Keeyask Generation Project

Aquatic Effects Monitoring Plan

Juvenile Lake Sturgeon Population Monitoring Report

AEMP-2023-06

KEEYASK

Manitoba Environment and Climate Client File 5550.00
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KEEYASK GENERATION PROJECT

AQUATIC EFFECTS MONITORING PLAN

REPORT #AEMP-2023-06

JUVENILE LAKE STURGEON POPULATION MONITORING, FALL 2022: YEAR 1 OPERATION

Prepared for

Manitoba Hydro

By

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SUMMARY

Background

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

Construction of the Keeyask GS began in mid-July 2014 and instream work was completed in 2020. The reservoir was impounded with water levels being raised to full supply level between August 31 and September 5, 2020. Commissioning of the powerhouse turbines was initiated after impoundment. They were brought into service one at a time with the final of seven turbines completed on March 9, 2022.

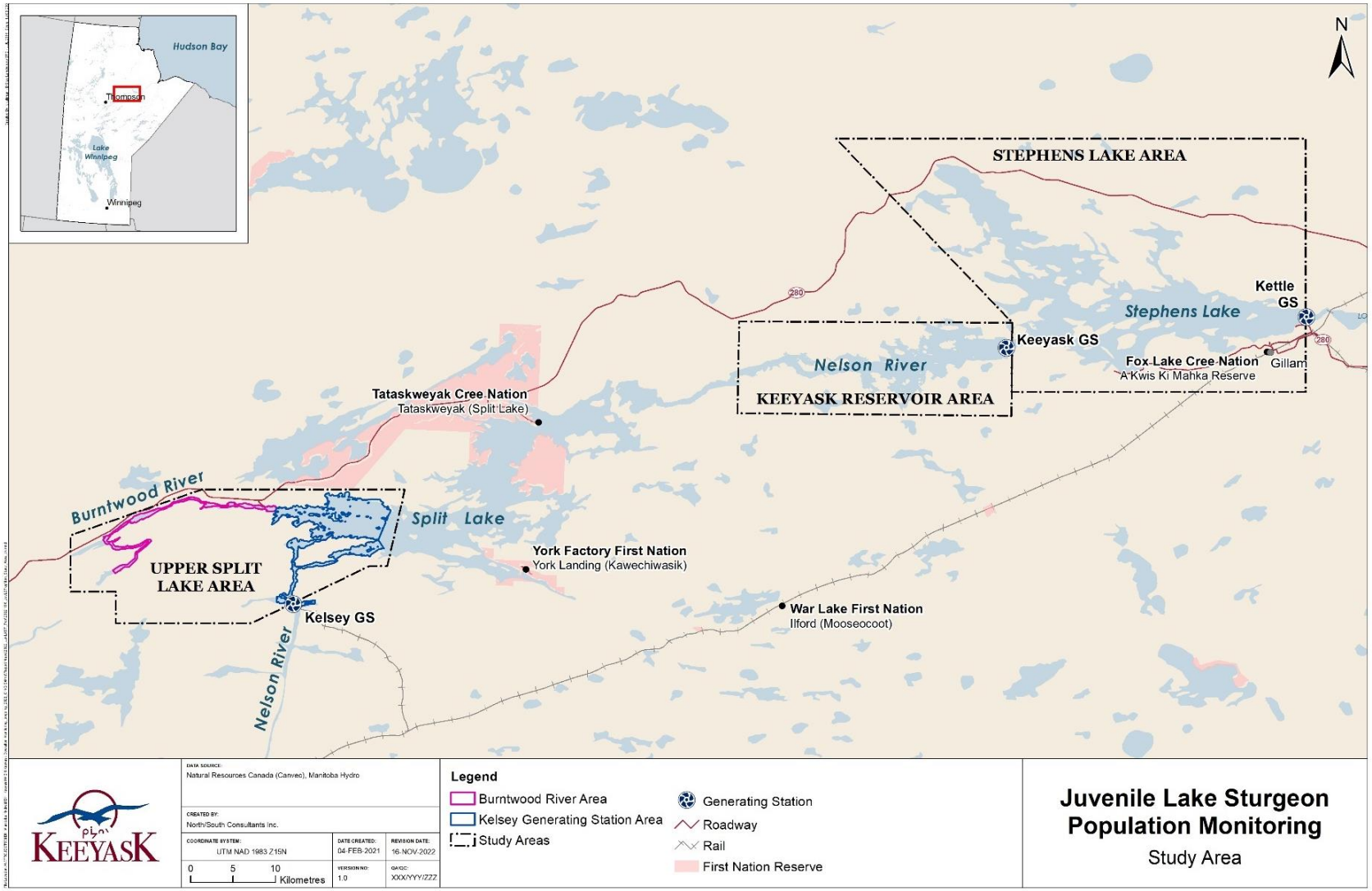
Lake Sturgeon were identified as one of the key species for monitoring. They were chosen because they are culturally important to partner First Nations, local sturgeon populations have been previously impacted, and construction and operation of the GS will change or negatively impact important habitat. The plan to monitor the impacts of GS construction and operation on sturgeon includes several types of studies:

- Estimating the number of adults;
- Estimating the number and growth of juveniles (less than 800 millimetres [mm] in length);
- Identifying spawning locations and numbers of spawning fish; and
- Movement studies to record seasonal habitat use, long distance movements, and movements past barriers (*i.e.*, over GSs).

The mitigation and offsetting plan for Lake Sturgeon included a commitment to a long-term stocking program. This plan addressed the predicted loss of spawning habitat at Gull Rapids during the construction and initial years of operation by releasing young sturgeon into Stephens Lake. Stocking will also support the recovery of the sturgeon populations in the Keeyask reservoir, Stephens Lake, and the Upper Split Lake Area. Stocking began in 2014, with locations alternated between years (Keeyask reservoir and Stephens Lake were stocked with fish born in 2014, 2016, 2018, and 2021 and Burntwood River was stocked with fish born in 2013, 2015, 2017, 2019) and its effectiveness is assessed through juvenile population monitoring. Fish born in 2021 were stocked in the spring of 2022 and were available for capture during the 2022 juvenile Lake Sturgeon program.

This report presents results of juvenile Lake Sturgeon population monitoring conducted during fall 2022. Data from juvenile populations in the study area have been collected intermittently since 2007 and the juvenile population monitoring study was conducted for the first time in 2014.

Juvenile population monitoring will be conducted each year until 2044. Each year, sampling will be conducted using the same capture methods, so that results can be compared between different years and trends can be seen.



Map of the study area for the juvenile Lake Sturgeon population monitoring program. Sampling is done in the Upper Split Lake Area (every second year), the Keeyask reservoir (yearly), and Stephens Lake (yearly). Sampling was conducted in all three areas in fall 2022.

Why is the study being done?

Juvenile Lake Sturgeon population monitoring is being done to answer several questions:

Does recruitment of wild sturgeon occur upstream and/or downstream of the GS during construction and/or operation?

This question is important because if no young sturgeon are born during construction and operation of the GS, then in the future fewer adult sturgeon will be reproducing.

Does spawning habitat need to be created/modified (if recruitment of wild fish is not observed)?

This question is important because if there is no recruitment of wild fish then measures can be taken to improve habitat in the area and make spawning more successful.

What is the survival rate of stocked sturgeon?

This question is important because if the survival rate is high then the number of fish stocked may be reduced. If the survival rate is low, then the stocking plan would be adjusted (*e.g.*, may change time or location of release).

What is the proportion of hatchery-reared to wild recruits within a birth year (i.e., how successful is the stocking program)?

The answer to this question will also tell us about the effectiveness of the stocking program.

Do stocking rates need to be adjusted?

This question is important because if the number of stocked fish in the catch is too high or too low then the stocking plan would be adjusted (e.g., increasing or decreasing the number of hatchery fish released).

Is there a change in condition factor and growth of juvenile sturgeon during construction and/or operation?

This question is important because if sturgeon become fatter or skinnier than they used to be, then something is changing in their environment. If the condition of juveniles decreases, it can also mean that stocking is adding too many fish to the environment and they cannot find enough food. In that case, the stocking plan will be adjusted.

Will the locations that YOY and juvenile Lake Sturgeon are found change in the Keeyask reservoir and Stephens Lake after impoundment?

Flooding of the Keeyask reservoir will cause changes to available habitat in the area. This may cause juvenile Lake Sturgeon to move away or to use different areas of the river.

Does additional YOY habitat need to be created in the Keeyask reservoir or in Stephens Lake?

This question is important because if there is no habitat for YOY sturgeon to grow, they will not survive. If this happens, habitat will have to be made.

Juvenile (left) and young-of-the-year (right) Lake Sturgeon.

What was done?

Sampling was conducted in the Upper Split Lake Area (including the Burntwood River and Split Lake), Keeyask reservoir (the Nelson River between Clark Lake and the Keeyask GS) and Stephens Lake in the fall of 2022. Gill nets were used to catch juvenile sturgeon, defined as those that are less than 800 mm in length. The gill nets were set in deep water habitats preferred by juveniles. When a fish was caught, it was measured and weighed. If the fish was not already tagged, then two different tags were applied: an external (Floy®) tag and a small PIT tag to make sure the fish is identifiable if one tag is lost. If the captured fish had already been tagged, then the tag numbers were recorded before the fish was released. Tagging and recapturing fish makes it possible to determine how much a fish grew or the distance they moved. It also makes it possible to estimate how many sturgeon are in a population. An ageing structure (a small piece of fin) was also collected to determine the year that the fish was born.

Measuring (left); reading a PIT tag number (middle); and releasing (right) juvenile Lake Sturgeon captured during population monitoring studies.

What was found?

A total of 223 Lake Sturgeon were captured in the Upper Split Lake Area: 96 in the Burntwood River (all juveniles) and 128 in Split Lake proper (125 juveniles and 3 adults). Since sampling began, sturgeon born in every year from 2000 to 2022 have been caught. Lake Sturgeon born in 2022 (called young-of-the-year [YOY]) were abundant in the Upper Split Lake Area accounting

for ~9% (n = 21) of the catch. Of the 223 sturgeon caught, five were wild fish tagged in a previous year and recaptured in 2022. A total of 35 hatchery-reared fish were captured in the Upper Split Lake Area: 12 in the Burntwood River and 23 in Split Lake. Of the 35 hatchery-reared fish, three were released as two-year-old's in 2021 and the remaining 32 were released as one-year-olds (6 in 2014, 1 in 2016, 19 in 2018, and 6 in 2020). This is the largest number of hatchery fish released in the Burntwood River that have been caught in a single year.

A total of 185 Lake Sturgeon (184 juveniles and 1 adult) were captured in the Keeyask reservoir. No YOY sturgeon were captured in this area in 2022. Of the 185 sturgeon caught, 31 had been tagged in a previous year (between 2014 and 2021), and 48 were tagged hatchery-reared sturgeon released as one-year-olds in either the Burntwood River (one fish stocked in 2014) or the Keeyask reservoir (47 fish released in either 2015, 2017, 2019, or 2022). Including the one fish caught in 2022, a total of 12 hatchery-reared fish released in the Burntwood River have been caught in the Keeyask reservoir since stocking began in 2014. Young hatchery fish (age 1–5) are generally longer than wild fish of the same age, but by age-6 the lengths of hatchery and wild fish are similar.

In Stephens Lake, a total of 161 Lake Sturgeon (156 juveniles and 5 adults) were captured including 24 wild YOY fish (born in 2022). Of the 161 fish captured, 16 were tagged in a previous year (4 in the Keeyask reservoir and 12 in Stephens Lake) and 72 were hatchery-reared sturgeon (released as one-year-olds). Hatchery-reared sturgeon accounted for 45% of the total catch in Stephens Lake. Three of the hatchery-reared sturgeon were stocked in the Burntwood River, 28 were stocked in the Keeyask reservoir, and 41 were stocked in Stephens Lake. In Stephens Lake, age 1–4 hatchery fish are generally longer than wild fish of the same age, but by age-5 the lengths of hatchery and wild fish are similar.

A computer model was used to generate estimates of population size and survival for wild juvenile Lake Sturgeon in the Upper Split Lake Area, Keeyask reservoir and Stephens Lake. In 2022, the Upper Split Lake population was estimated at 10,020 wild fish, the Keeyask reservoir population was estimated at 2,793 wild fish, and the Stephens Lake population was estimated at 3,665 wild fish. Estimates for the Upper Split Lake Area and the Stephens Lake were higher than previous years, while the estimate for the Keeyask reservoir was similar to previous years. It was estimated that 75% of all wild juvenile Lake Sturgeon survive each year in both the Upper Split Lake Area and Keeyask reservoir and 79% survive in Stephens Lake.

A different model was used to generate survival estimates for hatchery-reared fish. The percentage of stocked fish that survive each year was estimated at 92% in the Upper Split Lake Area, 95% in the Keeyask reservoir, and 78% in Stephens Lake. In the Upper Split Lake Area, 1,364 hatchery-raised fish were estimated to be present or 12% of the juvenile population. In the Keeyask reservoir, the hatchery population was estimated to be 1,411 individuals (34% of the population). In Stephens Lake, 877 hatchery-raised fish were estimated to be present, or 19% of all juvenile sturgeon population.

What does it mean?

Sampling happened two full years after flooding for the Keeyask reservoir, and juvenile Lake Sturgeon were still captured in the same general areas and numbers upstream and downstream of the station. One fish born in 2021 was caught in the Keeyask reservoir, showing that successful spawning has occurred since impoundment. A large number of YOY fish were caught in both the Upper Split Lake Area and Stephens Lake in 2022, showing that spawning happened this year.

The capture of many hatchery-reared sturgeon released as one-year-olds in the Upper Split Lake Area, Keeyask reservoir, and Stephens Lake over the last five study years suggests the stocking program is having a positive effect on Lake Sturgeon abundance in these areas. It shows that stocked sturgeon are surviving in the wild and that they are growing after release.

What will be done next?

Monitoring will continue each fall until 2044. Monitoring in 2022 represents the second full year that juvenile sturgeon were living in the impounded reservoir (flooding of the Keeyask reservoir was completed on September 5, 2020 shortly before the 2020 sampling program). It was also the first year of sampling in Stephens Lake after the Keeyask GS was completed. Further monitoring will show whether Lake Sturgeon can successfully reproduce (*i.e.*, do newly spawned fish survive?) and whether juveniles can successfully survive and grow in the Keeyask reservoir and Stephens Lake.

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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* (AESV). As part of the licensing process for the Project, an *Aquatic Effects Monitoring Plan* (AEMP) was developed detailing the monitoring activities of various components of the aquatic environment, including the focus of this report, juvenile Lake Sturgeon populations, for the construction and operation phases of the Project.

For the purposes of this monitoring program, Lake Sturgeon that are 800 mm in fork length or longer are classified as adults and smaller sturgeon are considered juveniles. Although fish greater than 800 mm length may not yet be sexually mature and may not reach sexual maturity for some years, this length was used as the threshold to distinguish between juveniles and adults because the smallest mature fish captured to date has been 809 mm (captured in 2016 in Stephens Lake; Legge *et al.* 2017).

Juvenile population monitoring is a key component of the overall Lake Sturgeon monitoring program. The Project is predicted to affect sturgeon recruitment by altering spawning habitat at the Keeyask GS and Birthday Rapids. Stocking aims to assist the recovery of sturgeon populations in the Upper Split Lake Area (*i.e.*, the Burntwood River and the Nelson River between the Kelsey GS and Split Lake) and in the Keeyask reservoir and Stephens Lake. Stocking locations alternate between years. The Burntwood River was stocked in 2014, 2016, 2018, 2020 and 2021. The Keeyask reservoir and Stephens Lake were stocked in 2015, 2017, 2019, and 2022. Results of juvenile population monitoring will determine the impact of the loss of spawning habitat earlier than would be possible using adult population monitoring data, allowing timely adaptive management and mitigation, if required. Results of juvenile population monitoring will also assist in assessing the effectiveness of stocking and identify whether changes to the stocking plan are required. Data collected during juvenile population monitoring will be used to measure population size and cohort strength, identify changes in condition factor, determine whether natural reproduction is occurring, assess the need for young-of-the-year (YOY) habitat creation, and determine whether stocked fish are surviving and growing.

Juvenile Lake Sturgeon studies have been conducted in the Keeyask reservoir and Stephens Lake since 2007. Surveys were initiated in the Burntwood River in 2012 and in the Nelson River

downstream of the Kelsey GS and in Split Lake in 2015. These studies have increased the understanding of YOY and juvenile abundance, distribution, habitat use, condition, size, and year-class strength (MacDonald 2009; Michaluk and MacDonald 2010; Henderson and Pisiak 2012; Henderson *et al.* 2011, 2013, 2015; Burnett *et al.* 2016, 2017, 2018, 2021, 2022; Burnett and Hrenchuk 2019, 2020). In both the Keeyask reservoir and Stephens Lake, recruitment has also occurred consistently over the past ten years, but until recently, the cohort-frequency distribution has been dominated by a single cohort produced in 2008 (Henderson *et al.* 2011, 2013, 2015; Henderson and Pisiak 2012; Burnett *et al.* 2017, 2018; Burnett and Hrenchuk 2019, 2020). As new, younger cohorts emerge, fish from the 2008 cohort are becoming too large for the juvenile sample gear and are therefore making up a smaller proportion of the catch in each waterbody.

Lake Sturgeon stocking is being conducted using wild caught broodstock from the Burntwood River and from the Keeyask reservoir. To maintain the genetic structure of each population, progeny from each broodstock location are released back into their respective rivers (*i.e.*, Burntwood River progeny released back into the Burntwood River and Keeyask reservoir progeny released back to the reservoir and Stephens Lake). Stocking occurred for the first time in 2014 and has occurred annually since with a variety of life stages (larvae, fingerlings, yearlings) being released (Table 1; Klassen *et al.* 2017, 2018, 2019, 2020, 2021, 2022, 2023).

Table 1: Summary of Lake Sturgeon stocking since 2014. Numbers of stocked fish are from Klassen *et al.* 2023.

Year[a]	Burntwood River			Keeyask reservoir[b]			Stephens Lake		
	Larvae	Fingerlings	Age-1+	Larvae	Fingerlings	Age-1	Larvae	Fingerlings	Age-1
2014	-	-	595	152,926	4,656	-	-	-	-
2015	-	-	-	-	-	423	-	-	418
2016	-	-	23	192,167	780	-	184,134	799	-
2017	71,740	3,765	-	-	-	463	-	-	720
2018	-	-	739	-	933	-	-	1,009	-
2019	-	3,681		-	-	398	-	-	390
2020	-	-	574	-	-	-	-	-	-
2021	-	-	188[c]	-	-	-	-	1,050	-
2022	-	5,197	-	-	-	400	-	-	400
Total	**71,740**	**12,643**	**2,119**	**345,093**	**6,369**	**1,684**	**184,134**	**2,858**	**1,928**

a – Stocking year
b – Previously referred to as Gull Lake and the future Keeyask reservoir
c – Due to the cancellation of spring field activities as a result of COVID-19 in 2020, a total of 188 Burntwood River yearlings remained at the hatchery for the 2020/2021 winter. They were released in spring 2021 as age-2 fish.

This report presents results from juvenile population monitoring conducted in the Upper Split Lake Area (including the Burntwood River and Split Lake), Keeyask reservoir, and Stephens Lake in 2022. Data collected during the field program are relevant to the juvenile population monitoring and movement monitoring programs. The key questions set out in the AEMP for juvenile population monitoring were:

- Does recruitment of wild sturgeon occur upstream and/or downstream of the GS during construction and operation?
- Is there a biologically meaningful (and statistically significant) change in condition factor and growth of juvenile sturgeon during construction and operation?
- What is the survival rate of stocked sturgeon?
- What is the proportion of hatchery-reared to wild recruits within a cohort (*i.e.*, how successful is the stocking program)?
- Do stocking rates need to be adjusted?
- Where in the reservoir and in Stephens Lake will YOY rearing habitat be located, and will the distribution of YOY and juvenile Lake Sturgeon change following reservoir creation?
- Does spawning habitat need to be created/modified (if recruitment of wild fish is not observed)?
- Does additional YOY habitat need to be created in the Keeyask reservoir or in Stephens Lake?

Juvenile population monitoring data will be collected annually from the Keeyask reservoir and Stephens Lake until 2044.

2.0 STUDY SETTING

Juvenile population monitoring in 2022 was conducted at three locations: 1) the Upper Split Lake Area (Burntwood River and Split Lake); 2) the Keeyask reservoir *(i.e*., the reach of the Nelson River between the outlet of Clark Lake and the Keeyask GS), and 3) Stephens Lake (Map 1).

The Burntwood River flows in a north-easterly direction from First Rapids for approximately 35 km prior to emptying into the western arm of Split Lake. It is unknown if First Rapids represents a natural barrier to upstream fish passage; however, it is assumed to be under high flow conditions. Hard substrates predominate in the main channel, while loose, fine sediments and associated macrophyte growth occur in many off-current areas.

Split Lake is located at the confluence of the Burntwood and Nelson rivers. Due to the large inflows from the Nelson and Burntwood rivers, the lake has detectable current in several locations. Split Lake has maximum and mean depths of 28.0 m and 3.9 m, respectively, at a water surface elevation of 167.0 m above sea level (ASL; Lawrence *et al*. 1999). The surface area of Split Lake was determined to be 26,100 ha (excluding islands), with a total shoreline length, including islands, of 940.0 km (Lawrence *et al.* 1999). The numerous islands in Split Lake represent 411.6 km of the total shoreline.

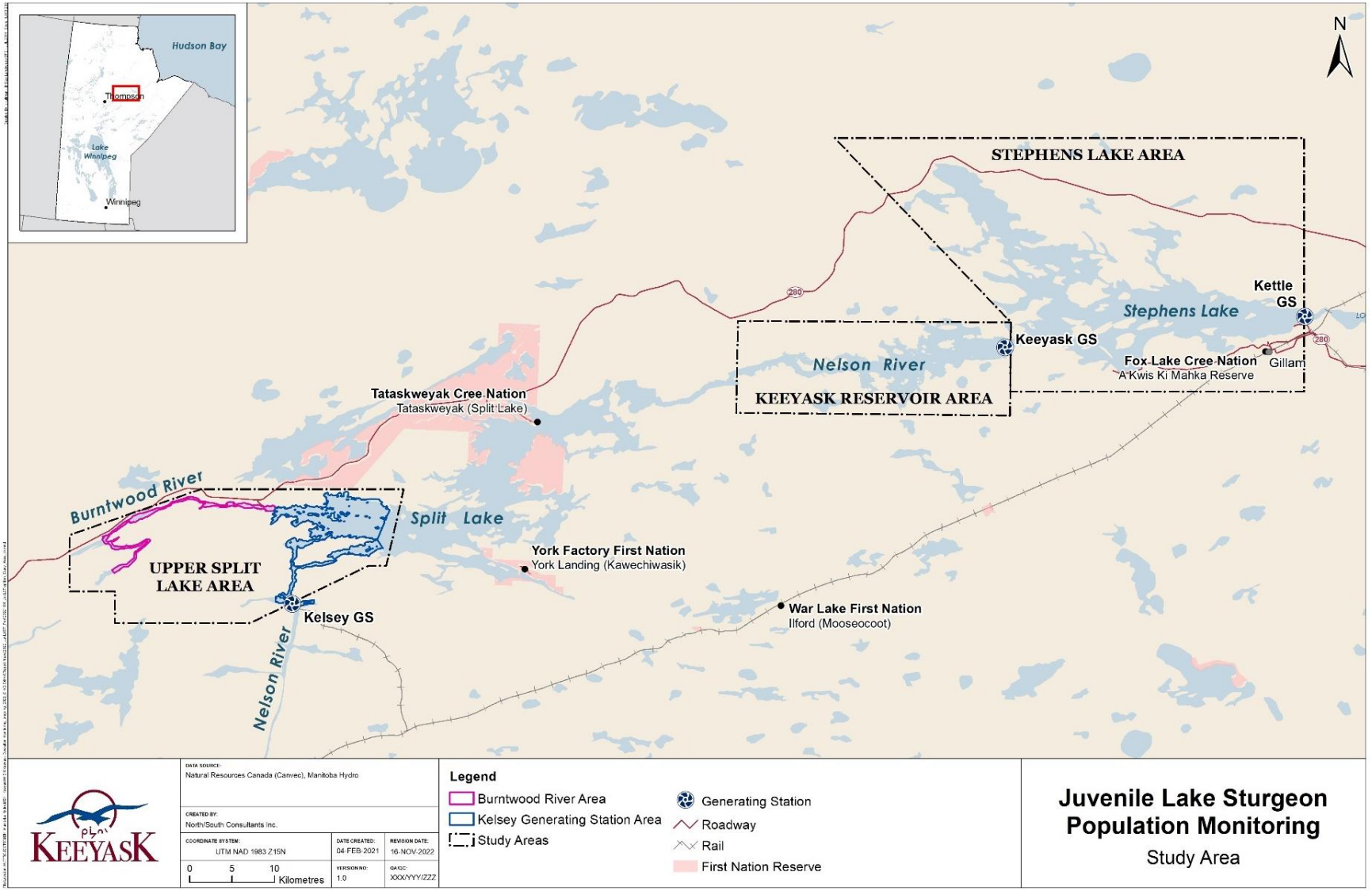
Clark Lake is located immediately downstream of Split Lake, and approximately 42 km upstream of the Keeyask GS. Current is restricted to the main section of the lake, with off-current bays outside the main channel. The Assean River is the only major tributary to Clark Lake and flows into the north side. 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 Nelson River showing the site of Keeyask Generating Station and the juvenile Lake Sturgeon population monitoring study setting. All three areas were sampled in 2022.**

3.0 METHODS

3.1 GILLNETTING

A standardized sampling methodology has been developed for sampling juvenile sturgeon in Boreal Shield rivers using data sets collected from several populations in the Hudson Bay drainage basin (McDougall *et al.* 2014a). This standardized methodology (described below) is being used to enable comparisons of cohort strength, abundance, growth, and condition among years. The gillnetting methods described below have been used to capture juvenile Lake Sturgeon during environmental studies related to the Keeyask Generation Project since 2008.

Gillnetting was conducted in the Upper Split Lake Area, Keeyask reservoir, and the upper 10 km of Stephens Lake. Gill nets were composed of five panels of 1, 2, 3, 5, and 6" twisted nylon stretched mesh (25, 51, 76, 127, and 152 mm). Each panel was 25 yards (yd) (22.9 m) long and 2.7 yd (2.5 m) deep. Mesh sizes were staggered in the order of 1, 5, 2, 6, and 3" to capture small and large juveniles across the length of each gang.

Gill nets were set in deep-water habitats (average depth = 13.5 m) since YOY and juvenile Lake Sturgeon have been found to prefer these areas in the Winnipeg, Burntwood, and Nelson rivers (Barth *et al.* 2009; Michaluk and MacDonald 2010; McDougall *et al.* 2013; Henderson *et al.* 2014). Each gill net set was given a unique identification number, and net locations were recorded using a Garmin Etrex GPS receiver (Garmin International Inc., Olathe, KS). Water depth at each end of the net was measured using a PiranhaMax Series 150 Portable Sonar (Humminbird, Eufaula, AL). Water temperature was measured daily in each area using a hand-held thermometer (±0.5°C). HOBO Water Temperature Pro data loggers (±0.2°C), set approximately 1 m off the substrate were also used to log water temperature at 6-hour intervals in the Keeyask reservoir and Stephens Lake. Gill nets were checked approximately every 24-hours, weather permitting.

For comparability among years, similar gillnetting locations were used during juvenile monitoring programs conducted from 2014 to 2021. However, some sites have changed between years depending on water levels and flows, especially in the Keeyask reservoir. Locations and site-specific physical measurements collected at gillnetting sites in 2022 are found in Appendix 1.

3.2 BIOLOGICAL SAMPLING

All fish captured were counted by species and location. Lake Sturgeon were measured for fork length (FL; ±1 mm), total length (TL; ±1 mm), and weight (±5 g using a digital scale, or nearest 25 g for fish greater than 4,000 g).

For age analysis, the first ray of the left pectoral fin was removed immediately adjacent to its articulation from each juvenile Lake Sturgeon captured for the first time. If fish appeared to have

been aged previously, or had deformed pectoral fins, ageing structures were not collected. All collected fin rays were placed in individually numbered envelopes, air dried, and brought back to the NSC laboratory for ageing (Section 3.4).

Small samples (1–2 cm^2) were removed from the left pelvic fin of each Lake Sturgeon and preserved in 95% Biological Grade Ethanol for potential future genetic analysis.

Ageing structures and genetic samples were not taken from YOY fish due to concerns of harming the small fish. Ages were inferred based on size (*i.e.*, fish smaller than 150 mm FL were considered YOY).

3.3 TAGGING

Lake Sturgeon greater than 250 mm FL were marked with individually numbered external Floy-FD-94 T-bar anchor tags (Floy-tag Inc., Seattle, WA). Floy-tags were inserted into the base of the dorsal fin using a Dennison Mark II tagging gun (Avery Dennison Corporation, Pasadena, CA).

Uniquely numbered Passive Integrated Transponder (PIT) tags from Oregon RFID (Oregon RFID Ltd., Portland, OR) were also used to mark Lake Sturgeon. Those measuring greater than 250 mm FL received 12 mm HDX tags (12.0 mm x 2.12 mm; 0.1 g) and those measuring less than 250 mm FL (smallest fish tagged was 99 mm) received 8 mm FDX-B tags (8.0 mm x 1.4 mm; 0.027 g). Each Lake Sturgeon was scanned for an existing PIT tag using an Agrident APR 350 Reader (Agrident Ltd., Barsinghausen, Germany). For each untagged fish, a PIT tag was injected under the third dorsal scute using an Oregon RFID tag injector needle, dipped in Polysporin® to minimize the risk of infection. Tags were injected parallel to the horizontal axis of the fish, into muscle tissue (not the body cavity). Following implantation or upon recapture, the tags were logged, and the last six digits manually recorded. Injector needles were sterilized in boiling water prior to the start of sampling and again upon sampling completion.

3.4 AGEING ANALYSIS

Lake Sturgeon fin rays were hardened in an epoxy resin (Cold Cure™) and two 0.7 mm fin sections were cut distally within 5 mm of the articulation using a Struers Minitom (Struers Inc., Cleveland, OH) low-speed sectioning saw. Fin sections were mounted on glass slides using Cytoseal-60 (Thermo Scientific, Waltham, MA) and viewed at five times magnification under a compound microscope. Annuli (growth rings) were counted by three experienced readers (independently), without prior knowledge of fish length or weight, or ages assigned by other readers. If readers assigned different ages to a fish, either the modal age or the median age was chosen. The rate of three-reader agreement was calculated in percent (percentage). Examples of Lake Sturgeon ageing structures are provided in Appendix 3.

Lake Sturgeon ageing structures exhibit well-defined banding patterns characteristic of repeated summer (fast-growth) and winter (slow/non-growth) periods (McDougall and Pisiak 2014a;

Appendix A3-1). Ageing structures from hatchery-reared Lake Sturgeon have different banding patterns that complicate the ageing process (described in Burnett and Hrenchuk 2019). In fish stocked at age-1, the weak annulus is often followed by the presence of a false annulus, not corresponding to slowed winter growth, but instead to stocking and the subsequent establishment period. The false annuli decrease ageing accuracy because they are difficult to distinguish from true annuli. Ageing structures collected from known hatchery fish were not aged, instead their known ages were used. All fish caught without a hatchery assigned PIT tag were deemed wild fish for the purpose of this report.

3.5 DATA ANALYSIS

As was done in previous years, data were analysed for all sizes of Lake Sturgeon captured (as opposed to only those measuring less than 800 mm FL). Mesh sizes used select for small Lake Sturgeon but larger fish are also captured; therefore, including all fish in the summary statistics ensures comparability among years.

To better describe sampling locations, relative abundance, and fish movements, each sampling area was divided into distinct geographical zones.

Mean FL (mm), weight (g), and condition factor (K) were calculated for all Lake Sturgeon by location. In the Keeyask reservoir and Stephens Lake, known hatchery and wild fish were presented separately. Lake Sturgeon not confirmed as being either hatchery or wild (based on ageing structure analysis; described in Section 3.4) were only included in totals. Condition factor was calculated based on the following equation (after Fulton 1911, in Ricker 1975):

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

Where:

W = round weight (g); and

L = fork length (mm).

Ageing structures were only collected for fish measuring <800 mm FL. Because fish approach this length by age nine, all age analyses were restricted to fish aged 0–9 years as the full range of sizes for older fish would not be included in the sample.

A von Bertalanffy growth curve was generated from all age and length data collected during the study, to compare the growth of wild vs. hatchery-reared fish, as well as wild fish captured during baseline vs. construction for fish aged as nine years or less. Fish older than age-9 were not included in the analysis as they are not fully represented in the catch (ageing structures are not collected from fish >800 mm fork length, which corresponds to fish older than age-9). The curve was calculated using the following equation:

$$L = L_\infty (1 - e^{-k(t - t_0)})$$

Where:

t = age (years)

t_0 = is the theoretical age at which FL is 0;

L = is the fork length (mm) of the fish at age t;

L_∞ = is the theoretical maximum TL that an individual in the population can attain; and

k = growth rate.

Length-frequency distributions were plotted in 50 mm length class intervals (*e.g.*, 300–349 mm) and length-weight regression equations were derived using least squares analysis on logarithmic transformations of fork lengths and weights according to the following relationship:

ln(W) = ln(a) + ln(L)*b

Where:

W = weight (g);

L = fork length (mm);

a = Y-intercept; and

b = slope of the regression line.

Cohort frequency distributions were plotted for each location.

Gillnetting hours (*i.e.*, effort) was calculated as the number of sampling hours per 100 m of net set using the following equation:

Effort (hours) = set duration × (net length/100 m)

Catch-per-unit-effort (CPUE) was calculated and expressed as the number of fish captured in 100 m of net per 24-h period using the following formula:

CPUE = ∑ # Lake Sturgeon / ∑ Effort × 24 h

Where: Σ = sum of the number of fish or gillnetting hours at all sites.

CPUE was calculated by geographical zone for each study location and study year.

Hatchery-reared Lake Sturgeon are released as fingerlings and yearlings (and were also released as larvae in earlier years). However, without additional analysis (genetics or isotopic signature in fin rays) fish can only be conclusively identified as hatchery-reared based on the presence of a PIT tag, which are exclusive to fish stocked at age-one. All fish not definitively identified as hatchery–reared (based on the presence of a PIT tag) were classified as “wild” in order to facilitate data analysis. As the additional analysis (genetics or isotopic signature in fin rays) has not been undertaken, the definitive origin (hatchery or wild) of fish belonging to cohorts corresponding to years in which larvae or fingerlings were stocked cannot be determined.

3.6 POPULATION ESTIMATE

Mark-recapture population estimates have been calculated for the Upper Split Lake Area (years: 2012–2022), Keeyask reservoir (years: 2010 and 2012–2022) and Stephens Lake (years: 2010 and 2012–2022). The Jolly-Seber model (POPAN formulation; Arnason and Schwarz 2002), as implemented within MARK, was used to estimate the annual abundance of wild juvenile Lake Sturgeon. Detailed methods can be found in Appendix 5. Estimates are reported as a mean with 95% confidence intervals (CI).

A Cormack-Jolly-Seber model was used to calculate a survival estimate for hatchery-reared juvenile Lake Sturgeon cohorts with a minimum number of recaptures (n = 25) stocked in the Keeyask reservoir and Stephens Lake, using the probability of recapture in each year. The population of hatchery-reared Lake Sturgeon was estimated based on the total number of fish released multiplied by the survival estimate (*e.g.*, 1,000 fish released and an 80% survival estimate would generate a population estimate of 800 individuals). The estimate is recalculated every year between stocking and the study year, to get the final estimate (*e.g.*, 1,000 fish released in 2017 at 80% survival would generate a population estimate of 800 individuals in 2018, and 640 in 2019). The model assumes that the survival rate remains constant between years.

4.0 RESULTS

Gill net site data is presented in Appendix 1 and biological and tagging information for Lake Sturgeon captured in 2022 are provided in Appendix 2.

4.1 UPPER SPLIT LAKE AREA

Water temperature in the Upper Split Lake Area ranged from 13.0°C to 14.0°C during the study (September 9 to 19, 2022; Appendix A1-1).

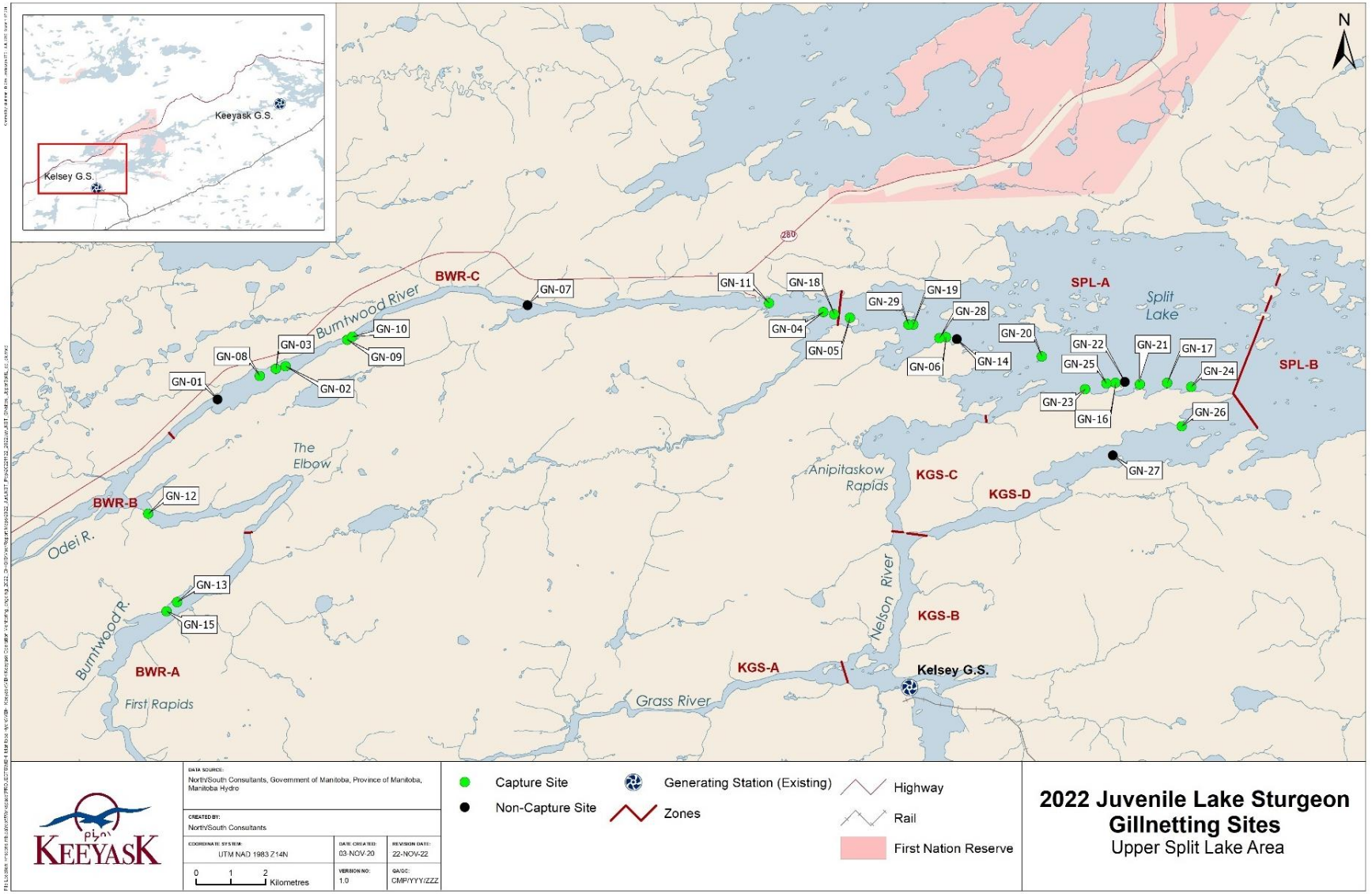
4.1.1 BURNTWOOD RIVER

In total, 96 Lake Sturgeon (all juveniles; <800 mm) were captured at 13 sites in the Burntwood River between September 9 and 19, 2022 (Table 2; Map 3). Information on bycatch was not recorded. Two Lake Sturgeon mortalities occurred during sampling: one on 12 September (FL = 490 mm; Wt = 775 g; Appendix A2-1) and the other on 13 September (FL = 531 mm; Wt = 1,000 g; Appendix A2-1). Gill nets were set in all three zones of the Burntwood River below First Rapids (Table 2; Map 2).

Table 2: Lake Sturgeon catch-per-unit effort (CPUE; # LKST/100 m net/24 h) by zone, for gill nets set during juvenile Lake Sturgeon monitoring in the Burntwood River, fall 2022.

Zone	# Sites	Effort (gill net hours)[a]	# of Lake Sturgeon[b]	Total CPUE
BWR-A	2	79.0	18	5.47
BWR-B	1	55.8	5	2.15
BWR-C	10	557.8	73	3.14
Total	**13**	**692.6**	**96**	**3.33**

a. Gill net set durations were standardized to 100 m of net and then summed to calculate the total gill net hours for each study
b. Does not include Lake Sturgeon recaptured more than once in the same study



Map 2: Map of sites fished with gill nets in the Upper Split Lake Area, fall 2022.

Total CPUE in 2022 (3.33 LKST/100 m net/24 h) was more than double the highest value recorded in the Burntwood River (2014: 1.37 LKST/100 m/24 h; Table 3).

Table 3: Lake Sturgeon catch-per-unit-effort (CPUE; # LKST/100 m net/24 h) for gill nets set to target juvenile Lake Sturgeon in the Burntwood River between 2012 and 2022. Grey highlighted rows indicate construction monitoring and the blue highlighted row indicates post-impoundment monitoring.

Year	Start Date	Completion date	Mesh Size	# Sites	Effort (gillnet hrs)[a]	# Lake Sturgeon[b]	CPUE
2012	29-Aug	08-Sep	1" - 6"	37	767	33	1.03
2014	08-Sep	16-Sep	1" - 6"	28	734	42	1.37
2015	29-Aug	04-Oct	1" - 6"	28	858	35	0.78
2016	07-Sep	18-Sep	1" - 6"	24	594	26	1.05
2017	06-Sep	12-Sep	1" - 6"	24	660	34	1.24
2018	09-Sep	20-Sep	1" - 6"	19	426	11	0.62
2019	06-Sep	11-Sep	1" - 6"	22	641	19	0.71
2020	08-Sep	18-Sep	1" - 6"	23	845	36	1.02
2022	09-Sep	19-Sep	1" - 6"	13	693	96	3.33

a. Gill net set durations were standardized to 100 m of net and then summed to calculate the total gill net hours for each study
b. Does not include Lake Sturgeon recaptured more than once in the same study

Of the 96 Lake Sturgeon captured, 12 were known hatchery-reared fish (*i.e.*, stocked as either age-1 or age-2 and marked with PIT tags; discussed in further detail in Section 4.1.1.4). Total CPUE was higher for wild Lake Sturgeon than for hatchery-reared fish (Table 4).

Table 4: Catch-per-unit-effort (CPUE; # LKST/100 m net/24 h) for hatchery and wild caught Lake Sturgeon in the Burntwood River, fall 2022.

Origin	Effort (gill net hours)[a]	# of Lake Sturgeon[b]	Total CPUE
Wild	693	84	2.91
Hatchery	693	12	0.42
	Total	**96**	**3.33**

a. Gill net set durations were standardized to 100 m of net and then summed to calculate the total gill net hours for each study
b. Does not include Lake Sturgeon recaptured more than once in the same study

4.1.1.1 YEAR-CLASS STRENGTH

Ages were assigned to 91 of the 96 Lake Sturgeon captured. Four of the five remaining fish had crystalline centers and were un-ageable. An ageing structure was not taken from one fish because of its poor condition at the time of capture.

Aged Lake Sturgeon (both wild and hatchery) ranged from 0 to 23 years old, with the 2017 (n = 14; age-5) cohort caught most frequently (16%). The 2016 (age-6) and 2022 (age-0) cohorts were also caught frequently, each accounting for 13% of the catch (Figure 1). Twelve YOY (2022

cohort) Lake Sturgeon were captured. All cohorts fully recruited to the sampling gear (*i.e.*, 2013–2022) were captured. Known hatchery-reared fish accounted for 13%, 36% and 67% of the 2013, 2017 and 2019 cohorts, respectively.

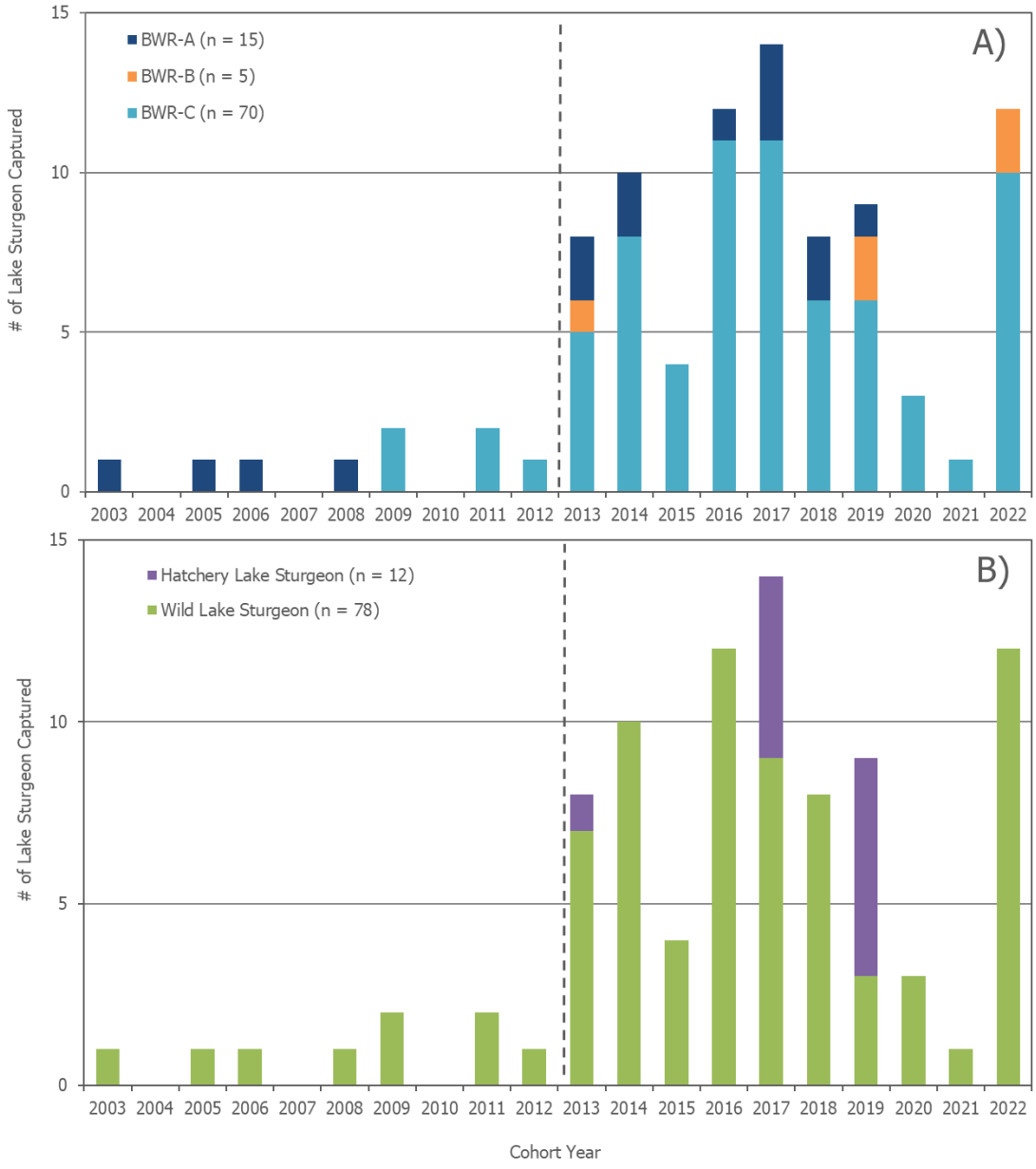


Figure 1: Cohort frequency distributions for all aged juvenile Lake Sturgeon captured by zone in the Burntwood River (A) and by hatchery and wild Lake Sturgeon (B), fall 2022. Cohorts prior to 2013 (*i.e.*, age-9 fish) are not fully represented as ageing structures are not collected from fish ≥800 mm fork length (indicated by vertical dashed line). One fish caught in the Burntwood River from the 1999 cohort is not shown on the figure.

Table 5: Number of wild Lake Sturgeon captured in the Burntwood River from 2012 to 2022, from which ages and cohorts were determined. Grey highlighted columns indicate cohorts spawned during Keeyask GS construction, blue highlighted cell indicates cohort spawned after impoundment of the Keeyask reservoir, and red values indicate cohorts not present in the corresponding study year.

Location	Cohort																				
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
2012 Study Year	4	0	1	5	3	1	0	3	7	1	-	-	-	-	-	-	-	-	-	-
2015 Study Year	1	1	1	3	1	2	0	0	5	4	4	0	0	-	-	-	-	-	-	-
2016 Study Year	1	1	0	0	0	1	0	4	5	0	7	2	0	1	-	-	-	-	-	-
2017 Study Year	2	1	0	0	0	2	1	5	2	0	2	3	1	7	3	-	-	-	-	-
2018 Study Year	0	0	0	0	0	0	0	2	0	0	1	0	2	2	1	0	-	-	-	-
2019 Study Year	0	0	0	0	1	0	0	1	1	2	5	2	0	3	1	1	0	-	-	-
2020 Study Year	0	0	0	0	0	1	0	0	1	1	4	0	4	8	3	2	1	0	-	-
2022 Study Year	1	0	2	1	0	1	2	0	2	1	7	10	4	12	9	8	3	3	1	12
Total	**9**	**3**	**4**	**9**	**5**	**8**	**3**	**15**	**23**	**9**	**30**	**17**	**11**	**33**	**17**	**11**	**4**	**3**	**1**	**12**
Present in the Catch	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Wild juvenile Lake Sturgeon from all cohorts captured during juvenile monitoring in the Burntwood River between 2012 and 2022 are presented in Table 5. Every cohort between 2003 and 2022 has been represented in the catch since studies began.

4.1.1.2 GROWTH AND CONDITION

All captured Lake Sturgeon were classified as juveniles based on their length (<800 mm FL). Length-weight relationships for captured wild and hatchery-reared Lake Sturgeon in the Burntwood River are presented in Figure 2. Mean length, weight, and condition factor of wild Lake Sturgeon captured during juvenile Lake Sturgeon monitoring since 2011 are presented in Table 6.

Wild Lake Sturgeon captured in 2022 had a:

- Mean FL of 422 mm (n = 84; standard deviation [StDev] = 169 mm; range 97–761 mm);
- Mean weight of 779 g (n = 84; StDev = 700 g; range 6–2,800 g); and
- Mean condition factor of 0.72 (n = 84; range 0.50–1.27) (Table 6).

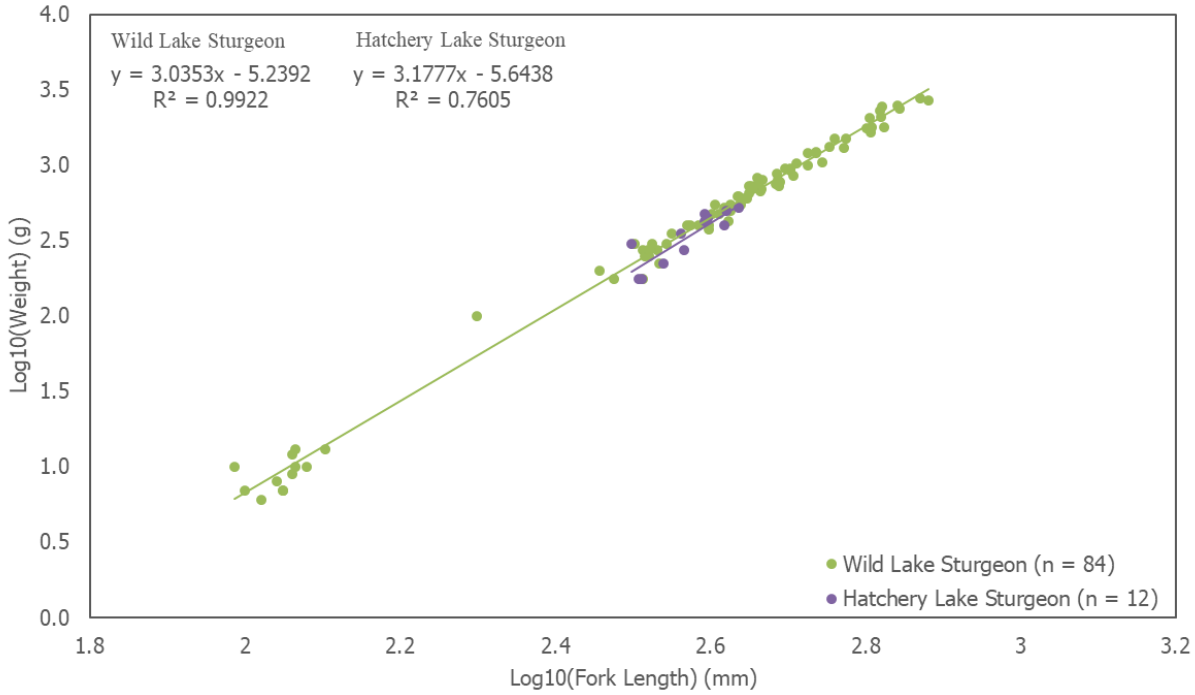


Figure 2: Comparison of weight (g) at-fork length (mm) (log transformed) for Lake Sturgeon captured in the Burntwood River, fall 2022.

Table 6: Mean length, weight, and condition factor of wild Lake Sturgeon captured during juvenile Lake Sturgeon monitoring in the Burntwood River, since 2011. Grey highlighted rows indicate construction monitoring and blue highlighted row indicates after reservoir impoundment.

Year	Fork Length (mm)				Weight (g)				K		
	n[a]	Mean	Std[b]	Range	n	Mean	Std	Range	n	Mean	Range
2011	33	437	156	107-715	30	819	610	25-2,125	30	0.63	0.16-0.80
2012	41	431	153	215-807	40	852	914	50-4,100	40	0.75	0.36-1.65
2015	44	465	159	210-860	44	1,002	1,205	100-6,577	44	0.71	0.47-1.61
2016	25	424	161	98-836	23	756	834	110-3,760	23	0.62	0.50-0.74
2017	17	462	196	99-786	17	887	832	4-2,994	17	0.57	0.40-0.66
2018	11	455	191	205-764	11	950	1,043	25-3,000	11	0.64	0.29-0.87
2019	19	430	114	275-694	19	609	531	100-2,120	19	0.62	0.48-0.71
2020	28	418	132	221-781	28	665	800	110-3,380	28	0.68	0.40-1.02
2022	84	422	169	97-761	84	779	700	6-2,800	84	0.72	0.50-1.27

a. Number of fish measured
b. Standard deviation

Wild Lake Sturgeon measuring 400–499 mm FL were captured most frequently, accounting for 33.4% of the wild catch, respectively (Figure 3).

Hatchery-reared Lake Sturgeon captured in 2022 had a:

- Mean FL of 374 mm (n = 12; StDev = 40 mm; range 315-433 mm);
- Mean weight of 356 g (n = 12; StDev = 125 g; range 175–525 g); and
- Mean condition factor of 0.66 (n = 12; range 0.51–0.96).

Hatchery-reared Lake Sturgeon in the 350–399 mm FL interval were captured most frequently, representing 41.7% of the hatchery catch (n = 5) (Figure 3).

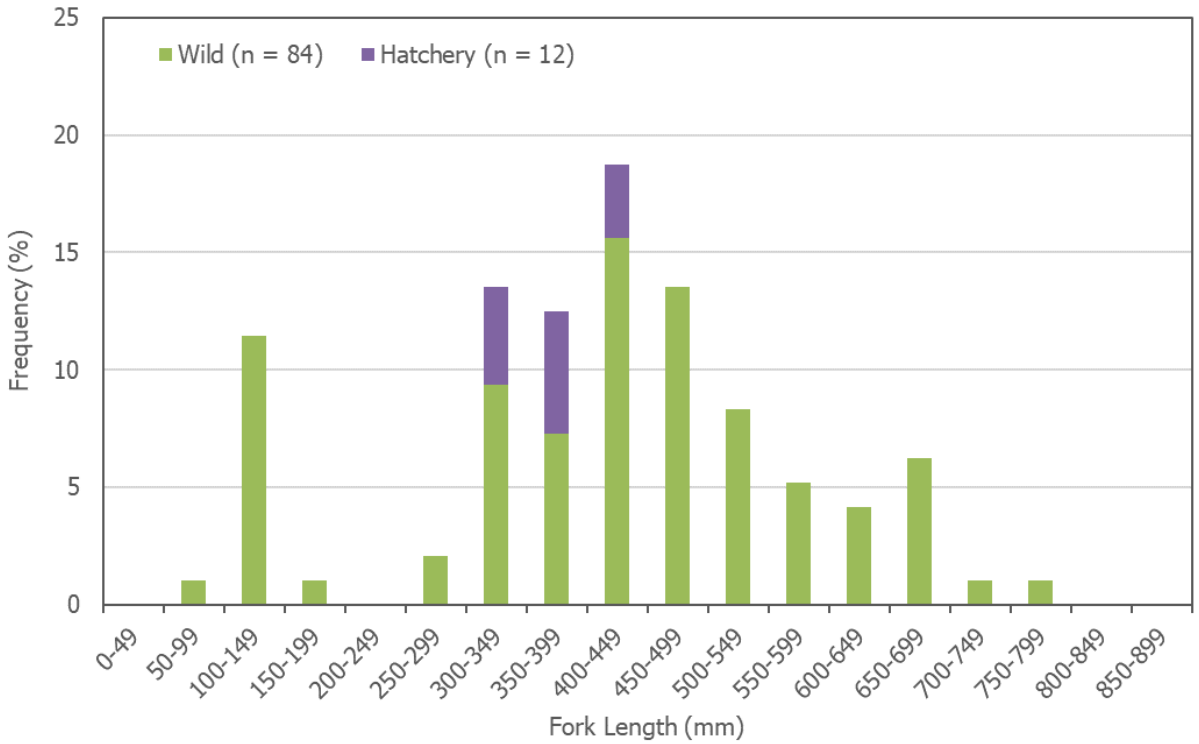


Figure 3. Fork length frequency distributions for Lake Sturgeon captured in gill nets set in the Burntwood River, fall 2022.

4.1.1.3 RECAPTURES

Three Lake Sturgeon tagged in a previous study year were recaptured in the Burntwood River in 2022 (Appendix A4-1). Two were recaptured in the Burntwood River within 1.5 and 2.4 km of their initial capture locations. Growth was limited for both fish: one fish did not grow in the six years since its initial capture in 2016 while the other fish increased its FL and weight by 166 mm and 1,200 g in the 11 years since its initial capture in 2011. The third fish was initially tagged in Split Lake and was caught 3.3 km upstream. It grew 112 mm in the two years since its initial capture in 2020.

4.1.1.4 HATCHERY CAPTURES

Twelve hatchery fish (*i.e.*, those PIT tagged and stocked as age-1 or age-2) were caught in 2022, accounting for 12.5% of the total catch (Table 7; Appendix A4-2). This represents the largest capture of Lake Sturgeon stocked in the Burntwood River since stocking began in 2014.

Table 7: Number (n) and percentage (%) of catch of hatchery-reared Lake Sturgeon caught in the Burntwood River between 2014 and 2022.

Sample Year	Release Location	
	Burntwood River	
	n[a]	% of Catch
2014	1	2.4
2015	0	0.0
2016	1	3.8
2017	2	5.9
2018	0	0.0
2019	0	0.0
2020	8	22.2
2022	12	12.5

a. Number of fish

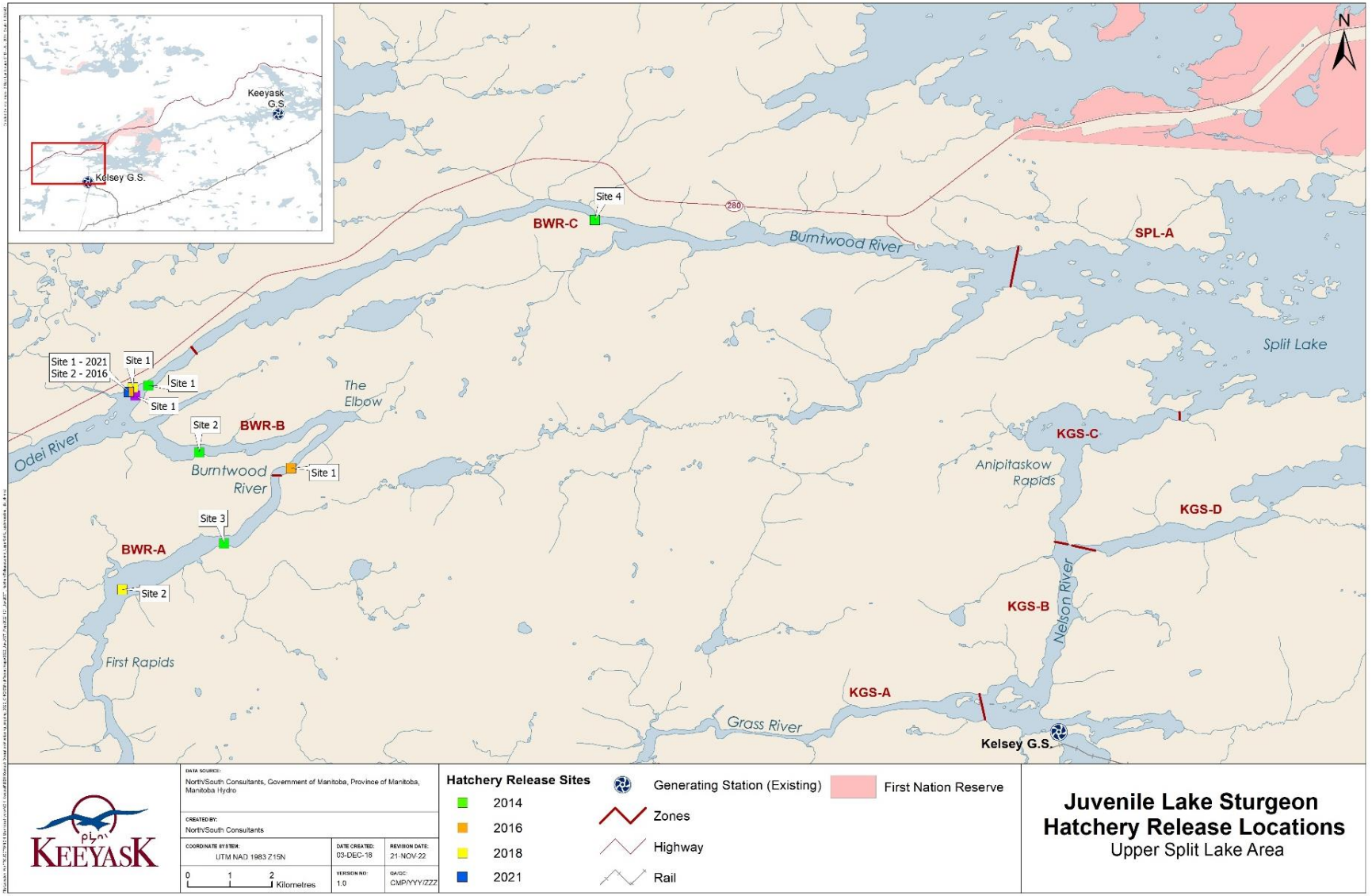
None of the hatchery-reared fish had been captured during previous sampling. An age breakdown of all the hatchery-reared fish captured between 2014 and 2018 is presented in Table 8.

Table 8: Number and ages of hatchery-reared Lake Sturgeon released as age-1/age-2 fish and captured during juvenile Lake Sturgeon studies in the Burntwood River since 2014.

Monitoring Year	Burntwood River
2014	**1**
	(1 year old)
2016	**1**
	(3 year old)
2017	**2**
	(both were 4 years old)
2018	**0**
2019	**0**
2020	**8**
	(1 was 1 years old)
	(3 were 3 years old)
	(4 were 7 years old)
2022	**12**
	(6 were 3 years old)
	(5 were 5 years old)
	(1 was 9 years old)

Of the twelve hatchery fish (Map 3):

- One was stocked on May 30, 2014 at Site 2 (Zone BWR-B) and was recaptured 4.7 km downstream of its release location.
- One was stocked on May 31, 2018 (Site 1; Odei River boat launch; Zone BWR-B), and was recaptured 5.4 km downstream of its stocking location.
- Four were stocked on June 7, 2018.
    - Three at Site 2 just downstream of First Rapids (Zone BWR-A). The three fish were caught between 1.7 and 4.0 km downstream of their release location.
    - One at the Odei River boat launch (Site 1; Zone BWR-B). The fish was caught 21.0 km downstream of its release location.
- Four were stocked on June 20, 2020, at the Odei River boat launch (Site 1; Zone BWR-B) and were captured between 1.4 and 21 km downstream of their stocking location.
- One was stocked on June 22, 2020, at the Odei River boat launch (Site 1; Zone BWR-B) and was captured 21 km downstream of its stocking location
- One was stocked as a 2-year-old on June 3, 2021 at the Odei River boat launch (Site 1; Zone BWR-B) and was captured 5.4 km downstream of its stocking location.



Map 3: Map of Lake Sturgeon yearling stocking sites in the Burntwood River since 2014.

4.1.2 SPLIT LAKE

In total, 128 Lake Sturgeon (3 adults and 125 juveniles) were captured in Split Lake between September 9 and 19, 2022 (Table 9; Map 3). Information on bycatch was not recorded. One juvenile mortality (<1%) occurred during sampling (see Appendix A2-1 for biological information). A total of 836.3 gillnet hours were fished producing an overall Lake Sturgeon CPUE of 3.67 LKST/100 m net/24 h (Table 9). Total CPUE in 2022 was lower than the previous two study years (2019 and 2020) but remained high compared to studies conducted between 2015 and 2018 (range: 0.75–2.60 LKST).

Table 9: Lake Sturgeon catch-per-unit-effort (CPUE; # LKST/100 m net/24 h) for gill nets set to target juvenile Lake Sturgeon in Split Lake between 2015 and 2022. Grey highlighted rows indicate construction monitoring and the blue highlighted row indicates post-impoundment monitoring.

Year	Start Date	Completion date	Mesh Size	# Sites	Effort (gillnet hrs)[a]	# Lake Sturgeon[b]	CPUE
2015	29-Aug	04-Oct	1" - 6"	9	192	9	1.13
2016	07-Sep	18-Sep	1" - 6"	7	193	6	0.75
2017	05-Sep	13-Sep	1" - 6"	8	175	19	2.60
2018	09-Sep	20-Sep	1" - 6"	21	607	57	2.25
2019	11-Sep	16-Sep	1" - 6"	18	723	163	5.41
2020	08-Sep	18-Sep	1" - 6"	20	701	132	4.52
2022[c]	09-Sep	19-Sep	1" - 6"	16	836	128	3.67

a. Gill net set durations were standardized to 100 m of net and then summed to calculate the total gill net hours for each study.
b. Does not include Lake Sturgeon recaptured more than once in the same study.
c. Includes two sites and one LKST from the KGS-D area.

Known hatchery-reared fish accounted for 18% (n = 23) of the catch. Total CPUE for wild and hatchery-reared Lake Sturgeon are presented in Table 10.

Table 10: Catch-per-unit-effort (CPUE; # LKST/100 m net/24 h) for hatchery and wild caught Lake Sturgeon in Split Lake, fall 2022.

Origin	Effort (gill net hours)[a]	# of Lake Sturgeon[b]	Total CPUE
Wild[c]	836	105	3.01
Hatchery	836	23	0.66
	Total	**128**	**3.67**

a. Gill net set durations were standardized to 100 m of net and then summed to calculate the total gill net hours for each study.
b. Does not include Lake Sturgeon recaptured more than once in the same study.
c. Includes two sites and one LKST from zone KGS-D.

4.1.2.1 YEAR-CLASS STRENGTH

Ages were assigned to 122 of the 128 fish captured. Ageing structures were not collected from five large fish that were of or approaching adult size (>800 mm FL). One ageing structure had a crystalline center and was un-ageable.

Lake Sturgeon (both wild and hatchery) ranged in age from 0 to 17 years (2005–2022 cohorts; Figure 4), with the 2017 cohort captured most frequently (n = 24; 20%). The 2013 and 2016 cohorts were also relatively abundant in the catch, accounting for 15% (n = 19) and 16% (n = 20), respectively. Nine YOY fish were captured in Split Lake in 2022. Known hatchery-reared fish accounted for 26%, 17%, 58%, and 75% of the 2013, 2015, 2017 and 2019 cohorts, respectively.

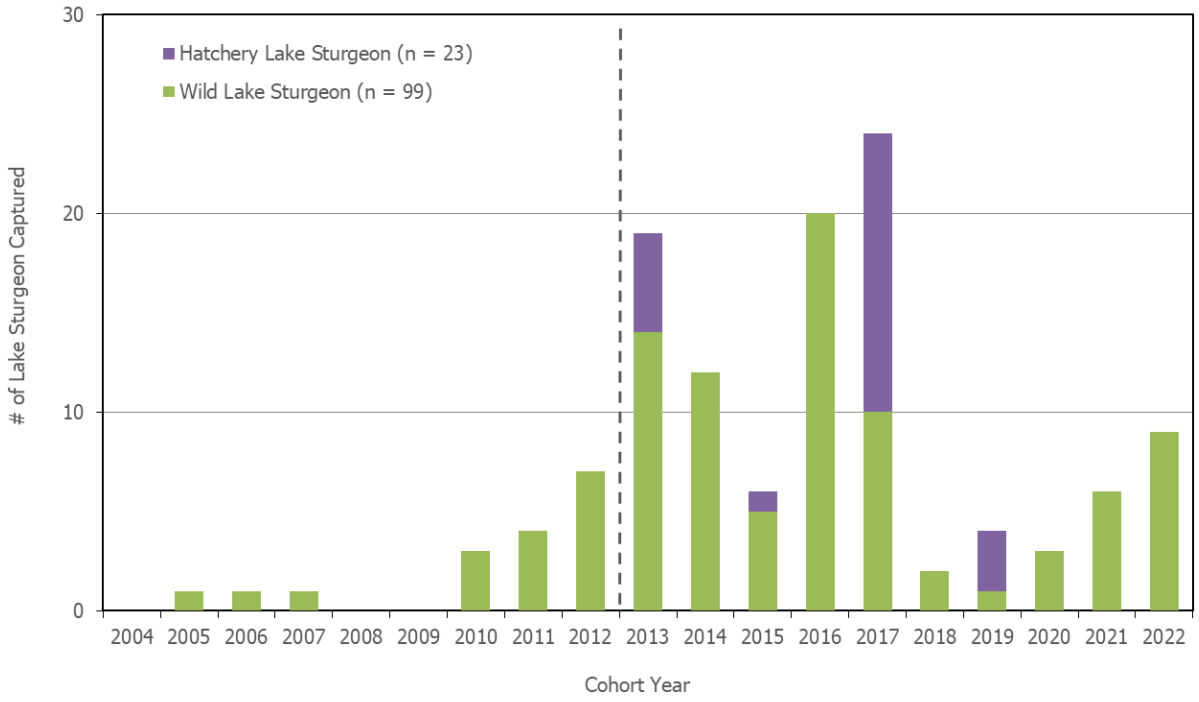


Figure 4: Cohort frequency distributions for all aged juvenile Lake Sturgeon captured in Split Lake by hatchery and wild Lake Sturgeon, fall 2022. Cohorts prior to 2013 (*i.e.*, age-9 fish) are not fully represented as ageing structures are not collected from fish ≥800 mm fork length (indicated by vertical dashed line). One fish caught in the Burntwood River from the 1999 cohort is not shown on the figure.

Wild juvenile Lake Sturgeon from all cohorts captured during juvenile monitoring in Split Lake between 2015 and 2022 are presented in Table 11. Wild fish from all cohorts since 2003 have been represented in the catch since studies began.

Table 11: Number of wild Lake Sturgeon captured in Split Lake from 2015 to 2022, from which ages and cohorts were determined. Grey highlighted columns indicate cohorts spawned during Keeyask GS construction, blue highlighted cell indicates cohort spawned after impoundment of the Keeyask reservoir, and red values indicate cohorts not present in the corresponding study year.

Location	Cohort																			
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
2015 Study Year	0	0	0	0	0	1	0	0	1	0	4	1	0	-	-	-	-	-	-	-
2016 Study Year	0	0	0	0	1	1	0	1	0	0	0	1	1	0	-	-	-	-	-	-
2017 Study Year	1	0	0	1	1	3	1	3	1	0	2	0	0	3	0	-	-	-	-	-
2018 Study Year	1	0	2	2	1	1	0	3	9	1	26	2	1	2	1	0	-	-	-	
2019 Study Year	0	5	0	0	5	5	3	9	14	5	45	14	6	10	5	2	0	-	-	-
2020 Study Year	3	0	0	0	0	2	0	4	8	2	36	9	6	16	9	2	0	1	-	-
2022 Study Year	0	0	1	1	1	0	0	3	4	7	14	12	5	19	10	2	1	3	6	9
Total	**5**	**5**	**3**	**4**	**9**	**13**	**4**	**23**	**37**	**15**	**127**	**39**	**19**	**50**	**25**	**6**	**1**	**4**	**6**	**9**
Present in the Catch	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

4.1.2.2 GROWTH AND CONDITION

In 2022, 105 wild (including three adult size fish) and 23 known hatchery-reared Lake Sturgeon were captured. Length-weight relationships for hatchery-reared and wild Lake Sturgeon caught in the Upper Split Lake area are presented in Figure 5. Mean length, weight, and condition factor of wild Lake Sturgeon captured during juvenile Lake Sturgeon monitoring since 2008 are presented in Table 13.

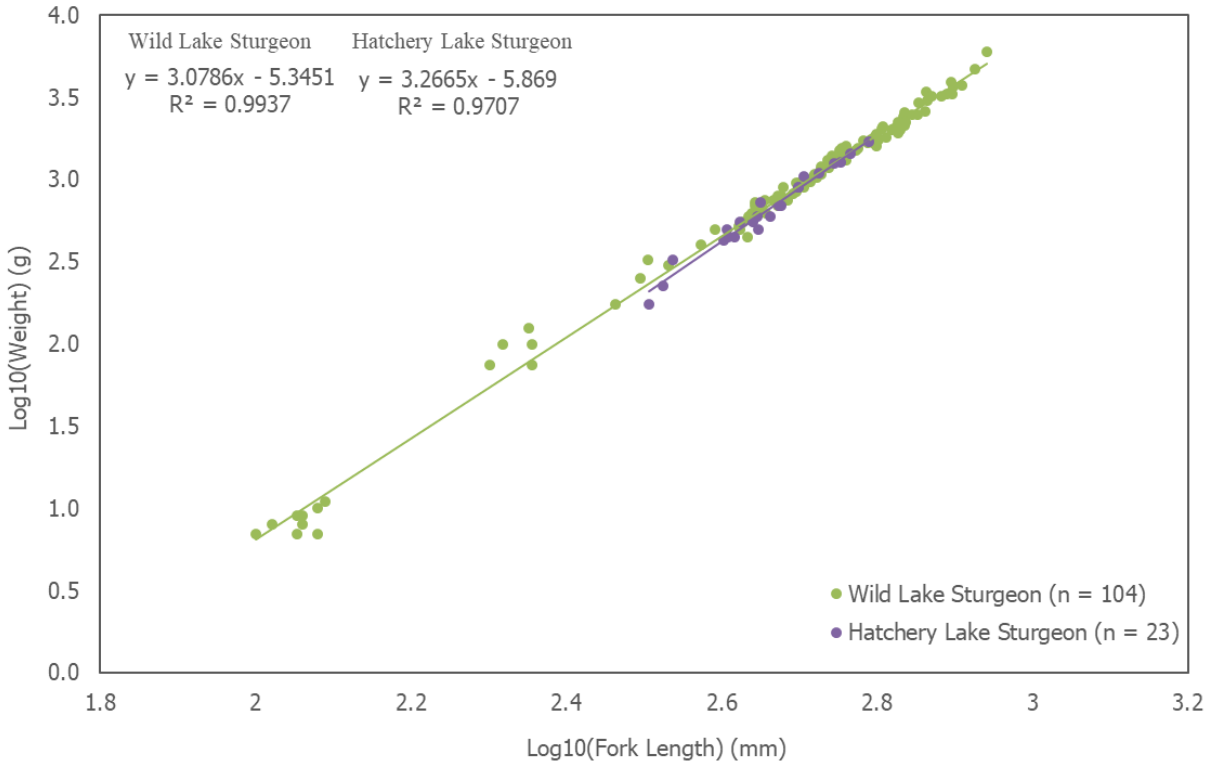


Figure 5: Comparison of weight (g) at-fork length (mm) (log transformed) for Lake Sturgeon captured in Split Lake, fall 2022.

Wild Lake Sturgeon captured in Split Lake in 2022 had a:

- Mean FL of 517 mm (n = 105; StDev = 191 mm; range 100–873 mm);
- Mean weight of 1,421 g (n = 104; StDev = 1,137 g; range 7–6,000 g); and
- Mean condition factor of 0.74 (n = 104; range 0.41–1.11) (Table 12).

Wild Lake Sturgeon between 400 and 699 mm accounted for over 65% (n = 69) of the catch with fish from the 600-649 size class caught most frequently (n = 13; Figure 6).

Table 12: Mean length, weight, and condition factor of wild Lake Sturgeon captured during juvenile Lake Sturgeon monitoring in Split Lake, since 2015. Grey highlighted rows indicate construction monitoring and blue highlighted row indicates after reservoir impoundment.

Year	Fork Length (mm)				Weight (g)				K		
	n[a]	Mean	Std[b]	Range	n	Mean	Std	Range	n	Mean	Range
2015	9	368	155	210-710	9	539	773	773-2,450	9	0.73	0.61-0.91
2016	6	536	257	165-805	5	1,509	1,621	23-3,942	5	0.69	0.51-0.79
2017	18	628	206	235-884	18	2,482	1,807	77-6,713	18	0.75	0.59-0.97
2018	56	584	152	230-996	56	1,829	1,437	25-7,350	56	0.75	0.21-1.46
2019	153	606	168	161-1,000	130	1,553	994	40-3,860	130	0.72	0.35-0.91
2020	119	584	168	125-1,034	119	1,842	1,708	15-9,210	119	0.71	0.50-1.16
2022[c]	105	517	191	100-873	104	1,421	1,137	7-6,000	104	0.74	0.41-1.11

a. Number of fish measured
b. Standard deviation
c. Includes two sites and one LKST from zone KGS-D

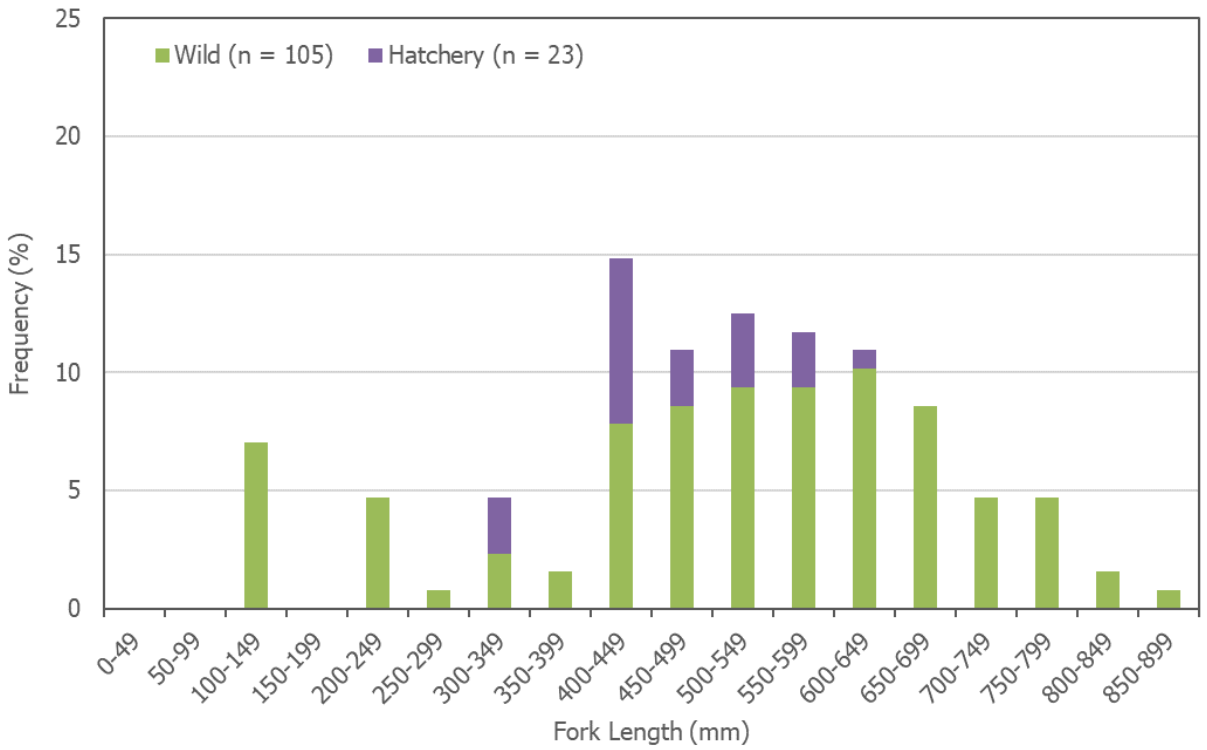


Figure 6. Fork length frequency distributions for Lake Sturgeon captured in gill nets set in Split Lake, fall 2022.

Hatchery Lake Sturgeon captured in 2022 had a:

- Mean FL of 460 mm (n = 23; StDev = 78 mm; range 321-615 mm);
- Mean weight of 743 g (n = 23; StDev = 399 g; range 175-1,700 g); and
- Mean condition factor of 0.69 (n = 23; range 0.53-0.82).

Hatchery-reared Lake Sturgeon from the 400–449 mm FL interval were the most frequently captured size-class accounting for 39% (n = 9) of the catch (Figure 6).

4.1.2.3 RECAPTURES

Two wild juvenile Lake Sturgeon tagged in previous years were recaptured (Appendix A4-1). One was originally tagged in Split Lake, 0.7 km downstream of its recapture location. The fish was tagged on September 10, 2020, and grew 89 mm FL and 425 g weight since its initial capture. The second fish was originally tagged in the Keeyask reservoir and was caught approximately 62 km upstream of its initial capture location. The fish was initially tagged on September 21, 2016, and grew 206 mm FL and 2,280 g weight since its initial capture.

4.1.2.4 HATCHERY CAPTURES

Twenty-three hatchery fish (*i.e.*, those PIT tagged and stocked as age-1 or age-2) were caught in 2022 (Table 13; Appendix A4-2). This represents the largest capture of Lake Sturgeon stocked in the Burntwood River since stocking began in 2014.

Table 13: Number (n) and percentage (%) of catch of hatchery-reared Lake Sturgeon caught in Split Lake between 2014 and 2022.

Sample Year	Release Location	
	Burntwood River	
	n[a]	% of Catch
2014	0	0.0
2015	0	0.0
2016	0	0.0
2017	1	5.3
2018	1	1.8
2019	10	6.1
2020	13	9.8
2022	23	18.0

a. Number of fish

One of the 23 hatchery-reared fish had been previously captured during sampling in 2020. An age breakdown of all the hatchery-reared fish captured between 2014 and 2022 is presented in Table 14.

Table 14: Number and ages of hatchery-reared Lake Sturgeon released as age-1/age-2 fish and captured during juvenile Lake Sturgeon studies in Split Lake since 2014.

Monitoring Year	Upper Split Lake Area
2014	**0**
2016	**0**
2017	**1** (4 years old)
2018	**1** (5 years old)
2019	**10** (8 were 2 years old) (2 were 6 years old)
2020	**13** (9 were 3 years old) (2 were 5 years old) (2 were 7 ears old)
2022	**23** (3 were 3 years old) (14 were 5 years old) (1 was 7 years old) (5 were 9 years old)

Of the 23 hatchery fish capture in 2022:

- Five were stocked on October 2, 2014.
  - Three were stocked at Site 2 (Zone BWR-B) and were recaptured between 21.6 and 27.1 km downstream of their release location.
  - One was stocked at Site 3 (Zone BWR-A) and was caught 26.5 km downstream.
  - One was stocked at Site 4 (Zone BWR-C) and was caught 17.8 km downstream.
- One was stocked on May 31, 2016, at the Odei River boat launch (Site 2; Zone BWR-B). It was recaptured 24.9 km downstream of its release location.
- Fourteen were stocked in 2018.
  - Six were stocked on May 31 at the Odei River boat launch (Site 1; Zone BWR-B) and were captured between 23.0 and 28.7 km downstream of their stocking location.
  - Eight were stocked on June 7 at Site 2 (Zone BWR-A) and were captured between 24.1 and 29.3 km downstream of their stocking location.
- One was stocked on September 24, 2020, at the Odei River boat launch (Site 1; Zone BWR-B) 23.2 km downstream of its release location.
- Two were stocked as two-year-olds on June 3, 2021 at the Odei River boat launch (Site 1; Zone BWR-B). Both fish were caught 23.2 km downstream of their release location.

4.1.3 UPPER SPLIT LAKE AREA POPULATION ESTIMATE

The 2022 estimate for the juvenile Lake Sturgeon population in the Upper Split Lake Area (including the Kelsey GS Area, the Burntwood River, and Split Lake) was 10,020 wild juvenile Lake Sturgeon (95% CI: 2,774-36,190) (Figure 7; Appendix A5-1). This was above the 95% CI of the 2013–2014 and 2016–2019 estimates, but within the 95% CI's for 2012 and 2020. The estimated annual survival rate was 75%.

Survival of hatchery-reared Lake Sturgeon stocked into the Burntwood River was estimated at 92% (Appendix A5-2). Based on this survival estimate, 318, 14, 540, and 491 hatchery-reared individuals from the 2013, 2015, 2017, and 2019 cohorts are predicted to still be present in the Upper Split Lake Area, contributing to a population estimate of 1,364 hatchery fish. Based on these numbers, it is estimated that hatchery fish currently make up 12% of the total juvenile Lake Sturgeon population in the Upper Split Lake Area.

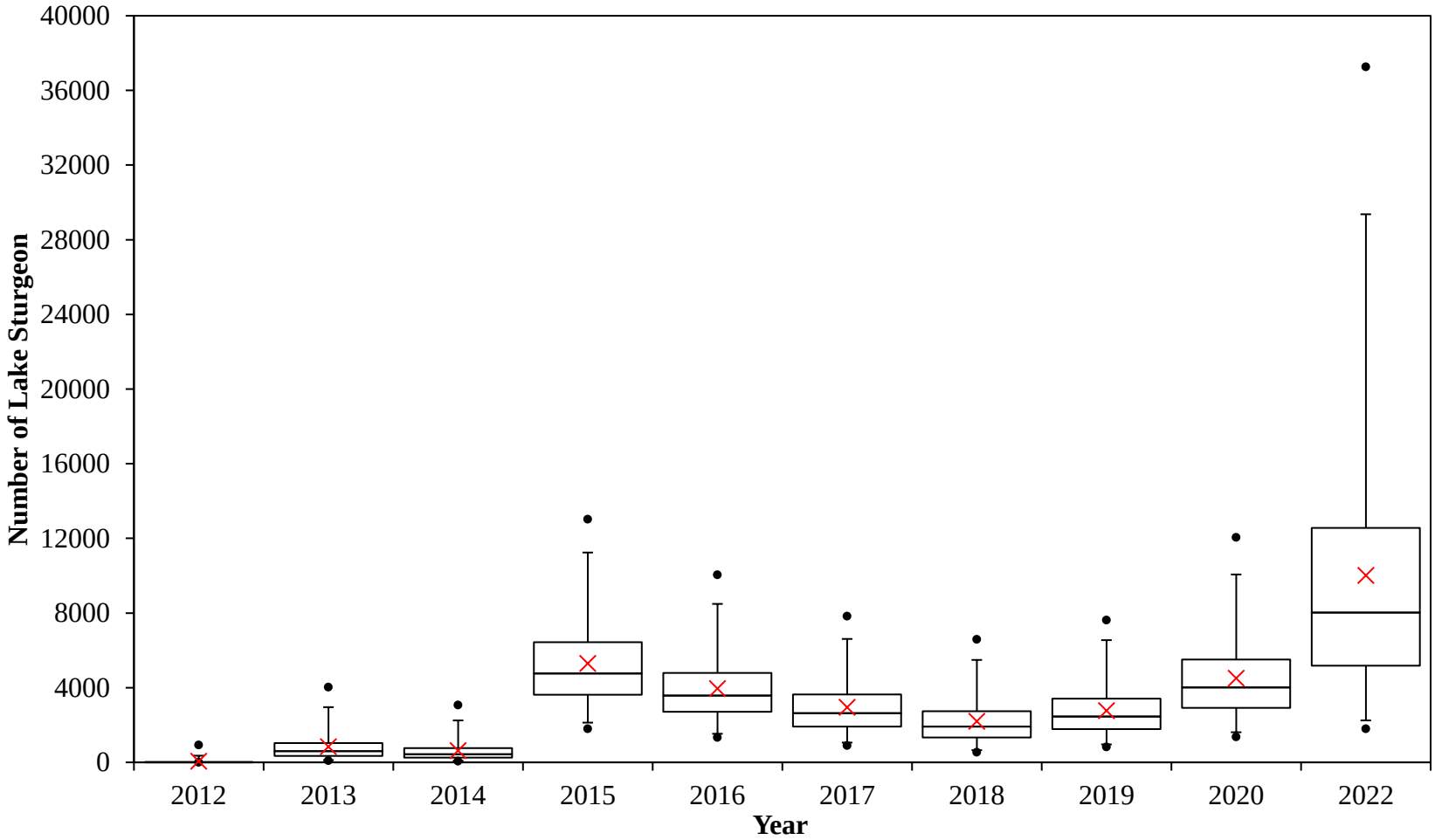


Figure 7: **Juvenile Lake Sturgeon abundance (*i.e.*, fish <800 mm fork length) estimates based on POPAN best model for the Upper Split Lake Area (2012–2020, 2022). Each red x marks the estimated abundance for each year (*i.e.*, the number of juvenile Lake Sturgeon), the black dots represent the min and max estimates, and the vertical bar lines represent the upper and lower 95% confidence intervals.**

4.2 KEEYASK RESERVOIR

A total of 330 fish from eight species were captured at 32 sites between September 14 and 24, 2022 (Map 4). Water temperature during sampling ranged from 13.9°C to 15.9°C (Appendix A1-2). Lake Sturgeon (n = 185; 56.1%) were the most abundant species captured (Table 15). Gill net site data as well as biological and tagging information for all Lake Sturgeon captured are provided in Appendices A1-2 and A2-2.

Table 15: Number (n) and frequency of occurrence (%), by species, of fish captured during juvenile Lake Sturgeon monitoring in the Keeyask reservoir (Birthday Rapids to the Keeyask GS), fall 2022.

Species	Scientific Name	n[a]	% of the Catch
Burbot	*Lota lota*	1	0.3
Lake Sturgeon	***Acipenser fulvescens***	***185[b]***	***56.1***
Longnose Sucker	*Catostomus catostomus*	55	16.7
Northern Pike	*Esox lucius*	1	0.3
Sauger	*Sander canadensis*	8	2.4
Shorthead Redhorse	*Moxostoma macrolepidotum*	5	1.5
Walleye	*Sander vitreus*	40	12.1
White Sucker	*Catostomus commersoni*	35	10.6
Total		**330**	**100**

a. Number of fish caught

b. Does not include Lake Sturgeon recaptured more than once in the same study

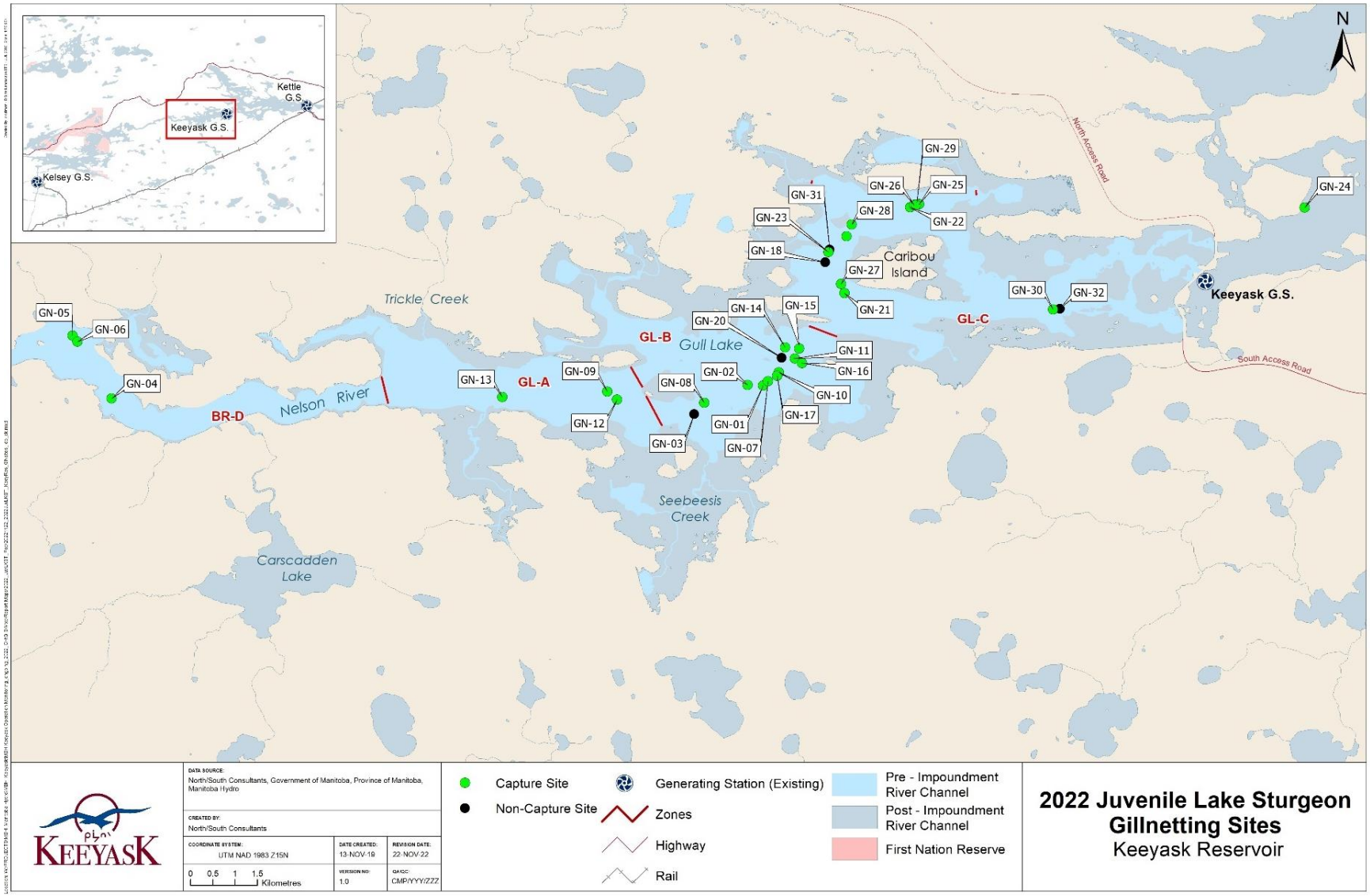
In total, 184 juveniles and one adult Lake Sturgeon were captured in 1,620.7 gill net hours, producing an overall CPUE of 2.74 LKST/100 m net/24 h (Table 20). No Lake Sturgeon mortalities were recorded during sampling. Gill nets were set throughout Gull Lake (*i.e.*, in zones GL-A, GL-B, and GL-C), as well as in the middle Keeyask reservoir (*i.e.*, BR-D) (Map 4). Total CPUE by zone is presented in Table 16.

Table 16: Lake Sturgeon catch-per-unit effort (CPUE; # LKST/100 m net/24 h) by zone, for gill nets set during juvenile Lake Sturgeon monitoring in the Keeyask reservoir (Birthday Rapids to the Keeyask GS), fall 2022.

Zone	# Sites	Effort (gill net hours)[a]	# of Lake Sturgeon[b]	Total CPUE
BR-D	3	143.6	16	2.67
GL-A	3	141.3	23	3.91
GL-B	12	435.1	50	2.76
GL-C	14	900.7	96	2.56
Total	**32**	**1,620.7**	**185**	**2.74**

a. Gill net set durations were standardized to 100 m of net and then summed to calculate the total gill net hours for each study

b. Does not include Lake Sturgeon recaptured more than once in the same study



Map 4: Map of sites fished with gill nets in the Keeyask reservoir, fall 2022 (pre-impoundment shoreline shown).

Total annual CPUE data recorded in the Keeyask reservoir since 2007 are presented in Table 17. Total CPUE in 2022 was within the range observed since 2014 (range: 2.31–4.07 LKST/100 m/24 h).

Table 17: Lake Sturgeon catch-per-unit-effort (CPUE; # LKST/100 m net/24 h) for gill nets set to target juvenile Lake Sturgeon in the Keeyask reservoir (Birthday Rapids to the Keeyask GS) between 2007 and 2022. Grey highlighted rows indicate construction monitoring and the blue highlighted row indicates post-impoundment monitoring.

Year	Start Date	Completion date	Mesh Size	# Sites	Effort (gillnet hrs)[a]	# Lake Sturgeon[b]	CPUE
2007	28-Sep	03-Oct	8mm - 5"	26	165	0	0
2008	12-Sep	27-Sep	1.5"- 8"	15	3,072	126	0.98
2010	21-Sep	29-Sep	1" - 5"	27	851	69	1.95
2011	18-Sep	24-Sep	1" - 5"	25	662	121	4.39
2012	29-Aug	09-Sep	1" - 6"	30	745	101	3.25
2014	08-Sep	16-Sep	1" - 6"	30	765	112	3.51
2015	11-Sep	20-Sep	1" - 6"	34	912	139	3.66
2016	12-Sep	23-Sep	1" - 6"	37	997	96	2.31
2017	09-Sep	19-Sep	1" - 6"	51	1,551	177	2.74
2018	09-Sep	19-Sep	1" - 6"	50	1,377	150	2.61
2019	10-Sep	20-Sep	1" - 6"	39	1,561	244	3.75
2020	15-Sep	23-Sep	1" - 6"	38	1,599	205	3.08
2021	14-Sep	26-Sep	1" - 6"	31	1,570	266	4.07
2022	14-Sep	24-Sep	1" - 6"	32	1,621	185	2.74

a. Gill net set durations were standardized to 100 m of net and then summed to calculate the total gill net hours for each study
b. Does not include Lake Sturgeon recaptured more than once in the same study

Of the 185 Lake Sturgeon captured, 48 were known hatchery-reared fish (*i.e.*, stocked as age-1 and marked with PIT tags; discussed in further detail in Section 4.2.5). Total CPUE for wild and hatchery-reared Lake Sturgeon is presented in Table 18.

Table 18: Catch-per-unit-effort (CPUE; # LKST/100 m net/24 h) for hatchery and wild caught Lake Sturgeon in the Keeyask reservoir (Birthday Rapids to the Keeyask GS), fall 2022.

	Effort (gill net hours)[a]	# of Lake Sturgeon[b]	Total CPUE
Wild	1,621	137	2.03
Hatchery	1,621	48	0.71
	Total	**185**	**2.74**

a. Gill net set durations were standardized to 100 m of net and then summed to calculate the total gill net hours for each study
b. Does not include Lake Sturgeon recaptured more than once in the same study

4.2.1 YEAR-CLASS STRENGTH

Ages were assigned to 182 of the 185 Lake Sturgeon captured. Ageing structures were not collected from two large fish that were of or approaching adult size (>800 mm FL). An ageing structure was not taken from one fish because of its poor condition at the time of capture.

Lake Sturgeon (both wild and hatchery) ranged in age from 1 to 14 years (2008–2021 cohorts; Figure 8), with the 2016 cohort captured most frequently (n = 49; 26.9%). The 2014 and 2020 cohorts were also relatively abundant in the catch, accounting for 13% (n = 24) and 12% (n = 22), respectively. No YOY fish were captured in the Keeyask reservoir in 2022. Known hatchery-reared fish accounted for 17%, 54%, 12%, 71%, and 94% of the 2013, 2014, 2016, 2018, and 2021 cohorts, respectively (Figure 8).

Wild fish from all cohorts since 2003, except for the 2022 cohort, have been represented in the catch since studies began (Table 19).

4.2.2 POPULATION ESTIMATE

The 2022 estimate for the Keeyask reservoir population was 2,793 wild juvenile Lake Sturgeon (95% CI: 1,727–4,517; Figure 9; Appendix A5-3). This is similar to population estimates calculated since 2018. The estimated annual survival rate was 75%.

Survival of hatchery-reared Lake Sturgeon stocked in the Keeyask reservoir was estimated at 95% (Appendix A5-4). Based on this survival estimate, 302, 364, 345 and 400 hatchery-reared individuals from the 2014, 2016, 2018 and 2021 cohorts are predicted to still be present in the Keeyask reservoir, contributing to a population estimate of 1,411 hatchery fish. Based on these numbers, it is estimated that hatchery fish currently make up 34% of the total juvenile Lake Sturgeon population in the Keeyask reservoir.

Table 19: Number of wild Lake Sturgeon captured in the Keeyask reservoir (Birthday Rapids to the Keeyask GS) from 2008 to 2022, from which ages and cohorts were determined. Grey highlighted columns indicate cohorts spawned during Keeyask GS construction, blue highlighted cell indicates cohort spawned after impoundment of the Keeyask reservoir, and red values indicate cohorts not present in the corresponding study year.

Location	Cohort																			
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
2008 Study Year	0	0	0	12	2	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2010 Study Year	6	3	1	3	5	18	0	0	-	-	-	-	-	-	-	-	-	-	-	-
2011 Study Year	5	2	2	7	5	94	1	2	0	-	-	-	-	-	-	-	-	-	-	-
2012 Study Year	2	2	2	12	6	60	3	1	4	0	-	-	-	-	-	-	-	-	-	-
2014 Study Year	1	0	1	6	2	58	3	4	7	3	9	0	-	-	-	-	-	-	-	-
2015 Study Year	0	1	3	10	7	71	1	1	3	6	11	3	4	-	-	-	-	-	-	-
2016 Study Year	0	0	1	15	0	29	2	1	5	6	13	6	4	4	-	-	-	-	-	-
2017 Study Year	1	1	0	6	3	56	2	2	11	7	20	10	10	10	1	-	-	-	-	-
2018 Study Year	0	0	0	3	4	33	5	3	6	4	9	5	9	34	5	1	-	-	-	-
2019 Study Year	0	0	0	2	1	30	2	3	6	6	20	20	17	44	15	1	4	-	-	-
2020 Study Year	0	1	1	1	0	18	3	1	6	5	24	16	13	57	12	1	5	1	-	-
2021 Study Year	0	0	1	0	1	6	6	4	5	9	30	22	17	52	14	2	3	17	0	-
2022 Study Year	0	0	0	0	0	3	4	3	4	3	5	11	9	43	13	5	8	22	1	0
Total	**15**	**10**	**12**	**77**	**36**	**490**	**32**	**25**	**57**	**49**	**141**	**93**	**83**	**244**	**60**	**10**	**20**	**40**	**1**	**0**
Present in the Catch	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**

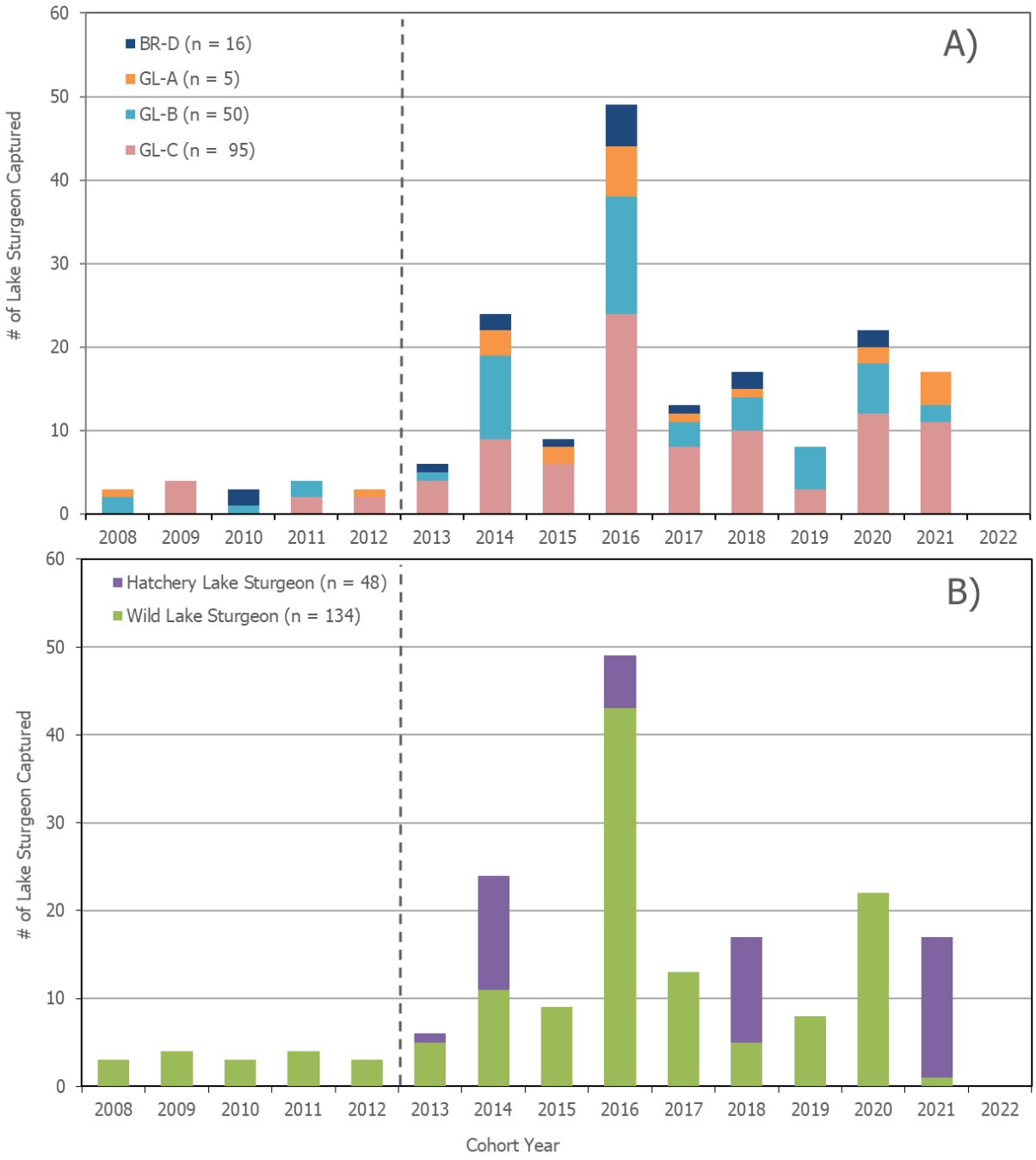


Figure 8: **Cohort frequency distributions for all aged juvenile Lake Sturgeon captured by zone in the Keeyask reservoir (A) and by hatchery and wild Lake Sturgeon (B), fall 2022. Cohorts prior to 2013 (*i.e.*, age-9 fish) are not fully represented as ageing structures are not collected from fish ≥800 mm fork length (indicated by vertical dashed line).**

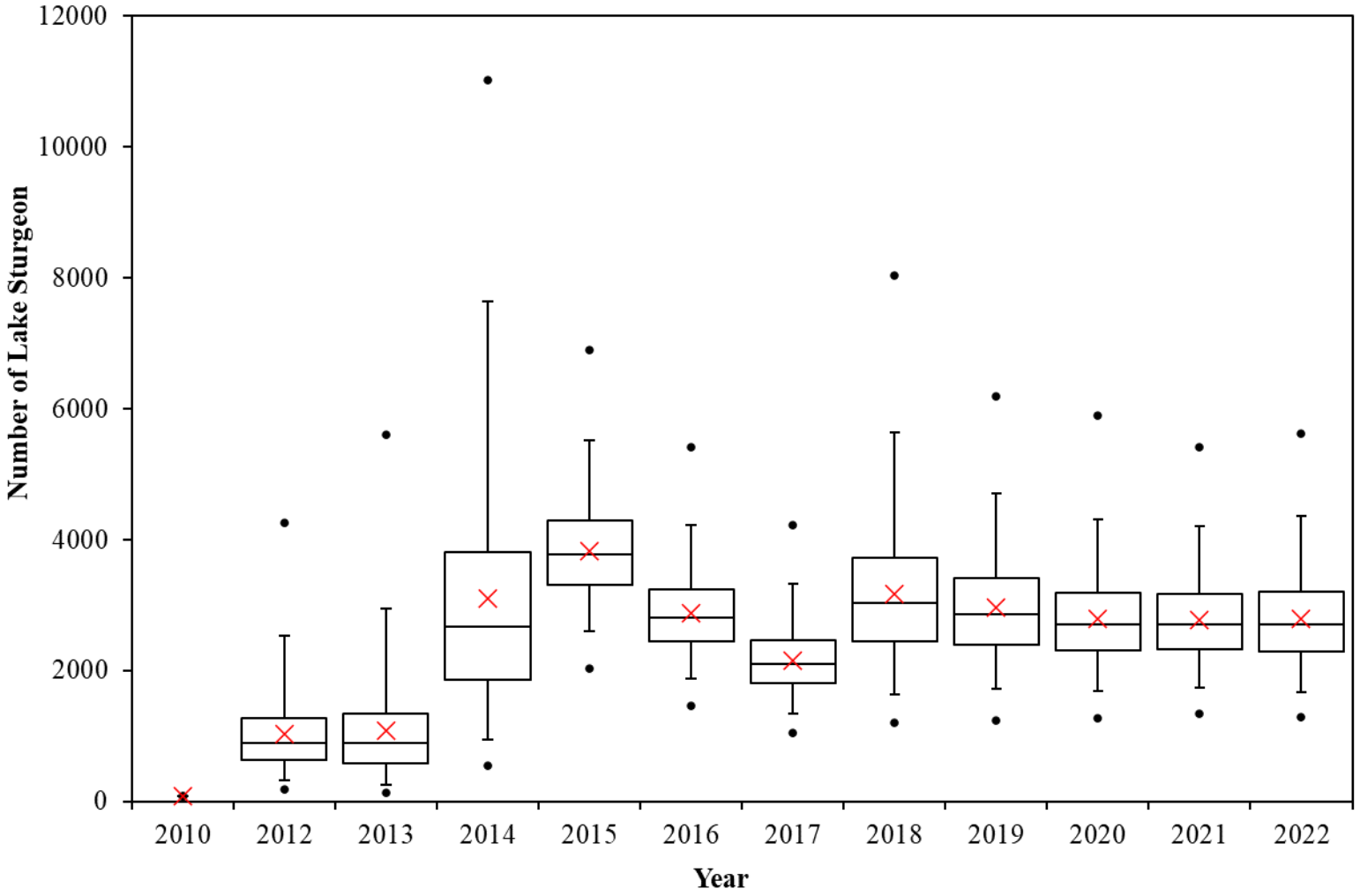


Figure 9: **Juvenile Lake Sturgeon abundance (i.e., fish <800 mm fork length) estimates based on POPAN best model for the Keeyask reservoir (2010, 2012–2022). Each red x marks the estimated abundance for each year (i.e., the number of juvenile Lake Sturgeon), the black dots represent the min and max estimates, and the vertical bar lines represent the upper and lower 95% confidence intervals.**

4.2.3 GROWTH AND CONDITION

Length-weight relationships for wild and hatchery-reared Lake Sturgeon captured in the Keeyask reservoir are presented in Figure 10. Mean length, weight, and condition factor of wild Lake Sturgeon captured during juvenile Lake Sturgeon monitoring since 2008 is presented in Table 20.

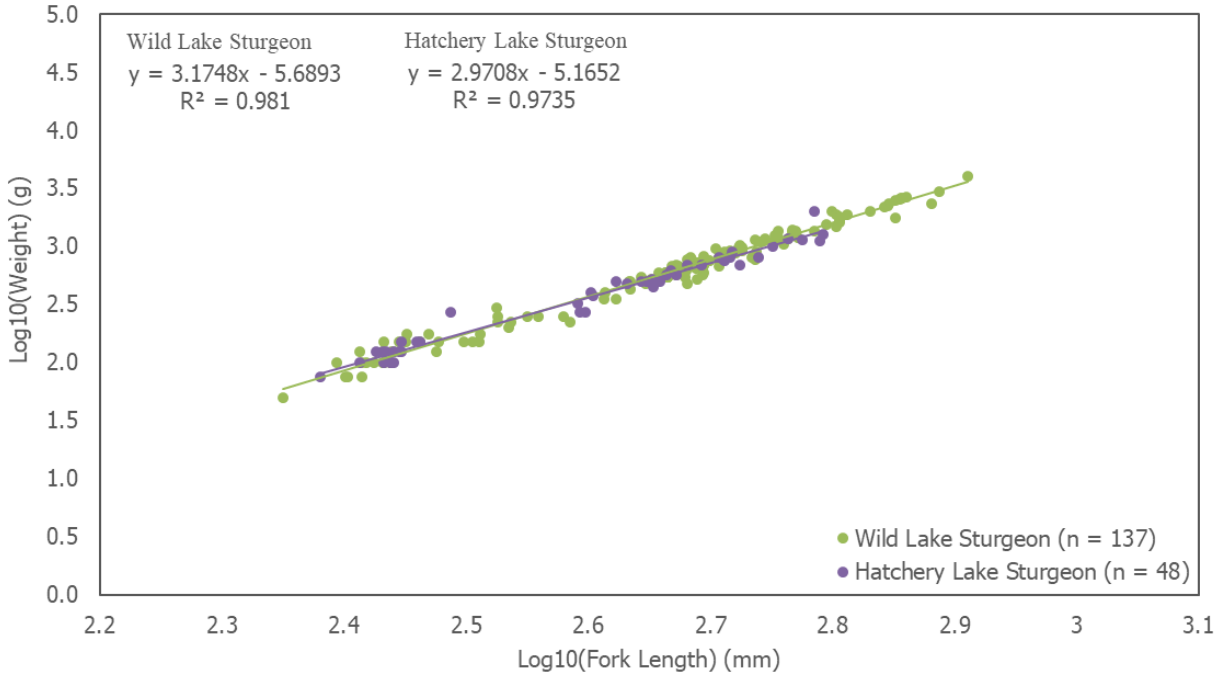


Figure 10: Comparison of weight (g) at-fork length (mm) (log transformed) for Lake Sturgeon captured in the Keeyask reservoir, fall 2022

Wild Lake Sturgeon captured in 2022 had a:

- Mean FL of 476 mm (n = 137; StDev = 135 mm; range 224–815 mm);
- Mean weight of 840 g (n = 137; StDev = 719 g; range 50–4,050 g); and
- Mean condition factor of 0.60 (n = 137; range 0.39–0.80) (Table 24).

Wild Lake Sturgeon in the 450–499 mm FL interval were captured most frequently, representing 26% (n = 35) of the wild catch (Figure 11). Fish measuring 250–449 mm and 500–549 mm were also frequently captured, each representing 15% (n = 20) of the wild catch (Figure 11).

Table 20: Mean length, weight, and condition factor of wild Lake Sturgeon captured during juvenile Lake Sturgeon monitoring in the Keeyask reservoir (Birthday Rapids to the Keeyask GS), since 2008. Grey highlighted rows indicate construction monitoring and blue highlighted row indicates after reservoir impoundment.

Year	Fork Length (mm)				Weight (g)				K		
	n[a]	Mean	Std[b]	Range	n	Mean	Std	Range	n	Mean	Range
2008	112	607	169	132-1,200	53	1,663	1,138	110-6,804	53	0.74	0.62-1.03
2010	69	389	119	292-780	68	514	620	150-3,250	68	0.69	0.48-1.03
2011	121	433	90	263-835	121	657	648	100-4,950	121	0.68	0.42-0.99
2012	101	488	99	250-842	99	825	541	75-3,150	99	0.66	0.45-1.16
2014	112	533	140	225-946	111	1,279	995	50-5,750	111	0.72	0.11-1.20
2015	136	537	177	101-908	131	1,583	1,189	11-7,257	131	0.75	0.55-1.68
2016	89	534	181	98-836	86	1,601	1,177	8-4,560	86	0.75	0.42-1.10
2017	152	560	171	129-919	147	1,706	1,255	100-6,100	147	0.72	0.47-0.96
2018	133	518	205	87-1,031	132	1,519	1,620	50-8,500	132	0.72	0.32-1.30
2019	187	502	178	95-1,060	183	1,294	1,430	100-8,550	183	0.68	0.25-1.24
2020	169	508	140	104-860	169	1,151	1,043	6-5,300	169	0.68	0.46-1.35
2021	209	518	142	160-819	208	1,109	859	50-4,750	208	0.66	0.43-1.22
2022	137	476	135	224-815	137	840	719	50-4,050	137	0.60	0.39-0.80

a. Number of fish measured
b. Standard deviation

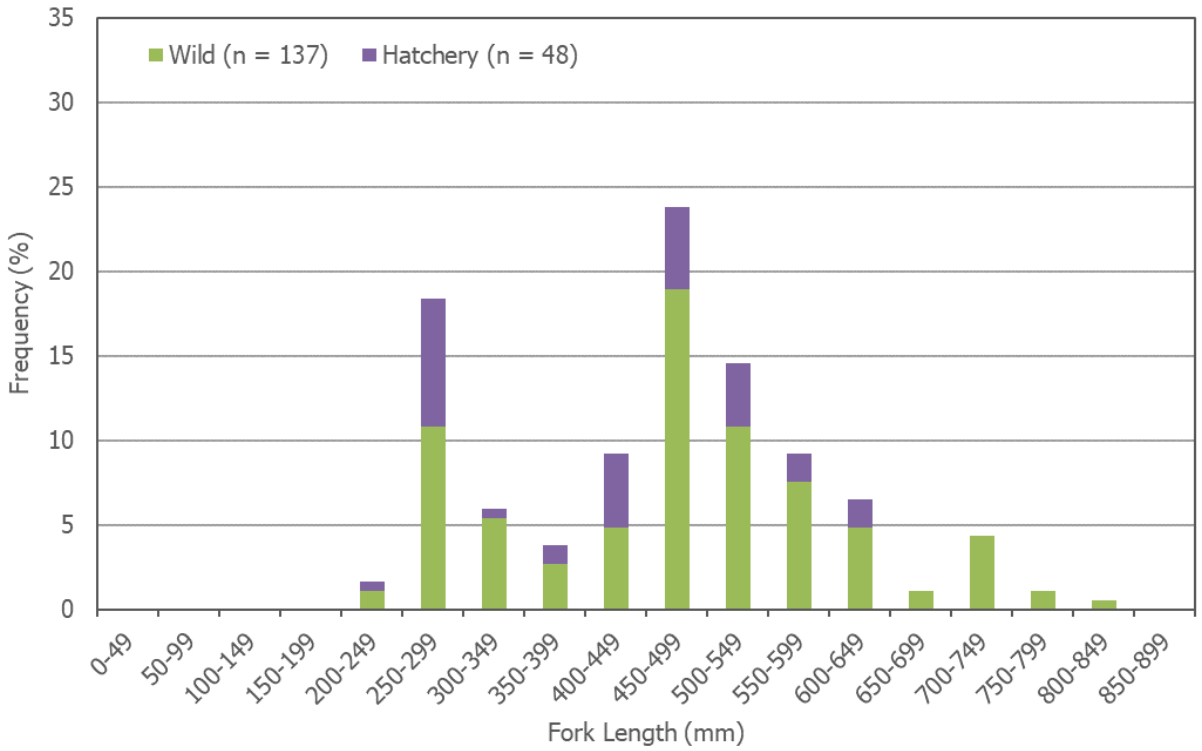


Figure 11: Fork length frequency distributions for Lake Sturgeon captured in gill nets set in the Keeyask reservoir, fall 2022.

Hatchery-reared Lake Sturgeon captured in 2022 had a:

- Mean FL of 418 mm (n = 48; StDev = 116 mm; range 240-620 mm);
- Mean weight of 518 g (n = 48; StDev = 397 g; range 75–2,000 g); and
- Mean condition factor of 0.58 (n = 48; range 0.46–0.95) (Table 21).

Hatchery-reared Lake Sturgeon in the 250–299 mm FL interval were captured most frequently, representing 29% of the hatchery catch (n = 14) (Figure 11). Fish measuring 450–499 mm and 400–449 mm were also frequently captured representing 19% (n = 9) and 17% (n = 8) of the catch, respectively (Figure 11).

A comparison of von Bertalanffy growth curves between baseline (2008–2012), construction (2014–2020), and post-impoundment (2021–2022) monitoring years shows no difference between the groups (Figure 12). Growth curve analysis of hatchery and wild fish shows young hatchery fish (0–5 years-old) are longer than wild fish of the same cohort. However, the lengths of wild and hatchery fish become similar around age-6 (Figure 13).

Table 21: Mean length, weight, and condition factor of hatchery Lake Sturgeon captured during juvenile Lake Sturgeon monitoring in the Keeyask reservoir (Birthday Rapids to the Keeyask GS), between 2014 and 2022. Grey highlighted rows indicate construction monitoring and blue highlighted rows indicate after reservoir impoundment.

Year	Fork Length (mm)				Weight (g)				K		
	n[a]	Mean	Std[b]	Range	n	Mean	Std	Range	n	Mean	Range
2014	1	272	-	-	1	150	-	-	1	0.75	
2015	3	310	26	280-330	2	200	35	175-225	2	0.58	0.54-0.63
2016	7	366	25	320-396	7	335	44	280-400	7	0.69	0.52-0.85
2017	21	380	69	285-465	21	355	176	100-600	21	0.59	0.43-0.74
2018	17	396	57	255-479	17	394	148	100-700	17	0.60	0.53-0.72
2019	57	364	72	265-530	56	307	214	75-950	56	0.54	0.28-0.95
2020	36	422	62	337-573	36	476	244	200-1,175	36	0.58	0.44-0.71
2021	57	475	69	373-636	57	679	334	300-1,650	57	0.59	0.48-0.76
2022	48	418	116	240-620	48	518	397	75-2,000	48	0.58	0.46-0.95

a. Number of fish measured
b. Standard deviation

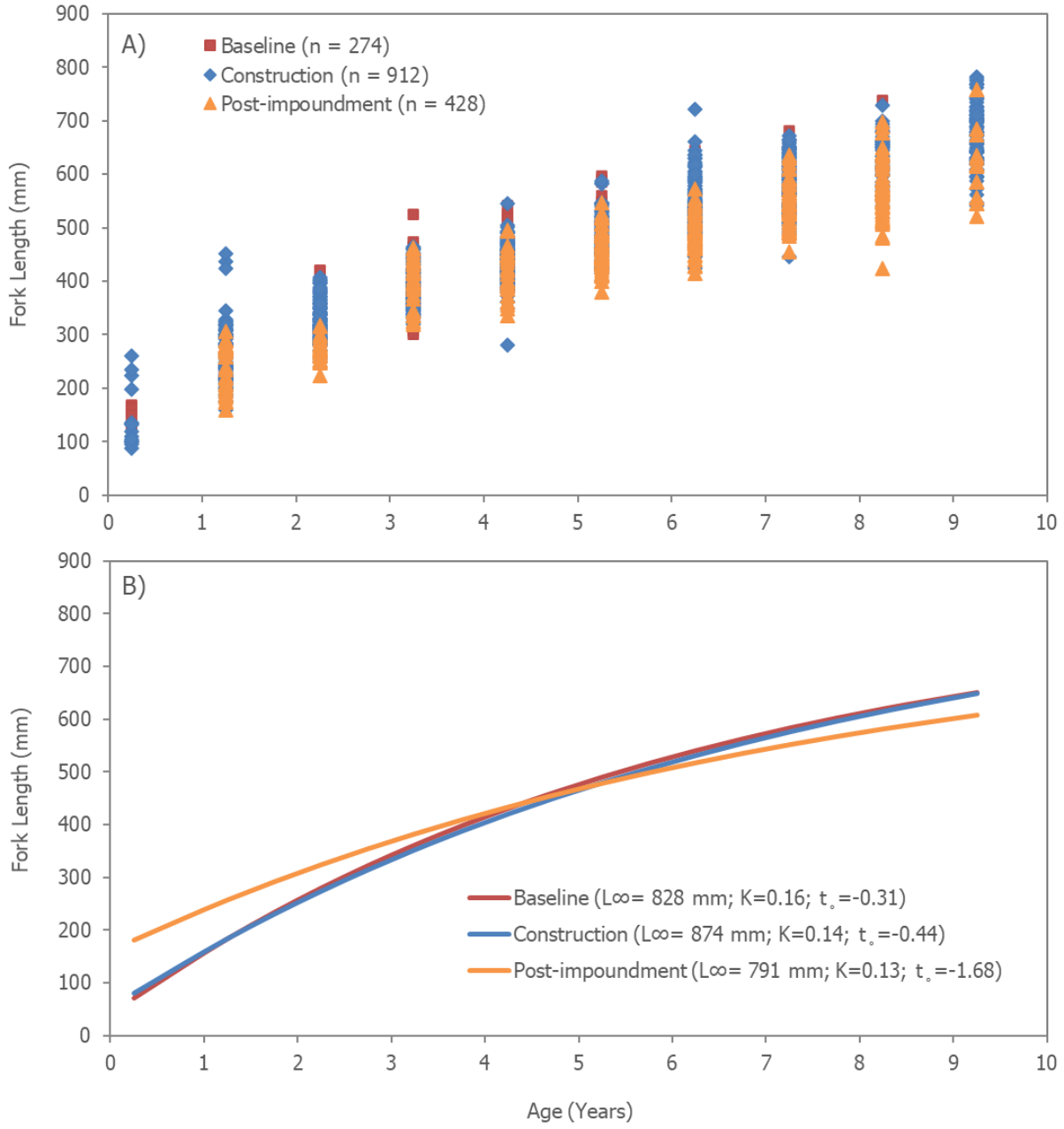


Figure 12: **Fork length-at-age (A) and von Bertalanffy growth curve analysis (B) for all wild aged Lake Sturgeon caught during baseline (red; 2008–2012), construction (blue; 2014–2020), and post-impoundment (orange; 2021-2022) monitoring years in the Keeyask reservoir. Fish older than age-9 were not included in the analysis as they are not fully represented in the catch (ageing structures are not collected from fish ≥800 mm fork length, which corresponds to fish older than age-9).**

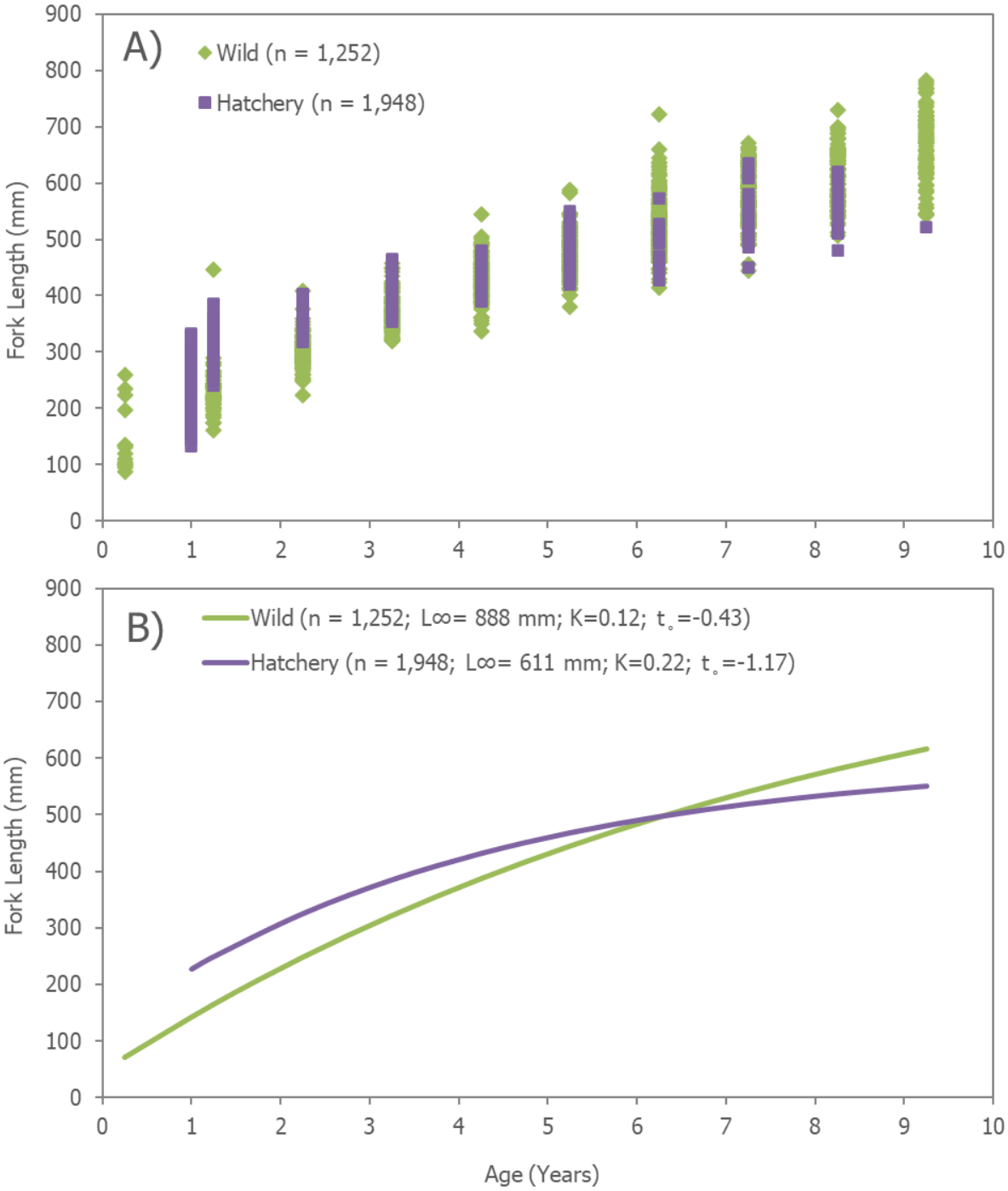


Figure 13: **Fork length-at-age (A) and von Bertalanffy growth curve analysis (B) for all wild (green) and hatchery-reared (purple) Lake Sturgeon released and/or recaptured in the Keeyask reservoir since stocking began in 2014. Fish older than age-9 were not included in the analysis as they are not fully represented in the catch (ageing structures are not collected from fish ≥800 mm fork length, which corresponds to fish older than age-9).**

4.2.4 RECAPTURES

A total of 31 Lake Sturgeon tagged in a previous year were recaptured in 2022, all of which were originally tagged in the Keeyask reservoir (Table 22; Appendix A4-1).

Table 22: Recapture summary for wild Lake Sturgeon from the Keeyask reservoir (Birthday Rapids to the Keeyask GS) between 2008 and 2022. Grey highlighted rows indicate construction monitoring and blue highlighted rows indicate after reservoir impoundment.

Sampling Year	Tagging Location		
	Upper Split Lake Area	Keeyask reservoir	Stephens Lake
	n[a]	n	n
2008	0	9	0
2010	0	2	0
2011	0	4	0
2012	0	8	0
2014	0	17	0
2015	0	20	0
2016	0	11	0
2017	0	17	0
2018	0	18	0
2019	0	21	0
2020	0	26	0
2021	0	30	0
2022	0	31	0

a. Number of fish measured

Recaptured fish moved varying distances from their original capture locations:

- Ten moved less than 1.0 km.
- Nineteen moved between 1.0 and 9.3 km.
- Two were recaptured more than 15 km downstream of their initial capture locations (15.4 km and 17.0 km).

4.2.5 HATCHERY CAPTURES

Forty-eight known hatchery-reared fish (*i.e.,* those PIT tagged and stocked as age-1) were caught in 2022, representing 25.9% of the total Lake Sturgeon catch (Table 23). Three of the hatchery-reared fish were caught in a previous study, two in 2015 and one in 2017. An age breakdown of all hatchery-reared fish captured between 2014 and 2022 is presented in Table 24.

Table 23: Number (n) and percentage (%) of catch of hatchery-reared Lake Sturgeon caught in the Keeyask reservoir (Birthday Rapids to the Keeyask GS) between 2014 and 2022.

Sample Year	Release Location				Total	% of Total Catch
	Burntwood River		Keeyask reservoir			
	n	% of Catch	n	% of Catch		
2014	1	0.9	-	-	1	0.9
2015	1	0.7	2	1.4	3	2.2
2016	0	0.0	7	7.3	7	7.3
2017	1	0.6	20	11.6	21	11.9
2018	1	0.7	16	10.7	17	11.3
2019	2	0.8	55	22.5	57	23.4
2020	1	0.5	35	17.1	36	17.6
2021	4	1.5	53	19.9	57	21.4
2022	1	0.5	47	25.4	48	25.9

a. Number of fish

Forty-seven were stocked in the Keeyask reservoir (Map 5):

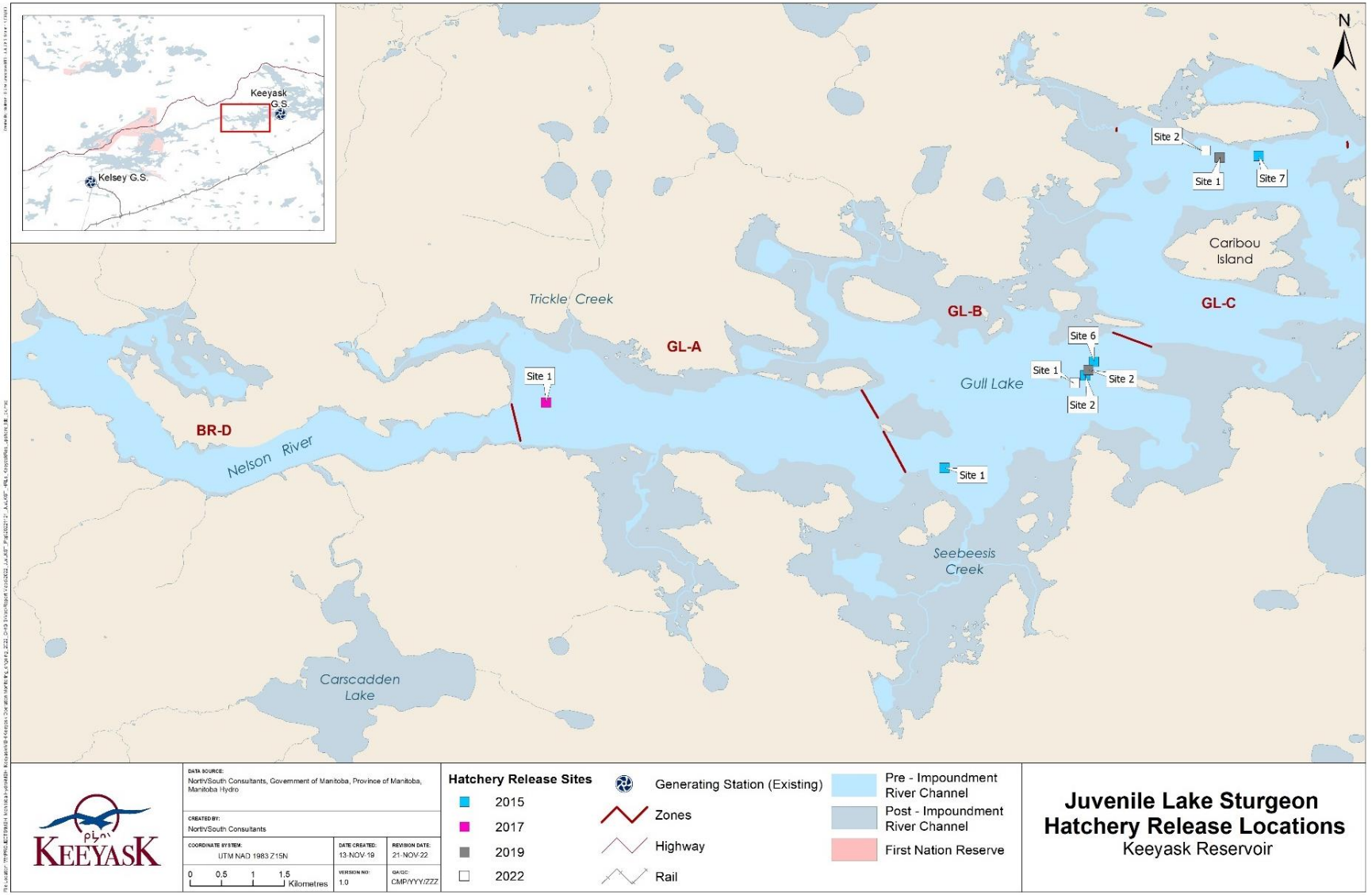
- Seven were stocked on June 22, 2015 at sites 1 and 2 (Zone GL-B). These fish were captured between 0.3 and 13.8 km of their original stocking location.
- Six were stocked on September 16, 2015 at sites 6 (Zone GL-B) and 7 (Zone GL-C) and were caught between 1.4 and 8.0 km of their stocking location.
- Six were stocked on June 8, 2017 at site 1 (Zone GL-A) and were caught between 4.5 and 20.5 km of their stocking location.
- Twelve were stocked in the Keeyask reservoir on June 6, 2019 at sites 1 (Zone GL-C) and 2 (Zone GL-B) and were caught between 0.7 and 16.1 km of their stocking location.
- Sixteen were stocked in the Keeyask reservoir on June 2, 2022 at sites 1 (Zone GL-B) and 2 (Zone GL-C) and were caught between 0.8 and 12.2 km of their stocking location.

One was stocked in the Burntwood River (Map 3):

- One was stocked on October 2, 2014 in Zone BWR-B and was recaptured on September 21, 2022 in Zone GL-C, approximately 115 km downstream. In the eight years since release, it increased in size by 272 mm and 818 g.

Table 24: Number and ages of hatchery-reared Lake Sturgeon released as age-1/age-2 fish and captured during juvenile Lake Sturgeon studies in the Keeyask reservoir (Birthday Rapids to the Keeyask GS) since 2014.

Monitoring Year	Keeyask Reservoir
2014	**1**
	(1 year old)
2015	**3**
	(2 were 1 year old)
	(1 was 2 years old)
2016	**7**
	(All were 2 years old)
2017	**21**
	(9 were 1 years old)
	(11 were 3 years old)
	(1 was 4 years old)
2018	**18**
	(1 was 1 years old)
	(8 were 2 years old)
	(8 were 4 years old)
	(1 was 5 years old)
2019	**57**
	(27 were 1 years old)
	(1 was 2 years old)
	(16 were 3 years old)
	(12 were 5 years old)
	(1 was 6 years old)
2020	**36**
	(17 were 2 years old)
	(12 were 4 years old)
	(6 were 6 years old)
	(1 was 7 years old)
2021	**57**
	(24 were 3 years old)
	(1 was 4 years old)
	(9 were 5 years old)
	(21 were 7 years old)
	(3 was 8 years old)
2022	**48**
	(16 were 1 years old)
	(12 were 4 years old)
	(6 were 6 years old)
	(13 was 8 years old)
	(1 was 9 years old)



Map 5: Map of Lake Sturgeon yearling stocking sites in the Keeyask reservoir since 2014 (pre-impoundment shoreline shown).

4.3 STEPHENS LAKE

Between September 13 and 23, 2022 a total of 34 gill net sites were fished in upper Stephens Lake (Map 6). Water temperature during sampling ranged from 13.9°C to 15.9°C (Appendix A1-3). A total of 664 fish from ten fish species were captured with Lake Sturgeon the third most abundant (n = 161; 24.2%; Table 25). Gill net site data is presented in Appendix A1-3 and biological and tagging information are presented in Appendix A2-3.

Table 25: Number (n) and frequency of occurrence (%), by species, of fish captured during juvenile Lake Sturgeon monitoring in Stephens Lake, fall 2022.

Species	Scientific Name	n[a]	% of the Catch
Burbot	*Lota lota*	1	0.2
Freshwater Drum	*Aplodinotus grunniens*	1	0.2
Lake Sturgeon	***Acipenser fulvescens***	***161[b]***	24.2
Lake Whitefish	*Coregonus clupeaformis*	1	0.2
Longnose Sucker	*Catostomus catostomus*	171	25.8
Northern Pike	*Esox lucius*	2	0.3
Sauger	*Sander canadensis*	178	26.8
Shorthead Redhorse	*Moxostoma macrolepidotum*	20	3.0
Walleye	*Sander vitreus*	118	17.8
White Sucker	*Catostomus commersoni*	11	1.7
Total		**664**	**100**

a. Number of fish caught

b. Does not include Lake Sturgeon recaptured more than once in the same study

In total, 156 juvenile and five adult Lake Sturgeon were captured in 1,544.8 gill net hours for a total CPUE of 2.50 LKST/100 m net/24 h (Table 26). Four juvenile mortalities were recorded during sampling: one on September 18 (310 mm FL; 150 g weight), one on September 19 (521 mm FL; 1,000 g weight), and two on September 21 (540 mm and 478 mm FL; 1,100 and 850 g weight).

Table 26: Lake Sturgeon catch-per-unit effort (CPUE; # LKST/100 m net/24 h) by zone, for gill nets set during juvenile Lake Sturgeon monitoring in Stephens Lake, fall 2022.

Zone	# Sites	Effort (gill net hours)[1]	# of Lake Sturgeon[2]	Total CPUE
STL-A	7	172.6	3	0.42
STL-B	27	1,372.2	158	2.76
Total	**34**	**1,544.8**	**161**	**2.50**

a. Gill net set durations were standardized to 100 m of net and then summed to calculate the total gill net hours for each study

b. Does not include Lake Sturgeon recaptured more than once in the same study

Total CPUE in 2022 was slightly higher than in 2021 and was the second highest recorded since studies began in 2007 (Table 27). Gill nets were set in both zones located within the upper 10 km of Stephens Lake with effort concentrated in Zone STL-B (Map 6). Total CPUE by zone is presented in Table 26.

Table 27: Lake Sturgeon catch-per-unit-effort (CPUE; # LKST/100 m net/24 h) for gill nets set to target juvenile Lake Sturgeon in Stephens Lake between 2007 and 2022. Grey highlighted rows indicate construction monitoring and the blue highlighted row indicates post-impoundment monitoring.

Year	Start Date	Completion date	Mesh Size	# Sites	Effort (gillnet hrs)[a]	# Lake Sturgeon[b]	CPUE
2007	19-Sep	23-Sep	2" - 5"	15	48	0	0
2008	11-Sep	18-Sep	3.75"-8"	12	295	8	0.65
2009	14-Sep	20-Sep	1.5" - 5"	18	634	23	0.87
2010	22-Sep	29-Sep	1" - 5"	18	611	32	1.26
2011	21-Sep	01-Oct	1" - 5"	30	974	37	0.91
2012	11-Sep	23-Sep	1" - 6"	19	1,193	87	1.75
2014	18-Sep	28-Sep	1" - 6"	94	921	47	1.23
2015	22-Sep	02-Oct	1" - 6"	44	1,154	54	1.12
2016	12-Sep	23-Sep	1" - 6"	37	1,384	66	1.14
2017	09-Sep	19-Sep	1" - 6"	40	1,796	148	1.98
2018	09-Sep	21-Sep	1" - 6"	49	1,599	74	1.11
2019	11-Sep	21-Sep	1" - 6"	40	1,561	229	3.52
2020	15-Sep	25-Sep	1" - 6"	54	1,605	142	2.12
2021	14-Sep	23-Sep	1" - 6"	34	1,523	158	2.49
2022	13-Sep	23-Sep	1" - 6"	34	1,545	161	2.50

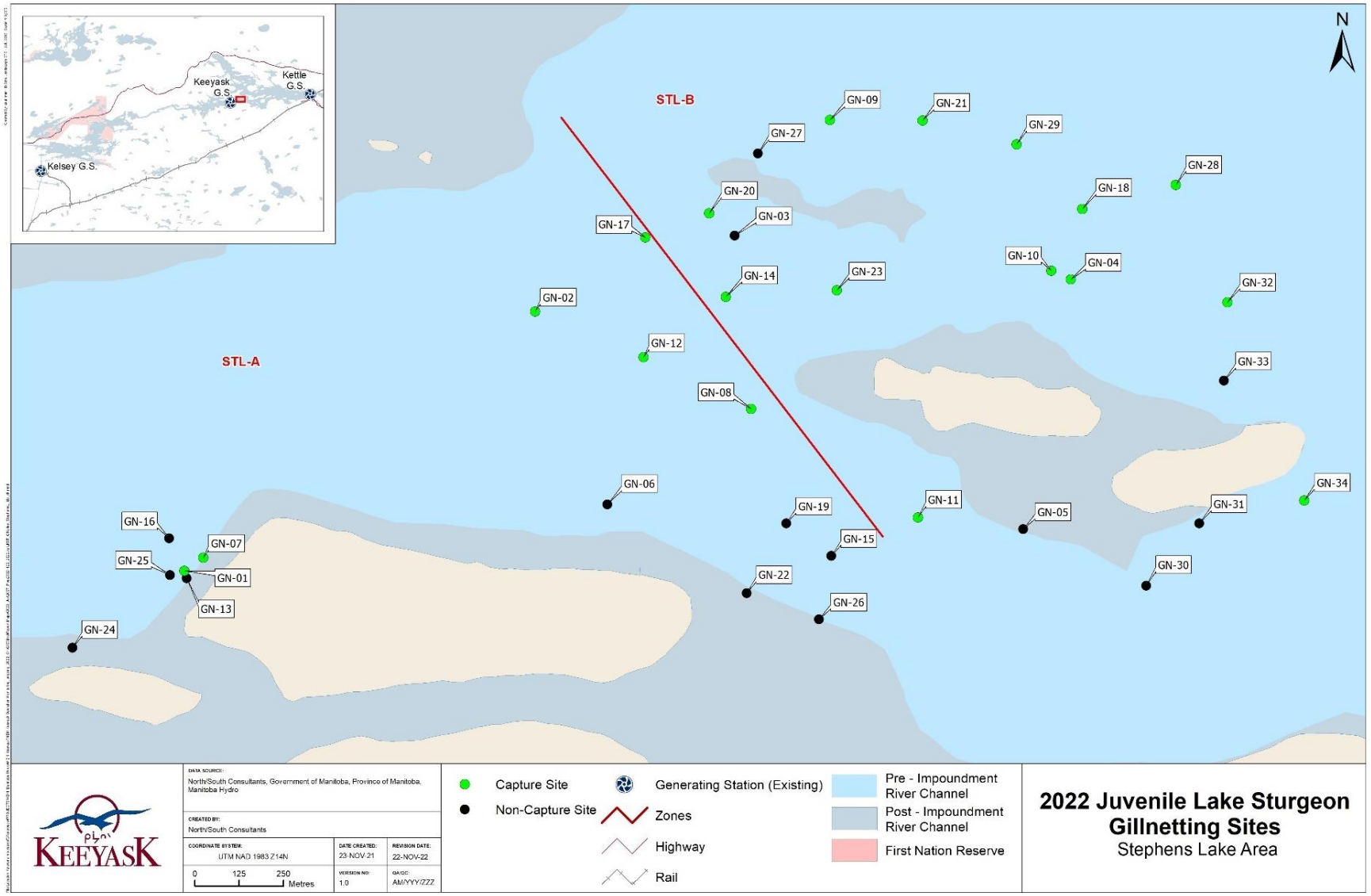
a. Gill net set durations were standardized to 100 m of net and then summed to calculate the total gill net hours for each study
b. Does not include Lake Sturgeon recaptured more than once in the same study

Of the 161 Lake Sturgeon captured, 72 were known hatchery-reared fish (*i.e.*, stocked at age-1 and marked with PIT tags; discussed in further detail in Section 4.3.5). Total CPUE for wild Lake Sturgeon and hatchery-reared is presented in Table 28.

Table 28: Catch-per-unit-effort (CPUE; # LKST/100 m net/24 h) for hatchery and wild caught Lake Sturgeon in the Keeyask reservoir and Stephens Lake, fall 2022.

	Effort (gill net hours)[a]	# of Lake Sturgeon[b]	Total CPUE
Wild	1,545	89	1.38
Hatchery	1,545	72	1.12
	Total	**161**	**2.50**

a. Gill net set durations were standardized to 100 m of net and then summed to calculate the total gill net hours for each study
b. Does not include Lake Sturgeon recaptured more than once in the same study



Map 6: Map of sites fished with gill nets in Stephens Lake, fall 2022.

4.3.1 YEAR-CLASS STRENGTH

Ages were assigned to 154 of the 156 juvenile fish captured as well as one of the five adult sturgeon aged in a previous study year. Ageing structures from the two remaining juvenile fish had crystalline centers and were unreadable.

Aged juvenile Lake Sturgeon (including both wild and hatchery) ranged from 0–14 years old (*i.e.*, 2008–2022 cohorts). The 2018 cohort (age-4) was the most frequent in the catch accounting for 27% (n = 42) of aged fish (Figure 14). The 2016 cohort (age-6) was the next most abundant age-class, representing 21% (n = 33) of the catch (Figure 14). Twenty-four wild YOY fish were captured in Stephens Lake in 2022.

Hatchery-reared Lake Sturgeon were abundant in the catch accounting for the majority of the 2014 cohort (82%), 36% of the 2016 cohort, 15% of the 2017 cohort, 100% of the 2018 cohort, 33% of the 2019 cohort, and 100% of the 2021 cohort (Figure 14). Wild fish from all cohorts between 2003 and 2022, except for the 2018 cohort, have been present in the catch since studies began (Table 29).

4.3.2 POPULATION ESTIMATE

The 2022 population estimate for Stephens Lake was 3,665 wild juvenile Lake Sturgeon, which is higher than in any previous sampling year (95% CI: 1,462–9,184; Figure 15; Appendix A5-5). The estimated annual survival rate was 79%.

Survival of hatchery-reared Lake Sturgeon stocked into Stephens Lake was estimated at 78% (Appendix A5-6). Based on this survival estimate, 76, 213, 188 and 400 hatchery-reared individuals from the 2014, 2016, 2018 and 2021 cohorts are present in Stephens Lake, contributing to a population estimate of 877 hatchery fish. Based on these numbers, it is estimated that hatchery fish currently make up 19% of the total juvenile Lake Sturgeon population in Stephens Lake.

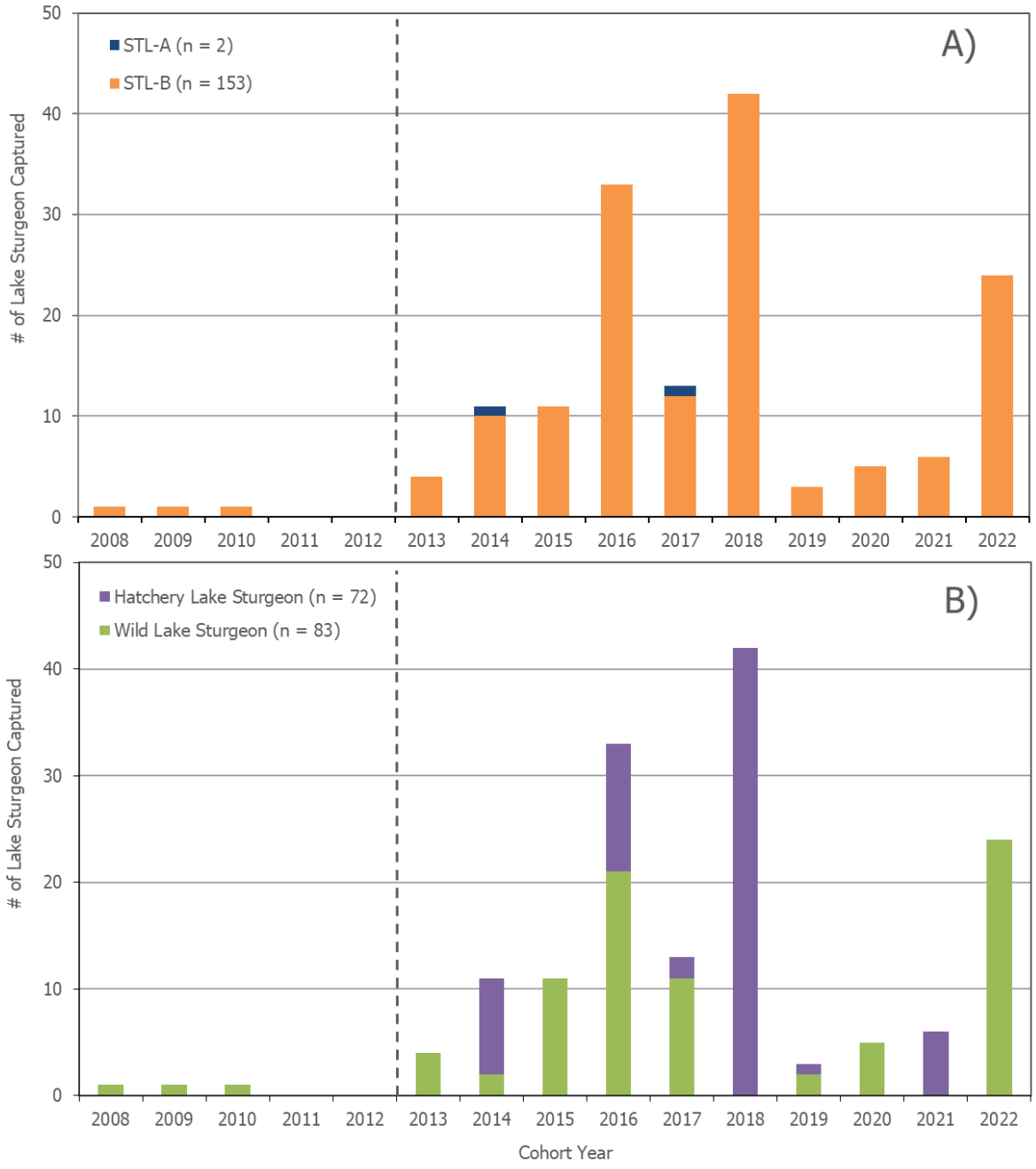


Figure 14: Cohort frequency distributions for all aged juvenile Lake Sturgeon captured in Stephens Lake by zone (A) and by hatchery-reared and wild Lake Sturgeon (B), fall 2022. Cohorts prior to 2013 (*i.e.*, age-9 fish) are not fully represented as ageing structures are not collected from fish ≥800 mm fork length (indicated by vertical dashed line).

Table 29: Number of wild Lake Sturgeon captured in Stephens Lake from 2009 to 2022, from which ages and cohorts were determined. Grey highlighted columns indicate cohorts spawned during Keeyask GS construction, blue highlighted cell indicates cohort spawned after impoundment of the Keeyask reservoir, and red values indicate cohorts not present in the corresponding study year.

Location	Cohort																			
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
2009 Study Year	0	1	3	1	0	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-
2010 Study Year	3	0	1	5	7	14	0	0	-	-	-	-	-	-	-	-	-	-	-	-
2011 Study Year	1	0	0	0	2	28	2	0	1	-	-	-	-	-	-	-	-	-	-	-
2012 Study Year	0	0	0	7	4	49	1	2	2	0	-	-	-	-	-	-	-	-	-	-
2014 Study Year	1	1	0	5	4	25	1	4	5	0	0	0	-	-	-	-	-	-	-	-
2015 Study Year	0	0	0	4	3	19	1	1	3	0	4	2	11	-	-	-	-	-	-	-
2016 Study Year	0	1	0	4	4	31	0	0	2	1	3	4	8	0	-	-	-	-	-	-
2017 Study Year	0	0	0	0	0	19	2	0	3	0	11	4	20	9	5	-	-	-	-	-
2018 Study Year	0	0	0	0	0	4	0	0	4	1	9	3	20	4	3	0	-	-	-	-
2019 Study Year	0	0	0	0	0	11	0	2	6	3	11	8	33	15	9	0	0	-	-	-
2020 Study Year	0	0	0	0	0	9	1	0	3	1	10	4	33	13	5	0	1	2	-	-
2021 Study Year	0	0	1	0	1	0	1	1	5	0	6	3	21	15	13	0	2	8	2	-
2022 Study Year	0	0	0	0	0	1	1	1	0	0	4	2	11	21	11	0	2	5	0	24
Total	**5**	**3**	**5**	**26**	**25**	**212**	**10**	**11**	**34**	**6**	**58**	**30**	**157**	**77**	**46**	**0**	**5**	**15**	**2**	**24**
Present in the Catch	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**

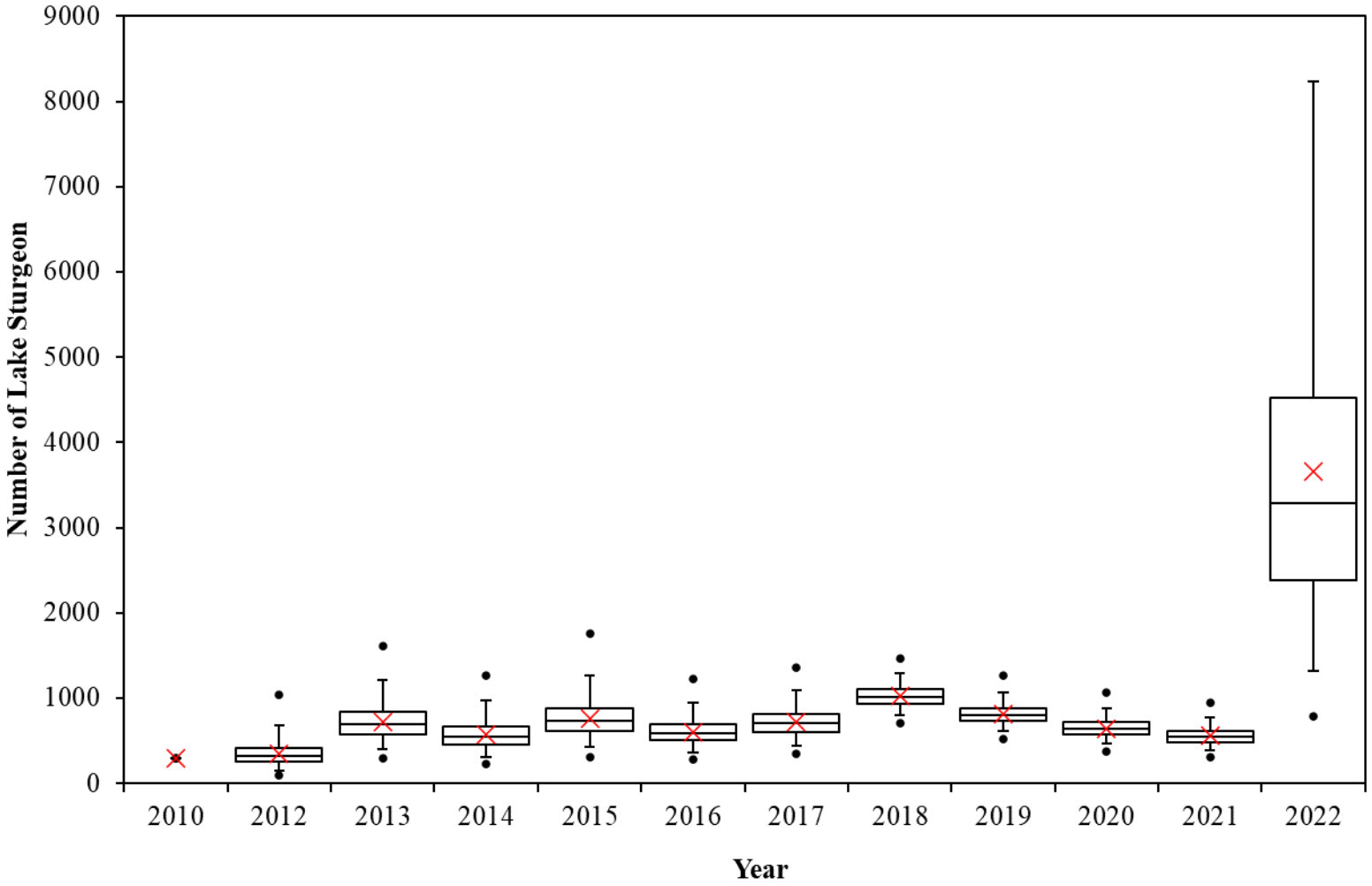


Figure 15: **Juvenile Lake Sturgeon abundance estimates based on POPAN best model for Stephens Lake (2010, 2012–2022). Results of the POPAN abundance estimate are presented in black. Each red x marks the estimated abundance for each year (*i.e.*, the number of juvenile Lake Sturgeon), the black dots represent the min and max estimates, and the vertical bar lines represent the upper and lower 95% confidence range.**

4.3.3 GROWTH AND CONDITION

Length-weight relationships for wild and hatchery-reared Lake Sturgeon are presented in Figure 16. Mean length, weight, and condition factor of wild Lake Sturgeon captured during juvenile Lake Sturgeon monitoring since 2008 is presented in Table 31.

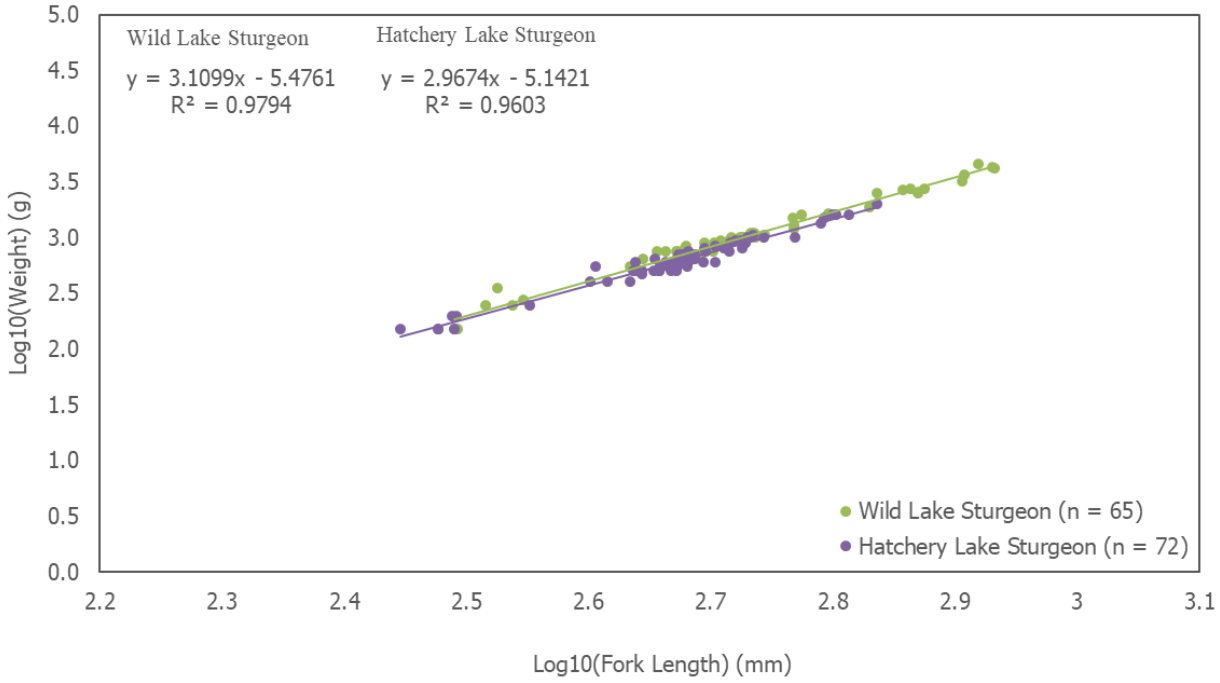


Figure 16: Comparison of weight (g) at-fork length (mm) (log transformed) for Lake Sturgeon captured in Stephens Lake, fall 2022.

Wild Lake Sturgeon captured in 2022 had a:

- Mean FL of 421 mm (n = 89; StDev = 220 mm; range 95–855 mm);
- Mean weight of 1,232 g (n = 65; StDev = 1,002 g; range 150–4,600 g); and
- Mean condition factor of 0.67 (n = 65; range 0.50–0.93) (Table 30).

Wild Lake Sturgeon in the 500–549 mm and 100-149 mm FL intervals were captured most frequently accounting for 26% (n = 23) and 25% (n = 22) of the wild catch, respectively (Figure 17).

Table 30: Mean length, weight, and condition factor of wild Lake Sturgeon captured in Stephens Lake during juvenile Lake Sturgeon monitoring, since 2009. Grey highlighted rows indicate construction monitoring and blue highlighted row indicates after reservoir impoundment.

Year	Fork Length (mm)				Weight (g)				K		
	n[a]	Mean	Std[b]	Range	n	Mean	Std	Range	n	Mean	Range
2009	23	344	166	110-770	7	346	167	150-525	7	0.95	0.59-1.32
2010	32	423	136	304-772	32	862	978	210-3,570	31	0.74	0.58-1.10
2011	37	450	109	168-756	36	921	894	375-4,125	36	0.81	0.58-1.03
2012	87	539	124	250-970	83	1,373	1,175	75-5,525	83	0.74	0.40-0.99
2014	51	612	121	373-971	51	2,049	1,525	350-8,700	51	0.78	0.62-1.36
2015	50	496	233	120-795	49	1,473	1,143	15-3,650	49	0.88	0.60-2.05
2016	61	607	182	233-1,000	61	2,234	1,520	80-8,400	61	0.77	0.49-1.12
2017	97	487	208	135-851	92	1,497	1,560	75-5,425	92	0.72	0.44-1.03
2018	57	481	154	222-837	57	1,113	1,215	50-4,925	57	0.72	0.46-0.90
2019	111	542	175	287-1,060	110	1,594	1,818	100-11,500	110	0.72	0.32-1.01
2020	93	552	165	97-1,050	93	1,586	1,613	4-9,000	93	0.71	0.39-0.95
2021	89	516	178	101-940	87	1,344	1,266	25-6,010	87	0.71	0.32-1.46
2022	89	421	220	95-855	65	1,232	1,002	150-4,600	65	0.67	0.50-0.93

a. Number of fish measured
b. Standard deviation

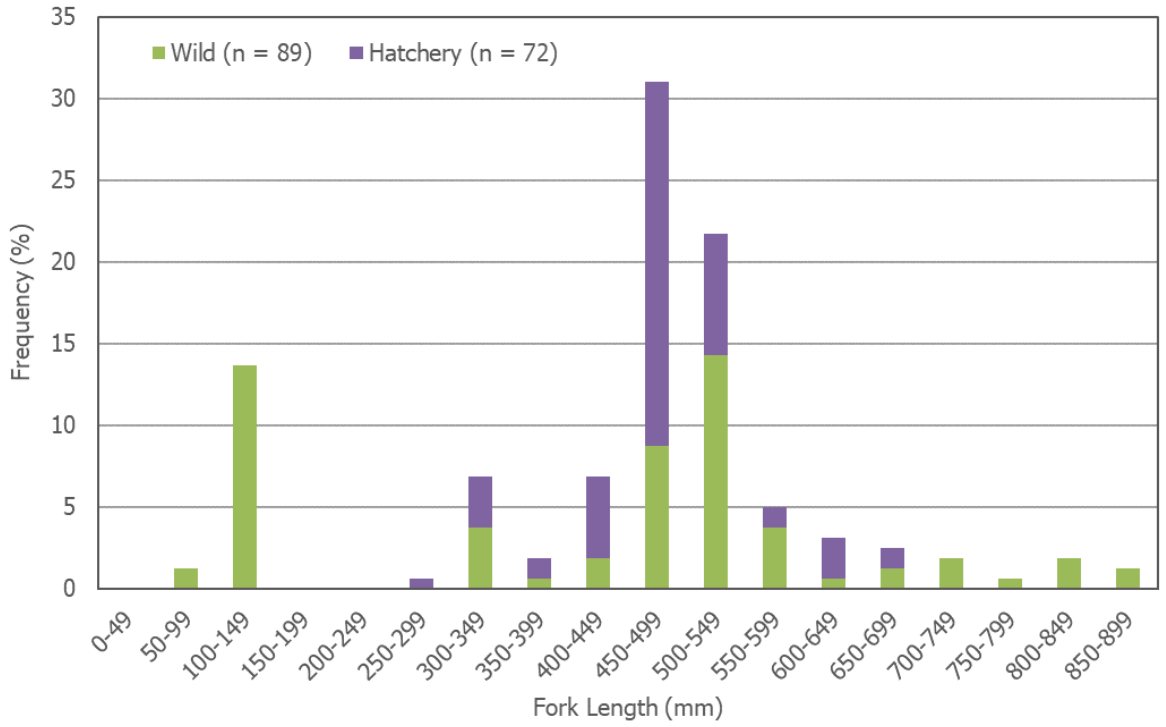


Figure 17: Fork length frequency distributions for Lake Sturgeon captured in gill nets set in Stephens Lake, fall 2022.

Hatchery-reared Lake Sturgeon captured in 2022 had a:

- Mean FL of 476 mm (n = 72; StDev = 79 mm; range 279–685 mm);
- Mean weight of 690 g (n = 72; StDev = 351 g; range 150–2,000 g); and
- Mean condition factor of 0.59 (n = 72; range 0.47–0.84) (Table 31).

Hatchery-reared Lake Sturgeon in the 450–499 mm FL interval (n = 36; 50%) were captured most frequently (Figure 17). The mean FL, weight and condition factor of hatchery-reared Lake Sturgeon caught in Stephens Lake since 2014 is presented in Table 31.

Growth curve analysis of hatchery and wild fish showed that young hatchery fish (0–4 years-old) are longer than wild fish of the same cohort. However, the lengths of wild and hatchery fish appear similar around age-5 (Figure 18).

Table 31: Mean length, weight, and condition factor of hatchery-reared Lake Sturgeon captured during juvenile Lake Sturgeon monitoring in Stephens Lake, since 2014. Grey highlighted rows indicate construction monitoring and blue highlighted row indicates after reservoir impoundment.

Year	Fork Length (mm)				Weight (g)				K		
	n[a]	Mean	Std[b]	Range	n	Mean	Std	Range	n	Mean	Range
2014	51	612	121	373-971	51	2049	1525	350-8,700	51	0.78	0.62-1.36
2015	50	496	233	120-795	49	1473	1143	15-3,650	49	0.88	0.60-2.05
2016	61	607	182	233-1,000	61	2234	1520	80-8,400	61	0.77	0.49-1.12
2017	97	487	208	135-851	92	1497	1560	75-5,425	92	0.72	0.44-1.03
2018	57	481	154	222-837	57	1113	1215	50-4,925	57	0.72	0.46-0.90
2019	111	542	175	287-1,060	110	1594	1818	100-11,500	110	0.72	0.32-1.01
2020	93	552	165	97-1,050	93	1586	1613	4-9,000	93	0.71	0.39-0.95
2021	89	516	178	101-940	87	1344	1266	25-6,010	87	0.71	0.32-1.46
2022	72	476	79	279-685	72	690	351	150-2,000	72	0.59	0.47-0.84

a. Number of fish measured
b. Standard deviation

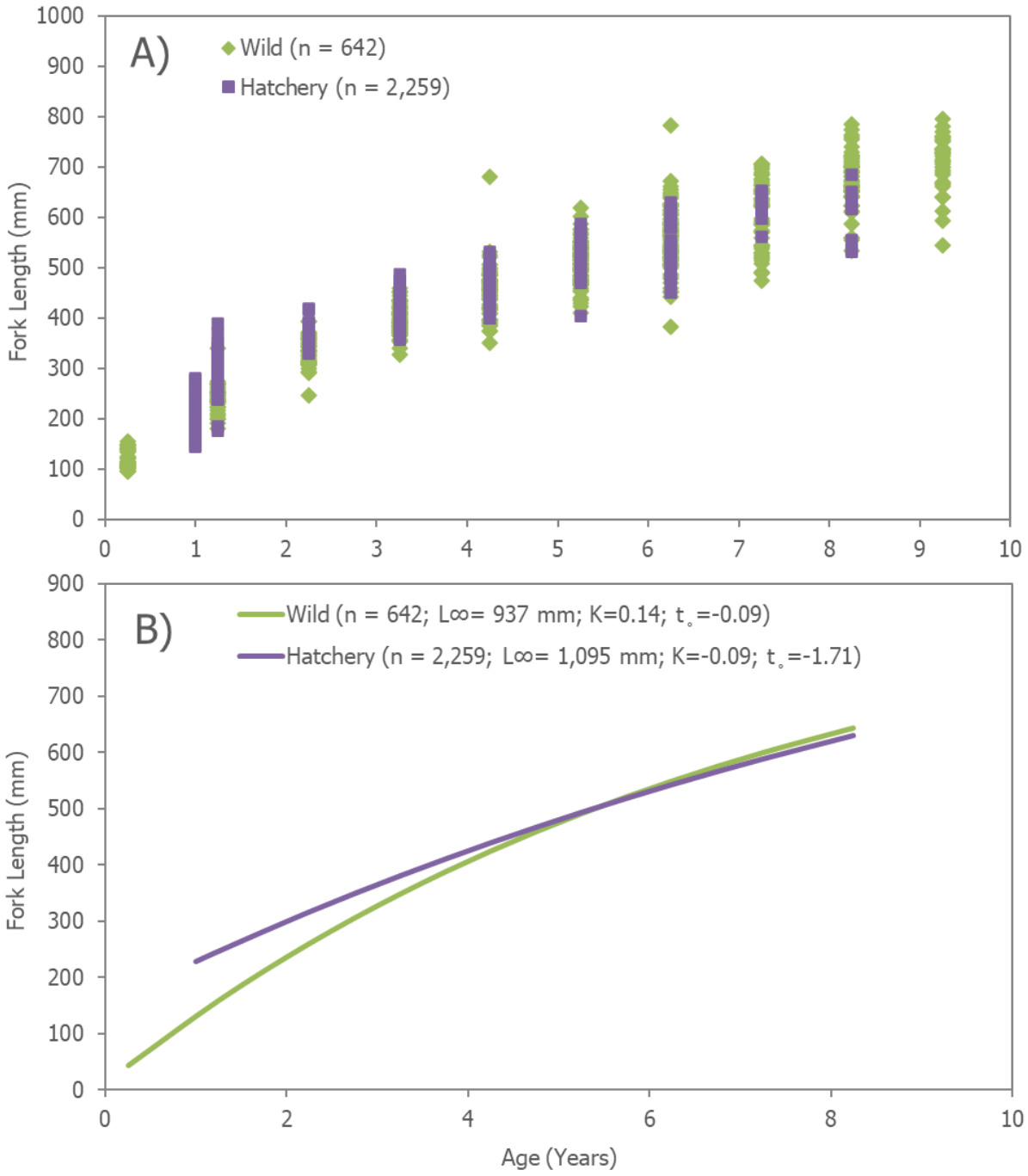


Figure 18: **Fork length-at-age (A) and von Bertalanffy growth curve analysis (B) for all wild (green) and hatchery-reared (purple) Lake Sturgeon released and/or recaptured in the Stephens Lake since stocking began in 2014. Fish older than age-9 were not included in the analysis as they are not fully represented in the catch (ageing structures are not collected from fish > 800 mm fork length, which corresponds to fish older than age-9).**

4.3.4 RECAPTURES

A total of 16 Lake Sturgeon tagged in a previous year were recaptured in Stephens Lake in 2022 (Table 32; Appendix A4-4). Recaptured fish moved varying distances from their original capture locations:

- Eleven fish were originally captured in Stephens Lake. Eight were recaptured within 1.0 km of their initial capture location and three between 3.1 and 4.2 km of their initial capture location.
- Four were originally tagged in the Keeyask reservoir and were captured between 13.1 and 21.2 km downstream of their original tagging location. Although it is not possible to determine the exact date that these fish moved downstream, based on the date of last capture, two moved downstream between 2015 and 2022. The remaining two fish moved downstream after reservoir impoundment:
  - Floy tags #125713 and #118056 were last captured in the Keeyask reservoir in September 2020 following impoundment.
- The initial tagging information for one fish identified as a previous year recapture could not be found.

Table 32: Recapture summary for wild Lake Sturgeon caught in Stephens Lake between 2009 and 2022. Grey highlighted rows indicate construction monitoring and blue highlighted rows indicate after reservoir impoundment.

Sampling Year	Tagging Location		
	Upper Split Lake Area	Keeyask reservoir[b]	Stephens Lake
	n[a]	n	n
2009	0	0	0
2010	0	0	0
2011	0	0	0
2012	0	0	11
2014	0	0	8
2015	0	0	7
2016	0	0	14
2017	0	3	17
2018	0	1	10
2019	0	2	22
2020	1	1	38
2021	1	11	26
2022	0	4	12

a. Number of fish
b. Birthday Rapids to the Keeyask GS

4.3.5 HATCHERY CAPTURES

A total of 72 hatchery-reared Lake Sturgeon released as one-year-olds were captured in Stephens Lake in 2022, representing 44.7% of the total catch (Table 33). An age breakdown of all the hatchery-reared fish captured between 2014 and 2022 is presented in Table 34.

Forty-one were stocked in Stephens Lake (Map 7):

- Five were stocked in 2015, three on June 22 at Site 3 (Zone STL-B) and two on September 14 at Site 4 (Zone STL-B). These fish were captured within 0.5 and 3.1 km of their stocking locations.
- Six were stocked in 2017, three on June 15 at Site 1 (Zone STL-A) and three on October 5 at Site 4 (Zone STL-B). These fish were captured within 1.6 and 4.3 km of their stocking locations.
- Twenty-five were stocked on June 13, 2019 at Sites 1 (Zone STL-A) and 2 (Zone STL-B). These fish were captured between 0.1 and 3.2 km of their stocking locations.
- Five were stocked on May 30, 2022 at Site 1 (Zone STL-A) and were recaptured between 3.1 and 4.2 km of their stocking locations.

Twenty-eight were stocked in the Keeyask reservoir (Map 5):

- Ten were stocked prior to spillway commissioning and may have moved downstream through Gull Rapids or the Keeyask GS spillway.
    - Four were stocked on June 22, 2015 at Sites 1 and 2 (Zone GL-B) and on September 16 at Sites 6 (Zone GL-B) and 7 (Zone GL-C). These fish were captured between 11.7 and 17.9 km of their stocking locations.
    - Six were stocked on June 8, 2017 at Site 1 (Zone GL-A) and were captured between 23.7 and 23.8 km downstream of their release locations.
- Eighteen were stocked after spillway commissioning and moved downstream through the Keeyask GS.
    - Six were stocked on June 6, 2019 at Site 1 (Zone GL-C) and were captured between 11.5 and 13.0 km downstream.
    - Eleven were stocked on June 6, 2019 at Site 2 (Zone GL-B) and were captured between 14.6 and 15.5 km downstream.
    - One was stocked on June 2, 2022 at Site 1 (Zone GL-B) and was captured 14.8 km downstream of its release location.

Three were stocked in the Burntwood River (Map 3):

- One was stocked on May 31, 2018 at the Odei River boat launch (Site 1; Zone BWR-B) and was recaptured approximately 122 km downstream of its release location. In the four years since release, it increased in size by 217 mm and 400 g.

- One was stocked on June 7, 2018 at Site 2 (Zone BWR-A) and was recaptured approximately 131 km downstream of its release location. In the four years since release, it increased in size by 172 mm and 462 g.
- One was stocked on June 5, 2021 at the Odei River boat launch (Site 1; Zone BWR-B) and was recaptured approximately 122 km downstream of its release location. In the one years since release, it increased in size by 24 mm and 4 g.

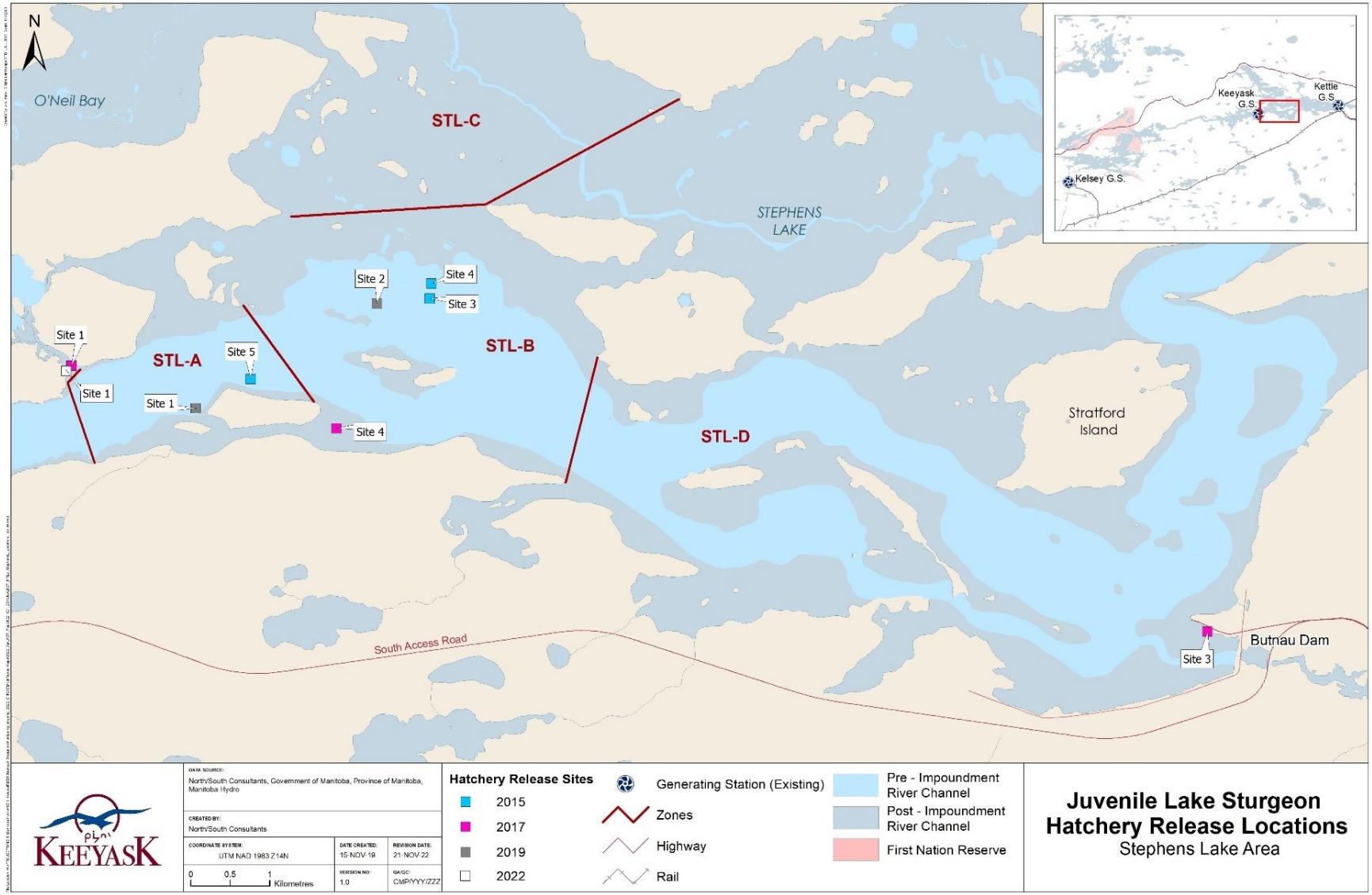
Table 33: Number (n) and percentage (%) of catch of hatchery-reared Lake Sturgeon caught in Stephens Lake between 2014 and 2022.

Capture Location	Sample Year	Release Location						Total	% of Total Catch
		Burntwood River		Keeyask reservoir[b]		Stephens Lake			
		n[a]	% of Catch	n	% of Catch	n	% of Catch		
Stephens Lake	2014	-	-	-	-	-	-	-	-
	2015	0	0.0	0	0.0	4	7.4	4	8.5
	2016	0	0.0	1	1.5	4	6.1	5	7.6
	2017	0	0.0	11	7.4	40	27.0	51	34.5
	2018	0	0.0	3	4.1	14	18.9	17	23.0
	2019	1	0.4	11	4.8	106	46.3	118	51.5
	2020	1	0.7	6	4.2	42	29.6	49	34.5
	2021	0	0.0	10	6.3	59	37.3	69	43.7
	2022	3	1.9	28	17.4	41	25.5	72	44.7

a. Number of fish
b. Birthday Rapids to the Keeyask GS

Table 34: Number and ages of hatchery-reared Lake Sturgeon released as age-1/age-2 fish and captured in Stephens Lake during juvenile Lake Sturgeon studies since 2015.

Monitoring Year	Stephens Lake
2015	**4**
	(All were 1 year old)
2016	**5**
	(All were 2 years old)
2017	**51**
	(33 were 1 years old)
	(18 were 3 years old)
2018	**17**
	(7 were 2 years old)
	(10 were 4 years old)
2019	**118**
	(84 were 1 years old)
	(13 were 3 years old)
	(20 were 5 years old)
	(1 was 6 years old)
2020	**49**
	(25 were 2 years old)
	(1 was 3 years old)
	(5 were 4 years old)
	(18 were 6 years old)
2021	**69**
	(51 were 3 years old)
	(9 were 5 years old)
	(9 were 7 years old)
2022	**72**
	(6 were 1 years old)
	(1 was 3 years old)
	(42 were 4 years old)
	(2 were 5 years old)
	(12 were 6 years old)
	(9 were 8 years old)



Map 7: Map of Lake Sturgeon yearling stocking sites in Stephens Lake since 2015.

5.0 DISCUSSION

Juvenile Lake Sturgeon population monitoring described in the Keeyask AEMP began in the fall of 2014, immediately after the start of the Keeyask GS construction. The monitoring program enables comparisons to data gathered during studies conducted since 2008 that measured juvenile sturgeon abundance, habitat use, condition, growth, year-class strength and factors influencing year-class strength in the Upper Split Lake Area, the Keeyask reservoir, and in Stephens Lake.

5.1 ABUNDANCE

Juvenile CPUE in the Upper Split Lake Area has been highly variable since sampling began in 2012, due in large part to variations in sampling location between earlier studies (2012–2018) and more recent sampling programs (2019-present). Since 2018, sampling effort has been increased in Split Lake, to determine whether stocked fish were moving downstream out of the Burntwood River. Gillnetting effort has been focussed along the southern portion of Split Lake (2019–2022) in a deep channel that was thought to receive flow from both the Burntwood and Nelson rivers, and where both hatchery and wild fish have been captured. Total CPUE was high in both Split Lake and the Burntwood River in 2022 and the largest number of hatchery fish since stocking began in 2014 were captured. A large number of wild YOY fish (spawned in 2022) were captured, including 12 in the Burntwood River and nine in Split Lake.

An estimate of the wild juvenile Lake Sturgeon population for the Upper Split Lake Area was calculated for the third time in 2022. As in previous years, a single value was produced for all of the Upper Split Lake Area as the large majority of juveniles are captured in Split Lake proper and may originate from either the Nelson River below Kelsey or the Burntwood River. The population of wild juvenile Lake Sturgeon in the Upper Split Lake Area was estimated at 10,334 individuals (95% CI: 2,774-36,190), which was higher than any other sampling year. High catches in both the Burntwood River and Split Lake coupled with relatively low recapture rates helped contribute to the large increase in the population estimate. However, because this is only the third year that the estimate was calculated, the confidence intervals remained large.

The overall catch and abundance estimates for wild juvenile Lake Sturgeon in the Keeyask reservoir suggests the number of juveniles has remained relatively stable since 2018. The population of wild juvenile Lake Sturgeon in the Keeyask reservoir was estimated at 2,793 individuals (95% CI: 1,727-4,517), which is similar to what was seen in previous years. Population estimates have remained stable since 2018 and no change in abundance or survival has been seen since reservoir impoundment in fall 2020.

In contrast, the juvenile Lake Sturgeon population in Stephens Lake appears to be increasing. The population of wild juvenile Lake Sturgeon in Stephens Lake was estimated at 3,665 individuals (95% CI: 1,462–9,184), which was more than five times higher than 2021 (558

individuals; 95% CI: 392-795). As in the Upper Split Lake area, this increase was largely driven by low recapture rates in 2022. Juvenile survival remained similar to 2021 and was estimated to be 79% (Jolly-Seber model within MARK).

5.2 RECRUITMENT

Juvenile Lake Sturgeon recruitment has occurred in the majority of study years in the Upper Split Lake Area, Keeyask reservoir and Stephens Lake since 2014. A total of 100 fish aged between 0 and 3 (38 in the Upper Split Lake Area, 31 in the Keeyask reservoir, and 31 in Stephens Lake) were caught in 2022. The presence of fish between age-0 and age-3 provides a short-term indication of spawning and recruitment success of early life stages during the construction and post-impoundment periods. Prior to 2022, the YOY age class has historically represented a small proportion of the catch as they are not fully recruited to the sampling gear. In 2022, the YOY catches in both the Upper Split Lake Area (n = 21) and Stephens Lake (n = 24) were higher than in all previous study years combined suggesting the 2022 cohort may be strong in future study years in both study areas.

It was predicted in the EIS that Keeyask GS operation may lead to a loss of access to YOY rearing habitat in the Keeyask reservoir. Although no YOY fish were captured in the Keeyask reservoir, one wild fish from the 2021 cohort was captured indicating wild recruitment has continued following impoundment. It was also predicted in the EIS that the Project may lead to a complete loss of spawning habitat at the GS. However, the capture of a large number of YOY fish in Stephens Lake indicates that successful spawning occurred downstream of the Keeyask GS in 2022, the first year it was fully operational.

5.3 MOVEMENTS

It was predicted in the EIS that juvenile Lake Sturgeon may be lost from the Keeyask reservoir due to emigration following reservoir impoundment. Prior to reservoir impoundment in 2020, relatively few wild Lake Sturgeon originally tagged upstream of the Keeyask GS were recaptured in Stephens Lake (n = 7 since 2009). This number increased in 2021, when 11 wild Lake Sturgeon tagged upstream of the Keeyask GS were recaptured in Stephens Lake. However, few (n = 4) fish tagged upstream of the GS were captured in Stephens Lake in 2022. This is in contrast to adult Lake Sturgeon who have displayed a large increase in the number of downstream movements through the Keeyask GS since reservoir impoundment (Ambrose *et al*. 2023; Hrenchuk 2023).

5.4 HATCHERY FISH

Stocking in the Burntwood River began in 2014 and since that time 1,931 age-1 and 188 age-2 Lake Sturgeon have been released ("Burntwood stocked fish"). Based on the recapture locations of Lake Sturgeon stocked in the Burntwood River, some of the stocked fish disperse a long distance downstream after release. In 2022, four Burntwood stocked fish were recaptured downstream, one in the Keeyask reservoir and three in Stephens Lake. The four captures bring the total number of Burntwood stocked fish caught in the Keeyask reservoir and Stephens Lake to 12 and five, respectively. The number of Burntwood stocked fish caught in Stephens Lake was the highest recorded since stocking began in 2014. Unlike in previous years, a large proportion of Burntwood stocked fish were captured within the Burntwood River (34%). While the majority of recaptured Burntwood stocked fish continue to be caught outside of the Burntwood River, the presence of a large proportion of hatchery-reared fish in the Burntwood River catch suggests at least some fish may remain in the river post-stocking.

Stocking in the Keeyask reservoir began in 2015 with 1,684 age-1 fish released to date ("Keeyask stocked fish"). The proportion of stocked hatchery fish in the 2022 catch was the highest since stocking began (n = 48; 26%). In Stephens Lake, 1,928 age-1 hatchery-reared Lake Sturgeon have been released since 2015 ("Stephens stocked fish"). The proportion of hatchery fish in the 2022 Stephens Lake catch (n = 72; 45%) was slightly higher than in 2021 and was the second highest catch since stocking began in 2015.

The proportion of Keeyask and Stephens stocked fish in the catch continues to increase as more fish are released. As of 2022, 305 Keeyask stocked fish (18%) have been recaptured, 235 in the Keeyask reservoir and 70 in Stephens Lake. A similar proportion of Stephens stocked fish have been recaptured in Stephens Lake (n = 310; 16%). In 2022, a large number of Keeyask stocked fish were recaptured in Stephens Lake accounting for 39% (n = 25) of all hatchery fish caught, more than double the previous high recorded in 2019 (n = 11). Compared to wild fish, stocked hatchery fish appear more susceptible to downstream movements.

5.5 KEY QUESTIONS

Commissioning of the Keeyask GS was completed in March 2022, when all powerhouse units became functional. Therefore, 2022 represents the first year of operation monitoring in both the Keeyask reservoir and Stephens Lake. Key questions identified in the AEMP are addressed below.

Does recruitment of wild sturgeon occur upstream and/or downstream of the GS during operation?

In 2022, no YOY Lake Sturgeon were caught in the Keeyask reservoir but 24 were caught in Stephens Lake, representing the highest number of age-0 fish ever caught (only 21 were captured between 2009 and 2021). The absence of YOY in the Keeyask reservoir does not necessarily

mean recruitment was unsuccessful, as YOY are often underrepresented in the catch due to their size and have only been captured in seven of 15 sampling years since 2008. Despite the absence of YOY sturgeon from the Keeyask reservoir in 2021, one 2021 cohort fish (age-1) was captured in the reservoir in 2022, indicating successful recruitment has occurred since reservoir impoundment. Successful spawning has been demonstrated in every year since construction began (*i.e.,* 2015–2022) with the exception of 2022 in the Keeyask reservoir and 2018 in Stephens Lake.

Does spawning habitat need to be created/modified (if recruitment of wild fish is not observed)?

At this time, it is too early to determine if recruitment has been impacted by creation of the Keeyask reservoir, as only two cohorts have been produced post-impoundment. However, early results indicate the 2021 cohort is present in the Keeyask reservoir and the 2021 and 2022 cohorts are present in Stephens Lake. Additionally, spring spawning studies captured spawning adult Lake Sturgeon both upstream and downstream of the GS in 2022 (Ambrose *et al*. 2023).

Is there a biologically meaningful (and statistically significant) change in condition factor and growth of juvenile sturgeon during operation?

Condition factor of juvenile Lake Sturgeon sampled in the Keeyask reservoir and Stephens Lake in 2022 were within the ranges observed in previous years. Comparison of growth curves of wild fish captured in the Keeyask reservoir during baseline, construction, and operation indicated growth was similar across time periods. Too few juveniles were collected in Stephens Lake prior to construction to support a pre-/post-construction analysis but growth rates are comparable to or slightly greater than observed in the Keeyask reservoir.

Where in the reservoir and in Stephens Lake will YOY rearing habitat be located, and will the distribution of YOY and juvenile Lake Sturgeon change following reservoir creation?

It was predicted in the EIS that areas used by juvenile Lake Sturgeon prior to GS construction may become unsuitable due to lower water velocities and silt deposition. It was predicted that juvenile Lake Sturgeon may move to alternative areas within the Keeyask reservoir. Sampling in 2022 represents the third sampling period following reservoir impoundment. Similar to previous sampling years, juvenile Lake Sturgeon in 2022 were largely captured in the lower portion of the middle basin of the reservoir (Zone GL-B) and in the area northwest of Caribou Island (Zone GL-C). Gill nets set farther upstream in Zones GL-A and BR-D continued to catch juvenile fish.

Degradation of pre-Project juvenile Lake Sturgeon rearing habitats were also predicted in Stephens Lake due to silt deposition. However, in 2022, the majority of fish were concentrated within the deep areas of water north of the islands located approximately 6 km downstream of the GS, in the same general areas as in previous sampling years. Sampling along the south shoreline of Stephens Lake immediately downstream of the GS (STL-A) was hampered by high spillway flows and levels of debris. Continued monitoring of juvenile Lake Sturgeon in the Keeyask study area will indicate both the short- and long-term impacts of impoundment on habitat utilization and abundance.

Does additional YOY habitat need to be created in the Keeyask reservoir or in Stephens Lake?

Recruitment of wild juvenile Lake Sturgeon has occurred consistently both upstream and downstream of the Keeyask GS since construction began. As a result, there is no current need for the creation of additional YOY habitat in the Keeyask reservoir or Stephens Lake.

Three questions related to the stocking program are addressed below:

- *What is the survival rate of stocked sturgeon?*;
- *What is the proportion of hatchery-reared to wild recruits within a cohort (i.e., how successful is the stocking program)?; and*
- *Do stocking rates need to be adjusted?*

In 2022, modelling results estimated the annual survival rate of stocked sturgeon at 92% in the Upper Split Lake Area, 95% in the Keeyask reservoir and 78% in Stephens Lake. The population of hatchery-reared sturgeon was estimated at 1,364 individuals (12% of the total juvenile population) in the Upper Split Lake Area, 1,411 individuals (34% of the total juvenile population) in the Keeyask reservoir, and 877 individuals (19% of the total juvenile population) in Stephens Lake. The proportion of hatchery fish in the Stephens Lake catch decreased between 2021 (52%) and 2022 (19%) due in large part to a large increase in the wild juvenile population estimate in 2022. It is important to note that only sturgeon stocked as yearlings and marked with PIT tags can be distinguished from wild fish, thus, the model only considers these fish.

Similar to recent years, hatchery-reared fish continued to account for a high proportion of the catch in both the Keeyask reservoir and Stephens Lake in 2022. Within the Keeyask reservoir, hatchery-reared fish accounted for 25% of the total catch in 2022, compared to 1-23% in previous years. These fish accounted for 17% of the 2013, 54% of the 2014, 12% of the 2016, 71% of the 2018 and 94% of the 2021 cohorts. Within Stephens Lake, hatchery-reared fish accounted for 45% of the catch in 2022, compared to 9-52% in previous years. These fish accounted for 82% of the 2014, 36% of the 2016, 15% of the 2017, 100% of the 2018, 33% of the 2019, and 100% of the 2021 cohorts The number of hatchery-reared fish caught in the Burntwood River and Split Lake was higher than in any previous study year. In the Burntwood River, hatchery-reared fish accounted for 13% of the total catch in 2022, compared to 0-22% in previous years. In Split Lake, hatchery-reared fish accounted for 18% of the catch in 2022, compared to 0-10% in previous years.

5.6 NEXT STEPS

Sampling conducted in 2022 represents the third year of monitoring following impoundment of the Keeyask GS reservoir and the first year following GS completion. The juvenile Lake Sturgeon population monitoring program will be repeated in 2023. As described in the AEMP, juvenile population monitoring is scheduled to occur annually in the Keeyask reservoir and Stephens Lake, and biennially in the Upper Split Lake Area.

6.0 SUMMARY AND CONCLUSIONS

- Sampling locations in the Upper Split Lake Area, Keeyask reservoir, and Stephens Lake remained similar to previous years with the exception of several new locations within the Keeyask reservoir.
- In the Burntwood River, 96 Lake Sturgeon (all juveniles) were captured in 692.6 gill net hours for a total CPUE of 3.33 Lake Sturgeon/100 m net/24 h. Aged Lake Sturgeon (n = 91) ranged from 0 to 23 years old with 5-year-old fish (2017 cohort) being the most prevalent in the catch (n = 14; 15.6%). Twelve YOY were captured in the Burntwood River. A total of three Lake Sturgeon tagged in previous years and 12 Burntwood stocked fish were captured. Of the three recaptured fish: two were initially tagged in the Burntwood River and one was initially tagged in Split Lake. The 12 Burntwood stocked fish were released in 2014 (n = 1; 2013 cohort), 2018 (n = 5; 2017 cohort), 2020 (n = 5; 2019 cohort), and 2021 (n = 1; 2019 cohort).
- In Split Lake, 128 Lake Sturgeon (3 adults and 125 juveniles) were captured in 836.3 gill net hours for a total CPUE of 3.67 Lake Sturgeon/100 m net/24 h. Aged Lake Sturgeon (n = 122) ranged from 0 to 17 years old with 5-year-old fish (2017 cohort) being the most prevalent in the catch (n = 24; 19.7%). Nine YOY were captured in Split Lake. A total of two Lake Sturgeon tagged in previous years and 23 Burntwood stocked fish were captured. Of the two recaptured fish: one was initially tagged in Split Lake and the other was initially tagged 62 km downstream in the Keeyask reservoir. The 23 Burntwood stocked fish caught in Split Lake were released in 2014 (n = 5; 2013 cohort), 2016 (n = 1; 2015 cohort), 2018 (n = 14; 2017 cohort), 2020 (n = 1; 2019 cohort), and 2021 (n = 2; 2019 cohort).
- In the Keeyask reservoir, 185 Lake Sturgeon were captured in 1,620.7 gill net hours for a total CPUE of 2.74 Lake Sturgeon/100 m net/24 h. Aged juvenile Lake Sturgeon (n = 182) ranged from 1 to 14 years old with 6-year-old fish (2016 cohort) being the most prevalent in the catch (n = 49; 26.9%). No YOY were captured in the Keeyask reservoir. A total of 31 Lake Sturgeon tagged in previous years and 48 stocked yearlings were captured. Of the 48 hatchery-reared fish, 47 were released in the Keeyask reservoir: 13 in 2015 (2014 cohort), six in 2017 (2016 cohort), 12 in 2019 (2018 cohort), and 16 in 2022 (2021 cohort). The remaining one fish was released in the Burntwood River in 2014 (2013 cohort) and was recaptured 115 km downstream of its release location.
- In Stephens Lake, 161 (156 juvenile and five adult) Lake Sturgeon were captured in 1,544.8 gill net hours for a total CPUE of 2.50 Lake Sturgeon/100 m net/24 h. Aged Lake Sturgeon (n = 155) ranged from 0 to 14 years old with the 2018 cohort (age-4) captured most frequently (n = 42; 27.1%). Twenty-four wild YOY fish were captured, more than in all previous years combined. A total of 16 Lake Sturgeon tagged in a previous year and 72 stocked yearlings were captured. Four of the 16 recaptured wild Lake Sturgeon were initially tagged upstream in the Keeyask reservoir. Of the 72 hatchery-reared fish caught in 2022, 41 were released in Stephens Lake: five in 2015 (2014 cohort), six in 2017 (2016

cohort), 25 in 2019 (2018 cohort), and five in 2022 (2021 cohort). Twenty-eight of the 72 hatchery recaptures were stocked in the Keeyask reservoir: four in 2015, six in 2017, 17 in 2019, and one in 2022. An additional three fish were stocked in the Burntwood River: two in 2018 (2017 cohort) as yearlings and one in 2021 as an age-2 (2019 cohort).

- Abundance estimates were calculated for wild juvenile Lake Sturgeon in the Upper Split Lake Area, Keeyask reservoir and Stephens Lake. The 2022 population estimates for the Upper Split Lake Area, Keeyask reservoir and Stephens Lake were 10,020 (95% CI: 2,774–36,190), 2,793 (95% CI: 1,727–4,517) and 3,665 (95% CI: 1,462–9,184), respectively. Survival was estimated to be 75% in the Upper Split Lake Area and Keeyask reservoir and 79% in Stephens Lake.
- The key questions, as described in the AEMP, for juvenile Lake Sturgeon population monitoring during construction and operation of the Keeyask GS are as follows:
  - *Does recruitment of wild sturgeon occur upstream and/or downstream of the GS during construction and operation?*

    In 2022, twenty-four wild YOY Lake Sturgeon were caught in Stephens Lake. Successful spawning has been demonstrated in every year since construction began *(i.e.*, 2015–2022), with the exception of the Keeyask reservoir in 2022 and Stephens Lake in 2018.
  - *Does spawning habitat need to be created/modified (if recruitment of wild fish is not observed)?*

    At this time, it is too early to determine if recruitment has been impacted by creation of the Keeyask reservoir, as only two cohorts have been spawned post-impoundment. However, early indications show that spawning and successful recruitment is occurring in the vicinity of the Keeyask GS. Future monitoring will determine if spawning habitat needs to be created/modified to offset any potential impacts related to Keeyask GS operation.
  - *Is there a biologically meaningful (and statistically significant) change in condition factor and growth of juvenile sturgeon during construction?*

    Condition factor of juvenile Lake Sturgeon sampled in the Keeyask reservoir and Stephens Lake in 2022 were within the ranges observed in previous years. Comparison of growth curves of wild fish captured in the Keeyask reservoir during baseline and construction indicated growth during both time periods was similar. Too few juveniles were collected in Stephens Lake prior to construction to support a pre/post construction analysis but growth rates are comparable to or slightly greater than observed in the Keeyask reservoir.
  - *Where in the Keeyask reservoir and in Stephens Lake will YOY rearing habitat be located, and will the distribution of YOY and juvenile Lake Sturgeon change following reservoir creation?*

Sampling in 2022 occurred more than two years after reservoir impoundment. Juvenile Lake Sturgeon were captured in the same general locations within the Keeyask reservoir and Stephens Lake as in previous years.

- *Does additional YOY habitat need to be created in the Keeyask reservoir or in Stephens Lake?*

  Recruitment of wild juvenile Lake Sturgeon has occurred consistently both upstream and downstream of the Keeyask GS since construction began. No YOY were captured in the Keeyask reservoir in either 2021 or 2022, however, one fish from the 2021 cohort (age-1) was captured in 2022 indicating that recruitment has occurred following reservoir impoundment. The lack of YOY in the catch is not unusual as this age class is often too small to be recruited to the sampling gear. Downstream of the Keeyask GS, a large number of wild YOY sturgeon were caught (n = 24) suggesting the 2022 cohort may be strong in Stephens Lake.

- *What is the survival rate of stocked sturgeon? What is the proportion of hatchery-reared to wild recruits within a cohort (i.e., how successful is the stocking program)? Do stocking rates need to be adjusted?*

  The survival rates of stocked sturgeon were 92% in the Upper Split Lake Area, 95% in the Keeyask reservoir, and 78% in Stephens Lake. Based on these survival rates, the population of stocked fish was estimated at 1,364 (or 12% of the juvenile population) in the Upper Split Lake Area, 1,411 fish (34% of the juvenile population) in the Keeyask reservoir, and 877 fish (19% of the juvenile population) in Stephens Lake.

  Similar to recent years, hatchery-reared fish continued to account for a high proportion of the catch in both the Keeyask reservoir and Stephens Lake in 2022. Within the Keeyask reservoir, hatchery-reared fish accounted for 25% of the total catch in 2022, compared to 1-23% in previous years. These fish accounted for 17% of the 2013, 54% of the 2014, 12% of the 2016, 71% of the 2018 and 94% of the 2021 cohorts. Within Stephens Lake, hatchery-reared fish accounted for 45% of the catch in 2022, compared to 9-52% in previous years. These fish accounted for 82% of the 2014, 36% of the 2016, 15% of the 2017, 100% of the 2018, 33% of the 2019, and 100% of the 2021 cohorts The number of hatchery-reared fish caught in the Burntwood River and Split Lake was higher than in any previous study year. In the Burntwood River, hatchery-reared fish accounted for 13% of the total catch in 2022, compared to 0-22% in previous years. In Split Lake, hatchery-reared fish accounted for 18% of the catch in 2022, compared to 0-10% in previous years.

- During the initial years of Project operation, the EIS predicted that areas used by juvenile Lake Sturgeon prior to GS construction may become unsuitable due to changes in water velocity and silt deposition, both in the Keeyask reservoir and Stephens Lake, and that juvenile Lake Sturgeon would move to other areas. Juvenile Lake Sturgeon were captured in both the Keeyask reservoir and Stephens Lake in similar locations as previous years in

2021 and 2022, indicating that the change in velocity has not resulted in movement of previously hatched juveniles to a different area. Changes to substrate will occur over a longer time period, so effects would not be evident within two years of impoundment. It was also predicted that juvenile Lake Sturgeon may be lost from the Keeyask reservoir due to emigration following reservoir impoundment, leading to a decrease in abundance. Floy-tag recaptures in 2021 suggested a downstream emigration had occurred, when 11 juvenile Lake Sturgeon tagged in the Keeyask reservoir were captured in Stephens Lake, representing an increase over previous years (seven recaptures since 2009). However, few (n = 4) fish tagged in the Keeyask reservoir were captured in Stephens Lake in 2022. The population estimate for the Keeyask reservoir in 2022 did not differ from previous years suggesting that any downstream emigration has not caused a detectable change in the abundance of juvenile Lake Sturgeon in the Keeyask reservoir.

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APPENDICES

APPENDIX 1: LOCATIONS AND SITE-SPECIFIC PHYSICAL MEASUREMENTS COLLECTED AT GILLNETTING SITES, FALL 2022.

Table A1-1: Location and site-specific physical measurements collected at gillnetting sites during juvenile Lake Sturgeon investigations conducted in the Upper Split Lake Area, fall 2022.

Site	Zone	UTM Location		Set Date	Set Water Temp (°C)	Pull Date	Pull Water Temp (°C)	Duration (dec.hrs)	Water Depth (m)	
		Easting	Northing						Start	End
GN-01	BWR-C	633509	6221574	9-Sep-22	14.0	10-Sep-22	14.0	25.13	13.9	14.1
GN-02	BWR-C	635468	6222530	9-Sep-22	14.0	10-Sep-22	14.0	24.67	11.9	9.7
GN-02	BWR-C	635468	6222530	10-Sep-22	14.0	11-Sep-22	14.0	21.88	11.9	9.7
GN-02	BWR-C	635468	6222530	11-Sep-22	14.0	12-Sep-22	14.0	23.42	11.9	9.7
GN-03	BWR-C	635184	6222460	9-Sep-22	14.0	10-Sep-22	14.0	23.77	14.1	14
GN-03	BWR-C	635184	6222460	10-Sep-22	14.0	11-Sep-22	14.0	23.25	14.1	14
GN-04	BWR-C	650923	6224092	9-Sep-22	14.0	10-Sep-22	14.0	19.58	9.8	9.9
GN-04	BWR-C	650923	6224092	10-Sep-22	14.0	11-Sep-22	14.0	23.63	9.8	9.9
GN-04	BWR-C	650923	6224092	11-Sep-22	14.0	12-Sep-22	14.0	22.88	9.8	9.9
GN-05	SPL-A	651694	6223929	9-Sep-22	14.0	10-Sep-22	14.0	18.75	8.2	8.3
GN-05	SPL-A	651694	6223929	10-Sep-22	14.0	11-Sep-22	14.0	27.65	8.2	8.3
GN-06	SPL-A	654452	6223366	9-Sep-22	14.0	10-Sep-22	14.0	17.65	7.9	7.3
GN-06	SPL-A	654452	6223366	10-Sep-22	14.0	11-Sep-22	14.0	24.00	7.9	7.3
GN-06	SPL-A	654452	6223366	11-Sep-22	14.0	12-Sep-22	14.0	29.25	7.9	7.3
GN-06	SPL-A	654452	6223366	12-Sep-22	14.0	13-Sep-22	13.0	23.88	7.9	7.3
GN-07	BWR-C	642425	6224279	10-Sep-22	14.0	11-Sep-22	14.0	20.75	13.6	10.1
GN-08	BWR-C	634721	6222253	11-Sep-22	14.0	12-Sep-22	14.0	24.68	14.6	14.9
GN-08	BWR-C	634721	6222253	12-Sep-22	14.0	13-Sep-22	13.0	21.05	14.6	14.9
GN-08	BWR-C	634721	6222253	13-Sep-22	13.0	14-Sep-22	13.0	26.62	14.6	14.9
GN-09	BWR-C	637238	6223294	11-Sep-22	14.0	12-Sep-22	14.0	21.73	14.6	15.1
GN-10	BWR-C	637384	6223385	11-Sep-22	14.0	12-Sep-22	14.0	25.17	7.6	8.3
GN-11	BWR-C	649366	6224350	12-Sep-22	14.0	13-Sep-22	13.0	23.15	10.2	12.2
GN-12	BWR-B	631513	6218296	12-Sep-22	14.0	13-Sep-22	13.0	23.83	10.2	10
GN-12	BWR-B	631513	6218296	13-Sep-22	13.0	14-Sep-22	13.0	25.00	10.2	10
GN-13	BWR-A	632352	6215758	12-Sep-22	14.0	13-Sep-22	13.0	23.78	9.9	10.2
GN-13	BWR-A	632352	6215758	13-Sep-22	13.0	14-Sep-22	13.0	23.38	9.9	10.2
GN-14	SPL-A	654770	6223306	12-Sep-22	14.0	13-Sep-22	13.0	22.35	6.8	6.2

Table A1-1: Location and site-specific physical measurements collected at gillnetting sites during juvenile Lake Sturgeon investigations conducted in the Upper Split Lake Area, fall 2022 (continued).

Site	Zone	UTM Location		Set Date	Set Water Temp (°C)	Pull Date	Pull Water Temp (°C)	Duration (dec.hrs)	Water Depth (m)	
		Easting	Northing						Start	End
GN-15	BWR-A	632045	6215490	13-Sep-22	13.0	14-Sep-22	13.0	21.92	10.9	11.3
GN-16	SPL-A	659325	6222050	13-Sep-22	13.0	14-Sep-22	13.0	25.22	12.0	11.0
GN-16	SPL-A	659325	6222050	14-Sep-22	13.0	15-Sep-22	13.0	22.23	12.0	11.0
GN-16	SPL-A	659325	6222050	15-Sep-22	13.0	16-Sep-22	13.0	23.78	12.0	11.0
GN-16	SPL-A	659325	6222050	16-Sep-22	13.0	17-Sep-22	13.0	20.98	12.0	11.0
GN-16	SPL-A	659325	6222050	17-Sep-22	13.0	18-Sep-22	13.0	22.58	12.0	11.0
GN-17	SPL-A	660813	6222051	13-Sep-22	13.0	14-Sep-22	13.0	24.00	9.9	10.0
GN-18	BWR-C	651239	6224025	14-Sep-22	13.0	15-Sep-22	13.0	20.28	8.4	9.1
GN-18	BWR-C	651239	6224025	15-Sep-22	13.0	16-Sep-22	13.0	24.50	8.4	9.1
GN-18	BWR-C	651239	6224025	16-Sep-22	13.0	17-Sep-22	13.0	28.83	8.4	9.1
GN-18	BWR-C	651239	6224025	17-Sep-22	13.0	18-Sep-22	13.0	22.33	8.4	9.1
GN-18	BWR-C	651239	6224025	18-Sep-22	13.0	19-Sep-22	13.0	20.75	8.4	9.1
GN-19	SPL-A	653515	6223729	14-Sep-22	13.0	15-Sep-22	13.0	21.15	6.1	5.5
GN-19	SPL-A	653515	6223729	15-Sep-22	13.0	16-Sep-22	13.0	24.00	6.1	5.5
GN-19	SPL-A	653515	6223729	16-Sep-22	13.0	17-Sep-22	13.0	27.17	6.1	5.5
GN-19	SPL-A	653515	6223729	17-Sep-22	13.0	18-Sep-22	13.0	21.17	6.1	5.5
GN-19	SPL-A	653515	6223729	18-Sep-22	13.0	19-Sep-22	13.0	24.20	6.1	5.5
GN-20	SPL-A	657204	6222816	14-Sep-22	13.0	15-Sep-22	13.0	21.33	8.1	7.0
GN-21	SPL-A	660026	6222015	14-Sep-22	13.0	15-Sep-22	13.0	22.18	9.6	8.8
GN-22	SPL-A	659594	6222075	14-Sep-22	13.0	15-Sep-22	13.0	22.65	13.0	11.0
GN-23	SPL-A	658454	6221875	15-Sep-22	13.0	16-Sep-22	13.0	23.88	8.4	12.1
GN-24	SPL-A	661506	6221938	15-Sep-22	13.0	16-Sep-22	13.0	26.57	13.2	10.2
GN-25	SPL-A	659065	6222037	15-Sep-22	13.0	16-Sep-22	13.0	21.75	16.6	9.6
GN-25	SPL-A	659065	6222037	16-Sep-22	13.0	17-Sep-22	13.0	22.92	16.6	9.6
GN-25	SPL-A	659065	6222037	17-Sep-22	13.0	18-Sep-22	13.0	22.33	16.6	9.6

Table A1-1: Location and site-specific physical measurements collected at gillnetting sites during juvenile Lake Sturgeon investigations conducted in the Upper Split Lake Area, fall 2022 (continued).

Site	Zone	UTM Location		Set Date	Set Water Temp (°C)	Pull Date	Pull Water Temp (°C)	Duration (dec.hrs)	Water Depth (m)	
		Easting	Northing						Start	End
GN-26	KGS-D	661234	6220810	16-Sep-22	13.0	17-Sep-22	13.0	17.90	16.2	14.0
GN-27	KGS-D	659252	6219972	16-Sep-22	13.0	17-Sep-22	13.0	17.45	13.0	13.5
GN-28	SPL-A	654267	6223340	17-Sep-22	13.0	18-Sep-22	13.0	21.87	8.8	5.2
GN-28	SPL-A	654267	6223340	18-Sep-22	13.0	19-Sep-22	13.0	25.50	8.8	5.2
GN-29	SPL-A	653374	6223730	17-Sep-22	13.0	18-Sep-22	13.0	22.87	6.1	5.7
GN-29	SPL-A	653374	6223730	18-Sep-22	13.0	19-Sep-22	13.0	22.42	6.1	5.7

Table A1-2: Location and site-specific physical measurements collected at gillnetting sites during juvenile Lake Sturgeon investigations conducted in the Keeyask reservoir, fall 2022.

Site	Zone	UTM Location		Set Date	Set Water Temp (°C)	Pull Date	Pull Water Temp (°C)	Duration (dec.hrs)	Water Depth (m)	
		Easting	Northing						Start	End
GN-01	GL-B	353771	6244079	14-Sep-22	15.8	15-Sep-22	15.8	23.50	15.0	16.0
GN-02	GL-B	353421	6244091	14-Sep-22	15.8	15-Sep-22	15.8	24.17	17.0	15.0
GN-02	GL-B	353421	6244091	15-Sep-22	15.8	16-Sep-22	15.9	23.58	17.0	15.0
GN-03	GL-B	352229	6243439	14-Sep-22	15.8	15-Sep-22	15.8	24.42	17.0	20.0
GN-04	BR-D	339167	6243787	14-Sep-22	15.8	15-Sep-22	15.8	25.92	14.0	-
GN-04	BR-D	339167	6243787	15-Sep-22	15.8	16-Sep-22	15.9	25.00	14.0	-
GN-05	BR-D	338289	6245194	14-Sep-22	15.8	15-Sep-22	15.8	24.60	14.0	12.0
GN-05	BR-D	338289	6245194	15-Sep-22	15.8	16-Sep-22	15.9	25.17	14.0	12.0
GN-06	BR-D	338400	6245062	14-Sep-22	15.8	15-Sep-22	15.8	24.92	15.0	15.0
GN-07	GL-B	353877	6244174	15-Sep-22	15.8	16-Sep-22	15.9	23.63	17.0	18.0
GN-07	GL-B	353877	6244174	16-Sep-22	15.9	17-Sep-22	15.9	26.33	17.0	18.0
GN-08	GL-B	352448	6243690	15-Sep-22	15.8	16-Sep-22	15.9	23.67	18.0	19.0
GN-09	GL-A	350275	6243944	15-Sep-22	15.8	16-Sep-22	15.9	21.50	15.0	15.0
GN-10	GL-B	354123	6244373	16-Sep-22	15.9	17-Sep-22	15.9	24.28	19.0	20.0
GN-11	GL-B	354481	6244683	16-Sep-22	15.9	17-Sep-22	15.9	22.83	19.0	19.0
GN-12	GL-A	350498	6243764	16-Sep-22	15.9	17-Sep-22	15.9	25.05	15.0	14.0
GN-12	GL-A	350498	6243764	17-Sep-22	15.9	18-Sep-22	15.7	27.75	15.0	14.0
GN-13	GL-A	347924	6243817	16-Sep-22	15.9	17-Sep-22	15.9	23.25	21.0	17.0
GN-13	GL-A	347924	6243817	17-Sep-22	15.9	18-Sep-22	15.7	26.08	21.0	17.0
GN-14	GL-B	354262	6244934	16-Sep-22	15.9	17-Sep-22	15.9	18.47	17.0	15.0
GN-15	GL-B	354577	6244906	17-Sep-22	15.9	18-Sep-22	15.7	28.33	17.0	22.0
GN-15	GL-B	354577	6244906	18-Sep-22	15.7	19-Sep-22	15.7	19.75	17.0	22.0
GN-16	GL-B	354646	6244576	17-Sep-22	15.9	18-Sep-22	15.7	28.03	17.0	16.0
GN-16	GL-B	354646	6244576	18-Sep-22	15.7	19-Sep-22	15.7	20.25	17.0	16.0
GN-17	GL-B	354087	6244293	17-Sep-22	15.9	18-Sep-22	15.7	28.07	19.0	20.0
GN-18	GL-C	355164	6246839	17-Sep-22	15.9	18-Sep-22	15.7	21.50	13.0	16.0
GN-19	GL-C	355639	6247423	18-Sep-22	15.7	19-Sep-22	15.7	28.17	12.0	13.0

Table A1-2: Location and site-specific physical measurements collected at gillnetting sites during juvenile Lake Sturgeon investigations conducted in the Keeyask reservoir, fall 2022 (continued).

Site	Zone	UTM Location		Set Date	Set Water Temp (°C)	Pull Date	Pull Water Temp (°C)	Duration (dec.hrs)	Water Depth (m)	
		Easting	Northing						Start	End
GN-20	GL-B	354186	6244702	18-Sep-22	15.7	19-Sep-22	15.7	21.38	14.0	13.0
GN-21	GL-C	355593	6246147	18-Sep-22	15.7	19-Sep-22	15.7	20.50	11.0	15.0
GN-22	GL-C	357066	6248069	18-Sep-22	15.7	19-Sep-22	15.7	18.55	15.0	17.0
GN-23	GL-C	355235	6247070	19-Sep-22	15.7	21-Sep-22	14.3	48.33	18.0	16.0
GN-23	GL-C	355235	6247070	21-Sep-22	14.3	23-Sep-22	14.3	50.00	18.0	16.0
GN-24	GL-C	365912	6248063	19-Sep-22	15.7	21-Sep-22	13.9	47.08	13.0	17.0
GN-25	GL-C	357269	6248140	19-Sep-22	15.7	21-Sep-22	14.3	45.08	19.0	14.0
GN-25	GL-C	357269	6248140	21-Sep-22	14.3	23-Sep-22	13.9	47.50	19.0	14.0
GN-25	GL-C	357269	6248140	23-Sep-22	13.9	24-Sep-22	14.1	25.00	19.0	14.0
GN-26	GL-C	357155	6248122	19-Sep-22	15.7	21-Sep-22	14.3	45.17	17.0	10.0
GN-26	GL-C	357155	6248122	21-Sep-22	14.3	23-Sep-22	13.9	47.00	17.0	10.0
GN-26	GL-C	357155	6248122	23-Sep-22	13.9	24-Sep-22	14.1	24.50	17.0	10.0
GN-27	GL-C	355520	6246355	19-Sep-22	15.7	21-Sep-22	14.3	45.90	15.0	16.0
GN-27	GL-C	355520	6246355	21-Sep-22	14.3	23-Sep-22	13.9	50.17	15.0	16.0
GN-27	GL-C	355520	6246355	23-Sep-22	13.9	24-Sep-22	14.1	19.67	15.0	16.0
GN-28	GL-C	355756	6247683	19-Sep-22	15.7	21-Sep-22	14.3	44.72	18.0	13.0
GN-29	GL-C	357200	6240123	21-Sep-22	14.3	23-Sep-22	13.9	46.42	16.0	17.0
GN-29	GL-C	357200	6240123	23-Sep-22	13.9	24-Sep-22	14.1	24.17	16.0	17.0
GN-30	GL-C	360271	6245781	21-Sep-22	14.3	23-Sep-22	13.9	49.13	14.0	13.0
GN-31	GL-C	355258	6247126	23-Sep-22	13.9	24-Sep-22	14.1	19.58	-	-
GN-32	GL-C	360423	6245799	23-Sep-22	13.9	24-Sep-22	14.1	19.87	-	-

Table A1-3: Location and site-specific physical measurements collected at gillnetting sites during juvenile Lake Sturgeon investigations conducted in Stephens Lake, fall 2022.

Site	Zone	UTM Location		Set Date	Set Water Temp (°C)	Pull Date	Pull Water Temp (°C)	Duration (dec.hrs)	Water Depth (m)	
		Easting	Northing						Start	End
GN-01	STL-A	366724	6247356	13-Sep-22	15.9	14-Sep-2022	15.8	16.08	11.2	12.6
GN-02	STL-B	367713	6248086	13-Sep-22	15.9	14-Sep-2022	15.8	16.87	16.2	15.5
GN-03	STL-B	368276	6248300	13-Sep-22	15.9	14-Sep-2022	15.8	17.55	12.0	13.2
GN-04	STL-B	369224	6248177	13-Sep-22	15.9	14-Sep-2022	15.8	17.92	13.2	16.5
GN-05	STL-B	369090	6247473	13-Sep-22	15.9	14-Sep-2022	15.8	18.57	12.6	11.9
GN-06	STL-A	367917	6247543	13-Sep-22	15.9	14-Sep-2022	15.8	18.88	12.6	15.6
GN-07	STL-A	366777	6247393	14-Sep-22	15.8	15-Sep-2022	15.8	23.83	12.1	10.6
GN-08	STL-B	368322	6247812	14-Sep-22	15.8	15-Sep-2022	15.8	24.32	14.3	16.5
GN-09	STL-B	368545	6248626	14-Sep-22	15.8	15-Sep-2022	15.8	24.55	14.7	10.5
GN-09	STL-B	368545	6248626	15-Sep-22	15.8	16-Sep-2022	15.9	23.00	14.7	10.5
GN-09	STL-B	368545	6248626	16-Sep-22	15.9	17-Sep-2022	15.9	23.08	14.7	10.5
GN-10	STL-B	369169	6248201	14-Sep-22	15.8	15-Sep-2022	15.8	25.05	13.2	14.8
GN-10	STL-B	369169	6248201	15-Sep-22	15.8	16-Sep-2022	15.9	23.12	13.2	14.8
GN-11	STL-B	368793	6247506	14-Sep-22	15.8	15-Sep-2022	15.8	25.17	14.6	14.3
GN-12	STL-B	368019	6247958	14-Sep-22	15.8	15-Sep-2022	15.8	24.88	11.0	17.6
GN-12	STL-B	368019	6247958	15-Sep-22	15.8	16-Sep-2022	15.9	23.25	11.0	17.6
GN-12	STL-B	368019	6247958	16-Sep-22	15.9	17-Sep-2022	15.9	23.17	11.0	17.6
GN-13	STL-A	366730	6247335	15-Sep-22	15.8	16-Sep-2022	15.9	22.37	16.3	12.2
GN-14	STL-B	368251	6248128	15-Sep-22	15.8	16-Sep-2022	15.9	21.92	14.7	13.6
GN-15	STL-B	368549	6247398	15-Sep-22	15.8	16-Sep-2022	15.9	22.78	16.9	16.2
GN-16	STL-A	366681	6247447	16-Sep-22	15.9	17-Sep-2022	15.9	28.78	17.8	14.9
GN-17	STL-B	368024	6248295	16-Sep-22	15.9	17-Sep-2022	15.9	22.25	16.3	14.9
GN-18	STL-B	369257	6248375	16-Sep-22	15.9	17-Sep-2022	15.9	22.43	13.6	14.2
GN-18	STL-B	369257	6248375	17-Sep-22	15.9	18-Sep-2022	15.7	24.33	13.6	14.2
GN-18	STL-B	369257	6248375	18-Sep-22	15.7	19-Sep-2022	15.7	23.52	13.6	14.2
GN-18	STL-B	369257	6248375	19-Sep-22	15.7	21-Sep-2022	14.3	47.98	13.6	14.2
GN-18	STL-B	369257	6248375	21-Sep-22	14.3	23-Sep-2022	13.9	46.58	13.6	14.2

Table A1-3: Location and site-specific physical measurements collected at gillnetting sites during juvenile Lake Sturgeon investigations conducted in Stephens Lake, fall 2022 (continued).

Site	Zone	UTM Location		Set Date	Set Water Temp (°C)	Pull Date	Pull Water Temp (°C)	Duration (dec.hrs)	Water Depth (m)	
		Easting	Northing						Start	End
GN-19	STL-B	368422	6247489	16-Sep-22	15.9	17-Sep-2022	15.9	22.67	16.9	16.2
GN-20	STL-B	368204	6248363	17-Sep-22	15.9	18-Sep-2022	15.7	28.80	15.8	12.8
GN-21	STL-B	368806	6248624	17-Sep-22	15.9	18-Sep-2022	15.7	25.83	14.4	16.9
GN-21	STL-B	368806	6248624	18-Sep-22	15.7	19-Sep-2022	15.7	23.08	14.4	16.9
GN-21	STL-B	368806	6248624	18-Sep-22	15.7	21-Sep-2022	14.3	68.67	14.4	16.9
GN-22	STL-B	368310	6247293	17-Sep-22	15.9	18-Sep-2022	15.7	21.13	10.9	13.4
GN-23	STL-B	368564	6248146	17-Sep-22	15.9	18-Sep-2022	15.7	24.33	13.5	11.2
GN-23	STL-B	368564	6248146	18-Sep-22	15.7	19-Sep-2022	15.7	23.00	13.5	11.2
GN-23	STL-B	368564	6248146	19-Sep-22	15.7	21-Sep-2022	14.3	47.42	13.5	11.2
GN-24	STL-A	366408	6247139	17-Sep-22	15.9	18-Sep-2022	15.7	17.87	11.7	15.4
GN-25	STL-A	366683	6247344	18-Sep-22	15.7	19-Sep-2022	15.7	23.20	11.4	13.0
GN-26	STL-B	368514	6247219	18-Sep-22	15.7	19-Sep-2022	15.7	27.50	11.6	16.1
GN-27	STL-B	368342	6248531	18-Sep-22	15.7	19-Sep-2022	15.7	22.45	13.6	14.7
GN-28	STL-B	369520	6248443	19-Sep-22	15.7	21-Sep-2022	14.3	47.25	11.1	15.4
GN-29	STL-B	369071	6248557	19-Sep-22	15.7	21-Sep-2022	14.3	43.17	13.6	14.9
GN-29	STL-B	369071	6248557	21-Sep-22	14.3	23-Sep-2022	13.9	47.83	13.6	14.9
GN-30	STL-B	369437	6247314	19-Sep-22	15.7	20-Sep-2022	14.9	18.75	14.2	14.9
GN-31	STL-B	369587	6247489	20-Sep-22	14.9	21-Sep-2022	14.3	28.67	12.9	14.2
GN-32	STL-B	369666	6248112	21-Sep-22	14.3	23-Sep-2022	13.9	48.92	12.6	14.6
GN-33	STL-B	369656	6247891	21-Sep-22	14.3	23-Sep-2022	13.9	45.00	11.2	13.7
GN-34	STL-B	369883	6247554	21-Sep-22	14.3	23-Sep-2022	13.9	43.75	13.2	13.9

APPENDIX 2: BIOLOGICAL AND TAG INFORMATION FOR LAKE STURGEON CAPTURED IN FALL 2022.

Table A2-1: Biological and tag information for Lake Sturgeon captured in the Upper Split Lake Area, fall 2022. Red text indicates fish mortality.

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Upper Split Lake Area	GN-6	SPL-A	10-Sep-22	1	125801	900 226001227889	452	512	750	6
Upper Split Lake Area	GN-6	SPL-A	10-Sep-22	2	125802	900 226001226504	435	495	625	5
Upper Split Lake Area	GN-6	SPL-A	10-Sep-22	3	125804	900 067000110472	404	460	500	5
Upper Split Lake Area	GN-6	SPL-A	10-Sep-22	4	125805	900 226001227835	390	445	500	4
Upper Split Lake Area	GN-6	SPL-A	10-Sep-22	5	125807	900 226001226582	374	430	400	4
Upper Split Lake Area	GN-6	SPL-A	10-Sep-22	6	125808	900 226001227837	320	371	325	2
Upper Split Lake Area	GN-5	SPL-A	10-Sep-22	7	125810	900 226001227864	492	551	825	6
Upper Split Lake Area	GN-5	SPL-A	10-Sep-22	8	125811	900 226001227838	564	633	1500	6
Upper Split Lake Area	GN-5	SPL-A	10-Sep-22	9	125812	900 226001227848	522	589	1050	7
Upper Split Lake Area	GN-4	BWR-C	10-Sep-22	10	125813	900 226001227888	355	403	350	-
Upper Split Lake Area	GN-4	BWR-C	10-Sep-22	11	125814	900 226001227861	415	467	525	6
Upper Split Lake Area	GN-4	BWR-C	10-Sep-22	12	125815	900 226001227823	460	530	700	5
Upper Split Lake Area	GN-4	BWR-C	10-Sep-22	13	125816	900 226001227876	400	448	475	6
Upper Split Lake Area	GN-4	BWR-C	10-Sep-22	14	-	-	97	114	10	0
Upper Split Lake Area	GN-3	BWR-C	10-Sep-22	15	125817	900 226001227650	375	433	400	5
Upper Split Lake Area	GN-3	BWR-C	10-Sep-22	16	125818	900 226001226590	342	391	225	-
Upper Split Lake Area	GN-3	BWR-C	10-Sep-22	17	125819	900 067000110134	391	444	425	5
Upper Split Lake Area	GN-3	BWR-C	10-Sep-22	18	125820	900 226001226532	326	375	275	4
Upper Split Lake Area	GN-3	BWR-C	10-Sep-22	19	125822	900 226001230041	505	566	925	9
Upper Split Lake Area	GN-3	BWR-C	10-Sep-22	20	-	-	485	542	875	6
Upper Split Lake Area	GN-2	BWR-C	10-Sep-22	21	125823	900 226001226608	340	393	275	3
Upper Split Lake Area	GN-2	BWR-C	10-Sep-22	22	125824	900 226001226500	447	508	650	8
Upper Split Lake Area	GN-2	BWR-C	10-Sep-22	23	125825	900 226001226553	331	369	275	4
Upper Split Lake Area	GN-6	SPL-A	11-Sep-22	24	125826	900 067000110761	442	495	600	5
Upper Split Lake Area	GN-6	SPL-A	11-Sep-22	25	125827	900 067000056980	446	503	725	5
Upper Split Lake Area	GN-6	SPL-A	11-Sep-22	26	125828	900 226001226518	614	693	1675	8
Upper Split Lake Area	GN-6	SPL-A	11-Sep-22	27	125829	900 226001226581	533	600	1125	6

Table A2-1: Biological and tag information for Lake Sturgeon captured in the Upper Split Lake Area, fall 2022. Red text indicates fish mortality (continued).

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Upper Split Lake Area	GN-4	BWR-C	11-Sep-22	28	125830	900 226001226597	693	775	2500	-
Upper Split Lake Area	GN-4	BWR-C	11-Sep-22	29	125831	900 226001226592	465	531	800	8
Upper Split Lake Area	GN-4	BWR-C	11-Sep-22	30	-	-	112	126	7	0
Upper Split Lake Area	GN-2	BWR-C	11-Sep-22	31	125832	900 226001226542	640	731	1650	9
Upper Split Lake Area	GN-2	BWR-C	11-Sep-22	32	125833	900 226001226586	659	736	2300	13
Upper Split Lake Area	GN-2	BWR-C	11-Sep-22	33	125834	900 226001226591	638	715	2075	11
Upper Split Lake Area	GN-2	BWR-C	11-Sep-22	34	125835	900 226001224136	514	576	1025	8
Upper Split Lake Area	GN-2	BWR-C	11-Sep-22	35	125836	900 067000110779	417	473	500	5
Upper Split Lake Area	GN-2	BWR-C	11-Sep-22	36	-	-	120	125	10	0
Upper Split Lake Area	GN-3	BWR-C	11-Sep-22	37	125850	900 067000108072	346	398	225	3
Upper Split Lake Area	GN-5	SPL-A	11-Sep-22	38	-	-	115	125	8	0
Upper Split Lake Area	GN-5	SPL-A	11-Sep-22	39	125849	900 226001226590	419	478	525	6
Upper Split Lake Area	GN-4	BWR-C	12-Sep-22	40	-	-	115	128	12	0
Upper Split Lake Area	GN-4	BWR-C	12-Sep-22	41	-	-	116	130	13	0
Upper Split Lake Area	GN-4	BWR-C	12-Sep-22	42	-	-	100	114	7	0
Upper Split Lake Area	GN-9	BWR-C	12-Sep-22	43	-	-	490	553	775	8
Upper Split Lake Area	GN-8	BWR-C	12-Sep-22	44	125848	-	458	525	825	8
Upper Split Lake Area	GN-8	BWR-C	12-Sep-22	45	125847	900 226001226535	433	494	625	8
Upper Split Lake Area	GN-8	BWR-C	12-Sep-22	46	125846	900 226001227880	350	399	300	4
Upper Split Lake Area	GN-6	SPL-A	12-Sep-22	47	125845	900 067000111816	460	524	600	5
Upper Split Lake Area	GN-6	SPL-A	12-Sep-22	48	125844	900 226001226564	546	640	1175	6
Upper Split Lake Area	GN-6	SPL-A	12-Sep-22	49	125843	900 226001227805	484	541	750	5
Upper Split Lake Area	GN-6	SPL-A	12-Sep-22	50	125842	900 043000103181	531	585	1100	9
Upper Split Lake Area	GN-6	SPL-A	12-Sep-22	51	125841	900 067000110767	436	510	550	5
Upper Split Lake Area	GN-6	SPL-A	12-Sep-22	52	125840	900 226001227811	470	526	700	6
Upper Split Lake Area	GN-6	SPL-A	12-Sep-22	53	-	900 043000182532	227	261	100	1
Upper Split Lake Area	GN-6	SPL-A	12-Sep-22	54	-	900 043000182531	208	241	100	1

Table A2-1: Biological and tag information for Lake Sturgeon captured in the Upper Split Lake Area, fall 2022. Red text indicates fish mortality (continued).

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Upper Split Lake Area	GN-10	BWR-C	12-Sep-22	55	125839	900 226001227893	505	557	950	8
Upper Split Lake Area	GN-11	BWR-C	13-Sep-22	56	-	-	110	123	8	0
Upper Split Lake Area	GN-8	BWR-C	13-Sep-22	57	125876	900 226001226550	444	498	600	7
Upper Split Lake Area	GN-8	BWR-C	13-Sep-22	58	125877	900 067000108405	322	375	175	3
Upper Split Lake Area	GN-12	BWR-B	13-Sep-22	59	125878	900 067000108410	368	419	275	3
Upper Split Lake Area	GN-12	BWR-B	13-Sep-22	60	125879	900 067000110843	325	382	175	3
Upper Split Lake Area	GN-13	BWR-A	13-Sep-22	61	125880	900 226001226509	761	855	2700	19
Upper Split Lake Area	GN-13	BWR-A	13-Sep-22	62	125881	900 226001227868	576	660	1500	16
Upper Split Lake Area	GN-13	BWR-A	13-Sep-22	63	103835	900 226000768538	633	719	1750	17
Upper Split Lake Area	GN-13	BWR-A	13-Sep-22	64	125882	900 226001227849	510	580	850	9
Upper Split Lake Area	GN-13	BWR-A	13-Sep-22	65	125883	900 226001226570	436	497	550	8
Upper Split Lake Area	GN-13	BWR-A	13-Sep-22	66	125884	900 226001227600	396	451	400	4
Upper Split Lake Area	GN-13	BWR-A	13-Sep-22	67	125885	900 067000109930	433	486	525	5
Upper Split Lake Area	GN-13	BWR-A	13-Sep-22	68	125886	900 226001226549	328	377	250	3
Upper Split Lake Area	GN-13	BWR-A	13-Sep-22	69	102162	900 067000110307	395	457	450	5
Upper Split Lake Area	GN-13	BWR-A	13-Sep-22	70	-	-	531	606	1000	8
Upper Split Lake Area	GN-6	SPL-A	13-Sep-22	71	125887	900 067000111827	472	531	700	5
Upper Split Lake Area	GN-6	SPL-A	13-Sep-22	72	125888	900 226001227860	507	573	900	7
Upper Split Lake Area	GN-6	SPL-A	13-Sep-22	73	125890	900 226001226561	517	584	975	6
Upper Split Lake Area	GN-15	BWR-A	14-Sep-22	74	125891	900 226001227883	699	795	2375	14
Upper Split Lake Area	GN-15	BWR-A	14-Sep-22	75	125892	900 226001227692	440	494	600	6
Upper Split Lake Area	GN-15	BWR-A	14-Sep-22	76	125893	900 226001225742	384	440	400	4
Upper Split Lake Area	GN-13	BWR-A	14-Sep-22	77	94483	-	660	745	2100	-
Upper Split Lake Area	GN-13	BWR-A	14-Sep-22	78	125894	900 226001226501	666	757	1800	17
Upper Split Lake Area	GN-13	BWR-A	14-Sep-22	79	125895	900 226001226557	483	552	750	9
Upper Split Lake Area	GN-13	BWR-A	14-Sep-22	80	125896	900 226001227810	592	671	1300	-
Upper Split Lake Area	GN-13	BWR-A	14-Sep-22	81	125897	900 226001226584	409	465	475	5

Table A2-1: Biological and tag information for Lake Sturgeon captured in the Upper Split Lake Area, fall 2022. Red text indicates fish mortality (continued).

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Upper Split Lake Area	GN-12	BWR-B	14-Sep-22	82	125898	900 226001226506	566	648	1325	9
Upper Split Lake Area	GN-12	BWR-B	14-Sep-22	83	-	-	116	128	10	0
Upper Split Lake Area	GN-12	BWR-B	14-Sep-22	84	-	-	115	127	9	0
Upper Split Lake Area	GN-8	BWR-C	14-Sep-22	85	125899	900 226001227808	554	622	1050	7
Upper Split Lake Area	GN-8	BWR-C	14-Sep-22	86	125900	982 000362432255	391	436	475	9
Upper Split Lake Area	GN-17	SPL-A	14-Sep-22	87	125875	900 226001226523	731	825	3050	11
Upper Split Lake Area	GN-16	SPL-A	14-Sep-22	88	125874	900 226001227874	873	966	6000	-
Upper Split Lake Area	GN-16	SPL-A	14-Sep-22	89	125873	900 226001227895	785	883	3350	17
Upper Split Lake Area	GN-16	SPL-A	14-Sep-22	90	125872	900 226001226505	497	566	850	5
Upper Split Lake Area	GN-16	SPL-A	14-Sep-22	91	125871	900 067000111856	500	562	900	5
Upper Split Lake Area	GN-16	SPL-A	14-Sep-22	92	125870	900 226001225576	662	739	2050	8
Upper Split Lake Area	GN-16	SPL-A	14-Sep-22	93	125869	900 226001226528	681	769	2400	9
Upper Split Lake Area	GN-16	SPL-A	14-Sep-22	94	125868	900 226001226575	575	650	1600	9
Upper Split Lake Area	GN-18	BWR-C	15-Sep-22	95	125867	900 226001226577	595	670	1500	10
Upper Split Lake Area	GN-18	BWR-C	15-Sep-22	96	125866	900 067000110771	415	477	400	5
Upper Split Lake Area	GN-18	BWR-C	15-Sep-22	97	125865	900 226001230063	423	481	500	5
Upper Split Lake Area	GN-18	BWR-C	15-Sep-22	98	125864	900 226001226554	396	450	375	4
Upper Split Lake Area	GN-18	BWR-C	15-Sep-22	99	125863	900 226001227616	420	476	425	5
Upper Split Lake Area	GN-18	BWR-C	15-Sep-22	100	125862	900 226001226526	332	375	250	4
Upper Split Lake Area	GN-18	BWR-C	15-Sep-22	101	125861	900 226001225007	326	359	175	2
Upper Split Lake Area	GN-18	BWR-C	15-Sep-22	102	-	-	127	143	13	0
Upper Split Lake Area	GN-19	SPL-A	15-Sep-22	103	125860	900 226001226562	634	720	1750	12
Upper Split Lake Area	GN-19	SPL-A	15-Sep-22	104	125859	900 226001226527	559	627	1300	8
Upper Split Lake Area	GN-19	SPL-A	15-Sep-22	105	125858	900 226001226551	424	479	550	5
Upper Split Lake Area	GN-19	SPL-A	15-Sep-22	106	125857	900 067000110808	344	399	325	3
Upper Split Lake Area	GN-20	SPL-A	15-Sep-22	107	-	900 067000121355	220	246	-	1
Upper Split Lake Area	GN-21	SPL-A	15-Sep-22	108	125856	900 226001226521	714	797	2925	10

Table A2-1: Biological and tag information for Lake Sturgeon captured in the Upper Split Lake Area, fall 2022. Red text indicates fish mortality (continued).

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Upper Split Lake Area	GN-21	SPL-A	15-Sep-22	109	125855	900 226001226571	605	686	1725	10
Upper Split Lake Area	GN-21	SPL-A	15-Sep-22	110	125854	900 226001226538	576	650	1450	7
Upper Split Lake Area	GN-16	SPL-A	15-Sep-22	111	125853	900 226001230061	699	794	2500	15
Upper Split Lake Area	GN-16	SPL-A	15-Sep-22	112	125852	900 226001230044	727	813	2600	8
Upper Split Lake Area	GN-16	SPL-A	15-Sep-22	113	125851	900 226001227806	676	743	2000	7
Upper Split Lake Area	GN-16	SPL-A	15-Sep-22	114	125950	900 226001225797	625	700	1800	9
Upper Split Lake Area	GN-16	SPL-A	15-Sep-22	115	125949	900 226001055399	670	762	2250	9
Upper Split Lake Area	GN-16	SPL-A	15-Sep-22	116	125948	900 226001226503	567	636	1400	6
Upper Split Lake Area	GN-16	SPL-A	15-Sep-22	117	125947	900 043000103136	566	634	1275	9
Upper Split Lake Area	GN-16	SPL-A	15-Sep-22	118	125946	900 226001227812	464	532	750	6
Upper Split Lake Area	GN-16	SPL-A	15-Sep-22	119	119939	900 226001031879	535	613	1075	6
Upper Split Lake Area	GN-18	BWR-C	16-Sep-22	120	125945	900 226001227818	642	724	1775	9
Upper Split Lake Area	GN-18	BWR-C	16-Sep-22	121	125944	900 226001226593	488	550	725	6
Upper Split Lake Area	GN-18	BWR-C	16-Sep-22	122	125943	900 043000182128	286	324	200	2
Upper Split Lake Area	GN-18	BWR-C	16-Sep-22	123	125942	900 226001226543	335	385	300	5
Upper Split Lake Area	GN-19	SPL-A	16-Sep-22	124	125941	900 067000109113	335	400	225	3
Upper Split Lake Area	GN-19	SPL-A	16-Sep-22	125	125940	900 067000110369	406	472	450	5
Upper Split Lake Area	GN-19	SPL-A	16-Sep-22	126	125939	900 226001226574	623	714	1675	10
Upper Split Lake Area	GN-19	SPL-A	16-Sep-22	127	125938	900 226001226517	674	758	2100	9
Upper Split Lake Area	GN-19	SPL-A	16-Sep-22	128	125937	900 226001227856	524	590	1075	9
Upper Split Lake Area	GN-19	SPL-A	16-Sep-22	129	125926	900 226001230040	575	651	1325	9
Upper Split Lake Area	GN-19	SPL-A	16-Sep-22	130	-	-	100	112	7	0
Upper Split Lake Area	GN-19	SPL-A	16-Sep-22	131	-	-	113	130	9	0
Upper Split Lake Area	GN-19	SPL-A	16-Sep-22	132	-	-	105	119	8	0
Upper Split Lake Area	GN-23	SPL-A	16-Sep-22	133	125927	900 067000110311	475	524	700	5
Upper Split Lake Area	GN-23	SPL-A	16-Sep-22	134	125928	900 226001227800	500	574	950	6
Upper Split Lake Area	GN-23	SPL-A	16-Sep-22	135	125929	900 226001226578	670	764	1925	7

Table A2-1: Biological and tag information for Lake Sturgeon captured in the Upper Split Lake Area, fall 2022. Red text indicates fish mortality (continued).

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Upper Split Lake Area	GN-23	SPL-A	16-Sep-22	136	125930	900 226001226268	684	771	2550	16
Upper Split Lake Area	GN-23	SPL-A	16-Sep-22	137	-	-	515	577	1000	8
Upper Split Lake Area	GN-25	SPL-A	16-Sep-22	138	125931	900 226001227862	535	623	1200	6
Upper Split Lake Area	GN-25	SPL-A	16-Sep-22	139	125935	900 043000119425	583	645	1450	9
Upper Split Lake Area	GN-25	SPL-A	16-Sep-22	140	125932	900 226001227814	454	517	625	5
Upper Split Lake Area	GN-25	SPL-A	16-Sep-22	141	125933	900 226000893690	790	903	3700	11
Upper Split Lake Area	GN-25	SPL-A	16-Sep-22	142	125934	900 226001226508	684	775	2150	10
Upper Split Lake Area	GN-25	SPL-A	16-Sep-22	143	125925	900 226001226555	648	732	1800	10
Upper Split Lake Area	GN-25	SPL-A	16-Sep-22	144	125924	900 226001227866	593	669	1500	9
Upper Split Lake Area	GN-25	SPL-A	16-Sep-22	145	125923	900 226001227831	639	715	2050	9
Upper Split Lake Area	GN-25	SPL-A	16-Sep-22	146	125922	900 043000102953	615	686	1700	9
Upper Split Lake Area	GN-25	SPL-A	16-Sep-22	147	125921	900 226001227870	340	382	300	3
Upper Split Lake Area	GN-25	SPL-A	16-Sep-22	148	125920	900 226001227894	448	514	700	5
Upper Split Lake Area	GN-25	SPL-A	16-Sep-22	149	125919	900 226001226531	440	500	725	6
Upper Split Lake Area	GN-16	SPL-A	16-Sep-22	150	125918	900 226001227832	784	862	3900	-
Upper Split Lake Area	GN-16	SPL-A	16-Sep-22	151	125917	900 226001226545	710	798	2500	8
Upper Split Lake Area	GN-16	SPL-A	16-Sep-22	152	125916	900 226001227843	552	621	1400	8
Upper Split Lake Area	GN-16	SPL-A	16-Sep-22	153	125915	900 226001225559	595	671	1550	8
Upper Split Lake Area	GN-16	SPL-A	16-Sep-22	154	125914	900 226001226566	620	703	1725	-
Upper Split Lake Area	GN-16	SPL-A	16-Sep-22	155	125913	900 226001227807	687	750	2225	9
Upper Split Lake Area	GN-16	SPL-A	16-Sep-22	156	125912	900 067000109904	414	469	450	5
Upper Split Lake Area	GN-24	SPL-A	16-Sep-22	157	125911	900 226001226598	730	829	3450	10
Upper Split Lake Area	GN-24	SPL-A	16-Sep-22	158	125910	900 226001227863	775	878	3300	11
Upper Split Lake Area	GN-26	KGS-D	17-Sep-22	159	-	900 226001226552	545	614	1325	6
Upper Split Lake Area	GN-16	SPL-A	17-Sep-22	160	-	900 226001226589	742	840	3200	8
Upper Split Lake Area	GN-16	SPL-A	17-Sep-22	161	-	900 226001226536	527	593	1025	6
Upper Split Lake Area	GN-16	SPL-A	17-Sep-22	162	-	900 226001227884	641	715	2100	9

Table A2-1: Biological and tag information for Lake Sturgeon captured in the Upper Split Lake Area, fall 2022. Red text indicates fish mortality (continued).

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Upper Split Lake Area	GN-25	SPL-A	17-Sep-22	163	-	900 226001227867	431	493	600	5
Upper Split Lake Area	GN-25	SPL-A	17-Sep-22	164	-	900 226001227839	557	635	1350	8
Upper Split Lake Area	GN-25	SPL-A	17-Sep-22	165	-	900 226001227847	475	539	800	5
Upper Split Lake Area	GN-25	SPL-A	17-Sep-22	166	-	900 226001226569	497	578	950	5
Upper Split Lake Area	GN-25	SPL-A	17-Sep-22	167	-	900 226001226513	810	920	3750	-
Upper Split Lake Area	GN-19	SPL-A	17-Sep-22	168	125909	900 067000109943	500	564	900	5
Upper Split Lake Area	GN-19	SPL-A	17-Sep-22	169	125908	900 067000109394	321	366	175	3
Upper Split Lake Area	GN-19	SPL-A	17-Sep-22	170	-	900 043000182558	200	222	75	1
Upper Split Lake Area	GN-19	SPL-A	17-Sep-22	171	-	-	113	128	7	0
Upper Split Lake Area	GN-18	BWR-C	17-Sep-22	172	-	900 226001227845	742	834	2800	13
Upper Split Lake Area	GN-18	BWR-C	17-Sep-22	173	-	900 226001226572	663	738	2450	11
Upper Split Lake Area	GN-18	BWR-C	17-Sep-22	174	-	900 226001227850	544	618	1225	9
Upper Split Lake Area	GN-18	BWR-C	17-Sep-22	175	-	900 226001226529	450	510	700	5
Upper Split Lake Area	GN-18	BWR-C	17-Sep-22	176	125907	900 067000109431	365	415	350	3
Upper Split Lake Area	GN-18	BWR-C	17-Sep-22	177	-	900 226001227844	449	505	725	6
Upper Split Lake Area	GN-18	BWR-C	17-Sep-22	178	-	900 226001227628	462	520	675	7
Upper Split Lake Area	GN-18	BWR-C	17-Sep-22	179	-	900 043000192350	463	519	700	4
Upper Split Lake Area	GN-18	BWR-C	17-Sep-22	180	-	900 226001226546	455	515	725	6
Upper Split Lake Area	GN-18	BWR-C	17-Sep-22	181	-	900 226001227828	403	456	550	6
Upper Split Lake Area	GN-18	BWR-C	17-Sep-22	182	125906	900 067000108471	315	359	300	3
Upper Split Lake Area	GN-18	BWR-C	17-Sep-22	183	-	900 043000182526	199	227	100	1
Upper Split Lake Area	GN-18	BWR-C	17-Sep-22	184	-	-	105	110	6	0
Upper Split Lake Area	GN-18	BWR-C	17-Sep-22	185	-	-	112	126	7	0
Upper Split Lake Area	GN-16	SPL-A	18-Sep-22	186	112064	900 067000058248	555	624	1250	7
Upper Split Lake Area	GN-28	SPL-A	18-Sep-22	187	125905	900 226001226520	764	860	3200	12
Upper Split Lake Area	GN-28	SPL-A	18-Sep-22	188	125904	900 226001227869	629	700	1700	11
Upper Split Lake Area	GN-28	SPL-A	18-Sep-22	189	125903	900 226001227891	630	713	1600	12

Table A2-1: Biological and tag information for Lake Sturgeon captured in the Upper Split Lake Area, fall 2022. Red text indicates fish mortality (continued).

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Upper Split Lake Area	GN-28	SPL-A	18-Sep-22	190	125902	900 226001227897	313	352	250	2
Upper Split Lake Area	GN-19	SPL-A	18-Sep-22	191	125901	900 067000110284	400	441	425	5
Upper Split Lake Area	GN-19	SPL-A	18-Sep-22	192	125951	900 226001226507	477	536	900	9
Upper Split Lake Area	GN-19	SPL-A	18-Sep-22	193	125952	900 226001227809	420	450	500	10
Upper Split Lake Area	GN-19	SPL-A	18-Sep-22	194	-	900 043000103770	225	255	125	1
Upper Split Lake Area	GN-29	SPL-A	18-Sep-22	195	125953	900 067000110287	443	503	500	5
Upper Split Lake Area	GN-29	SPL-A	18-Sep-22	196	125954	-	430	487	450	6
Upper Split Lake Area	GN-29	SPL-A	18-Sep-22	197	-	900 043000182542	227	260	75	1
Upper Split Lake Area	GN-29	SPL-A	18-Sep-22	198	-	-	120	134	10	0
Upper Split Lake Area	GN-29	SPL-A	18-Sep-22	199	-	-	115	130	9	0
Upper Split Lake Area	GN-18	BWR-C	18-Sep-22	200	125955	900 226001227857	487	561	800	7
Upper Split Lake Area	GN-18	BWR-C	18-Sep-22	201	125956	900 226001227859	432	486	625	6
Upper Split Lake Area	GN-18	BWR-C	18-Sep-22	202	125957	900 226001226502	423	475	550	6
Upper Split Lake Area	GN-18	BWR-C	18-Sep-22	203	-	900 226001227898	299	332	175	2
Upper Split Lake Area	GN-18	BWR-C	19-Sep-22	204	-	900 226001226510	531	592	1200	6
Upper Split Lake Area	GN-18	BWR-C	19-Sep-22	205	125959	900 226001226519	497	562	950	6
Upper Split Lake Area	GN-18	BWR-C	19-Sep-22	206	125960	-	545	633	1200	8
Upper Split Lake Area	GN-18	BWR-C	19-Sep-22	207	125961	-	446	499	725	5
Upper Split Lake Area	GN-18	BWR-C	19-Sep-22	208	125962	-	318	360	300	3
Upper Split Lake Area	GN-18	BWR-C	19-Sep-22	209	125963	-	371	414	400	5
Upper Split Lake Area	GN-29	SPL-A	19-Sep-22	210	125964	-	789	870	3300	-
Upper Split Lake Area	GN-29	SPL-A	19-Sep-22	211	125965	-	629	720	1900	9
Upper Split Lake Area	GN-29	SPL-A	19-Sep-22	212	125966	-	581	648	1475	9
Upper Split Lake Area	GN-29	SPL-A	19-Sep-22	213	125967	900 067000111128	420	478	550	5
Upper Split Lake Area	GN-29	SPL-A	19-Sep-22	214	125968	-	470	535	800	6
Upper Split Lake Area	GN-29	SPL-A	19-Sep-22	215	125969	-	443	495	625	5
Upper Split Lake Area	GN-29	SPL-A	19-Sep-22	216	125970	900 043000103128	508	564	1050	9

Table A2-1: Biological and tag information for Lake Sturgeon captured in the Upper Split Lake Area, fall 2022. Red text indicates fish mortality (continued).

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Upper Split Lake Area	GN-29	SPL-A	19-Sep-22	217	125971	-	290	329	175	2
Upper Split Lake Area	GN-29	SPL-A	19-Sep-22	218	-	-	120	133	7	0
Upper Split Lake Area	GN-19	SPL-A	19-Sep-22	219	125972	-	440	490	700	6
Upper Split Lake Area	GN-19	SPL-A	19-Sep-22	220	125973	-	620	716	1750	8
Upper Split Lake Area	GN-19	SPL-A	19-Sep-22	221	125974	-	843	949	4700	-
Upper Split Lake Area	GN-19	SPL-A	19-Sep-22	222	125976	-	659	747	2000	8
Upper Split Lake Area	GN-28	SPL-A	19-Sep-22	223	125977	-	567	642	1550	6
Upper Split Lake Area	GN-28	SPL-A	19-Sep-22	224	-	-	123	140	11	0

Table A2-2: Biological and tag information for Lake Sturgeon captured in the Keeyask reservoir, fall 2022.

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Keeyask reservoir	GN-01	GL-B	15-Sep-22	1	125201	900 226001226044	500	570	750	6
Keeyask reservoir	GN-01	GL-B	15-Sep-22	2	125202	900 226001226012	510	580	800	6
Keeyask reservoir	GN-02	GL-B	15-Sep-22	3	125203	900 067000055374	480	580	700	8
Keeyask reservoir	GN-02	GL-B	15-Sep-22	4	125204	900 226001658921	380	430	250	5
Keeyask reservoir	GN-02	GL-B	15-Sep-22	5	125205	900 226001225329	315	340	150	2
Keeyask reservoir	GN-02	GL-B	15-Sep-22	6	125206	900 226001226092	710	810	2500	12
Keeyask reservoir	GN-05	BR-D	15-Sep-22	7	245	989 001038119815	495	568	600	6
Keeyask reservoir	GN-05	BR-D	15-Sep-22	8	90258	900 226000629367	630	710	2000	12
Keeyask reservoir	GN-05	BR-D	15-Sep-22	9	125207	900 067000113015	420	485	500	4
Keeyask reservoir	GN-05	BR-D	15-Sep-22	10	125208	900 226001226065	270	310	125	2
Keeyask reservoir	GN-06	BR-D	15-Sep-22	11	125209	900 067000055099	530	610	700	8
Keeyask reservoir	GN-04	BR-D	15-Sep-22	12	125210	900 226001226035	300	345	150	2
Keeyask reservoir	GN-04	BR-D	15-Sep-22	13	125211	900 226001226079	710	795	1750	12
Keeyask reservoir	GN-07	GL-B	16-Sep-22	14	125212	900 067000055041	549	640	800	8
Keeyask reservoir	GN-07	GL-B	16-Sep-22	15	111910	900 226000768242	678	764	2000	8
Keeyask reservoir	GN-07	GL-B	16-Sep-22	16	125213	900 067000058763	510	585	800	8
Keeyask reservoir	GN-07	GL-B	16-Sep-22	17	125214	900 226001226071	580	650	1175	8
Keeyask reservoir	GN-07	GL-B	16-Sep-22	18	125215	900 067000055124	520	589	800	8
Keeyask reservoir	GN-07	GL-B	16-Sep-22	19	117099	900 226001031285	510	570	775	6
Keeyask reservoir	GN-07	GL-B	16-Sep-22	20	111013	900 226000893552	570	660	1350	11
Keeyask reservoir	GN-02	GL-B	16-Sep-22	21	125216	900 043000239555	280	320	125	1
Keeyask reservoir	GN-02	GL-B	16-Sep-22	22	117933	900 226001224733	460	515	600	6
Keeyask reservoir	GN-02	GL-B	16-Sep-22	23	125217	900 067000055401	580	664	1175	8
Keeyask reservoir	GN-08	GL-B	16-Sep-22	24	125218	900 226001227494	470	540	700	6
Keeyask reservoir	GN-08	GL-B	16-Sep-22	25	125220	900 043000239093	275	310	100	1
Keeyask reservoir	GN-09	GL-A	16-Sep-22	26	125221	900 067000059493	470	540	575	6
Keeyask reservoir	GN-09	GL-A	16-Sep-22	27	125222	900 067000108644	445	500	500	4
Keeyask reservoir	GN-05	BR-D	16-Sep-22	28	125223	900 226001226093	450	515	500	5

Table A2-2: Biological and tag information for Lake Sturgeon captured in the Keeyask reservoir, fall 2022 (continued).

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Keeyask reservoir	GN-05	BR-D	16-Sep-22	29	125224	900 226001226868	479	540	625	6
Keeyask reservoir	GN-05	BR-D	16-Sep-22	30	125225	900 226001226032	455	532	600	7
Keeyask reservoir	GN-05	BR-D	16-Sep-22	31	125150	900 226001226039	635	720	1475	9
Keeyask reservoir	GN-05	BR-D	16-Sep-22	32	125149	900 226001226054	440	512	550	6
Keeyask reservoir	GN-05	BR-D	16-Sep-22	33	125147	900 226001225334	448	515	525	6
Keeyask reservoir	GN-05	BR-D	16-Sep-22	34	122556	900 226001227602	589	675	1350	8
Keeyask reservoir	GN-04	BR-D	16-Sep-22	35	125146	900 226001226000	355	400	250	4
Keeyask reservoir	GN-04	BR-D	16-Sep-22	36	125145	900 067000121364	546	623	900	6
Keeyask reservoir	GN-14	GL-B	17-Sep-22	37	125144	900 226001226370	324	369	150	3
Keeyask reservoir	GN-14	GL-B	17-Sep-22	38	125143	900 067000121350	476	544	600	6
Keeyask reservoir	GN-14	GL-B	17-Sep-22	39	125142	900 226001225509	472	536	650	6
Keeyask reservoir	GN-14	GL-B	17-Sep-22	40	125141	900 226001226073	260	302	75	2
Keeyask reservoir	GN-11	GL-B	17-Sep-22	41	125140	900 226001225657	510	585	675	6
Keeyask reservoir	GN-11	GL-B	17-Sep-22	42	125138	900 226001226850	362	415	250	4
Keeyask reservoir	GN-11	GL-B	17-Sep-22	43	125137	900 226001225372	488	560	650	6
Keeyask reservoir	GN-10	GL-B	17-Sep-22	44	125136	900 226001225616	466	542	675	6
Keeyask reservoir	GN-10	GL-B	17-Sep-22	45	125135	900 226001225048	484	569	775	6
Keeyask reservoir	GN-10	GL-B	17-Sep-22	46	125133	900 226001226335	336	387	250	4
Keeyask reservoir	GN-10	GL-B	17-Sep-22	47	125132	900 226001224322	760	819	2325	14
Keeyask reservoir	GN-10	GL-B	17-Sep-22	48	125131	900 226001227485	336	387	225	3
Keeyask reservoir	GN-07	GL-B	17-Sep-22	49	125130	900 067000113243	450	516	500	4
Keeyask reservoir	GN-07	GL-B	17-Sep-22	50	125129	900 226001226087	444	500	475	5
Keeyask reservoir	GN-07	GL-B	17-Sep-22	51	125127	900 226001226084	649	723	1900	11
Keeyask reservoir	GN-12	GL-A	17-Sep-22	52	125126	900 067000055679	515	597	750	8
Keeyask reservoir	GN-12	GL-A	17-Sep-22	53	125200	900 226001226051	532	606	925	6
Keeyask reservoir	GN-12	GL-A	17-Sep-22	54	125199	900 226001226099	532	607	975	7
Keeyask reservoir	GN-12	GL-A	17-Sep-22	55	125198	900 067000055543	564	645	1000	8
Keeyask reservoir	GN-13	GL-A	17-Sep-22	56	125197	900 043000239212	307	351	275	1

Table A2-2: Biological and tag information for Lake Sturgeon captured in the Keeyask reservoir, fall 2022 (continued).

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Keeyask reservoir	GN-13	GL-A	17-Sep-22	57	-	900 043000239115	240	275	75	1
Keeyask reservoir	GN-13	GL-A	17-Sep-22	58	-	900 067000121566	252	292	75	2
Keeyask reservoir	GN-13	GL-A	17-Sep-22	59	-	900 043000192351	290	331	150	1
Keeyask reservoir	GN-15	GL-B	18-Sep-22	60	117071	900 067000058409	514	592	775	8
Keeyask reservoir	GN-15	GL-B	18-Sep-22	61	-	900 226001031159	480	470	475	6
Keeyask reservoir	GN-15	GL-B	18-Sep-22	62	-	900 067000121604	271	305	100	2
Keeyask reservoir	GN-15	GL-B	18-Sep-22	63	-	900 043000182560	275	369	125	2
Keeyask reservoir	GN-15	GL-B	18-Sep-22	64	-	900 043000182291	262	300	100	2
Keeyask reservoir	GN-16	GL-B	18-Sep-22	65	125196	900 226001224324	556	636	1175	9
Keeyask reservoir	GN-16	GL-B	18-Sep-22	66	121208	900 067000058712	610	707	2000	8
Keeyask reservoir	GN-16	GL-B	18-Sep-22	67	125195	900 067000055049	620	717	1275	8
Keeyask reservoir	GN-16	GL-B	18-Sep-22	68	125194	900 226001226376	344	398	225	3
Keeyask reservoir	GN-16	GL-B	18-Sep-22	69	-	900 043000192386	276	300	125	2
Keeyask reservoir	GN-17	GL-B	18-Sep-22	70	125192	900 226001224605	500	566	750	6
Keeyask reservoir	GN-17	GL-B	18-Sep-22	71	118637	900 226001658976	431	497	425	5
Keeyask reservoir	GN-17	GL-B	18-Sep-22	72	111014	900 226000893635	772	875	3000	14
Keeyask reservoir	GN-13	GL-A	18-Sep-22	73	-	900 043000182283	271	304	150	2
Keeyask reservoir	GN-13	GL-A	18-Sep-22	74	125191	900 067000121507	462	531	550	6
Keeyask reservoir	GN-13	GL-A	18-Sep-22	75	-	900 067000121677	259	300	125	-
Keeyask reservoir	GN-13	GL-A	18-Sep-22	76	116827	900 226001031209	717	820	2575	-
Keeyask reservoir	GN-12	GL-A	18-Sep-22	77	125190	900 226001224539	462	522	600	5
Keeyask reservoir	GN-12	GL-A	18-Sep-22	78	125188	900 067000055550	596	673	1150	8
Keeyask reservoir	GN-12	GL-A	18-Sep-22	79	118315	900 067000059257	449	497	525	6
Keeyask reservoir	GN-12	GL-A	18-Sep-22	80	125187	900 067000112423	461	527	575	6
Keeyask reservoir	GN-12	GL-A	18-Sep-22	81	125185	900 226001226043	475	549	600	6
Keeyask reservoir	GN-12	GL-A	18-Sep-22	82	125184	900 226001226070	720	826	2600	14
Keeyask reservoir	GN-12	GL-A	18-Sep-22	83	125183	900 226001225016	529	597	975	7
Keeyask reservoir	GN-12	GL-A	18-Sep-22	84	125182	900 226001225691	635	725	1900	10

Table A2-2: Biological and tag information for Lake Sturgeon captured in the Keeyask reservoir, fall 2022 (continued).

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Keeyask reservoir	GN-12	GL-A	18-Sep-22	85	-	900 043000239286	290	335	150	1
Keeyask reservoir	GN-15	GL-B	19-Sep-22	86	125180	900 043000103655	335	389	300	3
Keeyask reservoir	GN-16	GL-B	19-Sep-22	88	125179	900 226001224629	462	537	550	6
Keeyask reservoir	GN-16	GL-B	19-Sep-22	89	125178	900 067000112978	396	447	275	4
Keeyask reservoir	GN-16	GL-B	19-Sep-22	90	121299	000 001380347930	385	445	225	3
Keeyask reservoir	GN-22	GL-C	19-Sep-22	91	-	900 043000239264	279	320	125	1
Keeyask reservoir	GN-22	GL-C	19-Sep-22	92	-	900 043000192320	283	320	175	2
Keeyask reservoir	GN-22	GL-C	19-Sep-22	93	-	900 043000239309	288	319	150	1
Keeyask reservoir	GN-22	GL-C	19-Sep-22	94	-	900 043000192383	295	333	175	2
Keeyask reservoir	GN-22	GL-C	19-Sep-22	95	-	900 043000192342	279	318	150	2
Keeyask reservoir	GN-22	GL-C	19-Sep-22	96	-	900 043000239307	280	307	150	1
Keeyask reservoir	GN-21	GL-C	19-Sep-22	97	116792	900 226001031175	478	545	550	6
Keeyask reservoir	GN-21	GL-C	19-Sep-22	98	125176	900 226001224546	494	568	575	5
Keeyask reservoir	GN-21	GL-C	19-Sep-22	99	125177	900 226001225596	542	619	800	8
Keeyask reservoir	GN-21	GL-C	19-Sep-22	100	125193	900 226001224725	545	621	775	9
Keeyask reservoir	GN-21	GL-C	19-Sep-22	101	125186	900 226001224054	718	814	2600	13
Keeyask reservoir	GN-21	GL-C	19-Sep-22	102	-	900 043000182205	270	304	100	2
Keeyask reservoir	GN-19	GL-C	19-Sep-22	103	125128	900 226001224660	343	393	200	3
Keeyask reservoir	GN-19	GL-C	19-Sep-22	104	125226	900 226001225655	410	464	350	5
Keeyask reservoir	GN-19	GL-C	19-Sep-22	105	-	900 043000238973	259	293	100	1
Keeyask reservoir	GN-25	GL-C	21-Sep-22	106	125227	900 067000058490	616	699	1125	8
Keeyask reservoir	GN-25	GL-C	21-Sep-22	107	125228	900 226001224609	506	571	950	8
Keeyask reservoir	GN-25	GL-C	21-Sep-22	108	125229	900 226001227774	585	675	1375	9
Keeyask reservoir	GN-25	GL-C	21-Sep-22	109	125231	900 226001225677	585	660	1325	11
Keeyask reservoir	GN-25	GL-C	21-Sep-22	110	117106	900 226001031164	490	570	725	7
Keeyask reservoir	GN-25	GL-C	21-Sep-22	111	125232	900 226001224770	483	545	800	6
Keeyask reservoir	GN-25	GL-C	21-Sep-22	112	125223	900 226001226068	470	533	575	5
Keeyask reservoir	GN-25	GL-C	21-Sep-22	113	-	-	299	326	125	2

Table A2-2: Biological and tag information for Lake Sturgeon captured in the Keeyask reservoir, fall 2022 (continued).

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Keeyask reservoir	GN-25	GL-C	21-Sep-22	114	-	900 043000239490	270	307	125	1
Keeyask reservoir	GN-26	GL-C	21-Sep-22	115	125234	900 226001225605	495	572	825	6
Keeyask reservoir	GN-26	GL-C	21-Sep-22	116	112541	900 226000893512	570	632	1200	10
Keeyask reservoir	GN-26	GL-C	21-Sep-22	117	125235	900 226001225636	624	707	1550	8
Keeyask reservoir	GN-26	GL-C	21-Sep-22	118	116752	900 226001031208	555	630	1125	7
Keeyask reservoir	GN-26	GL-C	21-Sep-22	119	125236	900 226001224601	696	785	2200	13
Keeyask reservoir	GN-26	GL-C	21-Sep-22	120	125237	900 226001224645	700	800	2225	13
Keeyask reservoir	GN-26	GL-C	21-Sep-22	121	116805	900 067000113723	392	449	275	4
Keeyask reservoir	GN-26	GL-C	21-Sep-22	122	121253	900 226001224831	530	592	1025	6
Keeyask reservoir	GN-26	GL-C	21-Sep-22	123	125238	900 226001226081	526	595	875	6
Keeyask reservoir	GN-26	GL-C	21-Sep-22	124	125239	900 226001225643	488	557	725	5
Keeyask reservoir	GN-26	GL-C	21-Sep-22	125	121239	900 226001224847	474	537	625	6
Keeyask reservoir	GN-26	GL-C	21-Sep-22	126	125240	900 226001225687	483	562	725	6
Keeyask reservoir	GN-26	GL-C	21-Sep-22	127	125241	900 226001658814	551	630	1100	7
Keeyask reservoir	GN-26	GL-C	21-Sep-22	128	125242	900 067000112480	465	539	625	6
Keeyask reservoir	GN-26	GL-C	21-Sep-22	129	125243	900 226001225671	431	485	500	5
Keeyask reservoir	GN-26	GL-C	21-Sep-22	130	125244	900 226001227995	725	826	2675	13
Keeyask reservoir	GN-26	GL-C	21-Sep-22	131	125245	900 043000103752	480	525	775	6
Keeyask reservoir	GN-26	GL-C	21-Sep-22	132	125246	900 226001225619	545	619	1150	9
Keeyask reservoir	GN-26	GL-C	21-Sep-22	133	125247	900 226001224545	520	578	875	5
Keeyask reservoir	GN-26	GL-C	21-Sep-22	134	125248	900 226001658882	566	656	1125	8
Keeyask reservoir	GN-26	GL-C	21-Sep-22	135	125249	900 043000119515	522	576	900	9
Keeyask reservoir	GN-26	GL-C	21-Sep-22	136	125250	900 226001225527	460	516	600	6
Keeyask reservoir	GN-24	GL-C	21-Sep-22	137	125175	900 067000112429	493	550	700	6
Keeyask reservoir	GN-24	GL-C	21-Sep-22	138	-	900 043000239360	276	321	125	1
Keeyask reservoir	GN-24	GL-C	21-Sep-22	139	-	-	282	314	150	2
Keeyask reservoir	GN-24	GL-C	21-Sep-22	140	-	900 043000238908	267	301	125	1
Keeyask reservoir	GN-24	GL-C	21-Sep-22	141	125174	900 067000109646	390	446	325	4

Table A2-2: Biological and tag information for Lake Sturgeon captured in the Keeyask reservoir, fall 2022 (continued).

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Keeyask reservoir	GN-24	GL-C	21-Sep-22	142	-	900 043000239417	272	301	125	1
Keeyask reservoir	GN-28	GL-C	21-Sep-22	143	125173	900 226001225641	566	633	1150	7
Keeyask reservoir	GN-23	GL-C	21-Sep-22	144	125172	900 226001225584	702	804	2325	10
Keeyask reservoir	GN-23	GL-C	21-Sep-22	145	125171	900 226001224529	320	361	150	3
Keeyask reservoir	GN-23	GL-C	21-Sep-22	146	121200	900 226001224781	490	566	725	6
Keeyask reservoir	GN-23	GL-C	21-Sep-22	147	125170	900 226001224690	325	367	175	3
Keeyask reservoir	GN-23	GL-C	21-Sep-22	148	125169	900 226001225659	610	683	1350	7
Keeyask reservoir	GN-23	GL-C	21-Sep-22	149	-	900 067000121205	266	302	100	2
Keeyask reservoir	GN-23	GL-C	21-Sep-22	150	125168	900 226001225599	411	466	400	5
Keeyask reservoir	GN-23	GL-C	21-Sep-22	151	125166	900 226001226077	566	656	1250	8
Keeyask reservoir	GN-23	GL-C	21-Sep-22	152	-	900 043000182278	224	246	50	2
Keeyask reservoir	GN-23	GL-C	21-Sep-22	153	125165	900 226001225516	490	555	700	6
Keeyask reservoir	GN-23	GL-C	21-Sep-22	154	-	900 043000182543	274	307	100	2
Keeyask reservoir	GN-27	GL-C	21-Sep-22	155	125164	900 226001226050	462	527	550	6
Keeyask reservoir	GN-27	GL-C	21-Sep-22	156	-	900 043000182537	253	283	75	2
Keeyask reservoir	GN-27	GL-C	21-Sep-22	157	125163	900 067000113038	448	518	500	4
Keeyask reservoir	GN-27	GL-C	21-Sep-22	158	-	900 043000182505	248	280	100	2
Keeyask reservoir	GN-25	GL-C	23-Sep-22	159	125162	900 067000108616	450	520	450	4
Keeyask reservoir	GN-25	GL-C	23-Sep-22	160	125159	900 226001225631	489	549	525	6
Keeyask reservoir	GN-25	GL-C	23-Sep-22	161	118635	900 226001658792	591	668	1200	7
Keeyask reservoir	GN-25	GL-C	23-Sep-22	162	125158	900 226001226085	495	564	700	6
Keeyask reservoir	GN-25	GL-C	23-Sep-22	163	125157	900 226001224602	469	525	600	6
Keeyask reservoir	GN-26	GL-C	23-Sep-22	164	125156	900 226001225581	575	645	1050	8
Keeyask reservoir	GN-26	GL-C	23-Sep-22	165	111026	900 226000893923	639	721	1700	11
Keeyask reservoir	GN-26	GL-C	23-Sep-22	166	121157	900 226001224830	639	728	1600	8
Keeyask reservoir	GN-29	GL-C	23-Sep-22	167	125155	900 226001226356	495	569	700	4
Keeyask reservoir	GN-29	GL-C	23-Sep-22	168	125154	900 067000109357	400	454	400	4
Keeyask reservoir	GN-29	GL-C	23-Sep-22	169	-	900 043000238916	276	319	100	1

Table A2-2: Biological and tag information for Lake Sturgeon captured in the Keeyask reservoir, fall 2022 (continued).

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Keeyask reservoir	GN-29	GL-C	23-Sep-22	170	-	900 043000239464	274	309	100	1
Keeyask reservoir	GN-29	GL-C	23-Sep-22	171	125153	900 226001224168	640	729	1800	8
Keeyask reservoir	GN-29	GL-C	23-Sep-22	172	125152	900 226001225521	420	478	350	4
Keeyask reservoir	GN-23	GL-C	23-Sep-22	173	-	900 043000239048	271	305	100	1
Keeyask reservoir	GN-23	GL-C	23-Sep-22	174	-	900 043000192379	260	294	100	2
Keeyask reservoir	GN-30	GL-C	23-Sep-22	176	125151	900 226001055249	521	598	900	5
Keeyask reservoir	GN-30	GL-C	23-Sep-22	177	125325	900 067000108615	456	525	500	4
Keeyask reservoir	GN-26	GL-C	24-Sep-22	178	125350	900 067000113751	402	458	375	4
Keeyask reservoir	GN-29	GL-C	24-Sep-22	179	125324	900 067000109295	440	502	500	4
Keeyask reservoir	GN-29	GL-C	24-Sep-22	180	125349	900 226001225689	490	565	700	6
Keeyask reservoir	GN-29	GL-C	24-Sep-22	181	125323	900 226001225672	472	540	675	6
Keeyask reservoir	GN-29	GL-C	24-Sep-22	182	125322	900 226001055491	515	580	900	6
Keeyask reservoir	GN-29	GL-C	24-Sep-22	183	125321	900 067000112089	428	475	475	6
Keeyask reservoir	GN-29	GL-C	24-Sep-22	184	125320	900 226001224636	515	580	875	6
Keeyask reservoir	GN-29	GL-C	24-Sep-22	185	125319	900 226001225617	520	600	925	6
Keeyask reservoir	GN-29	GL-C	24-Sep-22	186	125318	900 226000767262	430	460	500	6
Keeyask reservoir	GN-27	GL-C	24-Sep-22	187	125316	900 226001224956	815	920	4050	-

Table A2-3: Biological and tag information for Lake Sturgeon captured in Stephens Lake, fall 2022.

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Stephens Lake	GN-1	STL-A	14-Sep-22	1	125701	900 067000055349	634	730	1600	8
Stephens Lake	GN-1	STL-A	14-Sep-22	2	125702	900 067000110393	403	455	550	5
Stephens Lake	GN-2	STL-B	14-Sep-22	3	125703	900 226001227305	808	924	3700	-
Stephens Lake	GN-4	STL-B	14-Sep-22	4	-	-	105	115	-	0
Stephens Lake	GN-7	STL-A	15-Sep-22	5	125704	900 226000768544	855	965	4200	-
Stephens Lake	GN-8	STL-B	15-Sep-22	6	91583	900 226000767472	830	950	4600	-
Stephens Lake	GN-9	STL-B	15-Sep-22	7	125705	900 226001227306	515	590	900	7
Stephens Lake	GN-9	STL-B	15-Sep-22	8	125706	900 226001227334	505	568	850	6
Stephens Lake	GN-9	STL-B	15-Sep-22	9	125707	900 226001227362	453	522	760	6
Stephens Lake	GN-9	STL-B	15-Sep-22	10	125708	900 067000109337	399	456	400	4
Stephens Lake	GN-9	STL-B	15-Sep-22	11	-	-	110	120	-	0
Stephens Lake	GN-9	STL-B	15-Sep-22	12	-	-	105	120	-	0
Stephens Lake	GN-9	STL-B	16-Sep-22	23	-	-	105	115	-	0
Stephens Lake	GN-9	STL-B	16-Sep-22	24	-	-	110	120	-	0
Stephens Lake	GN-9	STL-B	16-Sep-22	25	125712	900 067000112982	455	510	505	4
Stephens Lake	GN-9	STL-B	16-Sep-22	26	125713	900 226001658784	435	505	505	5
Stephens Lake	GN-9	STL-B	16-Sep-22	27	125714	900 067000055356	620	685	1490	8
Stephens Lake	GN-9	STL-B	16-Sep-22	28	125715	900 067000108609	480	540	750	4
Stephens Lake	GN-9	STL-B	16-Sep-22	29	125716	900 226001227314	495	550	900	5
Stephens Lake	GN-9	STL-B	16-Sep-22	30	125717	900 226001227349	470	530	750	6
Stephens Lake	GN-10	STL-B	15-Sep-22	13	121204	900 067000112451	480	540	700	6
Stephens Lake	GN-10	STL-B	15-Sep-22	14	121499	900 067000112562	525	605	950	6
Stephens Lake	GN-10	STL-B	15-Sep-22	15	-	-	109	123	-	0
Stephens Lake	GN-10	STL-B	16-Sep-22	31	117291	900 226001225242	675	740	1900	7
Stephens Lake	GN-10	STL-B	16-Sep-22	32	100675	900 226000768148	545	600	1000	7
Stephens Lake	GN-11	STL-B	15-Sep-22	16	113271	900 067000111990	542	605	1050	6
Stephens Lake	GN-12	STL-B	15-Sep-22	17	125709	900 067000108614	477	542	600	4
Stephens Lake	GN-12	STL-B	15-Sep-22	18	10506	900 226001031224	720	820	2700	12

Table A2-3: Biological and tag information for Lake Sturgeon captured in Stephens Lake, fall 2022 (continued).

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Stephens Lake	GN-12	STL-B	15-Sep-22	19	125710	900 226001227385	470	548	650	5
Stephens Lake	GN-12	STL-B	15-Sep-22	20	125711	900 226001226974	585	650	1500	7
Stephens Lake	GN-12	STL-B	16-Sep-22	33	116030	900 067000055561	554	639	1000	8
Stephens Lake	GN-12	STL-B	16-Sep-22	34	125718	900 226001226927	477	540	800	5
Stephens Lake	GN-12	STL-B	16-Sep-22	35	125719	900 226001227394	594	667	1600	9
Stephens Lake	GN-12	STL-B	16-Sep-22	36	125720	900 226001227364	480	552	750	5
Stephens Lake	GN-12	STL-B	17-Sep-22	47	125725	900 043000239335	308	354	200	1
Stephens Lake	GN-12	STL-B	17-Sep-22	48	125401	900 067000121624	328	369	250	3
Stephens Lake	GN-14	STL-B	16-Sep-22	21	-	-	95	110	-	0
Stephens Lake	GN-14	STL-B	16-Sep-22	22	-	-	105	115	-	0
Stephens Lake	GN-17	STL-B	17-Sep-22	N/A	-	-	101	113	-	0
Stephens Lake	GN-17	STL-B	17-Sep-22	N/A	-	-	105	119	-	0
Stephens Lake	GN-18	STL-B	17-Sep-22	39	-	-	108	120	-	0
Stephens Lake	GN-18	STL-B	17-Sep-22	40	105049	900 226000548799	685	782	2500	9
Stephens Lake	GN-18	STL-B	17-Sep-22	41	125721	900 226001227377	460	511	750	6
Stephens Lake	GN-18	STL-B	17-Sep-22	42	121284	900 067000055198	531	619	950	8
Stephens Lake	GN-18	STL-B	17-Sep-22	43	121420	900 067000113181	486	554	700	4
Stephens Lake	GN-18	STL-B	17-Sep-22	44	125722	900 067000109661	475	514	650	4
Stephens Lake	GN-18	STL-B	17-Sep-22	45	125723	900 067000109667	440	513	500	4
Stephens Lake	GN-18	STL-B	17-Sep-22	46	125724	900 226001227522	335	399	350	2
Stephens Lake	GN-18	STL-B	18-Sep-22	49	125402	900 067000112155	451	520	650	6
Stephens Lake	GN-18	STL-B	18-Sep-22	50	118056	900 226001658985	430	490	550	5
Stephens Lake	GN-18	STL-B	18-Sep-22	51	125407	900 067000109378	519	596	750	4
Stephens Lake	GN-18	STL-B	19-Sep-22	68A	121300	900 067000113241	480	542	600	4
Stephens Lake	GN-18	STL-B	19-Sep-22	69	120054	900 067000113707	456	514	550	4
Stephens Lake	GN-18	STL-B	19-Sep-22	70	125415	900 226001227519	554	630	1050	-
Stephens Lake	GN-18	STL-B	19-Sep-22	71	125416	900 226001226997	510	586	950	6
Stephens Lake	GN-18	STL-B	21-Sep-22	111	125740	900 226001227340	352	404	275	3

Table A2-3: Biological and tag information for Lake Sturgeon captured in Stephens Lake, fall 2022 (continued).

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Stephens Lake	GN-18	STL-B	21-Sep-22	112	125741	900 067000109670	475	535	600	4
Stephens Lake	GN-18	STL-B	21-Sep-22	113	125742	900 067000113053	474	544	700	4
Stephens Lake	GN-18	STL-B	21-Sep-22	114	125743	900 226001224065	515	590	900	6
Stephens Lake	GN-18	STL-B	21-Sep-22	115	117673	900 067000059328	535	602	900	6
Stephens Lake	GN-18	STL-B	21-Sep-22	116	121427	900 067000113255	462	526	550	4
Stephens Lake	GN-18	STL-B	21-Sep-22	117	125744	900 067000113770	456	523	550	4
Stephens Lake	GN-18	STL-B	21-Sep-22	118	125745	900 067000113438	460	523	600	4
Stephens Lake	GN-18	STL-B	21-Sep-22	119	125746	900 226001224030	546	620	1050	6
Stephens Lake	GN-18	STL-B	21-Sep-22	120	125747	900 067000059028	520	609	900	6
Stephens Lake	GN-18	STL-B	23-Sep-22	136	125457	900 067000113183	486	559	650	4
Stephens Lake	GN-18	STL-B	23-Sep-22	137	118801	900 067000059086	537	606	1000	6
Stephens Lake	GN-18	STL-B	23-Sep-22	138	117284	900 226001225203	625	713	1650	7
Stephens Lake	GN-18	STL-B	23-Sep-22	139	125458	900 226001224018	519	598	950	7
Stephens Lake	GN-18	STL-B	23-Sep-22	140	125459	900 067000109663	465	523	500	4
Stephens Lake	GN-18	STL-B	23-Sep-22	141	125460	900 226001224052	531	604	1000	6
Stephens Lake	GN-18	STL-B	23-Sep-22	142	125461	900 067000108669	477	541	600	4
Stephens Lake	GN-18	STL-B	23-Sep-22	143	125462	900 067000111442	356	409	250	3
Stephens Lake	GN-18	STL-B	23-Sep-22	144	125463	900 226001224028	309	342	150	2
Stephens Lake	GN-18	STL-B	23-Sep-22	145	125464	900 067000108611	474	550	600	4
Stephens Lake	GN-18	STL-B	23-Sep-22	147	125465	900 226001225536	484	542	700	5
Stephens Lake	GN-18	STL-B	23-Sep-22	148	125466	900 226001224053	532	611	1000	6
Stephens Lake	GN-18	STL-B	23-Sep-22	149	125467	900 226001227361	555	634	1050	8
Stephens Lake	GN-18	STL-B	23-Sep-22	150	-	-	115	130	-	0
Stephens Lake	GN-18	STL-B	23-Sep-22	151	125468	900 067000113057	435	500	500	4
Stephens Lake	GN-18	STL-B	23-Sep-22	152	125469	900 067000112507	495	564	800	6
Stephens Lake	GN-18	STL-B	23-Sep-22	153	125470	900 226001227506	534	602	1000	6
Stephens Lake	GN-18	STL-B	23-Sep-22	154	125471	900 067000113469	466	532	600	4
Stephens Lake	GN-18	STL-B	23-Sep-22	155	-	-	104	114	-	0

Table A2-3: Biological and tag information for Lake Sturgeon captured in Stephens Lake, fall 2022 (continued).

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Stephens Lake	GN-18	STL-B	23-Sep-22	156	-	-	95	101	-	0
Stephens Lake	GN-18	STL-B	23-Sep-22	157	-	-	123	139	-	0
Stephens Lake	GN-20	STL-B	18-Sep-22	68B	-	-	105	115	-	0
Stephens Lake	GN-21	STL-B	18-Sep-22	52	125404	900 067000055200	535	616	900	8
Stephens Lake	GN-21	STL-B	18-Sep-22	53	116066	900 067000113464	435	499	600	4
Stephens Lake	GN-21	STL-B	18-Sep-22	54	118731	900 226001055074	730	819	2750	9
Stephens Lake	GN-21	STL-B	18-Sep-22	55	125405	900 226001224021	529	599	1000	7
Stephens Lake	GN-21	STL-B	18-Sep-22	56	125406	900 067000109649	475	549	700	4
Stephens Lake	GN-21	STL-B	18-Sep-22	57	125407	900 067000109650	433	499	500	4
Stephens Lake	GN-21	STL-B	18-Sep-22	58	125408	900 067000109283	472	540	700	4
Stephens Lake	GN-21	STL-B	18-Sep-22	59	125409	900 226001227529	471	534	750	5
Stephens Lake	GN-21	STL-B	18-Sep-22	60	125410	900 067000108673	440	491	475	4
Stephens Lake	GN-21	STL-B	18-Sep-22	61	125411	900 226001227512	544	619	1100	9
Stephens Lake	GN-21	STL-B	18-Sep-22	62	125412	900 043000239260	300	346	150	1
Stephens Lake	GN-21	STL-B	18-Sep-22	63	125413	900 043000239000	310	350	200	1
Stephens Lake	GN-21	STL-B	18-Sep-22	64	-	-	310	349	150	2
Stephens Lake	GN-21	STL-B	19-Sep-22	72	125417	900 067000121367	540	619	1000	6
Stephens Lake	GN-21	STL-B	19-Sep-22	73	117686	900 067000121203	474	532	650	7
Stephens Lake	GN-21	STL-B	19-Sep-22	74	125418	900 226001227543	504	570	900	6
Stephens Lake	GN-21	STL-B	19-Sep-22	75	125419	900 067000113382	475	549	600	4
Stephens Lake	GN-21	STL-B	19-Sep-22	76	125420	900 226001224016	441	504	650	6
Stephens Lake	GN-21	STL-B	19-Sep-22	77	-	-	115	131	-	0
Stephens Lake	GN-21	STL-B	19-Sep-22	78	-	-	102	114	-	0
Stephens Lake	GN-21	STL-B	19-Sep-22	79	-	-	521	596	1000	6
Stephens Lake	GN-21	STL-B	21-Sep-22	83	125424	900 226001227376	805	892	3200	-
Stephens Lake	GN-21	STL-B	21-Sep-22	84	125425	900 226001226940	586	681	1300	8
Stephens Lake	GN-21	STL-B	21-Sep-22	85	125726	900 067000058706	616	705	1350	8
Stephens Lake	GN-21	STL-B	21-Sep-22	86	118882	900 067000113447	471	533	550	4

Table A2-3: Biological and tag information for Lake Sturgeon captured in Stephens Lake, fall 2022 (continued).

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Stephens Lake	GN-23	STL-B	18-Sep-22	65	-	-	115	129	-	0
Stephens Lake	GN-23	STL-B	18-Sep-22	66	111070	900 067000112641	587	617	1000	6
Stephens Lake	GN-23	STL-B	18-Sep-22	67	125414	900 226001224019	492	564	700	7
Stephens Lake	GN-23	STL-B	19-Sep-22	80	125421	900 067000055345	630	720	1600	8
Stephens Lake	GN-23	STL-B	19-Sep-22	81	125422	900 226000767241	536	605	950	6
Stephens Lake	GN-23	STL-B	19-Sep-22	82	125423	900 043000239619	300	347	150	1
Stephens Lake	GN-23	STL-B	21-Sep-22	121	-	-	112	125	-	0
Stephens Lake	GN-23	STL-B	21-Sep-22	122	125748	900 226001224041	514	584	900	5
Stephens Lake	GN-23	STL-B	21-Sep-22	123	125749	900 226001227484	543	629	1050	6
Stephens Lake	GN-23	STL-B	21-Sep-22	124	-	900 043000239652	279	315	150	1
Stephens Lake	GN-28	STL-B	21-Sep-22	101	-	-	108	117	-	0
Stephens Lake	GN-28	STL-B	21-Sep-22	102	-	-	120	135	-	0
Stephens Lake	GN-28	STL-B	21-Sep-22	103	125734	900 226001227307	530	597	900	7
Stephens Lake	GN-28	STL-B	21-Sep-22	104	125735	900 067000113761	430	485	400	4
Stephens Lake	GN-28	STL-B	21-Sep-22	105	121495	900 067000113001	532	604	800	4
Stephens Lake	GN-28	STL-B	21-Sep-22	106	121400	900 067000113262	479	544	550	4
Stephens Lake	GN-28	STL-B	21-Sep-22	107	125736	900 067000113056	494	567	600	4
Stephens Lake	GN-28	STL-B	21-Sep-22	108	125737	900 067000113059	455	522	500	4
Stephens Lake	GN-28	STL-B	21-Sep-22	109	125738	900 226001227381	586	669	1200	7
Stephens Lake	GN-28	STL-B	21-Sep-22	110	125739	900 067000113252	467	540	550	4
Stephens Lake	GN-29	STL-B	21-Sep-22	87	116840	900 067000109321	496	571	750	4
Stephens Lake	GN-29	STL-B	21-Sep-22	88	125727	900 226001227365	518	572	900	6
Stephens Lake	GN-29	STL-B	21-Sep-22	89	121497	900 067000113280	450	506	500	4
Stephens Lake	GN-29	STL-B	21-Sep-22	90	117564	900 067000108677	505	573	600	4
Stephens Lake	GN-29	STL-B	21-Sep-22	91	125728	900 226001227358	504	564	800	6
Stephens Lake	GN-29	STL-B	21-Sep-22	92	125729	900 067000121307	311	353	150	2
Stephens Lake	GN-29	STL-B	21-Sep-22	93	125730	900 226001227388	497	564	775	5
Stephens Lake	GN-29	STL-B	21-Sep-22	94	125731	900 067000109312	466	541	600	4

Table A2-3: Biological and tag information for Lake Sturgeon captured in Stephens Lake, fall 2022 (continued).

Waterbody	Site	Zone	Date	Fish #	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Stephens Lake	GN-29	STL-B	21-Sep-22	95	115146	900 226000893322	503	570	750	6
Stephens Lake	GN-29	STL-B	21-Sep-22	96	117573	900 067000113448	478	547	650	4
Stephens Lake	GN-29	STL-B	21-Sep-22	97	125732	900 226001226955	345	388	250	2
Stephens Lake	GN-29	STL-B	21-Sep-22	98	125733	900 043000239694	309	350	150	1
Stephens Lake	GN-29	STL-B	21-Sep-22	99	-	-	540	590	1100	6
Stephens Lake	GN-29	STL-B	21-Sep-22	100	-	-	478	539	850	6
Stephens Lake	GN-29	STL-B	23-Sep-22	125	118879	900 067000109651	471	541	600	4
Stephens Lake	GN-29	STL-B	23-Sep-22	126	125750	900 067000112422	514	594	800	6
Stephens Lake	GN-29	STL-B	23-Sep-22	127	125451	900 226001055095	466	534	600	5
Stephens Lake	GN-29	STL-B	23-Sep-22	128	125452	900 067000055698	685	773	2000	8
Stephens Lake	GN-29	STL-B	23-Sep-22	129	120058	900 067000055394	650	733	1600	8
Stephens Lake	GN-29	STL-B	23-Sep-22	130	125453	900 067000113424	464	525	550	4
Stephens Lake	GN-29	STL-B	23-Sep-22	131	125454	900 067000112932	412	476	400	4
Stephens Lake	GN-29	STL-B	23-Sep-22	132	125455	900 067000059505	473	539	650	6
Stephens Lake	GN-29	STL-B	23-Sep-22	133	125456	900 067000059082	505	585	850	6
Stephens Lake	GN-29	STL-B	23-Sep-22	134	-	-	124	139	-9999	0
Stephens Lake	GN-29	STL-B	23-Sep-22	135	-	-	104	115	-9999	0
Stephens Lake	GN-32	STL-B	23-Sep-22	158	125472	900 226001224050	750	845	2750	13
Stephens Lake	GN-32	STL-B	23-Sep-22	160	125473	900 067000111361	470	523	500	5
Stephens Lake	GN-34	STL-B	23-Sep-22	161	103607	900 226001227556	851	944	4300	14
Stephens Lake	GN-34	STL-B	23-Sep-22	162	125474	900 226001227528	741	842	2500	-

APPENDIX 3: AGEING STRUCTURES OF JUVENILE LAKE STURGEON CAUGHT IN THE KEEYASK STUDY AREA.

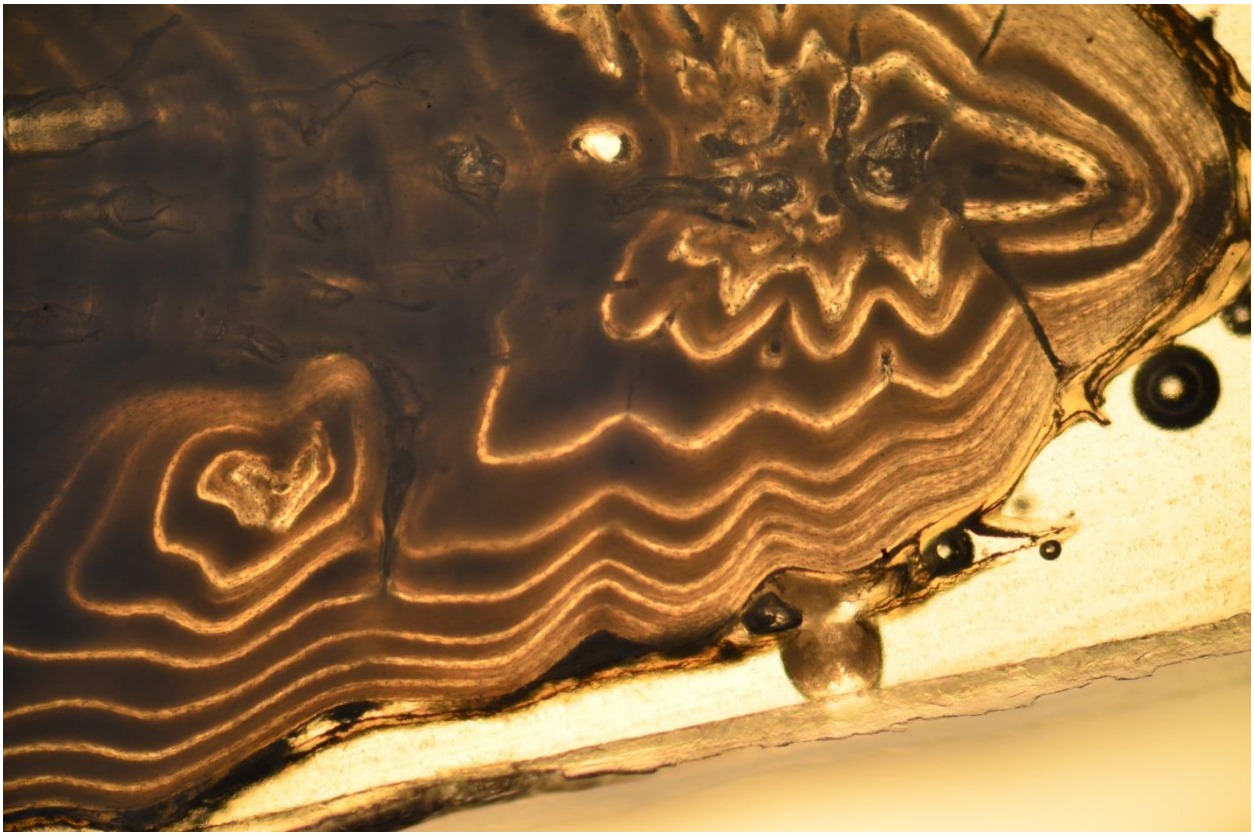

Figure A3-1: Ageing structure from a wild juvenile Lake Sturgeon (8-year-old) caught in the Keeyask reservoir.

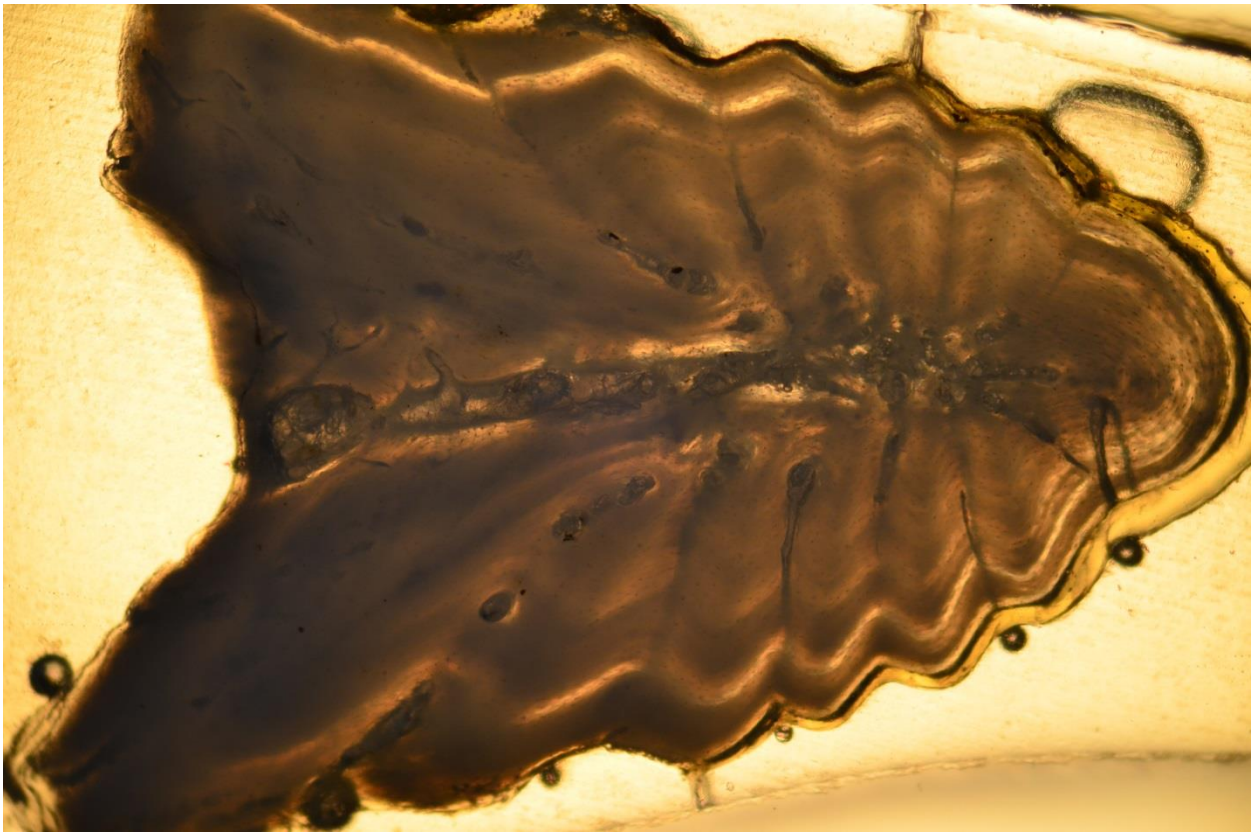

Figure A3-2: Ageing structure from a hatchery-reared juvenile Lake Sturgeon caught in Stephens Lake (2-year-old). Agers noted the presence of a weak first annulus and false annuli typically observed in hatchery-reared Lake Sturgeon.

APPENDIX 4: WILD AND HATCHERY LAKE STURGEON RECAPTURE DATA, FALL 2022.

Table A4-1: Original capture date and biological data for wild Lake Sturgeon recaptured in gill nets, fall 2022.

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Burntwood River	103835	900 226000768538	BWR-A	13-Sep-22	633	719	1750	23	2.4	2192
Burntwood River	-	-	BWR-B	12-Sep-16	634	720	1878	17		
					-	**-**	**-128**			
Burntwood River	94483	-	BWR-A	14-Sep-22	660	745	2100	-	1.5	4105
Burntwood River	-	-	BWR-A	19-Jun-11	494	563	900	-		
					166	**182**	**1200**			
Split Lake	119939	900 226001031879	SPL-A	15-Sep-22	535	613	1075	6	0.7	735
Split Lake	-	-	SPL-A	10-Sep-20	446	515	650	4		
					89	**98**	**425**			
Split Lake	125933	900 226000893690	SPL-A	16-Sep-22	790	903	3700	11	61.7	2186
Keeyask reservoir	-	-	BR-D	21-Sep-16	584	664	1420	5		
					206	**239**	**2280**			
Burntwood River	-	900 043000192350	BWR-C	17-Sep-22	463	519	700	4	3.3	733
Split Lake	-		SPL-A	14-Sep-20	351	394	280	2		
					112	**125**	**420**			
Keeyask reservoir	125204	900 226001658921	GL-B	15-Sep-22	380	430	250	5	3.3	726
Keeyask reservoir	-		GL-C	19-Sep-20	322	361	250	3		
					58	**69**	**0**			
Keeyask reservoir	245	989 001038119815	BR-D	15-Sep-22	495	568	600	6	0.2	361
Keeyask reservoir	-		BR-D	19-Sep-21	474	537	575	5		
					21	**31**	**25**			
Keeyask reservoir	90258	900 226000629367	BR-D	15-Sep-22	630	710	2000	12	17.0	2923
Keeyask reservoir	-	-	GL-C	14-Sep-14	433	492	600	4		
					197	**218**	**1400**			
Keeyask reservoir	111910	900 226000768242	GL-B	16-Sep-22	678	764	2000	-	3.2	1549
Keeyask reservoir	-	-	GL-C	20-Jun-18	513	584	1043	-		
					165	**180**	**957**			

Table A4-1: Original capture date and biological data for wild Lake Sturgeon recaptured in gill nets, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Keeyask reservoir	117099	900 226001031285	GL-B	16-Sep-22	510	570	775	6	0.9	1097
Keeyask reservoir	-	-	GL-B	15-Sep-19	380	432	400	3		
					130	**138**	**375**			
Keeyask reservoir	111013	900 226000893552	GL-B	16-Sep-22	570	660	1350	11	1.0	2186
Keeyask reservoir	-	-	GL-A	22-Sep-21	555	640	1450	10		
Keeyask reservoir	-	-	GL-B	21-Sep-16	469	548	760	5		
					101	**112**	**590**			
Keeyask reservoir	117933	900 226001224733	GL-B	16-Sep-22	460	515	600	6	3.1	359
Keeyask reservoir	-	-	GL-A	22-Sep-21	440	492	550	5		
					20	**23**	**50**			
Keeyask reservoir	122556	900 226001227602	BR-D	16-Sep-22	589	675	1350	-	4.98	34
Keeyask reservoir	-	-	BR-D	13-Aug-22	595	674	1400	-		
					-6	**1**	**-50**			
Keeyask reservoir	125145	900 067000121364	BR-D	16-Sep-22	546	623	900	-	0.27	447
Keeyask reservoir	-	-	BR-D	26-Jun-21	525	606	1400	-		
					21	**17**	**-500**			
Keeyask reservoir	125143	900 067000121350	GL-B	17-Sep-22	476	544	600	6	4.86	1824
Keeyask reservoir	-	-	GL-A	19-Sep-17	255	288	100	1		
					221	**256**	**500**			
Keeyask reservoir	-	900 226001031159	GL-B	18-Sep-22	480	470	475	6	0.34	1100
Keeyask reservoir	-	-	GL-B	14-Sep-19	320	365	225	3		
					160	**105**	**250**			
Keeyask reservoir	118637	900 226001658976	GL-B	18-Sep-22	431	497	425	5	4.57	723
Keeyask reservoir	-	-	GL-C	25-Sep-20	362	417	325	3		
					69	**80**	**100**			
Keeyask reservoir	111014	900 226000893635	GL-B	18-Sep-22	772	875	3000	14	6.26	2187
Keeyask reservoir	-	-	GL-A	22-Sep-16	688	775	2220	8		
					84	**100**	**780**			

Table A4-1: Original capture date and biological data for wild Lake Sturgeon recaptured in gill nets, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Keeyask reservoir	125191	900 067000121507	GL-A	18-Sep-22	462	531	550	6	9.05	1469
Keeyask reservoir	-	-	GL-C	10-Sep-18	296	336	200	2		
					166	**195**	**350**			
Keeyask reservoir	116827	900 226001031209	GL-A	18-Sep-22	717	820	2575	-	6.6	1097
Keeyask reservoir	-	-	GL-B	17-Sep-19	696	790	2300	-		
					21	**30**	**275**			
Keeyask reservoir	125180	900 043000103655	GL-B	19-Sep-22	335	389	300	3	2.1	729
Keeyask reservoir	-	-	GL-C	20-Sep-20	229	260	75	1		
					106	**129**	**225**			
Keeyask reservoir	121299	1380347930	GL-B	19-Sep-22	385	445	225	3	15.4	363
Keeyask reservoir	-	-	BR-D	21-Sep-21	318	361	275	2		
					67	**84**	**-50**			
Keeyask reservoir	116792	900 226001031175	GL-C	19-Sep-22	478	545	550	6	2.3	1102
Keeyask reservoir	-	-	GL-C	13-Sep-19	368	420	325	3		
					110	**125**	**225**			
Keeyask reservoir	117106	900 226001031164	GL-C	21-Sep-22	490	570	725	7*	0.6	1099
Keeyask reservoir	-	-	GL-C	23-Sep-20	425	500	525	5		
Keeyask reservoir	-	-	GL-C	18-Sep-19	377	440	300	4		
					113	**130**	**425**			
Keeyask reservoir	112541	900 226000893512	GL-C	21-Sep-22	570	632	1200	10	9.3	2193
Keeyask reservoir	-	-	GL-A	19-Sep-16	478	550	700	4		
					92	**82**	**500**			
Keeyask reservoir	116752	900 226001031208	GL-C	21-Sep-22	555	630	1125	7	0.5	1106
Keeyask reservoir	-	-	GL-C	11-Sep-19	418	471	475	4		
					137	**159**	**650**			
Keeyask reservoir	121253	900 226001224831	GL-C	21-Sep-22	530	592	1025	6	0.8	369
Keeyask reservoir	-	-	GL-C	17-Sep-21	506	573	775	5		
					24	**19**	**250**			

Table A4-1: Original capture date and biological data for wild Lake Sturgeon recaptured in gill nets, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Keeyask reservoir	121239	900 226001224847	GL-C	21-Sep-22	474	537	625	6	4.4	368
Keeyask reservoir	-	-	GL-B	18-Sep-21	467	525	550	5		
					7	**12**	**75**			
Keeyask reservoir	125241	900 226001658814	GL-C	21-Sep-22	551	630	1100	7	2.36	732
Keeyask reservoir	-	-	GL-C	19-Sep-20	496	570	975	5		
					55	**60**	**125**			
Keeyask reservoir	125245	900 043000103752	GL-C	21-Sep-22	480	525	775	6	2.1	1470
Keeyask reservoir	-	-	GL-C	12-Sep-18	282	309	150	2		
					198	**216**	**625**			
Keeyask reservoir	125248	900 226001658882	GL-C	21-Sep-22	566	656	1125	8	0.1	730
Keeyask reservoir	-	-	GL-C	21-Sep-20	424	593	1025	6		
					142	**63**	**100**			
Keeyask reservoir	121200	900 226001224781	GL-C	21-Sep-22	490	566	725	6	2.5	366
Keeyask reservoir	-	-	GL-B	20-Sep-21	459	524	600	5		
					31	**42**	**125**			
Keeyask reservoir	118635	900 226001658792	GL-C	23-Sep-22	591	668	1200	7	0.8	728
Keeyask reservoir	-	-	GL-C	25-Sep-20	420	488	975	5		
					171	**180**	**225**			
Keeyask reservoir	111026	900 226000893923	GL-C	23-Sep-22	639	721	1700	11*	4.4	1101
Keeyask reservoir	-	-	GL-B	18-Sep-19	579	658	1350	8		
Keeyask reservoir	-	-	GL-B	15-Sep-17	553	626	1200	6		
					86	**95**	**500**			
Keeyask reservoir	121157	900 226001224830	GL-C	23-Sep-22	639	728	1600	8	2.2	373
Keeyask reservoir	-	-	GL-C	15-Sep-21	629	716	1550	7		
					10	**12**	**50**			
Keeyask reservoir	125318	900 226000767262	GL-C	24-Sep-22	430	460	500	6	5.3	1470
Keeyask reservoir	-	-	GL-B	15-Sep-18	351	386	250	3		
					79	**74**	**250**			

Table A4-1: Original capture date and biological data for wild Lake Sturgeon recaptured in gill nets, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Stephens Lake	125704	900 226000768544	STL-A	15-Sep-22	855	965	4200	-	17.8	1541
Keeyask reservoir	-	-	GL-A	27-Jun-18	788	895	4309	-		
					67	**70**	**-109**			
Stephens Lake	91583	900 226000767472	STL-B	15-Sep-22	830	950	4600	-	0.4	1538
Stephens Lake	-	-	STL-A	30-Jun-18	756	859	4000	-		
					74	**91**	**600**			
Stephens Lake	125713	900 226001658784	STL-B	16-Sep-22	435	505	505	5	13.1	729
Keeyask reservoir	-	-	GL-C	17-Sep-20	357	403	300	3		
					78	**102**	**205**			
Stephens Lake	117291	900 226001225242	STL-B	16-Sep-22	675	740	1900	7	4.0	457
Stephens Lake	-	-	STL-A	16-Jun-21	577	653	2000	-		
					98	**87**	**-100**			
Stephens Lake	100675	900 226000768148	STL-B	16-Sep-22	545	600	1000	7	0.4	1827
Stephens Lake	-	-	STL-B	15-Sep-17	306	349	175	2		
					239	**251**	**825**			
Stephens Lake	-	900 226001031224	STL-B	15-Sep-22	720	820	2700	-	-	-
-	-	-	-	-	-	-	-	-		
					-	**-**	**-**			
Stephens Lake	105049	900 226000548799	STL-B	17-Sep-22	685	782	2500	9	21.2	2560
Keeyask reservoir	-	-	GL-A	14-Sep-15	330	381	241	2		
					355	**401**	**2259**			
Stephens Lake	118056	900 226001658985	STL-B	18-Sep-22	430	490	550	5	14.2	728
Keeyask reservoir	-	-	GL-C	20-Sep-20	349	394	225	3		
					81	**96**	**325**			
Stephens Lake	117284	900 226001225203	STL-B	23-Sep-22	625	713	1650	7	4.2	466
Stephens Lake	-	-	STL-A	14-Jun-21	550	623	2000	-		
					75	**90**	**-350**			

Table A4-1: Original capture date and biological data for wild Lake Sturgeon recaptured in gill nets, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Stephens Lake	118731	900 226001055074	STL-B	18-Sep-22	730	819	2750	9	0.5	726
Stephens Lake	-	-	STL-B	22-Sep-20	684	770	2250	7		
					46	**49**	**500**			
Stephens Lake	125417	900 067000121367	STL-B	19-Sep-22	540	619	1000	6	0.1	1832
Stephens Lake	-	-	STL-B	13-Sep-17	269	304	100	1		
					271	**315**	**900**			
Stephens Lake	117686	900 067000121203	STL-B	19-Sep-22	474	532	650	7	0.2	1095
Stephens Lake	-	-	STL-B	20-Sep-19	374	423	350	4		
Stephens Lake	-	-	STL-B	18-Sep-18	322	367	175	3		
					100	**109**	**300**			
Stephens Lake	125422	900 226000767241	STL-B	19-Sep-22	536	605	950	6	0.3	1095
Stephens Lake	-	-	STL-B	20-Sep-19	385	439	350	3		
					151	**166**	**600**			
Stephens Lake	115146	900 226000893322	STL-B	21-Sep-22	503	570	750	6	0.3	1470
Stephens Lake	-	-	STL-B	12-Sep-18	330	384	200	2		
					173	**186**	**550**			
Stephens Lake	125451	900 226001055095	STL-B	23-Sep-22	466	534	600	5	0.42	732
Stephens Lake	-	-	STL-B	21-Sep-20	371	430	300	-		
					95	**104**	**300**			
Stephens Lake	103607	900 226001227556	STL-B	23-Sep-22	851	944	4300	14	3.1	3661
Stephens Lake	-	-	STL-A	14-Sep-12	538	600	875	4		
					313	**344**	**3425**			

Table A4-2: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in the Upper Split Lake Area, fall 2022.

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Split Lake	125804	900 067000110472	SPL-A	10-Sep-22	404	460	500	5	25.0	1556
Burntwood River	-	-	BWR-A	07-Jun-18	210	254	67	1		
					194	**206**	**433**			
Burntwood River	125819	900 067000110134	BWR-C	10-Sep-22	391	444	425	5	5.4	1563
Burntwood River	-	-	BWR-B	31-May-18	243	284	104	1		
					148	**160**	**321**			
Split Lake	125826	900 067000110761	SPL-A	11-Sep-22	442	495	600	5	25.0	1557
Burntwood River	-	-	BWR-A	7-Jun-18	210	249	58	1		
					232	**246**	**542**			
Split Lake	125827	900 067000056980	SPL-A	11-Sep-22	446	503	725	5	25.0	1557
Burntwood River	-	-	BWR-A	7-Jun-18	237	276	87	1		
					209	**227**	**638**			
Burntwood River	125836	900 067000110779	BWR-C	11-Sep-22	417	473	500	5	9.0	1557
Burntwood River	-	-	BWR-A	7-Jun-18	209	246	60	1		
					208	**227**	**440**			
Burntwood River	125850	900 067000108072	BWR-C	11-Sep-22	346	398	225	3	5.4	465
Burntwood River	-	-	BWR-B	3-Jun-21	280	333	133	2		
					66	**65**	**92**			
Split Lake	125845	900 067000111816	SPL-A	12-Sep-22	460	524	600	5	24.0	1565
Burntwood River	-	-	BWR-B	31-May-18	206	252	61	1		
					254	**272**	**539**			
Split Lake	125842	900 043000103181	SPL-A	12-Sep-22	531	585	1100	9	22.6	2902
Burntwood River	-	-	BWR-B	2-Oct-14	250	280	77	1		
					281	**305**	**1023**			
Split Lake	125841	900 067000110767	SPL-A	12-Sep-22	436	510	550	5	25.0	1558
Burntwood River	-	-	BWR-A	7-Jun-18	220	264	67	1		
					216	**246**	**483**			

Table A4-2: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in the Upper Split Lake Area, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Burntwood River	125877	900 067000108405	BWR-C	13-Sep-22	322	375	175	3	4.9	815
Burntwood River	-	-	BWR-B	20-Jun-20	194	234	47	1		
					128	**141**	**129**			
Burntwood River	125878	900 067000108410	BWR-B	13-Sep-22	368	419	275	3	1.4	815
Burntwood River	-	-	BWR-B	20-Jun-20	210	248	56	1		
					158	**171**	**219**			
Burntwood River	125879	900 067000110843	BWR-B	13-Sep-22	325	382	175	3	1.4	815
Burntwood River	-	-	BWR-B	20-Jun-20	178	213	31	1		
					147	**169**	**144**			
Burntwood River	125885	900 067000109930	BWR-A	13-Sep-22	433	486	525	5	1.7	1559
Burntwood River	-	-	BWR-A	7-Jun-18	224	259	76	1		
					209	**227**	**449**			
Burntwood River	102162	900 067000110307	BWR-A	13-Sep-22	395	457	450	5	1.7	1559
Burntwood River	-	-	BWR-A	7-Jun-18	193	225	47	1		
					202	**232**	**403**			
Split Lake	125887	900 067000111827	SPL-A	13-Sep-22	472	531	700	5	24.0	1566
Burntwood River	-	-	BWR-B	31-May-18	227	260	71	1		
					245	**271**	**629**			
Burntwood River	125900	982 000362432255	BWR-C	14-Sep-22	391	436	475	9	4.7	3029
Burntwood River	-	-	BWR-B	30-May-14	212	244	57	1		
					179	**192**	**418**			
Split Lake	125871	900 067000111856	SPL-A	14-Sep-22	500	562	900	5	28.7	1567
Burntwood River	-	-	BWR-B	31-May-18	216	247	64	1		
					284	**315**	**836**			
Burntwood River	125866	900 067000110771	BWR-C	15-Sep-22	415	477	400	5	21.0	1561
Burntwood River	-	-	BWR-B	7-Jun-18	220	269	75	1		
					195	**208**	**325**			

Table A4-2: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in the Upper Split Lake Area, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Split Lake	125857	900 067000110808	SPL-A	15-Sep-22	344	399	325	3	23.2	469
Burntwood River	-	-	BWR-B	3-Jun-21	290	339	140	2		
					54	**60**	**185**			
Split Lake	125947	900 043000103136	SPL-A	15-Sep-22	566	634	1275	9	27.1	2905
Burntwood River	-	-	BWR-B	2-Oct-14	217	242	53	1		
					349	**392**	**1222**			
Split Lake	125941	900 067000109113	SPL-A	16-Sep-22	335	400	225	3	23.2	470
Burntwood River	-	-	BWR-B	3-Jun-21	282	345	161	2		
					53	**55**	**64**			
Split Lake	125940	900 067000110369	SPL-A	16-Sep-22	406	472	450	5	23.2	1569
Burntwood River	-	-	BWR-B	31-May-18	200	236	51	1		
					206	**236**	**399**			
Split Lake	125927	900 067000110311	SPL-A	16-Sep-22	475	524	700	5	28.4	1562
Split Lake	-	-		14-Sep-20	381	424	340	3		
Burntwood River	-	-	BWR-A	7-Jun-18	219	259	71	1		
					256	**265**	**629**			
Split Lake	125935	900 043000119425	SPL-A	16-Sep-22	583	645	1450	9	26.5	2906
Burntwood River	-	-	BWR-A	2-Oct-14	266	304	108	1		
					317	**341**	**1342**			
Split Lake	125922	900 043000102953	SPL-A	16-Sep-22	615	686	1700	9	17.8	2906
Burntwood River	-	-	BWR-C	2-Oct-14	260	294	93	1		
					355	**392**	**1607**			
Split Lake	125912	900 067000109904	SPL-A	16-Sep-22	414	469	450	5	29.3	1562
Burntwood River	-	-	BWR-A	7-Jun-18	203	234	50	1		
					211	**235**	**400**			
Split Lake	125909	900 067000109943	SPL-A	17-Sep-22	500	564	900	5	24.3	1563
Burntwood River	-	-	BWR-A	7-Jun-18	233	270	88	1		
					267	**294**	**812**			

Table A4-2: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in the Upper Split Lake Area, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Split Lake	125908	900 067000109394	SPL-A	17-Sep-22	321	366	175	3	23.2	723
Burntwood River	-	-	BWR-B	24-Sep-20	203	235	51	1		
					118	**131**	**124**			
Burntwood River	125907	900 067000109431	BWR-C	17-Sep-22	365	415	350	3	21.0	819
Burntwood River	-	-	BWR-B	20-Jun-20	200	233	49	1		
					165	**182**	**301**			
Burntwood River	125906	900 067000108471	BWR-C	17-Sep-22	315	359	300	3	21.0	817
Burntwood River	-	-	BWR-B	22-Jun-20	160	188	27	1		
					155	**171**	**273**			
Split Lake	112064	900 067000058248	SPL-A	18-Sep-22	555	624	1250	7	24.9	2301
Burntwood River	-	-	BWR-B	31-May-16	267	312	140	1		
					288	**312**	**1110**			
Split Lake	125901	900 067000110284	SPL-A	18-Sep-22	400	441	425	5	23.2	1571
Burntwood River	-	-	BWR-B	31-May-18	227	260	70	1		
					173	**181**	**355**			
Split Lake	125953	900 067000110287	SPL-A	18-Sep-22	443	503	500	5	23.0	1571
Burntwood River	-	-	BWR-B	31-May-18	194	223	36	1		
					249	**280**	**464**			
Split Lake	125967	900 067000111128	SPL-A	19-Sep-22	420	478	550	5	24.1	1565
Burntwood River	-	-	BWR-A	7-Jun-18	202	234	51	1		
					218	**244**	**499**			
Split Lake	125970	900 043000103128	SPL-A	19-Sep-22	508	564	1050	9	21.6	2909
Burntwood River	-	-	BWR-B	2-Oct-14	205	230	48	1		
					303	**334**	**1002**			

Table A4-3: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in the Keeyask reservoir, fall 2022.

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Keeyask reservoir	125203	900 067000055374	GL-B	15-Sep-22	480	580	700	8	1.4	2556
Keeyask reservoir	117098	-	GL-B	15-Sep-19	445	520	550	5		
Keeyask reservoir	-	-	GL-B	16-Sep-15	315	369	179	1		
					165	**211**	**521**			
Keeyask reservoir	125207	900 067000113015	BR-D	15-Sep-22	420	485	500	4	16.1	1197
Keeyask reservoir	-	-	GL-B	06-Jun-19	210	246	54	1		
					210	**239**	**446**			
Keeyask reservoir	125209	900 067000055099	BR-D	15-Sep-22	530	610	700	8	13.8	2642
Keeyask reservoir	-	-	GL-B	22-Jun-15	199	235	46	1		
					331	**375**	**654**			
Keeyask reservoir	125212	900 067000055041	GL-B	16-Sep-22	549	640	800	8	2.0	2643
Keeyask reservoir	-	-	GL-B	22-Jun-15	186	220	33	1		
					363	**420**	**767**			
Keeyask reservoir	125213	900 067000058763	GL-B	16-Sep-22	510	585	800	8	0.7	2643
Keeyask reservoir	-	-	GL-B	22-Jun-15	250	293	86	1		
					260	**292**	**714**			
Keeyask reservoir	125215	900 067000055124	GL-B	16-Sep-22	520	589	800	8	0.7	2643
Keeyask reservoir	-	-	GL-B	22-Jun-15	250	277	91	1		
					270	**312**	**709**			
Keeyask reservoir	125216	900 043000239555	GL-B	16-Sep-22	280	320	125	1	5.1	106
Keeyask reservoir	-	-	GL-C	02-Jun-22	194	224	43	1		
					86	**96**	**82**			
Keeyask reservoir	125217	900 067000055401	GL-B	16-Sep-22	580	664	1175	8	1.4	2557
Keeyask reservoir	-	-	GL-B	16-Sep-15	320	367	187	1		
					260	**297**	**988**			
Keeyask reservoir	125220	900 043000239093	GL-B	16-Sep-22	275	310	100	1	2.0	106
Keeyask reservoir	-	-	GL-B	02-Jun-22	187	215	37	1		
					88	**95**	**63**			

Table A4-3: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in the Keeyask reservoir, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Keeyask reservoir	125221	900 067000059493	GL-A	16-Sep-22	470	540	575	6	4.5	1926
Keeyask reservoir	-	-	GL-A	08-Jun-17	248	280	76	1		
					222	**260**	**499**			
Keeyask reservoir	125222	900 067000108644	GL-A	16-Sep-22	445	500	500	4	7.5	1198
Keeyask reservoir	-	-	GL-C	06-Jun-19	211	245	53	1		
					234	**255**	**447**			
Keeyask reservoir	125130	900 067000113243	GL-B	17-Sep-22	450	516	500	4	0.8	1199
Keeyask reservoir	-	-	GL-B	06-Jun-19	205	242	49	1		
					245	**274**	**451**			
Keeyask reservoir	125126	900 067000055679	GL-A	17-Sep-22	515	597	750	8	4.0	2644
Keeyask reservoir	-	-	GL-B	22-Jun-15	241	281	77	1		
					274	**316**	**673**			
Keeyask reservoir	125198	900 067000055543	GL-A	17-Sep-22	564	645	1000	8	4.2	2558
Keeyask reservoir	-	-	GL-B	16-Sep-15	300	350	137	1		
					264	**295**	**863**			
Keeyask reservoir	125197	900 043000239212	GL-A	17-Sep-22	307	351	275	1	6.3	107
Keeyask reservoir	-	-	GL-B	02-Jun-22	212	247	54	1		
					95	**104**	**221**			
Keeyask reservoir		900 043000239115	GL-A	17-Sep-22	240	275	75	1	6.3	107
Keeyask reservoir	-	-	GL-B	02-Jun-22	195	226	40	1		
					45	**49**	**35**			
Keeyask reservoir	117071	900 067000058409	GL-B	18-Sep-22	514	592	775	8	0.3	2645
Keeyask reservoir	-	-	GL-B	22-Jun-15	228	265	68	1		
					286	**327**	**707**			
Keeyask reservoir	121208	900 067000058712	GL-B	18-Sep-22	610	707	2000	8	4.4	2559
Keeyask reservoir	-	-	GL-C	16-Sep-21	611	695	1250	7		
Keeyask reservoir	-	-	GL-C	16-Sep-15	311	361	148	1		
					299	**346**	**1852**			

Table A4-3: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in the Keeyask reservoir, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Keeyask reservoir	125195	900 067000055049	GL-B	18-Sep-22	620	717	1275	8	0.3	2645
Keeyask reservoir	-	-	GL-B	22-Jun-15	205	244	47	1		
					415	**473**	**1228**			
Keeyask reservoir	125188	900 067000055550	GL-A	18-Sep-22	596	673	1150	8	8.0	2559
Keeyask reservoir	-	-	GL-C	16-Sep-15	320	365	175	1		
					276	**308**	**975**			
Keeyask reservoir	118315	900 067000059257	GL-A	18-Sep-22	449	497	525	6	4.8	1928
Keeyask reservoir			GL-C	22-Sep-20	428	480	550	4		
Keeyask reservoir	-	-	GL-A	08-Jun-17	202	234	48	1		
					247	**263**	**477**			
Keeyask reservoir	125187	900 067000112423	GL-A	18-Sep-22	461	527	575	6	4.8	1928
Keeyask reservoir	-	-	GL-A	08-Jun-17	233	268	69	1		
					228	**259**	**506**			
Keeyask reservoir		900 043000239286	GL-A	18-Sep-22	290	335	150	1	3.8	108
Keeyask reservoir	-	-	GL-B	02-Jun-22	216	249	54	1		
					74	**86**	**96**			
Keeyask reservoir	125178	900 067000112978	GL-B	19-Sep-22	396	447	275	4	4.1	1201
Keeyask reservoir	-	-	GL-C	06-Jun-19	229	266	64	1		
					167	**181**	**211**			
Keeyask reservoir		900 043000239264	GL-C	19-Sep-22	279	320	125	1	0.8	109
Keeyask reservoir	-	-	GL-C	02-Jun-22	209	241	52	1		
					70	**79**	**73**			
Keeyask reservoir		900 043000239309	GL-C	19-Sep-22	288	319	150	1	0.8	109
Keeyask reservoir	-	-	GL-C	02-Jun-22	207	237	47	1		
					81	**82**	**103**			
Keeyask reservoir		900 043000239307	GL-C	19-Sep-22	280	307	150	1	0.8	109
Keeyask reservoir	-	-	GL-C	02-Jun-22	185	209	34	1		
					95	**98**	**116**			

Table A4-3: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in the Keeyask reservoir, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Keeyask reservoir		900 043000238973	GL-C	19-Sep-22	259	293	100	1	1.1	109
Keeyask reservoir	-	-	GL-C	02-Jun-22	182	205	32	1		
					77	**88**	**68**			
Keeyask reservoir	125227	900 067000058490	GL-C	21-Sep-22	616	699	1125	8	4.2	2562
Keeyask reservoir	-	-	GL-B	16-Sep-15	355	412	238	1		
					261	**287**	**887**			
Keeyask reservoir		900 043000239490	GL-C	21-Sep-22	270	307	125	1	1.0	111
Keeyask reservoir	-	-	GL-C	02-Jun-22	204	236	45	1		
					66	**71**	**80**			
Keeyask reservoir	116805	900 067000113723	GL-C	21-Sep-22	392	449	275	4	0.6	1203
Keeyask reservoir	-	-	GL-C	06-Jun-19	230	270	62	1		
					162	**179**	**213**			
Keeyask reservoir	125242	900 067000112480	GL-C	21-Sep-22	465	539	625	6	12.0	1931
Keeyask reservoir	-	-	GL-A	08-Jun-17	210	246	53	1		
					255	**293**	**572**			
Keeyask reservoir	125249	900 043000119515	GL-C	21-Sep-22	522	576	900	9	115.0	2911
Burntwood River	-	-	BWR-B	02-Oct-14	250	280	82	1		
					272	**296**	**818**			
Keeyask reservoir	125175	900 067000112429	GL-C	21-Sep-22	493	550	700	6	20.5	1931
Keeyask reservoir	-	-	GL-A	08-Jun-17	220	254	59	1		
					273	**296**	**641**			
Keeyask reservoir		900 043000239360	GL-C	21-Sep-22	276	321	125	1	12.2	111
Keeyask reservoir	-	-	GL-B	02-Jun-22	215	253	62	1		
					61	**68**	**63**			
Keeyask reservoir		900 043000238908	GL-C	21-Sep-22	267	301	125	1	9.6	111
Keeyask reservoir	-	-	GL-C	02-Jun-22	192	218	41	1		
					75	**83**	**84**			

Table A4-3: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in the Keeyask reservoir, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Keeyask reservoir	125174	900 067000109646	GL-C	21-Sep-22	390	446	325	4	9.4	1203
Keeyask reservoir	-	-	GL-C	06-Jun-19	224	264	64	1		
					166	**182**	**261**			
Keeyask reservoir		900 043000239417	GL-C	21-Sep-22	272	301	125	1	9.6	111
Keeyask reservoir	-	-	GL-C	02-Jun-22	192	218	40	1		
					80	**83**	**85**			
Keeyask reservoir	125163	900 067000113038	GL-C	21-Sep-22	448	518	500	4	1.9	1203
Keeyask reservoir	-	-	GL-B	06-Jun-19	250	298	91	1		
					198	**220**	**409**			
Keeyask reservoir	125162	900 067000108616	GL-C	23-Sep-22	450	520	450	4	0.8	1205
Keeyask reservoir	-	-	GL-C	06-Jun-19	248	288	79	1		
					202	**232**	**371**			
Keeyask reservoir	125154	900 067000109357	GL-C	23-Sep-22	400	454	400	4	5.5	1205
Keeyask reservoir	-	-	GL-B	06-Jun-19	230	271	77	1		
					170	**183**	**323**			
Keeyask reservoir		900 043000238916	GL-C	23-Sep-22	276	319	100	1	8.2	113
Keeyask reservoir	-	-	GL-C	02-Jun-22	187	220	42	1		
					89	**99**	**58**			
Keeyask reservoir		900 043000239464	GL-C	23-Sep-22	274	309	100	1	5.4	113
Keeyask reservoir	-	-	GL-B	02-Jun-22	190	220	42	1		
					84	**89**	**58**			
Keeyask reservoir		900 043000239048	GL-C	23-Sep-22	271	305	100	1	1.6	113
Keeyask reservoir	-	-	GL-C	02-Jun-22	190	214	39	1		
					81	**91**	**61**			
Keeyask reservoir	125325	900 067000108615	GL-C	23-Sep-22	456	525	500	4	4.5	1205
Keeyask reservoir	-	-	GL-C	06-Jun-19	242	282	70	1		
					214	**243**	**430**			

Table A4-3: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in the Keeyask reservoir, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Keeyask reservoir	125350	900 067000113751	GL-C	24-Sep-22	402	458	375	4	0.6	1206
Keeyask reservoir	-	-	GL-C	06-Jun-19	225	265	68	1		
					177	**193**	**307**			
Keeyask reservoir	125324	900 067000109295	GL-C	24-Sep-22	440	502	500	4	5.5	1206
Keeyask reservoir	-	-	GL-B	06-Jun-19	255	302	101	1		
					185	**200**	**399**			
Keeyask reservoir	125321	900 067000112089	GL-C	24-Sep-22	428	475	475	6	12.2	1934
Keeyask reservoir	-	-	GL-A	08-Jun-17	245	292	87	1		
					183	**183**	**388**			

Table A4-4: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in Stephens Lake, fall 2022.

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Stephens Lake	125701	900 067000055349	STL-A	14-Sep-22	634	730	1600	8	3.1	2641
Stephens Lake	-	-	STL-B	22-Jun-15	215	252	56	1		
					419	**478**	**1544**			
Stephens Lake	125702	900 067000110393	STL-A	14-Sep-22	403	455	550	5	131.0	1560
Burntwood River	-	-	BWR-A	7-Jun-18	231	275	88	1		
					172	**180**	**462**			
Stephens Lake	125708	900 067000109337	STL-B	15-Sep-22	399	456	400	4	12.0	1197
Keeyask reservoir	-	-	GL-C	6-Jun-19	234	274	61	1		
					165	**182**	**339**			
Stephens Lake	125712	900 067000112982	STL-B	16-Sep-22	455	510	505	4	14.6	1198
Keeyask reservoir	-	-	GL-B	6-Jun-19	209	249	48	1		
					246	**261**	**457**			
Stephens Lake	125714	900 067000055356	STL-B	16-Sep-22	620	685	1490	8	14.5	2557
Keeyask reservoir	-	-	GL-B	16-Sep-15	321	372	240	1		
					299	**313**	**1250**			
Stephens Lake	125715	900 067000108609	STL-B	16-Sep-22	480	540	750	4	2.4	1191
Stephens Lake	-	-	STL-B	9-Jun-21	375	425	-	3		
Stephens Lake	-	-	STL-A	13-Jun-19	244	282	87	1		
					236	**258**	**663**			
Stephens Lake	121204	900 067000112451	STL-B	15-Sep-22	480	540	700	6	23.7	1925
Keeyask reservoir	-	-	GL-C	16-Sep-21	455	502	500	5		
Keeyask reservoir	-	-	GL-A	8-Jun-17	232	270	67	1		
					248	**270**	**633**			
Stephens Lake	121499	900 067000112562	STL-B	15-Sep-22	525	605	950	6	23.7	1925
Stephens Lake	-	-	STL-B	23-Sep-21	483	562	850	5		
Keeyask reservoir	-	-	GL-A	8-Jun-17	208	248	55	1		
					317	**357**	**895**			

Table A4-4: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in Stephens Lake, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Stephens Lake	113271	900 067000111990	STL-B	15-Sep-22	542	605	1050	6	3.8	1918
Stephens Lake	-	-	STL-B	17-Sep-18	375	416	350	2		
Stephens Lake	-	-	STL-A	15-Jun-17	262	300	103	1		
					280	**305**	**947**			
Stephens Lake	125709	900 067000108614	STL-B	15-Sep-22	477	542	600	4	11.5	1197
Keeyask reservoir	-	-	GL-C	6-Jun-19	209	244	48	1		
					268	**298**	**552**			
Stephens Lake	116030	900 067000055561	STL-B	16-Sep-22	554	639	1000	8	1.8	2559
Stephens Lake	-	-	STL-B	12-Sep-19	502	580	700	5		
Stephens Lake	-	-	STL-B	14-Sep-15	265	308	97	1		
					289	**331**	**903**			
Stephens Lake	125725	900 043000239335	STL-B	17-Sep-22	308	354	200	1	3.1	110
Stephens Lake	-	-	STL-A	30-May-22	205	237	43	1		
					103	**117**	**157**			
Stephens Lake	121284	900 067000055198	STL-B	17-Sep-22	531	619	950	8	17.9	2644
Keeyask reservoir	-	-	GL-A	20-Sep-21	510	592	700	7		
Keeyask reservoir	-	-	GL-B	22-Jun-15	198	236	46	1		
					333	**383**	**904**			
Stephens Lake	121420	900 067000113181	STL-B	17-Sep-22	486	554	700	4	0.4	1192
Stephens Lake	-	-	STL-A	20-Sep-21	451	514	550	3		
Stephens Lake	-	-	STL-B	25-Sep-20	389	449	400	2		
Stephens Lake	-	-	STL-B	13-Jun-19	230	269	62	1		
					256	**285**	**638**			
Stephens Lake	125722	900 067000109661	STL-B	17-Sep-22	475	514	650	4	15.3	1199
Keeyask reservoir	-	-	GL-B	6-Jun-19	245	285	79	1		
					230	**229**	**571**			

Table A4-4: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in Stephens Lake, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Stephens Lake	125723	900 067000109667	STL-B	17-Sep-22	440	513	500	4	0.4	1192
Stephens Lake	-	-	STL-B	17-Sep-19	301	350	150	1		
Stephens Lake	-	-	STL-B	13-Jun-19	235	275	71	1		
					205	**238**	**429**			
Stephens Lake	125402	900 067000112155	STL-B	18-Sep-22	451	520	650	6	23.8	1928
Keeyask reservoir	-	-	GL-A	8-Jun-17	236	276	74	1		
					215	**244**	**576**			
Stephens Lake	125407	900 067000109378	STL-B	18-Sep-22	519	596	750	4	15.3	1200
Keeyask reservoir	-	-	GL-B	6-Jun-19	235	275	64	1		
					284	**321**	**686**			
Stephens Lake	121300	900 067000113241	STL-B	19-Sep-22	480	542	600	4	2.9	1194
Stephens Lake	-	-	STL-B	23-Sep-21	432	494	475	3		
Stephens Lake	-	-	STL-A	13-Jun-19	220	258	58	1		
					260	**284**	**542**			
Stephens Lake	120054	900 067000113707	STL-B	19-Sep-22	456	514	550	4	2.9	1194
Stephens Lake	-	-	STL-A	17-Sep-21	416	475	475	3		
Stephens Lake	-	-	STL-A	23-Jun-21	375	430	400	3		
Stephens Lake	-	-	STL-A	13-Jun-19	231	266	66	1		
					225	**248**	**484**			
Stephens Lake	125741	900 067000109670	STL-B	21-Sep-22	475	535	600	4	12.7	1203
Keeyask reservoir	-	-	GL-C	6-Jun-19	201	233	45	1		
					274	**302**	**555**			
Stephens Lake	125742	900 067000113053	STL-B	21-Sep-22	474	544	700	4	0.4	1196
Stephens Lake	-	-	STL-B	13-Jun-19	205	245	52	1		
					269	**299**	**648**			
Stephens Lake	117673	900 067000059328	STL-B	21-Sep-22	535	602	900	6	23.8	1931
Stephens Lake	-	-	STL-B	19-Sep-19	423	480	500	3		
Keeyask reservoir	-	-	GL-A	8-Jun-17	228	268	67	1		
					307	**334**	**833**			

Table A4-4: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in Stephens Lake, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Stephens Lake	121427	900 067000113255	STL-B	21-Sep-22	535	602	900	4	0.4	1196
Stephens Lake	-	-	STL-B	22-Sep-21	423	480	500	3		
Stephens Lake	-	-	STL-B	13-Jun-19	228	268	67	1		
					307	**334**	**833**			
Stephens Lake	125744	900 067000113770	STL-B	21-Sep-22	535	602	900	4	2.9	1196
Stephens Lake	-	-	STL-A	16-Jun-21	423	480	500	3		
Stephens Lake	-	-	STL-A	13-Jun-19	228	268	67	1		
					307	**334**	**833**			
Stephens Lake	125745	900 067000113438	STL-B	21-Sep-22	535	602	900	4	0.4	1196
Stephens Lake	-	-	STL-B	15-Sep-19	423	480	500	1		
Stephens Lake	-	-	STL-B	13-Jun-19	228	268	67	1		
					307	**334**	**833**			
Stephens Lake	125747	900 067000059028	STL-B	21-Sep-22	520	609	900	6	1.6	1812
Stephens Lake	-	-	STL-B	5-Oct-17	300	350	160	1		
					220	**259**	**740**			
Stephens Lake	125457	900 067000113183	STL-B	23-Sep-22	486	559	650	4	0.4	1198
Stephens Lake	-	-	STL-B	13-Jun-19	240	288	81	1		
					246	**271**	**569**			
Stephens Lake	118801	900 067000059086	STL-B	23-Sep-22	537	606	1000	6	1.6	1814
Stephens Lake	-	-	STL-B	23-Sep-20	452	529	510	4		
Stephens Lake	-	-	STL-B	5-Oct-17	295	340	175	1		
					242	**266**	**825**			
Stephens Lake	125459	900 067000109663	STL-B	23-Sep-22	465	523	500	4	15.3	1205
Keeyask reservoir	-	-	GL-B	6-Jun-19	220	258	63	1		
					245	**265**	**437**			
Stephens Lake	125461	900 067000108669	STL-B	23-Sep-22	477	541	600	4	2.9	1198
Stephens Lake	-	-	STL-A	13-Jun-19	242	278	74	1		
					235	**263**	**526**			

Table A4-4: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in Stephens Lake, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Stephens Lake	125462	900 067000111442	STL-B	23-Sep-22	356	409	250	3	121.0	475
Burntwood River	-	-	BWR-B	5-Jun-21	332	391	246	2		
					24	**18**	**4**			
Stephens Lake	125464	900 067000108611	STL-B	23-Sep-22	474	550	600	4	12.7	1205
Keeyask reservoir	-	-	GL-C	6-Jun-19	244	289	84	1		
					230	**261**	**516**			
Stephens Lake	125468	900 067000113057	STL-B	23-Sep-22	435	500	500	4	15.3	1205
Keeyask reservoir	-	-	GL-B	6-Jun-19	228	268	69	1		
					207	**232**	**431**			
Stephens Lake	125469	900 067000112507	STL-B	23-Sep-22	495	564	800	6	4.3	1926
Stephens Lake	-	-	STL-A	15-Jun-17	215	250	61	1		
					280	**314**	**739**			
Stephens Lake	125471	900 067000113469	STL-B	23-Sep-22	466	532	600	4	2.9	1198
Stephens Lake	-	-	STL-A	13-Jun-19	216	250	52	1		
					250	**282**	**548**			
Stephens Lake	125404	900 067000055200	STL-B	18-Sep-22	535	616	900	8	11.7	2559
Keeyask reservoir	-	-	GL-C	16-Sep-15	350	406	234	1		
					185	**210**	**666**			
Stephens Lake	116066	900 067000113464	STL-B	18-Sep-22	435	499	600	4	2.6	1193
Stephens Lake	-	-	STL-B	13-Sep-19	285	330	100	1		
Stephens Lake	-	-	STL-A	13-Jun-19	220	258	62	1		
					215	**241**	**538**			
Stephens Lake	125406	900 067000109649	STL-B	18-Sep-22	475	549	700	4	14.9	200
Keeyask reservoir	-	-	GL-B	6-Jun-19	226	271	66	1		
					249	**278**	**634**			
Stephens Lake	125407	900 067000109650	STL-B	18-Sep-22	433	499	500	4	0.1	1193
Stephens Lake	-	-	STL-B	13-Jun-19	n/a	n/a	n/a	1		
					-	**-**	**-**			

Table A4-4: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in Stephens Lake, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Stephens Lake	125408	900 067000109283	STL-B	18-Sep-22	472	540	700	4	2.6	1193
Stephens Lake	-	-	STL-A	13-Jun-19	225	262	55	1		
					247	**278**	**645**			
Stephens Lake	125410	900 067000108673	STL-B	18-Sep-22	440	491	475	4	12.3	1200
Keeyask reservoir	-	-	GL-C	6-Jun-19	227	258	64	1		
					213	**233**	**411**			
Stephens Lake	125412	900 043000239260	STL-B	18-Sep-22	300	346	150	1	4.0	111
Stephens Lake	-	-	STL-A	30-May-22	198	233	42	1		
					102	**113**	**108**			
Stephens Lake	125413	900 043000239000	STL-B	18-Sep-22	310	350	200	1	4.0	111
Stephens Lake	-	-	STL-A	30-May-22	185	213	37	1		
					125	**137**	**163**			
Stephens Lake	125419	900 067000113382	STL-B	19-Sep-22	475	549	600	4	0.1	1194
Stephens Lake	-	-	STL-B	13-Jun-19	218	255	52	1		
					257	**294**	**548**			
Stephens Lake	125726	900 067000058706	STL-B	21-Sep-22	616	705	1350	8	15.0	2648
Keeyask reservoir	-	-	GL-B	22-Jun-15	246	287	88	1		
					370	**418**	**1262**			
Stephens Lake	118882	900 067000113447	STL-B	21-Sep-22	471	533	550	4	2.6	1196
Stephens Lake	-	-	STL-B	17-Sep-20	377	427	300	2		
Stephens Lake	-	-	STL-B	13-Sep-19	325	370	200	1		
Stephens Lake	-	-	STL-A	13-Jun-19	267	310	117	1		
					204	**223**	**433**			
Stephens Lake	111070	900 067000112641	STL-B	18-Sep-22	587	617	1000	6	3.6	1921
Stephens Lake			STL-B	13-Sep-17	311	366	200	1		
Stephens Lake	-	-	STL-A	15-Jun-17	244	288	85	1		
					343	**329**	**915**			

Table A4-4: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in Stephens Lake, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Stephens Lake	125421	900 067000055345	STL-B	19-Sep-22	630	720	1600	8	1.1	2646
Stephens Lake	-	-	STL-B	22-Jun-15	244	287	91	1		
					386	**433**	**1509**			
Stephens Lake	125423	900 043000239619	STL-B	19-Sep-22	300	347	150	1	14.8	109
Keeyask reservoir	-	-	GL-B	2-Jun-22	200	233	48	1		
					100	**114**	**102**			
Stephens Lake		900 043000239652	STL-B	21-Sep-22	279	315	150	1	3.6	114
Stephens Lake	-	-	STL-A	30-May-22	195	224	67	1		
					84	**91**	**83**			
Stephens Lake	125735	900 067000113761	STL-B	21-Sep-22	430	485	400	4	13.0	1203
Keeyask reservoir	-	-	GL-C	6-Jun-19	215	253	54	1		
					215	**232**	**346**			
Stephens Lake	121495	900 067000113001	STL-B	21-Sep-22	532	604	800	4	3.2	1196
Stephens Lake	-	-	STL-A	23-Sep-21	467	532	500	3		
Stephens Lake	-	-	STL-A	13-Jun-19	232	270	60	1		
					300	**334**	**740**			
Stephens Lake	121400	900 067000113262	STL-B	21-Sep-22	479	544	550	4	0.7	1196
Stephens Lake	-	-	STL-A	18-Sep-21	435	492	475	3		
Stephens Lake	-	-	STL-B	13-Jun-19	235	274	64	1		
					244	**270**	**486**			
Stephens Lake	125736	900 067000113056	STL-B	21-Sep-22	494	567	600	4	15.5	1203
Keeyask reservoir	-	-	GL-B	6-Jun-19	215	258	51	1		
					279	**309**	**549**			
Stephens Lake	125737	900 067000113059	STL-B	21-Sep-22	455	522	500	4	15.5	1203
Keeyask reservoir	-	-	GL-B	6-Jun-19	222	267	63	1		
					233	**255**	**437**			
Stephens Lake	125739	900 067000113252	STL-B	21-Sep-22	467	540	550	4	0.7	1196
Stephens Lake	-	-	STL-B	13-Jun-19	n/a	n/a	n/a	1		
					-	**-**	**-**			

Table A4-4: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in Stephens Lake, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Stephens Lake	116840	900 067000109321	STL-B	21-Sep-22	496	571	750	4	15.1	1203
Keeyask reservoir	-	-	GL-B	18-Sep-19	309	355	100	1		
Keeyask reservoir	-	-	GL-B	6-Jun-19	211	252	53	1		
					285	**319**	**697**			
Stephens Lake	121497	900 067000113280	STL-B	21-Sep-22	450	506	500	4	15.1	1203
Stephens Lake			STL-B	23-Sep-21	423	475	400	3		
Keeyask reservoir	-	-	GL-B	6-Jun-19	205	241	50	1		
					245	**265**	**450**			
Stephens Lake	117564	900 067000108677	STL-B	21-Sep-22	505	573	600	4	2.8	1196
Stephens Lake	-	-	STL-A	17-Sep-19	305	351	125	1		
Stephens Lake	-	-	STL-A	13-Jun-19	222	259	53	1		
					283	**314**	**547**			
Stephens Lake	125731	900 067000109312	STL-B	21-Sep-22	466	541	600	4	0.2	1196
Stephens Lake	-	-	STL-B	13-Jun-19	220	259	59	1		
					246	**282**	**541**			
Stephens Lake	117573	900 067000113448	STL-B	21-Sep-22	478	547	650	4	0.2	1196
Stephens Lake	-	-	STL-B	25-Sep-20	369	422	300	2		
Stephens Lake	-	-	STL-B	18-Sep-19	308	354	150	1		
Stephens Lake	-	-	STL-B	13-Jun-19	235	278	80	1		
					243	**269**	**570**			
Stephens Lake	125733	900 043000239694	STL-B	21-Sep-22	309	350	150	1	4.2	114
Stephens Lake	-	-	STL-A	30-May-22	220	257	60	1		
					89	**93**	**90**			
Stephens Lake	118879	900 067000109651	STL-B	23-Sep-22	471	541	600	4	0.2	1198
Stephens Lake				17-Sep-20	372	430	250	2		
Stephens Lake			STL-B	13-Jun-19	254	295	94	1		
					217	**246**	**506**			

Table A4-4: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in Stephens Lake, fall 2022 (continued).

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Stephens Lake	125750	900 067000112422	STL-B	23-Sep-22	514	594	800	6	23.7	1933
Keeyask reservoir	-	-	GL-A	8-Jun-17	224	265	59	1		
					290	**329**	**741**			
Stephens Lake	125452	900 067000055698	STL-B	23-Sep-22	685	773	2000	8	0.6	2566
Stephens Lake	-	-	STL-B	14-Sep-15	299	346	144	1		
					386	**427**	**1856**			
Stephens Lake	120058	900 067000055394	STL-B	23-Sep-22	650	733	1600	8	0.5	2650
Stephens Lake	-	-	STL-B	22-Jun-15	201	258	61	1		
					449	**475**	**1539**			
Stephens Lake	125453	900 067000113424	STL-B	23-Sep-22	464	525	550	4	2.8	1198
Stephens Lake	-	-	STL-A	13-Jun-19	210	243	51	1		
					254	**282**	**499**			
Stephens Lake	125454	900 067000112932	STL-B	23-Sep-22	412	476	400	4	15.1	1205
Keeyask reservoir	-	-	GL-B	6-Jun-19	255	299	95	1		
					157	**177**	**305**			
Stephens Lake	125455	900 067000059505	STL-B	23-Sep-22	473	539	650	6	23.7	1933
Keeyask reservoir	-	-	GL-A	8-Jun-17	235	250	54	1		
					238	**289**	**596**			
Stephens Lake	125456	900 067000059082	STL-B	23-Sep-22	505	585	850	6	1.7	1814
Stephens Lake	-	-	STL-B	5-Oct-17	295	345	165	1		
					210	**240**	**685**			
Stephens Lake	125473	900 067000111361	STL-B	23-Sep-22	470	523	500	5	122.0	1576
Burntwood River	-	-	BWR-B	31-May-18	253	298	100	1		
					217	**225**	**400**			

APPENDIX 5:
POPULATION ESTIMATE INFORMATION.

Mark-recapture population estimates were calculated for wild fish in the Upper Split Lake Area during the fall of ten different years (2012-2020, 2022), in the Keeyask reservoir and Stephens Lake during the fall of twelve different years (2010 and 2012-2022). Only wild Lake Sturgeon classified as juveniles (*i.e.*, fork length less than 800 mm) were included in the population estimate. All data for the period 2008–2012 were collected annually as part of environmental studies related to the pre-Project environment, while data from 2014 until 2044 will be collected annually as part of monitoring studies related to the Keeyask GS Project.

Data were analysed using the program MARK (White and Burnham 1999; Kendall 2001; Arnason and Schwartz 2002), which is an industry standard for the analysis of data from marked populations. Program MARK uses binary numbers to represent the encounter history of individuals, and then uses the cumulative pattern of 0's (not-encountered) and 1's (re-encountered live capture) to generate a probability distribution of tag recaptures which form the basis of population estimation. Re-encounters can also be from dead recoveries (*e.g*., the animal is harvested) in which case the model uses a value of -1. For example, the history "10-1" indicates that an animal was captured for the first time at sampling occasion 1, not encountered at sampling occasion 2, and recovered dead at sampling occasion 3.

Several different population model variants exist, most of which can be classified as either closed or open models. Closed models assume there are no births, deaths, immigration, or emigration between sample periods, while open models assume these processes occur. The Jolly-Seber model (POPAN formulation; Arnason and Schwarz 2002), as implemented within MARK, was used to estimate the annual abundance of juvenile Lake Sturgeon. This is an open model that requires few assumptions and modeled variables, and thus likely provides a reliable estimate of abundance.

Using first-time capture and recapture information, POPAN estimates the survival (*i.e.,* the probability that a fish will survive from one capture to the next), the probability of recapture (p; *i.e.,* the probability that a fish will be recaptured given that the animal is alive and in the study area), and abundance (N; *i.e.,* the number of juvenile Lake Sturgeon in the area during each capture period) (Tables A5-1, A5-3 and A5-5).

- Model fit for survival was calculated as 75% for the Upper Split Lake Area and Keeyask reservoir and 79% for Stephens Lake.
- The probability of recapture varied among years:
    - Recapture rates were split into seven groups based on the model for the Upper Split Lake Area: i) 2012 (0.38); ii) 2014 (0.07); iii) 2019 (0.05); iv) 2018 and 2020 (0.03); v) 2017 and 2022 (0.02); vi) 2015-2016 (0.01); and vii) 2013 (0.00).
    - Recapture rates were split into eight groups based on the model for the Keeyask reservoir: i) 2010 (0.81); ii) 2012 (0.08); iii) 2021 (0.07); iv) 2017 and 2019-2020 (0.06); v) 2022 (0.05); vi) 2014 and 2018 (0.04); vii) 2015-2016 (0.03); and viii) 2013 (0.02).

  - For Stephens Lake, recapture rates were split into nine groups: i) 2012 (0.24); ii) 2020-2021 (0.14); iii) 2017 (0.13); iv) 2019 (0.12); v) 2010 and 2016 (0.11); vi) 2014 (0.08); vii) 2015 and 2018 (0.06); viii) 2013 (0.04); and ix) 2022 (0.02).

- Abundance estimates for the Upper Split Lake Area, Keeyask reservoir and Stephens Lake are provided for the 2010 and 2012-2022 study years.
- As sampling continues (*i.e.*, year to year) and data is added to the model, the parameters are recalculated. Thus, although survival rates and abundance estimates are calculated for the same time periods, they may differ among reporting periods. This allows the estimates to become more refined and precise over time.

The Cormack-Jolly-Seber model was used to calculate an estimate of survival of hatchery-reared lake Sturgeon in both the Keeyask reservoir and Stephens Lake between 2015 (when stocking began) and 2022. This model calculates an estimate using the probability of recapture. For example, if 426 juveniles were stocked in a system and the estimated survival rate was 0.93 over three years then the remaining number of hatchery fish in the system would be calculated by multiplying the number of stocked fish by the survival rate over three years. The resulting number would be calculated as follows: (426 hatchery fish) x (0.93) x (0.93) x (0.93) = 342 and would represent the number of hatchery fish estimated to still be present in the system after three years.

References

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Table A5-1: Results of POPAN analysis of juvenile Lake Sturgeon from the Upper Split Lake Area. Best model was constant survival and variable recapture. Confidence intervals are rounded.

Parameter	Mean	SE	95% Confidence Interval	
			Low	High
Survival (all years)	0.75	0.11	0.49	0.90
2012 Recapture	0.38	12.70	0.00	1.00
2013 Recapture	0.00	0.00	0.00	0.02
2014 Recapture	0.07	0.07	0.01	0.37
2015 Recapture	0.01	0.00	0.00	0.02
2016 Recapture	0.01	0.00	0.00	0.03
2017 Recapture	0.02	0.01	0.01	0.05
2018 Recapture	0.03	0.02	0.01	0.08
2019 Recapture	0.05	0.03	0.02	0.14
2020 Recapture	0.03	0.02	0.01	0.08
2022 Recapture	0.02	0.01	0.00	0.07
2012 Abundance	64	2,136	0	11,483
2013 Abundance	839	818	169	4,165
2014 Abundance	627	627	123	3,206
2015 Abundance	5292	2,332	2,318	12,084
2016 Abundance	3953	1,782	1,702	9,183
2017 Abundance	2953	1,487	1,163	7,499
2018 Abundance	2206	1,297	758	6,419
2019 Abundance	2764	1,433	1,062	7,192
2020 Abundance	4501	2,230	1,797	11,276
2022 Abundance	10,020	7,337	2,774	36,190

Table A5-2: Results of POPAN analysis of hatchery-reared juvenile Lake Sturgeon from the Upper Split Lake Area. Best model was constant survival and variable recapture. Confidence intervals are rounded.

Year	Parameter	Mean	SE	95% Confidence Interval	
				Low	High
All	Survival	0.92	0.05	0.75	0.98
2013	Cohort at Large	318		57	510
2015	Cohort at Large	14		4	20
2017	Cohort at Large	540		229	684
2019	Cohort at Large	491		319	552
Total	Stocked	1,364		609	1,767
2022	Wild	10,020	7337	2,774	36,190
2022	Percent Hatchery	11.98%		18.00%	4.66%

Table A5-3: Results of POPAN analysis of juvenile Lake Sturgeon from the Keeyask reservoir. Best model was constant survival and variable recapture. Confidence intervals are rounded.

Parameter	Mean	SE	95% Confidence Interval	
			Low	High
Survival (All Years)	0.75	0.03	0.68	0.81
2010 Recapture	0.81	0.00	0.81	0.81
2012 Recapture	0.08	0.04	0.02	0.22
2013 Recapture	0.02	0.02	0.01	0.09
2014 Recapture	0.04	0.02	0.01	0.11
2015 Recapture	0.03	0.01	0.02	0.05
2016 Recapture	0.03	0.01	0.02	0.05
2017 Recapture	0.06	0.02	0.04	0.10
2018 Recapture	0.04	0.01	0.02	0.08
2019 Recapture	0.06	0.02	0.03	0.10
2020 Recapture	0.06	0.02	0.04	0.10
2021 Recapture	0.07	0.02	0.04	0.11
2022 Recapture	0.05	0.01	0.03	0.08
2010 Abundance	86	0	86	86
2012 Abundance	1,030	577	370	2,866
2013 Abundance	1,077	730	323	3,592
2014 Abundance	3,108	1,774	1,098	8,799
2015 Abundance	3,833	740	2,635	5,575
2016 Abundance	2,879	603	1,918	4,321
2017 Abundance	2,161	498	1,384	3,376
2018 Abundance	3,179	1,018	1,723	5,863
2019 Abundance	2,961	782	1,780	4,925
2020 Abundance	2,797	686	1,742	4,492
2021 Abundance	2,775	625	1,794	4,292
2022 Abundance	2,793	696	1,727	4,517

Table A5-4: Results of POPAN analysis of hatchery-reared juvenile Lake Sturgeon from the Keeyask reservoir. Best model was constant survival and variable recapture. Confidence intervals are rounded.

Year	Parameter	Mean	SE	95% Confidence Interval	
				Low	High
All	Survival	0.95	0.08	0.41	1.00
2014	Cohort at Large	302		1	418
2016	Cohort at Large	364		5	459
2018	Cohort at Large	345		27	396
2021	Cohort at Large	400		400	400
Total	Stocked	1,411		434	1,673
2022	Wild	2,793	696	1,727	4,517
2022	Percent Hatchery	33.56%		20.07%	27.03%

Table A5-5: Results of POPAN analysis of juvenile Lake Sturgeon from Stephens Lake. Best model was constant survival and variable recapture. Confidence intervals are rounded.

Parameter	Mean	SE	95% Confidence Interval	
			Low	High
Survival (All Years)	0.79	0.03	0.73	0.84
2010 Recapture	0.11	0.00	0.11	0.11
2012 Recapture	0.24	0.10	0.10	0.48
2013 Recapture	0.04	0.01	0.02	0.08
2014 Recapture	0.08	0.03	0.04	0.15
2015 Recapture	0.06	0.02	0.03	0.11
2016 Recapture	0.11	0.03	0.06	0.18
2017 Recapture	0.13	0.03	0.08	0.21
2018 Recapture	0.06	0.01	0.04	0.08
2019 Recapture	0.12	0.02	0.09	0.17
2020 Recapture	0.14	0.03	0.10	0.21
2021 Recapture	0.14	0.03	0.09	0.21
2022 Recapture	0.02	0.01	0.01	0.05
2010 Abundance	294	0	294	294
2012 Abundance	349	140	164	743
2013 Abundance	721	210	412	1,262
2014 Abundance	573	170	324	1,014
2015 Abundance	760	217	438	1,317
2016 Abundance	605	147	378	968
2017 Abundance	722	165	464	1,125
2018 Abundance	1,021	128	800	1,304
2019 Abundance	811	116	615	1,071
2020 Abundance	645	107	466	891
2021 Abundance	558	101	392	795
2022 Abundance	3,665	1,817	1,462	9,184

Table A5-6: Results of POPAN analysis of hatchery-reared juvenile Lake Sturgeon from Stephens Lake. Best model was constant survival and variable recapture. Confidence intervals are rounded.

Year	Parameter	Mean	SE	95% Confidence Interval	
				Low	High
All	Survival	0.78	0.04	0.68	0.86
2014	Cohort at Large	76		29	143
2016	Cohort at Large	213		108	335
2018	Cohort at Large	188		125	247
2021	Cohort at Large	400		400	400
Total	Stocked	877		663	1125
2022	Wild	3665	1817	1462	9184
2022	Percent Hatchery	19.30%		31.19%	10.91%