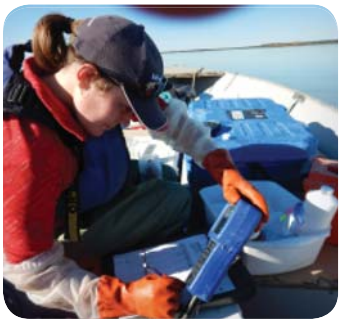
Keeyask Generation Project

Aquatic Effects Monitoring Plan

Water Quality Monitoring Report

AEMP-2017-07



KEEYASK

Manitoba Sustainable Development Client File 5550.00 Manitoba Environment Act Licence No. 3107

2016 - 2017

KEEYASK GENERATION PROJECT

AQUATIC EFFECTS MONITORING PLAN

REPORT #AEMP-2017-07

RESULTS OF WATER QUALITY MONITORING IN THE NELSON RIVER, 2016: YEAR 3 OF CONSTRUCTION

Prepared for

Manitoba Hydro

By

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June 2017

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SUMMARY

Background

The Keeyask Hydropower Limited Partnership (KHLP) was required to prepare a plan to monitor the effects of construction and operation of the Keeyask Generating Station (GS) on the environment. Besides measuring the accuracy of the predications made and actual effects of the GS on the environment, monitoring results will provide information on how construction and operation of the GS will affect the environment and if more needs to be done to reduce harmful effects.

Construction of the Keeyask GS began in mid-July 2014. During 2014 and 2015, cofferdams were constructed that blocked the north and central channels and a portion of the south channel of Gull Rapids (see map below). In 2016 there was little in-stream construction prior to the completion of field studies in fall: the central portion of the Central Dam Cofferdam was widened in April/May and work on the Tailrace Summer Level Cofferdam was started on August 4 and 5 and then stopped until October. With so little in-stream construction activity prior to completing field work in the fall, possible construction-related impacts to the aquatic environment during this period were limited to indirect effects (e.g., potential impacts to water quality from discharge at the cofferdam, runoff from disturbed terrestrial areas).

Water quality is a key part of the monitoring program because it determines whether water is suitable to support aquatic life, including fish. Many human activities, including the construction and operation of the GS, can affect water quality.

This report describes the results of water quality monitoring conducted during the third year of construction at Gull Rapids. Samples were collected at sites in Clark or Split lakes (i.e., upstream of the high water effects observed in 2014), the Nelson River upstream of construction, and at sites in Stephens Lake downstream of construction (the “local study area”) to see whether the water quality changed as it passed the construction site. Monitoring included parameters such as suspended solids (such as sand and clay, *etc*.) and turbidity (*i.e.*, “muddiness of the water”) that are expected to increase during construction. The program also measured other substances that are not expected to increase, but are measured just in case.

KEEYASK

DATA SOURCE:
Orthophoto: Manitoba Hydro - Sep 2016

CREATED BY:
North/South Consultants

COORDINATE SYSTEM:	DATE CREATED:	REVISION DATE:
UTM NAD 1983 Z15N	17-MAR-17	17-MAR-17
0 0.15 0.3 Kilometres / 0 0.15 0.3 Miles	VERSION NO: 2.0	QA/QC: PMC/FSV/MWZ

Construction Site

Map of instream structures at the Keeyask generating station site, September 2016.

Why is the monitoring being done?

The monitoring is being done to address one main question:

Are construction activities changing water quality near Gull Rapids and in Stephens Lake to the point that fish and other aquatic life may be harmed?

The main effect of constructing the GS is that it can lead to more sand, silt, clay and other "suspended solids" entering the Nelson River, which may impair water quality. This can be caused by building structures such as cofferdams in the river, or loss of soils and other material from the land caused by clearing vegetation or flooding shorelines. Construction may also result in the release of other potentially harmful substances, such as fuels and oils used in construction equipment (hydrocarbons), to the river. Water quality monitoring will determine whether construction is causing changes to water quality that could harm aquatic life and determine if additional measures are required to prevent effects from occurring in the future.

Suspended solids concentrations in the water are measured continuously downstream during construction and the results are relayed to the work site so that construction activities can be adjusted if the suspended solids become too high. These results are reported annually under the *Keeyask Generation Project Sediment Management Plan for In-Stream Construction* (SMP).

The water quality monitoring described in this report is much broader than what is done for the SMP. It examines water quality over a much larger area and measures other aspects of water quality besides suspended solids, such as nutrients (which are necessary for aquatic life), metals, and oil and gas (*i.e.*, hydrocarbons).

What was done?

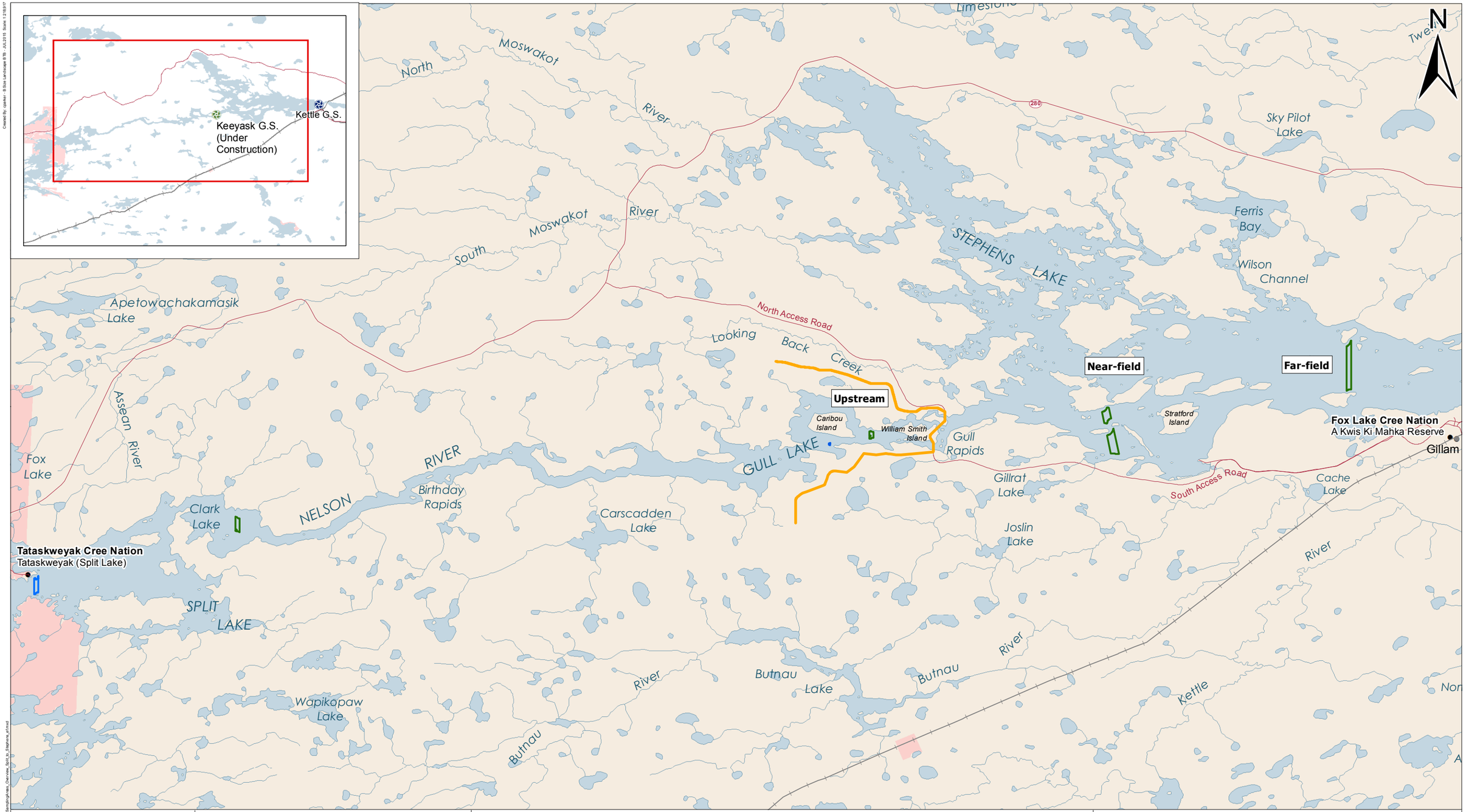
In 2016, water quality sampling was conducted five times in the local study area in Clark or Split lakes, upstream of Gull Rapids, and in Stephens Lake in early April (winter period), and late June, July, August, and September (open-water period). Samples were collected to measure a number of substances in the water, including:

- total suspended solids and turbidity;
- pH;
- oxygen;
- nutrients (compounds that may increase the amount of algae present);
- chlorophyll a (representing the amount of algae);
- metals and major ions (some of which are essential to aquatic life but some may also be harmful to aquatic life); and
- hydrocarbons.

Filling water quality sample bottles.

During monitoring in the local study area, samples were collected in four areas of Clark/Split lakes, the Nelson River, and Stephens Lake. One area at Gull Rapids ("upstream area") was intended to serve as a reference for conditions in the Nelson River upstream of construction, but high water levels in 2014 prompted the addition of sites further upstream in Split Lake (during winter) and Clark Lake (during summer) (see local study area map below). The third area sampled in 2016 was in Stephens Lake approximately 9 km downstream of the construction activities ("near-field area"). This represents an area where some effects on water quality from construction are expected. The fourth area was also in Stephens Lake, approximately 25 km downstream of the construction site ("far-field area"). This area was used to determine whether effects observed at the near-field area extended farther downstream.

Five sites were sampled in each of the Clark/Split Lake, upstream, near-field, and far-field areas to make sure enough samples were taken so the results would give an accurate account of what was happening at a given location.



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Legend

- Open-water Sampling Area
- Ice-cover Sampling Area
- Generating Station (Existing)
- Generating Station (Under Construction)
- Keeyask Principal Structures
- Highway
- Rail
- First Nation Reserve

Water Quality Sampling Areas

Overview

Water quality monitoring areas during the ice-cover and open-water seasons, 2016. Green areas show areas sampled in open water periods and blue areas show winter sampling locations. Sampling areas in the near field and far field of Stephens Lake were the same in open water and winter. Five sites were sampled in each area.

What was found?

Water quality was similar upstream and downstream of the construction activities, indicating there was minimal effect of construction on water quality and its suitability for aquatic life.

What does it mean?

The information collected so far during the project indicates that construction activities have had a minimal effect on water quality and its suitability to support aquatic life.

What will be done next?

Water quality monitoring will be continued in 2017. Results of monitoring conducted in 2017 will be presented in the Year 4 construction report.

ACKNOWLEDGEMENTS

We would like to thank Manitoba Hydro for the opportunity and resources to conduct this study.

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1.0 INTRODUCTION

The Keeyask Generation Project (the Project) is a 695-megawatt (MW) hydroelectric generating station at Gull (Keeyask) Rapids on the lower Nelson River in northern Manitoba. The Project is approximately 725 kilometres (km) northeast of Winnipeg, 35 km upstream of the existing Kettle Generating Station, where Gull Lake flows into Stephens Lake, 60 km east of the community of Split Lake, 180 km east-northeast of Thompson and 30 km west of Gillam (Map 1). Construction of the Project began in July 2014.

The *Keeyask Generation Project: Response to EIS Guidelines*, completed in June 2012, provides a summary of predicted effects and planned mitigation for the Project. Technical supporting information for the aquatic environment, including a description of the environmental setting, effects and mitigation, and a summary of proposed monitoring and follow-up programs is provided in the *Keeyask Generation Project Environmental Impact Statement: Aquatic Environment Supporting Volume* (AE SV). As part of the licensing process for the Project, an Aquatic Effects Monitoring Plan (AEMP) was developed detailing the monitoring activities of various components of the aquatic environment including the focus of this report, water quality.

During the construction phase, the primary effect of the Project on water quality was predicted to be related to increases in total suspended solids (TSS), notably in relation to river management and cofferdam placement/removal. The primary mechanism for monitoring effects of construction activities on TSS/turbidity in the Nelson River is through monitoring that is being conducted under the *Keeyask Generation Project Sediment Management Plan for In-Stream Construction* (SMP) and the *Keeyask Generation Project Physical Environment Monitoring Plan* (PEMP), which include monitoring of TSS and turbidity in the Nelson River. TSS data collected under the SMP and PEMP are reported in the annual reports associated with those plans. Other pathways of effects (*i.e.*, discharge of point sources) are expected to result in highly localized and negligible to small effects on water quality, including TSS (*e.g.*, discharge of concrete batch plant effluent). The water quality monitoring program implemented during construction is intended to monitor effects on a broader array of water quality parameters in addition to TSS. This program, therefore, provides the means to monitor for potential unforeseen effects.

The study area for the water quality component of the AEMP during the construction period is composed of a local study area (LSA), which includes Clark Lake (open-water season) or Split Lake (ice-cover season), the reach of the Nelson River upstream of Gull Rapids, and the southern area of Stephens Lake, and a regional study area (RSA) which includes the lower Nelson River downstream of Stephens Lake (Map 1). The 2016 (Year 3) construction water quality monitoring program included monitoring in the LSA only. As described in Table 2-6 of the AEMP, monitoring in the RSA is to be conducted during periods when TSS is predicted to be elevated due to certain in-stream construction activities; however, none of these were carried out in 2016.

Key questions presented in the AEMP to be answered about water quality during construction of the Keeyask GS are:

- Has the Project resulted in exceedances of water quality objectives or guidelines for the protection of aquatic life?
- What are the magnitude and spatial extent of effects of construction on water quality?

The objectives of monitoring during the construction period are to: determine if the Project caused or contributed to exceedances of benchmarks; determine the spatial and temporal extent of effects; confirm predictions presented in the AE SV; and, monitor for unforeseen effects. The overall objective of construction monitoring is to record the net effect of various construction activities on a suite of water quality parameters along the mainstem of the Nelson River.

The AEMP identified key indicators and benchmarks for the water quality monitoring program to focus the program and provide an adaptive management framework (AMF). Key indicators were identified as those most likely to be affected by the Project, for which there is the greatest risk for direct effects on aquatic life, and for which there are objectives or guidelines for the protection of aquatic life (PAL). Benchmarks were identified based on baseline water quality conditions; Manitoba Water Quality Standards, Objectives, and Guidelines (MWQSOGs) for PAL (MWS 2011); and the Canadian Council of Ministers of the Environment (CCME) phosphorus guidance framework for freshwater systems (CCME 1999; updated to 2014[1]). Monitoring was also designed to include measurement of additional parameters for which no benchmarks were developed (Table 2).

The construction monitoring program is designed to facilitate comparisons of water quality spatially (*i.e.*, upstream versus downstream of construction activities) to delineate Project-related effects. Specifically, the program is designed to facilitate statistical comparisons of water quality in an upstream reference area to water quality monitored downstream of construction activities. The reference area is an area located upstream of Project activities in the lower Nelson River. The Nelson River upstream of Gull Rapids served as the reference during years 1 and 2 of the program; however, sites further upstream (*i.e.,* in Clark or Split lakes) were added after high water levels in 2014 caused backwater effects within the Nelson River upstream of Gull Rapids.

An AMF was developed for the water quality monitoring program, as presented in the AEMP. In brief, the framework entails initially comparing monitoring results to pre-established benchmarks (Step 1). If a benchmark is not exceeded, the assessment would proceed to Response Level 1 – trend analysis. If a benchmark is exceeded, the assessment would proceed to Step 2 – determination of whether there is a statistical difference between upstream and downstream areas (*i.e.*, control-impact). If a statistical difference is not observed, the assessment would proceed to Response Level 1. Where statistical differences are identified for key indicators, the

[1] All guidelines were those current at that time of AEMP development.

assessment would proceed to Step 3, in which a determination of cause (*i.e.*, is the difference Project-related) would be undertaken (see Figure 1).

The following report presents the results of water quality monitoring completed in the ice-cover and open-water seasons of 2016 during Year 3 of construction. Results are assessed using the adaptive management framework as summarized above and detailed in the AEMP.

2.0 STUDY SETTING

The study area encompasses an approximately 220 km long reach of the Nelson River from Clark Lake to downstream of the Conawapa site on the lower Nelson River (Map 1). This section of river offers a diversity of physical habitat conditions, including a variety of substrate types, and variable water depths (ranging from 0 to 30 m) and velocities.

Clark Lake is located immediately downstream of Split Lake, and approximately 42 km upstream of Gull Rapids (Map 1). Current is restricted to the main section of the lake, with off-current bays outside the main channel. The Assean River is the only major tributary to Clark Lake, and flows into the north side. Downstream from the outlet of Clark Lake, the Nelson River narrows and water velocity increases for a 3 km stretch, known as Long Rapids. For the next 7 km, the river widens, and water velocity decreases.

Birthday Rapids is located approximately 10 km downstream of Clark Lake and 30 km upstream of Gull Rapids (Map 1). The drop in elevation from the upstream to downstream side of Birthday Rapids is approximately 2 m. The 14 km reach of the Nelson River between Birthday Rapids and Gull Lake is characterized as a large, somewhat uniform channel with medium to high water velocities. There are a few large bays with reduced water velocity and a number of small tributaries that drain into the Nelson River.

Gull Lake is a section of the Nelson River where the river widens, with moderate to low water velocity. Gull Lake is herein defined as the reach of the Nelson River beginning approximately 17 km upstream of Gull Rapids and 14 km downstream of Birthday Rapids (*i.e.*, where the river widens to the north into a bay around a large point of land; Map 1), and extending to the downstream end of Caribou Island, approximately 3 km upstream of Gull Rapids. Gull Lake has three distinct basins, the first extending from the upstream end of the lake downstream approximately 6 km to a large island; the second extending from the large island to a constriction in the river immediately upstream of Caribou Island; and the third extending from this constriction to the downstream end of Caribou Island (Map 1).

Gull Rapids is located approximately 3 km downstream of Caribou Island on the Nelson River (Map 1). Two large islands and several small islands occur within the rapids, prior to the river narrowing. The rapids are approximately 2 km in length, and the river elevation drops approximately 11 m along its 2 km length. A summary of 2016 construction activities at Gull Rapids is provided in Section 2.1.

Just below Gull Rapids, the Nelson River enters Stephens Lake. Stephens Lake was formed in 1971 by construction of the Kettle GS. Between Gull Rapids and Stephens Lake there is an approximately 6 km long reach of the Nelson River that, although affected by water regulation at the Kettle GS, remains riverine habitat with moderate velocity. Construction of the Kettle GS flooded Moose Nose Lake (which formed the north arm of Stephens Lake) and several other small lakes that previously drained into the Nelson River, as well as the old channels of the

Nelson River that now lie within the southern portion of the lake. Major tributaries to Stephens Lake include the North and South Moswakot rivers, which enter the north arm of the lake. Looking Back Creek is a second order stream that also drains into the north arm of Stephens Lake (Map 1). Kettle GS is located approximately 40 km downstream of Gull Rapids.

Long Spruce reservoir was formed in 1979 by the construction of the Long Spruce GS. It is a 16 km reach of the Nelson River extending from Long Spruce GS upstream to Kettle GS (Manitoba Hydro Public Affairs 1999). Kettle River and Boots Creek are the only major tributaries flowing into Long Spruce reservoir, with both tributaries entering the reservoir on the south shore.

The Limestone GS was completed in 1992, and the reservoir encompasses the 23 km long reach of the Nelson River between the Long Spruce GS and the Limestone GS (Manitoba Hydro Public Affairs 1998). Unlike Long Spruce GS, the Limestone reservoir is contained within the existing riverbank and ranges from a riverine environment in the upstream portion, to more of a lake-like environment just upstream of Limestone GS. There are four main tributaries that flow into Limestone reservoir: Wilson Creek and Brooks Creek both enter from the south shoreline of the reservoir, while Sky Pilot Creek and Leslie Creek enter from the north shore.

Similar to the section of the Nelson River between Split Lake and Stephens Lake, the Nelson River below the Limestone GS is also characterized by narrow sections with swiftly flowing water and wider more lacustrine sections created by the reservoir of the Long Spruce and Limestone GSs. The Nelson River below the Limestone GS is extensively affected by discharge regulation, with diurnal fluctuations in discharge and stage changes varying on the order of 1 m (Manitoba Hydro 1994).

2.1 CONSTRUCTION SUMMARY

Construction of the Keeyask GS began in mid-July 2014 with the construction of cofferdams in the north and central channels of Gull Rapids. These cofferdams resulted in the dewatering of the north and central channels and the diversion of all flow to the south channel. Construction of the spillway cofferdam, which extends into the south channel of Gull Rapids, was completed in 2015.

Work began to construct the Tailrace Summer Level Cofferdam on August 4 and 5, 2016 and then was suspended until October. Work also took place to widen the central portion of the Central Dam Cofferdam (Map 2) in late April and early May. With so little in-stream construction activity prior to completing field work in the fall, possible construction-related impacts to the aquatic environment during this period were limited to indirect effects (e.g., potential impacts to water quality from discharge at the cofferdam, runoff from disturbed terrestrial areas).

Split Lake outflows from late 2015 to the end of June 2016 were relatively high, generally ranging between 3500–4000 m^3/s. The 75th percentile flow for Split Lake outflow is

approximately 3,500 m^3/s. Flow increased sharply in July 2016, reaching a peak of 4,700 m^3/s in August, before declining. Water levels varied in conjunction with flow, however, some winter staging was apparent from December to May. During the winter of 2015/2016, water levels rose to approximately 155.5 m ASL. Water level on Gull Lake ranged from 154 – 155 m ASL for most of the open-water season.

3.0 METHODS

The following provides a description of the study design, sampling sites, sampling methods, and data analysis methods employed during the 2016 monitoring program.

3.1 STUDY DESIGN

The construction monitoring program is designed to facilitate comparisons of water quality spatially (*i.e.*, upstream and downstream of construction activities) to delineate Project-related effects. Specifically, the program is designed to facilitate statistical comparisons of water quality in an upstream reference area to water quality monitored downstream of construction activities (*i.e.*, areas that are predicted to be most affected by the Project); this area is defined as the local study area. Sampling in the LSA includes monitoring at replicate sites upstream and downstream of construction activities and is to be conducted annually during the construction period.

The objective of monitoring during the construction period is to determine if the Project caused or contributed to exceedances of benchmarks and to confirm predictions in the AE SV.

3.2 SAMPLING SITES

The construction water quality monitoring program incorporated monitoring at replicate sampling sites upstream and downstream of construction activities within the LSA (Map 3) as follows:

- Clark/Split Lake (Map 4): Clark and Split lakes are situated upstream of the construction site and are not affected by water level increases related to the Project;
- Nelson River Upstream Area (Map 5): the Nelson River upstream of Gull Rapids. This area served as the reference area in 2014 and 2015. However, high flows in combination with Phase 1 river management beginning in July 2014 raised water levels to above the 95th percentile periodically;
- Near-Field Area (Map 5): this area is located approximately 9 km downstream of all construction activities in Stephens Lake; and
- Far-Field Area (Map 5): this area is located approximately 25 km downstream of construction activities in Stephens Lake.

Five replicate sites were sampled in each of the sampling areas (*i.e.*, sampling polygons) during the open-water season. During the ice-cover season, sites were relocated to areas with sufficient ice formation to facilitate safe access. Universal Transverse Mercator (UTM) coordinates for the water quality sites are provided in Table 1.

The locations of the replicate stations were defined differently for the upstream areas (i.e., Nelson River upstream of Gull Rapids and Split and Clark lakes) and the downstream near-field and far-field areas due to the lack of detailed bathymetric information for Stephens Lake. As there are detailed bathymetry data for the areas upstream of Gull Rapids up to and including Split Lake, the polygon boundary was defined based on open-water depths (> 5 m in depth at the 50th percentile water level), distance from shore (*i.e.*, > 100 m from shore), and length (*i.e.*, 250 m in length) (Maps 6-8). As shown on Map 7, the polygon in Clark Lake contained some shallower areas that were excluded.

Due to the lack of detailed bathymetry for the two downstream sampling areas in Stephens Lake, these polygons were defined based on distance from shorelines. Specifically, the polygons were located 250 m from shorelines (including islands) and were 250 m in length (Maps 9-10).

These boundaries were identified to ensure sites were located in relatively deep areas even under low water levels and to avoid nearshore areas where localized differences in water quality may occur (e.g., localized shoreline erosion), while also being sufficiently large to accommodate five sampling sites with sufficient separation (i.e., minimum of 20 m separation between sites).

3.3 SAMPLING METHODS

Sampling was conducted during the ice-cover season on April 2–5 and four times during the open-water season in 2016: June 27–28, July 27–30, August 26–31, and, September 19–23. Sites were accessed by boat during the open-water season and by snowmobile or helicopter and on foot during winter.

UTMs were recorded at each site using a hand-held Global Positioning System (GPS) unit and total water depth was measured using a HawkEye H22PX handheld depth sounder. General information recorded at each site included:

- Date and time of sample collection;
- Cloud cover and precipitation, including the occurrence of precipitation prior to sampling where possible;
- Sampling equipment used;
- Site conditions and/or observations relevant to the sampling program;
- Any deviations from field sampling protocols; and,
- Snow and ice thickness (ice-cover season only).

Sampling consisted of collection of *in situ* water quality measurements and collection of grab samples for laboratory analysis, as described below.

3.3.1 *IN SITU* MEASUREMENTS

Secchi disk depth was measured during the open-water season at the near-field and far-field locations; velocities were too high for reliable measurement of Secchi disk depth in the upstream area. Secchi disk depth was measured from the shady side of the boat by lowering the disk until it was no longer visible; the disk was then lowered approximately 1 m deeper than the previous reading, and raised until it was visible again. The Secchi disk depth was recorded as the average of the two readings.

In situ measurements of dissolved oxygen (DO), turbidity, pH, specific conductance, turbidity, and temperature were collected at each sampling site in each season using a YSI EXO2 water quality multi-meter. *In situ* parameters were measured at 1.0 m or 0.5 m intervals (for sites > 5.0 m and < 5.0 m, respectively) at each site beginning with a near surface measurement (*i.e.*, 0.3 m). High velocities in the sampling area upstream of Gull Rapids during the open-water season precluded measurement of *in situ* parameters across the entire water column and measurements were limited to near-surface depths.

3.3.2 SAMPLING FOR LABORATORY ANALYSES

At each site, grab samples of surface water were collected for laboratory analysis. Laboratory parameters included “routine” parameters (*e.g.*, nutrients, TSS, pH), total metals, and total mercury at all sites. Benzene, toluene, ethylbenzene, and xylene (BTEX), and F1-F4 hydrocarbons were also measured in the upstream and near-field areas to monitor for potential hydrocarbon contamination downstream of construction activities.

With the exception of sample collection for ultra-trace mercury, sampling during the open-water season was conducted by wearing gloves and submerging each sample bottle (provided by the analytical laboratory) to elbow depth (*i.e.*, approximately 0.3 m depth) then uncapping, filling, recapping, and retrieving the bottle to the surface, where preservatives were added as required. During the ice-cover season, near-surface water was collected using a Kemmerer water sampler deployed approximately 0.3 m below the ice; the sampler was retrieved to the surface and sample bottles were filled and preserved as instructed by the analytical laboratory while wearing nitrile gloves. During all seasons, samples for ultra-trace mercury were collected using the “clean hands-dirty hands” protocol (U.S. Environmental Protection Agency 1996). All sample bottles were filled with minimal headspace, except where instructed, to prevent chemical alteration and loss of compounds. Samples were subsequently kept cool (but not frozen) and in the dark until submission to a Canadian Association for Laboratory Accreditation (CALA) accredited laboratory (ALS Laboratories, Winnipeg).

3.4 QUALITY ASSURANCE / QUALITY CONTROL

The quality control/quality assurance (QA/QC) program included application of standard procedures to limit sample contamination in the field, submission of QA/QC samples to the analytical laboratory, and QA/QC verifications of the water quality meter.

3.4.1 GENERAL QA / QC

Standard procedures for the control of sample contamination were adhered to throughout the sampling program, including:

- Use of gloves during sampling;
- Collecting samples facing in an upstream direction to minimize sample contamination. Where possible, sites were also approached moving in an upstream direction to avoid site disturbance and contamination;
- Avoiding contact with the insides of sample bottles, including lids;
- Limiting exposure of the insides of sample bottles to the atmosphere;
- Regular cleaning, calibration, inspection, and accuracy verifications of field meters and equipment; and,
- Adherence to sampling protocols wherever possible.

3.4.2 TRIPLICATE SAMPLES

The sampling program incorporated the collection of one triplicate sample at a randomly selected sampling site during each sample collection period. The triplicates were collected at the same location and as close in time as practically feasible. Triplicate samples were identified with the Site ID followed by “A”, “B”, or “C”.

3.4.3 FIELD BLANKS

One field blank was submitted to the analytical laboratory (ALS Laboratories) during each sampling period. Field blanks were prepared by filling one set of sample bottles (provided by the analytical laboratory) with deionized water (also provided by the analytical laboratory) in the field and treating the blanks in exactly the same manner as environmental samples.

Bottles were blindly labeled, stored and transported according to sampling and handling protocols, and submitted along with environmental samples.

3.4.4 TRIP BLANKS

One trip blank was also submitted to the analytical laboratory (ALS Laboratories) during each sampling period. Trip blanks were prepared by the analytical laboratory by filling one set of sample bottles with deionized water and adding preservatives where appropriate.

The trip blank samples were transported to the field site, using the same handling and transport protocols as for environmental samples, and submitted along with environmental samples to the analytical laboratory for analysis. Trip blanks were treated similarly to field blanks but the bottles were not opened at any point in the field and thus were not exposed to the environment. Trip blanks were also blindly labelled.

3.4.5 WATER QUALITY METER QA / QC

The water quality meter was calibrated and inspected prior to departure for the field for each sampling trip. In the field, the functioning and accuracy of the meter was also assessed at the end of each sampling day by verifying the values in standards of known values for turbidity, pH, and specific conductance. Any discrepancies from the standard values were documented in the field notes.

3.5 DATA ANALYSIS

Prior to analysis, all environmental data were evaluated qualitatively for potential outliers and transcription or analytical errors. Suspect results were noted and requests were made to the analytical laboratory to verify the values.

QA/QC samples were assessed according to standard criteria to evaluate precision and identify potential sample contamination issues (British Columbia Ministry of Environment, Lands, and Parks [BCMELP] 1998). Field and trip blank results were evaluated for evidence of sample contamination. Blank results that exceeded five times the analytical detection limit (DL) were considered to be indicative of sample contamination and/or laboratory error. Percent relative standard deviation (PRSD) was calculated for triplicate samples as follows:

PRSD = Standard deviation of the triplicate values/Mean of the triplicate values x 100.

Precision of the QA/QC samples was evaluated using the “rule of thumb” criteria for precision of 18% for triplicate samples (BCMELP 1998). Where one or more of the measurements being compared were less than five times the analytical DL, an analysis of precision was not undertaken, in accordance with guidance provided in BCMELP (1998).

Mean and standard error (SE) were also calculated for all five sampling sites within each sampling area during each sampling period. Results that were reported below the analytical DL were assigned a value of one half the DL.

As summarized in Section 1.0, and detailed in the AEMP, results of the water quality monitoring program are subject to the steps identified within the AMF (Figure 1). This framework prescribes data analysis methods and other tasks to be undertaken based on results of the monitoring program. Step 1 of the AMF entails comparison of the mean values of replicate samples for key indicators measured during a single sampling period to the benchmarks identified in the AEMP. If a benchmark is not exceeded, the assessment would proceed to Response Level 1 – trend analysis. If a benchmark is exceeded, the assessment would proceed to Step 2 – determination of whether there is a statistical difference between upstream and downstream areas (*i.e.*, control-impact) and/or relative to baseline conditions (before-after). If a statistical difference is not observed, the assessment would proceed to Response Level 1. Where statistical differences are identified for key indicators, the assessment would proceed to Step 3, in which a determination of cause (*i.e.*, is the difference Project-related) would be undertaken.

For data collected in 2016, means for key indicators were first compared to benchmarks (Table 2). For each key indicator measured in the LSA that exceeded a benchmark, a statistical comparison between upstream and downstream sampling areas was undertaken during the respective sampling period. Data subject to statistical analyses, as per the AMF, were analysed by a two-way analysis of variance ($\alpha = 0.05$).

Hydrocarbon data were screened upon receipt of results from the analytical laboratory to identify if there was any indication of potential contamination; results were evaluated for occurrence of detections and comparisons to MWQSOGs for PAL (MWS 2011; Table 4) where available.

In addition to the key water quality indicators, monitoring results for other water quality parameters (*e.g.,* parameters for which there are no PAL objectives or guidelines but may be indicative of general changes in water quality, such as conductivity) were also summarized to provide supporting information regarding potential effects of construction and to assist with development of trend monitoring over the long-term.

4.0 RESULTS

Results of the water quality monitoring program for the 2016 open-water season are summarized below, and presented in Tables 2 and 3, and Figures 2-38. Raw data are provided in Appendix 1 and results of the QA/QC samples are presented in Appendix 2.

4.1 KEY INDICATORS

4.1.1 NUTRIENTS

Mean ammonia, nitrate/nitrite, and total phosphorus (TP) concentrations measured in Split Lake/Clark Lake, the Nelson River upstream of Gull Rapids, and the near-field and far-field areas of the LSA were within the benchmark values during each of the sampling events in April (winter), June, July, August, and September (Table 2; Figures 2-4).

4.1.2 CHLOROPHYLL *a*

Mean chlorophyll *a* concentrations measured in Split Lake/Clark Lake, the Nelson River upstream area, and the near-field and far-field areas of the LSA in April, June, July and September were below the benchmark of 10.00 µg/L (Table 2; Figure 5). In August, although the mean chlorophyll *a* concentration measured in all LSA polygons was below the benchmark of 10.00 µg/L, concentrations exceeded the benchmark at four of the five replicate sites in the near-field Stephens Lake area (11.0, 11.3, 6.18, 11.0 and 10.0 µg/L). However, concentrations in the near-field area were not significantly different from the two upstream areas (Nelson River upstream of Gull Rapids or Clark Lake), indicating conditions were similar across these sites.

4.1.3 TOTAL SUSPENDED SOLIDS

Mean TSS concentrations measured in Split Lake/Clark Lake, the Nelson River upstream area, and the near-field and far-field areas of the LSA in April, June, July, August, and September were within the chronic benchmark values, defined as a 5 mg/L increase above background (calculated from measurements collected at Clark or Split lakes) (Table 2; Figure 6).

4.1.4 DISSOLVED OXYGEN

Mean DO concentrations measured in all sampling areas in the LSA were within the benchmark values during each of the sampling events in April, June, July, August, and September (Table 2;

Figure 7). Although some variation in DO concentrations were observed across water depth during some sampling periods, all measurements collected across the water column at every site and sampling time exceeded the DO benchmarks.

4.1.5 pH

Mean laboratory and *in situ* pH measurements collected in Split Lake/Clark Lake, the Nelson River upstream of Gull Rapids, and the near-field and far-field areas of the LSA were within the benchmark values during each of the sampling events in April, June, July, August, and September (Table 2; Figure 8).

4.1.6 METALS

Mean concentrations of total metals measured in each of the LSA sampling areas were within the benchmark values during each sampling event, including: aluminum, arsenic, boron, cadmium, chromium, copper, iron, lead, mercury, molybdenum, nickel, selenium, silver, thallium, uranium, and zinc (Table 2; Figures 9-24).

4.1.7 HYDROCARBONS AND BTEX

F1-F4 hydrocarbons were not detected in any sample, and BTEX was below the analytical detection limits in nearly all samples, collected in the LSA in 2016 (Table A1-4). One sample collected from a single site in the Nelson River upstream of Gull Rapids in April contained detectable concentrations of benzene, ethylbenzene, toluene, and xylene (all forms) and a second site from this sampling area contained a concentration of m+p xylene marginally above the analytical detection limit. Of these detections, one measurement of toluene (0.0072 mg/L) exceeded the Manitoba PAL guideline for toluene (0.0020 mg/L).

4.2 ADDITIONAL PARAMETERS

Results for parameters that are not key indicators (Table 3) are presented as follows: dissolved phosphorous (Figure 25), total nitrogen (Figure 26), total organic carbon (Figure 27), true colour (Figure 28), *in situ* and laboratory turbidity (Figures 29 and 30), total dissolved solids (Figure 31), hardness (Figures 32), and major ions (chloride, sulphate, calcium, magnesium, potassium, and sodium; Figures 33–38).

5.0 DISCUSSION

The mean concentrations of all key indicators were within the benchmark values during the April, June, July, August, and September sampling events in 2016. As per Step 1 of the AMF, no further analysis was required for parameters within the benchmarks.

During the August sampling period, chlorophyll *a* was marginally below the benchmark of 10.00 μg/L in the Stephens Lake near-field area (mean = 9.90 μg/L) and, therefore, further analyses were not triggered under the AMF. However, data were explored further due to the relatively high concentrations observed in four of the five replicate samples and because the mean was near the benchmark. The mean concentration was similar to and not statistically different from either upstream sampling area (mean = 9.44 μg/L in Clark Lake and mean = 8.69 μg/L in the Nelson River upstream of Gull Rapids). The relative difference in concentrations (expressed as a percentage increase from each upstream area) was 5% and 14% higher than Clark Lake and the lower Nelson River, respectively. This level of difference is within the range observed within replicate samples collected at a single site within a short time period (minutes) during the August monitoring period. The percent relative standard deviation (equivalent to the coefficient of variability) for the triplicate sample collected at a sub-station in the upstream area in August 2016 was 17%. Collectively, the information indicates that while chlorophyll a was marginally higher in the near-field area, there is no indication of a project-related effect in the downstream environment.

F1-F4 hydrocarbons were not detected in any samples and BTEX was not detected in nearly all samples collected from the LSA during all of the sampling events. Two exceptions were observed, both of which occurred in the Nelson River upstream of Gull Rapids during under ice sampling in April (Table A1-4). One replicate sample contained detectable levels of BTEX and a second sample contained a concentration of m+p xylene marginally above the DLs. Of these detections, only one (toluene) exceeded PAL guidelines (0.0072 mg/L compared to a benchmark of 0.0020 mg/L). Since detections occurred well upstream of construction activities and no detections occurred downstream, these results are not attributable to construction activities and are thought to reflect sample contamination. There was considerable slush ice at the two replicate sites where hydrocarbons were detected, requiring that the augur had to be moved up and down multiple times before a hole was sufficiently clear for sample collection. In addition, there was no obvious flow in the water, making it likely that the hydrocarbons detected in the sample had been released from the gas-powered augur used for drilling the sampling hole.

6.0 SUMMARY AND CONCLUSIONS

Key questions presented in the AEMP to be answered about water quality during construction of the Keeyask GS are:

- *Has the Project resulted in exceedances of water quality objectives or guidelines for the protection of aquatic life?*
- *What are the magnitude and spatial extent of effects of construction on water quality?*

Water quality measured in the local study area along the lower Nelson River indicated that conditions measured during the ice-cover and open-water seasons of 2016 were generally similar upstream and downstream of the construction activities. Specifically, any upstream to downstream differences in water quality were consistent with spatial trends observed during baseline studies.

Overall, information collected thus far indicates that construction activities have not affected water quality and its suitability to support aquatic life.

7.0 LITERATURE CITED

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TABLES

Table 1: Coordinates of water quality monitoring sites sampled in 2016.

Region	Site ID	Zone	Northing	Easting
Split Lake	SPL-10	14V	6236762	680828
	SPL-11	14V	6236602	680893
	SPL-12	14V	6236901	680933
	SPL-13	14V	6236672	680747
	SPL-14	14V	6236499	680970
Clark Lake	CL-1	15V	6420803	321161
	CL-2	15V	6420850	321121
	CL-3	15V	6240590	321212
	CL-4	15V	6240943	321307
	CL-5	15V	6240964	321188
Nelson River Upstream of Gull Rapids	US-1	15V	6246182	359580
	US-2	15V	6246053	359506
	US-3	15V	6246148	359379
	US-4	15V	6246191	359401
	US-5	15V	6246058	359456
	US-7	15V	6245500	356916
	US-11	15V	6245496	356937
	US-12	15V	6245544	356926
	US-13	15V	6245536	356896
	US-14	15V	6245508	356881
Stephens Lake Near-field	NF-1	15V	6247204	373753
	NF-2	15V	6245447	373922
	NF-3	15V	6247143	373831
	NF-4	15V	6245239	374306
	NF-5	15V	6247488	373815
Stephens Lake Far-field	FF-1	15V	6250836	388128
	FF-2	15V	6249841	388244
	FF-3	15V	6249143	388365
	FF-4	15V	6249639	388178
	FF-5	15V	6250461	388380

Table 2: Benchmark values and means of key water quality parameters measured during the water quality monitoring program, 2016.

Indicator	Unit	Benchmark*	April			
			Split Lake	Upstream	Near-Field	Far-Field
Ammonia	(mg N/L)	1.53	<0.010	0.015	0.012	0.025
Nitrate/ Nitrite	(mg N/L)	2.93	0.1156	0.1358	0.1258	0.1390
Total Phosphorous	(mg/L)	0.058	0.038	0.027	0.026	0.039
Chlorophyll *a*	(µg/L)	10.0	5.36	4.97	5.24	4.20
Total Suspended Solids	(mg/L)	5/25 mg/L higher than upstream	3.2	5.0	4.4	3.0
Laboratory pH		6.5/9.0	7.88	8.00	8.01	7.92
Dissolved Oxygen	(mg/L)	6.5/9.5	14.75	15.08	14.58	14.92
Aluminum	(mg/L)	1.98	0.503	0.466	0.416	0.436
Arsenic	(mg/L)	0.150	0.00107	0.00130	0.00126	0.00118
Boron	(mg/L)	1.5	0.022	0.026	0.025	0.025
Cadmium	(mg/L)	0.000306	<0.000010	0.0000166	<0.000010	<0.000010
Chromium	(mg/L)	0.0987	<0.0010	0.0008	<0.0010	<0.0010
Copper	(mg/L)	0.0107	0.00190	0.00250	0.00220	0.00403
Iron	(mg/L)	1.45	0.446	0.464	0.377	0.388
Lead	(mg/L)	0.06	0.000213	0.000246	0.000204	0.000290
Mercury	(mg/L)	0.000026	0.00000447	0.00000086	0.00000182	0.00000515
Molybdenum	(mg/L)	0.073	0.00063	0.00075	0.00073	0.00073
Nickel	(mg/L)	0.062	<0.0020	<0.0020	<0.0020	<0.0020
Selenium	(mg/L)	0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Silver	(mg/L)	0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Thallium	(mg/L)	0.00080	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	(mg/L)	0.0330	0.00068	0.00080	0.00075	0.00077
Zinc	(mg/L)	0.138	<0.0020	0.0029	<0.0020	0.0029

* Benchmark values are based on the most stringent calculation measured from the 2016 monitoring program.

Table 2: Benchmark values and means of key water quality parameters measured during the water quality monitoring program, 2016 (continued).

Indicator	Unit	Benchmark	June			
			Clark Lake	Upstream	Near-Field	Far-Field
Ammonia	(mg N/L)	1.53	0.011	0.010	<0.010	<0.010
Nitrate/ Nitrite	(mg N/L)	2.93	<0.0051	<0.0051	<0.0051	<0.0051
Total Phosphorous	(mg/L)	0.058	0.050	0.052	0.047	0.043
Chlorophyll *a*	(µg/L)	10.0	8.43	7.95	9.66	8.35
Total Suspended Solids	(mg/L)	5/25 mg/L higher than upstream	20.4	21.1	14.2	13.7
Laboratory pH		6.5/9.0	8.09	8.10	8.16	8.16
Dissolved Oxygen	(mg/L)	6.5/9.5	9.70	9.75	9.99	9.79
Aluminum	(mg/L)	1.98	0.741	0.611	0.826	0.667
Arsenic	(mg/L)	0.150	0.00111	0.00111	0.00108	0.00111
Boron	(mg/L)	1.5	0.027	0.028	0.028	0.029
Cadmium	(mg/L)	0.000306	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	(mg/L)	0.0987	0.0013	<0.0010	0.0012	<0.0010
Copper	(mg/L)	0.0107	0.00194	0.00189	0.00191	0.00195
Iron	(mg/L)	1.45	0.720	0.621	0.727	0.598
Lead	(mg/L)	0.06	0.000413	0.000383	0.000378	0.000339
Mercury	(mg/L)	0.000026	0.00000156	0.00000154	0.00000146	0.00000114
Molybdenum	(mg/L)	0.073	0.00056	0.00057	0.00064	0.00062
Nickel	(mg/L)	0.062	<0.0020	<0.0020	<0.0020	<0.0020
Selenium	(mg/L)	0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Silver	(mg/L)	0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Thallium	(mg/L)	0.00080	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	(mg/L)	0.0330	0.00069	0.00070	0.00072	0.00071
Zinc	(mg/L)	0.138	<0.0020	0.0027	0.0030	0.0027

Table 2: Benchmark values and means of key water quality parameters measured during the water quality monitoring program, 2016 (continued).

Indicator	Unit	Benchmark	July			
			Clark Lake	Upstream	Near-Field	Far-Field
Ammonia	(mg N/L)	1.53	0.018	0.016	0.012	0.012
Nitrate/ Nitrite	(mg N/L)	2.93	0.0181	0.0208	0.0219	0.0285
Total Phosphorous	(mg/L)	0.058	0.055	0.053	0.052	0.049
Chlorophyll *a*	(µg/L)	10.0	6.76	6.85	6.62	3.93
Total Suspended Solids	(mg/L)	5/25 mg/L higher than upstream	16.8	17.3	14.2	12.4
Laboratory pH		6.5/9.0	8.18	8.21	8.21	8.20
Dissolved Oxygen	(mg/L)	6.5/9.5	9.32	8.81	9.31	9.17
Aluminum	(mg/L)	1.98	1.11	1.24	1.06	0.984
Arsenic	(mg/L)	0.150	0.00139	0.00139	0.00137	0.00142
Boron	(mg/L)	1.5	0.029	0.029	0.028	0.030
Cadmium	(mg/L)	0.000306	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	(mg/L)	0.0987	0.0018	0.0020	0.0017	0.0016
Copper	(mg/L)	0.0107	0.00223	0.00224	0.00213	0.00220
Iron	(mg/L)	1.45	0.970	1.07	0.916	0.863
Lead	(mg/L)	0.06	0.000470	0.000510	0.000452	0.000440
Mercury	(mg/L)	0.000026	0.00000136	0.00000126	0.00000140	0.00000140
Molybdenum	(mg/L)	0.073	0.00065	0.00072	0.00069	0.00072
Nickel	(mg/L)	0.062	0.0021	0.0022	<0.0020	<0.0020
Selenium	(mg/L)	0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Silver	(mg/L)	0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Thallium	(mg/L)	0.00080	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	(mg/L)	0.0330	0.00074	0.00074	0.00076	0.00077
Zinc	(mg/L)	0.138	0.0033	0.0034	0.0032	0.0037

Table 2: Benchmark values and means of key water quality parameters measured during the water quality monitoring program, 2016 (continued).

Indicator	Unit	Benchmark	August			
			Clark Lake	Upstream	Near-Field	Far-Field
Ammonia	(mg N/L)	1.53	0.010	<0.010	<0.010	<0.010
Nitrate/ Nitrite	(mg N/L)	2.93	0.0026	<0.0051	<0.0051	<0.0051
Total Phosphorous	(mg/L)	0.058	0.045	0.044	0.041	0.044
Chlorophyll *a*	(µg/L)	10.0	9.44	8.69	9.90	7.12
Total Suspended Solids	(mg/L)	5/25 mg/L higher than upstream	16.6	14.8	13.8	10.5
Laboratory pH		6.5/9.0	8.29	8.28	8.36	8.30
Dissolved Oxygen	(mg/L)	6.5/9.5	9.36	9.21	9.84	9.38
Aluminum	(mg/L)	1.98	0.907	0.917	0.813	0.787
Arsenic	(mg/L)	0.150	0.00138	0.00141	0.00134	0.00136
Boron	(mg/L)	1.5	0.028	0.028	0.026	0.025
Cadmium	(mg/L)	0.000306	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	(mg/L)	0.0987	0.0015	0.0015	0.0013	0.0012
Copper	(mg/L)	0.0107	0.00192	0.00192	0.00182	0.00175
Iron	(mg/L)	1.45	0.778	0.804	0.719	0.665
Lead	(mg/L)	0.06	0.000370	0.000356	0.000334	0.000336
Mercury	(mg/L)	0.000026	0.00000100	0.00000079	0.00000074	0.00000060
Molybdenum	(mg/L)	0.073	0.00065	0.00068	0.00068	0.00067
Nickel	(mg/L)	0.062	<0.0020	<0.0020	<0.0020	<0.0020
Selenium	(mg/L)	0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Silver	(mg/L)	0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Thallium	(mg/L)	0.00080	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	(mg/L)	0.0330	0.00065	0.00070	0.00069	0.00067
Zinc	(mg/L)	0.138	0.0029	0.0030	<0.0020	<0.0020

Table 2: Benchmark values and means of key water quality parameters measured during the water quality monitoring program, 2016 (continued).

Indicator	Unit	Benchmark	September			
			Clark Lake	Upstream	Near-Field	Far-Field
Ammonia	(mg N/L)	1.53	<0.010	<0.010	<0.010	<0.010
Nitrate/ Nitrite	(mg N/L)	2.93	<0.0051	<0.0051	<0.0051	<0.0051
Total Phosphorous	(mg/L)	0.058	0.041	0.036	0.039	0.037
Chlorophyll *a*	(µg/L)	10.0	9.27	5.74	6.76	5.02
Total Suspended Solids	(mg/L)	5/25 mg/L higher than upstream	13.8	13.6	11.7	7.2
Laboratory pH		6.5/9.0	8.28	8.30	8.25	8.27
Dissolved Oxygen	(mg/L)	6.5/9.5	8.37	8.35	8.37	8.42
Aluminum	(mg/L)	1.98	0.640	0.645	0.866	0.706
Arsenic	(mg/L)	0.150	0.00108	0.00129	0.00131	0.00130
Boron	(mg/L)	1.5	0.028	0.026	0.027	0.027
Cadmium	(mg/L)	0.000306	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	(mg/L)	0.0987	0.0011	0.0010	0.0013	0.0011
Copper	(mg/L)	0.0107	0.00169	0.00167	0.00182	0.00180
Iron	(mg/L)	1.45	0.639	0.602	0.738	0.609
Lead	(mg/L)	0.06	0.000365	0.000328	0.000341	0.000300
Mercury	(mg/L)	0.000026	0.00000096	0.00000090	0.00000082	0.00000072
Molybdenum	(mg/L)	0.073	0.00059	0.00058	0.00066	0.00067
Nickel	(mg/L)	0.062	<0.0020	<0.0020	<0.0020	<0.0020
Selenium	(mg/L)	0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Silver	(mg/L)	0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Thallium	(mg/L)	0.00080	<0.00010	<0.00010	<0.00010	<0.00010
Uranium	(mg/L)	0.0330	0.00067	0.00063	0.00063	0.00062
Zinc	(mg/L)	0.138	0.0026	0.0027	0.0029	0.0026

Table 2: Benchmark values and means of key water quality parameters measured during the water quality monitoring program, 2016 (continued).

Indicator	Unit	Benchmark	Open-water Season			
			Clark Lake	Upstream	Near-Field	Far-Field
Ammonia	(mg N/L)	1.53	0.014	<0.010	0.012	<0.010
Nitrate/ Nitrite	(mg N/L)	2.93	0.0064	0.0083	0.0079	0.0090
Total Phosphorous	(mg/L)	0.058	0.048	0.046	0.045	0.043
Chlorophyll *a*	(µg/L)	10.0	8.48	7.31	8.23	6.10
Total Suspended Solids	(mg/L)	5/25 mg/L higher than upstream	16.9	16.7	13.5	11.0
Laboratory pH		6.5/9.0	8.21	8.22	8.24	8.23
Dissolved Oxygen	(mg/L)	6.5/9.5	9.56	9.54	9.92	9.67
Aluminum	(mg/L)	1.98	0.849	0.854	0.891	0.786
Arsenic	(mg/L)	0.150	0.00124	0.00130	0.00127	0.00130
Boron	(mg/L)	1.5	0.028	0.028	0.027	0.028
Cadmium	(mg/L)	0.000306	<0.000010	<0.000010	<0.000010	<0.000010
Chromium	(mg/L)	0.0987	0.0014	0.0014	0.0014	0.0012
Copper	(mg/L)	0.0107	0.00195	0.00193	0.00192	0.00192
Iron	(mg/L)	1.45	0.777	0.775	0.775	0.684
Lead	(mg/L)	0.06	0.000405	0.000394	0.000376	0.000354
Mercury	(mg/L)	0.000026	0.00000122	0.00000112	0.00000111	0.00000094
Molybdenum	(mg/L)	0.073	0.0006125	0.00064	0.00067	0.00067
Nickel	(mg/L)	0.062	0.001485	<0.0020	<0.0020	<0.0020
Selenium	(mg/L)	0.0010	0.0005	<0.0010	<0.0010	<0.0010
Silver	(mg/L)	0.00010	0.00005	<0.00010	<0.00010	<0.00010
Thallium	(mg/L)	0.00080	0.00005	<0.00010	<0.00010	<0.00010
Uranium	(mg/L)	0.0330	0.00068	0.00069	0.00070	0.00069
Zinc	(mg/L)	0.138	0.0030	0.0030	0.0025	0.0025

Table 3: Mean values of additional parameters measured during the water quality monitoring program, 2016.

Indicator	Unit	April				June			
		Split Lake	Upstream	Near-Field	Far-Field	Clark Lake	Upstream	Near-Field	Far-Field
Total Nitrogen	(mg/L)	0.61	0.64	0.65	0.58	0.64	0.64	0.70	0.57
Dissolved Organic Carbon	(mg/L)	9.34	8.76	8.63	9.46	9.14	8.68	8.25	8.33
In situ Turbidity	(NTU)	9.02	7.99	8.70	8.53	22.63	21.97	19.64	18.50
Laboratory Turbidity	(NTU)	11.2	11.4	11.0	11.0	23.4	26.0	23.3	24.3
In situ Specific Conductance	(µS/cm)	295	N/A*	328	340	292	302	303	308
Laboratory Conductivity	(µmhos/cm)	302	347	330	341	298	306	298	303
Total Dissolved Solids	(mg/L)	184	212	212	193	209	213	196	199
True Colour	(TCU)	18.5	15.6	15.6	17.2	19.2	18.4	17.8	17.1
In situ pH		8.0	8.0	8.0	8.0	8.2	8.3	8.3	8.1
Hardness as $CaCO_3$	(mg/L)	118	134	130	132	126	130	133	138
Chloride	(mg/L)	15.9	19.4	19.1	19.1	16.1	16.7	16.7	16.8
Sulphate	(mg/L)	30.9	37.5	37.1	36.8	31.7	32.8	32.7	32.8
Calcium	(mg/L)	27.9	32.2	30.3	31.2	30.5	31.4	32.6	34.3
Magnesium	(mg/L)	11.7	13.2	13.3	13.1	12.2	12.6	12.5	12.8
Potassium	(mg/L)	2.70	3.02	3.00	2.94	2.79	2.84	2.86	2.90
Sodium	(mg/L)	15.6	18.0	18.0	18.0	15.7	16.5	16.4	17.0

* *In situ* Specific Conductance was considered erroneous for the Upstream polygon in April and was not included in the table.

Table 3: Mean values of additional parameters measured during the water quality monitoring program, 2016 (continued).

Indicator	Unit	July				August			
		Clark Lake	Upstream	Near-Field	Far-Field	Clark Lake	Upstream	Near-Field	Far-Field
Total Nitrogen	(mg/L)	0.50	0.50	0.51	0.53	0.49	0.49	0.36	0.40
Dissolved Organic Carbon	(mg/L)	8.17	8.47	9.28	9.41	9.31	8.55	8.64	8.72
In situ Turbidity	(NTU)	22.45	22.75	21.81	21.39	17.59	17.07	16.80	15.13
Laboratory Turbidity	(NTU)	24.4	28.3	27.8	27.0	21.6	17.8	15.4	15.3
In situ Specific Conductance	(µS/cm)	329	331	335.8	340	330	337.4	345.2	340
Laboratory Conductivity	(µmhos/cm)	308	310	313	318	317	317	313	313
Total Dissolved Solids	(mg/L)	222	212	207	213	207	206	211	206
True Colour	(TCU)	14.9	15.8	15.7	16.4	13.8	14.1	19.5	20.4
In situ pH		8.3	8.3	8.3	8.2	8.3	8.4	8.4	8.3
Hardness as $CaCO_3$	(mg/L)	139	130	129	132	143	139	130	127
Chloride	(mg/L)	17.4	17.4	17.9	18.3	16.4	16.8	17.4	17.1
Sulphate	(mg/L)	33.7	34.0	34.7	35.4	32.9	33.6	35.1	34.2
Calcium	(mg/L)	33.7	31.3	31.0	31.7	36.4	33.2	30.5	30.0
Magnesium	(mg/L)	13.3	12.6	12.6	12.8	12.7	13.7	13.0	12.7
Potassium	(mg/L)	3.10	3.06	3.04	3.05	2.98	3.01	2.95	2.90
Sodium	(mg/L)	17.8	17.2	18.0	18.0	16.7	17.8	17.6	17.2

Table 3: Mean values of additional parameters measured during the water quality monitoring program, 2016 (continued).

Indicator	Unit	September				Open-water Season			
		Clark Lake	Upstream	Near-Field	Far-Field	Clark Lake	Upstream	Near-Field	Far-Field
Total Nitrogen	(mg/L)	0.47	0.45	0.42	0.40	0.53	0.52	0.50	0.48
Dissolved Organic Carbon	(mg/L)	7.55	7.42	6.85	6.84	8.54	8.28	8.26	8.33
In situ Turbidity	(NTU)	15.85	15.19	14.89	13.58	19.63	19.24	18.28	17.15
Laboratory Turbidity	(NTU)	19.9	20.8	20.2	18.6	22.3	23.2	21.6	21.3
In situ Specific Conductance	(µS/cm)	320.2	335.1	332.1	336.2	317.8	326.3	329.0	330.9
Laboratory Conductivity	(µmhos/cm)	302	312	307	308	306	311	308	311
Total Dissolved Solids	(mg/L)	203	218	222	212	210	212	209	208
True Colour	(TCU)	14.1	12.8	13.2	13.6	15.5	15.3	16.6	16.9
In situ pH		8.37	8.35	8.37	8.42	9.56	9.54	9.92	9.67
Hardness as $CaCO_3$	(mg/L)	126	131	129	129	134	133	130	132
Chloride	(mg/L)	15.4	16.3	16.3	16.5	16.3	16.8	17.1	17.2
Sulphate	(mg/L)	31.5	33.4	33.2	33.6	32.5	33.5	33.9	34.0
Calcium	(mg/L)	30.4	31.2	30.4	30.5	32.8	31.8	31.2	31.6
Magnesium	(mg/L)	12.1	12.8	12.8	12.8	12.6	12.9	12.7	12.8
Potassium	(mg/L)	2.69	2.81	2.89	2.89	2.89	2.93	2.94	2.94
Sodium	(mg/L)	16.4	16.9	17.2	17.6	16.6	17.1	17.3	17.4

FIGURES

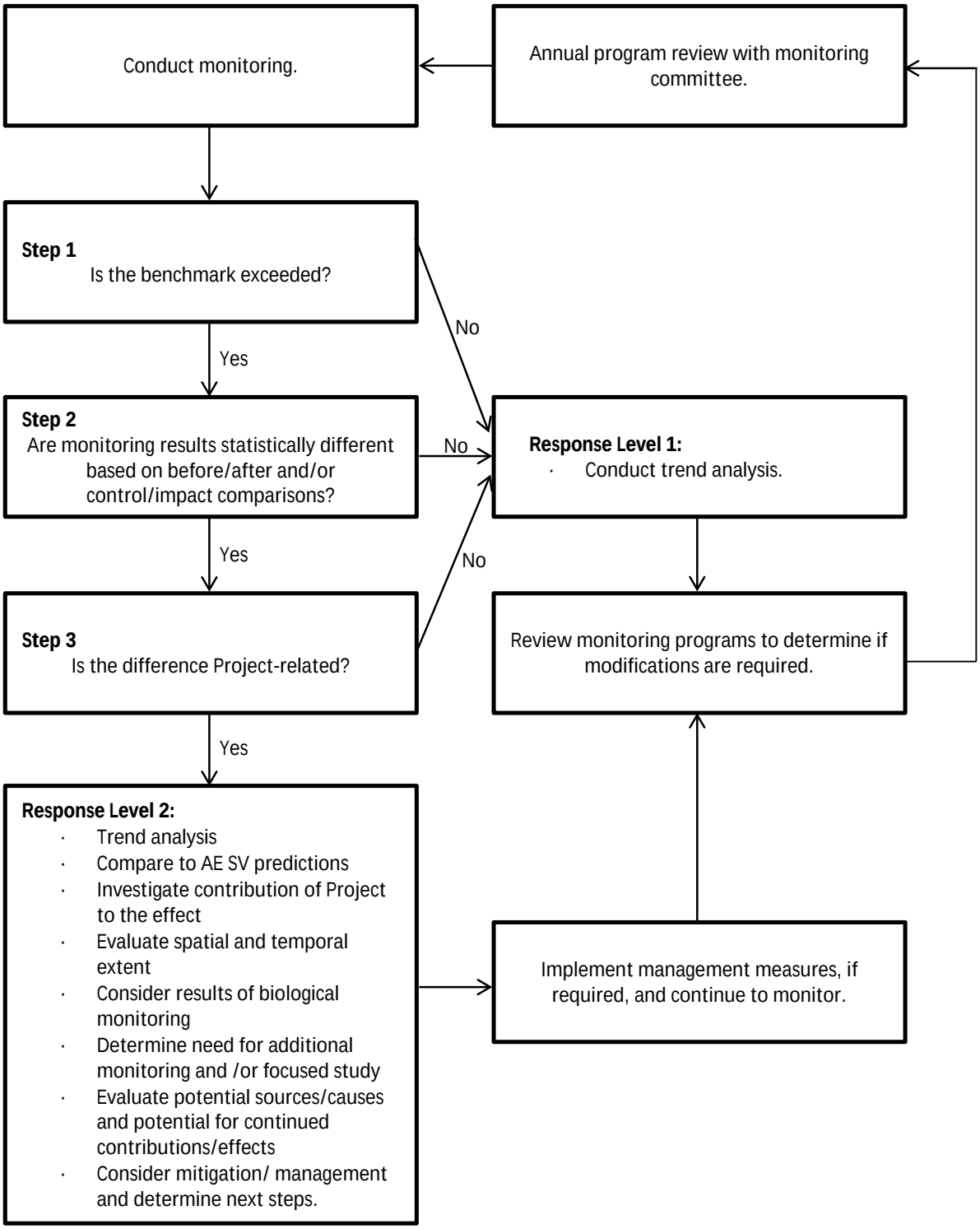


Figure 1: Water quality assessment management framework (AMF).

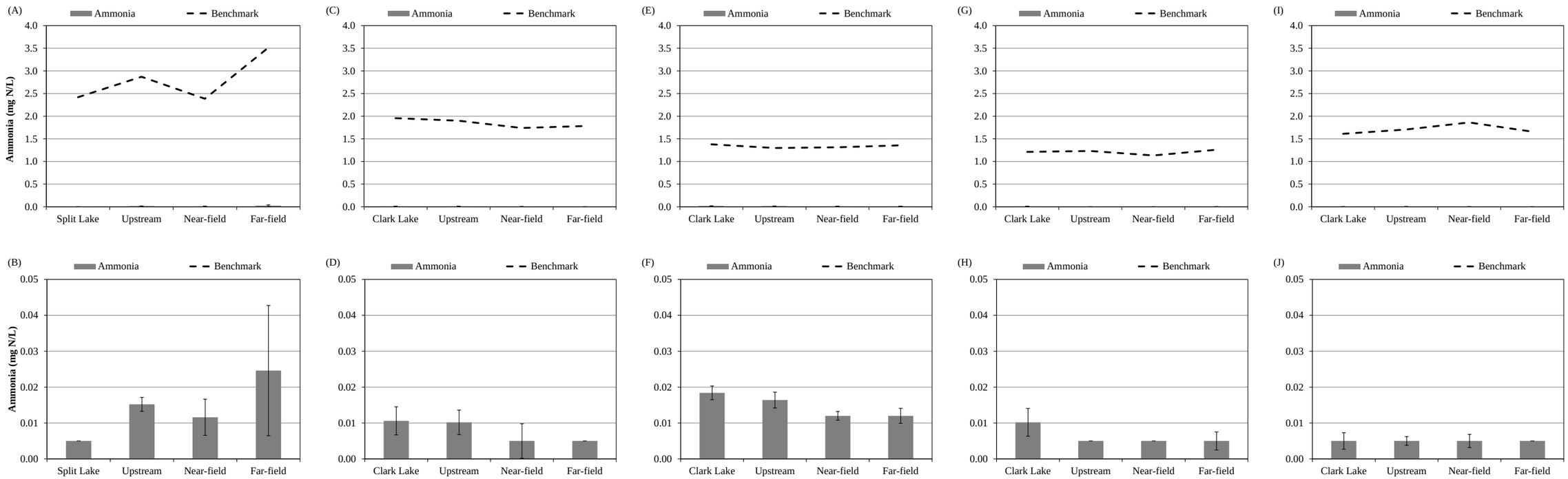


Figure 2: **Mean (± SE) ammonia concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A,B), June 27–28 (C,D), July 27–29 (E,F), August 26–31 (G,H), and September 19–23 (I,J), 2016. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.**

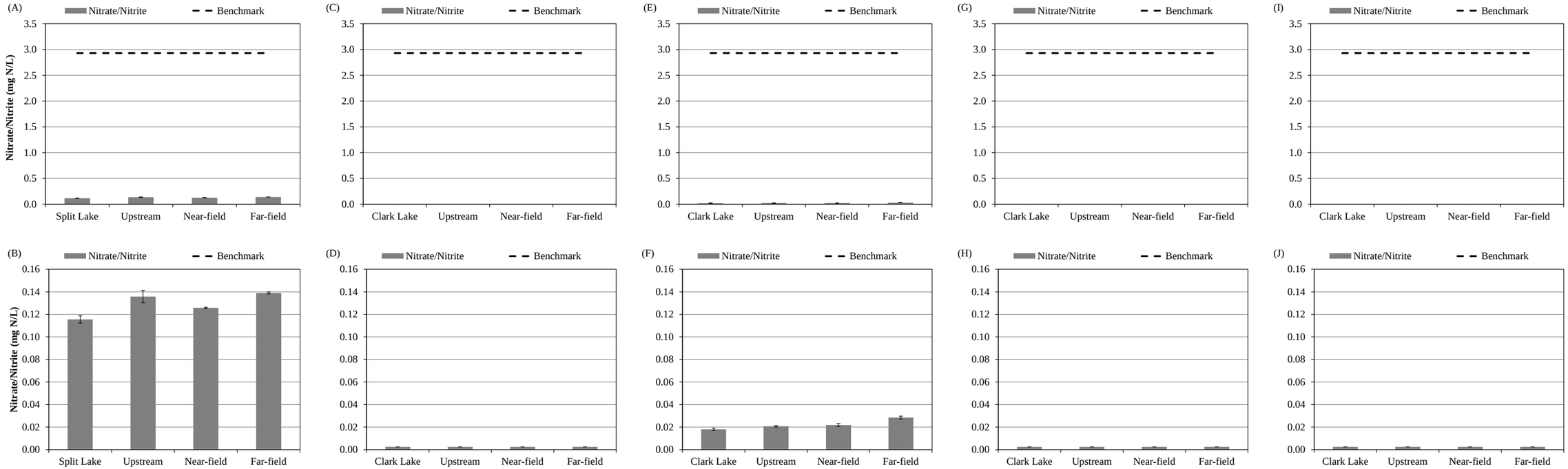


Figure 3: **Mean (± SE) nitrate/nitrite concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A,B), June 27–28 (C,D), July 27–29 (E,F), August 26–31 (G,H), and September 19–23 (I,J), 2016. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.**

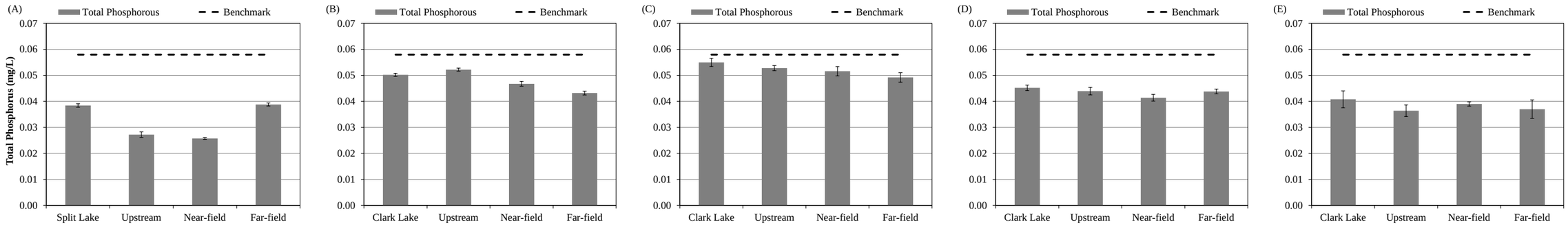


Figure 4: **Mean (± SE) concentrations of total phosphorous measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.**

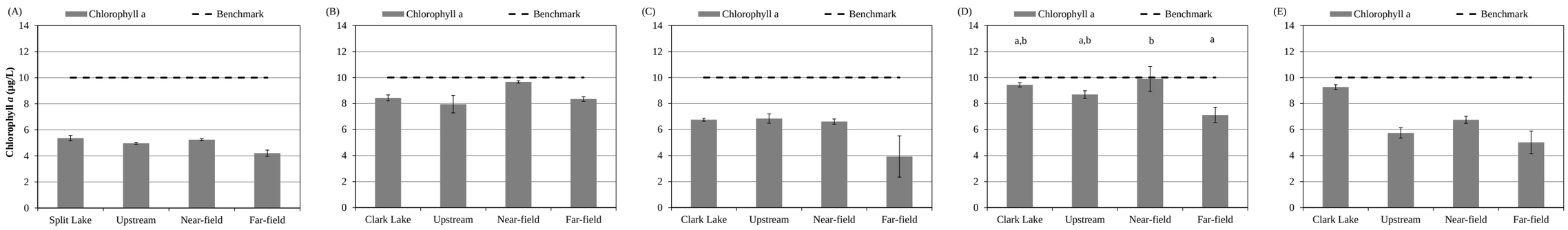


Figure 5: **Mean (± SE) chlorophyll *a* concentrations measured in in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016. Letters in (D) indicate significantly (α = 0.05) different results between sampling areas.**

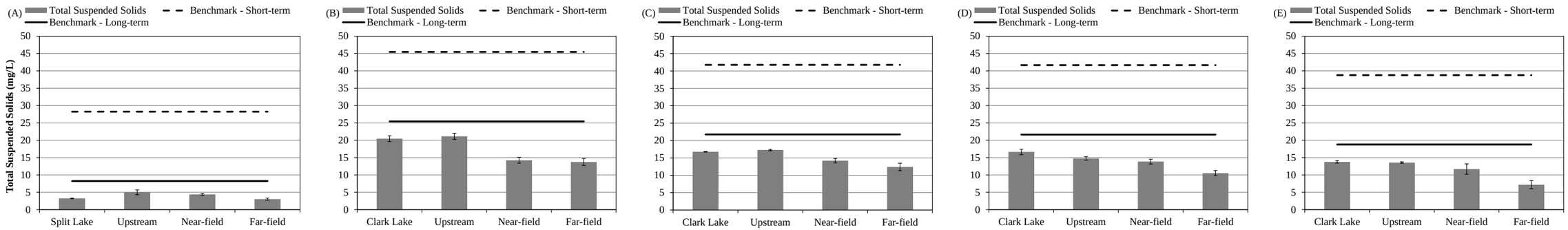


Figure 6: **Mean (± SE) total suspended solid concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.**

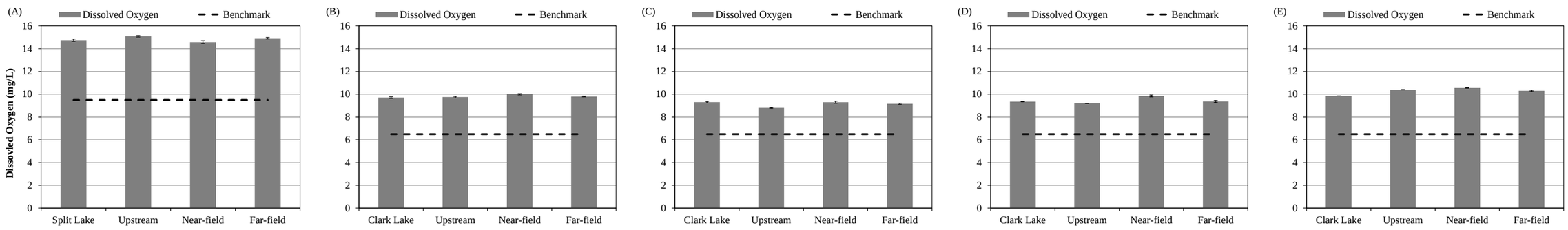


Figure 7: **Mean (± SE) surface dissolved oxygen concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.**

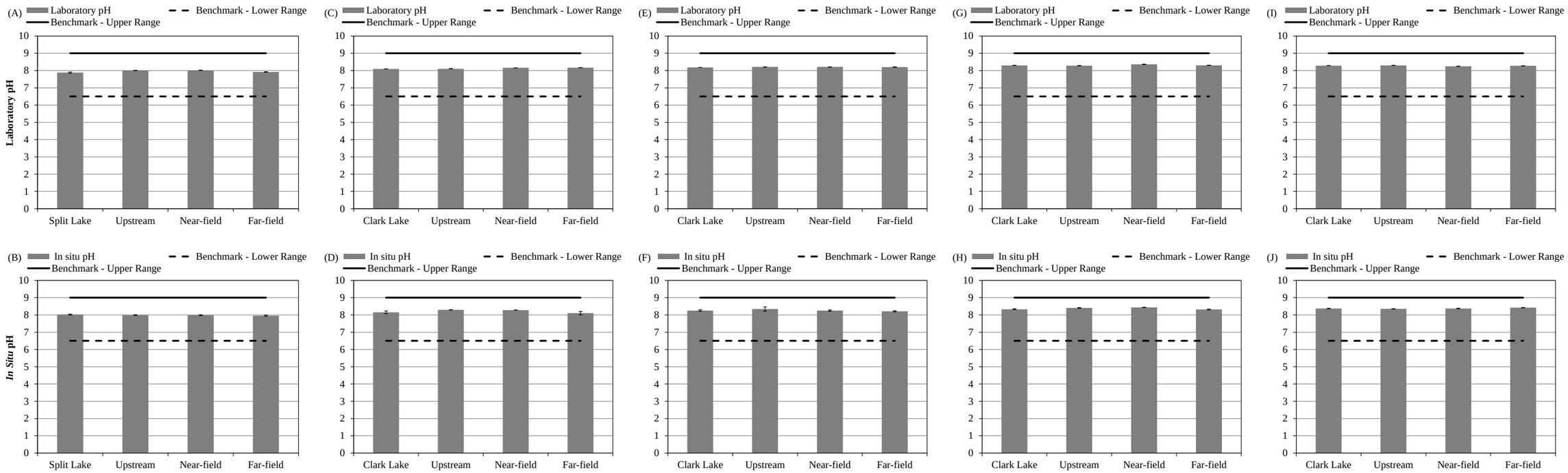


Figure 8: **Mean (± SE) laboratory (top) and *in situ* (bottom) pH measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A,B), June 27–28 (C,D), July 27–29 (E,F), August 26–31 (G,H), and September 19–23 (I,J), 2016.**

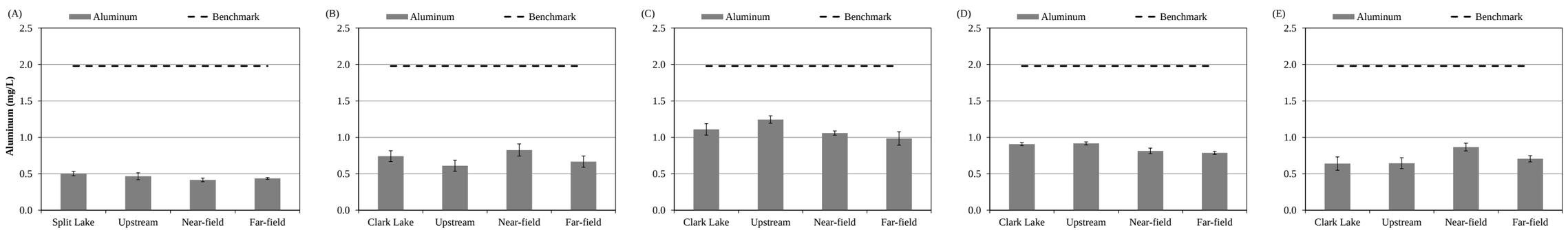


Figure 9: **Mean (± SE) aluminum concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.**

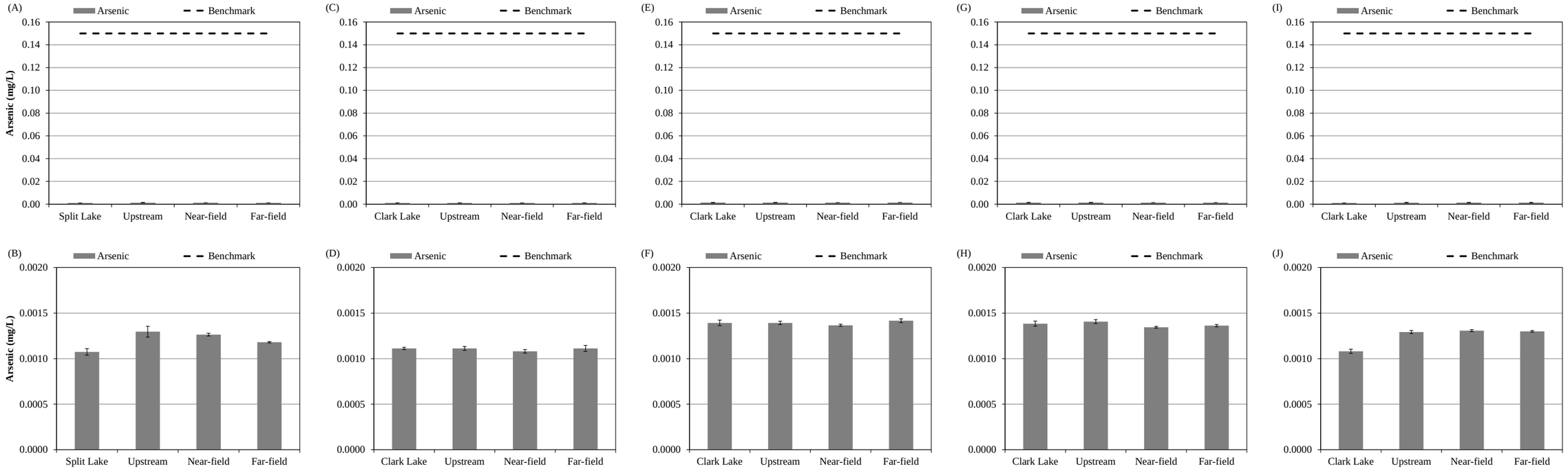


Figure 10: **Mean (± SE) arsenic concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A,B), June 27–28 (C,D), July 27–29 (E,F), August 26–31 (G,H), and September 19–23 (I,J), 2016. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.**

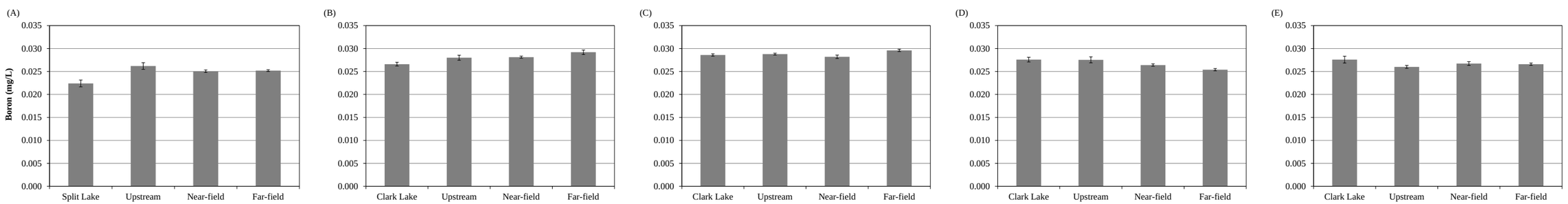


Figure 11: **Mean (± SE) total boron concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.**

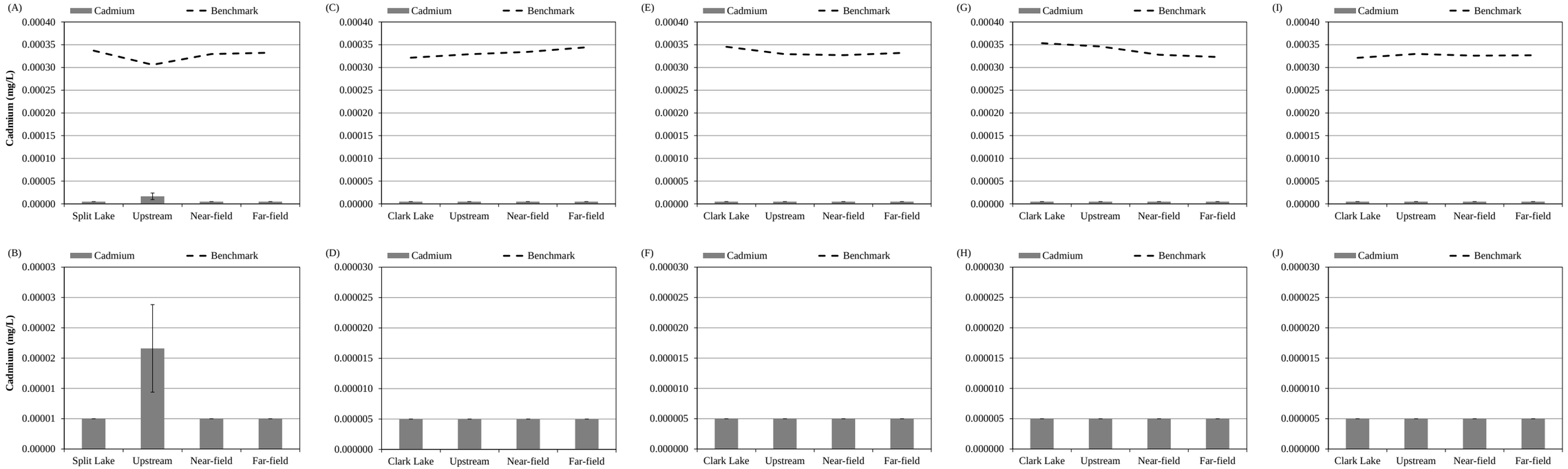


Figure 12: **Mean (± SE) cadmium concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A,B), June 27–28 (C,D), July 27–29 (E,F), August 26–31 (G,H), and September 19–23 (I,J), 2016. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.**

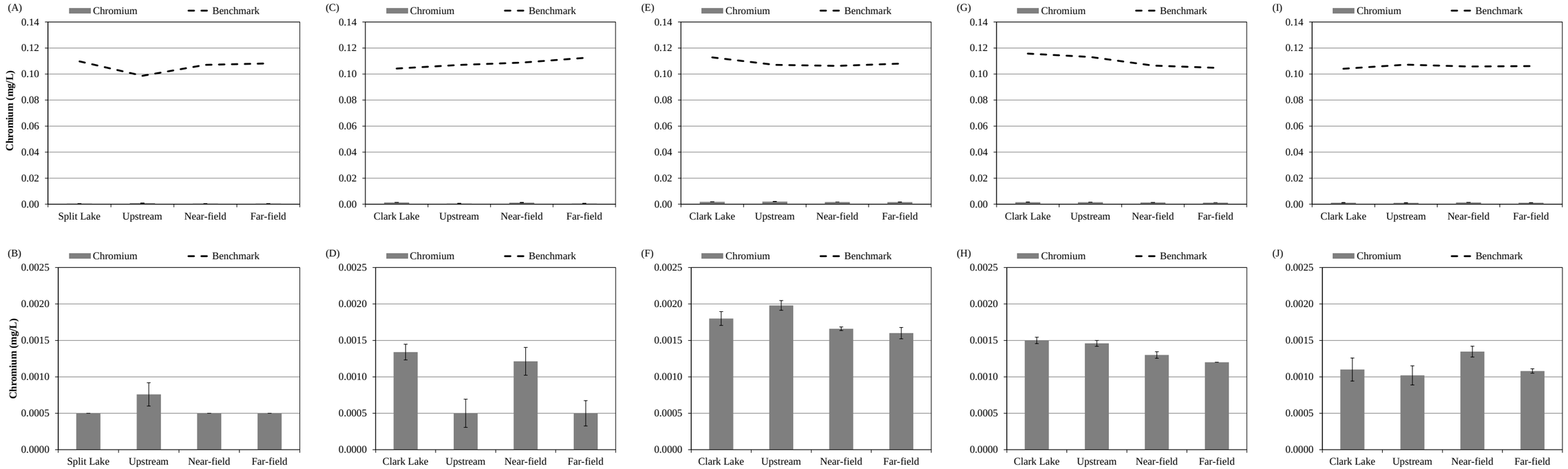


Figure 13: **Mean (± SE) chromium concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A,B), June 27–28 (C,D), July 27–29 (E,F), August 26–31 (G,H), and September 19–23 (I,J), 2016. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.**

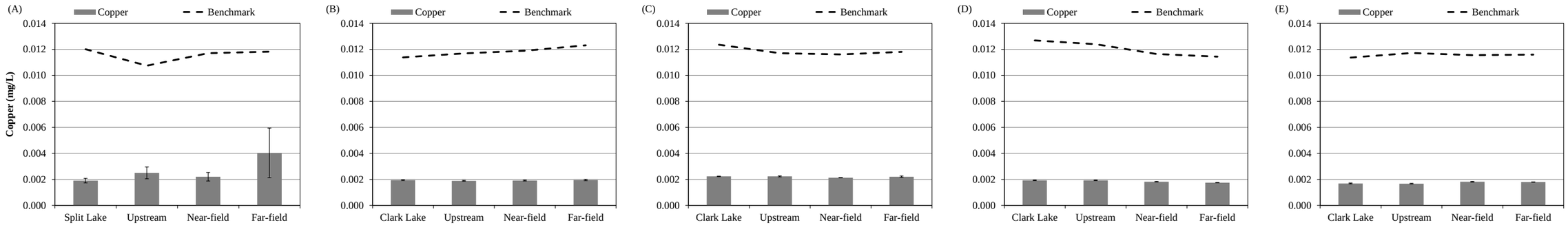


Figure 14: **Mean (± SE) copper concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.**

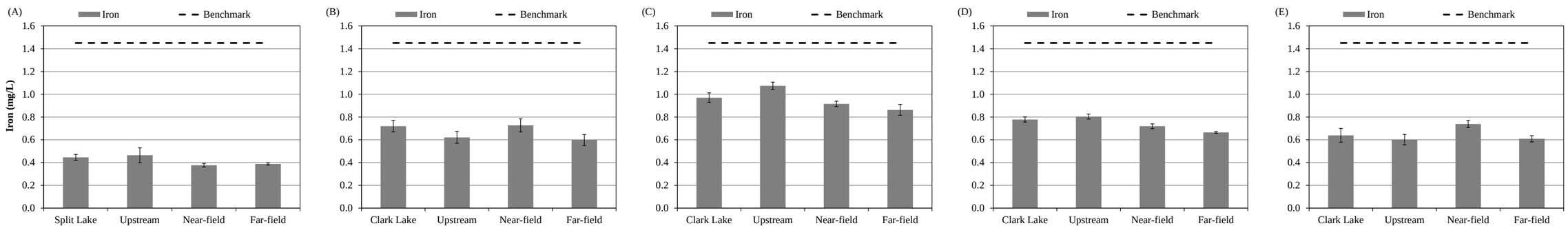


Figure 15: **Mean (± SE) iron concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.**

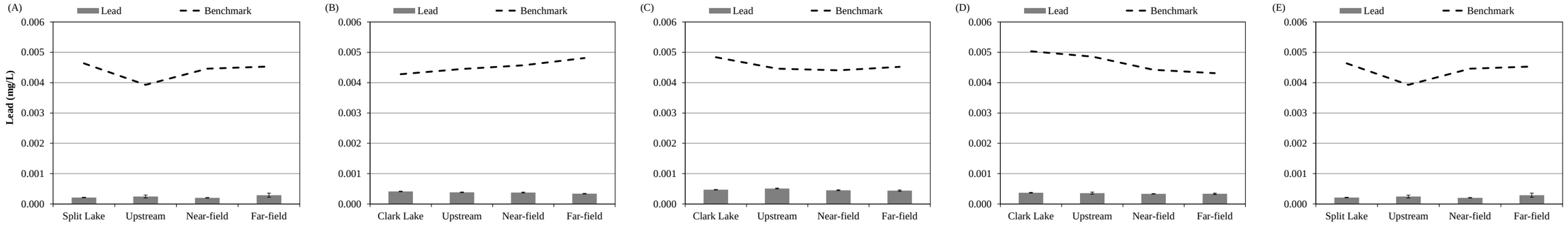


Figure 16: Mean (± SE) lead concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.

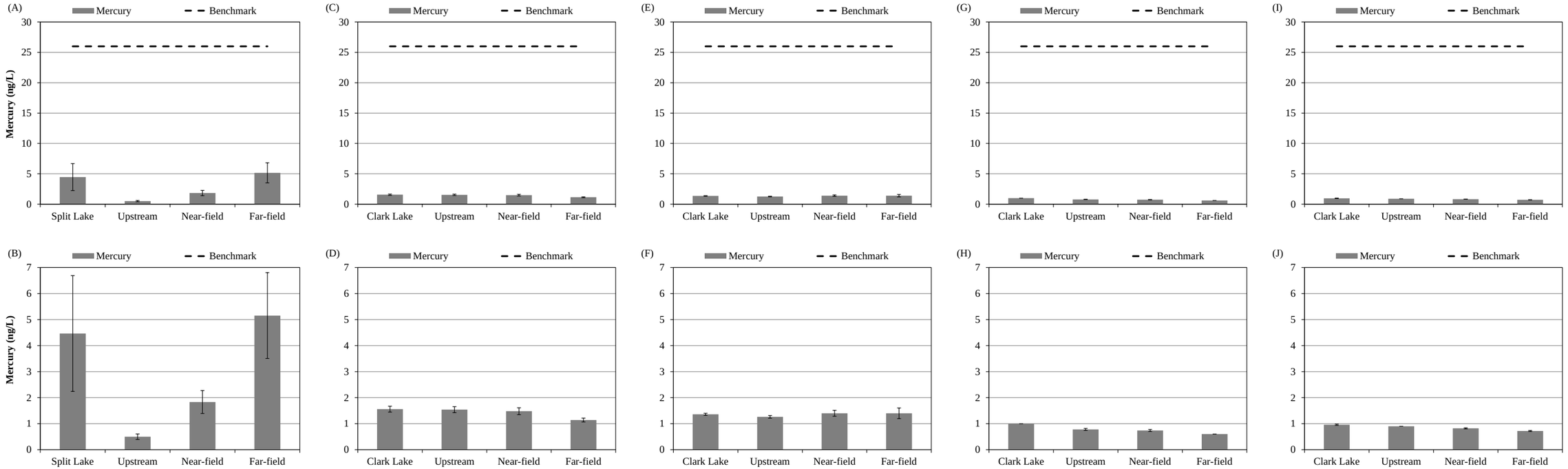


Figure 17: **Mean (± SE) mercury concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A,B), June 27–28 (C,D), July 27–29 (E,F), August 26–31 (G,H), and September 19–23 (I,J), 2016. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.**

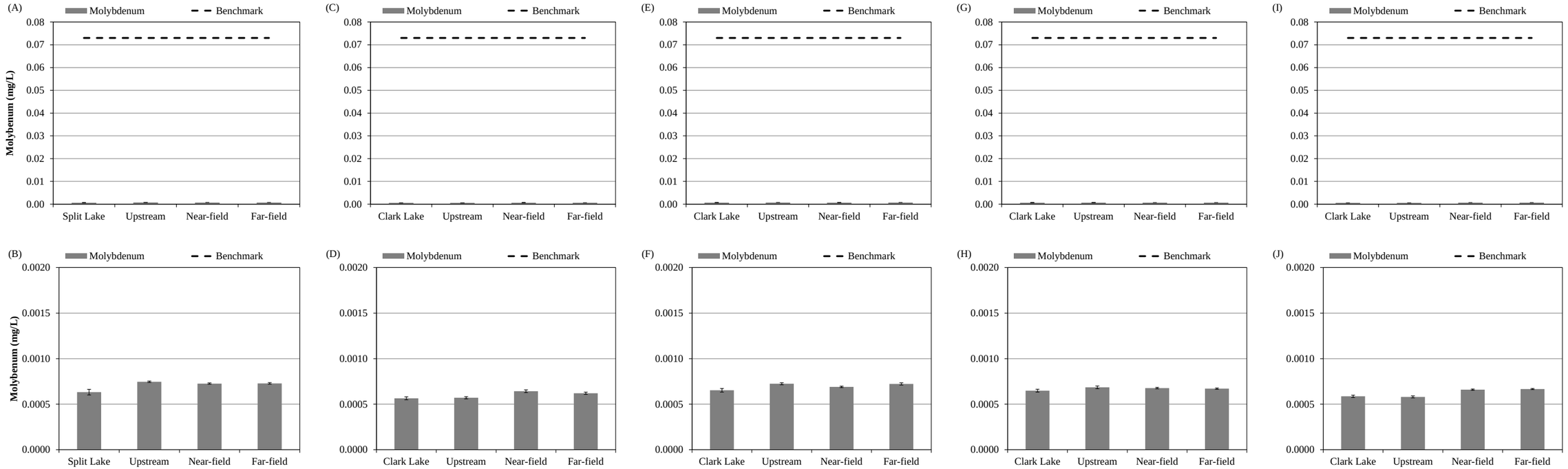


Figure 18: **Mean (± SE) molybdenum concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A,B), June 27–28 (C,D), July 27–29 (E,F), August 26–31 (G,H), and September 19–23 (I,J), 2016. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.**

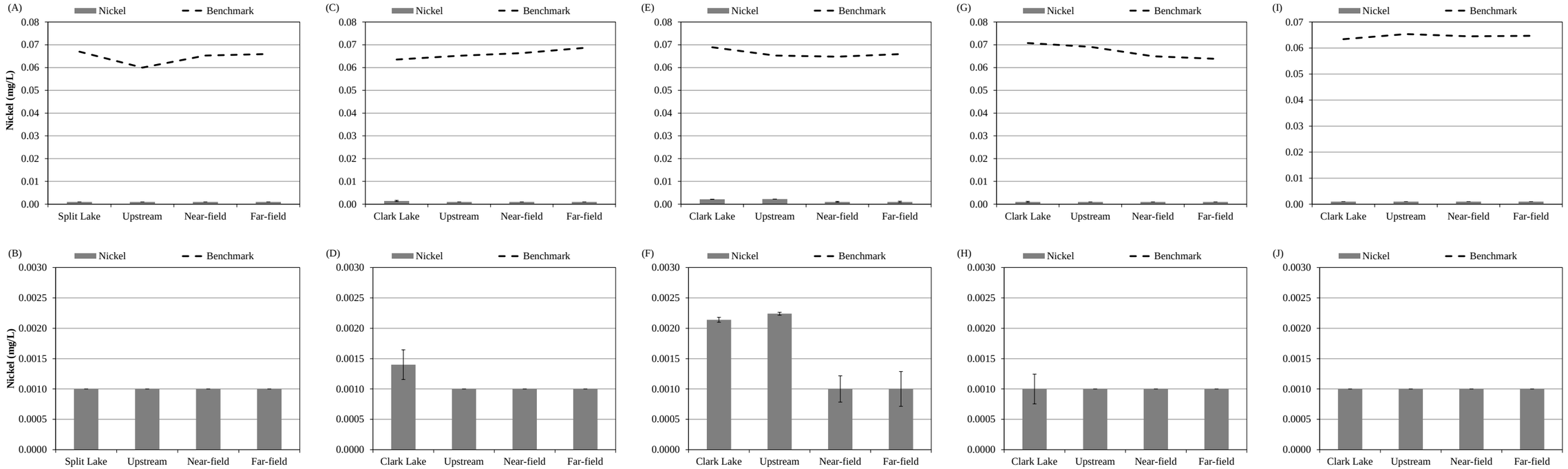


Figure 19: **Mean (± SE) nickel concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A,B), June 27–28 (C,D), July 27–29 (E,F), August 26–31 (G,H), and September 19–23 (I,J), 2016. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.**

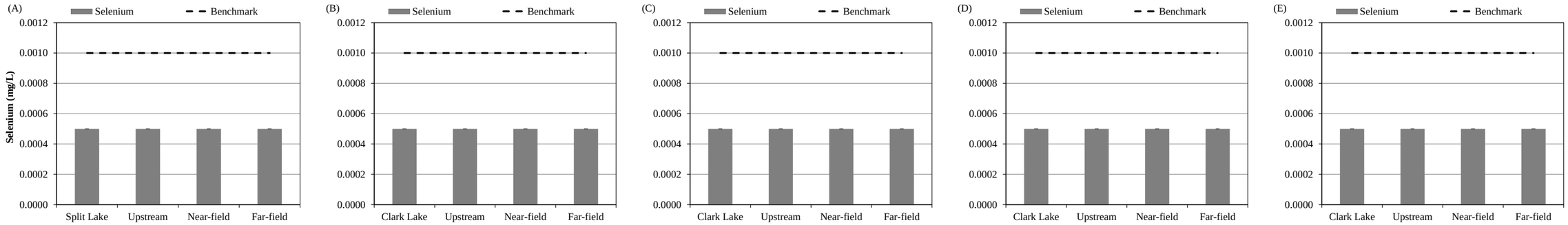


Figure 20: **Mean (± SE) selenium concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.**

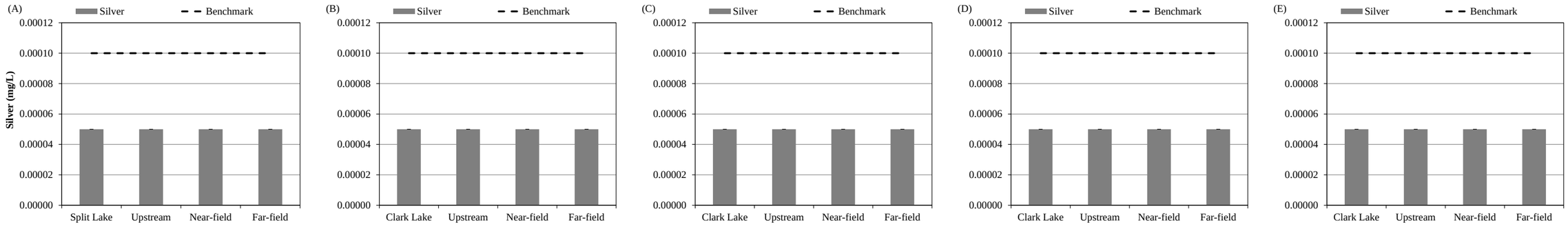


Figure 21: **Mean (± SE) silver concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A,B), June 27–28 (C,D), July 27–29 (E,F), August 26–31 (G,H), and September 19–23 (I,J), 2016.**

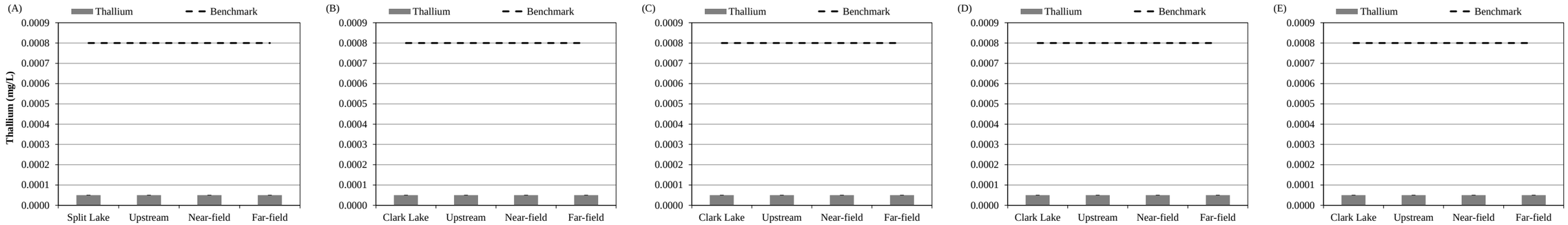


Figure 22: **Mean (± SE) thallium concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.**

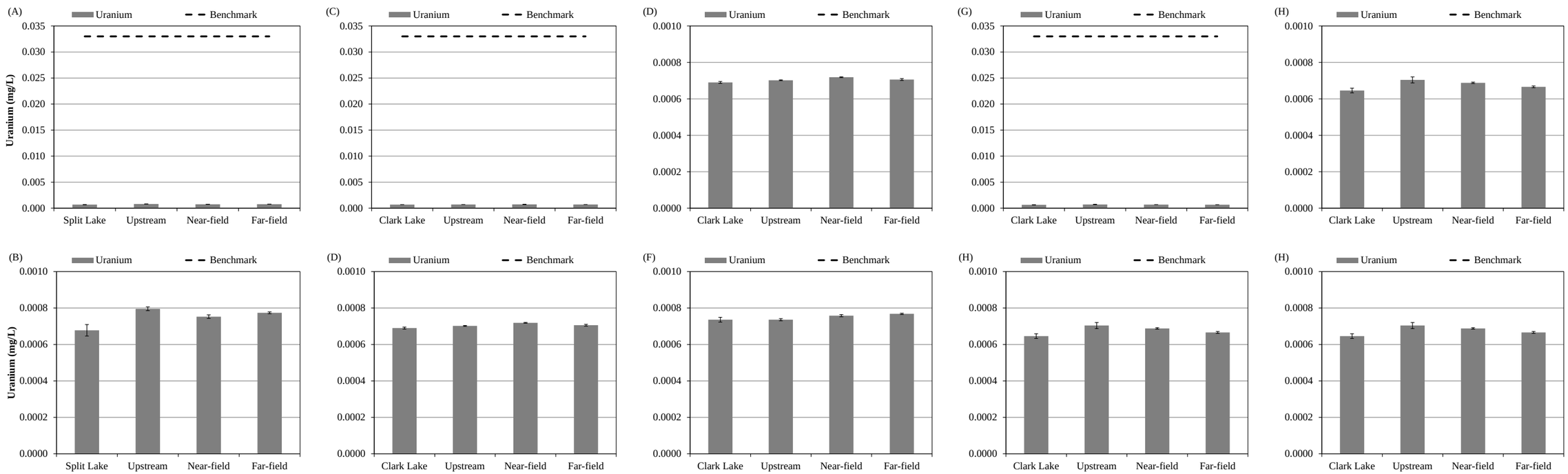


Figure 23: **Mean (± SE) uranium concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A,B), June 27–28 (C,D), July 27–29 (E,F), August 26–31 (G,H), and September 19–23 (I,J), 2016. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.**

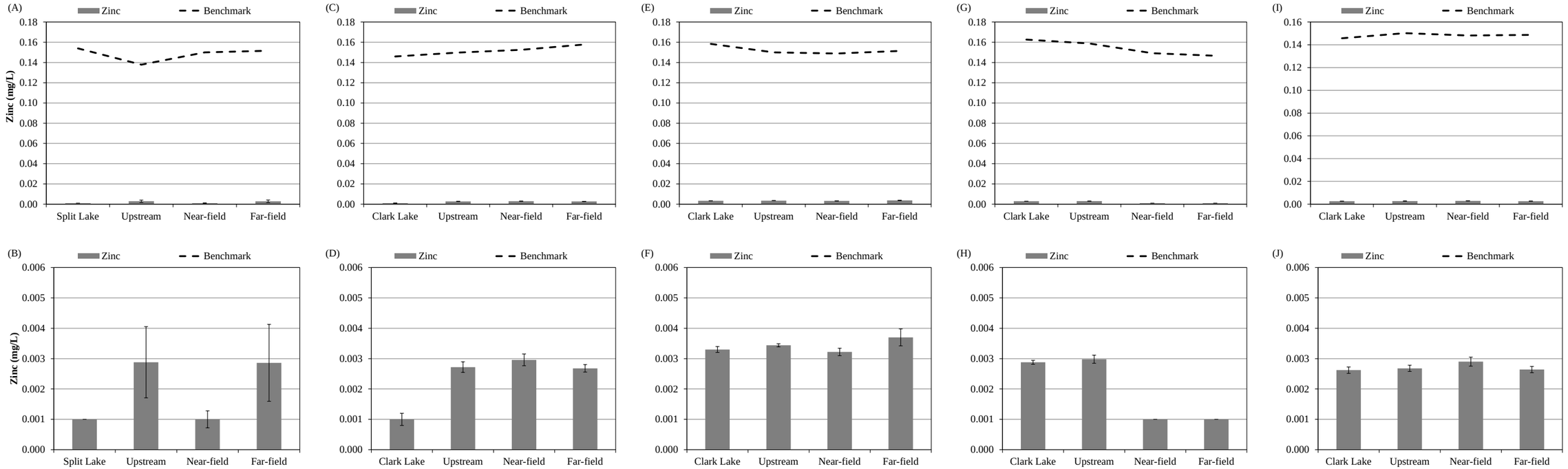


Figure 24: **Mean (± SE) zinc concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A,B), June 27–28 (C,D), July 27–29 (E,F), August 26–31 (G,H), and September 19–23 (I,J), 2016. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.**

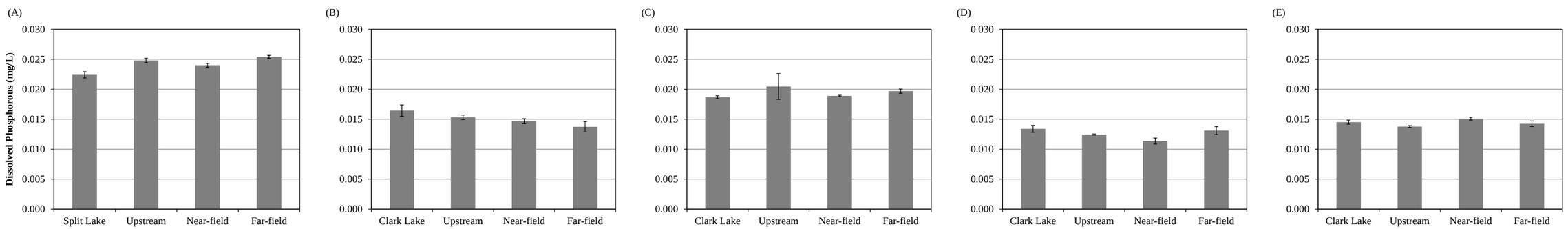


Figure 25: **Mean (± SE) dissolved phosphorous concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.**

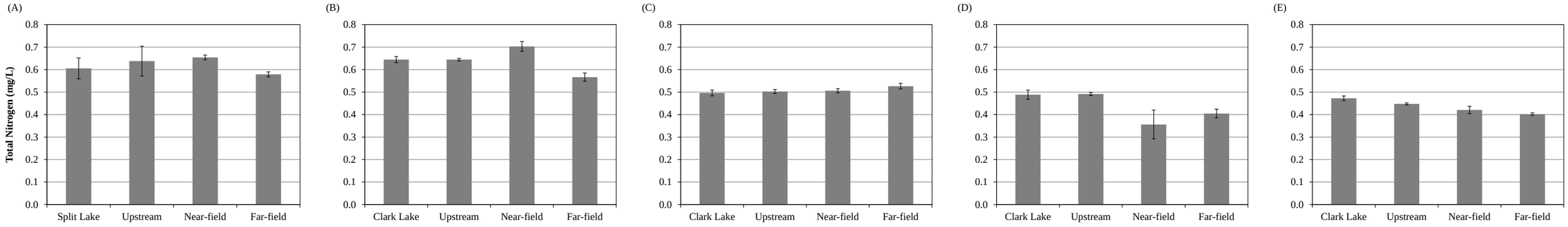


Figure 26: **Mean (± SE) concentrations of total nitrogen measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.**

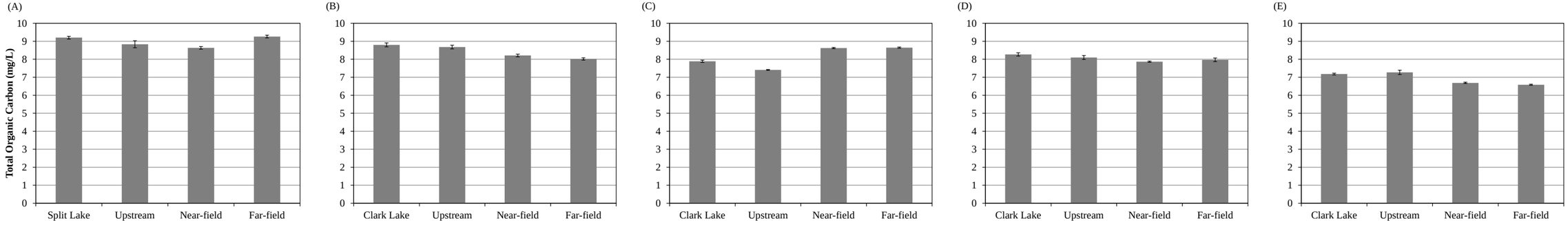


Figure 27: **Mean (± SE) concentrations of total organic carbon measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.**

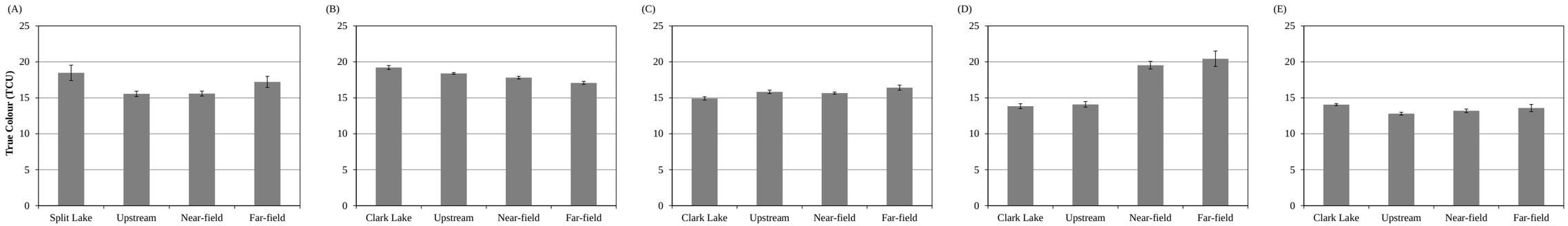


Figure 28: **Mean (± SE) colour measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.**

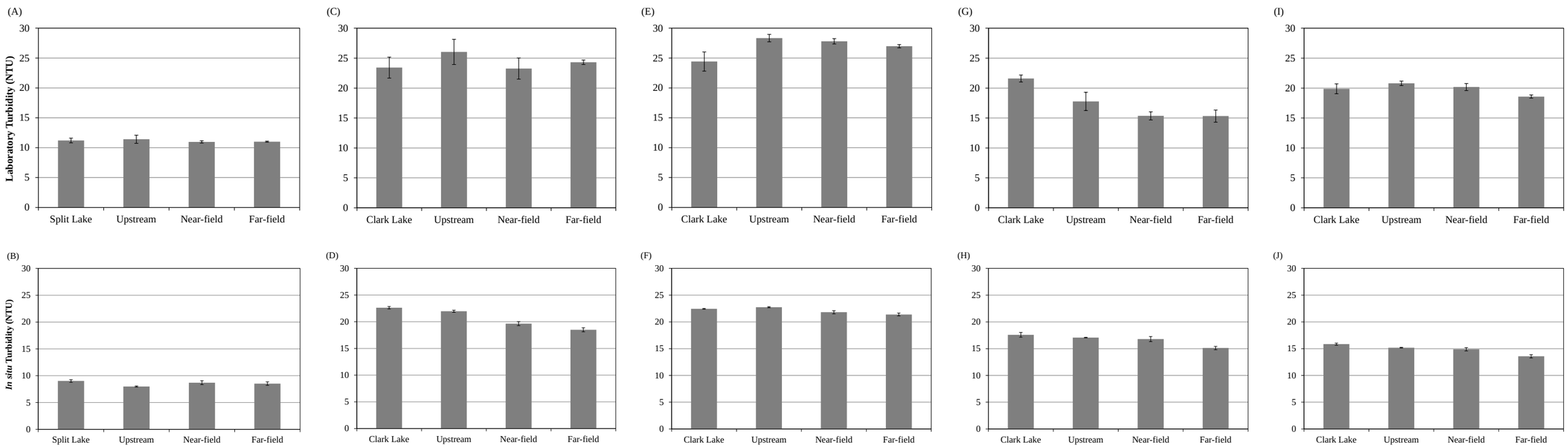
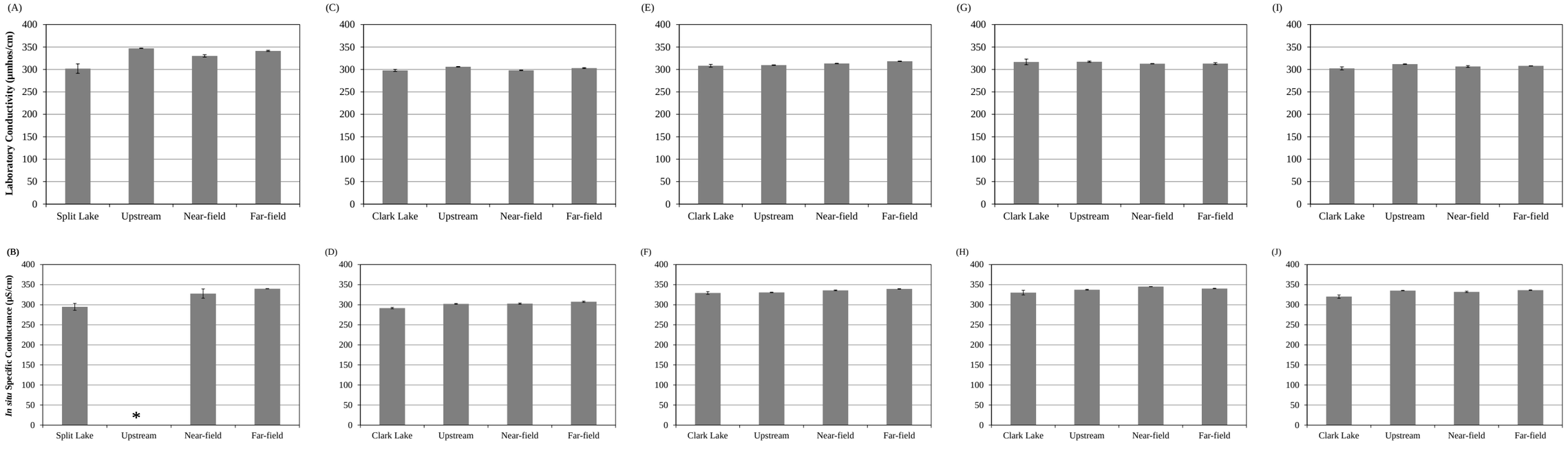


Figure 29: **Mean (± SE) laboratory (top) and *in situ* (bottom) turbidity measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A,B), June 27–28 (C,D), July 27–29 (E,F), August 26–31 (G,H), and September 19–23 (I,J), 2016. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.**



* *In situ* Specific Conductance was considered erroneous for the upstream polygon (B) in April and was not included in the figure.

Figure 30: Mean (± SE) laboratory (top) and *in situ* (bottom) specific conductance measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A,B), June 27–28 (C,D), July 27–29 (E,F), August 26–31 (G,H), and September 19–23 (I,J), 2016. Scales are plotted to show the comparison of the data to benchmark values on the top, and the differences in mean values on the bottom.

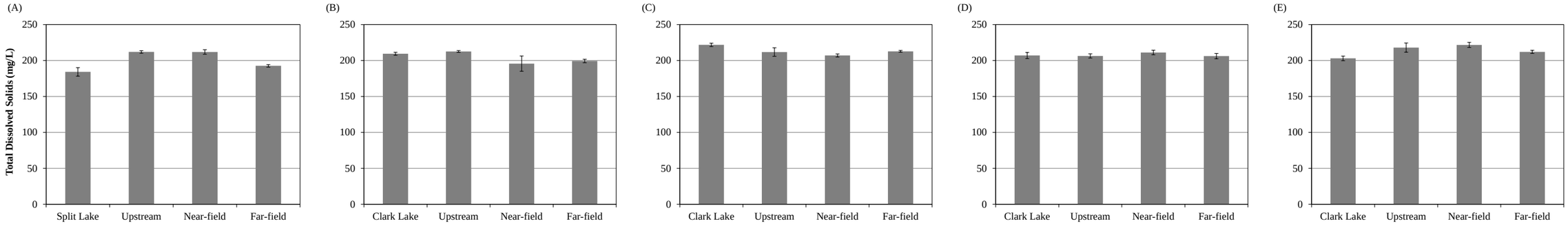


Figure 31: Mean (± SE) concentrations of total dissolved solids measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.

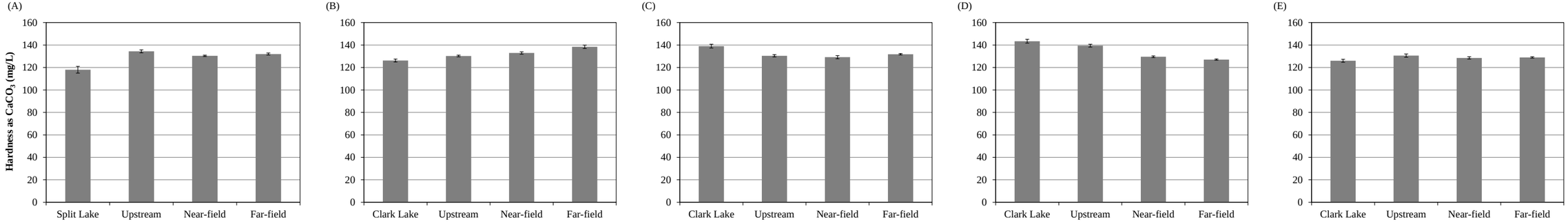


Figure 32: Mean (± SE) hardness measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.

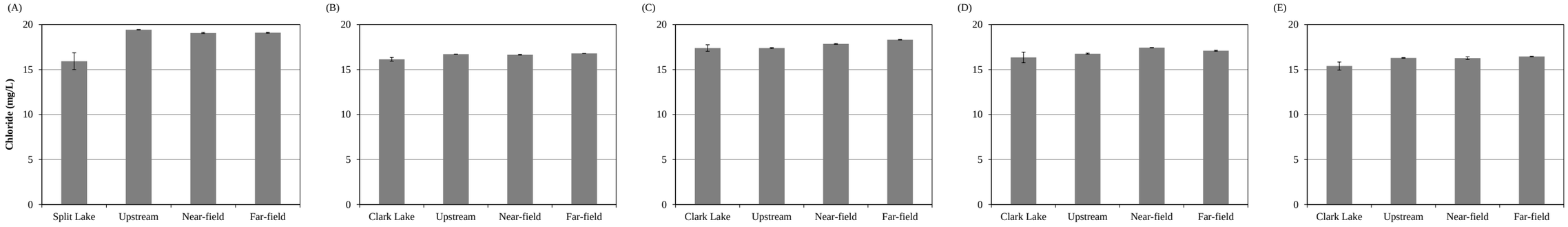


Figure 33: Mean (± SE) chloride concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.

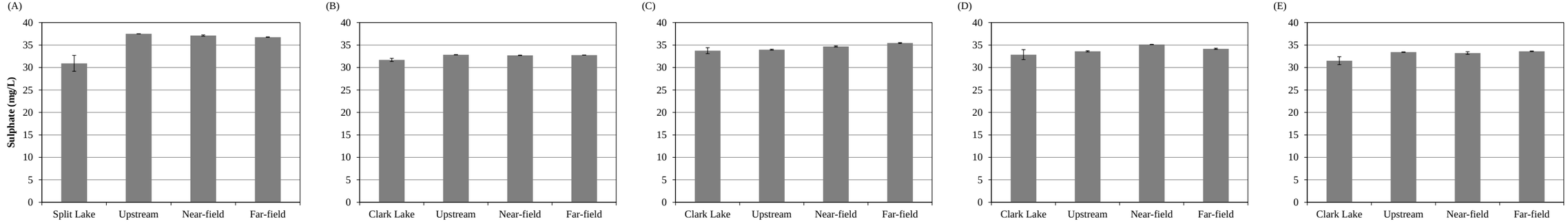


Figure 34: Mean (± SE) sulfate concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.

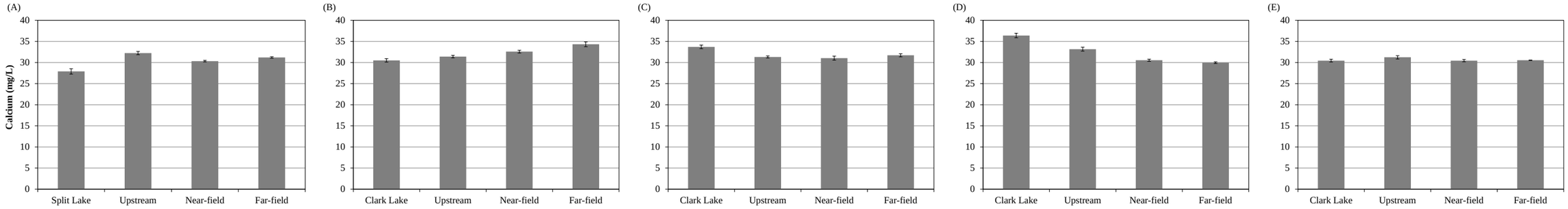


Figure 35: Mean (± SE) calcium concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.

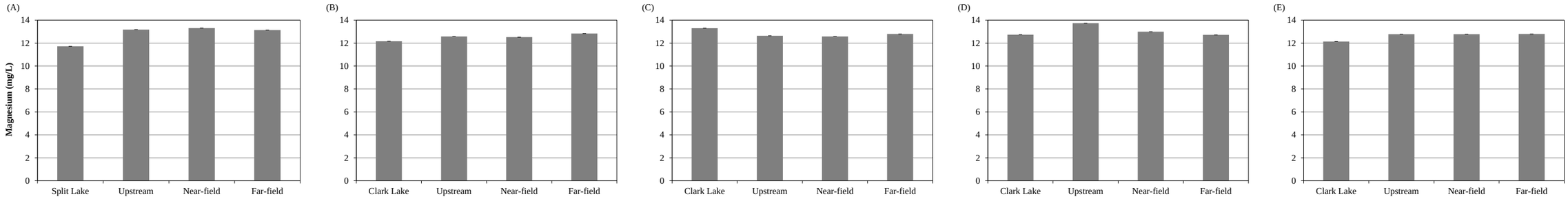


Figure 36: Mean (± SE) magnesium concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.

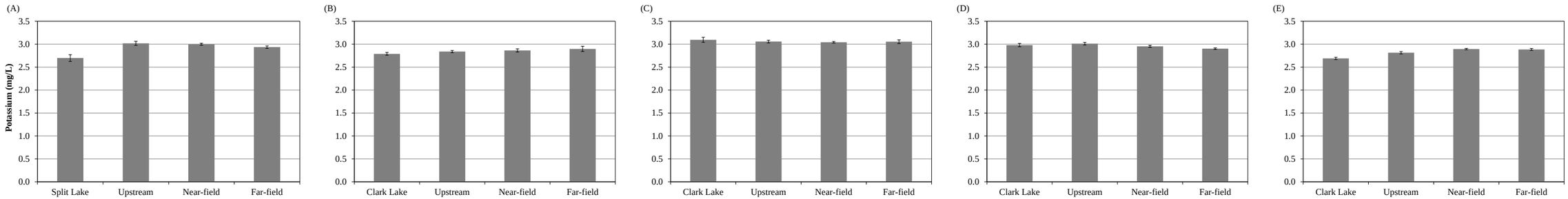


Figure 37: Mean (± SE) potassium concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.

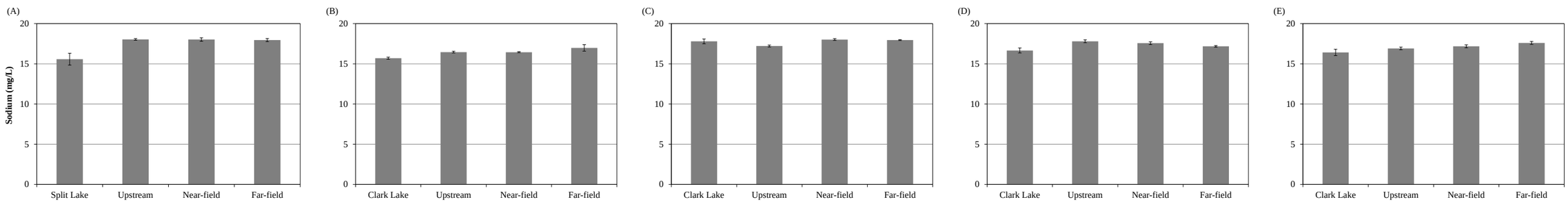
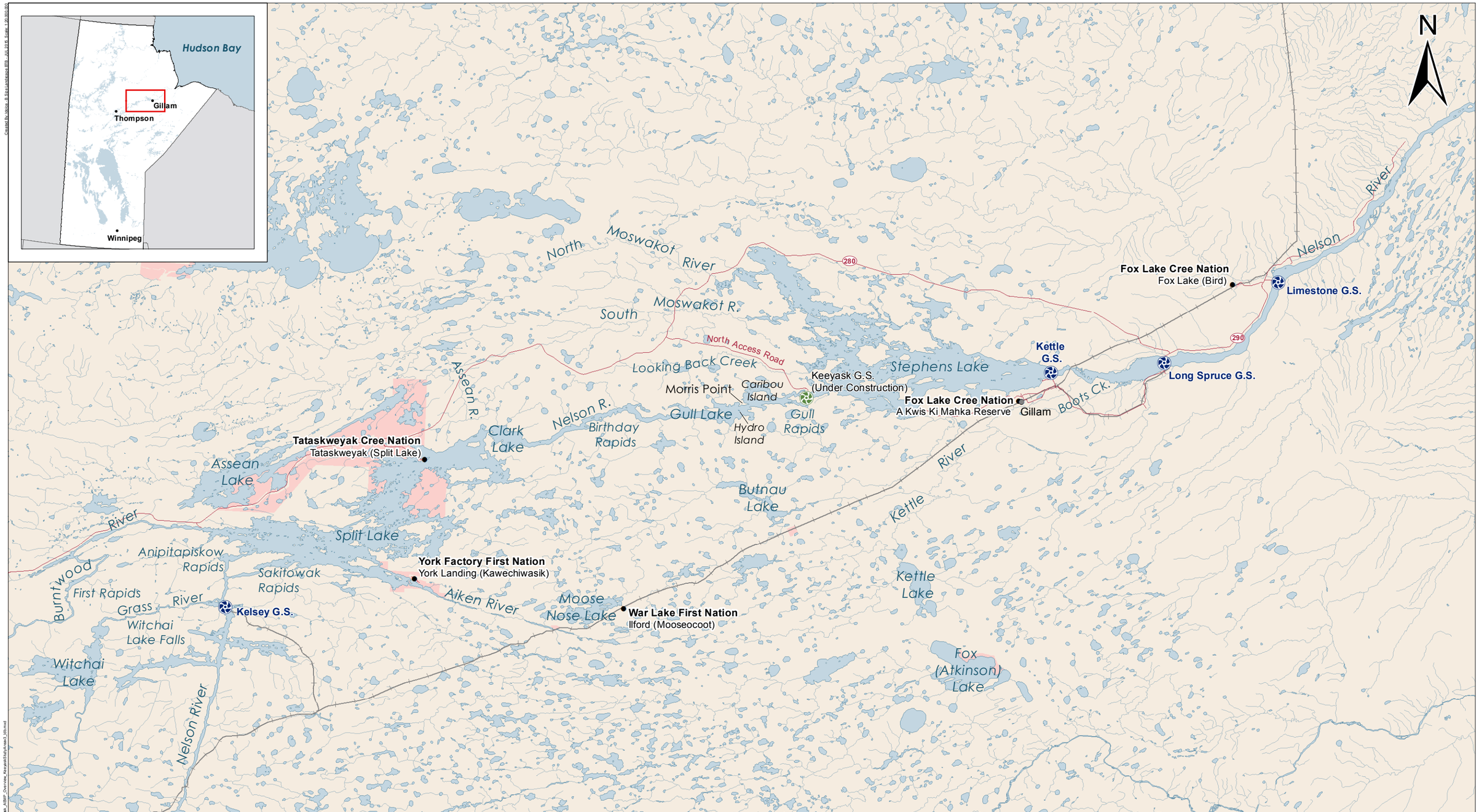


Figure 38: Mean (± SE) sodium concentrations measured in Split Lake, Clark Lake, and the upstream, near-field, and far-field areas of the Nelson River near the Keeyask GS construction site on April 2–5 (A), June 27–28 (B), July 27–29 (C), August 26–31 (D), and September 19–23 (E), 2016.

MAPS



KEEYASK

DATA SOURCE:
Government of Manitoba, Province of Manitoba, Manitoba Hydro

CREATED BY:
North/South Consultants

COORDINATE SYSTEM:	DATE CREATED:	REVISION DATE:
UTM NAD 1983 Z15N	09-FEB-15	30-MAY-17
0 6 12 Kilometres / 0 5 10 Miles	VERSION NO: 1.0	QA/QC: CMP/YYY/ZZZ

Legend

- Town
- Community
- Generating Station (Existing)
- Generating Station (Under Construction)
- Highway
- Rail
- First Nation Reserve

Keeyask G.S. Site and Water Quality Monitoring Study Setting

Map 1: Map of the Nelson River showing the site of the Keeyask Generating Station and the adult Lake Sturgeon population monitoring study setting.

KEEYASK

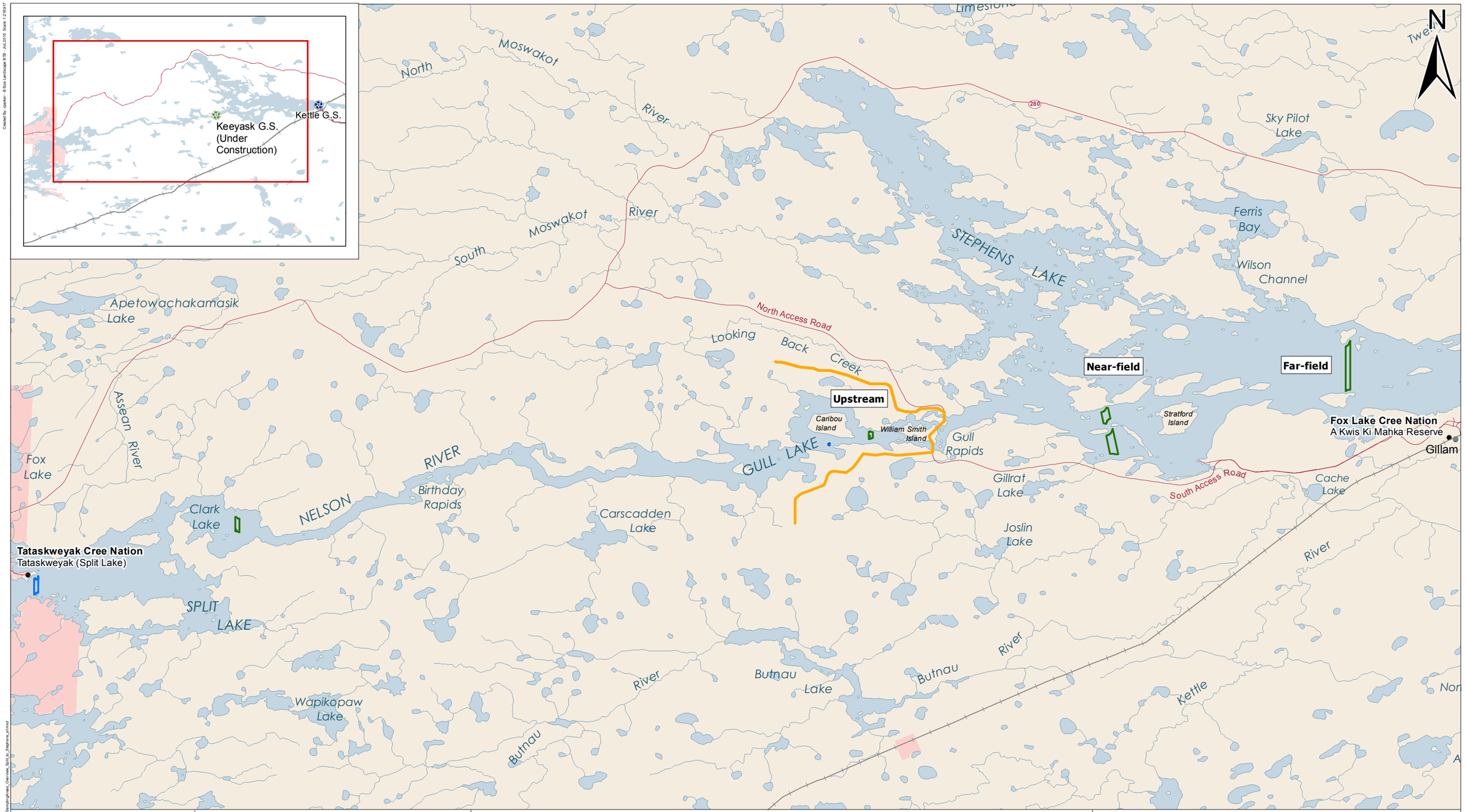
DATA SOURCE:
Orthophoto: Manitoba Hydro - Sep 2016

CREATED BY:
North/South Consultants

COORDINATE SYSTEM:	DATE CREATED:	REVISION DATE:
UTM NAD 1983 Z15N	17-MAR-17	17-MAR-17
0 0.15 0.3 Kilometres / 0 0.15 0.3 Miles	VERSION NO: 2.0	QA/QC: PMC/FSV/MWZ

Construction Site

Map 2: Map of intream structures at the Keeyask Generating Station site, September 2016.



DATA SOURCE:
Government of Manitoba, Province of Manitoba, Manitoba Hydro

CREATED BY:
North/South Consultants

COORDINATE SYSTEM:	DATE CREATED:	REVISION DATE:
UTM NAD 1983 Z15N	09-FEB-15	21-DEC-16
0 2.5 5 Kilometres / 0 2 4 Miles	VERSION NO: 1.0	QA/QC: CMP/YYY/ZZZ

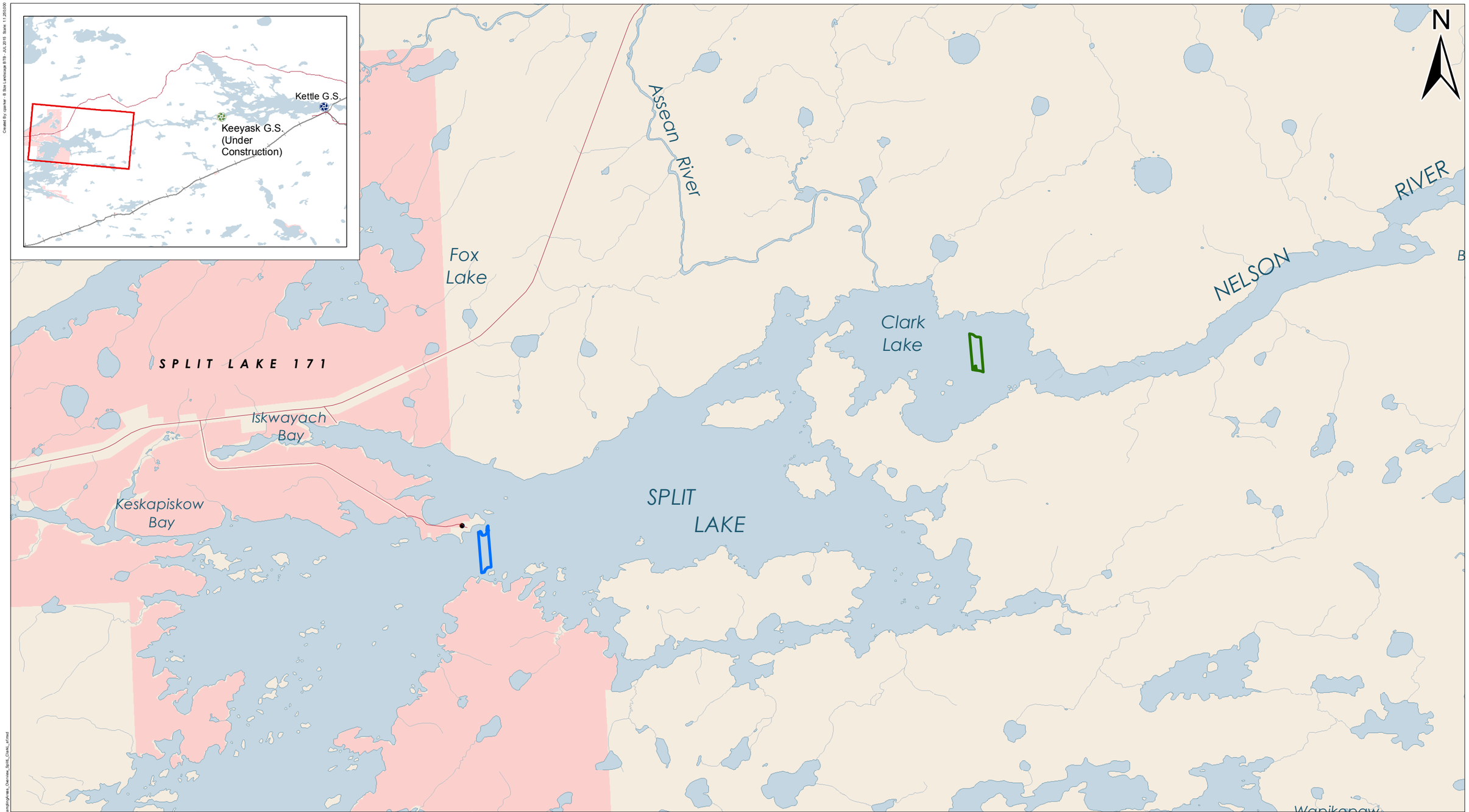
Legend

- Open-water Sampling Area
- Ice-cover Sampling Area
- Generating Station (Existing)
- Generating Station (Under Construction)
- Keeyask Principal Structures
- Highway
- Rail
- First Nation Reserve

Water Quality Sampling Areas

Overview

Map 3: Overview of water quality monitoring areas during the ice-cover and open-water seasons, 2016.



DATA SOURCE: Government of Manitoba, Province of Manitoba, Manitoba Hydro			
CREATED BY: North/South Consultants			
COORDINATE SYSTEM: UTM NAD 1983 Z15N	DATE CREATED: 09-FEB-15	REVISION DATE: 21-DEC-16	
0 1 2 Kilometres / 0 0.8 1.6 Miles	VERSION NO: 1.0	QA/QC: CMP/YYY/ZZZ	

Legend

- Open-water Sampling Area
- Ice-cover Sampling Area
- Generating Station (Existing)
- Generating Station (Under Construction)
- Highway
- Rail
- First Nation Reserve

Water Quality Sampling Areas

Overview

Map 4: Overview of furthest upstream reference water quality monitoring areas during the ice-cover (Split Lake) and open-water seasons (Clark Lake), 2016.

KEEYASK

DATA SOURCE:
Government of Manitoba, Province of Manitoba, Manitoba Hydro

CREATED BY:
North/South Consultants

COORDINATE SYSTEM:	DATE CREATED:	REVISION DATE:
UTM NAD 1983 Z15N	09-FEB-15	19-DEC-16
0 1 2 Kilometres / 0 1 2 Miles	VERSION NO: 1.0	QA/QC: CMP/YYY/ZZZ

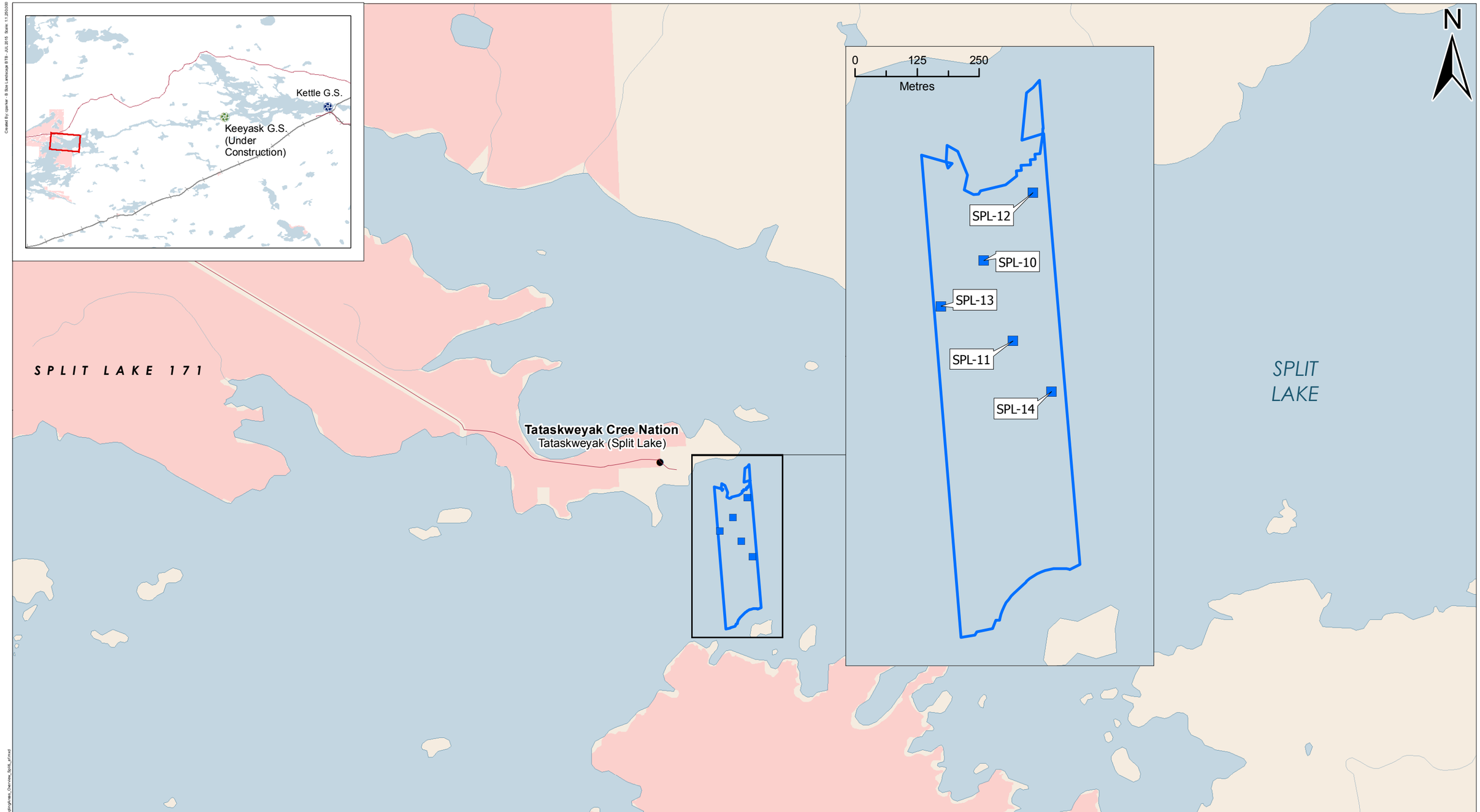
Legend

- Open-water Sampling Area
- Ice-cover Sampling Area
- Generating Station (Existing)
- Generating Station (Under Construction)
- Keeyask Principal Structures
- Highway
- Rail
- First Nation Reserve

Water Quality Sampling Areas

Overview

Map 5: Overview of the Nelson River upstream of Gull Rapids and Stephens Lake water quality monitoring areas during the ice-cover and open-water seasons, 2016.



KEEYASK

DATA SOURCE:
Government of Manitoba, Province of Manitoba, Manitoba Hydro

CREATED BY:
North/South Consultants

COORDINATE SYSTEM:	DATE CREATED:	REVISION DATE:
UTM NAD 1983 Z15N	09-FEB-15	21-DEC-16
0 0.25 0.5 Kilometres / 0 0.2 0.4 Miles	VERSION NO: 1.0	QA/QC: CMP/YYY/ZZZ

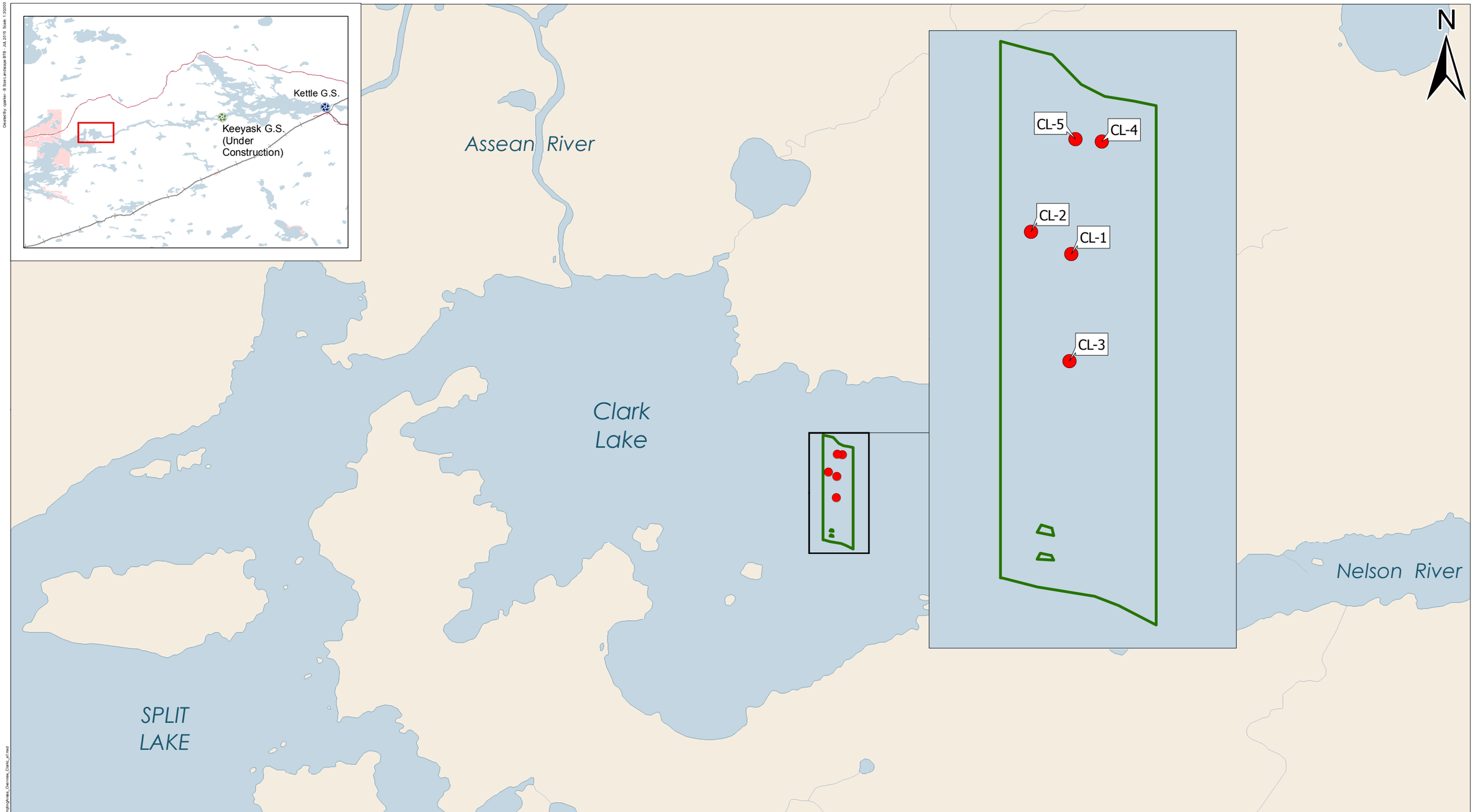
Legend

- Ice-cover Replicate Sites
- Ice-cover Sampling Area
- Generating Station (Existing)
- Generating Station (Under Construction)
- Highway
- Rail
- First Nation Reserve

Water Quality Monitoring Sites

Split Lake

Map 6: Water quality sampling locations in Split Lake during the ice-cover season, 2016.



KEEYASK

DATA SOURCE:
Government of Manitoba, Province of Manitoba, Manitoba Hydro

CREATED BY:
North/South Consultants

COORDINATE SYSTEM:	DATE CREATED:	REVISION DATE:
UTM NAD 1983 Z15N	09-FEB-15	21-DEC-16
0 0.3 0.6 Kilometres / 0 0.25 0.5 Miles	VERSION NO: 1.0	QA/QC: CMP/YYY/ZZZ

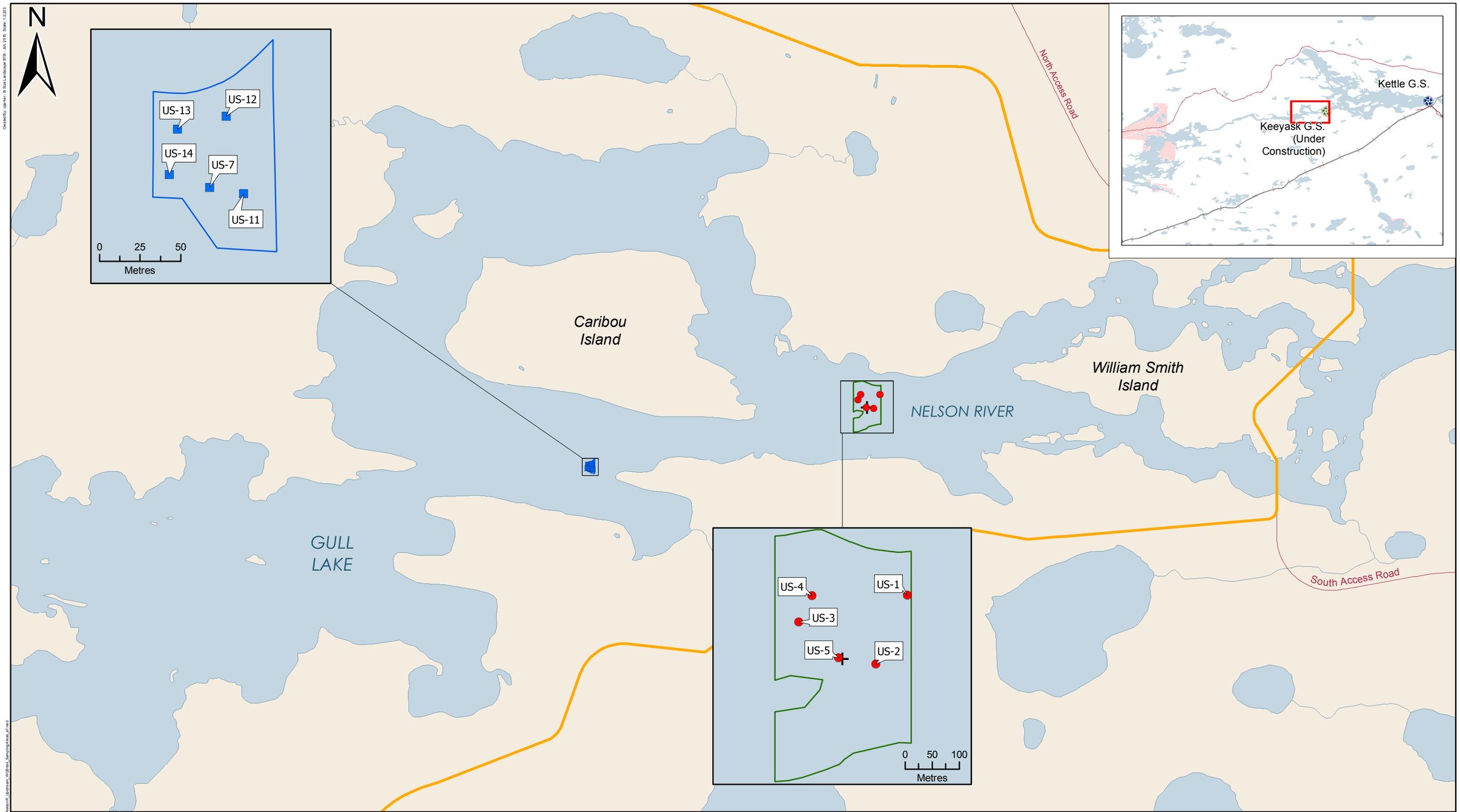
Legend

- Open-water Replicate Sites
- Open-water Sampling Area
- Generating Station (Existing)
- Generating Station (Under Construction)
- Highway
- Rail
- First Nation Reserve

Water Quality Monitoring Sites

Clark Lake

Map 7: Water quality sampling locations in Clark Lake during the open-water season, 2016.



KEEYASK

DATA SOURCE:
Government of Manitoba, Province of Manitoba, Manitoba Hydro

CREATED BY:
North/South Consultants

COORDINATE SYSTEM:	DATE CREATED:	REVISION DATE:
UTM NAD 1983 Z14N	09-FEB-15	16-DEC-16
0 0.45 0.9 Kilometres / 0 0.35 0.7 Miles	VERSION NO: 1.0	QA/QC: CMP/YYY/ZZZ

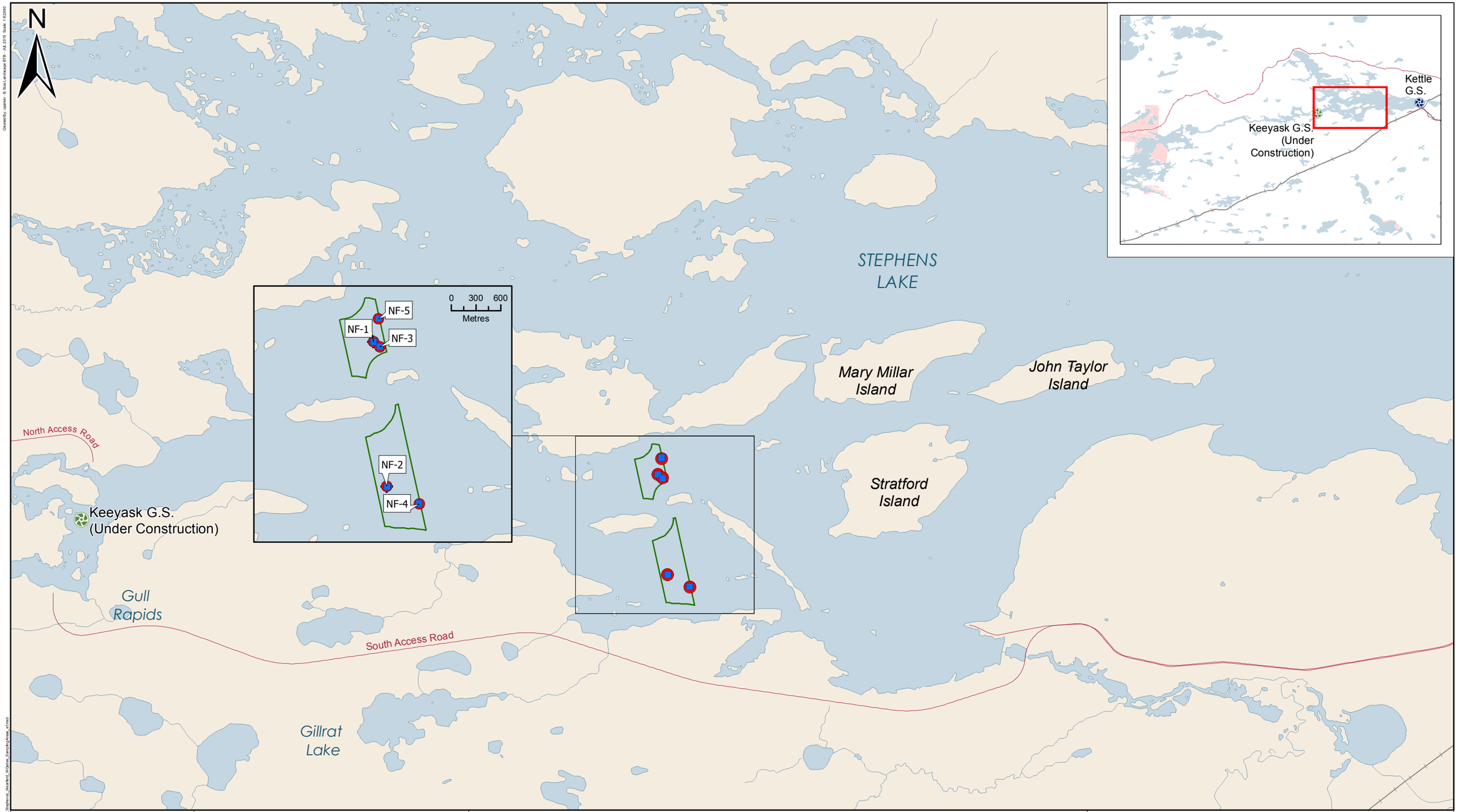
Legend

- Turbidity Logger
- **Water Quality Sampling Sites**
  - Open-water Replicate Sites
  - Ice-cover Replicate Sites
- Open-water Sampling Area
- Ice-cover SamplingArea
- Generating Station (Existing)
- Generating Station (Under Construction)
- Keeyask Principal Structures
- Highway
- Rail
- First Nation Reserve

Water Quality Monitoring Sites

Nelson River - Upstream

Map 8: Water quality sampling locations in the Nelson River upstream of Gull Rapids during the ice-cover and open-water seasons, 2016.



KEEYASK

DATA SOURCE:
Government of Manitoba, Province of Manitoba, Manitoba Hydro

CREATED BY:
North/South Consultants

COORDINATE SYSTEM:	DATE CREATED:	REVISION DATE:
UTM NAD 1983 Z14N	09-FEB-15	21-DEC-16
0 0.45 0.9 Kilometres / 0 0.35 0.7 Miles	VERSION NO: 1.0	QA/QC: CMP/YYY/ZZZ

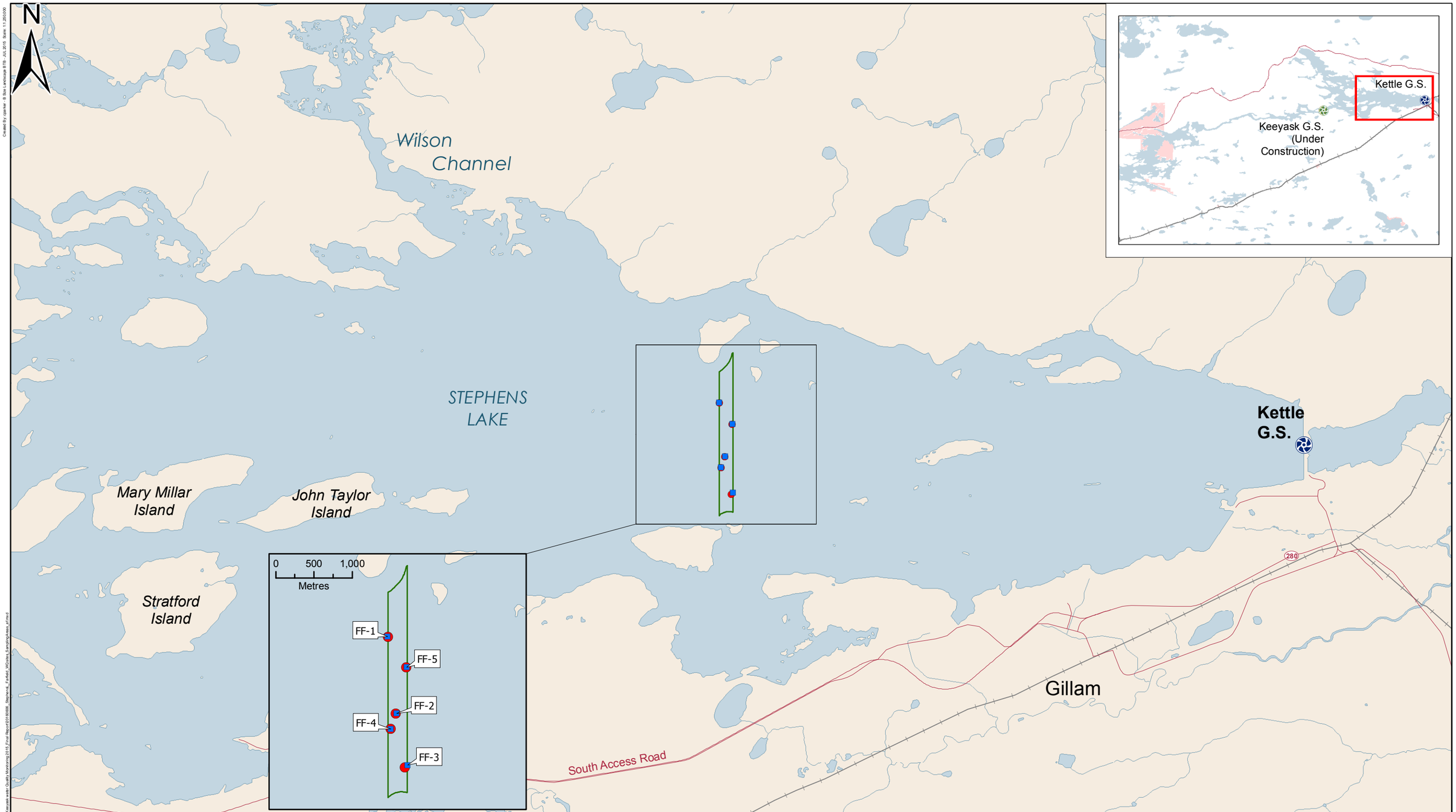
Legend

- Turbidity Logger
- **Water Quality Sampling Sites**
  - Open-water Replicate Sites
  - Ice-cover Replicate Sites
- Open-water Sampling Area
- Generating Station (Existing)
- Generating Station (Under Construction)
- Highway
- Rail
- First Nation Reserve

Water Quality Monitoring Sites

Stephens Lake - Nearfield

Map 9: Water quality sampling locations in the near-field sampling area of Stephens Lake during the ice-cover and open-water seasons, 2016.



KEEYASK

DATA SOURCE:
Government of Manitoba, Province of Manitoba, Manitoba Hydro

CREATED BY:
North/South Consultants

COORDINATE SYSTEM:	DATE CREATED:	REVISION DATE:
UTM NAD 1983 Z14N	09-FEB-15	08-JUN-16
0 0.45 0.9 Kilometres / 0 0.35 0.7 Miles	VERSION NO: 1.0	QA/QC: CMP/YYY/ZZZ

Legend

- Open-water Replicate Sites
- Ice-cover Replicate Sites
- Ice-cover and Open-water Sampling Area
- Generating Station (Existing)
- Generating Station (Under Construction)
- Highway
- Rail
- First Nation Reserve

Water Quality Monitoring Sites

Stephens Lake - Farfield

Map 10: Water quality sampling locations in the far-field sampling area of Stephens Lake during the ice-cover and open-water seasons, 2016.

APPENDICES

APPENDIX 1:
RESULTS OF WATER QUALITY MONITORING, 2016

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Table A1-4: Hydrocarbons measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016. 127

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect.

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Split Lake # 10	SPL-10	2-Apr-16	13:10	19.4	0.20	0.50	0.3	0.162	7.94	14.57	100.3	281.4	9.62	259.5	-
							1.0	0.165	7.94	14.73	101.5	280.6	9.45	255.2	
							2.0	0.168	7.95	14.86	102.2	281.3	9.22	255.5	
							3.0	0.169	7.95	14.89	102.4	281.5	9.18	254.3	
							4.0	0.165	7.95	14.91	102.6	294.5	9.47	253.0	
							5.0	0.168	7.96	14.91	102.5	291.4	9.00	253.4	
							6.0	0.162	7.96	14.91	101.6	297.7	8.70	252.4	
							7.0	0.159	7.96	14.91	102.5	305.8	8.66	251.7	
							8.0	0.160	7.97	14.91	102.5	306.4	8.77	250.9	
							9.0	0.159	7.97	14.90	102.5	311.0	8.18	250.5	
							10.0	0.157	7.97	14.89	102.4	321.5	8.33	250.2	
							11.0	0.158	7.98	14.88	102.3	315.9	8.24	249.7	
							12.0	0.156	7.98	14.88	102.3	323.3	8.65	249.2	
							13.0	0.156	7.98	14.86	102.2	323.8	8.28	248.5	
							14.0	0.156	7.99	14.86	102.2	323.0	8.26	247.5	
							15.0	0.156	7.99	14.85	102.1	326.0	8.15	247.0	
							16.0	0.156	7.99	14.84	102.0	326.9	8.49	246.5	
							17.0	0.156	7.99	14.82	101.9	326.4	8.34	246.9	
							18.0	0.157	8.00	14.82	101.9	327.6	8.54	245.3	
Split Lake # 11	SPL-11	2-Apr-16	14:45	18.0	0.30	0.56	0.3	0.140	8.05	15.05	103.5	298.5	9.07	282.0	-
							1.0	0.141	8.05	15.05	103.5	298.3	9.05	280.6	
							2.0	0.140	8.05	15.05	103.4	298.0	8.70	279.5	
							3.0	0.141	8.05	15.04	103.4	297.7	8.97	278.7	
							4.0	0.142	8.04	15.04	103.3	297.7	8.71	277.9	
							5.0	0.142	8.04	15.03	103.3	297.9	8.68	277.5	
							6.0	0.142	8.04	15.02	103.2	297.0	8.71	277.2	
							7.0	0.142	8.04	15.01	103.2	298.8	9.10	277.0	
							8.0	0.142	8.03	15.00	103.1	298.5	8.92	276.7	
							9.0	0.140	8.01	14.98	103.0	318.6	8.45	277.1	
							10.0	0.140	8.02	14.97	102.9	314.6	8.73	277.8	
							11.0	0.141	8.02	14.95	102.7	320.6	8.41	276.5	
							12.0	0.140	8.02	14.94	102.7	319.9	8.14	276.5	
							13.0	0.140	8.01	14.92	102.6	329.6	8.02	276.7	
							14.0	0.139	8.01	14.90	102.4	338.6	7.89	276.6	
							15.0	0.139	8.01	14.87	102.2	343.6	7.91	276.6	
							16.0	0.139	8.01	14.86	102.1	344.8	7.93	276.5	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Split Lake # 12	SPL-12	2-Apr-16	12:30	9.9	0.22	0.43	0.3	0.171	8.10	14.51	99.9	285.0	9.08	*208.2*	-
							1.0	0.174	8.03	14.73	101.4	313.4	8.97	*200.5*	
							2.0	0.173	8.03	14.74	101.4	316.8	8.45	*199.3*	
							3.0	0.172	8.03	14.73	101.4	324.6	8.12	*198.4*	
							4.0	0.173	8.04	14.73	101.3	322.8	8.23	*197.0*	
							5.0	0.174	8.05	14.72	101.3	326.7	8.26	*195.8*	
							6.0	0.176	8.06	14.71	101.2	327.8	8.21	*194.9*	
							7.0	0.177	8.06	14.71	101.2	324.5	8.12	*194.2*	
							8.0	0.178	8.06	14.71	101.2	327.0	8.25	*193.5*	
							9.0	0.178	8.06	14.71	101.2	327.9	8.20	*193.1*	
Split Lake # 13	SPL-13	2-Apr-16	14:00	18.5	0.21	0.44	0.3	0.152	7.98	14.89	102.4	281.9	9.21	316.9	-
							1.0	0.153	7.99	14.93	102.6	282.3	9.22	314.0	
							2.0	0.154	7.99	14.94	102.7	284.2	9.17	312.4	
							3.0	0.155	7.99	14.94	102.8	284.4	9.12	310.1	
							4.0	0.156	7.99	14.94	102.7	287.6	9.20	308.6	
							5.0	0.157	7.99	14.94	102.7	288.4	9.08	307.2	
							6.0	0.155	7.99	14.94	102.7	286.3	9.34	305.8	
							7.0	0.153	7.97	14.94	102.7	298.2	9.06	305.0	
							8.0	0.149	7.97	14.93	102.6	304.3	8.64	303.8	
							9.0	0.150	7.98	14.90	102.5	312.4	8.63	302.5	
							10.0	0.149	7.98	14.89	102.4	313.8	8.19	301.4	
							11.0	0.149	7.98	14.88	102.3	321.2	8.13	300.4	
							12.0	0.149	7.99	14.87	102.2	317.2	8.36	299.3	
							13.0	0.149	7.99	14.86	102.2	322.5	8.38	289.2	
							14.0	0.149	7.99	14.85	102.1	323.3	8.46	297.3	
							15.0	0.149	7.99	14.83	102.0	327.8	8.38	296.2	
							16.0	0.148	7.99	14.83	101.9	328.9	8.15	295.3	
							17.0	0.148	7.99	14.82	101.9	329.5	8.35	294.4	
							18.0	0.148	7.99	14.82	101.9	330.0	8.99	293.3	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Split Lake # 14	SPL-14	2-Apr-16	15:30	17.0	0.24	0.54	0.3	0.130	8.03	14.71	101.2	326.8	8.14	275.8	-
							1.0	0.129	8.05	14.78	101.6	344.6	7.52	275.5	
							2.0	0.129	8.06	14.81	101.8	347.0	7.69	275.3	
							3.0	0.130	8.07	14.83	101.9	347.2	7.48	275.2	
							4.0	0.128	8.07	14.84	102.0	347.4	7.42	274.9	
							5.0	0.130	8.07	14.85	102.0	347.8	7.82	274.6	
							6.0	0.129	8.08	14.85	102.0	347.6	7.63	274.5	
							7.0	0.129	8.08	14.85	102.1	347.9	7.45	274.7	
							8.0	0.130	8.08	14.85	102.0	347.9	7.39	274.5	
							9.0	0.130	8.08	14.84	102.0	347.9	7.41	274.5	
							10.0	0.130	8.08	14.84	102.0	349.8	7.82	274.4	
							11.0	0.130	8.07	14.82	101.9	350.2	7.84	274.4	
							12.0	0.131	8.07	14.82	101.9	350.6	7.64	274.3	
							13.0	0.131	8.07	14.81	101.8	350.2	7.75	274.2	
							14.0	0.131	8.07	14.81	101.8	350.8	7.76	274.2	
							15.0	0.131	8.07	14.81	101.8	350.6	7.93	274.0	
							16.0	0.131	8.06	14.80	101.7	350.7	9.60	273.8	
Nelson River Upstream # 7	US-7	4-Apr-16	11:00	4.2	0.22	0.94	0.3	0.060	8.06	15.12	103.7	-	8.12	344.3	-
							1.0	0.057	8.07	15.18	104.1	-	8.30	343.1	
							1.5	0.056	8.07	15.19	104.1	-	8.34	342.6	
							2.0	0.056	8.08	15.20	104.2	-	8.38	341.7	
							2.5	0.056	8.08	15.20	104.2	-	8.53	340.8	
							3.0	0.054	8.08	15.21	104.2	-	9.42	340.1	
Nelson River Upstream # 13	US-13	4-Apr-16	12:45	5.9	0.30	0.94	0.3	0.057	7.98	14.83	101.9	-	7.69	368.1	-
							1.0	0.054	8.05	15.15	103.9	-	7.93	365.2	
							1.5	0.053	8.05	15.18	104.0	-	8.06	363.8	
							2.0	0.053	8.06	15.19	104.1	-	7.91	362.5	
							2.5	0.052	8.06	15.19	104.1	-	8.05	360.9	
							3.0	0.051	8.06	15.19	104.1	-	8.14	360.0	
							3.5	0.050	8.06	15.20	104.1	-	8.33	358.1	
							4.0	0.051	8.06	15.19	104.1	-	8.46	356.1	
							4.5	0.051	8.07	15.19	104.1	-	8.85	354.2	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Nelson River Upstream # 14	US-14	4-Apr-16	11:55	4.6	0.30	0.92	0.3	0.057	7.95	15.09	103.5	-	7.87	331.5	-
							1.0	0.063	7.99	15.18	104.1	-	8.02	328.7	
							1.5	0.059	8.01	15.20	104.2	-	8.03	327.6	
							2.0	0.058	8.02	15.20	104.1	-	8.12	326.8	
							2.5	0.056	8.03	15.19	104.1	-	8.07	326.3	
							3.0	0.060	8.05	15.19	104.1	-	8.28	325.3	
							3.5	0.059	8.07	15.19	104.1	-	8.45	322.4	
Nelson River Upstream # 12	US-12	4-Apr-16	13:45	6.4	0.24	0.98	0.3	0.050	8.02	15.17	104.0	-	8.02	373.6	-
							1.0	0.048	8.04	15.20	104.1	-	8.00	371.7	
							1.5	0.048	8.05	15.20	104.2	-	7.72	370.4	
							2.0	0.047	8.05	15.21	104.2	-	7.72	369.3	
							2.5	0.046	8.05	15.20	104.2	-	7.73	368.1	
							3.0	0.045	8.06	15.21	104.2	-	7.78	366.9	
							3.5	0.044	8.06	15.20	104.1	-	7.92	365.0	
							4.0	0.043	8.05	15.20	104.1	-	8.00	364.5	
							4.5	0.044	8.05	15.20	104.1	-	8.20	363.4	
							5.0	0.043	8.06	15.20	104.1	-	8.35	362.1	
Nelson River Upstream # 11	US-11	4-Apr-16	14:45	3.8	0.30	0.92	0.3	0.041	7.95	15.17	103.9	-	8.24	352.0	-
							1.0	0.041	7.95	15.18	104.0	-	8.23	350.9	
							1.5	0.041	7.95	15.18	104.0	-	8.08	349.8	
							2.0	0.040	7.95	15.18	104.0	-	8.24	349.2	
							2.5	0.040	7.95	15.18	104.0	-	7.97	347.7	
							3.0	0.040	7.95	15.19	104.0	-	8.09	347.0	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake – Near-field # 1	NF-1	5-Apr-16	11:30	18.1	0.25	0.82	0.3	0.059	8.03	14.83	101.8	281.4	8.23	281.4	-
							1.0	0.047	8.05	14.88	102.0	281.5	9.33	281.5	
							2.0	0.050	8.07	14.88	102.0	281.7	8.70	281.7	
							3.0	0.048	8.07	14.89	102.1	282.3	8.64	282.3	
							4.0	0.042	8.07	14.89	102.0	282.6	8.31	282.6	
							5.0	0.045	8.07	14.88	102.0	282.6	8.83	282.6	
							6.0	0.043	8.07	14.88	102.0	283.0	8.95	283.0	
							7.0	0.049	8.08	14.87	101.9	283.2	8.17	283.2	
							8.0	0.043	8.08	14.86	101.9	283.4	8.30	283.4	
							9.0	0.044	8.08	14.86	101.8	283.6	8.75	283.6	
							10.0	0.044	8.07	14.85	101.8	283.7	8.44	283.7	
							11.0	0.045	8.07	14.85	101.8	283.8	8.71	283.8	
							12.0	0.048	8.07	14.83	101.7	283.9	8.55	283.9	
							13.0	0.047	8.07	14.83	101.6	284.0	8.47	284.0	
							14.0	0.034	8.07	14.83	101.6	284.0	8.94	284.0	
							15.0	0.049	8.07	14.81	101.5	284.1	8.67	284.1	
							16.0	0.058	8.07	14.80	101.5	284.1	8.83	284.1	
							17.0	0.060	8.07	14.79	101.4	284.1	10.06	284.1	
Stephens Lake – Near-field # 2	NF-2	5-Apr-16	13:20	10.8	0.25	0.83	0.3	0.050	8.00	14.63	100.5	340.8	8.10	318.2	-
							1.0	0.047	8.04	14.82	101.6	340.8	8.23	316.3	
							2.0	0.044	8.05	14.84	101.7	340.9	8.18	315.9	
							3.0	0.044	8.06	14.84	101.7	340.9	7.86	315.5	
							4.0	0.044	8.07	14.84	101.7	341.2	8.56	315.1	
							5.0	0.044	8.07	14.84	101.7	341.2	8.51	314.9	
							6.0	0.045	8.08	14.83	101.7	341.4	8.65	314.6	
							7.0	0.045	8.08	14.83	101.6	341.5	8.39	314.4	
							8.0	0.046	8.08	14.82	101.6	341.6	8.59	314.3	
							9.0	0.047	8.08	14.81	101.6	341.7	9.51	314.2	
							10.0	0.045	8.08	14.81	101.5	341.7	8.96	314.2	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake – Near-field # 3	NF-3	5-Apr-16	12:35	18.6	0.25	0.90	0.3	0.054	7.96	14.62	100.3	339.8	8.12	290.7	-
							1.0	0.048	8.02	14.77	101.4	339.8	8.25	289.4	
							2.0	0.046	8.05	14.84	101.8	340.0	8.30	288.7	
							3.0	0.044	8.07	14.87	101.9	340.1	8.26	288.1	
							4.0	0.045	8.07	14.87	102.0	340.0	8.66	287.9	
							5.0	0.054	8.08	14.87	102.0	339.9	8.25	287.7	
							6.0	0.053	8.08	14.87	101.9	340.0	8.72	287.7	
							7.0	0.053	8.08	14.86	101.9	340.1	8.94	287.6	
							8.0	0.053	8.08	14.86	101.9	340.2	8.62	287.6	
							9.0	0.053	8.08	14.86	101.9	340.4	8.22	287.5	
							10.0	0.053	8.08	14.85	101.8	340.5	8.38	287.5	
							11.0	0.053	8.08	14.84	101.8	340.7	8.49	287.5	
							12.0	0.053	8.08	14.83	101.7	340.7	8.56	287.5	
							13.0	0.053	8.08	14.83	101.7	340.6	8.47	287.5	
							14.0	0.053	8.08	14.82	101.6	340.8	8.23	287.4	
							15.0	0.053	8.08	14.81	101.5	341.0	8.13	287.4	
							16.0	0.054	8.08	14.81	101.5	340.9	8.29	287.3	
							17.0	0.054	8.07	14.80	101.5	341.0	8.36	287.3	
Stephens Lake – Near--field # 4	NF-4	5-Apr-16	14:10	5.9	0.30	0.88	0.3	0.044	8.02	14.70	100.9	341.0	9.97	309.0	-
							1.0	0.042	8.05	14.82	101.6	341.1	8.82	307.2	
							2.0	0.042	8.07	14.85	101.8	341.2	8.19	306.2	
							3.0	0.041	8.08	14.86	101.9	341.3	8.55	305.7	
							4.0	0.041	8.08	14.86	101.8	341.4	10.00	305.3	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake – Near-field # 5	NF-5	5-Apr-16	10:25	18.5	0.23	0.72	0.3	0.103	7.92	14.11	97.5	336.1	9.06	266.3	-
							1.0	0.084	7.95	14.60	100.4	335.9	8.03	270.6	
							2.0	0.080	7.99	14.73	101.2	336.0	8.26	272.4	
							3.0	0.085	8.01	14.79	101.5	336.4	8.18	277.1	
							4.0	0.088	8.05	14.84	101.8	336.8	8.34	276.5	
							5.0	0.088	8.05	14.83	101.8	337.2	8.27	277.1	
							6.0	0.087	8.06	14.83	101.8	337.7	8.29	277.5	
							7.0	0.084	8.06	14.83	101.8	337.9	8.56	277.8	
							8.0	0.084	8.06	14.82	101.7	338.0	8.44	278.0	
							9.0	0.085	8.07	14.81	101.7	338.3	8.43	278.6	
							10.0	0.083	8.07	14.81	101.7	338.7	8.07	278.9	
							11.0	0.082	8.07	14.81	101.6	338.9	8.62	279.0	
							12.0	0.084	8.07	14.80	101.6	338.8	8.70	279.2	
							13.0	0.084	8.07	14.79	101.5	338.9	8.24	279.2	
							14.0	0.083	8.07	14.79	101.5	339.1	8.33	279.3	
							15.0	0.083	8.07	14.78	101.5	339.3	8.26	279.5	
							16.0	0.084	8.08	14.78	101.4	339.2	8.40	279.5	
							17.0	0.085	8.08	14.77	101.3	339.3	8.24	279.6	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake – Far-field # 1	FF-1	3-Apr-16	10:00	22.5	0.26	0.78	0.3	0.103	7.95	15.08	103.5	339.2	8.52	323.3	-
							1.0	0.087	7.97	15.10	103.6	339.2	9.43	319.4	
							2.0	0.088	7.97	15.09	103.6	339.3	9.51	318.1	
							3.0	0.086	7.98	15.08	103.5	339.2	8.76	316.5	
							4.0	0.102	7.99	15.07	103.5	338.7	8.71	315.2	
							5.0	0.100	7.99	15.06	103.4	338.6	8.90	313.1	
							6.0	0.100	8.00	15.06	103.4	338.7	8.52	311.4	
							7.0	0.103	8.00	15.04	103.3	338.6	8.83	310.7	
							8.0	0.100	8.00	15.04	103.3	338.6	8.60	310.1	
							9.0	0.102	8.00	15.03	103.2	338.6	8.74	309.0	
							10.0	0.102	8.01	15.03	103.2	338.6	8.66	308.1	
							11.0	0.102	8.01	15.03	103.2	338.6	8.72	307.2	
							12.0	0.103	8.01	15.02	103.1	338.7	8.39	306.5	
							13.0	0.103	8.01	15.01	103.1	338.7	9.26	306.0	
							14.0	0.102	8.01	15.02	103.1	338.8	8.50	305.7	
							15.0	0.102	8.02	15.01	103.1	338.8	8.91	305.3	
							16.0	0.102	8.02	15.00	103.0	338.8	8.65	305.0	
							17.0	0.102	8.02	15.00	103.0	338.8	8.82	304.2	
							18.0	0.101	8.02	14.99	103.0	338.8	8.50	303.4	
							19.0	0.101	8.02	14.99	103.0	338.8	8.61	303.3	
							20.0	0.080	8.02	14.99	102.9	339.5	8.86	303.0	
Stephens Lake – Far-field # 2	FF-2	3-Apr-16	12:00	15.1	0.24	0.88	0.3	0.075	7.96	14.81	101.8	340.2	8.41	352.1	-
							1.0	0.073	7.97	14.99	103.0	339.5	8.57	345.6	
							2.0	0.074	7.98	15.09	103.6	339.5	8.20	340.5	
							3.0	0.073	7.99	15.11	103.7	337.1	8.48	338.5	
							4.0	0.071	7.99	15.12	103.7	334.0	8.70	336.2	
							5.0	0.071	8.00	15.13	103.8	339.5	8.60	334.6	
							6.0	0.070	8.00	15.13	103.8	339.6	8.64	333.8	
							7.0	0.070	8.00	15.12	103.7	339.5	8.64	333.0	
							8.0	0.070	8.00	15.12	103.7	339.6	8.56	332.1	
							9.0	0.071	8.00	15.11	103.7	339.5	8.56	331.6	
							10.0	0.070	8.00	15.10	103.6	339.6	8.95	331.0	
							11.0	0.071	8.00	15.10	103.6	339.6	8.71	330.3	
							12.0	0.071	8.00	15.09	103.6	339.7	8.98	329.3	
							13.0	0.072	8.00	15.10	103.6	339.6	8.99	328.6	
							14.0	0.070	8.00	15.08	103.5	339.6	8.78	327.4	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Far-field # 3	FF-3	3-Apr-16	13:40	25.5	0.26	0.84	0.3	0.100	8.01	14.76	101.5	340.1	7.84	336.2	-
							1.0	0.072	8.03	14.99	102.9	339.8	8.17	339.9	
							2.0	0.070	8.06	15.06	103.4	340.0	8.44	332.7	
							3.0	0.069	8.08	15.09	103.5	339.0	8.23	331.2	
							4.0	0.068	8.08	15.10	103.5	339.9	8.23	330.8	
							5.0	0.069	8.09	15.09	103.5	340.0	8.43	330.2	
							6.0	0.068	8.09	15.09	103.5	340.0	8.22	329.8	
							7.0	0.068	8.10	15.09	103.5	339.9	8.36	329.3	
							8.0	0.068	8.10	15.09	103.5	339.9	8.28	329.1	
							9.0	0.069	8.10	15.08	103.5	339.9	8.29	328.8	
							10.0	0.067	8.10	15.08	103.4	339.9	8.47	328.4	
							11.0	0.067	8.10	15.07	103.4	340.0	8.36	328.2	
							12.0	0.068	8.10	15.06	103.3	340.2	8.29	328.0	
							13.0	0.068	8.10	15.06	103.3	340.2	8.25	327.8	
							14.0	0.068	8.10	15.04	103.2	340.3	8.25	327.7	
							15.0	0.068	8.09	15.04	103.1	340.3	8.87	327.6	
							16.0	0.068	8.09	15.03	103.1	340.2	8.46	327.5	
							17.0	0.068	8.09	15.03	103.1	340.3	8.50	327.4	
							18.0	0.067	8.09	15.02	103.0	340.3	8.71	327.3	
							19.0	0.068	8.09	15.01	103.0	340.3	8.47	327.3	
							20.0	0.068	8.09	15.00	102.9	340.4	8.56	327.0	
							22.0	0.068	8.08	14.98	102.8	340.3	8.41	326.9	
							24.0	0.068	8.08	14.98	102.8	340.4	8.51	326.7	
Stephens Lake - Far-field # 4	FF-4	3-Apr-16	13:00	13.1	0.22	0.92	0.3	0.064	8.03	15.01	103.1	340.8	8.12	349.3	-
							1.0	0.063	8.03	15.14	103.9	340.2	8.70	344.0	
							2.0	0.065	8.04	15.15	103.9	339.4	8.64	341.0	
							3.0	0.066	8.05	15.16	104.0	339.3	8.67	338.0	
							4.0	0.066	8.05	15.15	103.9	339.4	8.61	336.8	
							5.0	0.066	8.06	15.15	103.9	339.3	9.22	335.4	
							6.0	0.066	8.06	15.14	103.9	339.3	8.66	333.9	
							7.0	0.066	8.06	15.14	103.8	339.4	8.48	332.6	
							8.0	0.064	8.06	15.13	103.8	339.4	8.46	331.9	
							9.0	0.065	8.06	15.13	103.7	339.4	8.89	331.4	
							10.0	0.064	8.06	15.12	103.7	339.4	8.54	330.8	
							11.0	0.063	8.06	15.11	103.7	339.5	8.34	330.4	
							12.0	0.062	8.06	15.11	103.6	339.5	9.25	330.0	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Far-field # 5	FF-5	3-Apr-16	11:10	11.7	0.22	0.88	0.3	0.098	7.85	14.92	102.5	339.6	9.75	279.8	-
							1.0	0.098	7.89	15.05	103.4	338.3	8.92	279.5	
							2.0	0.098	7.93	15.09	103.6	338.3	8.10	279.4	
							3.0	0.099	7.96	15.13	103.9	338.3	8.35	280.4	
							4.0	0.098	7.97	15.13	103.9	338.8	8.60	280.7	
							5.0	0.099	7.98	15.12	103.8	339.4	8.48	280.9	
							6.0	0.101	7.99	15.11	103.8	338.5	9.95	281.3	
							7.0	0.102	7.99	15.11	103.7	338.5	9.09	281.7	
							8.0	0.101	8.00	15.10	103.7	338.6	8.94	282.2	
							9.0	0.102	8.00	15.10	103.6	338.6	8.68	282.7	
							10.0	0.100	8.00	15.09	103.6	338.7	8.03	283.2	
Clark Lake # 1	CL-1	27-Jun-16	9:40	11.3	N/A	N/A	0.3	15.877	7.88	9.50	96.1	292.9	22.69	-	0.40
							1.0	15.865	7.95	9.48	95.8	292.5	22.69	-	
							2.0	15.883	8.01	9.47	95.7	290.8	22.65	-	
							3.0	15.871	8.02	9.46	95.6	290.7	22.65	-	
							4.0	15.855	8.04	9.44	95.4	290.5	22.63	-	
							5.0	15.851	8.05	9.43	95.3	290.6	22.84	-	
							6.0	15.851	8.06	9.42	95.2	290.6	22.70	-	
							7.0	15.852	8.07	9.42	95.2	290.8	22.95	-	
							8.0	15.853	8.08	9.41	95.1	291.0	22.73	-	
							9.0	15.857	8.09	9.41	95.1	291.6	22.85	-	
							10.0	15.835	8.10	9.41	95.0	291.8	22.65	-	
Clark Lake # 2	CL-2	27-Jun-16	10:00	12.3	N/A	N/A	0.3	15.941	8.13	9.60	97.1	289.5	22.50	-	0.35
							1.0	15.864	8.12	9.57	96.7	290.4	22.72	-	
							2.0	15.871	8.12	9.53	96.3	289.1	22.73	-	
							3.0	15.815	8.15	9.53	96.2	289.0	22.03	-	
							4.0	15.798	8.17	9.52	96.1	290.4	22.62	-	
							5.0	15.793	8.18	9.50	95.9	291.2	22.58	-	
							6.0	15.793	8.20	9.49	95.8	291.2	22.77	-	
							7.0	15.795	8.21	9.48	95.7	290.3	22.85	-	
							8.0	15.795	8.22	9.47	95.6	290.0	22.68	-	
							9.0	15.796	8.23	9.45	95.4	290.8	23.00	-	
							10.0	15.736	8.23	9.47	95.4	292.4	27.02	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth	Snow Thickness	Ice Thickness	Sample Depth	Temperature	pH	Dissolved Oxygen		Specific Conductance	Turbidity	ORP	Secchi Depth
				(m)	(m)	(m)	(m)	(°C)	(pH units)	(mg/L)	(% Saturation)	(µS/cm)	(NTU)	(mV)	(m)
Clark Lake # 3	CL-3	27-Jun-16	10:56	9.0	N/A	N/A	0.3	15.815	8.33	9.76	98.4	298.2	21.86	-	0.35
							1.0	15.817	8.31	9.63	97.2	298.5	22.01	-	
							2.0	15.820	8.29	9.60	96.9	298.7	22.11	-	
							3.0	15.798	8.28	9.58	96.7	298.7	22.37	-	
							4.0	15.764	8.27	9.56	96.4	298.4	22.93	-	
							5.0	15.764	8.26	9.54	96.2	298.7	22.50	-	
							6.0	15.758	8.26	9.52	96.0	296.6	22.37	-	
							7.0	15.760	8.26	9.52	96.0	298.5	22.15	-	
							8.0	15.759	8.25	9.50	95.8	298.4	22.57	-	
Clark Lake # 4	CL-4	27-Jun-16	10:20	7.7	N/A	N/A	0.3	15.624	8.18	9.80	98.2	288.7	23.11	-	0.35
							1.0	15.633	8.16	9.65	97.0	289.3	23.41	-	
							2.0	15.601	8.22	9.62	96.7	289.3	23.33	-	
							3.0	15.610	8.23	9.61	96.7	289.1	23.14	-	
							4.0	15.612	8.23	9.59	96.5	289.0	23.12	-	
							5.0	15.613	8.23	9.57	96.3	289.1	23.67	-	
							6.0	15.614	8.24	9.56	96.1	289.3	23.15	-	
							7.0	16.617	8.24	9.55	96.0	289.4	23.30	-	
Clark Lake # 5	CL-5	27-Jun-16	10:37	7.9	N/A	N/A	0.3	15.678	8.24	9.84	98.6	288.8	23.00	-	0.30
							1.0	15.705	8.22	9.64	97.1	288.7	23.25	-	
							2.0	15.692	8.21	9.61	96.8	289.4	23.00	-	
							3.0	15.702	8.21	9.60	96.7	289.5	23.16	-	
							4.0	15.691	8.21	9.58	96.5	290.2	23.25	-	
							5.0	15.695	8.21	9.57	96.3	290.9	23.52	-	
							6.0	15.690	8.21	9.55	96.2	290.9	23.17	-	
Nelson River Upstream # 1	US-1	27-Jun-16	16:15	11.7	N/A	N/A	0.3	15.820	8.26	9.74	98.4	305.0	21.41	-	0.40
Nelson River Upstream # 2	US-2	27-Jun-16	16:35	11.9	N/A	N/A	0.3	15.899	8.29	9.75	98.9	303.0	21.76	-	0.40
Nelson River Upstream # 3	US-3	27-Jun-16	17:06	9.9	N/A	N/A	0.3	16.253	8.30	9.64	98.5	300.5	22.58	-	0.40
Nelson River Upstream # 4	US-4	27-Jun-16	17:19	11.6	N/A	N/A	0.3	16.202	8.31	9.96	101.1	301.5	21.85	-	0.40
Nelson River Upstream # 5	US-5	27-Jun-16	16:52	8.5	N/A	N/A	0.3	16.108	8.32	9.65	98.1	300.8	22.24	-	0.40

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Near-field # 1	NF-1	28-Jun-16	11:12	19.4	N/A	N/A	0.3	15.877	8.27	10.01	101.3	304.4	20.50	-	0.40
							1.0	15.868	8.27	10.03	101.3	304.6	19.83	-	
							2.0	15.837	8.28	10.00	101.1	304.8	19.94	-	
							3.0	15.819	8.27	10.00	100.8	304.7	18.75	-	
							4.0	15.799	8.27	9.96	100.6	304.6	19.81	-	
							5.0	15.794	8.26	9.95	100.4	304.5	20.13	-	
							6.0	15.798	8.27	9.94	100.3	304.3	20.67	-	
							7.0	15.804	8.26	9.93	100.3	304.5	18.56	-	
							8.0	15.803	8.26	9.92	100.2	304.3	20.06	-	
							9.0	15.802	8.26	9.92	100.1	304.5	21.03	-	
							10.0	15.800	8.26	9.91	100.1	304.5	21.91	-	
							11.0	15.800	8.25	9.90	100.0	304.6	20.98	-	
							12.0	15.804	8.25	9.89	99.9	304.4	20.47	-	
							13.0	15.805	8.25	9.89	99.8	304.5	20.35	-	
							14.0	15.803	8.25	9.88	99.8	304.5	20.49	-	
							15.0	15.810	8.25	9.87	99.7	304.2	19.39	-	
							16.0	15.820	8.25	9.86	99.6	304.2	19.38	-	
							17.0	15.838	8.25	9.85	99.5	303.9	19.18	-	
							18.0	15.847	8.25	9.84	99.4	303.8	20.20	-	0.40
Stephens Lake - Near-field # 2	NF-2	28-Jun-16	11:56	10.9	N/A	N/A	0.3	16.019	8.28	10.01	101.4	305.0	18.54	-	
							1.0	15.916	8.27	10.02	101.4	305.3	18.85	-	
							2.0	15.861	8.27	10.00	100.9	305.5	18.92	-	
							3.0	15.844	8.26	9.96	100.6	305.5	19.58	-	
							4.0	15.834	8.25	9.94	100.4	305.6	19.31	-	
							5.0	15.832	8.25	9.92	100.2	305.8	19.10	-	
							6.0	15.828	8.25	9.90	100.0	305.9	19.43	-	
							7.0	15.822	8.25	9.88	99.8	306.0	20.03	-	
							8.0	15.823	8.25	9.87	99.7	305.8	18.82	-	
							9.0	15.817	8.25	9.85	99.5	305.8	18.23	-	
							10.0	15.806	8.24	9.84	99.3	305.8	19.45	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Near-field # 3	NF-3	28-Jun-16	11:34	18.5	N/A	N/A	0.3	16.269	8.27	9.86	100.6	298.0	19.98	-	0.45
							1.0	16.249	8.27	9.90	100.9	299.0	20.43	-	
							2.0	16.011	8.27	9.99	101.1	302.0	19.90	-	
							3.0	15.887	8.27	10.01	101.1	304.0	19.68	-	
							4.0	15.854	8.26	9.98	100.8	304.2	20.78	-	
							5.0	15.834	8.26	9.95	100.5	304.0	20.20	-	
							6.0	15.827	8.25	9.94	100.4	304.2	20.05	-	
							7.0	15.827	8.25	9.93	100.3	304.1	20.26	-	
							8.0	15.830	8.25	9.92	100.2	304.3	20.35	-	
							9.0	15.833	8.25	9.91	100.1	304.3	20.61	-	
							10.0	15.834	8.25	9.90	100.1	304.2	20.75	-	
							11.0	15.837	8.25	9.90	100.0	304.2	20.05	-	
							12.0	15.832	8.25	9.89	100.0	304.4	18.78	-	
							13.0	15.859	8.24	9.88	99.9	303.7	20.59	-	
							14.0	15.831	8.25	9.88	99.8	304.4	20.99	-	
							15.0	15.797	8.25	9.89	99.8	305.2	21.58	-	
							16.0	15.767	8.25	9.89	99.7	305.5	21.07	-	
							17.0	15.630	8.24	9.92	99.8	309.1	21.67	-	
							18.0	15.616	8.24	9.92	99.7	309.4	19.76	-	
Stephens Lake - Near-field # 4	NF-4	28-Jun-16	12:16	5.3	N/A	N/A	0.3	16.271	8.30	9.90	101.1	301.0	19.02	-	0.40
							1.0	16.262	8.29	9.93	101.2	301.5	18.57	-	
							2.0	15.593	8.28	10.16	102.0	313.0	17.99	-	
							3.0	15.539	8.28	10.16	101.9	313.6	18.50	-	
							4.0	15.513	8.28	10.15	101.8	313.9	20.62	-	
							5.0	15.479	8.27	10.12	101.5	314.2	20.46	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Near-field # 5	NF-5	28-Jun-16	10:36	18.9	N/A	N/A	0.3	15.879	8.26	10.17	102.8	305.4	20.16	-	0.40
							1.0	15.868	8.28	10.13	102.4	305.2	19.57	-	
							2.0	15.846	8.28	10.11	102.2	305.2	19.66	-	
							3.0	15.815	8.28	10.10	102.0	305.3	20.46	-	
							4.0	15.774	8.27	10.10	101.8	305.8	22.18	-	
							5.0	15.773	8.27	10.07	101.6	305.8	21.64	-	
							6.0	15.753	8.27	10.04	101.3	306.0	20.01	-	
							7.0	15.757	8.27	10.02	101.1	306.0	19.90	-	
							8.0	15.751	8.26	10.00	100.8	306.3	19.38	-	
							9.0	15.750	8.26	9.98	100.6	306.4	20.14	-	
							10.0	15.733	8.26	9.95	100.3	306.6	19.89	-	
							11.0	15.729	8.26	9.94	100.1	306.7	19.58	-	
							12.0	15.694	8.25	9.92	99.9	306.9	16.18	-	
							13.0	15.682	8.25	9.90	99.6	307.0	19.24	-	
							14.0	15.660	8.25	9.87	99.4	307.0	19.54	-	
							15.0	15.633	8.25	9.85	99.1	307.0	18.89	-	
							16.0	15.613	8.24	9.83	98.8	307.0	19.09	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Far-field # 1	FF-1	28-Jun-16	8:35	21.8	N/A	N/A	0.3	15.351	7.72	9.69	90.9	312.2	17.07	-	0.45
							1.0	15.329	7.81	9.74	97.3	311.2	17.71	-	
							2.0	15.323	7.85	9.74	97.4	310.0	17.71	-	
							3.0	15.318	7.89	9.75	97.4	309.2	17.85	-	
							4.0	15.334	7.95	9.74	97.4	308.8	17.84	-	
							5.0	15.336	7.99	9.74	97.3	308.7	18.11	-	
							6.0	15.307	8.02	9.73	97.2	308.9	18.18	-	
							7.0	15.281	8.05	9.71	97.0	308.7	17.70	-	
							8.0	15.274	8.06	9.70	96.8	308.7	18.25	-	
							9.0	15.277	8.08	9.69	96.7	308.7	17.62	-	
							10.0	15.269	8.09	9.68	96.6	308.6	17.59	-	
							11.0	15.259	8.10	9.65	96.3	308.5	18.20	-	
							12.0	15.265	8.11	9.59	95.7	308.0	18.75	-	
							13.0	15.269	8.12	9.57	95.5	307.9	18.22	-	
							14.0	15.284	8.12	9.56	95.5	307.7	18.36	-	
							15.0	15.277	8.13	9.55	95.2	307.7	18.64	-	
							16.0	15.149	8.13	9.50	94.4	307.9	17.97	-	
							17.0	14.949	8.13	9.47	93.8	308.0	17.99	-	
							18.0	14.857	8.13	9.44	93.4	308.0	18.72	-	
							19.0	14.844	8.13	9.41	93.1	307.9	19.38	-	
							20.0	14.835	8.13	9.38	92.8	307.9	21.80	-	
							21.0	14.814	8.13	9.32	92.1	308.1	21.25	-	
Stephens Lake - Far-field # 2	FF-2	28-Jun-16	9:15	15.2	N/A	N/A	0.3	15.391	8.19	9.88	98.1	308.4	19.08	-	0.40
							1.0	15.375	8.19	9.78	97.8	308.6	19.27	-	
							2.0	15.356	8.19	9.75	97.5	308.5	19.73	-	
							3.0	15.349	8.20	9.73	97.3	308.5	19.73	-	
							4.0	15.362	8.20	9.72	97.2	308.4	20.20	-	
							5.0	15.357	8.21	9.69	96.9	308.2	17.53	-	
							6.0	15.356	8.21	9.67	96.7	308.2	19.70	-	
							7.0	15.370	8.21	9.67	96.6	308.1	19.90	-	
							8.0	15.362	8.22	9.64	96.4	308.1	19.44	-	
							9.0	15.366	8.22	9.62	96.2	308.1	18.35	-	
							10.0	15.370	8.22	9.61	96.1	307.8	20.13	-	
							11.0	15.374	8.22	9.59	96.0	307.8	20.35	-	
							12.0	15.378	8.22	9.58	95.9	307.1	20.42	-	
							13.0	15.384	8.22	9.57	95.8	307.9	20.29	-	
							14.0	15.389	8.22	9.56	95.6	307.6	20.78	-	
							15.0	15.390	8.22	9.54	95.4	307.8	23.98	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Far-field # 3	FF-3	28-Jun-16	9:42	25.7	N/A	N/A	0.3	16.119	8.22	9.85	99.9	301.7	18.50	-	0.45
							1.0	15.868	8.22	9.89	99.9	306.1	18.00	-	
							2.0	15.787	8.22	9.90	99.9	306.9	18.88	-	
							3.0	15.770	8.22	9.90	99.9	307.6	18.47	-	
							4.0	15.638	8.22	9.91	99.6	300.5	19.71	-	
							5.0	15.540	8.22	9.88	99.1	311.4	19.12	-	
							6.0	15.450	8.22	9.85	98.7	311.8	19.04	-	
							7.0	15.417	8.22	9.83	98.4	311.9	19.41	-	
							8.0	15.394	8.22	9.81	98.2	311.6	19.39	-	
							9.0	15.383	8.22	9.79	97.9	311.9	19.21	-	
							10.0	15.374	8.22	9.78	97.8	312.1	19.43	-	
							11.0	15.366	8.22	9.77	97.7	312.3	17.43	-	
							12.0	15.364	8.22	9.75	97.5	312.1	19.53	-	
							13.0	15.344	8.22	9.73	97.2	312.1	19.51	-	
							14.0	15.310	8.22	9.70	96.9	312.2	19.49	-	
							15.0	15.288	8.22	9.67	96.5	312.4	19.53	-	
							16.0	15.284	8.22	9.66	96.4	312.3	19.15	-	
							17.0	15.281	8.22	9.64	96.2	311.9	18.72	-	
							18.0	15.259	8.22	9.61	95.9	312.2	19.24	-	
							19.0	15.211	8.21	9.57	95.3	312.5	20.63	-	
							20.0	15.212	8.21	9.54	95.1	312.3	16.78	-	
							21.0	15.208	8.21	9.53	95.9	312.1	19.62	-	
							22.0	15.197	8.21	9.51	94.7	312.3	21.05	-	
							23.0	15.066	8.20	9.47	94.0	312.7	24.74	-	
							25.0	14.855	8.20	9.44	93.1	313.4	23.03	-	
Stephens Lake - Far-field # 4	FF-4	28-Jun-16	9:27	13.7	N/A	N/A	0.3	15.433	8.24	9.83	98.5	307.6	18.83	-	0.40
							1.0	15.428	8.22	9.81	98.2	308.0	18.66	-	
							2.0	15.412	8.22	9.78	97.9	308.1	19.02	-	
							3.0	15.412	8.22	9.77	97.8	308.0	18.61	-	
							4.0	15.401	8.22	9.74	97.5	308.1	19.80	-	
							5.0	15.404	8.22	9.73	97.4	308.0	19.54	-	
							6.0	15.410	8.22	9.72	97.3	307.9	19.68	-	
							7.0	15.415	8.22	9.70	97.1	307.8	19.51	-	
							8.0	15.422	8.22	9.70	97.0	307.8	19.97	-	
							9.0	15.429	8.22	9.67	96.9	307.7	19.13	-	
							10.0	15.434	8.22	9.66	96.7	307.6	19.11	-	
							11.0	15.440	8.22	9.65	96.6	307.5	20.38	-	
							12.0	15.445	8.22	9.63	96.5	307.4	20.61	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Far-field # 5	FF-5	28-Jun-16	8:59	11.8	N/A	N/A	0.3	15.398	8.15	9.72	97.3	307.6	19.01	-	0.40
							1.0	15.393	8.13	9.68	96.9	308.0	19.51	-	
							2.0	15.378	8.14	9.65	96.6	308.2	19.61	-	
							3.0	15.364	8.14	9.64	96.4	308.2	20.25	-	
							4.0	15.351	8.15	9.62	96.2	308.2	18.90	-	
							5.0	15.301	8.15	9.63	96.2	308.2	19.06	-	
							6.0	15.295	8.17	9.62	96.1	308.1	19.62	-	
							7.0	15.294	8.18	9.61	96.0	308.1	19.73	-	
							8.0	15.295	8.19	9.60	95.8	307.8	20.01	-	
							9.0	15.290	8.20	9.55	95.4	308.2	20.12	-	
							10.0	15.292	8.20	9.52	95.1	308.3	20.53	-	
							11.0	15.296	8.20	9.50	95.0	308.4	-	-	
Clark Lake # 1	CL-1	27-Jul-16	11:40	8.9	N/A	N/A	0.3	19.043	8.08	9.08	98.2	335.6	22.55	-	0.35
							1.0	19.017	8.22	9.15	98.7	337.9	22.32	-	
							2.0	19.022	8.23	9.15	98.8	336.7	22.78	-	
							3.0	18.988	8.24	9.14	98.6	337.5	22.96	-	
							4.0	18.987	8.24	9.14	98.5	336.4	22.96	-	
							5.0	18.984	8.24	9.13	98.5	337.1	23.19	-	
							6.0	18.981	8.24	9.12	98.4	337.8	22.99	-	
							7.0	18.983	8.24	9.12	98.4	337.1	22.92	-	
							8.0	18.981	8.25	9.12	98.3	337.8	22.78	-	
Clark Lake # 2	CL-2	27-Jul-16	12:08	12.9	N/A	N/A	0.3	18.992	8.27	9.39	101.0	327.3	22.54	-	0.33
							1.0	19.018	8.23	9.26	99.9	327.7	23.01	-	
							2.0	18.992	8.22	9.22	99.4	328.8	22.95	-	
							3.0	18.975	8.21	9.19	99.1	330.2	23.15	-	
							4.0	18.971	8.22	9.18	98.9	330.8	22.96	-	
							5.0	18.980	8.22	9.16	98.8	329.8	23.18	-	
							6.0	18.972	8.22	9.15	98.7	331.0	22.75	-	
							7.0	18.974	8.22	9.14	98.5	331.3	23.11	-	
							8.0	18.973	8.22	9.13	98.4	332.0	22.78	-	
							9.0	18.975	8.22	9.12	98.4	332.0	22.81	-	
							10.0	18.974	8.22	9.11	98.3	332.4	22.49	-	
							11.0	18.975	8.22	9.11	98.2	332.5	22.98	-	
							12.0	18.974	8.23	9.10	98.1	332.7	22.75	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth	Snow Thickness	Ice Thickness	Sample Depth	Temperature	pH	Dissolved Oxygen		Specific Conductance	Turbidity	ORP	Secchi Depth
				(m)	(m)	(m)	(m)	(°C)	(pH units)	(mg/L)	(% Saturation)	(µS/cm)	(NTU)	(mV)	(m)
Clark Lake # 3	CL-3	27-Jul-16	12:25	9.7	N/A	N/A	0.3	19.034	8.28	9.33	100.6	338.5	22.23	-	0.40
							1.0	18.991	8.24	9.20	99.2	338.3	22.33	-	
							2.0	19.005	8.24	9.18	99.1	338.5	22.43	-	
							3.0	19.009	8.24	9.17	99.0	338.6	23.10	-	
							4.0	19.003	8.24	9.15	98.7	338.7	22.71	-	
							5.0	18.993	8.25	9.14	98.6	338.6	22.78	-	
							6.0	18.990	8.25	9.13	98.5	338.9	23.09	-	
							7.0	18.989	8.25	9.12	98.4	338.7	23.21	-	
							8.0	18.990	8.25	9.11	98.2	338.6	23.74	-	
Clark Lake # 4	CL-4	27-Jul-16	12:45	7.7	N/A	N/A	0.3	19.059	8.34	9.37	101.0	320.8	22.28	-	0.35
							1.0	19.033	8.29	9.22	100.0	322.6	22.40	-	
							2.0	19.014	8.26	9.22	99.5	322.0	22.42	-	
							3.0	19.012	8.26	9.21	99.4	320.2	23.77	-	
							4.0	19.020	8.26	9.20	99.2	319.3	23.61	-	
							5.0	19.001	8.26	9.18	99.0	321.7	23.63	-	
							6.0	19.001	8.26	9.17	98.8	322.1	23.43	-	
							7.0	19.000	8.25	9.16	98.8	322.9	23.43	-	
Clark Lake # 5	CL-5	27-Jul-16	12:56	8.3	N/A	N/A	0.3	19.048	8.30	9.41	101.3	324.3	22.64	-	0.30
							1.0	19.074	8.27	9.28	100.2	324.5	22.96	-	
							2.0	19.053	8.25	9.25	99.9	322.7	23.24	-	
							3.0	19.036	8.24	9.22	99.5	323.5	23.39	-	
							4.0	19.035	8.23	9.20	99.4	323.0	23.95	-	
							5.0	19.027	8.23	9.18	99.1	325.0	23.30	-	
							6.0	19.020	8.23	9.17	99.0	325.3	23.66	-	
							7.0	19.021	8.22	9.17	98.9	325.6	23.09	-	
							8.0	19.016	8.22	9.12	98.8	327.1	23.38	-	
Nelson River Upstream # 1	US-1	28-Jul-16	17:32	12.8	N/A	N/A	0.3	19.314	8.28	8.81	95.7	330.4	22.98	-	-
Nelson River Upstream # 2	US-2	28-Jul-16	17:18	12.6	N/A	N/A	0.3	19.299	8.27	8.82	95.7	330.6	22.86	-	0.35
Nelson River Upstream # 3	US-3	28-Jul-16	16:25	13.9	N/A	N/A	0.3	19.282	8.11	8.67	94.2	329.2	22.76	-	0.40
Nelson River Upstream # 4	US-4	28-Jul-16	16:42	12.5	N/A	N/A	0.3	19.261	8.22	8.91	96.7	329.9	22.75	-	0.40
Nelson River Upstream # 5	US-5	28-Jul-16	17:01	10.7	N/A	N/A	0.3	19.303	8.82	8.82	95.7	333.0	22.38	-	0.35

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Near-field # 1	NF-1	29-Jul-16	11:10	18.2	N/A	N/A	0.3	19.195	8.30	9.59	103.4	334.8	22.22	-	0.35
							1.0	19.199	8.28	9.43	102.1	335.1	22.84	-	
							2.0	19.211	8.27	9.37	101.5	335.1	22.42	-	
							3.0	19.199	8.27	9.33	101.0	335.1	22.99	-	
							4.0	19.194	8.26	9.30	100.5	335.1	22.54	-	
							5.0	19.146	8.26	9.25	100.0	335.2	23.00	-	
							6.0	19.129	8.26	9.22	99.7	335.2	22.40	-	
							7.0	19.133	8.26	9.21	99.6	335.2	22.73	-	
							8.0	19.130	8.25	9.19	99.4	335.2	24.13	-	
							9.0	19.126	8.25	9.17	99.2	335.2	22.09	-	
							10.0	19.120	8.25	9.16	99.0	335.1	22.78	-	
							11.0	19.098	8.25	9.14	99.8	334.8	22.00	-	
							12.0	19.105	8.25	9.13	99.1	334.8	23.72	-	
							13.0	19.085	8.25	9.12	98.5	334.5	24.41	-	
							14.0	19.057	8.25	9.10	98.3	334.2	22.69	-	
							15.0	19.055	8.25	9.10	98.2	334.1	23.24	-	
							16.0	19.029	8.25	9.08	98.0	333.7	22.81	-	
							17.0	18.997	8.25	9.06	97.7	333.1	25.00	-	
Stephens Lake - Near-field # 2	NF-2	29-Jul-16	11:55	12.2	N/A	N/A	0.3	19.206	8.30	9.26	100.2	337.2	20.89	-	0.30
							1.0	19.197	8.29	9.23	99.9	337.3	21.09	-	
							2.0	19.195	8.28	9.21	99.8	337.4	21.93	-	
							3.0	19.172	8.27	9.19	99.3	337.4	22.85	-	
							4.0	19.099	8.26	9.14	99.8	337.2	21.25	-	
							5.0	19.080	8.26	9.13	98.6	337.2	21.51	-	
							6.0	19.077	8.26	9.12	98.5	337.2	22.04	-	
							7.0	19.073	8.26	9.11	98.1	337.0	22.41	-	
							8.0	19.070	8.26	9.10	98.3	337.1	21.70	-	
							9.0	19.070	8.26	9.09	98.2	337.1	22.53	-	
							10.0	19.069	8.26	9.09	98.2	337.2	22.25	-	
							11.0	19.069	8.25	9.08	98.0	337.1	22.01	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Near-field # 3	NF-3	29-Jul-16	11:32	21.2	N/A	N/A	0.3	19.275	8.29	9.43	102.2	335.5	21.30	-	0.35
							1.0	19.246	8.28	9.32	101.0	335.6	20.81	-	
							2.0	19.250	8.28	9.30	100.8	335.6	21.54	-	
							3.0	19.215	8.28	9.27	100.4	335.5	23.32	-	
							4.0	19.191	8.27	9.23	100.0	335.5	21.74	-	
							5.0	19.176	8.26	9.21	99.8	335.6	21.43	-	
							6.0	19.167	8.26	9.20	99.6	335.7	21.13	-	
							7.0	19.145	8.26	9.18	99.4	335.8	21.94	-	
							8.0	19.146	8.26	9.18	99.3	335.9	21.89	-	
							9.0	19.146	8.26	9.17	99.2	335.9	22.79	-	
							10.0	19.138	8.26	9.16	99.0	335.9	22.81	-	
							11.0	19.133	8.25	9.14	98.8	335.9	22.25	-	
							12.0	19.134	8.25	9.13	98.7	335.9	22.66	-	
							13.0	19.131	8.25	9.12	98.7	335.9	22.79	-	
							14.0	19.131	8.25	9.11	98.6	335.9	24.80	-	
							15.0	19.131	8.25	9.11	98.6	335.9	22.12	-	
							16.0	19.133	8.25	9.11	98.5	336.0	22.07	-	
							17.0	19.132	8.25	9.09	98.3	335.9	22.09	-	
							18.0	19.131	8.25	9.08	98.2	336.0	22.80	-	
							19.0	19.129	8.25	9.07	98.1	336.0	21.22	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Near-field # 4	NF-4	29-Jul-16	12:09	6.6	N/A	N/A	0.3	18.718	8.09	9.06	97.0	338.2	22.27	-	0.40
							1.0	18.730	8.17	8.97	96.2	338.2	21.02	-	
							2.0	18.730	8.18	8.96	96.1	338.3	22.15	-	
							3.0	18.730	8.19	8.94	95.9	338.4	21.84	-	
							4.0	18.729	8.20	8.93	95.8	338.4	23.86	-	
							5.0	18.723	8.20	8.91	95.6	338.4	23.37	-	
							6.0	18.733	8.20	8.90	95.5	338.4	22.78	-	
							7.0	18.731	8.21	8.89	95.4	338.3	22.70	-	
							8.0	18.732	8.21	8.88	95.3	338.4	22.37	-	
							9.0	18.731	8.21	8.88	95.3	338.4	22.13	-	
							10.0	18.730	8.21	8.87	95.2	338.4	22.24	-	
							11.0	18.728	8.21	8.86	95.1	338.4	22.75	-	
							12.0	18.723	8.21	8.85	95.0	338.3	22.27	-	
							13.0	18.715	8.22	8.85	94.9	338.3	22.16	-	
							14.0	18.713	8.22	8.85	94.9	338.3	22.81	-	
							15.0	18.720	8.22	8.84	94.8	338.3	22.38	-	
							16.0	18.705	8.22	8.84	94.8	338.3	22.79	-	
							17.0	18.698	8.22	8.84	94.8	338.2	22.24	-	
							18.0	18.699	8.23	8.83	94.7	338.1	22.15	-	
							19.0	18.696	8.23	8.82	94.6	338.3	22.15	-	
							20.0	18.697	8.23	8.81	94.5	338.2	22.53	-	
							22.0	18.695	8.23	8.81	94.4	338.2	22.27	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth	Snow Thickness	Ice Thickness	Sample Depth	Temperature	pH	Dissolved Oxygen		Specific Conductance	Turbidity	ORP	Secchi Depth
				(m)	(m)	(m)	(m)	(°C)	(pH units)	(mg/L)	(% Saturation)	(µS/cm)	(NTU)	(mV)	(m)
Stephens Lake - Near-field # 5	NF-5	29-Jul-16	10:35	17.9	N/A	N/A	0.3	19.135	8.27	9.21	99.6	333.2	22.37	-	0.35
							1.0	19.162	8.27	9.23	99.9	333.4	22.00	-	
							2.0	19.163	8.27	9.22	99.8	333.4	22.28	-	
							3.0	19.137	8.26	9.20	99.5	333.4	23.66	-	
							4.0	19.138	8.22	9.19	99.3	333.4	22.35	-	
							5.0	19.100	8.26	9.16	99.0	333.7	22.24	-	
							6.0	19.089	8.26	9.14	98.8	333.7	20.80	-	
							7.0	19.085	8.26	9.13	98.6	334.2	22.20	-	
							8.0	19.083	8.26	9.12	98.5	334.4	22.50	-	
							9.0	19.082	8.26	9.10	98.4	334.5	21.77	-	
							10.0	19.079	8.25	9.09	98.2	334.7	21.84	-	
							11.0	19.076	8.26	9.08	98.1	334.8	21.64	-	
							12.0	19.076	8.25	9.07	98.0	334.8	22.80	-	
							13.0	19.075	8.25	9.06	97.9	334.9	21.70	-	
							14.0	19.073	8.25	9.05	97.8	334.9	23.19	-	
							15.0	19.070	8.25	9.04	97.7	335.0	23.62	-	
							16.0	19.059	8.25	9.01	97.2	335.3	23.15	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Far-field # 1	FF-1	30-Jul-16	8:26	22.8	N/A	N/A	0.3	18.718	8.09	9.06	97.0	338.2	22.27	-	0.40
							1.0	18.730	8.17	8.97	96.2	338.2	21.62	-	
							2.0	18.730	8.18	8.96	96.1	338.3	22.15	-	
							3.0	18.730	8.19	8.94	95.9	338.4	21.84	-	
							4.0	18.729	8.20	8.93	95.8	338.4	23.86	-	
							5.0	18.723	8.20	8.91	95.6	338.4	23.37	-	
							6.0	18.733	8.20	8.90	95.5	338.4	22.78	-	
							7.0	18.731	8.21	8.89	95.4	338.3	22.70	-	
							8.0	18.732	8.21	8.88	95.3	338.4	22.37	-	
							9.0	18.731	8.21	8.88	95.3	338.4	22.13	-	
							10.0	18.730	8.21	8.87	95.2	338.4	22.24	-	
							11.0	18.728	8.21	8.86	95.1	338.4	22.75	-	
							12.0	18.723	8.21	8.85	95.0	338.3	22.27	-	
							13.0	18.715	8.21	8.85	94.9	338.3	22.16	-	
							14.0	18.713	8.22	8.85	94.9	338.3	22.84	-	
							15.0	18.710	8.22	8.84	94.8	338.3	22.38	-	
							16.0	18.705	8.22	8.84	94.8	338.3	22.79	-	
							17.0	18.699	8.22	8.84	94.8	338.2	22.24	-	
							18.0	18.699	8.23	8.83	94.7	338.1	22.15	-	
							19.0	18.696	8.23	8.82	94.6	338.3	22.15	-	
							20.0	18.697	8.23	8.81	94.5	338.2	22.53	-	
							22.0	18.695	8.23	8.81	94.4	338.2	22.27	-	
Stephens Lake - Far-field # 2	FF-2	30-Jul-16	9:11	16.3	N/A	N/A	0.3	18.797	8.25	9.16	98.3	339.5	20.71	-	0.35
							1.0	18.804	8.25	9.09	97.6	339.5	21.13	-	
							2.0	18.988	8.25	9.07	97.4	339.6	20.95	-	
							3.0	18.793	8.25	9.06	97.3	339.6	20.66	-	
							4.0	18.796	8.25	9.05	97.2	339.6	21.34	-	
							5.0	18.791	8.25	9.04	97.1	339.6	21.05	-	
							6.0	18.752	8.24	9.01	96.2	339.7	21.35	-	
							7.0	18.734	8.24	9.00	96.5	339.8	20.93	-	
							8.0	18.791	8.24	8.99	96.4	339.8	21.55	-	
							9.0	18.709	8.24	8.95	96.1	339.9	21.32	-	
							10.0	18.726	8.24	8.95	96.0	339.9	21.11	-	
							11.0	18.708	8.24	8.93	95.8	339.9	21.83	-	
							12.0	18.707	8.24	8.92	95.6	339.9	21.57	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Far-field # 3	FF-3	30-Jul-16	9:46	29.9	N/A	N/A	0.3	18.892	8.26	9.23	99.3	341.1	21.17	-	0.35
							1.0	18.935	8.26	9.12	98.2	341.1	20.74	-	
							2.0	18.935	8.25	9.08	97.9	341.1	21.10	-	
							3.0	18.936	8.25	9.07	97.7	341.2	21.20	-	
							4.0	18.935	8.25	9.05	97.6	341.3	21.52	-	
							5.0	18.933	8.25	9.04	97.4	341.3	21.26	-	
							6.0	18.935	8.25	9.03	97.3	341.3	20.72	-	
							7.0	18.931	8.25	9.02	97.1	341.3	21.28	-	
							8.0	18.928	8.25	9.00	96.9	341.3	21.56	-	
							9.0	18.928	8.25	8.99	96.8	341.3	21.21	-	
							10.0	18.927	8.25	8.98	96.7	341.4	21.40	-	
							11.0	18.926	8.24	8.98	96.7	341.3	21.89	-	
							12.0	18.924	8.24	8.96	96.5	341.3	22.33	-	
							13.0	18.923	8.24	8.95	96.4	341.3	20.92	-	
							14.0	18.922	8.24	8.93	96.2	341.3	22.23	-	
							15.0	18.923	8.24	8.93	96.2	341.4	21.69	-	
							16.0	18.922	8.24	8.92	96.1	341.3	22.03	-	
							17.0	18.916	8.24	8.91	96.0	341.3	21.99	-	
							18.0	18.922	8.24	8.91	95.9	341.3	22.58	-	
							19.0	18.916	8.24	8.90	95.8	341.3	22.47	-	
							20.0	18.908	8.24	8.88	95.7	341.3	23.36	-	
							22.0	18.902	8.24	8.87	95.6	341.2	22.52	-	
							24.0	18.891	8.25	8.86	95.4	341.1	23.02	-	
							26.0	18.874	8.25	8.86	95.3	340.0	22.52	-	
Stephens Lake - Far-field # 4	FF-4	30-Jul-16	9:28	13.5	N/A	N/A	0.3	18.840	8.25	9.36	99.8	339.6	21.14	-	0.35
							1.0	18.726	8.25	9.09	97.5	340.0	21.86	-	
							2.0	18.733	8.24	9.05	97.1	340.0	21.80	-	
							3.0	18.730	8.24	9.03	96.9	339.9	21.95	-	
							4.0	18.728	8.24	9.02	96.7	339.9	22.55	-	
							5.0	18.736	8.24	9.00	96.6	340.0	21.08	-	
							6.0	18.729	8.24	8.99	96.5	339.9	21.43	-	
							7.0	18.728	8.24	8.98	96.3	339.9	22.17	-	
							8.0	18.712	8.24	8.97	96.2	340.0	21.17	-	
							9.0	18.718	8.24	8.96	96.1	339.9	20.96	-	
							10.0	18.727	8.24	8.95	96.1	339.9	21.51	-	
							11.0	18.704	8.24	8.95	96.0	340.0	22.71	-	
							12.0	18.700	8.24	8.93	95.7	340.2	21.84	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth	Snow Thickness	Ice Thickness	Sample Depth	Temperature	pH	Dissolved Oxygen		Specific Conductance	Turbidity	ORP	Secchi Depth
				(m)	(m)	(m)	(m)	(°C)	(pH units)	(mg/L)	(% Saturation)	(µS/cm)	(NTU)	(mV)	(m)
Stephens Lake - Far-field # 5	FF-5	30-Jul-16	8:54	9.8	N/A	N/A	0.3	18.779	8.21	9.06	97.2	339.2	21.64	-	0.40
							1.0	18.785	8.22	9.01	96.7	339.2	21.43	-	
							2.0	18.785	8.24	8.99	96.6	339.3	21.79	-	
							3.0	18.785	8.26	8.97	96.3	339.4	23.16	-	
							4.0	17.785	8.26	8.96	96.3	339.4	20.75	-	
							5.0	18.786	8.27	8.96	96.2	339.3	22.79	-	
							6.0	18.785	8.27	8.95	96.1	339.3	21.79	-	
							7.0	18.783	8.27	8.93	95.9	339.3	21.67	-	
							8.0	18.783	8.27	8.92	95.8	339.3	21.71	-	
Clark Lake # 1	CL-1	26-Aug-16	10:54	12.1	N/A	N/A	0.3	18.311	8.29	9.41	100.0	342.0	16.94	-	0.48
							1.0	18.319	8.32	9.34	99.4	342.4	17.09	-	
							2.0	18.321	8.35	9.32	99.2	343.3	16.98	-	
							3.0	18.322	8.36	9.31	99.1	343.1	17.05	-	
							4.0	18.320	8.37	9.29	98.9	342.9	17.88	-	
							5.0	18.321	8.37	9.29	98.8	343.2	17.29	-	
							6.0	18.323	8.38	9.28	98.8	342.3	17.10	-	
							7.0	18.322	8.39	9.27	98.7	342.8	19.10	-	
							8.0	18.321	8.39	9.26	98.5	343.0	17.54	-	
							9.0	18.323	8.39	9.26	98.5	343.1	17.76	-	
							10.0	18.323	8.39	9.25	98.4	343.1	17.26	-	
							11.0	18.324	8.39	9.24	98.4	343.1	17.25	-	
Clark Lake # 2	CL-2	26-Aug-16	11:11	13.7	N/A	N/A	0.3	18.310	8.38	9.40	100.0	332.4	17.08	-	0.45
							1.0	18.325	8.35	9.35	99.5	340.0	17.62	-	
							2.0	18.326	8.34	9.33	99.2	340.2	17.45	-	
							3.0	18.330	8.34	9.32	99.2	339.8	17.51	-	
							4.0	18.329	8.35	9.31	99.1	340.3	17.62	-	
							5.0	18.329	8.35	9.30	98.9	340.5	17.43	-	
							6.0	18.329	8.35	9.29	98.8	340.3	17.43	-	
							7.0	18.328	8.36	9.27	98.7	340.8	17.29	-	
							8.0	18.325	8.35	9.26	98.6	341.7	17.33	-	
							9.0	18.324	8.36	9.25	98.5	341.5	17.45	-	
							10.0	18.323	8.36	9.24	98.3	342.2	17.25	-	
							11.0	18.322	8.37	9.24	98.3	342.4	17.25	-	
							12.0	18.320	8.37	9.23	98.2	324.8	17.48	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Clark Lake # 3	CL-3	26-Aug-16	10:32	14.3	N/A	N/A	0.3	18.314	8.25	9.34	99.4	343.1	16.68	-	0.55
							1.0	18.314	8.30	9.32	99.2	342.2	17.20	-	
							2.0	18.315	8.31	9.31	99.0	342.6	18.86	-	
							3.0	18.318	8.32	9.29	98.9	342.9	17.34	-	
							4.0	18.317	8.32	9.30	98.9	342.3	17.34	-	
							5.0	18.318	8.32	9.29	98.8	342.9	17.27	-	
							6.0	18.319	8.22	9.27	98.7	342.8	16.78	-	
							7.0	18.320	8.33	9.27	98.7	342.7	17.33	-	
Clark Lake # 4	CL-4	26-Aug-16	11:47	7.8	N/A	N/A	0.3	18.261	8.38	9.36	99.5	318.4	18.27	-	0.35
							1.0	18.272	8.38	9.33	99.1	318.0	18.75	-	
							2.0	18.278	8.35	9.31	99.0	318.4	18.71	-	
							3.0	18.271	8.35	9.30	98.8	317.8	18.88	-	
							4.0	18.223	8.35	9.29	98.7	318.0	18.90	-	
							5.0	18.279	8.35	9.28	98.6	319.0	18.53	-	
							6.0	18.289	8.35	9.27	98.6	322.9	18.40	-	
							7.0	18.291	8.35	9.26	98.5	323.2	18.57	-	
Clark Lake # 5	CL-5	26-Aug-16	11:28	8.4	N/A	N/A	0.3	18.260	8.36	9.31	98.9	314.9	18.96	-	0.40
							1.0	18.257	8.35	9.30	98.8	315.1	19.03	-	
							2.0	18.263	8.35	9.29	98.7	315.7	18.75	-	
							3.0	18.263	8.36	9.28	98.6	315.9	18.98	-	
							4.0	18.253	8.36	9.28	98.6	314.5	19.45	-	
							5.0	18.258	8.37	9.26	98.5	314.6	19.19	-	
							6.0	18.257	8.37	9.26	98.4	314.4	19.08	-	
							7.0	18.262	8.38	9.25	98.3	314.5	19.18	-	
							8.0	18.262	8.37	9.24	98.2	315.3	19.13	-	
Nelson River Upstream # 1	US-1	28-Aug-16	11:55	12.3	N/A	N/A	0.3	18.177	8.32	9.25	98.1	336.7	17.09	-	0.45
							1.0	18.179	8.32	9.20	97.7	336.9	17.11	-	
							2.0	18.189	8.33	9.21	97.7	337.0	16.96	-	
							3.0	18.181	8.34	9.19	97.5	336.9	17.07	-	
							4.0	18.182	8.34	9.19	97.5	337.0	17.24	-	
							5.0	18.184	8.34	9.19	97.5	337.1	17.20	-	
							6.0	18.180	8.36	9.18	97.4	337.0	17.14	-	
							7.0	18.180	8.36	9.17	97.3	337.0	17.01	-	
							8.0	18.181	8.36	9.17	97.3	337.0	17.07	-	
							9.0	18.181	8.36	9.16	97.2	337.0	17.21	-	
							10.0	18.182	8.36	9.15	97.1	337.0	17.17	-	
							11.0	18.182	8.36	9.14	97.0	337.1	17.40	-	
							12.0	18.183	8.35	9.13	96.9	337.1	16.71	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Nelson River Upstream # 2	US-2	28-Aug-16	12:21	13.4	N/A	N/A	0.3	18.224	8.43	9.16	97.3	336.4	17.15	-	0.40
							1.0	18.202	8.41	9.20	97.7	336.4	17.10	-	
							2.0	18.196	8.40	9.21	97.7	336.4	17.29	-	
							3.0	18.198	8.39	9.20	97.7	336.6	17.38	-	
							4.0	18.195	8.39	9.19	97.6	336.5	17.08	-	
							5.0	18.194	8.39	9.19	97.5	336.5	17.38	-	
							6.0	18.193	8.38	9.18	97.4	336.5	17.20	-	
							7.0	18.193	8.38	9.17	97.4	336.6	17.23	-	
							8.0	18.193	8.38	9.17	97.4	336.6	16.92	-	
							9.0	18.193	8.38	9.17	97.4	336.6	16.92	-	
							10.0	18.192	8.37	9.17	97.2	336.5	18.84	-	
							11.0	18.192	8.37	9.15	97.1	336.5	17.34	-	
							12.0	18.192	8.37	9.14	97.1	336.5	17.37	-	
							13.0	18.191	8.37	9.14	97.0	336.5	17.29	-	
Nelson River Upstream # 3	US-3	28-Aug-16	12:57	10.9	N/A	N/A	0.3	18.253	8.41	9.19	97.8	337.1	17.04	-	0.50
							1.0	18.255	8.39	9.24	98.2	337.3	17.05	-	
							2.0	18.244	8.38	9.24	98.1	337.2	17.10	-	
							3.0	18.239	8.36	9.23	98.1	337.1	16.98	-	
							4.0	18.252	8.37	9.24	98.2	337.3	16.82	-	
							5.0	18.243	8.37	9.23	98.0	337.2	16.91	-	
							6.0	18.247	8.37	9.23	98.0	337.2	17.26	-	
							7.0	18.246	8.37	9.22	97.9	337.2	17.20	-	
							8.0	18.242	8.37	9.21	97.8	337.1	17.33	-	
							9.0	18.244	8.37	9.20	97.7	337.2	17.29	-	
							10.0	18.240	8.36	9.19	97.7	337.1	17.38	-	
Nelson River Upstream # 4	US-4	28-Aug-16	13:45	12.2	N/A	N/A	0.3	18.267	8.44	9.23	98.2	336.3	17.20	-	0.45
							1.0	18.246	8.37	9.29	98.8	336.2	17.04	-	
							2.0	18.247	8.37	9.29	98.7	336.2	17.01	-	
							3.0	18.241	8.37	9.27	98.5	336.2	16.88	-	
							4.0	18.240	8.37	9.26	98.4	336.2	17.26	-	
							5.0	18.241	8.37	9.24	98.2	336.3	16.81	-	
							6.0	18.237	8.36	9.24	98.1	336.2	17.24	-	
							7.0	18.235	8.35	9.22	97.9	336.2	17.15	-	
							8.0	18.236	8.36	9.21	97.9	336.2	17.20	-	
							9.0	18.235	8.35	9.20	97.8	336.2	17.17	-	
							10.0	18.234	8.35	9.20	97.7	336.2	17.20	-	
							11.0	18.234	8.35	9.19	97.6	336.2	16.98	-	
							12.0	18.235	8.35	9.18	97.5	336.2	17.77	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Nelson River Upstream # 5	US-5	28-Aug-16	14:10	11.1	N/A	N/A	0.3	18.306	8.42	9.21	98.1	340.6	16.86	-	0.50
							1.0	18.313	8.36	9.26	98.6	340.0	16.85	-	
							2.0	18.316	8.36	9.26	98.6	338.8	16.85	-	
							3.0	18.327	8.36	9.26	98.5	338.6	16.93	-	
							4.0	18.321	8.37	9.25	98.5	338.9	16.91	-	
							5.0	18.324	8.36	9.24	98.4	338.8	16.97	-	
							6.0	18.324	8.37	9.24	98.4	338.8	16.69	-	
Stephens Lake - Near-field # 1	NF-1	31-Aug-16	11:00	21.5	N/A	N/A	0.3	17.533	8.43	9.74	102.0	344.9	16.16	-	0.45
							1.0	17.513	8.42	9.69	101.4	344.0	16.67	-	
							2.0	17.517	8.41	9.68	100.3	344.9	16.90	-	
							3.0	17.502	8.40	9.65	101.0	345.0	16.01	-	
							4.0	17.499	8.40	9.63	100.7	345.0	17.23	-	
							5.0	17.475	8.40	9.59	100.3	345.2	15.42	-	
							6.0	17.475	8.40	9.58	100.2	345.1	10.73	-	
							7.0	17.472	8.39	9.57	100.1	345.2	17.02	-	
							8.0	17.473	8.39	9.56	100.0	345.2	16.99	-	
							9.0	17.474	8.39	9.55	100.0	345.3	17.21	-	
							10.0	17.472	8.39	9.54	99.8	345.4	17.09	-	
							11.0	17.473	8.39	9.53	99.7	345.5	16.02	-	
							12.0	17.472	8.39	9.53	99.6	345.4	16.86	-	
							13.0	17.472	8.38	9.52	99.6	345.4	16.45	-	
							14.0	17.473	8.38	9.51	99.4	345.5	16.90	-	
							15.0	17.474	8.39	9.50	99.3	345.6	17.23	-	
							16.0	17.473	8.38	9.49	99.3	345.6	17.12	-	
							17.0	17.474	8.38	9.48	99.2	345.6	18.18	-	
							18.0	17.474	8.39	9.47	99.1	345.6	17.14	-	
							19.0	17.474	8.38	9.47	99.0	345.6	17.40	-	
							20.0	17.474	8.38	9.46	98.9	345.6	26.73	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth	Snow Thickness	Ice Thickness	Sample Depth	Temperature	pH	Dissolved Oxygen		Specific Conductance	Turbidity	ORP	Secchi Depth
				(m)	(m)	(m)	(m)	(°C)	(pH units)	(mg/L)	(% Saturation)	(µS/cm)	(NTU)	(mV)	(m)
Stephens Lake - Near-field # 2	NF-2	31-Aug-16	11:40	10.5	N/A	N/A	0.3	17.693	8.46	9.84	103.3	345.7	15.97	-	0.40
							1.0	17.523	8.43	9.71	101.3	346.3	16.68	-	
							2.0	17.478	8.41	9.62	100.6	346.3	16.57	-	
							3.0	17.470	8.41	9.58	100.1	346.4	18.02	-	
							4.0	17.454	8.40	9.55	99.8	346.4	18.81	-	
							5.0	17.452	8.40	9.53	99.6	346.5	17.12	-	
							6.0	17.447	8.40	9.50	99.3	346.4	17.49	-	
							7.0	17.444	8.39	9.49	99.2	346.4	18.96	-	
							8.0	17.445	8.39	9.48	99.1	346.4	17.18	-	
							9.0	17.445	8.39	9.47	99.0	346.4	17.35	-	
							10.0	17.441	8.39	9.46	98.8	346.4	17.25	-	
Stephens Lake - Near-field # 3	NF-3	31-Aug-16	11:15	19.7	N/A	N/A	0.3	17.583	8.44	9.76	102.2	345.3	16.50	-	0.45
							1.0	17.519	8.42	9.71	101.7	345.4	16.61	-	
							2.0	17.501	8.42	9.66	101.1	345.6	16.84	-	
							3.0	17.488	8.41	9.62	100.6	345.6	16.64	-	
							4.0	17.475	8.40	9.59	100.3	345.7	16.97	-	
							5.0	17.474	8.40	9.58	100.2	345.7	16.94	-	
							6.0	17.476	8.40	9.57	100.1	345.7	17.02	-	
							7.0	17.465	8.39	9.54	99.8	346.0	17.06	-	
							8.0	17.466	8.39	9.53	99.6	345.9	17.01	-	
							9.0	17.467	8.39	9.52	99.6	345.9	18.11	-	
							10.0	17.466	8.39	9.52	99.5	345.9	17.00	-	
							11.0	17.466	8.38	9.51	99.4	345.8	17.50	-	
							12.0	17.465	8.39	9.50	99.3	346.0	16.95	-	
							13.0	17.464	8.39	9.49	99.2	345.9	17.02	-	
							14.0	17.466	8.38	9.48	99.1	345.9	16.95	-	
							15.0	17.466	8.38	9.47	99.0	346.0	17.42	-	
							16.0	17.466	8.38	9.46	98.9	346.0	17.46	-	
							17.0	17.467	8.38	9.45	98.8	346.0	17.56	-	
							18.0	17.467	8.38	9.45	98.8	345.9	20.27	-	
							19.0	17.467	8.38	9.44	98.7	346.0	34.40	-	
Stephens Lake - Near-field # 4	NF-4	31-Aug-16	12:00	6.6	N/A	N/A	0.3	17.590	8.46	9.72	101.9	345.9	16.79	-	0.45
							1.0	17.569	8.41	9.63	100.9	346.4	16.78	-	
							2.0	17.459	8.40	9.58	100.1	346.4	16.16	-	
							3.0	17.456	8.40	9.54	99.7	346.3	17.95	-	
							4.0	17.434	8.39	9.51	99.3	346.3	17.33	-	
							5.0	17.415	8.39	9.49	99.1	346.2	16.96	-	
							6.0	17.399	8.39	9.46	98.8	346.1	20.43	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Near-field # 5	NF-5	31-Aug-16	10:35	18.7	N/A	N/A	0.3	17.451	8.39	10.14	105.7	344.1	18.58	-	0.45
							1.0	17.483	8.39	9.83	102.7	344.4	16.45	-	
							2.0	17.475	8.39	9.78	102.2	344.4	17.00	-	
							3.0	17.472	8.39	9.73	101.7	344.4	16.80	-	
							4.0	17.470	8.39	9.68	101.2	344.5	17.31	-	
							5.0	17.458	8.40	9.65	100.9	344.6	17.37	-	
							6.0	17.467	8.40	9.65	100.8	344.6	17.13	-	
							7.0	17.449	8.40	9.61	100.5	344.6	16.49	-	
							8.0	17.448	8.40	9.60	100.3	344.5	17.13	-	
							9.0	17.445	8.39	9.59	100.2	344.6	17.10	-	
							10.0	17.437	8.39	9.57	100.0	344.5	17.44	-	
							11.0	17.426	8.39	9.55	99.7	344.4	17.00	-	
							12.0	17.421	8.40	9.54	99.6	344.4	17.94	-	
							13.0	17.414	8.39	9.52	99.4	344.3	16.90	-	
							14.0	17.408	8.40	9.51	99.3	344.3	16.74	-	
							15.0	17.394	8.39	9.49	99.1	344.2	17.65	-	
							16.0	17.381	8.39	9.47	98.7	344.1	18.62	-	
							17.0	17.335	8.39	9.43	98.3	343.7	16.71	-	
							18.0	17.291	8.38	9.40	97.9	343.6	17.62	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Far-field # 1	FF-1	31-Aug-16	8:30	23.4	N/A	N/A	0.3	17.477	8.26	9.14	95.5	339.3	15.01	-	0.50
							1.0	17.477	8.27	9.11	95.3	339.4	13.91	-	
							2.0	17.468	8.27	9.09	95.1	339.4	15.36	-	
							3.0	17.489	8.28	9.08	95.1	339.4	15.91	-	
							4.0	17.487	8.28	9.08	95.0	339.4	15.26	-	
							5.0	17.493	8.29	9.07	94.9	339.5	15.22	-	
							6.0	17.497	8.29	9.07	94.9	339.4	15.25	-	
							7.0	17.499	8.29	9.06	94.8	339.5	15.24	-	
							8.0	17.501	8.30	9.04	94.6	339.4	15.24	-	
							9.0	17.502	8.30	9.03	94.5	339.5	15.05	-	
							10.0	17.500	8.31	9.01	94.3	339.5	15.12	-	
							11.0	17.499	8.31	9.01	94.3	339.5	14.81	-	
							12.0	17.515	8.31	9.01	94.3	339.5	14.84	-	
							13.0	17.514	8.32	9.01	94.3	339.5	15.31	-	
							14.0	17.518	8.32	9.00	94.2	339.5	15.76	-	
							15.0	17.519	8.32	8.99	94.1	339.5	15.54	-	
							16.0	17.519	8.32	8.98	94.0	339.5	16.12	-	
							17.0	17.510	8.32	8.96	93.8	339.5	15.70	-	
							18.0	17.511	8.32	8.95	93.7	339.5	15.28	-	
							19.0	17.511	8.32	8.95	93.6	339.5	15.16	-	
							20.0	17.511	8.32	8.94	93.6	339.5	15.19	-	
							22.0	17.510	8.32	8.93	93.5	339.5	15.40	-	
Stephens Lake - Far-field # 2	FF-2	31-Aug-16	9:10	15.4	N/A	N/A	0.3	17.446	8.34	9.38	98.0	340.3	14.09	-	0.45
							1.0	17.462	8.33	9.30	97.2	340.3	15.29	-	
							2.0	17.465	8.32	9.26	96.9	340.4	15.32	-	
							3.0	17.464	8.33	9.24	96.6	340.4	15.37	-	
							4.0	17.464	8.34	9.21	96.3	340.5	15.84	-	
							5.0	17.461	8.33	9.21	96.3	340.6	15.04	-	
							6.0	17.465	8.33	9.20	96.1	340.5	15.95	-	
							7.0	17.466	8.32	9.18	96.0	340.6	16.06	-	
							8.0	17.463	8.32	9.17	95.9	340.7	15.46	-	
							9.0	17.462	8.33	9.17	95.8	340.5	15.68	-	
							10.0	17.466	8.32	9.15	95.6	340.7	16.14	-	
							11.0	17.467	8.31	9.13	95.5	340.8	15.20	-	
							12.0	17.466	8.32	9.13	95.4	340.7	15.57	-	
							13.0	17.465	8.32	9.12	95.4	340.7	15.08	-	
							14.0	17.467	8.33	9.11	95.3	340.8	15.82	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Far-field # 3	FF-3	31-Aug-16	9:45	26.9	N/A	N/A	0.3	17.602	8.37	9.64	100.3	342.0	15.99	-	0.45
							1.0	17.629	8.35	9.41	98.6	342.1	15.66	-	
							2.0	17.636	8.34	9.34	98.0	342.1	15.79	-	
							3.0	17.638	8.34	9.30	97.6	342.1	15.73	-	
							4.0	17.638	8.34	9.27	97.3	342.1	15.68	-	
							5.0	17.635	8.35	9.27	97.3	342.1	15.47	-	
							6.0	17.640	8.34	9.25	97.1	342.1	14.23	-	
							7.0	17.641	8.34	9.24	96.9	342.1	15.61	-	
							8.0	17.640	8.34	9.23	96.8	342.1	15.82	-	
							9.0	17.641	8.34	9.22	96.7	342.1	15.90	-	
							10.0	17.642	8.34	9.21	96.6	342.1	15.72	-	
							11.0	17.641	8.34	9.20	96.5	342.1	14.98	-	
							12.0	17.639	8.34	9.19	96.4	342.1	15.54	-	
							13.0	17.636	8.34	9.18	96.3	342.1	15.07	-	
							14.0	17.624	8.34	9.17	96.2	342.1	15.64	-	
							15.0	17.631	8.34	9.16	96.1	342.1	15.52	-	
							16.0	17.616	8.34	9.15	96.0	342.1	15.32	-	
							17.0	17.617	8.34	9.15	95.9	342.1	15.44	-	
							18.0	17.603	8.34	9.14	95.8	342.1	15.30	-	
							19.0	17.611	8.34	9.14	95.8	342.2	15.49	-	
							20.0	17.596	8.34	9.13	95.7	342.2	15.60	-	
							22.0	17.580	8.34	9.12	95.6	342.2	15.66	-	
							22.6	17.570	8.34	9.10	95.4	342.1	-	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Far-field # 4	FF-4	31-Aug-16	9:30	15.5	N/A	N/A	0.3	17.473	8.33	9.44	98.5	340.9	15.13	-	0.40
							1.0	17.501	8.33	9.33	97.6	341.0	15.30	-	
							2.0	17.506	8.33	9.28	97.1	341.0	15.91	-	
							3.0	17.507	8.34	9.27	97.0	341.1	15.53	-	
							4.0	17.507	8.34	9.25	96.8	341.1	15.99	-	
							5.0	17.510	8.33	9.23	96.6	341.1	15.56	-	
							6.0	17.521	8.33	9.22	96.6	341.0	15.80	-	
							7.0	17.514	8.33	9.21	96.4	341.0	15.58	-	
							8.0	17.515	8.33	9.20	96.3	341.1	15.84	-	
							9.0	17.520	8.33	9.20	96.3	341.1	15.66	-	
							10.0	17.518	8.34	9.19	96.2	341.1	15.47	-	
							11.0	17.516	8.34	9.18	96.1	341.1	15.61	-	
							12.0	17.516	8.34	9.17	96.0	341.1	15.00	-	
							13.0	17.513	8.34	9.16	95.9	341.1	16.33	-	
							14.0	17.513	8.34	9.15	95.7	341.1	15.74	-	
							15.0	17.513	8.35	9.14	95.6	341.1	16.52	-	
Stephens Lake - Far-field # 5	FF-5	31-Aug-16	8:55	13.5	N/A	N/A	0.3	17.511	8.28	9.32	97.5	339.6	15.41	-	0.50
							1.0	17.537	8.29	9.19	96.2	339.7	15.29	-	
							2.0	17.541	8.29	9.14	95.7	339.7	15.22	-	
							3.0	17.540	8.31	9.14	95.7	339.6	15.17	-	
							4.0	17.540	8.33	9.12	95.5	339.7	16.41	-	
							5.0	17.540	8.34	9.10	95.3	339.7	15.39	-	
							6.0	17.539	8.34	9.10	95.3	339.7	16.63	-	
							7.0	17.539	8.33	9.08	95.1	339.7	16.16	-	
							8.0	17.538	8.33	9.07	95.0	339.8	16.53	-	
							9.0	17.538	8.33	9.06	94.9	339.8	15.71	-	
							10.0	17.536	8.33	9.05	94.7	339.8	16.86	-	
							11.0	17.534	8.34	9.04	94.6	339.8	14.00	-	
							12.0	17.533	8.34	9.03	94.5	339.8	16.84	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Clark Lake # 1	CL-1	19-Sep-16	11:26	11.7	N/A	N/A	0.30	14.062	8.33	9.84	95.7	326.9	15.52	-	0.48
							1.02	14.072	8.31	9.81	95.5	330.1	15.54	-	
							2.00	14.094	8.32	9.80	95.4	334.4	15.23	-	
							2.98	14.097	8.33	9.86	95.3	333.6	15.42	-	
							3.97	14.076	8.33	9.79	95.3	329.9	15.54	-	
							4.99	14.092	8.33	9.78	95.2	333.5	15.33	-	
							5.96	14.091	8.33	9.77	95.1	334.2	15.30	-	
							6.99	14.092	8.34	9.76	95.0	334.4	15.19	-	
							7.99	14.091	8.34	9.76	95.0	334.9	15.40	-	
							8.95	14.089	8.34	9.75	94.9	335.0	15.17	-	
							10.01	14.088	8.34	9.75	94.8	335.4	15.00	-	
							11.01	14.087	8.35	9.74	94.8	336.2	15.31	-	
Clark Lake # 2	CL-2	19-Sep-16	12:35	13.0	N/A	N/A	0.30	14.050	8.36	9.86	95.8	315.8	16.15	-	0.45
							0.94	14.052	8.37	9.84	95.7	315.4	16.00	-	
							2.02	14.067	8.37	9.83	95.6	324.1	15.73	-	
							3.03	14.080	8.37	9.82	95.6	327.5	15.62	-	
							4.01	14.084	8.37	9.81	95.5	330.2	15.56	-	
							5.06	14.093	8.38	9.80	95.4	335.1	15.46	-	
							6.02	14.096	8.38	9.80	95.3	337.8	15.27	-	
							7.03	14.096	8.38	9.79	95.3	338.2	15.09	-	
							8.02	14.088	8.38	9.78	95.2	331.1	15.39	-	
							9.04	14.093	8.38	9.77	95.1	333.0	15.53	-	
							10.05	14.093	8.37	9.76	94.9	333.6	15.33	-	
							11.02	14.095	8.37	9.75	94.9	333.9	15.28	-	
							12.03	14.095	8.37	9.75	94.8	333.4	15.20	-	
Clark Lake # 3	CL-3	19-Sep-16	13:40	8.0	N/A	N/A	0.30	14.100	8.39	9.85	95.8	332.6	15.26	-	0.45
							1.00	14.097	8.38	9.84	95.8	331.1	15.42	-	
							2.07	14.098	8.38	9.83	95.7	332.5	15.48	-	
							3.01	14.091	8.38	9.82	95.6	331.0	15.41	-	
							4.03	14.092	8.38	9.81	95.5	331.9	15.46	-	
							5.06	14.090	8.38	9.81	95.5	331.3	15.36	-	
							6.09	14.090	8.38	9.80	95.4	331.6	15.68	-	
							7.05	14.089	8.38	9.79	95.3	330.5	15.59	-	
							8.02	14.080	8.38	9.79	95.3	332.8	15.28	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Clark Lake # 4	CL-4	19-Sep-16	13:05	8.4	N/A	N/A	0.35	14.046	8.39	9.86	95.8	310.7	16.24	-	0.43
							1.02	14.038	8.37	9.85	95.8	309.2	16.43	-	
							2.07	14.035	8.37	9.84	95.6	308.4	16.22	-	
							3.08	14.037	8.37	9.84	95.6	308.5	16.38	-	
							4.07	14.032	8.36	9.83	95.6	307.7	16.31	-	
							5.06	14.038	8.36	9.83	95.5	308.2	16.28	-	
Clark Lake # 5	CL-5	19-Sep-16	15:30	8.8	N/A	N/A	0.31	14.065	8.39	9.87	96.0	315.2	16.08	-	0.45
							1.08	14.072	8.36	9.86	95.9	318.1	16.01	-	
							2.03	14.083	8.37	9.85	95.8	321.8	15.99	-	
							3.07	14.086	8.37	9.84	95.8	322.0	15.86	-	
							4.01	14.087	8.37	9.84	95.7	323.2	15.83	-	
							5.02	14.091	8.38	9.81	95.5	324.5	15.75	-	
							6.00	14.098	8.38	9.81	95.5	327.5	15.89	-	
							7.06	14.099	8.38	9.81	95.4	327.3	16.11	-	
							8.00	14.099	8.38	9.79	95.3	327.4	15.61	-	
Nelson River Upstream # 1	US-1	22-Sep-16	11:49	12.4	N/A	N/A	0.30	12.858	8.31	10.36	98.1	335.6	15.01	-	0.48
							0.99	12.853	8.32	10.35	98.0	335.6	14.91	-	
							2.08	12.858	8.34	10.34	97.9	335.6	16.03	-	
							3.05	12.864	8.34	10.32	97.8	335.6	14.63	-	
							4.00	12.865	8.35	10.32	97.7	335.6	15.06	-	
							5.09	12.874	8.35	10.31	97.7	335.8	14.97	-	
							5.97	12.870	8.35	10.31	97.7	335.8	15.14	-	
							7.00	12.869	8.35	10.32	97.8	335.7	15.43	-	
							8.00	12.870	8.35	10.29	97.5	335.8	15.02	-	
							9.00	12.872	8.35	10.29	97.4	335.8	15.12	-	
							10.00	12.872	8.34	10.28	97.3	335.8	15.01	-	
							11.00	12.875	8.34	10.27	97.3	335.8	15.01	-	
							12.00	12.875	8.34	10.27	97.2	335.8	15.30	-	
Nelson River Upstream # 2	US-2	22-Sep-16	12:56	6.2	N/A	N/A	0.37	12.872	8.40	10.37	98.2	336.5	15.17	-	0.45
							1.02	12.876	8.40	10.35	98.1	336.2	15.07	-	
							2.04	12.875	8.40	10.34	97.9	336.1	15.13	-	
							3.03	12.872	8.37	10.35	98.0	336.3	15.20	-	
							3.97	12.872	8.38	10.37	97.9	336.2	15.07	-	
							5.00	12.875	8.37	10.32	97.8	336.0	15.10	-	
							6.00	12.875	8.36	10.31	97.7	335.9	15.12	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Nelson River Upstream # 3	US-3	22-Sep-16	13:35	11.1	N/A	N/A	0.30	12.888	8.34	10.41	98.6	335.0	15.34	-	0.50
							0.96	12.895	8.36	10.38	98.4	335.0	15.13	-	
							2.00	12.892	8.37	10.36	98.2	335.0	15.14	-	
							3.00	12.892	8.37	10.35	98.1	334.9	15.25	-	
							4.00	12.890	8.37	10.34	98.0	334.9	15.20	-	
							5.00	12.892	8.36	10.33	97.9	334.9	14.99	-	
							6.00	12.890	8.36	10.32	97.8	334.9	14.90	-	
							7.00	12.889	8.36	10.31	97.7	334.9	14.73	-	
							8.00	12.891	8.36	10.31	97.7	334.9	15.15	-	
							9.00	12.895	8.35	10.32	97.8	334.9	15.21	-	
							10.00	12.894	8.36	10.31	97.7	334.9	15.28	-	
Nelson River Upstream # 4	US-4	22-Sep-16	14:18	11.5	N/A	N/A	0.37	12.882	8.36	10.39	98.4	334.8	15.29	-	0.40
							1.06	12.883	8.36	10.38	98.4	334.8	15.65	-	
							2.04	12.883	8.37	10.37	98.2	334.8	15.51	-	
							3.01	12.883	8.37	10.35	98.1	334.9	15.10	-	
							3.98	12.881	8.38	10.35	98.0	334.8	15.36	-	
							5.00	12.882	8.37	10.34	98.0	334.8	15.18	-	
							6.00	12.878	8.37	10.33	97.9	334.8	15.41	-	
							7.00	12.876	8.37	10.32	97.8	334.8	15.28	-	
							8.00	12.876	8.37	10.33	97.8	334.8	14.35	-	
							9.00	12.876	8.37	10.31	97.7	334.8	15.22	-	
							10.00	12.875	8.37	10.31	97.7	334.8	15.25	-	
							11.00	12.867	8.37	10.31	97.6	334.8	15.16	-	
Nelson River Upstream # 5	US-5	22-Sep-16	14:55	9.1	N/A	N/A	0.33	12.881	8.35	10.45	99.0	333.6	15.12	-	0.40
							0.93	12.865	8.39	10.37	98.2	332.9	15.10	-	
							2.03	12.864	8.38	10.36	98.1	332.8	15.05	-	
							3.00	12.892	8.38	10.37	98.2	333.9	15.14	-	
							4.00	12.884	8.32	10.36	98.2	333.8	15.04	-	
							5.00	12.889	8.38	10.36	98.2	334.0	15.19	-	
							6.00	12.885	8.37	10.35	98.1	333.7	15.04	-	
							7.00	12.876	8.37	10.33	97.9	333.3	15.17	-	
							8.00	12.871	8.36	10.32	97.7	332.9	15.29	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Near-field # 1	NF-1	23-Sep-16	10:00	20.8	N/A	N/A	0.31	12.631	8.32	10.53	99.2	329.4	15.61	-	0.43
							1.02	12.628	8.33	10.52	99.1	329.5	15.82	-	
							2.05	12.625	8.33	10.51	98.0	329.5	15.36	-	
							3.01	12.621	8.34	10.50	98.9	329.5	15.72	-	
							4.04	12.617	8.33	10.49	98.8	329.6	15.92	-	
							5.05	12.616	8.32	10.48	98.7	329.5	15.69	-	
							6.02	12.614	8.30	10.47	98.6	329.5	15.61	-	
							7.06	12.616	8.28	10.46	98.5	329.6	16.33	-	
							8.02	12.613	8.28	10.46	98.5	329.4	15.49	-	
							9.07	12.616	8.28	10.44	98.4	329.6	16.22	-	
							10.00	12.615	8.30	10.43	98.3	329.5	16.10	-	
							10.97	12.617	8.30	10.42	98.2	329.5	15.49	-	
							12.08	12.616	8.31	10.42	98.1	329.4	16.49	-	
							13.04	12.617	8.31	10.41	98.0	329.6	16.83	-	
							14.05	12.617	8.31	10.40	97.9	329.5	16.28	-	
							15.03	12.617	8.31	10.39	97.8	329.5	16.02	-	
							16.01	12.615	8.32	10.38	97.8	329.3	19.06	-	
							17.03	12.617	8.32	10.37	97.6	329.4	17.55	-	
							18.04	12.616	8.33	10.36	97.6	329.3	18.70	-	
							19.01	12.614	8.33	10.36	97.6	329.3	17.01	-	
Stephens Lake - Near-field # 2	NF-2	23-Sep-16	12:10	12.2	N/A	N/A	0.33	12.873	8.40	10.55	100.0	337.5	14.00	-	0.48
							1.07	12.716	8.39	10.52	99.4	335.7	14.34	-	
							2.04	12.746	8.38	10.48	99.0	335.4	14.71	-	
							3.01	12.657	8.37	10.44	98.5	334.3	15.18	-	
							4.06	12.643	8.36	10.42	98.2	334.5	16.68	-	
							5.07	12.642	8.36	10.41	98.1	334.6	15.09	-	
							6.04	12.643	8.35	10.40	98.0	334.3	18.05	-	
							7.04	12.642	8.35	10.39	97.9	334.8	18.37	-	
							8.03	12.640	8.35	10.38	97.8	334.8	17.43	-	
							9.04	12.643	8.35	10.37	97.2	334.9	17.11	-	
							10.03	12.637	8.35	10.37	97.7	334.6	14.45	-	
							11.05	12.642	8.35	10.35	97.5	334.8	13.88	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Near-field # 3	NF-3	23-Sep-16	10:50	19.4	N/A	N/A	0.33	12.662	8.36	10.55	99.4	330.0	15.18	-	0.43
							1.01	12.647	8.36	10.53	99.2	330.3	15.04	-	
							2.05	12.634	8.37	10.50	99.0	330.5	15.19	-	
							3.08	12.635	8.37	10.49	98.8	330.5	15.10	-	
							4.06	12.624	8.36	10.47	98.6	330.4	15.40	-	
							5.00	12.627	8.36	10.45	98.5	330.2	15.44	-	
							6.01	12.628	8.36	10.45	98.4	330.7	15.50	-	
							6.97	12.629	8.37	10.44	98.3	330.7	14.94	-	
							7.95	12.629	8.36	10.43	98.3	330.9	14.63	-	
							9.07	12.628	8.37	10.42	98.2	330.9	15.10	-	
							10.03	12.631	8.37	10.41	98.1	331.0	15.18	-	
							11.03	12.628	8.36	10.40	98.0	330.9	15.24	-	
							12.03	12.630	8.36	10.39	97.9	331.0	14.74	-	
							13.02	12.624	8.36	10.38	97.8	330.7	15.03	-	
							13.99	12.631	8.36	10.38	97.8	331.0	15.15	-	
							14.99	12.629	8.36	10.37	97.7	330.9	15.34	-	
							16.04	12.629	8.36	10.36	97.6	331.0	15.34	-	
							17.07	12.628	8.36	10.35	97.5	331.0	15.39	-	
							18.01	12.627	8.36	10.34	97.4	331.0	15.37	-	
Stephens Lake - Near-field # 4	NF-4	23-Sep-16	12:50	6.4	N/A	N/A	0.29	12.901	8.40	10.55	100.1	334.8	14.28	-	0.40
							1.02	12.832	8.40	10.55	99.9	334.9	14.39	-	
							2.06	12.780	8.39	10.52	99.4	335.2	15.30	-	
							3.01	12.719	8.38	10.47	98.8	335.6	15.32	-	
							4.01	12.713	8.38	10.44	98.5	335.7	16.09	-	
							4.48	12.709	8.37	10.43	98.4	336.0	16.75	-	
							6.02	12.708	8.38	10.41	98.3	336.0	16.68	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Near-field # 5	NF-5	23-Sep-16	11:30	19.2	N/A	N/A	0.33	12.663	8.38	10.56	99.6	328.9	15.36	-	0.48
							1.02	12.594	8.37	10.51	99.0	329.1	15.83	-	
							2.07	12.596	8.37	10.50	98.8	329.0	16.96	-	
							3.05	12.606	8.37	10.49	98.8	329.0	16.83	-	
							4.05	12.585	8.36	10.46	98.5	329.1	14.98	-	
							5.08	12.588	8.36	10.45	98.3	329.4	15.79	-	
							6.02	12.603	8.36	10.46	98.5	329.1	15.95	-	
							7.08	12.599	8.37	10.45	98.4	329.0	15.54	-	
							8.07	12.603	8.36	10.44	98.3	329.1	15.43	-	
							9.04	12.614	8.36	10.43	98.3	329.2	15.29	-	
							10.08	12.599	8.35	10.42	98.1	329.1	15.78	-	
							11.05	12.589	8.35	10.41	98.0	329.2	15.13	-	
							12.04	12.595	8.35	10.40	97.9	329.5	15.33	-	
							13.04	12.601	8.35	10.39	97.8	329.5	15.13	-	
							14.02	12.595	8.35	10.38	97.7	329.5	14.92	-	
							14.97	12.589	8.35	10.37	97.7	329.3	15.22	-	
							16.03	12.587	8.35	10.37	97.6	329.3	15.03	-	
							17.01	12.587	8.34	10.36	97.5	329.3	13.80	-	
							18.05	12.586	8.34	10.35	97.4	329.3	14.32	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Far-field # 1	FF-1	23-Sep-16	14:15	21.5	N/A	N/A	0.31	13.157	8.39	10.35	98.2	335.0	13.91	-	0.48
							1.00	13.185	8.40	10.38	98.3	334.9	14.25	-	
							2.04	12.701	8.38	10.27	96.8	335.0	14.19	-	
							3.03	12.631	8.38	10.23	96.4	335.0	14.90	-	
							4.01	12.606	8.37	10.21	96.1	335.0	14.29	-	
							5.02	12.613	8.38	10.18	95.9	335.0	14.29	-	
							6.01	12.594	8.37	10.17	95.7	335.1	12.93	-	
							7.00	12.580	8.37	10.15	95.5	335.1	14.43	-	
							8.04	12.579	8.37	10.14	95.5	335.0	14.13	-	
							9.06	12.576	8.37	10.14	95.4	335.0	13.80	-	
							10.02	12.556	8.37	10.12	95.2	335.1	14.23	-	
							11.05	12.546	8.37	10.10	95.0	335.1	16.25	-	
							12.00	12.542	8.37	10.09	94.9	335.0	14.96	-	
							13.02	12.549	8.37	10.08	94.8	335.1	14.37	-	
							14.02	12.545	8.37	10.08	94.8	335.1	16.52	-	
							15.01	12.544	8.37	10.07	94.7	335.0	14.43	-	
							16.01	12.543	8.37	10.07	94.6	335.0	14.63	-	
							17.00	12.541	8.37	10.05	94.5	335.1	15.50	-	
							18.01	12.538	8.37	10.04	94.4	335.1	14.99	-	
							19.01	12.519	8.36	10.03	94.2	335.1	17.04	-	
							20.02	12.529	8.36	10.02	94.2	335.2	13.88	-	
							21.00	12.498	8.36	9.99	93.8	335.3	14.55	-	
Stephens Lake - Far-field # 2	FF-2	23-Sep-16	15:25	16.1	N/A	N/A	0.31	14.042	8.44	10.27	99.8	336.1	13.54	-	0.40
							1.04	13.227	8.47	10.38	99.4	335.3	14.14	-	
							1.99	12.917	8.39	10.08	95.6	336.7	14.32	-	
							3.08	12.882	8.37	9.99	94.6	337.1	16.92	-	
							4.00	12.841	8.37	9.98	94.4	337.2	17.60	-	
							5.07	12.841	8.37	9.96	94.3	337.1	15.32	-	
							6.04	12.837	8.37	9.95	94.2	337.2	15.03	-	
							7.01	12.836	8.37	9.94	94.0	337.3	14.78	-	
							8.06	12.837	8.37	9.92	93.9	337.3	15.93	-	
							9.01	12.837	8.37	9.92	93.9	337.3	14.69	-	
							10.03	12.837	8.36	9.91	93.8	337.4	14.90	-	
							11.05	12.838	8.37	9.90	93.7	337.3	14.89	-	
							12.01	12.840	8.37	9.89	93.6	337.4	15.69	-	
							13.04	12.840	8.37	9.88	93.5	337.5	15.81	-	
							14.02	12.839	8.36	9.87	93.5	337.4	15.48	-	
							15.01	12.840	8.36	9.87	93.4	337.5	15.18	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Far-field # 3	FF-3	23-Sep-16	16:20	26.6	N/A	N/A	0.30	14.509	8.41	10.22	101.5	338.7	12.49	-	0.45
							1.05	13.993	8.47	10.44	101.1	336.8	13.29	-	
							2.01	13.311	8.45	10.40	99.5	338.2	14.99	-	
							3.02	12.921	8.41	10.20	96.7	338.5	16.60	-	
							4.05	12.829	8.38	10.06	95.2	338.6	14.41	-	
							5.02	12.797	8.37	10.02	94.7	338.8	16.37	-	
							6.06	12.802	8.37	10.01	94.7	338.7	16.95	-	
							7.02	12.792	8.36	9.99	94.5	338.8	14.02	-	
							8.02	12.792	8.37	9.98	94.4	338.8	16.67	-	
							9.05	12.786	8.36	9.97	94.3	338.8	14.06	-	
							10.01	12.786	8.36	9.96	94.2	338.8	14.09	-	
							11.07	12.779	8.36	9.95	94.1	338.9	16.95	-	
							12.06	12.777	8.36	9.94	94.0	338.8	17.16	-	
							13.05	12.774	8.37	9.93	93.9	338.9	16.94	-	
							14.01	12.771	8.36	9.93	93.8	338.9	16.52	-	
							15.05	12.774	8.36	9.92	93.8	338.9	17.13	-	
							16.00	12.775	8.36	9.91	93.7	338.9	14.70	-	
							16.99	12.777	8.36	9.91	93.6	338.9	14.65	-	
							18.01	12.773	8.36	9.90	93.6	339.0	14.82	-	
							19.00	12.771	8.36	9.89	93.5	338.9	14.36	-	
							20.02	12.776	8.36	9.89	93.5	338.9	13.60	-	
							20.97	12.772	8.36	9.88	93.4	339.0	14.18	-	
							22.06	12.773	8.36	9.87	93.3	338.9	13.97	-	
							23.04	12.779	8.36	9.87	93.3	339.0	14.69	-	
							24.06	12.779	8.36	9.86	93.2	339.0	14.10	-	
							25.06	12.779	8.36	9.86	93.2	339.0	14.36	-	
							25.98	12.780	8.36	9.85	93.1	339.0	14.35	-	

Table A1-1: *In situ* parameters measured in the Keeyask local study area during the ice-cover and open-water seasons of 2016. Values in blue italics are considered suspect (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Total Water Depth (m)	Snow Thickness (m)	Ice Thickness (m)	Sample Depth (m)	Temperature (°C)	pH (pH units)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (% Saturation)	Specific Conductance (µS/cm)	Turbidity (NTU)	ORP (mV)	Secchi Depth (m)
Stephens Lake - Far-field # 4	FF-4	23-Sep-16	15:50	15.0	N/A	N/A	0.34	14.225	8.46	10.50	102.3	335.9	14.29	-	0.38
							1.00	13.136	8.44	10.31	98.3	336.7	13.54	-	
							2.05	12.943	8.39	10.13	96.1	337.4	14.09	-	
							3.01	12.910	8.38	10.06	95.4	337.6	14.33	-	
							4.04	12.906	8.37	10.03	95.1	337.6	15.16	-	
							5.01	12.895	8.37	10.01	94.9	337.8	14.61	-	
							6.04	12.888	8.37	9.99	94.6	337.8	13.90	-	
							7.00	12.888	8.37	9.97	94.5	337.9	14.11	-	
							8.01	12.854	8.36	9.94	94.1	338.2	14.79	-	
							9.01	12.850	8.36	9.93	94.0	338.2	14.22	-	
							10.02	12.841	8.36	9.91	93.8	338.3	14.63	-	
							11.00	12.838	8.36	9.90	93.7	338.4	14.10	-	
							12.02	12.838	8.36	9.89	93.6	338.3	14.38	-	
							13.02	12.837	8.35	9.88	93.5	338.4	16.24	-	
Stephens Lake - Far-field # 5	FF-5	23-Sep-16	15:00	13.1	N/A	N/A	0.33	13.495	8.41	10.21	98.4	335.4	13.69	-	0.43
							1.05	13.026	8.43	10.24	97.3	335.5	14.15	-	
							2.04	12.868	8.40	10.11	95.8	335.4	14.35	-	
							3.02	12.799	8.39	10.05	95.0	335.6	15.33	-	
							4.01	12.691	8.37	9.96	94.0	335.8	15.61	-	
							5.08	12.650	8.37	9.92	93.5	335.9	15.11	-	
							6.02	12.646	8.37	9.90	93.3	335.9	14.43	-	
							7.02	12.645	8.36	9.89	93.2	335.9	15.17	-	
							8.01	12.646	8.36	9.88	93.1	335.9	14.70	-	
							9.03	12.646	8.36	9.87	93.0	335.9	15.33	-	
							10.07	12.646	8.36	9.86	92.9	336.0	14.28	-	
							11.04	12.646	8.36	9.85	92.8	335.9	17.22	-	
							12.01	12.646	8.36	9.84	92.8	335.9	14.59	-	

Table A1-2: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016.

				Alkalinity				Nitrogen							
Sample Location	Published Site ID	Sample Date	Sample Time	Total (CaCO3) (mg/L)	Bicarbonate (HCO_3) (mg/L)	Carbonate (CO_3) (mg/L)	Hydroxide (OH) (mg/L)	Ammonia (mg/L N)	Nitrate/ nitrite (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Dissolved Inorganic N[1] (mg/L)	Total Organic N[2] (mg/L)	Total N[3] (mg/L)
Detection Limit				1.0	1.2	0.60	0.34	0.010	0.0051/0.015	0.0050/0.015/0.0150	0.0010	0.20			
Split Lake # 10	SPL-10	2-Apr-16	13:00	104	127	<0.60	<0.34	<0.010	0.109	0.109	<0.0010	0.42	0.114	0.42	0.53
Split Lake # 11	SPL-11	2-Apr-16	15:00	99.9	122	<0.60	<0.34	<0.010	0.113	0.113	<0.0010	0.42	0.118	0.42	0.53
Split Lake # 12	SPL-12	2-Apr-16	12:00	100	122	<0.60	<0.34	<0.010	0.118	0.118	<0.0010	0.51	0.123	0.51	0.63
Split Lake # 13	SPL-13	2-Apr-16	14:00	98.4	120	<0.60	<0.34	<0.010	0.111	0.111	<0.0010	0.45	0.116	0.45	0.56
Split Lake # 14	SPL-14	2-Apr-16	16:00	112	136	<0.60	<0.34	<0.010	0.127	0.127	<0.0010	0.65	0.132	0.65	0.78
Nelson River Upstream # 11	US-11	4-Apr-16	16:45	108	132	<0.60	<0.34	0.012	0.129	0.129	<0.0010	0.54	0.141	0.53	0.67
Nelson River Upstream # 12	US-12	4-Apr-16	13:45	105	128	<0.60	<0.34	0.015	0.129	0.129	<0.0010	0.75	0.144	0.74	0.88
Nelson River Upstream # 13	US-13	4-Apr-16	12:45	106	129	<0.60	<0.34	0.022	0.157	0.129	0.0278	0.44	0.179	0.42	0.60
Nelson River Upstream # 14	US-14	4-Apr-16	11:55	106	130	<0.60	<0.34	0.011	0.135	0.129	0.0063	0.39	0.146	0.38	0.53
Nelson River Upstream # 7	US-7	4-Apr-16	11:00	107	131	<0.60	<0.34	0.016	0.129	0.129	<0.0010	0.39	0.145	0.37	0.52
Stephens Lake - Near-field # 1	NF-1	5-Apr-16	11:30	111	135	<0.60	<0.34	<0.010	0.124	0.124	<0.0010	0.50	0.129	0.50	0.62
Stephens Lake - Near-field # 2	NF-2	5-Apr-16	13:20	111	135	<0.60	<0.34	0.012	0.127	0.127	<0.0010	0.54	0.139	0.53	0.67
Stephens Lake - Near-field # 3	NF-3	5-Apr-16	12:35	111	136	<0.60	<0.34	<0.010	0.125	0.125	<0.0010	0.51	0.130	0.51	0.64
Stephens Lake - Near-field # 4	NF-4	5-Apr-16	14:10	111	135	<0.60	<0.34	0.031	0.127	0.127	<0.0010	0.54	0.158	0.51	0.67
Stephens Lake - Near-field # 5	NF-5	5-Apr-16	10:25	109	133	<0.60	<0.34	<0.010	0.126	0.126	<0.0010	0.55	0.131	0.55	0.68
Stephens Lake - Far-field # 1	FF-1	5-Apr-16	10:00	110	135	<0.60	<0.34	<0.010	0.141	0.141	<0.0010	0.44	0.146	0.44	0.58
Stephens Lake - Far-field # 2	FF-2	5-Apr-16	12:00	112	136	<0.60	<0.34	<0.010	0.141	0.141	<0.0010	0.42	0.146	0.42	0.56
Stephens Lake - Far-field # 3	FF-3	5-Apr-16	13:40	111	136	<0.60	<0.34	<0.010	0.137	0.137	<0.0010	0.41	0.142	0.41	0.55
Stephens Lake - Far-field # 4	FF-4	5-Apr-16	13:00	110	134	<0.60	<0.34	0.097	0.138	0.138	<0.0010	0.46	0.235	0.36	0.60
Stephens Lake - Far-field # 5	FF-5	5-Apr-16	11:10	108	131	<0.60	<0.34	0.011	0.138	0.138	<0.0010	0.47	0.149	0.46	0.61
Clark Lake # 1	CL-1	27-Jun-16	9:40	90.4	110	<0.60	<0.34	0.025	<0.0051	<0.0050	<0.0010	0.63	0.028	0.61	0.63
Clark Lake # 2	CL-2	27-Jun-16	10:00	87.3	107	<0.60	<0.34	<0.010	<0.0051	<0.0050	0.0010	0.63	<0.010	0.63	0.63
Clark Lake # 3	CL-3	27-Jun-16	10:56	90.4	110	<0.60	<0.34	0.013	<0.0051	<0.0050	<0.0010	0.65	0.016	0.64	0.65
Clark Lake # 4	CL-4	27-Jun-16	10:20	87.0	106	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.61	<0.010	0.61	0.61
Clark Lake # 5	CL-5	27-Jun-16	10:37	86.1	105	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.69	<0.010	0.69	0.69
Nelson River Upstream # 1	US-1	27-Jun-16	16:15	90.2	110	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.62	<0.010	0.62	0.62
Nelson River Upstream # 2	US-2	27-Jun-16	16:34	90.5	110	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.65	<0.010	0.65	0.65
Nelson River Upstream # 3	US-3	27-Jun-16	17:06	90.5	110	<0.60	<0.34	0.014	<0.0051	<0.0050	<0.0010	0.64	0.017	0.63	0.64
Nelson River Upstream # 4	US-4	27-Jun-16	17:19	94.6	115	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.65	<0.010	0.65	0.65
Nelson River Upstream # 5	US-5	27-Jun-16	16:52	94.0	115	<0.60	<0.34	0.022	<0.0051	<0.0050	<0.0010	0.65	0.025	0.63	0.65
Stephens Lake - Near-field # 1	NF-1	28-Jun-16	11:12	91.2	111	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.70	<0.010	0.70	0.70
Stephens Lake - Near-field # 2	NF-2	28-Jun-16	11:56	91.4	112	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.72	<0.010	0.72	0.72
Stephens Lake - Near-field # 3	NF-3	28-Jun-16	11:34	93.1	114	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.64	<0.010	0.64	0.64
Stephens Lake - Near-field # 4	NF-4	28-Jun-16	12:16	93.4	114	<0.60	<0.34	0.029	<0.0051	<0.0050	<0.0010	0.77	0.032	0.74	0.77
Stephens Lake - Near-field # 5	NF-5	28-Jun-16	10:45	91.1	111	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.67	<0.010	0.67	0.68
Stephens Lake - Far-field # 1	FF-1	28-Jun-16	8:35	94.0	115	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.62	<0.010	0.62	0.62
Stephens Lake - Far-field # 2	FF-2	28-Jun-16	9:15	92.4	113	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.52	<0.010	0.52	0.52
Stephens Lake - Far-field # 3	FF-3	28-Jun-16	9:42	93.0	113	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.56	<0.010	0.56	0.56
Stephens Lake - Far-field # 4	FF-4	28-Jun-16	9:27	92.7	113	<0.60	<0.34	<0.010	<0.0051	<0.0050	0.0010	0.59	<0.010	0.59	0.59
Stephens Lake - Far-field # 5	FF-5	28-Jun-16	8:59	94.5	115	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.53	<0.010	0.53	0.53

Table A1-2: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016 (continued).

				Alkalinity				Nitrogen							
Sample Location	Published Site ID	Sample Date	Sample Time	Total (CaCO3) (mg/L)	Bicarbonate (HCO_3) (mg/L)	Carbonate (CO_3) (mg/L)	Hydroxide (OH) (mg/L)	Ammonia (mg/L N)	Nitrate/ nitrite (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Dissolved Inorganic N[1] (mg/L)	Total Organic N[2] (mg/L)	Total N[3] (mg/L)
Detection Limit				1.0	1.2	0.60	0.34	0.010	0.0051/0.015	0.0050/0.015/0.0150	0.0010	0.20			
Clark Lake # 1	CL-1	27-Jul-16	11:40	104	127	<0.60	<0.34	0.018	0.0177	0.0177	<0.0010	0.45	0.036	0.43	0.47
Clark Lake # 2	CL-2	27-Jul-16	12:08	100	122	<0.60	<0.34	0.024	0.0164	0.0164	<0.0010	0.49	0.040	0.47	0.51
Clark Lake # 3	CL-3	27-Jul-16	12:25	99.7	122	<0.60	<0.34	0.021	0.0220	0.0220	<0.0010	0.45	0.043	0.43	0.47
Clark Lake # 4	CL-4	27-Jul-16	12:45	97.4	119	<0.60	<0.34	0.016	0.0184	0.0184	<0.0010	0.52	0.034	0.50	0.54
Clark Lake # 5	CL-5	27-Jul-16	12:56	97.1	118	<0.60	<0.34	0.013	0.0159	0.0159	<0.0010	0.48	0.029	0.47	0.50
Nelson River Upstream # 1	US-1	28-Jul-16	17:32	102	124	<0.60	<0.34	0.012	0.0230	0.0217	0.0013	0.49	0.035	0.48	0.51
Nelson River Upstream # 2	US-2	28-Jul-16	17:18	103	126	<0.60	<0.34	0.012	0.0192	0.0192	<0.0010	0.50	0.031	0.49	0.52
Nelson River Upstream # 3	US-3	28-Jul-16	16:25	104	127	<0.60	<0.34	0.017	0.0196	0.0196	<0.0010	0.50	0.037	0.48	0.52
Nelson River Upstream # 4	US-4	28-Jul-16	16:42	103	125	<0.60	<0.34	0.017	0.0209	0.0209	<0.0010	0.46	0.038	0.44	0.48
Nelson River Upstream # 5	US-5	28-Jul-16	17:01	104	127	<0.60	<0.34	0.024	0.0211	0.0211	<0.0010	0.46	0.045	0.44	0.48
Stephens Lake - Near-field # 1	NF-1	29-Jul-16	11:10	99.5	121	<0.60	<0.34	0.012	0.0238	0.0227	0.0010	0.50	0.036	0.49	0.52
Stephens Lake - Near-field # 2	NF-2	29-Jul-16	11:55	105	128	<0.60	<0.34	0.015	0.0219	0.0219	<0.0010	0.47	0.037	0.46	0.49
Stephens Lake - Near-field # 3	NF-3	29-Jul-16	11:32	100	122	<0.60	<0.34	0.015	0.0290	0.0276	0.0014	0.46	0.044	0.45	0.49
Stephens Lake - Near-field # 4	NF-4	29-Jul-16	12:09	105	128	<0.60	<0.34	0.019	0.0227	0.0227	<0.0010	0.47	0.042	0.45	0.49
Stephens Lake - Near-field # 5	NF-5	29-Jul-16	10:35	102	124	<0.60	<0.34	0.013	0.0231	0.0220	0.0011	0.51	0.036	0.50	0.53
Stephens Lake - Far-field # 1	FF-1	29-Jul-16	8:26	104	127	<0.60	<0.34	0.013	0.0335	0.0335	<0.0010	0.53	0.047	0.52	0.56
Stephens Lake - Far-field # 2	FF-2	29-Jul-16	9:11	104	127	<0.60	<0.34	0.018	0.0276	0.0265	0.0011	0.48	0.046	0.46	0.51
Stephens Lake - Far-field # 3	FF-3	29-Jul-16	9:46	104	127	<0.60	<0.34	0.011	0.0263	0.0252	0.0011	0.49	0.037	0.48	0.52
Stephens Lake - Far-field # 4	FF-4	29-Jul-16	9:28	104	127	<0.60	<0.34	0.013	0.0273	0.0262	0.0011	0.47	0.040	0.46	0.50
Stephens Lake - Far-field # 5	FF-5	29-Jul-16	8:54	104	127	<0.60	<0.34	<0.010	0.0277	0.0267	0.0010	0.52	0.033	0.52	0.55
Clark Lake # 1	CL-1	26-Aug-16	10:54	111	135	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.48	<0.010	0.48	0.48
Clark Lake # 2	CL-2	26-Aug-16	11:10	109	133	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.56	<0.010	0.56	0.56
Clark Lake # 3	CL-3	26-Aug-16	10:32	110	132	1.44	<0.34	<0.010	<0.0051	<0.0050	0.0016	0.49	<0.010	0.49	0.49
Clark Lake # 4	CL-4	26-Aug-16	11:47	104	126	<0.60	<0.34	0.025	<0.0051	<0.0050	<0.0010	0.44	0.028	0.42	0.44
Clark Lake # 5	CL-5	26-Aug-16	11:28	104	127	<0.60	<0.34	0.011	<0.0051	<0.0050	<0.0010	0.46	0.014	0.45	0.46
Nelson River Upstream # 1	US-1	29-Aug-16	11:55	111	135	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.50	<0.010	0.50	0.50
Nelson River Upstream # 2	US-2	29-Aug-16	12:21	111	135	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.51	<0.010	0.51	0.51
Nelson River Upstream # 3	US-3	29-Aug-16	13:10	112	137	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.48	<0.010	0.47	0.48
Nelson River Upstream # 4	US-4	29-Aug-16	13:45	111	135	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.48	<0.010	0.48	0.48
Nelson River Upstream # 5	US-5	29-Aug-16	14:10	113	138	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.48	<0.010	0.48	0.48
Stephens Lake - Near-field # 1	NF-1	31-Aug-16	11:00	115	137	1.20	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.41	<0.010	0.41	0.41
Stephens Lake - Near-field # 2	NF-2	31-Aug-16	11:40	115	138	1.20	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.42	<0.010	0.42	0.42
Stephens Lake - Near-field # 3	NF-3	31-Aug-16	11:15	115	138	1.32	<0.34	<0.010	<0.0051	<0.0050	<0.0010	<0.20	<0.010	<0.20	<0.20
Stephens Lake - Near-field # 4	NF-4	31-Aug-16	12:00	114	137	1.32	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.42	<0.010	0.42	0.42
Stephens Lake - Near-field # 5	NF-5	31-Aug-16	10:35	115	137	1.20	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.42	<0.010	0.42	0.42
Stephens Lake - Far-field # 1	FF-1	31-Aug-16	8:30	112	135	0.84	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.33	<0.010	0.33	0.33
Stephens Lake - Far-field # 2	FF-2	31-Aug-16	9:10	112	135	0.96	<0.34	0.017	<0.0051	<0.0050	<0.0010	0.41	0.020	0.39	0.41
Stephens Lake - Far-field # 3	FF-3	31-Aug-16	9:45	111	133	0.96	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.45	<0.010	0.45	0.45
Stephens Lake - Far-field # 4	FF-4	31-Aug-16	9:30	112	137	<0.60	<0.34	0.013	<0.0051	<0.0050	<0.0010	0.41	0.016	0.40	0.41
Stephens Lake - Far-field # 5	FF-5	31-Aug-16	8:55	111	135	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.41	<0.010	0.41	0.41

Table A1-2: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016 (continued).

				Alkalinity				Nitrogen							
Sample Location	Published Site ID	Sample Date	Sample Time	Total (CaCO3) (mg/L)	Bicarbonate (HCO_3) (mg/L)	Carbonate (CO_3) (mg/L)	Hydroxide (OH) (mg/L)	Ammonia (mg/L N)	Nitrate/ nitrite (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Dissolved Inorganic N[1] (mg/L)	Total Organic N[2] (mg/L)	Total N[3] (mg/L)
Detection Limit				1.0	1.2	0.60	0.34	0.010	0.0051/0.015	0.0050/0.015/0.0150	0.0010	0.20			
Clark Lake # 1	CL-1	19-Sep-16	11:26	112	136	<0.60	<0.34	0.016	<0.0051	<0.0050	<0.0010	0.45	0.019	0.43	0.45
Clark Lake # 2	CL-2	19-Sep-16	12:35	112	136	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.46	<0.010	0.46	0.46
Clark Lake # 3	CL-3	19-Sep-16	13:40	112	137	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.46	<0.010	0.46	0.46
Clark Lake # 4	CL-4	19-Sep-16	15:05	107	130	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.47	0.056	0.42	0.47
Clark Lake # 5	CL-5	19-Sep-16	15:30	107	131	<0.60	<0.34	0.012	<0.0051	<0.0050	<0.0010	0.51	0.015	0.50	0.51
Nelson River Upstream # 1	US-1	22-Sep-16	11:50	113	137	<0.60	<0.34	<0.010	<0.015	<0.0150	<0.0010	0.43	<0.010	0.43	0.44
Nelson River Upstream # 2	US-2	22-Sep-16	13:00	112	137	<0.60	<0.34	<0.010	<0.015	<0.015	<0.0010	0.45	<0.010	0.45	0.46
Nelson River Upstream # 3	US-3	22-Sep-16	13:35	113	137	<0.60	<0.34	<0.010	<0.015	<0.015	<0.0010	0.43	<0.010	0.43	0.44
Nelson River Upstream # 4	US-4	22-Sep-16	14:15	112	134	1.56	<0.34	<0.010	<0.015	<0.015	<0.0010	0.45	<0.010	0.45	0.46
Nelson River Upstream # 5	US-5	22-Sep-16	15:00	111	135	<0.60	<0.34	0.011	<0.015	<0.0150	<0.0010	0.44	0.019	0.43	0.45
Stephens Lake - Near-field # 1	NF-1	23-Sep-16	10:00	111	135	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.36	<0.010	0.36	0.36
Stephens Lake - Near-field # 2	NF-2	23-Sep-16	12:10	116	141	<0.60	<0.34	0.014	<0.0051	<0.0050	<0.0010	0.43	0.069	0.36	0.43
Stephens Lake - Near-field # 3	NF-3	23-Sep-16	10:50	111	136	<0.60	<0.34	0.010	<0.0051	<0.0050	<0.0010	0.43	0.013	0.42	0.43
Stephens Lake - Near-field # 4	NF-4	23-Sep-16	13:30	112	136	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.41	<0.010	0.41	0.41
Stephens Lake - Near-field # 5	NF-5	23-Sep-16	11:30	111	136	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.46	<0.010	0.46	0.46
Stephens Lake - Far-field # 1	FF-1	23-Sep-16	14:15	111	136	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.39	<0.010	0.39	0.39
Stephens Lake - Far-field # 2	FF-2	23-Sep-16	15:25	114	139	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.39	<0.010	0.39	0.39
Stephens Lake - Far-field # 3	FF-3	23-Sep-16	16:20	114	139	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.42	<0.010	0.42	0.42
Stephens Lake - Far-field # 4	FF-4	23-Sep-16	15:50	114	139	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.40	<0.010	0.40	0.40
Stephens Lake - Far-field # 5	FF-5	23-Sep-16	15:00	113	138	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.40	<0.010	0.40	0.40

Table A1-2: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016 (continued).

				Phosphorus				N:P Molar Ratios			Carbon		C:N Molar Ratios		Water Clarity		
Sample Location	Published Site ID	Sample Date	Sample Time	Dissolved P (mg/L)	Total Particulate P (mg/L)	Total P (mg/L)	Dissolved Fraction (%)	TN:TP (mg/L)	DIN:DP (mg/L)	DIN:TP (mg/L)	Total Organic C (mg/L)	Dissolved Organic C (mg/L)	TOC:ON	TOC:TN	Total Suspended Solids (mg/L)	Turbidity (NTU)	True Colour (CU)
Detection Limit				0.0010	0.0028/0.010	0.0010/0.010					0.50	0.50			2.0	0.10	5.0
Split Lake # 10	SPL-10	2-Apr-16	13:00	0.021	-	0.040	53	29	12	6	9.29	9.46	26	20	3.4	11.6	17.2
Split Lake # 11	SPL-11	2-Apr-16	15:00	0.022	-	0.036	61	33	12	7	8.97	9.16	25	20	3.2	11.4	22.7
Split Lake # 12	SPL-12	2-Apr-16	12:00	0.023	-	0.039	59	36	12	7	9.44	9.27	22	18	3.4	11.6	17.0
Split Lake # 13	SPL-13	2-Apr-16	14:00	0.022	-	0.038	58	33	12	7	9.13	9.37	24	19	3.2	11.8	17.8
Split Lake # 14	SPL-14	2-Apr-16	16:00	0.024	-	0.039	62	44	12	7	9.18	9.46	17	14	3.0	9.65	17.7
Nelson River Upstream # 11	US-11	4-Apr-16	16:45	0.025	-	0.029	86	51	12	11	9.58	8.68	21	17	7.2	12.1	15.1
Nelson River Upstream # 12	US-12	4-Apr-16	13:45	0.024	-	0.030	80	65	13	11	8.79	8.80	14	12	6.0	13.8	14.6
Nelson River Upstream # 13	US-13	4-Apr-16	12:45	0.024	-	0.024	100	55	16	16	8.68	9.11	24	17	4.4	10.3	15.2
Nelson River Upstream # 14	US-14	4-Apr-16	11:55	0.026	-	0.026	100	45	12	12	8.50	8.77	26	19	3.6	10.6	16.5
Nelson River Upstream # 7	US-7	4-Apr-16	11:00	0.025	-	0.027	93	43	13	12	8.62	8.46	27	19	3.8	10.3	16.4
Stephens Lake - Near-field # 1	NF-1	5-Apr-16	11:30	0.024	-	0.025	96	55	12	11	8.58	8.67	20	16	4.8	10.4	15.3
Stephens Lake - Near-field # 2	NF-2	5-Apr-16	13:20	0.024	-	0.025	96	59	13	12	8.92	8.91	20	16	3.6	10.8	16.7
Stephens Lake - Near-field # 3	NF-3	5-Apr-16	12:35	0.024	-	0.027	89	52	12	11	8.54	8.49	20	16	4.8	11.5	14.6
Stephens Lake - Near-field # 4	NF-4	5-Apr-16	14:10	0.023	-	0.026	88	57	15	13	8.62	8.66	20	15	4.8	11.0	15.7
Stephens Lake - Near-field # 5	NF-5	5-Apr-16	10:25	0.025	-	0.026	97	59	12	11	8.51	8.44	18	15	4.0	11.2	15.7
Stephens Lake - Far-field # 1	FF-1	5-Apr-16	10:00	0.026	-	0.039	67	33	12	8	9.24	9.20	25	19	2.6	10.9	20.1
Stephens Lake - Far-field # 2	FF-2	5-Apr-16	12:00	0.026	-	0.040	65	31	12	8	9.38	9.70	26	19	2.6	11.2	16.8
Stephens Lake - Far-field # 3	FF-3	5-Apr-16	13:40	0.025	-	0.038	66	32	13	8	9.12	9.35	26	19	4.2	10.8	16.2
Stephens Lake - Far-field # 4	FF-4	5-Apr-16	13:00	0.025	-	0.040	63	33	21	13	9.48	9.72	30	18	3.0	11.2	17.4
Stephens Lake - Far-field # 5	FF-5	5-Apr-16	11:10	0.025	-	0.037	68	36	13	9	9.09	9.34	23	17	2.8	10.9	15.6
Clark Lake # 1	CL-1	27-Jun-16	9:40	0.0160	-	0.051	31	27	4	1	9.00	8.98	17	17	20.8	20.9	18.5
Clark Lake # 2	CL-2	27-Jun-16	10:00	0.0165	-	0.050	33	28	1	0	8.83	9.01	16	16	23.0	19.0	19.4
Clark Lake # 3	CL-3	27-Jun-16	10:56	0.0199	-	0.051	39	28	2	1	8.99	9.44	16	16	19.0	28.3	18.7
Clark Lake # 4	CL-4	27-Jun-16	10:20	0.0156	-	0.051	31	27	1	0	8.40	9.07	16	16	21.2	22.3	19.9
Clark Lake # 5	CL-5	27-Jun-16	10:37	0.0142	-	0.048	30	32	1	0	8.78	9.19	15	15	18.2	26.6	19.6
Nelson River Upstream # 1	US-1	27-Jun-16	16:15	0.0154	-	0.052	30	26	1	0	8.39	8.82	16	16	23.6	29.3	18.2
Nelson River Upstream # 2	US-2	27-Jun-16	16:34	0.0166	-	0.053	31	27	1	0	8.90	8.83	16	16	18.6	30.1	18.2
Nelson River Upstream # 3	US-3	27-Jun-16	17:06	0.0156	-	0.050	31	28	2	1	8.70	8.62	16	16	21.2	24.7	18.4
Nelson River Upstream # 4	US-4	27-Jun-16	17:19	0.0145	-	0.053	27	27	1	0	8.52	8.69	15	15	20.0	18.5	18.8
Nelson River Upstream # 5	US-5	27-Jun-16	16:52	0.0145	-	0.053	27	27	4	1	8.89	8.46	17	16	22.2	27.6	18.4
Stephens Lake - Near-field # 1	NF-1	28-Jun-16	11:12	0.0141	0.031	0.045	31	35	1	0	8.24	8.35	14	14	15.8	26.4	18.0
Stephens Lake - Near-field # 2	NF-2	28-Jun-16	11:56	0.0162	0.029	0.045	36	36	1	0	8.23	8.04	13	13	12.4	23.8	17.8
Stephens Lake - Near-field # 3	NF-3	28-Jun-16	11:34	0.0144	0.033	0.047	31	30	1	0	8.40	8.22	15	15	13.4	22.8	18.4
Stephens Lake - Near-field # 4	NF-4	28-Jun-16	12:16	0.0137	0.037	0.050	27	34	5	1	7.93	8.32	12	12	12.8	16.8	17.3
Stephens Lake - Near-field # 5	NF-5	28-Jun-16	10:45	0.0149	0.031	0.047	32	32	1	0	8.26	8.34	14	14	16.7	26.5	17.6
Stephens Lake - Far-field # 1	FF-1	28-Jun-16	8:35	0.0105	0.031	0.042	25	33	1	0	7.92	8.10	15	15	10.6	22.9	17.4
Stephens Lake - Far-field # 2	FF-2	28-Jun-16	9:15	0.0154	0.030	0.045	34	26	1	0	7.98	8.05	18	18	16.0	25.1	17.7
Stephens Lake - Far-field # 3	FF-3	28-Jun-16	9:42	0.0133	0.029	0.042	32	30	1	0	8.11	8.25	17	17	14.6	24.5	16.8
Stephens Lake - Far-field # 4	FF-4	28-Jun-16	9:27	0.0146	0.030	0.045	32	29	1	0	7.88	8.38	16	16	15.0	24.5	16.9
Stephens Lake - Far-field # 5	FF-5	28-Jun-16	8:59	0.0149	0.027	0.042	35	28	1	0	8.21	8.88	18	18	12.4	24.6	16.6

Table A1-2: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016 (continued).

				Phosphorus				N:P Molar Ratios			Carbon		C:N Molar Ratios		Water Clarity		
Sample Location	Published Site ID	Sample Date	Sample Time	Dissolved P (mg/L)	Total Particulate P (mg/L)	Total P (mg/L)	Dissolved Fraction (%)	TN:TP (mg/L)	DIN:DP (mg/L)	DIN:TP (mg/L)	Total Organic C (mg/L)	Dissolved Organic C (mg/L)	TOC:ON	TOC:TN	Total Suspended Solids (mg/L)	Turbidity (NTU)	True Colour (CU)
Detection Limit				0.0010	0.0028/0.010	0.0010/0.010					0.50	0.50			2.0	0.10	5.0
Clark Lake # 1	CL-1	27-Jul-16	11:40	0.0188	-	0.058	32	18	4	1	7.93	7.83	21	20	16.4	19.6	15.2
Clark Lake # 2	CL-2	27-Jul-16	12:08	0.0190	-	0.055	35	20	5	2	7.71	8.27	19	18	16.8	29.2	14.6
Clark Lake # 3	CL-3	27-Jul-16	12:25	0.0193	-	0.056	34	19	5	2	7.87	8.19	21	19	16.8	24.7	15.1
Clark Lake # 4	CL-4	27-Jul-16	12:45	0.0184	-	0.049	38	24	4	2	8.09	8.36	19	18	17.0	22.6	15.5
Clark Lake # 5	CL-5	27-Jul-16	12:56	0.0179	-	0.057	31	19	4	1	7.84	8.21	20	18	16.8	26.0	14.2
Nelson River Upstream # 1	US-1	28-Jul-16	17:32	0.0184	-	0.054	34	21	4	1	7.44	8.28	18	17	16.6	30.0	15.1
Nelson River Upstream # 2	US-2	28-Jul-16	17:18	0.0173	-	0.054	32	21	4	1	7.49	8.79	18	17	17.4	29.4	15.8
Nelson River Upstream # 3	US-3	28-Jul-16	16:25	0.029	-	0.054	54	21	3	1	7.34	8.31	18	16	17.0	27.9	16.5
Nelson River Upstream # 4	US-4	28-Jul-16	16:42	0.0187	-	0.053	35	20	4	2	7.39	8.64	19	18	17.6	26.4	15.6
Nelson River Upstream # 5	US-5	28-Jul-16	17:01	0.0189	-	0.049	39	22	5	2	7.39	8.35	20	18	17.8	28.0	16.2
Stephens Lake - Near-field # 1	NF-1	29-Jul-16	11:10	0.0186	-	0.046	40	25	4	2	8.58	9.31	21	19	12.2	28.5	15.1
Stephens Lake - Near-field # 2	NF-2	29-Jul-16	11:55	0.0189	-	0.055	34	20	4	1	8.72	9.21	22	21	14.0	27.2	15.9
Stephens Lake - Near-field # 3	NF-3	29-Jul-16	11:32	0.0191	-	0.049	39	22	5	2	8.57	9.38	22	20	16.2	26.8	15.8
Stephens Lake - Near-field # 4	NF-4	29-Jul-16	12:09	0.0188	-	0.053	35	21	5	2	8.69	9.30	22	21	14.0	27.3	15.9
Stephens Lake - Near-field # 5	NF-5	29-Jul-16	10:35	0.0191	-	0.055	35	21	4	1	8.56	9.20	20	19	14.6	29.2	15.6
Stephens Lake - Far-field # 1	FF-1	29-Jul-16	8:26	0.0192	-	0.056	34	22	5	2	8.76	9.57	20	18	15.2	27.2	16.5
Stephens Lake - Far-field # 2	FF-2	29-Jul-16	9:11	0.0205	-	0.048	43	23	5	2	8.56	9.71	22	20	9.0	27.2	16.4
Stephens Lake - Far-field # 3	FF-3	29-Jul-16	9:46	0.0205	-	0.045	46	25	4	2	8.65	9.24	21	20	13.4	25.9	15.6
Stephens Lake - Far-field # 4	FF-4	29-Jul-16	9:28	0.0187	-	0.048	39	23	5	2	8.62	9.39	22	20	11.0	27.1	17.7
Stephens Lake - Far-field # 5	FF-5	29-Jul-16	8:54	0.0195	-	0.049	40	25	4	1	8.64	9.16	20	18	13.4	27.5	15.9
Clark Lake # 1	CL-1	26-Aug-16	10:54	0.0129	-	0.048	27	22	1	0	8.27	9.00	20	20	15.4	20.8	12.7
Clark Lake # 2	CL-2	26-Aug-16	11:10	0.0116	-	0.047	25	26	1	0	8.62	9.45	18	18	16.0	20.0	14.0
Clark Lake # 3	CL-3	26-Aug-16	10:32	0.0135	-	0.044	31	25	1	0	8.15	9.32	20	19	14.8	21.4	13.8
Clark Lake # 4	CL-4	26-Aug-16	11:47	0.0151	-	0.042	36	23	4	1	8.20	9.43	23	22	19.0	22.9	14.8
Clark Lake # 5	CL-5	26-Aug-16	11:28	0.0139	-	0.045	31	23	2	1	8.12	9.33	21	20	18.0	22.9	13.9
Nelson River Upstream # 1	US-1	29-Aug-16	11:55	0.0124	0.036	0.049	25	23	1	0	7.84	8.84	18	18	15.0	20.6	13.0
Nelson River Upstream # 2	US-2	29-Aug-16	12:21	0.0125	0.029	0.041	30	28	1	0	7.98	8.69	18	18	16.0	20.8	14.0
Nelson River Upstream # 3	US-3	29-Aug-16	13:10	0.0122	0.034	0.043	29	25	1	0	8.03	8.58	20	20	13.6	19.2	15.4
Nelson River Upstream # 4	US-4	29-Aug-16	13:45	0.0128	0.029	0.042	30	25	1	0	8.19	8.25	20	20	13.6	14.4	13.9
Nelson River Upstream # 5	US-5	29-Aug-16	14:10	0.0123	0.032	0.045	27	24	1	0	8.46	8.37	21	20	15.6	13.8	14.1
Stephens Lake - Near-field # 1	NF-1	31-Aug-16	11:00	0.0108	-	0.044	25	21	1	0	7.81	8.45	22	22	14.6	15.0	19.2
Stephens Lake - Near-field # 2	NF-2	31-Aug-16	11:40	0.0103	-	0.041	25	23	1	0	7.89	8.62	22	22	12.2	15.4	20.9
Stephens Lake - Near-field # 3	NF-3	31-Aug-16	11:15	0.0109	-	0.037	29	6	1	0	7.97	8.76	93	93	14.8	14.1	19.9
Stephens Lake - Near-field # 4	NF-4	31-Aug-16	12:00	0.0132	-	0.041	32	23	1	0	7.79	8.50	22	21	12.2	17.9	17.7
Stephens Lake - Near-field # 5	NF-5	31-Aug-16	10:35	0.0116	-	0.044	26	21	1	0	7.87	8.86	22	22	15.4	14.4	20.0
Stephens Lake - Far-field # 1	FF-1	31-Aug-16	8:30	0.0145	-	0.047	31	16	1	0	7.97	8.83	29	28	7.6	16.4	20.4
Stephens Lake - Far-field # 2	FF-2	31-Aug-16	9:10	0.0120	-	0.042	29	22	4	1	8.36	8.71	25	24	11.2	15.6	20.1
Stephens Lake - Far-field # 3	FF-3	31-Aug-16	9:45	0.0148	-	0.044	34	23	1	0	7.86	8.95	21	20	11.4	13.3	21.6
Stephens Lake - Far-field # 4	FF-4	31-Aug-16	9:30	0.0115	-	0.042	27	22	3	1	7.81	8.50	23	22	11.4	12.9	23.3
Stephens Lake - Far-field # 5	FF-5	31-Aug-16	8:55	0.0127	-	0.044	29	21	1	0	7.85	8.60	23	22	11.0	18.4	16.8

Table A1-2: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016 (continued).

				Phosphorus				N:P Molar Ratios			Carbon		C:N Molar Ratios		Water Clarity		
Sample Location	Published Site ID	Sample Date	Sample Time	Dissolved P (mg/L)	Total Particulate P (mg/L)	Total P (mg/L)	Dissolved Fraction (%)	TN:TP (mg/L)	DIN:DP (mg/L)	DIN:TP (mg/L)	Total Organic C (mg/L)	Dissolved Organic C (mg/L)	TOC:ON	TOC:TN	Total Suspended Solids (mg/L)	Turbidity (NTU)	True Colour (CU)
Detection Limit				0.0010	0.0028/0.010	0.0010/0.010					0.50	0.50			2.0	0.10	5.0
Clark Lake # 1	CL-1	19-Sep-16	11:26	0.0141	-	0.034	41	29	3	1	7.24	7.52	19	19	13.4	17.5	14.2
Clark Lake # 2	CL-2	19-Sep-16	12:35	0.0142	-	0.032	44	32	1	0	7.31	7.62	19	18	14.4	19.0	13.6
Clark Lake # 3	CL-3	19-Sep-16	13:40	0.0141	-	0.047	30	22	1	0	7.17	7.64	18	18	13.0	19.6	14.0
Clark Lake # 4	CL-4	19-Sep-16	15:05	0.0158	-	0.047	34	22	8	3	7.15	7.49	20	18	13.2	20.9	14.1
Clark Lake # 5	CL-5	19-Sep-16	15:30	0.0143	-	0.044	33	26	2	1	7.03	7.47	16	16	14.8	22.4	14.4
Nelson River Upstream # 1	US-1	22-Sep-16	11:50	0.0136	0.030	0.044	31	22	1	0	6.97	7.29	19	19	13.2	21.9	12.8
Nelson River Upstream # 2	US-2	22-Sep-16	13:00	0.0141	0.025	0.039	36	26	1	0	7.00	7.43	18	18	13.4	21.3	13.3
Nelson River Upstream # 3	US-3	22-Sep-16	13:35	0.0141	0.019	0.033	43	29	1	0	7.54	7.54	21	20	13.8	20.6	12.2
Nelson River Upstream # 4	US-4	22-Sep-16	14:15	0.0133	0.021	0.034	39	30	1	0	7.47	7.47	20	19	13.2	20.5	12.6
Nelson River Upstream # 5	US-5	22-Sep-16	15:00	0.0138	0.018	0.032	43	31	3	1	7.38	7.38	20	19	14.2	19.7	13.1
Stephens Lake - Near-field # 1	NF-1	23-Sep-16	10:00	0.0146	0.027	0.042	35	19	1	0	6.60	6.76	22	21	17.4	22.0	13.6
Stephens Lake - Near-field # 2	NF-2	23-Sep-16	12:10	0.0158	0.022	0.037	43	26	10	4	6.71	6.89	21	18	9.0	19.5	12.5
Stephens Lake - Near-field # 3	NF-3	23-Sep-16	10:50	0.0155	0.022	0.038	41	25	2	1	6.62	6.86	18	18	10.0	21.0	13.2
Stephens Lake - Near-field # 4	NF-4	23-Sep-16	13:30	0.0151	0.024	0.039	39	23	1	0	6.81	7.08	20	19	10.3	19.7	13.9
Stephens Lake - Near-field # 5	NF-5	23-Sep-16	11:30	0.0145	0.024	0.039	37	26	1	0	6.70	6.67	17	17	11.8	18.7	12.8
Stephens Lake - Far-field # 1	FF-1	23-Sep-16	14:15	0.0138	0.027	0.041	34	21	1	0	6.57	6.82	20	20	11.6	19.5	12.8
Stephens Lake - Far-field # 2	FF-2	23-Sep-16	15:25	0.0137	0.033	0.047	29	18	1	0	6.59	6.80	20	20	6.0	18.7	12.9
Stephens Lake - Far-field # 3	FF-3	23-Sep-16	16:20	0.0161	0.022	0.038	42	25	1	0	6.52	6.89	18	18	4.6	18.2	12.9
Stephens Lake - Far-field # 4	FF-4	23-Sep-16	15:50	0.0137	0.019	0.033	42	27	1	0	6.56	6.93	19	19	6.6	18.5	13.9
Stephens Lake - Far-field # 5	FF-5	23-Sep-16	15:00	0.0139	0.012	0.026	53	34	1	0	6.68	6.78	20	19	7.2	18.0	15.4

Table A1-2: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016 (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Lab pH	Laboratory Conductivity (µmhos/cm)	Total Dissolved Solids (mg/L)	Productivity: Chlorophyll *a* (µg/L)	Productivity: Phaeophytin *a* (µg/L)
Detection Limit				0.10	1.0	4.0/20	0.10	0.10
Split Lake # 10	SPL-10	2-Apr-16	13:00	7.94	285	175	5.09	1.33
Split Lake # 11	SPL-11	2-Apr-16	15:00	7.86	295	184	5.49	1.27
Split Lake # 12	SPL-12	2-Apr-16	12:00	7.78	301	180	5.07	1.25
Split Lake # 13	SPL-13	2-Apr-16	14:00	7.84	286	175	5.06	1.33
Split Lake # 14	SPL-14	2-Apr-16	16:00	7.99	342	207	6.11	1.36
Nelson River Upstream # 11	US-11	4-Apr-16	16:45	7.99	347	216	5.01	1.40
Nelson River Upstream # 12	US-12	4-Apr-16	13:45	7.96	346	206	5.21	1.47
Nelson River Upstream # 13	US-13	4-Apr-16	12:45	8.03	346	215	4.94	1.42
Nelson River Upstream # 14	US-14	4-Apr-16	11:55	8.02	347	211	4.87	1.58
Nelson River Upstream # 7	US-7	4-Apr-16	11:00	8.02	349	212	4.81	1.52
Stephens Lake - Near-field # 1	NF-1	5-Apr-16	11:30	8.04	320	209	5.36	1.47
Stephens Lake - Near-field # 2	NF-2	5-Apr-16	13:20	7.97	331	214	5.29	1.49
Stephens Lake - Near-field # 3	NF-3	5-Apr-16	12:35	8.02	331	209	5.38	1.52
Stephens Lake - Near-field # 4	NF-4	5-Apr-16	14:10	8.03	335	223	4.98	1.24
Stephens Lake - Near-field # 5	NF-5	5-Apr-16	10:25	8.01	334	205	5.20	1.46
Stephens Lake - Far-field # 1	FF-1	5-Apr-16	10:00	7.90	340	197	5.17	1.34
Stephens Lake - Far-field # 2	FF-2	5-Apr-16	12:00	7.89	344	194	3.90	1.22
Stephens Lake - Far-field # 3	FF-3	5-Apr-16	13:40	7.91	344	186	4.05	1.29
Stephens Lake - Far-field # 4	FF-4	5-Apr-16	13:00	7.93	341	194	3.84	1.23
Stephens Lake - Far-field # 5	FF-5	5-Apr-16	11:10	7.96	338	192	4.06	1.24
Clark Lake # 1	CL-1	27-Jun-16	9:40	8.08	300	209	8.96	2.52
Clark Lake # 2	CL-2	27-Jun-16	10:00	8.09	295	206	8.07	2.47
Clark Lake # 3	CL-3	27-Jun-16	10:56	8.11	305	217	8.40	2.47
Clark Lake # 4	CL-4	27-Jun-16	10:20	8.09	292	210	7.81	2.42
Clark Lake # 5	CL-5	27-Jun-16	10:37	8.09	297	205	8.93	2.76
Nelson River Upstream # 1	US-1	27-Jun-16	16:15	8.12	304	217	6.34	1.77
Nelson River Upstream # 2	US-2	27-Jun-16	16:34	8.11	306	214	7.39	2.00
Nelson River Upstream # 3	US-3	27-Jun-16	17:06	8.11	306	210	10.2	2.65
Nelson River Upstream # 4	US-4	27-Jun-16	17:19	8.09	306	211	7.17	2.00
Nelson River Upstream # 5	US-5	27-Jun-16	16:52	8.07	308	211	8.65	2.53
Stephens Lake - Near-field # 1	NF-1	28-Jun-16	11:12	8.16	296	204	9.71	2.25
Stephens Lake - Near-field # 2	NF-2	28-Jun-16	11:56	8.15	299	201	9.31	2.11
Stephens Lake - Near-field # 3	NF-3	28-Jun-16	11:34	8.15	297	154	9.73	2.38
Stephens Lake - Near-field # 4	NF-4	28-Jun-16	12:16	8.17	300	206	9.77	2.31
Stephens Lake - Near-field # 5	NF-5	28-Jun-16	10:45	8.15	298	213	9.79	2.20
Stephens Lake - Far-field # 1	FF-1	28-Jun-16	8:35	8.18	306	202	7.95	1.86
Stephens Lake - Far-field # 2	FF-2	28-Jun-16	9:15	8.16	304	193	7.92	1.91
Stephens Lake - Far-field # 3	FF-3	28-Jun-16	9:42	8.16	302	199	8.79	2.01
Stephens Lake - Far-field # 4	FF-4	28-Jun-16	9:27	8.16	302	196	8.53	2.23
Stephens Lake - Far-field # 5	FF-5	28-Jun-16	8:59	8.15	301	207	8.54	2.03

Table A1-2: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016 (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Lab pH	Laboratory Conductivity (µmhos/cm)	Total Dissolved Solids (mg/L)	Productivity: Chlorophyll *a* (µg/L)	Productivity: Phaeophytin *a* (µg/L)
Detection Limit				0.10	1.0	4.0/20	0.10	0.10
Clark Lake # 1	CL-1	27-Jul-16	11:40	8.18	314	225	6.65	2.66
Clark Lake # 2	CL-2	27-Jul-16	12:08	8.18	307	224	6.57	2.61
Clark Lake # 3	CL-3	27-Jul-16	12:25	8.19	317	227	6.91	2.45
Clark Lake # 4	CL-4	27-Jul-16	12:45	8.18	301	214	6.52	2.66
Clark Lake # 5	CL-5	27-Jul-16	12:56	8.18	302	219	7.15	2.59
Nelson River Upstream # 1	US-1	28-Jul-16	17:32	8.22	308	234	6.81	2.53
Nelson River Upstream # 2	US-2	28-Jul-16	17:18	8.21	309	208	7.51	2.39
Nelson River Upstream # 3	US-3	28-Jul-16	16:25	8.21	309	200	6.91	2.53
Nelson River Upstream # 4	US-4	28-Jul-16	16:42	8.20	310	212	7.49	2.38
Nelson River Upstream # 5	US-5	28-Jul-16	17:01	8.21	312	205	5.53	2.00
Stephens Lake - Near-field # 1	NF-1	29-Jul-16	11:10	8.21	313	211	6.80	2.56
Stephens Lake - Near-field # 2	NF-2	29-Jul-16	11:55	8.22	315	202	6.69	2.77
Stephens Lake - Near-field # 3	NF-3	29-Jul-16	11:32	8.21	312	204	6.61	2.68
Stephens Lake - Near-field # 4	NF-4	29-Jul-16	12:09	8.20	314	205	5.88	2.23
Stephens Lake - Near-field # 5	NF-5	29-Jul-16	10:35	8.21	312	213	7.10	2.79
Stephens Lake - Far-field # 1	FF-1	29-Jul-16	8:26	8.20	317	215	<0.10	<0.10
Stephens Lake - Far-field # 2	FF-2	29-Jul-16	9:11	8.20	319	210	<0.10	<0.10
Stephens Lake - Far-field # 3	FF-3	29-Jul-16	9:46	8.20	320	213	6.43	2.66
Stephens Lake - Far-field # 4	FF-4	29-Jul-16	9:28	8.21	317	210	6.34	2.48
Stephens Lake - Far-field # 5	FF-5	29-Jul-16	8:54	8.20	318	216	6.80	2.78
Clark Lake # 1	CL-1	26-Aug-16	10:54	8.30	325	218	9.52	2.96
Clark Lake # 2	CL-2	26-Aug-16	11:10	8.29	325	214	9.75	2.99
Clark Lake # 3	CL-3	26-Aug-16	10:32	8.32	331	208	9.40	2.77
Clark Lake # 4	CL-4	26-Aug-16	11:47	8.28	302	196	9.70	3.05
Clark Lake # 5	CL-5	26-Aug-16	11:28	8.27	301	199	8.83	2.87
Nelson River Upstream # 1	US-1	29-Aug-16	11:55	8.24	321	210	9.18	2.91
Nelson River Upstream # 2	US-2	29-Aug-16	12:21	8.30	313	207	8.44	2.60
Nelson River Upstream # 3	US-3	29-Aug-16	13:10	8.29	317	206	7.88	2.55
Nelson River Upstream # 4	US-4	29-Aug-16	13:45	8.29	316	196	8.42	2.50
Nelson River Upstream # 5	US-5	29-Aug-16	14:10	8.30	319	213	9.54	2.80
Stephens Lake - Near-field # 1	NF-1	31-Aug-16	11:00	8.35	314	217	11.0	2.82
Stephens Lake - Near-field # 2	NF-2	31-Aug-16	11:40	8.36	312	220	11.3	2.69
Stephens Lake - Near-field # 3	NF-3	31-Aug-16	11:15	8.36	313	207	6.18	1.98
Stephens Lake - Near-field # 4	NF-4	31-Aug-16	12:00	8.37	313	204	11.0	2.54
Stephens Lake - Near-field # 5	NF-5	31-Aug-16	10:35	8.36	312	208	10.0	2.42
Stephens Lake - Far-field # 1	FF-1	31-Aug-16	8:30	8.31	309	213	4.94	1.72
Stephens Lake - Far-field # 2	FF-2	31-Aug-16	9:10	8.32	310	215	7.12	2.35
Stephens Lake - Far-field # 3	FF-3	31-Aug-16	9:45	8.33	310	195	7.58	2.21
Stephens Lake - Far-field # 4	FF-4	31-Aug-16	9:30	8.27	319	206	8.38	2.45
Stephens Lake - Far-field # 5	FF-5	31-Aug-16	8:55	8.27	317	202	7.57	2.35

Table A1-2: Routine water chemistry parameters measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016 (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Lab pH	Laboratory Conductivity (µmhos/cm)	Total Dissolved Solids (mg/L)	Productivity: Chlorophyll *a* (µg/L)	Productivity: Phaeophytin *a* (µg/L)
Detection Limit				0.10	1.0	4.0/20	0.10	0.10
Clark Lake # 1	CL-1	19-Sep-16	11:26	8.28	303	207	9.51	10.0
Clark Lake # 2	CL-2	19-Sep-16	12:35	8.29	312	204	9.29	2.17
Clark Lake # 3	CL-3	19-Sep-16	13:40	8.29	307	211	8.63	2.74
Clark Lake # 4	CL-4	19-Sep-16	15:05	8.28	293	192	9.19	2.59
Clark Lake # 5	CL-5	19-Sep-16	15:30	8.28	297	201	9.72	2.35
Nelson River Upstream # 1	US-1	22-Sep-16	11:50	8.28	312	211	5.91	1.90
Nelson River Upstream # 2	US-2	22-Sep-16	13:00	8.29	312	210	4.55	1.22
Nelson River Upstream # 3	US-3	22-Sep-16	13:35	8.30	311	229	6.60	0.68
Nelson River Upstream # 4	US-4	22-Sep-16	14:15	8.32	314	203	6.52	0.73
Nelson River Upstream # 5	US-5	22-Sep-16	15:00	8.29	310	237	5.13	0.44
Stephens Lake - Near-field # 1	NF-1	23-Sep-16	10:00	8.22	304	222	6.49	2.04
Stephens Lake - Near-field # 2	NF-2	23-Sep-16	12:10	8.26	313	235	6.94	1.91
Stephens Lake - Near-field # 3	NF-3	23-Sep-16	10:50	8.23	304	220	6.14	1.77
Stephens Lake - Near-field # 4	NF-4	23-Sep-16	13:30	8.27	309	217	6.48	1.68
Stephens Lake - Near-field # 5	NF-5	23-Sep-16	11:30	8.26	303	215	7.73	2.13
Stephens Lake - Far-field # 1	FF-1	23-Sep-16	14:15	8.26	309	213	7.80	1.70
Stephens Lake - Far-field # 2	FF-2	23-Sep-16	15:25	8.27	307	206	5.70	1.64
Stephens Lake - Far-field # 3	FF-3	23-Sep-16	16:20	8.27	308	208	4.54	1.52
Stephens Lake - Far-field # 4	FF-4	23-Sep-16	15:50	8.28	308	217	4.60	1.51
Stephens Lake - Far-field # 5	FF-5	23-Sep-16	15:00	8.29	308	216	2.44	1.00

1 - Dissolved inorganic nitrogen calculated as ammonia + nitrate/nitrite.

2 - Total organic nitrogen calculated as total Kjeldahl nitrogen –ammonia.

3 - Total nitrogen calculated as total Kjeldahl nitrogen + nitrate/nitrite.

Table A1-3: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016.

Sample Location	Published Site ID	Sample Date	Sample Time	Hardness (as CaCO3) (mg/L)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)
Detection Limit				0.25/0.30	0.0050	0.00020	0.00020	0.00020	0.00020	0.00020	0.010	0.000010	0.10	0.00010	0.10	0.0010
Split Lake # 10	SPL-10	2-Apr-16	13:00	113	0.573	<0.00020	0.00101	0.0342	<0.00020	<0.00020	0.022	<0.000010	27.3	<0.00010	14.3	<0.0010
Split Lake # 11	SPL-11	2-Apr-16	15:00	114	0.550	<0.00020	0.00103	0.0336	<0.00020	<0.00020	0.021	<0.000010	26.3	<0.00010	15.4	<0.0010
Split Lake # 12	SPL-12	2-Apr-16	12:00	120	0.523	<0.00020	0.00108	0.0350	<0.00020	<0.00020	0.023	<0.000010	28.4	<0.00010	15.9	<0.0010
Split Lake # 13	SPL-13	2-Apr-16	14:00	114	0.466	<0.00020	0.00104	0.0326	<0.00020	<0.00020	0.021	<0.000010	27.5	<0.00010	14.6	<0.0010
Split Lake # 14	SPL-14	2-Apr-16	16:00	129	0.403	<0.00020	0.00121	0.0396	<0.00020	<0.00020	0.025	<0.000010	30.0	<0.00010	19.5	<0.0010
Nelson River Upstream # 11	US-11	4-Apr-16	16:45	137	0.622	0.00041	0.00151	0.0443	<0.00020	<0.00020	0.028	0.000030	33.0	<0.00010	19.5	0.0012
Nelson River Upstream # 12	US-12	4-Apr-16	13:45	137	0.506	0.00030	0.00134	0.0411	<0.00020	<0.00020	0.028	0.000038	33.0	<0.00010	19.4	0.0011
Nelson River Upstream # 13	US-13	4-Apr-16	12:45	130	0.336	<0.00020	0.00119	0.0384	<0.00020	<0.00020	0.025	<0.000010	31.0	<0.00010	19.4	<0.0010
Nelson River Upstream # 14	US-14	4-Apr-16	11:55	135	0.450	<0.00020	0.00120	0.0406	<0.00020	<0.00020	0.025	<0.000010	32.5	<0.00010	19.4	<0.0010
Nelson River Upstream # 7	US-7	4-Apr-16	11:00	133	0.416	<0.00020	0.00124	0.0388	<0.00020	<0.00020	0.025	<0.000010	31.7	<0.00010	19.5	<0.0010
Stephens Lake - Near-field # 1	NF-1	5-Apr-16	11:30	129	0.455	<0.00020	0.00127	0.0373	<0.00020	<0.00020	0.026	<0.000010	30.8	<0.00010	18.9	<0.0010
Stephens Lake - Near-field # 2	NF-2	5-Apr-16	13:20	131	0.336	<0.00020	0.00130	0.0375	<0.00020	<0.00020	0.025	<0.000010	30.7	<0.00010	19.2	<0.0010
Stephens Lake - Near-field # 3	NF-3	5-Apr-16	12:35	132	0.470	<0.00020	0.00123	0.0391	<0.00020	<0.00020	0.025	<0.000010	30.1	<0.00010	19.1	<0.0010
Stephens Lake - Near-field # 4	NF-4	5-Apr-16	14:10	131	0.441	<0.00020	0.00129	0.0392	<0.00020	<0.00020	0.025	<0.000010	29.9	<0.00010	19.2	<0.0010
Stephens Lake - Near-field # 5	NF-5	5-Apr-16	10:25	129	0.376	<0.00020	0.00123	0.0371	<0.00020	<0.00020	0.024	<0.000010	30.1	<0.00010	19.0	<0.0010
Stephens Lake - Far-field # 1	FF-1	5-Apr-16	10:00	131	0.397	<0.00020	0.00117	0.0379	<0.00020	<0.00020	0.025	<0.000010	31.0	<0.00010	19.1	<0.0010
Stephens Lake - Far-field # 2	FF-2	5-Apr-16	12:00	130	0.432	<0.00020	0.00116	0.0381	<0.00020	<0.00020	0.025	<0.000010	31.5	<0.00010	19.3	<0.0010
Stephens Lake - Far-field # 3	FF-3	5-Apr-16	13:40	131	0.440	<0.00020	0.00119	0.0384	<0.00020	<0.00020	0.025	<0.000010	30.7	<0.00010	19.1	<0.0010
Stephens Lake - Far-field # 4	FF-4	5-Apr-16	13:00	133	0.472	<0.00020	0.00120	0.0387	<0.00020	<0.00020	0.026	<0.000010	31.1	<0.00010	19.0	<0.0010
Stephens Lake - Far-field # 5	FF-5	5-Apr-16	11:10	135	0.440	<0.00020	0.00118	0.0379	<0.00020	<0.00020	0.025	<0.000010	31.7	<0.00010	19.0	<0.0010
Clark Lake # 1	CL-1	27-Jun-16	9:40	127	0.653	<0.00020	0.00111	0.0352	<0.00020	<0.00020	0.027	<0.000010	30.7	<0.00010	15.9	0.0012
Clark Lake # 2	CL-2	27-Jun-16	10:00	126	0.659	<0.00020	0.00111	0.0353	<0.00020	<0.00020	0.026	<0.000010	30.3	<0.00010	16.2	0.0012
Clark Lake # 3	CL-3	27-Jun-16	10:56	130	0.924	<0.00020	0.00113	0.0376	<0.00020	<0.00020	0.028	<0.000010	31.9	0.00011	16.9	0.0016
Clark Lake # 4	CL-4	27-Jun-16	10:20	122	0.910	0.00020	0.00114	0.0363	<0.00020	<0.00020	0.026	<0.000010	29.5	0.00011	15.7	0.0016
Clark Lake # 5	CL-5	27-Jun-16	10:37	126	0.559	<0.00020	0.00107	0.0343	<0.00020	<0.00020	0.026	<0.000010	30.1	<0.00010	16.0	0.0011
Nelson River Upstream # 1	US-1	27-Jun-16	16:15	132	0.813	0.00023	0.00119	0.0381	<0.00020	<0.00020	0.030	<0.000010	32.3	0.00010	16.7	0.0014
Nelson River Upstream # 2	US-2	27-Jun-16	16:34	128	0.612	0.00030	0.00106	0.0363	<0.00020	<0.00020	0.028	<0.000010	30.6	<0.00010	16.7	0.0011
Nelson River Upstream # 3	US-3	27-Jun-16	17:06	131	0.722	0.00028	0.00111	0.0369	<0.00020	<0.00020	0.028	<0.000010	31.7	<0.00010	16.8	0.0013
Nelson River Upstream # 4	US-4	27-Jun-16	17:19	131	0.532	0.00023	0.00110	0.0357	<0.00020	<0.00020	0.027	<0.000010	31.0	<0.00010	16.7	<0.0010
Nelson River Upstream # 5	US-5	27-Jun-16	16:52	129	0.375	0.00030	0.00110	0.0343	<0.00020	<0.00020	0.027	<0.000010	31.4	<0.00010	16.7	<0.0010
Stephens Lake - Near-field # 1	NF-1	28-Jun-16	11:12	134	0.517	<0.00020	0.00101	0.0356	<0.00020	<0.00020	0.028	<0.000010	32.9	<0.00010	16.6	<0.0010
Stephens Lake - Near-field # 2	NF-2	28-Jun-16	11:56	134	0.857	0.00022	0.00108	0.0380	<0.00020	<0.00020	0.029	<0.000010	32.8	<0.00010	16.7	0.0012
Stephens Lake - Near-field # 3	NF-3	28-Jun-16	11:34	129	1.02	0.00023	0.00109	0.0385	<0.00020	<0.00020	0.028	<0.000010	31.5	0.00011	16.6	0.0016
Stephens Lake - Near-field # 4	NF-4	28-Jun-16	12:16	135	0.84	<0.00020	0.00109	0.0374	<0.00020	<0.00020	0.028	<0.000010	33.4	<0.00010	16.8	0.0013
Stephens Lake - Near-field # 5	NF-5	28-Jun-16	10:45	133	0.90	0.00021	0.00113	0.0382	<0.00020	<0.00020	0.028	<0.000010	32.3	<0.00010	16.6	0.0015
Stephens Lake - Far-field # 1	FF-1	28-Jun-16	8:35	138	0.780	<0.00020	0.00106	0.0368	<0.00020	<0.00020	0.029	<0.000010	34.6	<0.00010	16.8	0.0012
Stephens Lake - Far-field # 2	FF-2	28-Jun-16	9:15	140	0.888	<0.00020	0.00111	0.0378	<0.00020	<0.00020	0.031	<0.000010	35.8	<0.00010	16.8	0.0013
Stephens Lake - Far-field # 3	FF-3	28-Jun-16	9:42	142	0.665	<0.00020	0.00124	0.0363	<0.00020	<0.00020	0.029	<0.000010	34.2	<0.00010	16.8	0.0011
Stephens Lake - Far-field # 4	FF-4	28-Jun-16	9:27	133	0.475	<0.00020	0.00108	0.0358	<0.00020	<0.00020	0.028	<0.000010	32.3	<0.00010	16.8	<0.0010
Stephens Lake - Far-field # 5	FF-5	28-Jun-16	8:59	139	0.525	<0.00020	0.00107	0.0363	<0.00020	<0.00020	0.029	<0.000010	34.7	<0.00010	16.8	<0.0010

Table A1-3: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016 (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Hardness (as CaCO3) (mg/L)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)
Detection Limit				0.25/0.30	0.0050	0.00020	0.00020	0.00020	0.00020	0.00020	0.010	0.000010	0.10	0.00010	0.10	0.0010
Clark Lake # 1	CL-1	27-Jul-16	11:40	140	1.34	0.00021	0.00146	0.0428	<0.00020	<0.00020	0.029	<0.000010	33.9	0.00015	17.9	0.0021
Clark Lake # 2	CL-2	27-Jul-16	12:08	138	1.20	<0.00020	0.00139	0.0413	<0.00020	<0.00020	0.029	<0.000010	33.1	0.00013	17.7	0.0018
Clark Lake # 3	CL-3	27-Jul-16	12:25	145	1.14	0.00023	0.00146	0.0420	<0.00020	<0.00020	0.029	<0.000010	35.2	0.00013	18.2	0.0019
Clark Lake # 4	CL-4	27-Jul-16	12:45	136	0.924	<0.00020	0.00134	0.0390	<0.00020	<0.00020	0.028	<0.000010	32.8	0.00011	16.2	0.0016
Clark Lake # 5	CL-5	27-Jul-16	12:56	136	0.943	<0.00020	0.00131	0.0384	<0.00020	<0.00020	0.028	<0.000010	33.5	0.00011	17.0	0.0016
Nelson River Upstream # 1	US-1	28-Jul-16	17:32	128	1.27	<0.00020	0.00134	0.0415	<0.00020	<0.00020	0.028	<0.000010	30.6	0.00016	17.4	0.0020
Nelson River Upstream # 2	US-2	28-Jul-16	17:18	134	1.39	0.00030	0.00144	0.0420	<0.00020	<0.00020	0.029	<0.000010	31.9	0.00017	17.4	0.0022
Nelson River Upstream # 3	US-3	28-Jul-16	16:25	131	1.23	0.00030	0.00143	0.0415	<0.00020	<0.00020	0.029	<0.000010	31.8	0.00015	17.3	0.0019
Nelson River Upstream # 4	US-4	28-Jul-16	16:42	129	1.26	<0.00020	0.00138	0.0409	<0.00020	<0.00020	0.029	<0.000010	31.2	0.00016	17.3	0.0020
Nelson River Upstream # 5	US-5	28-Jul-16	17:01	130	1.07	<0.00020	0.00137	0.0389	<0.00020	<0.00020	0.029	<0.000010	31.1	0.00013	17.6	0.0018
Stephens Lake - Near-field # 1	NF-1	29-Jul-16	11:10	130	1.14	0.00022	0.00134	0.0412	<0.00020	<0.00020	0.027	<0.000010	31.0	0.00013	17.8	0.0017
Stephens Lake - Near-field # 2	NF-2	29-Jul-16	11:55	125	1.01	<0.00020	0.00138	0.0398	<0.00020	<0.00020	0.028	<0.000010	29.5	0.00011	18.0	0.0016
Stephens Lake - Near-field # 3	NF-3	29-Jul-16	11:32	131	1.05	<0.00020	0.00134	0.0400	<0.00020	<0.00020	0.029	<0.000010	31.8	0.00012	17.9	0.0017
Stephens Lake - Near-field # 4	NF-4	29-Jul-16	12:09	127	0.983	<0.00020	0.00140	0.0389	<0.00020	<0.00020	0.028	<0.000010	30.7	0.00012	17.9	0.0016
Stephens Lake - Near-field # 5	NF-5	29-Jul-16	10:35	133	1.11	<0.00020	0.00137	0.0399	<0.00020	<0.00020	0.029	<0.000010	32.2	0.00014	17.7	0.0017
Stephens Lake - Far-field # 1	FF-1	29-Jul-16	8:26	132	1.15	0.00025	0.00147	0.0390	<0.00020	<0.00020	0.030	<0.000010	31.7	0.00013	18.2	0.0018
Stephens Lake - Far-field # 2	FF-2	29-Jul-16	9:11	133	0.786	<0.00020	0.00138	0.0375	<0.00020	<0.00020	0.030	<0.000010	33.1	0.00010	18.3	0.0013
Stephens Lake - Far-field # 3	FF-3	29-Jul-16	9:46	130	0.970	<0.00020	0.00140	0.0390	<0.00020	<0.00020	0.029	<0.000010	31.4	0.00011	18.4	0.0016
Stephens Lake - Far-field # 4	FF-4	29-Jul-16	9:28	133	1.23	0.00021	0.00146	0.0417	<0.00020	<0.00020	0.030	<0.000010	31.2	0.00014	18.4	0.0018
Stephens Lake - Far-field # 5	FF-5	29-Jul-16	8:54	131	0.786	<0.00020	0.00137	0.0375	<0.00020	<0.00020	0.029	<0.000010	31.2	0.00010	18.3	0.0015
Clark Lake # 1	CL-1	26-Aug-16	10:54	145	0.879	<0.00020	0.00144	0.0420	<0.00020	<0.00020	0.028	<0.000010	36.7	<0.00010	17.3	0.0014
Clark Lake # 2	CL-2	26-Aug-16	11:10	143	0.865	0.00048	0.00143	0.0416	<0.00020	<0.00020	0.028	<0.000010	35.6	<0.00010	17.2	0.0015
Clark Lake # 3	CL-3	26-Aug-16	10:32	149	0.878	<0.00020	0.00140	0.0421	<0.00020	<0.00020	0.029	<0.000010	38.2	<0.00010	17.4	0.0014
Clark Lake # 4	CL-4	26-Aug-16	11:47	139	0.958	<0.00020	0.00129	0.0402	<0.00020	<0.00020	0.026	<0.000010	35.2	0.00011	14.9	0.0016
Clark Lake # 5	CL-5	26-Aug-16	11:28	141	0.955	<0.00020	0.00136	0.0400	<0.00020	<0.00020	0.027	<0.000010	36.3	0.00011	15.0	0.0016
Nelson River Upstream # 1	US-1	29-Aug-16	11:55	142	0.846	0.00026	0.00139	0.0392	<0.00020	<0.00020	0.028	<0.000010	34.6	<0.00010	16.7	0.0013
Nelson River Upstream # 2	US-2	29-Aug-16	12:21	137	0.900	<0.00020	0.00133	0.0397	<0.00020	<0.00020	0.025	<0.000010	32.6	<0.00010	16.7	0.0015
Nelson River Upstream # 3	US-3	29-Aug-16	13:10	138	0.925	0.00024	0.00142	0.0424	<0.00020	<0.00020	0.029	<0.000010	32.8	0.00010	16.7	0.0015
Nelson River Upstream # 4	US-4	29-Aug-16	13:45	143	0.956	0.00030	0.00145	0.0423	<0.00020	<0.00020	0.028	<0.000010	33.8	0.00011	16.7	0.0015
Nelson River Upstream # 5	US-5	29-Aug-16	14:10	137	0.956	0.00036	0.00144	0.0416	<0.00020	<0.00020	0.028	<0.000010	32.0	0.00011	17.0	0.0015
Stephens Lake - Near-field # 1	NF-1	31-Aug-16	11:00	131	0.907	<0.00020	0.00135	0.0428	<0.00020	<0.00020	0.027	<0.000010	30.9	0.00010	17.4	0.0014
Stephens Lake - Near-field # 2	NF-2	31-Aug-16	11:40	130	0.837	<0.00020	0.00137	0.0420	<0.00020	<0.00020	0.027	<0.000010	30.7	<0.00010	17.5	0.0013
Stephens Lake - Near-field # 3	NF-3	31-Aug-16	11:15	127	0.691	<0.00020	0.00134	0.0397	<0.00020	<0.00020	0.026	<0.000010	29.8	<0.00010	17.4	0.0012
Stephens Lake - Near-field # 4	NF-4	31-Aug-16	12:00	129	0.765	<0.00020	0.00135	0.0417	<0.00020	<0.00020	0.026	<0.000010	30.1	<0.00010	17.5	0.0012
Stephens Lake - Near-field # 5	NF-5	31-Aug-16	10:35	131	0.866	<0.00020	0.00131	0.0419	<0.00020	<0.00020	0.026	<0.000010	31.2	<0.00010	17.4	0.0014
Stephens Lake - Far-field # 1	FF-1	31-Aug-16	8:30	128	0.853	<0.00020	0.00136	0.0399	<0.00020	<0.00020	0.026	<0.000010	30.7	<0.00010	17.0	0.0012
Stephens Lake - Far-field # 2	FF-2	31-Aug-16	9:10	128	0.812	<0.00020	0.00139	0.0398	<0.00020	<0.00020	0.025	<0.000010	29.8	<0.00010	17.1	0.0012
Stephens Lake - Far-field # 3	FF-3	31-Aug-16	9:45	127	0.770	<0.00020	0.00132	0.0395	<0.00020	<0.00020	0.025	<0.000010	30.0	<0.00010	17.3	0.0012
Stephens Lake - Far-field # 4	FF-4	31-Aug-16	9:30	127	0.731	<0.00020	0.00135	0.0398	<0.00020	<0.00020	0.025	<0.000010	29.7	<0.00010	17.1	0.0012
Stephens Lake - Far-field # 5	FF-5	31-Aug-16	8:55	125	0.771	<0.00020	0.00139	0.0389	<0.00020	<0.00020	0.026	<0.000010	29.6	<0.00010	17.0	0.0012

Table A1-3: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016 (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Hardness (as CaCO3) (mg/L)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)
Detection Limit				0.25/0.30	0.0050	0.00020	0.00020	0.00020	0.00020	0.00020	0.010	0.000010	0.10	0.00010	0.10	0.0010
Clark Lake # 1	CL-1	19-Sep-16	11:26	128	0.568	<0.00020	0.00113	0.0375	<0.00020	<0.00020	0.030	<0.000010	31.1	<0.00010	15.6	0.0011
Clark Lake # 2	CL-2	19-Sep-16	12:35	127	0.335	<0.00020	0.00105	0.0368	<0.00020	<0.00020	0.028	<0.000010	30.1	<0.00010	16.6	<0.0010
Clark Lake # 3	CL-3	19-Sep-16	13:40	129	0.768	<0.00020	0.00114	0.0403	<0.00020	<0.00020	0.028	<0.000010	31.3	<0.00010	16.0	0.0013
Clark Lake # 4	CL-4	19-Sep-16	15:05	122	0.866	<0.00020	0.00104	0.0377	<0.00020	<0.00020	0.026	<0.000010	29.6	0.00011	14.1	0.0014
Clark Lake # 5	CL-5	19-Sep-16	15:30	124	0.662	<0.00020	0.00104	0.0378	<0.00020	<0.00020	0.026	<0.000010	30.1	<0.00010	14.7	0.0012
Nelson River Upstream # 1	US-1	22-Sep-16	11:50	129	0.769	<0.00020	0.00133	0.0399	<0.00020	<0.00020	0.026	<0.000010	30.8	<0.00010	16.3	0.0012
Nelson River Upstream # 2	US-2	22-Sep-16	13:00	134	0.360	<0.00020	0.00129	0.0372	<0.00020	<0.00020	0.026	<0.000010	32.2	<0.00010	16.4	<0.0010
Nelson River Upstream # 3	US-3	22-Sep-16	13:35	133	0.740	<0.00020	0.00133	0.0399	<0.00020	<0.00020	0.027	<0.000010	31.8	<0.00010	16.3	0.0012
Nelson River Upstream # 4	US-4	22-Sep-16	14:15	131	0.632	<0.00020	0.00127	0.0390	<0.00020	<0.00020	0.026	<0.000010	31.4	<0.00010	16.3	0.0011
Nelson River Upstream # 5	US-5	22-Sep-16	15:00	126	0.723	<0.00020	0.00124	0.0389	<0.00020	<0.00020	0.025	<0.000010	30.0	<0.00010	16.2	0.0011
Stephens Lake - Near-field # 1	NF-1	23-Sep-16	10:00	128	1.05	<0.00020	0.00131	0.0412	<0.00020	<0.00020	0.028	<0.000010	30.1	0.00010	16.0	0.0016
Stephens Lake - Near-field # 2	NF-2	23-Sep-16	12:10	130	0.767	<0.00020	0.00130	0.0389	<0.00020	<0.00020	0.027	<0.000010	30.7	<0.00010	16.7	0.0012
Stephens Lake - Near-field # 3	NF-3	23-Sep-16	10:50	127	0.758	0.00021	0.00128	0.0384	<0.00020	<0.00020	0.027	<0.000010	30.2	<0.00010	16.1	0.0012
Stephens Lake - Near-field # 4	NF-4	23-Sep-16	13:30	132	0.858	<0.00020	0.00135	0.0409	<0.00020	<0.00020	0.026	<0.000010	31.4	<0.00010	16.6	0.0013
Stephens Lake - Near-field # 5	NF-5	23-Sep-16	11:30	126	0.896	<0.00020	0.00130	0.0397	<0.00020	<0.00020	0.026	<0.000010	29.8	<0.00010	16.0	0.0014
Stephens Lake - Far-field # 1	FF-1	23-Sep-16	14:15	129	0.730	<0.00020	0.00128	0.0388	<0.00020	<0.00020	0.027	<0.000010	30.4	<0.00010	16.4	0.0011
Stephens Lake - Far-field # 2	FF-2	23-Sep-16	15:25	128	0.577	<0.00020	0.00128	0.0382	<0.00020	<0.00020	0.027	<0.000010	30.4	<0.00010	16.4	0.0010
Stephens Lake - Far-field # 3	FF-3	23-Sep-16	16:20	129	0.638	<0.00020	0.00130	0.0392	<0.00020	<0.00020	0.027	<0.000010	30.6	<0.00010	16.6	0.0010
Stephens Lake - Far-field # 4	FF-4	23-Sep-16	15:50	131	0.796	0.00021	0.00132	0.0397	<0.00020	<0.00020	0.026	<0.000010	30.7	<0.00010	16.5	0.0012
Stephens Lake - Far-field # 5	FF-5	23-Sep-16	15:00	128	0.787	<0.00020	0.00132	0.0384	<0.00020	<0.00020	0.026	<0.000010	30.6	<0.00010	16.4	0.0011

Table A1-3: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016 (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)
Detection Limit				0.00020	0.00020	0.010	0.000090	0.0020	0.010	0.00030	0.00000050	0.00020	0.0020	0.10	0.020	0.00020
Split Lake # 10	SPL-10	2-Apr-16	13:00	0.00023	0.00228	0.505	0.000241	0.0094	11.0	0.0123	0.00000202	0.00061	<0.0020	<0.10	2.60	0.00256
Split Lake # 11	SPL-11	2-Apr-16	15:00	0.00022	0.00159	0.466	0.000216	0.0094	11.7	0.0116	0.00000216	0.00060	<0.0020	<0.10	2.65	0.00244
Split Lake # 12	SPL-12	2-Apr-16	12:00	0.00023	0.00169	0.473	0.000211	0.0101	11.8	0.0117	0.0000131	0.00063	<0.0020	<0.10	2.70	0.00253
Split Lake # 13	SPL-13	2-Apr-16	14:00	0.00021	0.00159	0.429	0.000205	0.0091	10.9	0.0116	0.00000419	0.00057	<0.0020	<0.10	2.56	0.00219
Split Lake # 14	SPL-14	2-Apr-16	16:00	<0.00020	0.00237	0.355	0.000193	0.0115	13.2	0.00958	0.00000086	0.00075	<0.0020	<0.10	2.98	0.00219
Nelson River Upstream # 11	US-11	4-Apr-16	16:45	0.00032	0.00232	0.634	0.000381	0.0125	13.4	0.0200	0.00000093	0.00075	<0.0020	<0.10	3.14	0.00279
Nelson River Upstream # 12	US-12	4-Apr-16	13:45	0.00026	0.00345	0.604	0.000341	0.0123	13.2	0.0155	0.00000114	0.00077	<0.0020	<0.10	3.11	0.00243
Nelson River Upstream # 13	US-13	4-Apr-16	12:45	<0.00020	0.00143	0.315	0.000152	0.0110	12.9	0.00935	0.00000055	0.00072	<0.0020	<0.10	2.93	0.00197
Nelson River Upstream # 14	US-14	4-Apr-16	11:55	<0.00020	0.00365	0.394	0.000181	0.0113	13.2	0.0101	0.00000100	0.00075	<0.0020	<0.10	2.97	0.00225
Nelson River Upstream # 7	US-7	4-Apr-16	11:00	<0.00020	0.00165	0.374	0.000177	0.0110	13.2	0.0102	0.00000069	0.00074	<0.0020	<0.10	2.95	0.00225
Stephens Lake - Near-field # 1	NF-1	5-Apr-16	11:30	0.00022	0.00163	0.401	0.000189	0.0124	12.7	0.0107	0.00000167	0.00070	<0.0020	<0.10	2.95	0.00241
Stephens Lake - Near-field # 2	NF-2	5-Apr-16	13:20	<0.00020	0.00181	0.330	0.000179	0.0114	13.2	0.00962	0.00000152	0.00073	<0.0020	<0.10	2.98	0.00199
Stephens Lake - Near-field # 3	NF-3	5-Apr-16	12:35	<0.00020	0.00255	0.411	0.000207	0.0114	13.8	0.0108	0.00000114	0.00074	<0.0020	<0.10	3.03	0.00233
Stephens Lake - Near-field # 4	NF-4	5-Apr-16	14:10	<0.00020	0.00334	0.392	0.000232	0.0115	13.8	0.0108	0.00000356	0.00074	<0.0020	<0.10	3.07	0.00250
Stephens Lake - Near-field # 5	NF-5	5-Apr-16	10:25	<0.00020	0.00168	0.350	0.000211	0.0114	13.1	0.0101	0.00000121	0.00072	<0.0020	<0.10	2.97	0.00223
Stephens Lake - Far-field # 1	FF-1	5-Apr-16	10:00	<0.00020	0.00214	0.355	0.000301	0.0111	13.0	0.00948	0.0000110	0.00070	<0.0020	<0.10	2.92	0.00216
Stephens Lake - Far-field # 2	FF-2	5-Apr-16	12:00	<0.00020	0.00299	0.384	0.000227	0.0108	12.5	0.00981	0.00000378	0.00074	<0.0020	<0.10	2.84	0.00220
Stephens Lake - Far-field # 3	FF-3	5-Apr-16	13:40	<0.00020	0.00157	0.395	0.000182	0.0112	13.2	0.0102	0.00000238	0.00072	<0.0020	<0.10	2.98	0.00229
Stephens Lake - Far-field # 4	FF-4	5-Apr-16	13:00	0.00020	0.00187	0.414	0.000198	0.0114	13.4	0.0102	0.00000216	0.00073	<0.0020	<0.10	2.97	0.00218
Stephens Lake - Far-field # 5	FF-5	5-Apr-16	11:10	<0.00020	0.0116	0.393	0.000540	0.0109	13.6	0.0103	0.00000645	0.00075	<0.0020	<0.10	2.97	0.00235
Clark Lake # 1	CL-1	27-Jun-16	9:40	0.00037	0.00194	0.645	0.000392	0.0105	12.3	0.0224	0.00000160	0.00056	<0.0020	<0.10	2.76	0.00286
Clark Lake # 2	CL-2	27-Jun-16	10:00	0.00038	0.00190	0.676	0.000406	0.0103	12.2	0.0229	0.00000150	0.00052	<0.0020	<0.10	2.78	0.00269
Clark Lake # 3	CL-3	27-Jun-16	10:56	0.00043	0.00204	0.835	0.000432	0.0112	12.2	0.0236	0.00000120	0.00061	0.0020	<0.10	2.91	0.00331
Clark Lake # 4	CL-4	27-Jun-16	10:20	0.00044	0.00198	0.845	0.000444	0.0102	11.8	0.0238	0.00000160	0.00059	0.0020	<0.10	2.77	0.00324
Clark Lake # 5	CL-5	27-Jun-16	10:37	0.00036	0.00185	0.598	0.000391	0.0103	12.3	0.0227	0.00000190	0.00054	<0.0020	<0.10	2.73	0.00256
Nelson River Upstream # 1	US-1	27-Jun-16	16:15	0.00042	0.00199	0.776	0.000418	0.0115	12.6	0.0244	0.00000130	0.00060	<0.0020	<0.10	2.91	0.00302
Nelson River Upstream # 2	US-2	27-Jun-16	16:34	0.00037	0.00186	0.617	0.000381	0.0109	12.5	0.0212	0.00000170	0.00058	<0.0020	<0.10	2.83	0.00276
Nelson River Upstream # 3	US-3	27-Jun-16	17:06	0.00040	0.00192	0.677	0.000391	0.0111	12.6	0.0231	0.00000130	0.00058	<0.0020	<0.10	2.85	0.00289
Nelson River Upstream # 4	US-4	27-Jun-16	17:19	0.00035	0.00189	0.571	0.000367	0.0106	13.0	0.0217	0.00000190	0.00056	<0.0020	<0.10	2.85	0.00242
Nelson River Upstream # 5	US-5	27-Jun-16	16:52	0.00033	0.00179	0.465	0.000359	0.0106	12.2	0.0224	0.00000150	0.00053	<0.0020	<0.10	2.76	0.00215
Stephens Lake - Near-field # 1	NF-1	28-Jun-16	11:12	0.00031	0.00181	0.524	0.000341	0.0111	12.7	0.0184	0.00000160	0.00059	<0.0020	<0.10	2.74	0.00234
Stephens Lake - Near-field # 2	NF-2	28-Jun-16	11:56	0.00035	0.00188	0.719	0.000363	0.0119	12.6	0.0179	0.00000150	0.00064	<0.0020	<0.10	2.87	0.00300
Stephens Lake - Near-field # 3	NF-3	28-Jun-16	11:34	0.00042	0.00201	0.866	0.000418	0.0115	12.3	0.0215	0.00000180	0.00066	<0.0020	<0.10	2.95	0.00344
Stephens Lake - Near-field # 4	NF-4	28-Jun-16	12:16	0.00036	0.00185	0.724	0.000365	0.0117	12.4	0.0184	0.00000100	0.00068	<0.0020	<0.10	2.88	0.00284
Stephens Lake - Near-field # 5	NF-5	28-Jun-16	10:45	0.00040	0.00201	0.800	0.000402	0.0117	12.6	0.0210	0.00000140	0.00064	<0.0020	<0.10	2.88	0.00320
Stephens Lake - Far-field # 1	FF-1	28-Jun-16	8:35	0.00032	0.00187	0.648	0.000328	0.0116	12.4	0.0159	0.00000140	0.00064	<0.0020	<0.10	2.85	0.00284
Stephens Lake - Far-field # 2	FF-2	28-Jun-16	9:15	0.00038	0.00188	0.762	0.000374	0.0127	12.3	0.0182	0.00000100	0.00065	<0.0020	<0.10	2.93	0.00292
Stephens Lake - Far-field # 3	FF-3	28-Jun-16	9:42	0.00035	0.00201	0.558	0.000316	0.0119	13.8	0.0177	0.00000100	0.00061	<0.0020	<0.10	3.10	0.00269
Stephens Lake - Far-field # 4	FF-4	28-Jun-16	9:27	0.00029	0.00214	0.494	0.000353	0.0113	12.9	0.0160	0.00000120	0.00058	<0.0020	<0.10	2.81	0.00234
Stephens Lake - Far-field # 5	FF-5	28-Jun-16	8:59	0.00030	0.00184	0.528	0.000323	0.0118	12.8	0.0163	0.00000110	0.00062	<0.0020	<0.10	2.80	0.00247

Table A1-3: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016 (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)
Detection Limit				0.00020	0.00020	0.010	0.000090	0.0020	0.010	0.00030	0.00000050	0.00020	0.0020	0.10	0.020	0.00020
Clark Lake # 1	CL-1	27-Jul-16	11:40	0.00053	0.00228	1.06	0.000500	0.0124	13.4	0.0263	0.00000140	0.00071	0.0023	<0.10	3.20	0.00408
Clark Lake # 2	CL-2	27-Jul-16	12:08	0.00053	0.00226	1.06	0.000476	0.0120	13.4	0.0259	0.00000130	0.00066	0.0021	<0.10	3.16	0.00394
Clark Lake # 3	CL-3	27-Jul-16	12:25	0.00049	0.00225	0.987	0.000465	0.0123	13.8	0.0251	0.00000130	0.00067	0.0021	<0.10	3.19	0.00382
Clark Lake # 4	CL-4	27-Jul-16	12:45	0.00046	0.00218	0.866	0.000453	0.0115	13.1	0.0253	0.00000130	0.00060	0.0021	<0.10	2.96	0.00329
Clark Lake # 5	CL-5	27-Jul-16	12:56	0.00047	0.00218	0.875	0.000456	0.0115	12.8	0.0254	0.00000150	0.00062	0.0021	<0.10	2.97	0.00350
Nelson River Upstream # 1	US-1	28-Jul-16	17:32	0.00051	0.00236	1.08	0.000500	0.0127	12.4	0.0257	0.00000120	0.00072	0.0023	<0.10	3.01	0.00395
Nelson River Upstream # 2	US-2	28-Jul-16	17:18	0.00055	0.00226	1.18	0.000520	0.0131	13.1	0.0269	0.00000140	0.00076	0.0023	<0.10	3.15	0.00410
Nelson River Upstream # 3	US-3	28-Jul-16	16:25	0.00051	0.00220	1.05	0.000493	0.0129	12.6	0.0259	0.00000110	0.00072	0.0022	<0.10	3.11	0.00397
Nelson River Upstream # 4	US-4	28-Jul-16	16:42	0.00051	0.00224	1.08	0.000565	0.0128	12.3	0.0255	0.00000130	0.00073	0.0022	<0.10	3.02	0.00394
Nelson River Upstream # 5	US-5	28-Jul-16	17:01	0.00048	0.00212	0.978	0.000471	0.0125	12.8	0.0251	0.00000130	0.00069	0.0022	<0.10	3.00	0.00374
Stephens Lake - Near-field # 1	NF-1	29-Jul-16	11:10	0.00047	0.00213	0.977	0.000460	0.0121	12.7	0.0234	0.00000120	0.00069	0.0021	<0.10	3.08	0.00363
Stephens Lake - Near-field # 2	NF-2	29-Jul-16	11:55	0.00043	0.00210	0.855	0.000428	0.0122	12.6	0.0209	0.00000120	0.00068	<0.0020	<0.10	3.05	0.00365
Stephens Lake - Near-field # 3	NF-3	29-Jul-16	11:32	0.00044	0.00217	0.897	0.000485	0.0126	12.6	0.0226	0.00000180	0.00068	0.0021	<0.10	3.05	0.00362
Stephens Lake - Near-field # 4	NF-4	29-Jul-16	12:09	0.00044	0.00208	0.888	0.000423	0.0122	12.3	0.0216	0.00000130	0.00068	0.0020	<0.10	2.98	0.00349
Stephens Lake - Near-field # 5	NF-5	29-Jul-16	10:35	0.00048	0.00216	0.961	0.000463	0.0126	12.7	0.0232	0.00000150	0.00072	0.0021	<0.10	3.05	0.00365
Stephens Lake - Far-field # 1	FF-1	29-Jul-16	8:26	0.00046	0.00217	0.963	0.000439	0.0132	12.9	0.0221	-	0.00075	0.0022	<0.10	3.12	0.00388
Stephens Lake - Far-field # 2	FF-2	29-Jul-16	9:11	0.00039	0.00208	0.771	0.000383	0.0129	12.3	0.0192	0.00000110	0.00071	<0.0020	<0.10	2.93	0.00314
Stephens Lake - Far-field # 3	FF-3	29-Jul-16	9:46	0.00044	0.00209	0.851	0.000407	0.0128	12.6	0.0212	0.00000120	0.00071	<0.0020	<0.10	3.03	0.00341
Stephens Lake - Far-field # 4	FF-4	29-Jul-16	9:28	0.00047	0.00226	0.980	0.000448	0.0130	13.3	0.0219	0.00000200	0.00075	0.0022	<0.10	3.16	0.00393
Stephens Lake - Far-field # 5	FF-5	29-Jul-16	8:54	0.00041	0.00239	0.750	0.000521	0.0126	12.9	0.0203	0.00000130	0.00069	0.0021	<0.10	3.03	0.00326
Clark Lake # 1	CL-1	26-Aug-16	10:54	0.00038	0.00185	0.717	0.000347	0.0127	12.9	0.0219	0.00000100	0.00068	<0.0020	<0.10	3.06	0.00326
Clark Lake # 2	CL-2	26-Aug-16	11:10	0.00039	0.00192	0.753	0.000352	0.0129	13.0	0.0222	0.00000100	0.00067	<0.0020	<0.10	3.00	0.00326
Clark Lake # 3	CL-3	26-Aug-16	10:32	0.00040	0.00188	0.761	0.000347	0.0129	13.0	0.0215	0.00000100	0.00067	<0.0020	<0.10	3.05	0.00311
Clark Lake # 4	CL-4	26-Aug-16	11:47	0.00044	0.00199	0.843	0.000395	0.0120	12.5	0.0234	0.00000100	0.00062	0.0020	<0.10	2.88	0.00345
Clark Lake # 5	CL-5	26-Aug-16	11:28	0.00044	0.00198	0.818	0.000410	0.0120	12.3	0.0238	0.00000100	0.00060	0.0020	<0.10	2.91	0.00350
Nelson River Upstream # 1	US-1	29-Aug-16	11:55	0.00037	0.00181	0.724	0.000282	0.0108	13.5	0.0204	0.00000090	0.00066	<0.0020	<0.10	2.92	0.00303
Nelson River Upstream # 2	US-2	29-Aug-16	12:21	0.00038	0.00194	0.792	0.000272	0.0102	13.6	0.0211	0.00000080	0.00064	<0.0020	<0.10	2.98	0.00308
Nelson River Upstream # 3	US-3	29-Aug-16	13:10	0.00039	0.00195	0.817	0.000396	0.0119	13.7	0.0213	0.00000083	0.00070	<0.0020	<0.10	3.03	0.00316
Nelson River Upstream # 4	US-4	29-Aug-16	13:45	0.00040	0.00199	0.850	0.000433	0.0117	14.1	0.0220	0.00000070	0.00071	<0.0020	<0.10	3.08	0.00331
Nelson River Upstream # 5	US-5	29-Aug-16	14:10	0.00042	0.00192	0.837	0.000399	0.0118	13.8	0.0215	0.00000070	0.00071	<0.0020	<0.10	3.05	0.00332
Stephens Lake - Near-field # 1	NF-1	31-Aug-16	11:00	0.00038	0.00189	0.771	0.000354	0.0114	13.0	0.0202	0.00000080	0.00069	<0.0020	<0.10	3.01	0.00318
Stephens Lake - Near-field # 2	NF-2	31-Aug-16	11:40	0.00036	0.00182	0.745	0.000338	0.0116	13.1	0.0191	0.00000080	0.00069	<0.0020	<0.10	2.97	0.00325
Stephens Lake - Near-field # 3	NF-3	31-Aug-16	11:15	0.00035	0.00179	0.656	0.000315	0.0113	12.9	0.0187	0.00000080	0.00065	<0.0020	<0.10	2.90	0.00287
Stephens Lake - Near-field # 4	NF-4	31-Aug-16	12:00	0.00034	0.00180	0.687	0.000315	0.0112	13.1	0.0178	0.00000060	0.00068	<0.0020	<0.10	2.98	0.00287
Stephens Lake - Near-field # 5	NF-5	31-Aug-16	10:35	0.00036	0.00179	0.738	0.000347	0.0114	12.9	0.0196	0.00000070	0.00067	<0.0020	<0.10	2.91	0.00311
Stephens Lake - Far-field # 1	FF-1	31-Aug-16	8:30	0.00031	0.00175	0.685	0.000304	0.0110	12.6	0.0173	0.00000060	0.00068	<0.0020	<0.10	2.92	0.00301
Stephens Lake - Far-field # 2	FF-2	31-Aug-16	9:10	0.00032	0.00177	0.675	0.000309	0.0107	13.0	0.0174	0.00000060	0.00067	<0.0020	<0.10	2.92	0.00296
Stephens Lake - Far-field # 3	FF-3	31-Aug-16	9:45	0.00031	0.00168	0.645	0.000411	0.0111	12.7	0.0170	0.00000060	0.00069	<0.0020	<0.10	2.85	0.00281
Stephens Lake - Far-field # 4	FF-4	31-Aug-16	9:30	0.00033	0.00174	0.651	0.000297	0.0109	12.8	0.0175	0.00000060	0.00066	<0.0020	<0.10	2.94	0.00276
Stephens Lake - Far-field # 5	FF-5	31-Aug-16	8:55	0.00033	0.00179	0.668	0.000360	0.0111	12.5	0.0173	0.00000060	0.00065	<0.0020	<0.10	2.89	0.00285

Table A1-3: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016 (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)
Detection Limit				0.00020	0.00020	0.010	0.000090	0.0020	0.010	0.00030	0.00000050	0.00020	0.0020	0.10	0.020	0.00020
Clark Lake # 1	CL-1	19-Sep-16	11:26	0.00033	0.00168	0.595	0.000360	0.0103	12.2	0.0200	0.00000100	0.00060	<0.0020	<0.10	2.70	0.00263
Clark Lake # 2	CL-2	19-Sep-16	12:35	0.00030	0.00156	0.437	0.000302	0.0102	12.7	0.0187	0.00000100	0.00057	<0.0020	<0.10	2.70	0.00211
Clark Lake # 3	CL-3	19-Sep-16	13:40	0.00036	0.00169	0.694	0.000373	0.0107	12.3	0.0204	0.00000090	0.00063	<0.0020	<0.10	2.77	0.00286
Clark Lake # 4	CL-4	19-Sep-16	15:05	0.00040	0.00175	0.801	0.000416	0.0101	11.7	0.0215	0.00000090	0.00056	<0.0020	<0.10	2.64	0.00301
Clark Lake # 5	CL-5	19-Sep-16	15:30	0.00035	0.00175	0.669	0.000374	0.0101	11.8	0.0206	0.00000100	0.00057	<0.0020	<0.10	2.64	0.00282
Nelson River Upstream # 1	US-1	22-Sep-16	11:50	0.00035	0.00167	0.656	0.000343	0.0111	12.6	0.0209	0.00000090	0.00059	<0.0020	<0.10	2.87	0.00289
Nelson River Upstream # 2	US-2	22-Sep-16	13:00	0.00028	0.00157	0.426	0.000283	0.0111	13.1	0.0191	0.00000090	0.00054	<0.0020	<0.10	2.76	0.00213
Nelson River Upstream # 3	US-3	22-Sep-16	13:35	0.00034	0.00169	0.678	0.000347	0.0114	13.0	0.0212	0.00000090	0.00060	<0.0020	<0.10	2.88	0.00282
Nelson River Upstream # 4	US-4	22-Sep-16	14:15	0.00033	0.00174	0.610	0.000333	0.0112	12.8	0.0197	0.00000090	0.00059	<0.0020	<0.10	2.80	0.00262
Nelson River Upstream # 5	US-5	22-Sep-16	15:00	0.00034	0.00168	0.639	0.000336	0.0109	12.4	0.0199	0.00000090	0.00058	<0.0020	<0.10	2.76	0.00277
Stephens Lake - Near-field # 1	NF-1	23-Sep-16	10:00	0.00041	0.00189	0.840	0.000377	0.0111	12.9	0.0225	0.00000090	0.00066	<0.0020	<0.10	2.93	0.00341
Stephens Lake - Near-field # 2	NF-2	23-Sep-16	12:10	0.00033	0.00178	0.680	0.000300	0.0110	12.9	0.0183	0.00000080	0.00067	<0.0020	<0.10	2.91	0.00284
Stephens Lake - Near-field # 3	NF-3	23-Sep-16	10:50	0.00033	0.00175	0.667	0.000326	0.0110	12.6	0.0197	0.00000080	0.00064	<0.0020	<0.10	2.84	0.00289
Stephens Lake - Near-field # 4	NF-4	23-Sep-16	13:30	0.00037	0.00184	0.735	0.000349	0.0108	12.9	0.0197	0.00000080	0.00068	<0.0020	<0.10	2.90	0.00305
Stephens Lake - Near-field # 5	NF-5	23-Sep-16	11:30	0.00037	0.00182	0.770	0.000354	0.0109	12.6	0.0207	0.00000080	0.00065	<0.0020	<0.10	2.89	0.00310
Stephens Lake - Far-field # 1	FF-1	23-Sep-16	14:15	0.00033	0.00182	0.631	0.000302	0.0110	12.9	0.0166	0.00000070	0.00067	<0.0020	<0.10	2.90	0.00279
Stephens Lake - Far-field # 2	FF-2	23-Sep-16	15:25	0.00029	0.00179	0.530	0.000285	0.0111	12.7	0.0159	0.00000080	0.00066	<0.0020	<0.10	2.85	0.00239
Stephens Lake - Far-field # 3	FF-3	23-Sep-16	16:20	0.00029	0.00174	0.559	0.000294	0.0112	12.6	0.0148	0.00000070	0.00067	<0.0020	<0.10	2.85	0.00260
Stephens Lake - Far-field # 4	FF-4	23-Sep-16	15:50	0.00033	0.00181	0.654	0.000309	0.0111	13.2	0.0163	0.00000070	0.00068	<0.0020	<0.10	2.96	0.00296
Stephens Lake - Far-field # 5	FF-5	23-Sep-16	15:00	0.00033	0.00182	0.670	0.000308	0.0110	12.6	0.0173	0.00000070	0.00065	<0.0020	<0.10	2.87	0.00296

Table A1-3: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016 (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)	Strontium (mg/L)	Sulfate (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit				0.0010	0.10	0.00010	0.030	0.00010	0.30	0.00020	0.00010	0.00010	0.00020	0.00050	0.00010	0.00010	0.00020	0.0020	0.00040
Split Lake # 10	SPL-10	2-Apr-16	13:00	<0.0010	3.09	<0.00010	14.7	0.105	27.9	<0.00020	<0.00010	0.00021	<0.00020	0.0214	<0.00010	0.00065	0.00153	<0.0020	0.00061
Split Lake # 11	SPL-11	2-Apr-16	15:00	<0.0010	2.95	<0.00010	15.1	0.105	29.9	<0.00020	<0.00010	0.00019	<0.00020	0.0215	<0.00010	0.00066	0.00148	<0.0020	0.00058
Split Lake # 12	SPL-12	2-Apr-16	12:00	<0.0010	3.05	<0.00010	15.5	0.113	30.7	<0.00020	<0.00010	0.00018	<0.00020	0.0207	<0.00010	0.00066	0.00153	<0.0020	0.00054
Split Lake # 13	SPL-13	2-Apr-16	14:00	<0.0010	2.75	<0.00010	14.2	0.104	28.4	<0.00020	<0.00010	0.00017	<0.00020	0.0184	<0.00010	0.00062	0.00142	<0.0020	0.00054
Split Lake # 14	SPL-14	2-Apr-16	16:00	<0.0010	2.89	<0.00010	18.4	0.124	37.7	<0.00020	<0.00010	0.00014	0.00040	0.0148	<0.00010	0.00080	0.00143	<0.0020	0.00043
Nelson River Upstream # 11	US-11	4-Apr-16	16:45	<0.0010	3.38	<0.00010	18.2	0.133	37.5	<0.00020	<0.00010	0.00025	<0.00020	0.0258	<0.00010	0.00083	0.00193	0.0050	0.00064
Nelson River Upstream # 12	US-12	4-Apr-16	13:45	<0.0010	3.01	<0.00010	18.3	0.129	37.4	<0.00020	<0.00010	0.00019	0.00033	0.0195	<0.00010	0.00081	0.00166	0.0064	0.00054
Nelson River Upstream # 13	US-13	4-Apr-16	12:45	<0.0010	2.62	<0.00010	17.7	0.124	37.5	<0.00020	<0.00010	0.00012	<0.00020	0.0126	<0.00010	0.00078	0.00134	<0.0020	0.00043
Nelson River Upstream # 14	US-14	4-Apr-16	11:55	<0.0010	2.91	<0.00010	18.0	0.129	37.5	<0.00020	<0.00010	0.00016	<0.00020	0.0160	<0.00010	0.00078	0.00152	<0.0020	0.00049
Nelson River Upstream # 7	US-7	4-Apr-16	11:00	<0.0010	2.78	<0.00010	18.0	0.123	37.6	<0.00020	<0.00010	0.00015	<0.00020	0.0156	<0.00010	0.00078	0.00148	<0.0020	0.00051
Stephens Lake - Near-field # 1	NF-1	5-Apr-16	11:30	<0.0010	3.13	<0.00010	17.3	0.116	36.7	<0.00020	<0.00010	0.00015	<0.00020	0.0172	<0.00010	0.00074	0.00149	<0.0020	0.00046
Stephens Lake - Near-field # 2	NF-2	5-Apr-16	13:20	<0.0010	2.77	<0.00010	18.3	0.120	37.4	<0.00020	<0.00010	0.00012	<0.00020	0.0133	<0.00010	0.00075	0.00135	<0.0020	0.00046
Stephens Lake - Near-field # 3	NF-3	5-Apr-16	12:35	<0.0010	3.12	<0.00010	17.9	0.121	37.1	<0.00020	<0.00010	0.00016	<0.00020	0.0173	<0.00010	0.00075	0.00153	<0.0020	0.00049
Stephens Lake - Near-field # 4	NF-4	5-Apr-16	14:10	<0.0010	3.06	<0.00010	18.6	0.121	37.4	<0.00020	<0.00010	0.00016	0.00025	0.0171	<0.00010	0.00079	0.00155	0.0024	0.00046
Stephens Lake - Near-field # 5	NF-5	5-Apr-16	10:25	<0.0010	2.84	<0.00010	18.0	0.121	37.0	<0.00020	<0.00010	0.00013	<0.00020	0.0144	<0.00010	0.00073	0.00140	<0.0020	0.00045
Stephens Lake - Far-field # 1	FF-1	5-Apr-16	10:00	<0.0010	2.84	<0.00010	18.1	0.125	36.7	<0.00020	<0.00010	0.00014	<0.00020	0.0143	<0.00010	0.00076	0.00143	0.0024	0.00047
Stephens Lake - Far-field # 2	FF-2	5-Apr-16	12:00	<0.0010	2.97	<0.00010	17.2	0.125	36.9	<0.00020	<0.00010	0.00016	0.00024	0.0163	<0.00010	0.00079	0.00143	0.0021	0.00050
Stephens Lake - Far-field # 3	FF-3	5-Apr-16	13:40	<0.0010	2.95	<0.00010	18.2	0.124	36.9	<0.00020	<0.00010	0.00015	<0.00020	0.0167	<0.00010	0.00077	0.00155	<0.0020	0.00051
Stephens Lake - Far-field # 4	FF-4	5-Apr-16	13:00	<0.0010	2.95	<0.00010	18.1	0.125	36.7	<0.00020	<0.00010	0.00016	0.00061	0.0175	<0.00010	0.00077	0.00150	<0.0020	0.00051
Stephens Lake - Far-field # 5	FF-5	5-Apr-16	11:10	<0.0010	2.99	<0.00010	18.2	0.126	36.6	<0.00020	<0.00010	0.00015	0.00045	0.0162	<0.00010	0.00078	0.00153	0.0078	0.00051
Clark Lake # 1	CL-1	27-Jun-16	9:40	<0.0010	2.64	<0.00010	15.6	0.112	31.2	<0.00020	<0.00010	0.00026	<0.00020	0.0271	<0.00010	0.00068	0.00203	0.0029	0.00079
Clark Lake # 2	CL-2	27-Jun-16	10:00	<0.0010	2.66	<0.00010	15.7	0.107	31.7	<0.00020	<0.00010	0.00027	<0.00020	0.0275	<0.00010	0.00068	0.00204	0.0030	0.00081
Clark Lake # 3	CL-3	27-Jun-16	10:56	<0.0010	3.37	<0.00010	16.0	0.116	33.1	<0.00020	<0.00010	0.00034	<0.00020	0.0377	<0.00010	0.00071	0.00242	0.0038	0.00086
Clark Lake # 4	CL-4	27-Jun-16	10:20	<0.0010	3.23	<0.00010	15.3	0.104	31.1	<0.00020	<0.00010	0.00036	<0.00020	0.0379	<0.00010	0.00069	0.00239	0.0032	0.00085
Clark Lake # 5	CL-5	27-Jun-16	10:37	<0.0010	2.39	<0.00010	15.9	0.108	31.4	<0.00020	<0.00010	0.00024	<0.00020	0.0238	<0.00010	0.00069	0.00191	0.0026	0.00075
Nelson River Upstream # 1	US-1	27-Jun-16	16:15	<0.0010	3.04	<0.00010	16.8	0.120	32.9	<0.00020	<0.00010	0.00030	<0.00020	0.0340	<0.00010	0.00071	0.00224	0.0029	0.00081
Nelson River Upstream # 2	US-2	27-Jun-16	16:34	<0.0010	2.58	<0.00010	16.2	0.113	32.7	<0.00020	<0.00010	0.00024	<0.00020	0.0262	<0.00010	0.00070	0.00199	0.0025	0.00124
Nelson River Upstream # 3	US-3	27-Jun-16	17:06	<0.0010	2.81	<0.00010	16.3	0.114	32.9	<0.00020	<0.00010	0.00027	<0.00020	0.0296	<0.00010	0.00070	0.00217	0.0033	0.00076
Nelson River Upstream # 4	US-4	27-Jun-16	17:19	<0.0010	2.40	<0.00010	16.4	0.109	32.8	<0.00020	<0.00010	0.00020	<0.00020	0.0222	<0.00010	0.00070	0.00193	0.0026	0.00067
Nelson River Upstream # 5	US-5	27-Jun-16	16:52	<0.0010	1.98	<0.00010	16.6	0.111	32.8	<0.00020	<0.00010	0.00016	<0.00020	0.0153	<0.00010	0.00070	0.00169	0.0023	0.00067
Stephens Lake - Near-field # 1	NF-1	28-Jun-16	11:12	<0.0010	2.25	<0.00010	16.7	0.117	32.6	<0.00020	<0.00010	0.00020	<0.00020	0.0209	<0.00010	0.00071	0.00171	0.0026	0.00068
Stephens Lake - Near-field # 2	NF-2	28-Jun-16	11:56	<0.0010	3.09	<0.00010	16.5	0.117	32.8	<0.00020	<0.00010	0.00031	<0.00020	0.0312	<0.00010	0.00072	0.00219	0.0026	0.00079
Stephens Lake - Near-field # 3	NF-3	28-Jun-16	11:34	<0.0010	3.50	<0.00010	16.3	0.116	32.6	<0.00020	<0.00010	0.00037	<0.00020	0.0396	<0.00010	0.00072	0.00245	0.0032	0.00085
Stephens Lake - Near-field # 4	NF-4	28-Jun-16	12:16	<0.0010	3.07	<0.00010	16.3	0.117	32.9	<0.00020	<0.00010	0.00031	<0.00020	0.0319	<0.00010	0.00072	0.00216	0.0028	0.00077
Stephens Lake - Near-field # 5	NF-5	28-Jun-16	10:45	<0.0010	3.20	<0.00010	16.4	0.117	32.6	<0.00020	<0.00010	0.00032	<0.00020	0.0356	<0.00010	0.00072	0.00223	0.0036	0.00082
Stephens Lake - Far-field # 1	FF-1	28-Jun-16	8:35	<0.0010	2.85	<0.00010	16.7	0.122	32.7	<0.00020	<0.00010	0.00029	<0.00020	0.0295	<0.00010	0.00071	0.00202	0.0025	0.00074
Stephens Lake - Far-field # 2	FF-2	28-Jun-16	9:15	<0.0010	3.08	<0.00010	16.5	0.126	32.8	<0.00020	<0.00010	0.00031	<0.00020	0.0337	<0.00010	0.00072	0.00222	0.0028	0.00085
Stephens Lake - Far-field # 3	FF-3	28-Jun-16	9:42	<0.0010	2.43	<0.00010	18.6	0.120	32.8	<0.00020	<0.00010	0.00022	<0.00020	0.0261	<0.00010	0.00071	0.00203	0.0026	0.00070
Stephens Lake - Far-field # 4	FF-4	28-Jun-16	9:27	<0.0010	2.19	<0.00010	16.5	0.118	32.8	<0.00020	<0.00010	0.00019	<0.00020	0.0200	<0.00010	0.00069	0.00175	0.0031	0.00066
Stephens Lake - Far-field # 5	FF-5	28-Jun-16	8:59	<0.0010	2.32	<0.00010	16.6	0.119	32.7	<0.00020	<0.00010	0.00020	<0.00020	0.0212	<0.00010	0.00070	0.00177	0.0024	0.00067

Table A1-3: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016 (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)	Strontium (mg/L)	Sulfate (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit				0.0010	0.10	0.00010	0.030	0.00010	0.30	0.00020	0.00010	0.00010	0.00020	0.00050	0.00010	0.00010	0.00020	0.0020	0.00040
Clark Lake # 1	CL-1	27-Jul-16	11:40	<0.0010	4.12	<0.00010	18.4	0.119	34.7	<0.00020	<0.00010	0.00042	<0.00020	0.0524	<0.00010	0.00075	0.00330	0.0033	0.00109
Clark Lake # 2	CL-2	27-Jul-16	12:08	<0.0010	3.82	<0.00010	18.0	0.115	34.4	<0.00020	<0.00010	0.00041	<0.00020	0.0488	<0.00010	0.00075	0.00305	0.0035	0.00101
Clark Lake # 3	CL-3	27-Jul-16	12:25	<0.0010	3.77	<0.00010	18.4	0.116	35.1	<0.00020	<0.00010	0.00041	<0.00020	0.0443	<0.00010	0.00077	0.00299	0.0032	0.00092
Clark Lake # 4	CL-4	27-Jul-16	12:45	<0.0010	3.11	<0.00010	17.2	0.111	31.5	<0.00020	<0.00010	0.00034	<0.00020	0.0370	<0.00010	0.00071	0.00266	0.0030	0.00097
Clark Lake # 5	CL-5	27-Jul-16	12:56	<0.0010	3.10	<0.00010	17.0	0.108	33.0	<0.00020	<0.00010	0.00035	<0.00020	0.0391	<0.00010	0.00070	0.00274	0.0035	0.00092
Nelson River Upstream # 1	US-1	28-Jul-16	17:32	<0.0010	4.19	<0.00010	16.9	0.116	33.9	<0.00020	<0.00010	0.00043	<0.00020	0.0492	<0.00010	0.00073	0.00305	0.0035	0.00098
Nelson River Upstream # 2	US-2	28-Jul-16	17:18	<0.0010	4.46	<0.00010	17.5	0.117	33.9	<0.00020	<0.00010	0.00048	<0.00020	0.0531	<0.00010	0.00075	0.00331	0.0036	0.00110
Nelson River Upstream # 3	US-3	28-Jul-16	16:25	<0.0010	4.00	<0.00010	17.5	0.117	33.8	<0.00020	<0.00010	0.00043	<0.00020	0.0478	<0.00010	0.00075	0.00303	0.0034	0.00106
Nelson River Upstream # 4	US-4	28-Jul-16	16:42	<0.0010	4.00	<0.00010	17.0	0.119	33.8	<0.00020	<0.00010	0.00045	<0.00020	0.0482	<0.00010	0.00073	0.00303	0.0034	0.00104
Nelson River Upstream # 5	US-5	28-Jul-16	17:01	<0.0010	3.62	<0.00010	17.2	0.120	34.4	<0.00020	<0.00010	0.00039	<0.00020	0.0423	<0.00010	0.00072	0.00278	0.0033	0.00101
Stephens Lake - Near-field # 1	NF-1	29-Jul-16	11:10	<0.0010	3.72	<0.00010	18.2	0.115	34.6	<0.00020	<0.00010	0.00039	<0.00020	0.0425	<0.00010	0.00075	0.00290	0.0032	0.00096
Stephens Lake - Near-field # 2	NF-2	29-Jul-16	11:55	<0.0010	3.51	<0.00010	18.0	0.118	35.0	<0.00020	<0.00010	0.00035	<0.00020	0.0382	<0.00010	0.00076	0.00274	0.0030	0.00091
Stephens Lake - Near-field # 3	NF-3	29-Jul-16	11:32	<0.0010	3.60	<0.00010	18.3	0.116	34.8	<0.00020	<0.00010	0.00038	<0.00020	0.0401	<0.00010	0.00077	0.00281	0.0031	0.00096
Stephens Lake - Near-field # 4	NF-4	29-Jul-16	12:09	<0.0010	3.42	<0.00010	17.9	0.115	34.7	<0.00020	<0.00010	0.00035	<0.00020	0.0368	<0.00010	0.00074	0.00267	0.0031	0.00089
Stephens Lake - Near-field # 5	NF-5	29-Jul-16	10:35	<0.0010	3.81	<0.00010	17.7	0.117	34.3	<0.00020	<0.00010	0.00040	<0.00020	0.0423	<0.00010	0.00077	0.00287	0.0037	0.00100
Stephens Lake - Far-field # 1	FF-1	29-Jul-16	8:26	<0.0010	3.86	<0.00010	17.9	0.119	35.1	<0.00020	<0.00010	0.00039	<0.00020	0.0423	<0.00010	0.00077	0.00292	0.0034	0.00095
Stephens Lake - Far-field # 2	FF-2	29-Jul-16	9:11	<0.0010	2.94	<0.00010	17.9	0.123	35.4	<0.00020	<0.00010	0.00029	<0.00020	0.0294	<0.00010	0.00076	0.00238	0.0045	0.00084
Stephens Lake - Far-field # 3	FF-3	29-Jul-16	9:46	<0.0010	3.40	<0.00010	17.8	0.117	35.7	<0.00020	<0.00010	0.00034	<0.00020	0.0353	<0.00010	0.00076	0.00265	0.0030	0.00088
Stephens Lake - Far-field # 4	FF-4	29-Jul-16	9:28	<0.0010	4.07	<0.00010	18.1	0.120	35.6	<0.00020	<0.00010	0.00041	<0.00020	0.0455	<0.00010	0.00078	0.00294	0.0034	0.00099
Stephens Lake - Far-field # 5	FF-5	29-Jul-16	8:54	<0.0010	3.01	<0.00010	18.1	0.114	35.4	<0.00020	<0.00010	0.00028	<0.00020	0.0299	<0.00010	0.00077	0.00249	0.0042	0.00082
Clark Lake # 1	CL-1	26-Aug-16	10:54	<0.0010	2.94	<0.00010	17.2	0.138	34.7	<0.00020	<0.00010	0.00030	<0.00020	0.0346	<0.00010	0.00066	0.00246	0.0028	0.00083
Clark Lake # 2	CL-2	26-Aug-16	11:10	<0.0010	2.89	<0.00010	16.8	0.134	34.4	<0.00020	<0.00010	0.00030	<0.00020	0.0359	<0.00010	0.00067	0.00245	0.0029	0.00085
Clark Lake # 3	CL-3	26-Aug-16	10:32	<0.0010	2.95	<0.00010	17.4	0.137	34.9	<0.00020	<0.00010	0.00030	<0.00020	0.0350	<0.00010	0.00067	0.00237	0.0027	0.00083
Clark Lake # 4	CL-4	26-Aug-16	11:47	<0.0010	3.15	<0.00010	15.9	0.126	30.1	<0.00020	<0.00010	0.00034	<0.00020	0.0394	<0.00010	0.00062	0.00254	0.0029	0.00099
Clark Lake # 5	CL-5	26-Aug-16	11:28	<0.0010	3.07	<0.00010	16.0	0.127	30.2	<0.00020	<0.00010	0.00035	<0.00020	0.0401	<0.00010	0.00061	0.00251	0.0031	0.00094
Nelson River Upstream # 1	US-1	29-Aug-16	11:55	<0.0010	2.68	<0.00010	17.9	0.121	33.5	<0.00020	<0.00010	0.00030	<0.00020	0.0325	<0.00010	0.00068	0.00236	0.0027	0.00075
Nelson River Upstream # 2	US-2	29-Aug-16	12:21	<0.0010	2.84	<0.00010	18.1	0.112	33.5	<0.00020	<0.00010	0.00030	<0.00020	0.0352	<0.00010	0.00065	0.00245	0.0027	0.00069
Nelson River Upstream # 3	US-3	29-Aug-16	13:10	<0.0010	3.05	<0.00010	17.2	0.121	33.5	<0.00020	<0.00010	0.00035	<0.00020	0.0370	<0.00010	0.00073	0.00250	0.0030	0.00078
Nelson River Upstream # 4	US-4	29-Aug-16	13:45	<0.0010	3.08	<0.00010	18.2	0.123	33.4	<0.00020	<0.00010	0.00035	<0.00020	0.0378	<0.00010	0.00073	0.00254	0.0034	0.00076
Nelson River Upstream # 5	US-5	29-Aug-16	14:10	<0.0010	3.08	<0.00010	17.6	0.121	34.1	<0.00020	<0.00010	0.00035	<0.00020	0.0369	<0.00010	0.00073	0.00258	0.0031	0.00076
Stephens Lake - Near-field # 1	NF-1	31-Aug-16	11:00	<0.0010	2.69	<0.00010	17.6	0.116	35.0	<0.00020	<0.00010	0.00033	<0.00020	0.0348	<0.00010	0.00069	0.00245	<0.0020	0.00082
Stephens Lake - Near-field # 2	NF-2	31-Aug-16	11:40	<0.0010	2.58	<0.00010	18.0	0.119	35.2	<0.00020	<0.00010	0.00029	<0.00020	0.0323	<0.00010	0.00068	0.00231	<0.0020	0.00070
Stephens Lake - Near-field # 3	NF-3	31-Aug-16	11:15	<0.0010	2.13	<0.00010	17.5	0.117	35.0	<0.00020	<0.00010	0.00026	<0.00020	0.0280	<0.00010	0.00069	0.00217	<0.0020	0.00065
Stephens Lake - Near-field # 4	NF-4	31-Aug-16	12:00	<0.0010	2.33	<0.00010	17.8	0.118	35.2	<0.00020	<0.00010	0.00028	<0.00020	0.0297	<0.00010	0.00070	0.00222	<0.0020	0.00066
Stephens Lake - Near-field # 5	NF-5	31-Aug-16	10:35	<0.0010	2.64	<0.00010	17.0	0.119	35.1	<0.00020	<0.00010	0.00030	<0.00020	0.0319	<0.00010	0.00068	0.00227	<0.0020	0.00075
Stephens Lake - Far-field # 1	FF-1	31-Aug-16	8:30	<0.0010	3.00	<0.00010	17.2	0.114	33.9	<0.00020	<0.00010	0.00028	<0.00020	0.0296	<0.00010	0.00067	0.00225	<0.0020	0.00068
Stephens Lake - Far-field # 2	FF-2	31-Aug-16	9:10	<0.0010	2.81	<0.00010	17.3	0.113	34.2	<0.00020	<0.00010	0.00028	<0.00020	0.0293	<0.00010	0.00066	0.00222	<0.0020	0.00065
Stephens Lake - Far-field # 3	FF-3	31-Aug-16	9:45	<0.0010	2.61	<0.00010	17.3	0.115	34.6	<0.00020	<0.00010	0.00027	<0.00020	0.0280	<0.00010	0.00068	0.00216	<0.0020	0.00066
Stephens Lake - Far-field # 4	FF-4	31-Aug-16	9:30	<0.0010	2.44	<0.00010	17.3	0.114	34.2	<0.00020	<0.00010	0.00026	<0.00020	0.0277	<0.00010	0.00067	0.00216	<0.0020	0.00062
Stephens Lake - Far-field # 5	FF-5	31-Aug-16	8:55	<0.0010	2.71	<0.00010	16.8	0.116	33.9	<0.00020	<0.00010	0.00027	<0.00020	0.0289	<0.00010	0.00065	0.00219	<0.0020	0.00066

Table A1-3: Metals and major ions measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016 (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)	Strontium (mg/L)	Sulfate (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit				0.0010	0.10	0.00010	0.030	0.00010	0.30	0.00020	0.00010	0.00010	0.00020	0.00050	0.00010	0.00010	0.00020	0.0020	0.00040
Clark Lake # 1	CL-1	19-Sep-16	11:26	<0.0010	2.15	<0.00010	17.0	0.119	32.0	<0.00020	<0.00010	0.00022	<0.00020	0.0236	<0.00010	0.00068	0.00198	0.0027	0.00070
Clark Lake # 2	CL-2	19-Sep-16	12:35	<0.0010	1.53	<0.00010	17.1	0.119	33.9	<0.00020	<0.00010	0.00012	<0.00020	0.0148	<0.00010	0.00067	0.00175	0.0024	0.00054
Clark Lake # 3	CL-3	19-Sep-16	13:40	<0.0010	2.66	<0.00010	17.0	0.123	32.6	<0.00020	<0.00010	0.00029	<0.00020	0.0303	<0.00010	0.00070	0.00219	0.0025	0.00076
Clark Lake # 4	CL-4	19-Sep-16	15:05	<0.0010	2.95	<0.00010	15.1	0.112	29.0	<0.00020	<0.00010	0.00034	<0.00020	0.0350	<0.00010	0.00063	0.00235	0.0030	0.00086
Clark Lake # 5	CL-5	19-Sep-16	15:30	<0.0010	2.39	<0.00010	15.9	0.115	30.1	<0.00020	<0.00010	0.00026	<0.00020	0.0274	<0.00010	0.00065	0.00209	0.0025	0.00074
Nelson River Upstream # 1	US-1	22-Sep-16	11:50	<0.0010	2.79	<0.00010	17.0	0.115	33.5	<0.00020	<0.00010	0.00025	<0.00020	0.0291	<0.00010	0.00063	0.00213	0.0028	0.00071
Nelson River Upstream # 2	US-2	22-Sep-16	13:00	<0.0010	1.83	<0.00010	17.2	0.118	33.6	<0.00020	<0.00010	0.00013	<0.00020	0.0241	<0.00010	0.00063	0.00172	0.0026	0.00055
Nelson River Upstream # 3	US-3	22-Sep-16	13:35	<0.0010	2.84	<0.00010	17.2	0.119	33.4	<0.00020	<0.00010	0.00026	<0.00020	0.0280	<0.00010	0.00065	0.00219	0.0030	0.00073
Nelson River Upstream # 4	US-4	22-Sep-16	14:15	<0.0010	2.59	<0.00010	16.9	0.116	33.4	<0.00020	<0.00010	0.00022	<0.00020	0.0253	<0.00010	0.00063	0.00201	0.0026	0.00069
Nelson River Upstream # 5	US-5	22-Sep-16	15:00	<0.0010	2.73	<0.00010	16.3	0.112	33.2	<0.00020	<0.00010	0.00024	<0.00020	0.0268	<0.00010	0.00061	0.00211	0.0024	0.00076
Stephens Lake - Near-field # 1	NF-1	23-Sep-16	10:00	<0.0010	3.55	<0.00010	17.0	0.121	32.7	<0.00020	<0.00010	0.00034	<0.00020	0.0384	<0.00010	0.00062	0.00252	0.0033	0.00080
Stephens Lake - Near-field # 2	NF-2	23-Sep-16	12:10	<0.0010	2.71	<0.00010	17.7	0.123	34.2	<0.00020	<0.00010	0.00026	<0.00020	0.0289	<0.00010	0.00063	0.00216	0.0024	0.00065
Stephens Lake - Near-field # 3	NF-3	23-Sep-16	10:50	<0.0010	2.84	<0.00010	16.9	0.125	33.0	<0.00020	<0.00010	0.00025	<0.00020	0.0300	<0.00010	0.00061	0.00215	0.0028	0.00076
Stephens Lake - Near-field # 4	NF-4	23-Sep-16	13:30	<0.0010	3.03	<0.00010	17.5	0.123	33.5	<0.00020	<0.00010	0.00029	<0.00020	0.0333	<0.00010	0.00065	0.00228	0.0030	0.00076
Stephens Lake - Near-field # 5	NF-5	23-Sep-16	11:30	<0.0010	3.11	<0.00010	16.8	0.120	32.7	<0.00020	<0.00010	0.00030	<0.00020	0.0353	<0.00010	0.00062	0.00229	0.0030	0.00078
Stephens Lake - Far-field # 1	FF-1	23-Sep-16	14:15	<0.0010	2.52	<0.00010	18.2	0.123	33.4	<0.00020	<0.00010	0.00025	<0.00020	0.0271	<0.00010	0.00063	0.00203	0.0025	0.00067
Stephens Lake - Far-field # 2	FF-2	23-Sep-16	15:25	<0.0010	2.13	<0.00010	17.6	0.125	33.5	<0.00020	<0.00010	0.00020	<0.00020	0.0214	<0.00010	0.00062	0.00190	0.0024	0.00061
Stephens Lake - Far-field # 3	FF-3	23-Sep-16	16:20	<0.0010	2.37	<0.00010	17.4	0.127	33.8	<0.00020	<0.00010	0.00021	<0.00020	0.0240	<0.00010	0.00062	0.00198	0.0030	0.00060
Stephens Lake - Far-field # 4	FF-4	23-Sep-16	15:50	<0.0010	2.75	<0.00010	17.7	0.125	33.7	<0.00020	<0.00010	0.00026	<0.00020	0.0293	<0.00010	0.00064	0.00218	0.0026	0.00068
Stephens Lake - Far-field # 5	FF-5	23-Sep-16	15:00	<0.0010	2.69	<0.00010	17.1	0.124	33.6	<0.00020	<0.00010	0.00026	<0.00020	0.0295	<0.00010	0.00061	0.00211	0.0027	0.00073

Table A1-4: Hydrocarbons measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016.

Sample Location	Published Site ID	Sample Date	Sample Time	Benzene (mg/L)	Ethylbenzene (mg/L)	Toluene (mg/L)	o-Xylene (mg/L)	m+p-Xylenes (mg/L)	Xylenes (Total) (mg/L)	F1 (C6-C10) (mg/L)	F1-BTEX (mg/L)	Total Hydrocarbons (C6-C50) (mg/L)	F2 (C10-C16) (mg/L)	F3 (C16-C34) (mg/L)	F4 (C34-C50) (mg/L)
Detection Limit				0.00050	0.00050	0.0010	0.00050	0.00050	0.0015	0.10	0.10	0.38	0.10	0.25	0.25
PAL Guidelines				0.370	0.090	0.0020	-	-	-	-	-	-	-	-	-
Split Lake # 10	SPL-10	2-Apr-16	13:00	-	-	-	-	-	-	-	-	-	-	-	-
Split Lake # 11	SPL-11	2-Apr-16	15:00	-	-	-	-	-	-	-	-	-	-	-	-
Split Lake # 12	SPL-12	2-Apr-16	12:00	-	-	-	-	-	-	-	-	-	-	-	-
Split Lake # 13	SPL-13	2-Apr-16	14:00	-	-	-	-	-	-	-	-	-	-	-	-
Split Lake # 14	SPL-14	2-Apr-16	16:00	-	-	-	-	-	-	-	-	-	-	-	-
Nelson River Upstream # 11	US-11	4-Apr-16	16:45	<0.00050	<0.00050	<0.0010	<0.00050	0.00061	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 12	US-12	4-Apr-16	13:45	0.00051	0.00155	0.0072	0.00289	0.00581	0.0087	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 13	US-13	4-Apr-16	12:45	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 14	US-14	4-Apr-16	11:55	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 7	US-7	4-Apr-16	11:00	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 1	NF-1	5-Apr-16	11:30	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 2	NF-2	5-Apr-16	13:20	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 3	NF-3	5-Apr-16	12:35	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 4	NF-4	5-Apr-16	14:10	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 5	NF-5	5-Apr-16	10:25	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Far-field # 1	FF-1	5-Apr-16	10:00	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Far-field # 2	FF-2	5-Apr-16	12:00	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Far-field # 3	FF-3	5-Apr-16	13:40	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Far-field # 4	FF-4	5-Apr-16	13:00	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Far-field # 5	FF-5	5-Apr-16	11:10	-	-	-	-	-	-	-	-	-	-	-	-
Clark Lake # 1	CL-1	27-Jun-16	9:40	-	-	-	-	-	-	-	-	-	-	-	-
Clark Lake # 2	CL-2	27-Jun-16	10:00	-	-	-	-	-	-	-	-	-	-	-	-
Clark Lake # 3	CL-3	27-Jun-16	10:56	-	-	-	-	-	-	-	-	-	-	-	-
Clark Lake # 4	CL-4	27-Jun-16	10:20	-	-	-	-	-	-	-	-	-	-	-	-
Clark Lake # 5	CL-5	27-Jun-16	10:37	-	-	-	-	-	-	-	-	-	-	-	-
Nelson River Upstream # 1	US-1	27-Jun-16	16:15	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 2	US-2	27-Jun-16	16:34	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 3	US-3	27-Jun-16	17:06	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 4	US-4	27-Jun-16	17:19	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 5	US-5	27-Jun-16	16:52	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 1	NF-1	28-Jun-16	11:12	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 2	NF-2	28-Jun-16	11:56	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 3	NF-3	28-Jun-16	11:34	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 4	NF-4	28-Jun-16	12:16	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 5	NF-5	28-Jun-16	10:45	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Far-field # 1	FF-1	28-Jun-16	8:35	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Far-field # 2	FF-2	28-Jun-16	9:15	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Far-field # 3	FF-3	28-Jun-16	9:42	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Far-field # 4	FF-4	28-Jun-16	9:27	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Far-field # 5	FF-5	28-Jun-16	8:59	-	-	-	-	-	-	-	-	-	-	-	-

Table A1-4: Hydrocarbons measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016 (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Benzene (mg/L)	Ethylbenzene (mg/L)	Toluene (mg/L)	o-Xylene (mg/L)	m+p-Xylenes (mg/L)	Xylenes (Total) (mg/L)	F1 (C6-C10) (mg/L)	F1-BTEX (mg/L)	Total Hydrocarbons (C6-C50) (mg/L)	F2 (C10-C16) (mg/L)	F3 (C16-C34) (mg/L)	F4 (C34-C50) (mg/L)
Detection Limit				0.00050	0.00050	0.0010	0.00050	0.00050	0.0015	0.10	0.10	0.38	0.10	0.25	0.25
PAL Guidelines				0.370	0.090	0.0020	-	-	-	-	-	-	-	-	-
Clark Lake # 1	CL-1	27-Jul-16	11:40	-	-	-	-	-	-	-	-	-	-	-	-
Clark Lake # 2	CL-2	27-Jul-16	12:08	-	-	-	-	-	-	-	-	-	-	-	-
Clark Lake # 3	CL-3	27-Jul-16	12:25	-	-	-	-	-	-	-	-	-	-	-	-
Clark Lake # 4	CL-4	27-Jul-16	12:45	-	-	-	-	-	-	-	-	-	-	-	-
Clark Lake # 5	CL-5	27-Jul-16	12:56	-	-	-	-	-	-	-	-	-	-	-	-
Nelson River Upstream # 1	US-1	28-Jul-16	17:32	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 2	US-2	28-Jul-16	17:18	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 3	US-3	28-Jul-16	16:25	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 4	US-4	28-Jul-16	16:42	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 5	US-5	28-Jul-16	17:01	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 1	NF-1	29-Jul-16	11:10	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 2	NF-2	29-Jul-16	11:55	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 3	NF-3	29-Jul-16	11:32	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 4	NF-4	29-Jul-16	12:09	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 5	NF-5	29-Jul-16	10:35	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Far-field # 1	FF-1	29-Jul-16	8:26	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Far-field # 2	FF-2	29-Jul-16	9:11	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Far-field # 3	FF-3	29-Jul-16	9:46	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Far-field # 4	FF-4	29-Jul-16	9:28	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Far-field # 5	FF-5	29-Jul-16	8:54	-	-	-	-	-	-	-	-	-	-	-	-
Clark Lake # 1	CL-1	26-Aug-16	10:54	-	-	-	-	-	-	-	-	-	-	-	-
Clark Lake # 2	CL-2	26-Aug-16	11:10	-	-	-	-	-	-	-	-	-	-	-	-
Clark Lake # 3	CL-3	26-Aug-16	10:32	-	-	-	-	-	-	-	-	-	-	-	-
Clark Lake # 4	CL-4	26-Aug-16	11:47	-	-	-	-	-	-	-	-	-	-	-	-
Clark Lake # 5	CL-5	26-Aug-16	11:28	-	-	-	-	-	-	-	-	-	-	-	-
Nelson River Upstream # 1	US-1	29-Aug-16	11:55	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 2	US-2	29-Aug-16	12:21	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 3	US-3	29-Aug-16	13:10	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 4	US-4	29-Aug-16	13:45	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 5	US-5	29-Aug-16	14:10	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 1	NF-1	31-Aug-16	11:00	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 2	NF-2	31-Aug-16	11:40	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 3	NF-3	31-Aug-16	11:15	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 4	NF-4	31-Aug-16	12:00	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 5	NF-5	31-Aug-16	10:35	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Far-field # 1	FF-1	31-Aug-16	8:30	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Far-field # 2	FF-2	31-Aug-16	9:10	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Far-field # 3	FF-3	31-Aug-16	9:45	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Far-field # 4	FF-4	31-Aug-16	9:30	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Far-field # 5	FF-5	31-Aug-16	8:55	-	-	-	-	-	-	-	-	-	-	-	-

Table A1-4: Hydrocarbons measured in the laboratory for sites monitored in the Keeyask local study area during the ice-cover and open-water seasons of 2016 (continued).

Sample Location	Published Site ID	Sample Date	Sample Time	Benzene (mg/L)	Ethylbenzene (mg/L)	Toluene (mg/L)	o-Xylene (mg/L)	m+p-Xylenes (mg/L)	Xylenes (Total) (mg/L)	F1 (C6-C10) (mg/L)	F1-BTEX (mg/L)	Total Hydrocarbons (C6-C50) (mg/L)	F2 (C10-C16) (mg/L)	F3 (C16-C34) (mg/L)	F4 (C34-C50) (mg/L)
Detection Limit				0.00050	0.00050	0.0010	0.00050	0.00050	0.0015	0.10	0.10	0.38	0.10	0.25	0.25
PAL Guidelines				0.370	0.090	0.0020	-	-	-	-	-	-	-	-	-
Clark Lake # 1	CL-1	19-Sep-16	11:26	-	-	-	-	-	-	-	-	-	-	-	-
Clark Lake # 2	CL-2	19-Sep-16	12:35	-	-	-	-	-	-	-	-	-	-	-	-
Clark Lake # 3	CL-3	19-Sep-16	13:40	-	-	-	-	-	-	-	-	-	-	-	-
Clark Lake # 4	CL-4	19-Sep-16	15:05	-	-	-	-	-	-	-	-	-	-	-	-
Clark Lake # 5	CL-5	19-Sep-16	15:30	-	-	-	-	-	-	-	-	-	-	-	-
Nelson River Upstream # 1	US-1	22-Sep-16	11:50	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 2	US-2	22-Sep-16	13:00	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 3	US-3	22-Sep-16	13:35	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 4	US-4	22-Sep-16	14:15	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 5	US-5	22-Sep-16	15:00	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 1	NF-1	23-Sep-16	10:00	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 2	NF-2	23-Sep-16	12:10	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 3	NF-3	23-Sep-16	10:50	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 4	NF-4	23-Sep-16	13:30	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 5	NF-5	23-Sep-16	11:30	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Far-field # 1	FF-1	23-Sep-16	14:15	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Far-field # 2	FF-2	23-Sep-16	15:25	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Far-field # 3	FF-3	23-Sep-16	16:20	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Far-field # 4	FF-4	23-Sep-16	15:50	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Far-field # 5	FF-5	23-Sep-16	15:00	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX 2: RESULTS OF QUALITY ASSURANCE/QUALITY CONTROL SAMPLES, 2016

Table A2-1: Quality assurance/quality control results for routine water chemistry variables measured in the laboratory during the ice-cover and open-water seasons, 2016. 131

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Table A2-3: Quality assurance/quality control results for hydrocarbons during the ice-cover and open-water seasons, 2016. 137

Table A2-1: Quality assurance/quality control results for routine water chemistry variables measured in the laboratory during the ice-cover and open-water seasons, 2016. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit.

				Alkalinity				Nitrogen							
Sample Location	Sample ID	Sample Date	Sample Time	Total ($CaCO_3$) (mg/L)	Bicarbonate (HCO_3) (mg/L)	Carbonate (CO_3) (mg/L)	Hydroxide (OH) (mg/L)	Dissolved Ammonia (mg/L N)	Dissolved Nitrate/ nitrite (mg/L)	Dissolved Nitrate (mg/L)	Dissolved Nitrite (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Dissolved Inorganic N[1] (mg/L)	Total Organic N[2] (mg/L)	Total N[3] (mg/L)
Detection Limit				1.0	1.2	0.60	0.34	0.010	0.0051/0.015	0.015/0.0150/0.0050	0.0010	0.20			
Stephens Lake – Near-field # 5	NF-5A	5-Apr-16	10:25	109	133	<0.60	<0.34	<0.010	0.125	0.125	<0.0010	0.57	0.130	0.57	0.70
Stephens Lake – Near-field # 5	NF-5B	5-Apr-16	10:30	107	131	<0.60	<0.34	<0.010	0.126	0.126	<0.0010	0.54	0.131	0.54	0.67
Stephens Lake – Near-field # 5	NF-5C	5-Apr-16	10:35	110	135	<0.60	<0.34	<0.010	0.127	0.126	0.0013	0.55	0.132	0.55	0.68
Stephens Lake – Near-field # 5	NF-5	5-Apr-16	Mean	109	133	<0.60	<0.34	<0.010	0.126	0.126	<0.0010	0.55	0.131	0.55	0.68
			SD	1.5	2.0	-	-	-	0.0010	0.0006	-	0.015	0.0010	0.015	0.015
			PRSD	1	2	-	-	-	1	0	-	-	1	-	-
Stephens Lake – Near-field # 5	NF-5A	28-Jun-16	10:36	91.6	112	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.72	<0.010	0.72	0.72
Stephens Lake – Near-field # 5	NF-5B	28-Jun-16	10:40	90.5	110	<0.60	<0.34	0.011	<0.0051	<0.0050	<0.0010	0.70	0.014	0.69	0.70
Stephens Lake – Near-field # 5	NF-5C	28-Jun-16	10:45	91.3	111	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.60	<0.010	0.60	0.60
Stephens Lake – Near-field # 5	NF-5	28-Jun-16	Mean	91.1	111	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.67	0.014	0.67	0.68
			SD	0.57	1.0	-	-	-	-	-	-	0.064	-	0.063	0.064
			PRSD	1	1	-	-	-	-	-	-	-	-	-	-
Stephens Lake – Near-field # 5	NF-5A	29-Jul-16	10:35	102	124	<0.60	<0.34	0.013	0.0231	0.0220	0.0011	0.51	0.036	0.50	0.53
Stephens Lake – Near-field # 5	NF-5B	29-Jul-16	10:40	105	128	<0.60	<0.34	0.011	0.0213	0.0213	<0.0010	0.44	0.032	0.43	0.46
Stephens Lake – Near-field # 5	NF-5C	29-Jul-16	10:50	104	127	<0.60	<0.34	0.011	0.0212	0.0212	<0.0010	0.48	0.032	0.47	0.50
Stephens Lake – Near-field # 5	NF-5	29-Jul-16	Mean	104	126	<0.60	<0.34	0.012	0.0219	0.0215	<0.0010	0.48	0.034	0.47	0.50
			SD	1.5	2.1	-	-	0.0012	0.00107	0.00044	-	0.035	0.0022	0.034	0.036
			PRSD	1	2	-	-	-	-	-	-	-	-	-	7
Nelson River Upstream # 3	US-3A	29-Aug-16	12:57	112	137	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.46	<0.010	0.46	0.46
Nelson River Upstream # 3	US-3B	29-Aug-16	13:00	113	138	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.47	<0.010	0.47	0.47
Nelson River Upstream # 3	US-3C	29-Aug-16	13:10	112	137	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.50	<0.010	0.50	0.50
Nelson River Upstream # 3	US-3	29-Aug-16	Mean	112	137	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.48	<0.010	0.47	0.48
			SD	0.6	0.6	-	-	-	-	-	-	0.021	-	0.021	0.021
			PRSD	1	0	-	-	-	-	-	-	-	-	-	4
Stephens Lake – Near-field # 4	NF-4A	23-Sep-16	12:50	112	136	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.39	<0.010	0.39	0.39
Stephens Lake – Near-field # 4	NF-4B	23-Sep-16	13:10	111	136	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.43	<0.010	0.43	0.43
Stephens Lake – Near-field # 4	NF-4C	23-Sep-16	13:30	113	137	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.41	<0.010	0.41	0.41
Stephens Lake – Near-field # 4	NF-4	23-Sep-16	Mean	112	136	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.41	<0.010	0.41	0.41
			SD	1.0	0.6	-	-	-	-	-	-	0.020	-	0.020	0.020
			PRSD	1	0	-	-	-	-	-	-	-	-	-	5
Field Blank															
Field Blank	TF-2	5-Apr-16	11:45	1.0	1.2	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	<0.20	-	-	-
Field Blank	TF-2	28-Jun-16	9:50	<1.0	1.2	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	0.35	-	-	-
Field Blank	TF-2	28-Jul-16	17:22	<1.0	1.2	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	<0.20	-	-	-
Field Blank	TF-2	29-Aug-16	14:00	<1.0	1.2	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	<0.20	-	-	-
Field Blank	TF-2	22-Sep-16	15:30	<1.0	1.2	<0.60	<0.34	<0.010	<0.015	<0.0150	<0.0010	<0.20	-	-	-
Trip Blank															
Trip Blank	TF-1	5-Apr-16	11:40	1.8	1.2	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	<0.20	-	-	-
Trip Blank	TF-1	28-Jun-16	9:45	<1.0	1.2	<0.60	<0.34	<0.010	<0.0051	<0.0050	<0.0010	<0.20	-	-	-
Trip Blank	TF-1	28-Jul-16	17:20	<1.0	1.2	<0.60	<0.34	0.021	<0.0051	<0.0050	<0.0010	<0.20	-	-	-
Trip Blank	TF-1	29-Aug-16	13:50	<1.0	1.2	<0.60	<0.34	0.056	<0.0051	<0.0050	<0.0010	<0.20	-	-	-
Trip Blank	TF-1	22-Sep-16	15:15	1.5	1.2	<0.60	<0.34	<0.010	<0.015	<0.0150	<0.0010	<0.20	-	-	-

Table A2-1: Quality assurance/quality control results for routine water chemistry variables measured in the laboratory during the ice-cover and open-water seasons, 2016. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (continued).

				Phosphorus			N:P Molar Ratios			Carbon		C:N Molar Ratios		Water Clarity		
Sample Location	Sample ID	Sample Date	Sample Time	Dissolved P (mg/L)	Total Particulate P (mg/L)	Total P (mg/L)	TN:TP (mg/L)	DIN:DP (mg/L)	DIN:TP (mg/L)	Total Organic C (mg/L)	Dissolved Organic C (mg/L)	TOC:ON	TOC:TN	Total Suspended Solids (mg/L)	Turbidity (NTU)	True Colour (CU)
Detection Limit				0.0010	0.010/0.0028	0.0010/0.010				0.50	0.50			2.0	0.10	5.0
Stephens Lake - Near-field # 5	NF-5A	5-Apr-16	10:25	0.025	-	0.027	57	11	11	8.61	8.45	18	14	4.4	11.4	16.3
Stephens Lake - Near-field # 5	NF-5B	5-Apr-16	10:30	0.025	-	0.025	59	12	12	8.54	8.28	19	15	3.8	11.1	15.4
Stephens Lake - Near-field # 5	NF-5C	5-Apr-16	10:35	0.025	-	0.025	60	12	12	8.39	8.59	18	14	3.8	11.0	15.3
Stephens Lake - Near-field # 5	NF-5	5-Apr-16	Mean	0.025	-	0.026	59	12	11	8.51	8.44	18	15	4.0	11.2	15.7
			SD	0.0000	-	0.0012	1.5	0.1	0.6	0.112	0.155	0.4	0.3	0.35	0.21	0.55
			PRSD	-	-	-				1	2			-	2	-
Stephens Lake - Near-field # 5	NF-5A	28-Jun-16	10:36	0.0153	0.029	0.045	36	1	0	8.36	8.50	14	13	16.6	25.6	18.1
Stephens Lake - Near-field # 5	NF-5B	28-Jun-16	10:40	0.0153	0.032	0.048	32	2	1	8.01	8.14	14	13	19.2	26.8	17.6
Stephens Lake - Near-field # 5	NF-5C	28-Jun-16	10:45	0.0141	0.032	0.047	28	1	0	8.42	8.38	17	16	14.4	27.1	17.1
Stephens Lake - Near-field # 5	NF-5	28-Jun-16	Mean	0.0149	0.031	0.047	32	1	0	8.26	8.34	15	14	16.7	26.5	17.6
			SD	0.00069	0.0017	0.0015	3.6	0.7	0.2	0.221	0.183	1.7	1.7	2.40	0.79	0.50
			PRSD	5	-	-				3	2			14	3	-
Stephens Lake - Near-field # 5	NF-5A	29-Jul-16	10:35	0.0191	-	0.055	21	4	1	8.56	9.20	20	19	14.6	29.2	15.6
Stephens Lake - Near-field # 5	NF-5B	29-Jul-16	10:40	0.0203	-	0.051	20	4	1	8.49	9.26	23	21	15.6	27.6	15.5
Stephens Lake - Near-field # 5	NF-5C	29-Jul-16	10:50	0.0160	-	0.050	22	4	1	8.63	8.56	21	20	14.6	26.9	15.1
Stephens Lake - Near-field # 5	NF-5	29-Jul-16	Mean	0.0185	-	0.052	21	4	1	8.56	9.01	22	20	14.9	27.9	15.4
			SD	0.00222	-	0.0026	1.1	0.5	0.0	0.070	0.388	1.5	1.4	0.58	1.18	0.26
			PRSD	12	-	5				1	4			4	4	-
Nelson River Upstream # 3	US-3A	29-Aug-16	12:57	0.0130	0.034	0.047	22	1	0	7.89	8.46	20	20	12.4	22.6	15.0
Nelson River Upstream # 3	US-3B	29-Aug-16	13:00	0.0120	0.025	0.037	28	1	0	8.17	8.61	20	20	13.4	18.9	15.3
Nelson River Upstream # 3	US-3C	29-Aug-16	13:10	0.0117	0.033	0.044	25	1	0	8.03	8.68	19	19	15.0	16.2	16.0
Nelson River Upstream # 3	US-3	29-Aug-16	Mean	0.0122	0.034	0.043	25	1	0	8.03	8.58	20	20	13.6	19.2	15.4
			SD	0.00068	0.0049	0.0051	3.2	0.0	0.0	0.140	0.112	0.8	0.8	1.31	3.21	0.51
			PRSD	6	-	-				2	1			10	17	-
Stephens Lake - Near-field # 4	NF-4A	23-Sep-16	12:50	0.0162	0.024	0.040	22	1	0	6.53	6.91	20	19	9.4	20.2	13.4
Stephens Lake - Near-field # 4	NF-4B	23-Sep-16	13:10	0.0144	0.028	0.043	22	1	0	6.56	6.90	18	18	11.4	18.4	15.3
Stephens Lake - Near-field # 4	NF-4C	23-Sep-16	13:30	0.0147	0.020	0.034	27	1	0	7.34	7.43	21	21	10.0	20.4	12.9
Stephens Lake - Near-field # 4	NF-4	23-Sep-16	Mean	0.0151	0.024	0.039	24	1	0	6.81	7.08	20	19	10.3	19.7	13.9
			SD	0.00096	0.0040	0.0046	2.8	0.0	0.0	0.459	0.303	1.6	1.5	1.03	1.10	1.27
			PRSD	6	-	-				7	4			-	6	-
Field Blank																
Field Blank	TF-2	5-Apr-16	11:45	<0.0010	0.0028	0.0018	-	-	-	<0.50	<0.50	-	-	<2.0	<0.10	<5.0
Field Blank	TF-2	28-Jun-16	9:50	<0.0010	0.0028	<0.0010	-	-	-	<0.50	<0.50	-	-	<2.0	<0.10	<5.0
Field Blank	TF-2	28-Jul-16	17:22	<0.0010	-	<0.0010	-	-	-	<0.50	<0.50	-	-	<2.0	<0.10	<5.0
Field Blank	TF-2	29-Aug-16	14:00	<0.0010	0.0028	<0.0010	-	-	-	<0.50	<0.50	-	-	<2.0	<0.10	<5.0
Field Blank	TF-2	22-Sep-16	15:30	0.0012	0.0028	0.0041	-	-	-	<0.50	<0.50	-	-	<2.0	<0.10	<5.0
Trip Blank																
Trip Blank	TF-1	5-Apr-16	11:40	0.0022	0.0028	0.0018	-	-	-	<0.50	<0.50	-	-	<2.0	<0.10	<5.0
Trip Blank	TF-1	28-Jun-16	9:45	<0.0010	0.0028	<0.0010	-	-	-	<0.50	<0.50	-	-	<2.0	0.13	<5.0
Trip Blank	TF-1	28-Jul-16	17:20	0.0012	-	<0.0010	-	-	-	<0.50	<0.50	-	-	<2.0	<0.10	<5.0
Trip Blank	TF-1	29-Aug-16	13:50	0.0011	0.0028	0.0022	-	-	-	<0.50	<0.50	-	-	<2.0	<0.10	<5.0
Trip Blank	TF-1	22-Sep-16	15:15	<0.0010	0.0028	0.0052	-	-	-	<0.50	<0.50	-	-	<2.0	<0.10	<5.0

Table A2-1: Quality assurance/quality control results for routine water chemistry variables measured in the laboratory during the ice-cover and open-water seasons, 2016. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (continued).

							Productivity	
Sample Location	Sample ID	Sample Date	Sample Time	Lab pH	Laboratory Conductivity (µmhos/cm)	Total Dissolved Solids (mg/L)	Chlorophyll *a* (µg/L)	Phaeophytin *a* (µg/L)
Detection Limit				0.10	1.0	4.0/20	0.10	0.10
Stephens Lake - Near-field # 5	NF-5A	5-Apr-16	10:25	8.05	333	208	5.12	1.43
Stephens Lake - Near-field # 5	NF-5B	5-Apr-16	10:30	7.95	334	202	5.07	1.48
Stephens Lake - Near-field # 5	NF-5C	5-Apr-16	10:35	8.03	334	204	5.40	1.46
Stephens Lake - Near-field # 5	NF-5	5-Apr-16	Mean	8.01	334	205	5.20	1.46
			SD	0.053	0.6	3.1	0.178	0.025
			PRSD	1	0	1	3	2
Stephens Lake - Near-field # 5	NF-5A	28-Jun-16	10:36	8.16	302	209	10.6	2.40
Stephens Lake - Near-field # 5	NF-5B	28-Jun-16	10:40	8.13	296	218	9.83	2.30
Stephens Lake - Near-field # 5	NF-5C	28-Jun-16	10:45	8.16	297	213	8.95	1.91
Stephens Lake - Near-field # 5	NF-5	28-Jun-16	Mean	8.15	298	213	9.79	2.20
			SD	0.017	3.2	4.5	0.826	0.259
			PRSD	0	1	2	8	12
Stephens Lake - Near-field # 5	NF-5A	29-Jul-16	10:35	8.21	312	213	7.10	2.79
Stephens Lake - Near-field # 5	NF-5B	29-Jul-16	10:40	8.22	312	201	6.32	2.31
Stephens Lake - Near-field # 5	NF-5C	29-Jul-16	10:50	8.23	311	196	6.91	2.38
Stephens Lake - Near-field # 5	NF-5	29-Jul-16	Mean	8.22	312	203	6.78	2.49
			SD	0.010	0.6	8.7	0.407	0.259
			PRSD	0	0	4	6	10
Nelson River Upstream # 3	US-3A	29-Aug-16	12:57	8.29	316	210	7.33	2.21
Nelson River Upstream # 3	US-3B	29-Aug-16	13:00	8.28	317	204	6.95	2.43
Nelson River Upstream # 3	US-3C	29-Aug-16	13:10	8.30	317	204	9.37	3.00
Nelson River Upstream # 3	US-3	29-Aug-16	Mean	8.29	317	206	7.88	2.55
			SD	0.010	0.6	3.5	1.301	0.408
			PRSD	0	0	2	17	16
Stephens Lake - Near-field # 4	NF-4A	23-Sep-16	12:50	8.26	308	221	6.12	1.80
Stephens Lake - Near-field # 4	NF-4B	23-Sep-16	13:10	8.28	311	214	8.30	1.87
Stephens Lake - Near-field # 4	NF-4C	23-Sep-16	13:30	8.27	308	215	5.03	1.37
Stephens Lake - Near-field # 4	NF-4	23-Sep-16	Mean	8.27	309	217	6.48	1.68
			SD	0.010	1.7	3.8	1.665	0.271
			PRSD	0	1	2	26	16
Field Blank								
Field Blank	TF-2	5-Apr-16	11:45	5.74	<1.0	<4.0	<0.10	<0.10
Field Blank	TF-2	28-Jun-16	9:50	5.78	<1.0	<4.0	<0.10	<0.10
Field Blank	TF-2	28-Jul-16	17:22	5.72	<1.0	<4.0	6.76	2.78
Field Blank	TF-2	29-Aug-16	14:00	6.14	1.0	<4.0	<0.10	<0.10
Field Blank	TF-2	22-Sep-16	15:30	6.11	<1.0	5.4	0.28	<0.10
Trip Blank								
Trip Blank	TF-1	5-Apr-16	11:40	5.81	<1.0	<4.0	<0.10	<0.10
Trip Blank	TF-1	28-Jun-16	9:45	5.82	<1.0	<4.0	<0.10	<0.10
Trip Blank	TF-1	28-Jul-16	17:20	5.45	<1.0	4.2	5.93	2.66
Trip Blank	TF-1	29-Aug-16	13:50	5.95	1.2	<4.0	<0.10	<0.10
Trip Blank	TF-1	22-Sep-16	15:15	6.47	<1.0	7.7	<0.10	<0.10

Table A2-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during the ice-cover and open-water seasons, 2016. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit.

Sample Location	Sample ID	Sample Date	Sample Time	Hardness (as CaCO3) (mg/L)	Aluminum (mg/L)	Antimony (mg/L)	Arsenic (mg/L)	Barium (mg/L)	Beryllium (mg/L)	Bismuth (mg/L)	Boron (mg/L)	Cadmium (mg/L)	Calcium (mg/L)	Cesium (mg/L)	Chloride (mg/L)	Chromium (mg/L)
Detection Limit				0.25/0.30	0.0050	0.00020	0.00020	0.00020	0.00020	0.00020	0.010	0.000010	0.10	0.00010	0.10	0.0010
Stephens Lake - Near-field # 5	NF-5A	5-Apr-16	10:25	131	0.374	<0.00020	0.00126	0.0373	<0.00020	<0.00020	0.025	<0.000010	30.6	<0.00010	18.9	<0.0010
Stephens Lake - Near-field # 5	NF-5B	5-Apr-16	10:30	128	0.474	<0.00020	0.00124	0.0373	<0.00020	<0.00020	0.024	<0.000010	30.2	<0.00010	19.0	<0.0010
Stephens Lake - Near-field # 5	NF-5C	5-Apr-16	10:35	128	0.279	<0.00020	0.00118	0.0367	<0.00020	<0.00020	0.024	<0.000010	29.5	<0.00010	19.0	<0.0010
Stephens Lake - Near-field # 5	NF-5	5-Apr-16	Mean	129	0.376	<0.00020	0.00123	0.0371	<0.00020	<0.00020	0.024	<0.000010	30.1	<0.00010	19.0	<0.0010
			SD	1.7	0.0975	-	0.000042	0.00035	-	-	0.0006	-	0.56	-	0.06	-
			PRSD	1	26	-	3	1	-	-	-	-	2	-	0	-
Stephens Lake - Near-field # 5	NF-5A	28-Jun-16	10:36	136	1.00	0.00028	0.00111	0.0392	<0.00020	<0.00020	0.029	<0.000010	33.6	0.00011	16.6	0.0016
Stephens Lake - Near-field # 5	NF-5B	28-Jun-16	10:40	131	1.07	<0.00020	0.00117	0.0396	<0.00020	<0.00020	0.027	<0.000010	31.7	0.00012	16.6	0.0017
Stephens Lake - Near-field # 5	NF-5C	28-Jun-16	10:45	131	0.620	0.00024	0.00111	0.0358	<0.00020	<0.00020	0.027	<0.000010	31.7	<0.00010	16.6	0.0011
Stephens Lake - Near-field # 5	NF-5	28-Jun-16	Mean	133	0.90	0.00021	0.00113	0.0382	<0.00020	<0.00020	0.028	<0.000010	32.3	<0.00010	16.6	0.0015
			SD	2.9	0.242	0.000095	0.000035	0.00209	-	-	0.0012	-	1.10	0.000038	0.00	0.00032
			PRSD	2	27	-	3	5	-	-	-	-	3	-	0	-
Stephens Lake - Near-field # 5	NF-5A	29-Jul-16	10:35	133	1.11	<0.00020	0.00137	0.0399	<0.00020	<0.00020	0.029	<0.000010	32.2	0.00014	17.7	0.0017
Stephens Lake - Near-field # 5	NF-5B	29-Jul-16	10:40	124	1.08	<0.00020	0.00136	0.0383	<0.00020	<0.00020	0.029	<0.000010	29.6	0.00013	17.7	0.0018
Stephens Lake - Near-field # 5	NF-5C	29-Jul-16	10:50	129	0.968	0.00021	0.00136	0.0382	<0.00020	<0.00020	0.029	<0.000010	31.3	0.00011	17.7	0.0015
Stephens Lake - Near-field # 5	NF-5	29-Jul-16	Mean	129	1.05	<0.00020	0.00136	0.0388	<0.00020	<0.00020	0.029	<0.000010	31.0	0.00013	17.7	0.0017
			SD	4.5	0.075	-	0.000006	0.00095	-	-	0.0000	-	1.32	0.000015	0.00	0.00015
			PRSD	4	7	-	0	2	-	-	-	-	4	-	0	-
Nelson River Upstream # 3	US-3A	29-Aug-16	12:57	139	0.900	<0.00020	0.00143	0.0416	<0.00020	<0.00020	0.029	<0.000010	32.9	0.00010	16.8	0.0015
Nelson River Upstream # 3	US-3B	29-Aug-16	13:00	138	0.935	0.00041	0.00143	0.0429	<0.00020	<0.00020	0.029	<0.000010	32.9	0.00011	16.7	0.0015
Nelson River Upstream # 3	US-3C	29-Aug-16	13:10	138	0.941	0.00021	0.00141	0.0426	<0.00020	<0.00020	0.028	<0.000010	32.6	0.00010	16.7	0.0015
Nelson River Upstream # 3	US-3	29-Aug-16	Mean	138	0.925	0.00024	0.00142	0.0424	<0.00020	<0.00020	0.029	<0.000010	32.8	0.00010	16.7	0.0015
			SD	0.6	0.0221	0.000157	0.000012	0.00068	-	-	0.0006	-	0.17	0.000006	0.06	0.00000
			PRSD	0	2	-	1	2	-	-	-	-	1	-	0	-
Stephens Lake - Near-field # 4	NF-4A	23-Sep-16	12:50	129	0.985	<0.00020	0.00129	0.0409	<0.00020	<0.00020	0.026	<0.000010	30.3	<0.00010	17.0	0.0014
Stephens Lake - Near-field # 4	NF-4B	23-Sep-16	13:10	134	0.780	<0.00020	0.00138	0.0408	<0.00020	<0.00020	0.026	<0.000010	32.1	<0.00010	16.4	0.0013
Stephens Lake - Near-field # 4	NF-4C	23-Sep-16	13:30	132	0.810	<0.00020	0.00137	0.0411	<0.00020	<0.00020	0.025	<0.000010	31.9	<0.00010	16.3	0.0013
Stephens Lake - Near-field # 4	NF-4	23-Sep-16	Mean	132	0.858	<0.00020	0.00135	0.0409	<0.00020	<0.00020	0.026	<0.000010	31.4	<0.00010	16.6	0.0013
			SD	2.5	0.1107	-	0.000049	0.00015	-	-	0.0006	-	0.99	-	0.38	0.00006
			PRSD	2	13	-	4	0	-	-	-	-	3	-	2	-
Field Blank																
Field Blank	TF-2	5-Apr-16	11:45	<0.30	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.010	<0.000010	<0.10	<0.00010	<0.10	<0.0010
Field Blank	TF-2	28-Jun-16	9:50	<0.30	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.010	<0.000010	<0.10	<0.00010	<0.10	<0.0010
Field Blank	TF-2	28-Jul-16	17:22	<0.30	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.010	<0.000010	<0.10	<0.00010	<0.10	<0.0010
Field Blank	TF-2	29-Aug-16	14:00	<0.30	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.010	<0.000010	<0.10	<0.00010	<0.10	<0.0010
Field Blank	TF-2	22-Sep-16	15:30	<0.25	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.010	<0.000010	<0.10	<0.00010	<0.10	<0.0010
Trip Blank																
Trip Blank	TF-1	5-Apr-16	11:40	<0.30	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.010	<0.000010	<0.10	<0.00010	<0.10	<0.0010
Trip Blank	TF-1	28-Jun-16	9:45	<0.30	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.010	<0.000010	<0.10	<0.00010	<0.10	<0.0010
Trip Blank	TF-1	28-Jul-16	17:20	<0.30	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.010	<0.000010	<0.10	<0.00010	<0.10	<0.0010
Trip Blank	TF-1	29-Aug-16	13:50	<0.30	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.010	<0.000010	<0.10	<0.00010	<0.10	<0.0010
Trip Blank	TF-1	22-Sep-16	15:15	<0.25	<0.0050	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.010	<0.000010	<0.10	<0.00010	<0.10	<0.0010

Table A2-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during the ice-cover and open-water seasons, 2016. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (continued).

Sample Location	Sample ID	Sample Date	Sample Time	Cobalt (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Lithium (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Phosphorus (mg/L)	Potassium (mg/L)	Rubidium (mg/L)
Detection Limit				0.00020	0.00020	0.010	0.000090	0.0020	0.010	0.00030	0.00000050	0.00020	0.0020	0.10	0.020	0.00020
Stephens Lake - Near-field # 5	NF-5A	5-Apr-16	10:25	<0.00020	0.00163	0.349	0.000266	0.0116	13.3	0.0101	0.00000127	0.00074	<0.0020	<0.10	2.98	0.00215
Stephens Lake - Near-field # 5	NF-5B	5-Apr-16	10:30	0.00020	0.00175	0.418	0.000191	0.0114	12.8	0.0105	0.00000127	0.00073	<0.0020	<0.10	3.01	0.00253
Stephens Lake - Near-field # 5	NF-5C	5-Apr-16	10:35	<0.00020	0.00166	0.282	0.000176	0.0111	13.1	0.00955	0.00000110	0.00069	<0.0020	<0.10	2.92	0.00200
Stephens Lake - Near-field # 5	NF-5	5-Apr-16	Mean	<0.00020	0.00168	0.350	0.000211	0.0114	13.1	0.0101	0.00000121	0.00072	<0.0020	<0.10	2.97	0.00223
			SD	-	0.000062	0.0680	0.0000482	0.00025	0.25	0.00048	0.000000098	0.000026	-	-	0.046	0.000273
			PRSD	-	4	19	-	2	2	5	-	-	-	-	2	12
Stephens Lake - Near-field # 5	NF-5A	28-Jun-16	10:36	0.00042	0.00202	0.880	0.000427	0.0126	12.6	0.0214	0.00000150	0.00066	<0.0020	<0.10	2.89	0.00340
Stephens Lake - Near-field # 5	NF-5B	28-Jun-16	10:40	0.00042	0.00205	0.917	0.000424	0.0115	12.6	0.0218	0.00000140	0.00067	<0.0020	<0.10	2.94	0.00356
Stephens Lake - Near-field # 5	NF-5C	28-Jun-16	10:45	0.00036	0.00195	0.604	0.000354	0.0110	12.7	0.0197	0.00000130	0.00059	<0.0020	<0.10	2.82	0.00265
Stephens Lake - Near-field # 5	NF-5	28-Jun-16	Mean	0.00040	0.00201	0.800	0.000402	0.0117	12.6	0.0210	0.00000140	0.00064	<0.0020	<0.10	2.88	0.00320
			SD	0.000035	0.000051	0.1710	0.0000413	0.00082	0.06	0.00112	0.000000100	0.000044	-	-	0.060	0.000486
			PRSD	-	3	21	-	7	0	5	-	-	-	-	2	15
Stephens Lake - Near-field # 5	NF-5A	29-Jul-16	10:35	0.00048	0.00216	0.961	0.000463	0.0126	12.7	0.0232	0.00000150	0.00072	0.0021	<0.10	3.05	0.00365
Stephens Lake - Near-field # 5	NF-5B	29-Jul-16	10:40	0.00045	0.00219	0.932	0.000453	0.0125	12.0	0.0229	0.00000120	0.00078	0.0021	<0.10	3.01	0.00366
Stephens Lake - Near-field # 5	NF-5C	29-Jul-16	10:50	0.00045	0.00210	0.859	0.000452	0.0126	12.3	0.0226	0.00000110	0.00069	0.0020	<0.10	2.96	0.00349
Stephens Lake - Near-field # 5	NF-5	29-Jul-16	Mean	0.00046	0.00215	0.917	0.000456	0.0126	12.3	0.0229	0.00000127	0.00073	0.0021	<0.10	3.01	0.00360
			SD	0.000017	0.000046	0.0526	0.0000061	0.00006	0.35	0.00030	0.000000208	0.000046	0.00006	-	0.045	0.000095
			PRSD	-	2	6	1	0	3	1	-	-	-	-	1	3
Nelson River Upstream # 3	US-3A	29-Aug-16	12:57	0.00040	0.00194	0.815	0.000407	0.0120	13.8	0.0220	0.00000080	0.00069	<0.0020	<0.10	3.02	0.00314
Nelson River Upstream # 3	US-3B	29-Aug-16	13:00	0.00039	0.00198	0.827	0.000392	0.0121	13.6	0.0209	0.00000080	0.00071	<0.0020	<0.10	3.04	0.00323
Nelson River Upstream # 3	US-3C	29-Aug-16	13:10	0.00039	0.00193	0.808	0.000390	0.0116	13.7	0.0211	0.00000090	0.00071	<0.0020	<0.10	3.04	0.00311
Nelson River Upstream # 3	US-3	29-Aug-16	Mean	0.00039	0.00195	0.817	0.000396	0.0119	13.7	0.0213	0.00000083	0.00070	<0.0020	<0.10	3.03	0.00316
			SD	0.000006	0.000026	0.0096	0.0000093	0.00026	0.10	0.00059	0.000000058	0.000012	-	-	0.012	0.000062
			PRSD	-	1	1	-	2	1	3	-	-	-	-	0	2
Stephens Lake - Near-field # 4	NF-4A	23-Sep-16	12:50	0.00039	0.00180	0.796	0.000348	0.0111	12.9	0.0203	0.00000080	0.00068	<0.0020	<0.10	2.93	0.00328
Stephens Lake - Near-field # 4	NF-4B	23-Sep-16	13:10	0.00034	0.00187	0.692	0.000351	0.0107	13.0	0.0191	0.00000080	0.00069	<0.0020	<0.10	2.89	0.00288
Stephens Lake - Near-field # 4	NF-4C	23-Sep-16	13:30	0.00037	0.00185	0.718	0.000347	0.0105	12.8	0.0196	0.00000080	0.00066	<0.0020	<0.10	2.89	0.00298
Stephens Lake - Near-field # 4	NF-4	23-Sep-16	Mean	0.00037	0.00184	0.735	0.000349	0.0108	12.9	0.0197	0.00000080	0.00068	<0.0020	<0.10	2.90	0.00305
			SD	0.000025	0.000036	0.0541	0.0000021	0.00031	0.10	0.00060	0.000000000	0.000015	-	-	0.023	0.000208
			PRSD	-	2	7	-	3	1	3	-	-	-	-	1	7
Field Blank																
Field Blank	TF-2	5-Apr-16	11:45	<0.00020	<0.00020	<0.010	<0.000090	<0.0020	<0.010	<0.00030	<0.00000050	<0.00020	<0.0020	<0.10	<0.020	<0.00020
Field Blank	TF-2	28-Jun-16	9:50	<0.00020	<0.00020	<0.010	<0.000090	<0.0020	<0.010	<0.00030	<0.00000050	<0.00020	<0.0020	<0.10	<0.020	<0.00020
Field Blank	TF-2	28-Jul-16	17:22	<0.00020	<0.00020	<0.010	<0.000090	<0.0020	<0.010	<0.00030	<0.00000050	<0.00020	<0.0020	<0.10	<0.020	<0.00020
Field Blank	TF-2	29-Aug-16	14:00	<0.00020	<0.00020	<0.010	<0.000090	<0.0020	<0.010	<0.00030	<0.00000050	<0.00020	<0.0020	<0.10	<0.020	<0.00020
Field Blank	TF-2	22-Sep-16	15:30	<0.00020	<0.00020	<0.010	<0.000090	<0.0020	<0.010	<0.00030	<0.00000050	<0.00020	<0.0020	<0.10	<0.020	<0.00020
Trip Blank																
Trip Blank	TF-1	5-Apr-16	11:40	<0.00020	<0.00020	<0.010	<0.000090	<0.0020	<0.010	<0.00030	<0.00000050	<0.00020	<0.0020	<0.10	<0.020	<0.00020
Trip Blank	TF-1	28-Jun-16	9:45	<0.00020	<0.00020	<0.010	<0.000090	<0.0020	<0.010	<0.00030	0.00000060	<0.00020	<0.0020	<0.10	<0.020	<0.00020
Trip Blank	TF-1	28-Jul-16	17:20	<0.00020	<0.00020	<0.010	<0.000090	<0.0020	<0.010	<0.00030	<0.00000050	<0.00020	<0.0020	<0.10	<0.020	<0.00020
Trip Blank	TF-1	29-Aug-16	13:50	<0.00020	<0.00020	<0.010	<0.000090	<0.0020	<0.010	<0.00030	<0.00000050	<0.00020	<0.0020	<0.10	<0.020	<0.00020
Trip Blank	TF-1	22-Sep-16	15:15	<0.00020	<0.00020	<0.010	<0.000090	<0.0020	<0.010	<0.00030	<0.00000050	<0.00020	<0.0020	<0.10	<0.020	<0.00020

Table A2-2: Quality assurance/quality control results for metals and major ions measured in the laboratory during the ice-cover and open-water seasons, 2016. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit (continued).

Sample Location	Sample ID	Sample Date	Sample Time	Selenium (mg/L)	Silicon (mg/L)	Silver (mg/L)	Sodium (mg/L)	Strontium (mg/L)	Sulfate (mg/L)	Tellurium (mg/L)	Thallium (mg/L)	Thorium (mg/L)	Tin (mg/L)	Titanium (mg/L)	Tungsten (mg/L)	Uranium (mg/L)	Vanadium (mg/L)	Zinc (mg/L)	Zirconium (mg/L)
Detection Limit				0.0010	0.10	0.00010	0.030	0.00010	0.30	0.00020	0.00010	0.00010	0.00020	0.00050	0.00010	0.00010	0.00020	0.0020	0.00040
Stephens Lake - Near-field # 5	NF-5A	5-Apr-16	10:25	<0.0010	2.85	<0.00010	18.1	0.124	36.9	<0.00020	<0.00010	0.00013	<0.00020	0.0141	<0.00010	0.00075	0.00137	<0.0020	0.00045
Stephens Lake - Near-field # 5	NF-5B	5-Apr-16	10:30	<0.0010	3.07	<0.00010	18.1	0.122	37.1	<0.00020	<0.00010	0.00015	<0.00020	0.0176	<0.00010	0.00073	0.00152	<0.0020	0.00050
Stephens Lake - Near-field # 5	NF-5C	5-Apr-16	10:35	<0.0010	2.59	<0.00010	17.9	0.117	37.0	<0.00020	<0.00010	0.00010	0.00020	0.0116	<0.00010	0.00072	0.00131	0.0021	0.00041
Stephens Lake - Near-field # 5	NF-5	5-Apr-16	Mean	<0.0010	2.84	<0.00010	18.0	0.121	37.0	<0.00020	<0.00010	0.00013	<0.00020	0.0144	<0.00010	0.00073	0.00140	<0.0020	0.00045
			SD	-	0.240	-	0.12	0.0036	0.10	-	-	0.000025	-	0.00301	-	0.000015	0.000108	-	0.000045
			PRSD	-	8	-	1	3	0	-	-	-	-	21	-	2	8	-	-
Stephens Lake - Near-field # 5	NF-5A	28-Jun-16	10:36	<0.0010	3.43	<0.00010	16.4	0.124	32.6	<0.00020	<0.00010	0.00036	<0.00020	0.0395	<0.00010	0.00072	0.00234	0.0037	0.00088
Stephens Lake - Near-field # 5	NF-5B	28-Jun-16	10:40	<0.0010	3.68	<0.00010	16.4	0.117	32.6	<0.00020	<0.00010	0.00038	<0.00020	0.0429	<0.00010	0.00073	0.00245	0.0039	0.00089
Stephens Lake - Near-field # 5	NF-5C	28-Jun-16	10:45	<0.0010	2.48	<0.00010	16.5	0.110	32.6	<0.00020	<0.00010	0.00023	<0.00020	0.0244	<0.00010	0.00072	0.00190	0.0032	0.00070
Stephens Lake - Near-field # 5	NF-5	28-Jun-16	Mean	<0.0010	3.20	<0.00010	16.4	0.117	32.6	<0.00020	<0.00010	0.00032	<0.00020	0.0356	<0.00010	0.00072	0.00223	0.0036	0.00082
			SD	-	0.633	-	0.06	0.0070	0.00	-	-	0.000081	-	0.00985	-	0.000006	0.000291	0.00036	0.000107
			PRSD	-	20	-	0	6	0	-	-	-	-	28	-	1	13	-	-
Stephens Lake - Near-field # 5	NF-5A	29-Jul-16	10:35	<0.0010	3.81	<0.00010	17.7	0.117	34.3	<0.00020	<0.00010	0.00040	<0.00020	0.0423	<0.00010	0.00077	0.00287	0.0037	0.00100
Stephens Lake - Near-field # 5	NF-5B	29-Jul-16	10:40	<0.0010	3.58	<0.00010	17.1	0.115	34.5	<0.00020	<0.00010	0.00038	<0.00020	0.0410	<0.00010	0.00074	0.00268	0.0032	0.00096
Stephens Lake - Near-field # 5	NF-5C	29-Jul-16	10:50	<0.0010	3.41	<0.00010	18.3	0.114	34.6	<0.00020	<0.00010	0.00035	<0.00020	0.0372	<0.00010	0.00075	0.00264	0.0069	0.00094
Stephens Lake - Near-field # 5	NF-5	29-Jul-16	Mean	<0.0010	3.60	<0.00010	17.7	0.115	34.5	<0.00020	<0.00010	0.00038	<0.00020	0.0402	<0.00010	0.00075	0.00273	0.0046	0.00097
			SD	-	0.201	-	0.60	0.0015	0.15	-	-	0.000025	-	0.00265	-	0.000015	0.000123	0.00201	0.000031
			PRSD	-	6	-	3	1	0	-	-	-	-	7	-	2	5	-	-
Nelson River Upstream # 3	US-3A	29-Aug-16	12:57	<0.0010	3.01	<0.00010	16.8	0.121	33.6	<0.00020	<0.00010	0.00035	<0.00020	0.0368	<0.00010	0.00074	0.00255	0.0032	0.00074
Nelson River Upstream # 3	US-3B	29-Aug-16	13:00	<0.0010	3.08	<0.00010	17.6	0.121	33.5	<0.00020	<0.00010	0.00035	<0.00020	0.0367	<0.00010	0.00073	0.00253	0.0030	0.00081
Nelson River Upstream # 3	US-3C	29-Aug-16	13:10	<0.0010	3.06	<0.00010	17.3	0.121	33.4	<0.00020	<0.00010	0.00034	<0.00020	0.0374	<0.00010	0.00072	0.00243	0.0028	0.00079
Nelson River Upstream # 3	US-3	29-Aug-16	Mean	<0.0010	3.05	<0.00010	17.2	0.121	33.5	<0.00020	<0.00010	0.00035	<0.00020	0.0370	<0.00010	0.00073	0.00250	0.0030	0.00078
			SD	-	0.036	-	0.40	0.0000	0.10	-	-	0.000006	-	0.00038	-	0.000010	0.000064	0.00020	0.000036
			PRSD	-	1	-	2	0	0	-	-	-	-	1	-	1	3	-	-
Stephens Lake - Near-field # 4	NF-4A	23-Sep-16	12:50	<0.0010	3.32	<0.00010	17.0	0.124	33.6	<0.00020	<0.00010	0.00032	<0.00020	0.0369	<0.00010	0.00064	0.00241	0.0031	0.00078
Stephens Lake - Near-field # 4	NF-4B	23-Sep-16	13:10	<0.0010	2.85	<0.00010	18.0	0.124	33.5	<0.00020	<0.00010	0.00028	<0.00020	0.0305	<0.00010	0.00067	0.00217	0.0029	0.00073
Stephens Lake - Near-field # 4	NF-4C	23-Sep-16	13:30	<0.0010	2.91	<0.00010	17.6	0.122	33.4	<0.00020	<0.00010	0.00028	<0.00020	0.0324	<0.00010	0.00065	0.00227	0.0030	0.00076
Stephens Lake - Near-field # 4	NF-4	23-Sep-16	Mean	<0.0010	3.03	<0.00010	17.5	0.123	33.5	<0.00020	<0.00010	0.00029	<0.00020	0.0333	<0.00010	0.00065	0.00228	0.0030	0.00076
			SD	-	0.256	-	0.50	0.0012	0.10	-	-	0.000023	-	0.00329	-	0.000015	0.000121	0.00010	0.000025
			PRSD	-	8	-	3	1	0	-	-	-	-	10	-	2	5	-	-
Field Blank																			
Field Blank	TF-2	5-Apr-16	11:45	<0.0010	<0.10	<0.00010	<0.030	<0.00010	<0.30	<0.00020	<0.00010	<0.00010	<0.00020	<0.00050	<0.00010	<0.00010	<0.00020	<0.0020	<0.00040
Field Blank	TF-2	28-Jun-16	9:50	<0.0010	<0.10	<0.00010	<0.030	<0.00010	<0.30	<0.00020	<0.00010	<0.00010	<0.00020	<0.00050	<0.00010	<0.00010	<0.00020	<0.0020	<0.00040
Field Blank	TF-2	28-Jul-16	17:22	<0.0010	<0.10	<0.00010	<0.030	<0.00010	<0.30	<0.00020	<0.00010	<0.00010	<0.00020	<0.00050	<0.00010	<0.00010	<0.00020	<0.0020	<0.00040
Field Blank	TF-2	29-Aug-16	14:00	<0.0010	<0.10	<0.00010	<0.030	<0.00010	<0.30	<0.00020	<0.00010	<0.00010	<0.00020	<0.00050	<0.00010	<0.00010	<0.00020	<0.0020	<0.00040
Field Blank	TF-2	22-Sep-16	15:30	<0.0010	<0.10	<0.00010	<0.030	<0.00010	<0.30	<0.00020	<0.00010	<0.00010	<0.00020	<0.00050	<0.00010	<0.00010	<0.00020	<0.0020	<0.00040
Trip Blank																			
Trip Blank	TF-1	5-Apr-16	11:40	<0.0010	<0.10	<0.00010	<0.030	<0.00010	<0.30	<0.00020	<0.00010	<0.00010	<0.00020	<0.00050	<0.00010	<0.00010	<0.00020	<0.0020	<0.00040
Trip Blank	TF-1	28-Jun-16	9:45	<0.0010	<0.10	<0.00010	<0.030	<0.00010	<0.30	<0.00020	<0.00010	<0.00010	<0.00020	<0.00050	<0.00010	<0.00010	<0.00020	<0.0020	<0.00040
Trip Blank	TF-1	28-Jul-16	17:20	<0.0010	<0.10	<0.00010	<0.030	<0.00010	<0.30	<0.00020	<0.00010	<0.00010	<0.00020	<0.00050	<0.00010	<0.00010	<0.00020	<0.0020	<0.00040
Trip Blank	TF-1	29-Aug-16	13:50	<0.0010	<0.10	<0.00010	<0.030	<0.00010	<0.30	<0.00020	<0.00010	<0.00010	<0.00020	<0.00050	<0.00010	<0.00010	<0.00020	<0.0020	<0.00040
Trip Blank	TF-1	22-Sep-16	15:15	<0.0010	<0.10	<0.00010	<0.030	<0.00010	<0.30	<0.00020	<0.00010	<0.00010	<0.00020	<0.00050	<0.00010	<0.00010	<0.00020	<0.0020	<0.00040

Table A2-3: Quality assurance/quality control results for hydrocarbons during the ice-cover and open-water seasons, 2016. Percent relative standard deviations (PRSD) were calculated for triplicate samples where all results exceeded five times the detection limit.

Sample Location	Sample ID	Sample Date	Sample Time	Organics											
				Benzene (mg/L)	Ethylbenzene (mg/L)	Toluene (mg/L)	o-Xylene (mg/L)	m+p-Xylenes (mg/L)	Xylenes (Total) (mg/L)	F1 (C6-C10) (mg/L)	F1-BTEX (mg/L)	Total Hydrocarbons (C6-C50) (mg/L)	F2 (C10-C16) (mg/L)	F3 (C16-C34) (mg/L)	F4 (C34-C50) (mg/L)
Detection Limit				0.00050	0.00050	0.0010	0.00050	0.00050	0.0015	0.10	0.10	0.38	0.10	0.25	0.25
Stephens Lake - Near-field # 5	NF-5A	5-Apr-16	10:25	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 5	NF-5B	5-Apr-16	10:30	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 5	NF-5C	5-Apr-16	10:35	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 5	NF-5	5-Apr-16	Mean	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
			SD	-	-	-	-	-	-	-	-	-	-	-	-
			PRSD	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Near-field # 5	NF-5A	28-Jun-16	10:36	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 5	NF-5B	28-Jun-16	10:40	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 5	NF-5C	28-Jun-16	10:45	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	0.28	<0.25
Stephens Lake - Near-field # 5	NF-5	28-Jun-16	Mean	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
			SD	-	-	-	-	-	-	-	-	-	-	-	-
			PRSD	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Near-field # 5	NF-5A	29-Jul-16	10:35	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 5	NF-5B	29-Jul-16	10:40	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 5	NF-5C	29-Jul-16	10:50	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 5	NF-5	29-Jul-16	Mean	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
			SD	-	-	-	-	-	-	-	-	-	-	-	-
			PRSD	-	-	-	-	-	-	-	-	-	-	-	-
Nelson River Upstream # 3	US-3A	29-Aug-16	12:57	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 3	US-3B	29-Aug-16	13:00	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 3	US-3C	29-Aug-16	13:10	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Nelson River Upstream # 3	US-3	29-Aug-16	Mean	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
			SD	-	-	-	-	-	-	-	-	-	-	-	-
			PRSD	-	-	-	-	-	-	-	-	-	-	-	-
Stephens Lake - Near-field # 4	NF-4A	23-Sep-16	12:50	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 4	NF-4B	23-Sep-16	13:10	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 4	NF-4C	23-Sep-16	13:30	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Stephens Lake - Near-field # 4	NF-4	23-Sep-16	Mean	<0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
			SD	-	-	-	-	-	-	-	-	-	-	-	-
			PRSD	-	-	-	-	-	-	-	-	-	-	-	-
Field Blank															
Field Blank	TF-2	5-Apr-16	11:45	0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Field Blank	TF-2	28-Jun-16	9:50	0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Field Blank	TF-2	28-Jul-16	17:22	0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Field Blank	TF-2	29-Aug-16	14:00	0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Field Blank	TF-2	22-Sep-16	15:30	0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Trip Blank															
Trip Blank	TF-1	5-Apr-16	11:40	0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Trip Blank	TF-1	28-Jun-16	9:45	0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Trip Blank	TF-1	28-Jul-16	17:20	0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Trip Blank	TF-1	29-Aug-16	13:50	0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25
Trip Blank	TF-1	22-Sep-16	15:15	0.00050	<0.00050	<0.0010	<0.00050	<0.00050	<0.0015	<0.10	<0.10	<0.38	<0.10	<0.25	<0.25