	0	0.00
				BKL-SL-08, Hook 2						0	0.00
				BKL-SL-09, Hook 1	6554286	469542	16:32	15:49	47.28	0	0.00
				BKL-SL-09, Hook 2						0	0.00
Middle Lake	Not sampled										

Notes:
UTM = Univeral Transverse Mercator; NAD = North American Datum; h = hours; n = number of fish captured; CPUE = Catch Per Unit Effort;
No. = Number; SL = Set Line; FDLR = Fond Du Lac River; BKL = Black Lake
Gear type specifications can be found in Section 6, Table 6-2

APPENDIX III.10

Fish Health Data

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	5/30/2010	BKL-GN-01	Lake Whitefish	SAS10PBKLLKWH001	205	103	1.20	Unknown	Juvenile	Unknown	No Structure Taken	-	Mortality	No
Black Lake	5/30/2010	BKL-GN-01	Lake Whitefish	SAS10PBKLLKWH002	244	255	1.76	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	5/30/2010	BKL-GN-01	Lake Whitefish	SAS10PBKLLKWH003	200	150	1.88	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	5/31/2010	BKL-GN-03	Lake Trout	SAS10PBKLLKTR004	425	1000	1.30	Unknown	Adult	Unknown	No Structure Taken	-	Mortality	No
Black Lake	5/31/2010	BKL-GN-03	Lake Trout	SAS10PBKLLKTR005	429	1100	1.39	Unknown	Adult	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	5/31/2010	BKL-GN-03	Lake Trout	SAS10PBKLLKTR006	530	1900	1.28	Unknown	Adult	Unknown	No Structure Taken	-	First Capture, Released	Yes
Black Lake	5/31/2010	BKL-GN-03	Lake Trout	SAS10PBKLLKTR007	460	1270	1.30	Unknown	Adult	Unknown	No Structure Taken	-	Mortality	No
Black Lake	5/31/2010	BKL-GN-03	Lake Whitefish	SAS10PBKLLKWH008	380	900	1.64	Unknown	Adult	Unknown	No Structure Taken	-	Mortality	No
Black Lake	5/31/2010	BKL-GN-03	Lake Whitefish	SAS10PBKLLKWH009	310	500	1.68	Unknown	Adult	Unknown	No Structure Taken	-	Mortality	No
Black Lake	5/31/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR010	365	700	1.44	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	5/31/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR011	320	450	1.37	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	5/31/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR012	270	300	1.52	Unknown	Unknown	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	5/31/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR013	387	700	1.21	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	5/31/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR014	405	970	1.46	Male	Adult	Spent	No Structure Taken	-	First Capture, Released	No
Black Lake	5/31/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR015	347	550	1.32	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	5/31/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR016	195	200	2.70	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	5/31/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR017	210	190	2.05	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	5/31/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR018	375	700	1.33	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	5/31/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR019	352	600	1.38	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	5/31/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR020	375	700	1.33	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	5/31/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR021	197	150	1.96	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR022	190	75	1.09	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR023	185	60	0.95	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR024	195	90	1.21	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR025	183	100	1.63	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR026	405	700	1.05	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR027	380	720	1.31	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR028	340	600	1.53	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR029	438	1100	1.31	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR030	363	620	1.30	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR031	372	750	1.46	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR032	365	600	1.23	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR033	381	750	1.36	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR034	370	700	1.38	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR035	375	700	1.33	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR036	355	-	-	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR037	375	750	1.42	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR038	371	720	1.41	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR039	371	710	1.39	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR040	351	600	1.39	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR041	355	700	1.56	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR042	376	790	1.49	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	6/1/2010	BKL-HN-01	Arctic Grayling	SAS10PBKLARGR043	368	650	1.30	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	6/1/2010	BKL-HN-01	Longnose Sucker	SAS10PBKLLNSC044	150	90	2.67	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	6/3/2010	BKL-HN-03	Northern Pike	SAS10PBKLNRPK058	451	890	0.97	Unknown	Adult	Unknown	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	Northern Pike	SAS10PBKLNRPK059	595	-	-	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	Northern Pike	SAS10PBKLNRPK068	640	1970	0.75	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	Northern Pike	SAS10PBKLNRPK069	570	1510	0.82	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	Northern Pike	SAS10PBKLNRPK070	450	700	0.77	Unknown	Adult	Unknown	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC045	485	2000	1.75	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC046	510	1900	1.43	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC047	485	2000	1.75	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC048	463	1800	1.81	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC049	488	2000	1.72	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC050	485	2000	1.75	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC051	471	2000	1.91	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC052	451	1700	1.85	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC053	460	1800	1.85	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC054	475	1900	1.77	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC055	457	1800	1.89	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC056	467	1710	1.68	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC057	470	1800	1.73	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC060	511	2500	1.87	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC061	454	1500	1.60	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC062	510	2230	1.68	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC063	455	1610	1.71	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC064	457	1550	1.62	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC065	470	1750	1.69	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC066	501	2005	1.59	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-03	White Sucker	SAS10PBKLWHSC067	447	1490	1.67	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-02	Northern Pike	SAS10PBKLNRPK076	538	1390	0.89	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-02	Northern Pike	SAS10PBKLNRPK077	695	2500	0.74	Unknown	Adult	Unknown	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-02	Northern Pike	SAS10PBKLNRPK078	650	2000	0.73	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-02	White Sucker	SAS10PBKLWHSC071	497	1500	1.22	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-02	White Sucker	SAS10PBKLWHSC072	530	2400	1.61	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-02	White Sucker	SAS10PBKLWHSC073	490	2100	1.78	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-02	White Sucker	SAS10PBKLWHSC074	434	1400	1.71	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/3/2010	BKL-HN-02	White Sucker	SAS10PBKLWHSC075	460	1500	1.54	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC084	475	1800	1.68	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC085	420	990	1.34	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC086	490	1600	1.36	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC087	475	1700	1.59	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC088	480	1700	1.54	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC089	369	720	1.43	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC090	416	1200	1.67	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC091	422	1200	1.60	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC092	470	1400	1.35	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC093	460	1495	1.54	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC094	478	1600	1.46	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC095	494	1700	1.41	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC096	475	1300	1.21	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC097	523	2170	1.52	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC098	485	1600	1.40	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC099	470	1390	1.34	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC100	495	1790	1.48	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC101	420	1200	1.62	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC102	486	1700	1.48	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC103	505	2010	1.56	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC104	470	1610	1.55	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC105	411	1000	1.44	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC106	475	1350	1.26	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC107	460	1800	1.85	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC108	405	950	1.43	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC109	491	1900	1.61	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC111	502	2000	1.58	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC112	390	1000	1.69	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC113	446	1450	1.63	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC114	467	1500	1.47	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC115	470	1600	1.54	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC116	412	1100	1.57	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC117	446	1390	1.57	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC118	407	1075	1.59	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC128	550	2400	1.44	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC129	445	1500	1.70	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC130	565	1500	0.83	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC131	455	1490	1.58	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC132	352	690	1.58	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC133	475	1500	1.40	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC134	450	1400	1.54	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	Longnose Sucker	SAS10PBKLLNSC135	375	800	1.52	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	White Sucker	SAS10PBKLWHSC079	512	2000	1.49	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	White Sucker	SAS10PBKLWHSC080	445	1500	1.70	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	White Sucker	SAS10PBKLWHSC081	444	1370	1.57	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	White Sucker	SAS10PBKLWHSC082	554	2700	1.59	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	White Sucker	SAS10PBKLWHSC083	402	1100	1.69	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	White Sucker	SAS10PBKLWHSC110	461	1700	1.74	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	White Sucker	SAS10PBKLWHSC119	419	1120	1.52	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	White Sucker	SAS10PBKLWHSC120	465	1750	1.74	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	White Sucker	SAS10PBKLWHSC121	500	1970	1.58	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	White Sucker	SAS10PBKLWHSC122	482	2200	1.96	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	White Sucker	SAS10PBKLWHSC123	433	1370	1.69	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	White Sucker	SAS10PBKLWHSC124	507	2200	1.69	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	White Sucker	SAS10PBKLWHSC125	450	2000	2.19	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	White Sucker	SAS10PBKLWHSC126	500	2400	1.92	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	6/5/2010	BKL-HN-04	White Sucker	SAS10PBKLWHSC127	446	1310	1.48	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	8/14/2010	BKL-EF-01	Arctic Grayling	SAS10SBKLARGR1452	60	2.19	1.01	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	8/14/2010	BKL-EF-01	Arctic Grayling	SAS10SBKLARGR1453	55	1.67	1.00	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Arctic Grayling	SAS10SBKLARGR1454	68	3.09	0.98	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Arctic Grayling	SAS10SBKLARGR1455	58	1.83	0.94	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Burbot	SAS10SBKLBURB1446	162	27.81	0.65	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Burbot	SAS10SBKLBURB1447	117	10.97	0.68	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Burbot	SAS10SBKLBURB1448	122	12.88	0.71	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Burbot	SAS10SBKLBURB1449	130	14.44	0.66	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1263	44	0.78	0.92	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1274	37	0.72	1.42	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1278	37	0.59	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1285	41	0.67	0.97	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1287	40	0.67	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1292	37	0.65	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1293	37	0.84	1.66	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1310	41	0.86	1.25	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1318	41	0.94	1.36	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1319	39	0.71	1.20	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1334	36	0.48	1.03	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1356	40	0.59	0.92	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1357	37	0.54	1.07	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1359	37	0.59	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1361	36	0.51	1.09	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1362	40	0.75	1.17	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1363	37	0.66	1.30	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1365	38	0.73	1.33	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1368	40	0.79	1.23	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1371	37	0.68	1.34	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1372	37	0.74	1.46	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1373	40	0.93	1.45	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1377	37	0.49	0.97	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1378	68	3.53	1.12	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1379	37	0.82	1.62	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1382	40	0.86	1.34	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1383	38	0.68	1.24	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1387	41	0.79	1.15	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1388	41	0.62	0.90	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1391	42	0.67	0.90	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1402	76	5.04	1.15	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1410	44	0.82	0.96	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1411	36	0.62	1.33	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1414	37	0.61	1.20	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1415	41	0.76	1.10	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1418	43	0.92	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1419	40	0.82	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1420	42	0.67	0.90	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1424	36	0.57	1.22	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1428	40	0.67	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1429	41	0.83	1.20	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1432	37	0.59	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1436	38	0.61	1.11	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1437	37	0.53	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1442	46	1.11	1.14	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1443	37	0.63	1.24	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1444	43	1.02	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Longnose Sucker	SAS10SBKLLNSC1445	42	0.79	1.07	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Northern Pike	SAS10SBKLNRPK1460	265	270	1.45	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	Yes
Black Lake	8/14/2010	BKL-EF-01	Northern Pike	SAS10SBKLNRPK1461	282	230	1.03	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	Yes
Black Lake	8/14/2010	BKL-EF-01	Northern Pike	SAS10SBKLNRPK1462	279	255	1.17	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1264	34	0.45	1.14	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1265	42	0.74	1.00	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1266	44	0.67	0.79	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1267	32	0.35	1.07	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1268	33	0.65	1.81	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1269	36	0.59	1.26	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1270	33	0.44	1.22	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1271	37	0.65	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1272	38	0.91	1.66	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1273	40	0.95	1.48	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1275	33	0.49	1.36	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1276	37	0.68	1.34	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1277	35	0.52	1.21	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1279	46	1.16	1.19	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1280	38	0.69	1.26	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1281	36	0.82	1.76	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1282	41	0.89	1.29	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1283	40	0.78	1.22	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1284	40	0.84	1.31	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1286	36	0.54	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1288	47	1.40	1.35	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1289	45	0.85	0.93	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1290	36	0.69	1.48	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1291	82	6.47	1.17	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1294	36	0.71	1.52	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1295	37	0.69	1.36	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1296	47	1.04	1.00	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1297	68	3.54	1.13	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1298	38	0.83	1.51	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1299	37	0.81	1.60	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1300	107	14.71	1.20	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1301	38	0.64	1.17	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1302	40	0.91	1.42	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1303	41	0.89	1.29	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1304	37	0.67	1.32	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1305	36	0.52	1.11	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1306	43	0.93	1.17	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1307	40	0.79	1.23	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1308	32	0.42	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1309	36	0.58	1.24	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1311	40	0.90	1.41	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1312	40	0.86	1.34	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1313	46	0.95	0.98	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1314	36	0.65	1.39	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1315	42	0.84	1.13	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1316	42	0.78	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1317	40	0.89	1.39	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1320	41	0.88	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1321	36	0.63	1.35	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1322	42	0.96	1.30	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1323	63	3.75	1.50	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1324	74	4.01	0.99	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1325	40	0.67	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1326	38	0.80	1.46	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1327	43	0.91	1.14	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1328	38	0.69	1.26	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1329	45	0.96	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1330	41	0.78	1.13	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1331	38	0.73	1.33	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1332	41	0.88	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1333	37	0.67	1.32	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1335	41	0.86	1.25	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1336	33	0.44	1.22	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1337	38	0.55	1.00	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1338	37	0.72	1.42	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1339	135	28.67	1.17	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1340	44	0.99	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1341	43	0.83	1.04	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1342	39	0.71	1.20	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1343	37	0.62	1.22	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1344	37	0.72	1.42	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1345	41	0.86	1.25	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1346	40	0.79	1.23	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1347	40	0.77	1.20	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1348	40	0.84	1.31	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1349	41	0.77	1.12	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1350	43	0.95	1.19	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1351	36	0.54	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1352	40	0.68	1.06	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1353	37	0.79	1.56	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1354	35	0.37	0.86	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1355	41	0.69	1.00	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1358	34	0.53	1.35	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1360	39	0.58	0.98	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1364	43	0.79	0.99	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1366	41	0.78	1.13	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1367	36	0.66	1.41	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1369	43	0.97	1.22	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1370	33	0.48	1.34	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1374	41	0.76	1.10	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1375	42	0.81	1.09	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1376	39	0.73	1.23	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1380	36	0.81	1.74	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1381	34	0.43	1.09	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1384	41	0.82	1.19	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1385	40	0.71	1.11	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1386	40	0.74	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1389	40	0.63	0.98	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1390	35	0.60	1.40	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1392	37	0.65	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1393	37	0.63	1.24	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1394	40	0.76	1.19	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1395	38	0.74	1.35	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1396	40	0.67	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1397	32	0.38	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1398	45	1.02	1.12	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1399	49	0.83	0.71	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1400	42	0.94	1.27	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1401	45	0.88	0.97	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1403	35	0.66	1.54	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1404	40	0.86	1.34	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1405	46	0.70	0.72	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1406	36	0.58	1.24	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1407	37	0.68	1.34	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1408	36	0.59	1.26	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1409	37	0.71	1.40	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1412	37	0.62	1.22	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1413	40	0.72	1.13	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1416	38	0.72	1.31	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1417	38	0.63	1.15	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1421	38	0.60	1.09	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1422	40	0.78	1.22	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1423	40	0.68	1.06	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1425	42	0.84	1.13	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1426	37	0.50	0.99	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1427	50	1.26	1.01	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1430	37	0.79	1.56	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1431	38	0.75	1.37	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1433	41	0.90	1.31	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1434	39	0.55	0.93	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1435	40	0.73	1.14	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1438	29	0.39	1.60	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1439	35	0.66	1.54	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1440	37	0.64	1.26	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1441	45	1.06	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1450	90	8.81	1.21	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1451	35	1.07	2.50	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1456	68	3.62	1.15	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	White Sucker	SAS10SBKLWHSC1459	363	990	2.07	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	Yes
Black Lake	8/14/2010	BKL-EF-01	Yellow Perch	SAS10SBKLYLPR1457	37	0.90	1.78	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/14/2010	BKL-EF-01	Yellow Perch	SAS10SBKLYLPR1458	37	0.83	1.64	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-01	Burbot	SAS10SBKLBURB1463	122	11.07	0.61	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-01	Burbot	SAS10SBKLBURB1464	90	4.14	0.57	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-01	Burbot	SAS10SBKLBURB1465	49	0.78	0.66	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-01	Burbot	SAS10SBKLBURB1466	105	7.95	0.69	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-01	Burbot	SAS10SBKLBURB1467	202	52.84	0.64	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-01	Burbot	SAS10SBKLBURB1468	63	2.17	0.87	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-01	Burbot	SAS10SBKLBURB1469	91	6.86	0.91	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-01	Burbot	SAS10SBKLBURB1470	323	139.85	0.42	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-01	White Sucker	SAS10SBKLWHSC1471	63	3.45	1.38	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-02	Burbot	SAS10SBKLBURB1472	81	3.22	0.61	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-02	Burbot	SAS10SBKLBURB1473	182	39.35	0.65	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-02	Burbot	SAS10SBKLBURB1474	54	1.23	0.78	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-02	Burbot	SAS10SBKLBURB1475	52	1.20	0.85	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-02	White Sucker	SAS10SBKLWHSC1476	80	8.83	1.72	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-02	White Sucker	SAS10SBKLWHSC1477	79	6.83	1.39	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-02	White Sucker	SAS10SBKLWHSC1478	74	5.48	1.35	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-02	White Sucker	SAS10SBKLWHSC1479	68	4.93	1.57	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-02	White Sucker	SAS10SBKLWHSC1480	68	4.07	1.29	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-02	White Sucker	SAS10SBKLWHSC1481	76	6.44	1.47	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-02	White Sucker	SAS10SBKLWHSC1482	74	4.58	1.13	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-BP-02	White Sucker	SAS10SBKLWHSC1483	68	4.63	1.47	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	Arctic Grayling	SAS10SBKLARGR1517	72	3.55	0.95	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	Arctic Grayling	SAS10SBKLARGR1518	71	3.08	0.86	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	Arctic Grayling	SAS10SBKLARGR1519	69	3.21	0.98	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	Burbot	SAS10SBKLBURB1516	187	41.22	0.63	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1484	40	0.82	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1485	45	1.14	1.25	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1486	41	0.82	1.19	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1487	44	1.09	1.28	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1488	129	24.84	1.16	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1489	177	70.16	1.27	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1490	184	79.97	1.28	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1491	199	113.80	1.44	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1492	38	0.78	1.42	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1493	49	1.42	1.21	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1494	43	0.88	1.11	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1495	115	20.12	1.32	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1496	90	9.52	1.31	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1497	80	5.90	1.15	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1498	73	4.36	1.12	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1499	94	10.69	1.29	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1500	83	7.10	1.24	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1501	45	1.29	1.42	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1502	68	4.49	1.43	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1503	43	0.99	1.25	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1504	138	39.47	1.50	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1505	123	21.84	1.17	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1506	135	34.19	1.39	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1507	75	5.88	1.39	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1508	72	5.16	1.38	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1509	119	20.98	1.24	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1510	117	17.51	1.09	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1511	153	44.26	1.24	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1512	201	101.53	1.25	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1513	68	3.77	1.20	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1514	62	3.11	1.30	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1515	46	1.33	1.37	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/15/2010	BKL-EF-02	White Sucker	SAS10SBKLWHSC1520	390	1330	2.24	Unknown	Adult	Seasonal Development	Fin Ray	-	First Capture, Released	Yes
Black Lake	8/16/2010	BKL-EF-03	Arctic Grayling	SAS10SBKLARGR1630	73	3.94	1.01	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1529	126	13.31	0.67	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1530	126	9.12	0.46	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1531	57	0.97	0.52	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1532	55	1.21	0.73	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1533	55	1.17	0.70	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1534	59	1.64	0.80	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1535	178	34.12	0.60	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1536	155	22.32	0.60	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1537	206	54.69	0.63	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1538	190	53.20	0.78	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1539	109	7.01	0.54	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1540	122	10.19	0.56	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1541	96	5.85	0.66	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1542	105	6.33	0.55	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1543	50	1.03	0.82	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1544	51	0.99	0.75	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1545	104	6.56	0.58	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1546	51	0.93	0.70	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1547	78	3.59	0.76	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1548	60	1.38	0.64	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1549	174	29.29	0.56	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1550	56	1.73	0.99	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1551	54	0.89	0.57	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1552	53	1.25	0.84	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1553	93	5.21	0.65	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1554	54	1.29	0.82	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1555	56	1.37	0.78	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1556	91	4.04	0.54	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1557	105	7.66	0.66	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1558	51	0.91	0.69	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1559	52	1.12	0.80	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1560	53	1.40	0.94	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1561	56	1.11	0.63	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1562	86	4.02	0.63	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1563	75	2.81	0.67	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1564	55	1.31	0.79	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1565	50	1.11	0.89	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1566	55	1.27	0.76	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1567	56	1.25	0.71	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1568	51	1.17	0.88	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1569	49	1.30	1.10	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1570	49	1.12	0.95	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1634	62	1.56	0.65	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1635	42	0.59	0.80	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1636	52	1.88	1.34	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1637	53	1.02	0.69	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1638	43	0.62	0.78	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/16/2010	BKL-EF-03	Burbot	SAS10SBKLBURB1639	57	1.29	0.70	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/16/2010	BKL-EF-03	Northern Pike	SAS10SBKLNRPK1521	325	410	1.19	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	Yes
Black Lake	8/16/2010	BKL-EF-03	Northern Pike	SAS10SBKLNRPK1522	125	12.80	0.66	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Northern Pike	SAS10SBKLNRPK1523	248	102.96	0.68	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Northern Pike	SAS10SBKLNRPK1524	115	8.50	0.56	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Northern Pike	SAS10SBKLNRPK1525	130	13.11	0.60	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Northern Pike	SAS10SBKLNRPK1526	194	65.00	0.89	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Northern Pike	SAS10SBKLNRPK1527	124	10.73	0.56	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Northern Pike	SAS10SBKLNRPK1528	259	103.62	0.60	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1571	99	17.86	1.84	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1572	166	61.10	1.34	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1573	143	31.56	1.08	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1574	39	0.75	1.26	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1575	70	3.86	1.13	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1576	98	12.38	1.32	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1577	89	6.90	0.98	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1578	72	4.39	1.18	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1579	65	3.11	1.13	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1580	67	3.18	1.06	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1581	43	1.18	1.48	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1582	74	4.85	1.20	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1583	42	1.96	2.65	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1584	102	16.14	1.52	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1585	74	5.25	1.30	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1586	62	2.84	1.19	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1587	98	10.40	1.10	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1588	65	3.93	1.43	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1589	61	5.94	2.62	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1590	70	3.82	1.11	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1591	100	13.56	1.36	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1592	76	5.77	1.31	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1593	45	1.38	1.51	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1594	43	1.15	1.45	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1595	75	4.69	1.11	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1596	70	4.41	1.29	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1597	45	1.17	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1598	40	1.13	1.77	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1599	92	8.86	1.14	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1600	75	6.36	1.51	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1601	78	5.38	1.13	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1602	71	4.87	1.36	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1603	66	3.30	1.15	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1604	41	0.91	1.32	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1605	82	5.98	1.08	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1606	80	5.75	1.12	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1607	81	5.77	1.09	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1608	76	5.55	1.26	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1609	81	6.93	1.30	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1610	59	3.10	1.51	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1611	68	4.22	1.34	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1612	90	10.26	1.41	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1613	73	5.48	1.41	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1614	66	4.06	1.41	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1615	84	6.96	1.17	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1616	70	4.83	1.41	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1617	78	5.94	1.25	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1618	50	1.40	1.12	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1619	75	5.03	1.19	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1620	44	1.26	1.48	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1621	91	5.86	0.78	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1622	76	6.33	1.44	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1623	131	29.36	1.31	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1624	80	6.51	1.27	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1625	53	1.92	1.29	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1626	72	4.29	1.15	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1627	79	5.69	1.15	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1628	106	14.20	1.19	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1629	69	4.60	1.40	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	White Sucker	SAS10SBKLWHSC1633	108	14.50	1.15	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/16/2010	BKL-EF-03	Yellow Perch	SAS10SBKLYLPR1631	44	0.78	0.92	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/16/2010	BKL-EF-03	Yellow Perch	SAS10SBKLYLPR1632	35	0.45	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/21/2010	BKL-GN-01	Cisco	SAS10SBKLCISC1965	198	72.01	0.93	Male	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Black Lake	8/21/2010	BKL-GN-01	Cisco	SAS10SBKLCISC1966	220	117.21	1.10	Male	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Black Lake	8/21/2010	BKL-GN-01	Lake Trout	SAS10SBKLLKTR1967	445	1110	1.26	Male	Adult	Resting	Otoliths + Fin Ray	-	Mortality	No
Black Lake	8/21/2010	BKL-GN-01	Lake Trout	SAS10SBKLLKTR1968	541	2000	1.26	Unknown	Adult	Seasonal Development	Fin Ray	-	First Capture, Released	Yes
Black Lake	8/21/2010	BKL-GN-01	Longnose Sucker	SAS10SBKLLNSC1969	310	500	1.68	Unknown	Adult	Seasonal Development	Fin Ray	-	First Capture, Released	Yes
Black Lake	8/21/2010	BKL-GN-01	Longnose Sucker	SAS10SBKLLNSC1970	355	670	1.50	Unknown	Adult	Seasonal Development	Fin Ray	-	First Capture, Released	Yes
Black Lake	8/21/2010	BKL-GN-02	Cisco	SAS10SBKLCISC1973	171	61.68	1.23	Female	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Black Lake	8/21/2010	BKL-GN-02	Cisco	SAS10SBKLCISC1974	172	48.74	0.96	Female	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Black Lake	8/21/2010	BKL-GN-02	Cisco	SAS10SBKLCISC1975	158	51.36	1.30	Female	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Black Lake	8/21/2010	BKL-GN-02	Cisco	SAS10SBKLCISC1976	161	54.33	1.30	Female	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Black Lake	8/21/2010	BKL-GN-02	Lake Trout	SAS10SBKLLKTR1977	406	900	1.34	Female	Adult	Seasonal Development	Otoliths + Fin Ray	-	Mortality	No
Black Lake	8/21/2010	BKL-GN-02	Longnose Sucker	SAS10SBKLLNSC1971	332	600	1.64	Unknown	Adult	Seasonal Development	Fin Ray	-	First Capture, Released	Yes
Black Lake	8/21/2010	BKL-GN-02	Longnose Sucker	SAS10SBKLLNSC1972	325	490	1.43	Unknown	Adult	Seasonal Development	Fin Ray	-	First Capture, Released	Yes
Black Lake	8/24/2010	BKL-EF-04	Arctic Grayling	SAS10SBKLARGR2277	90	6.36	0.87	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	Burbot	SAS10SBKLBURB2275	111	8.60	0.63	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	Burbot	SAS10SBKLBURB2276	84	4.11	0.69	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	Longnose Sucker	SAS10SBKLLNSC2255	54	1.85	1.17	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	Longnose Sucker	SAS10SBKLLNSC2272	46	1.04	1.07	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	Longnose Sucker	SAS10SBKLLNSC2273	47	1.13	1.09	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2252	62	2.77	1.16	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2253	84	8.07	1.36	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2254	56	2.16	1.23	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2256	49	1.25	1.06	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2257	60	2.49	1.15	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2258	66	2.96	1.03	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2259	61	2.87	1.26	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2260	62	2.81	1.18	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2261	62	2.34	0.98	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2262	58	2.03	1.04	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2263	96	9.91	1.12	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2264	89	12.00	1.70	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2265	51	1.95	1.47	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2266	54	2.07	1.31	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2267	61	2.72	1.20	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2268	86	7.29	1.15	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2269	47	1.26	1.21	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2270	62	2.71	1.14	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2271	57	2.26	1.22	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2274	60	3.10	1.44	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	White Sucker	SAS10SBKLWHSC2278	69	4.74	1.44	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/24/2010	BKL-EF-04	Yellow Perch	SAS10SBKLYLPR2279	50	1.45	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-04	Yellow Perch	SAS10SBKLYLPR2280	51	1.36	1.03	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Burbot	SAS10SBKLBURB2121	390	-	-	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Burbot	SAS10SBKLBURB2122	312	163.92	0.54	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Burbot	SAS10SBKLBURB2123	321	156.39	0.47	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Burbot	SAS10SBKLBURB2124	338	188.56	0.49	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Burbot	SAS10SBKLBURB2125	105	7.08	0.61	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Burbot	SAS10SBKLBURB2126	103	6.79	0.62	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Burbot	SAS10SBKLBURB2127	107	7.80	0.64	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Burbot	SAS10SBKLBURB2128	73	2.77	0.71	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/24/2010	BKL-EF-05	Burbot	SAS10SBKLBURB2129	134	14.84	0.62	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Burbot	SAS10SBKLBURB2130	70	2.26	0.66	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/24/2010	BKL-EF-05	Burbot	SAS10SBKLBURB2131	67	2.83	0.94	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/24/2010	BKL-EF-05	Burbot	SAS10SBKLBURB2132	60	2.04	0.94	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Burbot	SAS10SBKLBURB2133	64	2.02	0.77	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Burbot	SAS10SBKLBURB2134	74	3.14	0.77	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Burbot	SAS10SBKLBURB2135	104	7.22	0.64	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2136	55	1.96	1.18	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2143	86	8.41	1.32	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2145	80	6.48	1.27	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2149	105	14.40	1.24	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2160	94	10.13	1.22	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2165	130	26.08	1.19	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2166	135	27.11	1.10	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2167	110	16.45	1.24	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2170	120	20.45	1.18	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2172	125	16.78	0.86	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2173	88	9.70	1.42	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2177	58	2.61	1.34	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2179	102	17.15	1.62	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2185	120	24.1	1.39	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2188	140	31.78	1.16	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2189	104	16.31	1.45	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2190	121	20.48	1.16	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2192	110	17.32	1.30	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2193	120	19.59	1.13	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2194	100	14.13	1.41	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2195	48	1.47	1.33	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2197	160	53.60	1.31	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2198	112	16.11	1.15	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2199	117	24.18	1.51	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2200	100	12.18	1.22	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2203	144	34.61	1.16	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2205	120	22.18	1.28	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2206	143	36.41	1.25	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2212	120	16.82	0.97	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2213	124	27.33	1.43	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2214	110	17.04	1.28	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2215	133	30.51	1.30	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2216	156	45.49	1.20	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2218	114	18.72	1.26	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2219	130	26.91	1.22	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2220	108	16.66	1.32	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2223	92	10.31	1.32	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2224	121	21.71	1.23	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2225	90	9.40	1.29	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2227	110	20.46	1.54	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2228	102	14.65	1.38	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2230	83	9.12	1.59	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2232	114	20.99	1.42	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2233	50	1.62	1.30	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2234	54	1.87	1.19	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2235	78	5.79	1.22	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2239	109	19.19	1.48	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2241	108	15.71	1.25	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2242	119	22.97	1.36	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2243	57	1.97	1.06	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2244	109	16.60	1.28	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2247	127	26.06	1.27	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2248	94	9.72	1.17	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2249	51	1.59	1.20	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2250	50	1.40	1.12	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Longnose Sucker	SAS10SBKLLNSC2251	51	1.82	1.37	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Northern Pike	SAS10SBKLNRPK2115	124	13.06	0.68	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Northern Pike	SAS10SBKLNRPK2116	142	21.33	0.74	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Northern Pike	SAS10SBKLNRPK2117	147	19.29	0.61	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Northern Pike	SAS10SBKLNRPK2118	117	10.99	0.69	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Northern Pike	SAS10SBKLNRPK2119	139	16.40	0.61	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	Northern Pike	SAS10SBKLNRPK2120	125	11.04	0.57	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2137	107	14.78	1.21	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2138	130	25.84	1.18	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2139	135	31.24	1.27	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2140	119	21.97	1.30	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2141	132	30.51	1.33	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2142	120	20.77	1.20	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2144	125	24.48	1.25	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2146	120	24.51	1.42	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2147	120	21.52	1.25	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2148	106	16.40	1.38	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2150	107	18.14	1.48	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2151	143	37.44	1.28	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2152	100	14.21	1.42	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2153	102	15.32	1.44	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2154	99	12.88	1.33	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2155	115	18.26	1.20	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2156	50	1.73	1.38	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2157	54	2.17	1.38	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2158	113	17.48	1.21	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2159	164	60.23	1.37	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2161	108	12.00	0.95	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2162	145	38.70	1.27	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2163	133	31.45	1.34	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2164	108	14.69	1.17	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2168	117	20.06	1.25	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2169	125	18.89	0.97	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2171	115	18.67	1.23	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2174	149	45.18	1.37	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2175	108	16.67	1.32	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2176	94	10.25	1.23	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2178	120	19.17	1.11	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2180	100	13.54	1.35	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2181	49	1.73	1.47	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2182	100	12.59	1.26	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2183	43	1.23	1.55	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2184	156	52.81	1.39	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2186	104	12.38	1.10	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2187	110	22.96	1.73	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2191	107	16.72	1.36	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2196	163	60.10	1.39	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2201	95	9.97	1.16	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2202	106	17.05	1.43	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2204	113	15.82	1.10	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2207	105	16.78	1.45	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2208	105	16.78	1.45	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2209	103	13.44	1.23	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2210	106	14.98	1.26	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2211	116	17.49	1.12	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2217	105	14.70	1.27	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2221	117	21.14	1.32	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2222	115	22.41	1.47	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2226	110	18.22	1.37	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2229	97	14.48	1.59	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2231	114	18.73	1.26	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2236	103	13.45	1.23	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2237	110	17.52	1.32	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2238	108	16.63	1.32	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2240	93	11.86	1.47	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2245	139	31.52	1.17	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	8/24/2010	BKL-EF-05	White Sucker	SAS10SBKLWHSC2246	99	13.49	1.39	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Black Lake	9/14/2010	BKL-AN-01	Lake Trout	SAS10FBKLLKTR011	533	1500	0.99	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/14/2010	BKL-AN-01	Lake Trout	SAS10FBKLLKTR012	524	1900	1.32	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/14/2010	BKL-AN-01	Lake Trout	SAS10FBKLLKTR013	520	1700	1.21	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/14/2010	BKL-AN-01	Lake Trout	SAS10FBKLLKTR014	602	3150	1.44	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/14/2010	BKL-AN-01	Lake Trout	SAS10FBKLLKTR015	599	1800	0.84	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/14/2010	BKL-AN-01	Lake Trout	SAS10FBKLLKTR016	505	1590	1.23	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/14/2010	BKL-AN-01	Lake Trout	SAS10FBKLLKTR017	494	1725	1.43	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/14/2010	BKL-AN-01	Lake Trout	SAS10FBKLLKTR018	530	2025	1.36	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/14/2010	BKL-AN-01	Lake Trout	SAS10FBKLLKTR019	524	1850	1.29	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/14/2010	BKL-AN-01	Lake Trout	SAS10FBKLLKTR020	-	-	-	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/14/2010	BKL-AN-01	Lake Trout	SAS10FBKLLKTR021	-	-	-	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/14/2010	BKL-AN-01	Lake Trout	SAS10FBKLLKTR022	-	-	-	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/14/2010	BKL-AN-01	Lake Trout	SAS10FBKLLKTR023	-	-	-	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/14/2010	BKL-AN-01	Lake Trout	SAS10FBKLLKTR024	-	-	-	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/15/2010	BKL-AN-02	Lake Trout	SAS10FBKLLKTR070	535	1790	1.17	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-02	Lake Trout	SAS10FBKLLKTR071	574	2100	1.11	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-02	Lake Trout	SAS10FBKLLKTR072	507	1550	1.19	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-02	Lake Trout	SAS10FBKLLKTR073	535	1800	1.18	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-02	Lake Trout	SAS10FBKLLKTR074	529	2250	1.52	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-02	Lake Trout	SAS10FBKLLKTR075	585	2500	1.25	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-02	Lake Trout	SAS10FBKLLKTR076	476	1290	1.20	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-02	Lake Trout	SAS10FBKLLKTR077	555	2050	1.20	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-02	Lake Trout	SAS10FBKLLKTR078	510	1510	1.14	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-02	Lake Trout	SAS10FBKLLKTR079	574	2250	1.19	Female	Adult	Ripe	Otoliths + Fin Ray	16	Mortality	No
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR080	528	1810	1.23	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR081	498	1700	1.38	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR082	505	1500	1.16	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR083	510	1790	1.35	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR084	494	1410	1.17	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR085	510	1600	1.21	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR086	423	1010	1.33	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR087	553	2100	1.24	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR088	551	1890	1.13	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR089	534	1790	1.18	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR090	589	2250	1.10	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR091	576	2270	1.19	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR092	505	1600	1.24	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR093	553	2070	1.22	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR094	500	1490	1.19	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR095	460	1200	1.23	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR096	518	1720	1.24	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR097	488	1300	1.12	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR098	500	1580	1.26	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR099	480	1410	1.27	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR100	505	1500	1.16	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/15/2010	BKL-AN-03	Lake Trout	SAS10FBKLLKTR101	503	1710	1.34	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR102	651	3600	1.30	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR103	527	1825	1.25	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR104	512	1700	1.27	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR105	541	2125	1.34	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR106	518	1750	1.26	Male	Adult	Ripe	Otoliths + Fin Ray	11	Mortality	No
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR107	497	1475	1.20	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR108	494	1410	1.17	Unknown	Adult	Unknown	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR109	424	850	1.12	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR110	591	2610	1.26	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR111	542	1925	1.21	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR112	524	1875	1.30	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR113	572	2100	1.12	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR114	486	1375	1.20	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR115	526	1975	1.36	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR116	560	2095	1.19	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR117	687	4300	1.33	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR118	571	2300	1.24	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR119	525	2075	1.43	Female	Adult	Ripe	Otoliths + Scales + Fin Ray	-	Mortality	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR120	545	2000	1.24	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR121	536	2175	1.41	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR122	450	1250	1.37	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR123	504	1600	1.25	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR124	529	1860	1.26	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR125	533	1875	1.24	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR126	510	1710	1.29	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR127	499	1560	1.26	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR128	563	2150	1.20	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR129	559	2100	1.20	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR130	635	3200	1.25	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/16/2010	BKL-AN-04	Lake Trout	SAS10FBKLLKTR131	434	975	1.19	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR156	541	1900	1.20	Male	Adult	Ripe	Otoliths + Fin Ray	16	Mortality	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR157	585	2400	1.20	Male	Adult	Ripe	Otoliths + Fin Ray	17	Mortality	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR158	482	1550	1.38	Male	Adult	Ripe	Otoliths + Fin Ray	11	Mortality	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR159	542	1720	1.08	Male	Adult	Ripe	Otoliths + Fin Ray	12	Mortality	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR160	460	1670	1.72	Male	Adult	Ripe	Otoliths + Fin Ray	9	Mortality	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR161	493	1495	1.25	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR162	575	2110	1.11	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR163	580	2400	1.23	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR164	473	1400	1.32	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR165	497	1500	1.22	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR166	451	1295	1.41	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR167	498	1500	1.21	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR168	492	1500	1.26	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR169	515	1620	1.19	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR170	486	1400	1.22	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR171	479	1310	1.19	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR172	512	1650	1.23	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR173	555	1910	1.12	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR174	470	1400	1.35	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR175	473	1400	1.32	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR176	554	2100	1.24	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR177	633	2480	0.98	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR178	509	1780	1.35	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR179	517	1790	1.30	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR180	519	1870	1.34	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR181	469	1305	1.27	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR182	531	1950	1.30	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR183	476	1400	1.30	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/18/2010	BKL-GN-02	Lake Trout	SAS10FBKLLKTR184	447	2000	2.24	Male	Adult	Ripe	Otoliths + Fin Ray	12	Mortality	No
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR132	510	1500	1.13	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR133	511	1800	1.35	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR134	535	1900	1.24	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR135	518	1650	1.19	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR136	524	1600	1.11	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR137	521	1600	1.13	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR138	560	2100	1.20	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR139	488	1390	1.20	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR140	500	1510	1.21	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR141	490	1400	1.19	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR142	500	1480	1.18	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR143	513	1610	1.19	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR144	607	2120	0.95	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR145	611	2490	1.09	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR146	550	2120	1.27	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR147	575	2210	1.16	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR148	492	1500	1.26	Female	Adult	Ripe	Otoliths + Fin Ray	10	Mortality	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR149	499	1690	1.36	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR150	620	2910	1.22	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR151	510	1515	1.14	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR152	493	1500	1.25	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR153	523	1750	1.22	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR154	617	2610	1.11	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/18/2010	BKL-AN-05	Lake Trout	SAS10FBKLLKTR155	496	1600	1.31	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR208	525	1550	1.07	Male	Adult	Ripe	Otoliths + Fin Ray	12	Mortality	No
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR209	605	2450	1.11	Male	Adult	Ripe	Otoliths + Fin Ray	17	Mortality	No
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR210	515	1500	1.10	Male	Adult	Ripe	Otoliths + Fin Ray	9	Mortality	No
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR211	563	1990	1.12	Female	Adult	Ripe	Otoliths + Fin Ray	11	Mortality	No
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR212	549	1800	1.09	Male	Adult	Ripe	Otoliths + Fin Ray	11	Mortality	No
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR213	522	1325	0.93	Male	Adult	Ripe	Otoliths + Fin Ray	10	Mortality	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR214	462	1150	1.17	Male	Adult	Ripe	Otoliths + Fin Ray	7	Mortality	No
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR215	552	1705	1.01	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR216	557	1975	1.14	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR217	590	2310	1.12	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR218	563	1950	1.09	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR219	526	1575	1.08	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR220	503	1625	1.28	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR221	545	1650	1.02	Unknown	Adult	Unknown	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR222	586	2325	1.16	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR223	616	2075	0.89	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR224	571	2210	1.19	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR225	455	1560	1.66	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR226	565	1875	1.04	Unknown	Adult	Unknown	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR227	533	1810	1.20	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR228	727	4250	1.11	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR229	538	1700	1.09	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR230	510	1675	1.26	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR231	576	2210	1.16	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR232	565	2200	1.22	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR233	534	1810	1.19	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR234	560	2075	1.18	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-GN-03	Lake Trout	SAS10FBKLLKTR235	611	2390	1.05	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR236	535	1675	1.09	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR237	596	2050	0.97	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR238	535	1610	1.05	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR239	504	1495	1.17	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR240	505	1650	1.28	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR241	532	1600	1.06	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR242	539	1825	1.17	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR243	560	1890	1.08	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR244	525	1775	1.23	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR245	558	2090	1.20	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR246	535	1725	1.13	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR247	521	1650	1.17	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR248	533	1695	1.12	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR249	523	1690	1.18	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR250	540	1910	1.21	Unknown	Adult	Unknown	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR251	527	1690	1.15	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR252	484	1310	1.16	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR253	478	1200	1.10	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR254	515	1675	1.23	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR255	636	2750	1.07	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR256	601	2810	1.29	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR257	553	2100	1.24	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR258	492	1475	1.24	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR259	559	1800	1.03	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR260	545	1790	1.11	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/19/2010	BKL-AN-06	Lake Trout	SAS10FBKLLKTR261	493	1495	1.25	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-GN-04	Lake Trout	SAS10FBKLLKTR283	556	2105	1.22	Female	Adult	Ripe	Otoliths + Fin Ray	16	Mortality	No
Black Lake	9/20/2010	BKL-GN-04	Lake Trout	SAS10FBKLLKTR284	493	1510	1.26	Female	Adult	Seasonal Development	Otoliths + Fin Ray	9	Mortality	No
Black Lake	9/20/2010	BKL-GN-04	Lake Trout	SAS10FBKLLKTR330	517	1770	1.28	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-GN-04	Lake Trout	SAS10FBKLLKTR331	557	2390	1.38	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-GN-04	Lake Trout	SAS10FBKLLKTR332	538	1900	1.22	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-GN-04	Lake Trout	SAS10FBKLLKTR333	499	1500	1.21	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR285	526	1590	1.09	Male	Adult	Spent	Otoliths + Fin Ray	8	Mortality	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR286	546	2100	1.29	Female	Adult	Ripe	Otoliths + Fin Ray	17	Mortality	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR287	543	1900	1.19	Male	Adult	Ripe	Otoliths + Fin Ray	13	Mortality	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR288	615	2700	1.16	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR289	578	2310	1.20	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR290	536	1790	1.16	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR291	504	1500	1.17	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR292	572	2090	1.12	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR293	555	1870	1.09	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR294	506	1700	1.31	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR295	625	2900	1.19	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR296	561	2190	1.24	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR297	534	1890	1.24	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR298	533	1870	1.23	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR299	534	1870	1.23	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR300	503	1500	1.18	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR301	483	1600	1.42	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR302	580	2300	1.18	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR303	509	1510	1.15	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR304	533	2000	1.32	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR305	468	1305	1.27	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR306	485	1405	1.23	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR307	424	1000	1.31	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR308	536	1670	1.08	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR309	569	2300	1.25	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR310	514	1690	1.24	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR311	495	1490	1.23	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR312	501	1590	1.26	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR313	510	1550	1.17	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR314	480	1495	1.35	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR315	560	1800	1.02	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR316	546	1990	1.22	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR317	486	1495	1.30	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR318	505	1400	1.09	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR319	575	2200	1.16	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR320	569	1900	1.03	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR321	499	1500	1.21	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR322	460	1210	1.24	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR323	564	2170	1.21	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR324	532	1990	1.32	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR325	570	2110	1.14	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR326	564	2200	1.23	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR327	506	1512	1.17	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR328	583	2500	1.26	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/20/2010	BKL-AN-07	Lake Trout	SAS10FBKLLKTR329	504	1600	1.25	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-GN-05	Lake Trout	SAS10FBKLLKTR371	479	1640	1.49	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-GN-05	Lake Trout	SAS10FBKLLKTR372	445	1160	1.32	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-GN-05	Lake Trout	SAS10FBKLLKTR373	504	1525	1.19	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-GN-05	Lake Trout	SAS10FBKLLKTR374	500	1475	1.18	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-GN-05	Lake Trout	SAS10FBKLLKTR375	559	2160	1.24	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-GN-05	Lake Trout	SAS10FBKLLKTR376	514	1775	1.31	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-GN-05	Lake Trout	SAS10FBKLLKTR377	565	2550	1.41	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-GN-05	Lake Trout	SAS10FBKLLKTR378	484	1440	1.27	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-GN-05	Lake Trout	SAS10FBKLLKTR379	562	2575	1.45	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR337	599	2350	1.09	Male	Adult	Ripe	Otoliths + Fin Ray	24	Mortality	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR338	491	1390	1.17	Male	Adult	Ripe	Otoliths + Fin Ray	9	Mortality	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR339	488	1510	1.30	Male	Adult	Ripe	Otoliths + Fin Ray	11	Mortality	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR340	566	2300	1.27	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR341	491	1525	1.29	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR342	620	2875	1.21	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR343	496	1525	1.25	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR344	503	1550	1.22	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR345	541	1975	1.25	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR346	485	1480	1.30	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR347	497	1575	1.28	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR348	478	1575	1.44	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR349	539	1925	1.23	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR350	588	2275	1.12	Female	Adult	Spent	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR351	507	1605	1.23	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR352	481	1605	1.44	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR353	483	1400	1.24	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR354	597	2750	1.29	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR355	578	1925	1.00	Unknown	Adult	Unknown	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR356	460	1250	1.28	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR357	475	1605	1.50	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR358	470	1470	1.42	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR359	517	2100	1.52	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR360	513	1500	1.11	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR361	540	1950	1.24	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR362	490	1510	1.28	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR363	513	1805	1.34	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR364	512	1635	1.22	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR365	488	1400	1.20	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR366	545	2225	1.37	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR367	454	1330	1.42	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR368	503	1790	1.41	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR369	601	2100	0.97	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/21/2010	BKL-AN-08	Lake Trout	SAS10FBKLLKTR370	463	1440	1.45	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR430	621	2400	1.00	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR431	630	2590	1.04	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR432	507	1610	1.24	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR433	520	1610	1.15	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR434	506	1700	1.31	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR435	492	1310	1.10	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR436	556	2210	1.29	Male	Adult	Spent	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR437	510	1710	1.29	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR438	562	1900	1.07	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR439	554	1995	1.17	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR440	538	1650	1.06	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR441	536	1900	1.23	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR442	590	2280	1.11	Male	Adult	Spent	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR443	577	2200	1.15	Unknown	Adult	Unknown	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR444	542	1900	1.19	Male	Adult	Spent	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR445	528	1600	1.09	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR446	511	1500	1.12	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR447	620	2825	1.19	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR448	568	1900	1.04	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR449	530	1490	1.00	Male	Adult	Spent	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR450	579	2000	1.03	Male	Adult	Spent	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR451	580	1920	0.98	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR452	537	1600	1.03	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR453	594	2300	1.10	Female	Adult	Ripe	Otoliths + Fin Ray	21	Mortality	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR454	561	1900	1.08	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR455	513	1490	1.10	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR456	563	1995	1.12	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR457	593	2110	1.01	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR458	594	2110	1.01	Male	Adult	Spent	No Structure Taken	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR459	586	1900	0.94	Male	Adult	Spent	No Structure Taken	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR460	532	1870	1.24	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR461	595	2100	1.00	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR462	536	1500	0.97	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-AN-09	Lake Trout	SAS10FBKLLKTR463	620	2750	1.15	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR390	543	1660	1.04	Male	Adult	Ripe	Otoliths + Fin Ray	12	Mortality	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR391	587	2200	1.09	Male	Adult	Ripe	Otoliths + Fin Ray	17	Mortality	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR392	579	1900	0.98	Male	Adult	Ripe	Otoliths + Fin Ray	17	Mortality	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR393	506	1500	1.16	Male	Adult	Ripe	Otoliths + Fin Ray	11	Mortality	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR394	573	1900	1.01	Male	Adult	Ripe	Otoliths + Fin Ray	18	Mortality	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR395	611	2580	1.13	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR396	582	2210	1.12	Male	Adult	Spent	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR397	582	2020	1.02	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR398	624	2500	1.03	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR399	618	3190	1.35	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR400	564	2110	1.18	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR401	575	1900	1.00	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR402	552	1800	1.07	Unknown	Adult	Unknown	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR403	553	2000	1.18	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR404	512	1500	1.12	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR405	524	1700	1.18	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR406	490	1175	1.00	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR407	525	1510	1.04	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR408	537	1890	1.22	Male	Adult	Ripe	Otoliths + Fin Ray	13	Mortality	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR409	517	1550	1.12	Male	Adult	Ripe	Otoliths + Fin Ray	10	Mortality	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR410	585	2600	1.30	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR411	563	2020	1.13	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR412	582	2110	1.07	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR413	566	2190	1.21	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR414	502	1400	1.11	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR415	569	2100	1.14	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR416	589	2490	1.22	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR417	600	2410	1.12	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR418	482	1260	1.13	Male	Adult	Spent	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR419	583	2200	1.11	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR420	578	1990	1.03	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR421	538	1710	1.10	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR422	565	1900	1.05	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR423	653	3570	1.28	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR424	523	1700	1.19	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR425	517	1600	1.16	Male	Adult	Spent	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR426	542	1950	1.22	Male	Adult	Ripe	Otoliths + Fin Ray	11	Mortality	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR427	503	1340	1.05	Female	Adult	Spent	Otoliths + Fin Ray	13	Mortality	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR428	530	1610	1.08	Male	Adult	Spent	Fin Ray	-	First Capture, Released	No
Black Lake	9/22/2010	BKL-GN-06	Lake Trout	SAS10FBKLLKTR429	577	2170	1.13	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/23/2010	BKL-AN-10	Lake Trout	SAS10FBKLLKTR474	583	2505	1.26	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/23/2010	BKL-AN-10	Lake Trout	SAS10FBKLLKTR475	459	1210	1.25	Unknown	Adult	Unknown	Fin Ray	-	First Capture, Released	No
Black Lake	9/23/2010	BKL-AN-10	Lake Trout	SAS10FBKLLKTR476	541	1825	1.15	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/23/2010	BKL-AN-10	Lake Trout	SAS10FBKLLKTR477	522	1630	1.15	Unknown	Adult	Unknown	Fin Ray	-	First Capture, Released	No
Black Lake	9/23/2010	BKL-AN-10	Lake Trout	SAS10FBKLLKTR478	522	1510	1.06	Unknown	Adult	Unknown	Fin Ray	-	First Capture, Released	No
Black Lake	9/23/2010	BKL-AN-10	Lake Trout	SAS10FBKLLKTR479	483	1150	1.02	Female	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/23/2010	BKL-AN-10	Lake Trout	SAS10FBKLLKTR480	529	1640	1.11	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/23/2010	BKL-AN-10	Lake Trout	SAS10FBKLLKTR481	454	1140	1.22	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/23/2010	BKL-GN-07	Lake Trout	SAS10FBKLLKTR471	570	2000	1.08	Male	Adult	Ripe	Otoliths + Fin Ray	13	Mortality	No
Black Lake	9/23/2010	BKL-GN-07	Lake Trout	SAS10FBKLLKTR472	585	2025	1.01	Male	Adult	Ripe	Otoliths + Fin Ray	22	Mortality	No
Black Lake	9/23/2010	BKL-GN-07	Lake Trout	SAS10FBKLLKTR473	611	2575	1.13	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	Yes
Black Lake	9/23/2010	BKL-GN-08	Lake Trout	SAS10FBKLLKTR489	550	2030	1.22	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/23/2010	BKL-GN-08	Lake Trout	SAS10FBKLLKTR490	553	2005	1.19	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/23/2010	BKL-GN-08	Lake Trout	SAS10FBKLLKTR491	554	2200	1.29	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	9/23/2010	BKL-GN-08	Lake Trout	SAS10FBKLLKTR492	545	1860	1.15	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/23/2010	BKL-GN-08	Lake Trout	SAS10FBKLLKTR493	488	1455	1.25	Male	Adult	Ripe	Fin Ray	-	First Capture, Released	No
Black Lake	9/24/2010	BKL-GN-09	Lake Trout	SAS10FBKLLKTR503	517	1600	1.16	Female	Adult	Ripe	Otoliths + Fin Ray	8	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Lake Trout	SAS10FBKLLKTR504	443	1190	1.37	Male	Adult	Resting	Otoliths + Fin Ray	5	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Lake Whitefish	SAS10FBKLLKWH505	486	1200	1.05	Female	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Lake Whitefish	SAS10FBKLLKWH506	425	930	1.21	Male	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Lake Whitefish	SAS10FBKLLKWH507	208	90	1.00	Unknown	Juvenile	Unknown	Scales + Otoliths	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Lake Whitefish	SAS10FBKLLKWH508	225	100	0.88	Unknown	Juvenile	Unknown	Scales + Otoliths	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Lake Whitefish	SAS10FBKLLKWH509	374	550	1.05	Male	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Lake Whitefish	SAS10FBKLLKWH510	236	150	1.14	Unknown	Juvenile	Unknown	Scales + Otoliths	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Lake Whitefish	SAS10FBKLLKWH511	418	-	-	Male	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Lake Whitefish	SAS10FBKLLKWH512	294	300	1.18	Unknown	Juvenile	Unknown	Scales + Otoliths	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Lake Whitefish	SAS10FBKLLKWH513	371	500	0.98	Male	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Lake Whitefish	SAS10FBKLLKWH514	383	690	1.23	Male	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Lake Whitefish	SAS10FBKLLKWH515	312	390	1.28	Female	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Lake Whitefish	SAS10FBKLLKWH516	390	710	1.20	Female	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Lake Whitefish	SAS10FBKLLKWH517	341	400	1.01	Female	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Walleye	SAS10FBKLWALL496	401	780	1.21	Male	Adult	Seasonal Development	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Walleye	SAS10FBKLWALL497	340	420	1.07	Unknown	Adult	Unknown	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Walleye	SAS10FBKLWALL498	391	700	1.17	Unknown	Adult	Unknown	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Walleye	SAS10FBKLWALL499	340	420	1.07	Unknown	Adult	Unknown	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Walleye	SAS10FBKLWALL500	401	750	1.16	Unknown	Adult	Unknown	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Walleye	SAS10FBKLWALL501	346	-	-	Unknown	Adult	Unknown	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-09	Walleye	SAS10FBKLWALL502	328	390	1.11	Unknown	Adult	Unknown	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Lake Trout	SAS10FBKLLKTR534	395	790	1.28	Unknown	Adult	Unknown	Otoliths + Fin Ray	5	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH535	301	310	1.14	Male	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH536	417	1010	1.39	Female	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH537	212	60	0.63	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH538	394	800	1.31	Male	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH539	387	700	1.21	Male	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH540	310	600	2.01	Female	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH541	298	320	1.21	Female	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH542	377	690	1.29	Female	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH543	389	710	1.21	Male	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH544	305	-	-	Female	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH545	421	1050	1.41	Male	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH546	278	210	0.98	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH547	320	640	1.95	Male	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH548	253	220	1.36	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH549	277	290	1.36	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH550	300	390	1.44	Female	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH551	291	290	1.18	Female	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH552	332	400	1.09	Female	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH553	411	890	1.28	Male	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Walleye	SAS10FBKLWALL518	362	500	1.05	Unknown	Adult	Unknown	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Walleye	SAS10FBKLWALL519	379	610	1.12	Male	Adult	Seasonal Development	Otoliths + Fin Ray	-	Mortality	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	9/24/2010	BKL-GN-10	Walleye	SAS10FBKLWALL520	361	600	1.28	Unknown	Adult	Unknown	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Walleye	SAS10FBKLWALL521	468	1320	1.29	Female	Adult	Seasonal Development	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Walleye	SAS10FBKLWALL522	356	520	1.15	Unknown	Adult	Unknown	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Walleye	SAS10FBKLWALL523	347	550	1.32	Unknown	Adult	Unknown	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Walleye	SAS10FBKLWALL524	352	490	1.12	Unknown	Adult	Unknown	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Walleye	SAS10FBKLWALL525	353	500	1.14	Unknown	Adult	Unknown	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Walleye	SAS10FBKLWALL526	365	510	1.05	Unknown	Adult	Unknown	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Walleye	SAS10FBKLWALL527	350	500	1.17	Unknown	Adult	Unknown	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Walleye	SAS10FBKLWALL528	436	1075	1.30	Unknown	Adult	Unknown	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Walleye	SAS10FBKLWALL529	447	1000	1.12	Unknown	Adult	Unknown	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Walleye	SAS10FBKLWALL530	383	690	1.23	Unknown	Adult	Unknown	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Walleye	SAS10FBKLWALL531	325	400	1.17	Unknown	Adult	Unknown	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Walleye	SAS10FBKLWALL532	351	490	1.13	Unknown	Adult	Unknown	Otoliths + Fin Ray	-	Mortality	No
Black Lake	9/24/2010	BKL-GN-10	Walleye	SAS10FBKLWALL533	378	660	1.22	Unknown	Adult	Unknown	Otoliths + Fin Ray	-	Mortality	No
Black Lake	10/21/2010	BKL-GN-01	Lake Trout	SAS10FBKLLKTR001	470	1125	1.08	Male	Adult	Spent	Otoliths + Fin Ray	9	Mortality	No
Black Lake	10/21/2010	BKL-GN-01	Lake Trout	SAS10FBKLLKTR002	472	1300	1.24	Male	Adult	Spent	Otoliths + Fin Ray	8	Mortality	No
Black Lake	10/21/2010	BKL-GN-01	Lake Trout	SAS10FBKLLKTR003	508	1575	1.20	Male	Adult	Spent	Otoliths + Fin Ray	11	Mortality	No
Black Lake	10/21/2010	BKL-GN-01	Lake Trout	SAS10FBKLLKTR004	524	1590	1.11	Female	Adult	Ripe	Otoliths + Fin Ray	8	Mortality	No
Black Lake	10/21/2010	BKL-GN-01	Lake Trout	SAS10FBKLLKTR005	570	2000	1.08	Male	Adult	Spent	Otoliths + Fin Ray	16	Mortality	No
Black Lake	10/21/2010	BKL-GN-01	Lake Trout	SAS10FBKLLKTR006	468	1275	1.24	Male	Adult	Spent	Otoliths + Fin Ray	10	Mortality	No
Black Lake	10/21/2010	BKL-GN-01	Lake Trout	SAS10FBKLLKTR007	467	1250	1.23	Male	Adult	Spent	Otoliths + Fin Ray	6	Mortality	No
Black Lake	10/21/2010	BKL-GN-01	Lake Trout	SAS10FBKLLKTR008	530	1800	1.21	Male	Adult	Spent	Otoliths + Fin Ray	10	Mortality	No
Black Lake	10/21/2010	BKL-GN-01	Lake Trout	SAS10FBKLLKTR009	559	2200	1.26	Female	Adult	Ripe	Fin Ray	-	Mortality	No
Black Lake	10/21/2010	BKL-GN-01	Lake Trout	SAS10FBKLLKTR010	498	1675	1.36	Male	Adult	Spent	Otoliths + Fin Ray	9	Mortality	No
Black Lake	10/21/2010	BKL-GN-01	Lake Whitefish	SAS10FBKLLKWH581	284	210	0.92	Unknown	Juvenile	Immature	Scales + Fin Ray	-	First Capture, Released	No
Black Lake	10/21/2010	BKL-GN-02	Lake Whitefish	SAS10FBKLLKWH582	481	1450	1.30	Male	Adult	Ripe	Scales + Fin Ray	-	First Capture, Released	Yes
Black Lake	10/21/2010	BKL-GN-03	Lake Whitefish	SAS10FBKLLKWH583	269	190	0.98	Unknown	Juvenile	Immature	Scales + Fin Ray	-	First Capture, Released	No
Black Lake	10/21/2010	BKL-GN-03	Lake Whitefish	SAS10FBKLLKWH584	521	1880	1.33	Female	Adult	Pre-Spawning	Scales + Fin Ray	-	First Capture, Released	No
Black Lake	10/21/2010	BKL-GN-03	Lake Whitefish	SAS10FBKLLKWH585	474	1500	1.41	Female	Adult	Pre-Spawning	Scales + Fin Ray	-	First Capture, Released	Yes
Black Lake	10/21/2010	BKL-GN-04	Lake Whitefish	SAS10FBKLLKWH586	256	255	1.52	Unknown	Juvenile	Immature	Scales + Fin Ray	-	First Capture, Released	No
Black Lake	10/21/2010	BKL-GN-04	Lake Whitefish	SAS10FBKLLKWH587	384	690	1.22	Male	Adult	Ripe	Scales + Otoliths	11	Mortality	No
Black Lake	10/21/2010	BKL-GN-04	Lake Whitefish	SAS10FBKLLKWH588	254	275	1.68	Unknown	Juvenile	Immature	Scales + Otoliths	4	Mortality	No
Black Lake	10/21/2010	BKL-GN-04	Lake Whitefish	SAS10FBKLLKWH589	270	325	1.65	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/21/2010	BKL-GN-04	Lake Whitefish	SAS10FBKLLKWH590	435	1115	1.35	Male	Adult	Ripe	Scales + Otoliths	9	Mortality	No
Black Lake	10/21/2010	BKL-GN-04	Lake Whitefish	SAS10FBKLLKWH591	356	740	1.64	Female	Adult	Resting	Scales + Otoliths	-	Mortality	No
Black Lake	10/22/2010	BKL-GN-07	Lake Whitefish	SAS10FBKLLKWH604	554	1925	1.13	Female	Adult	Pre-Spawning	Scales + Fin Ray	-	First Capture, Released	Yes
Black Lake	10/22/2010	BKL-GN-06	Lake Whitefish	SAS10FBKLLKWH603	277	220	1.04	Unknown	Adult	Unknown	Scales + Otoliths	7	Mortality	No
Black Lake	10/22/2010	BKL-GN-08	Lake Whitefish	SAS10FBKLLKWH627	539	2425	1.55	Female	Adult	Pre-Spawning	Scales + Fin Ray	-	First Capture, Released	No
Black Lake	10/22/2010	BKL-GN-08	Lake Whitefish	SAS10FBKLLKWH628	395	890	1.44	Female	Adult	Pre-Spawning	Scales + Fin Ray	-	First Capture, Released	No
Black Lake	10/22/2010	BKL-GN-09	Lake Whitefish	SAS10FBKLLKWH624	471	1505	1.44	Female	Adult	Pre-Spawning	Scales + Fin Ray	-	First Capture, Released	No
Black Lake	10/22/2010	BKL-GN-09	Lake Whitefish	SAS10FBKLLKWH625	247	200	1.33	Unknown	Juvenile	Immature	Scales + Fin Ray	-	First Capture, Released	No
Black Lake	10/22/2010	BKL-GN-09	Lake Whitefish	SAS10FBKLLKWH626	300	350	1.30	Unknown	Adult	Unknown	Scales + Fin Ray	-	First Capture, Released	No
Black Lake	10/23/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH629	249	230	1.49	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/23/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH630	255	375	2.26	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/23/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH631	243	310	2.16	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/23/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH632	324	445	1.31	Female	Adult	Resting	Scales + Otoliths	8	Mortality	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	10/23/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH633	238	225	1.67	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/23/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH634	253	280	1.73	Unknown	Juvenile	Immature	Scales + Otoliths	3	Mortality	No
Black Lake	10/23/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH635	202	200	2.43	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/23/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH636	223	255	2.30	Unknown	Juvenile	Immature	Scales + Otoliths	3	Mortality	No
Black Lake	10/23/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH637	234	250	1.95	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/23/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH638	191	200	2.87	Unknown	Juvenile	Immature	Scales + Otoliths	5	Mortality	No
Black Lake	10/23/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH639	187	175	2.68	Unknown	Juvenile	Immature	Scales + Otoliths	1	Mortality	No
Black Lake	10/23/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH640	198	155	2.00	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/23/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH641	225	250	2.19	Unknown	Juvenile	Immature	Scales + Otoliths	6	Mortality	No
Black Lake	10/23/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH642	252	310	1.94	Unknown	Juvenile	Immature	Scales + Otoliths	5	Mortality	No
Black Lake	10/23/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH643	421	975	1.31	Unknown	Adult	Unknown	Scales + Fin Ray	-	First Capture, Released	No
Black Lake	10/23/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH644	352	640	1.47	Male	Adult	Ripe	Scales + Otoliths	-	Mortality	No
Black Lake	10/23/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH645	414	975	1.37	Male	Adult	Ripe	Scales + Otoliths	22	Mortality	No
Black Lake	10/23/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH646	415	1125	1.57	Unknown	Adult	Unknown	Scales + Fin Ray	-	First Capture, Released	Yes
Black Lake	10/23/2010	BKL-GN-10	Lake Whitefish	SAS10FBKLLKWH647	375	600	1.14	Unknown	Adult	Unknown	Scales + Fin Ray	-	First Capture, Released	Yes
Black Lake	10/23/2010	BKL-GN-10	Round Whitefish	SAS10FBKLRNWH648	393	775	1.28	Unknown	Adult	Unknown	Scales + Fin Ray	-	First Capture, Released	Yes
Black Lake	10/23/2010	BKL-GN-11	Lake Whitefish	SAS10FBKLLKWH653	232	-	-	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/23/2010	BKL-GN-11	Lake Whitefish	SAS10FBKLLKWH654	196	180	2.39	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/23/2010	BKL-GN-11	Lake Whitefish	SAS10FBKLLKWH655	198	200	2.58	Unknown	Juvenile	Immature	Scales + Otoliths	4	Mortality	No
Black Lake	10/23/2010	BKL-GN-11	Lake Whitefish	SAS10FBKLLKWH656	265	310	1.67	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/23/2010	BKL-GN-11	Lake Whitefish	SAS10FBKLLKWH657	224	250	2.22	Unknown	Juvenile	Immature	Scales	-	Mortality	No
Black Lake	10/23/2010	BKL-GN-11	Lake Whitefish	SAS10FBKLLKWH658	231	240	1.95	Unknown	Juvenile	Immature	Scales + Otoliths	4	Mortality	No
Black Lake	10/23/2010	BKL-GN-11	Lake Whitefish	SAS10FBKLLKWH659	254	305	1.86	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/23/2010	BKL-GN-11	Lake Whitefish	SAS10FBKLLKWH660	266	325	1.73	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/23/2010	BKL-GN-11	Lake Whitefish	SAS10FBKLLKWH661	366	750	1.53	Female	Adult	Resting	Scales + Otoliths	7	Mortality	No
Black Lake	10/23/2010	BKL-GN-11	Lake Whitefish	SAS10FBKLLKWH662	443	1400	1.61	Female	Adult	Resting	Scales + Otoliths	9	Mortality	No
Black Lake	10/23/2010	BKL-GN-11	Lake Whitefish	SAS10FBKLLKWH663	454	1225	1.31	Female	Adult	Pre-Spawning	Scales + Fin Ray	-	First Capture, Released	Yes
Black Lake	10/23/2010	BKL-GN-11	Lake Whitefish	SAS10FBKLLKWH665	320	445	1.36	Unknown	Adult	Unknown	Scales + Fin Ray	-	First Capture, Released	No
Black Lake	10/23/2010	BKL-GN-11	Lake Whitefish	SAS10FBKLLKWH666	369	745	1.48	Male	Adult	Ripe	Scales + Fin Ray	-	First Capture, Released	No
Black Lake	10/23/2010	BKL-GN-11	Lake Whitefish	SAS10FBKLLKWH667	295	410	1.60	Unknown	Adult	Unknown	Scales + Fin Ray	-	First Capture, Released	No
Black Lake	10/23/2010	BKL-GN-11	Lake Whitefish	SAS10FBKLLKWH668	242	290	2.05	Unknown	Juvenile	Unknown	Scales + Fin Ray	-	First Capture, Released	No
Black Lake	10/23/2010	BKL-GN-11	Lake Whitefish	SAS10FBKLLKWH669	251	350	2.21	Unknown	Juvenile	Unknown	Scales + Otoliths	4	Mortality	No
Black Lake	10/23/2010	BKL-GN-11	Round Whitefish	SAS10FBKLRNWH664	327	510	1.46	Unknown	Adult	Unknown	Scales + Fin Ray	-	First Capture, Released	Yes
Black Lake	10/23/2010	BKL-GN-14	Lake Whitefish	SAS10FBKLLKWH688	220	100	0.94	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/23/2010	BKL-GN-15	Lake Whitefish	SAS10FBKLLKWH689	227	125	1.07	Unknown	Juvenile	Immature	Scales + Otoliths	8	Mortality	No
Black Lake	10/23/2010	BKL-GN-15	Lake Whitefish	SAS10FBKLLKWH690	242	175	1.23	Unknown	Juvenile	Immature	Scales + Otoliths	8	Mortality	No
Black Lake	10/23/2010	BKL-GN-15	Lake Whitefish	SAS10FBKLLKWH691	269	225	1.16	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/23/2010	BKL-GN-12	Lake Whitefish	SAS10FBKLLKWH692	279	275	1.27	Unknown	Juvenile	Immature	Scales + Otoliths	6	Mortality	No
Black Lake	10/23/2010	BKL-GN-12	Lake Whitefish	SAS10FBKLLKWH693	276	225	1.07	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/23/2010	BKL-GN-13	Lake Whitefish	SAS10FBKLLKWH694	270	225	1.14	Unknown	Juvenile	Immature	Scales + Otoliths	12	Mortality	No
Black Lake	10/23/2010	BKL-GN-13	Lake Whitefish	SAS10FBKLLKWH695	315	390	1.25	Unknown	Juvenile	Immature	Scales + Otoliths	15	Mortality	No
Black Lake	10/23/2010	BKL-GN-13	Lake Whitefish	SAS10FBKLLKWH696	358	575	1.25	Female	Adult	Ripe	Scales + Fin Ray	-	First Capture, Released	No
Black Lake	10/23/2010	BKL-GN-13	Lake Whitefish	SAS10FBKLLKWH697	211	160	1.70	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/23/2010	BKL-GN-13	Lake Whitefish	SAS10FBKLLKWH698	255	225	1.36	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/23/2010	BKL-GN-13	Lake Whitefish	SAS10FBKLLKWH699	240	175	1.27	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/23/2010	BKL-GN-13	Lake Whitefish	SAS10FBKLLKWH700	419	950	1.29	Female	Adult	Resting	Scales + Otoliths	-	Mortality	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	10/24/2010	BKL-GN-16	Lake Whitefish	SAS10FBKLLKWH701	446	1325	1.49	Male	Adult	Resting	Scales + Otoliths	-	Mortality	No
Black Lake	10/24/2010	BKL-GN-16	Lake Whitefish	SAS10FBKLLKWH702	409	1050	1.53	Male	Adult	Ripe	Scales + Fin Ray	-	First Capture, Released	No
Black Lake	10/24/2010	BKL-GN-16	Lake Whitefish	SAS10FBKLLKWH703	387	950	1.64	Female	Adult	Resting	Scales + Otoliths	-	Mortality	No
Black Lake	10/24/2010	BKL-GN-16	Lake Whitefish	SAS10FBKLLKWH704	372	775	1.51	Male	Adult	Resting	Scales + Otoliths	-	Mortality	No
Black Lake	10/24/2010	BKL-GN-16	Lake Whitefish	SAS10FBKLLKWH705	413	1025	1.46	Male	Adult	Resting	Scales + Otoliths	-	Mortality	No
Black Lake	10/24/2010	BKL-GN-16	Lake Whitefish	SAS10FBKLLKWH706	423	1150	1.52	Male	Adult	Resting	Scales + Otoliths	-	Mortality	No
Black Lake	10/24/2010	BKL-GN-16	Lake Whitefish	SAS10FBKLLKWH707	515	1925	1.41	Male	Adult	Ripe	Scales + Otoliths	22	Mortality	No
Black Lake	10/24/2010	BKL-GN-16	Lake Whitefish	SAS10FBKLLKWH708	448	1825	2.03	Female	Adult	Resting	Scales + Otoliths	-	Mortality	No
Black Lake	10/24/2010	BKL-GN-16	Lake Whitefish	SAS10FBKLLKWH709	425	1025	1.34	Male	Adult	Ripe	Scales + Otoliths	-	Mortality	No
Black Lake	10/24/2010	BKL-GN-17	Lake Whitefish	SAS10FBKLLKWH715	436	1250	1.51	Female	Adult	Resting	Scales + Otoliths	10	Mortality	No
Black Lake	10/24/2010	BKL-GN-17	Lake Whitefish	SAS10FBKLLKWH716	386	925	1.61	Female	Adult	Pre-Spawning	Scales + Otoliths	-	Mortality	No
Black Lake	10/24/2010	BKL-GN-17	Lake Whitefish	SAS10FBKLLKWH717	430	1300	1.64	Female	Adult	Resting	Scales + Otoliths	8	Mortality	No
Black Lake	10/24/2010	BKL-GN-17	Lake Whitefish	SAS10FBKLLKWH718	385	905	1.59	Male	Adult	Resting	Scales + Otoliths	-	Mortality	No
Black Lake	10/24/2010	BKL-GN-17	Lake Whitefish	SAS10FBKLLKWH719	397	1075	1.72	Male	Adult	Ripe	Scales + Otoliths	25	Mortality	No
Black Lake	10/24/2010	BKL-GN-17	Lake Whitefish	SAS10FBKLLKWH720	396	1025	1.65	Female	Adult	Ripe	Scales + Otoliths	-	Mortality	No
Black Lake	10/24/2010	BKL-GN-17	Lake Whitefish	SAS10FBKLLKWH721	455	1425	1.51	Male	Adult	Ripe	Scales + Otoliths	22	Mortality	No
Black Lake	10/24/2010	BKL-GN-17	Lake Whitefish	SAS10FBKLLKWH722	293	475	1.89	Unknown	Juvenile	Immature	Scales + Otoliths	4	Mortality	No
Black Lake	10/24/2010	BKL-GN-17	Lake Whitefish	SAS10FBKLLKWH723	378	800	1.48	Male	Adult	Resting	Scales + Otoliths	-	Mortality	No
Black Lake	10/24/2010	BKL-GN-17	Lake Whitefish	SAS10FBKLLKWH724	409	1025	1.50	Female	Adult	Resting	Scales + Otoliths	9	Mortality	No
Black Lake	10/24/2010	BKL-GN-17	Lake Whitefish	SAS10FBKLLKWH725	431	1325	1.65	Male	Adult	Ripe	Scales + Otoliths	-	Mortality	No
Black Lake	10/24/2010	BKL-GN-17	Lake Whitefish	SAS10FBKLLKWH726	468	1475	1.44	Male	Adult	Ripe	Scales + Fin Ray	-	First Capture, Released	Yes
Black Lake	10/24/2010	BKL-GN-18	Lake Whitefish	SAS10FBKLLKWH727	353	825	1.88	Male	Adult	Seasonal Development	Scales + Otoliths	6	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH737	227	100	0.85	Unknown	Juvenile	Immature	Scales + Otoliths	5	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH738	197	75	0.98	Unknown	Juvenile	Immature	Scales + Otoliths	5	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH739	210	60	0.65	Unknown	Juvenile	Immature	Scales + Otoliths	3	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH740	235	110	0.85	Unknown	Juvenile	Immature	Scales + Otoliths	5	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH741	228	125	1.05	Unknown	Juvenile	Immature	Scales + Otoliths	5	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH742	198	35	0.45	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH743	224	105	0.93	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH744	223	95	0.86	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH745	242	145	1.02	Unknown	Juvenile	Immature	Scales + Otoliths	5	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH746	206	-	-	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH747	204	110	1.30	Unknown	Juvenile	Immature	Scales + Otoliths	3	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH748	251	130	0.82	Unknown	Juvenile	Immature	Scales + Otoliths	3	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH749	221	60	0.56	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH750	239	140	1.03	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH751	223	95	0.86	Unknown	Juvenile	Immature	Scales + Otoliths	6	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH752	229	110	0.92	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH753	253	105	0.65	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH754	292	255	1.02	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH755	265	125	0.67	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH756	255	200	1.21	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH757	279	210	0.97	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH758	275	260	1.25	Unknown	Juvenile	Immature	Scales + Otoliths	5	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Lake Whitefish	SAS10FBKLLKWH759	389	825	1.40	Female	Adult	Pre-Spawning	Scales + Otoliths	30	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Round Whitefish	SAS10FBKLRNWH760	234	110	0.86	Female	Juvenile	Immature	Scales + Otoliths	-	Mortality	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	10/25/2010	BKL-GN-19	Round Whitefish	SAS10FBKLRNWH761	254	160	0.98	Female	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Round Whitefish	SAS10FBKLRNWH762	320	275	0.84	Female	Adult	Pre-Spawning	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Round Whitefish	SAS10FBKLRNWH763	338	375	0.97	Male	Adult	Resting	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Round Whitefish	SAS10FBKLRNWH764	347	455	1.09	Male	Adult	Pre-Spawning	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Round Whitefish	SAS10FBKLRNWH765	363	495	1.03	Female	Adult	Pre-Spawning	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Round Whitefish	SAS10FBKLRNWH766	285	300	1.30	Unknown	Juvenile	Unknown	Scales + Fin Ray	-	First Capture, Released	No
Black Lake	10/25/2010	BKL-GN-19	Round Whitefish	SAS10FBKLRNWH767	289	250	1.04	Unknown	Juvenile	Unknown	Scales + Fin Ray	-	First Capture, Released	No
Black Lake	10/25/2010	BKL-GN-19	Round Whitefish	SAS10FBKLRNWH768	301	250	0.92	Unknown	Juvenile	Unknown	Scales + Fin Ray	-	First Capture, Released	No
Black Lake	10/25/2010	BKL-GN-19	Round Whitefish	SAS10FBKLRNWH769	333	410	1.11	Unknown	Adult	Unknown	Scales + Fin Ray	-	First Capture, Released	No
Black Lake	10/25/2010	BKL-GN-19	Round Whitefish	SAS10FBKLRNWH770	374	725	1.39	Unknown	Adult	Unknown	Scales + Fin Ray	-	First Capture, Released	Yes
Black Lake	10/25/2010	BKL-GN-19	Round Whitefish	SAS10FBKLRNWH771	395	650	1.05	Unknown	Adult	Unknown	Scales + Fin Ray	-	First Capture, Released	Yes
Black Lake	10/25/2010	BKL-GN-19	Round Whitefish	SAS10FBKLRNWH772	410	805	1.17	Unknown	Adult	Unknown	Scales + Fin Ray	-	First Capture, Released	Yes
Black Lake	10/25/2010	BKL-GN-19	Round Whitefish	SAS10FBKLRNWH784	341	550	1.39	Male	Adult	Pre-Spawning	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-19	Round Whitefish	SAS10FBKLRNWH785	402	800	1.23	Female	Adult	Pre-Spawning	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-20	Lake Whitefish	SAS10FBKLLKWH786	225	90	0.79	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-20	Lake Whitefish	SAS10FBKLLKWH788	213	105	1.09	Unknown	Juvenile	Immature	Scales + Otoliths	3	Mortality	No
Black Lake	10/25/2010	BKL-GN-20	Lake Whitefish	SAS10FBKLLKWH789	195	95	1.28	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-20	Lake Whitefish	SAS10FBKLLKWH790	233	110	0.87	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-20	Lake Whitefish	SAS10FBKLLKWH791	240	90	0.65	Unknown	Juvenile	Immature	Scales + Otoliths	4	Mortality	No
Black Lake	10/25/2010	BKL-GN-20	Lake Whitefish	SAS10FBKLLKWH792	208	100	1.11	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-20	Round Whitefish	SAS10FBKLRNWH787	285	225	0.97	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/25/2010	BKL-GN-21	Lake Whitefish	SAS10FBKLLKWH793	253	195	1.20	Unknown	Juvenile	Immature	Scales + Otoliths	5	Mortality	No
Black Lake	10/25/2010	BKL-GN-21	Lake Whitefish	SAS10FBKLLKWH794	372	650	1.26	Male	Adult	Resting	Scales + Otoliths	8	Mortality	No
Black Lake	10/25/2010	BKL-GN-21	Lake Whitefish	SAS10FBKLLKWH795	430	1160	1.46	Male	Adult	Resting	Scales + Otoliths	-	Mortality	No
Black Lake	10/26/2010	BKL-GN-22	Lake Whitefish	SAS10FBKLLKWH799	232	200	1.60	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/26/2010	BKL-GN-22	Lake Whitefish	SAS10FBKLLKWH800	278	275	1.28	Unknown	Juvenile	Immature	Scales + Otoliths	4	Mortality	No
Black Lake	10/26/2010	BKL-GN-22	Lake Whitefish	SAS10FBKLLKWH801	250	175	1.12	Unknown	Juvenile	Immature	Scales + Otoliths	3	Mortality	No
Black Lake	10/26/2010	BKL-GN-22	Lake Whitefish	SAS10FBKLLKWH802	264	275	1.49	Unknown	Juvenile	Immature	Scales + Otoliths	3	Mortality	No
Black Lake	10/26/2010	BKL-GN-23	Lake Whitefish	SAS10FBKLLKWH809	287	325	1.37	Unknown	Juvenile	Immature	Scales + Otoliths	4	Mortality	No
Black Lake	10/26/2010	BKL-GN-23	Lake Whitefish	SAS10FBKLLKWH810	285	305	1.32	Unknown	Juvenile	Immature	Scales + Otoliths	-	Mortality	No
Black Lake	10/26/2010	BKL-GN-23	Lake Whitefish	SAS10FBKLLKWH811	444	1350	1.54	Male	Adult	Ripe	Scales + Otoliths	-	Mortality	No
Black Lake	10/26/2010	BKL-GN-23	Lake Whitefish	SAS10FBKLLKWH812	447	1295	1.45	Male	Adult	Ripe	Scales + Otoliths	9	Mortality	No
Black Lake	10/26/2010	BKL-GN-23	Lake Whitefish	SAS10FBKLLKWH813	465	1475	1.47	Male	Adult	Pre-Spawning	Scales + Otoliths	8	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Burbot	SAS11WBKLBURB089	500	1300	1.04	Female	Adult	Pre-Spawning	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Burbot	SAS11WBKLBURB090	452	810	0.88	Female	Adult	Resting	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Burbot	SAS11WBKLBURB091	520	1200	0.85	Male	Adult	Ripe	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Burbot	SAS11WBKLBURB092	523	1400	0.98	Male	Adult	Ripe	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Burbot	SAS11WBKLBURB093	480	1000	0.90	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Burbot	SAS11WBKLBURB094	672	2220	0.73	Female	Adult	Pre-Spawning	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Burbot	SAS11WBKLBURB095	733	2750	0.70	Female	Adult	Pre-Spawning	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Burbot	SAS11WBKLBURB096	560	1600	0.91	Male	Adult	Ripe	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Trout	SAS11WBKLLKTR097	350	600	1.40	Unknown	Unknown	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Trout	SAS11WBKLLKTR098	322	570	1.71	Unknown	Unknown	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Trout	SAS11WBKLLKTR099	444	1250	1.43	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Trout	SAS11WBKLLKTR100	492	1100	0.92	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Trout	SAS11WBKLLKTR101	464	1400	1.40	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	2/19/2011	BKL-GN-01	Lake Trout	SAS11WBKLLKTR102	512	1800	1.34	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Trout	SAS11WBKLLKTR103	460	1310	1.35	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Trout	SAS11WBKLLKTR104	558	2400	1.38	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Trout	SAS11WBKLLKTR105	442	1250	1.45	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Trout	SAS11WBKLLKTR106	552	2400	1.43	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Trout	SAS11WBKLLKTR107	398	800	1.27	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Trout	SAS11WBKLLKTR108	332	500	1.37	Unknown	Unknown	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Trout	SAS11WBKLLKTR109	440	1100	1.29	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Trout	SAS11WBKLLKTR110	434	1100	1.35	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Trout	SAS11WBKLLKTR111	464	1270	1.27	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Trout	SAS11WBKLLKTR112	403	990	1.51	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Trout	SAS11WBKLLKTR113	410	1000	1.45	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Trout	SAS11WBKLLKTR114	330	600	1.67	Unknown	Unknown	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH115	363	800	1.67	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH116	378	700	1.30	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH117	432	1050	1.30	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH118	422	1200	1.60	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH119	340	480	1.22	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH120	442	1100	1.27	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH121	362	550	1.16	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH122	246	200	1.34	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH123	242	200	1.41	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH124	209	120	1.31	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH125	232	100	0.80	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH126	195	100	1.35	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH127	254	200	1.22	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH128	210	120	1.30	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH129	256	210	1.25	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH130	279	210	0.97	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH131	240	200	1.45	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH132	256	190	1.13	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH133	302	350	1.27	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH134	198	120	1.55	Unknown	Juvenile	Unknown	No Structure Taken	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH135	190	110	1.60	Unknown	Juvenile	Unknown	No Structure Taken	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH136	194	150	2.05	Unknown	Juvenile	Unknown	No Structure Taken	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH137	192	100	1.41	Unknown	Juvenile	Unknown	No Structure Taken	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH138	174	100	1.90	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH139	186	90	1.40	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH140	164	100	2.27	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH141	170	50	1.02	Unknown	Juvenile	Unknown	No Structure Taken	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH142	196	130	1.73	Unknown	Juvenile	Unknown	No Structure Taken	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Lake Whitefish	SAS11WBKLLKWH143	172	110	2.16	Unknown	Juvenile	Unknown	No Structure Taken	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC145	460	1650	1.70	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC146	368	790	1.59	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC147	306	400	1.40	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC148	454	1700	1.82	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC149	392	1090	1.81	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC150	390	810	1.37	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC151	340	600	1.53	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC152	370	790	1.56	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC153	324	400	1.18	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC154	392	900	1.49	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC155	374	900	1.72	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC156	362	800	1.69	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC157	382	980	1.76	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC158	314	500	1.62	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC159	358	780	1.70	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC160	272	300	1.49	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC161	512	2400	1.79	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC162	343	690	1.71	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC163	472	1800	1.71	Female	Adult	Seasonal Development	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC164	330	600	1.67	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC165	378	900	1.67	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC166	353	710	1.61	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-01	Longnose Sucker	SAS11WBKLLNSC167	405	1200	1.81	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB028	520	1200	0.85	Male	Adult	Pre-Spawning	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB029	540	1200	0.76	Male	Adult	Pre-Spawning	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB030	500	1000	0.80	Male	Adult	Pre-Spawning	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB031	732	2600	0.66	Female	Adult	Pre-Spawning	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB032	472	800	0.76	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB033	422	600	0.80	Male	Adult	Pre-Spawning	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB034	480	910	0.82	Female	Adult	Resting	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB035	410	500	0.73	Female	Adult	Resting	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB036	462	800	0.81	Male	Adult	Resting	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB037	388	410	0.70	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB038	500	800	0.64	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB039	632	1800	0.71	Female	Adult	Pre-Spawning	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB040	532	1100	0.73	Male	Adult	Resting	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB041	510	1000	0.75	Female	Adult	Resting	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB042	582	1800	0.91	Male	Adult	Pre-Spawning	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB043	426	620	0.80	Female	Adult	Pre-Spawning	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB044	260	-	-	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB045	492	1000	0.84	Female	Adult	Pre-Spawning	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB046	630	2000	0.80	Female	Adult	Pre-Spawning	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB047	590	1750	0.85	Male	Adult	Ripe	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Burbot	SAS11WBKLBURB048	560	1300	0.74	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Cisco	SAS11WBKLCISC025	180	50	0.86	Unknown	Unknown	Unknown	No Structure Taken	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Cisco	SAS11WBKLCISC026	184	50	0.80	Unknown	Unknown	Unknown	No Structure Taken	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Cisco	SAS11WBKLCISC027	170	50	1.02	Unknown	Unknown	Unknown	No Structure Taken	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Trout	SAS11WBKLLKTR001	351	540	1.25	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Trout	SAS11WBKLLKTR002	520	1590	1.13	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Trout	SAS11WBKLLKTR003	521	1600	1.13	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No

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Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	2/19/2011	BKL-GN-02	Lake Trout	SAS11WBKLLKTR004	429	875	1.11	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Trout	SAS11WBKLLKTR005	450	1100	1.21	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Trout	SAS11WBKLLKTR006	375	650	1.23	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Trout	SAS11WBKLLKTR007	338	500	1.29	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Trout	SAS11WBKLLKTR008	367	550	1.11	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Whitefish	SAS11WBKLLKWH009	338	500	1.29	Unknown	Unknown	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Whitefish	SAS11WBKLLKWH010	440	1200	1.41	Male	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Whitefish	SAS11WBKLLKWH011	418	910	1.25	Female	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Whitefish	SAS11WBKLLKWH012	412	900	1.29	Male	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Whitefish	SAS11WBKLLKWH013	321	395	1.19	Female	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Whitefish	SAS11WBKLLKWH014	321	520	1.57	Female	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Whitefish	SAS11WBKLLKWH015	322	400	1.20	Unknown	Unknown	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Whitefish	SAS11WBKLLKWH016	273	210	1.03	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Whitefish	SAS11WBKLLKWH017	198	100	1.29	Unknown	Juvenile	Unknown	No Structure Taken	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Whitefish	SAS11WBKLLKWH018	295	350	1.36	Female	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Whitefish	SAS11WBKLLKWH019	282	300	1.34	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Whitefish	SAS11WBKLLKWH020	265	210	1.13	Female	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Whitefish	SAS11WBKLLKWH021	300	380	1.41	Unknown	Unknown	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Whitefish	SAS11WBKLLKWH022	300	350	1.30	Unknown	Unknown	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Whitefish	SAS11WBKLLKWH023	262	200	1.11	Unknown	Juvenile	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Lake Whitefish	SAS11WBKLLKWH024	220	100	0.94	Female	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC049	418	1100	1.51	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC050	432	1250	1.55	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC051	400	900	1.41	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC052	392	920	1.53	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC053	364	720	1.49	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC054	410	1100	1.60	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC055	345	610	1.49	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC056	384	900	1.59	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC057	364	700	1.45	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC058	312	500	1.65	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC059	356	700	1.55	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC060	528	1875	1.27	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC061	384	900	1.59	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC062	382	800	1.44	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC063	352	700	1.60	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC064	308	400	1.37	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC065	370	800	1.58	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC066	432	600	0.74	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC067	308	500	1.71	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC068	372	700	1.36	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC069	408	900	1.33	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC070	411	1090	1.57	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC071	347	600	1.44	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC072	332	520	1.42	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC073	330	500	1.39	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC074	540	2500	1.59	Female	Adult	Seasonal Development	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC075	435	1300	1.58	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC076	350	670	1.56	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC077	352	720	1.65	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC078	352	700	1.60	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC079	352	790	1.81	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC080	416	1120	1.56	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC081	362	800	1.69	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC082	420	1190	1.61	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC083	294	450	1.77	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC084	338	700	1.81	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC085	378	900	1.67	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC086	392	990	1.64	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC087	302	450	1.63	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/19/2011	BKL-GN-02	Longnose Sucker	SAS11WBKLLNSC088	338	650	1.68	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Black Lake	2/20/2011	BKL-CT-04	Burbot	SAS11WBKLBURB144	710	1790	0.50	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Cisco	SAS12UBKLCISC080	160	46	1.12	Unknown	Adult	Unknown	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Cisco	SAS12UBKLCISC081	169	41	0.85	Unknown	Adult	Unknown	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Cisco	SAS12UBKLCISC082	84	6	1.01	Unknown	Juvenile	Unknown	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Cisco	SAS12UBKLCISC083	80	5	0.98	Unknown	Juvenile	Unknown	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Cisco	SAS12UBKLCISC084	84	6	1.01	Unknown	Juvenile	Unknown	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Cisco	SAS12UBKLCISC085	78	5	1.05	Unknown	Juvenile	Unknown	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Lake Trout	SAS12UBKLLKTR045	488	1509	1.30	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Lake Trout	SAS12UBKLLKTR046	519	1727	1.24	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Lake Trout	SAS12UBKLLKTR047	320	398	1.21	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-01	Lake Trout	SAS12UBKLLKTR048	480	1420	1.28	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Lake Trout	SAS12UBKLLKTR049	356	525	1.16	Female	Juvenile	Maturing	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Lake Trout	SAS12UBKLLKTR050	244	166	1.14	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH051	300	366	1.36	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH052	324	407	1.20	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH053	348	505	1.20	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH054	340	505	1.28	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH055	471	1691	1.62	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH056	324	488	1.43	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH057	444	1348	1.54	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH058	421	1062	1.42	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH059	350	537	1.25	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH060	271	243	1.22	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH061	254	214	1.31	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH062	303	336	1.21	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH063	340	505	1.28	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH064	274	249	1.21	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH065	296	292	1.13	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH066	223	117	1.06	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH067	176	64	1.17	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH068	154	44	1.20	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH069	200	87	1.09	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH070	192	78	1.10	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH071	192	72	1.02	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH072	177	61	1.10	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH073	210	97	1.05	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH074	190	65	0.95	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH075	189	64	0.95	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH078	156	41	1.08	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-01	Lake Whitefish	SAS12UBKLLKWH079	164	44	1.00	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-01	Longnose Sucker	SAS12UBKLLNSC043	434	1248	1.53	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-01	Longnose Sucker	SAS12UBKLLNSC044	464	1356	1.36	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-01	Round Whitefish	SAS12UBKLRNWH076	103	8	0.73	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-01	Round Whitefish	SAS12UBKLRNWH077	156	43	1.13	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-02	Lake Chub	SAS12UBKLLKCH034	82	8	1.45	Unknown	Adult	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-02	Lake Chub	SAS12UBKLLKCH035	82	7	1.27	Unknown	Adult	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-02	Lake Chub	SAS12UBKLLKCH036	78	4	0.84	Unknown	Adult	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-02	Lake Chub	SAS12UBKLLKCH037	90	7	0.96	Unknown	Adult	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-02	Lake Chub	SAS12UBKLLKCH038	81	6	1.13	Unknown	Adult	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-02	Lake Trout	SAS12UBKLLKTR001	480	1133	1.02	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Lake Trout	SAS12UBKLLKTR002	548	2196	1.33	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Lake Trout	SAS12UBKLLKTR019	550	1757	1.06	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Lake Trout	SAS12UBKLLKTR020	444	992	1.13	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Lake Whitefish	SAS12UBKLLKWH025	470	1400	1.35	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Lake Whitefish	SAS12UBKLLKWH026	358	551	1.20	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Lake Whitefish	SAS12UBKLLKWH027	286	298	1.27	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-02	Lake Whitefish	SAS12UBKLLKWH028	397	886	1.42	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Lake Whitefish	SAS12UBKLLKWH029	429	1212	1.54	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Lake Whitefish	SAS12UBKLLKWH030	354	646	1.46	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Lake Whitefish	SAS12UBKLLKWH031	400	856	1.34	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Longnose Sucker	SAS12UBKLLNSC040	78	6	1.26	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-02	Longnose Sucker	SAS12UBKLLNSC041	70	5	1.46	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-02	Longnose Sucker	SAS12UBKLLNSC042	78	6	1.26	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-02	Round Whitefish	SAS12UBKLRNWH021	402	586	0.90	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Round Whitefish	SAS12UBKLRNWH022	342	547	1.37	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Round Whitefish	SAS12UBKLRNWH023	410	725	1.05	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Walleye	SAS12UBKLWALL003	407	725	1.08	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Walleye	SAS12UBKLWALL004	450	1142	1.25	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Walleye	SAS12UBKLWALL005	422	842	1.12	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Walleye	SAS12UBKLWALL006	429	822	1.04	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Walleye	SAS12UBKLWALL007	402	669	1.03	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Walleye	SAS12UBKLWALL008	381	524	0.95	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Walleye	SAS12UBKLWALL009	458	956	1.00	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Walleye	SAS12UBKLWALL010	454	1103	1.18	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Walleye	SAS12UBKLWALL011	394	674	1.10	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Walleye	SAS12UBKLWALL012	379	546	1.00	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Walleye	SAS12UBKLWALL013	380	581	1.06	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Black Lake	7/17/2012	BKL-GN-02	Walleye	SAS12UBKLWALL014	448	952	1.06	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Walleye	SAS12UBKLWALL015	388	605	1.04	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Walleye	SAS12UBKLWALL016	309	340	1.15	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-02	Walleye	SAS12UBKLWALL017	404	644	0.98	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Black Lake	7/17/2012	BKL-GN-02	Walleye	SAS12UBKLWALL018	370	506	1.00	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-02	White Sucker	SAS12UBKLWHSC024	252	225	1.41	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-02	White Sucker	SAS12UBKLWHSC032	130	24	1.09	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-02	White Sucker	SAS12UBKLWHSC039	82	5	0.91	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Black Lake	7/17/2012	BKL-GN-02	Yellow Perch	SAS12UBKLYLPR033	80	5	0.98	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/18/2010	FDLR-US-AN-01	Arctic Grayling	SAS10PFDLRARGR001	388	1000	1.71	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/18/2010	FDLR-US-AN-01	Arctic Grayling	SAS10PFDLRARGR002	350	640	1.49	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/18/2010	FDLR-US-AN-01	Arctic Grayling	SAS10PFDLRARGR003	360	590	1.26	Male	Adult	Ripe	Scales	4	First Capture, Released	Yes
Fond du Lac River	5/18/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR004	426	990	1.28	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/18/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR005	355	350	0.78	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/18/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR006	410	760	1.10	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/18/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR007	405	890	1.34	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/18/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR008	440	1210	1.42	Female	Adult	Spent	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/18/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR009	395	870	1.41	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/18/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR010	407	810	1.20	Female	Adult	Spent	Scales	7	First Capture, Released	Yes
Fond du Lac River	5/18/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR011	417	1010	1.39	Female	Adult	Pre-Spawning	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/18/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR012	406	840	1.26	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/18/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR013	400	850	1.33	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/18/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR014	380	850	1.55	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/18/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR015	388	780	1.34	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/18/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR016	400	1110	1.73	Female	Adult	Spent	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR017	403	790	1.21	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR018	400	870	1.36	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR019	409	860	1.26	Male	Adult	Ripe	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR020	344	530	1.30	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR021	398	760	1.21	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR022	420	810	1.09	Male	Adult	Ripe	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR023	412	940	1.34	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR024	356	460	1.02	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR025	382	780	1.40	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR026	370	660	1.30	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR027	378	750	1.39	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR028	361	690	1.47	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR029	429	1030	1.30	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR030	390	740	1.25	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR031	400	780	1.22	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR032	390	750	1.26	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR033	380	680	1.24	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR034	376	511	0.96	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR035	424	800	1.05	Female	Adult	Spent	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR036	403	785	1.20	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR037	400	900	1.41	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR038	400	820	1.28	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR039	402	850	1.31	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR040	360	600	1.29	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR041	450	950	1.04	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR042	370	675	1.33	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR043	385	750	1.31	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR044	365	600	1.23	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR045	364	612	1.27	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR046	407	800	1.19	Male	Adult	Ripe	Scales	4	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR047	386	612	1.06	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR048	364	600	1.24	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR049	371	600	1.17	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR050	367	505	1.02	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR051	370	600	1.18	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR052	415	900	1.26	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR053	412	900	1.29	Male	Adult	Ripe	Scales	8	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR054	407	700	1.04	Male	Adult	Spent	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR055	381	702	1.27	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR056	382	512	0.92	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR057	422	980	1.30	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR058	385	900	1.58	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR059	380	950	1.73	Female	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR060	377	850	1.59	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR061	405	900	1.35	Male	Adult	Ripe	Scales	7	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR062	396	900	1.45	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR063	354	600	1.35	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR064	367	600	1.21	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR065	400	890	1.39	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR066	388	780	1.34	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR067	385	750	1.31	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR068	496	800	0.66	Male	Adult	Ripe	Scales	7	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR069	385	750	1.31	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR070	388	700	1.20	Male	Adult	Ripe	Scales	7	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR071	353	600	1.36	Male	Adult	Spent	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR072	416	900	1.25	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR073	406	900	1.34	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR074	379	610	1.12	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR075	338	500	1.29	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR076	368	600	1.20	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR077	364	700	1.45	Female	Adult	Spent	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR078	415	890	1.25	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR079	370	720	1.42	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR080	367	700	1.42	Female	Adult	Spent	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR081	390	700	1.18	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR082	400	900	1.41	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR083	399	790	1.24	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	5/19/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR084	425	1000	1.30	Male	Adult	Ripe	Scales	8	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR085	413	990	1.41	Female	Adult	Spent	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR086	379	790	1.45	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR087	380	625	1.14	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR088	391	875	1.46	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR089	373	800	1.54	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR090	428	1100	1.40	Male	Adult	Spent	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR091	375	800	1.52	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR092	380	700	1.28	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR093	377	610	1.14	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR094	370	610	1.20	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR095	369	600	1.19	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR096	391	900	1.51	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR097	342	500	1.25	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR098	400	890	1.39	Male	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR099	389	800	1.36	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR100	378	700	1.30	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-01	Arctic Grayling	SAS10PFDLRARGR101	368	600	1.20	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-03	Arctic Grayling	SAS10PFDLRARGR115	445	1150	1.31	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-03	Arctic Grayling	SAS10PFDLRARGR116	387	800	1.38	Female	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-03	Arctic Grayling	SAS10PFDLRARGR117	378	825	1.53	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-03	Arctic Grayling	SAS10PFDLRARGR118	382	750	1.35	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-03	Arctic Grayling	SAS10PFDLRARGR119	370	800	1.58	Male	Adult	Spent	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-03	Arctic Grayling	SAS10PFDLRARGR120	348	625	1.48	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-03	Arctic Grayling	SAS10PFDLRARGR121	363	675	1.41	Female	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/19/2010	FDLR-US-HN-03	Longnose Sucker	SAS10PFDLRLNSC001	200	300	3.75	Unknown	Juvenile	Unknown	Scales + Fin Ray	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR102	398	825	1.31	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR103	389	825	1.40	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR104	337	525	1.37	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR105	384	725	1.28	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR106	475	875	0.82	Female	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR107	366	675	1.38	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR108	408	1050	1.55	Female	Adult	Spent	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR109	384	900	1.59	Female	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR110	390	800	1.35	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR111	342	525	1.31	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR112	366	650	1.33	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR113	344	575	1.41	Female	Adult	Spent	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR114	353	625	1.42	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR122	409	1000	1.46	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR123	365	550	1.13	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR124	400	790	1.23	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR125	381	600	1.08	Male	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR126	398	694	1.10	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR127	383	705	1.25	Female	Adult	Spent	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR128	340	505	1.28	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR129	361	600	1.28	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR130	377	601	1.12	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR131	338	505	1.31	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR132	364	600	1.24	Female	Adult	Spent	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR133	444	950	1.09	Male	Adult	Ripe	Scales	8	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR134	386	800	1.39	Female	Adult	Spent	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR135	367	505	1.02	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR136	361	590	1.25	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR137	364	570	1.18	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR138	367	604	1.22	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR139	399	794	1.25	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR140	373	660	1.27	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR141	387	700	1.21	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR142	346	600	1.45	Male	Adult	Ripe	Scales	4	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR143	366	690	1.41	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/20/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR144	369	600	1.19	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR145	410	900	1.31	Male	Adult	Ripe	Scales	7	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR146	388	740	1.27	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR147	429	1010	1.28	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR148	387	710	1.22	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR149	351	610	1.41	Female	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR150	401	994	1.54	Female	Adult	Ripe	Scales	7	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR151	399	900	1.42	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR152	344	600	1.47	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR153	363	650	1.36	Male	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR154	383	804	1.43	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR155	353	590	1.34	Male	Adult	Pre-Spawning	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR156	398	900	1.43	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR157	370	690	1.36	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR158	390	803	1.35	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR159	398	750	1.19	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR160	407	920	1.36	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR161	397	700	1.12	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR162	410	900	1.31	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR163	400	812	1.27	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR164	390	860	1.45	Male	Adult	Pre-Spawning	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR165	381	800	1.45	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR166	397	875	1.40	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR167	368	700	1.40	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR168	339	550	1.41	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR169	400	825	1.29	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR170	376	600	1.13	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR171	373	700	1.35	Female	Adult	Pre-Spawning	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR172	343	500	1.24	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR173	386	770	1.34	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR174	391	700	1.17	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR175	390	710	1.20	Male	Adult	Ripe	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR176	380	710	1.29	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR177	398	710	1.13	Male	Adult	Ripe	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR178	376	750	1.41	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR179	361	700	1.49	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR180	359	708	1.53	Female	Adult	Ripe	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR181	372	790	1.53	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR182	381	720	1.30	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR183	371	760	1.49	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR184	331	560	1.54	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR185	391	920	1.54	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR186	406	900	1.34	Male	Adult	Ripe	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR187	375	790	1.50	Male	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR188	378	690	1.28	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR189	352	600	1.38	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR190	363	700	1.46	Male	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-02	Arctic Grayling	SAS10PFDLRARGR191	370	710	1.40	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR192	417	710	0.98	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR193	405	850	1.28	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR194	392	790	1.31	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR195	338	510	1.32	Male	Adult	Ripe	Scales	4	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR196	367	740	1.50	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR197	379	850	1.56	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR198	391	780	1.30	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR199	379	750	1.38	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR200	389	870	1.48	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR201	361	625	1.33	Male	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR202	362	590	1.24	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR203	400	910	1.42	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR204	388	610	1.04	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR205	431	1055	1.32	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR206	417	890	1.23	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR207	414	1000	1.41	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR208	389	790	1.34	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR209	392	850	1.41	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR210	395	890	1.44	Female	Adult	Pre-Spawning	Scales	8	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR211	349	570	1.34	Male	Adult	Pre-Spawning	Scales	4	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR212	417	997	1.37	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR213	379	700	1.29	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR214	408	998	1.47	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR215	403	910	1.39	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR216	398	990	1.57	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR217	388	900	1.54	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR218	367	620	1.25	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR219	376	800	1.50	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR220	421	993	1.33	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR221	419	990	1.35	Male	Adult	Ripe	Scales	8	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR222	394	800	1.31	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR223	404	1005	1.52	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR224	409	1000	1.46	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR225	421	998	1.34	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR226	378	890	1.65	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR227	427	1000	1.28	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR228	399	900	1.42	Female	Adult	Pre-Spawning	Scales	7	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR229	389	890	1.51	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR230	434	895	1.09	Male	Adult	Pre-Spawning	Scales	8	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR231	386	1000	1.74	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR232	350	600	1.40	Male	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR233	410	1000	1.45	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR234	418	1000	1.37	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR235	426	920	1.19	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR236	384	825	1.46	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR237	400	810	1.27	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR238	403	990	1.51	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR239	398	840	1.33	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR240	368	700	1.40	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR241	388	740	1.27	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR242	405	980	1.48	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR243	390	890	1.50	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR244	400	920	1.44	Male	Adult	Ripe	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR245	410	850	1.23	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR246	380	810	1.48	Female	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR247	396	875	1.41	Male	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR248	397	890	1.42	Male	Adult	Pre-Spawning	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR249	397	990	1.58	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR250	404	940	1.43	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR251	381	795	1.44	Male	Adult	Pre-Spawning	Scales	4	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR252	357	600	1.32	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR253	347	610	1.46	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Arctic Grayling	SAS10PFDLRARGR254	381	750	1.36	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/21/2010	FDLR-US-HN-04	Burbot	SAS10PFDLRBURB001	689	2290	0.70	Unknown	Adult	Unknown	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR255	418	950	1.30	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR256	365	690	1.42	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR257	378	780	1.44	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR258	379	690	1.27	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR259	370	700	1.38	Male	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR260	399	820	1.29	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR261	350	620	1.45	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR262	379	705	1.30	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR263	366	690	1.41	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR264	389	700	1.19	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR265	445	1150	1.31	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR266	418	1000	1.37	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR267	375	700	1.33	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR268	370	750	1.48	Male	Adult	Ripe	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR269	400	875	1.37	Male	Adult	Pre-Spawning	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR270	360	600	1.29	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR271	351	600	1.39	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR272	356	600	1.33	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR273	401	995	1.54	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR274	376	710	1.34	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR275	375	775	1.47	Male	Adult	Pre-Spawning	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR276	400	1000	1.56	Female	Adult	Pre-Spawning	Scales	7	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR277	376	700	1.32	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR278	370	695	1.37	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR279	380	750	1.37	Male	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR280	360	700	1.50	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR281	381	690	1.25	Male	Adult	Ripe	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR282	351	590	1.36	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR283	387	790	1.36	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR284	382	710	1.27	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR285	398	800	1.27	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR286	413	870	1.24	Male	Adult	Ripe	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR287	400	770	1.20	Male	Adult	Pre-Spawning	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR288	370	750	1.48	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR289	396	790	1.27	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR290	404	1000	1.52	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR291	379	750	1.38	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR292	379	710	1.30	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR293	368	700	1.40	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR294	370	700	1.38	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR295	400	790	1.23	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR296	418	950	1.30	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR297	421	1000	1.34	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR298	388	790	1.35	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR299	408	875	1.29	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR300	383	700	1.25	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR301	397	710	1.13	Female	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR302	368	705	1.41	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR303	368	670	1.34	Male	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR304	419	800	1.09	Male	Adult	Ripe	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR305	379	700	1.29	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR306	375	700	1.33	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/22/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR307	328	500	1.42	Female	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/23/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR308	395	625	1.01	Male	Adult	Pre-Spawning	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/23/2010	FDLR-DS-HN-05	Arctic Grayling	SAS10PFDLRARGR309	199	-	-	Unknown	Juvenile	Unknown	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/24/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR310	371	700	1.37	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/24/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR311	347	700	1.68	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	5/24/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR312	435	1000	1.21	Female	Adult	Pre-Spawning	Scales	9	First Capture, Released	Yes
Fond du Lac River	5/24/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR313	371	695	1.36	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/24/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR314	398	715	1.13	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR315	414	1102	1.55	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR316	359	605	1.31	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR317	360	690	1.48	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR318	368	610	1.22	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR319	385	700	1.23	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR320	390	820	1.38	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR321	374	710	1.36	Male	Adult	Ripe	Scales	4	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR322	361	750	1.59	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR323	384	700	1.24	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR324	385	610	1.07	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR325	355	680	1.52	Female	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR326	370	840	1.66	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR327	370	750	1.48	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR328	388	770	1.32	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR329	390	740	1.25	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR330	333	490	1.33	Male	Adult	Ripe	Scales	4	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR331	371	750	1.47	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR332	372	710	1.38	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR333	364	705	1.46	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR334	378	750	1.39	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR335	382	900	1.61	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR336	368	750	1.50	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR337	356	690	1.53	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR338	355	600	1.34	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR339	378	790	1.46	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR340	374	800	1.53	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR341	377	800	1.49	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR342	365	700	1.44	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR343	368	795	1.60	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR344	350	605	1.41	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR345	344	690	1.70	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR346	415	1005	1.41	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR347	432	1100	1.36	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR348	368	620	1.24	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR349	364	610	1.26	Male	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR350	380	710	1.29	Male	Adult	Pre-Spawning	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR351	389	800	1.36	Male	Adult	Ripe	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR352	390	794	1.34	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR353	350	600	1.40	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR354	387	710	1.22	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR355	368	705	1.41	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR356	345	600	1.46	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR357	380	805	1.47	Female	Adult	Pre-Spawning	Scales	6	First Capture, Released	Yes

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR358	446	1200	1.35	Male	Adult	Pre-Spawning	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR359	368	700	1.40	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR360	379	700	1.29	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR361	415	1190	1.66	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR362	373	650	1.25	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR363	367	700	1.42	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR364	376	700	1.32	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR365	340	570	1.45	Female	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR366	370	660	1.30	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR367	358	795	1.73	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR368	384	700	1.24	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR369	373	710	1.37	Male	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR370	414	900	1.27	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR371	368	650	1.30	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR372	375	695	1.32	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR373	373	650	1.25	Male	Adult	Ripe	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR374	376	720	1.35	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR375	371	745	1.46	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR376	390	805	1.36	Male	Adult	Ripe	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR377	445	610	0.69	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR378	416	1150	1.60	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR379	393	805	1.33	Female	Adult	Ripe	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR380	391	880	1.47	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR381	394	890	1.46	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR382	374	715	1.37	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR383	357	650	1.43	Male	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR384	399	1000	1.57	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR385	388	810	1.39	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR386	375	710	1.35	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR387	360	670	1.44	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR388	383	800	1.42	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR389	368	700	1.40	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR390	380	700	1.28	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR391	384	775	1.37	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR392	340	610	1.55	Female	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR393	366	750	1.53	Female	Adult	Pre-Spawning	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR394	375	680	1.29	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR395	406	910	1.36	Male	Adult	Ripe	Scales	7	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR396	403	950	1.45	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR397	390	780	1.31	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR398	360	600	1.29	Male	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR399	388	750	1.28	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR400	371	700	1.37	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR401	363	700	1.46	Female	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR402	380	850	1.55	Male	Adult	Ripe	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR403	385	810	1.42	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR404	370	700	1.38	Male	Adult	Ripe	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR405	378	750	1.39	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR406	374	690	1.32	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR407	360	690	1.48	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR408	367	600	1.21	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR409	351	590	1.36	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR410	366	700	1.43	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR411	373	810	1.56	Female	Adult	Pre-Spawning	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR412	378	690	1.28	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR413	360	600	1.29	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR414	385	700	1.23	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR415	370	700	1.38	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR416	358	600	1.31	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR417	385	875	1.53	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR418	348	570	1.35	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR419	367	700	1.42	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10PFDLRARGR420	340	540	1.37	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR421	415	900	1.26	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR422	420	1000	1.35	Female	Adult	Pre-Spawning	Scales	9	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR423	369	710	1.41	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR424	412	900	1.29	Male	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR425	364	650	1.35	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR426	368	650	1.30	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR427	390	900	1.52	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR428	348	550	1.31	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR429	391	890	1.49	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR430	360	550	1.18	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR431	401	900	1.40	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR432	360	600	1.29	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR433	391	605	1.01	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR434	359	590	1.28	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR435	378	670	1.24	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR436	377	760	1.42	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR437	389	720	1.22	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR438	367	680	1.38	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR439	410	900	1.31	Male	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR440	366	650	1.33	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR441	403	800	1.22	Male	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR442	365	600	1.23	Male	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR443	371	780	1.53	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR444	392	900	1.49	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR445	357	595	1.31	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR446	400	850	1.33	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR447	383	740	1.32	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR448	355	675	1.51	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR449	380	710	1.29	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR450	366	700	1.43	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR451	357	600	1.32	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR452	378	650	1.20	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR453	380	790	1.44	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR454	375	700	1.33	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR455	370	650	1.28	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR456	375	700	1.33	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR457	398	900	1.43	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR458	337	490	1.28	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR459	407	900	1.33	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR460	343	510	1.26	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR461	373	700	1.35	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR462	380	675	1.23	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR463	394	870	1.42	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR464	365	650	1.34	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR465	387	600	1.04	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR466	351	500	1.16	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR467	358	650	1.42	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR468	355	550	1.23	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/25/2010	FDLR-DS-HN-07	Arctic Grayling	SAS10PFDLRARGR469	356	600	1.33	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-08	Arctic Grayling	SAS10PFDLRARGR470	356	670	1.48	Female	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-08	Arctic Grayling	SAS10PFDLRARGR471	377	640	1.19	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-08	Arctic Grayling	SAS10PFDLRARGR472	362	675	1.42	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-08	Arctic Grayling	SAS10PFDLRARGR473	345	600	1.46	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-08	Arctic Grayling	SAS10PFDLRARGR474	359	660	1.43	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-08	Arctic Grayling	SAS10PFDLRARGR475	348	550	1.31	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-08	Arctic Grayling	SAS10PFDLRARGR476	388	850	1.46	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-08	Arctic Grayling	SAS10PFDLRARGR477	338	490	1.27	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-09	Arctic Grayling	SAS10PFDLRARGR478	342	700	1.75	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-09	Arctic Grayling	SAS10PFDLRARGR479	350	550	1.28	Female	Adult	Pre-Spawning	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-09	Arctic Grayling	SAS10PFDLRARGR480	380	740	1.35	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-09	Arctic Grayling	SAS10PFDLRARGR481	385	700	1.23	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-09	Arctic Grayling	SAS10PFDLRARGR482	373	800	1.54	Female	Adult	Ripe	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-09	Arctic Grayling	SAS10PFDLRARGR483	397	730	1.17	Male	Adult	Ripe	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-09	Arctic Grayling	SAS10PFDLRARGR484	374	675	1.29	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-09	Arctic Grayling	SAS10PFDLRARGR485	375	650	1.23	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-09	Arctic Grayling	SAS10PFDLRARGR486	335	500	1.33	Male	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-09	Arctic Grayling	SAS10PFDLRARGR487	365	740	1.52	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-09	Arctic Grayling	SAS10PFDLRARGR488	370	500	0.99	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-09	Arctic Grayling	SAS10PFDLRARGR489	380	710	1.29	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-09	Arctic Grayling	SAS10PFDLRARGR490	381	690	1.25	Female	Adult	Pre-Spawning	Scales	6	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-09	Arctic Grayling	SAS10PFDLRARGR491	375	600	1.14	Male	Adult	Ripe	Scales	5	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-09	Arctic Grayling	SAS10PFDLRARGR492	350	700	1.63	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-09	Arctic Grayling	SAS10PFDLRARGR493	360	590	1.26	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-09	Arctic Grayling	SAS10PFDLRARGR494	346	700	1.69	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes
Fond du Lac River	5/26/2010	FDLR-DS-HN-09	Arctic Grayling	SAS10PFDLRARGR495	351	650	1.50	Female	Adult	Ripe	Scales	-	First Capture, Released	Yes

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/6/2010	FDLR-US-AN-01	Arctic Grayling	SAS10SFDLRARGR001	386	800	1.39	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/6/2010	FDLR-US-AN-01	Arctic Grayling	SAS10SFDLRARGR002	360	790	1.69	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/6/2010	FDLR-US-AN-01	Arctic Grayling	SAS10SFDLRARGR003	390	830	1.40	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/6/2010	FDLR-US-AN-01	Arctic Grayling	SAS10SFDLRARGR004	430	1050	1.32	Unknown	Adult	Seasonal Development	Scales + Otoliths	7	Mortality	No
Fond du Lac River	8/6/2010	FDLR-US-AN-01	Arctic Grayling	SAS10SFDLRARGR005	410	780	1.13	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/6/2010	FDLR-US-AN-01	Arctic Grayling	SAS10SFDLRARGR006	370	950	1.88	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/6/2010	FDLR-US-AN-01	Arctic Grayling	SAS10SFDLRARGR007	350	500	1.17	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/6/2010	FDLR-US-AN-01	Arctic Grayling	SAS10SFDLRARGR008	390	745	1.26	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/6/2010	FDLR-US-AN-01	Arctic Grayling	SAS10SFDLRARGR009	385	990	1.73	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR010	360	780	1.67	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR011	355	740	1.65	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR012	-	-	-	Male	Adult	Seasonal Development	No Structure Taken	-	Recapture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR013	380	760	1.39	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR014	410	980	1.42	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR015	390	740	1.25	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR016	395	760	1.23	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR017	168	75	1.58	Unknown	Juvenile	Unknown	Scales + Otoliths	1	Mortality	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR018	365	750	1.54	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR019	375	740	1.40	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR020	379	900	1.65	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR021	405	950	1.43	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR022	375	735	1.39	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR023	395	980	1.59	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR024	440	1150	1.35	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR025	420	1050	1.42	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR026	375	710	1.35	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR027	383	810	1.44	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR028	425	995	1.30	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR029	375	760	1.44	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR030	385	800	1.40	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR031	395	970	1.57	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR032	410	975	1.41	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR033	420	1100	1.48	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR034	400	995	1.55	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR035	380	700	1.28	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-02	Arctic Grayling	SAS10SFDLRARGR036	430	1200	1.51	Unknown	Adult	Seasonal Development	Scales	-	Mortality	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR037	412	1000	1.43	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR038	384	875	1.55	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR039	377	850	1.59	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR040	372	770	1.50	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR041	-	-	-	Female	Adult	Seasonal Development	No Structure Taken	-	Recapture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR042	385	920	1.61	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR043	408	1020	1.50	Female	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR044	368	810	1.63	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR045	414	1025	1.44	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR046	380	875	1.59	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR047	419	1015	1.38	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR048	428	1015	1.29	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR049	415	1020	1.43	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR050	440	1020	1.20	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR051	374	810	1.55	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR052	380	1010	1.84	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR053	428	1005	1.28	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR054	412	1025	1.47	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR055	385	950	1.66	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR056	371	800	1.57	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR057	420	1020	1.38	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR058	383	910	1.62	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/7/2010	FDLR-US-AN-03	Arctic Grayling	SAS10SFDLRARGR059	376	990	1.86	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/8/2010	FDLR-US-AN-04	Arctic Grayling	SAS10SFDLRARGR060	310	492	1.65	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/8/2010	FDLR-US-AN-04	Arctic Grayling	SAS10SFDLRARGR061	367	625	1.26	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/8/2010	FDLR-US-AN-04	Arctic Grayling	SAS10SFDLRARGR062	413	995	1.41	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/8/2010	FDLR-US-AN-04	Arctic Grayling	SAS10SFDLRARGR063	364	805	1.67	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/8/2010	FDLR-US-AN-04	Arctic Grayling	SAS10SFDLRARGR064	379	760	1.40	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/8/2010	FDLR-US-AN-04	Arctic Grayling	SAS10SFDLRARGR065	405	870	1.31	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/8/2010	FDLR-US-AN-04	Arctic Grayling	SAS10SFDLRARGR066	364	660	1.37	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/8/2010	FDLR-US-AN-04	Arctic Grayling	SAS10SFDLRARGR067	363	755	1.58	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/8/2010	FDLR-US-AN-04	Arctic Grayling	SAS10SFDLRARGR068	377	790	1.47	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/8/2010	FDLR-US-AN-04	Arctic Grayling	SAS10SFDLRARGR069	303	390	1.40	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/8/2010	FDLR-US-AN-04	Arctic Grayling	SAS10SFDLRARGR070	321	505	1.53	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/8/2010	FDLR-DS-AN-05	Arctic Grayling	SAS10SFDLRARGR071	434	1005	1.23	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/8/2010	FDLR-DS-AN-05	Arctic Grayling	SAS10SFDLRARGR072	408	810	1.19	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/8/2010	FDLR-DS-AN-05	Arctic Grayling	SAS10SFDLRARGR073	397	740	1.18	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/8/2010	FDLR-DS-AN-05	Arctic Grayling	SAS10SFDLRARGR074	399	760	1.20	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/8/2010	FDLR-DS-AN-05	Arctic Grayling	SAS10SFDLRARGR075	428	890	1.14	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/8/2010	FDLR-DS-AN-05	Arctic Grayling	SAS10SFDLRARGR076	365	585	1.20	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/8/2010	FDLR-DS-AN-05	Arctic Grayling	SAS10SFDLRARGR077	411	900	1.30	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/8/2010	FDLR-DS-AN-05	Arctic Grayling	SAS10SFDLRARGR078	404	890	1.35	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/8/2010	FDLR-DS-AN-05	Arctic Grayling	SAS10SFDLRARGR079	401	795	1.23	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/9/2010	FDLR-DS-AN-06	Arctic Grayling	SAS10SFDLRARGR080	383	690	1.23	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/9/2010	FDLR-DS-AN-06	Arctic Grayling	SAS10SFDLRARGR081	400	825	1.29	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/9/2010	FDLR-DS-AN-06	Arctic Grayling	SAS10SFDLRARGR082	372	610	1.18	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/9/2010	FDLR-DS-AN-06	Arctic Grayling	SAS10SFDLRARGR083	448	900	1.00	Female	Adult	Seasonal Development	Scales + Otoliths	11	Mortality	No
Fond du Lac River	8/9/2010	FDLR-DS-AN-06	Arctic Grayling	SAS10SFDLRARGR084	416	850	1.18	Male	Adult	Seasonal Development	Scales + Otoliths	7	Mortality	No
Fond du Lac River	8/9/2010	FDLR-DS-AN-06	Arctic Grayling	SAS10SFDLRARGR085	383	700	1.25	Male	Adult	Seasonal Development	Scales + Otoliths	6	Mortality	No
Fond du Lac River	8/9/2010	FDLR-DS-AN-06	Arctic Grayling	SAS10SFDLRARGR086	408	800	1.18	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/9/2010	FDLR-DS-AN-06	Arctic Grayling	SAS10SFDLRARGR087	391	710	1.19	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/9/2010	FDLR-DS-AN-06	Arctic Grayling	SAS10SFDLRARGR088	-	-	-	Male	Adult	Seasonal Development	No Structure Taken	-	Recapture, Released	Yes
Fond du Lac River	8/9/2010	FDLR-DS-AN-06	Arctic Grayling	SAS10SFDLRARGR089	363	605	1.26	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/9/2010	FDLR-DS-AN-06	Arctic Grayling	SAS10SFDLRARGR090	373	745	1.44	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/9/2010	FDLR-DS-AN-06	Arctic Grayling	SAS10SFDLRARGR091	398	790	1.25	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/9/2010	FDLR-DS-AN-06	Arctic Grayling	SAS10SFDLRARGR092	376	630	1.19	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/9/2010	FDLR-DS-AN-06	Arctic Grayling	SAS10SFDLRARGR093	414	895	1.26	Female	Adult	Seasonal Development	Scales + Otoliths	7	Mortality	No
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR094	410	975	1.41	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR095	394	800	1.31	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR096	284	400	1.75	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR097	385	720	1.26	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR098	404	990	1.50	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR099	378	800	1.48	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR100	385	850	1.49	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR101	394	890	1.46	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR102	388	790	1.35	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR103	412	910	1.30	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR104	387	800	1.38	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR105	398	890	1.41	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR106	374	720	1.38	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR107	384	710	1.25	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR108	425	1100	1.43	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR109	300	460	1.70	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR110	363	650	1.36	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR111	-	-	-	Female	Adult	Seasonal Development	Scales	-	Recapture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR112	375	650	1.23	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR113	395	890	1.44	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR114	284	400	1.75	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-07	Arctic Grayling	SAS10SFDLRARGR115	350	590	1.38	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR116	405	990	1.49	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR117	397	980	1.57	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR118	385	975	1.71	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR119	387	985	1.70	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR120	401	1015	1.57	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR121	375	790	1.50	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR122	369	915	1.82	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR123	411	1200	1.73	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR124	358	790	1.72	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR125	372	830	1.61	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR126	407	1000	1.48	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR127	414	1080	1.52	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR128	367	690	1.40	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR129	384	910	1.61	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR130	396	990	1.59	Unknown	Adult	Seasonal Development	Scales + Otoliths	5	Mortality	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR131	409	1010	1.48	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR132	396	980	1.58	Female	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR133	401	1025	1.59	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR134	365	840	1.73	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR135	377	890	1.66	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR136	398	1060	1.68	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR137	419	1140	1.55	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR138	407	1100	1.63	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR139	413	1040	1.48	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR140	359	805	1.74	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR141	373	905	1.74	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR142	381	960	1.74	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR143	396	890	1.43	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR144	400	1090	1.70	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR145	381	940	1.70	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR146	434	1190	1.46	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR147	392	850	1.41	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR148	407	1020	1.51	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR149	382	940	1.69	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR150	364	910	1.89	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR151	395	990	1.61	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR152	377	890	1.66	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR153	407	1080	1.60	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR154	389	1005	1.71	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR155	380	840	1.53	Female	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Fond du Lac River	8/10/2010	FDLR-US-AN-08	Arctic Grayling	SAS10SFDLRARGR156	367	760	1.54	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/11/2010	FDLR-DS-HN-03	Arctic Grayling	SAS10SFDLRARGR157	397	800	1.28	Male	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Fond du Lac River	8/11/2010	FDLR-DS-HN-03	Lake Whitefish	SAS10SFDLRLKWH158	432	1200	1.49	Male	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Fond du Lac River	8/11/2010	FDLR-DS-HN-03	Lake Whitefish	SAS10SFDLRLKWH159	260	250	1.42	Male	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Fond du Lac River	8/11/2010	FDLR-DS-HN-03	Lake Whitefish	SAS10SFDLRLKWH162	307	390	1.35	Female	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Fond du Lac River	8/11/2010	FDLR-DS-HN-03	Northern Pike	SAS10SFDLRNRPK161	598	1400	0.65	Male	Adult	Seasonal Development	Cleithra	-	Mortality	No
Fond du Lac River	8/11/2010	FDLR-DS-HN-03	Northern Pike	SAS10SFDLRNRPK164	620	1700	0.71	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	8/11/2010	FDLR-DS-HN-03	Northern Pike	SAS10SFDLRNRPK166	583	1400	0.71	Female	Adult	Seasonal Development	Cleithra	-	Mortality	No
Fond du Lac River	8/11/2010	FDLR-DS-HN-03	Walleye	SAS10SFDLRWALL160	423	890	1.18	Male	Adult	Seasonal Development	Otoliths + Fin Ray	-	Mortality	No
Fond du Lac River	8/11/2010	FDLR-DS-HN-03	Walleye	SAS10SFDLRWALL163	428	890	1.14	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	8/11/2010	FDLR-DS-HN-03	Walleye	SAS10SFDLRWALL165	591	2100	1.02	Female	Adult	Seasonal Development	Otoliths + Fin Ray	-	Mortality	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Arctic Grayling	SAS10SFDLRARGR177	65	2.01	0.73	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Burbot	SAS10SFDLRBURB167	190	59	0.86	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Burbot	SAS10SFDLRBURB168	230	69	0.57	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Burbot	SAS10SFDLRBURB169	185	32.70	0.52	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Burbot	SAS10SFDLRBURB170	100	7.41	0.74	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Burbot	SAS10SFDLRBURB171	120	12.15	0.70	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Burbot	SAS10SFDLRBURB172	140	16.65	0.61	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Burbot	SAS10SFDLRBURB173	114	11.14	0.75	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Burbot	SAS10SFDLRBURB174	113	9.49	0.66	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Burbot	SAS10SFDLRBURB175	98	7.23	0.77	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Burbot	SAS10SFDLRBURB176	90	6.63	0.91	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Longnose Sucker	SAS10SFDLRLNSC178	46	0.64	0.66	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Longnose Sucker	SAS10SFDLRLNSC180	35	0.55	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Longnose Sucker	SAS10SFDLRLNSC182	55	1.62	0.97	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Longnose Sucker	SAS10SFDLRLNSC188	45	0.75	0.82	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Longnose Sucker	SAS10SFDLRLNSC189	40	0.65	1.02	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Longnose Sucker	SAS10SFDLRLNSC194	40	0.52	0.81	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Longnose Sucker	SAS10SFDLRLNSC195	42	0.72	0.97	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Longnose Sucker	SAS10SFDLRLNSC196	40	0.68	1.06	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Longnose Sucker	SAS10SFDLRLNSC199	40	0.66	1.03	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Longnose Sucker	SAS10SFDLRLNSC201	45	0.73	0.80	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Longnose Sucker	SAS10SFDLRLNSC202	44	0.67	0.79	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Longnose Sucker	SAS10SFDLRLNSC203	40	0.56	0.88	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Longnose Sucker	SAS10SFDLRLNSC204	39	0.64	1.08	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	Longnose Sucker	SAS10SFDLRLNSC205	40	0.56	0.88	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	White Sucker	SAS10SFDLRWHSC179	40	0.69	1.08	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	White Sucker	SAS10SFDLRWHSC181	44	0.63	0.74	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	White Sucker	SAS10SFDLRWHSC183	38	0.61	1.11	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	White Sucker	SAS10SFDLRWHSC184	45	0.77	0.84	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	White Sucker	SAS10SFDLRWHSC185	44	0.70	0.82	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	White Sucker	SAS10SFDLRWHSC186	45	0.76	0.83	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	White Sucker	SAS10SFDLRWHSC187	49	0.70	0.59	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	White Sucker	SAS10SFDLRWHSC190	40	0.55	0.86	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	White Sucker	SAS10SFDLRWHSC191	40	0.51	0.80	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	White Sucker	SAS10SFDLRWHSC192	41	0.62	0.90	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	White Sucker	SAS10SFDLRWHSC193	42	0.68	0.92	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	White Sucker	SAS10SFDLRWHSC197	40	0.62	0.97	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	White Sucker	SAS10SFDLRWHSC198	45	0.90	0.99	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/11/2010	FDLR-DS-BP-01	White Sucker	SAS10SFDLRWHSC200	43	0.76	0.96	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR206	59	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR207	74	4.21	1.04	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR208	84	6.16	1.04	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR209	172	64.62	1.27	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR210	59	2.76	1.34	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR211	64	3.09	1.18	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR212	70	3.70	1.08	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR213	53	2.95	1.98	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR214	64	2.66	1.01	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR215	56	2.63	1.50	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR216	52	2.19	1.56	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR217	78	4.51	0.95	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR218	66	2.71	0.94	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR219	63	2.35	0.94	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR220	52	1.78	1.27	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR221	74	4.52	1.12	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR222	75	4.26	1.01	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR223	164	54.29	1.23	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR224	59	2.08	1.01	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR225	54	2.67	1.70	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR226	72	3.31	0.89	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR227	162	50.54	1.19	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR228	143	34.25	1.17	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR229	179	69.43	1.21	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR230	54	2.53	1.61	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR231	72	4.38	1.17	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR232	48	1.80	1.63	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR233	49	1.96	1.67	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR234	71	3.80	1.06	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR235	49	2.02	1.72	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR236	69	4.17	1.27	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR237	47	2.04	1.96	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR238	73	4.27	1.10	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR239	169	66.54	1.38	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR240	53	2.02	1.36	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR241	46	1.22	1.25	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR242	71	4.12	1.15	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR243	78	5.20	1.10	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR244	49	2.37	2.01	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR245	61	3.27	1.44	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR246	169	62.45	1.29	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR247	61	2.63	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR248	72	3.27	0.88	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR249	54	2.08	1.32	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR250	157	43.35	1.12	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR251	153	43.71	1.22	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR252	75	5.23	1.24	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR253	64	2.81	1.07	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR254	54	1.66	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR255	63	2.92	1.17	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR256	71	4.48	1.25	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR257	60	2.05	0.95	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR258	71	2.93	0.82	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR259	50	1.42	1.14	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR260	61	2.32	1.02	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR261	44	1.02	1.20	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR262	51	2.27	1.71	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR263	59	2.07	1.01	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR264	149	35.69	1.08	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR265	73	4.81	1.24	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR266	73	4.67	1.20	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR267	72	4.33	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR268	71	3.04	0.85	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR269	50	1.08	0.86	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR270	67	3.42	1.14	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR271	60	2.29	1.06	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR272	74	4.38	1.08	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR273	73	3.04	0.78	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR274	79	4.23	0.86	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR275	54	1.00	0.64	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR276	76	4.14	0.94	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR277	69	3.07	0.93	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR278	67	3.27	1.09	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR279	64	2.36	0.90	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR280	61	2.21	0.97	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR281	162	54.65	1.29	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR282	154	49.70	1.36	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR283	162	52.93	1.24	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR284	57	2.09	1.13	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR285	66	3.49	1.21	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR286	70	4.17	1.22	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR287	74	4.81	1.19	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR288	55	3.89	2.34	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR289	64	3.61	1.38	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR290	80	5.17	1.01	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR291	74	4.54	1.12	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR292	58	2.02	1.04	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR293	53	2.10	1.41	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR294	70	3.29	0.96	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR295	81	5.60	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR296	72	4.42	1.18	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR297	77	4.79	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR298	74	5.26	1.30	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR299	60	2.21	1.02	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR300	70	2.22	0.65	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR301	70	3.87	1.13	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR302	76	4.91	1.12	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR303	72	4.00	1.07	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR304	54	2.71	1.72	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR305	69	3.42	1.04	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR306	71	3.46	0.97	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR307	67	4.34	1.44	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR308	66	3.12	1.09	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR309	68	3.63	1.15	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR310	50	1.47	1.18	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR311	72	5.01	1.34	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR312	50	1.79	1.43	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR313	74	4.24	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR314	54	2.15	1.37	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR315	63	3.06	1.22	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR316	80	5.55	1.08	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR317	72	5.01	1.34	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR318	52	2.51	1.79	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR319	79	5.81	1.18	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR320	61	2.31	1.02	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR321	59	2.17	1.06	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR322	70	4.68	1.36	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR323	68	3.4	1.08	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR324	83	6.72	1.18	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR325	62	2.78	1.17	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR326	61	2.53	1.11	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR327	70	3.47	1.01	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR328	80	5.07	0.99	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR329	67	4.30	1.43	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR330	60	2.46	1.14	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR331	53	2.14	1.44	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR332	66	2.78	0.97	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR333	54	1.90	1.21	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR334	62	3.29	1.38	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR335	60	2.45	1.13	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR336	61	2.14	0.94	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR337	75	4.02	0.95	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR338	53	2.46	1.65	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR339	71	4.21	1.18	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR340	61	3.02	1.33	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR341	60	2.03	0.94	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR342	58	2.27	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR343	61	2.74	1.21	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR344	73	5.27	1.35	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR345	73	4.30	1.11	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR346	67	3.24	1.08	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR347	53	1.54	1.03	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR348	57	2.58	1.39	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR349	69	3.94	1.20	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR350	79	6.14	1.25	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR351	61	2.34	1.03	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR352	74	5.34	1.32	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR353	81	7.35	1.38	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR354	64	4.38	1.67	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR355	53	2.26	1.52	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR356	61	2.31	1.02	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR357	55	2.17	1.30	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR358	72	3.85	1.03	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR359	65	3.22	1.17	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR360	61	2.43	1.07	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR361	72	4.39	1.18	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR362	74	4.41	1.09	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR363	51	2.76	2.08	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR364	80	5.47	1.07	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR365	71	3.98	1.11	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR366	60	2.02	0.94	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR367	58	2.27	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR368	80	5.89	1.15	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR369	71	4.17	1.17	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR370	70	3.34	0.97	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR371	61	3.12	1.37	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR372	60	2.67	1.24	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR373	73	3.94	1.01	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR374	54	1.92	1.22	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR375	71	3.77	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR376	70	4.12	1.20	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR377	82	7.01	1.27	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR378	79	4.45	0.90	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR379	58	2.15	1.10	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR380	68	3.44	1.09	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR381	67	4.18	1.39	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR382	68	3.41	1.08	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR383	62	2.77	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR384	81	6.45	1.21	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR385	63	2.32	0.93	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR386	66	3.08	1.07	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR387	75	4.83	1.14	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR388	60	2.40	1.11	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR389	76	5.69	1.30	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR390	72	4.40	1.18	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR391	74	4.02	0.99	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR392	80	4.45	0.87	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR393	81	5.79	1.09	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR394	56	2.34	1.33	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR395	60	2.16	1.00	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR396	68	3.81	1.21	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR397	70	3.61	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR398	72	3.97	1.06	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR399	54	1.82	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR400	74	4.76	1.17	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR401	64	2.88	1.10	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR402	70	3.52	1.03	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR403	80	6.37	1.24	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR404	60	2.34	1.08	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	Arctic Grayling	SAS10SFDLRARGR405	74	5.19	1.28	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC617	73	5.15	1.32	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC618	60	3.19	1.48	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC619	72	4.75	1.27	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC620	72	4.23	1.13	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC621	74	5.37	1.33	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC622	70	3.56	1.04	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC623	98	12.28	1.30	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC624	42	0.95	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC625	42	1.11	1.50	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC626	52	1.51	1.07	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC627	75	5.25	1.24	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC628	50	1.49	1.19	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC629	72	3.56	0.95	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC630	48	1.33	1.20	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC631	74	4.56	1.13	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC632	61	2.01	0.89	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC633	68	3.35	1.07	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC634	44	1.10	1.29	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC635	65	4.05	1.47	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC636	41	0.95	1.38	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC637	64	4.47	1.71	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC638	94	10.95	1.32	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC639	84	8.37	1.41	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC640	64	4.26	1.63	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC641	66	3.76	1.31	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC642	70	3.75	1.09	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC643	52	2.60	1.85	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC644	63	3.40	1.36	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC645	48	1.28	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC646	69	4.59	1.40	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC647	42	0.85	1.15	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC648	72	4.79	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC649	76	4.90	1.12	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC650	35	0.74	1.73	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC651	68	4.34	1.38	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC652	63	3.21	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC653	70	4.25	1.24	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC654	48	1.47	1.33	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC655	64	3.28	1.25	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC656	63	3.54	1.42	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC657	70	3.95	1.15	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC658	50	1.46	1.17	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC659	38	0.66	1.20	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC660	42	1.25	1.69	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-US-HN-05	White Sucker	SAS10SFDLRWHSC661	41	1.13	1.64	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR664	66	2.47	0.86	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR665	65	2.83	1.03	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR666	50	2.39	1.91	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR667	66	3.22	1.12	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR668	64	3.04	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR669	60	2.50	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR670	72	3.46	0.93	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR671	64	2.53	0.97	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR672	63	2.78	1.11	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR673	59	2.44	1.19	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR674	56	2.27	1.29	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR675	64	3.04	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR676	59	1.73	0.84	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR677	62	2.76	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR678	57	2.56	1.38	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR679	69	2.57	0.78	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR680	67	3.07	1.02	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR681	59	1.88	0.92	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR682	72	4.33	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR683	78	5.14	1.08	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR684	70	3.49	1.02	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR685	68	2.07	0.66	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR686	54	1.74	1.11	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR687	56	2.02	1.15	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR688	50	2.30	1.84	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR689	72	4.51	1.21	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR690	68	3.54	1.13	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR691	75	4.15	0.98	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR692	70	3.55	1.03	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR693	73	4.20	1.08	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR694	62	2.65	1.11	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR695	61	2.59	1.14	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR696	66	2.83	0.98	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR697	59	1.96	0.95	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR698	56	2.04	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR699	59	2.05	1.00	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR700	55	1.74	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR701	65	2.77	1.01	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR702	68	3.27	1.04	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR703	60	2.13	0.99	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR704	66	2.82	0.98	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR705	60	2.23	1.03	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR706	59	2.09	1.02	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR707	70	2.95	0.86	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR708	60	2.70	1.25	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR709	59	1.94	0.94	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR710	61	2.27	1.00	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR711	57	1.84	0.99	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR712	64	2.23	0.85	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR713	60	2.11	0.98	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR714	62	2.76	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR715	55	1.49	0.90	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR716	58	2.05	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR717	66	3.24	1.13	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR718	54	1.69	1.07	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR719	61	2.94	1.30	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR720	62	2.42	1.02	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR721	58	2.47	1.27	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR722	66	3.03	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR723	61	3.63	1.60	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR724	65	2.94	1.07	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR725	59	2.15	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR726	71	2.82	0.79	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR727	61	2.90	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR728	64	2.63	1.00	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR729	65	3.15	1.15	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR730	60	2.05	0.95	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR731	63	3.14	1.26	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR732	69	3.43	1.04	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR733	62	2.46	1.03	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR734	59	2.17	1.06	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR735	61	2.20	0.97	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR736	51	1.76	1.33	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR737	59	2.60	1.27	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR738	60	2.13	0.99	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR739	64	2.55	0.97	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR740	70	4.25	1.24	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR741	66	3.72	1.29	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR742	48	1.33	1.20	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR743	57	3.63	1.96	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR744	59	2.44	1.19	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR745	67	2.62	0.87	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR746	71	3.30	0.92	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR747	62	2.73	1.15	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR748	65	2.25	0.82	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR749	46	1.48	1.52	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR750	59	2.12	1.03	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR751	70	4.32	1.26	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR752	56	2.17	1.24	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR753	57	2.23	1.20	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR754	60	2.54	1.18	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR755	50	1.47	1.18	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR756	65	3.12	1.14	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR757	70	3.76	1.10	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR758	58	1.95	1.00	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR759	80	6.17	1.21	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR760	79	4.66	0.95	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR761	67	3.85	1.28	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR762	54	1.78	1.13	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR763	67	3.14	1.04	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR764	54	1.42	0.90	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR765	57	3.38	1.83	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR766	50	1.60	1.28	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR767	50	1.99	1.59	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR768	70	3.62	1.06	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR769	56	2.16	1.23	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR770	76	4.92	1.12	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR771	56	2.45	1.40	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR772	51	1.53	1.15	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR773	70	3.58	1.04	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR774	59	2.02	0.98	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR775	63	2.65	1.06	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR776	50	1.47	1.18	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR777	61	2.70	1.19	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR778	54	1.63	1.04	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR779	67	3.62	1.20	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR780	140	44.01	1.60	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR781	72	5.05	1.35	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR782	65	3.06	1.11	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR783	65	3.57	1.30	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR784	72	3.87	1.04	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR785	66	3.11	1.08	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR786	71	4.29	1.20	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR787	64	3.14	1.20	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR788	61	2.52	1.11	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR789	56	1.99	1.13	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR790	65	3.07	1.12	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR791	54	1.97	1.25	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR792	50	1.23	0.98	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR793	60	2.91	1.35	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR794	145	31.21	1.02	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR795	59	2.72	1.32	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR796	55	2.26	1.36	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR797	60	2.05	0.95	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR798	59	2.53	1.23	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR799	61	2.81	1.24	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR800	56	2.07	1.18	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR801	64	3.51	1.34	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR802	61	2.77	1.22	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR803	56	1.98	1.13	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR804	55	1.92	1.15	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR805	71	4.59	1.28	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR806	69	4.18	1.27	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR807	72	4.13	1.11	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR808	68	3.58	1.14	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR809	70	3.05	0.89	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR810	62	2.69	1.13	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR811	54	1.99	1.26	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR812	60	2.61	1.21	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR813	59	2.12	1.03	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR814	70	3.93	1.15	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR815	57	2.33	1.26	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR816	65	3.61	1.31	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR817	54	2.33	1.48	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR818	50	1.45	1.16	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR819	54	1.66	1.05	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR820	57	2.33	1.26	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR821	58	2.04	1.05	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR822	55	1.93	1.16	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR823	50	1.24	0.99	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR824	50	1.44	1.15	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Arctic Grayling	SAS10SFDLRARGR825	40	0.63	0.98	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Cisco	SAS10SFDLRCISC826	62	2.09	0.88	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Cisco	SAS10SFDLRCISC827	55	1.69	1.02	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Cisco	SAS10SFDLRCISC828	56	2.11	1.20	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Cisco	SAS10SFDLRCISC829	42	0.72	0.97	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Cisco	SAS10SFDLRCISC830	53	1.39	0.93	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Cisco	SAS10SFDLRCISC831	50	1.33	1.06	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Cisco	SAS10SFDLRCISC832	51	1.11	0.84	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Cisco	SAS10SFDLRCISC833	55	1.56	0.94	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Cisco	SAS10SFDLRCISC834	40	0.55	0.86	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Cisco	SAS10SFDLRCISC835	48	0.88	0.80	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Cisco	SAS10SFDLRCISC836	94	9.22	1.11	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Cisco	SAS10SFDLRCISC837	60	2.25	1.04	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Cisco	SAS10SFDLRCISC838	52	1.73	1.23	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Cisco	SAS10SFDLRCISC839	44	0.93	1.09	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC1000	39	0.77	1.30	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC1001	41	0.97	1.41	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC1002	41	0.94	1.36	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC1003	32	1.07	3.27	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC1005	36	0.61	1.31	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC1006	38	0.84	1.53	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC1007	39	0.67	1.13	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC1010	38	0.79	1.44	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC1011	42	0.99	1.34	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC1013	42	1.10	1.48	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC1014	41	1.15	1.67	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC1015	39	0.75	1.26	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC1016	41	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC1020	43	1.36	1.71	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC1021	41	0.92	1.33	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC1022	40	0.85	1.33	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC1024	39	0.88	1.48	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC1025	38	0.86	1.57	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

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Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC1026	40	0.87	1.36	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC840	41	0.99	1.44	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC841	41	1.00	1.45	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC842	42	0.83	1.12	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC843	40	0.80	1.25	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC845	30	0.51	1.89	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC849	43	1.11	1.40	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC850	39	0.97	1.64	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC853	39	0.76	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC855	37	0.81	1.60	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC856	44	1.20	1.41	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC859	40	1.06	1.66	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC861	35	0.71	1.66	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC863	39	0.82	1.38	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC864	41	1.22	1.77	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC865	32	0.68	2.08	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC866	40	0.91	1.42	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC867	39	0.87	1.47	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC870	41	0.82	1.19	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC871	43	0.90	1.13	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC872	40	0.70	1.09	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC874	41	1.12	1.63	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC876	39	0.84	1.42	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC877	40	1.01	1.58	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC878	41	0.98	1.42	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC880	40	0.90	1.41	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC882	37	0.66	1.30	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC883	41	1.01	1.47	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC884	35	0.62	1.45	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC885	40	0.82	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC886	40	0.80	1.25	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC887	43	1.28	1.61	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC890	40	0.89	1.39	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC891	41	0.97	1.41	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC892	44	1.24	1.46	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC893	40	0.74	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC894	45	1.25	1.37	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC895	41	1.02	1.48	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC896	41	0.98	1.42	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC897	41	0.92	1.33	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC898	44	1.03	1.21	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC899	39	0.82	1.38	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC900	41	0.92	1.33	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC901	39	0.68	1.15	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC902	42	1.11	1.50	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC903	37	0.78	1.54	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC904	40	0.91	1.42	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC905	41	1.01	1.47	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC906	41	0.90	1.31	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC909	43	1.12	1.41	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC910	41	0.84	1.22	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC911	38	0.64	1.17	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC912	40	0.78	1.22	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC913	42	1.10	1.48	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC914	41	0.84	1.22	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC916	37	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC917	38	0.76	1.39	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC918	41	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC919	41	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC920	42	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC922	40	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC923	42	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC924	38	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC925	39	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC926	41	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC927	38	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC928	42	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC929	42	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC930	40	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC932	40	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC933	39	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC934	42	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC936	38	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC938	38	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC939	42	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC941	45	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC942	40	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC945	40	0.93	1.45	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC947	41	1.19	1.73	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC949	38	0.67	1.22	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC952	42	0.99	1.34	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC953	41	0.86	1.25	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC954	37	0.71	1.40	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC955	41	0.99	1.44	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC957	40	0.95	1.48	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC958	41	1.19	1.73	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC959	42	1.14	1.54	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC960	40	0.94	1.47	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC962	39	0.90	1.52	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC963	37	0.59	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC964	41	1.04	1.51	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC965	39	0.97	1.64	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC966	41	0.98	1.42	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC967	40	0.99	1.55	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC968	39	0.68	1.15	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC970	36	0.58	1.24	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC972	40	0.89	1.39	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC973	41	1.05	1.52	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC975	40	0.90	1.41	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC977	41	0.87	1.26	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC978	36	0.54	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC979	42	1.10	1.48	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC980	41	0.99	1.44	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC981	40	0.91	1.42	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC983	40	0.99	1.55	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC987	41	1.13	1.64	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC988	40	0.89	1.39	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC989	41	0.95	1.38	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC990	40	0.77	1.20	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC991	40	0.94	1.47	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC992	39	0.73	1.23	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC993	45	1.32	1.45	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC994	40	1.04	1.63	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC995	41	0.99	1.44	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	Longnose Sucker	SAS10SFDLRLNSC996	40	0.99	1.55	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC1004	40	0.80	1.25	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC1008	42	0.98	1.32	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC1009	41	0.94	1.36	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC1012	40	0.79	1.23	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC1017	43	0.92	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC1018	40	0.80	1.25	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC1019	40	0.97	1.52	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC1023	40	0.91	1.42	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC844	40	1.02	1.59	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC846	35	0.79	1.84	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC847	40	0.99	1.55	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC848	42	0.93	1.26	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC851	41	1.16	1.68	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC852	39	1.08	1.82	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC854	41	1.04	1.51	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC857	42	0.89	1.20	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC858	37	0.92	1.82	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC860	39	1.06	1.79	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC862	37	0.99	1.95	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC868	40	0.80	1.25	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC869	41	0.89	1.29	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC873	41	0.89	1.29	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC875	40	0.94	1.47	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC879	38	0.89	1.62	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC881	39	0.88	1.48	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC888	41	1.16	1.68	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC889	41	0.92	1.33	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC907	41	0.80	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC908	40	0.87	1.36	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC915	42	1.12	1.51	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC921	38	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC931	41	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC935	44	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC937	43	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC940	41	-	-	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC943	39	0.77	1.30	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC944	43	1.07	1.35	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC946	41	1.09	1.58	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC948	40	0.94	1.47	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC950	37	0.70	1.38	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC951	40	0.94	1.47	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC956	40	1.09	1.70	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC961	37	0.82	1.62	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC969	40	0.89	1.39	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC971	39	0.70	1.18	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC974	41	1.02	1.48	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC976	43	1.11	1.40	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC982	40	0.92	1.44	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC984	42	0.99	1.34	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC985	39	0.83	1.40	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC986	41	1.08	1.57	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC997	40	0.87	1.36	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC998	43	1.18	1.48	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/12/2010	FDLR-DS-HN-06	White Sucker	SAS10SFDLRWHSC999	40	1.01	1.58	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-03	Longnose Sucker	SAS10SFDLRLNSC1153	55	1.64	0.99	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1154	44	0.93	1.09	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1155	42	0.70	0.94	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1156	44	0.71	0.83	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1157	21	0.18	1.94	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1158	53	1.41	0.95	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1159	42	0.91	1.23	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1160	40	0.72	1.13	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1161	46	0.93	0.96	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1162	32	0.49	1.50	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1163	56	1.89	1.08	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1164	48	1.33	1.20	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1165	40	0.67	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1166	55	1.83	1.10	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1167	46	0.98	1.01	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

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Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1168	44	0.84	0.99	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1169	52	1.46	1.04	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1170	34	0.52	1.32	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1171	42	0.68	0.92	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1172	41	0.82	1.19	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1173	39	0.74	1.25	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1174	62	3.06	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1175	53	1.42	0.95	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1176	51	1.54	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1177	47	0.79	0.76	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1178	44	0.77	0.90	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1179	41	0.57	0.83	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1180	48	1.16	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1181	46	0.92	0.95	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1182	45	1.04	1.14	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1183	40	0.60	0.94	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1184	49	1.22	1.04	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1185	41	0.77	1.12	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1186	41	0.85	1.23	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1187	45	0.86	0.94	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1188	47	1.03	0.99	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1189	59	1.72	0.84	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1190	33	0.48	1.34	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1191	42	0.68	0.92	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1192	45	0.98	1.08	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1193	51	1.24	0.93	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1194	51	1.10	0.83	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1195	43	0.81	1.02	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1196	62	2.24	0.94	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1197	51	1.57	1.18	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1198	56	2.08	1.18	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1199	41	0.73	1.06	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1200	39	0.72	1.21	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1201	42	0.54	0.73	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1202	50	1.33	1.06	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1203	40	1.62	2.53	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1204	41	0.69	1.00	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1205	47	1.15	1.11	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1206	39	0.69	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1207	67	3.02	1.00	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1208	56	1.78	1.01	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1209	41	0.69	1.00	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1210	40	0.87	1.36	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1211	42	0.67	0.90	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1212	46	0.89	0.91	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1213	43	0.81	1.02	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

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Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1214	41	0.61	0.89	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1215	47	0.94	0.91	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1216	43	0.78	0.98	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1217	44	0.91	1.07	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1218	40	0.72	1.13	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1219	41	0.69	1.00	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1220	41	0.70	1.02	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1221	42	0.73	0.99	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1222	43	0.83	1.04	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1223	52	1.57	1.12	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1224	48	1.17	1.06	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1225	49	1.23	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1226	40	0.66	1.03	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1227	41	0.68	0.99	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1228	44	0.92	1.08	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1229	44	1.04	1.22	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1230	39	0.60	1.01	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1231	43	0.86	1.08	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1232	41	0.65	0.94	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1233	44	0.82	0.96	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1234	43	0.82	1.03	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1235	72	3.29	0.88	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1236	40	0.57	0.89	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1237	43	0.91	1.14	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1238	39	0.77	1.30	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1239	38	0.62	1.13	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1240	52	1.42	1.01	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1241	39	0.53	0.89	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1242	44	0.73	0.86	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1243	46	0.90	0.92	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1244	27	0.22	1.12	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1245	45	0.89	0.98	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1246	44	0.80	0.94	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1247	43	0.72	0.91	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1248	37	0.50	0.99	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1249	42	0.86	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1250	43	0.79	0.99	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1251	42	0.69	0.93	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1252	48	0.99	0.90	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1253	43	0.78	0.98	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1254	50	1.16	0.93	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1255	41	0.73	1.06	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1256	50	1.49	1.19	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1257	39	0.49	0.83	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1258	41	0.69	1.00	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1259	45	0.91	1.00	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1260	44	0.82	0.96	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1261	47	1.04	1.00	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/13/2010	FDLR-MS-BP-04	Arctic Grayling	SAS10SFDLRARGR1262	43	0.87	1.09	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	Arctic Grayling	SAS10SFDLRARGR1720	58	2.63	1.35	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	Arctic Grayling	SAS10SFDLRARGR1721	47	1.19	1.15	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	Arctic Grayling	SAS10SFDLRARGR1722	71	3.83	1.07	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	Burbot	SAS10SFDLRBURB1715	147	20.17	0.63	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	Burbot	SAS10SFDLRBURB1716	147	21.71	0.68	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	Burbot	SAS10SFDLRBURB1717	150	21.49	0.64	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	Burbot	SAS10SFDLRBURB1718	147	19.27	0.61	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	Burbot	SAS10SFDLRBURB1719	111	10.71	0.78	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1640	37	0.80	1.58	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1641	32	0.50	1.53	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1642	39	0.85	1.43	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1643	114	17.95	1.21	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1644	44	0.92	1.08	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1645	47	1.38	1.33	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1646	43	0.82	1.03	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1647	39	0.92	1.55	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1648	39	0.76	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1649	107	15.10	1.23	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1650	108	16.88	1.34	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1651	40	0.77	1.20	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1652	40	1.03	1.61	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1653	46	1.40	1.44	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1654	124	26.12	1.37	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1655	39	0.98	1.65	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1656	42	1.16	1.57	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1657	42	1.32	1.78	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1658	40	0.84	1.31	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1659	41	0.95	1.38	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1660	50	1.67	1.34	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1661	46	0.99	1.02	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1662	42	1.09	1.47	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1663	39	0.82	1.38	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1664	42	1.27	1.71	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1665	46	1.28	1.32	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1666	39	0.75	1.26	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1667	48	1.57	1.42	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1668	146	38.21	1.23	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1669	117	19.30	1.21	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1670	109	16.83	1.30	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1671	39	0.85	1.43	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1672	46	1.30	1.34	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1673	104	11.82	1.05	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1674	46	1.41	1.45	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1675	47	1.43	1.38	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1676	44	1.11	1.30	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1677	45	1.20	1.32	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1678	46	1.30	1.34	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1679	38	0.85	1.55	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1680	39	0.90	1.52	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1681	39	0.93	1.57	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1682	43	1.21	1.52	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1683	70	4.95	1.44	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1684	109	17.11	1.32	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1685	40	1.00	1.56	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1686	44	1.16	1.36	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1687	42	0.93	1.26	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1688	47	1.70	1.64	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1689	43	1.19	1.50	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1690	42	1.25	1.69	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1691	47	1.44	1.39	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1692	40	0.79	1.23	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1693	37	0.55	1.09	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1694	38	0.81	1.48	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1695	44	0.98	1.15	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1696	41	1.07	1.55	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1697	40	0.97	1.52	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1698	43	1.11	1.40	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1699	44	1.41	1.66	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1700	38	0.81	1.48	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1701	41	0.96	1.39	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1702	42	1.21	1.63	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1703	47	1.31	1.26	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1704	36	0.81	1.74	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1705	47	1.40	1.35	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1706	45	0.94	1.03	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1707	42	0.94	1.27	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1708	39	0.80	1.35	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1709	48	1.34	1.21	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1710	40	0.94	1.47	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1711	105	16.94	1.46	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1712	42	1.14	1.54	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1713	38	0.95	1.73	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1714	88	8.17	1.20	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-DS-BP-05	White Sucker	SAS10SFDLRWHSC1723	36	0.60	1.29	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1724	410	850	1.23	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1725	428	1000	1.28	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1726	427	890	1.14	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1727	418	1000	1.37	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1728	378	610	1.13	Unknown	Adult	Seasonal Development	Scales	-	Mortality	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1729	390	870	1.47	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1730	389	810	1.38	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1731	410	900	1.31	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1732	425	890	1.16	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1733	447	1110	1.24	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1734	380	750	1.37	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1735	380	700	1.28	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1736	380	800	1.46	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1737	430	1000	1.26	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1738	410	810	1.18	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1739	368	690	1.38	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1740	390	890	1.50	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1741	332	500	1.37	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1742	368	700	1.40	Male	Adult	Seasonal Development	No Structure Taken	-	Recapture, Released	Yes
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1743	435	1010	1.23	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1744	415	900	1.26	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1745	422	1000	1.33	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1746	400	900	1.41	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/17/2010	FDLR-US-AN-09	Arctic Grayling	SAS10SFDLRARGR1747	308	500	1.71	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1748	405	740	1.11	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1749	390	700	1.18	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1750	420	900	1.21	Male	Adult	Seasonal Development	No Structure Taken	-	Recapture, Released	Yes
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1751	381	700	1.27	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1752	372	725	1.41	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1753	405	900	1.35	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1754	400	600	0.94	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1755	385	775	1.36	Unknown	Adult	Seasonal Development	No Structure Taken	-	Recapture, Released	Yes
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1756	415	950	1.33	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1757	385	700	1.23	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1758	420	925	1.25	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1759	395	700	1.14	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1760	359	550	1.19	Unknown	Adult	Seasonal Development	No Structure Taken	-	Recapture, Released	Yes
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1761	409	925	1.35	Male	Adult	Seasonal Development	Scales + Otoliths	6	Mortality	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1762	365	575	1.18	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1763	372	600	1.17	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1764	405	875	1.32	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1765	385	775	1.36	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1766	400	800	1.25	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1767	407	900	1.33	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1768	445	1125	1.28	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1769	409	800	1.17	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1770	387	725	1.25	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1771	398	825	1.31	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1772	414	925	1.30	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1773	411	950	1.37	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1774	408	800	1.18	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1775	410	850	1.23	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1776	371	550	1.08	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1777	414	825	1.16	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1778	369	675	1.34	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1779	364	675	1.40	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1780	374	825	1.58	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1781	416	925	1.28	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1782	378	775	1.43	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1783	394	875	1.43	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1784	398	820	1.30	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1785	391	900	1.51	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1786	372	675	1.31	Female	Adult	Seasonal Development	No Structure Taken	-	Recapture, Released	Yes
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1787	425	825	1.07	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1788	387	750	1.29	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1789	368	750	1.50	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1790	395	925	1.50	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1791	260	300	1.71	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1792	272	200	0.99	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1793	380	650	1.18	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1794	377	675	1.26	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1795	414	850	1.20	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1796	412	750	1.07	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1797	420	900	1.21	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1798	362	525	1.11	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1799	378	850	1.57	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1800	370	875	1.73	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-10	Arctic Grayling	SAS10SFDLRARGR1801	334	700	1.88	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1802	273	250	1.23	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1803	373	680	1.31	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1804	386	825	1.43	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1805	380	750	1.37	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1806	377	725	1.35	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1807	379	725	1.33	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1808	417	925	1.28	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1809	391	800	1.34	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1810	385	775	1.36	Unknown	Adult	Seasonal Development	No Structure Taken	-	Recapture, Released	Yes
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1811	368	700	1.40	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1812	390	750	1.26	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1813	380	875	1.59	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1814	328	525	1.49	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1815	404	775	1.18	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1816	380	725	1.32	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1817	386	750	1.30	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1818	400	825	1.29	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1819	381	775	1.40	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1820	395	900	1.46	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1821	377	675	1.26	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1822	382	825	1.48	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1823	388	775	1.33	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1824	355	550	1.23	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/18/2010	FDLR-US-AN-11	Arctic Grayling	SAS10SFDLRARGR1825	364	625	1.30	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1826	404	790	1.20	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1827	374	580	1.11	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1828	362	607	1.28	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1829	397	759	1.21	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1830	423	1080	1.43	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1831	373	652	1.26	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1832	357	510	1.12	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1833	385	390	0.68	Male	Adult	Seasonal Development	No Structure Taken	-	Recapture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1834	438	990	1.18	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1835	364	600	1.24	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1836	391	787	1.32	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1837	384	790	1.40	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1838	384	870	1.54	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1839	402	810	1.25	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1840	388	650	1.11	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1841	393	650	1.07	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1842	368	610	1.22	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1843	384	713	1.26	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1844	393	744	1.23	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1845	386	706	1.23	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1846	407	900	1.33	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1847	434	856	1.05	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1848	393	638	1.05	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1849	377	630	1.18	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1850	344	610	1.50	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1851	376	702	1.32	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1852	346	488	1.18	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1853	388	750	1.28	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1854	359	597	1.29	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1855	392	723	1.20	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1856	407	830	1.23	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1857	385	740	1.30	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1858	423	996	1.32	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1859	395	711	1.15	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1860	378	628	1.16	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1861	436	989	1.19	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1862	410	820	1.19	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1863	360	597	1.28	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1864	382	623	1.12	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1865	384	1128	1.99	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1866	377	683	1.27	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1867	375	704	1.33	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1868	378	595	1.10	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1869	419	884	1.20	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1870	395	723	1.17	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1871	414	861	1.21	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1872	384	604	1.07	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1873	373	574	1.11	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1874	388	718	1.23	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1875	400	770	1.20	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1876	418	967	1.32	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1877	393	756	1.25	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/19/2010	FDLR-DS-AN-12	Arctic Grayling	SAS10SFDLRARGR1878	381	735	1.33	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-DS-AN-13	Arctic Grayling	SAS10SFDLRARGR1879	400	823	1.29	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-DS-AN-13	Arctic Grayling	SAS10SFDLRARGR1880	434	958	1.17	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-DS-AN-13	Arctic Grayling	SAS10SFDLRARGR1881	378	700	1.30	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-DS-AN-13	Arctic Grayling	SAS10SFDLRARGR1882	388	810	1.39	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-DS-AN-13	Arctic Grayling	SAS10SFDLRARGR1883	398	785	1.25	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-DS-AN-13	Arctic Grayling	SAS10SFDLRARGR1884	370	570	1.13	Male	Adult	Seasonal Development	No Structure Taken	-	Recapture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-DS-AN-13	Arctic Grayling	SAS10SFDLRARGR1885	370	605	1.19	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-DS-AN-13	Arctic Grayling	SAS10SFDLRARGR1886	390	710	1.20	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-DS-AN-13	Arctic Grayling	SAS10SFDLRARGR1887	384	790	1.40	Unknown	Adult	Seasonal Development	No Structure Taken	-	Recapture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-DS-AN-13	Arctic Grayling	SAS10SFDLRARGR1888	400	750	1.17	Male	Adult	Seasonal Development	No Structure Taken	-	Recapture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-DS-AN-13	Arctic Grayling	SAS10SFDLRARGR1889	395	710	1.15	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1890	403	820	1.25	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1891	385	800	1.40	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1892	370	690	1.36	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1893	430	1000	1.26	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1894	408	990	1.46	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1895	397	805	1.29	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1896	391	750	1.25	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1897	395	870	1.41	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1898	363	710	1.48	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1899	419	910	1.24	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1900	379	810	1.49	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1901	381	700	1.27	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1902	398	950	1.51	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1903	-	-	-	Unknown	Adult	Seasonal Development	No Structure Taken	-	Recapture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1904	381	690	1.25	Male	Adult	Seasonal Development	No Structure Taken	-	Recapture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1905	365	610	1.25	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1906	398	750	1.19	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1907	410	895	1.30	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1908	385	825	1.45	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1909	385	790	1.38	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1910	360	600	1.29	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1911	403	810	1.24	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1912	380	800	1.46	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1913	413	890	1.26	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/20/2010	FDLR-US-AN-14	Arctic Grayling	SAS10SFDLRARGR1914	389	795	1.35	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1915	423	950	1.26	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1916	385	640	1.12	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1917	370	710	1.40	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1918	404	800	1.21	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1919	434	1020	1.25	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1920	399	895	1.41	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1921	395	890	1.44	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1922	410	900	1.31	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1923	411	875	1.26	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1924	413	990	1.41	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1925	-	-	-	Unknown	Adult	Seasonal Development	No Structure Taken	-	Recapture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1926	394	910	1.49	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1927	388	895	1.53	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1928	348	610	1.45	Female	Adult	Seasonal Development	Scales + Otoliths	4	Mortality	No
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1929	436	1100	1.33	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1930	375	770	1.46	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1931	397	800	1.28	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1932	390	795	1.34	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1933	373	690	1.33	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1934	379	895	1.64	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1935	427	1000	1.28	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1936	383	690	1.23	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1937	380	797	1.45	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1938	237	290	2.18	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1939	399	900	1.42	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1940	365	885	1.82	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1941	385	750	1.31	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1942	387	800	1.38	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1943	413	890	1.26	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1944	404	770	1.17	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1945	382	800	1.44	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1946	398	900	1.43	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1947	364	750	1.56	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1948	379	700	1.29	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1949	376	720	1.35	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1950	368	600	1.20	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1951	399	810	1.28	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1952	398	820	1.30	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1953	379	650	1.19	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1954	375	690	1.31	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1955	394	700	1.14	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1956	378	700	1.30	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1957	398	820	1.30	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1958	397	900	1.44	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1959	380	710	1.29	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1960	424	900	1.18	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1961	389	890	1.51	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1962	397	810	1.29	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1963	393	700	1.15	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	8/21/2010	FDLR-US-AN-15	Arctic Grayling	SAS10SFDLRARGR1964	399	870	1.37	Unknown	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/5/2011	FDLR-US-AF-01	Arctic Grayling	SAS11FFDLRARGR001	446	726	0.82	Male	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	10/5/2011	FDLR-US-AF-01	Arctic Grayling	SAS11FFDLRARGR002	398	787	1.25	Female	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	10/5/2011	FDLR-US-AF-01	Arctic Grayling	SAS11FFDLRARGR003	329	425	1.19	Unknown	Adult	Unknown	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	10/5/2011	FDLR-US-AF-02	Arctic Grayling	SAS11FFDLRARGR004	327	452	1.29	Unknown	Adult	Unknown	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	10/5/2011	FDLR-US-AF-02	Arctic Grayling	SAS11FFDLRARGR005	419	912	1.24	Male	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	10/5/2011	FDLR-US-AF-02	Arctic Grayling	SAS11FFDLRARGR006	398	804	1.28	Male	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	10/6/2011	FDLR-US-AF-03	Arctic Grayling	SAS11FFDLRARGR007	348	545	1.29	Male	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/6/2011	FDLR-US-AF-03	Arctic Grayling	SAS11FFDLRARGR008	243	194	1.35	Unknown	Adult	Unknown	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	10/6/2011	FDLR-US-AF-03	Arctic Grayling	SAS11FFDLRARGR009	393	840	1.38	Female	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/6/2011	FDLR-US-AF-04	Arctic Grayling	SAS11FFDLRARGR010	408	912	1.34	Female	Adult	Seasonal Development	Scales	-	Recapture, Released	Yes
Fond du Lac River	10/6/2011	FDLR-US-AF-04	Arctic Grayling	SAS11FFDLRARGR011	323	488	1.45	Unknown	Adult	Unknown	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	10/6/2011	FDLR-US-AF-05	Arctic Grayling	SAS11FFDLRARGR012	404	893	1.35	Male	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/6/2011	FDLR-US-AF-05	Arctic Grayling	SAS11FFDLRARGR013	401	778	1.21	Female	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/6/2011	FDLR-US-AF-05	Arctic Grayling	SAS11FFDLRARGR014	430	774	0.97	Male	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	Yes
Fond du Lac River	10/6/2011	FDLR-MS-AF-01	Arctic Grayling	SAS11FFDLRARGR015	399	842	1.33	Female	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/6/2011	FDLR-MS-AF-01	Arctic Grayling	SAS11FFDLRARGR016	416	998	1.39	Female	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/6/2011	FDLR-MS-AF-01	Arctic Grayling	SAS11FFDLRARGR017	421	1147	1.54	Female	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/7/2011	FDLR-MS-AF-02	Arctic Grayling	SAS11FFDLRARGR018	401	845	1.31	Male	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/7/2011	FDLR-MS-AF-02	Arctic Grayling	SAS11FFDLRARGR019	403	854	1.30	Female	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/7/2011	FDLR-MS-AF-02	Arctic Grayling	SAS11FFDLRARGR020	417	997	1.37	Male	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/7/2011	FDLR-MS-AF-02	Arctic Grayling	SAS11FFDLRARGR021	404	858	1.30	Male	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/7/2011	FDLR-MS-AF-03	Arctic Grayling	SAS11FFDLRARGR022	361	595	1.26	Male	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/7/2011	FDLR-MS-AF-03	Arctic Grayling	SAS11FFDLRARGR023	411	930	1.34	Male	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/7/2011	FDLR-MS-AF-03	Arctic Grayling	SAS11FFDLRARGR024	389	835	1.42	Female	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/8/2011	FDLR-DS-AF-01	Arctic Grayling	SAS11FFDLRARGR025	390	700	1.18	Male	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/8/2011	FDLR-DS-AF-01	Arctic Grayling	SAS11FFDLRARGR026	371	626	1.23	Female	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/8/2011	FDLR-DS-AF-01	Arctic Grayling	SAS11FFDLRARGR027	390	790	1.33	Female	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/8/2011	FDLR-DS-AF-01	Arctic Grayling	SAS11FFDLRARGR028	380	741	1.35	Female	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/8/2011	FDLR-DS-AF-02	Arctic Grayling	SAS11FFDLRARGR029	390	694	1.17	Male	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/8/2011	FDLR-DS-AF-02	Arctic Grayling	SAS11FFDLRARGR030	400	826	1.29	Male	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/8/2011	FDLR-DS-AF-02	Arctic Grayling	SAS11FFDLRARGR031	408	902	1.33	Male	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/8/2011	FDLR-DS-AF-02	Arctic Grayling	SAS11FFDLRARGR032	410	848	1.23	Male	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/8/2011	FDLR-DS-AF-03	Arctic Grayling	SAS11FFDLRARGR033	397	875	1.40	Female	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/8/2011	FDLR-DS-AF-03	Arctic Grayling	SAS11FFDLRARGR034	413	911	1.29	Male	Adult	Seasonal Development	Scales	-	First Capture, Released	Yes
Fond du Lac River	10/8/2011	FDLR-DS-AF-03	Arctic Grayling	SAS11FFDLRARGR035	393	832	1.37	Unknown	Adult	Unknown	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	10/8/2011	FDLR-DS-AF-03	Arctic Grayling	SAS11FFDLRARGR036	366	684	1.40	Unknown	Adult	Unknown	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR001	404	873	1.32	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR002	419	896	1.22	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR003	416	914	1.27	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR004	423	1045	1.38	Female	Adult	Ripe	Scales	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	5/26/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR005	424	910	1.19	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR006	435	986	1.20	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR007	426	905	1.17	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR008	432	950	1.18	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR009	424	979	1.28	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR010	427	1020	1.31	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR011	404	875	1.33	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR012	414	960	1.35	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR013	427	879	1.13	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR014	410	874	1.27	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR015	425	909	1.18	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR016	443	972	1.12	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR017	440	901	1.06	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR018	427	929	1.19	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR019	425	1050	1.37	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR020	436	1089	1.31	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR021	429	998	1.26	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR022	430	1039	1.31	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR023	428	944	1.20	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR024	420	993	1.34	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR025	420	859	1.16	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR026	430	906	1.14	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR027	425	909	1.18	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR028	418	829	1.14	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR029	420	865	1.17	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR030	432	986	1.22	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR031	437	943	1.13	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR032	405	920	1.38	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR033	390	695	1.17	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR034	406	774	1.16	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR035	409	882	1.29	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR036	410	955	1.39	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR037	414	1054	1.49	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR038	419	986	1.34	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR039	446	1020	1.15	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR040	415	878	1.23	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR041	425	941	1.23	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR042	427	890	1.14	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR043	433	876	1.08	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR044	424	994	1.30	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR045	394	776	1.27	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR046	400	813	1.27	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR047	420	870	1.17	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR048	437	1116	1.34	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR049	421	904	1.21	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR050	390	705	1.19	Male	Adult	Ripe	Scales	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR051	436	1070	1.29	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR052	430	998	1.26	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/26/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR053	352	445	1.02	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR054	439	933	1.10	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR055	424	980	1.29	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR056	435	925	1.12	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR057	415	816	1.14	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR058	397	692	1.11	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR059	433	1105	1.36	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR060	422	941	1.25	Female	Adult	Spent	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR061	438	979	1.17	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR062	415	1006	1.41	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR063	435	1136	1.38	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR064	394	692	1.13	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR065	412	911	1.30	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR066	388	702	1.20	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR067	405	867	1.31	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR068	414	920	1.30	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR069	428	1010	1.29	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR070	413	937	1.33	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR071	437	1120	1.34	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR072	440	999	1.17	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR073	419	995	1.35	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR074	435	1052	1.28	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR075	448	1022	1.14	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR076	409	836	1.22	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR077	426	902	1.17	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR078	424	832	1.09	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR079	412	792	1.13	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR080	417	932	1.29	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR081	411	1055	1.52	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR082	440	974	1.14	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR083	405	872	1.31	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR084	424	893	1.17	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR085	417	938	1.29	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR086	390	832	1.40	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR087	420	837	1.13	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR088	422	1032	1.37	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR089	442	1050	1.22	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR090	404	873	1.32	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-11	Arctic Grayling	SAS12PFDLRARGR091	394	816	1.33	Female	Adult	Ripe	Scales	-	Mortality	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR092	394	722	1.18	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR093	420	839	1.13	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR094	408	730	1.07	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR095	413	797	1.13	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR096	417	928	1.28	Male	Adult	Ripe	Scales	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR097	420	989	1.33	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR098	410	833	1.21	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR099	425	805	1.05	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR100	425	960	1.25	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR101	405	803	1.21	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR102	407	914	1.36	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR103	409	874	1.28	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR104	400	888	1.39	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR105	405	848	1.28	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR106	408	952	1.40	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR107	395	895	1.45	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR108	405	885	1.33	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR109	415	847	1.19	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR110	384	677	1.20	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR111	422	1005	1.34	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR112	379	728	1.34	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR113	424	922	1.21	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR114	443	1098	1.26	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR115	435	1049	1.27	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR116	385	861	1.51	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR117	362	602	1.27	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR118	391	922	1.54	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR119	429	982	1.24	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR120	413	938	1.33	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR121	390	685	1.15	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR122	328	884	2.51	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR123	381	776	1.40	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR124	405	825	1.24	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR125	370	651	1.29	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR126	431	956	1.19	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR127	395	845	1.37	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR128	435	970	1.18	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR129	417	837	1.15	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR130	402	711	1.09	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR131	394	883	1.44	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR132	422	930	1.24	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR133	410	994	1.44	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR134	424	1030	1.35	Female	Adult	Ripe	No Structure Taken	-	Recapture, Released	Yes
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR135	413	817	1.16	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR136	420	843	1.14	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR137	445	985	1.12	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR138	426	863	1.12	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR139	395	799	1.30	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR140	405	742	1.12	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR141	425	972	1.27	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR142	418	1041	1.43	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR143	375	628	1.19	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR144	432	890	1.10	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR145	417	842	1.16	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR146	425	850	1.11	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR147	405	825	1.24	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR148	384	812	1.43	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR149	408	925	1.36	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR150	440	886	1.04	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR151	428	933	1.19	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR152	426	795	1.03	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR153	405	831	1.25	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR154	424	921	1.21	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR155	400	829	1.30	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR156	410	791	1.15	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/27/2012	FDLR-MS-HN-10	Arctic Grayling	SAS12PFDLRARGR157	405	808	1.22	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR158	401	852	1.32	Male	Adult	Ripe	No Structure Taken	-	Recapture, Released	Yes
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR159	425	1017	1.32	Female	Adult	Ripe	No Structure Taken	-	Recapture, Released	Yes
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR160	377	590	1.10	Male	Adult	Ripe	No Structure Taken	-	Recapture, Released	Yes
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR161	394	831	1.36	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR162	393	717	1.18	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR163	421	808	1.08	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR164	374	662	1.27	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR165	348	551	1.31	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR166	388	648	1.11	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR167	389	734	1.25	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR168	390	648	1.09	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR169	381	683	1.23	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR170	388	744	1.27	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR171	415	840	1.18	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR172	379	646	1.19	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR173	389	728	1.24	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR174	385	633	1.11	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR175	385	630	1.10	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR176	391	736	1.23	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR177	366	519	1.06	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR178	387	666	1.15	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR179	380	617	1.12	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR180	339	469	1.20	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR181	395	764	1.24	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR182	423	861	1.14	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR183	396	635	1.02	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR184	429	851	1.08	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR185	386	637	1.11	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR186	338	495	1.28	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR187	394	776	1.27	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR188	395	689	1.12	Male	Adult	Ripe	Scales	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR189	414	892	1.26	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR190	390	797	1.34	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR191	429	864	1.09	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR192	419	815	1.11	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR193	412	956	1.37	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR194	360	413	0.89	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR195	411	771	1.11	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR196	411	813	1.17	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR197	400	819	1.28	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR198	395	773	1.25	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR199	396	606	0.98	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR200	365	588	1.21	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR201	318	435	1.35	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR202	375	681	1.29	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR203	357	439	0.96	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR204	400	675	1.05	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR205	407	722	1.07	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR206	362	469	0.99	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR207	365	569	1.17	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR208	425	812	1.06	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR209	388	773	1.32	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR210	392	717	1.19	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR211	395	734	1.19	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR212	375	510	0.97	Male	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR213	408	872	1.28	Female	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR214	370	651	1.29	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR215	363	547	1.14	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR216	395	790	1.28	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR217	406	709	1.06	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR218	362	582	1.23	Male	Adult	Pre-Spawning	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/28/2012	FDLR-US-HN-13	Arctic Grayling	SAS12PFDLRARGR219	354	618	1.39	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	5/30/2012	FDLR-DS-HN-14	Arctic Grayling	SAS12PFDLRARGR220	300	480	1.78	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/30/2012	FDLR-DS-HN-14	Arctic Grayling	SAS12PFDLRARGR221	432	891	1.11	Male	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/30/2012	FDLR-DS-HN-14	Arctic Grayling	SAS12PFDLRARGR222	392	685	1.14	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/30/2012	FDLR-DS-HN-14	Arctic Grayling	SAS12PFDLRARGR223	398	621	0.99	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/30/2012	FDLR-DS-HN-14	Arctic Grayling	SAS12PFDLRARGR224	410	813	1.18	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/30/2012	FDLR-DS-HN-14	Arctic Grayling	SAS12PFDLRARGR225	370	596	1.18	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/30/2012	FDLR-DS-HN-14	Arctic Grayling	SAS12PFDLRARGR226	365	553	1.14	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/30/2012	FDLR-DS-HN-14	Arctic Grayling	SAS12PFDLRARGR227	399	685	1.08	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/30/2012	FDLR-DS-HN-14	Arctic Grayling	SAS12PFDLRARGR228	380	562	1.02	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/30/2012	FDLR-DS-HN-14	Arctic Grayling	SAS12PFDLRARGR229	370	600	1.18	Female	Adult	Pre-Spawning	Scales	-	First Capture, Released	No
Fond du Lac River	5/30/2012	FDLR-DS-HN-14	Arctic Grayling	SAS12PFDLRARGR230	392	673	1.12	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/30/2012	FDLR-DS-HN-14	Arctic Grayling	SAS12PFDLRARGR231	396	762	1.23	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/30/2012	FDLR-DS-HN-14	Arctic Grayling	SAS12PFDLRARGR232	348	482	1.14	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Fond du Lac River	5/30/2012	FDLR-DS-HN-14	Arctic Grayling	SAS12PFDLRARGR233	379	578	1.06	Female	Adult	Spent	Scales	-	First Capture, Released	No
Fond du Lac River	5/30/2012	FDLR-MS-HN-15	Arctic Grayling	SAS12PFDLRARGR234	435	1006	1.22	Male	Adult	Ripe	Otoliths (sagittal)	-	Mortality	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Fond du Lac River	5/30/2012	FDLR-MS-HN-15	Arctic Grayling	SAS12PFDLRARGR235	364	599	1.24	Female	Adult	Ripe	Scales	-	Mortality	No
Fond du Lac River	5/31/2012	FDLR-DS-HN-16	Northern Pike	SAS12PFDLRNRPK001	755	-	-	Female	Adult	Ripe	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	7/14/2012	FDLR-MS-GN-01	Arctic Grayling	SAS12UFDLRARGR005	401	866	1.34	Female	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Fond du Lac River	7/14/2012	FDLR-MS-GN-01	Arctic Grayling	SAS12UFDLRARGR006	409	884	1.29	Female	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Fond du Lac River	7/14/2012	FDLR-MS-GN-01	Arctic Grayling	SAS12UFDLRARGR007	400	942	1.47	Female	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Fond du Lac River	7/14/2012	FDLR-MS-GN-01	Arctic Grayling	SAS12UFDLRARGR008	428	1115	1.42	Male	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Fond du Lac River	7/14/2012	FDLR-MS-GN-01	Longnose Sucker	SAS12UFDLRLNSC002	408	918	1.35	Unknown	Adult	Unknown	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	7/14/2012	FDLR-MS-GN-01	Round Whitefish	SAS12UFDLRRNWH003	418	815	1.12	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/14/2012	FDLR-MS-GN-01	Round Whitefish	SAS12UFDLRRNWH004	382	710	1.27	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/14/2012	FDLR-MS-GN-02	Round Whitefish	SAS12UFDLRRNWH001	440	979	1.15	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/15/2012	FDLR-MS-GN-04	Arctic Grayling	SAS12UFDLRARGR012	388	890	1.52	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	7/15/2012	FDLR-MS-GN-04	Round Whitefish	SAS12UFDLRRNWH013	428	1020	1.30	Unknown	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/15/2012	FDLR-MS-GN-04	Round Whitefish	SAS12UFDLRRNWH014	438	1148	1.37	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/15/2012	FDLR-MS-GN-04	Round Whitefish	SAS12UFDLRRNWH015	426	895	1.16	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/15/2012	FDLR-MS-GN-04	Walleye	SAS12UFDLRWALL009	552	1625	0.97	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	7/15/2012	FDLR-MS-GN-04	Walleye	SAS12UFDLRWALL010	490	1286	1.09	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	7/15/2012	FDLR-MS-GN-04	White Sucker	SAS12UFDLRWHSC011	392	989	1.64	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	7/15/2012	FDLR-MS-GN-06	Lake Whitefish	SAS12UFDLRLKWH016	360	784	1.68	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/16/2012	FDLR-DS-GN-07	Lake Whitefish	SAS12UFDLRLKWH017	382	757	1.36	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/16/2012	FDLR-DS-GN-07	Lake Whitefish	SAS12UFDLRLKWH018	436	1101	1.33	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/16/2012	FDLR-DS-GN-07	Northern Pike	SAS12UFDLRNRPK019	780	2549	0.54	Unknown	Adult	Seasonal Development	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	7/16/2012	FDLR-DS-GN-08	Lake Whitefish	SAS12UFDLRLKWH020	440	957	1.12	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/16/2012	FDLR-DS-GN-08	Lake Whitefish	SAS12UFDLRLKWH021	398	866	1.37	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/16/2012	FDLR-DS-GN-08	Northern Pike	SAS12UFDLRNRPK022	596	1499	0.71	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/16/2012	FDLR-DS-GN-08	Northern Pike	SAS12UFDLRNRPK023	628	2137	0.86	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/18/2012	FDLR-DS-GN-09	Lake Whitefish	SAS12UFDLRLKWH024	432	-	-	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/18/2012	FDLR-DS-GN-09	Lake Whitefish	SAS12UFDLRLKWH025	500	-	-	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/18/2012	FDLR-DS-GN-09	Lake Whitefish	SAS12UFDLRLKWH026	463	-	-	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/18/2012	FDLR-DS-GN-09	Lake Whitefish	SAS12UFDLRLKWH027	459	-	-	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/18/2012	FDLR-DS-GN-09	Lake Whitefish	SAS12UFDLRLKWH028	420	-	-	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/18/2012	FDLR-DS-GN-09	Lake Whitefish	SAS12UFDLRLKWH029	390	-	-	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/18/2012	FDLR-DS-GN-09	Lake Whitefish	SAS12UFDLRLKWH030	441	-	-	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/18/2012	FDLR-DS-GN-09	Lake Whitefish	SAS12UFDLRLKWH031	439	-	-	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/18/2012	FDLR-DS-GN-09	Lake Whitefish	SAS12UFDLRLKWH032	372	-	-	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/18/2012	FDLR-DS-GN-09	Lake Whitefish	SAS12UFDLRLKWH033	423	-	-	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/18/2012	FDLR-DS-GN-09	Lake Whitefish	SAS12UFDLRLKWH034	414	-	-	Male	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Fond du Lac River	7/18/2012	FDLR-DS-GN-09	Northern Pike	SAS12UFDLRNRPK035	650	-	-	Unknown	Adult	Unknown	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	7/18/2012	FDLR-DS-GN-09	Northern Pike	SAS12UFDLRNRPK036	680	-	-	Unknown	Adult	Unknown	No Structure Taken	-	First Capture, Released	No
Fond du Lac River	7/18/2012	FDLR-DS-GN-09	Northern Pike	SAS12UFDLRNRPK037	745	-	-	Female	Adult	Seasonal Development	No Structure Taken	-	Mortality	No
Middle Lake	5/28/2010	MLL-GN-01	Arctic Grayling	SAS10PMLLARGR025	400	800	1.25	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Middle Lake	5/28/2010	MLL-GN-01	Arctic Grayling	SAS10PMLLARGR026	388	900	1.54	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Middle Lake	5/28/2010	MLL-GN-01	Arctic Grayling	SAS10PMLLARGR027	360	700	1.50	Male	Adult	Ripe	Scales	-	First Capture, Released	No
Middle Lake	5/28/2010	MLL-GN-01	Arctic Grayling	SAS10PMLLARGR028	346	600	1.45	Female	Adult	Ripe	Scales	-	First Capture, Released	No
Middle Lake	5/28/2010	MLL-GN-01	Arctic Grayling	SAS10PMLLARGR029	394	840	1.37	Male	Adult	Ripe	Scales	-	Mortality	No
Middle Lake	5/28/2010	MLL-GN-01	Arctic Grayling	SAS10PMLLARGR030	372	690	1.34	Male	Adult	Ripe	No Structure Taken	-	Mortality	No
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH001	454	1500	1.60	Unknown	Adult	Unknown	Scales	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH002	460	1500	1.54	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH003	435	1370	1.66	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH004	440	1200	1.41	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH005	431	1290	1.61	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH006	445	1370	1.55	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH007	440	1420	1.67	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH008	458	1400	1.46	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH009	404	1050	1.59	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH010	458	1305	1.36	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH011	465	1590	1.58	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH012	437	1400	1.68	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH013	449	1400	1.55	Unknown	Adult	Unknown	Scales	-	Mortality	Yes
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH014	449	1400	1.55	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH015	428	1400	1.79	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH016	410	1150	1.67	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH017	435	1200	1.46	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH018	390	1000	1.69	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH019	433	1240	1.53	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH020	465	1500	1.49	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-01	Lake Whitefish	SAS10PMLLLKWH021	371	800	1.57	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-01	Northern Pike	SAS10PMLLNRPK031	608	1500	0.67	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-01	Northern Pike	SAS10PMLLNRPK032	512	1020	0.76	Male	Adult	Ripe	No Structure Taken	-	First Capture, Released	Yes
Middle Lake	5/28/2010	MLL-GN-02	Arctic Grayling	SAS10PMLLARGR024	195	200	2.70	Unknown	Juvenile	Unknown	No Structure Taken	-	First Capture, Released	No
Middle Lake	5/28/2010	MLL-GN-02	Lake Whitefish	SAS10PMLLLKWH022	387	1000	1.73	Unknown	Adult	Unknown	Scales	-	Mortality	Yes
Middle Lake	5/28/2010	MLL-GN-02	Lake Whitefish	SAS10PMLLLKWH023	400	900	1.41	Unknown	Adult	Unknown	Scales	-	First Capture, Released	Yes
Middle Lake	8/22/2010	MLL-EF-01	Burbot	SAS10SMLLBURB1996	280	101.75	0.46	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Burbot	SAS10SMLLBURB1997	127	13.90	0.68	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No
Middle Lake	8/22/2010	MLL-EF-01	Burbot	SAS10SMLLBURB1998	167	33.18	0.71	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Burbot	SAS10SMLLBURB1999	170	31.30	0.64	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Burbot	SAS10SMLLBURB2000	185	37.17	0.59	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Burbot	SAS10SMLLBURB2001	160	22.35	0.55	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Burbot	SAS10SMLLBURB2002	189	40.48	0.60	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Burbot	SAS10SMLLBURB2003	139	15.82	0.59	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Burbot	SAS10SMLLBURB2004	117	9.33	0.58	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Burbot	SAS10SMLLBURB2005	157	22.36	0.58	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Lake Whitefish	SAS10SMLLLKWH2028	305	378	1.33	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No
Middle Lake	8/22/2010	MLL-EF-01	Lake Whitefish	SAS10SMLLLKWH2029	344	525	1.29	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No
Middle Lake	8/22/2010	MLL-EF-01	Longnose Sucker	SAS10SMLLLNSC2008	79	6.74	1.37	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Longnose Sucker	SAS10SMLLLNSC2011	37	0.74	1.46	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Longnose Sucker	SAS10SMLLLNSC2012	36	0.66	1.41	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Longnose Sucker	SAS10SMLLLNSC2016	44	1.23	1.44	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Longnose Sucker	SAS10SMLLLNSC2017	35	0.61	1.42	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Longnose Sucker	SAS10SMLLLNSC2018	44	1.08	1.27	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Longnose Sucker	SAS10SMLLLNSC2020	33	0.67	1.86	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Longnose Sucker	SAS10SMLLLNSC2021	53	1.96	1.32	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Longnose Sucker	SAS10SMLLLNSC2022	48	1.46	1.32	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Middle Lake	8/22/2010	MLL-EF-01	Longnose Sucker	SAS10SMLLLNSC2023	43	1.02	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Longnose Sucker	SAS10SMLLLNSC2024	46	1.36	1.40	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Longnose Sucker	SAS10SMLLLNSC2025	36	1.59	3.41	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Middle Lake	8/22/2010	MLL-EF-01	Northern Pike	SAS10SMLLNRPK1978	575	1210	0.64	Unknown	Adult	Seasonal Development	Fin Ray + Cleithra	-	Mortality	Yes
Middle Lake	8/22/2010	MLL-EF-01	Northern Pike	SAS10SMLLNRPK1979	558	1210	0.70	Unknown	Adult	Seasonal Development	Fin Ray	-	First Capture, Released	Yes
Middle Lake	8/22/2010	MLL-EF-01	Northern Pike	SAS10SMLLNRPK1980	569	1290	0.70	Unknown	Adult	Seasonal Development	Fin Ray	-	First Capture, Released	Yes
Middle Lake	8/22/2010	MLL-EF-01	Northern Pike	SAS10SMLLNRPK1981	319	260	0.80	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Northern Pike	SAS10SMLLNRPK1982	510	900	0.68	Unknown	Adult	Seasonal Development	Fin Ray	-	First Capture, Released	Yes
Middle Lake	8/22/2010	MLL-EF-01	Northern Pike	SAS10SMLLNRPK1983	529	990	0.67	Unknown	Adult	Seasonal Development	Fin Ray	-	First Capture, Released	Yes
Middle Lake	8/22/2010	MLL-EF-01	Northern Pike	SAS10SMLLNRPK1984	505	990	0.77	Unknown	Adult	Seasonal Development	Fin Ray	-	First Capture, Released	Yes
Middle Lake	8/22/2010	MLL-EF-01	Northern Pike	SAS10SMLLNRPK1985	671	2100	0.70	Unknown	Adult	Seasonal Development	Fin Ray	-	First Capture, Released	Yes
Middle Lake	8/22/2010	MLL-EF-01	Northern Pike	SAS10SMLLNRPK1986	505	740	0.57	Unknown	Adult	Seasonal Development	Fin Ray	-	First Capture, Released	Yes
Middle Lake	8/22/2010	MLL-EF-01	Northern Pike	SAS10SMLLNRPK1987	312	300	0.99	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	Yes
Middle Lake	8/22/2010	MLL-EF-01	Northern Pike	SAS10SMLLNRPK1988	285	120	0.52	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Northern Pike	SAS10SMLLNRPK1989	263	110	0.60	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Northern Pike	SAS10SMLLNRPK1990	100	6.96	0.70	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Northern Pike	SAS10SMLLNRPK1991	125	13.63	0.70	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Northern Pike	SAS10SMLLNRPK1992	105	8.88	0.77	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Northern Pike	SAS10SMLLNRPK1993	149	26.80	0.81	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Northern Pike	SAS10SMLLNRPK1994	93	5.75	0.71	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	Northern Pike	SAS10SMLLNRPK1995	107	9.27	0.76	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	White Sucker	SAS10SMLLWHSC2006	54	2.16	1.37	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No
Middle Lake	8/22/2010	MLL-EF-01	White Sucker	SAS10SMLLWHSC2007	46	1.40	1.44	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	White Sucker	SAS10SMLLWHSC2009	34	0.27	0.69	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	White Sucker	SAS10SMLLWHSC2010	42	0.85	1.15	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	White Sucker	SAS10SMLLWHSC2013	27	0.17	0.86	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Middle Lake	8/22/2010	MLL-EF-01	White Sucker	SAS10SMLLWHSC2014	39	0.90	1.52	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	White Sucker	SAS10SMLLWHSC2015	35	0.55	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	White Sucker	SAS10SMLLWHSC2019	40	0.92	1.44	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/22/2010	MLL-EF-01	White Sucker	SAS10SMLLWHSC2026	44	0.99	1.16	Unknown	Fry	Immature	No Structure Taken	-	Mortality	No
Middle Lake	8/22/2010	MLL-EF-01	White Sucker	SAS10SMLLWHSC2027	54	1.28	0.81	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Burbot	SAS10SMLLBURB2056	144	14.69	0.49	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Burbot	SAS10SMLLBURB2057	159	26.55	0.66	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Burbot	SAS10SMLLBURB2058	260	109.81	0.62	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Burbot	SAS10SMLLBURB2059	100	7.16	0.72	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Burbot	SAS10SMLLBURB2060	219	69.36	0.66	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Burbot	SAS10SMLLBURB2061	125	11.63	0.60	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Burbot	SAS10SMLLBURB2062	162	24.64	0.58	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Burbot	SAS10SMLLBURB2063	119	10.85	0.64	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Burbot	SAS10SMLLBURB2064	124	12.05	0.63	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Burbot	SAS10SMLLBURB2065	65	2.74	1.00	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Burbot	SAS10SMLLBURB2066	57	1.57	0.85	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Burbot	SAS10SMLLBURB2067	176	30.62	0.56	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Burbot	SAS10SMLLBURB2068	107	6.69	0.55	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Burbot	SAS10SMLLBURB2069	140	13.40	0.49	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No
Middle Lake	8/23/2010	MLL-EF-02	Burbot	SAS10SMLLBURB2070	114	9.58	0.65	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Middle Lake	8/23/2010	MLL-EF-02	Lake Whitefish	SAS10SMLLLKWH2041	423	1290	1.70	Male	Adult	Seasonal Development	Scales + Otoliths	-	Mortality	No
Middle Lake	8/23/2010	MLL-EF-02	Longnose Sucker	SAS10SMLLLNSC2085	37	0.65	1.28	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Longnose Sucker	SAS10SMLLLNSC2087	45	1.08	1.19	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Longnose Sucker	SAS10SMLLLNSC2090	50	1.52	1.22	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Longnose Sucker	SAS10SMLLLNSC2091	37	0.95	1.88	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2030	648	1340	0.49	Unknown	Adult	Seasonal Development	Fin Ray	-	First Capture, Released	Yes
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2031	595	1650	0.78	Unknown	Adult	Seasonal Development	Fin Ray	-	First Capture, Released	Yes
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2032	475	680	0.63	Unknown	Adult	Seasonal Development	Fin Ray	-	First Capture, Released	Yes
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2033	546	1300	0.80	Unknown	Adult	Seasonal Development	Fin Ray	-	First Capture, Released	Yes
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2034	560	1050	0.60	Unknown	Adult	Seasonal Development	Fin Ray	-	First Capture, Released	Yes
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2035	281	110	0.50	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2036	295	190	0.74	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2037	280	100	0.46	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2038	274	190	0.92	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2039	317	200	0.63	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2040	273	150	0.74	Unknown	Juvenile	Immature	Fin Ray	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2042	105	7.39	0.64	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2043	98	6.79	0.72	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2044	156	23.87	0.63	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2045	112	8.50	0.61	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2046	109	7.76	0.60	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2047	133	14.56	0.62	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2048	120	11.81	0.68	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2049	105	6.73	0.58	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2050	117	10.93	0.68	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2051	110	8.05	0.60	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2052	116	10.99	0.70	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2053	149	26.89	0.81	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2054	147	23.48	0.74	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	Northern Pike	SAS10SMLLNRPK2055	124	14.56	0.76	Unknown	Juvenile	Immature	No Structure Taken	-	Mortality	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2071	123	22.39	1.20	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2072	35	0.59	1.38	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2073	34	0.48	1.22	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2074	154	44.15	1.21	Unknown	Juvenile	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2075	46	1.32	1.36	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2076	48	1.44	1.30	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2077	40	0.90	1.41	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2078	29	0.34	1.39	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2079	32	0.54	1.65	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2080	27	0.38	1.93	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2081	48	1.44	1.30	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2082	37	0.53	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2083	27	0.33	1.68	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2084	40	1.21	1.89	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2086	28	0.44	2.00	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2088	46	0.99	1.02	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No

Table III.10-1 Summary of Fish Health Results for Fish Captured in Fond du Lac River, Black Lake, and Middle Lake, 2010 to 2012

Waterbody	Date (dd/mm/yyyy)	Station Name [1]	Species	Biomarker [2]	Length[3] (mm)	Weight (g)	Condition Factor	Sex	Life Stage	Maturity	Ageing Structures	Age[4]	Capture/Release	Tag Presence
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2089	49	1.24	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2092	44	0.99	1.16	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2093	26	0.29	1.65	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2094	28	0.47	2.14	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2095	48	1.45	1.31	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2096	44	0.98	1.15	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2097	32	0.33	1.01	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2098	30	0.40	1.48	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2099	40	0.91	1.42	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2100	45	1.40	1.54	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2101	43	0.99	1.25	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2102	28	0.23	1.05	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2103	43	1.32	1.66	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2104	46	1.43	1.47	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2105	28	0.20	0.91	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2106	43	1.24	1.56	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2107	38	0.66	1.20	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2108	45	1.34	1.47	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2109	48	1.59	1.44	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2110	43	1.26	1.58	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2111	31	0.57	1.91	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2112	30	0.50	1.85	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2113	34	0.59	1.50	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	8/23/2010	MLL-EF-02	White Sucker	SAS10SMLLWHSC2114	33	0.38	1.06	Unknown	Fry	Immature	No Structure Taken	-	First Capture, Released	No
Middle Lake	2/23/2011	MLL-GN-01	Lake Whitefish	SAS11WMLLLKWH172	443	1310	1.51	Male	Adult	Seasonal Development	Otoliths (sagittal)	-	Mortality	No
Middle Lake	2/23/2011	MLL-GN-01	Lake Whitefish	SAS11WMLLLKWH173	464	1550	1.55	Female	Adult	Seasonal Development	Cleithra + Opercle	-	Mortality	No
Middle Lake	2/23/2011	MLL-GN-01	Lake Whitefish	SAS11WMLLLKWH174	442	1270	1.47	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Middle Lake	2/23/2011	MLL-GN-01	Lake Whitefish	SAS11WMLLLKWH175	304	495	1.76	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Middle Lake	2/23/2011	MLL-GN-01	Lake Whitefish	SAS11WMLLLKWH176	310	490	1.64	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Middle Lake	2/23/2011	MLL-GN-01	Lake Whitefish	SAS11WMLLLKWH177	332	500	1.37	Unknown	Adult	Unknown	Otoliths (sagittal)	-	Mortality	No
Middle Lake	2/23/2011	MLL-GN-01	Longnose Sucker	SAS11WMLLLNSC178	517	2390	1.73	Male	Adult	Seasonal Development	Fin Ray	-	Mortality	No
Middle Lake	2/23/2011	MLL-GN-01	Longnose Sucker	SAS11WMLLLNSC179	495	1910	1.57	Male	Adult	Seasonal Development	Fin Ray	-	Mortality	No
Middle Lake	2/23/2011	MLL-GN-01	Longnose Sucker	SAS11WMLLLNSC180	540	2690	1.71	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Middle Lake	2/23/2011	MLL-GN-01	Longnose Sucker	SAS11WMLLLNSC181	492	1700	1.43	Male	Adult	Seasonal Development	Fin Ray	-	Mortality	No
Middle Lake	2/23/2011	MLL-GN-01	Longnose Sucker	SAS11WMLLLNSC182	546	2590	1.59	Female	Adult	Seasonal Development	Fin Ray	-	Mortality	No
Middle Lake	2/23/2011	MLL-GN-01	Longnose Sucker	SAS11WMLLLNSC183	592	3500	1.69	Female	Adult	Seasonal Development	Fin Ray	-	Mortality	No
Middle Lake	2/23/2011	MLL-GN-01	Longnose Sucker	SAS11WMLLLNSC184	508	2190	1.67	Unknown	Adult	Unknown	Fin Ray	-	Mortality	No
Middle Lake	2/23/2011	MLL-GN-01	Northern Pike	SAS11WMLLNRPK168	554	1400	0.82	Unknown	Adult	Unknown	Cleithra	-	Mortality	No
Middle Lake	2/23/2011	MLL-GN-01	Northern Pike	SAS11WMLLNRPK169	484	900	0.79	Unknown	Adult	Unknown	Cleithra	-	Mortality	No
Middle Lake	2/23/2011	MLL-GN-01	Northern Pike	SAS11WMLLNRPK170	572	1420	0.76	Unknown	Adult	Unknown	Cleithra	-	Mortality	No
Middle Lake	2/23/2011	MLL-GN-01	Northern Pike	SAS11WMLLNRPK171	611	1950	0.85	Female	Adult	Seasonal Development	Cleithra	-	Mortality	No

[1]Station names are comprised of a three or four letter waterbody code, a two letter effort-type code (e.g., GN = gill net) and a sampling station or location code.

[2]Biomarker names are comprised of a three letter client code (SAS), a two letter year code (e.g., 11 = 2011), a one letter season code (e.g., W = winter), a three or four letter waterbody code, a four letter species code, and a specimen number.

[3]Fork length was measured for all fish species with the exception of burbot where total length was measured.

[4]Ageing structures were analysed for a representative subset of the fish ageing structure samples collected.

dd/mm/yyyy = day/month/year; mm = millimetre; g = gram.

APPENDIX III.11

2010 and 2012 Egg Search Data

Table III.11-1: Results of Arctic Grayling Egg Searches and Spawning Habitat Assessments in the Fond du Lac River, Spring 2010 and 2012

General Location	Area Name	Reach Number	Date	Transect Number	Station Number	UTM		Depth (m)	Velocity (m/s)	Temperature (°C)	Fish Species	No. of Eggs	Dominant Substrate	Comments
						Easting	Northing							
West Bank near Grayling Island	ES-10-01	2	20-May-10	1	1	468903	6556857	0.13	0.02	3.75	ARGR	2	Pebble/cobble	-
					2	468903	6556857	0.2	0.02	3.33	ARGR	2	Pebble	-
					3	468903	6556857	0.47	0.06	3.32	NEF	0	Cobble	-
				2	1	468914	6556866	0.12	0.01	3.78	NEF	0	Pebble	-
					2	468914	6556866	0.3	0.06	3.37	ARGR	4	Pebble	-
					3	468914	6556866	0.36	0.09	3.31	ARGR	10	Pebble	-
					4	468914	6556866	0.46	0.07	3.32	NEF	0	Cobble	-
				3	1	468930	6556882	0.12	0.01	3.87	ARGR	70	Pebble	-
					2	468930	6556882	0.24	0.19	3.32	ARGR	6	Cobble	-
					3	468930	6556882	0.35	0.24	3.33	ARGR	4	Pebble	-
			21-May-10	3	4	468930	6556882	0.5	0.21	3.56	ARGR	1	Cobble	-
					5	468930	6556882	0.62	0.36	3.53	ARGR	22	Gravel	-
			22-May-10	4	1	468943	6556893	0.12	0.41	1.91	ARGR	9	Cobble	-
					2	468943	6556893	0.28	0.53	1.61	ARGR	160	Pebble	-
					3	468943	6556893	0.36	0.48	1.44	ARGR	9	Cobble	-
					4	468943	6556893	0.48	0.41	1.53	ARGR	3	Cobble/boulder	-
				5	1	468952	6556911	0.24	0.05	2.53	ARGR	5	Cobble/Gravel	Slow flowing
					2	468952	6556911	0.21	0.19	1.58	ARGR	6	Cobble/gravel	-
					3	468952	6556911	0.26	0.6	1.51	ARGR	7	Cobble/boulder	-
				6	1	468962	6556930	0.13	0.14	1.73	ARGR	4	Gravel/Cobble	-
					2	468962	6556930	0.39	0.45	1.3	ARGR	1	Cobble	-
					3	468962	6556930	0.4	0.95	1.22	ARGR	0	Pebble/Cobble	-
			23-May-10	7	1	468973	6556944	0.3	0.37	1.99	ARGR	10	Cobble/Pebble	2 SLSC observed
					2	468973	6556944	0.44	0.93	2.1	NEF	0	Cobble/boulder	-
				8	1	468987	6556959	0.4	0.48	2.06	ARGR	4	Cobble/boulder	-
East Bank near Grayling Island	ES-10-02	2	23-May-10	1	1	469169	6556830	0.43	0.7	2.34	ARGR	14	Pebble/Cobble	-
				2	1	469166	6556812	0.43	0.53	2.36	ARGR	130	Pebble/Cobble	-
				3	1	469174	6556792	0.4	0.36	2.27	ARGR	45	Gravel/pebble/Cobble	-
				4	1	469173	6556770	0.55	0.32	2.24	NEF	0	sand	-
				5	1	469168	6556749	0.6	0.15	2.25	NEF	0	sand	-
Downstream of Elizabeth Falls near HN07	ES-10-03	22	23-May-10	1	1	467917	6561177	0.16	0.29	2.15	NEF	0	Cobble	-
					2	467917	6561177	0.32	0.71	2.11	NEF	0	Cobble	Riffle
				2	1	467929	6561162	0.12	0.21	2.13	ARGR	1	Cobble	Riffle
					2	467929	6561162	0.5	0.65	2.1	NEF	0	Cobble	Riffle,1 juevenile burbot observed
				3	1	467932	6561142	0.11	0.21	2.14	NEF	0	Cobble	-
					2	467932	6561142	0.2	0.34	2.11	unknown	70	Cobble	Suspect NRPK eggs observed
					3	467932	6561142	0.45	0.9	2.12	NEF	0	Cobble/Pebble	Riffle, 1 SLSC observed
				4	1	467936	6561122	0.3	0.08	2.13	ARGR	1	Cobble/Pebble	-
					2	467936	6561122	0.2	0.11	2.11	NEF	0	Cobble/boulder	-
Downstream of Elizabeth Falls near HN0 5 and 06	ES-10-04	22	26-May-10	1	1	467960	6561031	0.43	0.62	2.92	NEF	0	Cobble	-
					2	467960	6561031	0.52	0.86	2.8	NEF	0	Cobble/Pebble	-
					3	467960	6561031	0.6	0.98	2.77	NEF	0	Cobble/Pebble	1 SLSC observed
					4	467960	6561031	0.65	1.11	2.77	NEF	0	Cobble/Pebble	-
					5	467960	6561031	0.5	0.9	2.77	NEF	0	Cobble/Pebble	-
					6	467960	6561031	0.43	0.67	2.77	NEF	0	Cobble	-
					7	467960	6561031	0.32	0.38	2.77	NEF	0	Cobble	-
					8	467960	6561031	0.26	0.28	2.8	NEF	0	Cobble/Pebble	-
					9	467955	6561080	0.08	0.28	2.8	NEF	0	Cobble/Pebble	-
				2	1	467936	6561074	0.22	0.6	2.8	ARGR	26	Cobble	-
					2	467936	6561074	0.28	0.59	2.82	NEF	0	Cobble	1 SLSC observed
					3	467936	6561074	0.4	0.85	2.79	NEF	0	Cobble/Pebble	-
					4	467936	6561074	0.5	0.68	2.81	ARGR	2	Cobble/Pebble	-
					5	467936	6561074	0.46	0.3	2.81	NEF	0	Cobble	-
					6	467936	6561074	0.47	0.07	2.82	ARGR	6	Cobble/Pebble	-
					7	467936	6561074	0.48	0	2.86	ARGR	1	Cobble	In a depostional backwater area
					8	467936	6561074	0.51	0	3.03	NEF	0	Cobble/Pebble	West bank of river
				3	1	467925	6561029	0.25	0	3.27	NEF	0	Boulder	-
					2	467925	6561029	0.75	0.13	2.93	NEF	0	sand	-
					3	467925	6561029	0.55	0.46	2.89	NEF	0	Cobble/Pebble	-
					4	467925	6561029	0.36	0.61	2.91	NEF	0	Cobble/Pebble	-
					5	467925	6561029	0.32	0.8	2.9	NEF	0	Cobble/Pebble	-
					6	467925	6561029	0.36	0.74	2.91	NEF	0	Cobble/Pebble	-
					7	467925	6561029	0.25	0.66	2.96	NEF	0	Cobble	1 SLSC observed
					8	467925	6561029	0.21	0.37	2.9	NEF	0	Cobble/Pebble	-
					9	467927	6561077	0.1	0.41	2.95	NEF	0	Pebble	End of transect on east bank
				4	1	467906	6561087	0.29	0.07	3.01	NEF	0	Pebble	-
					2	467906	6561087	0.22	0.27	2.94	ARGR	13	Cobble/Pebble	-
					3	467906	6561087	0.36	0.73	2.99	ARGR	21	Cobble/Pebble	-
					4	467906	6561087	0.59	1.01	3.02	NEF	0	Cobble/Pebble	-
					5	467906	6561087	0.33	0.43	3.04	NEF	0	Cobble/Pebble	-
					6	467900	6561058	0.18	0.77	3.02	ARGR	5	Cobble/Pebble	End of transect on west bank
				LDSB-1	1	467882	6561066	0.3	0.7	3.08	ARGR	1	Pebble/Gravel	Water too deep and fast to wade, t
					2	467862	6561075	0.2	0.16	3.1	NEF	0	Cobble/Pebble	-
				RDSB-1	1	467884	6561086	0.25	0.75	3.11	NEF	0	Pebble/Cobble	-
					2	467872	6561085	0.23	0.76	3.15	ARGR	4	Cobble/Pebble	Filamentous algae
					3	467872	6561081	0.35	1.14	3.11	NEF	0	Pebble	-
Black Lake outflow bay, east bank	ES-12-01	1	29-May-12	1	1	469136	6556882	0.25	0	7.13	NEF	0	Pebble/Cobble	- -
					2	469136	6556882	0.5	0.23	7.13	ARGR	12	Sand/Pebble	- -
					3	469136	6556882	0.725	0.39	7.13	NEF	0	Gravel/Pebble	- -
				2	1	469131	6556676	0.24	0	7.13	ARGR	22	Pebble/Cobble	- -
					2	469131	6556676	0.53	0.15	7.13	NEF	0	Gravel/Pebble	- -
					3	469131	6556676	0.71	-	7.13	NEF	0	Gravel/Pebble	- -
				3	1	469126	6556667	0.3	0	7.13	ARGR	11	Pebble	- -
					2	469126	6556667	0.55	0.28	7.13	NEF	0	Sand/Gravel	- -
					3	469126	6556667	0.78	0.43	7.13	ARGR	10	Sand/Pebble	- -
				4	1	469126	6556656	0.18	0.07	7.13	ARGR	4	Sand/Pebble	- -
					2	469126	6556656	0.51	0.26	7.13	ARGR	18	Sand/Pebble	- -
					3	469126	6556656	0.7	0.29	7.13	NEF	0	Sand/Gravel	- -
				5	1	469126	6556650	0.41	0.03	7.13	ARGR	22	Pebble	- -
					2	469126	6556650	0.65	0.19	7.13	ARGR	6	Sand/Gravel	- -
					3	469126	6556650	0.75	0.34	7.13	NEF	0	Sand/Gravel	- -
				6	1	469118	6556638	0.34	0	7.13	ARGR	2	Cobble	- -
					2	469118	6556638	0.53	0.25	7.13	ARGR	0	Sand/Cobble	- -
					3	469118	6556638	0.8	0.33	7.13	ARGR	0	Sand/sand	- -
				7	1	469116	6556626	0.37	0.17	7.13	ARGR	7	Cobble	- -
					2	469116	6556626	0.65	0.23	7.13	ARGR	3	sand	- -
					3	469116	6556626	0.8	0.25	7.13	ARGR	4	Gravel/Pebble	- -
				8	1	469094	6556534	0.42	0.02	7.13	NEF	0	Cobble	- -
					2	469094	6556534	0.64	0.08	7.13	NEF	0	Pebble/Cobble	- -
					3	469094	6556534	0.75	0	7.13	NEF	0	sand	- -

Table III.11-1: Results of Arctic Grayling Egg Searches and Spawning Habitat Assessments in the Fond du Lac River, Spring 2010 and 2012

General Location	Area Name	Reach Number	Date	Transect Number	Station Number	UTM		Depth (m)	Velocity (m/s)	Temperature (°C)	Fish Species	No. of Eggs	Dominant Substrate	Comments	
						Easting	Northing								
Tailrace bay, east bank near Middle Lake confluence	ES-12-11	22	31-May-12	1	1	468183	6560876	0.44	0.12	5.17	ARGR	1	Pebble/Cobble	-	-
					2	468179	6560878	0.45	0.19	5.17	ARGR	5	Pebble/Boulder	-	-
					3	468176	6560880	0.44	0.14	5.17	ARGR	9	Pebble/Cobble	-	-
					4	468173	6560883	0.55	0.6	5.17	NEF	0	Cobble/boulder	-	-
					5	468172	6560886	0.7	0.35	5.17	NEF	0	Cobble/boulder	-	-
					6	468169	6560890	0.61	0.43	5.17	NEF	0	Boulder	-	-
				2	1	468176	6560872	0.35	0.02	5.17	ARGR	4	Pebble/Cobble	-	-
					2	468174	6560872	0.45	0.51	5.17	ARGR	17	Pebble/Cobble	-	-
					3	468171	6560875	0.46	0.27	5.17	ARGR	16	Pebble/Cobble	-	-
					4	468169	6560876	0.45	0.44	5.17	ARGR	14	Pebble/Boulder	-	-
					5	468167	6560878	0.48	0.46	5.17	NEF	0	Cobble/Pebble	-	-
					6	468165	6560879	0.45	0.65	5.17	NEF	0	Cobble/boulder	-	-
				3	1	468159	6560857	0.53	0.19	5.17	NEF	0	Boulder/Pebble	-	-
					2	468158	6560857	0.45	0.25	5.17	ARGR	13	Pebble/Cobble	1 SLSC fry in net	-
					3	468159	6560860	0.9	0.41	5.17	NEF	0	Cobble/boulder	-	-
Upstream of tailrace bay, east bank, downstream of Elizabeth Falls Canyon	ES-12-12	20	31-May-12	1	1	468161	6560775	0.28	0.24	5.17	NEF	0	Cobble/boulder	-	-
					2	468156	6560770	0.43	0.36	5.17	NEF	0	Cobble/boulder	-	-
					3	468156	6560772	0.57	0.56	5.17	NEF	0	Cobble/boulder	-	-
				2	1	468165	6560762	0.45	0.06	5.17	NEF	0	Cobble/boulder	-	-
					2	468161	6560759	0.7	0.11	5.17	NEF	0	Boulder	-	-
					3	468159	6560758	0.75	0.37	5.17	ARGR	1	Cobble/boulder	-	-
				3	1	468166	6560747	0.3	0.12	5.17	NEF	0	Cobble/boulder	-	-
					2	468163	6560748	0.33	0.16	5.17	NEF	0	Boulder	Reverse flow	-
Upstream of tailrace bay, east bank	ES-12-13	20	31-May-12	1	1	468200	6560660	0.21	0.15	5.22	NEF	0	Cobble/Pebble	Back eddy	-
					2	468194	6560659	0.3	0.1	5.22	NEF	0	Cobble/Pebble	-	-
					3	468188	6560659	0.46	0.09	5.22	NEF	0	Cobble/boulder	-	-
Upstream of tailrace bay, east bank, furthest upstream bay	ES-12-14	20	31-May-12	1	1	468190	6560596	0.32	0.07	5.12	NEF	0	Gravel/Pebble	-	-
					2	468187	6560596	0.38	0.11	5.12	NEF	0	Cobble/boulder	-	-
					3	468182	6560596	0.57	0.05	5.12	NEF	0	Boulder/Pebble	Back eddy	-
				2	1	468153	6560563	0.34	0	5.12	NEF	0	Cobble/Pebble	-	-
					2	468152	6560567	0.37	0.2	5.12	NEF	0	Cobble	-	-
					3	468147	6560572	0.45	0.66	5.12	ARGR	3	Cobble/boulder	-	-
				3	1	468137	6560561	0.24	0.55	5.12	ARGR	1	Cobble/Pebble	-	-
					2	468135	6560565	0.47	0.57	5.12	NEF	0	Cobble/Pebble	-	-
				4	1	468125	6560556	0.34	0.24	5.12	NEF	0	Cobble	-	-
					2	468123	6560558	0.32	0.3	5.12	NEF	0	Pebble/Cobble	-	-
Side channel adjacent to Elizabeth Falls Canyon	ES-12-15	17	31-May-12	1	1	468233	6559872	0.5	0.07	5.21	NEF	0	Pebble/Cobble	-	-
					2	468229	6559868	0.39	0.08	5.21	NEF	0	Cobble	-	-
					3	468221	6559864	0.39	0.17	5.21	NEF	0	Pebble/Cobble	-	-
					4	468215	6559867	0.51	0.16	5.21	NEF	0	Pebble/Cobble	-	-
					5	468214	6559865	0.91	0.52	5.21	NEF	0	Boulder	-	-
					6	468198	6559845	0.4	0.12	5.21	NEF	0	Cobble/boulder	-	-
					7	468200	6559848	0.46	0.02	5.21	NEF	0	Cobble/boulder	-	-
					8	468195	6559859	0.5	0.02	5.21	NEF	0	Boulder	-	-
					9	468199	6559865	0.39	0.45	5.21	NEF	0	Boulder/Cobble	-	-
					10	468202	6559869	0.44	0.58	5.21	ARGR	1	Boulder	1 SLSC in net	-
Middle section of Fond du Lac River, west bank	ES-12-05	9	1-Jun-12	1	1	469003	6558425	0.36	0.32	5.63	ARGR	37	Cobble/boulder	-	-
					2	469001	6558430	0.38	0.29	5.63	ARGR	13	Cobble/boulder	-	-
					3	469001	6558431	0.36	0.6	5.63	ARGR	38	Cobble/boulder	-	-
					4	469000	6558435	0.55	0.55	5.63	ARGR	18	Cobble/boulder	-	-
					5	468999	6558437	0.45	0.67	5.63	ARGR	25	Cobble	-	-
					6	468997	6558442	0.5	0.69	5.63	ARGR	17	Cobble/boulder	-	-
					7	468996	6558442	0.58	0.63	5.63	ARGR	7	Pebble/Cobble	-	-
					8	468996	6558446	0.56	0.55	5.63	ARGR	10	Pebble/Cobble	-	-
					9	468996	6558450	0.55	0.64	5.63	ARGR	21	Boulder	-	-
				2	1	469019	6558430	0.35	0.2	5.63	ARGR	70	Cobble/boulder	-	-
					2	469017	6558429	0.42	0.39	5.63	ARGR	32	Cobble/boulder	-	-
					3	469016	6558434	0.43	0.44	5.63	ARGR	5	Boulder/Cobble	-	-
					4	469015	6558439	0.55	0.37	5.63	ARGR	4	Cobble	-	-
					5	469016	6558443	0.61	0.42	5.63	NEF	0	Cobble	Aquatic vegetation rooted in area	-
					6	469016	6558448	0.7	0.47	5.63	ARGR	13	Pebble/Cobble	-	-
					7	469016	6558452	0.84	0.51	5.63	ARGR	8	Cobble	-	-
				3	1	469046	6558429	0.38	0	5.63	NEF	0	Gravel	-	-
					2	469046	6558433	0.7	0.02	5.63	ARGR	1	sand	-	-
					3	469045	6558438	0.67	0.08	5.63	NEF	0	Sand/Cobble/boulder	-	-
					4	469045	6558443	0.81	0.07	5.63	NEF	0	Boulder/sand	-	-
Middle section of Fond du Lac River across from downstream antenna station west bank	ES-12-06	14	1-Jun-12	1	1	468371	6558588	0.35	0.71	5.74	ARGR	9	Sand/Cobble	-	-
					2	468373	6558591	0.58	0.91	5.74	ARGR	54	Cobble/boulder	-	-
					3	468373	6558593	0.68	1.12	5.74	NEF	0	Boulder/Cobble	-	-
				2	1	468372	6558583	0.23	0.03	5.74	ARGR	2	Pebble/Cobble	-	-
					2	468376	6558583	0.4	0.16	5.74	ARGR	42	Cobble	-	-
					3	468378	6558583	0.68	0.22	5.74	ARGR	43	Cobble	1 SLSC in net	-
					4	468380	6558586	0.86	0.38	5.74	ARGR	38	Pebble/Cobble	-	-
				3	1	468380	6558572	0.54	0.14	5.74	ARGR	14	Boulder/Cobble	-	-
					2	468382	6558575	0.67	0.06	5.74	ARGR	105	Cobble/Pebble	-	-

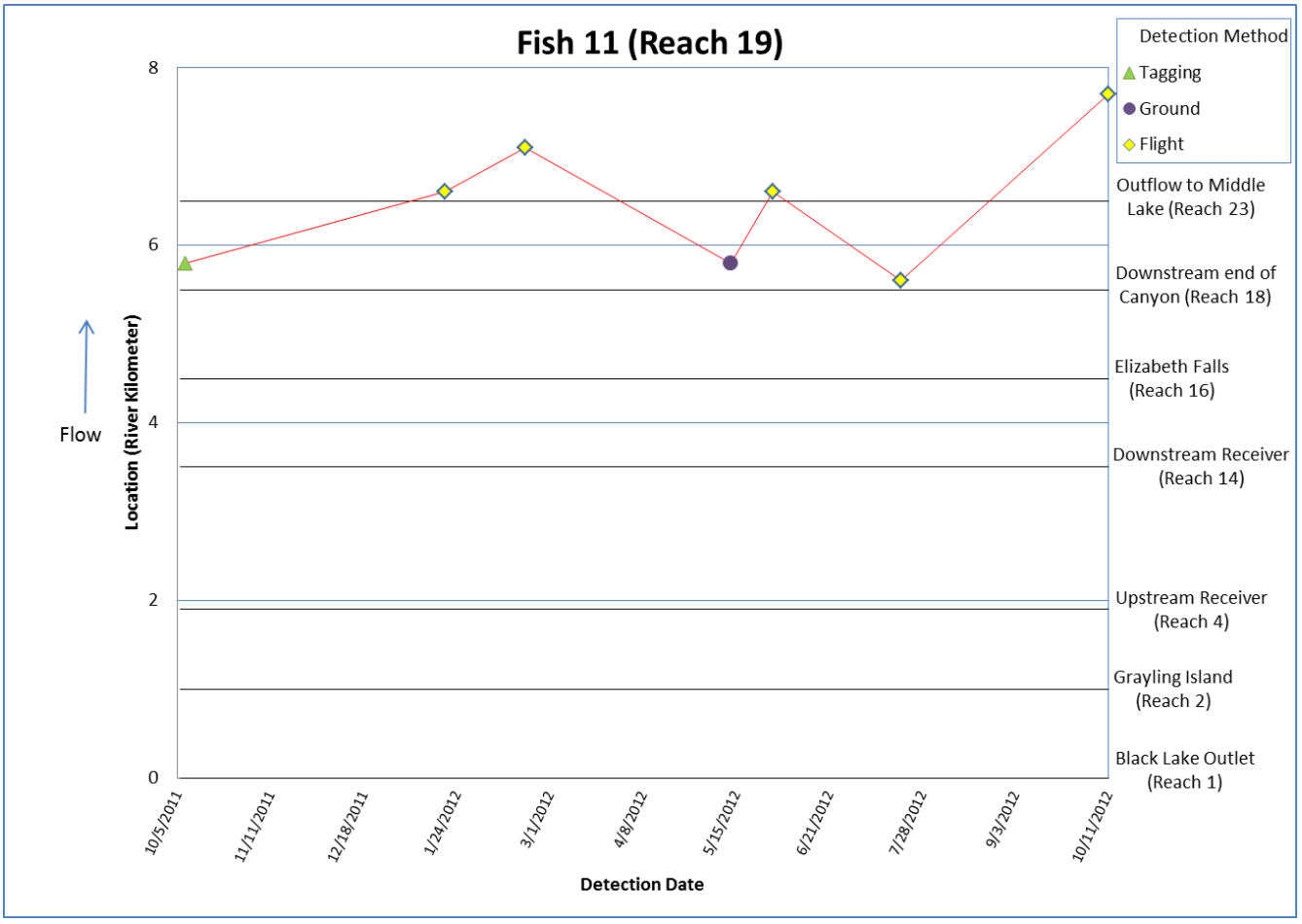
Table III.11-1: Results of Arctic Grayling Egg Searches and Spawning Habitat Assessments in the Fond du Lac River, Spring 2010 and 2012

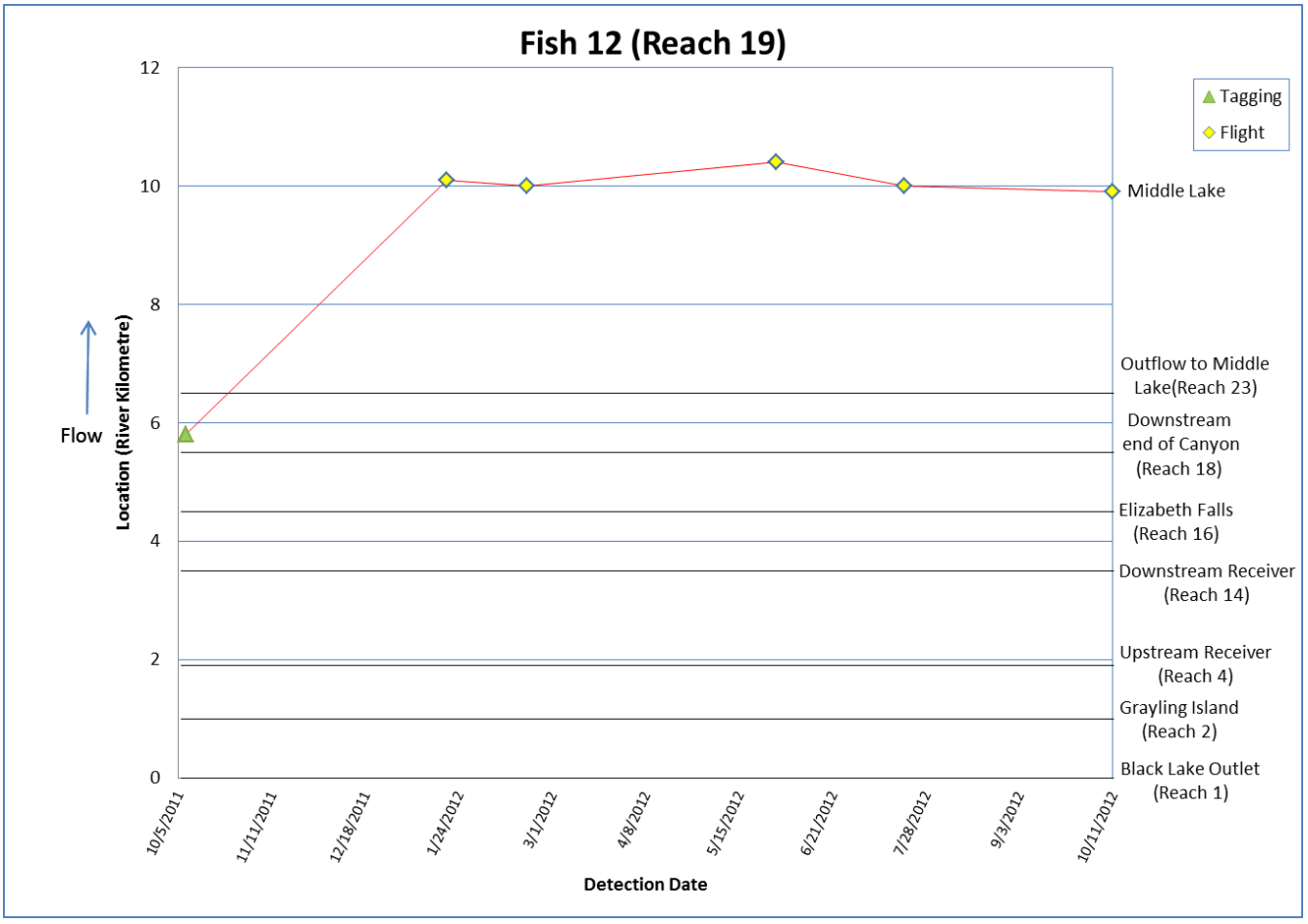
General Location	Area Name	Reach Number	Date	Transect Number	Station Number	UTM		Depth (m)	Velocity (m/s)	Temperature (°C)	Fish Species	No. of Eggs	Dominant Substrate	Comments	
						Easting	Northing								
East bank of Fond du Lac River immediately upstream of Elizabeth Falls	ES-12-07	14	1-Jun-12	1	1	468381	6559107	0.28	0.11	5.85	ARGR	3	Cobble	Upstream end of shallow area, aquatic vegetation	-
					2	468376	6559110	0.45	0.44	5.85	ARGR	3	Cobble	-	-
					3	468374	6559113	0.63	1.13	5.85	ARGR	1	Boulder/Cobble	-	-
				2	1	468397	6559126	0.27	0.08	5.85	ARGR	8	Boulder/silt	-	-
					2	468393	6559128	0.35	0.17	5.85	ARGR	1	Cobble/boulder	-	-
					3	468389	6559132	0.54	0.35	5.85	ARGR	3	Cobble	-	-
					4	468387	6559136	0.81	0.57	5.85	ARGR	37	Boulder/Cobble	Substrate less embedded	-
				3	1	468434	6559150	0.35	0.07	5.85	NEF	0	Cobble	Algae present, substrate highly embedded	-
					2	468431	6559153	0.55	0.01	5.85	NEF	0	Sand/Cobble	Algae present, substrate highly embedded	-
					3	468425	6559158	0.5	0.08	5.85	NEF	0	Cobble	Algae present, substrate highly embedded	-
					4	468416	6559164	0.6	0.04	5.85	NEF	0	Cobble	Algae present, substrate highly embedded	-
					5	468413	6559168	0.75	0.11	5.85	NEF	0	Cobble	Algae present, substrate highly embedded	-
				4	1	468481	6559201	0.34	0.01	5.85	NEF	0	Gravel/Cobble	Algae present, substrate highly embedded	-
					2	468464	6559212	0.47	0.05	5.85	NEF	0	Cobble	Slack water behind large boulder	-
Small side channel upstream of Elizabeth Falls	ES-12-08	14	1-Jun-12	1	1	468350	6559069	0.45	0.43	5.86	ARGR	61	Cobble/Pebble	-	-
					2	468344	6559068	0.25	0.16	5.86	ARGR	34	Cobble/boulder	-	-
Longitudinal transects upstream of Elizabeth Falls	ES-12-09	14	1-Jun-12	1	1	468288	6558895	0.47	0.44	6.02	ARGR	51	Cobble/Pebble	-	-
					2	468286	6558897	0.71	1.05	6.02	ARGR	7	Cobble	-	-
					3	468293	6558900	0.41	0.54	6.02	ARGR	18	Pebble/Cobble	-	-
Gravel bay in middle section of Fond du Lac River	ES-12-10	13	1-Jun-12	1	1	468593	6558527	-	-	-	ARGR	57	Gravel	-	-
Camp Grayling boat launch	ES-12-02	1	1-Jun-12	1	1	468751	6556690	0.25	0.11	7.48	ARGR	31	Pebble/Cobble	-	-
					2	468760	6556687	0.36	0.02	7.48	ARGR	37	Pebble/Cobble	-	-
					3	468764	6556685	0.74	0.13	7.48	NEF	0	sand	-	-
Downstream of the Elizabeth Canyon on west bank of the Fond du Lac River near island downstream	ES-12-16	20	2-Jun-12	1	1	468018	6560598	0.35	0.66	7.4	NEF	0	Pebble/Cobble	-	-
					2	468021	6560600	0.59	0.7	7.4	ARGR	2	Pebble/Cobble	-	-
					3	468025	6560603	0.55	0.54	7.4	NEF	0	Pebble/Cobble	-	-
					4	468030	6560610	0.55	1.02	7.4	NEF	0	Cobble	-	-
					5	468032	6560619	0.65	1.13	7.4	NEF	0	Cobble/boulder	-	-
					6	468035	6560627	0.75	1.33	7.4	NEF	0	Cobble	-	-
				2	1	468012	6560613	0.5	0.77	7.4	ARGR	3	Cobble/boulder	-	-
					2	468013	6560619	0.28	1.26	7.4	NEF	0	Cobble	-	-
					3	468016	6560624	0.25	0.84	7.4	NEF	0	Cobble/boulder	-	-
				3	1	468014	6560634	0.41	0.87	7.4	NEF	0	Cobble	-	-
				4	1	467963	6560735	0.54	0.36	7.4	ARGR	10	Boulder/Cobble	-	-
				5	1	467964	6560826	0.34	0.05	7.4	NEF	0	Boulder/Cobble	-	-
					2	467970	6560825	0.42	0.11	7.4	NEF	0	Boulder	-	-
					3	467972	6560823	0.64	0.62	7.57	NEF	0	Cobble/Pebble	-	-
				6	1	467976	6560690	0.17	0.33	7.57	NEF	0	Boulder/Cobble	-	-
					2	467979	6560691	0.37	1.24	7.57	NEF	0	Boulder/Cobble	-	-
Inflow to Middle Lake, east bank, downstream of tailrace	ES-12-17	22	2-Jun-12	1	1	468020	6561204	0.57	0.06	7.57	NEF	0	Pebble	-	-
					2	468030	6561200	0.6	0.12	7.57	NEF	0	Pebble	-	-
					3	468039	6561180	0.31	0.64	7.57	NEF	0	Boulder/Pebble	-	-
					4	468036	6561182	0.64	0.5	7.57	ARGR	5	Pebble/Boulder	-	-
				2	1	468125	6561000	0.35	0.38	7.57	NEF	0	Cobble/boulder	-	-
					2	468132	6560993	0.3	0.2	7.57	NEF	0	Boulder/Cobble	-	-
					3	468142	6560980	0.27	0.5	7.57	NEF	0	Boulder/Cobble	-	-
Grayling Island	ES-12-03	2	3-Jun-12	1	1	469041	6556905	0.15	0.11	-	ARGR	3	Cobble	-	-
					2	469031	6556910	0.2	0.15	-	NEF	0	Cobble/boulder	-	-
				2	1	469035	6556931	0.33	0.24	-	ARGR	75	Cobble	-	-
					2	469045	6556951	0.17	0.02	-	ARGR	1	Cobble	-	-
Upstream end of Grayling Island	ES-12-04	2	3-Jun-12	1	1	469031	6556849	-	-	-	ARGR	20	-	Substrate type not recorded	-

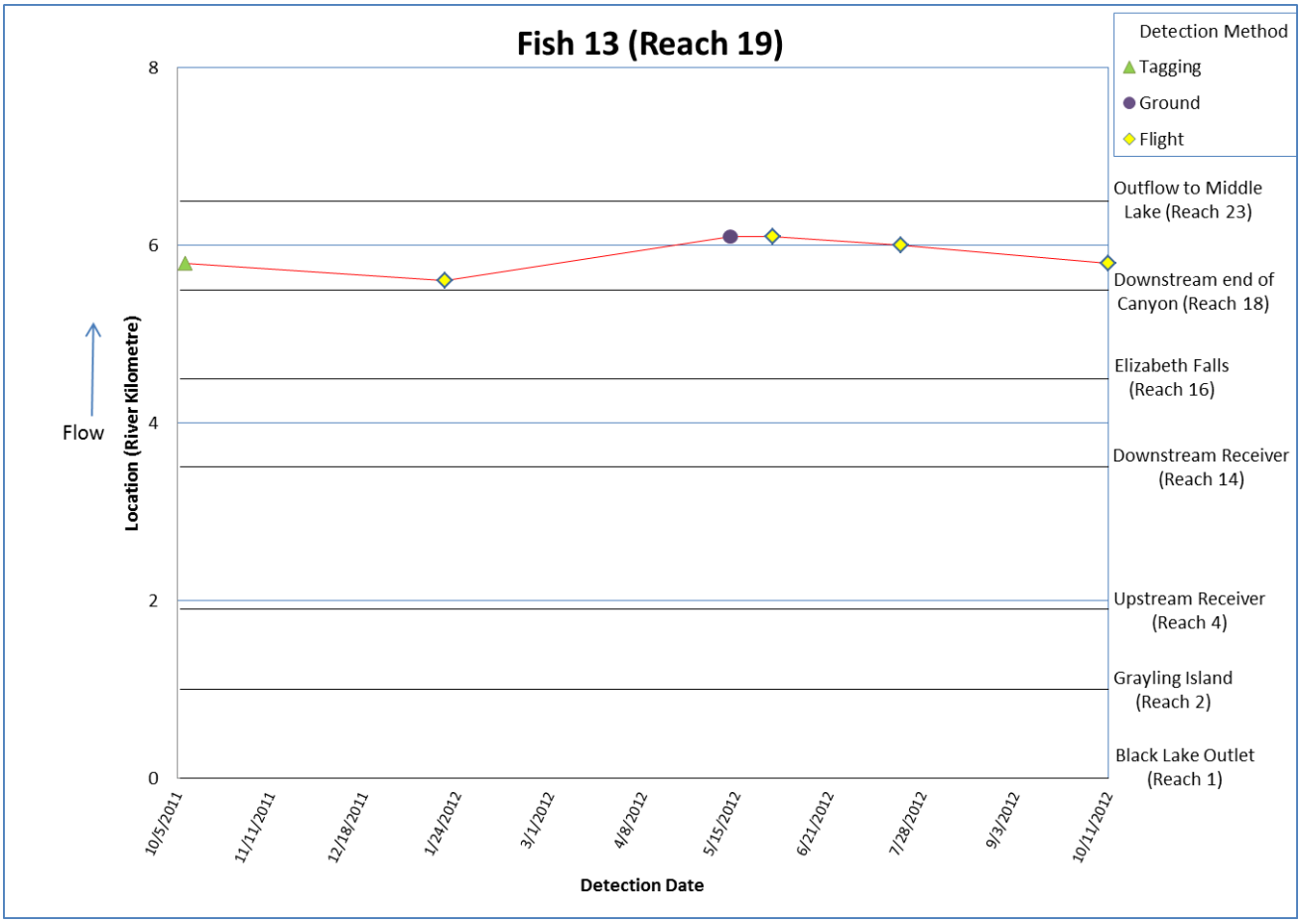
Note: All UTM coordinates are in North American Datum (NAD) 83, UTM Zone 13 ; UTM = Universal Transverse Mercator; m = metres; m/s = metres per second; °C = degrees celsius; No. = number; NEF= no eggs found; ARGR = Arctic grayling; NRPK = northern pike; SLSC= slimy sculpin; NFC = no fish caught.

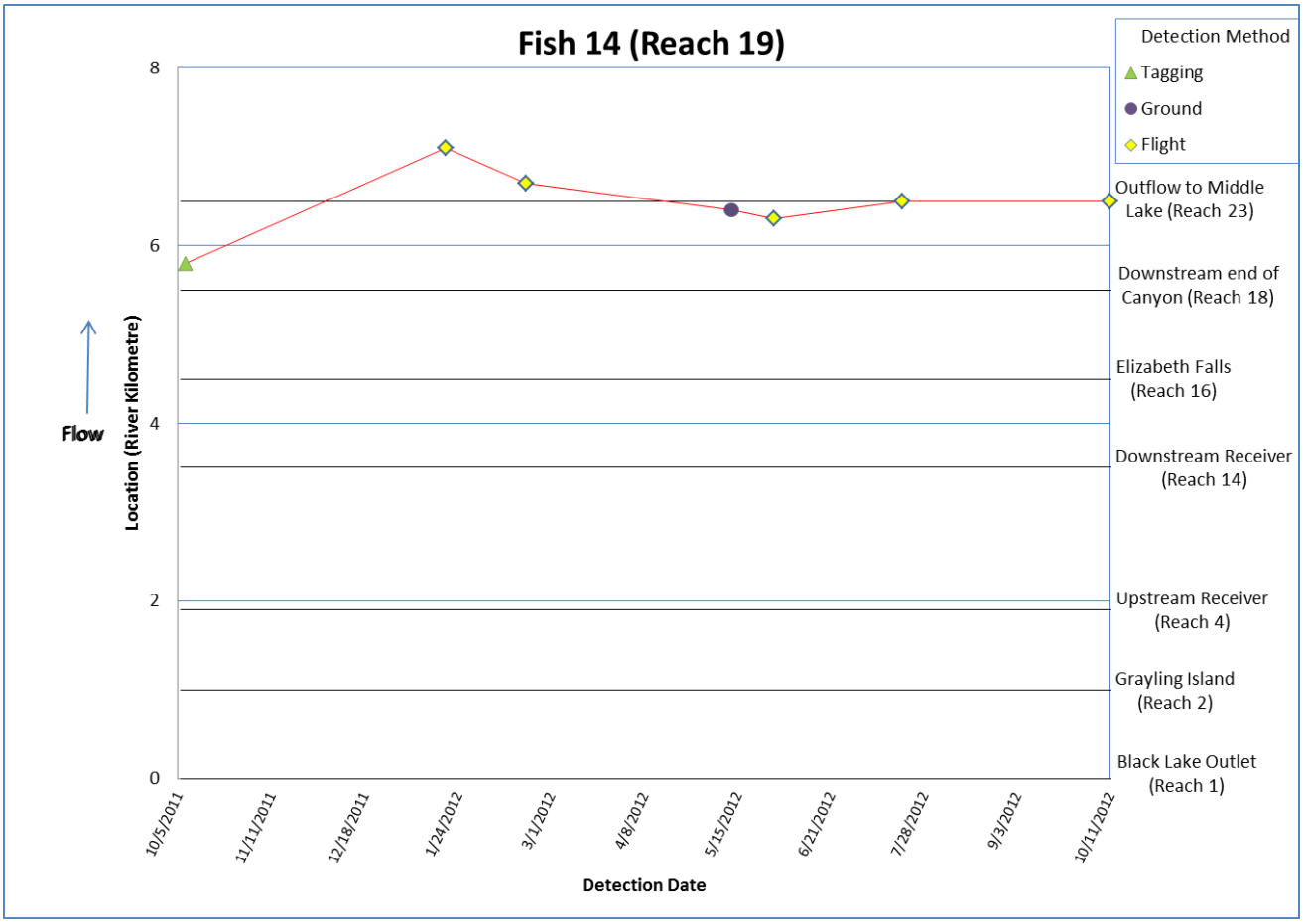
APPENDIX III.12

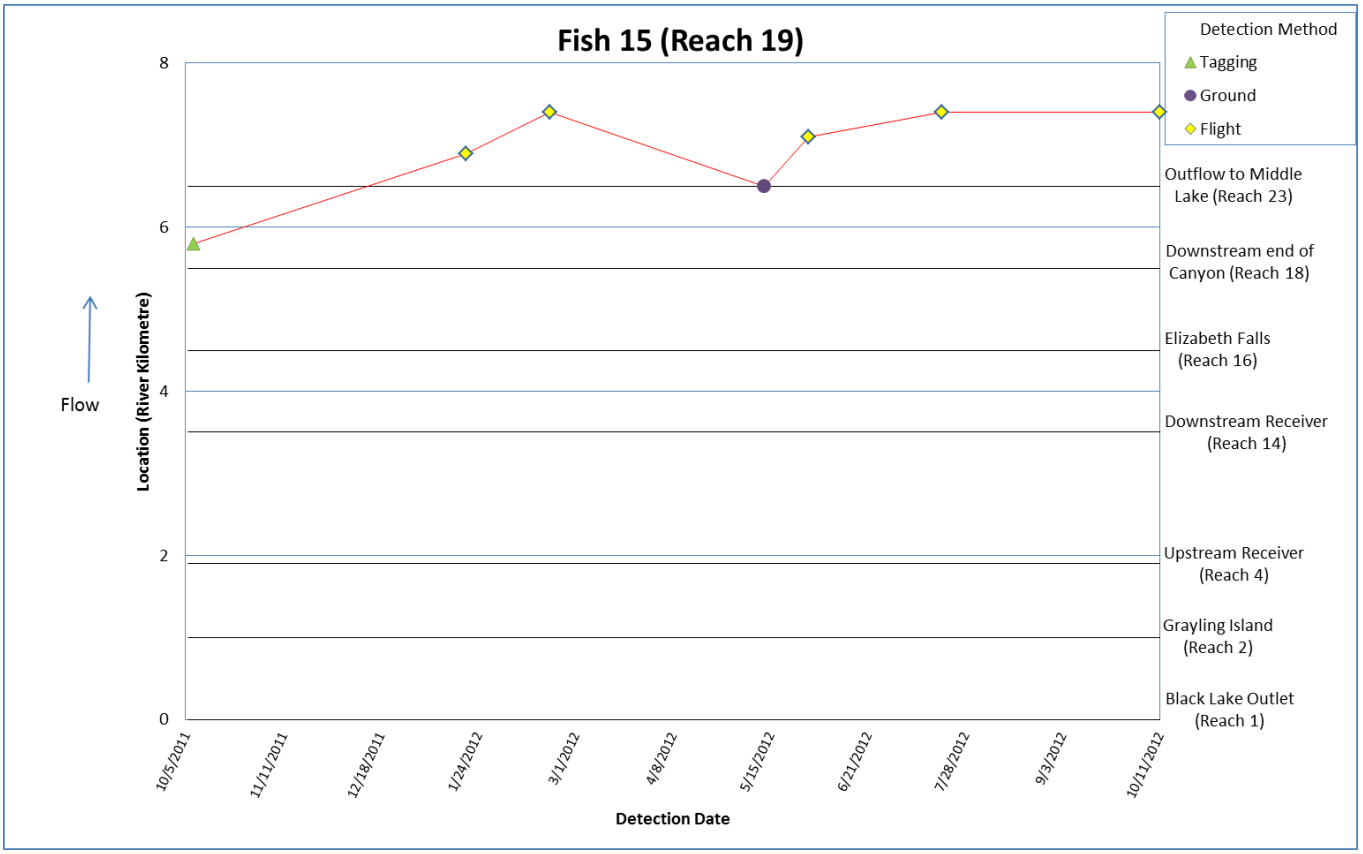
Fish Movement

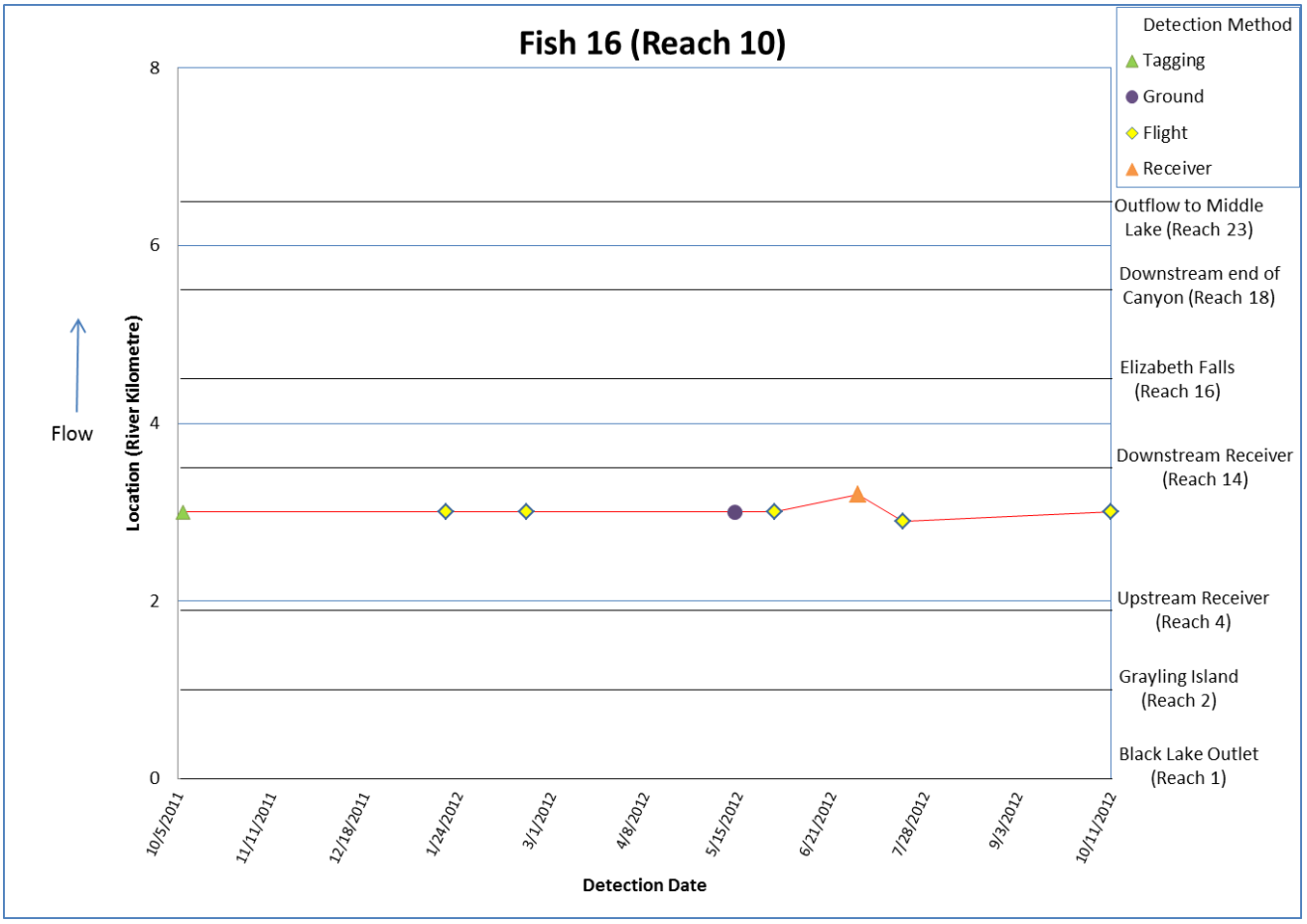

Fish 11 (Reach 19)
Detection Method
Tagging
Ground
Flight
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometer)
0
2
4
6
8
10/5/2011
11/11/2011
12/18/2011
1/24/2012
3/1/2012
4/8/2012
5/15/2012
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 12 (Reach 19)
Tagging
Flight
Middle Lake
Outflow to Middle Lake(Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
0
2
4
6
8
10
12
10/5/2011
11/11/2011
12/18/2011
1/24/2012
3/1/2012
4/8/2012
5/15/2012
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 13 (Reach 19)
Detection Method
Tagging
Ground
Flight
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
8
6
4
2
0
10/5/2011
11/11/2011
12/18/2011
1/24/2012
3/1/2012
4/8/2012
5/15/2012
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 14 (Reach 19)
Detection Method
Tagging
Ground
Flight
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
8
6
4
2
0
10/5/2011
11/11/2011
12/18/2011
1/24/2012
3/1/2012
4/8/2012
5/15/2012
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 15 (Reach 19)
Detection Method
Tagging
Ground
Flight
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
0
2
4
6
8
10/5/2011
11/11/2011
12/18/2011
1/24/2012
3/1/2012
4/8/2012
5/15/2012
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 16 (Reach 10)
Detection Method
Tagging
Ground
Flight
Receiver
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
8
6
4
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0
10/5/2011
11/11/2011
12/18/2011
1/24/2012
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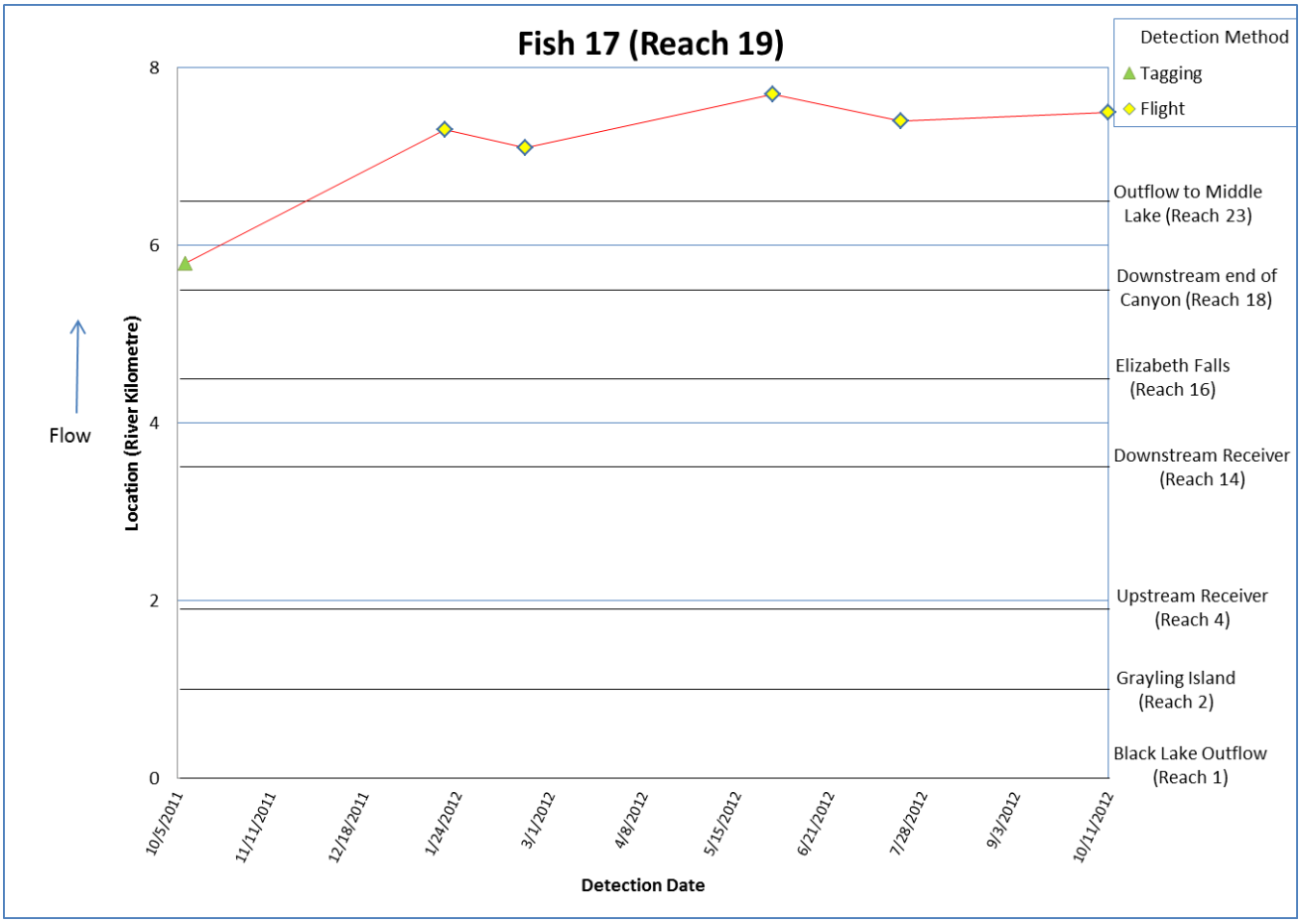
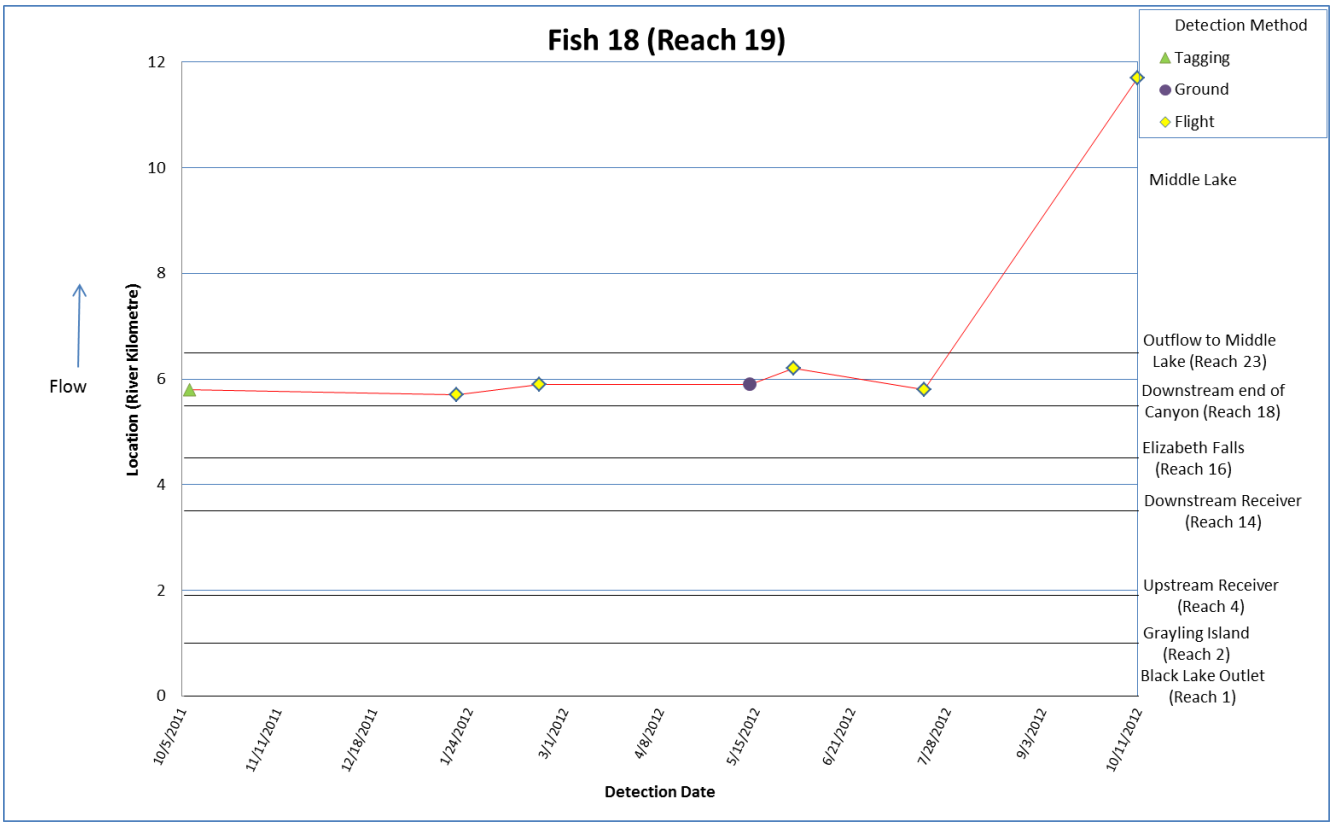
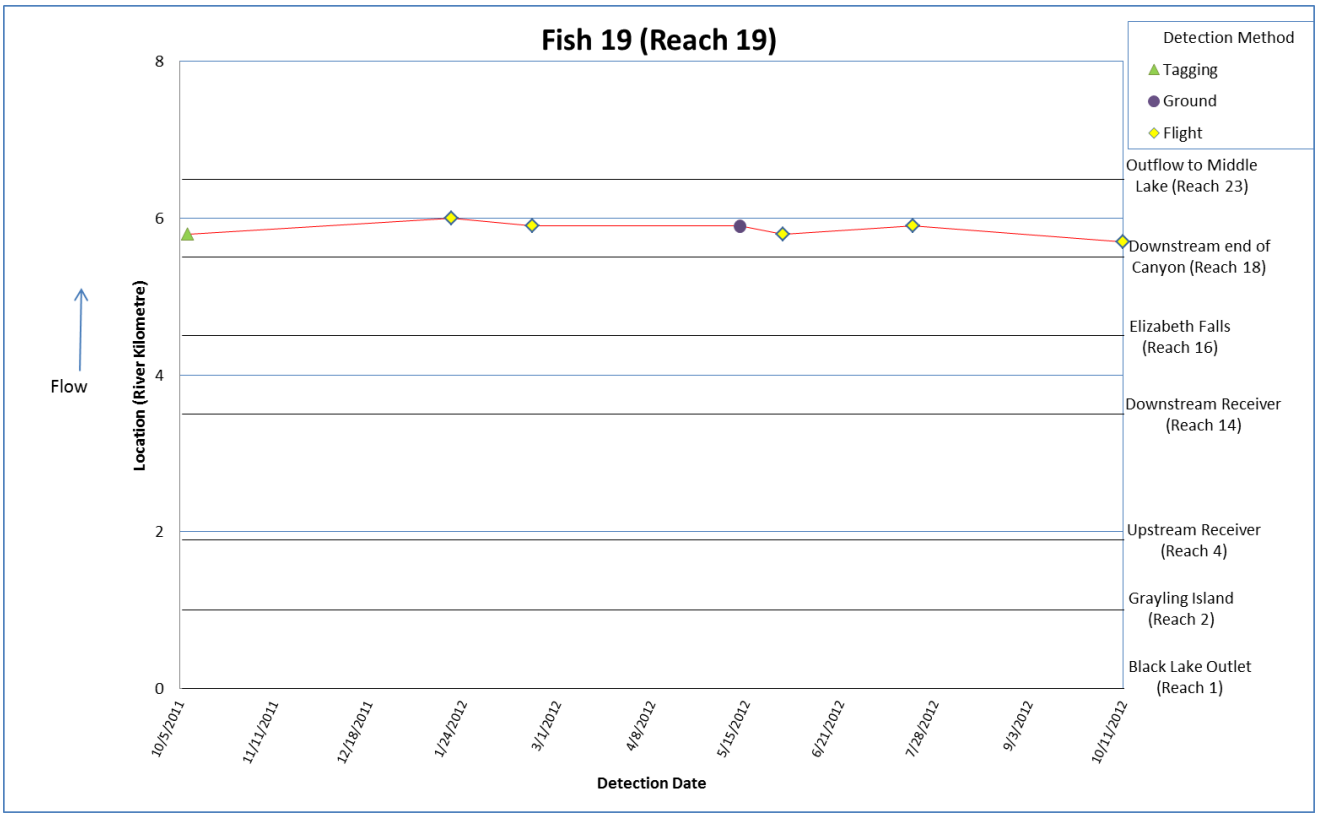
4/8/2012
5/15/2012
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 17 (Reach 19)
Detection Method
Tagging
Flight
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outflow (Reach 1)
Flow
Location (River Kilometre)
0
2
4
6
8
10/5/2011
11/11/2011
12/18/2011
1/24/2012
3/1/2012
4/8/2012
5/15/2012
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 18 (Reach 19)
Detection Method
Tagging
Ground
Flight
Middle Lake
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
0
2
4
6
8
10
12
10/5/2011
11/11/2011
12/18/2011
1/24/2012
3/1/2012
4/8/2012
5/15/2012
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 19 (Reach 19)
Detection Method
Tagging
Ground
Flight
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
8
6
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10/5/2011
11/11/2011
12/18/2011
1/24/2012
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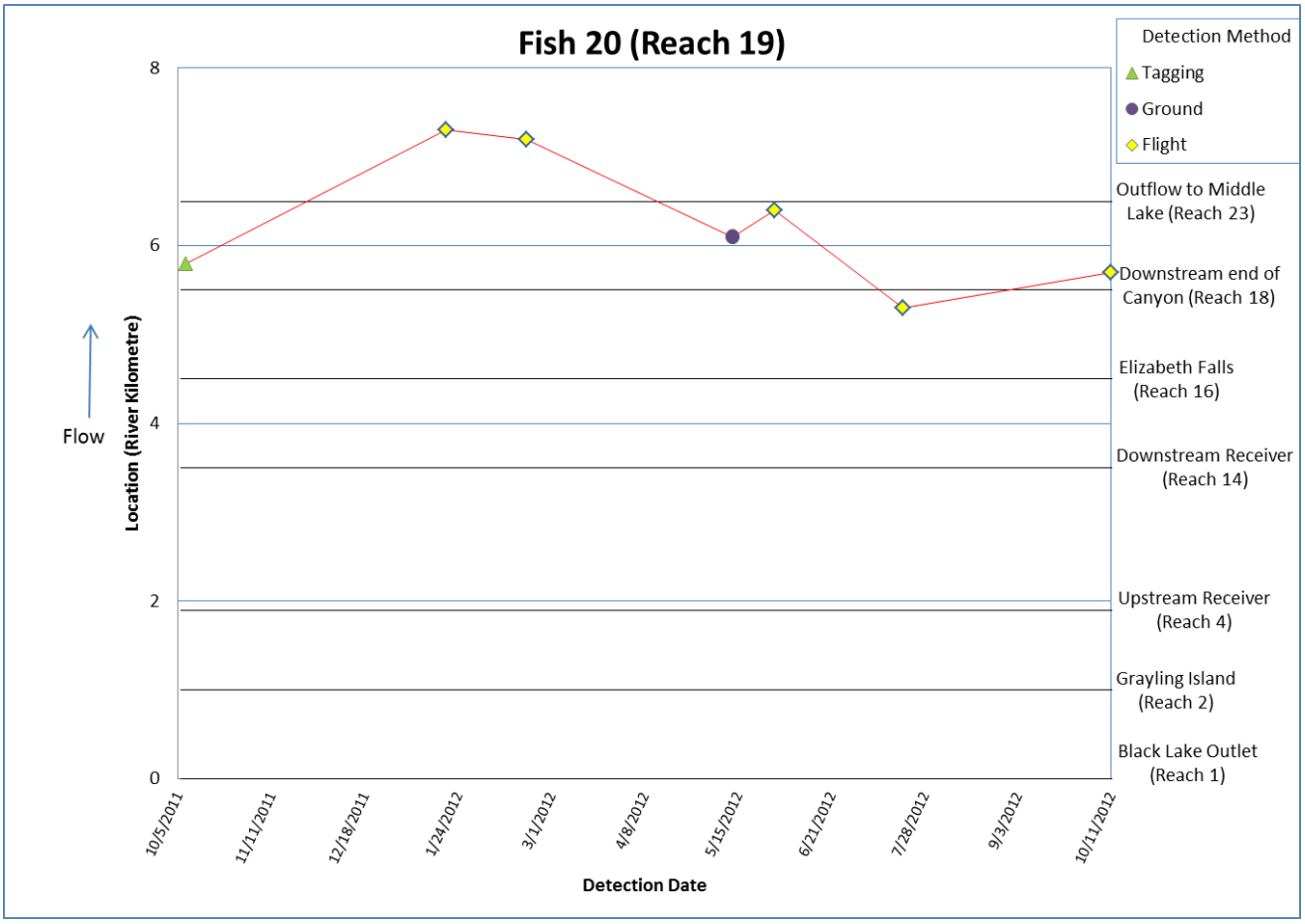
4/8/2012
5/15/2012
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 20 (Reach 19)
Detection Method
Tagging
Ground
Flight
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
8
6
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10/5/2011
11/11/2011
12/18/2011
1/24/2012
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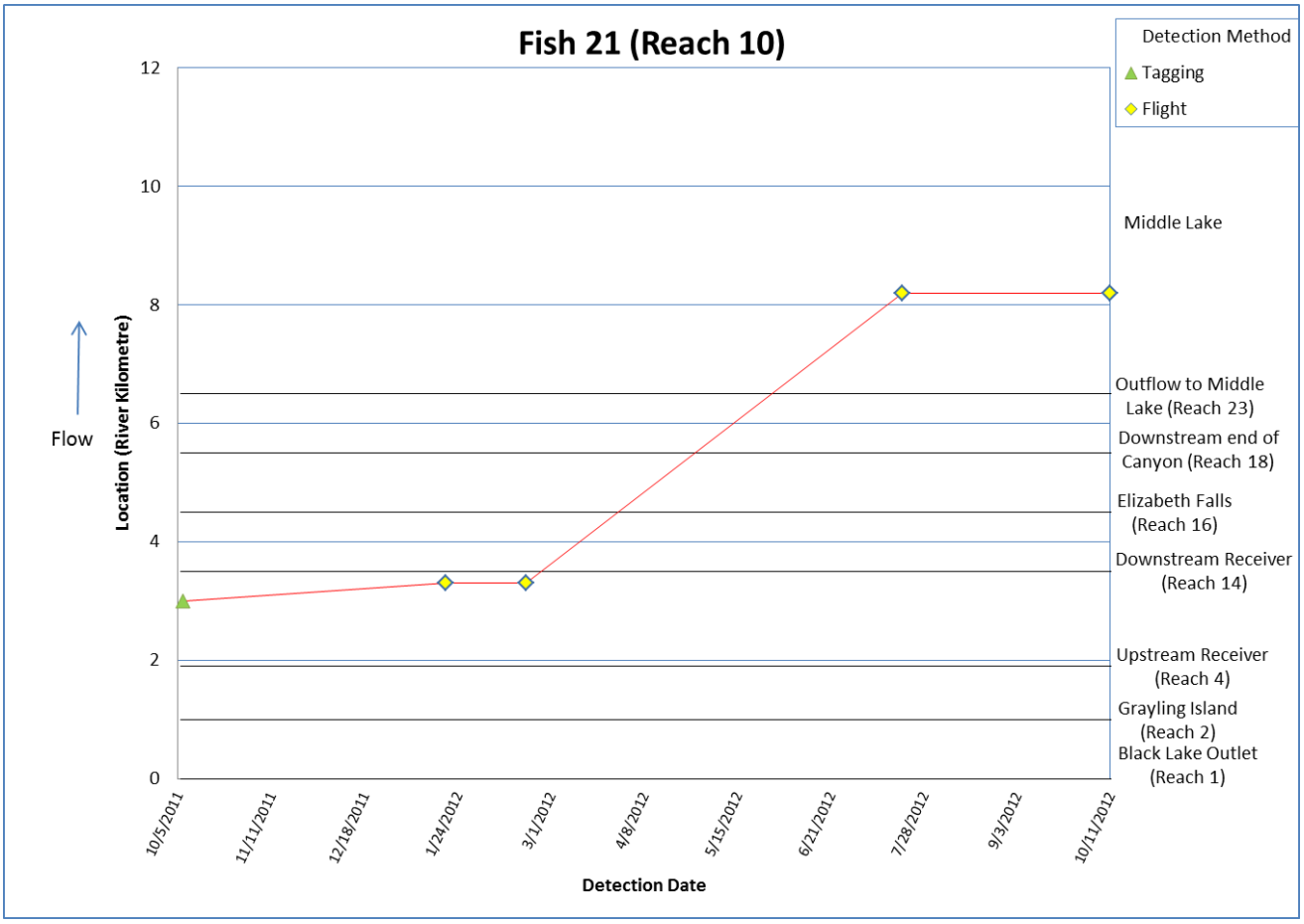
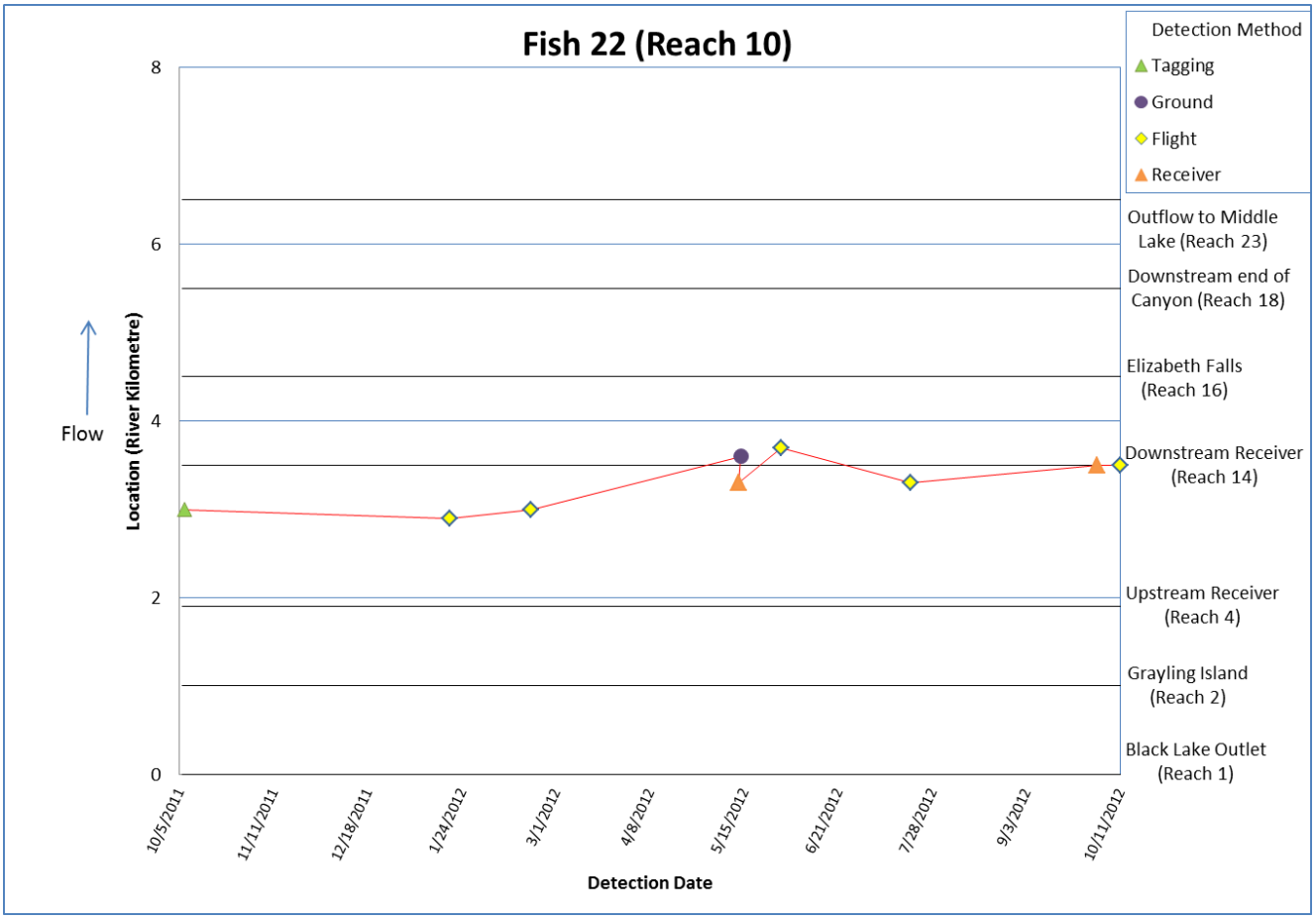
4/8/2012
5/15/2012
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 21 (Reach 10)
Detection Method
Tagging
Flight
Middle Lake
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
12
10
8
6
4
2
0
10/5/2011
11/11/2011
12/18/2011
1/24/2012
3/1/2012
4/8/2012
5/15/2012
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 22 (Reach 10)
Detection Method
Tagging
Ground
Flight
Receiver
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
8
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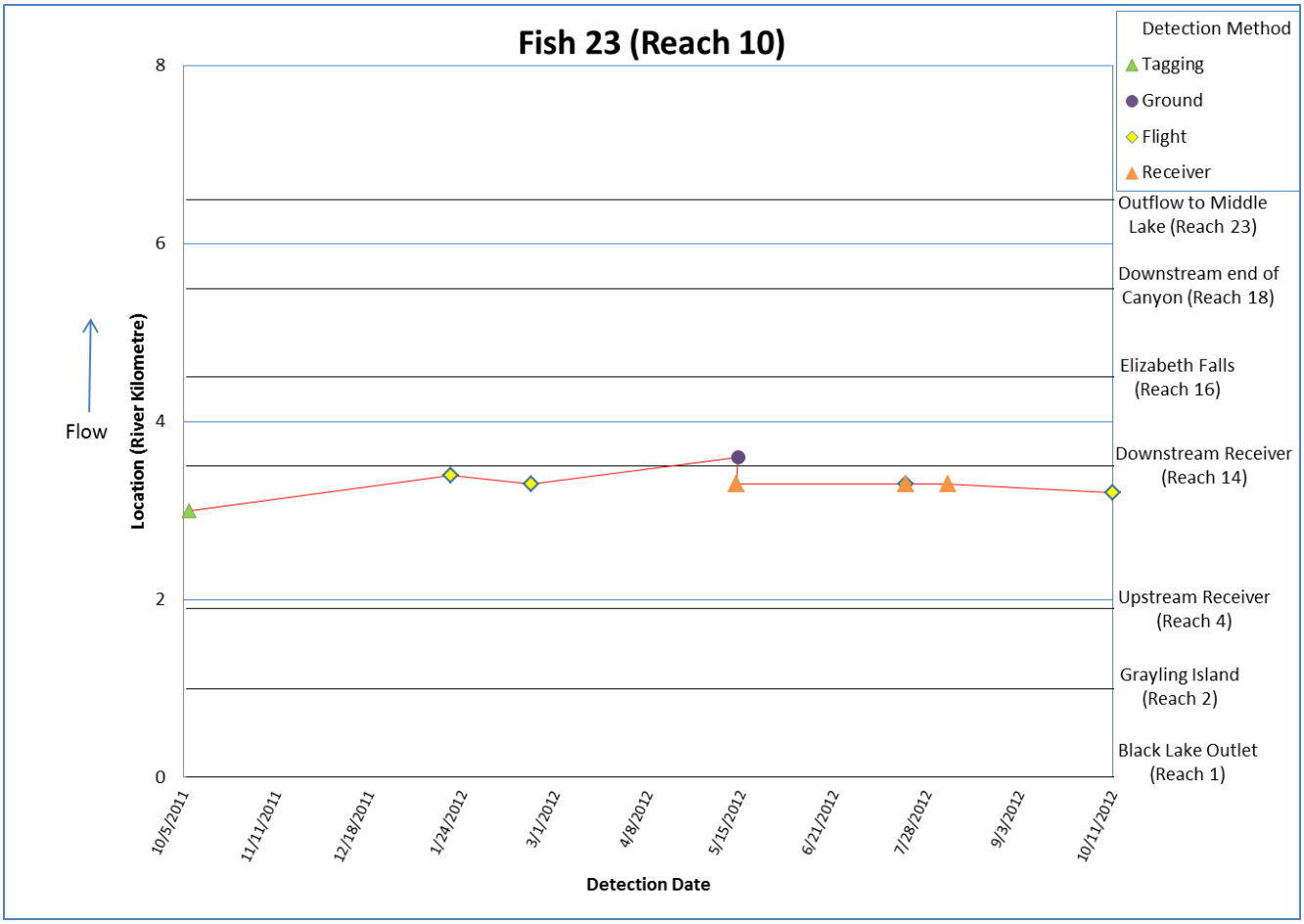
10/5/2011
11/11/2011
12/18/2011
1/24/2012
3/1/2012
4/8/2012
5/15/2012
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 23 (Reach 10)
Detection Method
Tagging
Ground
Flight
Receiver
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
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10/5/2011
11/11/2011
12/18/2011
1/24/2012
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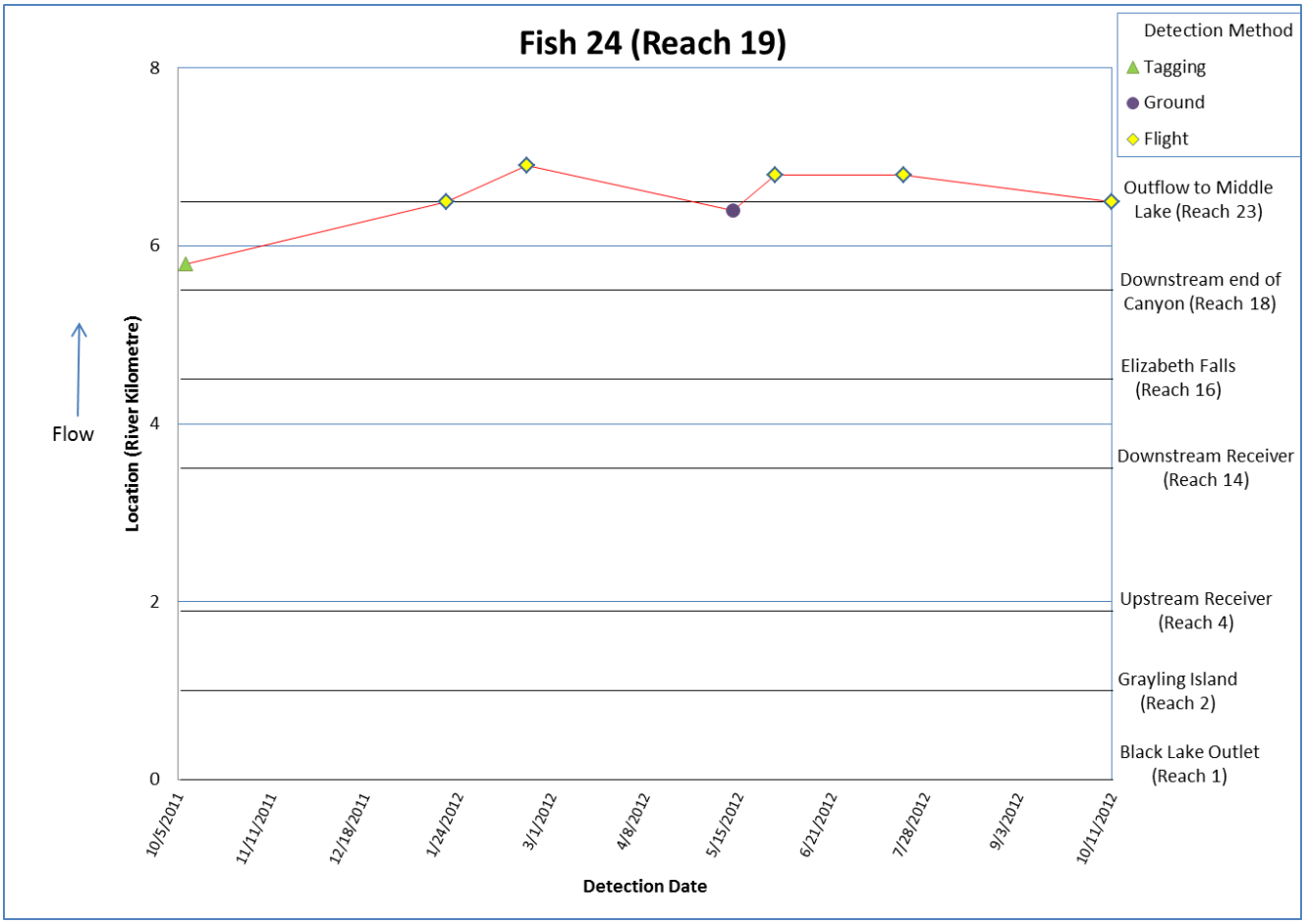
4/8/2012
5/15/2012
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 24 (Reach 19)
Detection Method
Tagging
Ground
Flight
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
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10/5/2011
11/11/2011
12/18/2011
1/24/2012
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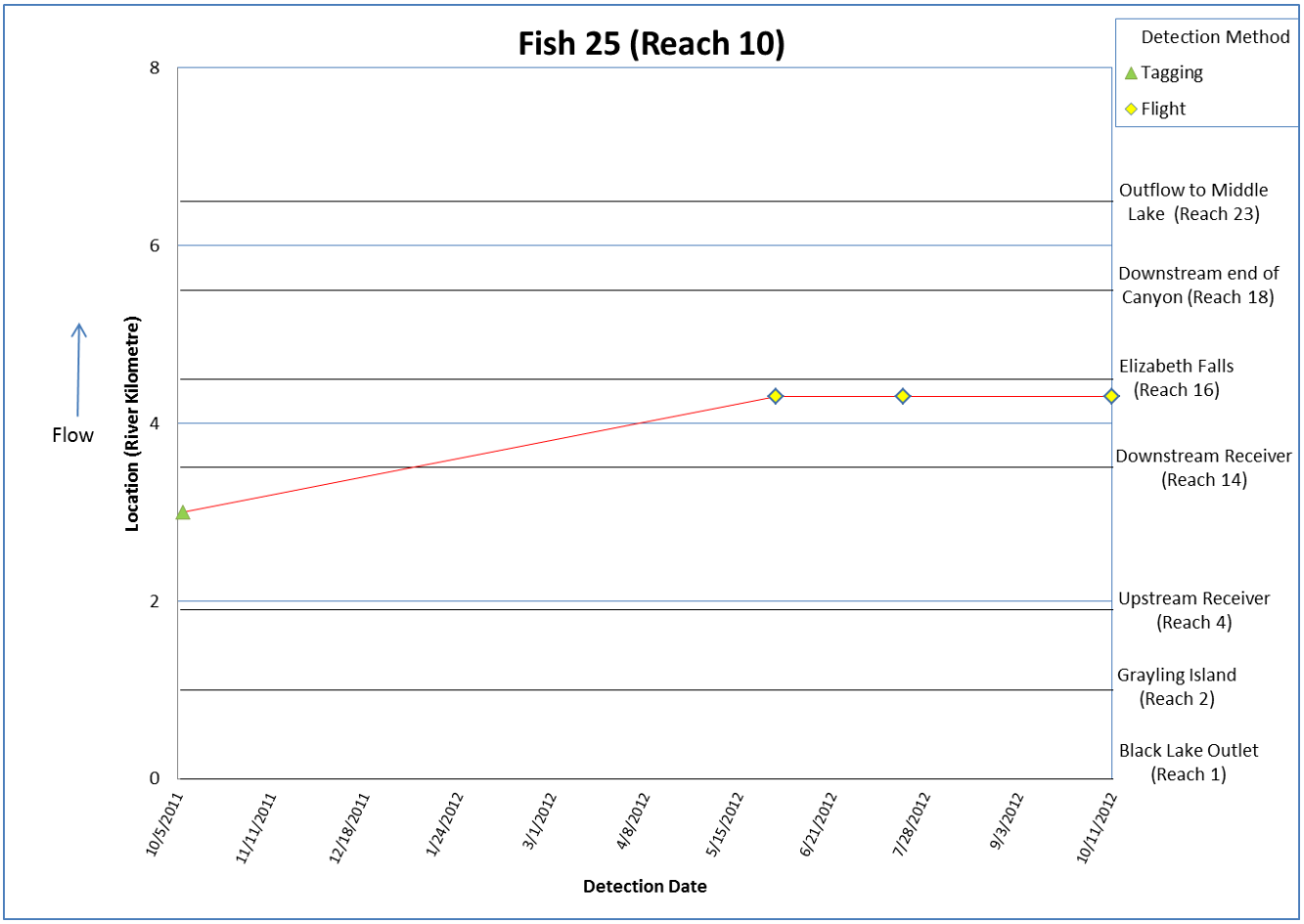
4/8/2012
5/15/2012
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 25 (Reach 10)
Detection Method
Tagging
Flight
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
0
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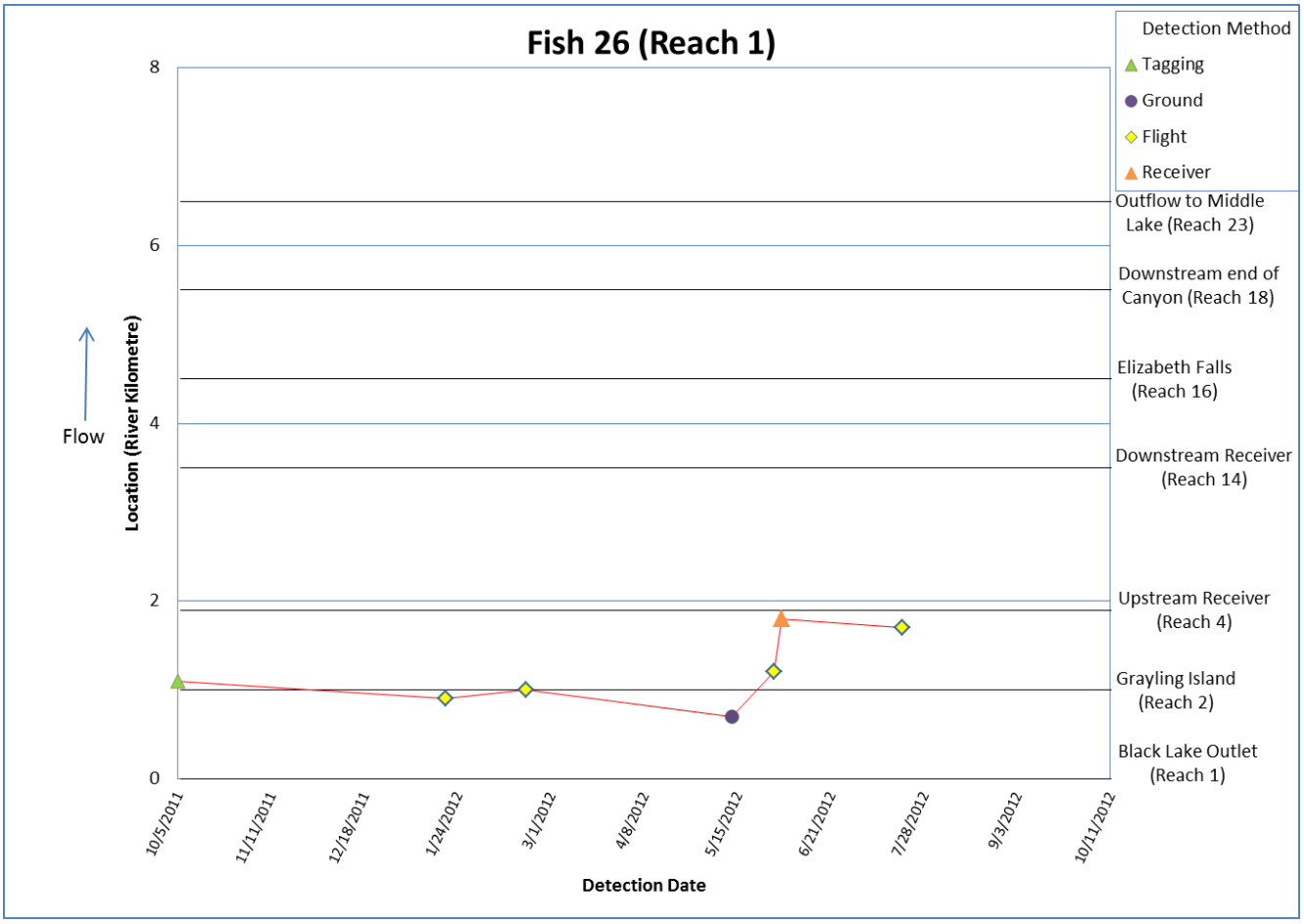
10/5/2011
11/11/2011
12/18/2011
1/24/2012
3/1/2012
4/8/2012
5/15/2012
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 26 (Reach 1)
Detection Method
Tagging
Ground
Flight
Receiver
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
8
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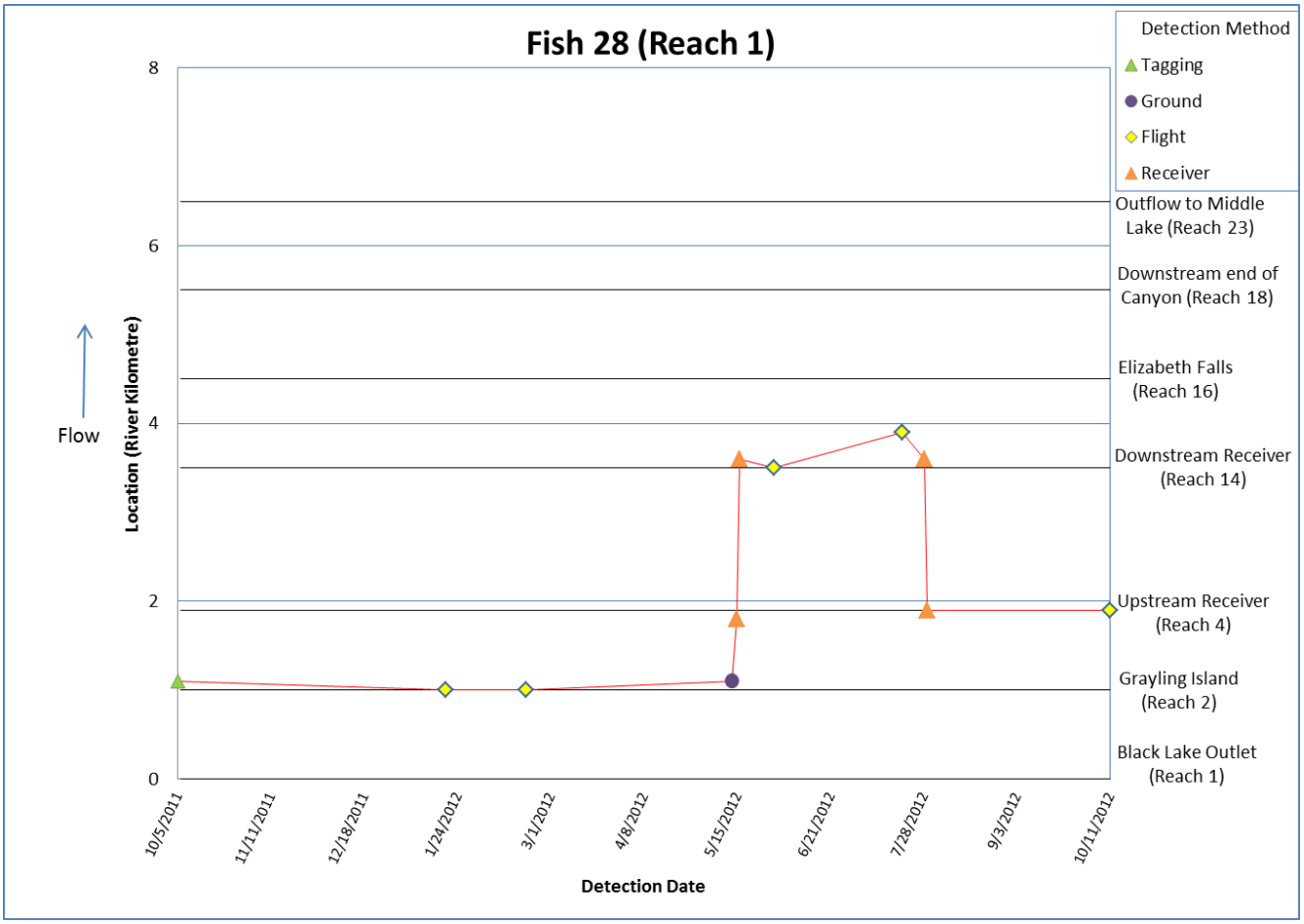
10/5/2011
11/11/2011
12/18/2011
1/24/2012
3/1/2012
4/8/2012
5/15/2012
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 28 (Reach 1)
Detection Method
Tagging
Ground
Flight
Receiver
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
0
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10/5/2011
11/11/2011
12/18/2011
1/24/2012
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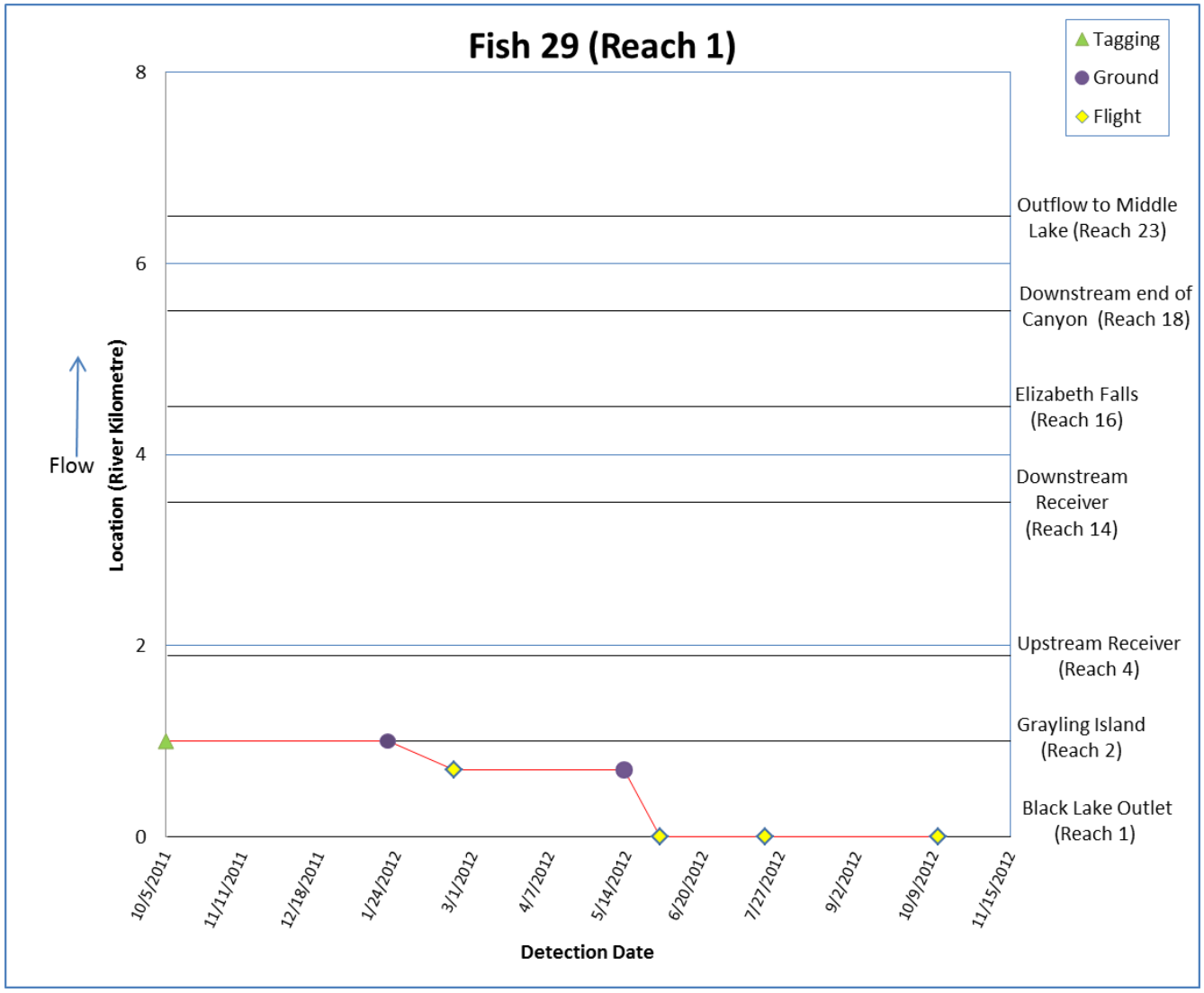
4/8/2012
5/15/2012
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 29 (Reach 1)
Tagging
Ground
Flight
8
6
4
2
0
Flow
Location (River Kilometre)
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
10/5/2011
11/11/2011
12/18/2011
1/24/2012
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5/14/2012
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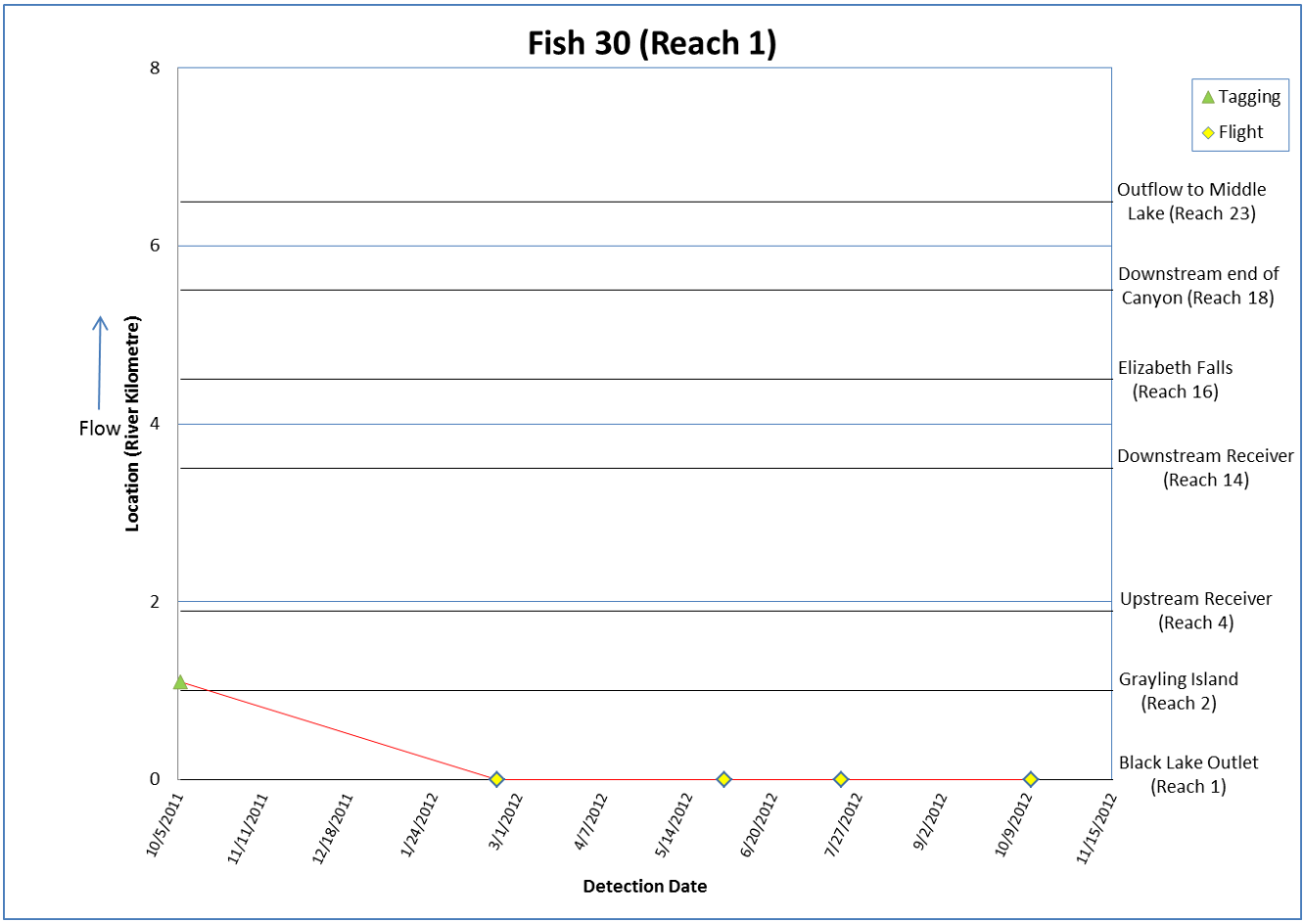
7/27/2012
9/2/2012
10/9/2012
11/15/2012
Detection Date


Fish 30 (Reach 1)
Tagging
Flight
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
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10/5/2011
11/11/2011
12/18/2011
1/24/2012
3/1/2012
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5/14/2012
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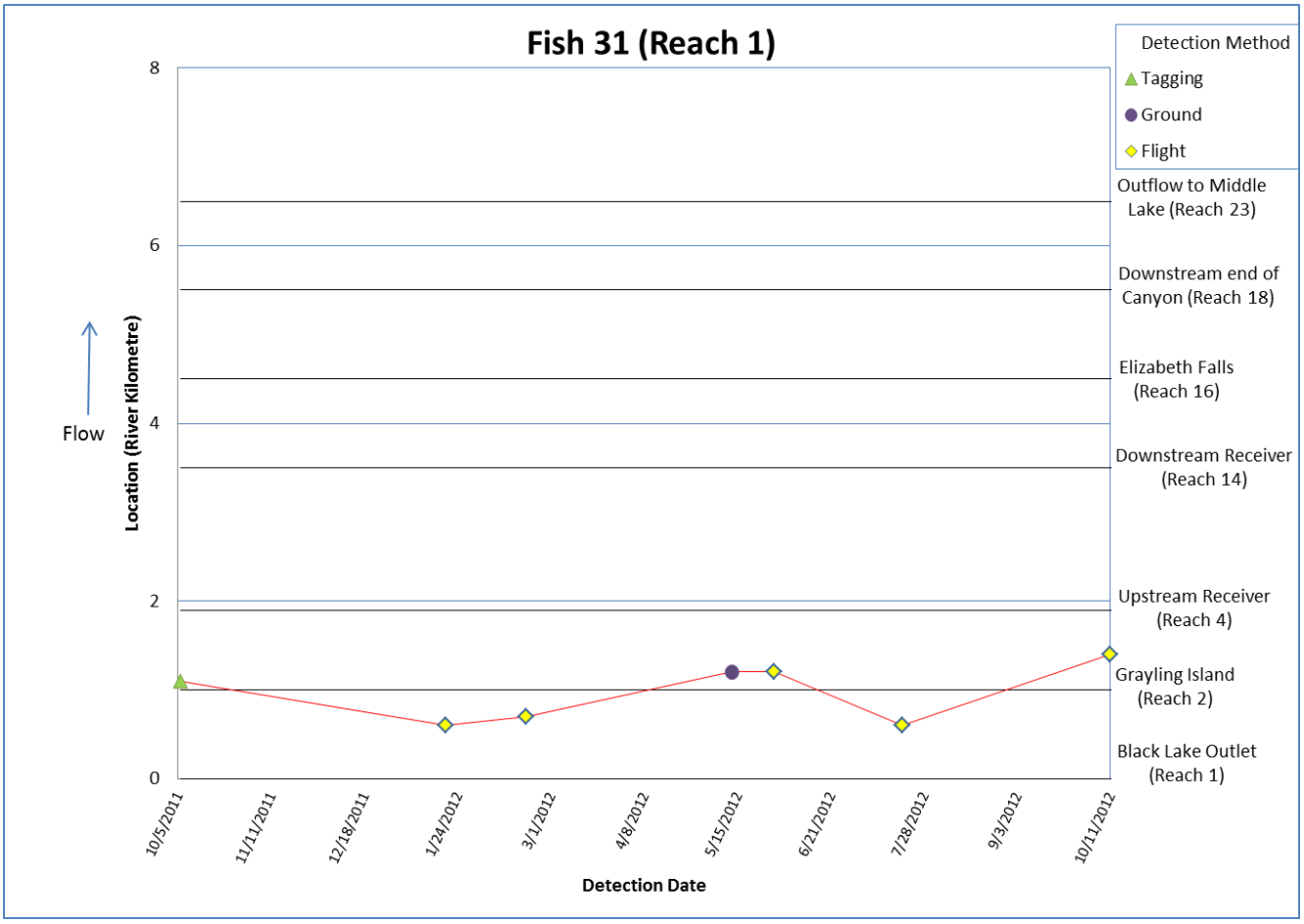
7/27/2012
9/2/2012
10/9/2012
11/15/2012
Detection Date


Fish 31 (Reach 1)
Detection Method
Tagging
Ground
Flight
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
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10/5/2011
11/11/2011
12/18/2011
1/24/2012
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4/8/2012
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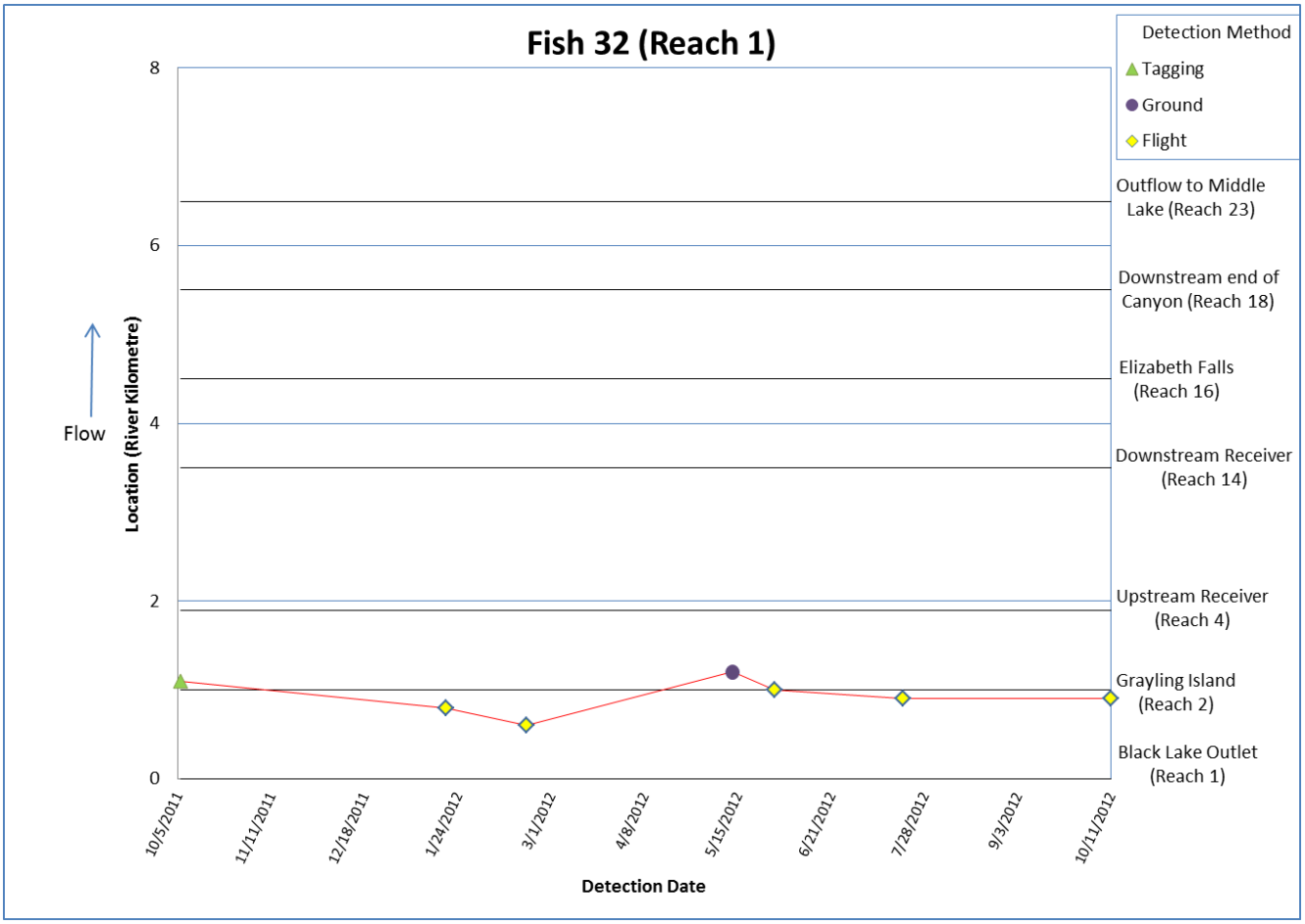
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 32 (Reach 1)
Detection Method
Tagging
Ground
Flight
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
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10/5/2011
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12/18/2011
1/24/2012
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4/8/2012
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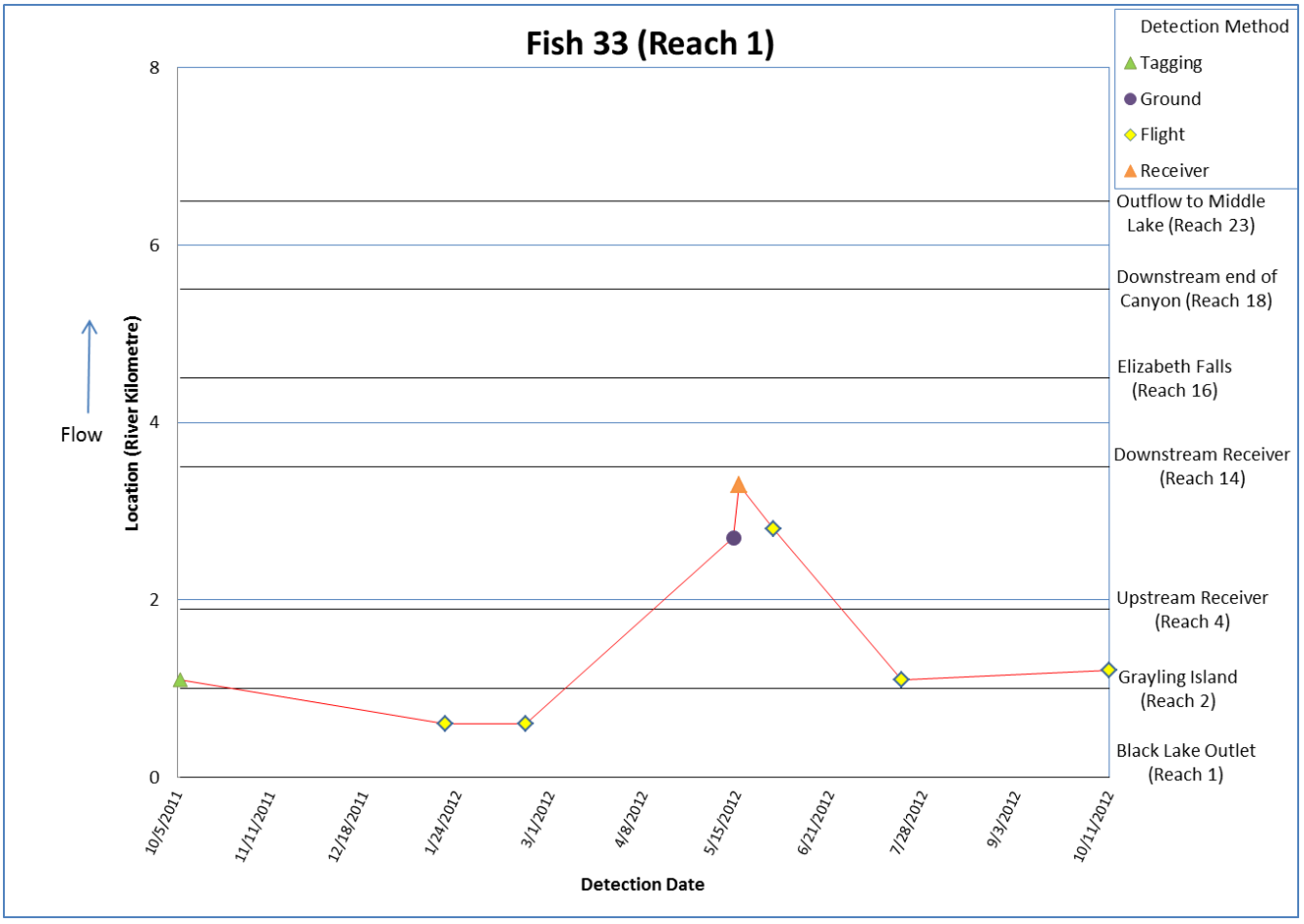
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 33 (Reach 1)
Detection Method
Tagging
Ground
Flight
Receiver
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
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10/5/2011
11/11/2011
12/18/2011
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4/8/2012
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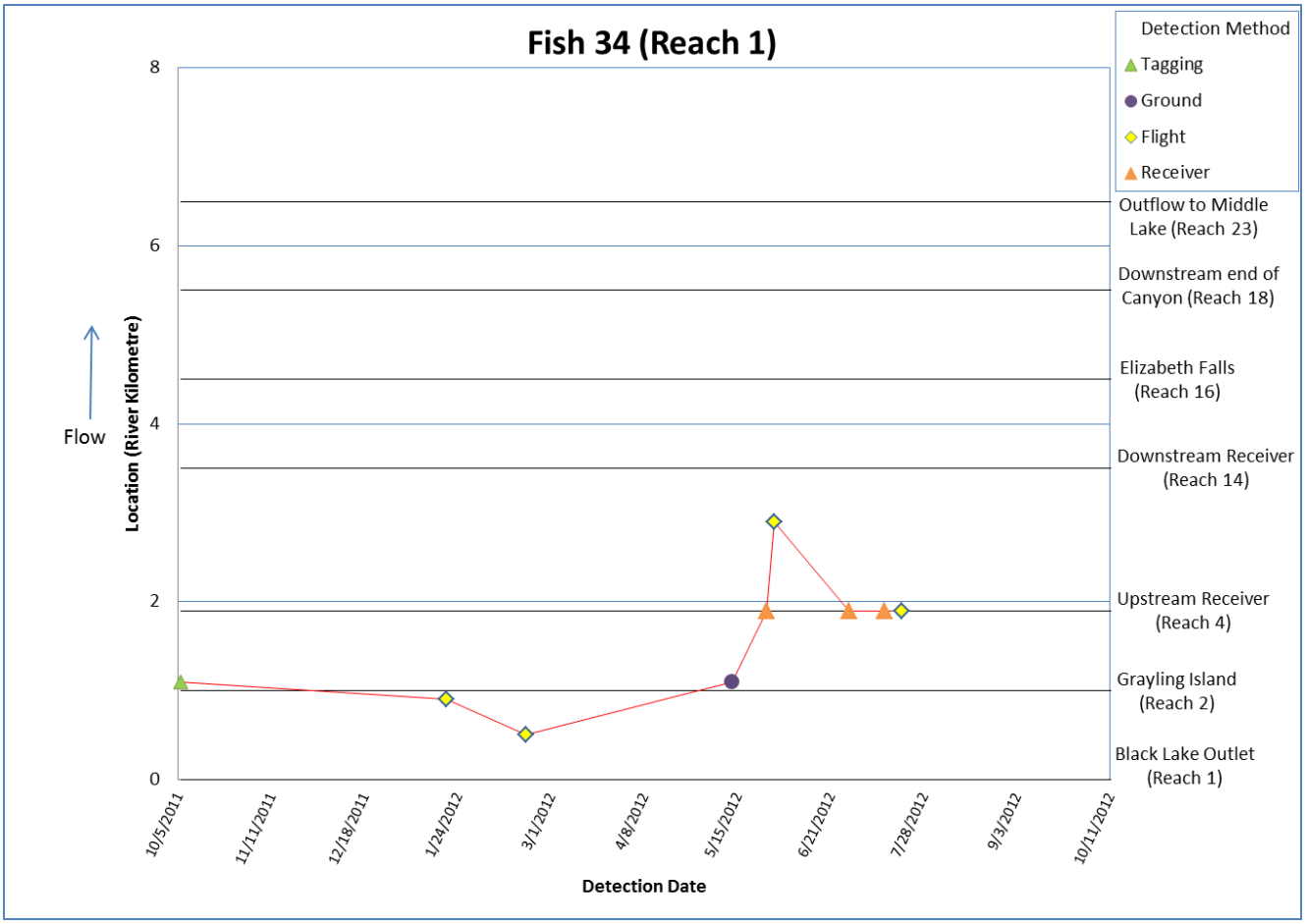
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 34 (Reach 1)
Detection Method
Tagging
Ground
Flight
Receiver
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
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10/5/2011
11/11/2011
12/18/2011
1/24/2012
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4/8/2012
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6/21/2012
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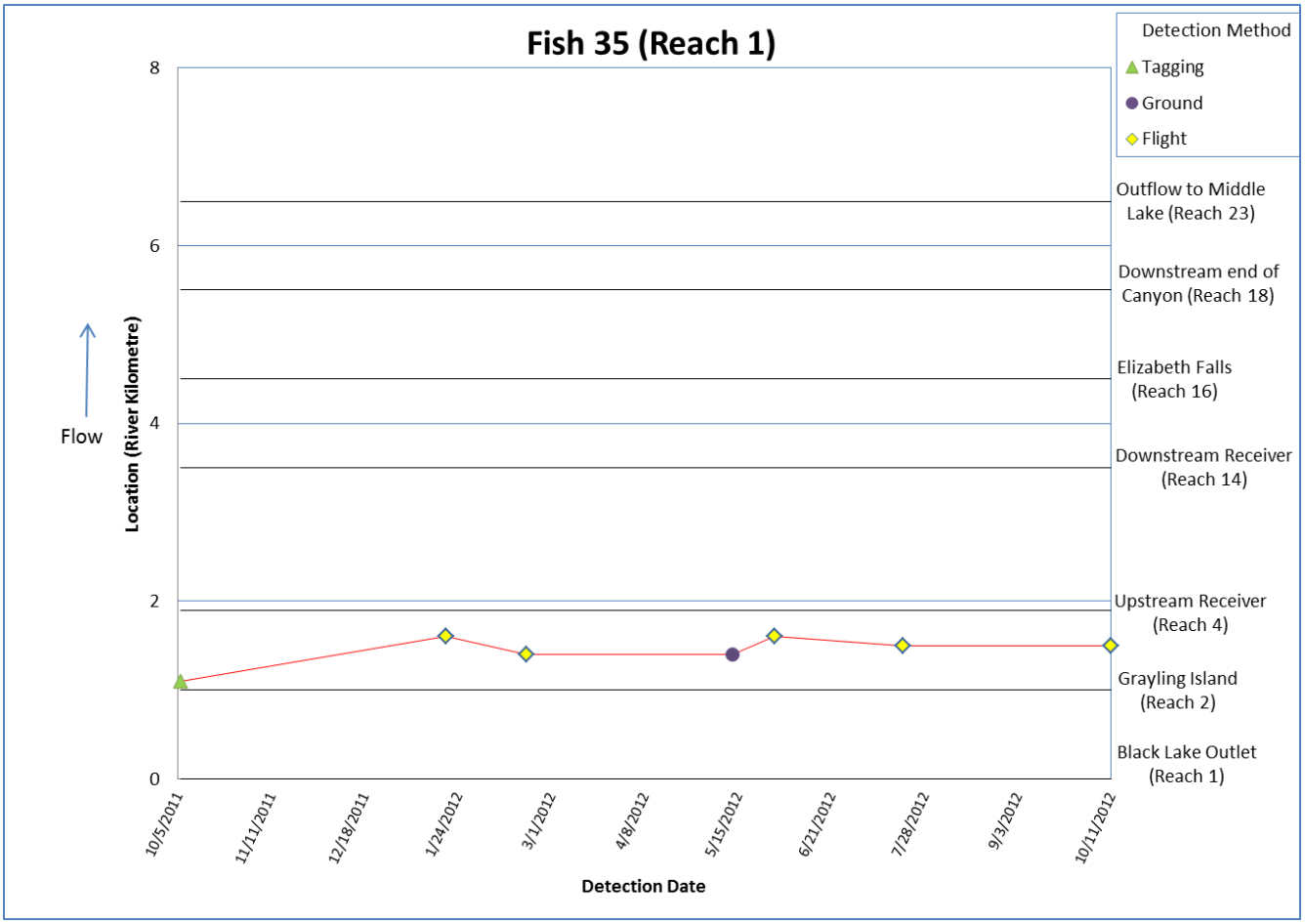
10/11/2012
Detection Date


Fish 35 (Reach 1)
Detection Method
Tagging
Ground
Flight
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
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11/11/2011
12/18/2011
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6/21/2012
7/28/2012
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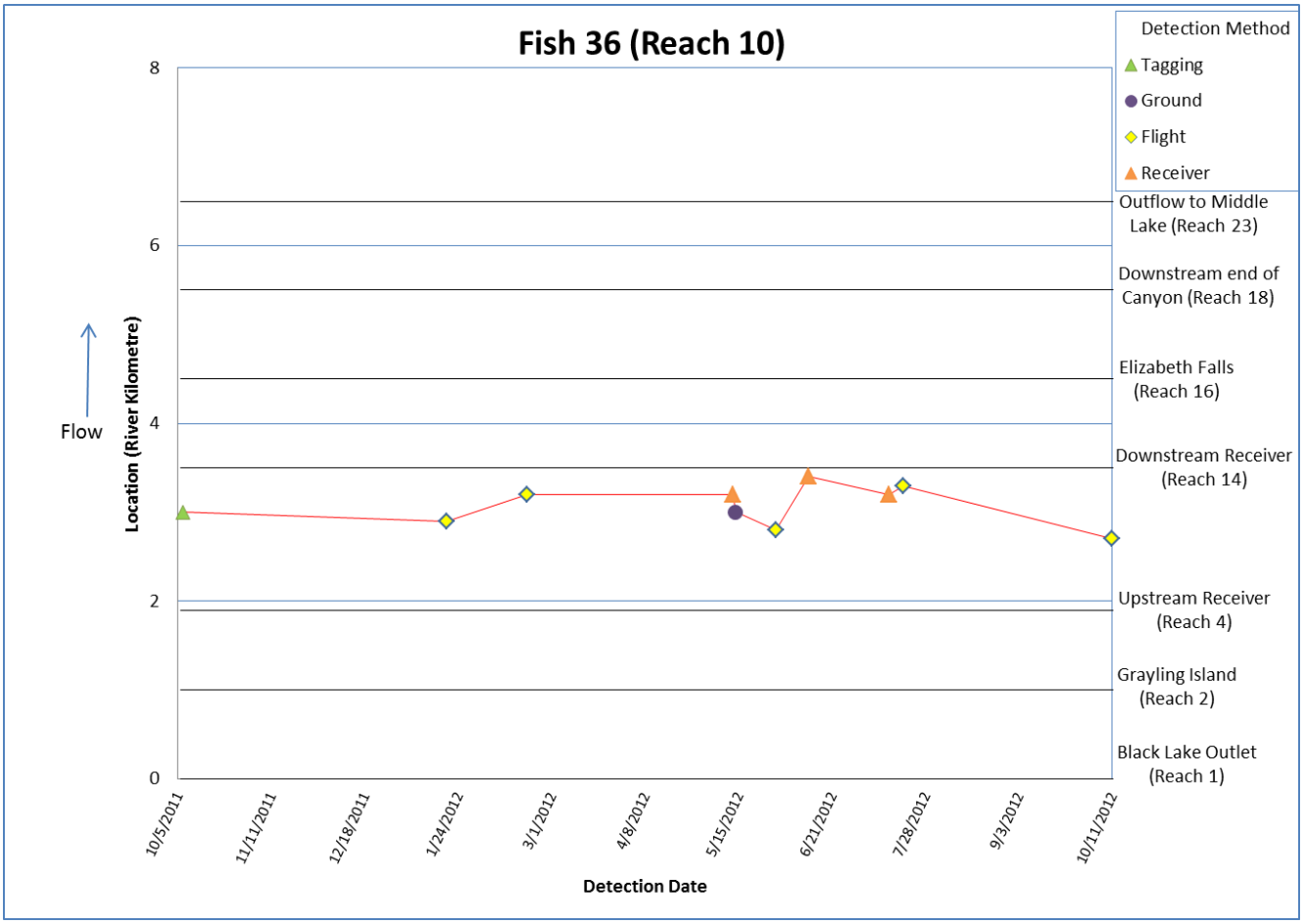
10/11/2012
Detection Date


Fish 36 (Reach 10)
Detection Method
Tagging
Ground
Flight
Receiver
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
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11/11/2011
12/18/2011
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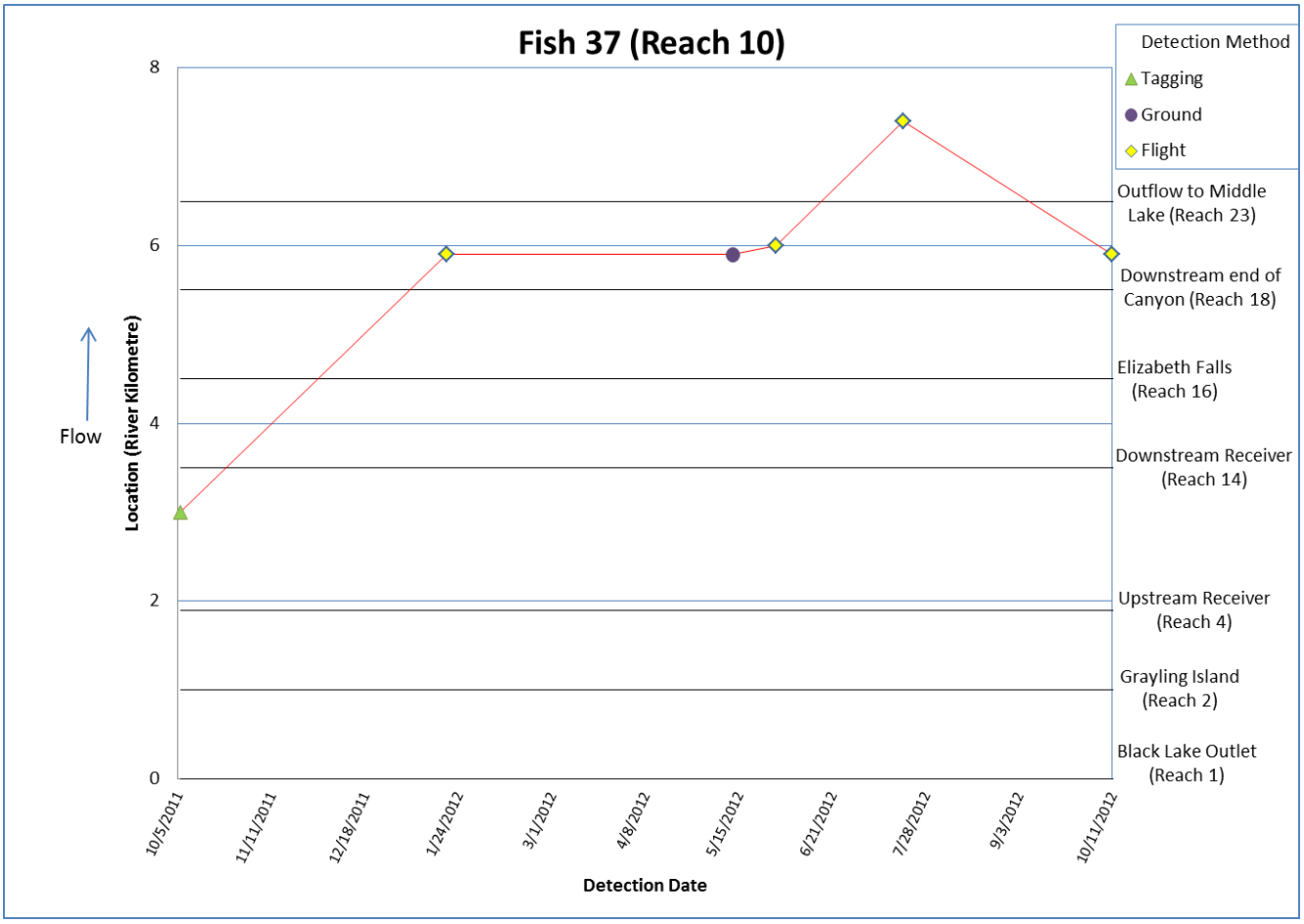
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 37 (Reach 10)
Detection Method
Tagging
Ground
Flight
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
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7/28/2012
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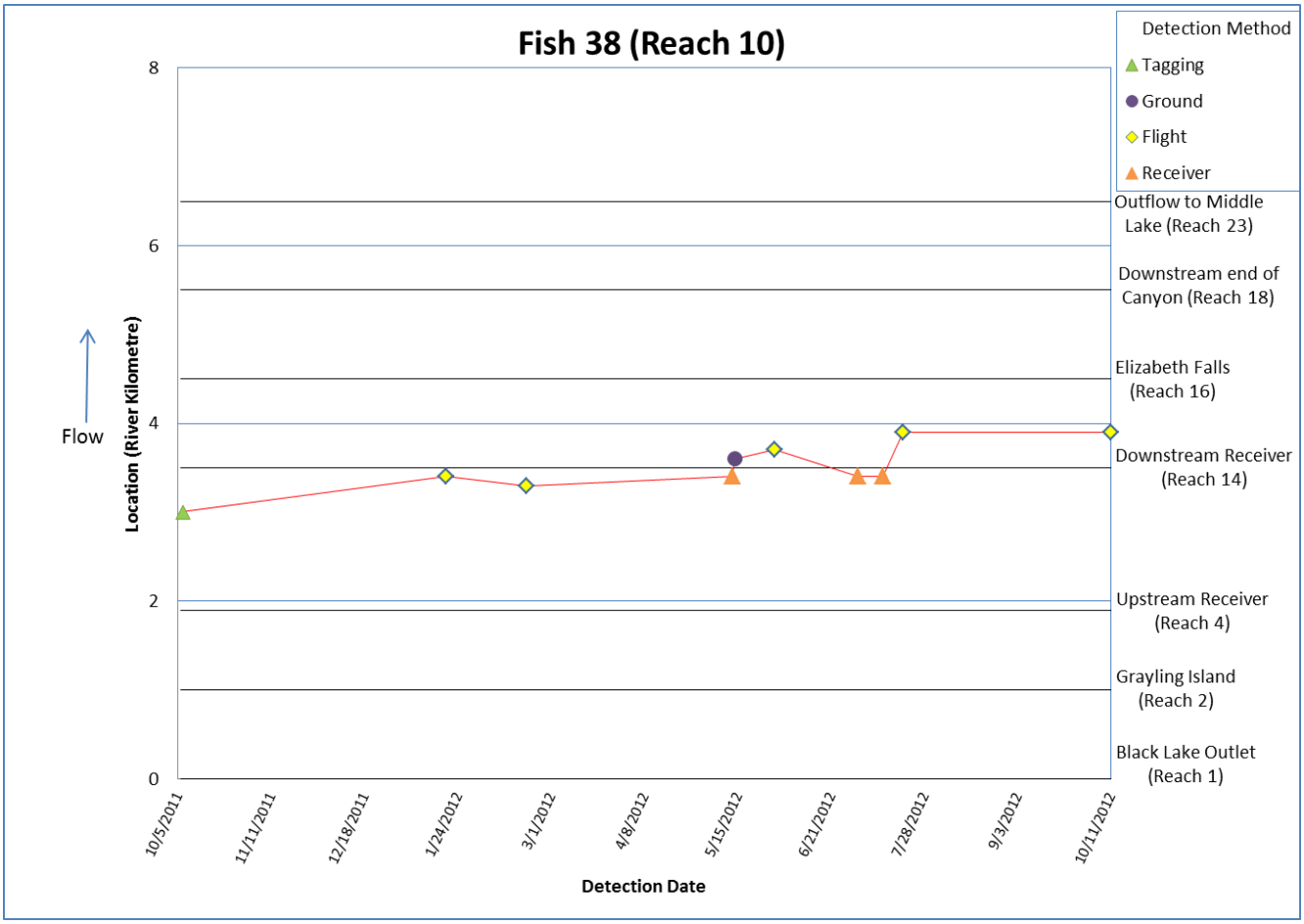
10/11/2012
Detection Date


Fish 38 (Reach 10)
Detection Method
Tagging
Ground
Flight
Receiver
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
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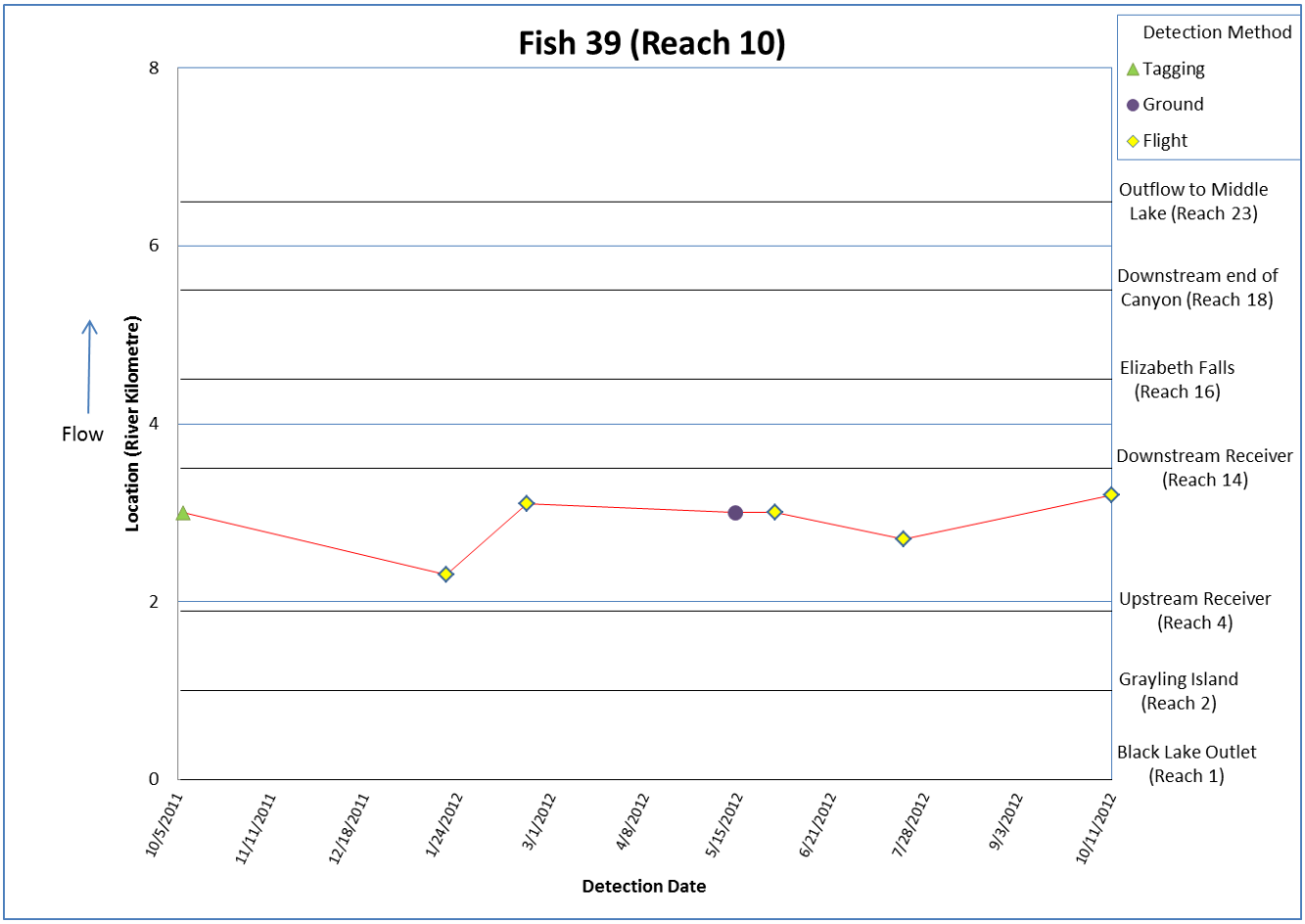
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 39 (Reach 10)
Detection Method
Tagging
Ground
Flight
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
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12/18/2011
1/24/2012
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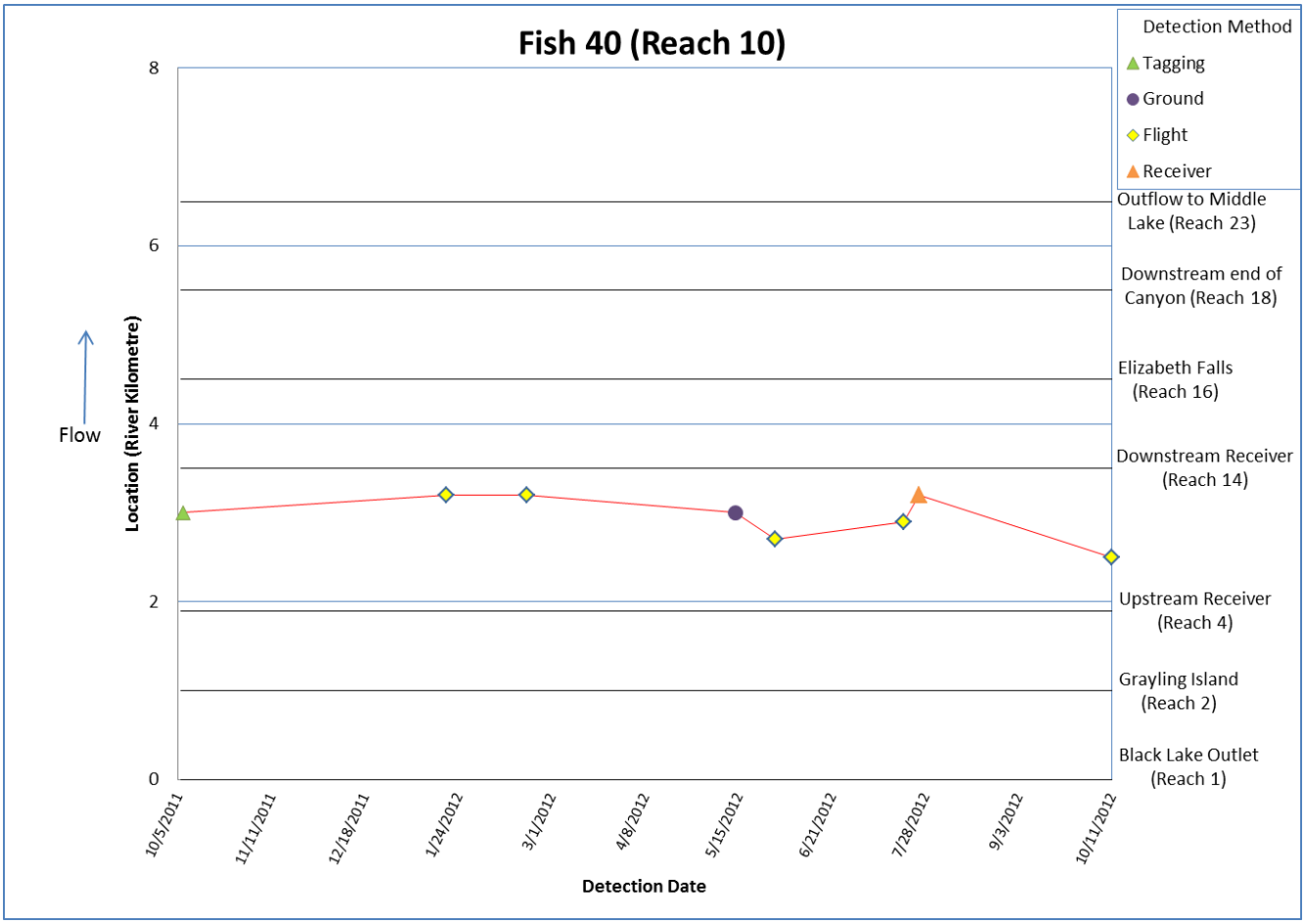
4/8/2012
5/15/2012
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date


Fish 40 (Reach 10)
Detection Method
Tagging
Ground
Flight
Receiver
Outflow to Middle Lake (Reach 23)
Downstream end of Canyon (Reach 18)
Elizabeth Falls (Reach 16)
Downstream Receiver (Reach 14)
Upstream Receiver (Reach 4)
Grayling Island (Reach 2)
Black Lake Outlet (Reach 1)
Flow
Location (River Kilometre)
8
6
4
2
0
10/5/2011
11/11/2011
12/18/2011
1/24/2012
3/1/2012
4/8/2012
5/15/2012
6/21/2012
7/28/2012
9/3/2012
10/11/2012
Detection Date