



## Keeyask Generation Project Aquatic Effects Monitoring Plan

# Fish Use of Existing and Created Spawning Habitat Report

AEMP-2022-09



# **KEEYASK GENERATION PROJECT**

## **AQUATIC EFFECTS MONITORING PLAN**

REPORT #AEMP-2022-09

### **FISH USE OF EXISTING AND CREATED SPAWNING HABITAT: YEAR 1 IMPOUNDMENT**

Prepared for

Manitoba Hydro

By

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# SUMMARY

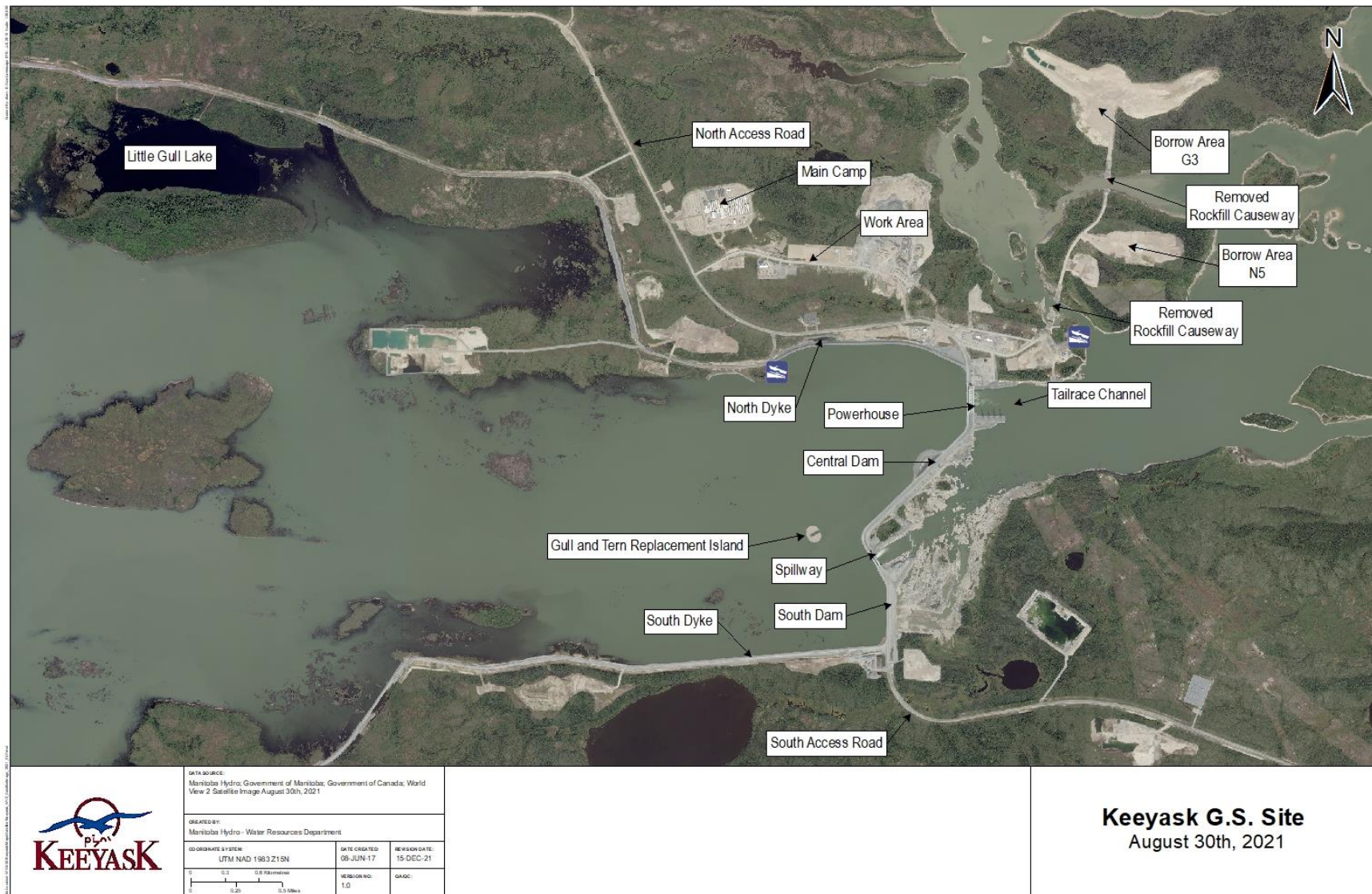
## Background

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 predictions 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 and instream work was completed in 2020. The reservoir was impounded with water levels being raised to full supply level between August 31 and September 5, 2020. Commissioning of the powerhouse turbines was initiated after impoundment and five of seven units were in-service by fall 2021. During commissioning and as units came into service, substantial flows continued through the spillway until the summer of 2021 when more flow was going through the powerhouse than spillway. By mid-September the spillway was closed and barely used in the fall.

The monitoring of spawning habitat remaining after construction of the generating station as well as newly constructed spawning shoals is an important component of the overall plan to monitor the impacts of construction and operation of the Keeyask GS on fish. Fish spawning may be affected by operation of the Keeyask GS due to a loss of natural spawning habitat associated with construction of the generating station and reservoir impoundment.

Several studies were conducted in the Keeyask area before construction of the Keeyask GS started to identify spawning habitat for Lake Whitefish, Northern Pike (jackfish), and Walleye (pickerel). Results of these studies suggested that jackfish spawned in tributary confluences and backbays of the Keeyask area. Walleye spawned in the mainstem of the Nelson River including sites in the vicinity of Birthday Rapids, the inlet to Gull Lake, and on the rocky shorelines of Caribou Island. Pre-spawn Lake Whitefish were captured in the riverine section of the Nelson River between Birthday Rapids and Gull Lake, suggesting that spawning occurred within this area. Gull Rapids (now the site of the Keeyask GS) provided spawning habitat for Walleye and Lake Whitefish in Stephens Lake.



Map illustrating in-stream structures at the Keeyask Generating Station site after reservoir flooding, August 2021.

Impoundment of the Keeyask reservoir in fall 2020 flooded existing pike spawning habitat in the mouths of tributaries and backbay habitat and altered water depth at Birthday Rapids and along the mainstem where Walleye and Lake Whitefish spawned. Construction of the GS also eliminated Gull Rapids and changed flows downstream.

This report presents the results of fish spawning monitoring conducted in the reach of the Nelson River from downstream of Birthday Rapids to the Keeyask GS and in Stephens Lake immediately downstream of the GS during the first year post-impoundment. Sampling was done in the spring and fall of 2021 to determine if and where Lake Whitefish, Northern Pike, and Walleye continue to spawn in the newly formed Keeyask reservoir.

### **Why is the study being done?**

Monitoring the presence of spawning in Lake Whitefish, Northern Pike (jackfish), and Walleye (pickerel) is being done to answer several questions:

*Does suitable spawning habitat exist upstream and downstream of the Keeyask GS for each fish species?*

This question is important because habitat changes associated with construction of the GS and reservoir impoundment will change spawning habitat for fish upstream and downstream of the GS. If no suitable spawning habitat remains, then no new fish will enter the population.

*Will Northern Pike continue to spawn in tributary confluences and backbays of the Keeyask reservoir?*

This question is important because it will indicate whether Northern Pike continue to spawn in these areas. If there is no spawning, we would need to find if they are spawning somewhere else or if additional habitat needs to be created or improved.

*Will Walleye and Lake Whitefish use existing or created spawning habitat in the Keeyask reservoir, immediately downstream of the GS and in Stephens Lake?*

This question is important because it will indicate whether Walleye and Lake Whitefish continue to spawn in these areas. If there is no spawning, we would need to find if they are spawning somewhere else or if additional habitat needs to be created or improved.

### **What was done?**

Sampling was conducted in the Keeyask reservoir (the Nelson River between Clark Lake and the Keeyask GS) and Stephens Lake in both the spring and fall of 2021. Gill nets were set in spring 2021 to capture spawning Northern Pike and Walleye. All gill nets were set for a short amount of time (i.e., 1–3 hours) to minimize mortalities. Floating drift traps and neuston tows were also used in the spring to capture drifting Lake Whitefish larvae following hatch. Both gill nets and boat-based electrofishing were used to capture spawning Lake Whitefish in fall 2021. Sampling sites included all areas identified as spawning habitat before construction of the GS as well as created habitat within the Keeyask reservoir and new areas not previously identified. When a fish was



caught, it was measured, weighed, and examined for sex and maturity (i.e., whether it was a male or female and whether it was ready to spawn) based on the presence of milt or eggs.



**Neuston sampler (left), towed behind boat (right) to capture Lake Whitefish larvae drifting in the water column after hatch.**

### **What was found?**

Larval Lake Whitefish, spawning Walleye, and spawning Northern Pike were captured upstream and downstream of the Keeyask GS in spring 2021. Additional spawning Lake Whitefish were captured downstream of the Keeyask GS in fall 2021. Spawning Northern Pike were captured throughout the Keeyask reservoir in spring 2021 including at tributary confluences, within flooded backbays, and on three constructed spawning shoals. Based on the capture of larval Lake Whitefish and spawning Walleye and Lake Whitefish, it appears that both species continue to use existing spawning habitat both upstream and downstream of the Keeyask GS. No spawning Walleye or larval Lake Whitefish were captured in the vicinity of the constructed reservoir spawning shoals in spring 2021. The Lake Whitefish spawning shoal in Stephens Lake was not yet constructed.



**Lake Whitefish (left), Northern Pike (middle), and Walleye (right) captured during spawning studies.**

**What does it mean?**

The capture of spawning Lake Whitefish, Northern Pike, and Walleye suggests that suitable spawning habitat exists for all three species both upstream and downstream of the GS in the first year following reservoir flooding.

**What will be done next?**

Monitoring in 2021 represents the first year of sampling after impoundment of the Keeyask reservoir (completed on September 5, 2020). Monitoring will continue in the spring and fall of 2022 providing information on spawning of fish species during the first two years after full supply level is attained. Further monitoring will show whether reservoir impoundment has affected where Lake Whitefish, Northern Pike, and Walleye spawn in the Keeyask reservoir and Stephens Lake.



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The collection of biological samples described in this report was authorized by Manitoba Conservation and Water Stewardship, Fisheries Branch, under terms of the Scientific Collection Permit #08-21.

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# 1.0 INTRODUCTION

The Keeyask Generation Project (the Project) is a 695-megawatt (MW) hydroelectric generating station at Gull 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 for the construction and operation phases of the Project.

Monitoring of the fish community during the post-impoundment phase of the Project includes a core monitoring program designed to assess changes in the fish community. These studies focused on fish species that were of particular interest during the environmental assessment (referred to as Valued Ecosystem Components, or VECs). VEC species include Lake Whitefish, Northern Pike, and Walleye. These species were chosen because they are important to local communities for harvest, are sensitive to environmental change, and use a variety of habitats for spawning and foraging that will be substantially altered by the Project.

Several studies were conducted in the Keeyask area between 2001 and 2004 to identify spawning habitat for VEC fish species (Remnant et al. 2004; Johnson and Parks 2005; Bretecher et al. 2007; Johnson 2007). Similar studies were conducted concurrently in the reach of the Nelson River below Birthday Rapids (Pisiak et al. 2004; Pisiak 2005a, b; MacDonald 2007). Results of these studies suggest that Northern Pike spawn in tributary confluences and backbays of the Keeyask area. Walleye, however, were found to spawn in the Nelson River mainstem and spawning sites were identified in the vicinity of Birthday Rapids, the inlet to Gull Lake, and on the rocky shorelines of Caribou Island. Pre-spawn Lake Whitefish in the Keeyask area were captured in the riverine section of the Nelson River between Birthday Rapids and Gull Lake, suggesting that spawning occurred within this reach. Gull Rapids (now the site of the Keeyask GS) was found to provide important spawning habitat for Walleye and Lake Whitefish in Stephens Lake.

In February and March 2018, three hectares of rocky spawning shoals were constructed in the future Keeyask reservoir to provide Lake Whitefish and Walleye spawning habitat immediately after impoundment (Map 3). A tailrace spawning shoal was constructed immediately downstream of the Keeyask GS powerhouse. This shoal is not expected to be used until the powerhouse is

fully commissioned. A Lake Whitefish spawning reef will be constructed along the South shore of Stephens Lake after construction of the GS is complete.

Construction of the Keeyask GS and creation of the Keeyask reservoir has altered existing spawning habitat for each VEC fish species at Birthday Rapids, Gull Rapids (now the Keeyask GS), and throughout the reservoir. It is unclear whether constructed spawning shoals in the reservoir, in Stephens Lake, and in the tailrace of the Keeyask GS will be used by Walleye and Lake Whitefish and if each species will continue to use pre-Project habitat. This report presents results from spawn monitoring conducted in the Keeyask reservoir (previously referred to as Gull Lake) and Stephens Lake in spring, 2021.

Spawn monitoring is being conducted to address the following key questions, as described in the AEMP:

- Does suitable spawning habitat exist upstream and downstream of the Keeyask GS for each VEC fish species in the post-Project environment?
- Will Northern Pike continue to spawn in tributary confluences and back bays of the Keeyask reservoir?
- Will Walleye and Lake Whitefish use existing or created spawning habitat in the Keeyask reservoir, immediately downstream of the GS and in Stephens Lake?

Spawn monitoring data for VEC species will be collected again in 2022.



## 2.0 STUDY SETTING

The study area encompasses an approximately 110 km long reach of the Nelson River from Clark Lake to the upstream end of the Limestone Reservoir (Map 1). This section of river offers a diversity of physical habitat conditions, including a variety of substrate types, and variable water depths (range 0–30 m) and velocities. Clark Lake is located immediately downstream of Split Lake, and approximately 42 km upstream of the Keeyask GS (formerly Gull Rapids). 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. The area between Clark Lake and the Keeyask GS is considered the Keeyask reservoir.

Birthday Rapids is located approximately 10 km downstream of Clark Lake and 30 km upstream of Gull Rapids/the Keeyask GS and marks the upstream end of major water level changes as a result of impoundment by the Keeyask GS. The drop in elevation from the upstream to downstream side of Birthday Rapids was approximately 2 m prior to impoundment but is now a nearly level, albeit fast-flowing section of river. The 14 km reach of the Nelson River between Birthday Rapids and Gull Lake was characterized as a large and somewhat uniform channel with medium to high water velocities and a few large bays. This area is now within the Keeyask reservoir, though flooding was limited to mainly shoreline areas.

Prior to impoundment, Gull Lake was a widening of the Nelson River, with moderate to low water velocity beginning approximately 20 km upstream of Gull Rapids/the Keeyask GS. Water levels on Gull Lake increased by several metres following impoundment and flooding along the shoreline and small tributaries entering this reach was extensive. Although this area is now a portion of the Keeyask reservoir, it is referred to herein as Gull Lake.

Just below the Keeyask GS, the Nelson River enters Stephens Lake. Stephens Lake was formed in 1971 by construction of the Kettle GS. Construction of the Keeyask GS has altered the flow distribution immediately downstream of the station.

Construction of the Kettle GS flooded Moose Nose Lake (north arm) 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 of Stephens Lake include the North and South Moswakot rivers that enter the north arm of the lake. Looking Back Creek is a second order stream that drains into the north arm of Stephens Lake. Kettle GS is located approximately 40 km downstream of the Keeyask GS

## 2.1 FLOWS, WATER LEVELS, AND KEEYASK OPERATIONS

From October 2020 to mid-June 2021 the calculated Split Lake outflow varied about the median flow of about 3,300 m<sup>3</sup>/s, ranging between about 3,000 m<sup>3</sup>/s and 3,900 m<sup>3</sup>/s. From mid-June to

mid-August, the flows steadily decreased from about 3,700 m<sup>3</sup>/s to about 2,000 m<sup>3</sup>/s, which is approximately the 5th percentile low flow. Low flow conditions persisted from summer into winter, with flows dropping to a low of about 1,800 m<sup>3</sup>/s at the end of November 2021. These are the lowest flows that have occurred during Keeyask construction. It is not since 2005 that flows this low have occurred on the Nelson River.

Water levels on Gull Lake have been held steady between about 158.8-159 m since reservoir impoundment in September 2020. Upstream of Gull Lake at gauges below and above Birthday Rapids the levels were about 0.5 m and 2 m higher than on Gull Lake, a smaller difference than would have occurred prior to the project. Upstream levels increased about 3-4 m at these sites in winter due to ice effects as in previous years. Due to low flows in summer 2021 the water surface was relatively flat from Gull Lake to the gauge just upstream of Birthday Rapids, with a difference of only about 0.8-0.9 m between the two.

Keeyask is transitioning from a construction project to an operating station. In 2021, the work at site has been focused on bringing units into service. By the end of April 2021, prior to the start of aquatic monitoring, Unit 1 and Unit 2 were in service. Throughout the open water period more units were being tested and brought into service one at a time. As units came into service, the distribution of flow between the spillway and powerhouse has gradually shifted, as summarized below. By the end of October 2021 five units were fully in service.

Discharges from the spillway and powerhouse are not measured but have been estimated based on performance design curves. For reference it is noted that the design discharge capacity of the powerhouse is 4,000 m<sup>3</sup>/s, giving each turbine unit a discharge capacity of approximately 570 m<sup>3</sup>/s.

Table below outlines Keeyask GS operation, including powerhouse and spillway flows, in 2021.

Dates	Powerhouse Units	Spillway Gate Operation	Powerhouse	Spillway	Keeyask Total
			Discharge (m <sup>3</sup> /s)		
End Apr. - end June 2021	Unit 2 online; Unit 3 testing	Gates 1, 2, 3, 5, 7 in use until mid-June. Gates 1, 3, 5, 7 primarily mid- to end-June	Steady at about 1,100 varying down to 600 on a few intermittent days and up to 1,650 during two weeks of Unit 3 testing.	Generally, 2,200-2,800 except during Unit 3 testing it varied from about 1,400-2,400.	Generally, 3,400-3,900 except during Unit 3 testing it varied from 2,600-3,600.
End June – mid-Sept. 2021	Unit 3 online; Unit 5 testing	Generally, Gates 1, 3, 5, 7 until mid-July. Gates 3, 5, 7 until end of July. Various gates used in Aug. Gates 1 and 7 used in Sept. until closure of all gates on Sept. 11.	About 1,650, but reduced to 1,100 for two weeks with a unit shut down and varying up to 2,100 during two weeks of Unit 5 testing.	From end of June to mid Aug. Nelson R inflow declined from about 3,600 to about 1,800-2,200 and has remained steady around 2,000-2,200 since then – corresponding spillway discharge gradually declined from about 2,400 to 0 by mid-Sept. when Unit 5 came into service, although daily variations of +/- 200-400 or more in a few instances occurred during this time.	Total Keeyask discharge declined from about 3,600 to an average of about 2,000-2,200 corresponding to the decrease in Nelson R inflow, and daily variation of about +/- 200-400 depending on spillway and powerhouse operations.
Mid-Sept. – end Oct. 2021	Unit 5 online; Unit 4 testing; Unit 4 online Oct. 25	Various gates used very sporadically. First reopening on Sept. 28.	Average discharge about 2,000-2,200 with typical daily variation from 1,600-2,200 and a maximum variation between 1,000-2,800 depending on unit operations and Unit 4 testing.	No spillway flow except for a few intermittent days of up to 1,000.	Same as powerhouse.



## 3.0 METHODS

Sampling was conducted in the spring and fall of 2021 within the Keeyask reservoir and Stephens Lake. Areas targeted included reservoir backbays (Map 2), the reservoir spawning shoals (Map 3), spawning areas identified in the EIS (Maps 4–6), and other areas identified as suitable post-impoundment. A variety of sampling methods were used including gillnetting, boat-based electrofishing, neuston tows, and floating drift traps.

Sampling was conducted to coincide with the spawning period of each species. Both Northern Pike and Walleye spawn spring soon after ice-off when water temperature measures between 4 and 11°C (Scott and Crossman 1973; Stewart and Watkinson 2004). Lake Whitefish spawn during fall when water temperatures are between 6 and 9°C, often forming pre-spawning aggregations (Green and Derksen 1987; Scott and Crossman 1998; Stewart and Watkinson 2004). Eggs remain in the spawning bed to hatch in the following spring. Lake Whitefish larval hatch generally corresponding with ice-off, and the associated elevation of light and temperature levels. This can occur at a variety of water temperatures. Therefore, sampling in spring 2021 commenced as close to ice-off as possible (i.e., when ice had cleared enough to facilitate safe travel).

### 3.1 GILLNETTING

Gillnetting was conducted in the Keeyask reservoir and the upper 10 km of Stephens Lake in both spring and fall, 2021. Gillnetting sites included constructed spawning shoals, areas previously identified as spawning habitat, and new areas considered suitable. Gill nets were composed of four panels of 3, 3 ¾, 4 ¼, and 5" twisted nylon stretched mesh (76, 95, 108, and 127 mm). Each panel was 25 yards (yd) (22.9 m) long and 2.7 yd (2.5 m) deep. Each gill net set was given a unique identification number, and net locations were recorded using a Garmin Marine GPS navigator (Garmin International Inc., Olathe, KS). Water depth at each end of the net was measured using a PiranhaMax Series 150 Portable Sonar (Humminbird, Eufaula, AL). Water temperature was measured daily in each area using a hand-held thermometer ( $\pm 0.5^{\circ}\text{C}$ ). HOBO Water Temperature Pro data loggers ( $\pm 0.2^{\circ}\text{C}$ ), set approximately 1 m off the substrate, were also used to log water temperature at 6-hour intervals in the Keeyask reservoir and Stephens Lake. Gill nets were checked approximately every 1–3 hours to prevent fish mortality.

### 3.2 ELECTROFISHING

Boat-based electrofishing was conducted in the Keeyask reservoir and the upper 10 km of Stephens Lake in fall 2021. Electrofishing sites included constructed spawning shoals, areas previously identified as spawning habitat, and new areas considered suitable. Sampling was conducted with a Smith-Root APEX electrofisher with dual boom Smith-Root UAA-6 Umbrella anodes (0.91 m diameter). During electrofisher operation, the boat serves as a cathode, and lines

of electrical current are established between the anode and the boat. The electric field causes muscle contractions in fish that lie within the electric field, forcing them to swim towards the anode. Prolonged exposure temporarily stuns the fish. Field technicians stationed at the front of the boat use large dip nets to collect stunned or partially stunned fish.

At each electrofishing site, start and end points were recorded using a Garmin Etrex GPS receiver (Garmin International Inc., Olathe, KS). The fishing effort (number of seconds of operation) and electrofisher settings (volts, amperage, pulse width, and pulses per second) were also recorded.

### 3.3 NEUSTON TOWS

In early spring, soon after hatching, Lake Whitefish larvae ascend to the surface where they are initially unable to swim effectively against the current (Scott and Crossman 1998). Neuston tows were conducted throughout the reservoir to target drifting Lake Whitefish larvae in spring 2021, including in areas of constructed spawning shoals. Sampling was conducted as soon after ice-off as possible to minimize distribution of larvae by wind and wave action.

The neuston sampler was towed behind the starboard side of a boat to sample water undisturbed by the boat's propeller and wake. Surface water to a depth of 0.30 m flowed through the 0.45 m x 0.45 m opening of the sampler and was filtered through a tapered 500 µm mesh Nitex screen cloth into a removable 500 µm Nitex cod-end. A calibrated flow meter (General Oceanics Inc., Model Series 2039) was mounted in the mouth of the sampler from which the distance traveled, and the volume of water sampled during each tow could be calculated.

Upon completion of each tow, the Nitex screen cloth was rinsed until items adhering to the cloth were within the cod-end. The cod-end was then removed and the materials within were transferred into labelled sample jars. Samples were examined in the field for larval fish, which were transferred to scintillation vials containing a solution of 10% formalin. In the NSC laboratory in Winnipeg, the samples were rinsed with water and placed in a clear tray for identification. All fish larvae were identified to species using taxonomic keys (e.g., Auer 1982; Fudge et al. 1986) and enumerated.

### 3.4 DRIFT TRAPS

Floating drift traps were set downstream of Birthday Rapids in spring 2021 to sample larval Lake Whitefish in areas where fast current prevented effective neuston sampling. Drift traps had a mouth opening of 15 x 15 cm, and a 1 m long cod-end constructed of 500 µm Nitex®. A wooden pontoon approximately 20 cm wide, 2.5 cm thick, and 120 cm long was used to buoy the traps. The trap was attached to the bottom of the pontoon using metal brackets such that the trap mouth was approximately 10 cm below the surface of the water when deployed. Traps were oriented with the trap mouth facing upstream. Drift traps were checked approximately every 24 hours.

Contents from each trap were preserved in 10% formalin for subsequent sorting in the laboratory. Traps were removed when the capture of Lake Whitefish larvae was confirmed in the field.

### 3.5 BIOLOGICAL SAMPLING

All fish captured were counted by species and location. Walleye, Northern Pike, and Lake Whitefish were measured for fork length (FL;  $\pm 1$  mm) and weight ( $\pm 5$  g using a digital scale, or nearest 25 g for fish greater than 4,000 g). Each VEC species were marked with individually numbered external Floy FD-94 T-bar anchor tags (Floy-tag & Mfg. Inc., Seattle, WA).

Sex and maturity were determined for individual Walleye, Northern Pike, and Lake Whitefish by applying pressure to the ventral surface of the fish to express gametes. If no gametes were expressed, sex and maturity codes were not assigned. The following codes were used:

<u>Female (F)</u>	<u>Male (M)</u>
2 – maturing to spawn (pre-spawn)	7 – maturing to spawn (pre-spawn)
3 – ripe (spawning)	8 – ripe (spawning)
4 – spent (post-spawn)	9 – spent (post-spawn)

### 3.6 DATA ANALYSIS

Mean FL (mm), weight (g), and condition factor (K) were calculated for all Walleye, Northern Pike, and Lake Whitefish. Length-frequency distributions were plotted in 50 mm length class intervals (e.g., 300–349 mm). Condition factor was calculated based on the following equation (after Fulton 1911, in Ricker 1975):

$$K = W / (L^3 / 10^5)$$

Where:

W = round weight (g); and

L = fork length (mm).

Gillnetting hours (*i.e.*, effort) was calculated as the number of sampling hours per 91.4 m of net set using the following equation:

$$\text{Effort (hours)} = \text{set duration} \times (\text{net length} / 91.4 \text{ m})$$

Catch-per-unit-effort (CPUE) was calculated and expressed as the number of fish captured in 91.4 m of net per 24-h period using the following formula:

$$\text{CPUE} = \sum \# \text{ Lake Sturgeon} / \sum \text{Effort} \times 24 \text{ h}$$

Where:  $\Sigma$  = sum of the number of fish or gillnetting hours at all sites.

CPUE for electrofishing runs was calculated as the number of fish captured per 60 seconds of electrofishing. CPUE was calculated for each sampling area and sampling session by averaging CPUE for electrofishing runs conducted in each area during each session. Total CPUE was calculated by averaging CPUE values for all electrofishing runs.

CPUE for Lake Whitefish larvae captured in Neuston Tows was expressed as the number of larvae/100 m<sup>3</sup> of water filtered.

All captures of spawning fish were mapped and compared to pre-impoundment spawning locations.



## 4.0 RESULTS

A total of 12 juvenile and adult fish species were captured during short duration gillnetting and boat electrofishing surveys and six larval fish species during drift trap and neuston tow sampling conducted in the Keeyask reservoir and Stephens Lake study areas during spring and fall 2021 (Table 1). Sampling site data are presented in Appendix 1 and biological and tagging information for all fish captured in 2021 are provided in Appendix 2.

### 4.1 KEEYASK RESERVOIR

Three floating drift traps set downstream of Birthday Rapids (Map 7) were sampled between May 27 and 31. An additional 24 sites throughout the reservoir were sampled using a neuston sampler between May 27 and 30 (Map 7). Water temperatures ranged from 4.8 to 6.8°C during this time (Figure 1). Gillnetting was conducted at 93 sites throughout the reservoir between May 28 and June 16, when water temperature ranged from 5.2 to 12.8°C (Figure 1).

Additional gillnetting (23 sites) and electrofishing (19 runs totalling 29,223 seconds) was conducted from September 29 to October 11, when water temperature ranged from 11.6 to 12.0°C (Figure 1).

#### 4.1.1 LAKE WHITEFISH

A total of 26 Lake Whitefish larvae were captured in drift traps and neuston tows in spring 2021 (Table 2; Map 7). Lake Whitefish larvae were captured at one of the three drift trap locations downstream of Birthday Rapids and at five of the 24 neuston sites surveyed (CPUE = 0.90 Lake Whitefish/100 m<sup>3</sup>; Table 3). Larval Lake Whitefish were captured downstream of Birthday Rapids, in the riverine area between Birthday Rapids and Gull Lake, and in the upper portion of Gull Lake. The highest CPUE was observed in the riverine area between Birthday Rapids and Gull Lake at Site NT-14 (10.43 Lake Whitefish/100 m<sup>3</sup>; Map 7). No larval Lake Whitefish were observed in the vicinity of the constructed spawning shoals or in the lower portions of the reservoir.

Although 63.4 gillnetting and 7.4 electrofishing hours were expended, no Lake Whitefish were captured in the reservoir during fall 2021 (Table 7).

#### 4.1.2 NORTHERN PIKE

A total of 128 Northern Pike were captured within the Keeyask reservoir during spring 2021 (Table 4). Captured fish measured between 360 and 1,140 mm FL, with the majority measuring between 500 and 549 mm (Table 5, Figure 7). Northern Pike were captured at 58 of 93 sampling sites, for an average CPUE of 15.1 fish/91.4 m of net/24 h (Table 6).

Twenty-nine captured Northern Pike were in spawning condition, including 15 females (14 pre-spawn and one ripe) and 14 pre-spawn males (Table 8). Spawning Northern Pike were captured throughout the reservoir including within flooded backbays (in zones 4, 6, 11, and 12), three constructed spawning shoals (F North, H South, and L), and flooded areas immediately upstream of the Keeyask GS spillway (Maps 2, 3, 5, and 10). Spawning Northern Pike were captured within seven of the 12 areas identified as Northern Pike spawning habitat in the EIS (Map 4).

### **4.1.3 WALLEYE**

A total of 52 Walleye were captured within the Keeyask reservoir during spring 2021. Captured fish measured between 319 and 541 mm FL, with the majority measuring between 350 and 399 mm (Table 5, Figure 7). Walleye were captured at 20 of 93 sampling sites, for an average CPUE of 5.3 fish/91.4 m of net/24 h (Table 6).

Nine captured Walleye were in spawning condition, including one pre-spawn female and eight pre-spawn males (Table 8). All spawning Walleye were captured within the upper portion of the reservoir, between Birthday Rapids and Gull Lake (Zone 1a; Maps 3 and 11). No spawning condition Walleye were captured on the reservoir spawning shoals. Spawning Walleye were captured within one of the seven areas identified as Walleye spawning habitat in the EIS and two areas that were not identified (Map 6).

## **4.2 STEPHENS LAKE**

Gillnetting was conducted at 44 sites throughout the upper ~10 km of Stephens Lake between June 2 and 10, when water temperature ranged from 7.7 to 10.6°C (Figure 2).

Additional gillnetting (23 sites) and electrofishing (24 runs totalling 38,821 seconds) was conducted from October 3 to 13, when water temperature ranged from 10.0 to 10.5°C (Figure 2).

### **4.2.1 LAKE WHITEFISH**

A total of 34 Lake Whitefish were captured in Stephens Lake in fall 2021. The 32 fish that were measured were between 415 and 544 mm FL, with the majority measuring between 450 and 499 mm (Table 5, Figure 8). Lake Whitefish were captured at four out of 25 gillnetting sites, for an average CPUE of 2.3 fish/91.4 m/24 h (Table 6). Lake Whitefish were also captured in 11 of 24 electrofishing runs for an average CPUE of 0.05 fish/60 s (Table 7).

Seven captured Lake Whitefish were in spawning condition, including two ripe females, three pre-spawn males, and two ripe males (Table 8). Spawning Lake Whitefish were captured both on the North (n = 6) and South (n = 1) shores downstream of the Keeyask GS (Maps 12 and 13).

## 4.2.2 NORTHERN PIKE

A total of 75 Northern Pike were captured within Stephens Lake in spring 2021 (Table 4). Captured fish measured between 314 and 948 mm FL, with the majority measuring between 550 and 599 mm (Table 5, Figure 8). Northern Pike were captured at 25 of 44 gillnetting sites, for an average CPUE of 17.3 fish/91.4 m/24 h (Table 6).

Twenty-nine captured Northern Pike were in spawning condition, including 14 females (11 pre-spawn and three ripe) and 15 males (14 pre-spawn and one post-spawn; Table 8). Spawning Northern Pike were captured both on the North ( $n = 13$ ) and South ( $n = 14$ ) shores downstream of the Keeyask GS (Map 14). Three pre-spawn males were captured adjacent to the N5 causeway (GN-43; Map 14). Nine spawning fish were captured in the two farthest upstream gill nets, four immediately downstream of the powerhouse and five downstream of the spillway.

## 4.2.3 WALLEYE

A total of 54 Walleye were captured within Stephens Lake during spring 2021 (Table 4). Captured fish measured between 303 and 761 mm FL, with the majority measuring between 350 and 399 mm (Table 5, Figure 7). Walleye were captured at 20 of 44 sampling sites, for an average CPUE of 10.7 fish/91.4 m/24 h (Table 6).

Twenty-four captured Walleye were in spawning condition, including seven females (six pre-spawn and one ripe) and 17 males (14 pre-spawn and three ripe; Table 8). Spawning Walleye were captured both on the North ( $n = 9$ ) and South ( $n = 15$ ) shores downstream of the Keeyask GS (Map 15).

## 5.0 DISCUSSION

Spawn monitoring was conducted in 2021 to determine if spring-spawning (i.e., Walleye and Northern Pike) and fall-spawning (i.e., Lake Whitefish) VEC species continue to spawn within the Keeyask reservoir and upper Stephens Lake following reservoir impoundment and during GS commissioning. Areas targeted for sampling included reservoir backbays (Map 2), the reservoir spawning shoals (Map 3), spawning areas identified in the EIS (Maps 4–6), and other areas identified as suitable post-impoundment.

Impoundment of the Keeyask reservoir was completed on September 5, 2020 and sampling in the Keeyask reservoir in 2021 represented the first year that the water was at full supply level. Monitoring in Stephens Lake, however, represented a transition between construction and operation. During the spring spawning period, a considerable portion of the flow was still being passed through the spillway, and only a few units were in-service in the powerhouse. By fall, the spillway was closed and four powerhouse units were fully in-service which, due to the very low flows, could pass the entire flow of the river. Key questions identified in the AEMP are addressed below.

*Does suitable spawning habitat exist upstream and downstream of the Keeyask GS for each VEC fish species in the post-Project environment?*

Larval Lake Whitefish, spawning Walleye, and spawning Northern Pike were captured upstream of the Keeyask GS in spring 2021 indicating that conditions in the newly formed reservoir provided spawning habitat for these species. Downstream of the Keeyask GS spawning Walleye and Northern Pike were captured in spring and spawning Lake Whitefish were captured in fall, 2021. Together, these results suggest that suitable spawning habitat exists for all three VEC species both upstream and downstream of the Keeyask GS in the initial year after impoundment.

*Will Northern Pike continue to spawn in tributary confluences and back bays of the Keeyask reservoir?*

Spawning Northern Pike were captured throughout the Keeyask reservoir in spring 2021. Spawning fish were captured at several tributary confluences including Nap, Two Goose, and Portage creeks. All three areas were identified as spawning habitat in the EIS. Spawning fish were also captured within flooded backbays 4, 6, 11, and 12 and on three constructed spawning shoals (F North, H South, and L).

*Will Walleye and Lake Whitefish use existing or created spawning habitat in the Keeyask reservoir, immediately downstream of the GS and in Stephens Lake?*

Lake Whitefish continue to use existing spawning habitat in the Keeyask reservoir. Larval Lake Whitefish were captured downstream of Birthday Rapids, in the riverine area between Birthday Rapids and Gull Lake, and in the upper portion of Gull Lake during spring 2021. These larvae hatched from eggs that were deposited after reservoir impoundment in fall 2020. Although no spawning Lake Whitefish were captured in the reservoir in fall 2021, neuston tows will be conducted in early spring 2022 to determine whether spawning occurred.

Lake Whitefish also continue to use spawning habitat in Stephens Lake immediately downstream of the GS. Spawning Lake Whitefish were captured both on the North and South shores downstream of the GS in fall 2021. Commissioning of the GS powerhouse in fall 2021 had advanced such that there was no water passing through the spillway. The presence of spawning Lake Whitefish in these flow conditions suggests that suitable habitat for this species will be present post-commissioning.

No spawning Walleye or larval Lake Whitefish were captured in the vicinity of the constructed reservoir spawning shoals in spring 2021. The Lake Whitefish spawning shoal in Stephens Lake was not yet constructed in 2021.

## 5.1 NEXT STEPS

Sampling conducted in 2021 represents the first year of monitoring following impoundment of the Keeyask GS reservoir. Commissioning of the Keeyask GS is scheduled to be completed in winter 2022. The VEC fish spawn monitoring program will be repeated in open-water 2022, representing the first year of operation monitoring.



## 6.0 SUMMARY AND CONCLUSIONS

- The AEMP identified three key questions for the use of existing and created spawning habitat by VEC fish species. Key questions are addressed below.
  - *Does suitable spawning habitat exist upstream and downstream of the Keeyask GS for each VEC fish species in the post-Project environment?*

Larval Lake Whitefish (spawned following reservoir impoundment in fall 2020), spawning Walleye, and spawning Northern Pike were captured upstream and downstream of the Keeyask GS in spring 2021. Additional spawning Lake Whitefish were captured downstream of the Keeyask GS in fall 2021. Together, this suggests that suitable spawning habitat exists for each VEC species both upstream and downstream of the GS post-impoundment.

- *Will Northern Pike continue to spawn in tributary confluences and back bays of the Keeyask reservoir?*

Spawning Northern Pike were captured throughout the Keeyask reservoir in spring 2021 at tributary confluences, within flooded backbays, and on three constructed spawning shoals.

- *Will Walleye and Lake Whitefish use existing or created spawning habitat in the Keeyask reservoir, immediately downstream of the GS and in Stephens Lake?*

Based on the capture of larval Lake Whitefish and spawning Walleye and Lake Whitefish, it appears that both species continue to use existing spawning habitat both upstream and downstream of the Keeyask GS. No spawning Walleye or larval Lake Whitefish were captured in the vicinity of the constructed reservoir spawning shoals in spring 2021. The Lake Whitefish spawning shoal in Stephens Lake was not yet constructed in 2021.

## 7.0 LITERATURE CITED

- Auer, N.A. 1982. Identification of larval fishes of the Great Lakes Basin with emphasis on the Lake Michigan Drainage. Great Lakes Fishery Commission, Special Publication 82-3, Ann Arbor, MI.
- Fudge, R.J.P., R.A. Bodaly, and M. Viljanen. 1986. Identification of larval Lake Whitefish (*Coregonus clupeaformis*) and Cisco (*Coregonus artedii*), from Southern Indian Lake, Manitoba, by pigmentation characteristics and by isoelectric focusing on whole body protein extracts. Canadian Technical Report of Fisheries and Aquatic Sciences: 1471. iv + 30 pp.
- Green, D.J. and Derksen, A.J. 1987. Observations on the spawning of Lake Whitefish (*Coregonus clupeaformis*) in the Poplar River area of Lake Winnipeg, 1974 – 1977. Manitoba Department of Natural Resources, Fisheries Branch Manuscript Report 87-24: 86 pp.
- Scott, W.B. and E.J. Crossman. 1998. Freshwater fishes of Canada. Fisheries Research Board of Canada Bulletin: 184. 966 pp.
- Stewart, K. W. and Watkinson, D. A. 2004. The freshwater fishes of Manitoba. University of Manitoba Press, Winnipeg, MB. 243 pp.

# TABLES

**Table 1: Fish species including juvenile and adult fish captured during short duration gillnetting and boat electrofishing surveys and larval fish captured during neuston tow and drift trap sampling conducted in the Keeyask study area during spring and fall 2021.**

Common name	Scientific name	Gillnets / Boat Electrofishing		Neuston Tows / Drift Traps		
		Keeyask reservoir		Stephens Lake		Keeyask reservoir
		Spring	Fall	Spring	Fall	Spring
Burbot	<i>Lota lota</i>	X	-	X	-	-
Cisco	<i>Coregonus artedii</i>	X	X	X	-	X
Unidentified Coregonid	<i>Coregonus gen.</i>	-	-	-	-	X
Emerald Shiner	<i>Notropis atherinoides</i>	-	-	-	-	X
Freshwater Drum	<i>Aplodinotus grunniens</i>	-	-	-	X	-
Johnny darter	<i>Etheostoma nigrum</i>	-	-	-	-	X
Lake Sturgeon	<i>Acipenser fluviensis</i>	X	X	-	X	-
Lake Whitefish	<i>Coregonus clupeaformis</i>	X	-	-	X	X
Longnose Sucker	<i>Catostomus catostomus</i>	X	X	X	X	-
Mooneye	<i>Hiodon tergisus</i>	-	-	-	X	-
Northern Pike	<i>Esox lucius</i>	X	X	X	X	-
Sauger	<i>Sander canadensis</i>	X	-	X	-	-
Shorthead Redhorse	<i>Moxostoma macrolepidotum</i>	X	X	X	X	-
Troutperch	<i>Percopsis omiscomaycus</i>	-	-	-	-	X
Walleye	<i>Sander vitreus</i>	X	X	X	X	-
White Sucker	<i>Catostomus commersonii</i>	X	X	X	X	-

**Table 2: Total number (n) and relative abundance (%) of larval fish, by species, captured during drift trap and neuston tow surveys in the Keeyask reservoir during spring 2021.**

Common Name	Drift Trap		Neuston Tow		Total	
	n <sup>1</sup>	%	n	%	n	%
Cisco	-	-	5	16.1	5	13.2
Coregonid	2	28.6	-	-	2	5.3
Emerald Shiner	1	14.3	-	-	1	2.6
Johnny darter	1	14.3	-	-	1	2.6
Lake Whitefish	2	28.6	26	83.9	28	73.7
Troutperch	1	14.3	-	-	1	2.6

1 – Number of fish

**Table 3: Mean catch-per-unit-effort (CPUE; fish/100 m<sup>3</sup>) by species for larval fish captured in neuston tow surveys in the Keeyask reservoir during spring 2021. Note: flow meters were not used with drift traps thus CPUE could not be calculated.**

Species Name	Neuston Tow		
	n	CPUE	Std
Cisco	5	0.11	0.54
Coregonid	-	-	-
Emerald Shiner	-	-	-
Johnny Darter	-	-	-
Lake Whitefish	26	0.90	2.37
Troutperch	-	-	-
<b>Total</b>	<b>31</b>	<b>1.02</b>	<b>2.64</b>

1 – Number of fish

**Table 4: Total number (n) and relative abundance (%) of fish, by species, captured in gillnetting and electrofishing surveys conducted in the Keeyask reservoir and Stephens Lake during spring and fall 2021.**

Common Name	Keeyask reservoir				Stephens Lake			
	Spring		Fall		Spring		Fall	
	n <sup>1</sup>	%	n	%	n	%	n	%
Burbot	1	0.4	-	-	1	0.6	-	-
Cisco	1	0.4	1	0.8	1	0.6	-	-
Freshwater Drum	-	-	-	-	-	-	2	1.1
Lake Sturgeon	3	1.2	1	0.8	-	-	1	0.5
Lake Whitefish	10	4.0	-	-	-	-	34	17.9
Longnose Sucker	2	0.8	13	10.0	2	1.2	6	3.2
Mooneye	-	-	-	-	-	-	1	0.5
Northern Pike	128	51.0	59	45.4	75	43.4	73	38.4
Sauger	2	0.8	-	-	5	2.9	-	-
Shorthead Redhorse	25	10.0	19	14.6	9	5.2	23	12.1
Walleye	52	20.7	19	14.6	54	31.2	23	12.1
White Sucker	27	10.8	18	13.8	26	15.0	27	14.2
<b>Total</b>	<b>251</b>	<b>-</b>	<b>130</b>	<b>-</b>	<b>173</b>	<b>-</b>	<b>190</b>	<b>-</b>

1 – Number of fish



**Table 5: Mean fork length (mm), weight (g), and condition factor (K) for Lake Whitefish, Northern Pike, and Walleye caught during gillnetting and boat electrofishing surveys in the Keeyask reservoir and Stephens Lake during spring and fall 2021.**

Location	Species	Season	Fork Length (mm)				Weight (g)				K			
			n <sup>1</sup>	Mean	StDev	Range	n <sup>1</sup>	Mean	StDev	Range	n <sup>1</sup>	Mean	StDev	Range
Keeyask reservoir	Lake Whitefish	Spring	10	449	70	355-545	10	1914	817	950-3200	10	2.02	0.26	1.62-2.46
		Fall	0	-	-	-	0	-	-	-	0	-	-	-
	Northern Pike	Spring	128	629	152	360-1140	128	2234	1621	480-6800	128	0.76	0.10	0.45-1.04
		Fall	59	553	247	117-979	59	2226	2297	25-7150	59	0.83	0.22	0.14-1.56
	Walleye	Spring	52	423	61	319-541	52	963	400	475-2100	52	1.22	0.16	0.77-1.75
		Fall	19	395	65	283-511	19	853	431	300-1850	19	1.27	0.10	1.04-1.52
Stephens Lake	Lake Whitefish	Spring	0	-	-	-	0	-	-	-	0	-	-	-
		Fall	32	479	34	415-544	32	1916	494	750-2800	32	1.72	0.27	0.80-2.16
	Northern Pike	Spring	74	603	157	314-948	74	2035	1677	250-7100	74	0.75	0.09	0.50-1.03
		Fall	71	623	203	232-1100	71	2558	2305	175-10000	71	0.82	0.20	0.55-1.61
	Walleye	Spring	54	414	73	303-761	54	864	423	300-2550	54	1.16	0.15	0.58-1.59
		Fall	23	426	59	323-527	23	925	320	400-1500	23	1.17	0.18	0.69-1.48

1 – Number of fish

**Table 6: Mean catch-per-unit-effort (CPUE; fish/91.4 m of net/24 h) by species for fish captured in short duration gillnetting surveys in the Keeyask reservoir and Stephens Lake during spring and fall 2021.**

Common Name	Keeyask reservoir						Stephens Lake					
	Spring			Fall			Spring			Fall		
	n <sup>1</sup>	CPUE	Std <sup>2</sup>	n	CPUE	Std	n	CPUE	Std	n	CPUE	Std
Burbot	1	0.1	0.8	-	-	-	1	0.2	1.4	-	-	-
Cisco	1	0.1	0.8	-	-	-	1	0.3	2.0	-	-	-
Lake Sturgeon	3	0.3	1.8	-	-	-	-	-	-	1	0.2	0.8
Lake Whitefish	10	1.2	4.0	-	-	-	-	-	-	6	2.3	4.8
Longnose Sucker	9	1.2	8.4	8	1.5	5.7	2	0.7	2.9	0	0.0	0.0
Northern Pike	128	15.1	17.9	22	10.2	12.7	75	17.3	20.0	25	11.2	17.9
Sauger	2	0.3	2.0	-	-	-	6	1.7	5.3	-	-	-
Shorthead Redhorse	71	10.2	23.7	17	3.7	6.9	15	3.3	6.4	13	5.2	7.1
Walleye	52	5.3	12.8	17	7.0	9.4	54	10.7	18.7	17	7.7	14.9
White Sucker	99	14.2	28.5	35	14.4	17.9	283	62.1	89.0	29	11.9	24.0
<b>Total</b>	<b>376</b>	<b>47.9</b>	<b>51.5</b>	<b>99</b>	<b>36.8</b>	<b>25.1</b>	<b>439</b>	<b>20.6</b>	<b>20.4</b>	<b>91</b>	<b>38.9</b>	<b>52.8</b>

1 – Number of fish

**Table 7: Mean catch-per-unit-effort (CPUE; fish/60 s) by species for fish captured during boat electrofishing surveys in the Keeyask reservoir and Stephens Lake during fall 2021.**

Species Name	Keeyask reservoir			Stephens Lake		
	n <sup>1</sup>	CPUE	Std <sup>2</sup>	n	CPUE	Std
Freshwater Drum	0	0.00	-	3	0.00	0.01
Lake Whitefish	0	0.00	-	28	0.05	0.05
Longnose Sucker	19	0.08	0.18	8	0.01	0.02
Northern Pike	37	0.08	0.08	48	0.09	0.09
Shorthead Redhorse	15	0.05	0.07	19	0.04	0.08
Walleye	2	0.00	0.01	6	0.01	0.02
White Sucker	21	0.04	0.07	43	0.08	0.07
<b>Total</b>	<b>94</b>	<b>0.26</b>	<b>0.26</b>	<b>106</b>	<b>0.29</b>	<b>0.16</b>

1 – Number of fish

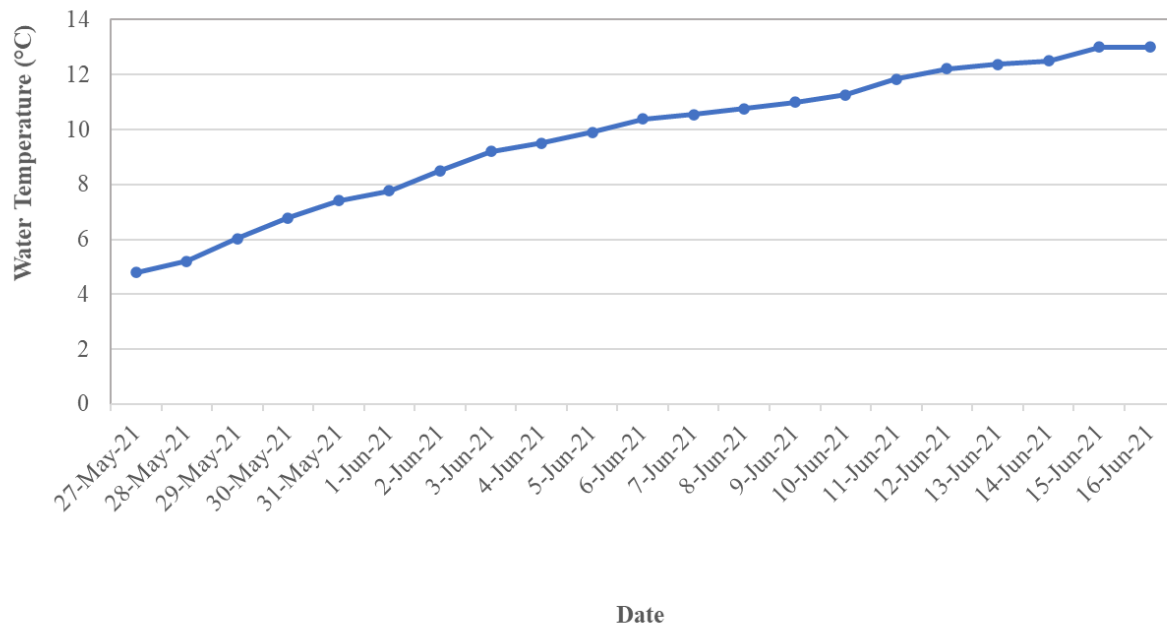
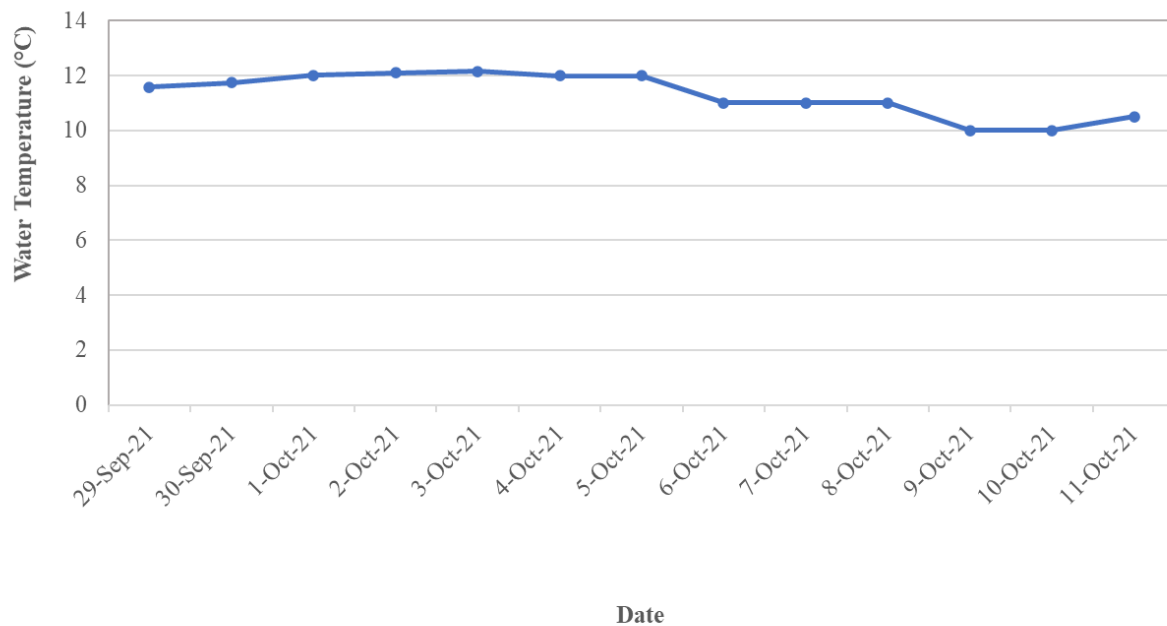
**Table 8: Sex and maturity data for Lake Whitefish, Northern Pike, and Walleye captured in the Keeyask reservoir and Stephens Lake during spring and fall, 2021.**

Location	Season	Species	Sex and Maturity <sup>1</sup>						# of Spawners	Unknown Maturity <sup>2</sup>	Total
			Male			Female					
			7	8	9	2	3	4			
Keeyask reservoir	Spring	Lake Whitefish	-	-	-	-	-	-	-	10	10
		Northern Pike	14	-	-	14	1	-	29	99	128
		Walleye	8	-	-	1	-	-	9	43	52
	Fall	Lake Whitefish	-	-	-	-	-	-	-	-	-
		Northern Pike	-	-	-	-	-	-	-	59	59
		Walleye	-	-	-	-	-	-	-	19	19
Stephens Lake	Spring	Lake Whitefish	-	-	-	-	-	-	-	-	-
		Northern Pike	14	-	1	11	3	-	29	48	77
		Walleye	14	3	-	6	1	-	24	30	54
	Fall	Lake Whitefish	3	2	-	-	2	-	7	27	34
		Northern Pike	-	-	-	-	-	-	-	-	73
		Walleye	-	-	-	-	-	-	-	-	23

1. Refer to Section 3.1 for sex and maturity codes.

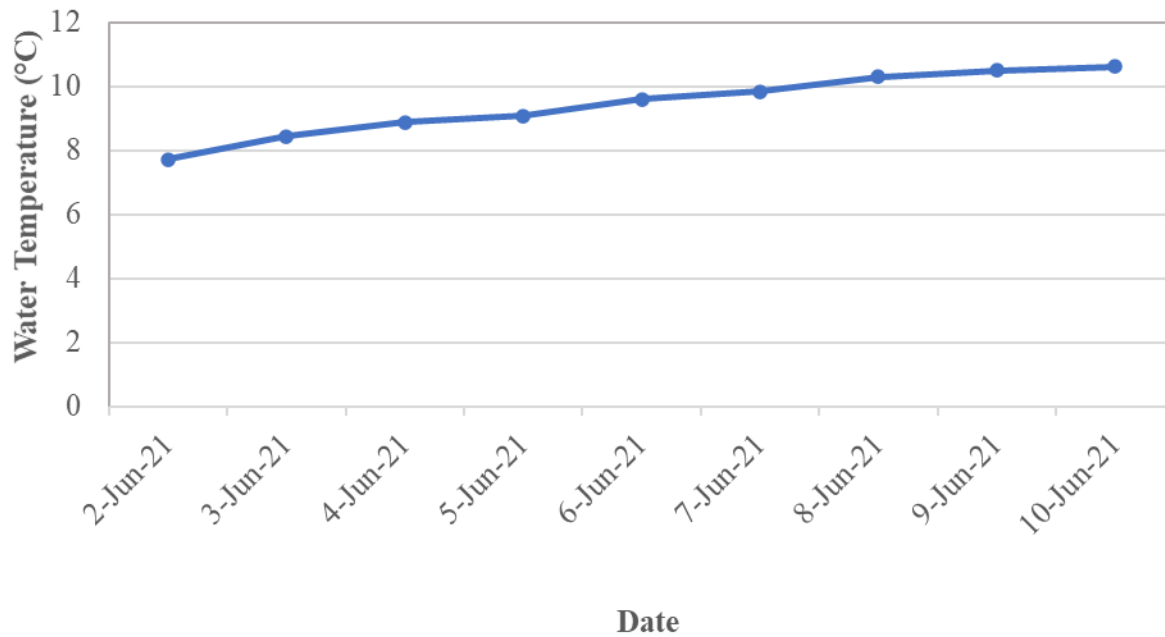
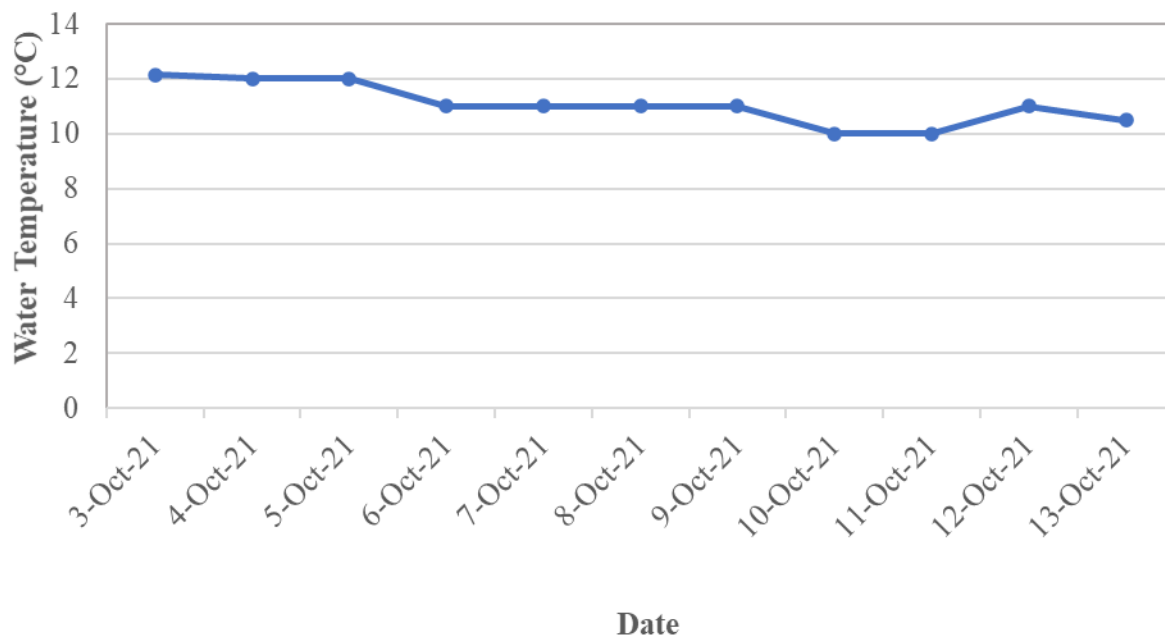
2. Sex and maturity are determined by the expression of gametes (eggs or milt). All fish were examined for sexual maturity, but only fish that expressed gametes were counted as spawners.

## FIGURES

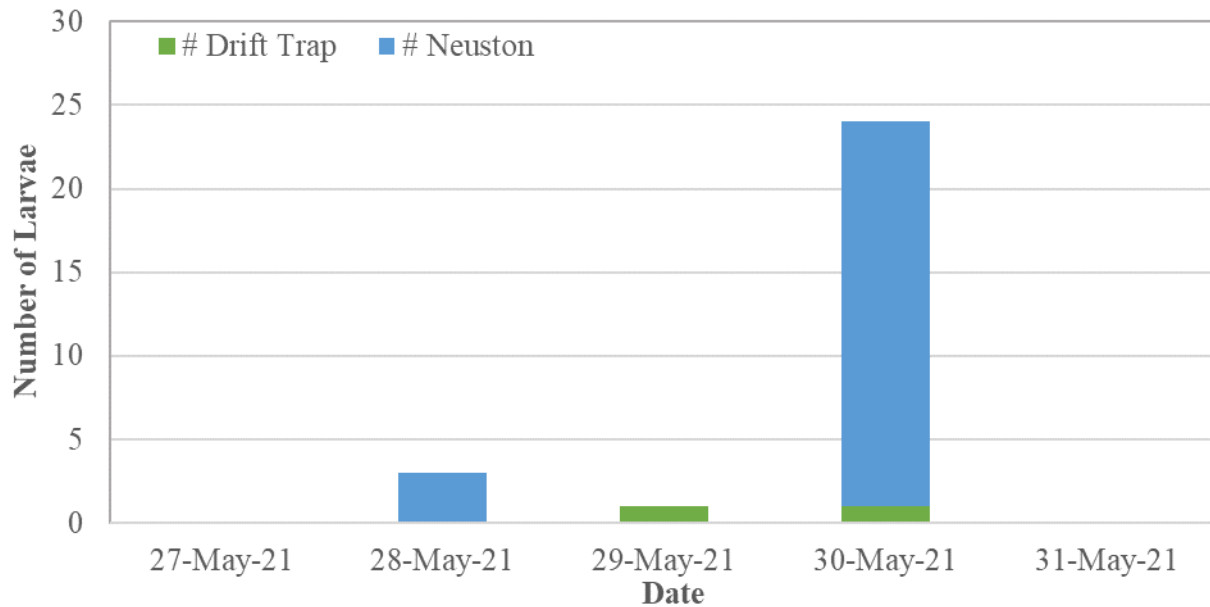
**(A) Spring Sampling****(B) Fall Sampling**

**Figure 1: Water temperature as measured in the Keeyask reservoir during the spring (A) and fall (B) sampling periods.**

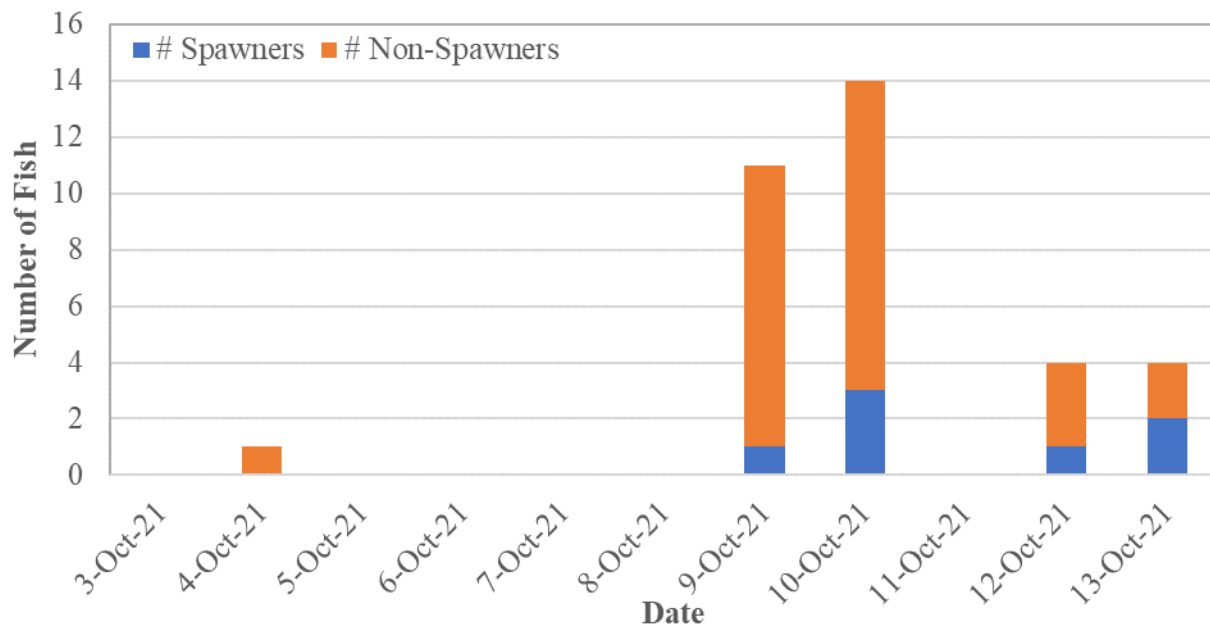


**(A) Spring Sampling****(B) Fall Sampling**

**Figure 2: Water temperature as measured in Stephens Lake during the spring (A) and fall (B) sampling periods.**

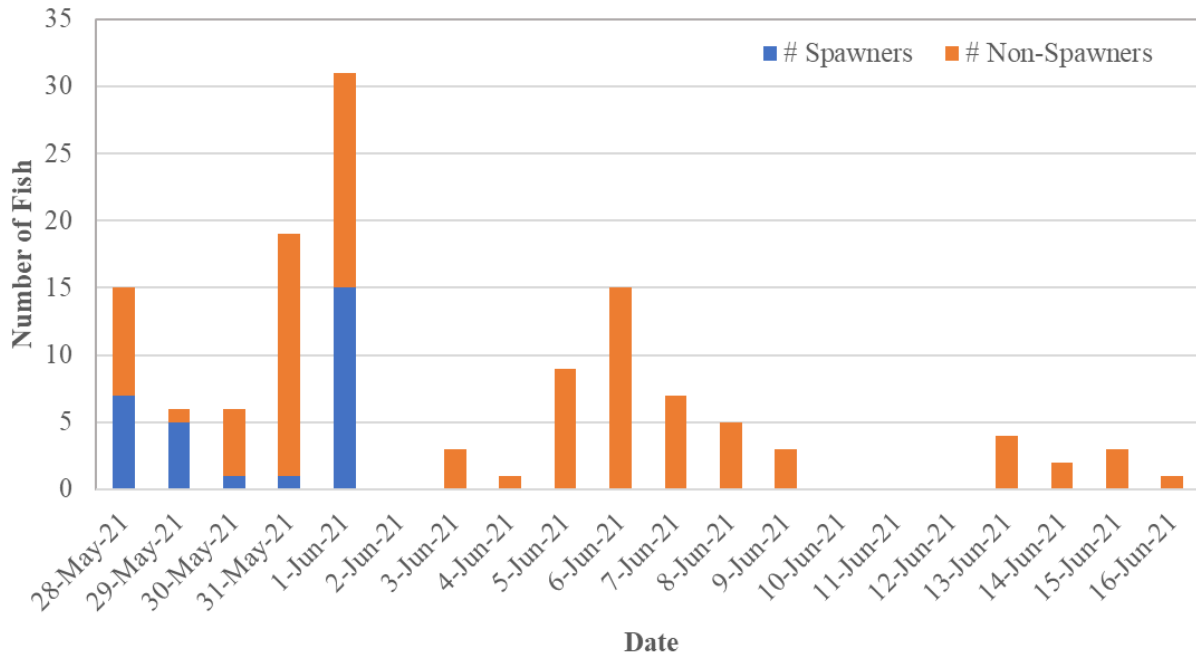


**Figure 3:** Number of larval Lake Whitefish captured by day during sampling in the Keeyask reservoir during spring 2021 by sampling method. Sampling was conducted between May 27 and 31, 2021.

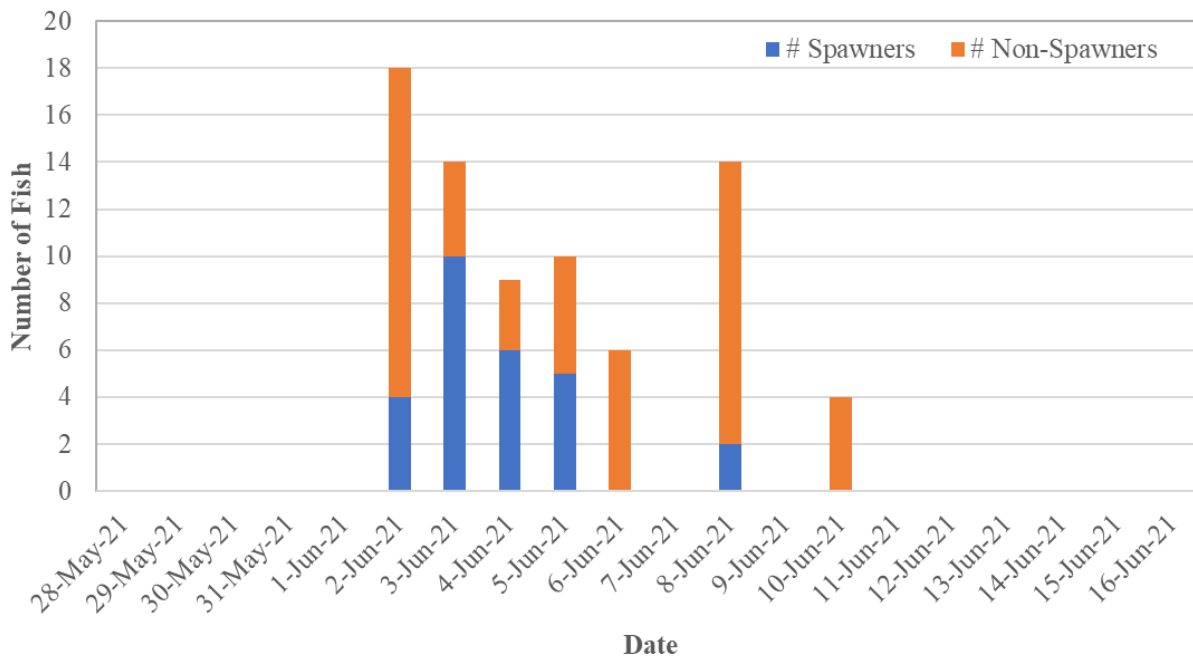


**Figure 4:** Number of adult Lake Whitefish captured by day during sampling in Stephens Lake during fall 2021 by spawning-condition. Sampling in Stephens Lake was conducted between October 3 and 13, 2021. No Lake Whitefish were captured in Stephens Lake during sampling between September 29 and October 11, 2021.

(A) Keeyask Reservoir

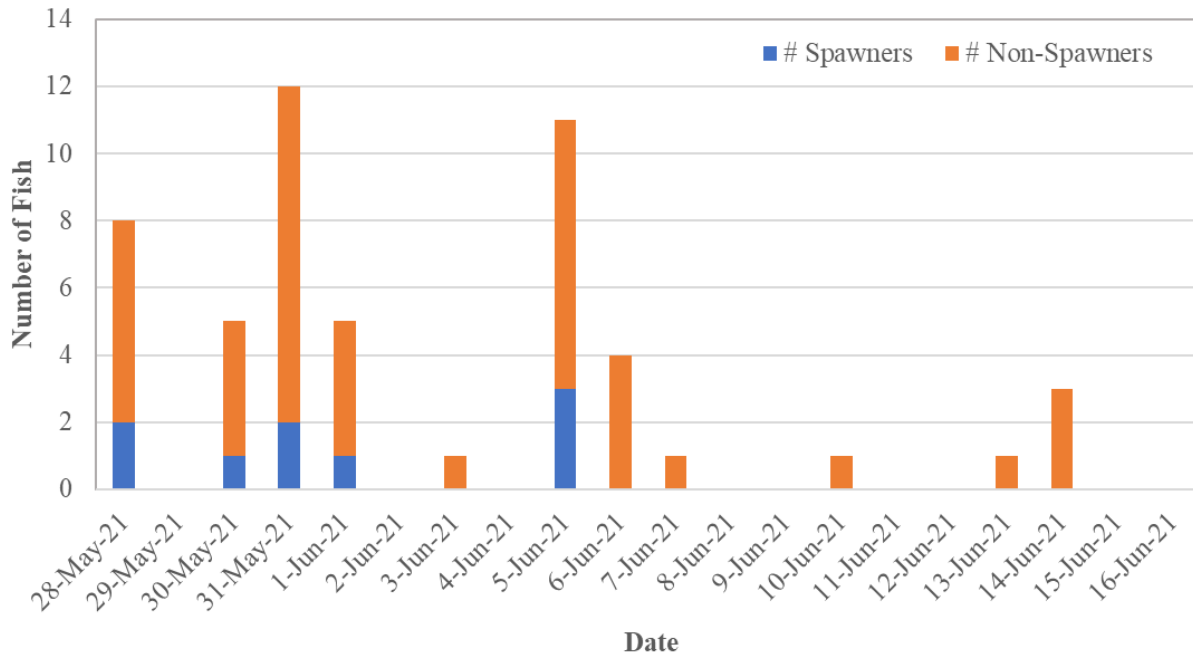


(B) Stephens Lake

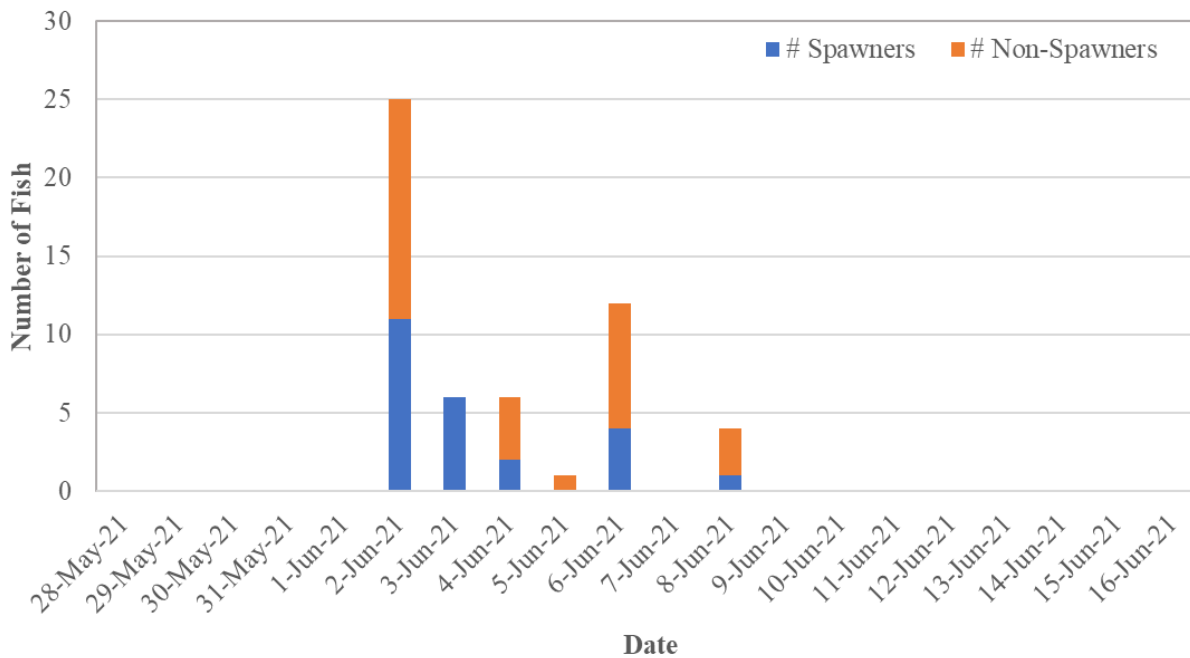


**Figure 5: Number of Northern Pike captured by day during sampling in the Keeyask reservoir (A) and Stephens Lake (B) during spring 2021 by spawning-condition. Sampling in the Keeyask reservoir was conducted between May 28 and June 16, 2021. Sampling in Stephens Lake was conducted between June 2 and 10, 2021.**

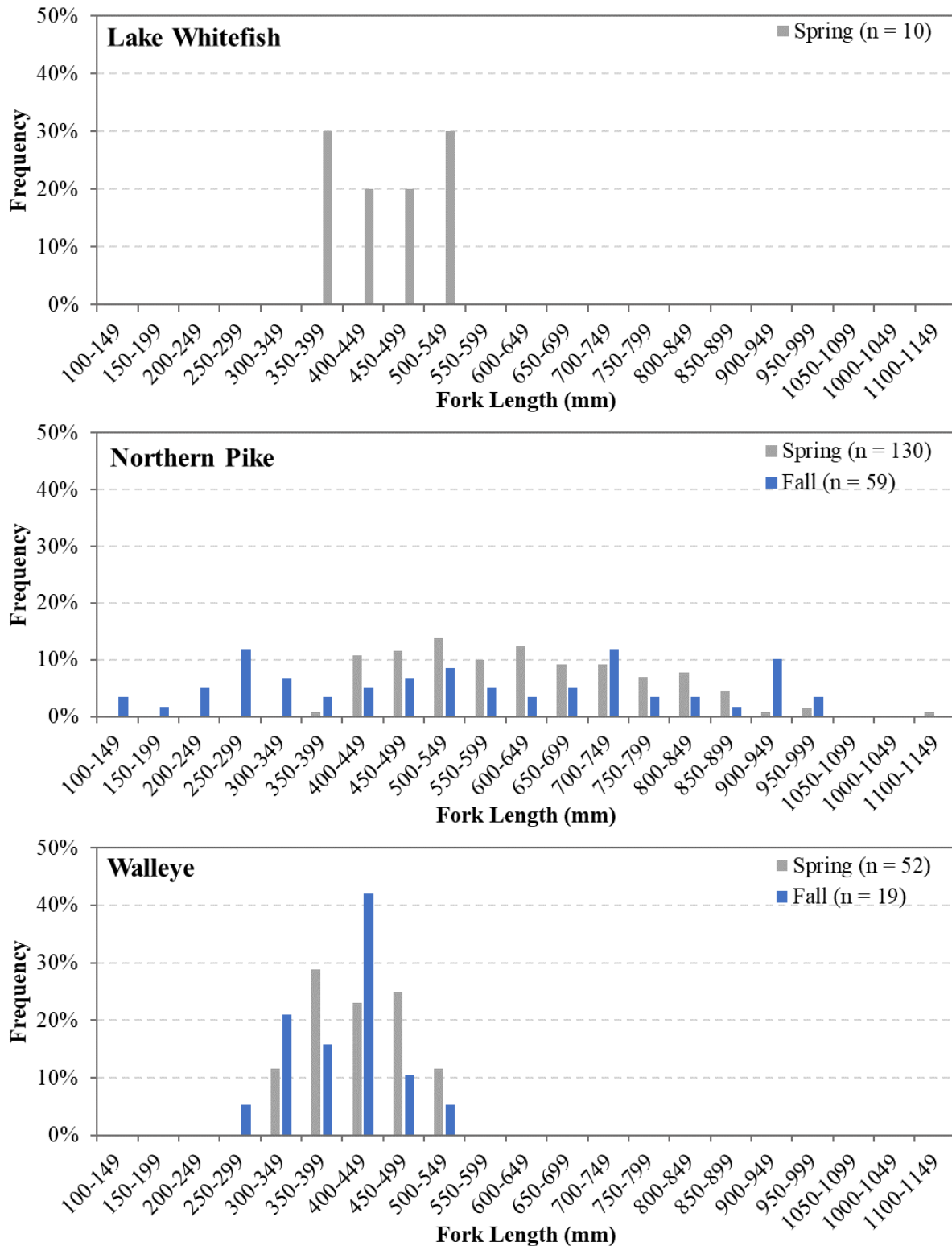
(A) Keeyask Reservoir



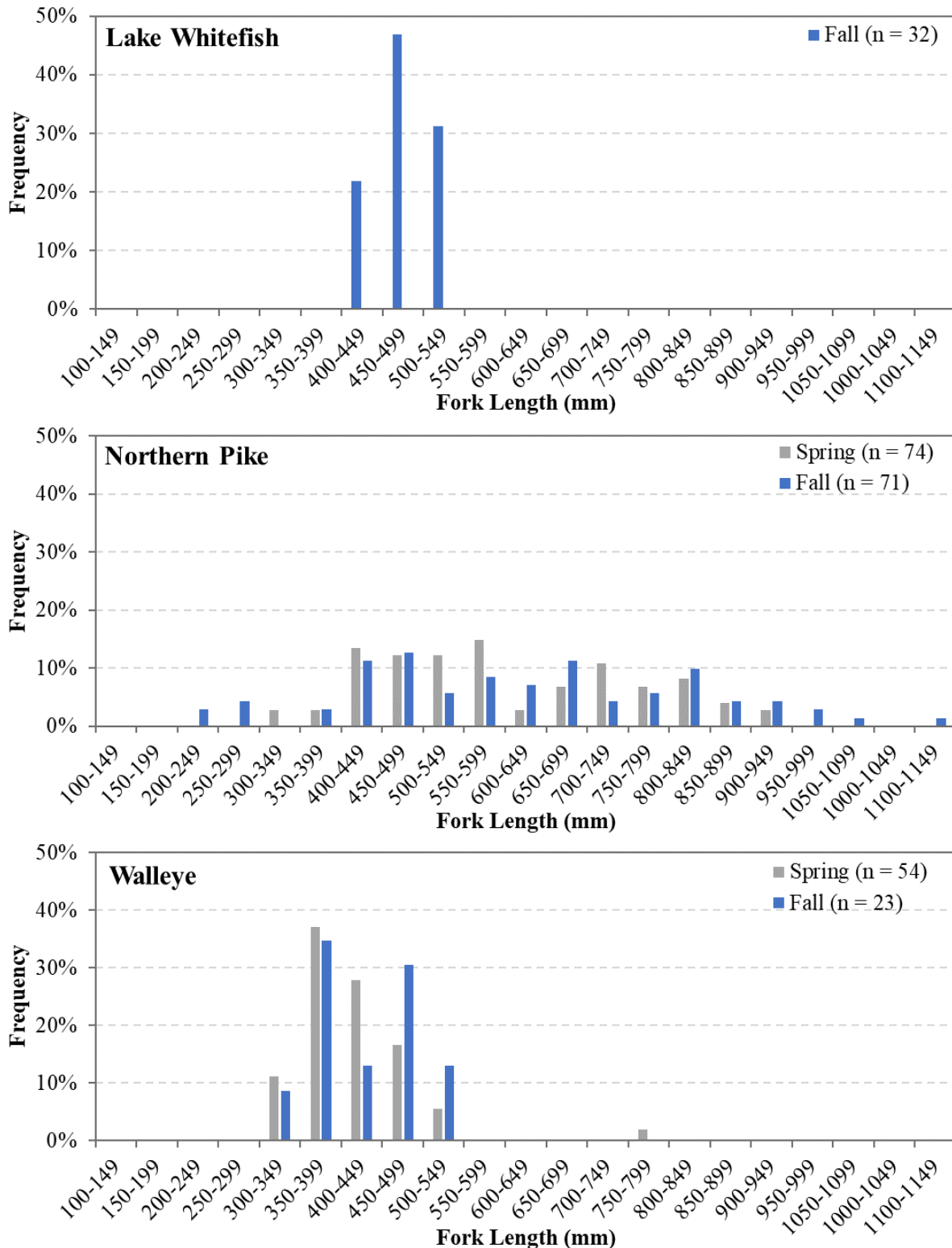
(B) Stephens Lake



**Figure 6: Number of Walleye captured by day during sampling in the Keeyask reservoir (A) and Stephens Lake (B) during spring 2021 by spawning-condition. Sampling in the Keeyask reservoir was conducted between May 28 and June 16, 2021. Sampling in Stephens Lake was conducted between June 2 and 10, 2021.**



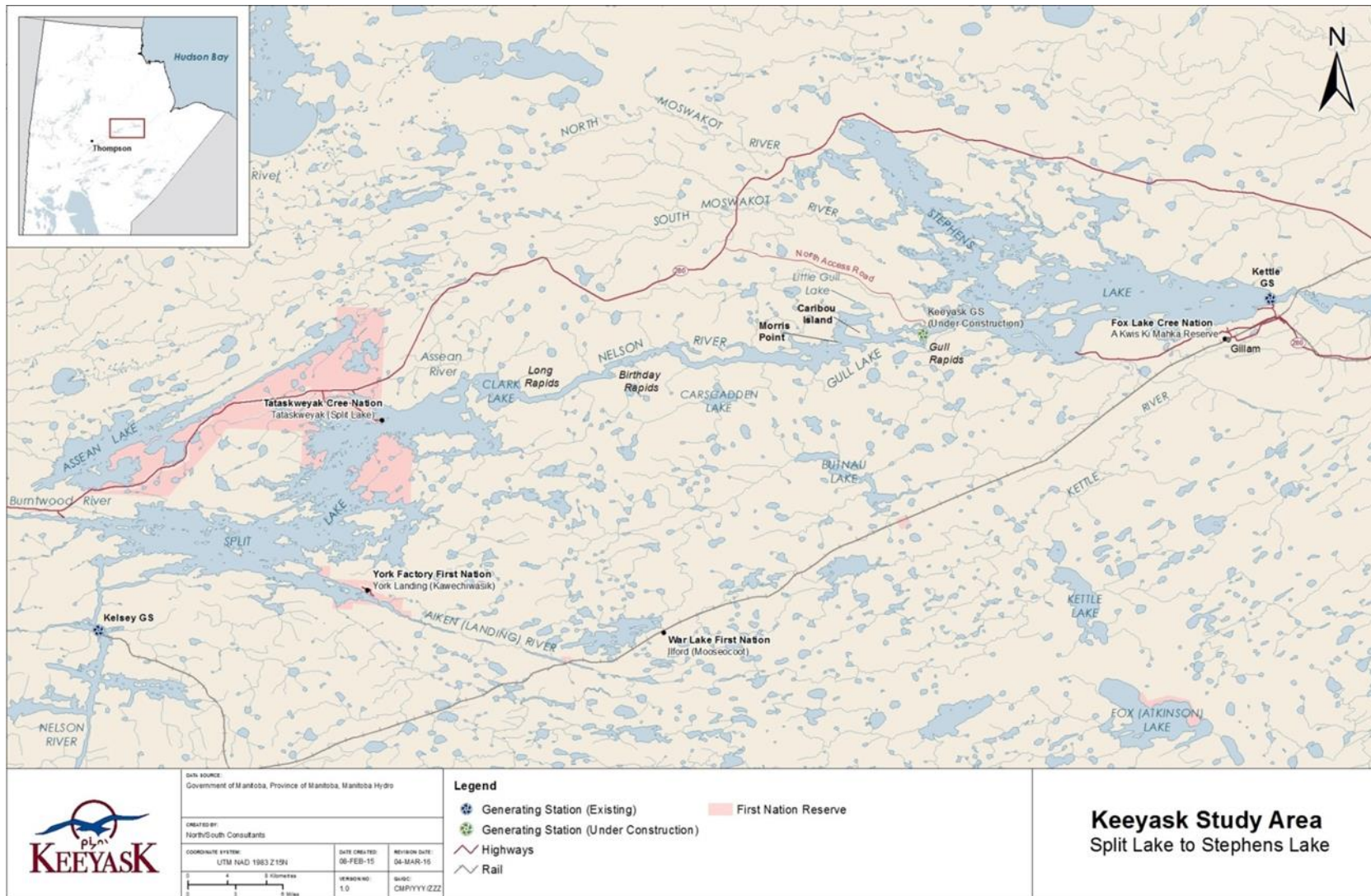
**Figure 7: Length-frequency distribution for Lake Whitefish, Northern Pike, and Walleye captured during gillnet surveys in the Keeyask reservoir in the spring and fall 2021.**



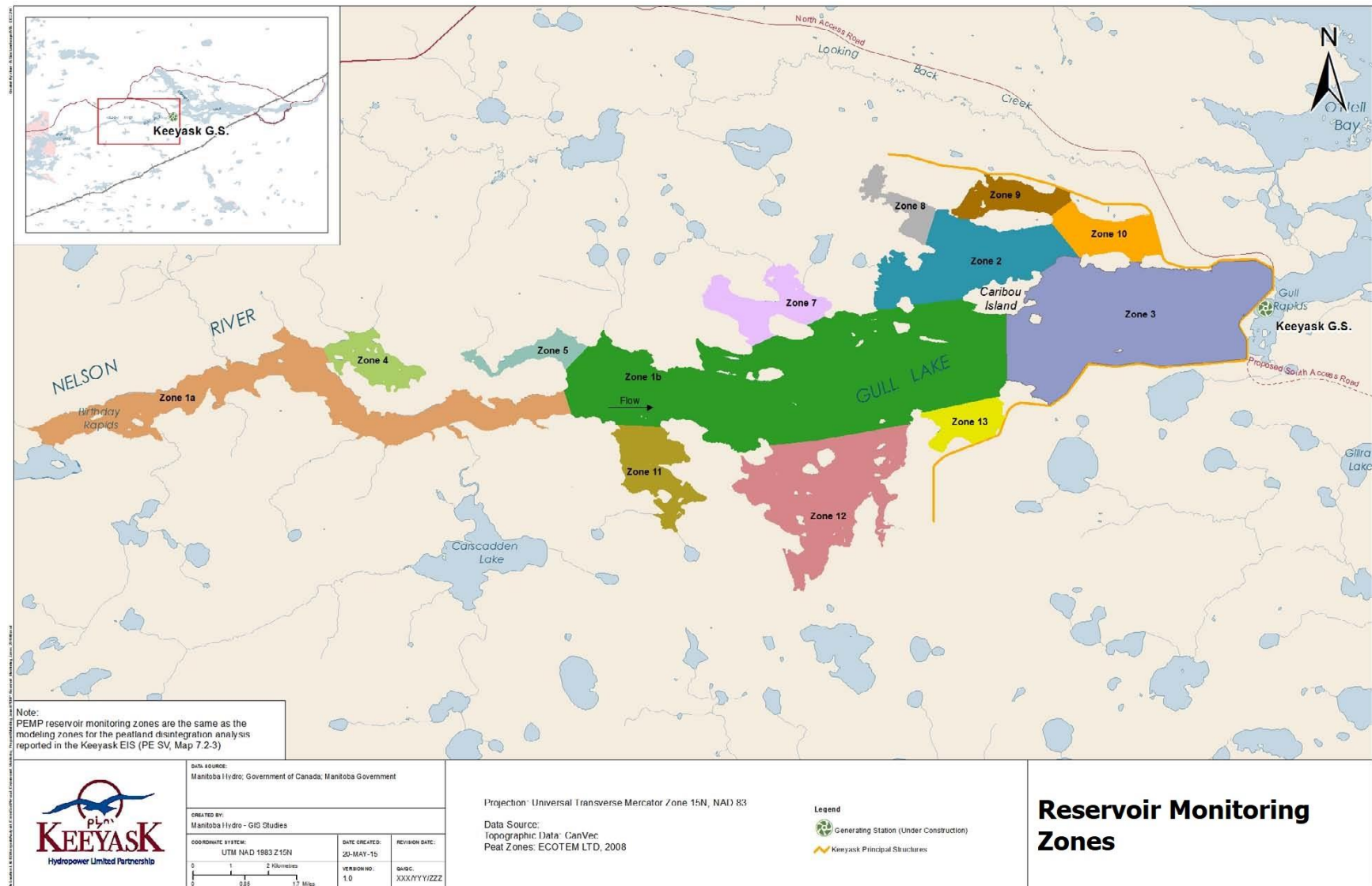
**Figure 8: Length-frequency distribution for Lake Whitefish, Northern Pike, and Walleye captured during gillnet and boat electrofishing surveys in Stephens Lake surveys the spring and fall 2021.**



# MAPS

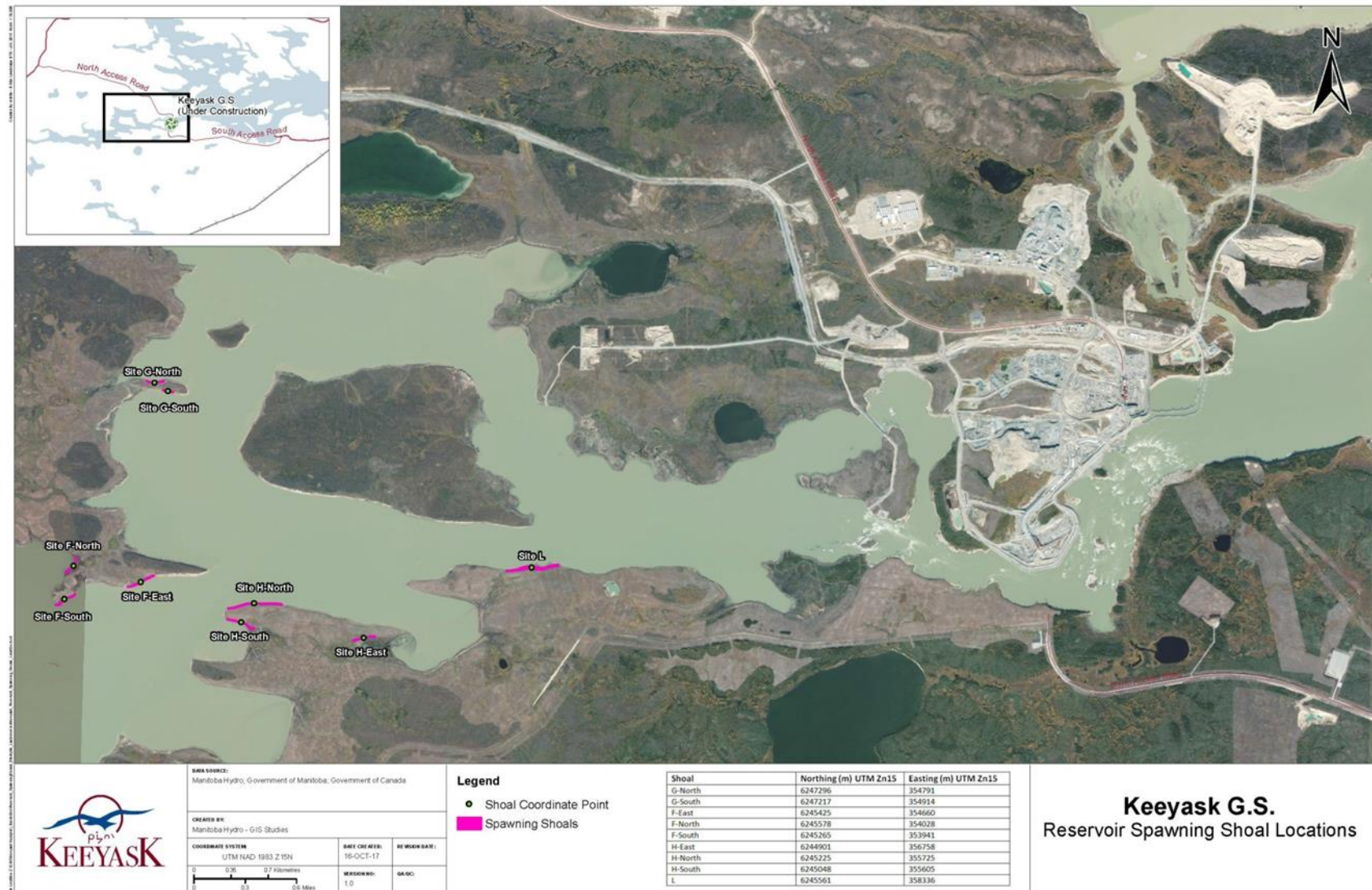


**Map 1: Map of Nelson River showing the site of Keeyask Generating Station and the fish spawn monitoring study setting.**

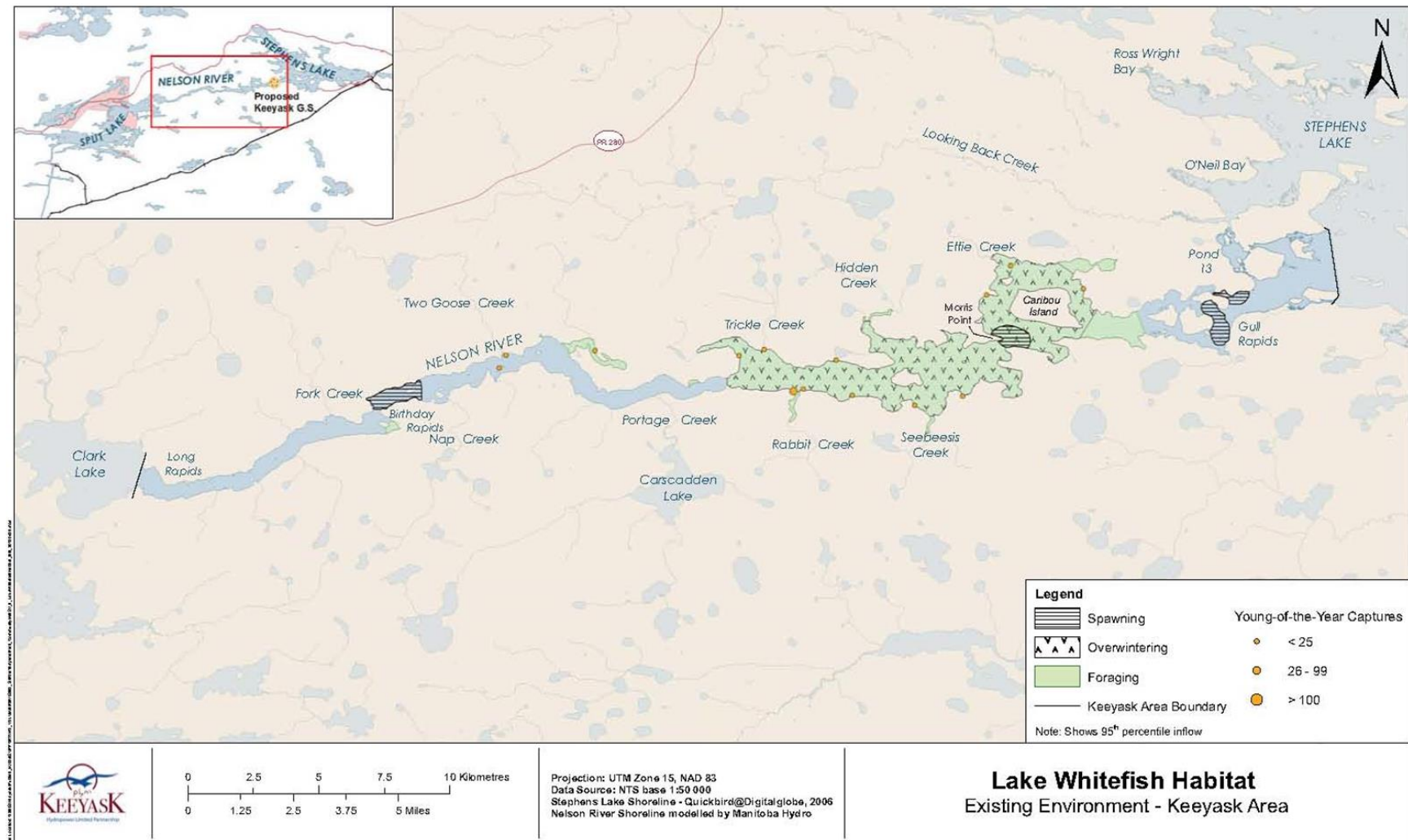


**Map 2: Locations of monitoring zones within the Keeyask reservoir, as outlined in the AEMP.**



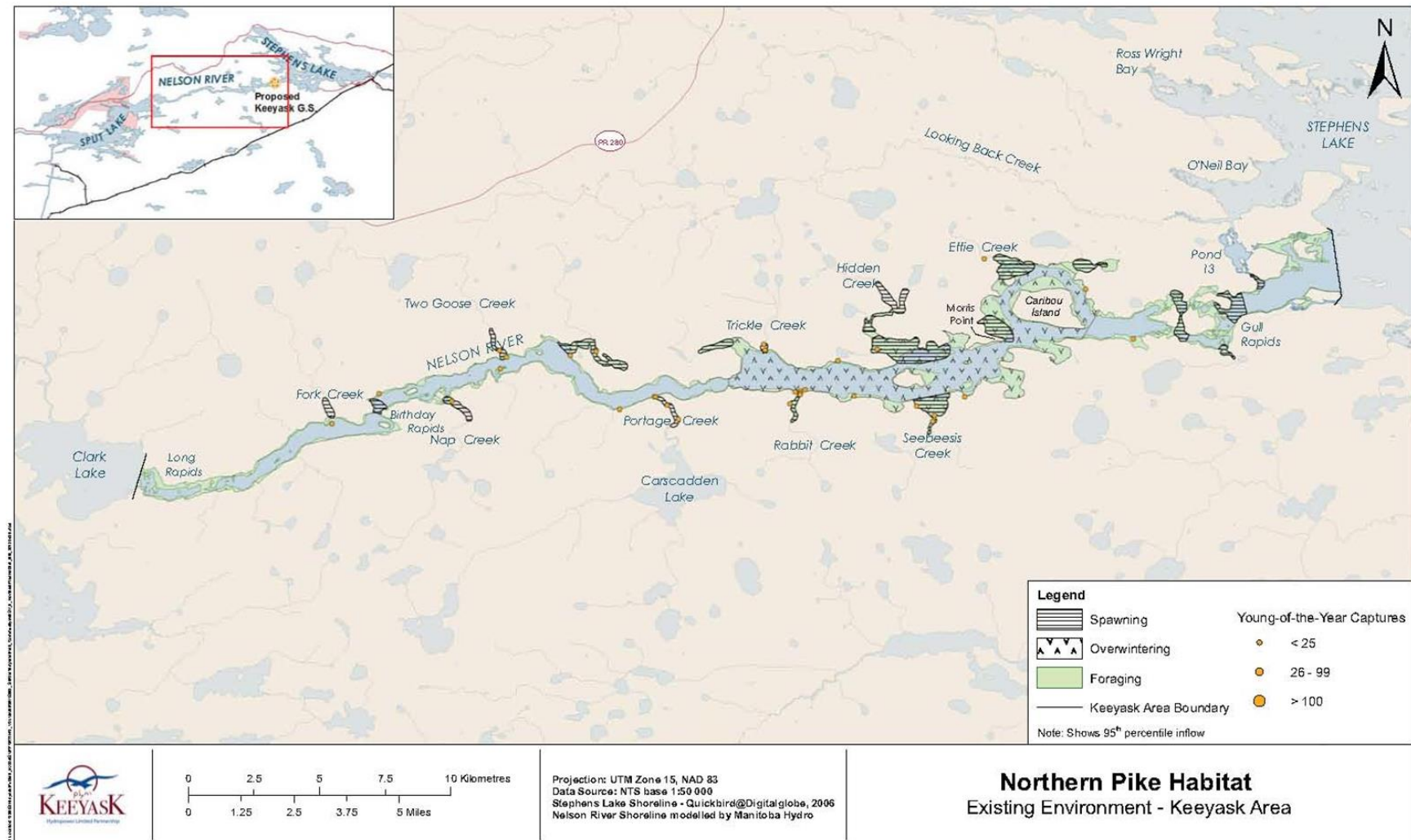


**Map 3: Locations of the reservoir spawning shoals in lower Gull Lake, as shown prior to reservoir impoundment.**



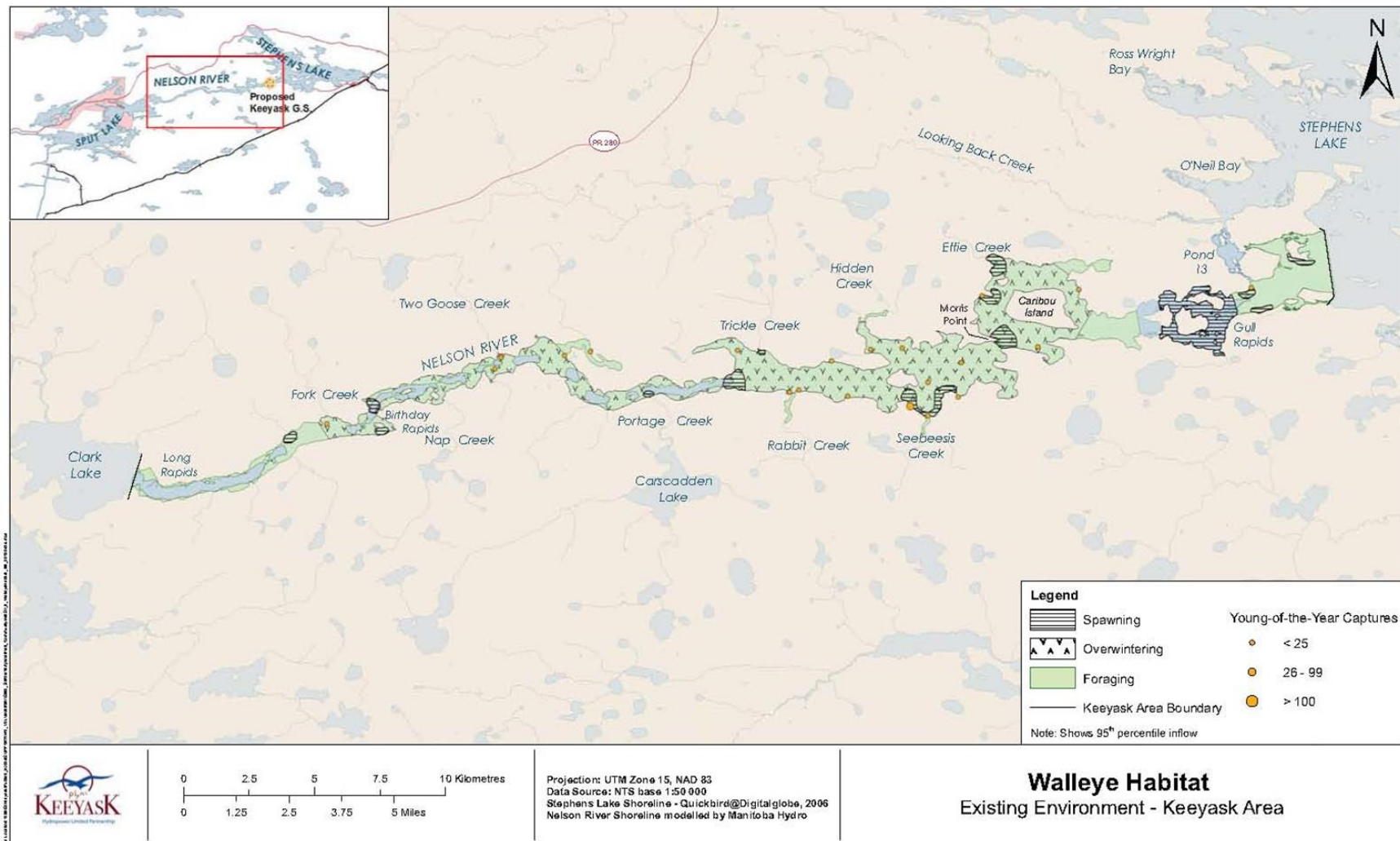
**Map 4:** Lake Whitefish habitat in the pre-Project environment including areas of spawning, overwintering, and foraging, as presented in the EIS.



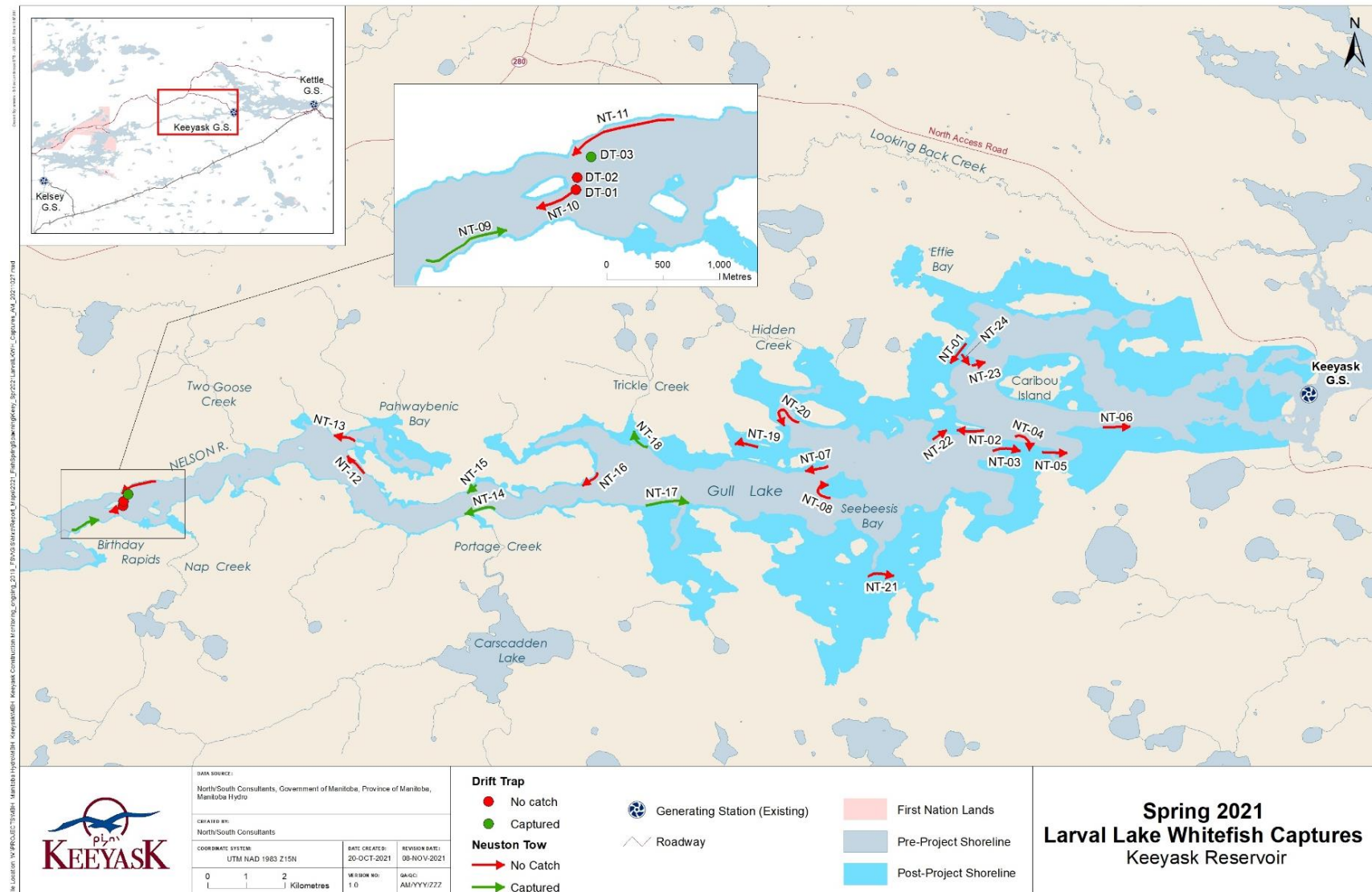


**Map 5: Northern Pike habitat in the pre-Project environment including areas of spawning, overwintering, and foraging, as presented in the EIS.**

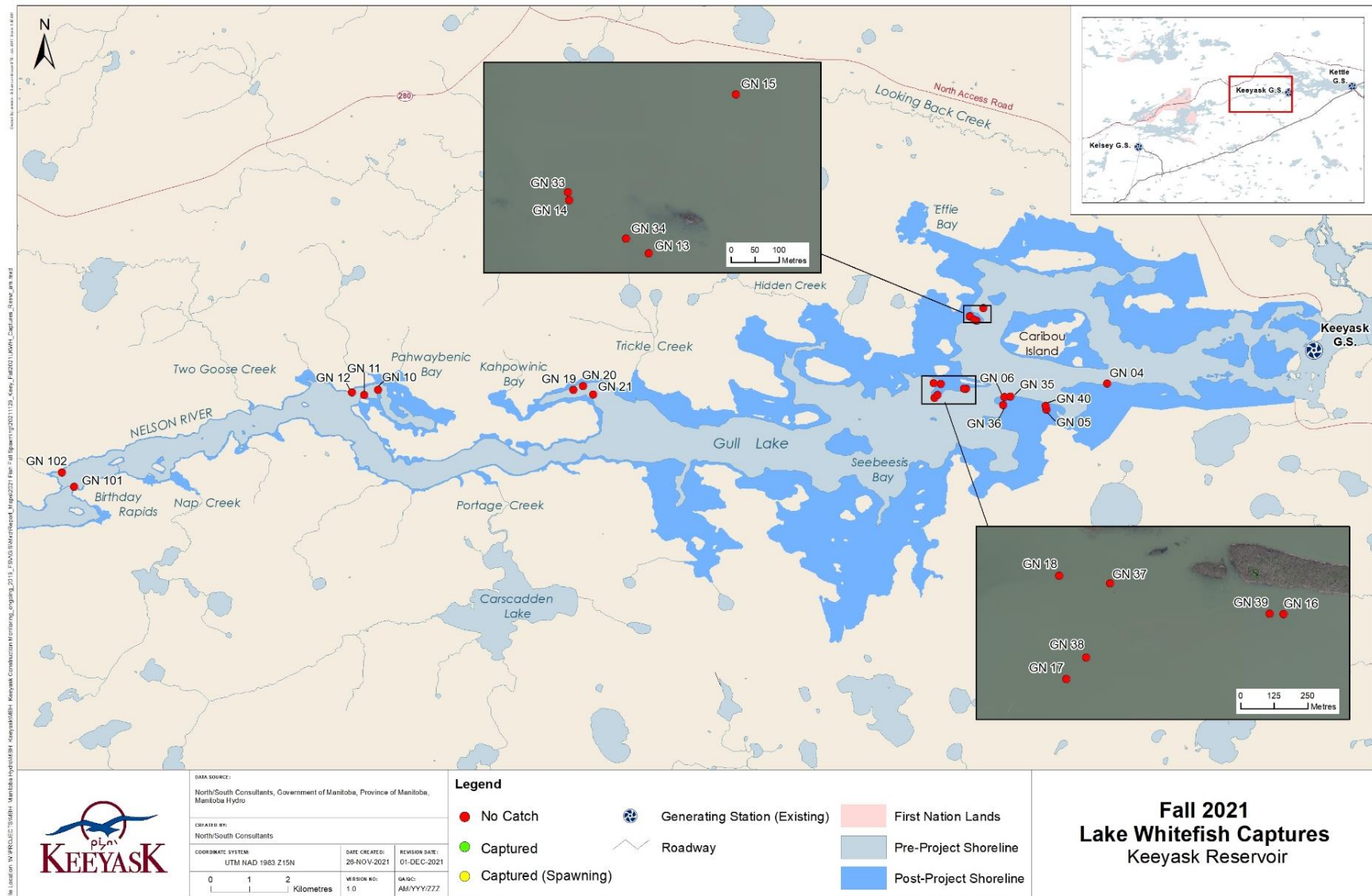




**Map 6: Walleye habitat in the pre-Project environment including areas of spawning, overwintering, and foraging, as presented in the EIS.**

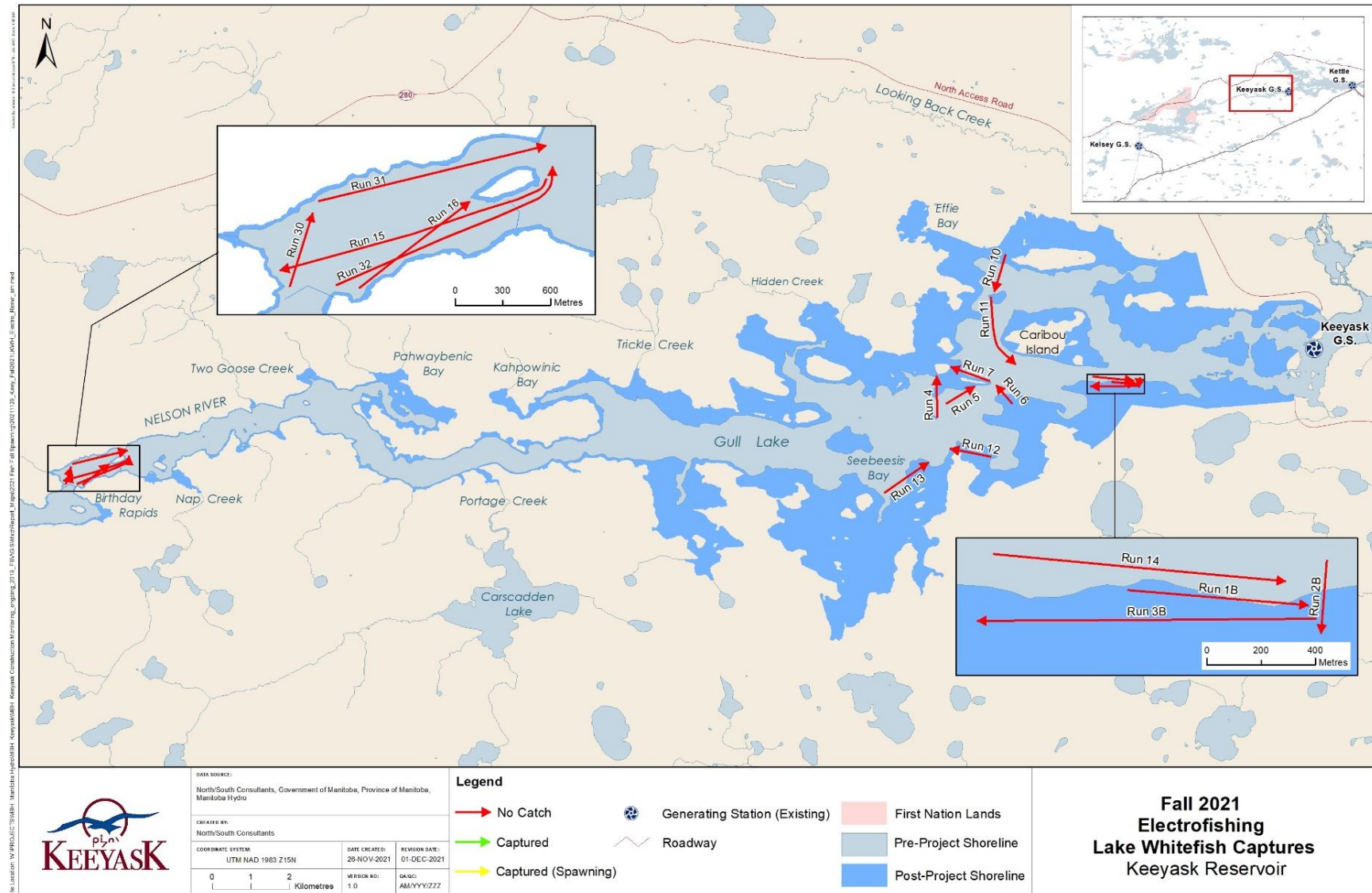


**Map 7: Map of the Keeyask reservoir showing larval Lake Whitefish captures during drift trap and neuston tow surveys, Spring 2021.**

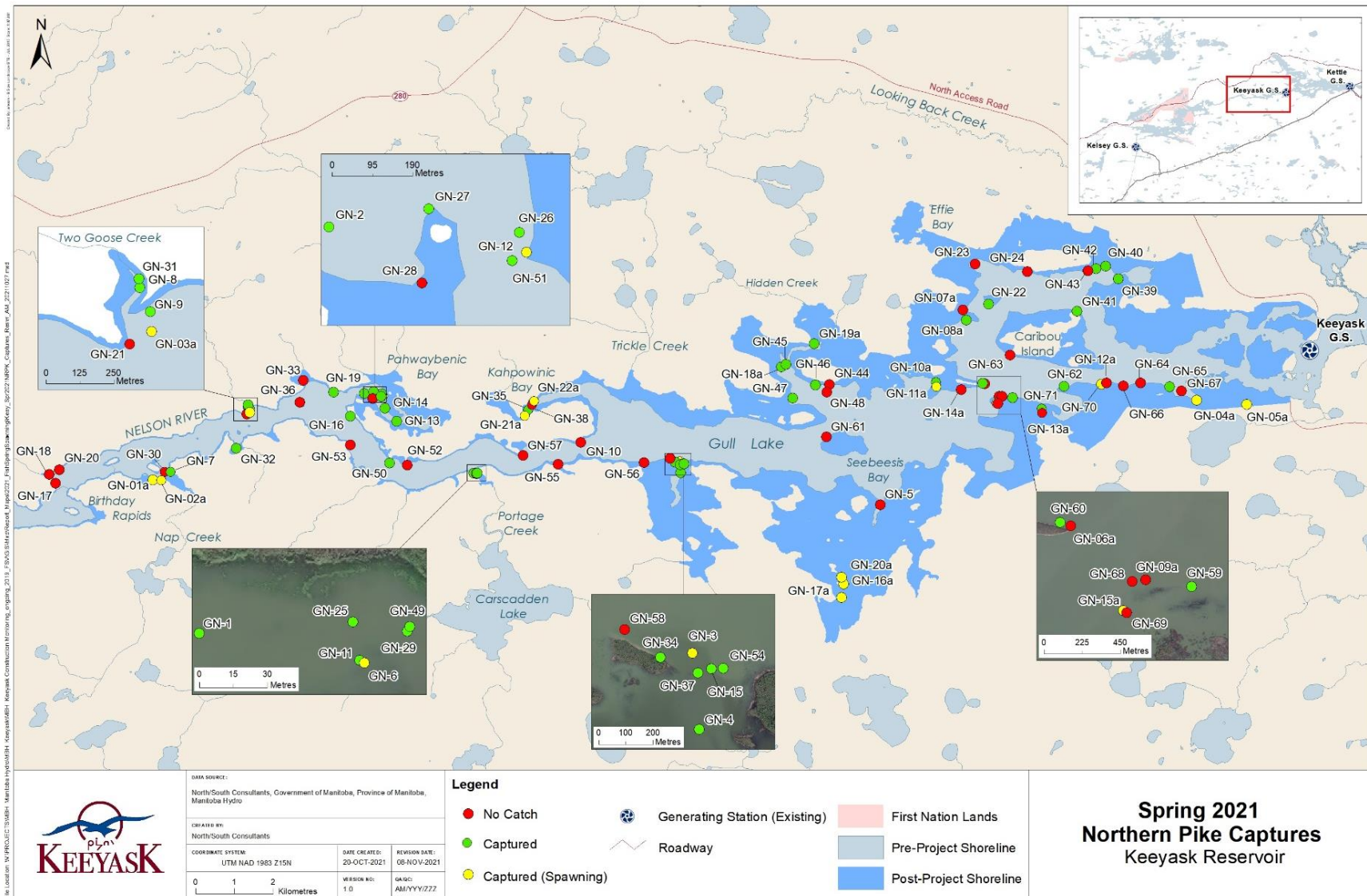


**Map 8: Map of the Keeyask reservoir showing Lake Whitefish captures during gillnet surveys, fall 2021.**



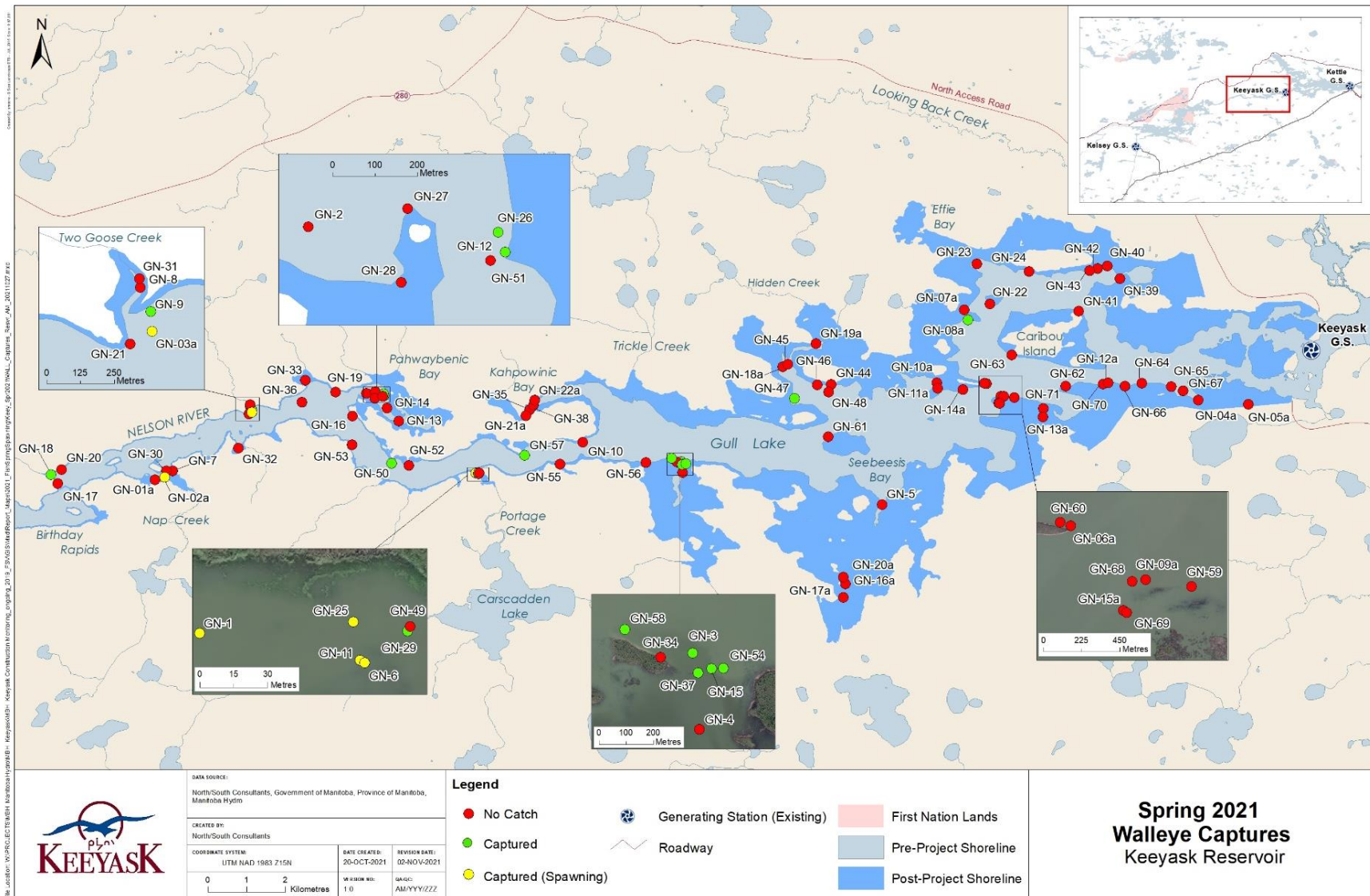


**Map 9: Map of the Keeyask reservoir showing Lake Whitefish captures during boat electrofishing surveys, fall 2021.**

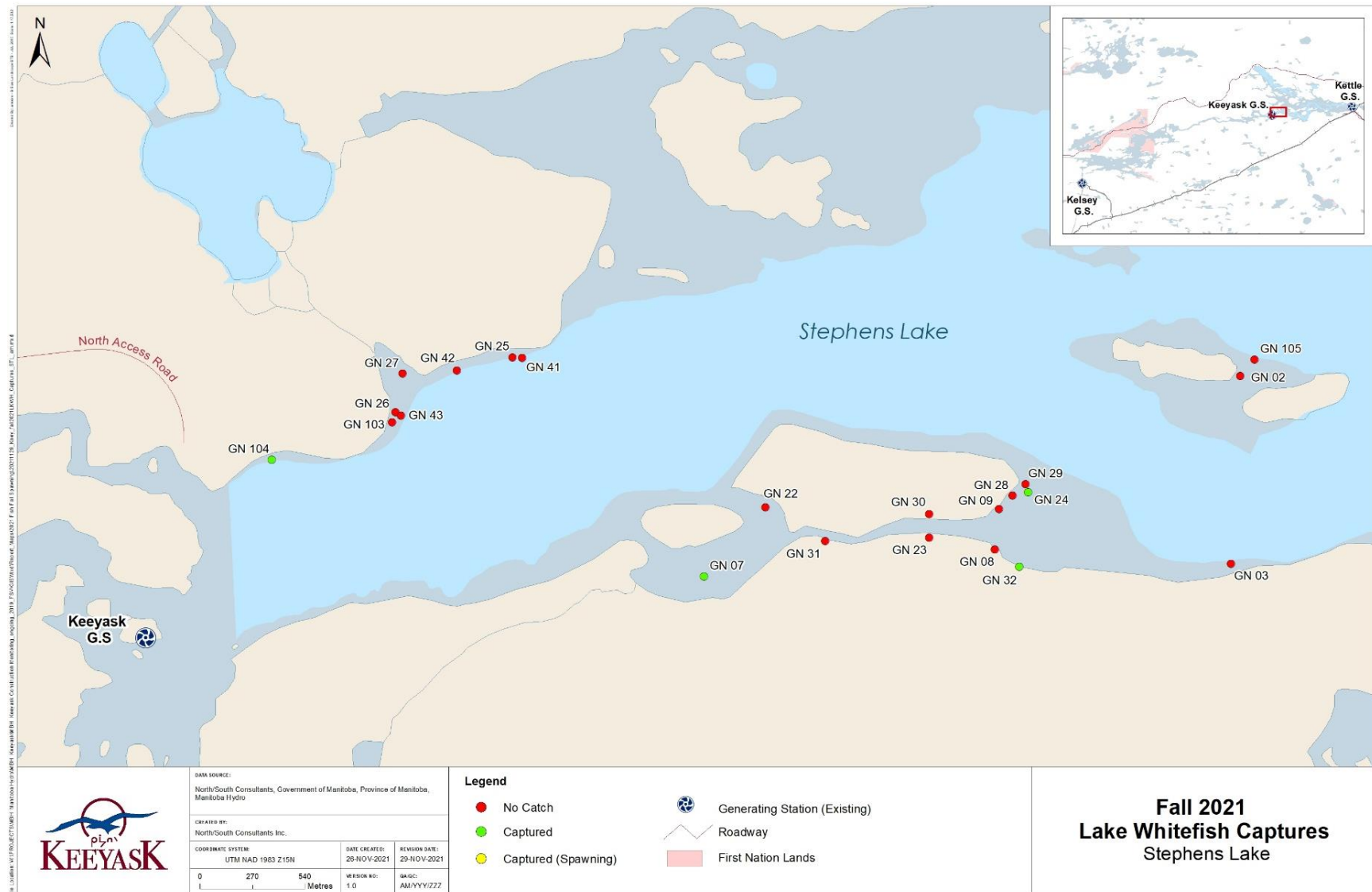


**Map 10: Map of the Keeyask reservoir showing Northern Pike captures during gillnet surveys, spring 2021.**

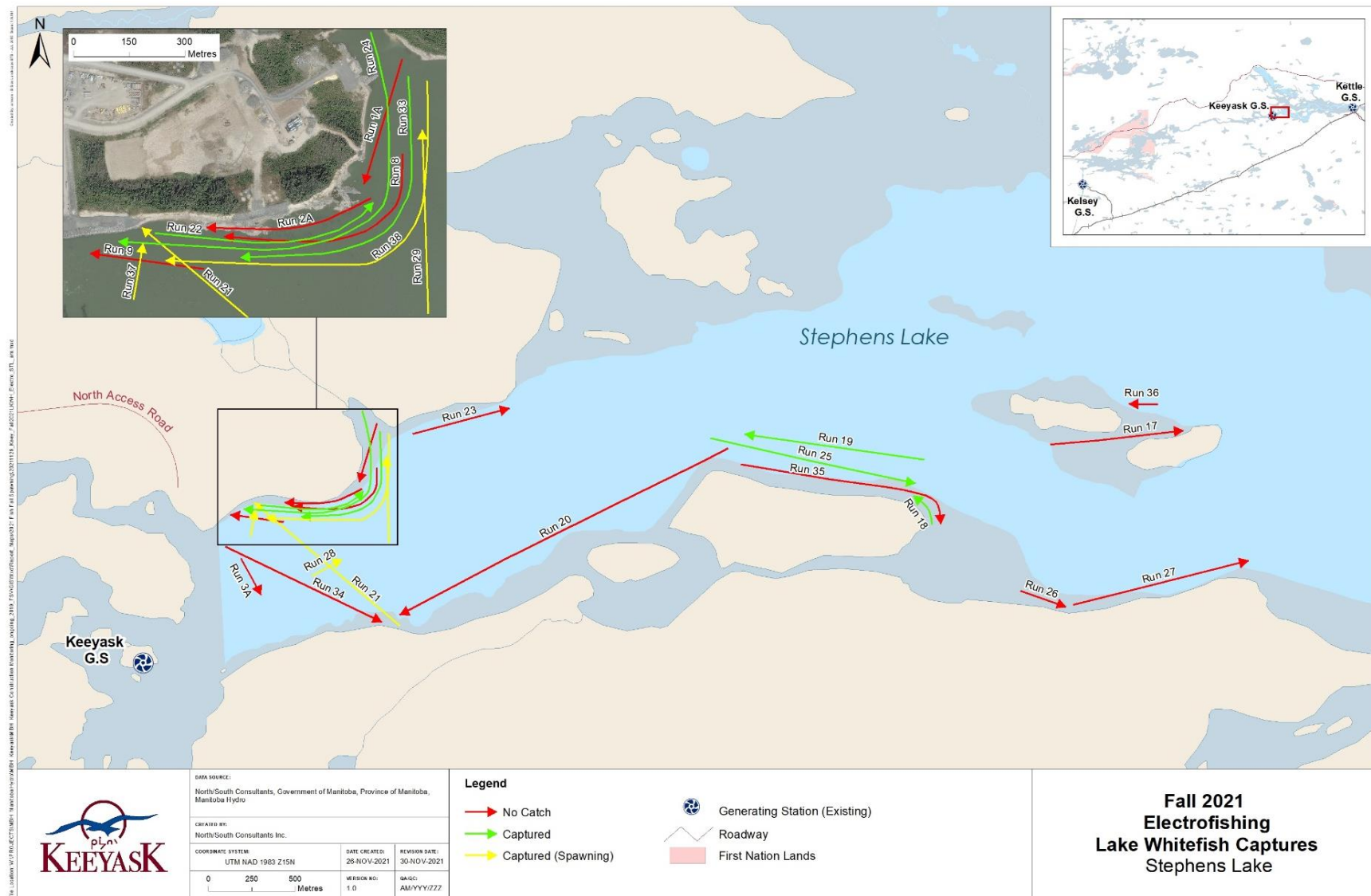




**Map 11: Map of the Keeyask reservoir showing Walleye captures during gillnet surveys, spring 2021.**

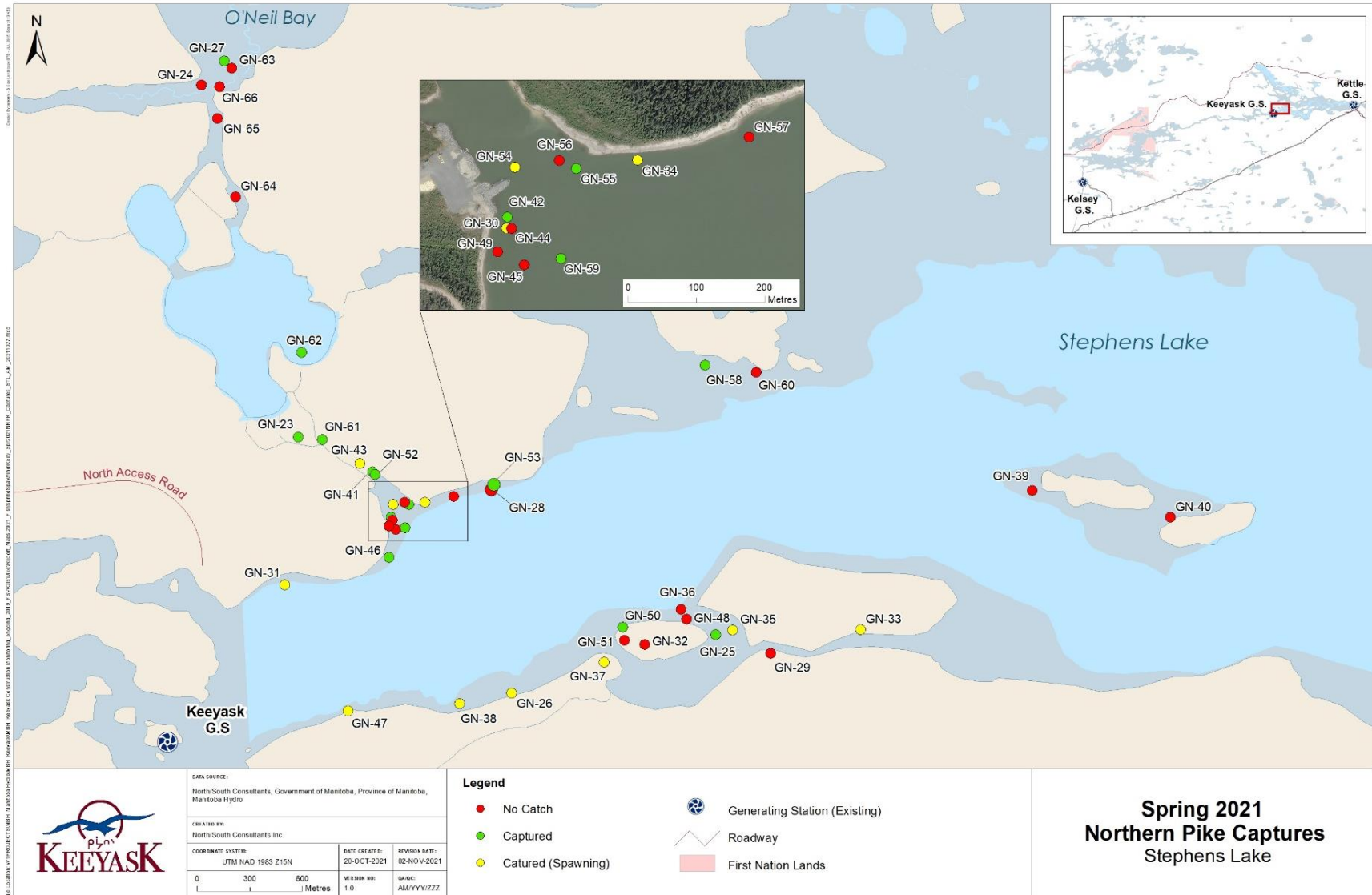


**Map 12: Map of Stephens Lake showing Lake Whitefish captures during gillnet surveys, fall 2021.**

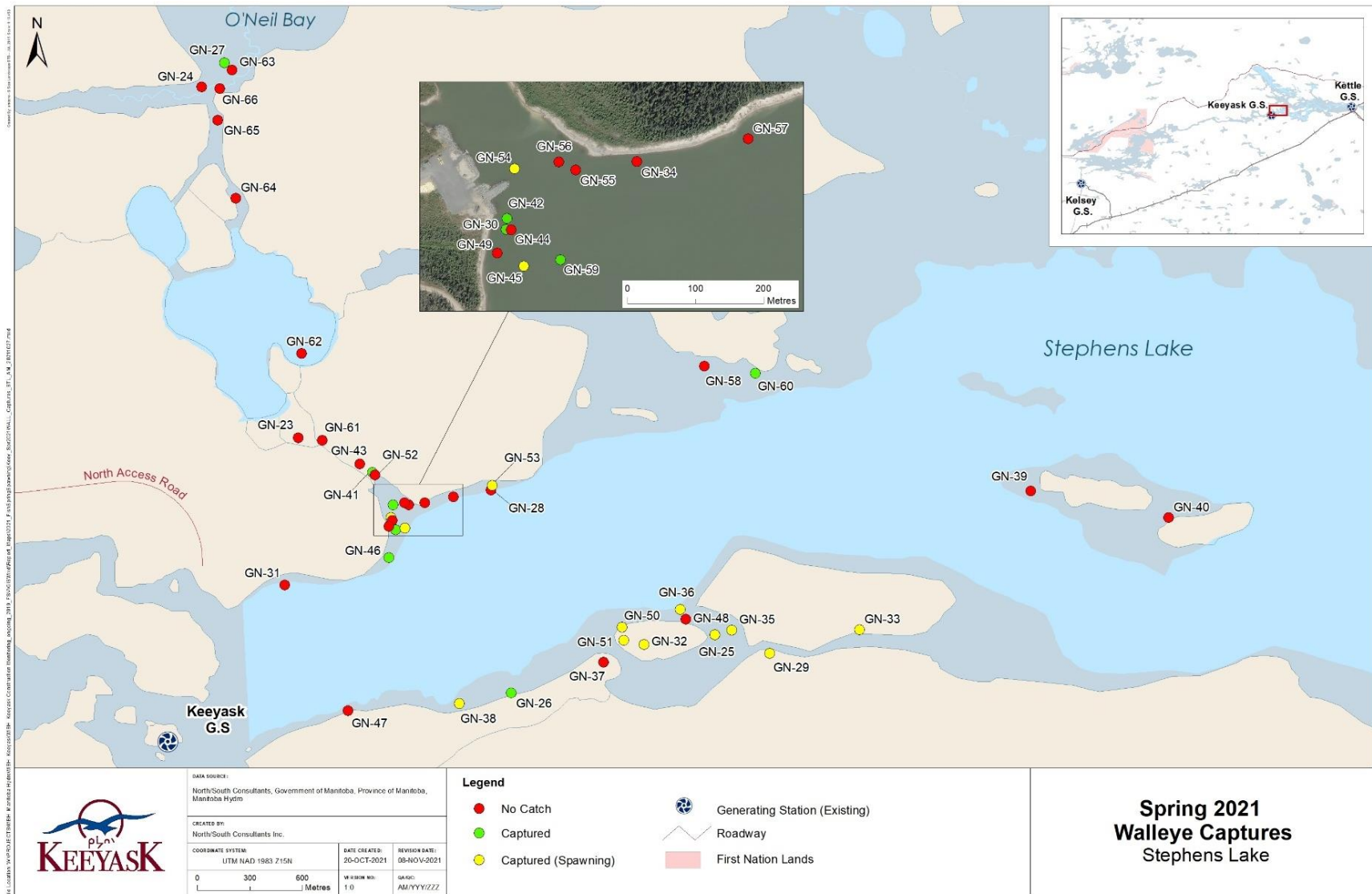


**Map 13: Map of Stephens Lake showing Lake Whitefish captures during boat electrofishing surveys, fall 2021.**





**Map 14: Map of Stephens Lake showing Northern Pike captures during gillnet surveys, spring 2021.**



**Map 15: Map of Stephens Lake showing Walleye captures during gillnet surveys, spring 2021.**

# APPENDICES

## **APPENDIX 1: LOCATIONS AND SITE-SPECIFIC PHYSICAL MEASUREMENTS COLLECTED AT GILLNETTING, BOAT ELECTROFISHING, DRIFT TRAP, AND NEUSTON TOW SITES, SPRING AND FALL 2021.**

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**Table A1-1: Gillnet survey information from the Keeyask reservoir and Stephens Lake, spring and fall 2021.**

Waterbody	Site	Date Set	UTM coordinates			Duration (dec. hours)	Depth (m)		Water Temperature
			Zone	Easting	Northing		Start	End	
Keeyask Reservoir	GN-01 a	28-May-21	15	333778	6243080	2.07	4.4	6.6	5.2
Keeyask Reservoir	GN-01 a	28-May-21	15	333778	6243080	1.42	4.4	6.6	5.2
Keeyask Reservoir	GN-02 a	28-May-21	15	334024	6243146	3.35	5.2	4.9	5.2
Keeyask Reservoir	GN-03 a	28-May-21	15	336282	6244822	3.45	6.8	3.3	5.2
Keeyask Reservoir	GN-68	28-May-21	15	355645	6245235	3.25	2.9	8.1	5.2
Keeyask Reservoir	GN-69	28-May-21	15	355593	6245062	3.33	3.7	2.2	5.2
Keeyask Reservoir	GN-04 a	29-May-21	15	360752	6245136	1.08	3.7	4.0	6.0
Keeyask Reservoir	GN-05 a	29-May-21	15	362054	6245031	1.08	4.4	4.2	6.0
Keeyask Reservoir	GN-70	29-May-21	15	358297	6245550	1.92	3.2	5.7	6.0
Keeyask Reservoir	GN-71	29-May-21	15	356746	6244927	2.88	3.1	2.0	6.0
Keeyask Reservoir	GN-1	30-May-21	15	342070	6243253	2.42	4.3	4.8	6.8
Keeyask Reservoir	GN-2	30-May-21	15	339240	6245312	1.17	4.2	4.4	6.8
Keeyask Reservoir	GN-3	30-May-21	15	347390	6243553	2.00	8.6	7.7	6.8
Keeyask Reservoir	GN-4	30-May-21	15	347414	6243271	2.17	6.5	5.8	6.8
Keeyask Reservoir	GN-5	30-May-21	15	352579	6242443	1.00	6.2	3.5	6.8
Keeyask Reservoir	GN-06 a	31-May-21	15	355221	6245580	2.08	4.9	7.7	7.4
Keeyask Reservoir	GN-07 a	31-May-21	15	354707	6247467	1.50	6.6	6.4	7.4
Keeyask Reservoir	GN-08 a	31-May-21	15	354800	6247213	2.75	6.7	7.0	7.4
Keeyask Reservoir	GN-09 a	31-May-21	15	355725	6245243	2.83	6.4	7.8	7.4
Keeyask Reservoir	GN-10	31-May-21	15	344841	6244049	3.25	4.4	7.7	7.4
Keeyask Reservoir	GN-10 a	31-May-21	15	354000	6245584	2.08	5.0	5.7	7.4
Keeyask Reservoir	GN-11 a	31-May-21	15	354025	6245522	2.25	3.0	2.9	7.4
Keeyask Reservoir	GN-12 a	31-May-21	15	358427	6245588	2.83	6.1	5.7	7.4
Keeyask Reservoir	GN-13 a	31-May-21	15	356755	6244907	2.42	3.5	2.4	7.4

**Table A1-1: Gillnet survey information from the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Waterbody	Site	Date Set	UTM coordinates			Duration (dec. hours)	Depth (m)		Water Temperature
			Zone	Easting	Northing		Start	End	
Keeyask Reservoir	GN-14 a	31-May-21	15	354667	6245410	1.20	5.2	6.6	7.4
Keeyask Reservoir	GN-15 a	31-May-21	15	355613	6245051	1.25	3.6	1.5	7.4
Keeyask Reservoir	GN-6	31-May-21	15	342141	6243241	1.42	2.0	2.5	7.4
Keeyask Reservoir	GN-6	31-May-21	15	342141	6243241	1.83	2.0	2.5	7.4
Keeyask Reservoir	GN-7	31-May-21	15	334137	6243208	1.72	1.6	3.9	7.4
Keeyask Reservoir	GN-8	31-May-21	15	336238	6244984	1.45	3.0	3.1	7.4
Keeyask Reservoir	GN-9	31-May-21	15	336277	6244895	1.67	4.4	4.3	7.4
Keeyask Reservoir	GN-11	01-Jun-21	15	342143	6243240	1.62	2.0	2.2	7.8
Keeyask Reservoir	GN-11	01-Jun-21	15	342143	6243240	1.97	2.0	2.2	7.8
Keeyask Reservoir	GN-12	01-Jun-21	15	339704	6245253	1.78	4.0	4.7	7.8
Keeyask Reservoir	GN-13	01-Jun-21	15	340082	6244599	2.10	4.5	4.5	7.8
Keeyask Reservoir	GN-14	01-Jun-21	15	339778	6244932	1.73	3.9	4.5	7.8
Keeyask Reservoir	GN-15	01-Jun-21	15	347459	6243495	1.70	12.5	6.3	7.8
Keeyask Reservoir	GN-16 a	01-Jun-21	15	351631	6240396	2.00	2.8	2.8	7.8
Keeyask Reservoir	GN-17 a	01-Jun-21	15	351575	6240047	2.25	2.9	3.5	7.8
Keeyask Reservoir	GN-17 a	01-Jun-21	15	351575	6240047	2.33	2.9	3.5	7.8
Keeyask Reservoir	GN-18 a	01-Jun-21	15	350143	6246070	2.72	6.2	6.2	7.8
Keeyask Reservoir	GN-19 a	01-Jun-21	15	350872	6246595	2.92	3.4	6.8	7.8
Keeyask Reservoir	GN-20 a	01-Jun-21	15	351581	6240567	2.83	2.2	2.2	7.8
Keeyask Reservoir	GN-21 a	01-Jun-21	15	343434	6244817	2.33	2.6	5.1	7.8
Keeyask Reservoir	GN-22 a	01-Jun-21	15	343592	6245060	2.67	5.5	5.5	7.8
Keeyask Reservoir	GN-16	03-Jun-21	15	338883	6244722	1.50	5.2	4.2	8.8
Keeyask Reservoir	GN-17	03-Jun-21	15	331261	6242990	1.55	3.0	2.8	8.8
Keeyask Reservoir	GN-18	03-Jun-21	15	331090	6243218	1.57	2.6	2.4	8.8

**Table A1-1: Gillnet survey information from the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Waterbody	Site	Date Set	UTM coordinates			Duration (dec. hours)	Depth (m)		Water Temperature
			Zone	Easting	Northing		Start	End	
Keeyask Reservoir	GN-19	03-Jun-21	15	338445	6245349	3.00	4.7	4.7	8.8
Keeyask Reservoir	GN-20	03-Jun-21	15	331357	6243343	1.90	3.6	2.8	8.8
Keeyask Reservoir	GN-21	03-Jun-21	15	336201	6244776	1.45	5.2	4.3	8.8
Keeyask Reservoir	GN-22	04-Jun-21	15	355372	6247627	1.55	6.0	6.8	9.2
Keeyask Reservoir	GN-23	04-Jun-21	15	355027	6248653	1.63	6.1	6.5	9.2
Keeyask Reservoir	GN-24	04-Jun-21	15	356375	6248460	1.65	6.0	6.3	9.2
Keeyask Reservoir	GN-25	05-Jun-21	15	342138	6243258	1.50	3.2	2.4	9.5
Keeyask Reservoir	GN-25	05-Jun-21	15	342138	6243258	2.63	3.2	2.4	9.5
Keeyask Reservoir	GN-26	05-Jun-21	15	339687	6245299	2.32	4.9	4.9	9.5
Keeyask Reservoir	GN-26	05-Jun-21	15	339687	6245299	1.20	4.9	4.9	9.5
Keeyask Reservoir	GN-27	05-Jun-21	15	339474	6245355	1.90	3.4	5.1	9.5
Keeyask Reservoir	GN-28	05-Jun-21	15	339459	6245181	1.13	2.5	5.0	9.5
Keeyask Reservoir	GN-29	06-Jun-21	15	342162	6243254	1.42	2.3	4.6	10.0
Keeyask Reservoir	GN-29	06-Jun-21	15	342162	6243254	1.75	2.3	4.6	10.0
Keeyask Reservoir	GN-30	06-Jun-21	15	334129	6243207	1.50	2.4	5.2	10.0
Keeyask Reservoir	GN-31	06-Jun-21	15	336235	6245017	1.75	3.5	3.6	10.0
Keeyask Reservoir	GN-31	06-Jun-21	15	336235	6245017	1.58	3.5	3.6	10.0
Keeyask Reservoir	GN-32	06-Jun-21	15	335930	6243902	1.50	2.9	2.3	10.0
Keeyask Reservoir	GN-33	06-Jun-21	15	337664	6245647	1.00	3.9	4.1	10.0
Keeyask Reservoir	GN-34	07-Jun-21	15	347272	6243537	2.87	4.6	6.7	10.2
Keeyask Reservoir	GN-35	07-Jun-21	15	343472	6244888	3.32	2.1	5.9	10.2
Keeyask Reservoir	GN-36	07-Jun-21	15	337577	6245089	1.67	4.1	5.6	10.2
Keeyask Reservoir	GN-37	07-Jun-21	15	347409	6243479	2.28	4.1	5.6	10.2
Keeyask Reservoir	GN-38	07-Jun-21	15	343570	6245010	1.12	3.2	3.9	10.2



**Table A1-1: Gillnet survey information from the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Waterbody	Site	Date Set	UTM coordinates			Duration (dec. hours)	Depth (m)		Water Temperature
			Zone	Easting	Northing		Start	End	
Keeyask Reservoir	GN-39	08-Jun-21	15	358734	6248273	1.85	5.6	6.1	10.5
Keeyask Reservoir	GN-40	08-Jun-21	15	358405	6248604	3.30	5.2	5.9	10.5
Keeyask Reservoir	GN-41	08-Jun-21	15	357666	6247434	1.57	3.3	6.2	10.5
Keeyask Reservoir	GN-42	08-Jun-21	15	358149	6248537	3.08	6.6	6.6	10.5
Keeyask Reservoir	GN-43	08-Jun-21	15	357948	6248481	3.05	6.1	5.8	10.5
Keeyask Reservoir	GN-44	10-Jun-21	15	351262	6245539	2.50	5.0	6.3	10.9
Keeyask Reservoir	GN-45	10-Jun-21	15	350015	6246002	1.55	6.3	5.8	10.9
Keeyask Reservoir	GN-46	10-Jun-21	15	350903	6245536	2.58	6.6	6.2	10.9
Keeyask Reservoir	GN-47	10-Jun-21	15	350314	6245189	1.85	6.7	6.1	10.9
Keeyask Reservoir	GN-48	10-Jun-21	15	351200	6245348	1.27	6.9	7.1	10.9
Keeyask Reservoir	GN-49	13-Jun-21	15	342163	6243256	1.97	2.8	3.1	12.4
Keeyask Reservoir	GN-50	13-Jun-21	15	339896	6243512	2.63	5.8	7.1	12.4
Keeyask Reservoir	GN-51	13-Jun-21	15	339670	6245233	3.57	5.8	3.9	12.4
Keeyask Reservoir	GN-52	13-Jun-21	15	340347	6243458	1.00	5.1	7.3	12.4
Keeyask Reservoir	GN-53	13-Jun-21	15	338876	6243985	1.98	5.3	5.7	12.4
Keeyask Reservoir	GN-54	14-Jun-21	15	347503	6243497	1.27	6.8	6.6	12.1
Keeyask Reservoir	GN-54	14-Jun-21	15	347503	6243497	2.40	6.8	6.6	12.1
Keeyask Reservoir	GN-54	14-Jun-21	15	347503	6243497	1.23	6.8	6.6	12.1
Keeyask Reservoir	GN-55	14-Jun-21	15	344247	6243486	3.07	5.7	7.3	12.1
Keeyask Reservoir	GN-56	14-Jun-21	15	346471	6243526	1.72	6.7	6.9	12.1
Keeyask Reservoir	GN-57	14-Jun-21	15	343339	6243711	3.05	5.8	8.4	12.1
Keeyask Reservoir	GN-58	14-Jun-21	15	347140	6243639	1.18	4.7	8.1	12.1
Keeyask Reservoir	GN-59	15-Jun-21	15	355995	6245204	1.33	4.0	7.3	12.5
Keeyask Reservoir	GN-60	15-Jun-21	15	355283	6245562	2.25	5.2	8.1	12.5



**Table A1-1: Gillnet survey information from the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Waterbody	Site	Date Set	UTM coordinates			Duration (dec. hours)	Depth (m)		Water Temperature
			Zone	Easting	Northing		Start	End	
Keeyask Reservoir	GN-61	15-Jun-21	15	351184	6244191	2.42	6.1	5.9	12.5
Keeyask Reservoir	GN-62	15-Jun-21	15	357327	6245500	2.37	6.6	7.3	12.5
Keeyask Reservoir	GN-63	15-Jun-21	15	355936	6246308	2.05	6.8	8.8	12.5
Keeyask Reservoir	GN-64	15-Jun-21	15	359303	6245581	2.08	6.1	9.2	12.5
Keeyask Reservoir	GN-65	16-Jun-21	15	360059	6245493	2.05	7.1	7.8	12.8
Keeyask Reservoir	GN-66	16-Jun-21	15	358861	6245505	2.23	7.8	8.4	12.8
Keeyask Reservoir	GN-67	16-Jun-21	15	360367	6245384	2.43	7.6	7.3	12.8
Keeyask Reservoir	GN 04	03-Oct-21	15	358340	6245561	3.13	3.2	4.6	12.0
Keeyask Reservoir	GN 05	03-Oct-21	15	356770	6244892	2.67	3.8	3.0	12.0
Keeyask Reservoir	GN 06	03-Oct-21	15	355679	6245220	2.35	2.7	6.1	12.0
Keeyask Reservoir	GN 10	05-Oct-21	15	339481	6245398	3.43	4.2	4.0	11.0
Keeyask Reservoir	GN 11	05-Oct-21	15	339117	6245273	3.47	3.4	3.9	11.0
Keeyask Reservoir	GN 12	05-Oct-21	15	338807	6245332	3.60	3.1	4.4	11.0
Keeyask Reservoir	GN 13	07-Oct-21	15	354960	6247183	1.93	7.4	8.0	11.0
Keeyask Reservoir	GN 14	07-Oct-21	15	354794	6247294	2.10	3.5	5.5	11.0
Keeyask Reservoir	GN 15	07-Oct-21	15	355143	6247515	2.22	6.7	7.0	11.0
Keeyask Reservoir	GN 16	07-Oct-21	15	354689	6245436	1.55	4.3	2.7	11.0
Keeyask Reservoir	GN 17	07-Oct-21	15	353878	6245194	1.58	5.5	5.0	11.0
Keeyask Reservoir	GN 18	07-Oct-21	15	353851	6245580	2.00	7.7	7.4	11.0
Keeyask Reservoir	GN 19	08-Oct-21	15	344530	6245406	4.27	6.8	7.4	11.0
Keeyask Reservoir	GN 20	08-Oct-21	15	344782	6245499	4.50	6.8	7.3	11.0
Keeyask Reservoir	GN 21	08-Oct-21	15	345040	6245282	4.80	6.0	6.0	11.0
Keeyask Reservoir	GN 101	11-Oct-21	15	331619	6242898	3.40	6.0	3.3	10.0
Keeyask Reservoir	GN 102	11-Oct-21	15	331310	6243270	3.58	4.3	4.1	10.0

**Table A1-1: Gillnet survey information from the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Waterbody	Site	Date Set	UTM coordinates			Duration (dec. hours)	Depth (m)		Water Temperature
			Zone	Easting	Northing		Start	End	
Keeyask Reservoir	GN 33	11-Oct-21	15	354793	6247299	2.82	3.7	5.3	10.0
Keeyask Reservoir	GN 34	11-Oct-21	15	354913	6247213	2.97	4.6	8.8	10.0
Keeyask Reservoir	GN 35	11-Oct-21	15	355733	6245226	3.47	4.3	9.6	10.0
Keeyask Reservoir	GN 36	11-Oct-21	15	355620	6245058	3.58	3.8	7.2	10.0
Keeyask Reservoir	GN 37	11-Oct-21	15	354042	6245551	2.23	3.4	2.5	10.0
Keeyask Reservoir	GN 38	11-Oct-21	15	353952	6245274	2.30	3.6	6.8	10.0
Keeyask Reservoir	GN 39	11-Oct-21	15	354637	6245438	2.02	3.5	6.2	10.0
Keeyask Reservoir	GN 40	11-Oct-21	15	356754	6244917	2.02	3.3	4.7	10.0
Stephens Lake	GN-23	02-Jun-21	15	364431	6248144	0.10	2.2	3.7	8.1
Stephens Lake	GN-24	02-Jun-21	15	363881	6250147	0.08	5.3	9.4	8.1
Stephens Lake	GN-25	02-Jun-21	15	366810	6247021	0.12	3.5	2.7	8.1
Stephens Lake	GN-26	02-Jun-21	15	365649	6246688	0.14	2.5	6.9	8.1
Stephens Lake	GN-27	02-Jun-21	15	364011	6250284	0.15	2.0	7.6	8.1
Stephens Lake	GN-28	02-Jun-21	15	365533	6247846	0.08	7.2	10.0	8.1
Stephens Lake	GN-29	02-Jun-21	15	367124	6246914	0.04	6.5	8.6	8.1
Stephens Lake	GN-41	02-Jun-21	15	364857	6247948	0.05	4.0	2.2	8.1
Stephens Lake	GN-42	02-Jun-21	15	364963	6247690	0.09	5.8	5.1	8.1
Stephens Lake	GN-42	02-Jun-21	15	364963	6247690	0.09	5.8	5.1	8.1
Stephens Lake	GN-43	02-Jun-21	15	364783	6247996	0.10	3.8	3.6	8.1
Stephens Lake	GN-30	03-Jun-21	15	364962	6247674	0.08	4.5	6.7	8.8
Stephens Lake	GN-30	03-Jun-21	15	364962	6247674	0.13	4.5	6.7	8.8
Stephens Lake	GN-31	03-Jun-21	15	364356	6247304	0.09	3.2	4.1	8.8
Stephens Lake	GN-32	03-Jun-21	15	366407	6246966	0.13	3.9	5.9	8.8
Stephens Lake	GN-33	03-Jun-21	15	367636	6247049	0.15	6.9	8.2	8.8

**Table A1-1: Gillnet survey information from the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Waterbody	Site	Date Set	UTM coordinates			Duration (dec. hours)	Depth (m)		Water Temperature
			Zone	Easting	Northing		Start	End	
Stephens Lake	GN-34	03-Jun-21	15	365154	6247774	0.11	4.1	5.8	8.8
Stephens Lake	GN-35	03-Jun-21	15	366908	6247047	0.12	2.3	3.8	8.8
Stephens Lake	GN-36	04-Jun-21	15	366613	6247166	0.08	8.4	6.6	9.2
Stephens Lake	GN-37	04-Jun-21	15	366176	6246863	0.09	4.5	6.2	9.2
Stephens Lake	GN-38	04-Jun-21	15	365351	6246628	0.10	4.1	6.4	9.2
Stephens Lake	GN-44	04-Jun-21	15	364969	6247673	0.08	6.3	4.5	9.2
Stephens Lake	GN-45	04-Jun-21	15	364988	6247620	0.07	6.9	3.9	9.2
Stephens Lake	GN-39	05-Jun-21	15	368615	6247842	0.12	5.3	11.7	9.5
Stephens Lake	GN-40	05-Jun-21	15	369401	6247689	0.12	7.9	6.6	9.5
Stephens Lake	GN-46	05-Jun-21	15	364950	6247460	0.10	2.8	6.9	9.5
Stephens Lake	GN-47	05-Jun-21	15	364717	6246588	0.13	2.2	4.7	9.5
Stephens Lake	GN-48	05-Jun-21	15	366645	6247110	0.04	6.1	4.9	9.5
Stephens Lake	GN-49	06-Jun-21	15	364949	6247639	0.09	6.0	6.8	10.0
Stephens Lake	GN-50	06-Jun-21	15	366281	6247063	0.09	5.4	7.0	10.0
Stephens Lake	GN-50	06-Jun-21	15	366281	6247063	0.13	5.4	7.0	10.0
Stephens Lake	GN-50	06-Jun-21	15	366281	6247063	0.06	5.4	7.0	10.0
Stephens Lake	GN-51	06-Jun-21	15	366291	6246988	0.12	5.7	6.6	10.0
Stephens Lake	GN-51	06-Jun-21	15	366291	6246988	0.05	5.7	6.6	10.0
Stephens Lake	GN-52	08-Jun-21	15	364871	6247933	0.09	4.0	4.4	10.5
Stephens Lake	GN-53	08-Jun-21	15	365539	6247854	0.10	6.6	4.9	10.5
Stephens Lake	GN-54	08-Jun-21	15	364974	6247763	0.11	5.5	2.8	10.5
Stephens Lake	GN-55	08-Jun-21	15	365064	6247761	0.08	5.8	6.7	10.5
Stephens Lake	GN-56	08-Jun-21	15	365039	6247773	0.08	3.5	5.2	10.5
Stephens Lake	GN-57	08-Jun-21	15	365318	6247807	0.07	3.7	4.8	10.5

**Table A1-1: Gillnet survey information from the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Waterbody	Site	Date Set	UTM coordinates			Duration (dec. hours)	Depth (m)		Water Temperature
			Zone	Easting	Northing		Start	End	
Stephens Lake	GN-58	08-Jun-21	15	366750	6248555	0.09	1.8	4.6	10.5
Stephens Lake	GN-59	08-Jun-21	15	365042	6247629	0.09	6.9	6.1	10.5
Stephens Lake	GN-60	08-Jun-21	15	367042	6248512	0.07	2.2	5.8	10.5
Stephens Lake	GN-61	10-Jun-21	15	364569	6248130	0.08	0.9	3.3	10.9
Stephens Lake	GN-62	10-Jun-21	15	364452	6248627	0.09	2.9	0.8	10.9
Stephens Lake	GN-63	10-Jun-21	15	364055	6250245	0.10	5.5	8.0	10.9
Stephens Lake	GN-64	10-Jun-21	15	364075	6249513	0.07	2.4	2.3	10.9
Stephens Lake	GN-65	10-Jun-21	15	363972	6249958	0.07	7.0	4.2	10.9
Stephens Lake	GN-66	10-Jun-21	15	363984	6250139	0.07	7.5	12.0	10.9
Stephens Lake	GN 01	03-Oct-21	15	368796	6247753	2.12	4.0	13.7	12.0
Stephens Lake	GN 02	03-Oct-21	15	369328	6247759	2.07	1.9	10.1	12.0
Stephens Lake	GN 03	03-Oct-21	15	369281	6246792	2.25	9.0	13.7	12.0
Stephens Lake	GN 07	04-Oct-21	15	366566	6246727	3.17	2.6	3.0	11.4
Stephens Lake	GN 08	04-Oct-21	15	368064	6246865	3.45	5.5	11.7	11.4
Stephens Lake	GN 09	04-Oct-21	15	368085	6247073	4.98	1.6	2.7	11.4
Stephens Lake	GN 22	09-Oct-21	15	366881	6247082	3.33	2.0	3.7	11.0
Stephens Lake	GN 23	09-Oct-21	15	367725	6246927	3.03	6.7	10.3	11.0
Stephens Lake	GN 24	09-Oct-21	15	368235	6247160	2.65	2.4	3.7	11.0
Stephens Lake	GN 25	09-Oct-21	15	365578	6247854	2.30	8.1	7.7	11.0
Stephens Lake	GN 26	09-Oct-21	15	364975	6247573	2.37	7.5	7.3	11.0
Stephens Lake	GN 27	09-Oct-21	15	365013	6247772	2.73	6.1	4.7	11.0
Stephens Lake	GN 28	10-Oct-21	15	368155	6247142	2.82	2.0	2.8	10.7
Stephens Lake	GN 28	10-Oct-21	15	368155	6247142	3.98	2.0	2.8	10.7
Stephens Lake	GN 29	10-Oct-21	15	368222	6247201	2.92	2.3	3.4	10.7

**Table A1-1: Gillnet survey information from the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Waterbody	Site	Date Set	UTM coordinates			Duration (dec. hours)	Depth (m)		Water Temperature
			Zone	Easting	Northing		Start	End	
Stephens Lake	GN 29	10-Oct-21	15	368222	6247201	4.05	2.3	3.4	10.7
Stephens Lake	GN 30	10-Oct-21	15	367726	6247048	3.12	7.0	8.6	10.7
Stephens Lake	GN 31	10-Oct-21	15	367190	6246908	2.92	6.5	3.3	10.7
Stephens Lake	GN 32	10-Oct-21	15	368190	6246776	4.68	1.1	11.4	10.7
Stephens Lake	GN 103	12-Oct-21	15	364959	6247521	3.08	3.7	6.1	11.0
Stephens Lake	GN 104	12-Oct-21	15	364339	6247327	2.17	1.2	2.6	11.0
Stephens Lake	GN 105	12-Oct-21	15	369401	6247844	2.23	3.0	12.9	11.0
Stephens Lake	GN 41	13-Oct-21	15	365629	6247852	2.13	7.4	10.0	9.8
Stephens Lake	GN 42	13-Oct-21	15	365293	6247787	2.25	6.9	4.4	9.8
Stephens Lake	GN 43	13-Oct-21	15	364983	6247562	1.30	7.3	8.1	9.8

**Table A1-2: Boat electrofishing survey information from the Keeyask reservoir and Stephens Lake, fall 2021.**

Waterbody	Site	Date Set	UTM coordinates			Duration (dec. hours)	Settings			Water Temperature
			Zone	Easting	Northing		Frequency (Hz)	Voltage (V)	Pulse	
Keeyask Reservoir	Run 1B	29-Sep-21	15	358460	6245533	0.39	100.0	350.0	40.0	11.0
Keeyask Reservoir	Run 2B	29-Sep-21	15	359163	6245519	0.33	100.0	300.0	35.0	11.0
Keeyask Reservoir	Run 3B	29-Sep-21	15	359135	6245464	0.07	100.0	300.0	35.0	11.0
Keeyask Reservoir	Run 4	03-Oct-21	15	353925	6245306	0.20	60.0	350.0	30.0	12.5
Keeyask Reservoir	Run 5	03-Oct-21	15	354661	6245371	0.08	60.0	350.0	30.0	12.5
Keeyask Reservoir	Run 6	03-Oct-21	15	355705	6245051	0.53	60.0	350.0	30.0	12.5
Keeyask Reservoir	Run 7	03-Oct-21	15	355290	6245585	0.49	60.0	200.0	24.0	12.5
Keeyask Reservoir	Run 10	07-Oct-21	15	355636	6248716	0.60	60.0	375.0	24.0	11.0
Keeyask Reservoir	Run 11	07-Oct-21	15	355317	6247771	0.70	60.0	400.0	24.0	11.0
Keeyask Reservoir	Run 12	07-Oct-21	15	355322	6243623	0.47	60.0	400.0	24.0	11.0
Keeyask Reservoir	Run 13	07-Oct-21	15	352350	6242771	0.44	60.0	400.0	24.0	11.0
Keeyask Reservoir	Run 14	07-Oct-21	15	357920	6245664	0.33	60.0	400.0	24.0	11.0
Keeyask Reservoir	Run 15	08-Oct-21	15	332915	6243584	0.85	60.0	400.0	24.0	11.0
Keeyask Reservoir	Run 16	08-Oct-21	15	331661	6242900	0.70	60.0	350.0	24.0	11.0
Keeyask Reservoir	Run 30	11-Oct-21	15	331280	6242939	0.37	60.0	375.0	24.0	10.0
Keeyask Reservoir	Run 31	11-Oct-21	15	331417	6243419	0.75	60.0	375.0	24.0	10.0
Keeyask Reservoir	Run 32	11-Oct-21	15	331635	6242917	0.83	60.0	400.0	24.0	10.0
Stephens Lake	Run 1A	03-Oct-21	15	365030	6247785	0.22	80.0	350.0	40.0	12.0
Stephens Lake	Run 2A	03-Oct-21	15	364894	6247397	0.35	80.0	339.0	24.0	12.0
Stephens Lake	Run 3A	03-Oct-21	15	364246	6247010	0.11	60.0	350.0	30.0	12.0
Stephens Lake	Run 8	04-Oct-21	15	365045	6247570	0.48	70.0	400.0	26.0	12.0
Stephens Lake	Run 9	04-Oct-21	15	364553	6247272	0.19	70.0	400.0	26.0	12.0
Stephens Lake	Run 17	09-Oct-21	15	368910	6247730	1.37	50.0	375.0	24.0	11.0
Stephens Lake	Run 18	09-Oct-21	15	368219	6247204	0.21	50.0	350.0	40.0	11.0

**Table A1-2: Boat electrofishing survey information from the Keeyask reservoir and Stephens Lake, fall 2021 (continued).**

Waterbody	Site	Date Set	UTM coordinates			Duration (dec. hours)	Settings			Water Temperature
			Zone	Easting	Northing		Frequency (Hz)	Voltage (V)	Pulse	
Stephens Lake	Run 19	09-Oct-21	15	368111	6247369	0.47	60.0	375.0	24.0	11.0
Stephens Lake	Run 20	09-Oct-21	15	367148	6247577	0.69	60.0	375.0	24.0	11.0
Stephens Lake	Run 21	09-Oct-21	15	365186	6246640	0.36	60.0	375.0	24.0	12.0
Stephens Lake	Run 22	09-Oct-21	15	364351	6247347	0.36	60.0	375.0	24.0	12.0
Stephens Lake	Run 23	09-Oct-21	15	365129	6247736	0.15	60.0	375.0	24.0	12.0
Stephens Lake	Run 24	10-Oct-21	15	364880	6247954	0.79	60.0	375.0	24.0	11.0
Stephens Lake	Run 25	10-Oct-21	15	367023	6247564	0.71	60.0	375.0	24.0	11.0
Stephens Lake	Run 26	10-Oct-21	15	368732	6246781	0.20	60.0	375.0	24.0	11.0
Stephens Lake	Run 27	10-Oct-21	15	368995	6246690	0.53	60.0	375.0	24.0	11.0
Stephens Lake	Run 28	10-Oct-21	15	364468	6247165	0.33	60.0	375.0	24.0	11.0
Stephens Lake	Run 29	10-Oct-21	15	364992	6247212	0.29	60.0	375.0	24.0	11.0
Stephens Lake	Run 33	12-Oct-21	15	364985	6247777	0.51	60.0	375.0	24.0	11.0
Stephens Lake	Run 34	12-Oct-21	15	364344	6246995	0.63	60.0	375.0	24.0	11.0
Stephens Lake	Run 35	12-Oct-21	15	367080	6247502	0.43	30.0	350.0	24.0	11.0
Stephens Lake	Run 36	12-Oct-21	15	369519	6247894	0.45	60.0	350.0	28.0	11.0
Stephens Lake	Run 37	12-Oct-21	15	364326	6247274	0.29	40.0	375.0	28.0	11.0
Stephens Lake	Run 38	13-Oct-21	15	364973	6247782	0.68	40.0	375.0	28.0	10.5

**Table A1-3: Drift trap survey information from the Keeyask reservoir, spring 2021.**

Waterbody	Site	Date Set	UTM coordinates			Duration (dec. hours)	Water Temperature
			Zone	Easting	Northing		
Keeyask Reservoir	DT-01 A	27-May-21	15	332979	6243534	21.95	4.2
Keeyask Reservoir	DT-01 B	28-May-21	15	332979	6243534	23.20	5.2
Keeyask Reservoir	DT-01 C	29-May-21	15	332979	6243534	23.08	6.0
Keeyask Reservoir	DT-01 D	30-May-21	15	332979	6243534	23.92	6.8
Keeyask Reservoir	DT-02 A	27-May-21	15	332989	6243643	21.90	4.2
Keeyask Reservoir	DT-03 A	27-May-21	15	333113	6243827	21.93	4.2
Keeyask Reservoir	DT-03 B	28-May-21	15	333113	6243827	23.03	5.2
Keeyask Reservoir	DT-03 C	29-May-21	15	333113	6243827	23.08	6.0
Keeyask Reservoir	DT-03 D	30-May-21	15	333113	6243827	23.92	6.8



**Table A1-4: Neuston tow survey information from the Keeyask reservoir, spring 2021.**

Waterbody	Site	Date Set	UTM coordinates			Duration (dec. hours)	Volume Sampled (m <sup>3</sup> )	Water Temperature
			Zone	Easting	Northing			
Keeyask Reservoir	NT-01	27-May-21	15	354847	6247703	0.10	106.2	4.2
Keeyask Reservoir	NT-02	27-May-21	15	355282	6245483	0.12	118.9	4.2
Keeyask Reservoir	NT-03	27-May-21	15	355497	6244947	0.10	91.6	4.2
Keeyask Reservoir	NT-04	27-May-21	15	356079	6245323	0.08	74.7	4.2
Keeyask Reservoir	NT-05	27-May-21	15	356779	6244914	0.12	105.3	4.2
Keeyask Reservoir	NT-06	27-May-21	15	358347	6245562	0.12	102.6	4.2
Keeyask Reservoir	NT-07	27-May-21	15	351243	6244559	0.13	116.1	4.2
Keeyask Reservoir	NT-08	27-May-21	15	351306	6243727	0.13	140.1	4.2
Keeyask Reservoir	NT-09	28-May-21	15	331650	6242914	0.13	118.0	5.2
Keeyask Reservoir	NT-10	28-May-21	15	332942	6243509	0.10	95.5	5.2
Keeyask Reservoir	NT-11	30-May-21	15	333847	6244157	0.13	149.9	6.8
Keeyask Reservoir	NT-12	30-May-21	15	339235	6244362	0.15	150.3	6.8
Keeyask Reservoir	NT-13	30-May-21	15	338996	6245198	0.12	97.4	6.8
Keeyask Reservoir	NT-14	30-May-21	15	341820	6243310	0.10	95.9	6.8
Keeyask Reservoir	NT-15	30-May-21	15	342139	6244077	0.07	61.7	6.8
Keeyask Reservoir	NT-16	30-May-21	15	345263	6244390	0.10	83.9	6.8
Keeyask Reservoir	NT-17	30-May-21	15	346516	6243536	0.18	188.0	6.8
Keeyask Reservoir	NT-18	30-May-21	15	346571	6245043	0.13	111.5	6.8
Keeyask Reservoir	NT-19	30-May-21	15	349427	6245045	0.13	108.4	6.8
Keeyask Reservoir	NT-20	30-May-21	15	350490	6245691	0.12	111.3	6.8
Keeyask Reservoir	NT-21	30-May-21	15	352267	6241691	0.13	112.3	6.8
Keeyask Reservoir	NT-22	30-May-21	15	353947	6245237	0.07	60.5	6.8
Keeyask Reservoir	NT-23	30-May-21	15	354880	6247205	0.07	47.8	6.8
Keeyask Reservoir	NT-24	30-May-21	15	354770	6247359	0.05	41.4	6.8

## **APPENDIX 2: LOCATIONS AND SITE-SPECIFIC PHYSICAL MEASUREMENTS COLLECTED AT GILLNETTING, BOAT ELECTROFISHING, DRIFT TRAP, AND NEUSTON TOW SITES, SPRING AND FALL 2021.**

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**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021.**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	GN-9	31-May-21	WALL	NSC	116416	-	349	500	-	-
Keeyask Reservoir	GN-6	31-May-21	WALL	NSC	116417	-	319	500	-	-
Keeyask Reservoir	GN-6	31-May-21	WALL	NSC	116418	-	327	490	-	-
Keeyask Reservoir	GN-6	31-May-21	WALL	NSC	116419	-	363	580	M	7
Keeyask Reservoir	GN-6	31-May-21	WALL	NSC	116420	-	386	740	M	7
Keeyask Reservoir	GN-6	31-May-21	WALL	NSC	116421	-	440	1250	-	-
Keeyask Reservoir	GN-6	31-May-21	WALL	NSC	116422	-	541	2100	-	-
Keeyask Reservoir	GN-6	31-May-21	WALL	NSC	116423	-	474	1350	-	-
Keeyask Reservoir	GN-6	31-May-21	WALL	NSC	116424	-	393	640	-	-
Keeyask Reservoir	GN-6	31-May-21	WALL	NSC	116425	-	435	1000	-	-
Stephens Lake	GN-41	02-Jun-21	NRPK	NSC	116426	-	830	3900	-	-
Stephens Lake	GN-41	02-Jun-21	NRPK	NSC	116427	-	415	600	-	-
Stephens Lake	GN-41	02-Jun-21	NRPK	NSC	116428	-	491	850	-	-
Stephens Lake	GN-41	02-Jun-21	WALL	NSC	116429	-	353	500	-	-
Stephens Lake	GN-42	02-Jun-21	NRPK	NSC	116430	-	580	1200	-	-
Stephens Lake	GN-42	02-Jun-21	WALL	NSC	116431	-	415	875	-	-
Stephens Lake	GN-42	02-Jun-21	WALL	NSC	116432	-	350	600	-	-
Stephens Lake	GN-42	02-Jun-21	WALL	NSC	116433	-	365	600	-	-
Stephens Lake	GN-42	02-Jun-21	WALL	NSC	116434	-	362	600	-	-
Stephens Lake	GN-42	02-Jun-21	WALL	NSC	116435	-	345	550	-	-
Stephens Lake	GN-42	02-Jun-21	WALL	NSC	116436	-	433	810	-	-
Stephens Lake	GN-42	02-Jun-21	WALL	NSC	116437	-	380	580	-	-
Stephens Lake	GN-43	02-Jun-21	NRPK	NSC	116438	-	490	900	M	7

**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	GN-43	02-Jun-21	NRPK	NSC	116439	-	580	1450	M	7
Stephens Lake	GN-43	02-Jun-21	NRPK	NSC	116440	-	395	500	-	-
Stephens Lake	GN-43	02-Jun-21	NRPK	NSC	116441	-	585	1500	M	7
Stephens Lake	GN-43	02-Jun-21	NRPK	NSC	116442	-	734	3350	-	-
Stephens Lake	GN-42	02-Jun-21	WALL	NSC	116443	-	370	600	-	-
Stephens Lake	GN-42	02-Jun-21	WALL	NSC	116444	-	428	1000	M	7
Stephens Lake	GN-42	02-Jun-21	WALL	NSC	116445	-	337	400	M	7
Stephens Lake	GN-42	02-Jun-21	WALL	NSC	116446	-	348	490	M	7
Stephens Lake	GN-42	02-Jun-21	WALL	NSC	116447	-	402	720	-	-
Stephens Lake	GN-42	02-Jun-21	WALL	NSC	116448	-	462	1320	-	-
Stephens Lake	GN-42	02-Jun-21	WALL	NSC	116449	-	454	1070	M	7
Stephens Lake	GN-42	02-Jun-21	WALL	NSC	116450	-	761	2550	-	-
Stephens Lake	Run 18	09-Oct-21	NRPK	NSC	116951	-	465	650	-	-
Stephens Lake	Run 17	09-Oct-21	NRPK	NSC	116952	-	790	4300	-	-
Gull Lake	Run 16	08-Oct-21	NRPK	NSC	116953	-	516	1100	-	-
Gull Lake	Run 16	08-Oct-21	NRPK	NSC	116954	-	533	1400	-	-
Gull Lake	Run 15	08-Oct-21	NRPK	NSC	116955	-	461	525	-	-
Gull Lake	Run 15	08-Oct-21	NRPK	NSC	116956	-	352	300	-	-
Gull Lake	Run 15	08-Oct-21	NRPK	NSC	116957	-	979	5500	-	-
Gull Lake	Run 15	08-Oct-21	NRPK	NSC	116958	-	911	5500	-	-
Gull Lake	Run 15	08-Oct-21	NRPK	NSC	116959	-	749	3900	-	-
Gull Lake	Run 13	07-Oct-21	NRPK	NSC	116960	-	543	1225	-	-
Gull Lake	Run 12	07-Oct-21	NRPK	NSC	116961	-	910	6800	-	-

**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Gull Lake	Run 10	07-Oct-21	NRPK	NSC	116962	-	401	525	-	-
Stephens Lake	Run 8	04-Oct-21	WALL	NSC	116963	-	415	750	-	-
Stephens Lake	Run 8	04-Oct-21	NRPK	NSC	116964	-	550	1100	-	-
Stephens Lake	Run 8	04-Oct-21	NRPK	NSC	116965	-	610	1350	-	-
Gull Lake	Run 6	03-Oct-21	NRPK	NSC	116966	-	943	7000	-	-
Stephens Lake	Run 2A	03-Oct-21	NRPK	NSC	116967	-	565	1275	-	-
Stephens Lake	Run 2A	03-Oct-21	NRPK	NSC	116968	-	435	575	-	-
Stephens Lake	Run 2A	03-Oct-21	NRPK	NSC	116969	-	455	750	-	-
Stephens Lake	Run 8	04-Oct-21	NRPK	NSC	116969	-	-	-	-	-
Stephens Lake	Run 1A	03-Oct-21	NRPK	NSC	116970	-	592	1650	-	-
Stephens Lake	Run 1A	03-Oct-21	NRPK	NSC	116971	-	803	3750	-	-
Stephens Lake	Run 1A	03-Oct-21	NRPK	NSC	116972	-	615	2200	-	-
Gull Lake	Run 1B	29-Sep-21	NRPK	NSC	116976	-	265	200	-	-
Gull Lake	Run 2B	29-Sep-21	NRPK	NSC	116977	-	270	200	-	-
Gull Lake	GN 05	03-Oct-21	NRPK	NSC	116978	-	490	800	-	-
Stephens Lake	GN 07	04-Oct-21	LKWH	NSC	116980	-	415	1400	-	-
Stephens Lake	GN 07	04-Oct-21	NRPK	NSC	116981	-	446	590	-	-
Stephens Lake	GN 08	04-Oct-21	WALL	NSC	116982	-	365	650	-	-
Stephens Lake	GN 08	04-Oct-21	WALL	NSC	116983	-	394	725	-	-
Stephens Lake	GN 08	04-Oct-21	WALL	NSC	116984	-	444	1150	-	-
Stephens Lake	GN 09	04-Oct-21	NRPK	NSC	116985	-	687	2225	-	-
Stephens Lake	GN 09	04-Oct-21	NRPK	NSC	116986	-	659	3100	-	-
Gull Lake	GN 10	05-Oct-21	NRPK	NSC	116987	-	435	650	-	-

**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Gull Lake	GN 10	05-Oct-21	NRPK	NSC	116988	-	748	3350	-	-
Gull Lake	GN 10	05-Oct-21	WALL	NSC	116989	-	397	775	-	-
Gull Lake	GN 10	05-Oct-21	WALL	NSC	116990	-	370	700	-	-
Gull Lake	GN 10	05-Oct-21	WALL	NSC	116991	-	402	825	-	-
Gull Lake	GN 11	05-Oct-21	NRPK	NSC	116992	-	842	6100	-	-
Gull Lake	GN 11	05-Oct-21	WALL	NSC	116993	-	480	1475	-	-
Gull Lake	GN 12	05-Oct-21	WALL	NSC	116994	-	305	350	-	-
Gull Lake	GN 12	05-Oct-21	WALL	NSC	116995	-	410	900	-	-
Gull Lake	GN 12	05-Oct-21	NRPK	NSC	116996	-	486	800	-	-
Gull Lake	GN 12	05-Oct-21	NRPK	NSC	116997	-	652	2450	-	-
Gull Lake	GN 12	05-Oct-21	NRPK	NSC	116998	-	466	600	-	-
Gull Lake	GN 12	05-Oct-21	WALL	NSC	116999	-	411	925	-	-
Gull Lake	GN 12	05-Oct-21	NRPK	NSC	117000	-	704	3525	-	-
Stephens Lake	GN 42	13-Oct-21	WALL	NSC	117232	-	375	575	-	-
Stephens Lake	GN 42	13-Oct-21	WALL	NSC	117233	-	450	1100	-	-
Stephens Lake	GN 42	13-Oct-21	NRPK	NSC	117234	-	712	2325	-	-
Stephens Lake	GN 43	13-Oct-21	WALL	NSC	117235	-	398	775	-	-
Gull Lake	GN 12	05-Oct-21	NRPK	NSC	117253	-	907	6400	-	-
Gull Lake	GN 12	05-Oct-21	NRPK	NSC	117254	-	748	3500	-	-
Gull Lake	GN 15	07-Oct-21	WALL	NSC	117256	-	330	375	-	-
Gull Lake	GN 17	07-Oct-21	WALL	NSC	117257	-	309	350	-	-
Gull Lake	GN 17	07-Oct-21	NRPK	NSC	117258	-	580	1600	-	-
Gull Lake	GN 17	07-Oct-21	NRPK	NSC	117259	-	893	5900	-	-

**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Gull Lake	GN 17	07-Oct-21	NRPK	NSC	117260	-	749	3850	-	-
Gull Lake	GN 20	08-Oct-21	WALL	NSC	117261	-	389	750	-	-
Gull Lake	GN 20	08-Oct-21	WALL	NSC	117262	-	424	900	-	-
Gull Lake	GN 20	08-Oct-21	NRPK	NSC	117264	-	951	7100	-	-
Gull Lake	GN 20	08-Oct-21	NRPK	NSC	117265	-	743	2750	-	-
Gull Lake	GN 21	08-Oct-21	WALL	NSC	117266	-	305	325	-	-
Gull Lake	GN 21	08-Oct-21	WALL	NSC	117267	-	496	1850	-	-
Gull Lake	GN 21	08-Oct-21	WALL	NSC	117268	-	511	1600	-	-
Stephens Lake	GN 24	09-Oct-21	LKWH	NSC	117269	-	450	1400	-	-
Stephens Lake	GN 24	09-Oct-21	LKWH	NSC	117270	-	461	1725	-	-
Stephens Lake	GN 24	09-Oct-21	LKWH	NSC	117271	-	480	1650	-	-
Stephens Lake	GN 23	09-Oct-21	NRPK	NSC	117272	-	910	5500	-	-
Stephens Lake	GN 22	09-Oct-21	WALL	NSC	117273	-	423	850	-	-
Stephens Lake	GN 22	09-Oct-21	NRPK	NSC	117274	-	602	1500	-	-
Stephens Lake	GN 22	09-Oct-21	NRPK	NSC	117275	-	755	3400	-	-
Stephens Lake	GN 27	09-Oct-21	NRPK	NSC	117301	-	673	2450	-	-
Stephens Lake	GN 27	09-Oct-21	NRPK	NSC	117302	-	955	7800	-	-
Stephens Lake	GN 28	10-Oct-21	WALL	NSC	117303	-	341	400	-	-
Stephens Lake	GN 29	10-Oct-21	NRPK	NSC	117304	-	610	2000	-	-
Stephens Lake	GN 29	10-Oct-21	NRPK	NSC	117305	-	480	650	-	-
Stephens Lake	GN 29	10-Oct-21	NRPK	NSC	117306	-	687	3100	-	-
Stephens Lake	GN 28	10-Oct-21	NRPK	NSC	117307	-	658	2100	-	-
Stephens Lake	GN 28	10-Oct-21	NRPK	NSC	117308	-	692	2650	-	-



**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	GN 29	10-Oct-21	NRPK	NSC	117309	-	822	5300	-	-
Stephens Lake	GN 32	10-Oct-21	WALL	NSC	117310	-	450	1100	-	-
Stephens Lake	GN 32	10-Oct-21	NRPK	NSC	117311	-	1100	10000	-	-
Stephens Lake	GN 32	10-Oct-21	NRPK	NSC	117312	-	825	5700	-	-
Stephens Lake	GN 32	10-Oct-21	NRPK	NSC	117313	-	1050	8600	-	-
Stephens Lake	GN 32	10-Oct-21	WALL	NSC	117314	-	458	1100	-	-
Stephens Lake	GN 32	10-Oct-21	WALL	NSC	117315	-	460	1250	-	-
Stephens Lake	GN 32	10-Oct-21	WALL	NSC	117316	-	367	650	-	-
Stephens Lake	GN 32	10-Oct-21	WALL	NSC	117317	-	385	800	-	-
Stephens Lake	GN 32	10-Oct-21	WALL	NSC	117318	-	507	1400	-	-
Stephens Lake	GN 32	10-Oct-21	LKWH	NSC	117319	-	455	1700	-	-
Stephens Lake	GN 32	10-Oct-21	NRPK	NSC	117320	-	780	4000	-	-
Stephens Lake	GN 32	10-Oct-21	NRPK	NSC	117321	-	577	1400	-	-
Gull Lake	GN 34	11-Oct-21	WALL	NSC	117322	-	414	950	-	-
Gull Lake	GN 34	11-Oct-21	WALL	NSC	117323	-	417	950	-	-
Gull Lake	GN 34	11-Oct-21	NRPK	NSC	117324	-	650	2200	-	-
Gull Lake	GN 34	11-Oct-21	NRPK	NSC	117325	-	768	3400	-	-
Gull Lake	GN 34	11-Oct-21	NRPK	NSC	117326	-	735	2900	-	-
Gull Lake	GN 34	11-Oct-21	NRPK	NSC	117327	-	781	4000	-	-
Gull Lake	GN 36	11-Oct-21	WALL	NSC	117328	-	422	900	-	-
Stephens Lake	GN 103	12-Oct-21	WALL	NSC	117330	-	527	1500	-	-
Stephens Lake	GN 103	12-Oct-21	NRPK	NSC	117331	-	444	600	-	-
Keeyask Reservoir	GN-69	28-May-21	NRPK	NSC	117607	-	726	3000	F	2

**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	GN-70	29-May-21	NRPK	NSC	117608	-	870	6000	F	2
Keeyask Reservoir	GN-70	29-May-21	NRPK	NSC	117609	-	850	5500	F	2
Keeyask Reservoir	GN-71	29-May-21	NRPK	NSC	117610	-	735	3500	-	-
Stephens Lake	GN-58	08-Jun-21	NRPK	NSC	117955	-	674	2350	-	-
Stephens Lake	GN-58	08-Jun-21	NRPK	NSC	117956	-	408	500	-	-
Stephens Lake	GN-50	06-Jun-21	WALL	NSC	117958	-	415	850	-	-
Stephens Lake	GN-50	06-Jun-21	WALL	NSC	117959	-	416	800	-	-
Stephens Lake	GN-50	06-Jun-21	NRPK	NSC	117960	-	555	1350	-	-
Stephens Lake	GN-47	05-Jun-21	NRPK	NSC	117961	-	474	675	-	-
Stephens Lake	GN-47	05-Jun-21	NRPK	NSC	117962	-	369	400	M	7
Stephens Lake	GN-47	05-Jun-21	NRPK	NSC	117963	-	424	475	M	7
Stephens Lake	GN-47	05-Jun-21	NRPK	NSC	117964	-	470	675	-	-
Stephens Lake	GN-47	05-Jun-21	NRPK	NSC	117965	-	498	800	F	2
Stephens Lake	GN-47	05-Jun-21	NRPK	NSC	117966	-	551	1200	-	-
Stephens Lake	GN-47	05-Jun-21	NRPK	NSC	117967	-	444	650	F	2
Stephens Lake	GN-46	05-Jun-21	NRPK	NSC	117968	-	630	2000	-	-
Stephens Lake	GN-46	05-Jun-21	NRPK	NSC	117969	-	515	825	-	-
Stephens Lake	GN-46	05-Jun-21	WALL	NSC	117970	-	412	650	-	-
Stephens Lake	GN-45	04-Jun-21	WALL	NSC	117971	-	440	825	-	-
Stephens Lake	GN-42	02-Jun-21	WALL	NSC	117973	-	355	500	M	7
Stephens Lake	GN-42	02-Jun-21	WALL	NSC	117974	-	397	840	F	2
Stephens Lake	GN-42	02-Jun-21	WALL	NSC	117975	-	422	950	F	2
Stephens Lake	Run 37	12-Oct-21	LKWH	NSC	117976	-	438	1725	-	-

**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	Run 37	12-Oct-21	NRPK	NSC	117978	-	805	5300	-	-
Stephens Lake	Run 38	13-Oct-21	LKWH	NSC	117979	-	454	750	-	-
Stephens Lake	Run 38	13-Oct-21	LKWH	NSC	117980	-	486	1500	M	7
Stephens Lake	Run 38	13-Oct-21	LKWH	NSC	117981	-	511	2250	M	7
Stephens Lake	Run 38	13-Oct-21	NRPK	NSC	117982	-	485	725	-	-
Stephens Lake	Run 38	13-Oct-21	WALL	NSC	117983	-	484	1000	-	-
Gull Lake	GN 102	11-Oct-21	NRPK	NSC	118126	-	607	1875	-	-
Gull Lake	Run 32	11-Oct-21	NRPK	NSC	118127	-	345	400	-	-
Gull Lake	Run 32	11-Oct-21	NRPK	NSC	118128	-	380	800	-	-
Gull Lake	Run 32	11-Oct-21	NRPK	NSC	118129	-	597	1800	-	-
Gull Lake	Run 32	11-Oct-21	NRPK	NSC	118130	-	935	7150	-	-
Gull Lake	Run 32	11-Oct-21	NRPK	NSC	118131	-	440	300	-	-
Gull Lake	Run 32	11-Oct-21	WALL	NSC	118132	-	430	1000	-	-
Stephens Lake	Run 33	12-Oct-21	WALL	NSC	118133	-	465	1400	-	-
Stephens Lake	Run 33	12-Oct-21	NRPK	NSC	118134	-	585	1525	-	-
Stephens Lake	Run 33	12-Oct-21	NRPK	NSC	118135	-	913	5350	-	-
Stephens Lake	Run 33	12-Oct-21	NRPK	NSC	118136	-	380	475	-	-
Stephens Lake	Run 37	12-Oct-21	LKWH	NSC	118137	-	534	2550	F	3
Stephens Lake	Run 38	13-Oct-21	LKWH	NSC	118137	-	-	-	-	-
Stephens Lake	Run 33	12-Oct-21	NRPK	NSC	118138	-	469	750	-	-
Stephens Lake	Run 33	12-Oct-21	NRPK	NSC	118139	-	860	5500	-	-
Stephens Lake	Run 33	12-Oct-21	NRPK	NSC	118140	-	835	4950	-	-
Stephens Lake	Run 33	12-Oct-21	LKWH	NSC	118141	-	503	2375	-	-

**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	Run 33	12-Oct-21	NRPK	NSC	118142	-	402	450	-	-
Stephens Lake	Run 33	12-Oct-21	NRPK	NSC	118143	-	570	1050	-	-
Stephens Lake	Run 34	12-Oct-21	NRPK	NSC	118144	-	446	600	-	-
Stephens Lake	Run 34	12-Oct-21	NRPK	NSC	118145	-	510	975	-	-
Stephens Lake	Run 34	12-Oct-21	NRPK	NSC	118146	-	748	3875	-	-
Stephens Lake	Run 35	12-Oct-21	NRPK	NSC	118147	-	435	450	-	-
Stephens Lake	GN 104	12-Oct-21	NRPK	NSC	118148	-	740	3150	-	-
Stephens Lake	GN 104	12-Oct-21	LKWH	NSC	118149	-	521	2300	-	-
Stephens Lake	GN 104	12-Oct-21	NRPK	NSC	118150	-	891	5425	-	-
Keeyask Reservoir	GN-45	10-Jun-21	NRPK	NSC	121501	-	622	1940	-	-
Keeyask Reservoir	GN-46	10-Jun-21	NRPK	NSC	121502	-	768	2700	-	-
Keeyask Reservoir	GN-47	10-Jun-21	NRPK	NSC	121503	-	958	6700	-	-
Keeyask Reservoir	GN-49	13-Jun-21	NRPK	NSC	121512	-	740	3550	-	-
Keeyask Reservoir	GN-47	10-Jun-21	WALL	NSC	121513	-	320	475	-	-
Keeyask Reservoir	GN-42	08-Jun-21	NRPK	NSC	121515	-	888	5340	-	-
Keeyask Reservoir	GN-40	08-Jun-21	NRPK	NSC	121516	-	728	3150	-	-
Keeyask Reservoir	GN-40	08-Jun-21	NRPK	NSC	121517	-	568	1450	-	-
Keeyask Reservoir	GN-41	08-Jun-21	NRPK	NSC	121518	-	700	2700	-	-
Keeyask Reservoir	GN-39	08-Jun-21	NRPK	NSC	121519	-	697	2000	-	-
Keeyask Reservoir	GN-37	07-Jun-21	WALL	NSC	121520	-	422	1050	-	-
Keeyask Reservoir	GN-37	07-Jun-21	NRPK	NSC	121521	-	987	6800	-	-
Keeyask Reservoir	GN-37	07-Jun-21	NRPK	NSC	121522	-	545	1090	-	-
Keeyask Reservoir	GN-37	07-Jun-21	NRPK	NSC	121523	-	440	550	-	-

**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	GN-38	07-Jun-21	LKWH	NSC	121525	-	472	2180	-	-
Keeyask Reservoir	GN-50	13-Jun-21	NRPK	NSC	121526	-	841	4150	-	-
Keeyask Reservoir	GN-50	13-Jun-21	WALL	NSC	121527	-	330	500	-	-
Keeyask Reservoir	GN-51	13-Jun-21	LKWH	NSC	121528	-	447	1620	-	-
Keeyask Reservoir	GN-51	13-Jun-21	LKWH	NSC	121529	-	383	1000	-	-
Keeyask Reservoir	GN-51	13-Jun-21	LKWH	NSC	121530	-	355	1080	-	-
Keeyask Reservoir	GN-51	13-Jun-21	NRPK	NSC	121531	-	455	700	-	-
Keeyask Reservoir	GN-51	13-Jun-21	NRPK	NSC	121532	-	517	1040	-	-
Keeyask Reservoir	GN-54	14-Jun-21	NRPK	NSC	121533	-	613	1580	-	-
Keeyask Reservoir	GN-54	14-Jun-21	LKWH	NSC	121535	-	408	1350	-	-
Keeyask Reservoir	GN-58	14-Jun-21	WALL	NSC	121536	-	392	710	-	-
Keeyask Reservoir	GN-54	14-Jun-21	NRPK	NSC	121537	-	937	5890	-	-
Keeyask Reservoir	GN-54	14-Jun-21	WALL	NSC	121538	-	482	1120	-	-
Keeyask Reservoir	GN-65	16-Jun-21	NRPK	NSC	121544	-	594	1580	-	-
Keeyask Reservoir	GN-62	15-Jun-21	NRPK	NSC	121546	-	784	3500	-	-
Keeyask Reservoir	GN-62	15-Jun-21	NRPK	NSC	121548	-	566	1425	-	-
Keeyask Reservoir	GN-59	15-Jun-21	NRPK	NSC	121549	-	505	720	-	-
Keeyask Reservoir	GN-57	14-Jun-21	WALL	NSC	121550	-	357	700	-	-
Keeyask Reservoir	GN-18	03-Jun-21	WALL	NSC	121601	121602	385	720	-	-
Keeyask Reservoir	GN-19	03-Jun-21	NRPK	NSC	121604	-	587	1420	-	-
Keeyask Reservoir	GN-19	03-Jun-21	NRPK	NSC	121605	-	450	600	-	-
Keeyask Reservoir	GN-22	04-Jun-21	NRPK	NSC	121606	-	508	960	-	-
Keeyask Reservoir	GN-25	05-Jun-21	LKWH	NSC	121607	-	510	2770	-	-

**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	GN-25	05-Jun-21	NRPK	NSC	121608	-	625	2050	-	-
Keeyask Reservoir	GN-25	05-Jun-21	NRPK	NSC	121609	-	671	2840	-	-
Keeyask Reservoir	GN-25	05-Jun-21	NRPK	NSC	121610	-	717	3840	-	-
Keeyask Reservoir	GN-25	05-Jun-21	NRPK	NSC	121611	-	797	4500	-	-
Keeyask Reservoir	GN-25	05-Jun-21	WALL	NSC	121612	-	505	1700	-	-
Keeyask Reservoir	GN-25	05-Jun-21	WALL	NSC	121613	-	497	1500	-	-
Keeyask Reservoir	GN-25	05-Jun-21	WALL	NSC	121614	-	516	1870	M	7
Keeyask Reservoir	GN-27	05-Jun-21	NRPK	NSC	121615	-	1140	6600	-	-
Keeyask Reservoir	GN-26	05-Jun-21	NRPK	NSC	121616	-	878	4720	-	-
Keeyask Reservoir	GN-26	05-Jun-21	NRPK	NSC	121617	-	417	500	-	-
Keeyask Reservoir	GN-26	05-Jun-21	LKWH	NSC	121618	-	545	3200	-	-
Keeyask Reservoir	GN-26	05-Jun-21	WALL	NSC	121619	-	460	1270	-	-
Keeyask Reservoir	GN-26	05-Jun-21	NRPK	NSC	121620	-	448	630	-	-
Keeyask Reservoir	GN-26	05-Jun-21	NRPK	NSC	121621	-	537	1160	-	-
Keeyask Reservoir	GN-25	05-Jun-21	WALL	NSC	121622	-	475	1280	M	7
Keeyask Reservoir	GN-25	05-Jun-21	WALL	NSC	121623	-	452	1160	-	-
Keeyask Reservoir	GN-25	05-Jun-21	WALL	NSC	121624	-	538	1700	M	7
Keeyask Reservoir	GN-25	05-Jun-21	WALL	NSC	121625	-	488	1440	-	-
Keeyask Reservoir	GN-25	05-Jun-21	WALL	NSC	121626	-	474	1220	-	-
Keeyask Reservoir	GN-25	05-Jun-21	WALL	NSC	121627	-	431	1000	-	-
Keeyask Reservoir	GN-25	05-Jun-21	WALL	NSC	121628	-	438	920	-	-
Keeyask Reservoir	GN-29	06-Jun-21	NRPK	NSC	121630	-	647	2100	-	-
Keeyask Reservoir	GN-30	06-Jun-21	NRPK	NSC	121631	-	436	600	-	-

**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	GN-31	06-Jun-21	NRPK	NSC	121632	-	660	2300	-	-
Keeyask Reservoir	GN-31	06-Jun-21	NRPK	NSC	121633	-	605	1550	-	-
Keeyask Reservoir	GN-31	06-Jun-21	NRPK	NSC	121634	-	413	500	-	-
Keeyask Reservoir	GN-31	06-Jun-21	NRPK	NSC	121635	-	849	5700	-	-
Keeyask Reservoir	GN-29	06-Jun-21	WALL	NSC	121636	-	440	1150	-	-
Keeyask Reservoir	GN-29	06-Jun-21	NRPK	NSC	121637	-	485	650	-	-
Keeyask Reservoir	GN-29	06-Jun-21	WALL	NSC	121638	-	390	700	-	-
Keeyask Reservoir	GN-32	06-Jun-21	NRPK	NSC	121639	-	600	1400	-	-
Keeyask Reservoir	GN-31	06-Jun-21	NRPK	NSC	121640	-	678	2400	-	-
Keeyask Reservoir	GN-31	06-Jun-21	NRPK	NSC	121641	-	631	1750	-	-
Keeyask Reservoir	GN-31	06-Jun-21	NRPK	NSC	121642	-	682	2100	-	-
Keeyask Reservoir	GN-31	06-Jun-21	NRPK	NSC	121643	-	525	1000	-	-
Keeyask Reservoir	GN-31	06-Jun-21	NRPK	NSC	121644	-	574	1500	-	-
Keeyask Reservoir	GN-31	06-Jun-21	NRPK	NSC	121645	-	520	950	-	-
Keeyask Reservoir	GN-31	06-Jun-21	NRPK	NSC	121646	-	838	4000	-	-
Keeyask Reservoir	GN-34	07-Jun-21	NRPK	NSC	121647	-	420	550	-	-
Keeyask Reservoir	GN-34	07-Jun-21	NRPK	NSC	121648	-	760	3440	-	-
Keeyask Reservoir	GN-35	07-Jun-21	NRPK	NSC	121649	-	597	1500	-	-
Keeyask Reservoir	GN-35	07-Jun-21	NRPK	NSC	121650	-	537	1090	-	-
Stephens Lake	Run 25	10-Oct-21	LKWH	NSC	122001	-	494	2550	-	-
Stephens Lake	Run 25	10-Oct-21	WALL	NSC	122002	-	323	500	-	-
Stephens Lake	Run 25	10-Oct-21	NRPK	NSC	122003	-	532	1100	-	-
Stephens Lake	Run 25	10-Oct-21	NRPK	NSC	122004	-	600	1400	-	-



**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	Run 25	10-Oct-21	NRPK	NSC	122005	-	480	850	-	-
Gull Lake	Run 31	11-Oct-21	NRPK	NSC	122006	-	280	150	-	-
Gull Lake	Run 31	11-Oct-21	NRPK	NSC	122007	-	924	6750	-	-
Stephens Lake	Run 26	10-Oct-21	NRPK	NSC	122008	-	363	350	-	-
Stephens Lake	Run 28	10-Oct-21	LKWH	NSC	122009	-	437	1425	M	7
Stephens Lake	Run 28	10-Oct-21	LKWH	NSC	122010	-	504	2300	F	3
Stephens Lake	Run 28	10-Oct-21	LKWH	NSC	122011	-	479	2375	-	-
Stephens Lake	Run 28	10-Oct-21	LKWH	NSC	122012	-	508	2350	-	-
Stephens Lake	Run 28	10-Oct-21	LKWH	NSC	122013	-	490	2200	-	-
Stephens Lake	Run 28	10-Oct-21	LKWH	NSC	122014	-	514	2250	-	-
Stephens Lake	Run 28	10-Oct-21	LKWH	NSC	122015	-	544	2400	-	-
Stephens Lake	Run 28	10-Oct-21	WALL	NSC	122016	-	373	650	-	-
Stephens Lake	Run 29	10-Oct-21	LKWH	NSC	122017	-	487	1600	M	8
Gull Lake	Run 31	11-Oct-21	NRPK	NSC	122018	-	294	200	-	-
Gull Lake	Run 30	11-Oct-21	NRPK	NSC	122019	-	523	1200	-	-
Gull Lake	Run 30	11-Oct-21	NRPK	NSC	122020	-	678	2425	-	-
Gull Lake	Run 30	11-Oct-21	NRPK	NSC	122021	-	635	2600	-	-
Gull Lake	Run 31	11-Oct-21	WALL	NSC	122022	-	283	300	-	-
Gull Lake	Run 31	11-Oct-21	NRPK	NSC	122023	-	349	350	-	-
Gull Lake	Run 31	11-Oct-21	NRPK	NSC	122024	-	573	1500	-	-
Stephens Lake	Run 29	10-Oct-21	LKWH	NSC	122025	-	469	2000	-	-
Stephens Lake	GN-34	03-Jun-21	NRPK	NSC	122026	-	816	4350	M	7
Stephens Lake	GN-34	03-Jun-21	NRPK	NSC	122027	-	838	4700	-	-

**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	GN-35	03-Jun-21	NRPK	NSC	122029	-	540	1075	-	-
Stephens Lake	GN-35	03-Jun-21	NRPK	NSC	122030	-	721	2900	-	-
Stephens Lake	GN-35	03-Jun-21	NRPK	NSC	122031	-	922	7100	F	3
Stephens Lake	GN-36	04-Jun-21	WALL	NSC	122032	-	430	1000	-	-
Stephens Lake	GN-36	04-Jun-21	WALL	NSC	122033	-	420	900	-	-
Stephens Lake	GN-36	04-Jun-21	WALL	NSC	122034	-	355	600	M	7
Stephens Lake	GN-37	04-Jun-21	NRPK	NSC	122035	-	733	3650	F	2
Stephens Lake	GN-38	04-Jun-21	WALL	NSC	122036	-	398	1000	-	-
Stephens Lake	GN-38	04-Jun-21	NRPK	NSC	122037	-	460	700	M	7
Stephens Lake	GN-38	04-Jun-21	NRPK	NSC	122038	-	448	650	M	7
Stephens Lake	GN-38	04-Jun-21	NRPK	NSC	122039	-	424	650	F	2
Stephens Lake	GN-38	04-Jun-21	NRPK	NSC	122040	-	533	950	-	-
Stephens Lake	GN-38	04-Jun-21	NRPK	NSC	122041	-	424	525	M	7
Stephens Lake	GN-38	04-Jun-21	NRPK	NSC	122042	-	524	1025	F	2
Stephens Lake	GN-38	04-Jun-21	NRPK	NSC	122043	-	635	1450	-	-
Stephens Lake	GN-38	04-Jun-21	NRPK	NSC	122044	-	505	1100	-	-
Stephens Lake	GN-50	06-Jun-21	WALL	NSC	122045	-	472	1100	-	-
Stephens Lake	GN-50	06-Jun-21	WALL	NSC	122046	-	350	450	-	-
Stephens Lake	GN-50	06-Jun-21	WALL	NSC	122047	-	481	1250	-	-
Stephens Lake	GN-50	06-Jun-21	NRPK	NSC	122048	-	709	2700	-	-
Stephens Lake	GN-50	06-Jun-21	NRPK	NSC	122049	-	703	2500	-	-
Stephens Lake	GN-50	06-Jun-21	NRPK	NSC	122050	-	845	4750	-	-
Keeyask Reservoir	GN-08a	31-May-21	WALL	NSC	122051	-	352	500	-	-

**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	GN-08a	31-May-21	WALL	NSC	122052	-	396	700	-	-
Keeyask Reservoir	GN-10a	31-May-21	NRPK	NSC	122053	-	720	2750	-	-
Keeyask Reservoir	GN-11a	31-May-21	NRPK	NSC	122054	-	585	1600	F	2
Keeyask Reservoir	GN-16a	01-Jun-21	NRPK	NSC	122055	-	455	700	M	7
Keeyask Reservoir	GN-16a	01-Jun-21	NRPK	NSC	122056	-	511	1000	M	7
Keeyask Reservoir	GN-16a	01-Jun-21	NRPK	NSC	122057	-	450	725	M	7
Keeyask Reservoir	GN-16a	01-Jun-21	NRPK	NSC	122058	-	491	900	M	7
Keeyask Reservoir	GN-17a	01-Jun-21	NRPK	NSC	122059	-	458	725	M	7
Keeyask Reservoir	GN-18a	01-Jun-21	NRPK	NSC	122060	-	422	600	-	-
Keeyask Reservoir	GN-19a	01-Jun-21	NRPK	NSC	122061	-	595	1450	-	-
Keeyask Reservoir	GN-20a	01-Jun-21	NRPK	NSC	122062	-	465	800	M	7
Keeyask Reservoir	GN-20a	01-Jun-21	NRPK	NSC	122063	-	513	1200	-	-
Keeyask Reservoir	GN-20a	01-Jun-21	NRPK	NSC	122064	-	492	950	M	7
Keeyask Reservoir	GN-20a	01-Jun-21	NRPK	NSC	122065	-	534	1200	-	-
Keeyask Reservoir	GN-21a	01-Jun-21	NRPK	NSC	122066	-	550	1200	M	7
Keeyask Reservoir	GN-21a	01-Jun-21	NRPK	NSC	122067	-	796	4000	-	-
Keeyask Reservoir	GN-21a	01-Jun-21	NRPK	NSC	122068	-	800	4200	F	2
Keeyask Reservoir	GN-21a	01-Jun-21	NRPK	NSC	122069	-	640	2200	-	-
Keeyask Reservoir	GN-21a	01-Jun-21	NRPK	NSC	122070	-	610	1600	-	-
Keeyask Reservoir	GN-21a	01-Jun-21	NRPK	NSC	122071	-	512	1000	F	2
Keeyask Reservoir	GN-21a	01-Jun-21	NRPK	NSC	122072	-	803	4500	M	7
Keeyask Reservoir	GN-21a	01-Jun-21	NRPK	NSC	122073	-	805	3850	F	2
Keeyask Reservoir	GN-22a	01-Jun-21	LKWH	NSC	122074	-	365	950	-	-

**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	GN-22a	01-Jun-21	NRPK	NSC	122075	-	797	3800	F	3
Keeyask Reservoir	GN-08a	31-May-21	NRPK	NSC	122076	-	617	1700	-	-
Keeyask Reservoir	GN-08a	31-May-21	NRPK	NSC	122077	-	645	1700	-	-
Keeyask Reservoir	GN-06a	31-May-21	NRPK	NSC	122078	-	420	550	-	-
Keeyask Reservoir	GN-05a	29-May-21	NRPK	NSC	122079	-	452	600	M	7
Keeyask Reservoir	GN-04a	29-May-21	NRPK	NSC	122080	-	550	1250	F	2
Keeyask Reservoir	GN-03a	28-May-21	WALL	NSC	122081	-	427	700	-	-
Keeyask Reservoir	GN-03a	28-May-21	WALL	NSC	122082	-	367	550	M	7
Keeyask Reservoir	GN-03a	28-May-21	WALL	NSC	122083	-	425	900	-	-
Keeyask Reservoir	GN-03a	28-May-21	WALL	NSC	122084	-	388	700	-	-
Keeyask Reservoir	GN-03a	28-May-21	WALL	NSC	122085	-	458	1100	-	-
Keeyask Reservoir	GN-03a	28-May-21	WALL	NSC	122086	-	412	800	-	-
Keeyask Reservoir	GN-03a	28-May-21	WALL	NSC	122087	-	410	800	-	-
Keeyask Reservoir	GN-03a	28-May-21	NRPK	NSC	122088	-	733	3800	F	2
Keeyask Reservoir	GN-03a	28-May-21	NRPK	NSC	122089	-	792	4550	-	-
Keeyask Reservoir	GN-03a	28-May-21	NRPK	NSC	122090	-	611	2100	F	2
Keeyask Reservoir	GN-03a	28-May-21	NRPK	NSC	122091	-	841	5200	F	2
Keeyask Reservoir	GN-03a	28-May-21	NRPK	NSC	122092	-	652	2600	-	-
Keeyask Reservoir	GN-03a	28-May-21	NRPK	NSC	122093	-	666	1600	-	-
Keeyask Reservoir	GN-03a	28-May-21	NRPK	NSC	122094	-	800	5200	-	-
Keeyask Reservoir	GN-03a	28-May-21	NRPK	NSC	122095	-	760	4200	F	2
Keeyask Reservoir	GN-03a	28-May-21	NRPK	NSC	122096	-	648	2300	-	-
Keeyask Reservoir	GN-02a	28-May-21	WALL	NSC	122097	-	457	900	F	2

**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	GN-02a	28-May-21	NRPK	NSC	122098	-	650	2000	M	7
Keeyask Reservoir	GN-01a	28-May-21	NRPK	NSC	122099	-	510	975	-	-
Keeyask Reservoir	GN-01a	28-May-21	NRPK	NSC	122100	-	464	700	M	7
Stephens Lake	GN-23	02-Jun-21	NRPK	NSC	122101	-	515	1000	-	-
Stephens Lake	GN-23	02-Jun-21	NRPK	NSC	122102	-	795	3150	-	-
Stephens Lake	GN-25	02-Jun-21	WALL	NSC	122103	-	536	1750	F	2
Stephens Lake	GN-25	02-Jun-21	WALL	NSC	122104	-	535	1900	F	2
Stephens Lake	GN-25	02-Jun-21	NRPK	NSC	122105	-	515	950	-	-
Stephens Lake	GN-25	02-Jun-21	NRPK	NSC	122106	-	497	1000	-	-
Stephens Lake	GN-25	02-Jun-21	NRPK	NSC	122107	-	595	1500	-	-
Stephens Lake	GN-25	02-Jun-21	NRPK	NSC	122108	-	505	900	-	-
Stephens Lake	GN-26	02-Jun-21	WALL	NSC	122109	-	460	1250	-	-
Stephens Lake	GN-26	02-Jun-21	NRPK	NSC	122110	-	655	1750	-	-
Stephens Lake	GN-26	02-Jun-21	NRPK	NSC	122111	-	765	3000	M	7
Stephens Lake	GN-29	02-Jun-21	WALL	NSC	122112	-	350	500	M	7
Stephens Lake	GN-29	02-Jun-21	WALL	NSC	122113	-	375	650	M	7
Stephens Lake	GN-27	02-Jun-21	NRPK	NSC	122114	-	807	3750	-	-
Stephens Lake	GN-35	03-Jun-21	WALL	NSC	122115	-	444	950	F	2
Stephens Lake	GN-30	03-Jun-21	WALL	NSC	122116	-	545	1850	F	3
Stephens Lake	GN-31	03-Jun-21	NRPK	NSC	122117	-	751	3200	M	7
Stephens Lake	GN-31	03-Jun-21	NRPK	NSC	122118	-	699	2500	-	-
Stephens Lake	GN-31	03-Jun-21	NRPK	NSC	122119	-	465	800	M	9
Stephens Lake	GN-31	03-Jun-21	NRPK	NSC	122120	-	578	1550	F	3

**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	GN-31	03-Jun-21	NRPK	NSC	122121	-	872	5400	F	3
Stephens Lake	GN-32	03-Jun-21	WALL	NSC	122122	-	435	950	M	7
Stephens Lake	GN-33	03-Jun-21	WALL	NSC	122123	-	365	500	M	8
Stephens Lake	GN-33	03-Jun-21	NRPK	NSC	122124	-	758	3300	F	2
Stephens Lake	GN-30	03-Jun-21	NRPK	NSC	122125	-	948	6800	M	7
Stephens Lake	GN-50	06-Jun-21	WALL	NSC	122126	-	422	750	-	-
Stephens Lake	GN-50	06-Jun-21	WALL	NSC	122127	-	340	450	-	-
Stephens Lake	GN-50	06-Jun-21	WALL	NSC	122128	-	485	1300	M	7
Stephens Lake	GN-50	06-Jun-21	NRPK	NSC	122129	-	659	2550	-	-
Stephens Lake	GN-50	06-Jun-21	NRPK	NSC	122130	-	570	1500	-	-
Stephens Lake	GN-51	06-Jun-21	WALL	NSC	122147	-	484	1350	M	7
Stephens Lake	GN-51	06-Jun-21	WALL	NSC	122148	-	460	950	-	-
Stephens Lake	GN-51	06-Jun-21	WALL	NSC	122149	-	430	1000	M	7
Stephens Lake	GN-51	06-Jun-21	WALL	NSC	122150	-	391	675	F	2
Stephens Lake	GN-52	08-Jun-21	NRPK	NSC	122151	-	656	1950	-	-
Stephens Lake	GN-53	08-Jun-21	WALL	NSC	122152	-	453	900	-	-
Stephens Lake	GN-53	08-Jun-21	NRPK	NSC	122153	-	424	450	-	-
Stephens Lake	GN-53	08-Jun-21	NRPK	NSC	122154	-	505	650	-	-
Stephens Lake	GN-53	08-Jun-21	NRPK	NSC	122155	-	588	1650	-	-
Stephens Lake	GN-53	08-Jun-21	NRPK	NSC	122156	-	708	2700	-	-
Stephens Lake	GN-54	08-Jun-21	WALL	NSC	122157	-	391	750	-	-
Stephens Lake	GN-54	08-Jun-21	NRPK	NSC	122158	-	425	600	-	-
Stephens Lake	GN-54	08-Jun-21	NRPK	NSC	122159	-	497	650	-	-



**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	GN-54	08-Jun-21	NRPK	NSC	122161	-	858	5500	F	2
Stephens Lake	GN-54	08-Jun-21	NRPK	NSC	122162	-	843	4350	F	2
Stephens Lake	GN-55	08-Jun-21	NRPK	NSC	122163	-	868	6750	-	-
Stephens Lake	GN-60	08-Jun-21	WALL	NSC	122164	-	375	700	-	-
Stephens Lake	GN-59	08-Jun-21	WALL	NSC	122165	-	395	650	M	7
Stephens Lake	GN-59	08-Jun-21	NRPK	NSC	122166	-	558	1200	-	-
Stephens Lake	GN-59	08-Jun-21	NRPK	NSC	122167	-	760	3750	-	-
Stephens Lake	GN-62	10-Jun-21	NRPK	NSC	122169	-	347	350	-	-
Stephens Lake	GN-62	10-Jun-21	NRPK	NSC	122170	-	314	250	-	-
Stephens Lake	GN-62	10-Jun-21	NRPK	NSC	122171	-	723	3150	-	-
Stephens Lake	Run 20	09-Oct-21	NRPK	NSC	122176	-	450	700	-	-
Stephens Lake	Run 21	09-Oct-21	LKWH	NSC	122177	-	520	2800	-	-
Stephens Lake	Run 21	09-Oct-21	LKWH	NSC	122178	-	420	925	-	-
Stephens Lake	Run 22	09-Oct-21	LKWH	NSC	122178	-	-	-	-	-
Stephens Lake	Run 21	09-Oct-21	LKWH	NSC	122179	-	521	2450	M	8
Stephens Lake	Run 24	10-Oct-21	NRPK	NSC	122180	-	973	7475	-	-
Stephens Lake	Run 22	09-Oct-21	LKWH	NSC	122181	-	443	1550	-	-
Stephens Lake	Run 22	09-Oct-21	WALL	NSC	122182	-	525	1000	-	-
Stephens Lake	Run 22	09-Oct-21	NRPK	NSC	122183	-	911	5850	-	-
Stephens Lake	Run 22	09-Oct-21	NRPK	NSC	122184	-	471	975	-	-
Stephens Lake	Run 22	09-Oct-21	NRPK	NSC	122185	-	240	200	-	-
Stephens Lake	Run 24	10-Oct-21	LKWH	NSC	122186	-	465	1650	-	-
Stephens Lake	Run 24	10-Oct-21	LKWH	NSC	122187	-	494	2200	-	-

**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	GN-61	10-Jun-21	NRPK	NSC	122188	-	728	3000	-	-
Stephens Lake	Run 24	10-Oct-21	NRPK	NSC	122188	-	426	500	-	-
Stephens Lake	Run 24	10-Oct-21	NRPK	NSC	122189	-	528	1450	-	-
Stephens Lake	Run 24	10-Oct-21	NRPK	NSC	122190	-	525	1350	-	-
Stephens Lake	Run 24	10-Oct-21	NRPK	NSC	122191	-	895	5600	-	-
Stephens Lake	Run 19	09-Oct-21	NRPK	NSC	122192	-	815	5000	-	-
Stephens Lake	Run 19	09-Oct-21	NRPK	NSC	122193	-	680	2700	-	-
Stephens Lake	Run 19	09-Oct-21	NRPK	NSC	122194	-	295	300	-	-
Stephens Lake	Run 19	09-Oct-21	NRPK	NSC	122195	-	478	675	-	-
Stephens Lake	Run 25	10-Oct-21	NRPK	NSC	122195	-	-	-	-	-
Stephens Lake	Run 19	09-Oct-21	NRPK	NSC	122196	-	427	550	-	-
Stephens Lake	Run 19	09-Oct-21	LKWH	NSC	122197	-	449	1500	-	-
Stephens Lake	Run 19	09-Oct-21	LKWH	NSC	122198	-	486	2150	-	-
Stephens Lake	Run 24	10-Oct-21	LKWH	NSC	122199	-	451	1750	-	-
Stephens Lake	Run 18	09-Oct-21	LKWH	NSC	122200	-	430	1550	-	-
Keeyask Reservoir	GN-6	31-May-21	NRPK	NSC	122226	-	621	1910	-	-
Keeyask Reservoir	GN-6	31-May-21	NRPK	NSC	122227	-	721	2740	-	-
Keeyask Reservoir	GN-6	31-May-21	NRPK	NSC	122228	-	702	2530	-	-
Keeyask Reservoir	GN-6	31-May-21	NRPK	NSC	122229	-	682	2240	-	-
Keeyask Reservoir	GN-6	31-May-21	NRPK	NSC	122230	-	420	675	-	-
Keeyask Reservoir	GN-8	31-May-21	NRPK	NSC	122231	-	485	900	-	-
Keeyask Reservoir	GN-8	31-May-21	NRPK	NSC	122232	-	440	650	-	-
Keeyask Reservoir	GN-8	31-May-21	NRPK	NSC	122233	-	414	500	-	-

**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	GN-8	31-May-21	NRPK	NSC	122234	-	505	850	-	-
Keeyask Reservoir	GN-6	31-May-21	NRPK	NSC	122235	-	728	3080	-	-
Keeyask Reservoir	GN-6	31-May-21	NRPK	NSC	122236	-	563	1710	-	-
Keeyask Reservoir	GN-6	31-May-21	NRPK	NSC	122237	-	490	850	-	-
Keeyask Reservoir	GN-4	30-May-21	NRPK	NSC	122238	-	618	1700	-	-
Keeyask Reservoir	GN-3	30-May-21	NRPK	NSC	122239	-	446	550	F	2
Keeyask Reservoir	GN-3	30-May-21	WALL	NSC	122240	-	325	600	-	-
Keeyask Reservoir	GN-1	30-May-21	NRPK	NSC	122241	-	723	3170	-	-
Keeyask Reservoir	GN-1	30-May-21	NRPK	NSC	122242	-	871	4990	-	-
Keeyask Reservoir	GN-1	30-May-21	NRPK	NSC	122243	-	661	2080	-	-
Keeyask Reservoir	GN-1	30-May-21	WALL	NSC	122244	-	471	1280	-	-
Keeyask Reservoir	GN-1	30-May-21	WALL	NSC	122245	-	400	770	-	-
Keeyask Reservoir	GN-1	30-May-21	WALL	NSC	122246	-	488	1480	-	-
Keeyask Reservoir	GN-1	30-May-21	WALL	NSC	122247	-	515	1050	M	7
Keeyask Reservoir	GN-2	30-May-21	NRPK	NSC	122248	-	514	1080	-	-
Keeyask Reservoir	EF-1	28-May-21	NRPK	NSC	122249	-	535	920	-	-
Keeyask Reservoir	EF-1	28-May-21	NRPK	NSC	122250	-	534	900	-	-
Keeyask Reservoir	GN-16	03-Jun-21	NRPK	NSC	122253	-	441	570	-	-
Keeyask Reservoir	GN-15	01-Jun-21	WALL	NSC	122254	-	355	520	-	-
Keeyask Reservoir	GN-15	01-Jun-21	WALL	NSC	122255	-	360	570	-	-
Keeyask Reservoir	GN-15	01-Jun-21	NRPK	NSC	122256	-	639	1770	-	-
Keeyask Reservoir	GN-15	01-Jun-21	NRPK	NSC	122258	-	691	2480	-	-
Keeyask Reservoir	GN-15	01-Jun-21	NRPK	NSC	122259	-	887	4760	-	-

**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	GN-14	01-Jun-21	NRPK	NSC	122260	-	797	3980	-	-
Gull Lake	GN 11	05-Oct-21	NRPK	NSC	122260	-	814	5000	-	-
Keeyask Reservoir	GN-11	01-Jun-21	WALL	NSC	122261	-	350	500	-	-
Keeyask Reservoir	GN-11	01-Jun-21	NRPK	NSC	122262	-	486	730	-	-
Keeyask Reservoir	GN-13	01-Jun-21	NRPK	NSC	122263	-	559	1480	-	-
Keeyask Reservoir	GN-13	01-Jun-21	NRPK	NSC	122265	122264	650	1880	-	-
Keeyask Reservoir	GN-12	01-Jun-21	WALL	NSC	122266	-	420	850	-	-
Keeyask Reservoir	GN-12	01-Jun-21	NRPK	NSC	122267	-	422	590	-	-
Keeyask Reservoir	GN-12	01-Jun-21	LKWH	NSC	122268	-	461	2410	-	-
Keeyask Reservoir	GN-12	01-Jun-21	NRPK	NSC	122269	-	579	1380	F	2
Keeyask Reservoir	GN-11	01-Jun-21	WALL	NSC	122270	-	398	770	M	7
Keeyask Reservoir	GN-11	01-Jun-21	NRPK	NSC	122271	-	492	920	M	7
Keeyask Reservoir	GN-11	01-Jun-21	NRPK	NSC	122272	-	836	4500	-	-
Keeyask Reservoir	GN-9	31-May-21	LKWH	NSC	122273	-	542	2580	-	-
Keeyask Reservoir	GN-9	31-May-21	NRPK	NSC	122274	-	520	950	-	-
Keeyask Reservoir	GN-6	31-May-21	NRPK	NSC	122275	-	804	3900	-	-
Keeyask Reservoir	GN-70	29-May-21	NRPK	-	-	-	360	480	M	7
Stephens Lake	GN-27	02-Jun-21	WALL	-	-	-	303	300	-	-
Stephens Lake	GN-33	03-Jun-21	WALL	-	-	-	350	500	M	8
Stephens Lake	GN-33	03-Jun-21	WALL	-	-	-	373	550	M	8
Stephens Lake	GN-30	03-Jun-21	NRPK	-	-	-	590	1600	M	7
Stephens Lake	GN-30	03-Jun-21	NRPK	-	-	-	400	500	M	7
Stephens Lake	GN-38	04-Jun-21	WALL	-	-	-	347	550	M	7

**Table A2-1: Tagging and biological information for Lake Whitefish, Northern Pike, and Walleye marked with Floy tags in the Keeyask reservoir and Stephens Lake, spring and fall 2021 (continued).**

Location	Zone	Date	Species	Floy Tag Prefix	Floy Tag 1	Floy Tag 2	Total Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	GN-47	05-Jun-21	NRPK	-	-	-	>900	-	F	2
Keeyask Reservoir	GN-29	06-Jun-21	WALL	-	-	-	524	1500	-	-
Keeyask Reservoir	GN-29	06-Jun-21	WALL	-	-	-	460	1200	-	-
Gull Lake	Run 2B	29-Sep-21	NRPK	-	-	-	246	150	-	-
Gull Lake	Run 2B	29-Sep-21	NRPK	-	-	-	167	50	-	-
Gull Lake	Run 2B	29-Sep-21	NRPK	-	-	-	240	100	-	-
Gull Lake	Run 2B	29-Sep-21	NRPK	-	-	-	128	25	-	-
Gull Lake	Run 2B	29-Sep-21	NRPK	-	-	-	117	25	-	-
Stephens Lake	Run 1A	03-Oct-21	NRPK	-	-	-	265	175	-	-
Stephens Lake	GN 03	03-Oct-21	WALL	-	-	-	374	600	-	-
Gull Lake	Run 11	07-Oct-21	NRPK	-	-	-	270	75	-	-
Gull Lake	Run 13	07-Oct-21	NRPK	-	-	-	235	100	-	-
Gull Lake	Run 13	07-Oct-21	NRPK	-	-	-	262	150	-	-
Gull Lake	Run 14	07-Oct-21	NRPK	-	-	-	260	25	-	-
Gull Lake	Run 15	08-Oct-21	NRPK	-	-	-	321	200	-	-
Gull Lake	Run 16	08-Oct-21	NRPK	-	-	-	314	200	-	-
Stephens Lake	Run 22	09-Oct-21	NRPK	-	-	-	665	1800	-	-
Stephens Lake	Run 25	10-Oct-21	NRPK	-	-	-	265	300	-	-
Stephens Lake	Run 25	10-Oct-21	NRPK	-	-	-	232	200	-	-
Stephens Lake	GN 32	10-Oct-21	NRPK	-	-	-	843	5050	-	-
Stephens Lake	GN 32	10-Oct-21	NRPK	-	-	-	777	3900	-	-
Gull Lake	GN 101	11-Oct-21	NRPK	-	-	-	543	1700	-	-
Stephens Lake	GN 105	12-Oct-21	WALL	-	-	-	492	1350	-	-