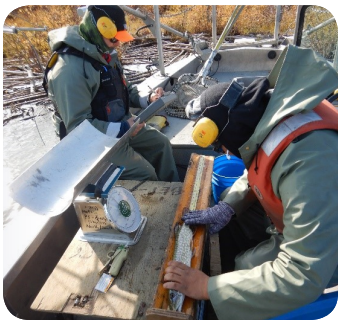
Keeyask Generation Project

Aquatic Effects Monitoring Plan

Floy-tag Application and Recapture Report

AEMP-2024-08



KEEYASK

Manitoba Environment and Climate Change Client File 5550.00
Manitoba Environment Act Licence No. 3107

2023 -2024

KEEYASK GENERATION PROJECT

AQUATIC EFFECTS MONITORING PLAN

REPORT #AEMP-2024-08

Floy-tag Application and Recapture Information from the Keeyask Study Area, 2023

Prepared for

Manitoba Hydro

By

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June 2024

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SUMMARY

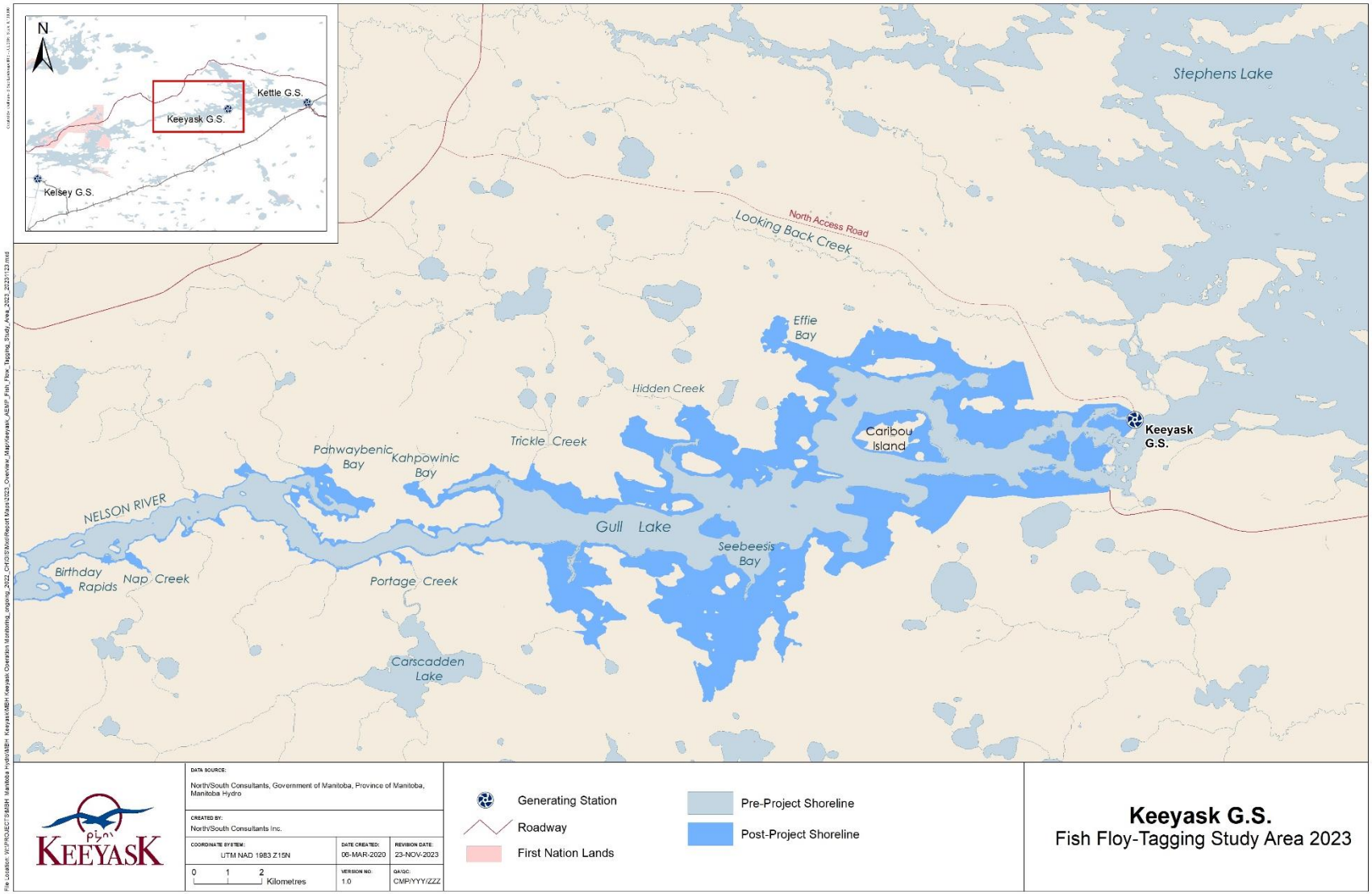
Background

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. Monitoring results provide information to assess the accuracy of predictions, information to determine the actual effects of construction and operation of the GS on the environment, and whether 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, and water levels were raised to full supply level between August 31 and September 5, 2020. Commissioning of the powerhouse turbines was initiated after impoundment. They were brought into service one at a time with the final of seven turbines completed on March 9, 2022.

Lake Sturgeon, Lake Whitefish (whitefish), Northern Pike (jackfish), and Walleye (pickerel) were chosen as the key species to monitor because they are of cultural, commercial, and domestic importance and were all known to pass Gull Rapids before the start of construction of the Keeyask GS. Fish movements are being monitored using two complementary techniques, Floy-tags and acoustic telemetry. Detailed movements of sturgeon, pickerel, and whitefish are being monitored using acoustic telemetry. This is a technique in which a tag is surgically implanted inside a fish. The tag emits a sound signal that is picked up by receivers placed along the Nelson River between Clark Lake and the Limestone GS. Each fish is given a tag that transmits a unique signal. By looking at the detections that were recorded by different receivers, the movement of each fish can be tracked, but it only allows you to track a small number of fish. Floy-tags are small, numbered tags applied externally to fish. Each tag has a unique number to allow a fish to be identified if it is recaptured. Marking fish with Floy-tags is an effective method of collecting fish movement information over short and long distances. It allows many more fish movements to be tracked but it relies on recapturing the fish and only provides information on a single (recapture) location.

Floy-tags are also being used to mark adult and juvenile Lake Sturgeon and these results are described in the population monitoring reports prepared for this species. This report focuses on tagging and recaptures of whitefish, jackfish, and pickerel.



Map showing an overview of where sampling was done to Floy-tag whitefish, jackfish, and pickerel in spring and fall, 2023.

Why is the study being done?

Floy-tagging of whitefish, jackfish, and pickerel is being done to add to our understanding of fish movements in the Keeyask area. Tagged fish may be recaptured during monitoring studies and by local fishers. Fish that move upstream into Split Lake may be caught during the Coordinated Aquatic Monitoring Program (CAMP) monitoring studies, or by commercial, domestic, or recreational fishers. Fish that move downstream into Stephens Lake may be caught during Keeyask or CAMP studies, or by fishers. Where they are recaptured can tell us if the fish has stayed in the same area it was tagged in or if it has moved.

Monitoring is being done to answer two key questions:

What is the number and proportion of Floy-tagged fish that move downstream past the Keeyask GS into Stephens Lake?

This question is important because if fish move downstream past a GS, they cannot move back, and may be injured or killed during passage. This could decrease the number of fish living upstream of the GS.

What is the number and proportion of Floy-tagged fish that move upstream from Gull Lake/Keeyask reservoir into the Split Lake area?

Fish travelling upstream past these rapids tells us they have left their original habitat in the Keeyask reservoir. Recording movements of these fish over a long time can tell us whether they return to the reservoir, move back and forth, or permanently leave the Keeyask area.

Marking a jackfish with a Floy-tag (left) and measuring a whitefish (right).

What was done?

Whitefish, jackfish, and pickerel were caught over two weeks in the spring and two weeks in the fall using gill nets and a boat electrofisher. Gill nets were set for only a few hours at a time to capture live fish and reduce stress on the fish. The boat electrofisher uses an electrical current to

temporarily stun the fish, which are then captured using large dip nets. Fish caught this way typically have less injury and stress than those captured in gill nets.

When a fish was caught, it was measured and weighed. If the fish was not already tagged, then an external (Floy) tag was applied. If the captured fish had already been tagged, then the tag numbers were recorded before the fish was released.

What was found?

Whitefish, jackfish, and pickerel were tagged and recaptured during studies between 1999 and 2010, before construction of the GS started. Because these fish do not live very long (whitefish to about 25 years old, jackfish between 10 and 15 years old, and pickerel around 15 to 20 years old), it is unlikely that many of these fish are alive and will be recaptured in the current studies. Information on the number of movements before construction of the GS started will be used to compare to that collected after construction. This can help us tell if the number of movements between areas has increased. Before construction, few long-distance movements of whitefish were seen, with a single fish tagged in the Split Lake area was recaptured in Stephens Lake. Long-distance movements of jackfish and pickerel were more common, with upstream and downstream movements between Split, Gull, and Stephens lakes observed, even though these were small numbers.

Movements of whitefish and pickerel were tracked during the construction period using acoustic telemetry, although any Floy-tag recaptures of all three species were recorded. More movements of whitefish out of Gull Lake were observed than during pre-construction, with four fish moving downstream past the Keeyask GS construction site (one of which continued downstream through the Kettle GS) and eight moving upstream into Clark Lake. More long-distance movements of pickerel were also observed, with 23 moving downstream past the Keeyask GS, 24 moving upstream into Clark Lake, and one moving upstream as far as the Odei River.

Between 2021 and 2023, Floy-tags were applied to 167 whitefish, 1,211 jackfish, and 561 pickerel to track movements after Keeyask GS reservoir impoundment. Between 2021 and 2023, no whitefish, 30 jackfish (2% of tagged fish), and 15 pickerel (3% of tagged fish) have been recaptured. Most fish were recaptured very close to where they were tagged. One jackfish tagged in the Keeyask reservoir was captured in Split Lake, while one pickerel tagged in the Keeyask reservoir was recaptured in Stephens Lake.

Additional movements of 35 whitefish and 135 pickerel have been tracked in the Keeyask reservoir and Stephens Lake using acoustic telemetry after reservoir impoundment in fall 2020. None of the 17 whitefish tagged in the Keeyask reservoir moved downstream past the Keeyask GS, while five moved upstream into Clark Lake. This is not very different from the number that moved upstream and downstream before construction. Three of 59 pickerel tagged in the Keeyask reservoir have moved downstream past the Keeyask GS after reservoir impoundment in fall 2020, which is also not different from the number that moved downstream before construction. More pickerel moved upstream into Clark Lake in the first year after the reservoir was flooded. Since that time, the number of pickerel that have moved upstream is more similar to what was seen before construction.

What does it mean?

Before the GS was built, it was predicted in the EIS that habitat changes caused by flooding could make fish move out of the Keeyask reservoir, either upstream or downstream. In particular, it was predicted that there could be a large number of fish moving out of the reach in the first year after reservoir impoundment. In the first three years after impoundment, there does not appear to be an increase in downstream movements out of the reservoir above levels seen during and before construction for any of the three species monitored. An increase in movements of pickerel upstream out of the reservoir was observed in 2021 but has since returned to levels closer to those observed pre-impoundment in both 2022 and 2023.

What will be done next?

Although 2023 is the last year that whitefish, jackfish, and pickerel will be caught for tagging, tagged fish will continue to be captured during other AEMP studies (*e.g.*, spring adult Lake Sturgeon population monitoring, fish community monitoring, and juvenile Lake Sturgeon population monitoring programs). Any tag returns from local resource users and other studies (such as Manitoba and Manitoba Hydro's Coordinated Aquatic Monitoring Program) will be recorded. Movements of pickerel will continue to be monitored using acoustic telemetry until 2027.

ACKNOWLEDGEMENTS

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

The following members of Tataskweyak Cree Nation (TCN), Fox Lake Cree Nation (FLCN), War Lake First Nation (WLFN), and York Factory First Nation (YFFN) are thanked for their local expertise and assistance in conducting the field work: Grant Connell, Patrick Connell Jr., and Tyler Kitchekeesik of TCN; Nolan Bloomfield of WLFN; and Tyler Redhead of YFFN. We would also like to thank Douglas Kitchekeesik and Gordon Cook of TCN, Ray Mayham of FLCN, Dwayne Flett of WLFN, and Darcy Wastesicoot of YFFN for arranging logistic support and personnel needed to conduct the fieldwork.

The collection of biological samples described in this report was authorized by Manitoba Natural Resources and Northern Development, Fish and Wildlife Branch, under terms of the Scientific Collection Permit #57172605 (SCP 19-2023).

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1.0 INTRODUCTION

The Keeyask Generation Project (the Project) is a 695-megawatt (MW) hydroelectric generating station on the lower Nelson River in northern Manitoba. The GS is approximately 725 kilometres (km) northeast of Winnipeg, 35 km upstream of the existing Kettle Generating Station, 60 km east of the community of Split Lake, 180 km east-northeast of Thompson and 30 km west of Gillam. Construction of the GS began in July 2014 and the seven generating units were all in-service in March 2022.

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 Sturgeon, Lake Whitefish, Northern Pike, and Walleye. These species were chosen due to their importance to local communities for harvest, because they are sensitive to environmental change, and they use a variety of habitats for spawning and foraging that will be substantially altered by the Project.

Movements of Lake Sturgeon, Walleye, Lake Whitefish, and Northern Pike are being recorded using both Floy and acoustic tags as part of the AEMP. The intent of applying Floy-tags to these four species is to provide information on the frequency of fish movements out of the Keeyask reservoir, either downstream past the Keeyask GS, or upstream into Split Lake. Marked fish will be recaptured by local fishermen, commercial fishermen, and/or during biological studies such as index gillnetting conducted in the Keeyask reservoir, Split, Stephens and Assean lakes, Lake Sturgeon gillnetting conducted in the Upper Split Lake Area, the Keeyask reservoir and in Stephens Lake, as well as other studies described as part of this AEMP. Annual gillnetting in Split and Assean lakes is also conducted under CAMP. Recapture data will be used to provide a descriptive comparison of the frequency and extent of movement between the pre-Project environment and operation.

Mark-recapture information for Lake Sturgeon is also being used to generate population estimates and is presented separately in juvenile and adult population monitoring reports. Details on Lake Sturgeon mark-recaptures can be found in Dowd and Hrenchuk (2024a, b).

The following report presents biological and tagging information for all Lake Whitefish, Northern Pike, and Walleye marked with Floy-tags during fish community investigations in the Keeyask Study Area in 2023, the third year following impoundment. It also provides a summary of tag and recapture data collected during baseline (*i.e.*, 1999–2013), construction (*i.e.*, 2014–2020), and post-impoundment (*i.e*., 2021–2023) periods. This study was conducted to answer the following questions outlined in the AEMP:

- What is the number and proportion of Floy-tagged fish that move downstream past the Keeyask GS into Stephens Lake?
- What is the number and proportion of Floy-tagged fish that move upstream from Gull Lake/Keeyask Reservoir into the Split Lake area?

2.0 STUDY SETTING

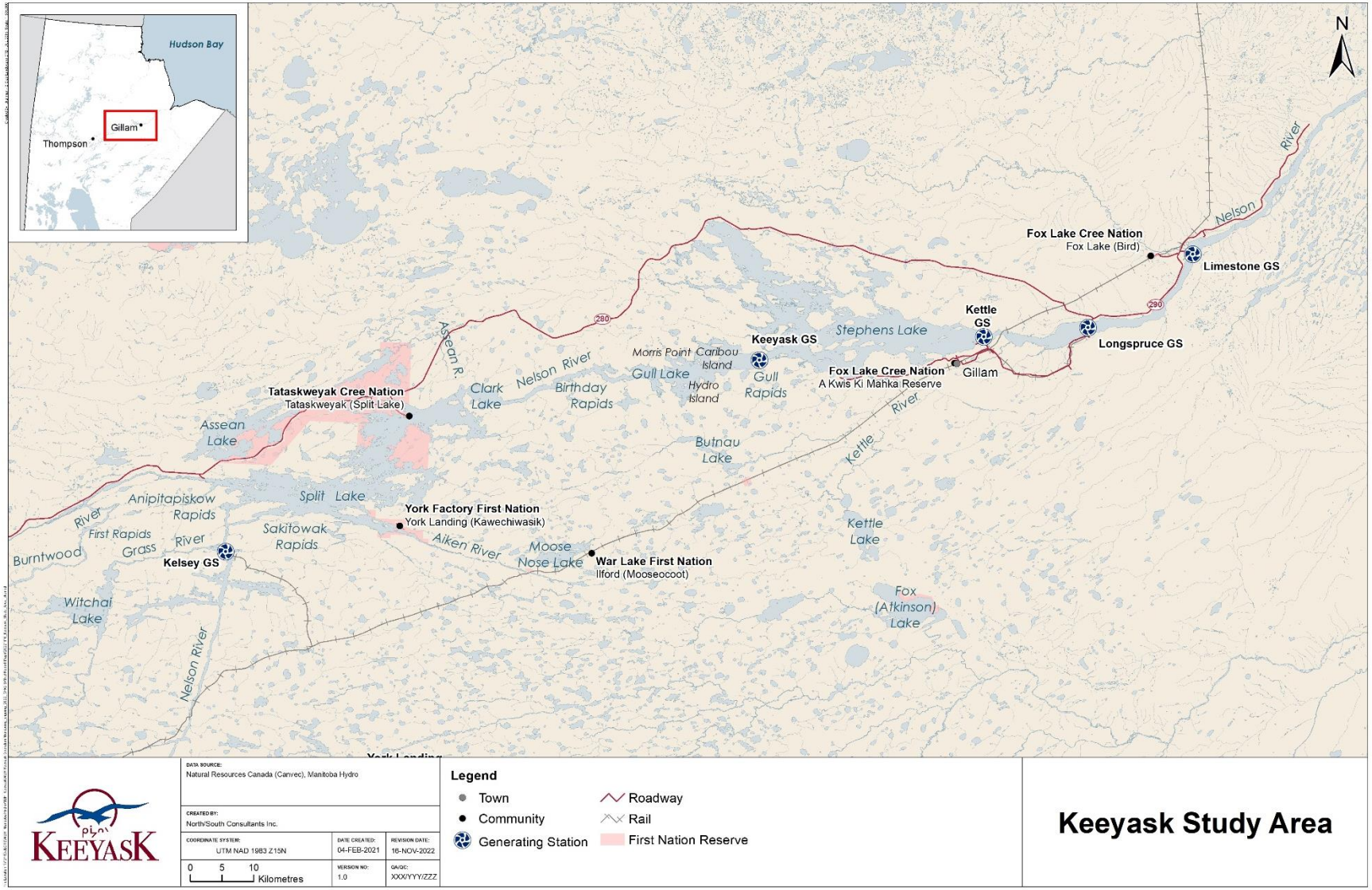
The study area encompasses an approximately 110 km long reach of the Nelson River from Clark Lake to the upstream end of the Limestone Reservoir (Map 1). This section of river offers a diversity of physical habitat conditions, including a variety of substrate types, and variable water depths (range: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

Birthday Rapids is located approximately 10 km downstream of Clark Lake and 30 km upstream of the Keeyask GS and marks the upstream end of major water level changes because 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 nearly level, albeit a 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, and is referred to herein as the middle Keeyask reservoir.

Prior to impoundment, Gull Lake was a widening of the Nelson River, with moderate to low water velocity beginning approximately 20 km upstream 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 larger than prior to impoundment, the portion of the Keeyask reservoir 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.



Map 1: **Map of the Keeyask Study Area showing the Upper Split Lake Area, the Nelson River from Clark Lake to the Keeyask GS (referred to herein as the Keeyask reservoir), and Stephens Lake.**

3.0 METHODS

In 2023, Floy-tagging studies that focused on Lake Whitefish, Northern Pike, and Walleye were conducted in the Keeyask reservoir (*i.e.*, the Nelson River between Birthday Rapids and the Keeyask GS) and Stephens Lake over an approximate two-week period in both the spring and the fall.

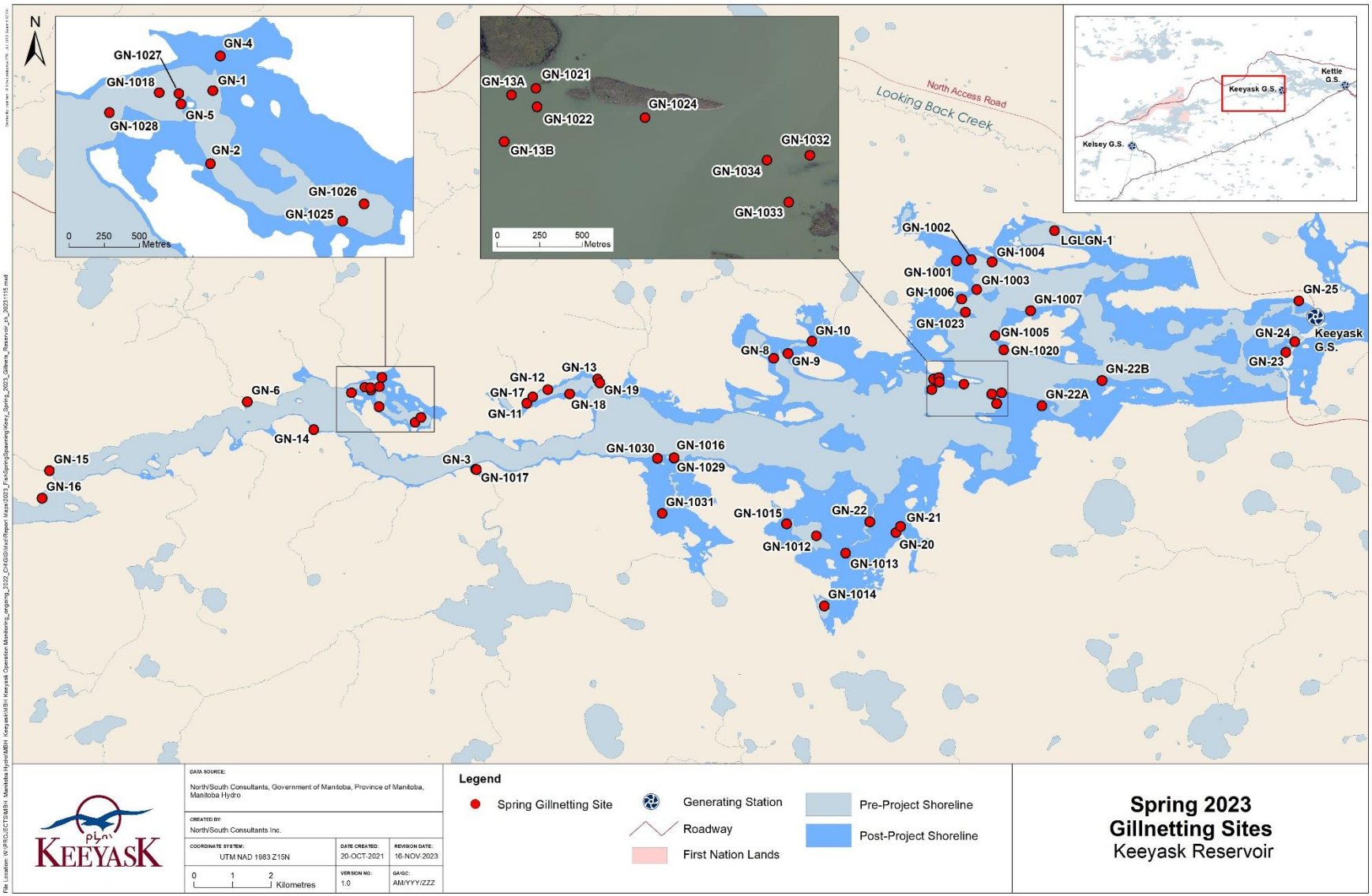
3.1 GILLNETTING

Gillnetting was conducted in the Keeyask reservoir and the upper 10 km of Stephens Lake in both spring and fall, 2023 (May 20 to June 4 and October 8 to 20) in conjunction with spawning studies (Morrison and Hrenchuk 2024). Gill nets were composed of five panels of 2, 3, 3 ¾, 4 ¼, and 5" twisted nylon stretched mesh (51, 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 HawkEye DepthTrax 1H handheld depth finder. Gill nets were checked approximately every 1–3 hours to prevent fish mortality. Spring gillnetting sites are outlined in Maps 2 and 3, while fall sites are shown in Maps 4 and 5.

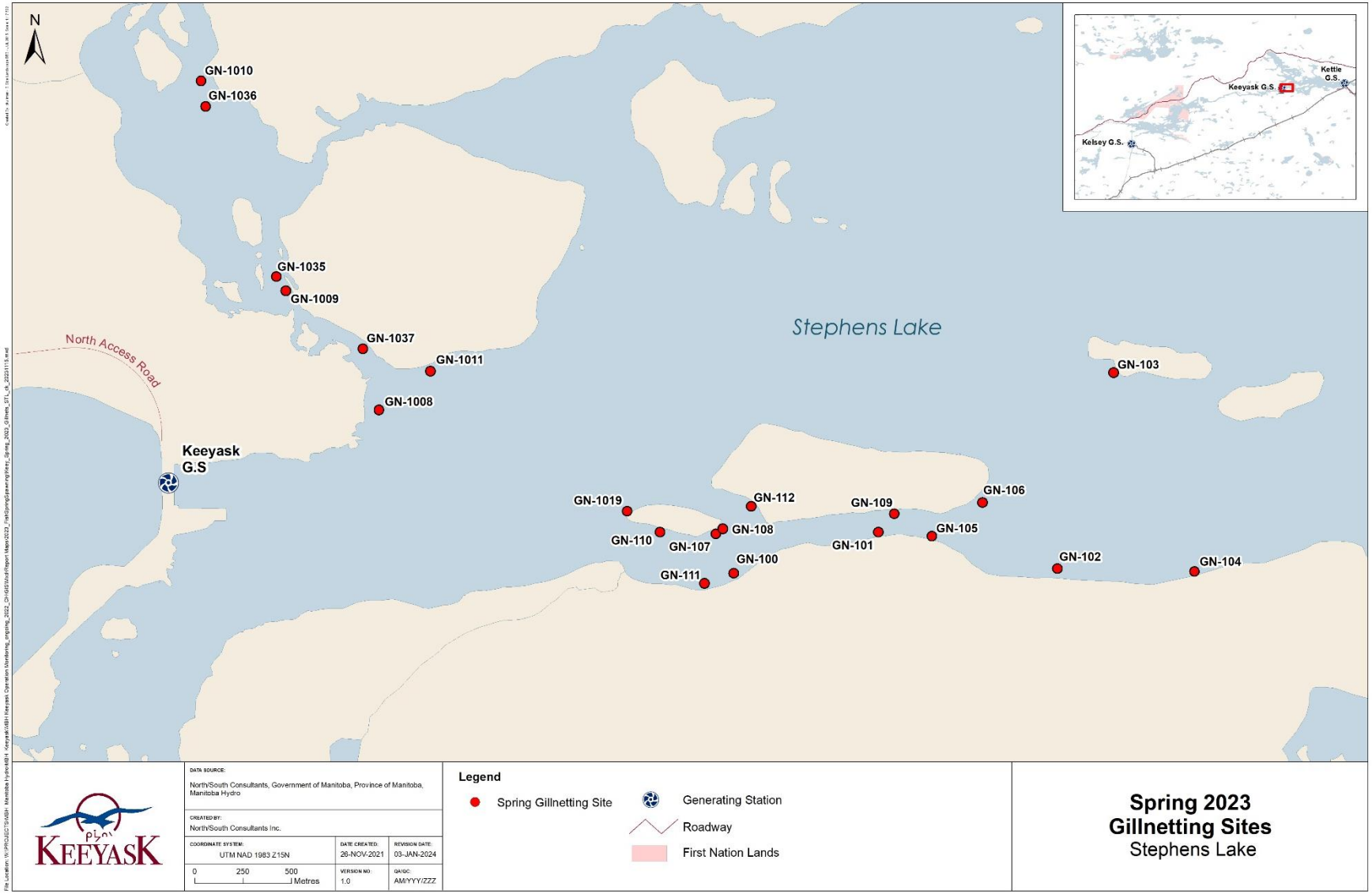
3.2 ELECTROFISHING

Boat-based electrofishing was conducted in the Keeyask reservoir and the upper 10 km of Stephens Lake in spring and fall, 2023. Electrofishing was conducted with a Smith-Root APEX electrofisher with dual boom Smith-Root UAA-6 Umbrella anodes (0.91 m diameter) mounted approximately 2.0 m apart. 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 are within this area, 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.

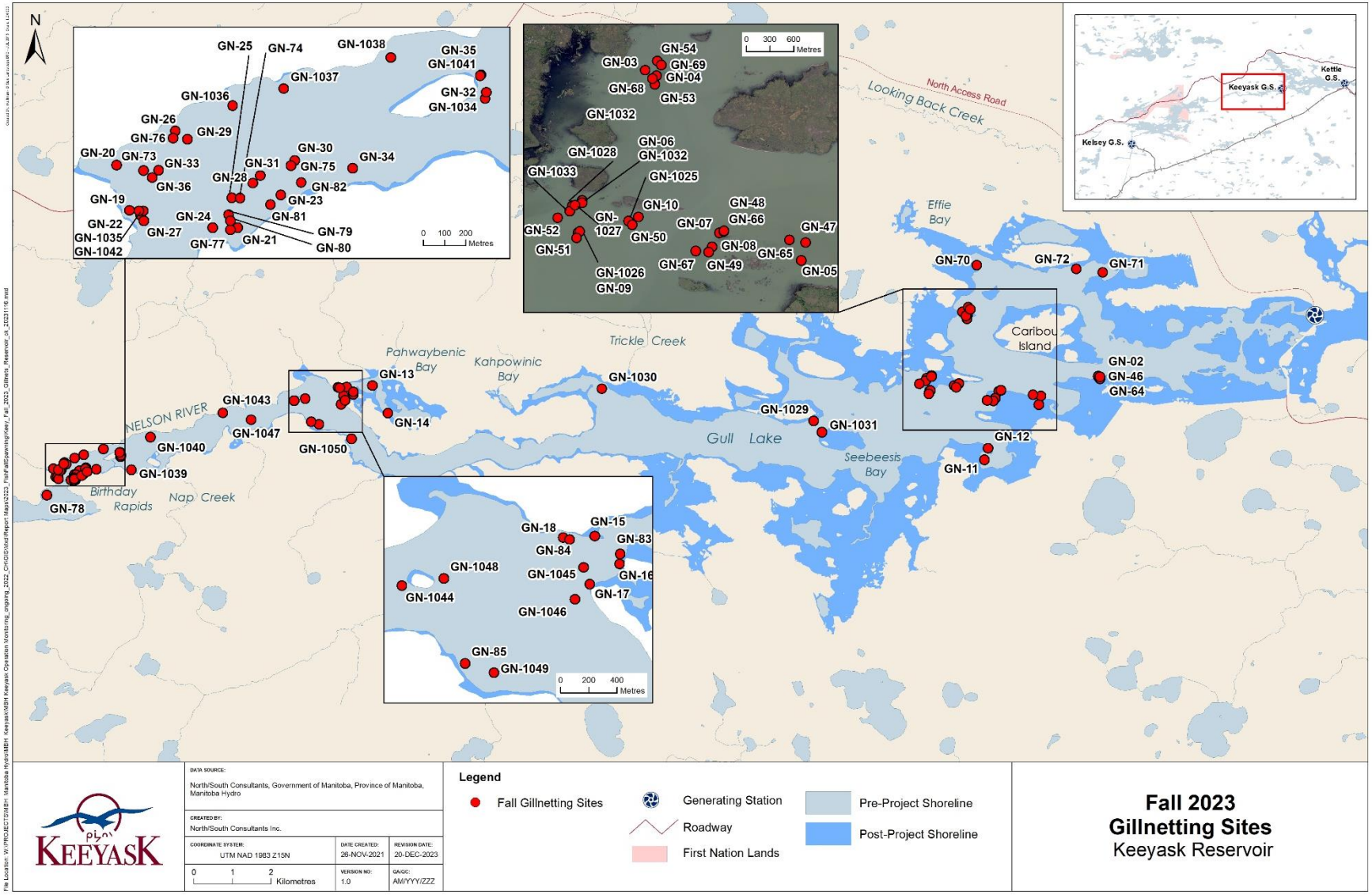
At each electrofishing site, start and end points were recorded using a handheld Garmin Marine GPS navigator (Garmin International Inc., Olathe, KS). The fishing effort (number of seconds of operation) and electrofisher settings (volts, pulse width, and pulses per second) were recorded. Spring electrofishing sites are outlined in Maps 6 and 7, while fall sites are shown in Maps 8 and 9.



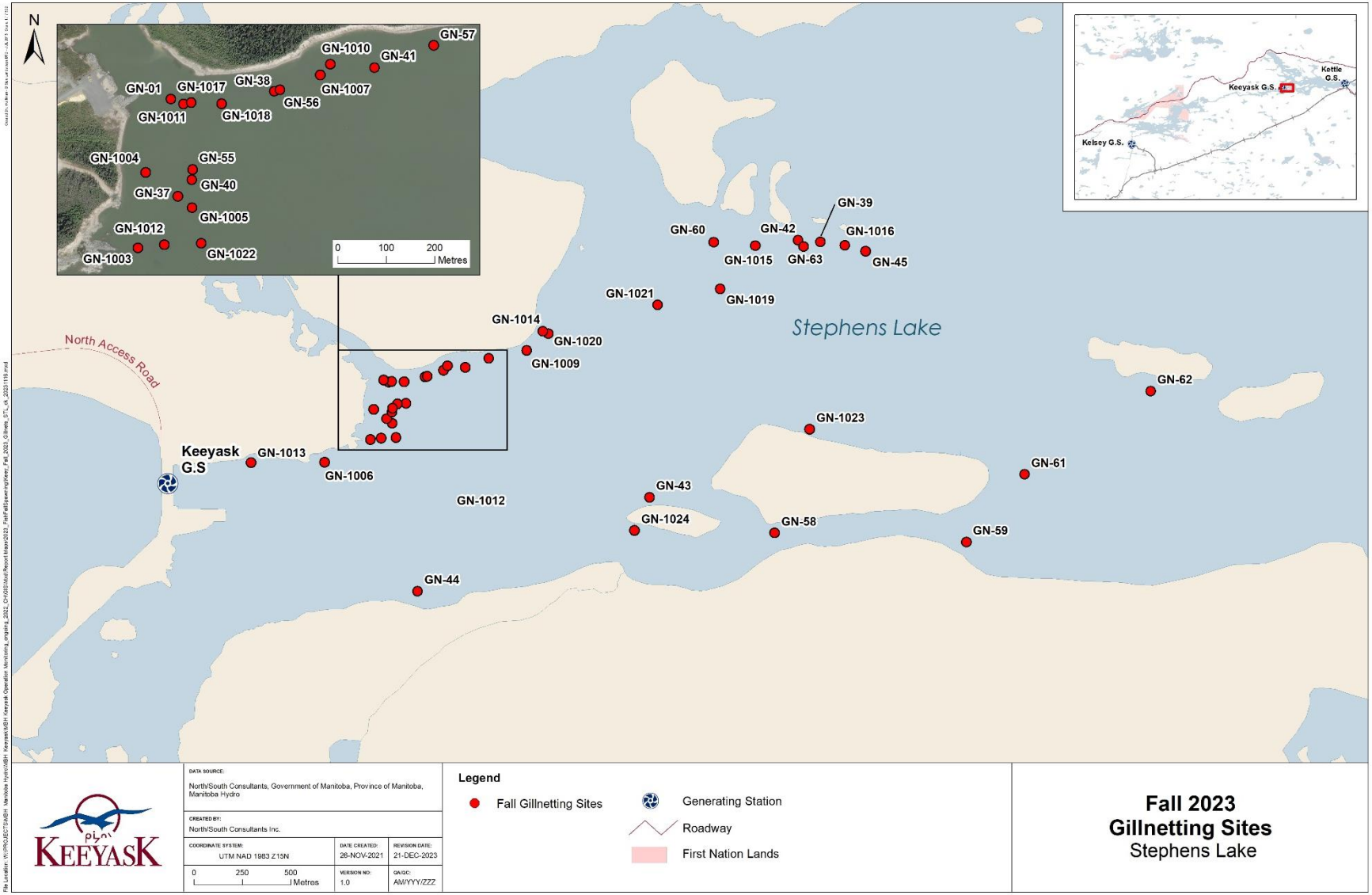
Map 2: Map of the Keeyask reservoir showing gill net sets to Floy-tag Lake Whitefish, Northern Pike, and Walleye, spring 2023.



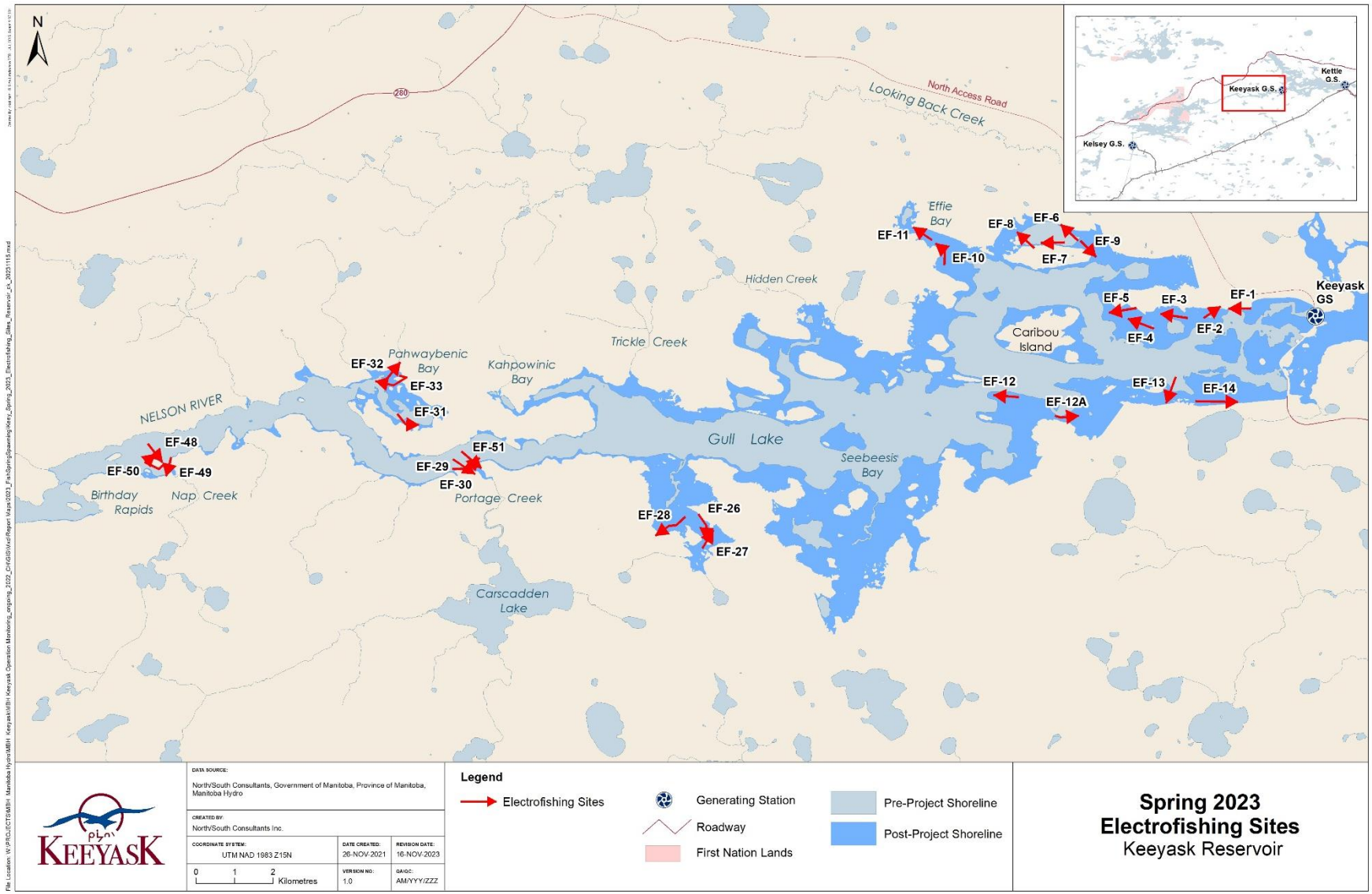
Map 3: Map of Stephens Lake showing gill net sets to Floy-tag Lake Whitefish, Northern Pike, and Walleye, spring 2023.



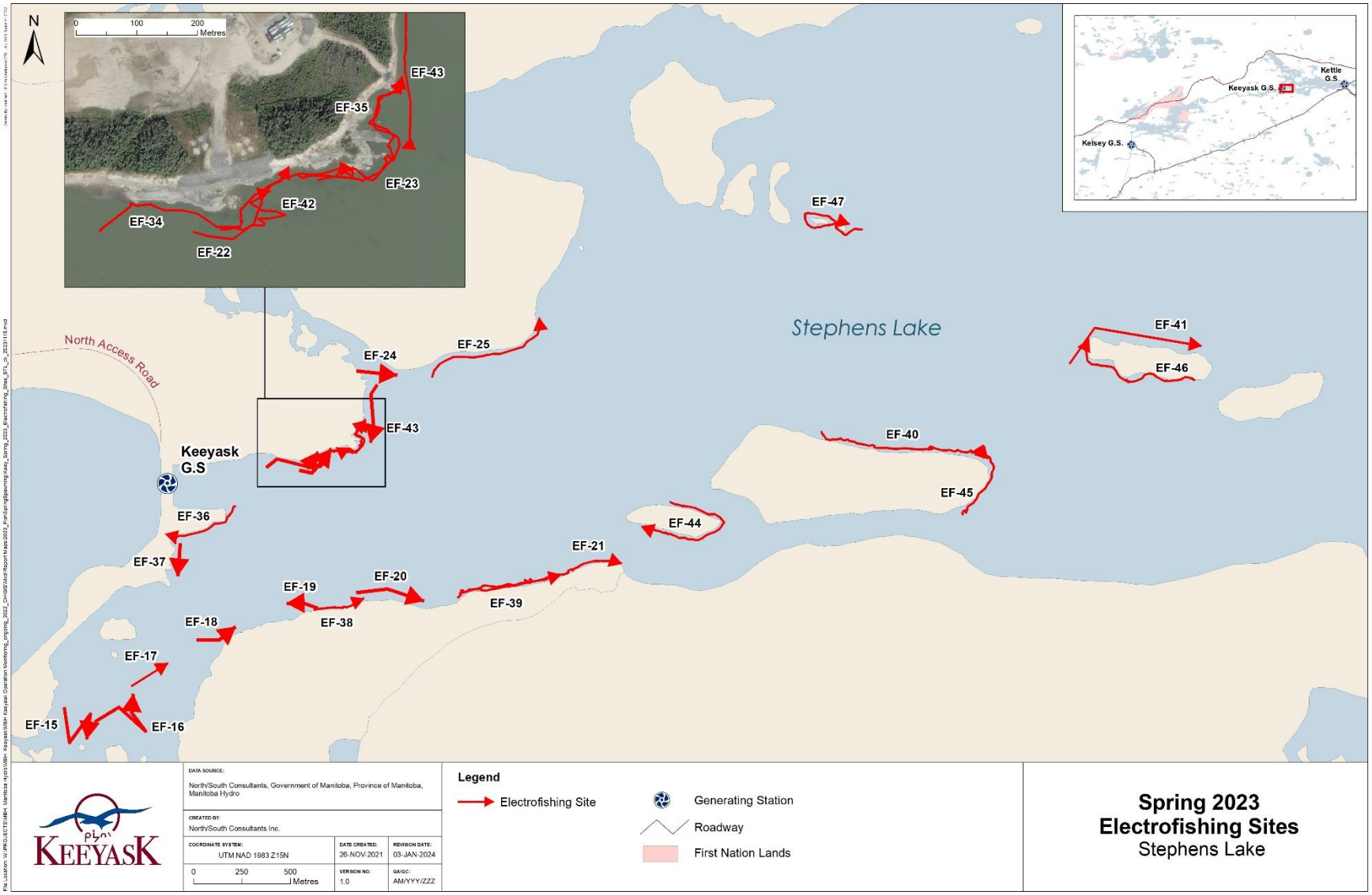
Map 4: Map of the Keeyask reservoir showing gill net sets to Floy-tag Lake Whitefish, Northern Pike, and Walleye, fall 2023.



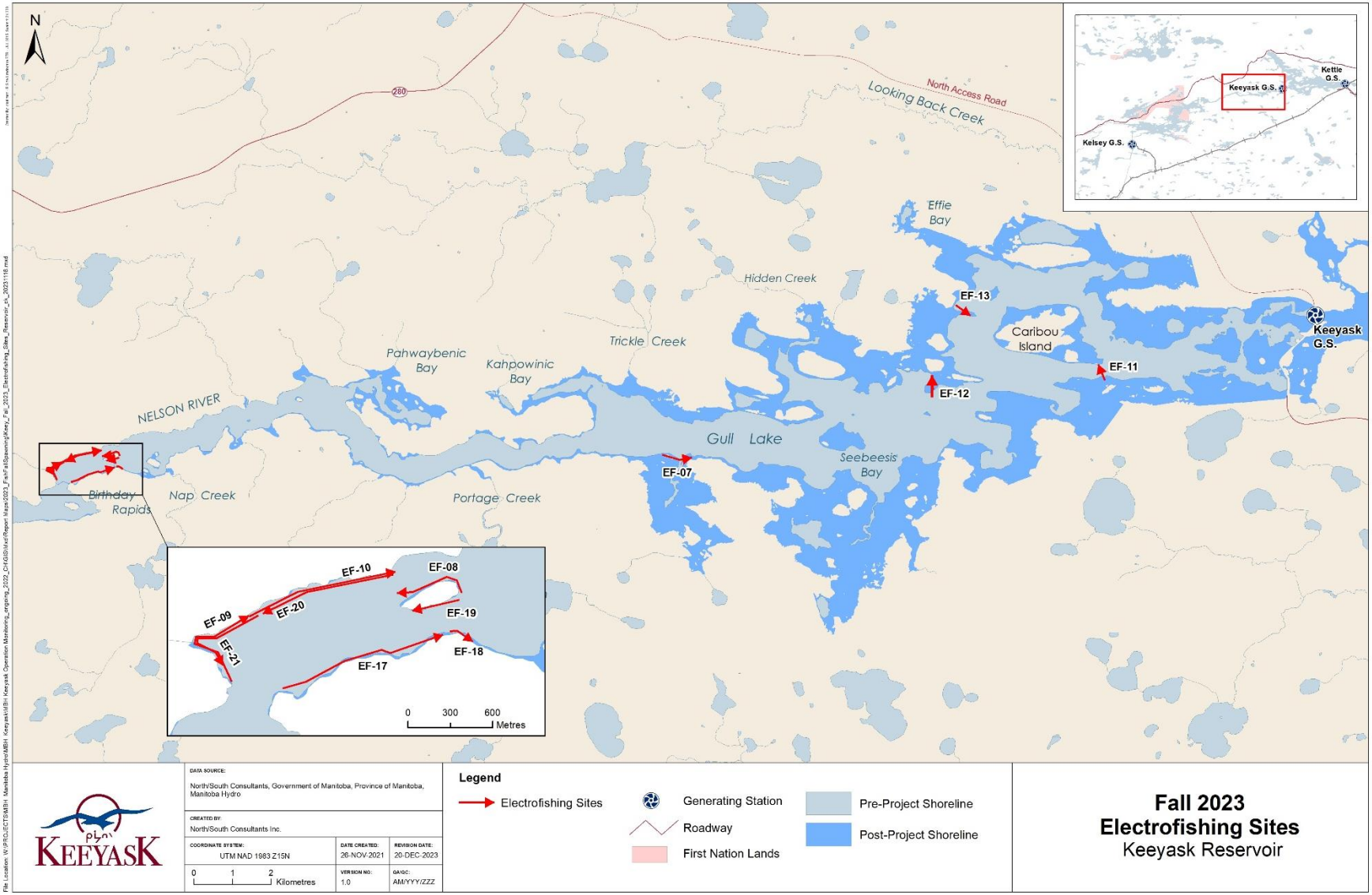
Map 5: Map of Stephens Lake showing gillnet sets to Floy-tag Lake Whitefish, Northern Pike, and Walleye, fall 2023.



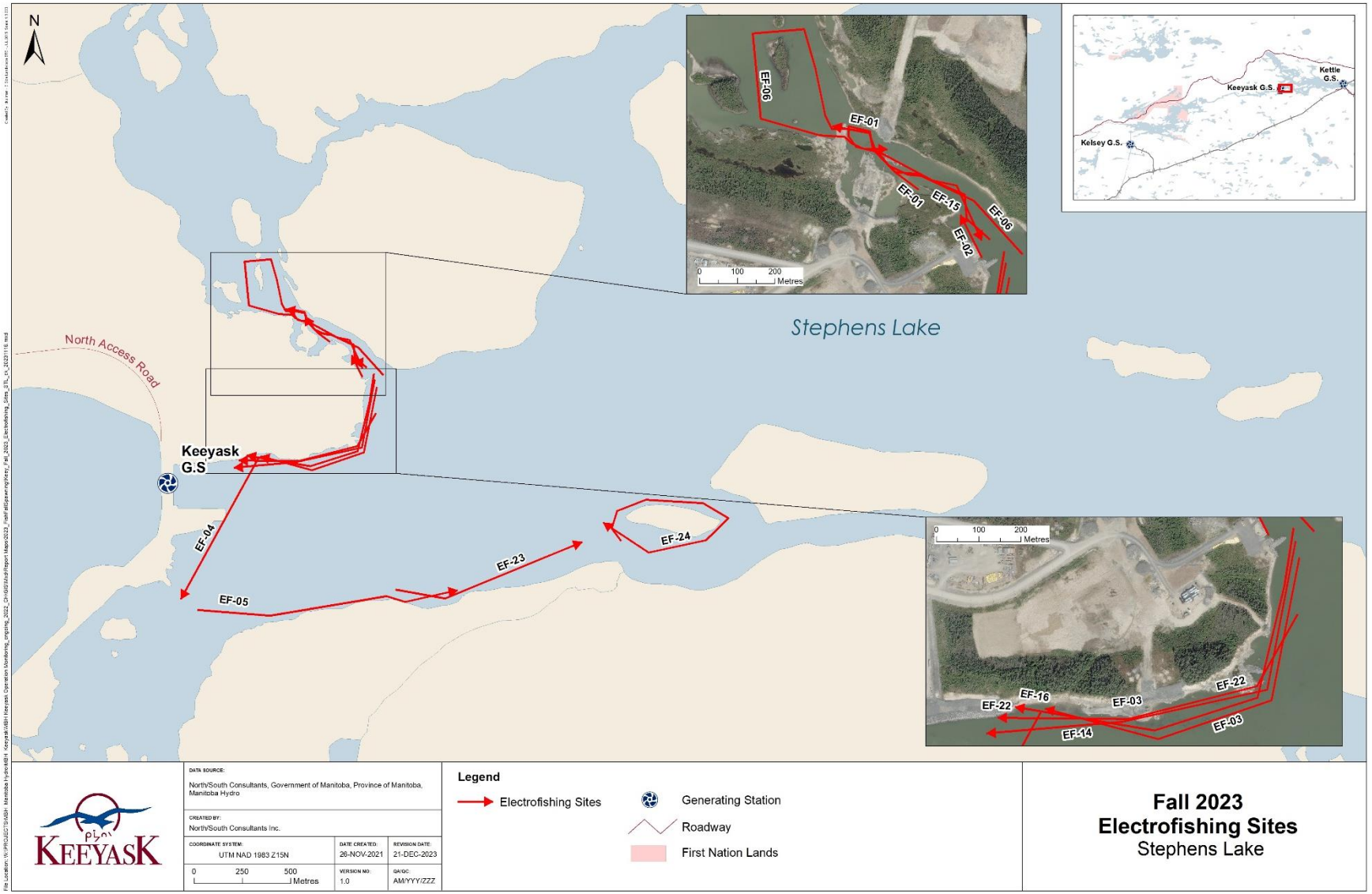
Map 6: Map of the Keeyask reservoir showing electrofishing runs to Floy-tag Lake Whitefish, Northern Pike, and Walleye, spring 2023.



Map 7: Map of Stephens Lake showing electrofishing runs to Floy-tag Lake Whitefish, Northern Pike, and Walleye, spring 2023.



Map 8: **Map of the Keeyask reservoir showing electrofishing runs to Floy-tag Lake Whitefish, Northern Pike, and Walleye, fall 2023.**



Map 9: Map of Stephens Lake showing electrofishing runs to Floy-tag Lake Whitefish, Northern Pike, and Walleye, fall 2023.

3.3 BIOLOGICAL SAMPLING

All fish captured were enumerated by species. Lake Whitefish, Northern Pike, and Walleye were measured for fork length (FL; ±1 mm) and weight (±5 g using a digital scale, or nearest 25 g for fish greater than 4,000 g) and marked with individually numbered external Floy FD-94 T-bar anchor tags (Floy-tag & Mfg. Inc., Seattle, WA) using a Dennison® Mark II tagging gun.

4.0 RESULTS

Large numbers of Lake Whitefish, Northern Pike, and Walleye were tagged and recaptured during EIS studies conducted between 1999 and 2010. Based on the lifespan of these fish species, it is not expected that many of these tags will be recaptured in the current study. However, as these mark-recapture data are used compare pre-and post-Project recapture rates, the number of tags applied are presented herein.

4.1 LAKE WHITEFISH

4.1.1 2023

In 2023, 66 Floy-tags were applied to Lake Whitefish, including five in the Keeyask reservoir and 61 in Stephens Lake (Table 1). No tagged Lake Whitefish were recaptured in 2023. Biological information for these fish is outlined in Table A1-1.

4.1.2 ALL YEARS

4.1.2.1 BASELINE (1999–2013)

A total of 1,713 Lake Whitefish were tagged during the baseline period, before construction of the Keeyask GS began, and 143 were recaptured (Table 1). The majority of fish were recaptured in the same area as they were tagged, including 111 in Split Lake, two in the Keeyask reservoir, and 29 in Stephens Lake (Figure 1). A single fish tagged in the Upper Split Lake area was recaptured in Stephens Lake.

4.1.2.2 CONSTRUCTION (2014–2020)

During the construction period, 122 Floy-tags were applied in conjunction with acoustic monitoring studies, including 42 in Gull Lake and 80 in Stephens Lake (Table 1). A single fish tagged in Gull Lake was captured in the same area in 2015.

Movements of these fish were also tracked using acoustic telemetry (Hrenchuk 2021). Eight fish tagged with acoustic tags in Gull Lake moved upstream into Clark Lake and four moved downstream past the Keeyask GS construction site, one of which continued to move downstream through the Kettle GS (Figure 2). One additional fish tagged in Stephens Lake moved downstream through the Kettle GS.

4.1.2.3 POST-IMPOUNDMENT (2021–2023)

A total of 167 Floy-tags were applied to Lake Whitefish in the first three years following impoundment of the Keeyask GS reservoir, including 32 in the Keeyask reservoir and 135 in Stephens Lake (Table 1). No Lake Whitefish have been recaptured.

Acoustic monitoring studies continued in 2021 and 2022 (Small and Hrenchuk 2023). Of the 17 Lake Whitefish with an acoustic tag in the Keeyask reservoir, none have moved downstream past the Keeyask GS between 2021 and 2023, while five have moved upstream into Clark Lake. No Lake Whitefish tagged with acoustic tags (of 13 detected fish) moved downstream through the Kettle GS (Figure 3).

Table 1: Summary of the total number of Floy-tags applied to Lake Whitefish and recaptured in the Upper Split Lake Area (USLA), Keeyask reservoir, and Stephens Lake during fisheries investigations from 1999 to 2023. Grey highlighting indicates fish that, based on age, may still be captured during the current study.

Year	USLA				Keeyask reservoir[1]				Stephens Lake			
	# Tags Applied	Recap Original Tagging Location			# Tags Applied	Recap Original Tagging Location			# Tags Applied	Recap Original Tagging Location		
		USLA	Keeyask reservoir	Stephens Lake		USLA	Keeyask reservoir	Stephens Lake		USLA	Keeyask reservoir	Stephens Lake
1999-2008[2]	550	111	-	-	167	-	1	-	996	1	-	29
2009	-	-	-	-	-	-	1	-	-	-	-	-
2010	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	20	-	-	-	40	-	-	-
2015	-	-	-	-	-	-	1	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	-	-	-	-
2017	-	-	-	-	22	-	-	-	40	-	-	-
2018	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-
2020	-	-	-	-	-	-	-	-	-	-	-	-
2021	-	-	-	-	10	-	-	-	32	-	-	-
2022	-	-	-	-	17	-	-	-	42	-	-	-
2023	-	-	-	-	5	-	-	-	61	-	-	-
TOTAL	**550**	**111**	**0**	**0**	**241**	**0**	**3**	**0**	**1,211**	**1**	**0**	**29**

1. The area between Clark Lake and Gull Rapids/the Keeyask GS.

2. As reported in the Keeyask EIS.

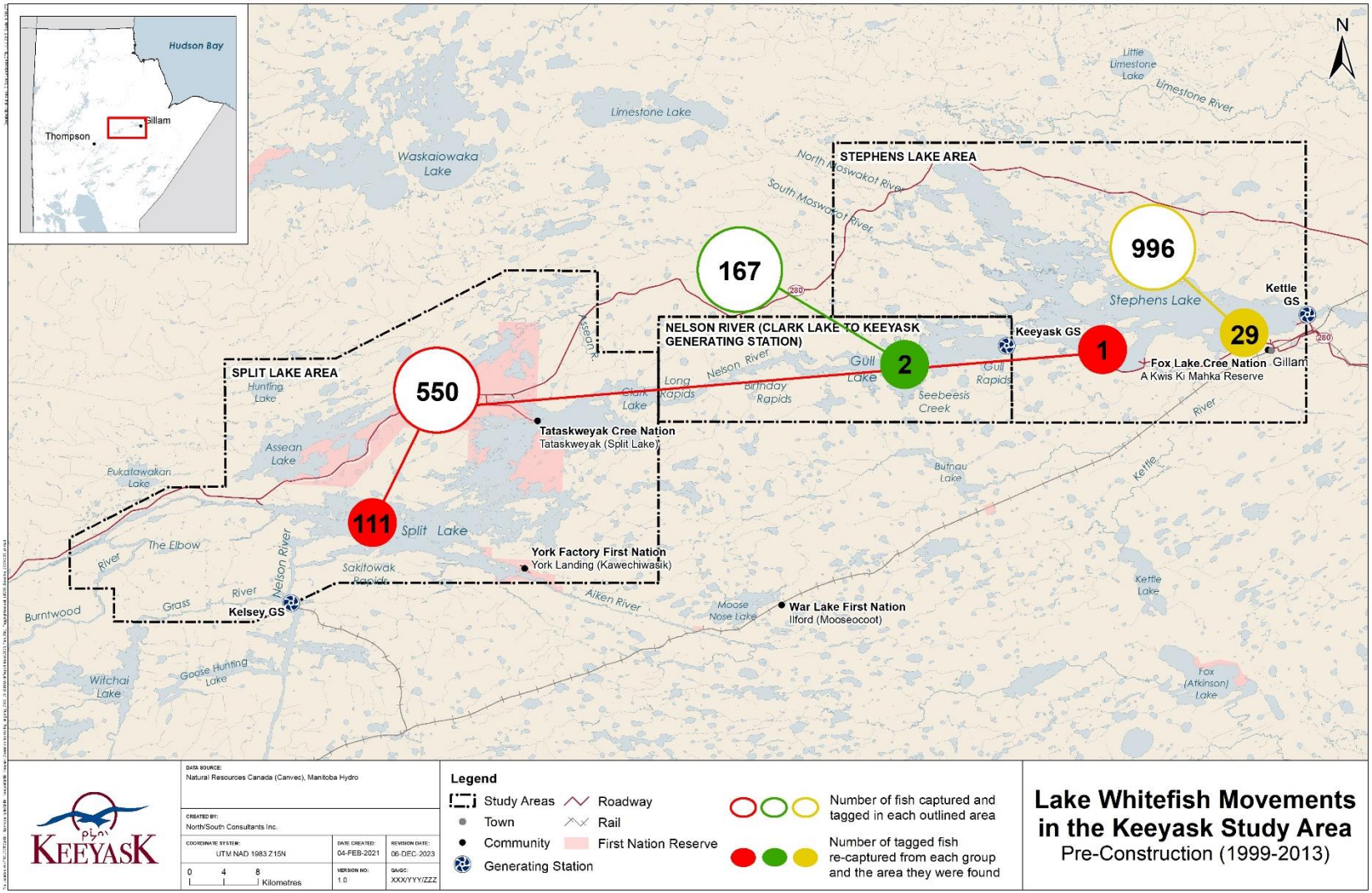


Figure 1. **Movements of Lake Whitefish tagged with Floy-tags in the Split Lake Area, the Nelson River between Clark Lake and Gull Rapids (now the Keeyask GS), and Stephens Lake prior to construction of the Keeyask GS (1999–2013). The number in the hollow circles is the number of fish tagged in each area while the number in the solid circles is the number of fish recaptured.**

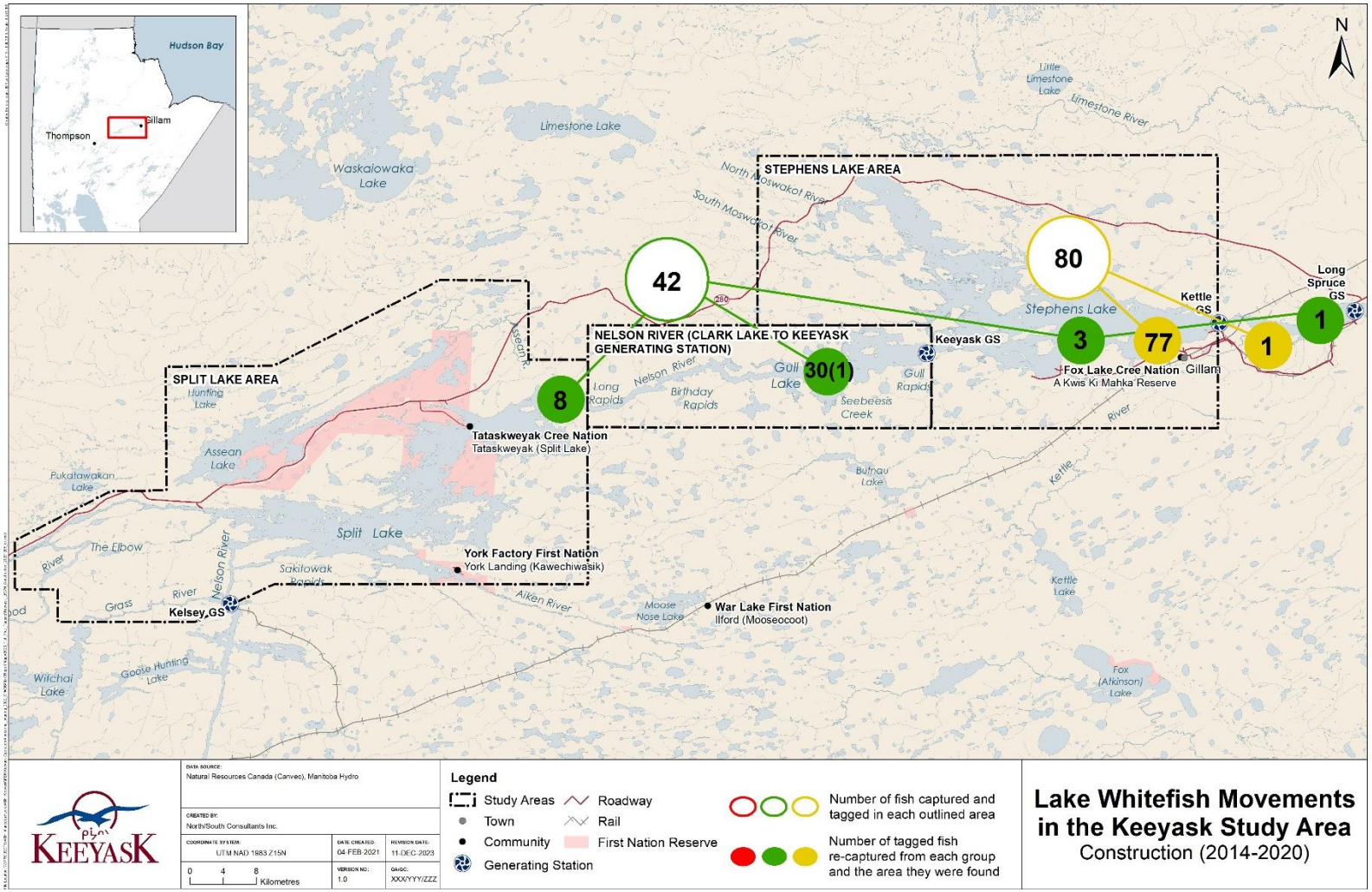


Figure 2. Movements of Lake Whitefish tagged with Floy and acoustic tags in the Nelson River between Clark Lake and the Keeyask GS construction site and Stephens Lake during construction of the Keeyask GS (2014–2020). The number in the hollow circles is the number of fish tagged in each area while the number in the solid circles is the number of fish recaptured and detected with acoustic receivers. The number in brackets is the number of those that were recaptured.

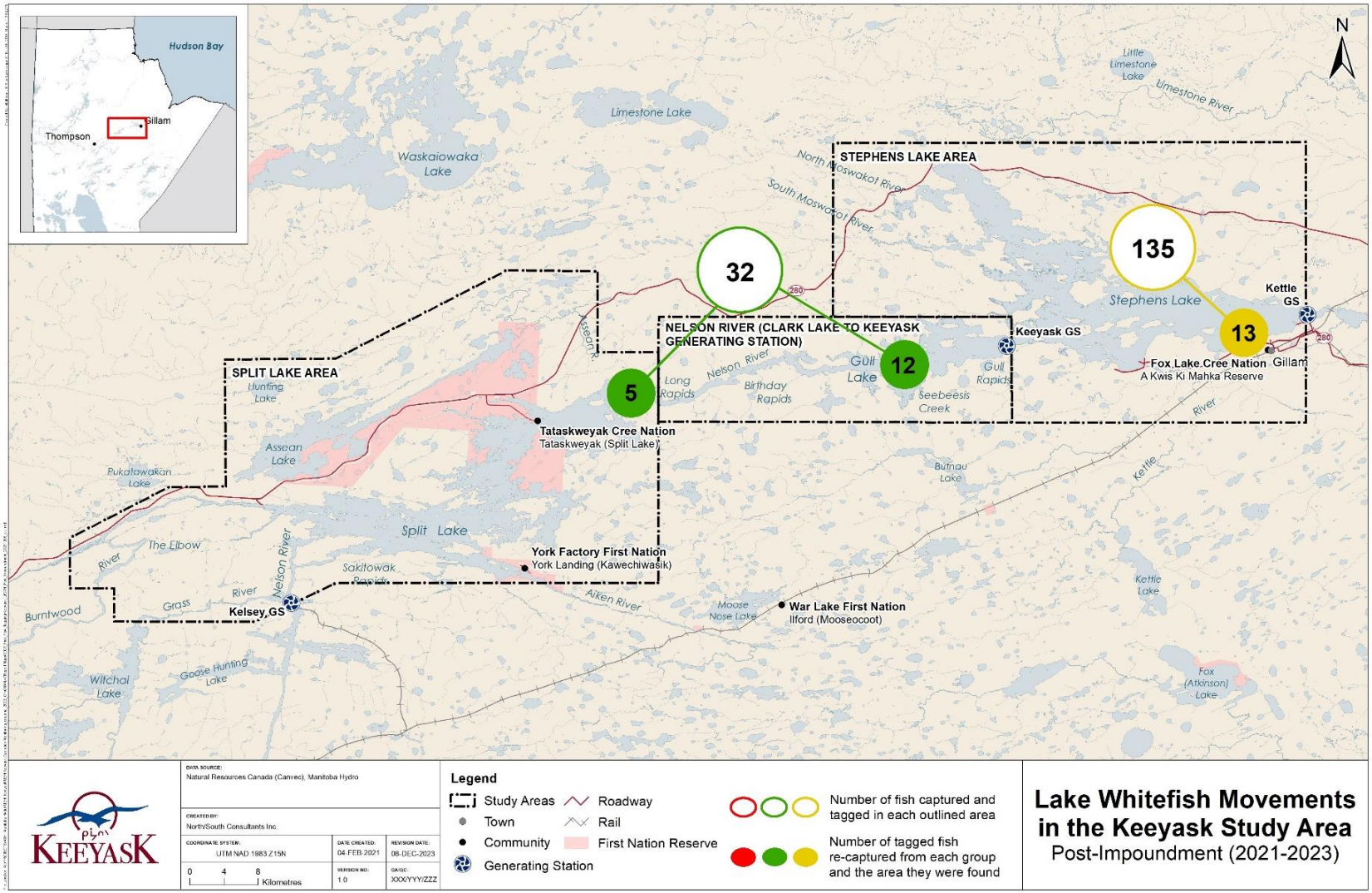


Figure 3. Movements of Lake Whitefish tagged with Floy and acoustic tags in the Nelson River between Clark Lake and the Keeyask GS and Stephens Lake following impoundment of the Keeyask GS reservoir (2021–2023). The number in the hollow circles is the number of fish tagged in each area while the number in the solid circles is the number of fish detected with acoustic receivers. No fish were recaptured.

4.2 NORTHERN PIKE

4.2.1 2023

In 2023, 529 Floy-tags were applied to Northern Pike, including 397 in the Keeyask reservoir and 132 in Stephens Lake. All tag applications and recaptures are presented in Table 2 and biological information for these fish is outlined in Table A1-2.

Eight individual tagged Northern Pike were recaptured in the Keeyask reservoir in 2023 (Table A2-1). Five fish were current-year recaptures tagged in 2023 recaptured two to 113 days after tagging. These fish were recaptured between 0.02 and 1.7 km from their last capture locations. One of these fish (Floy #122362) was tagged in Little Gull Lake in spring 2023 and was recaptured within the Nelson River mainstem (1.7 km away) in August. One fish (Floy #121630), originally tagged in 2021, was captured twice in 2023. It was caught in nearly the same location (within 0.02 km) during all three capture events. The remaining three fish were tagged in the Keeyask reservoir in 2021 and 2022 and were recaptured between 0.1 and 3.3 km from their last capture location.

One fish (Floy #122235) tagged in the middle portion of the Keeyask reservoir in May 2021 was captured by a local resource user at the York Landing ferry landing on June 14, 2023. This fish moved approximately 37.2 km upstream from its original capture location.

An additional six tagged Northern Pike were recaptured in Stephens Lake in 2023 (Table A2-1). Of these, one was tagged in October 2021 and was recaptured 0.6 km from its original tagging location. The remaining five were tagged in Stephens Lake in 2022 and were recaptured between 0.1 and 2.6 km from their original tagging location. No Northern Pike tagged in the Keeyask reservoir were recaptured in Stephens Lake in 2023.

4.2.2 ALL YEARS

4.2.2.1 BASELINE (1999–2013)

In total, 7,939 Northern Pike were tagged during baseline studies, before construction of the Keeyask GS began (Table 2). A total of 419 of these were recaptured, with the majority (n = 401; 96%) being tagged and recaptured in their original tagging location (Figure 4). Single fish tagged in Split Lake were recaptured in both Gull and Stephens lakes. Nine fish tagged in Gull Lake were recaptured in Split Lake and six were recaptured in Stephens Lake. One fish tagged in Stephens Lake was recaptured in Split Lake.

4.2.2.2 CONSTRUCTION (2014–2020)

No Floy-tags were applied to Northern Pike or recaptured during the construction period.

4.2.2.3 POST-IMPOUNDMENT (2021–2023)

A total of 1,211 Floy-tags were applied to Northern Pike in the first three years following impoundment of the Keeyask GS reservoir including 800 in the Keeyask reservoir and 411 in Stephens Lake. Of these, nineteen have been recaptured in the Keeyask reservoir and ten in Stephens Lake, that were tagged and recaptured in the same waterbody (Figure 5). The only Northern Pike that moved between waterbodies was initially tagged in the Keeyask reservoir and recaptured in the Upper Split Lake area.

Table 2: Summary of the total number of Floy-tags applied to Northern Pike and recaptured in the Upper Split Lake Area (USLA), Keeyask reservoir, and Stephens Lake during fisheries investigations from 1999 to 2023. Grey highlighting indicates fish that, based on age, may still be captured during the current study.

Year	USLA				Keeyask reservoir[1]				Stephens Lake			
	# Tags Applied	Recap Original Tagging Location			# Tags Applied	Recap Original Tagging Location			# Tags Applied	Recap Original Tagging Location		
		USLA	Keeyask Reservoir	Stephens Lake		USLA	Keeyask Reservoir	Stephens Lake		USLA	Keeyask Reservoir	Stephens Lake
1999-2008[2]	3,770	264	9	1	2,069	1	40	-	2,037	1	6	96
2009	4	-	-	-	-	-	-	-	-	-	-	1
2010	9	-	-	-	20	-	-	-	30	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	-	-	-	-	-	-	-	-
2014	-	-	-	-	-	-	-	-	-	-	-	-
2015	-	-	-	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	-	-	-	-
2017	-	-	-	-	-	-	-	-	-	-	-	-
2018	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-
2020	-	-	-	-	-	-	-	-	-	-	-	-
2021	-	-	-	-	175	-	1	-	137	-	-	-
2022	-	-	-	-	228	-	9	-	142	-	-	4
2023	-	-	1	-	397	-	9[3]	-	132	-	-	6
TOTAL	**3,783**	**264**	**10**	**1**	**2,889**	**1**	**59**	**0**	**2,478**	**1**	**6**	**107**

1. The area between Clark Lake and Gull Rapids/the Keeyask GS.
2. As reported in the Keeyask EIS.
3. One fish was recaptured twice in the Keeyask reservoir in 2023, therefore there were nine recapture events, but eight individual fish recaptured.

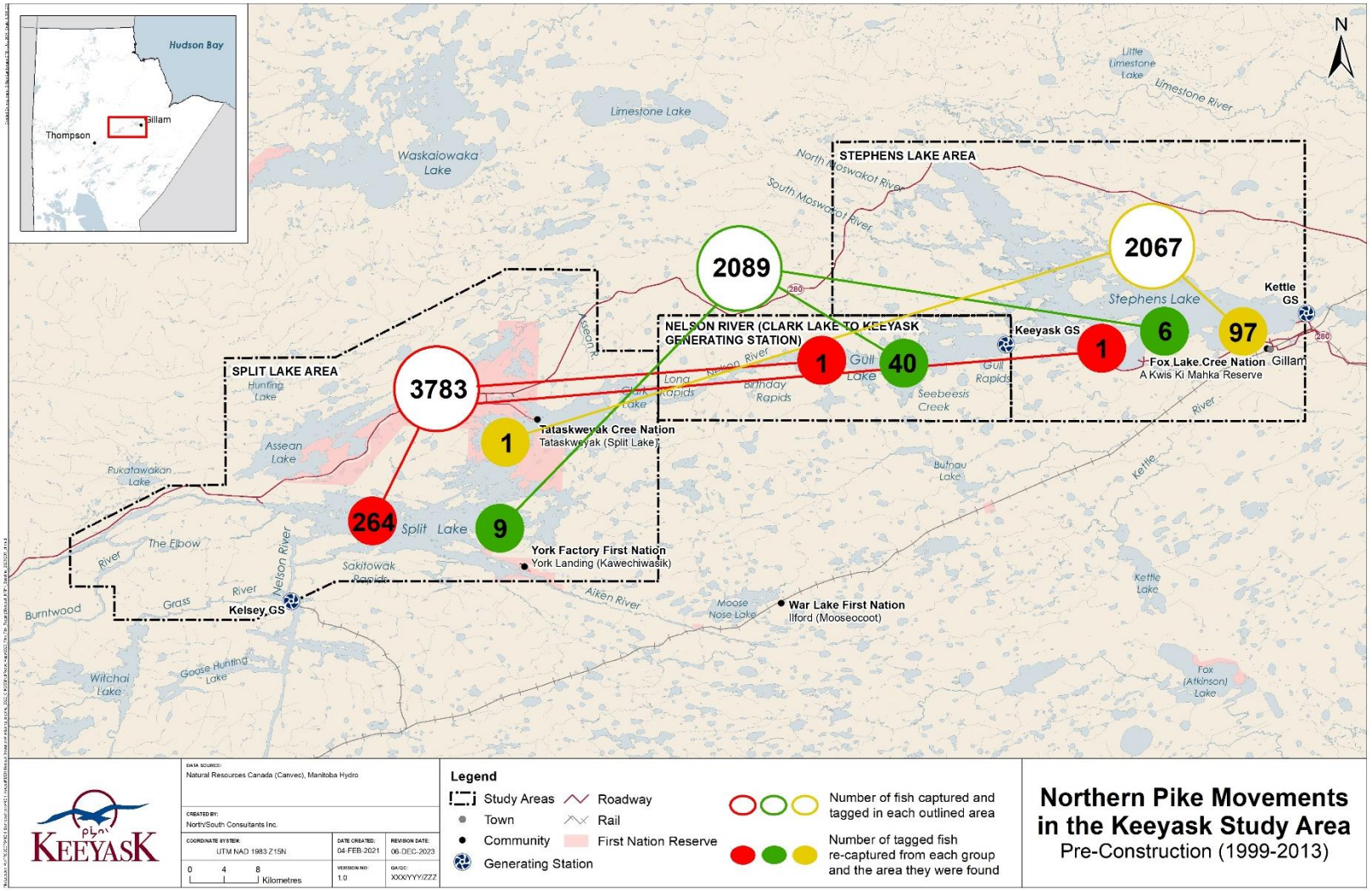


Figure 4. Movements of Northern Pike tagged with Floy-tags in the Split Lake Area, the Nelson River between Clark Lake and Gull Rapids (now the Keeyask GS), and Stephens Lake prior to construction of the Keeyask GS (1999–2013). The number in the hollow circles is the number of fish tagged in each area while the number in the solid circles is the number of fish recaptured.

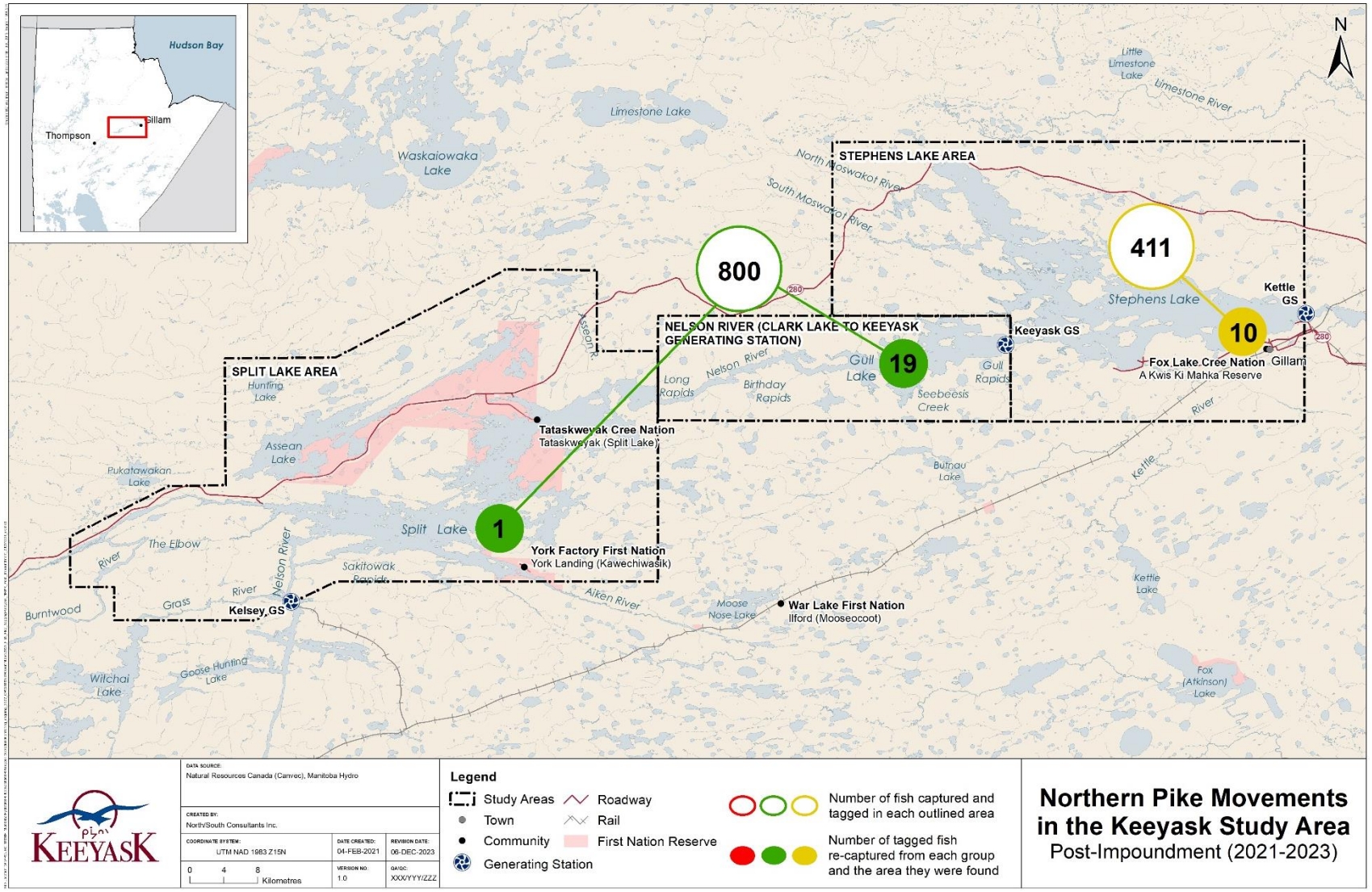


Figure 5. Movements of Northern Pike tagged with Floy-tags in the Nelson River between Clark Lake and the Keeyask GS and Stephens Lake following impoundment of the Keeyask GS reservoir (2021–2023). The number in the hollow circles is the number of fish tagged in each area while the number in the solid circles is the number of fish recaptured.

4.3 WALLEYE

4.3.1 2023

In 2023, 256 Floy-tags were applied to Walleye, including 47 in the Keeyask reservoir and 209 in Stephens Lake. Biological information for these fish is outlined in Table A1-3. All tag applications and recaptures are presented in Table 3.

Six individual tagged Walleye were recaptured in the Keeyask reservoir in 2023 (Table A2-2). Two of these fish were current-year recaptures tagged in 2023 recaptured five and 26 days after tagging 0.2 and 4.8 km from their last capture locations. One fish (Floy #121627) was originally tagged in 2021 and was recaptured in both 2022 and 2023. It was caught in nearly the same location (within 0.4 km) during all three capture events. The remaining three fish were tagged in the Keeyask reservoir in either 2021 or 2022 and were recaptured between 0.02 and 4.2 km from their last capture location.

An additional five tagged Walleye were recaptured in Stephens Lake in 2023 (Table A2-2). Two fish were current-year recaptures tagged in 2023 and recaptured two and 85 days after tagging within 0.8 and 2.2 km of their last capture locations. One was tagged in Stephens Lake in 2021 and recaptured 3.3 km from its original tagging location. Another, was tagged in Stephens Lake in 2022, was recaptured 0.9 km from its original tagging location. The remaining fish (Floy #122865) was originally tagged in the middle Keeyask reservoir in June 2022, and was recaptured on the north shore in Stephens Lake approximately 0.9 km downstream of the Keeyask GS powerhouse in May 2023, 24.2 km downstream of its original tagging location.

4.3.2 ALL YEARS

4.3.2.1 BASELINE (1999–2013)

A total of 5,545 Walleye were tagged with Floy-tags during EIS studies, before construction of the Keeyask GS began (Table 3). A total of 1,025 of these were recaptured, with the majority (n = 1,015; 99%) being recaptured in their original tagging location. For the remaining ten fish, movements between the Upper Split Lake Area, the Keeyask Area, and Stephens Lake were observed (Figure 6).

An additional 82 acoustic tags were applied to Walleye in 2013 to track movements before and during Keeyask GS construction (Murray *et al.* 2015). Forty of these were tagged in Gull Lake and 42 were tagged in Stephens Lake. Before construction began, one Walleye tagged in Gull Lake moved downstream into Stephens Lake while seven moved upstream into Clark Lake

(Figure 6). For the fish tagged in Stephens Lake, one moved upstream through Gull Rapids and into Clark Lake, while one moved downstream through the Kettle GS.

4.3.2.2 CONSTRUCTION (2014–2020)

During the construction period, 225 Floy-tags were applied to Walleye in conjunction with acoustic monitoring studies, including 122 in Gull Lake and 103 in Stephens Lake (Table 3). Three fish tagged in Gull Lake were captured in the same area in 2014 and 2015. One fish tagged in Gull Lake was recaptured by a local resource user at the confluence of the Odei and Burntwood river the Upper Split Lake area in 2018. A single Walleye tagged in Stephens Lake was recaptured in the same area in 2018.

Movements of these 225 fish (and ten of those tagged in the Keeyask reservoir and eight tagged in Stephens Lake in 2013) were also tracked using acoustic telemetry (Hrenchuk 2021). Twenty-three of the 122 Walleye tagged with acoustic tags in Gull Lake moved downstream past the Keeyask GS construction site, ten of which continued to move downstream through the Kettle GS (Figure 7). Twenty-four fish tagged in Gull Lake moved upstream into Clark Lake. Eight Walleye tagged in Stephens Lake moved downstream through the Kettle GS, one of which was captured by a local fisher downstream of the Long Spruce GS.

4.3.2.3 POST-IMPOUNDMENT (2021–2023)

A total of 561 Floy-tags were applied to Walleye during the post impoundment period, including 213 in the Keeyask reservoir and 348 in Stephens Lake (Table 3). Of these, seven were recaptured in the Keeyask reservoir and seven in Stephens Lake, all of which were captured in their original tagging location, except one. A single Walleye was tagged in the Keeyask reservoir and recaptured in Stephens Lake (Figure 8).

Acoustic monitoring studies conducted during the same period (2021–2023) monitored the movements of 59 Walleye in the Keeyask reservoir and 55 in Stephens Lake (Funk and Hrenchuk 2024). Three of the fish tagged in the Keeyask reservoir moved downstream past the Keeyask GS, while 21 moved upstream into Clark Lake. Three fish tagged in Stephens Lake moved downstream through the Kettle GS.

Table 3: Summary of the total number of Floy-tags applied to Walleye and recaptured in the Upper Split Lake Area (USLA), Keeyask reservoir, and Stephens Lake during fisheries investigations from 1999 to 2023. Grey highlighting indicates fish that, based on age, may still be captured during the current study.

Year	USLA				Keeyask Reservoir[1]				Stephens Lake			
	# Tags Applied	Recap Original Tagging Location			# Tags Applied	Recap Original Tagging Location			# Tags Applied	Recap Original Tagging Location		
		USLA	Keeyask Reservoir	Stephens Lake		USLA	Keeyask Reservoir	Stephens Lake		USLA	Keeyask Reservoir	Stephens Lake
1999-2008[2]	3,838	900	5	-	496	1	14	1	1,129	1	2	101
2009	-	-	-	-	-	-	-	-	-	-	-	-
2010	-	-	-	-	-	-	-	-	-	-	-	-
2011	-	-	-	-	-	-	-	-	-	-	-	-
2012	-	-	-	-	-	-	-	-	-	-	-	-
2013	-	-	-	-	40	-	-	-	42	-	-	-
2014	-	-	-	-	3	-	2	-	-	-	-	-
2015	-	-	-	-	48	-	1	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	40	-	-	-
2017	-	-	-	-	-	-	-	-	-	-	-	-
2018	-	1	1	-	17	-	-	-	7	-	-	1
2019	-	-	-	-	54	-	-	-	56	-	-	-
2020	-	-	-	-	-	-	-	-	-	-	-	-
2021	-	-	-	-	69	-	-	-	71	-	-	-
2022	-	-	-	-	97	-	1	-	68	-	-	2
2023	-	-	-	-	47	-	6	-	209	-	1	4
TOTAL	**3,838**	**901**	**6**	**0**	**871**	**1**	**24**	**1**	**1,622**	**1**	**3**	**108**

1. The area between Clark Lake and Gull Rapids/the Keeyask GS.

2. As reported in the Keeyask EIS.

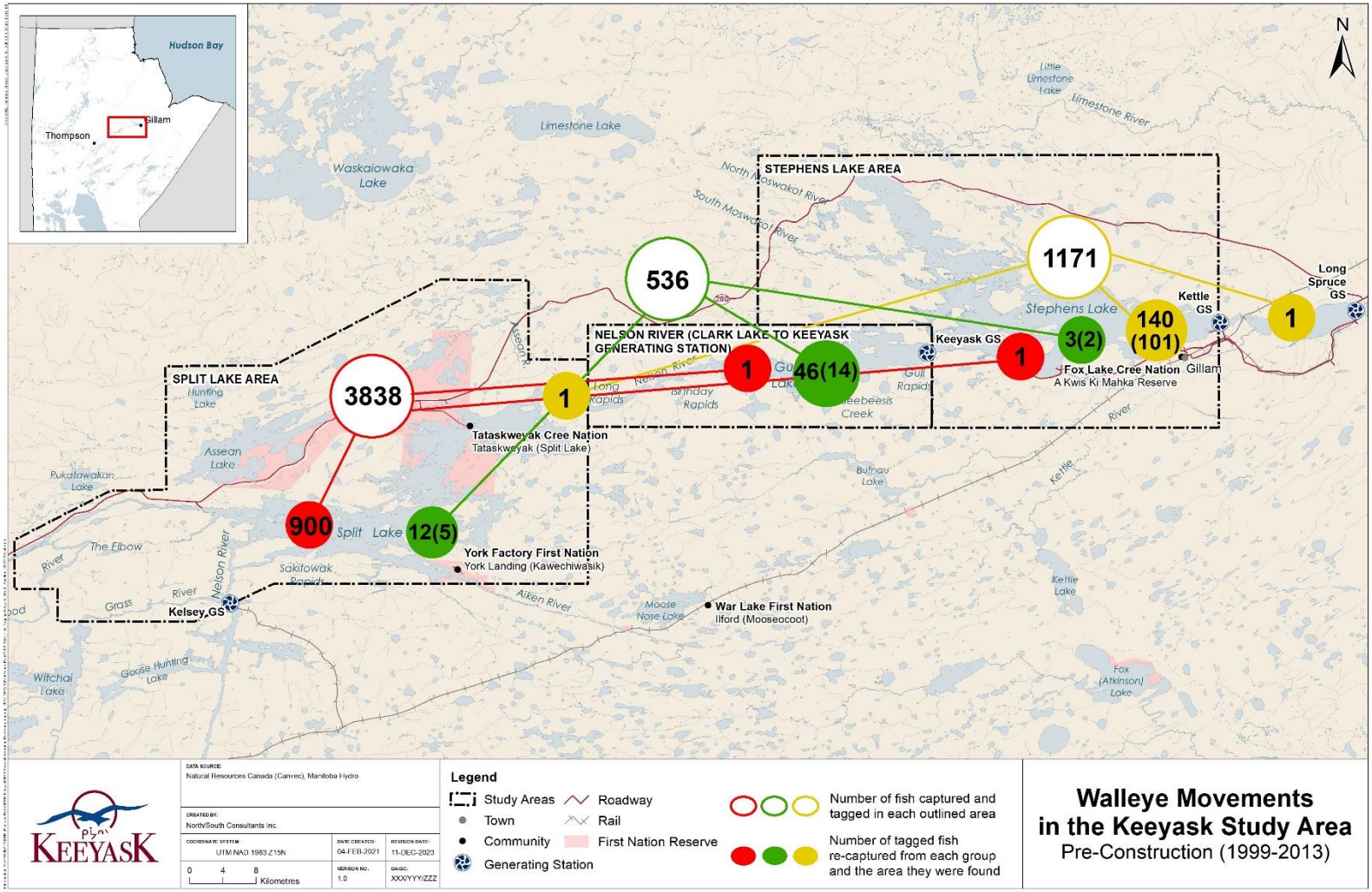


Figure 6. Movements of Walleye tagged with Floy and acoustic tags in the Split Lake Area, the Nelson River between Clark Lake and Gull Rapids (now the Keeyask GS), and Stephens Lake prior to construction of the Keeyask GS (1999–2013). The number in the hollow circles is the number of fish tagged in each area while the number in the solid circles is the number of fish recaptured and detected with acoustic receivers. The number in brackets is the number of those that were recaptured.

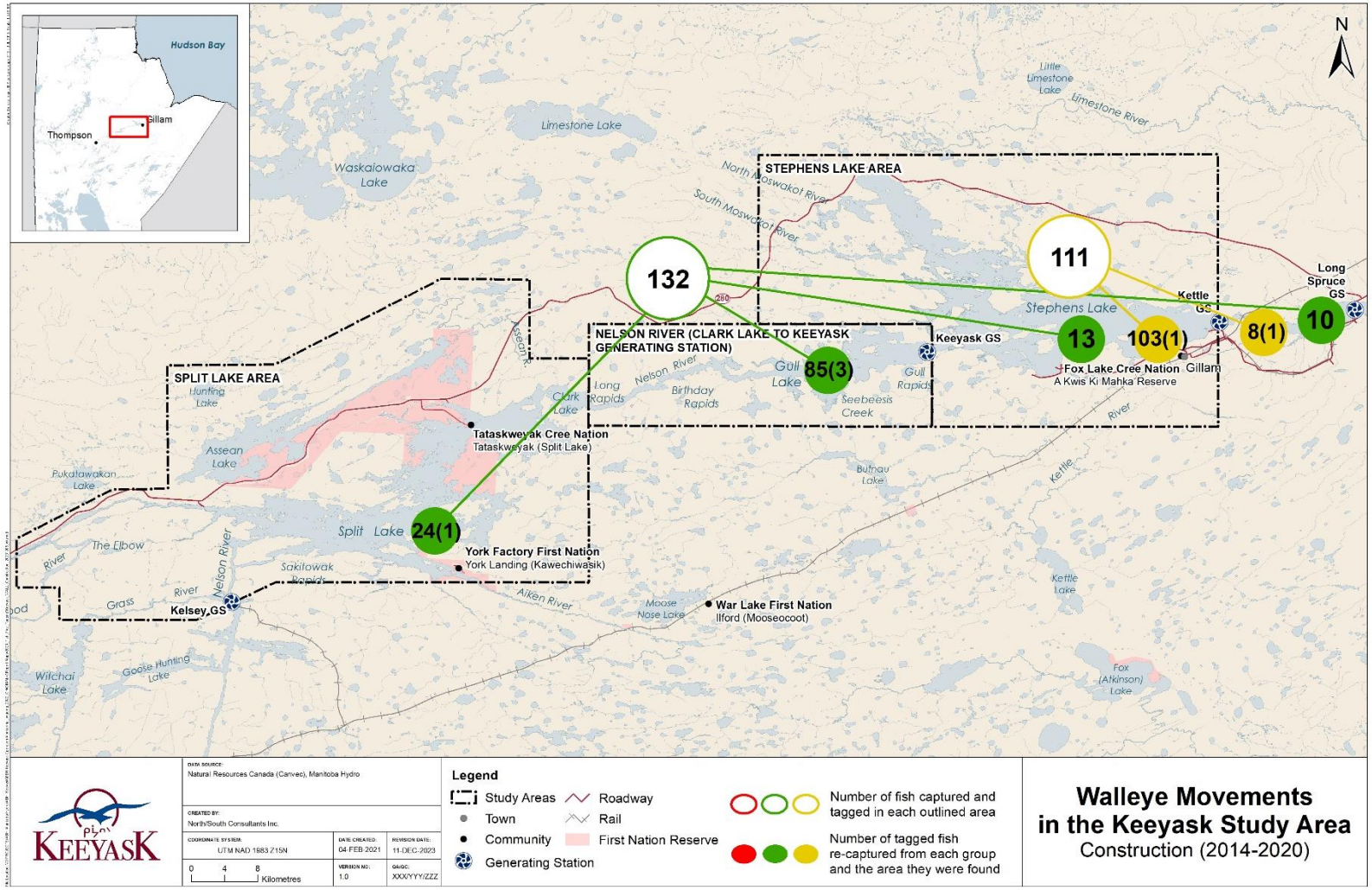


Figure 7. Movements of Walleye tagged with Floy and acoustic tags in the Nelson River between Clark Lake and the Keeyask GS construction site and Stephens Lake during construction of the Keeyask GS (2014–2020). The number in the hollow circles is the number of fish tagged in each area, including fish acoustically tagged in 2013, while the number in the solid circles is the number of fish recaptured and detected with acoustic receivers. The number in brackets is the number of those that were recaptured.

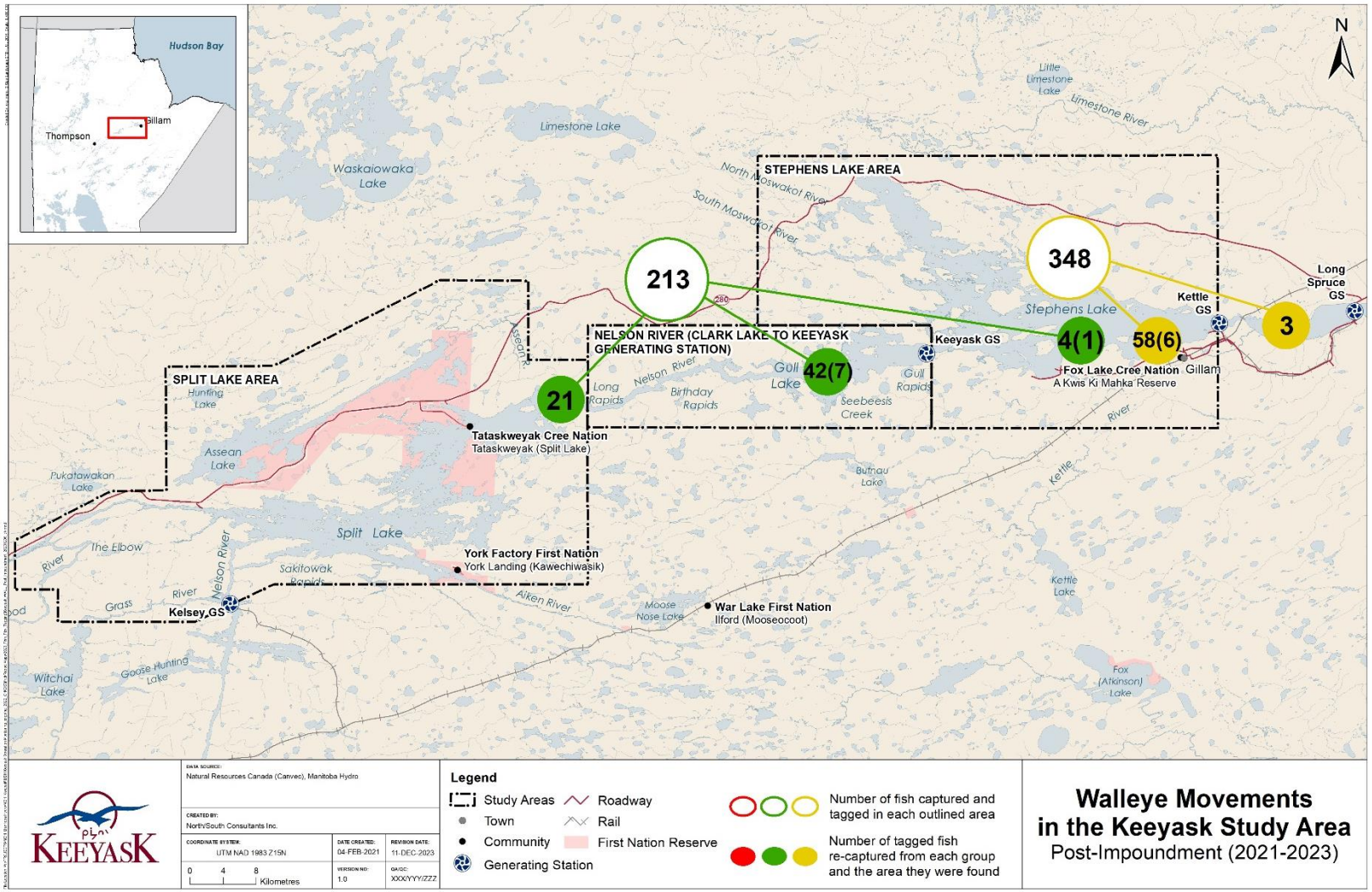


Figure 8. Movements of Walleye tagged with Floy and acoustic tags in the Nelson River between Clark Lake and the Keeyask GS and Stephens Lake following impoundment of the Keeyask GS reservoir (2021–2023). The number in the hollow circles is the number of fish tagged in each area while the number in the solid circles is the number of fish recaptured and detected with acoustic receivers. The number in brackets is the number of those that were recaptured.

5.0 DISCUSSION

The primary objective of the Floy-tagging program is to monitor movements of fish in the Keeyask study area following impoundment of the Keeyask GS reservoir in fall 2020. Specifically, to provide information on the frequency of fish movements out of the Keeyask reservoir, either downstream past the Keeyask GS, or upstream into Split Lake. Marked fish will be recaptured by local resource users and/or during studies such as index gillnetting conducted in the Keeyask reservoir, Split, Stephens and Assean lakes, and additional AEMP monitoring programs.

During the baseline period (*i.e.*, 1990–2013) movements of Lake Whitefish, Northern Pike, and Walleye were monitored during mark-recapture studies conducted for the EIS and pre-construction acoustic monitoring. Few long-distance movements of Lake Whitefish were observed, with a single fish tagged in the Split Lake area recaptured in Stephens Lake. Long-distance movements of Northern Pike and Walleye were more common; upstream and downstream movements between Split, Gull, and Stephens lakes were observed, albeit in small numbers.

During the construction period (*i.e.*, 2014–2020), movements of Lake Whitefish and Walleye were tracked using acoustic telemetry, although any Floy-tag recaptures for all three species were recorded. More movements of Lake Whitefish out of Gull Lake were observed than during pre-construction, with four fish moving downstream past the Keeyask GS construction site (one of which continued downstream through the Kettle GS) and eight moving upstream into Clark Lake. More long-distance movements of Walleye were also observed, with 23 moving downstream past the Keeyask GS, 24 moving upstream into Clark Lake, and one moving upstream as far as the Odei River.

During the post-impoundment period (*i.e.*, 2021–2023) Floy-tags were applied to Lake Whitefish (n = 167), Northern Pike (n = 1,211), and Walleye (n = 561) to track movements following impoundment of the Keeyask GS reservoir. During this time, no Lake Whitefish, 30 Northern Pike (2% of tagged fish), and 15 Walleye (3% of tagged fish) have been recaptured, with most recaptures occurring in the same waterbody as tagging. One Northern Pike tagged in the Keeyask reservoir was captured in Split Lake, while one Walleye tagged in the Keeyask reservoir was recaptured in Stephens Lake. Additional movements of Lake Whitefish (n = 35) and Walleye (n = 135) have been tracked using acoustic telemetry. Movements of both species into Clark Lake have been observed and Walleye have moved downstream past both the Keeyask and Kettle generating stations.

It was predicted in the EIS that changes to aquatic habitat in the Keeyask reservoir could result in increased fish movement out of the reach, either upstream or downstream. In particular, it was predicted that there could be a mass emigration of fish out of the reach in the first year of impoundment. Key questions identified in the AEMP aimed at assessing this predication are addressed below.

What is the number and proportion of Floy-tagged fish that move downstream past the Keeyask GS into Stephens Lake?

None of the 32 Lake Whitefish tagged with Floy-tags in the Keeyask reservoir between 2021 and 2023 have been recaptured in Stephens Lake. Further, none of 17 Lake Whitefish tracked using acoustic telemetry in the Keeyask reservoir in 2021 and 2022 moved downstream past the Keeyask GS (Small and Hrenchuk 2023).

Nineteen of 800 Northern Pike (2%) tagged with Floy-tags in the Keeyask reservoir between 2021 and 2023 were recaptured within the same area. These pike moved between 0.0 and 3.3 km from their original tagging locations. No Northern Pike tagged in the Keeyask reservoir were recaptured in Stephens Lake.

Seven of 213 Walleye (3%) tagged with Floy-tags in the Keeyask reservoir between 2021 and 2023 were recaptured within the same area, while one (0.5%) was recaptured in Stephens Lake. Three of 59 Walleye (5%) tagged in the Keeyask reservoir and tracked using acoustic monitoring moved downstream past the Keeyask GS during the same period (Funk and Hrenchuk 2024). Prior to construction, three (0.5% of all fish tagged) Walleye moved downstream, while 23 (17% of all fish tagged) moved downstream during construction.

What is the number and proportion of Floy-tagged fish that move upstream from Gull Lake/Keeyask Reservoir into the Split Lake area?

None of the 32 Lake Whitefish tagged with Floy-tags in the Keeyask reservoir between 2021 and 2023 have been recaptured upstream of the Keeyask reservoir. Five of 17 Lake Whitefish (29%) tracked using acoustic telemetry in 2021 and 2022 moved upstream into Clark Lake (Small and Hrenchuk 2023). Although no upstream movements were observed prior to the onset of construction, eight of 42 Lake Whitefish (19%) tracked using acoustic telemetry during construction moved upstream into Clark Lake.

One of 800 (0.1%) Northern Pike tagged with Floy-tags in the Keeyask reservoir between 2021 and 2023 was recaptured in Split Lake. This fish was tagged in the middle portion of the Keeyask reservoir in 2021 and was recaptured at the York Landing ferry landing site in 2023, approximately 37 km upstream. A similar proportion of Northern Pike tagged in Gull Lake prior to construction (n = 9; 0.4%) were captured in Split Lake.

An increase in movements of Walleye upstream out of the Keeyask reservoir was observed following reservoir impoundment. Although none of the 213 Walleye tagged with Floy-tags in the Keeyask reservoir between 2021 and 2023 were recaptured upstream of the Keeyask reservoir, 24 of 59 (51%) Walleye tracked using acoustic monitoring moved upstream into Clark Lake during the same period. Before the start of construction in 2014, seven of 49 Walleye (14%) moved upstream into Clark Lake. During the construction period, 24 of 132 tagged Walleye (18%) moved upstream. The number of tracked Walleye that moved upstream out of the Keeyask reservoir increased in 2021 (36%) but has since returned to levels closer to those observed pre-impoundment in both 2022 (17%) and 2023 (25%) (discussed further in Hrenchuk and Funk 2024).

Although 2023 marks the final year of targeted mark-and-recapture of Lake Whitefish, Northern Pike, and Walleye in both the Keeyask reservoir and Stephens Lake, tagged fish will continue to be captured during other AEMP studies (*e.g.*, spring adult Lake Sturgeon population monitoring, fish community monitoring, and juvenile Lake Sturgeon population monitoring programs). Any tag returns from local resource users and other studies (such as Manitoba and Manitoba Hydro's Coordinated Aquatic Monitoring Program) will be recorded. Movements of Walleye will continue to be monitored using acoustic telemetry.

6.0 SUMMARY AND CONCLUSIONS

- Lake Whitefish, Northern Pike, and Walleye were tagged with Floy-tags in both the Keeyask reservoir and Stephens Lake in 2023 (the third year following impoundment of the Keeyask reservoir).
- A total of 167 tags were applied to Lake Whitefish between 2021 and 2023 including 32 in the Keeyask reservoir, and 135 in Stephens Lake.
    - None of these fish were recaptured.
- A total of 1,211 tags were applied to Northern Pike between 2021 and 2023, including 800 in the Keeyask reservoir and 411 in Stephens Lake.
    - Nineteen Northern Pike tagged in the Keeyask reservoir and ten tagged in Stephens Lake were recaptured in the same area.
    - One Northern Pike tagged in the middle Keeyask reservoir in 2021 was recaptured by a local resource user in Split Lake in 2023, approximately 37 km upstream of its original tagging location.
- A total of 561 tags were applied to Walleye between 2021 and 2023, including 213 in the Keeyask reservoir and 348 in Stephens Lake.
    - Seven Walleye tagged in the Keeyask reservoir and seven tagged in Stephens Lake were recaptured in the same area.
    - One Walleye tagged in the Keeyask reservoir in 2022 was recaptured in Stephens Lake in 2023, approximately 24 km downstream of its original tagging location.
- The key questions, as described in the AEMP for fish movement monitoring using Floy-tags were as follows:
    - *What is the number and proportion of Floy-tagged fish that move downstream past the Keeyask GS into Stephens Lake?*

      No Lake Whitefish tagged with Floy-tags in the Keeyask reservoir between 2021 and 2023 were recaptured in Stephens Lake. None of the 17 Lake Whitefish tracked using acoustic telemetry in 2021 and 2022 moved downstream past the Keeyask GS (Small and Hrenchuk 2023).

      Nineteen Northern Pike (2%) tagged with Floy-tags in the Keeyask reservoir between 2021 and 2023 were recaptured within the same area. These fish moved between 0.0 and 3.3 km from their original tagging locations. No Northern Pike tagged in the Keeyask reservoir were recaptured in Stephens Lake.

      Seven of 213 Walleye (3%) tagged with Floy-tags in the Keeyask reservoir between 2021 and 2023 were recaptured within the same area, while one (0.5%) was recaptured in Stephens Lake. An additional three of 59 Walleye (5%) tagged in the Keeyask reservoir and tracked using acoustic monitoring moved

downstream past the Keeyask GS during the same period (Funk and Hrenchuk 2024).

- *What is the number and proportion of Floy-tagged fish that move upstream from Gull Lake/Keeyask Reservoir into the Split Lake area?*

  No Lake Whitefish tagged with Floy-tags in the Keeyask reservoir between 2021 and 2023 were recaptured upstream of the Keeyask reservoir. Five of 17 Lake Whitefish (29%) tracked using acoustic telemetry in 2021 and 2022 moved upstream into Clark Lake (Small and Hrenchuk 2023).

  One (0.1%) Northern Pike Floy-tagged in the Keeyask reservoir between 2021 and 2023 was recaptured in Split Lake. This fish was tagged in the middle the Keeyask reservoir in 2021 and was recaptured at the York Landing ferry landing site in 2023, approximately 37 km upstream.

  No Walleye tagged with Floy-tags in the Keeyask reservoir between 2021 and 2023 were recaptured upstream of the Keeyask reservoir. Twenty-four of 59 (51%) Walleye tracked using acoustic monitoring moved upstream into Clark Lake during the same time period (Funk and Hrenchuk 2024).

- It was predicted in the EIS that changes in aquatic habitat in the Keeyask reservoir could result in increased fish movement out of the reach, either upstream or downstream. In particular, it was predicted that there could be a mass emigration of fish out of the reach in the first year of impoundment. In the first three years following reservoir impoundment, there does not appear to be an increase in downstream movements out of the reservoir above levels observed during the baseline or construction periods for any of the three species monitored. An increase in Walleye movements upstream out of the reservoir was observed in 2021 but has since returned to levels closer to those observed pre-impoundment in both 2022 and 2023.
- Although 2023 marks the final year of targeted mark and recapture of Lake Whitefish, Northern Pike, and Walleye in both the Keeyask reservoir and Stephens Lake, tagged fish will continue to be captured during other AEMP studies (*e.g.*, spring adult Lake Sturgeon population monitoring, fish community monitoring, and juvenile Lake Sturgeon population monitoring programs). Any tag returns from local resource users and other studies (such as Manitoba and Manitoba Hydro's Coordinated Aquatic Monitoring Program) will be recorded. Movements of Walleye will continue to be monitored using acoustic telemetry until 2027.

7.0 LITERATURE CITED

Dowd, M.B. and C.L. Hrenchuk. 2024a. Adult Lake Sturgeon population monitoring in the Keeyask Reservoir and Stephens Lake, 2023. Keeyask Generation Project Aquatic Effects Monitoring Plan Report #AEMP-2024-05. A report prepared for Manitoba Hydro by North/South Consultants Inc., June 2024. xv + 78 pp.

Dowd, M.B. and C.L. Hrenchuk. 2024b. Juvenile Lake Sturgeon population monitoring, fall 2023: Year 2 Operation. Keeyask Generation Project Aquatic Effects Monitoring Plan Report #AEMP-2024-05. A report prepared for Manitoba Hydro by North/South Consultants Inc., June 2024. xv + 131 pp.

Funk, B. and C.L. Hrenchuk. 2024. Walleye movement monitoring in the Nelson River between Clark Lake and the Limestone Generating Station, October 2022 to October 2023: Year 2 Operation Keeyask Generation Project Aquatic Effects Monitoring Plan Report #AEMP-2024-03. A report prepared for Manitoba Hydro by North/South Consultants Inc., June 2024. xvi + 241 pp.

Hrenchuk, C.L. 2021. Lake Whitefish movement monitoring in the Nelson River between Clark Lake and the Limestone Generating Station, October 2019 to September 2020: Year 7 Construction. Keeyask Generation Project Aquatic Effects Monitoring Plan Report #AEMP-2021-03. A report prepared for Manitoba Hydro by North/South Consultants Inc.

Morrison, S.M. and C.L. Hrenchuk. 2024. Fish use of existing and created spawning habitat: Year 3 impoundment. Keeyask Generation Project Aquatic Effects Monitoring Plan Report #AEMP-2024-07. A report prepared for Manitoba Hydro by North/South Consultants Inc., June 2024. xvi + 123 pp.

Murray, L., C.L. Hrenchuk, and C.C. Barth. 2015. Walleye movement monitoring in the Nelson River between Clark Lake and the Long Spruce Generating Station, October 2013 to October 2014: Year 1 Construction. Keeyask Generation Project Aquatic Effects Monitoring Report #AEMP-2015-04. A report prepared for Manitoba Hydro by North/South Consultants Inc., June 2015, 159 pp.

Small, K.D. and C.L. Hrenchuk. 2023. Lake Whitefish acoustic tracking in the Nelson River between Clark Lake and the Limestone Generating Station, October 2021 to July 2022: Year 1 Operation. Keeyask Generation Project Aquatic Effects Monitoring Plan Report #AEMP-2023-03. A report prepared for Manitoba Hydro by North/South Consultants Inc., June 2023. xvi + 121 pp.

APPENDICES

APPENDIX 1: TAGGING AND BIOLOGICAL INFORMATION FOR ALL FISH CAPTURED IN THE KEEYASK STUDY AREA, 2023.

Table A1-1: Tagging and biological data for Lake Whitefish (LKWH) captured in the Keeyask reservoir and Stephens Lake in 2023. 40
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Table A1-1: Tagging and biological data for Lake Whitefish (LKWH) captured in the Keeyask reservoir and Stephens Lake in 2023.

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	NSC	123632	LKWH	22-May-23	475	2300	-	-
Keeyask Reservoir	NSC	125794	LKWH	2-Jun-23	503	2500	-	-
Keeyask Reservoir	NSC	130473	LKWH	16-Oct-23	286	410	IMM	-
Keeyask Reservoir	NSC	130300	LKWH	18-Oct-23	488	2080	-	-
Keeyask Reservoir	NSC	130481	LKWH	20-Oct-23	541	-9999	F	2
Stephens Lake	NSC	122663	LKWH	22-May-23	306	500	-	-
Stephens Lake	NSC	122662	LKWH	22-May-23	508	2500	-	-
Stephens Lake	NSC	91771	LKWH	22-May-23	513	2500	-	-
Stephens Lake	NSC	125115	LKWH	24-May-23	399	1300	-	-
Stephens Lake	NSC	125764	LKWH	29-May-23	388	1000	-	-
Stephens Lake	NSC	119095	LKWH	4-Jun-23	510	2400	-	-
Stephens Lake	NSC	130205	LKWH	8-Oct-23	493	1970	M	7
Stephens Lake	NSC	130203	LKWH	8-Oct-23	515	1900	-	-
Stephens Lake	NSC	130180	LKWH	12-Oct-23	482	1890	-	-
Stephens Lake	NSC	130183	LKWH	12-Oct-23	441	1380	-	-
Stephens Lake	NSC	130185	LKWH	12-Oct-23	478	1730	-	-
Stephens Lake	NSC	130186	LKWH	12-Oct-23	461	1690	-	-
Stephens Lake	NSC	130187	LKWH	12-Oct-23	436	1500	-	-
Stephens Lake	NSC	130189	LKWH	13-Oct-23	447	1350	-	-
Stephens Lake	NSC	130151	LKWH	15-Oct-23	495	2200	-	-
Stephens Lake	NSC	119800	LKWH	15-Oct-23	434	1250	-	-
Stephens Lake	NSC	119799	LKWH	15-Oct-23	468	1720	M	7
Stephens Lake	NSC	119798	LKWH	15-Oct-23	489	1850	M	7
Stephens Lake	NSC	119796	LKWH	15-Oct-23	433	1350	M	7

Table A1-1: Tagging and biological data for Lake Whitefish (LKWH) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	NSC	119795	LKWH	15-Oct-23	522	2740	-	-
Stephens Lake	NSC	119792	LKWH	15-Oct-23	503	2200	M	7
Stephens Lake	NSC	119777	LKWH	15-Oct-23	511	2680	-	-
Stephens Lake	NSC	130161	LKWH	15-Oct-23	538	2690	-	-
Stephens Lake	NSC	130173	LKWH	16-Oct-23	487	2370	-	-
Stephens Lake	NSC	130172	LKWH	16-Oct-23	454	1330	-	-
Stephens Lake	NSC	130171	LKWH	16-Oct-23	490	2020	-	-
Stephens Lake	NSC	130168	LKWH	16-Oct-23	501	2230	-	-
Stephens Lake	NSC	130167	LKWH	16-Oct-23	452	1330	-	-
Stephens Lake	NSC	130166	LKWH	16-Oct-23	488	1720	-	-
Stephens Lake	NSC	130175	LKWH	16-Oct-23	465	1650	-	-
Stephens Lake	NSC	130170	LKWH	16-Oct-23	424	1550	-	-
Stephens Lake	NSC	130967	LKWH	16-Oct-23	478	1880	-	-
Stephens Lake	NSC	130335	LKWH	16-Oct-23	450	1300	-	-
Stephens Lake	NSC	130334	LKWH	16-Oct-23	467	1810	-	-
Stephens Lake	NSC	130332	LKWH	16-Oct-23	433	1120	-	-
Stephens Lake	NSC	130331	LKWH	16-Oct-23	530	2500	-	-
Stephens Lake	NSC	130330	LKWH	16-Oct-23	478	1860	-	-
Stephens Lake	NSC	130329	LKWH	16-Oct-23	483	2030	-	-
Stephens Lake	NSC	130328	LKWH	16-Oct-23	487	1890	M	7
Stephens Lake	NSC	130345	LKWH	16-Oct-23	458	1790	M	8
Stephens Lake	NSC	130341	LKWH	16-Oct-23	475	1720	M	7
Stephens Lake	NSC	130338	LKWH	16-Oct-23	468	1880	-	-
Stephens Lake	NSC	130340	LKWH	16-Oct-23	491	1940	-	-

Table A1-1: Tagging and biological data for Lake Whitefish (LKWH) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	NSC	130339	LKWH	16-Oct-23	462	1370	-	-
Stephens Lake	NSC	130951	LKWH	17-Oct-23	473	1870	-	-
Stephens Lake	NSC	130452	LKWH	17-Oct-23	452	1270	M	7
Stephens Lake	NSC	130466	LKWH	17-Oct-23	492	1850	M	7
Stephens Lake	NSC	130252	LKWH	17-Oct-23	459	1650	-	-
Stephens Lake	NSC	130251	LKWH	17-Oct-23	482	2220	F	-
Stephens Lake	NSC	130261	LKWH	17-Oct-23	461	1490	-	-
Stephens Lake	NSC	130260	LKWH	17-Oct-23	464	1490	-	-
Stephens Lake	NSC	130259	LKWH	17-Oct-23	454	1460	M	7
Stephens Lake	NSC	130256	LKWH	17-Oct-23	470	1960	-	-
Stephens Lake	NSC	130271	LKWH	17-Oct-23	555	3100	-	-
Stephens Lake	NSC	130270	LKWH	17-Oct-23	609	2060	-	-
Stephens Lake	NSC	130265	LKWH	17-Oct-23	450	1380	-	-
Stephens Lake	NSC	130264	LKWH	17-Oct-23	495	2150	-	-
Stephens Lake	NSC	130262	LKWH	17-Oct-23	530	3010	-	-
Stephens Lake	NSC	130274	LKWH	17-Oct-23	510	1670	M	8
Stephens Lake	NSC	130273	LKWH	17-Oct-23	511	2170	-	-
Stephens Lake	NSC	130455	LKWH	17-Oct-23	560	2300	M	7

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023.

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	NSC	122656	NRPK	20-May-23	548	1000	-	-
Keeyask Reservoir	NSC	122657	NRPK	20-May-23	443	900	-	-
Keeyask Reservoir	NSC	122351	NRPK	21-May-23	530	1125	M	7
Keeyask Reservoir	NSC	122352	NRPK	21-May-23	425	600	M	7
Keeyask Reservoir	NSC	122353	NRPK	21-May-23	600	1600	M	7
Keeyask Reservoir	NSC	122354	NRPK	21-May-23	488	1000	-	-
Keeyask Reservoir	NSC	122355	NRPK	21-May-23	521	1100	F	3
Keeyask Reservoir	NSC	122356	NRPK	21-May-23	551	1300	M	8
Keeyask Reservoir	NSC	122357	NRPK	21-May-23	613	1700	F	2
Keeyask Reservoir	NSC	122358	NRPK	21-May-23	576	1650	-	-
Keeyask Reservoir	NSC	122359	NRPK	21-May-23	620	1800	F	2
Keeyask Reservoir	NSC	122360	NRPK	21-May-23	503	1050	-	-
Keeyask Reservoir	NSC	122361	NRPK	21-May-23	535	1175	M	8
Keeyask Reservoir	NSC	122362	NRPK	21-May-23	695	2900	-	-
Keeyask Reservoir	NSC	122363	NRPK	21-May-23	625	2000	F	2
Keeyask Reservoir	NSC	122364	NRPK	21-May-23	680	2650	-	-
Keeyask Reservoir	NSC	122365	NRPK	21-May-23	666	2400	F	3
Keeyask Reservoir	NSC	122366	NRPK	21-May-23	615	1875	F	2
Keeyask Reservoir	NSC	122367	NRPK	21-May-23	673	2100	-	-
Keeyask Reservoir	NSC	122368	NRPK	21-May-23	592	1600	F	3
Keeyask Reservoir	NSC	122644	NRPK	21-May-23	548	1300	-	-
Keeyask Reservoir	NSC	122658	NRPK	21-May-23	439	600	-	-
Keeyask Reservoir	NSC	122659	NRPK	21-May-23	358	400	-	-
Keeyask Reservoir	NSC	122660	NRPK	21-May-23	750	4300	-	-

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	NSC	123633	NRPK	21-May-23	470	750	M	8
Keeyask Reservoir	NSC	123634	NRPK	21-May-23	448	750	F	3
Keeyask Reservoir	NSC	123635	NRPK	21-May-23	525	1175	-	-
Keeyask Reservoir	NSC	123636	NRPK	21-May-23	415	550	-	-
Keeyask Reservoir	NSC	123637	NRPK	21-May-23	448	800	-	-
Keeyask Reservoir	NSC	123638	NRPK	21-May-23	410	550	-	-
Keeyask Reservoir	NSC	123639	NRPK	21-May-23	403	525	-	-
Keeyask Reservoir	NSC	123640	NRPK	21-May-23	408	625	-	-
Keeyask Reservoir	NSC	123641	NRPK	21-May-23	413	575	-	-
Keeyask Reservoir	NSC	123642	NRPK	21-May-23	455	650	-	-
Keeyask Reservoir	NSC	123643	NRPK	21-May-23	466	800	-	-
Keeyask Reservoir	NSC	123645	NRPK	21-May-23	428	550	-	-
Keeyask Reservoir	NSC	123646	NRPK	21-May-23	431	700	-	-
Keeyask Reservoir	NSC	123647	NRPK	21-May-23	575	1300	-	-
Keeyask Reservoir	NSC	121835	NRPK	22-May-23	281	200	-	-
Keeyask Reservoir	NSC	121836	NRPK	22-May-23	335	300	-	-
Keeyask Reservoir	NSC	121837	NRPK	22-May-23	575	1750	-	-
Keeyask Reservoir	NSC	121839	NRPK	22-May-23	842	4775	M	7
Keeyask Reservoir	NSC	91757	NRPK	23-May-23	934	-	-	-
Keeyask Reservoir	NSC	91758	NRPK	23-May-23	800	3700	-	-
Keeyask Reservoir	NSC	91759	NRPK	23-May-23	779	3000	M	7
Keeyask Reservoir	NSC	91760	NRPK	23-May-23	633	1450	-	-
Keeyask Reservoir	NSC	91763	NRPK	23-May-23	545	1300	-	-
Keeyask Reservoir	NSC	91764	NRPK	23-May-23	365	300	-	-

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	NSC	91765	NRPK	23-May-23	565	1500	-	-
Keeyask Reservoir	NSC	91766	NRPK	23-May-23	420	500	-	-
Keeyask Reservoir	NSC	91767	NRPK	23-May-23	786	4000	-	-
Keeyask Reservoir	NSC	91768	NRPK	23-May-23	679	2500	-	-
Keeyask Reservoir	NSC	91769	NRPK	23-May-23	522	1200	-	-
Keeyask Reservoir	NSC	91770	NRPK	23-May-23	506	1100	-	-
Keeyask Reservoir	NSC	114484	NRPK	23-May-23	660	2550	F	2
Keeyask Reservoir	NSC	114485	NRPK	23-May-23	534	1200	M	7
Keeyask Reservoir	NSC	114487	NRPK	23-May-23	389	500	-	-
Keeyask Reservoir	NSC	114488	NRPK	23-May-23	455	800	F	2
Keeyask Reservoir	NSC	114489	NRPK	23-May-23	579	1800	F	2
Keeyask Reservoir	NSC	114490	NRPK	23-May-23	640	2400	F	2
Keeyask Reservoir	NSC	114491	NRPK	23-May-23	355	350	-	-
Keeyask Reservoir	NSC	114492	NRPK	23-May-23	430	700	M	7
Keeyask Reservoir	NSC	114493	NRPK	23-May-23	881	4625	-	-
Keeyask Reservoir	NSC	114494	NRPK	23-May-23	496	950	-	-
Keeyask Reservoir	NSC	114495	NRPK	23-May-23	402	475	-	-
Keeyask Reservoir	NSC	114496	NRPK	23-May-23	460	900	-	-
Keeyask Reservoir	NSC	114497	NRPK	23-May-23	562	1200	-	-
Keeyask Reservoir	NSC	114498	NRPK	23-May-23	410	550	-	-
Keeyask Reservoir	NSC	114499	NRPK	23-May-23	450	675	-	-
Keeyask Reservoir	NSC	114500	NRPK	23-May-23	354	375	-	-
Keeyask Reservoir	NSC	118173	NRPK	23-May-23	460	750	M	7
Keeyask Reservoir	NSC	121583	NRPK	23-May-23	715	2700	-	-

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	NSC	121584	NRPK	23-May-23	766	3300	F	2
Keeyask Reservoir	NSC	121585	NRPK	23-May-23	733	3750	F	3
Keeyask Reservoir	NSC	121586	NRPK	23-May-23	674	2600	F	2
Keeyask Reservoir	NSC	121587	NRPK	23-May-23	700	2900	F	2
Keeyask Reservoir	NSC	121588	NRPK	23-May-23	681	2375	F	2
Keeyask Reservoir	NSC	121589	NRPK	23-May-23	795	3800	-	-
Keeyask Reservoir	NSC	121590	NRPK	23-May-23	782	4300	-	-
Keeyask Reservoir	NSC	121591	NRPK	23-May-23	650	2500	F	2
Keeyask Reservoir	NSC	121592	NRPK	23-May-23	875	5600	F	3
Keeyask Reservoir	NSC	121593	NRPK	23-May-23	428	575	F	3
Keeyask Reservoir	NSC	121594	NRPK	23-May-23	702	3000	F	2
Keeyask Reservoir	NSC	121595	NRPK	23-May-23	505	1025	F	2
Keeyask Reservoir	NSC	121596	NRPK	23-May-23	977	8025	-	-
Keeyask Reservoir	NSC	121597	NRPK	23-May-23	747	3075	-	-
Keeyask Reservoir	NSC	121598	NRPK	23-May-23	498	800	M	8
Keeyask Reservoir	NSC	121599	NRPK	23-May-23	505	950	M	7
Keeyask Reservoir	NSC	121600	NRPK	23-May-23	672	2200	-	-
Keeyask Reservoir	NSC	121630	NRPK	23-May-23	753	3600	F	3
Keeyask Reservoir	NSC	121840	NRPK	23-May-23	411	525	M	7
Keeyask Reservoir	NSC	121841	NRPK	23-May-23	473	1000	M	7
Keeyask Reservoir	NSC	121842	NRPK	23-May-23	303	200	M	7
Keeyask Reservoir	NSC	121843	NRPK	23-May-23	606	2300	F	2
Keeyask Reservoir	NSC	121845	NRPK	23-May-23	323	300	M	7
Keeyask Reservoir	NSC	121846	NRPK	23-May-23	826	4200	-	-

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	NSC	121847	NRPK	23-May-23	330	250	M	7
Keeyask Reservoir	NSC	121848	NRPK	23-May-23	665	2500	F	2
Keeyask Reservoir	NSC	121849	NRPK	23-May-23	484	800	M	7
Keeyask Reservoir	NSC	121850	NRPK	23-May-23	655	2200	-	-
Keeyask Reservoir	NSC	123567	NRPK	23-May-23	411	600	M	8
Keeyask Reservoir	NSC	123568	NRPK	23-May-23	313	200	M	8
Keeyask Reservoir	NSC	123569	NRPK	23-May-23	499	1075	F	2
Keeyask Reservoir	NSC	123570	NRPK	23-May-23	345	325	-	-
Keeyask Reservoir	NSC	123571	NRPK	23-May-23	448	700	F	2
Keeyask Reservoir	NSC	123572	NRPK	23-May-23	328	300	-	-
Keeyask Reservoir	NSC	123573	NRPK	23-May-23	324	275	M	8
Keeyask Reservoir	NSC	123574	NRPK	23-May-23	606	1750	F	2
Keeyask Reservoir	NSC	123575	NRPK	23-May-23	808	3000	M	8
Keeyask Reservoir	NSC	123776	NRPK	23-May-23	562	1400	M	7
Keeyask Reservoir	NSC	123777	NRPK	23-May-23	533	975	F	2
Keeyask Reservoir	NSC	123778	NRPK	23-May-23	425	500	-	-
Keeyask Reservoir	NSC	123779	NRPK	23-May-23	585	1500	M	8
Keeyask Reservoir	NSC	123780	NRPK	23-May-23	504	800	F	3
Keeyask Reservoir	NSC	123781	NRPK	23-May-23	759	3100	-	-
Keeyask Reservoir	NSC	119051	NRPK	25-May-23	430	800	-	-
Keeyask Reservoir	NSC	119052	NRPK	25-May-23	623	1600	-	-
Keeyask Reservoir	NSC	125123	NRPK	25-May-23	665	2000	-	-
Keeyask Reservoir	NSC	125124	NRPK	25-May-23	714	2900	-	-
Keeyask Reservoir	NSC	125125	NRPK	25-May-23	777	3700	-	-

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	NSC	119067	NRPK	27-May-23	255	150	-	-
Keeyask Reservoir	NSC	119068	NRPK	27-May-23	600	2100	-	-
Keeyask Reservoir	NSC	119069	NRPK	27-May-23	630	2000	-	-
Keeyask Reservoir	NSC	119070	NRPK	27-May-23	246	200	-	-
Keeyask Reservoir	NSC	119071	NRPK	27-May-23	495	1000	-	-
Keeyask Reservoir	NSC	119072	NRPK	27-May-23	421	800	-	-
Keeyask Reservoir	NSC	119073	NRPK	27-May-23	383	500	-	-
Keeyask Reservoir	NSC	119074	NRPK	27-May-23	566	1450	M	7
Keeyask Reservoir	NSC	119075	NRPK	27-May-23	680	3000	F	2
Keeyask Reservoir	NSC	121876	NRPK	27-May-23	775	3650	-	-
Keeyask Reservoir	NSC	121877	NRPK	27-May-23	683	3000	-	-
Keeyask Reservoir	NSC	121886	NRPK	27-May-23	599	1750	-	-
Keeyask Reservoir	NSC	121887	NRPK	27-May-23	569	1525	-	-
Keeyask Reservoir	NSC	121888	NRPK	27-May-23	353	400	-	-
Keeyask Reservoir	NSC	121889	NRPK	27-May-23	345	400	-	-
Keeyask Reservoir	NSC	121890	NRPK	27-May-23	459	752	M	7
Keeyask Reservoir	NSC	121891	NRPK	27-May-23	455	950	-	-
Keeyask Reservoir	NSC	121892	NRPK	27-May-23	520	1200	M	7
Keeyask Reservoir	NSC	121893	NRPK	27-May-23	335	300	-	-
Keeyask Reservoir	NSC	121894	NRPK	27-May-23	325	275	-	-
Keeyask Reservoir	NSC	121895	NRPK	27-May-23	615	2150	M	7
Keeyask Reservoir	NSC	121897	NRPK	27-May-23	492	1050	-	-
Keeyask Reservoir	NSC	121898	NRPK	27-May-23	554	1725	M	7
Keeyask Reservoir	NSC	121899	NRPK	27-May-23	328	300	M	7

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	NSC	121900	NRPK	27-May-23	529	1225	M	7
Keeyask Reservoir	NSC	123782	NRPK	27-May-23	750	2575	-	-
Keeyask Reservoir	NSC	123783	NRPK	27-May-23	754	3600	-	-
Keeyask Reservoir	NSC	123784	NRPK	27-May-23	771	3800	M	8
Keeyask Reservoir	NSC	123786	NRPK	27-May-23	527	1300	-	-
Keeyask Reservoir	NSC	123787	NRPK	27-May-23	318	350	-	-
Keeyask Reservoir	NSC	123788	NRPK	27-May-23	602	1650	M	8
Keeyask Reservoir	NSC	123789	NRPK	27-May-23	595	1750	M	7
Keeyask Reservoir	NSC	123790	NRPK	27-May-23	595	1800	-	-
Keeyask Reservoir	NSC	123791	NRPK	27-May-23	604	1825	-	-
Keeyask Reservoir	NSC	123792	NRPK	27-May-23	556	1300	M	7
Keeyask Reservoir	NSC	123793	NRPK	27-May-23	920	6400	M	7
Keeyask Reservoir	NSC	123794	NRPK	27-May-23	761	2625	M	8
Keeyask Reservoir	NSC	123795	NRPK	27-May-23	630	2125	M	7
Keeyask Reservoir	NSC	123796	NRPK	27-May-23	738	3450	M	7
Keeyask Reservoir	NSC	123797	NRPK	27-May-23	797	4400	M	7
Keeyask Reservoir	NSC	123798	NRPK	27-May-23	577	1550	-	-
Keeyask Reservoir	NSC	123799	NRPK	27-May-23	281	200	-	-
Keeyask Reservoir	NSC	123800	NRPK	27-May-23	590	1575	M	7
Keeyask Reservoir	NSC	121630	NRPK	28-May-23	747	3000	-	-
Keeyask Reservoir	NSC	122241	NRPK	28-May-23	782	4450	-	-
Keeyask Reservoir	NSC	125376	NRPK	28-May-23	855	4600	-	-
Keeyask Reservoir	NSC	125386	NRPK	28-May-23	274	200	-	-
Keeyask Reservoir	NSC	125387	NRPK	28-May-23	319	200	M	7

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	NSC	125388	NRPK	28-May-23	375	300	-	-
Keeyask Reservoir	NSC	125389	NRPK	28-May-23	615	1500	-	-
Keeyask Reservoir	NSC	125391	NRPK	28-May-23	305	225	-	-
Keeyask Reservoir	NSC	125392	NRPK	28-May-23	303	250	-	-
Keeyask Reservoir	NSC	125393	NRPK	28-May-23	354	350	-	-
Keeyask Reservoir	NSC	125394	NRPK	28-May-23	650	2650	-	-
Keeyask Reservoir	NSC	125395	NRPK	28-May-23	555	1475	-	-
Keeyask Reservoir	NSC	125396	NRPK	28-May-23	574	1500	-	-
Keeyask Reservoir	NSC	125398	NRPK	28-May-23	822	3850	-	-
Keeyask Reservoir	NSC	122836	NRPK	30-May-23	514	950	F	3
Keeyask Reservoir	NSC	122837	NRPK	30-May-23	437	625	M	8
Keeyask Reservoir	NSC	122838	NRPK	30-May-23	435	650	M	9
Keeyask Reservoir	NSC	122839	NRPK	30-May-23	579	1500	-	-
Keeyask Reservoir	NSC	122840	NRPK	30-May-23	418	575	-	-
Keeyask Reservoir	NSC	122841	NRPK	30-May-23	550	1600	F	3
Keeyask Reservoir	NSC	122842	NRPK	30-May-23	549	1325	M	9
Keeyask Reservoir	NSC	125766	NRPK	30-May-23	505	1000	-	-
Keeyask Reservoir	NSC	125767	NRPK	30-May-23	489	900	-	-
Keeyask Reservoir	NSC	125768	NRPK	30-May-23	594	1300	-	-
Keeyask Reservoir	NSC	125769	NRPK	30-May-23	485	650	-	-
Keeyask Reservoir	NSC	125770	NRPK	30-May-23	655	2400	-	-
Keeyask Reservoir	NSC	125771	NRPK	30-May-23	724	3000	F	3
Keeyask Reservoir	NSC	125774	NRPK	30-May-23	850	5000	-	-
Keeyask Reservoir	NSC	125775	NRPK	30-May-23	410	400	-	-

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	NSC	125776	NRPK	30-May-23	395	400	M	7
Keeyask Reservoir	NSC	125777	NRPK	30-May-23	321	300	M	7
Keeyask Reservoir	NSC	125782	NRPK	31-May-23	535	1400	M	8
Keeyask Reservoir	NSC	125783	NRPK	31-May-23	645	1700	-	-
Keeyask Reservoir	NSC	125784	NRPK	31-May-23	645	1850	-	-
Keeyask Reservoir	NSC	125785	NRPK	31-May-23	720	2850	-	-
Keeyask Reservoir	NSC	125786	NRPK	31-May-23	734	2300	-	-
Keeyask Reservoir	NSC	125787	NRPK	31-May-23	823	4800	-	-
Keeyask Reservoir	NSC	125789	NRPK	31-May-23	700	2700	-	-
Keeyask Reservoir	NSC	125790	NRPK	31-May-23	479	1000	-	-
Keeyask Reservoir	NSC	125792	NRPK	31-May-23	570	1350	-	-
Keeyask Reservoir	NSC	119076	NRPK	02-Jun-23	610	1750	-	-
Keeyask Reservoir	NSC	119077	NRPK	02-Jun-23	330	400	-	-
Keeyask Reservoir	NSC	119078	NRPK	02-Jun-23	461	650	-	-
Keeyask Reservoir	NSC	124364	NRPK	02-Jun-23	668	2600	-	-
Keeyask Reservoir	NSC	124366	NRPK	02-Jun-23	745	3450	-	-
Keeyask Reservoir	NSC	124367	NRPK	02-Jun-23	498	1050	-	-
Keeyask Reservoir	NSC	124369	NRPK	02-Jun-23	510	975	M	7
Keeyask Reservoir	NSC	124370	NRPK	02-Jun-23	461	750	-	-
Keeyask Reservoir	NSC	124372	NRPK	02-Jun-23	284	175	-	-
Keeyask Reservoir	NSC	124373	NRPK	02-Jun-23	331	250	-	-
Keeyask Reservoir	NSC	124374	NRPK	02-Jun-23	633	2000	F	2
Keeyask Reservoir	NSC	124375	NRPK	02-Jun-23	618	1975	F	2
Keeyask Reservoir	NSC	124376	NRPK	02-Jun-23	615	1725	-	-

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	NSC	124377	NRPK	02-Jun-23	605	1650	-	-
Keeyask Reservoir	NSC	124378	NRPK	02-Jun-23	726	3250	F	2
Keeyask Reservoir	NSC	125795	NRPK	02-Jun-23	341	450	M	8
Keeyask Reservoir	NSC	125796	NRPK	02-Jun-23	420	500	-	-
Keeyask Reservoir	NSC	119079	NRPK	03-Jun-23	535	1400	-	-
Keeyask Reservoir	NSC	119080	NRPK	03-Jun-23	905	6250	-	-
Keeyask Reservoir	NSC	119081	NRPK	03-Jun-23	630	2100	M	8
Keeyask Reservoir	NSC	119082	NRPK	03-Jun-23	671	1700	-	-
Keeyask Reservoir	NSC	119083	NRPK	03-Jun-23	576	1450	-	-
Keeyask Reservoir	NSC	119084	NRPK	03-Jun-23	644	2300	M	8
Keeyask Reservoir	NSC	119086	NRPK	03-Jun-23	677	2350	-	-
Keeyask Reservoir	NSC	119087	NRPK	03-Jun-23	795	3700	-	-
Keeyask Reservoir	NSC	119088	NRPK	03-Jun-23	520	1100	-	-
Keeyask Reservoir	NSC	119089	NRPK	03-Jun-23	764	3400	-	-
Keeyask Reservoir	NSC	119090	NRPK	03-Jun-23	659	2000	M	8
Keeyask Reservoir	NSC	119091	NRPK	03-Jun-23	582	1750	-	-
Keeyask Reservoir	NSC	124379	NRPK	03-Jun-23	386	400	-	-
Keeyask Reservoir	NSC	124381	NRPK	03-Jun-23	314	175	-	-
Keeyask Reservoir	NSC	124382	NRPK	03-Jun-23	294	200	-	-
Keeyask Reservoir	NSC	124383	NRPK	03-Jun-23	501	1000	M	9
Keeyask Reservoir	NSC	124384	NRPK	03-Jun-23	565	1525	-	-
Keeyask Reservoir	NSC	124385	NRPK	03-Jun-23	845	4525	-	-
Keeyask Reservoir	NSC	124386	NRPK	03-Jun-23	540	1125	-	-
Keeyask Reservoir	NSC	124387	NRPK	03-Jun-23	310	200	-	-

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	NSC	124388	NRPK	03-Jun-23	299	200	M	9
Keeyask Reservoir	NSC	124389	NRPK	03-Jun-23	695	2475	-	-
Keeyask Reservoir	NSC	130214	NRPK	9-Oct-23	1080	-	-	-
Keeyask Reservoir	NSC	130215	NRPK	9-Oct-23	375	340	-	-
Keeyask Reservoir	NSC	130216	NRPK	9-Oct-23	258	120	-	-
Keeyask Reservoir	NSC	130217	NRPK	9-Oct-23	890	-	-	-
Keeyask Reservoir	NSC	130218	NRPK	9-Oct-23	433	560	-	-
Keeyask Reservoir	NSC	130219	NRPK	9-Oct-23	365	320	-	-
Keeyask Reservoir	NSC	130220	NRPK	9-Oct-23	396	410	-	-
Keeyask Reservoir	NSC	130221	NRPK	9-Oct-23	371	340	-	-
Keeyask Reservoir	NSC	130222	NRPK	9-Oct-23	412	480	-	-
Keeyask Reservoir	NSC	130223	NRPK	9-Oct-23	374	350	-	-
Keeyask Reservoir	NSC	130224	NRPK	9-Oct-23	404	400	-	-
Keeyask Reservoir	NSC	130225	NRPK	9-Oct-23	339	290	-	-
Keeyask Reservoir	NSC	125272	NRPK	9-Oct-23	519	1050	-	-
Keeyask Reservoir	NSC	125273	NRPK	9-Oct-23	627	2275	-	-
Keeyask Reservoir	NSC	125274	NRPK	9-Oct-23	604	1450	-	-
Keeyask Reservoir	NSC	125275	NRPK	9-Oct-23	724	3050	-	-
Keeyask Reservoir	NSC	125271	NRPK	9-Oct-23	654	1825	-	-
Keeyask Reservoir	NSC	125270	NRPK	9-Oct-23	809	-	-	-
Keeyask Reservoir	NSC	125269	NRPK	9-Oct-23	685	1850	-	-
Keeyask Reservoir	NSC	125268	NRPK	9-Oct-23	710	3050	-	-
Keeyask Reservoir	NSC	121972	NRPK	10-Oct-23	565	1075	-	-
Keeyask Reservoir	NSC	121973	NRPK	10-Oct-23	553	1150	-	-

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	NSC	121974	NRPK	10-Oct-23	525	1050	-	-
Keeyask Reservoir	NSC	121975	NRPK	10-Oct-23	563	1275	-	-
Keeyask Reservoir	NSC	122863	NRPK	11-Oct-23	720	2730	-	-
Keeyask Reservoir	NSC	125255	NRPK	11-Oct-23	884	-	-	-
Keeyask Reservoir	NSC	125256	NRPK	11-Oct-23	668	2420	-	-
Keeyask Reservoir	NSC	125257	NRPK	11-Oct-23	455	850	-	-
Keeyask Reservoir	NSC	125258	NRPK	11-Oct-23	611	1660	-	-
Keeyask Reservoir	NSC	125259	NRPK	11-Oct-23	620	2000	-	-
Keeyask Reservoir	NSC	125260	NRPK	11-Oct-23	560	1150	-	-
Keeyask Reservoir	NSC	125261	NRPK	11-Oct-23	393	450	-	-
Keeyask Reservoir	NSC	125262	NRPK	11-Oct-23	444	640	-	-
Keeyask Reservoir	NSC	125263	NRPK	11-Oct-23	747	3610	-	-
Keeyask Reservoir	NSC	125264	NRPK	11-Oct-23	602	1850	-	-
Keeyask Reservoir	NSC	125265	NRPK	11-Oct-23	623	1700	-	-
Keeyask Reservoir	NSC	125266	NRPK	11-Oct-23	695	2680	-	-
Keeyask Reservoir	NSC	125251	NRPK	11-Oct-23	742	3220	-	-
Keeyask Reservoir	NSC	125252	NRPK	11-Oct-23	424	550	-	-
Keeyask Reservoir	NSC	125253	NRPK	11-Oct-23	457	610	-	-
Keeyask Reservoir	NSC	125254	NRPK	11-Oct-23	395	440	-	-
Keeyask Reservoir	NSC	125426	NRPK	11-Oct-23	554	1200	-	-
Keeyask Reservoir	NSC	125428	NRPK	11-Oct-23	630	1880	-	-
Keeyask Reservoir	NSC	125429	NRPK	11-Oct-23	623	1700	-	-
Keeyask Reservoir	NSC	125430	NRPK	11-Oct-23	755	3240	-	-
Keeyask Reservoir	NSC	125431	NRPK	11-Oct-23	767	3100	-	-

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	NSC	125432	NRPK	11-Oct-23	536	1040	-	-
Keeyask Reservoir	NSC	125433	NRPK	11-Oct-23	428	530	-	-
Keeyask Reservoir	NSC	125434	NRPK	11-Oct-23	705	2870	-	-
Keeyask Reservoir	NSC	125435	NRPK	11-Oct-23	555	1150	-	-
Keeyask Reservoir	NSC	125436	NRPK	11-Oct-23	452	640	-	-
Keeyask Reservoir	NSC	125437	NRPK	11-Oct-23	432	560	-	-
Keeyask Reservoir	NSC	125438	NRPK	11-Oct-23	548	1220	-	-
Keeyask Reservoir	NSC	125439	NRPK	11-Oct-23	583	1470	-	-
Keeyask Reservoir	NSC	125440	NRPK	11-Oct-23	828	-	-	-
Keeyask Reservoir	NSC	125441	NRPK	11-Oct-23	765	3340	-	-
Keeyask Reservoir	NSC	125442	NRPK	11-Oct-23	624	2000	-	-
Keeyask Reservoir	NSC	125443	NRPK	11-Oct-23	613	1750	-	-
Keeyask Reservoir	NSC	125444	NRPK	11-Oct-23	445	780	-	-
Keeyask Reservoir	NSC	125445	NRPK	11-Oct-23	353	320	-	-
Keeyask Reservoir	NSC	125446	NRPK	12-Oct-23	750	3450	-	-
Keeyask Reservoir	NSC	125447	NRPK	12-Oct-23	777	3880	-	-
Keeyask Reservoir	NSC	125448	NRPK	12-Oct-23	616	1950	-	-
Keeyask Reservoir	NSC	125449	NRPK	12-Oct-23	557	1330	-	-
Keeyask Reservoir	NSC	125427	NRPK	12-Oct-23	735	3900	-	-
Keeyask Reservoir	NSC	125450	NRPK	12-Oct-23	613	1760	-	-
Keeyask Reservoir	NSC	125476	NRPK	12-Oct-23	980	-	-	-
Keeyask Reservoir	NSC	125477	NRPK	12-Oct-23	428	600	-	-
Keeyask Reservoir	NSC	125478	NRPK	12-Oct-23	696	3170	-	-
Keeyask Reservoir	NSC	125479	NRPK	12-Oct-23	624	1850	-	-

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	NSC	125480	NRPK	12-Oct-23	719	2850	-	-
Keeyask Reservoir	NSC	125481	NRPK	12-Oct-23	563	1430	-	-
Keeyask Reservoir	NSC	125482	NRPK	12-Oct-23	643	2000	-	-
Keeyask Reservoir	NSC	125483	NRPK	13-Oct-23	718	2780	-	-
Keeyask Reservoir	NSC	125484	NRPK	13-Oct-23	432	590	-	-
Keeyask Reservoir	NSC	125485	NRPK	13-Oct-23	564	1100	-	-
Keeyask Reservoir	NSC	125478	NRPK	13-Oct-23	-	-	-	-
Keeyask Reservoir	NSC	125486	NRPK	13-Oct-23	688	2400	-	-
Keeyask Reservoir	NSC	121958	NRPK	14-Oct-23	462	720	-	-
Keeyask Reservoir	NSC	121959	NRPK	14-Oct-23	437	570	-	-
Keeyask Reservoir	NSC	121960	NRPK	14-Oct-23	370	280	-	-
Keeyask Reservoir	NSC	121961	NRPK	14-Oct-23	297	190	-	-
Keeyask Reservoir	NSC	121963	NRPK	14-Oct-23	350	260	-	-
Keeyask Reservoir	NSC	121964	NRPK	14-Oct-23	326	230	-	-
Keeyask Reservoir	NSC	121965	NRPK	14-Oct-23	416	490	-	-
Keeyask Reservoir	NSC	121966	NRPK	14-Oct-23	699	2420	-	-
Keeyask Reservoir	NSC	121967	NRPK	14-Oct-23	309	230	-	-
Keeyask Reservoir	NSC	121968	NRPK	14-Oct-23	262	140	-	-
Keeyask Reservoir	NSC	121969	NRPK	14-Oct-23	325	240	-	-
Keeyask Reservoir	NSC	121970	NRPK	14-Oct-23	320	210	-	-
Keeyask Reservoir	NSC	121971	NRPK	14-Oct-23	377	380	-	-
Keeyask Reservoir	NSC	130193	NRPK	14-Oct-23	632	1970	-	-
Keeyask Reservoir	NSC	130196	NRPK	14-Oct-23	440	600	-	-
Keeyask Reservoir	NSC	130197	NRPK	14-Oct-23	402	460	-	-

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	NSC	130200	NRPK	14-Oct-23	450	660	-	-
Keeyask Reservoir	NSC	125488	NRPK	14-Oct-23	670	2280	-	-
Keeyask Reservoir	NSC	125489	NRPK	14-Oct-23	425	520	-	-
Keeyask Reservoir	NSC	125490	NRPK	14-Oct-23	491	800	-	-
Keeyask Reservoir	NSC	125491	NRPK	14-Oct-23	589	1440	-	-
Keeyask Reservoir	NSC	125492	NRPK	14-Oct-23	764	3570	-	-
Keeyask Reservoir	NSC	125493	NRPK	14-Oct-23	730	3160	-	-
Keeyask Reservoir	NSC	125496	NRPK	14-Oct-23	650	1880	-	-
Keeyask Reservoir	NSC	125497	NRPK	14-Oct-23	652	2200	-	-
Keeyask Reservoir	NSC	125498	NRPK	14-Oct-23	716	3200	-	-
Keeyask Reservoir	NSC	125499	NRPK	14-Oct-23	748	2280	-	-
Keeyask Reservoir	NSC	125500	NRPK	14-Oct-23	739	3360	-	-
Keeyask Reservoir	NSC	130475	NRPK	16-Oct-23	675	2530	-	-
Keeyask Reservoir	NSC	130474	NRPK	16-Oct-23	589	1460	-	-
Keeyask Reservoir	NSC	130471	NRPK	16-Oct-23	434	590	-	-
Keeyask Reservoir	NSC	130472	NRPK	16-Oct-23	722	2740	-	-
Keeyask Reservoir	NSC	130469	NRPK	16-Oct-23	573	1420	-	-
Keeyask Reservoir	NSC	130467	NRPK	16-Oct-23	549	1180	-	-
Keeyask Reservoir	NSC	121954	NRPK	18-Oct-23	671	2250	-	-
Keeyask Reservoir	NSC	130298	NRPK	18-Oct-23	500	1080	-	-
Keeyask Reservoir	NSC	130299	NRPK	18-Oct-23	455	620	-	-
Keeyask Reservoir	NSC	130456	NRPK	18-Oct-23	425	1250	-	-
Keeyask Reservoir	NSC	130295	NRPK	18-Oct-23	677	1910	-	-
Keeyask Reservoir	NSC	130297	NRPK	18-Oct-23	612	-	-	-

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	NSC	130277	NRPK	18-Oct-23	785	3560	-	-
Keeyask Reservoir	NSC	130278	NRPK	18-Oct-23	634	2190	-	-
Keeyask Reservoir	NSC	130281	NRPK	18-Oct-23	711	3080	-	-
Keeyask Reservoir	NSC	130459	NRPK	18-Oct-23	708	2600	-	-
Keeyask Reservoir	NSC	130460	NRPK	18-Oct-23	511	750	-	-
Keeyask Reservoir	NSC	130461	NRPK	18-Oct-23	549	1300	-	-
Keeyask Reservoir	NSC	130282	NRPK	18-Oct-23	779	3420	-	-
Keeyask Reservoir	NSC	130462	NRPK	18-Oct-23	508	1430	-	-
Keeyask Reservoir	NSC	130463	NRPK	18-Oct-23	457	690	-	-
Keeyask Reservoir	NSC	130283	NRPK	19-Oct-23	492	900	-	-
Keeyask Reservoir	NSC	130476	NRPK	19-Oct-23	400	460	-	-
Keeyask Reservoir	NSC	130477	NRPK	19-Oct-23	498	910	-	-
Keeyask Reservoir	NSC	130287	NRPK	19-Oct-23	433	520	-	-
Keeyask Reservoir	NSC	130478	NRPK	19-Oct-23	875	-	-	-
Keeyask Reservoir	NSC	130288	NRPK	19-Oct-23	430	610	-	-
Keeyask Reservoir	NSC	130479	NRPK	19-Oct-23	769	3800	-	-
Keeyask Reservoir	NSC	130289	NRPK	20-Oct-23	493	830	-	-
Keeyask Reservoir	NSC	130291	NRPK	20-Oct-23	479	700	-	-
Keeyask Reservoir	NSC	130292	NRPK	20-Oct-23	549	1200	-	-
Keeyask Reservoir	NSC	130480	NRPK	20-Oct-23	527	1220	-	-
Keeyask Reservoir	NSC	130483	NRPK	20-Oct-23	506	880	-	-
Keeyask Reservoir	NSC	130290	NRPK	20-Oct-23	435	580	-	-
Keeyask Reservoir	NSC	130279	NRPK	20-Oct-23	925	-	-	-
Keeyask Reservoir	NSC	130284	NRPK	20-Oct-23	440	580	-	-

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	NSC	130484	NRPK	20-Oct-23	486	840	-	-
Keeyask Reservoir	NSC	130485	NRPK	20-Oct-23	688	2470	-	-
Keeyask Reservoir	NSC	125431	NRPK	20-Oct-23	-	-	-	-
Keeyask Reservoir	NSC	130482	NRPK	20-Oct-23	455	660	-	-
Keeyask Reservoir	NSC	130486	NRPK	20-Oct-23	583	1480	-	-
Keeyask Reservoir	NSC	130487	NRPK	20-Oct-23	432	560	-	-
Keeyask Reservoir	NSC	130285	NRPK	20-Oct-23	543	1230	-	-
Keeyask Reservoir	NSC	122854	NRPK	20-Oct-23	588	1920	-	-
Keeyask Reservoir	NSC	130176	NRPK	20-Oct-23	480	810	-	-
Keeyask Reservoir	NSC	130488	NRPK	20-Oct-23	503	1000	-	-
Keeyask Reservoir	NSC	130489	NRPK	20-Oct-23	586	1410	-	-
Keeyask Reservoir	NSC	130490	NRPK	20-Oct-23	495	710	-	-
Keeyask Reservoir	NSC	130491	NRPK	20-Oct-23	522	1500	-	-
Stephens Lake	NSC	78065	NRPK	22-May-23	902	7500	F	2
Stephens Lake	NSC	78066	NRPK	22-May-23	911	8000	F	2
Stephens Lake	NSC	78074	NRPK	22-May-23	675	2000	F	2
Stephens Lake	NSC	79216	NRPK	22-May-23	406	450	-	-
Stephens Lake	NSC	79217	NRPK	22-May-23	565	1500	F	2
Stephens Lake	NSC	79218	NRPK	22-May-23	508	1050	-	-
Stephens Lake	NSC	79219	NRPK	22-May-23	422	600	-	-
Stephens Lake	NSC	79220	NRPK	22-May-23	462	700	F	2
Stephens Lake	NSC	79222	NRPK	22-May-23	370	500	-	-
Stephens Lake	NSC	91774	NRPK	22-May-23	480	850	-	-
Stephens Lake	NSC	117642	NRPK	22-May-23	401	425	-	-

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	NSC	122661	NRPK	22-May-23	568	1600	-	-
Stephens Lake	NSC	122664	NRPK	22-May-23	420	500	-	-
Stephens Lake	NSC	122673	NRPK	22-May-23	556	1500	-	-
Stephens Lake	NSC	122674	NRPK	22-May-23	512	1100	-	-
Stephens Lake	NSC	122675	NRPK	22-May-23	417	500	-	-
Stephens Lake	NSC	125314	NRPK	22-May-23	587	1700	-	-
Stephens Lake	NSC	122940	NRPK	24-May-23	885	6000	-	-
Stephens Lake	NSC	125111	NRPK	24-May-23	475	850	M	7
Stephens Lake	NSC	125112	NRPK	24-May-23	490	850	-	-
Stephens Lake	NSC	125113	NRPK	24-May-23	406	500	M	7
Stephens Lake	NSC	125114	NRPK	24-May-23	460	500	M	7
Stephens Lake	NSC	125119	NRPK	24-May-23	388	500	-	-
Stephens Lake	NSC	125120	NRPK	24-May-23	585	1200	F	3
Stephens Lake	NSC	125122	NRPK	24-May-23	595	1350	-	-
Stephens Lake	NSC	125981	NRPK	24-May-23	489	750	F	2
Stephens Lake	NSC	125992	NRPK	24-May-23	476	750	-	-
Stephens Lake	NSC	125994	NRPK	24-May-23	560	1300	M	7
Stephens Lake	NSC	125997	NRPK	24-May-23	559	1300	M	7
Stephens Lake	NSC	125998	NRPK	24-May-23	359	300	-	-
Stephens Lake	NSC	113705	NRPK	26-May-23	875	7500	-	-
Stephens Lake	NSC	119054	NRPK	26-May-23	787	3800	-	-
Stephens Lake	NSC	119055	NRPK	26-May-23	565	1250	-	-
Stephens Lake	NSC	119056	NRPK	26-May-23	510	1000	-	-
Stephens Lake	NSC	119057	NRPK	26-May-23	952	8250	F	2

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	NSC	119058	NRPK	26-May-23	471	850	M	7
Stephens Lake	NSC	119059	NRPK	26-May-23	464	700	-	-
Stephens Lake	NSC	119060	NRPK	26-May-23	457	700	-	-
Stephens Lake	NSC	119061	NRPK	26-May-23	752	3700	-	-
Stephens Lake	NSC	119062	NRPK	26-May-23	1005	9000	F	2
Stephens Lake	NSC	119063	NRPK	26-May-23	577	1300	-	-
Stephens Lake	NSC	119064	NRPK	26-May-23	477	1000	-	-
Stephens Lake	NSC	119065	NRPK	26-May-23	450	1000	M	7
Stephens Lake	NSC	119066	NRPK	26-May-23	1015	8950	F	2
Stephens Lake	NSC	121860	NRPK	28-May-23	489	900	M	7
Stephens Lake	NSC	121863	NRPK	28-May-23	625	1700	-	-
Stephens Lake	NSC	121868	NRPK	28-May-23	608	1675	-	-
Stephens Lake	NSC	121869	NRPK	28-May-23	492	900	-	-
Stephens Lake	NSC	121870	NRPK	28-May-23	425	500	M	7
Stephens Lake	NSC	121871	NRPK	28-May-23	600	1625	-	-
Stephens Lake	NSC	121873	NRPK	28-May-23	615	1600	-	-
Stephens Lake	NSC	121874	NRPK	28-May-23	536	1100	-	-
Stephens Lake	NSC	121884	NRPK	28-May-23	338	300	-	-
Stephens Lake	NSC	121885	NRPK	28-May-23	552	1175	-	-
Stephens Lake	NSC	121952	NRPK	28-May-23	965	6050	-	-
Stephens Lake	NSC	122815	NRPK	29-May-23	670	2350	-	-
Stephens Lake	NSC	122816	NRPK	29-May-23	984	8250	-	-
Stephens Lake	NSC	122818	NRPK	29-May-23	430	600	F	3
Stephens Lake	NSC	122819	NRPK	29-May-23	616	1200	-	-

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	NSC	122820	NRPK	29-May-23	835	4750	-	-
Stephens Lake	NSC	122821	NRPK	29-May-23	815	4325	-	-
Stephens Lake	NSC	122822	NRPK	29-May-23	861	5350	-	-
Stephens Lake	NSC	122823	NRPK	29-May-23	484	800	F	3
Stephens Lake	NSC	122824	NRPK	29-May-23	548	1450	-	-
Stephens Lake	NSC	125364	NRPK	29-May-23	525	1100	M	7
Stephens Lake	NSC	125365	NRPK	29-May-23	600	1650	M	8
Stephens Lake	NSC	125366	NRPK	29-May-23	575	1600	-	-
Stephens Lake	NSC	125367	NRPK	29-May-23	419	500	-	-
Stephens Lake	NSC	125368	NRPK	29-May-23	725	3500	-	-
Stephens Lake	NSC	125374	NRPK	29-May-23	620	2000	F	3
Stephens Lake	NSC	122844	NRPK	31-May-23	494	650	M	9
Stephens Lake	NSC	122845	NRPK	31-May-23	490	850	-	-
Stephens Lake	NSC	122846	NRPK	31-May-23	520	1150	F	2
Stephens Lake	NSC	122849	NRPK	31-May-23	347	275	-	-
Stephens Lake	NSC	122850	NRPK	31-May-23	498	1000	-	-
Stephens Lake	NSC	124351	NRPK	31-May-23	640	2000	M	7
Stephens Lake	NSC	124352	NRPK	31-May-23	636	1850	-	-
Stephens Lake	NSC	124353	NRPK	31-May-23	528	1050	-	-
Stephens Lake	NSC	124354	NRPK	31-May-23	548	1200	-	-
Stephens Lake	NSC	124359	NRPK	31-May-23	452	800	M	7
Stephens Lake	NSC	124360	NRPK	31-May-23	700	3100	-	-
Stephens Lake	NSC	124361	NRPK	31-May-23	852	4725	F	3
Stephens Lake	NSC	124362	NRPK	31-May-23	595	1400	-	-

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	NSC	119094	NRPK	04-Jun-23	727	2650	-	-
Stephens Lake	NSC	119098	NRPK	04-Jun-23	475	550	M	8
Stephens Lake	NSC	119099	NRPK	04-Jun-23	305	150	-	-
Stephens Lake	NSC	119100	NRPK	04-Jun-23	826	4500	-	-
Stephens Lake	NSC	119775	NRPK	04-Jun-23	314	200	-	-
Stephens Lake	NSC	122971	NRPK	8-Oct-23	653	1900	-	-
Stephens Lake	NSC	122972	NRPK	8-Oct-23	559	1400	-	-
Stephens Lake	NSC	122975	NRPK	8-Oct-23	346	260	-	-
Stephens Lake	NSC	130201	NRPK	8-Oct-23	950	-	-	-
Stephens Lake	NSC	130202	NRPK	8-Oct-23	404	400	-	-
Stephens Lake	NSC	130207	NRPK	8-Oct-23	905	-	-	-
Stephens Lake	NSC	130208	NRPK	8-Oct-23	640	2200	-	-
Stephens Lake	NSC	130209	NRPK	8-Oct-23	374	380	-	-
Stephens Lake	NSC	130210	NRPK	8-Oct-23	477	750	-	-
Stephens Lake	NSC	130211	NRPK	8-Oct-23	585	1850	-	-
Stephens Lake	NSC	130212	NRPK	8-Oct-23	592	1750	-	-
Stephens Lake	NSC	130213	NRPK	8-Oct-23	574	1150	-	-
Stephens Lake	NSC	119020	NRPK	10-Oct-23	507	900	-	-
Stephens Lake	NSC	122210	NRPK	10-Oct-23	532	1090	-	-
Stephens Lake	NSC	130178	NRPK	10-Oct-23	584	1190	-	-
Stephens Lake	NSC	130179	NRPK	10-Oct-23	471	490	-	-
Stephens Lake	NSC	121955	NRPK	15-Oct-23	595	1490	-	-
Stephens Lake	NSC	121956	NRPK	15-Oct-23	604	1530	-	-
Stephens Lake	NSC	121957	NRPK	15-Oct-23	1100	-	-	-

Table A1-2: Tagging and biological data for Northern Pike (NRPK) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	NSC	121962	NRPK	15-Oct-23	398	500	-	-
Stephens Lake	NSC	130152	NRPK	15-Oct-23	357	270	-	-
Stephens Lake	NSC	130153	NRPK	15-Oct-23	470	650	-	-
Stephens Lake	NSC	130195	NRPK	15-Oct-23	279	160	-	-
Stephens Lake	NSC	130198	NRPK	15-Oct-23	564	1090	-	-
Stephens Lake	NSC	130199	NRPK	15-Oct-23	300	230	-	-
Stephens Lake	NSC	119793	NRPK	15-Oct-23	478	720	-	-
Stephens Lake	NSC	130154	NRPK	15-Oct-23	757	3550	-	-
Stephens Lake	NSC	130155	NRPK	15-Oct-23	790	3930	-	-
Stephens Lake	NSC	130156	NRPK	15-Oct-23	903	-	-	-
Stephens Lake	NSC	130157	NRPK	15-Oct-23	594	1920	-	-
Stephens Lake	NSC	130158	NRPK	15-Oct-23	647	2280	-	-
Stephens Lake	NSC	130159	NRPK	15-Oct-23	611	1650	-	-
Stephens Lake	NSC	130160	NRPK	15-Oct-23	521	890	-	-
Stephens Lake	NSC	130174	NRPK	16-Oct-23	638	1700	-	-
Stephens Lake	NSC	130966	NRPK	16-Oct-23	568	1120	-	-
Stephens Lake	NSC	130952	NRPK	16-Oct-23	490	830	-	-
Stephens Lake	NSC	130953	NRPK	16-Oct-23	740	3370	-	-
Stephens Lake	NSC	130954	NRPK	16-Oct-23	805	3350	-	-
Stephens Lake	NSC	130955	NRPK	16-Oct-23	529	940	-	-
Stephens Lake	NSC	130956	NRPK	16-Oct-23	612	1880	-	-
Stephens Lake	NSC	130343	NRPK	16-Oct-23	849	-	-	-
Stephens Lake	NSC	130348	NRPK	16-Oct-23	504	800	-	-
Stephens Lake	NSC	130464	NRPK	17-Oct-23	1041	-	-	-
Stephens Lake	NSC	130272	NRPK	17-Oct-23	477	650	-	-

Table A1-3: Tagging and biological data for Walleye (WALL) captured in the Keeyask reservoir and Stephens Lake in 2023.

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	NSC	121838	WALL	22-May-23	481	1400	-	-
Keeyask Reservoir	NSC	123631	WALL	22-May-23	560	2350	-	-
Keeyask Reservoir	NSC	91761	WALL	23-May-23	370	800	M	7
Keeyask Reservoir	NSC	91762	WALL	23-May-23	470	1300	F	2
Keeyask Reservoir	NSC	114486	WALL	23-May-23	389	700	M	8
Keeyask Reservoir	NSC	121627	WALL	23-May-23	485	1600	-	-
Keeyask Reservoir	NSC	121844	WALL	23-May-23	604	3000	-	-
Keeyask Reservoir	NSC	123785	WALL	27-May-23	561	2200	-	-
Keeyask Reservoir	NSC	91762	WALL	28-May-23	473	1300	F	2
Keeyask Reservoir	NSC	125381	WALL	28-May-23	282	300	-	-
Keeyask Reservoir	NSC	125382	WALL	28-May-23	335	600	-	-
Keeyask Reservoir	NSC	125383	WALL	28-May-23	486	1450	-	-
Keeyask Reservoir	NSC	125385	WALL	28-May-23	480	1000	-	-
Keeyask Reservoir	NSC	125390	WALL	28-May-23	510	1500	M	7
Keeyask Reservoir	NSC	125400	WALL	28-May-23	479	1450	M	7
Keeyask Reservoir	NSC	125765	WALL	30-May-23	340	450	-	-
Keeyask Reservoir	NSC	125772	WALL	30-May-23	349	750	-	-
Keeyask Reservoir	NSC	125773	WALL	30-May-23	340	600	-	-
Keeyask Reservoir	NSC	125778	WALL	30-May-23	435	950	-	-
Keeyask Reservoir	NSC	125779	WALL	30-May-23	475	1300	-	-
Keeyask Reservoir	NSC	125780	WALL	30-May-23	330	500	-	-
Keeyask Reservoir	NSC	125781	WALL	30-May-23	364	750	-	-
Keeyask Reservoir	NSC	125788	WALL	31-May-23	425	1100	-	-
Keeyask Reservoir	NSC	125791	WALL	31-May-23	273	250	-	-

Table A1-3: Tagging and biological data for Walleye (WALL) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Keeyask Reservoir	NSC	124365	WALL	2-Jun-23	415	950	-	-
Keeyask Reservoir	NSC	124368	WALL	2-Jun-23	354	500	-	-
Keeyask Reservoir	NSC	124371	WALL	2-Jun-23	305	300	-	-
Keeyask Reservoir	NSC	125797	WALL	2-Jun-23	427	950	-	-
Keeyask Reservoir	NSC	125799	WALL	2-Jun-23	380	500	-	-
Keeyask Reservoir	NSC	125800	WALL	2-Jun-23	474	1150	-	-
Keeyask Reservoir	NSC	119085	WALL	3-Jun-23	320	300	-	-
Keeyask Reservoir	NSC	119092	WALL	3-Jun-23	515	1600	-	-
Keeyask Reservoir	NSC	124390	WALL	4-Jun-23	440	900	-	-
Keeyask Reservoir	NSC	116989	WALL	11-Oct-23	453	1110	-	-
Keeyask Reservoir	NSC	125267	WALL	11-Oct-23	442	1040	-	-
Keeyask Reservoir	NSC	125487	WALL	13-Oct-23	492	1500	-	-
Keeyask Reservoir	NSC	125494	WALL	14-Oct-23	505	1730	-	-
Keeyask Reservoir	NSC	130470	WALL	16-Oct-23	381	650	-	-
Keeyask Reservoir	NSC	130468	WALL	16-Oct-23	436	1060	-	-
Keeyask Reservoir	NSC	130457	WALL	18-Oct-23	300	400	-	-
Keeyask Reservoir	NSC	130296	WALL	18-Oct-23	445	1150	-	-
Keeyask Reservoir	NSC	130276	WALL	18-Oct-23	484	1330	-	-
Keeyask Reservoir	NSC	130458	WALL	18-Oct-23	389	680	-	-
Keeyask Reservoir	NSC	130286	WALL	19-Oct-23	320	370	-	-
Keeyask Reservoir	NSC	122974	WALL	20-Oct-23	301	320	-	-
Keeyask Reservoir	NSC	130280	WALL	20-Oct-23	480	1210	-	-
Keeyask Reservoir	NSC	121613	WALL	20-Oct-23	518	1620	-	-
Stephens Lake	NSC	78063	WALL	22-May-23	436	1100	F	2

Table A1-3: Tagging and biological data for Walleye (WALL) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	NSC	78064	WALL	22-May-23	447	1050	-	-
Stephens Lake	NSC	78067	WALL	22-May-23	375	650	M	7
Stephens Lake	NSC	78068	WALL	22-May-23	455	1000	-	-
Stephens Lake	NSC	78070	WALL	22-May-23	416	700	M	7
Stephens Lake	NSC	78071	WALL	22-May-23	455	1250	F	2
Stephens Lake	NSC	78072	WALL	22-May-23	485	1500	F	2
Stephens Lake	NSC	78073	WALL	22-May-23	399	750	F	2
Stephens Lake	NSC	79215	WALL	22-May-23	421	950	F	2
Stephens Lake	NSC	79223	WALL	22-May-23	383	700	F	2
Stephens Lake	NSC	79224	WALL	22-May-23	377	700	M	8
Stephens Lake	NSC	79225	WALL	22-May-23	411	750	M	7
Stephens Lake	NSC	91772	WALL	22-May-23	459	1200	F	2
Stephens Lake	NSC	91773	WALL	22-May-23	395	650	F	2
Stephens Lake	NSC	117641	WALL	22-May-23	436	950	F	2
Stephens Lake	NSC	117643	WALL	22-May-23	432	1050	F	2
Stephens Lake	NSC	117644	WALL	22-May-23	428	925	-	-
Stephens Lake	NSC	117645	WALL	22-May-23	441	1050	M	7
Stephens Lake	NSC	117646	WALL	22-May-23	491	1550	F	2
Stephens Lake	NSC	117647	WALL	22-May-23	446	950	-	-
Stephens Lake	NSC	117648	WALL	22-May-23	436	925	-	-
Stephens Lake	NSC	117649	WALL	22-May-23	401	825	M	7
Stephens Lake	NSC	117650	WALL	22-May-23	446	1000	F	2
Stephens Lake	NSC	121570	WALL	22-May-23	415	800	-	-
Stephens Lake	NSC	122670	WALL	22-May-23	428	1000	F	2

Table A1-3: Tagging and biological data for Walleye (WALL) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	NSC	122671	WALL	22-May-23	440	1000	F	2
Stephens Lake	NSC	125301	WALL	22-May-23	372	550	M	8
Stephens Lake	NSC	125302	WALL	22-May-23	391	650	M	7
Stephens Lake	NSC	125303	WALL	22-May-23	376	550	M	7
Stephens Lake	NSC	125304	WALL	22-May-23	426	950	-	-
Stephens Lake	NSC	125305	WALL	22-May-23	434	925	M	7
Stephens Lake	NSC	125306	WALL	22-May-23	412	950	F	2
Stephens Lake	NSC	125307	WALL	22-May-23	453	1050	-	-
Stephens Lake	NSC	125308	WALL	22-May-23	294	350	M	7
Stephens Lake	NSC	125309	WALL	22-May-23	399	750	-	-
Stephens Lake	NSC	125310	WALL	22-May-23	281	350	M	8
Stephens Lake	NSC	125311	WALL	22-May-23	432	850	M	7
Stephens Lake	NSC	125312	WALL	22-May-23	481	1400	-	-
Stephens Lake	NSC	125313	WALL	22-May-23	381	700	M	8
Stephens Lake	NSC	91756	WALL	24-May-23	456	1000	F	2
Stephens Lake	NSC	122865	WALL	24-May-23	433	1000	-	-
Stephens Lake	NSC	125101	WALL	24-May-23	485	1300	-	-
Stephens Lake	NSC	125102	WALL	24-May-23	364	650	M	8
Stephens Lake	NSC	125103	WALL	24-May-23	474	1250	F	2
Stephens Lake	NSC	125104	WALL	24-May-23	446	1000	F	2
Stephens Lake	NSC	125105	WALL	24-May-23	444	900	F	2
Stephens Lake	NSC	125106	WALL	24-May-23	428	850	-	-
Stephens Lake	NSC	125107	WALL	24-May-23	488	1000	F	2
Stephens Lake	NSC	125108	WALL	24-May-23	439	950	F	2

Table A1-3: Tagging and biological data for Walleye (WALL) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	NSC	125109	WALL	24-May-23	445	1050	F	2
Stephens Lake	NSC	125110	WALL	24-May-23	346	650	M	8
Stephens Lake	NSC	125116	WALL	24-May-23	463	1000	-	-
Stephens Lake	NSC	125117	WALL	24-May-23	419	850	-	-
Stephens Lake	NSC	125118	WALL	24-May-23	426	950	-	-
Stephens Lake	NSC	125306	WALL	24-May-23	454	750	F	2
Stephens Lake	NSC	125978	WALL	24-May-23	451	950	F	2
Stephens Lake	NSC	125979	WALL	24-May-23	463	950	F	2
Stephens Lake	NSC	125980	WALL	24-May-23	459	1000	-	-
Stephens Lake	NSC	125982	WALL	24-May-23	460	800	-	-
Stephens Lake	NSC	125983	WALL	24-May-23	473	1100	F	2
Stephens Lake	NSC	125984	WALL	24-May-23	451	1000	-	-
Stephens Lake	NSC	125985	WALL	24-May-23	460	1050	-	-
Stephens Lake	NSC	125986	WALL	24-May-23	386	750	M	7
Stephens Lake	NSC	125987	WALL	24-May-23	423	800	-	-
Stephens Lake	NSC	125988	WALL	24-May-23	450	850	F	2
Stephens Lake	NSC	125989	WALL	24-May-23	380	700	-	-
Stephens Lake	NSC	125990	WALL	24-May-23	448	1000	-	-
Stephens Lake	NSC	125991	WALL	24-May-23	405	750	-	-
Stephens Lake	NSC	125993	WALL	24-May-23	436	850	-	-
Stephens Lake	NSC	125995	WALL	24-May-23	375	500	M	7
Stephens Lake	NSC	125996	WALL	24-May-23	446	1000	-	-
Stephens Lake	NSC	125999	WALL	24-May-23	505	1400	F	2
Stephens Lake	NSC	126000	WALL	24-May-23	405	800	-	-

Table A1-3: Tagging and biological data for Walleye (WALL) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	NSC	119053	WALL	26-May-23	376	850	-	-
Stephens Lake	NSC	121851	WALL	28-May-23	347	500	-	-
Stephens Lake	NSC	121852	WALL	28-May-23	336	450	M	8
Stephens Lake	NSC	121853	WALL	28-May-23	459	1100	M	8
Stephens Lake	NSC	121854	WALL	28-May-23	453	1300	-	-
Stephens Lake	NSC	121855	WALL	28-May-23	280	200	-	-
Stephens Lake	NSC	121856	WALL	28-May-23	405	700	M	8
Stephens Lake	NSC	121857	WALL	28-May-23	370	550	-	-
Stephens Lake	NSC	121858	WALL	28-May-23	394	700	M	8
Stephens Lake	NSC	121859	WALL	28-May-23	353	550	-	-
Stephens Lake	NSC	121861	WALL	28-May-23	330	400	M	8
Stephens Lake	NSC	121862	WALL	28-May-23	455	1150	M	8
Stephens Lake	NSC	121864	WALL	28-May-23	290	200	-	-
Stephens Lake	NSC	121866	WALL	28-May-23	436	800	-	-
Stephens Lake	NSC	121867	WALL	28-May-23	405	675	M	8
Stephens Lake	NSC	121872	WALL	28-May-23	407	700	M	8
Stephens Lake	NSC	121875	WALL	28-May-23	414	800	-	-
Stephens Lake	NSC	121880	WALL	28-May-23	550	1950	M	8
Stephens Lake	NSC	121881	WALL	28-May-23	383	600	M	8
Stephens Lake	NSC	121882	WALL	28-May-23	410	750	M	8
Stephens Lake	NSC	121883	WALL	28-May-23	350	475	-	-
Stephens Lake	NSC	121951	WALL	28-May-23	393	700	-	-
Stephens Lake	NSC	122817	WALL	29-May-23	444	950	F	3
Stephens Lake	NSC	122826	WALL	29-May-23	342	500	-	-

Table A1-3: Tagging and biological data for Walleye (WALL) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	NSC	122827	WALL	29-May-23	382	650	M	7
Stephens Lake	NSC	122829	WALL	29-May-23	439	900	F	2
Stephens Lake	NSC	122831	WALL	29-May-23	340	425	-	-
Stephens Lake	NSC	122832	WALL	29-May-23	304	300	M	7
Stephens Lake	NSC	122833	WALL	29-May-23	454	850	M	8
Stephens Lake	NSC	122834	WALL	29-May-23	430	950	F	2
Stephens Lake	NSC	122835	WALL	29-May-23	475	1175	-	-
Stephens Lake	NSC	125351	WALL	29-May-23	332	400	M	8
Stephens Lake	NSC	125352	WALL	29-May-23	326	350	M	8
Stephens Lake	NSC	125353	WALL	29-May-23	394	700	-	-
Stephens Lake	NSC	125354	WALL	29-May-23	342	500	M	7
Stephens Lake	NSC	125355	WALL	29-May-23	417	950	M	8
Stephens Lake	NSC	125356	WALL	29-May-23	435	950	F	3
Stephens Lake	NSC	125357	WALL	29-May-23	476	1250	-	-
Stephens Lake	NSC	125358	WALL	29-May-23	416	850	-	-
Stephens Lake	NSC	125359	WALL	29-May-23	358	600	M	7
Stephens Lake	NSC	125360	WALL	29-May-23	308	350	-	-
Stephens Lake	NSC	125361	WALL	29-May-23	356	500	M	7
Stephens Lake	NSC	125362	WALL	29-May-23	492	1550	F	3
Stephens Lake	NSC	125363	WALL	29-May-23	320	400	-	-
Stephens Lake	NSC	125369	WALL	29-May-23	410	700	-	-
Stephens Lake	NSC	125370	WALL	29-May-23	388	700	-	-
Stephens Lake	NSC	125371	WALL	29-May-23	444	1050	-	-
Stephens Lake	NSC	125372	WALL	29-May-23	385	600	-	-

Table A1-3: Tagging and biological data for Walleye (WALL) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	NSC	125373	WALL	29-May-23	408	750	-	-
Stephens Lake	NSC	125375	WALL	29-May-23	429	900	-	-
Stephens Lake	NSC	125378	WALL	29-May-23	430	850	-	-
Stephens Lake	NSC	125379	WALL	29-May-23	450	950	-	-
Stephens Lake	NSC	125380	WALL	29-May-23	570	2400	-	-
Stephens Lake	NSC	125751	WALL	29-May-23	392	700	M	7
Stephens Lake	NSC	125752	WALL	29-May-23	403	850	-	-
Stephens Lake	NSC	125753	WALL	29-May-23	345	500	M	7
Stephens Lake	NSC	125754	WALL	29-May-23	394	700	-	-
Stephens Lake	NSC	125755	WALL	29-May-23	390	700	M	7
Stephens Lake	NSC	125756	WALL	29-May-23	324	450	M	8
Stephens Lake	NSC	125757	WALL	29-May-23	374	550	M	7
Stephens Lake	NSC	125758	WALL	29-May-23	355	500	M	7
Stephens Lake	NSC	125759	WALL	29-May-23	315	400	M	7
Stephens Lake	NSC	125760	WALL	29-May-23	300	350	-	-
Stephens Lake	NSC	125761	WALL	29-May-23	405	700	-	-
Stephens Lake	NSC	125762	WALL	29-May-23	444	1100	-	-
Stephens Lake	NSC	122843	WALL	31-May-23	425	825	-	-
Stephens Lake	NSC	122847	WALL	31-May-23	365	500	-	-
Stephens Lake	NSC	122848	WALL	31-May-23	490	1400	-	-
Stephens Lake	NSC	124355	WALL	31-May-23	435	950	-	-
Stephens Lake	NSC	124356	WALL	31-May-23	368	525	-	-
Stephens Lake	NSC	124357	WALL	31-May-23	330	400	-	-
Stephens Lake	NSC	124358	WALL	31-May-23	285	225	-	-

Table A1-3: Tagging and biological data for Walleye (WALL) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	NSC	119093	WALL	4-Jun-23	354	500	M	8
Stephens Lake	NSC	119096	WALL	4-Jun-23	451	1000	-	-
Stephens Lake	NSC	119097	WALL	4-Jun-23	415	950	-	-
Stephens Lake	NSC	130204	WALL	8-Oct-23	389	700	-	-
Stephens Lake	NSC	130177	WALL	10-Oct-23	436	1000	-	-
Stephens Lake	NSC	130181	WALL	12-Oct-23	377	620	-	-
Stephens Lake	NSC	130182	WALL	12-Oct-23	365	550	-	-
Stephens Lake	NSC	130184	WALL	12-Oct-23	405	800	-	-
Stephens Lake	NSC	130188	WALL	13-Oct-23	393	660	-	-
Stephens Lake	NSC	130190	WALL	13-Oct-23	322	420	-	-
Stephens Lake	NSC	130191	WALL	13-Oct-23	413	900	-	-
Stephens Lake	NSC	119797	WALL	15-Oct-23	444	900	-	-
Stephens Lake	NSC	119794	WALL	15-Oct-23	413	940	-	-
Stephens Lake	NSC	119791	WALL	15-Oct-23	460	1180	-	-
Stephens Lake	NSC	119778	WALL	15-Oct-23	501	1700	-	-
Stephens Lake	NSC	119779	WALL	15-Oct-23	433	950	-	-
Stephens Lake	NSC	119780	WALL	15-Oct-23	333	380	-	-
Stephens Lake	NSC	119781	WALL	15-Oct-23	430	1010	-	-
Stephens Lake	NSC	119782	WALL	15-Oct-23	351	550	-	-
Stephens Lake	NSC	119783	WALL	15-Oct-23	437	1010	-	-
Stephens Lake	NSC	119784	WALL	15-Oct-23	444	1100	-	-
Stephens Lake	NSC	119785	WALL	15-Oct-23	448	1070	-	-
Stephens Lake	NSC	119786	WALL	15-Oct-23	459	1100	-	-
Stephens Lake	NSC	119787	WALL	15-Oct-23	341	520	-	-

Table A1-3: Tagging and biological data for Walleye (WALL) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	NSC	119788	WALL	15-Oct-23	318	420	-	-
Stephens Lake	NSC	119789	WALL	15-Oct-23	391	800	-	-
Stephens Lake	NSC	119790	WALL	15-Oct-23	377	630	-	-
Stephens Lake	NSC	119776	WALL	15-Oct-23	562	1980	-	-
Stephens Lake	NSC	130162	WALL	15-Oct-23	367	640	-	-
Stephens Lake	NSC	130163	WALL	15-Oct-23	473	1140	-	-
Stephens Lake	NSC	130164	WALL	16-Oct-23	432	860	-	-
Stephens Lake	NSC	130971	WALL	16-Oct-23	447	920	-	-
Stephens Lake	NSC	130972	WALL	16-Oct-23	433	930	-	-
Stephens Lake	NSC	130973	WALL	16-Oct-23	451	1220	-	-
Stephens Lake	NSC	130975	WALL	16-Oct-23	423	920	-	-
Stephens Lake	NSC	130957	WALL	16-Oct-23	460	1050	-	-
Stephens Lake	NSC	130959	WALL	16-Oct-23	429	890	-	-
Stephens Lake	NSC	130960	WALL	16-Oct-23	428	1000	-	-
Stephens Lake	NSC	130961	WALL	16-Oct-23	417	900	-	-
Stephens Lake	NSC	130964	WALL	16-Oct-23	367	590	-	-
Stephens Lake	NSC	130965	WALL	16-Oct-23	370	620	-	-
Stephens Lake	NSC	130324	WALL	16-Oct-23	373	590	-	-
Stephens Lake	NSC	130336	WALL	16-Oct-23	473	1170	-	-
Stephens Lake	NSC	130337	WALL	16-Oct-23	429	870	-	-
Stephens Lake	NSC	130342	WALL	16-Oct-23	390	550	-	-
Stephens Lake	NSC	130346	WALL	16-Oct-23	483	1320	-	-
Stephens Lake	NSC	130347	WALL	16-Oct-23	377	600	-	-
Stephens Lake	NSC	130350	WALL	16-Oct-23	413	720	-	-

Table A1-3: Tagging and biological data for Walleye (WALL) captured in the Keeyask reservoir and Stephens Lake in 2023 (continued).

Location	Prefix	Floy-Tag Number	Species	Date Tagged	Fork Length (mm)	Weight (g)	Sex	Maturity
Stephens Lake	NSC	130974	WALL	17-Oct-23	357	500	-	-
Stephens Lake	NSC	130465	WALL	17-Oct-23	485	1300	-	-
Stephens Lake	NSC	130253	WALL	17-Oct-23	555	1950	-	-
Stephens Lake	NSC	130451	WALL	17-Oct-23	442	1100	-	-
Stephens Lake	NSC	130254	WALL	17-Oct-23	361	560	-	-
Stephens Lake	NSC	130255	WALL	17-Oct-23	420	810	-	-
Stephens Lake	NSC	130258	WALL	17-Oct-23	402	730	-	-
Stephens Lake	NSC	130452	WALL	17-Oct-23	333	420	-	-
Stephens Lake	NSC	130453	WALL	17-Oct-23	431	860	-	-
Stephens Lake	NSC	130263	WALL	17-Oct-23	396	670	-	-
Stephens Lake	NSC	130266	WALL	17-Oct-23	383	700	-	-
Stephens Lake	NSC	130267	WALL	17-Oct-23	342	460	-	-
Stephens Lake	NSC	130268	WALL	17-Oct-23	432	980	-	-
Stephens Lake	NSC	130269	WALL	17-Oct-23	385	690	-	-
Stephens Lake	NSC	130454	WALL	17-Oct-23	385	700	-	-
Stephens Lake	NSC	130275	WALL	17-Oct-23	398	700	-	-

APPENDIX 2:
RECAPTURE DATA IN THE KEEYASK STUDY AREA, SPRING AND FALL 2023.

Table A2-1: Original release date and biological data for Northern Pike recaptured in the Keeyask reservoir and Stephens Lake, 2023. 77

Table A2-2: Original release date and biological data for Walleye recaptured in the Keeyask reservoir and Stephens Lake, 2023. 79

Table A2-1: Original release date and biological data for Northern Pike recaptured in the Keeyask reservoir and Stephens Lake, 2023.

Location	Floy-tag #	Date	Fork Length (mm)	Weight (g)	Distance (km)	Days Between Capture
Keeyask Reservoir	121630	28-May-23	747	3000	0.02	721
Keeyask Reservoir	-	23-May-23	753	3600	0.02	716
Keeyask Reservoir	-	6-Jun-21	647	2100		
Keeyask Reservoir	122241	28-May-23	782	4450	0.1	728
Keeyask Reservoir	-	30-May-21	723	3170		
Split Lake	122235	14-Jun-23	-	-	37.2	744
Keeyask Reservoir	-	31-May-21	728	3080		
Keeyask Reservoir	122362	23-Aug-23	701	2550	1.7	94
Keeyask Reservoir	-	21-May-23	695	2900		
Keeyask Reservoir	116959	8-Oct-23	749	3900	1.7	113
Keeyask Reservoir	-	17-Jun-23	770	3380		
Keeyask Reservoir	122863	11-Oct-23	720	2730	0.2	489
Keeyask Reservoir	-	9-Jun-22	620	-		
Keeyask Reservoir	125478	13-Oct-23	-	-	0.2	2
Keeyask Reservoir	-	12-Oct-23	696	3170		
Keeyask Reservoir	122854	20-Oct-23	588	1920	3.3	499
Keeyask Reservoir	-	9-Jun-22	539	-		
Keeyask Reservoir	125431	20-Oct-23	-	-	0.2	10
Keeyask Reservoir	-	11-Oct-23	767	3100		
Stephens Lake	122940	24-May-23	885	6000	0.6	356
Stephens Lake	-	2-Jun-22	855	5443		
Stephens Lake	113705	26-May-23	875	7500	2.0	362
Stephens Lake	-	29-May-22	857	-		

Table A2-1: Original release date and biological data for Northern Pike recaptured in the Keeyask reservoir and Stephens Lake, 2023 (continued).

Location	Floy-tag #	Date	Fork Length (mm)	Weight (g)	Distance (km)	Days Between Capture
Stephens Lake	122180	13-Jun-23	980	6400	0.6	611
Stephens Lake	-	10-Oct-21	973	7475		
Stephens Lake	123970	20-Aug-23	625	2500	2.6	443
Stephens Lake	-	3-Jun-22	609	1420		
Stephens Lake	119020	10-Oct-23	507	900	0.1	372
Stephens Lake	-	3-Oct-22	479	750		
Stephens Lake	122210	10-Oct-23	532	1090	0.9	370
Stephens Lake	-	5-Oct-22	515	1000		

Table A2-2: Original release date and biological data for Walleye recaptured in the Keeyask reservoir and Stephens Lake, 2023.

Location	Floy-tag #	Date	Fork Length (mm)	Weight (g)	Distance (km)	Days Between Capture
Keeyask Reservoir	121627	23-May-23	485	1600	0.4	359
Keeyask Reservoir	-	29-May-22	583	1760	0.4	358
Keeyask Reservoir	-	5-Jun-21	431	1000		
Keeyask Reservoir	91762	28-May-23	473	1300	0.2	5
Keeyask Reservoir	-	23-May-23	-	-		
Keeyask Reservoir	125390	23-Jun-23	-	-	4.8	26
Keeyask Reservoir	-	28-May-23	510	1500		
Keeyask Reservoir	122856	23-Aug-23	448	1325	3.2	440
Keeyask Reservoir	-	9-Jun-22	413	-		
Keeyask Reservoir	116989	11-Oct-23	453	1110	0.02	736
Keeyask Reservoir	-	5-Oct-21	397	775		
Keeyask Reservoir	121613	20-Oct-23	518	1620	4.2	868
Keeyask Reservoir	-	5-Jun-21	497	1500		
Stephens Lake	121570	22-May-23	415	800	0.9	226
Stephens Lake	-	8-Oct-22	414	770		
Stephens Lake	122865	24-May-23	433	1000	24.4	349
Keeyask Reservoir	-	9-Jun-22	415	-		
Stephens Lake	125306	24-May-23	454	750	0.8	2
Stephens Lake	-	22-May-23	-	-		
Stephens Lake	122831	22-Aug-23	345	500	2.2	85
Stephens Lake	-	29-May-23	340	425		
Stephens Lake	117317	17-Sep-23	-	-	3.3	707
Stephens Lake	-	10-Oct-21	385	800		