Keeyask Generation Project

Aquatic Effects Monitoring Plan

Juvenile Lake Sturgeon Population Monitoring Report

AEMP-2021-05

KEEYASK

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KEEYASK GENERATION PROJECT

AQUATIC EFFECTS MONITORING PLAN

REPORT #AEMP-2021-05

JUVENILE LAKE STURGEON POPULATION MONITORING, FALL 2020: YEAR 7 CONSTRUCTION

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 with the construction of cofferdams in the north and central channels of Gull Rapids. These cofferdams resulted in the dewatering of the north and central channels and the diversion of all flow to the south channel. Construction of the Spillway Cofferdam (SWCD), which extends into the south channel of Gull Rapids, was completed in 2015. The rock placement for the inner and outer groins of the Tailrace Cofferdam (TRCD) started in late 2016 and the impervious fill placement was completed in fall 2017. The spillway was commissioned between August 3 and 7, 2018. Closing the south channel with the upstream South Dam Cofferdam (SDCD) commenced at the beginning of August and river closure was achieved on August 16. This closure and the work that continued to seal the cofferdam forced the entire river flow through the spillway. In 2020 water-up of the areas kept dry by cofferdams for construction occurred between the end of February and mid-April. The cofferdams upstream of Keeyask and the North Channel Rock Groin were removed and/or lowered throughout the water-up process. Excavation of the TRCD occurred from mid-April to May 14 and then resumed on July 16 and was completed in October. Impoundment of the Keeyask reservoir took place between August 31 and September 5, 2020. Commissioning of the first generator unit started on August 31, 2020 and was still underway at the end of 2020.

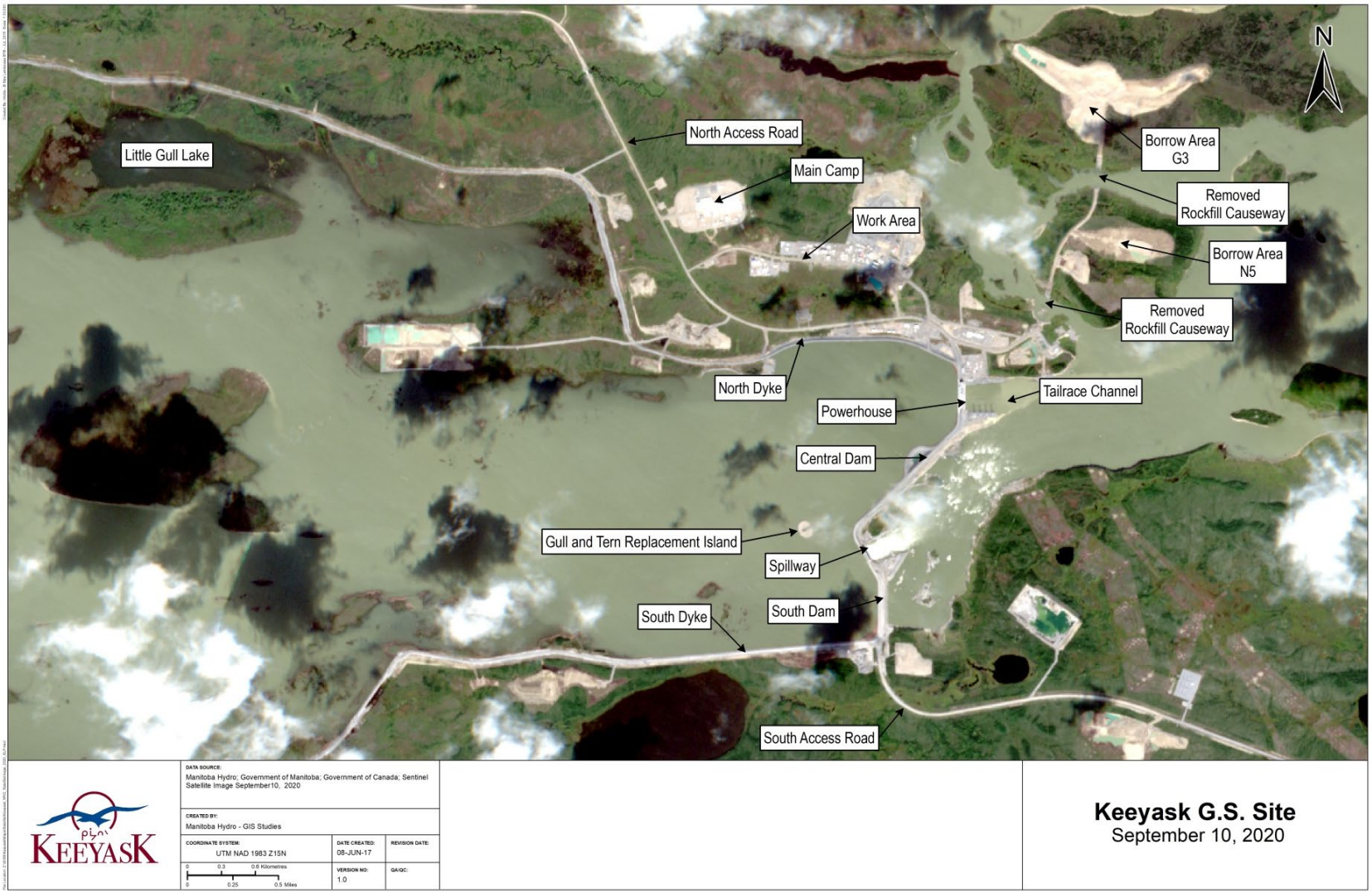
Lake Sturgeon were identified as one of the key species for monitoring. They were chosen because they are culturally important to Partner First Nations, local sturgeon populations have been previously impacted, and construction and operation of the GS will change or negatively impact important habitat. 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 or Gull Rapids).

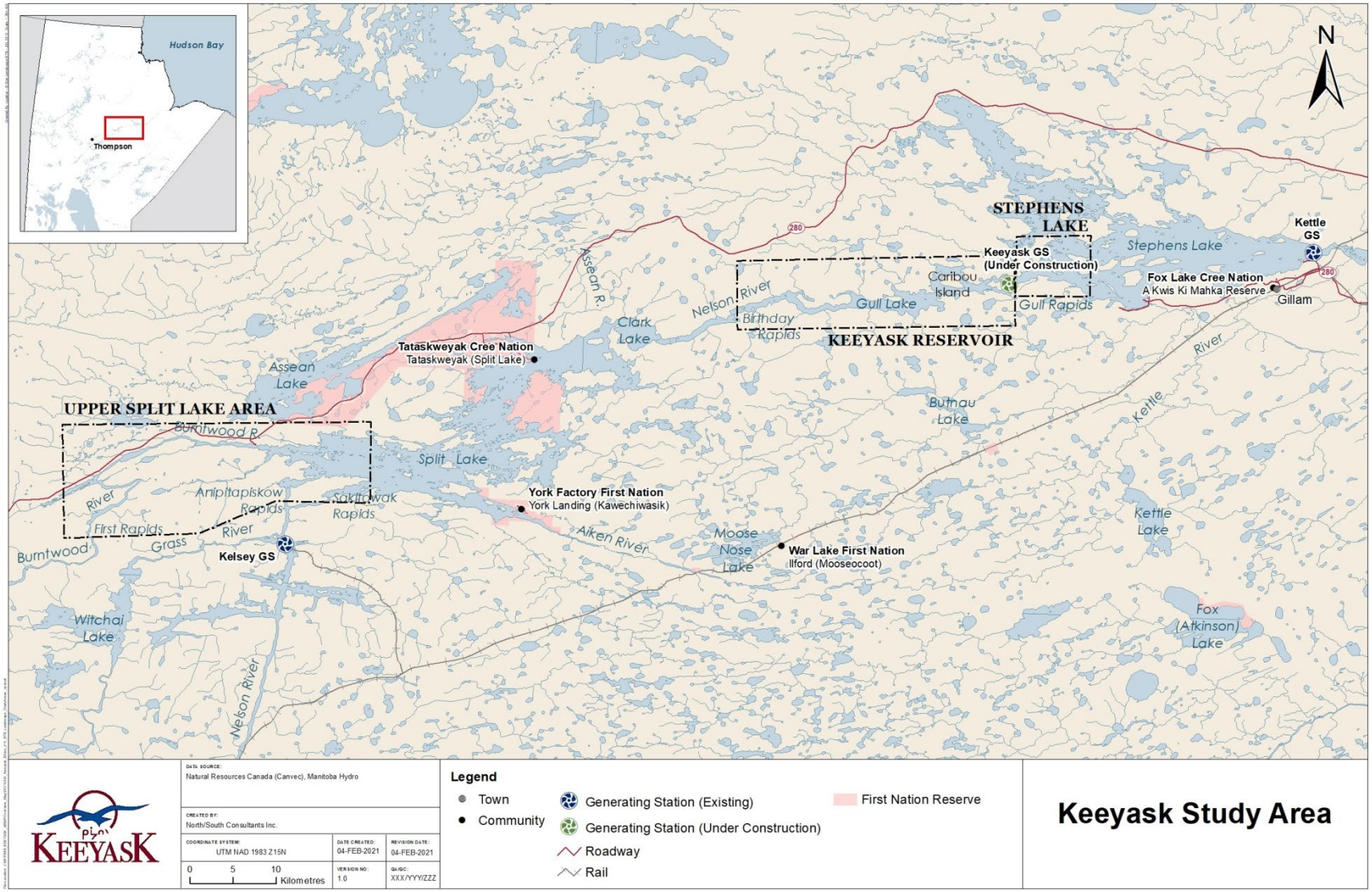
The mitigation and offsetting plan for Lake Sturgeon included a commitment to a long-term stocking program. This plan addressed the loss of spawning habitat at Gull Rapids during the

construction and initial years of operation (*i.e.*, before the constructed spawning habitat is fully effective) by releasing young sturgeon into Stephens Lake. Stocking will also support the recovery of the sturgeon populations in Gull Lake, Stephens Lake, and the Upper Split Lake Area. Stocking began in 2014, with locations alternated between years (Keeyask reservoir and Stephens Lake are stocked with fish born in even years, Burntwood River is stocked with fish born in odd years) and its effectiveness is assessed through juvenile population monitoring.

This report presents results of juvenile Lake Sturgeon population monitoring conducted during fall 2020. 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 annually 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 illustrating instream structures at the Keeyask Generating Station site after reservoir flooding, September 2020.



Map of the study area for the juvenile Lake Sturgeon population monitoring program. Sampling is done in the Upper Split Lake Area, the Keeyask reservoir, and Stephens Lake.

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?

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

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

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.

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.

In 2020, monitoring began ten days after the Keeyask reservoir was flooded on September 5. This means an additional AEMP question can begin to be addressed.

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

Flooding of Gull Lake 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.

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

What was done?

Sampling was conducted in the Upper Split Lake Area (the Burntwood River and the western portion of Split Lake), the Keeyask reservoir (the Nelson River between Clark Lake and the Keeyask GS), and Stephens Lake in the fall of 2020. 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.

Captured juvenile Lake Sturgeon in a fish tub (left); measuring (middle); and weighing (right) a Lake Sturgeon after capture.

What was found?

A total of 168 Lake Sturgeon were captured in the Upper Split Lake Area: 36 in the Burntwood River (all juveniles) and 132 in Split Lake (117 juveniles and 15 adults). Since sampling began in the Burntwood River, sturgeon born in every year from 2000 to 2019 have been caught. In Split Lake, sturgeon born in 2013 continued to make up a large proportion of the overall catch (35%). One Lake Sturgeon born in 2020 (called young-of-the-year [YOY]) was captured in Split Lake. Of the 168 sturgeon caught, six were wild fish tagged in a previous year and recaptured in 2020. All six fish were recaptured within the same waterbody where they were initially tagged (Split Lake) and moved less than 1 km from where they were initially caught. Eight fish captured in the Burntwood River and 13 fish captured in Split Lake were raised at the Grand Rapids hatchery and were released into the Burntwood River as one-year-olds.

Sampling in the Keeyask reservoir was started ten days after it was impounded. A total of 205 Lake Sturgeon (200 juveniles and 5 adults) were captured. One YOY sturgeon was captured, showing that sturgeon successfully reproduced in 2020. Of the 205 sturgeon caught, 26 had been tagged in a previous year (between 2008 and 2019), and an additional 36 were tagged hatchery-reared sturgeon released as one-year-olds in either the Burntwood River (one fish in 2014) or the Keeyask reservoir (35 fish released in either 2015, 2017, or 2019). Including the single fish caught in 2020, a total of seven 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 – 4) are generally longer than wild fish of the same cohort, but hatchery and wild fish appear to be the same length around age-5.

In Stephens Lake, a total of 142 Lake Sturgeon (131 juvenile and 11 adult) were captured. Two of these were YOY (fish born in 2020). A total of 42 sturgeon tagged in a previous year were recaptured, as well as 49 hatchery-reared sturgeon (released as one-year olds). Hatchery-reared sturgeon accounted for 35% of the total catch in Stephens Lake. Six of the hatchery-reared sturgeon were stocked in the Keeyask reservoir, 42 were stocked in Stephens Lake, and one was stocked 137 km upstream in the Burntwood River. As in the Keeyask reservoir, stocked hatchery fish were longer than wild fish of the same cohort, but hatchery and wild fish appear to be the same length around age-5.

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 2020, the Upper Split Lake Area (Burntwood River and Split Lake) juvenile population was estimated at 4,334 wild fish. The Keeyask reservoir population in 2020 was estimated at 2,442 wild fish. The Stephens Lake population in 2020 was estimated at 491 wild fish. It was estimated that 73% of all wild juvenile Lake Sturgeon survive each year in all three areas.

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 91% in the Upper Split Lake Area, 84% in the Keeyask reservoir, and 65% in Stephens Lake. A total of 1,528 hatchery-raised Lake Sturgeon were estimated to live in the Upper Split Lake Area, making up 26% of the total juvenile population. In the Keeyask reservoir, 778 hatchery-raised fish were estimated to be present, or 24% of all juvenile sturgeon. In Stephens Lake 507 hatchery-raised fish were estimated to be present, or 51% of all juvenile sturgeon

As more data are collected and added to the models, the population and survival estimates are expected to get more precise and accurate. This is especially true for the Upper Split Lake Area estimate as 2020 was only the second year estimates could be calculated. As more fish are recaptured, estimates will become more refined.

What does it mean?

The capture of YOY sturgeon in all three study areas in 2020 shows that, like in 2015–2019, reproduction in the wild is occurring in the Keeyask study area during construction. Wild sturgeon have been born in each year since construction started (2015–2020) in the Upper Split Lake Area and the Keeyask reservoir. No wild Lake Sturgeon from the 2018 cohort (age-2 fish) have been caught in Stephens Lake.

The capture of a large number of hatchery-reared sturgeon released as one-year-olds in the Keeyask reservoir and Stephens Lake over the last four study years suggests the stocking program is having a positive effect on juvenile abundance in these areas. It shows that stocked sturgeon are surviving in the wild and that they are growing after release. A larger number of hatchery-raised fish were caught in 2020 in the Burntwood River than in any other year, showing

that at least some hatchery fish remain in this area. Hatchery fish stocked in the Burntwood River were also captured in Split Lake, the Keeyask reservoir, and Stephens Lake.

What will be done next?

Monitoring will continue each fall until 2044. Monitoring in 2020 represents the first year of sampling after flooding of the Keeyask reservoir (completed on September 5, 2020). Further monitoring will show whether reservoir impoundment has affected where juvenile Lake Sturgeon are caught. It will also show how operation of the Keeyask GS is affecting the growth of juveniles in the Keeyask reservoir and Stephens Lake, and whether sturgeon continue to reproduce. Survival, growth, and population size of stocked and wild juveniles will continue to be assessed.

Juvenile Lake Sturgeon monitoring was planned for ever second year in the Upper Split Lake Area. Before 2020, sampling in the Upper Split Lake Area was conducted every year as a means to locate stocked hatchery fish. Because hatchery fish were located in Split Lake in 2019 and 2020 and their survival was confirmed, sampling in the Upper Split Lake Area will happen every second year (i.e., next in 2022), as per the AEMP.

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The collection of biological samples described in this report was authorized by Manitoba Conservation and Water Stewardship, Fisheries Branch, under terms of the Scientific Collection Permit #10-20.

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1.0 INTRODUCTION

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

The *Keeyask Generation Project: Response to EIS Guidelines*, completed in June 2012, provides a summary of predicted effects and planned mitigation for the Project. Technical supporting information for the aquatic environment, including a description of the environmental setting, effects and mitigation, and a summary of proposed monitoring and follow-up programs, is provided in the *Keeyask Generation Project Environmental Impact Statement: Aquatic Environment Supporting Volume* (AE SV). As part of the licensing process for the Project, an *Aquatic Effects Monitoring Plan* (AEMP) was developed detailing the monitoring activities of various components of the aquatic environment, 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 Gull 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 and is a key component of the offsetting plan, with stocking locations alternating between years (Keeyask reservoir and Stephens Lake are stocked with even-cohort years, Burntwood River is stocked with odd-cohort years). 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 Gull Lake (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; Burnett and Hrenchuk 2019, 2020). Results from the Burntwood River and Upper Split Lake show that recruitment has occurred each year over the previous 10 years (Henderson and Pisiak 2012; Henderson *et al.* 2013, 2015; Burnett *et al.* 2017, 2018; Burnett and Hrenchuk 2019, 2020). In both Gull and Stephens lakes, recruitment has also occurred fairly 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). Fish from the 2008 cohort are becoming too large for the sample gear and are therefore making up a smaller proportion of the catch in each waterbody. It has been shown that the growth of Burntwood River Lake Sturgeon is slower than conspecifics captured in Gull and Stephens lakes (Henderson *et al.* 2013).

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 Nelson River in Gull and Stephens lakes). 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, *in prep.*).

This report presents results from juvenile population monitoring conducted in the Upper Split Lake Area, Keeyask reservoir (previously referred to as Gull Lake and the future Keeyask reservoir), and Stephens Lake in 2020. In order to focus on areas where hatchery fish stocked into the Burntwood River may be captured (*i.e.*, the Burntwood River and Split Lake), the area downstream of the Kelsey GS has not been sampled as part of the Upper Split Lake Area since 2018.

Juvenile monitoring is being conducted to address the following key questions relevant during the construction period, as described in the AEMP:

- Does recruitment of wild sturgeon occur upstream and/or downstream of the GS during construction?
- Is there a biologically meaningful (and statistically significant) change in condition factor and growth of juvenile sturgeon during construction?
- 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)?

The Keeyask reservoir was impounded over a five day period from August 31 to September 5, 2020.. An additional key question outlined in the AEMP is relevant to this period.

- 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?

Juvenile population monitoring data will be collected annually until 2044.

2.0 STUDY SETTING

Juvenile population monitoring in 2020 was conducted at three locations: 1) the Upper Split Lake Area (Burntwood River and Split Lake); 2) the Keeyask reservoir (formerly referred to as Gull Lake and the future Keeyask reservoir; includes the reach of the Nelson River between the outlet of Clark Lake and Gull Rapids), and 3) Stephens Lake.

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 (Maps 1 and 3). 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 (Map 1). 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.

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

Gull Lake is a section of the Nelson River where the river widens, with moderate to low water velocity. Gull Lake is herein defined as the reach of the Nelson River beginning approximately 19.5 km upstream of the Keeyask GS and 14 km downstream of Birthday Rapids, where the river widens to the north into a bay around a large point of land (Maps 1 and 3), and extending to the downstream end of Caribou Island, approximately 3 km upstream of the Keeyask GS. Gull Lake has three distinct basins, the first extending from the upstream end of the lake downstream approximately 6 km to a large island; the second extending from the large island to Morris Point (a constriction in the river immediately upstream of Caribou Island); and the third extending from Morris Point to the downstream end of Caribou Island (Map 3).

In fall 2020, Gull Lake was impounded by the Keeyask GS and became part of the Keeyask reservoir, which will operate at a full supply level (FSL) of 159 m above sea level (ASL) on a permanent basis. The Keeyask reservoir is comprised of the mainstem of the original Nelson River from the outlet of Clark Lake as far as the Keeyask GS, plus 45 km2 of adjacent, flooded terrestrial area. Reservoir impoundment formed relatively shallow bays due to flooding of terrestrial areas, which generally have low water velocities and limited mixing with the mainstem flow. Over time the total area of the reservoir will increase as the terrestrial (peat) areas erode.

Gull Rapids, now the site of the Keeyask GS, was located approximately 3 km downstream of Caribou Island on the Nelson River (Map 1). Prior to construction, the rapids were approximately 2 km in length, and the river elevation dropped approximately 11 m along the 2 km length. Two large islands and several small islands occurred within the rapids, prior to the river narrowing; these features are within the Project footprint and have now been either dewatered, incorporated into the GS or were flooded after impoundment (Map 2). A summary of construction activities is provided in Section 2.1.

Just below the Keeyask GS, the Nelson River enters Stephens Lake (Maps 1 and 7). Stephens Lake was formed in 1971 by construction of the Kettle GS. Between Gull Rapids and Stephens Lake, there is an approximately 6 km long reach of the Nelson River that, although affected by water regulation at the Kettle GS, remains riverine habitat with moderate velocity. After August 2018, all flow was has been passed through the Keeyask GS spillway (see Section 2.1).

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 (Map 1). Kettle GS is located approximately 40 km downstream of Gull Rapids.

2.1 CONSTRUCTION SUMMARY

Construction of the Keeyask GS began in mid-July 2014 with the construction of cofferdams in the north and central channels of Gull Rapids. These cofferdams resulted in the dewatering of the north and central channels and the diversion of all flow to the south channel. Construction of the Spillway Cofferdam (SWCD), which extends into the south channel of Gull Rapids, was completed in 2015. The rock placement for the inner and outer groins of the Tailrace Cofferdam (TRCD) started in late 2016 and the impervious fill placement was completed in fall 2017. The spillway was commissioned between August 3 and 7, 2018. Closing the south channel with the upstream South Dam Cofferdam (SDCD) commenced at the beginning of August and river closure was achieved on August 16. This closure and the work that continued to seal the cofferdam forced the entire river flow through the spillway. In 2020 water-up of the areas kept dry by cofferdams for construction occurred between the end of February and mid-April. The cofferdams upstream of Keeyask and the North Channel Rock Groin were removed and/or lowered throughout the water-up process. Excavation of the TRCD occurred from mid-April to May 14 and then resumed on July 16 and was completed in October. Impoundment of the Keeyask reservoir took place between August 31 and September 5, 2020. Commissioning of the first generator unit started on August 31, 2020 and was still underway at the end of 2020.

2.2 FLOWS AND WATER LEVELS

From October 2019 to October 2020 the calculated Split Lake outflow ranged between 2,600 m³/s in October 2019 and 5,900 m³/s in May 2020. Flows increased from about 2,600 m³/s in October 2019 to about 4,000 m³/s in December 2019 and remained fairly steady between 4,000–4,400 m³/s until the end of April 2020. In summer the flows were high and ranged between 5,000–6,000 m³/s from May through August before dropping in September through October until it reached 3,500 m³/s, slightly above the existing environment average flow.

Water levels on Gull Lake generally varied with flow and ice conditions between October 2019 and February 2020. Levels on Gull Lake rose from a low of about 153.5 m to 156 m from October to December and remained near that level until February while upstream levels varied with flow and ice conditions. From February to April, water-up activities at the construction site caused Gull Lake levels to rise about 0.3 m. After water-up, the spillway gates were used to keep levels relatively steady between about 156.3–156.8 m until the end of August prior to impoundment. The Keeyask reservoir was impounded to its operating level (158 to 159 m) from August 31 to September 5. During this period, Gull Lake was raised about 2 m to a maximum level of 158.9 m, 0.1 m below the full supply level. Upstream of Gull Lake the water level increase diminished with distance, with increases of about 0.8 m and 0.2 m immediately below and above Birthday Rapids while no increases occurred at the water level gauges immediately below and on Clark Lake. Gull Lake has since been held near 158.8 m while upstream levels vary with flow. With impoundment the Keeyask Generating Station has entered its operating condition. Water levels on Gull Lake and upstream areas within the project's open water hydraulic zone of influence, which extends to about 3 km below Clark Lake, will now be permanently elevated relative to pre-project conditions.

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, the Keeyask reservoir, and the upper 10 km of Stephens Lake. Two locations were sampled in the Upper Split Lake Area, the Burntwood River between First Rapids and Split Lake and Split Lake proper. In previous years, the Nelson River between the Kelsey GS and Split Lake was also sampled. This area has not been sampled since 2018 in order to focus effort on the Burntwood River and Split Lake as a means to locate stocked fish. 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 = 12.9 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 gillnet 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 2019. However, some sites have changed between years depending on water levels and flows. Locations and site-specific physical measurements collected at gillnetting sites in 2020 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 (±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. In cases where Lake Sturgeon had been previously aged, the first ray of the right pectoral fin was collected. If fish appeared to have been aged twice before, 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 North/South Consultants Inc. 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 genetics 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).

3.3 TAGGING

Lake Sturgeon greater than 250 mm FL were marked with individually numbered external Floy-GD-94 T-bar (FT) 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. Steinkippenstrasse, 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.

Based on the ageing structures analyzed it appears PIT tag loss in hatchery released Lake Sturgeon is occurring, as several ageing structures from the Upper Split Lake Area, the Keeyask reservoir, and Stephens Lake exhibited annuli characteristic of hatchery fish (*i.e.*, weak or missing first annuli). However, without further analysis it is impossible to know for sure if these fish are hatchery-reared or wild fish as weak/missing first annuli have been observed in the ageing structures of known wild fish. As such, 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: 2012–2020), Keeyask reservoir (years: 2010 and 2012–2020) and Stephens Lake (years: 2010 and 2012–2020). Only wild Lake Sturgeon classified as juveniles (*i.e.*, fork length less than 800 mm) were included in the population estimate.

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 in the Upper Split Lake Area, Keeyask reservoir, and in Stephens Lake. 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 Upper Split Lake Area, 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 2020 are provided in Appendix 2.

4.1 UPPER SPLIT LAKE AREA

Water temperature in the Upper Split Lake Area ranged from 9.5°C to 14.0°C over the course of the study (September 8 to 18, 2020; Appendix A1-1).

4.1.1 BURNTWOOD RIVER

A total of 36 Lake Sturgeon were captured at 23 sites in the Burntwood River between September 8 and 18, 2020 (Tables 2 and 3; Map 3). Gillnet site data as well as biological and tagging information for all Lake Sturgeon captured in the Burntwood River are provided in Appendices A1-1 and A2-1. Thirty-six juvenile Lake Sturgeon were captured in 845.4 gillnet hours, producing an overall CPUE of 1.02 LKST/100 m net/24 h (Table 4). One Lake Sturgeon mortality occurred during sampling on September 13 (FL = 261 mm; Wt = 110 g; Appendix A2-1). Gill nets were set in all three zones of the Burntwood River below First Rapids (Map 3). Total CPUE by zone was as follows:

- 0.00 LKST/100 m net/24 h in Zone BWR-A (n = 4 sites);
- 0.64 LKST/100 m net/24 h in Zone BWR-B (n = 4 sites); and
- 1.30 LKST/100 m net/24 h in Zone BWR-C (n = 15 sites; Table 4).

Annual CPUE values for the Burntwood River catch since 2012 are presented in Table 5. CPUE in 2020 was higher than in 2018 or 2019 and was similar to the range seen in sampling conducted between 2012 and 2017 (range: 0.78–1.37).

4.1.1.1 YEAR-CLASS STRENGTH

Ageing structures were collected from 33 of 36 Lake Sturgeon including mortalities. Structures were not taken from two fish measuring nearly 800 mm FL and one fish that was released quickly after being wrapped badly in the net. Aged Lake Sturgeon ranged from 1 to 12 years, with the 2013 (age-7) and 2016 (age-4) cohorts caught most frequently, each accounting for 24% of the catch (Figure 1). No YOY (2020 cohort) Lake Sturgeon were captured. Hatchery-reared fish accounted for 50% of the 2013, 2017, and 2019 cohorts (Figure 1).

All cohorts fully recruited to the sampling gear (*i.e.*, 2011–2019) were captured other than the 2014 cohort. A cohort frequency histogram that includes all wild Lake Sturgeon captured during juvenile monitoring in the Burntwood River between 2011 and 2020 are presented in Table 6.

Every cohort between 2000 and 2019 has been represented in the catch since studies began. One juvenile Lake Sturgeon measuring 626 mm FL was aged as a 12 year-old.

4.1.1.2 GROWTH AND CONDITION

The 36 Lake Sturgeon captured were comprised of 28 wild and eight known hatchery-reared fish. Length-weight relationships for the Upper Split Lake area are presented in Figure 3.

Wild Lake Sturgeon captured in the Burntwood River had a:

- Mean FL of 418 mm (n = 28; StDev = 132 mm; range 221–781 mm);
- Mean weight of 665 g (n = 28; StDev = 800 g; range 110–3,380 g); and
- Mean condition factor of 0.68 (n = 28; StDev = 0.11; range 0.40–1.02) (Table 7).

Wild Lake Sturgeon from the 350–399 mm FL interval were captured most frequently, accounting for 29% (n = 8) of the catch (Figure 2). Fish from the 300–349 mm and 400–449 mm FL intervals were also frequently caught accounting for 18% (n = 5) and 14% (n = 4), respectively. Mean length, weight, and condition factor of wild Lake Sturgeon captured during juvenile Lake Sturgeon monitoring since 2008 are presented in Table 9.

Hatchery-reared Lake Sturgeon had a:

- Mean FL of 380 mm (n = 8; StDev = 71 mm; range 264–469 mm);
- Mean weight of 394 g (n = 8; StDev = 199 g; range 100–690 g); and
- Mean condition factor of 0.65 (n = 8; StDev = 0.08; range 0.54–0.76) (Table 7).

Hatchery-reared Lake Sturgeon from the 300–349 mm FL interval were captured most frequently accounting for 38% (n = 3) of the catch (Figure 2). Mean length, weight, and condition factor of hatchery-reared Lake Sturgeon captured since 2014 is presented in Table 10.

4.1.1.3 RECAPTURES

No previously tagged juvenile Lake Sturgeon were captured in the Burntwood River in 2020.

4.1.1.4 HATCHERY CAPTURES

Eight hatchery fish (*i.e.*, those PIT tagged and stocked as age-1) were caught in 2020, accounting for 22% of the catch (Table 12; Appendix A4-2). This represents the largest number of stocked Lake Sturgeon captured in the Burntwood River since stocking began in 2014. 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 2020 is presented in Table 13.

Of the eight hatchery fish:

- Four were stocked in 2014.

  - Two were stocked on May 30: one at Site 1 (Zone BWR-B; Map 4) and one at Site 2 (Zone BWR-B). Both fish were caught 4.9 km downstream of their release location.
  - One was stocked on May 31 at Site 3 (Zone BWR-A) and was captured 6.7 km downstream.
  - One was stocked on October 2 at Site 3 (Zone BWR-A) and was captured 6.7 km downstream.
- Three were stocked in 2018.
  - One was stocked on May 17 at Site 1 (Zone BWR-B) and was captured 5.4 km downstream.
  - One was stocked on May 31 at Site 1 (Zone BWR-B) and was captured 5.9 km downstream.
  - One was stocked on June 7 at Site 2 (Zone BWR-A) and was captured 8.6 km downstream.
- One was stocked on June 20, 2020 at the Orr Creek boat launch and was captured 20.5 km downstream.

4.1.2 SPLIT LAKE

A total of 132 Lake Sturgeon (15 adults and 117 juveniles) were captured in Split Lake between September 8 and 18, 2020 (Tables 2 and 3). Twenty gill net sites were fished for a combined effort of 701.3 gillnet hours and an overall CPUE of 4.52 LKST/100 m net/24 h (Table 4; Map 3). Three juvenile mortalities (2%) occurred during sampling (see Appendix A2-1 for biological information). Gillnet site data as well as biological and tagging information for all Lake Sturgeon captured in Split Lake (Map 3) are provided in Appendices A1-1 and A2-1. Annual CPUE values for the Split Lake catch since 2015 are presented in Table 5. Overall CPUE in 2020 was lower than in 2019 but higher than any of the previous sampling years (range: 0.75–2.60).

Known hatchery-reared fish accounted for 10% (n = 13) of the catch. Total CPUE for wild and hatchery-reared Lake Sturgeon was as follows:

- 4.07 LKST/100 m/24 h (n = 119) for wild Lake Sturgeon; and
- 0.44 LKST/100 m/24 h (n = 13) for hatchery-reared Lake Sturgeon (Table 8).

4.1.2.1 YEAR-CLASS STRENGTH

Ageing structures were collected from 89 of the 117 juvenile fish captured. An additional thirteen fish were known-age hatchery fish, six had been aged in a previous year, and one was designated a YOY based on size. Structures were not taken from seven fish measuring nearly 800 mm FL and one fish that was released quickly to prevent mortality after being wrapped badly in the net. Thus, ages were assigned to 109 of 117 juvenile Lake Sturgeon captured in Split Lake.

Lake Sturgeon ranged from 0 to 17 years old, representing the 2003, 2008, 2010–2018, and 2020 cohorts (Table 6; Figure 4). One YOY (*i.e.*, 2020 cohort) was captured. The 2013 cohort (age-7) was the most abundant, accounting for 35% (n = 38) of aged fish. Lake Sturgeon from the 2017 (n = 18; 17%) and 2016 cohorts (n = 16; 15%) were also caught relatively frequently (Figure 4). Hatchery-reared fish accounted for 50% (n = 9) of the 2017 cohort and 25% (n = 2) of the 2015 cohort.

Cohort frequencies for all wild juvenile Lake Sturgeon captured in Split Lake from 2015 to 2020 are presented in Table 6. Every cohort between 2003 and 2020 with the exception of the 2019 cohort has been represented in the catch since studies began in 2015.

4.1.2.2 GROWTH AND CONDITION

In 2020, 119 wild (including adult size fish) and 13 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 3. Mean length, weight, and condition factor of wild Lake Sturgeon captured during juvenile Lake Sturgeon monitoring since 2008 is presented in Table 9.

Wild Lake Sturgeon captured in Split Lake had a:

- Mean FL of 584 mm (n = 119; StDev = 168 mm; range 125–1,034 mm);
- Mean weight of 1,842 g (n = 119; StDev = 1,708 g; range 15–9,210 g); and
- Mean condition factor of 0.71 (n = 119; StDev = 0.09; range 0.50–1.16) (Table 7).

Wild Lake Sturgeon from the 600–649 mm were captured most frequently, accounting for 16% (n = 19) of the catch. Fish from the 450–499 mm and 550–599 mm FL intervals were also caught frequently, accounting for 13% (n = 15) and 11% (n = 13) of the catch, respectively (Figure 2).

Hatchery Lake Sturgeon had a:

- Mean FL of 405 mm (n = 13; StDev = 72 mm; range 314-523 mm);
- Mean weight of 463 g (n = 13; StDev = 252 g; range 220-930 g); and
- Mean condition factor of 0.72 (n = 13; StDev = 0.27; range 0.50-1.61) (Table 7).

Hatchery-reared Lake Sturgeon from the 350–399 mm FL interval were the most frequently captured size-class accounting for 62% (n = 8) of the catch (Figure 2). Mean length, weight and condition factor of hatchery-reared Lake Sturgeon captured since 2014 is provided in Table 10.

4.1.2.3 RECAPTURES

Six wild juvenile Lake Sturgeon tagged in previous years were recaptured (Table 11; Appendix A4-1). All six fish were originally tagged in Split Lake between 0.2–1.0 km away from their recapture locations (four upstream and two downstream). Three of the fish were originally tagged in 2018 and grew an average of 74 mm FL and 355 g weight since their initial capture. The

remaining three fish were tagged in 2019 and grew an average of 41 mm FL and 310 g weight since their initial capture.

4.1.2.4 HATCHERY CAPTURES

Thirteen hatchery fish (*i.e.*, those PIT tagged and stocked as age-1) were caught in 2020, accounting for 10% of the total catch (Table 12; Appendix A4-2). This represents the largest capture of Lake Sturgeon stocked in the Burntwood River since stocking began in 2014. One of the 13 hatchery-reared fish had been captured during previous sampling in 2019. An age breakdown of all the hatchery-reared fish captured between 2014 and 2020 is presented in Table 13.

Of the 13 hatchery fish:

- Two were stocked in 2014.
  - One was stocked at Site 2 (Zone BWR-B; Map 4) on May 30 and was caught 22.5 km downstream.
  - One was stocked at Site 3 (Zone BWR-A) on October 2 and was caught 26.8 km downstream.
- Two were stocked on May 31, 2016 at Site 1 (Zone BWR-B) and were caught 26.3 km and 25.0 km downstream of their release location.
- Nine were stocked in 2018.
  - One was stocked on May 17 at the Orr Creek boat launch (Site 1; Zone BWR-B) and was caught 24.0 km downstream.
  - Two were stocked on May 31 at the Orr Creek boat launch (Site 1; Zone BWR-B) and were caught 27.8 km and 28.8 km downstream
  - Six were stocked on June 7, immediately below First Rapids (Site 2; Zone BWR-A). All six fish were captured between 25.0 and 29.1 km downstream.

4.1.3 UPPER SPLIT LAKE AREA POPULATION ESTIMATE

The 2020 estimate for the juvenile segment of the population in the Upper Split Lake Area (including the Kelsey GS Area, the Burntwood River, and Split Lake) was 4,334 wild juvenile Lake Sturgeon (95% CI: 1,686–11,143) (Figure 5; Appendix A5-1). This was above the 95% CI of the 2012, 2013, and 2014 estimates, but within the 95% CI's for 2015–2019. The estimated annual survival rate was 73%.

Survival of hatchery-reared Lake Sturgeon stocked into the Upper Split Lake Area was estimated at 91% (Appendix A5-2). Based on this survival estimate, 331, 16, 608 and 574 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 1,528 hatchery fish. Based on

these numbers, it is estimated hatchery fish currently make up 26% of the total juvenile Lake Sturgeon population in the Upper Split Lake Area.

4.2 KEEYASK RESERVOIR

Ten fish species (n = 359) were captured at 38 sites between September 15 and 25, 2020 (Tables 2 and 3; Map 5). Water temperature during sampling ranged from 9.6°C to 11.3°C (Appendix A1-2). Lake Sturgeon (n = 205; 57%) were the most abundant species captured (Table 3). Gillnet site data as well as biological and tagging information for all Lake Sturgeon captured are provided in Appendices A1-2 and A2-2.

In total, 200 juvenile and five adult Lake Sturgeon were captured in 1,598.5 gillnet hours, producing an overall CPUE of 3.08 LKST/100 m net/24 h (Table 4). One juvenile (0.5%) mortality occurred during sampling on September 17. Gill nets were set throughout the Keeyask reservoir (*i.e.*, in zones GL-A, GL-B, and GL-C), as well as the first zone upstream of the former Gull Lake (*i.e.*, BR-D) (Map 5). Total CPUE by zone, from upstream to downstream, was as follows:

- 1.96 LKST/100 m/24 h in Zone BR-D (n = 4 sites);
- 0.99 LKST/100 m/24 h in Zone GL-A (n = 8 sites);
- 3.43 LKST/100 m/24 h in Zone GL-B (n = 11 sites); and
- 3.76 LKST/100 m/24 h in Zone GL-C (n = 15 sites; Table 4).

Total annual CPUE data recorded in the Keeyask reservoir since 2007 are presented in Table 5. Total CPUE in 2020 was lower than in 2019 but was higher than studies conducted in 2016, 2017, and 2018.

Of the 205 Lake Sturgeon captured, 36 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 was as follows:

- 2.54 LKST/100 m/24 h (n = 169) for wild Lake Sturgeon; and
- 0.54 LKST/100 m/24 h (n = 36) for hatchery-reared Lake Sturgeon (Table 8).

4.2.1 YEAR-CLASS STRENGTH

Ageing structures were collected from 162 of the 200 juvenile fish captured. Of the fish not aged, 36 were known-age hatchery fish, one was considered a YOY (age-0) based on size, and one fish was approaching adult size (799 mm FL). Thus, ages were assigned to 199 of 200 juvenile Lake Sturgeon captured in 2020.

Lake Sturgeon (both wild and hatchery) ranged in age from 0 to 16 years (2004–2020 cohorts; Figure 6), with the 2016 cohort captured most frequently (n = 69; 35%). The 2013 and 2014 cohorts were also relatively abundant in the catch, accounting for 13% (n = 25) and 11% (n = 22),

respectively. One YOY fish (*i.e.*, 2020 cohort) was captured in Zone GL-C. Known hatchery-reared fish accounted for 4%, 27%, 17%, and 94% of the 2013, 2014, 2016, and 2018 cohorts, respectively (Figure 6).

Wild fish from all cohorts since 2000, with the exception of 2002, have been represented in the catch since studies began (Table 6).

4.2.2 POPULATION ESTIMATE

The 2020 estimate for the Keeyask reservoir population was 2,442 wild juvenile Lake Sturgeon (95% CI: 1,435–4,157) (Figure 7; Appendix A5-3). This was within the 95% CI of the 2010–2019 estimates. The estimated annual survival rate was 73%.

Survival of hatchery-reared Lake Sturgeon stocked into the Keeyask reservoir was estimated at 84% (Appendix A5-4). Based on this survival estimate, 174, 271, and 333 hatchery-reared individuals from the 2014, 2016, and 2018 cohorts are predicted to still be present in the Keeyask reservoir, contributing to a population estimate of 778 hatchery fish. Based on these numbers, it is estimated that hatchery fish currently make up 24% of the total juvenile Lake Sturgeon population in the Keeyask reservoir.

4.2.3 GROWTH AND CONDITION

Length-weight relationships for hatchery-reared and wild Lake Sturgeon captured in the Keeyask reservoir are presented in Figure 3. Mean length, weight, and condition factor of wild Lake Sturgeon captured during juvenile Lake Sturgeon monitoring since 2008 is presented in Table 9.

Wild Lake Sturgeon had a:

- Mean FL of 508 mm (n = 169; StDev = 140 mm; range 104–860 mm);
- Mean weight of 1,151 g (n = 169; StDev = 1,043 g; range 6–5,300 g); and
- Mean condition factor of 0.68 (n = 169; StDev = 0.11; range 0.46–1.35) (Table 7).

Wild Lake Sturgeon in the 400–449 mm FL interval were captured most frequently, representing 28% (n = 48) of the wild catch (Figure 8). Fish measuring 500–549 mm and 450–499 mm were also frequently captured representing 15% (n = 26) and 12% (n = 20) of the wild catch, respectively (Figure 8).

Hatchery-reared Lake Sturgeon had a:

- Mean FL of 422 mm (n = 36; StDev = 62 mm; range 337–573 mm);
- Mean weight of 476 g (n = 36; StDev = 244 g; range 200–1,175 g); and
- Mean condition factor of 0.58 (n = 36; StDev = 0.07; range 0.44–0.71) (Table 7).

Hatchery-reared Lake Sturgeon in the 350–399 mm FL interval were captured most frequently, representing 36% of the hatchery catch (n = 13) (Figure 8). Fish measuring 400–449 mm were also frequently captured representing 25% (n = 14; Figure 8). A comparison of hatchery growth and condition since 2014 is provided in Table 10.

A comparison of von Bertalanffy growth curves between baseline (2008–2012) and construction (2014–2020) monitoring years shows no difference between the two groups (Figure 9). 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 become similar around age-5 (Figure 10).

4.2.4 RECAPTURES

A total of 26 Lake Sturgeon tagged in a previous year were recaptured in 2020 (Table 8; Appendix A4-1). All fish were originally tagged in the Keeyask reservoir: two in 2010, one each in 2011, 2013, 2014, 2015, and 2016, three in 2017, seven in 2018, and nine in 2019.

Recaptured fish moved varying distances from their original capture locations:

- Thirteen moved less than 1.0 km.
- Ten moved between 1.0 and 3.0 km.
- Two were recaptured more than 4.0 km from their initial capture locations (4.3 km and 6.6 km).
- One (acoustic tag #31687; Floy tag #106454) was implanted with an acoustic transmitter upstream of the Keeyask GS in 2017. Details on its movements since this time can be found in Hrenchuk (2021).

4.2.5 HATCHERY CAPTURES

Thirty-six known hatchery-reared fish (*i.e.,* those PIT tagged and stocked as age-1) were caught in 2020, representing 18% of the total Lake Sturgeon catch (Table 12). An age breakdown of all hatchery-reared fish captured between 2014 and 2019 is presented in Table 13.

Of the 36 hatchery fish caught in the Keeyask reservoir (Appendix A4-3):

- Six were stocked in Gull Lake in 2015 (Map 6):
  - Four were stocked at Site 2 on June 22 (Zone GL-C) and were caught between 0.3 and 2.3 km of their release location.
  - Two were stocked at Site 6 on September 16 (Zone GL-B). One was caught 0.4 km downstream and the other 1.2 km downstream.
- Twelve were stocked on June 8, 2017 in Zone GL-A (Site 1; Map 6):

  - Six were caught in Zone GL-B between 6.6 and 8.9 km downstream.
  - Six were caught in Zone GL-C between 9.7 and 9.9 km downstream.
- Seventeen were stocked in Gull Lake on June 6, 2019 (Map 6):
  - Seven were stocked in Zone GL-B and were caught within 0.5 to 4.1 km.
  - Ten were stocked in Zone GL-C and were caught within 0.03 to 5.0 km.
- One was stocked on May 30, 2014 in the Burntwood River (Site 2; Zone BWR-B; Map 4) and was captured on September 21, 2020, in Zone GL-C, approximately 116 km downstream. In the five years since release, the fish grew 322 mm in length and increased 1,016 g in weight.

4.3 STEPHENS LAKE

Fifty-four gillnet sites were fished in upper Stephens Lake between September 15 and 25, 2020. (Table 2; Map 7). Water temperature during sampling ranged from 9.0°C to 11.4°C (Appendix A1-3). A total of ten fish species (n = 458) were captured, of which Lake Sturgeon were the second most abundant (n = 142; 31%) (Table 3). Gillnet site data is presented in Appendix A1-3 and biological and tagging information are presented in Appendix A2-3.

In total, 131 juvenile and 11 adult Lake Sturgeon were captured in 1,605.2 gillnet hours for a total CPUE of 2.12 LKST/100 m net/24 h (Table 4). Although lower than in 2019, total CPUE in 2020 was higher than in any previous monitoring year (Table 5). Two Lake Sturgeon mortalities occurred during sampling (1%). Gill nets were set in both zones located within the upper 10 km of Stephens Lake with the majority of the effort focused on STL-B (Map 7). Total CPUE by zone was as follows:

- 0.47 LKST/100 m/24 h in Zone STL-A (n = 2 sites); and
- 2.23 LKST/100 m/24 h in Zone STL-B (n = 52 sites; Table 4).

Of the 142 Lake Sturgeon, 49 (35%) 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 Lake Sturgeon were as follows:

- 1.39 LKST/100 m/24 h (n = 93) for wild Lake Sturgeon; and
- 0.73 LKST/100 m/24 h (n = 49) for hatchery-reared Lake Sturgeon (Table 8).

4.3.1 YEAR-CLASS STRENGTH

Ageing structures were collected from 78 of the 131 juvenile fish captured. Of the fish that were not aged, 49 were known-age hatchery fish, one was not aged in 2020 but had been aged in a previous year, two were considered YOY (age-0) based on size, and one was not taken due to

being released quickly to prevent mortality after being wrapped badly in the net. Of the 78 juvenile ageing structures taken, five were found to be unageable due to crystalline structures. Thus, ages were assigned to 125 juvenile Lake Sturgeon, including 76 wild and 49 hatchery-reared fish.

Aged juvenile Lake Sturgeon (including both wild and hatchery) ranged from 0–12 years old (*i.e.*, 2008–2020 cohorts). The 2015 cohort (age-5) was the most frequent in the catch accounting for 26% (n = 33) of aged fish (Figure 11). The 2014, 2016, and 2018 cohorts (ages 6, 4, and 2) were the next most abundant age-classes, representing 18% (n = 22), 14% (n = 18), and 20% (n = 25) of the catch, respectively (Figure 11). Hatchery-reared Lake Sturgeon accounted for the majority of the 2014 cohort (n = 18; 82%) and the entire 2018 cohort (n = 25; Figure 11). Wild fish from all cohorts between 2000 and 2020, with the exception of 2018 have been present in the catch since studies began (Table 6).

4.3.2 POPULATION ESTIMATE

The 2020 population estimate for Stephens Lake was 491 wild juvenile Lake Sturgeon (95% CI: 330–729) (Figure 12; Appendix A5-5). This was within the 95% CI of the 2010 and 2012–2019 estimates. The estimated annual survival rate was 73%.

Survival of hatchery-reared Lake Sturgeon stocked into Stephens Lake was estimated at 76% (Appendix A5-6). Based on this survival estimate, 108, 319, and 297 hatchery-reared individuals from the 2014, 2016, and 2018 cohorts are present in Stephens Lake, contributing to a population estimate of 725 hatchery fish. Based on these numbers, it is estimated that hatchery fish currently make up 60% of the total juvenile Lake Sturgeon population in Stephens Lake.

4.3.3 GROWTH AND CONDITION

Length-weight relationships for hatchery-reared and wild Lake Sturgeon are presented in Figure 3. Mean length, weight, and condition factor of wild Lake Sturgeon captured during juvenile Lake Sturgeon monitoring since 2008 is presented in Table 9.

Wild Lake Sturgeon had a:

- Mean FL of 552 mm (n = 93; StDev = 165 mm; range 97–1,050 mm);
- Mean weight of 1,586 g (n = 93; StDev = 1,613 g; range 4–9,000 g); and
- Mean condition factor of 0.71 (n = 93; StDev = 0.10; range 0.39–0.95) (Table 7).

Wild Lake Sturgeon in the 500–549 mm FL interval were captured most frequently accounting for 30% (n = 28) of the wild catch. The 450–499 mm FL interval was also caught frequently and accounted for 19% of the catch (n = 18; Figure 8).

Hatchery-reared Lake Sturgeon had a:

- Mean FL of 453 mm (n = 49; StDev = 101 mm; range 330–630 mm);

- Mean weight of 677 g (n = 49; StDev = 491 g; range 200–1,950 g); and
- Mean condition factor of 0.61 (n = 49; StDev = 0.08; range 0.44–0.86) (Table 7).

Hatchery-reared Lake Sturgeon in the 350–399 mm FL intervals (n = 23; 46.9%) were captured most frequently (Figure 8). The mean FL, weight and condition of hatchery-reared Lake Sturgeon caught in Stephens Lake since 2014 is presented in Table 10.

Growth curve analysis of hatchery and wild fish showed that young hatchery fish (0–3 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 13).

4.3.4 RECAPTURES

A total of 42 Lake Sturgeon tagged in a previous year were recaptured in Stephens Lake in 2020 (Table 11; Appendix A4-1). Of these: one was tagged in 2008, one in 2011, one in 2014, three in 2015, three in 2016, four in 2017, twelve in 2018, and fifteen in 2019. An additional two fish were identified as recaptures but initial tagging data was not found due to probable errors in recording the Floy tag number.

Recaptured fish moved varying distances from their original capture locations:

- Thirty-eight fish were originally captured in Stephens Lake. Twenty were recaptured within 1.0 km of their initial capture location and eighteen between 1.1 and 3.8 km of their initial capture location.
    - One (acoustic tag #31760; Floy tag #112924) was implanted with an acoustic transmitter in 2017. Details on its movements since it was tagged can be found in Hrenchuk (2021).
- One (Floy tag #86140) was tagged in the Keeyask reservoir (Zone GL-B) on September 27, 2008, 14.9 km upstream of its recapture location in Stephens Lake. It increased in size by 336 mm and 5,170 g in 12 years since its initial capture.
- One (Floy tag #116587) fish was originally tagged in Split Lake (SPL-A) on September 12, 2019, 100.5 km upstream of its recapture location. It increased in size by 83 mm and 355 g since its initial capture.

4.3.5 HATCHERY CAPTURES

A total of 49 hatchery-reared Lake Sturgeon released as one-year-olds were captured in Stephens Lake in 2020, representing 35% of the total catch (Table 12). Thirteen of the hatchery-reared fish were caught in a previous study year and one was caught in multiple years. An age breakdown of all the hatchery-reared fish captured between 2014 and 2020 is presented in Table 13.

Of the 49 hatchery captures (Appendix A4-3):

- Forty-two were stocked in Stephens Lake (Map 8):
  - Sixteen were stocked in 2015.
    - Nine were stocked at Site 3 in Zone STL-B on June 22. All were caught between 0.6 and 1.9 km upstream of their stocking location.
    - Two were stocked at Site 4 in Zone STL-B on September 14. They were captured 0.7 and 1.1 km downstream; and
    - Five were stocked at Site 5 in Zone STL-A on September 14 and were captured within 1.0 to 2.0 km of where they were released.
  - Four were stocked in 2017.
    - Three were stocked at the Keeyask boat launch on June 15 in Zone STL-A (Site 1) and were caught between 4.1 and 4.5 km downstream; and
    - One was stocked on October 5 in Zone STL-B (Site 4) and was caught 1.9 km downstream.
  - Twenty-two were stocked in 2019.
    - Thirteen were stocked in Zone STL-A on June 13 (Site 1). All of which were caught between 1.5 and 2.9 km downstream; and
    - Nine were stocked in Zone STL-B on June 13 (Site 2) and were caught within 1.5 km.
- Six were stocked in Gull Lake (Map 6):
  - Three were stocked prior to spillway commissioning and may have moved downstream through Gull Rapids or the Keeyask GS spillway.
    - Two were stocked on September 16, 2015 in Zone GL-B (Site 7). They were recaptured 11.9 and 12.9 km downstream of their stocking location.
    - One was stocked on June 8, 2017 in Zone GL-A (Site 1) and was captured 22.5 km downstream;
  - Three were stocked after spillway commissioning and moved downstream through the Keeyask GS spillway.
    - One was stocked on June 6, 2019 in Zone GL-C (Site 1) and was captured 11.5 km downstream; and
    - Two were stocked on June 6, 2019 in Zone GL-B (Site 2) and were captured 13.9 and 14.9 km downstream.
- One fish (Floy tag #116783) was stocked in the Burntwood River on June 7, 2018 (Site 2; Map 4). It was first captured in the Keeyask reservoir in 2019 but moved downstream through the Keeyask GS spillway and was captured in Stephens Lake in 2020, approximately 137 km downstream of its stocking location. The fish has grown 162 mm in

FL and 313 g in weight since stocking. This fish represents the second hatchery-reared fish stocked in the Burntwood River caught in Stephens Lake (the first was captured in 2019).

5.0 DISCUSSION

Juvenile Lake Sturgeon population monitoring described in the Keeyask AEMP began in the fall of 2014, immediately after the start of Keeyask GS construction. The monitoring program will enable 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 (MacDonald 2009; Michaluk and MacDonald 2010; Henderson et al. 2011; Henderson and Pisiak 2012; Henderson et al. 2013; Henderson et al. 2015; Burnett et al. 2016; 2017; 2018; Burnett and Hrenchuk 2019; 2020). Sampling in the Keeyask reservoir in 2020 began ten days after reservoir impoundment, which was completed on September 5. The creation of the Keeyask reservoir and subsequent powerhouse commissioning has the potential to alter juvenile habitat both upstream and downstream of the GS.

5.1 ABUNDANCE

Juvenile CPUE in the Upper Split Lake Area has been highly variable since sampling began in 2012. One factor that has influenced the variability in CPUE is sampling location. During studies conducted between 2012 and 2017, sampling was focused in three areas: the Burntwood River proper, Split Lake near the confluence of the Burntwood River and the Nelson River below the Kelsey GS. Results of these studies indicated that few stocked Lake Sturgeon were being captured, despite the release of 1,931 age-1 sturgeon. For this reason, since 2018, sampling effort has been increased in Split Lake, to determine whether stocked fish were moving downstream out of the Burntwood River. Sampling conducted in 2018 along the north shore of Split Lake yielded few Lake Sturgeon. Gillnetting effort in 2019 focussed along the western portion of Split Lake in a deep channel thought to receive flow from both the Burntwood and Nelson rivers, and where both hatchery and wild fish were captured in 2018. The 2019 Split Lake catch was the highest since studies began in 2015, with CPUE more than double that recorded in 2018. Sampling was repeated in this area in 2020, resulting in a similarly high CPUE and a record-high catch of hatchery-reared Lake Sturgeon. It is unclear whether the majority of wild fish captured were spawned in the Burntwood, Nelson, or Grass rivers; however, recaptured fish were originally tagged in the Burntwood River and Split Lake.

While sites sampled in Split Lake continued to yield high numbers of fish, catches in the Burntwood River also increased in 2020. Lake Sturgeon CPUE within the river was the second highest recorded since 2015, with catches nearly double those in 2018 and 2019. High flows and increased debris levels in previous sampling years have likely affected the ability to sample the Burntwood River effectively.

An estimate of the wild juvenile Lake Sturgeon population was calculated for the second time for the Upper Split Lake Area in 2020. As in 2019, a single value was produced for all of Upper Split Lake Area as the large majority of juveniles are captured in Split Lake proper and may originate

in 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 4,334 individuals (95% CI: 1,686–11,143) with a survival estimate of 73%. This was lower (but within the 95% CI) than the estimate in 2019. Because this is only the second year that the estimate was calculated, the confidence intervals remained large. Estimates will change and confidence intervals will narrow as data are added to the model and estimates become more refined.

In the Keeyask reservoir, the wild juvenile Lake Sturgeon population was estimated at 2,442 individuals (95% CI: 1,435–4,157) in 2020, which was lower (but within the 95% CI) than the estimates in 2018 and 2019. Using the Jolly-Seber model as implemented within MARK survival was measured at 73%. Juvenile population estimates have remained relatively stable since 2014, ranging from a high of 3,944 sturgeon in 2015 to a low of 2,117 in 2017. Total Lake Sturgeon CPUE has also remained relatively stable since 2014, ranging from 2.31 Lake Sturgeon/100 m net/24 h in 2016 to 3.75 sturgeon in 2019. Fewer hatchery fish were captured in 2020 (18% of the overall catch) than in 2019 (23%) which may account for some of the difference in overall CPUE. Sampling in 2019 was conducted immediately after a stocking event, which may explain the high proportion of hatchery-reared fish in the catch and the high overall CPUE. The CPUE of wild fish in 2020 (2.54 Lake Sturgeon) was similar to previous years (2.31 Lake Sturgeon in 2017, 2.23 in 2018, and 2.88 in 2019). The slightly lower catches in 2020 may also be explained by increased water levels caused by impoundment working to reduce densities. Prior to impoundment, Lake Sturgeon within Gull Lake were largely concentrated within several areas of deep water habitat. Impoundment increased the amount of this habitat type, potentially causing Lake Sturgeon to spread out, and decreasing catches.

The wild juvenile Lake Sturgeon population in Stephens Lake was estimated at 491 individuals (95% CI: 330–729), which was lower (but within the 95% CI) than the 2019 estimate. Annual population estimates have fluctuated each study year but have remained relatively consistent since 2014. Survival in Stephens Lake was measured at 73%, which was the same as within the Keeyask reservoir and the Upper Split Lake Area.

5.2 RECRUITMENT

Since the start of construction in 2014, recruitment has occurred fairly consistently in all three sampling areas. In 2020, 45 wild Lake Sturgeon aged between 0 and 3 were caught: 18 in the Upper Split Lake Area, 19 in the Keeyask reservoir, and eight in Stephens Lake. This is a short-term indication of spawning and recruitment success of early life stages. Few wild age-0 and age-1 fish were captured; however, these two age-classes have historically represented a small proportion of the catch as they are not fully recruited to the sampling gear. YOY fish were captured in all three study areas in 2020 (one in Split Lake, one in the Keeyask Reservoir and two in Stephens Lake).

Prior to 2020, it was suspected that recruitment in Stephens Lake may not have occurred since 2018 due to the absence of young wild fish (Burnett and Hrenchuk 2020). Wild fish from both the

2018 and 2019 year classes were completely absent from the catch in 2019. The absence of juveniles ≤3 years of age in a sampling year represents an early warning trigger action level. This provides an alert that further analysis may be required to determine if unanticipated negative effects are occurring. However, in 2020, both wild age-1 and age-0 fish (2019 and 2020 cohorts) were captured in Stephens Lake. Wild fish from the 2018 cohort were absent from the Stephens Lake catch for the third consecutive year, suggesting the cohort may be absent from Stephens Lake. Wild fish from the 2018 cohort were captured in Gull Lake in 2020 albeit at low abundances, one in each of the last three years. In general, Lake Sturgeon recruitment is known to be highly variable across their range and is considered to be a trait of this species (McDougall et al. 2014b). The capture of wild Lake Sturgeon from both the 2019 and 2020 cohorts indicates it has continued to occur during the later stages of construction in Stephens Lake.

5.3 HATCHERY FISH

Stocking in the Burntwood River began in 2014 and since that time, 1,931 age-1 Lake Sturgeon have been released ("Burntwood stocked fish"). Based on the recapture location of Lake Sturgeon stocked in the Burntwood River, a high proportion of the stocked fish disperse downstream after release. Since stocking began in 2014, 46 Burntwood stocked fish have been recaptured. Of these, 13 have occurred in the Burntwood River (0.7% of all hatchery fish released), 24 in Split Lake (1.2%), seven in the Keeyask Reservoir (0.4%), and two in Stephens Lake (0.1%). This suggests the majority of stocked yearlings may disperse downstream.

Stocking in the Keeyask reservoir began in 2015 with 1,284 age-1 fish released to date ("Keeyask stocked fish"). The proportion of the catch comprised of hatchery-reared fish was 12% in 2017, 11% in 2018, 23% in 2019, and 18% in 2020. In Stephens Lake, 1,528 age-1 hatchery-reared Lake Sturgeon have been released since 2015 ("Stephens stocked fish"). Hatchery fish accounted for 35% of the catch in 2017, 23% in 2018, 52% in 2019, and 35% in 2020. Since 2014, a total of 135 hatchery fish released in the Keeyask reservoir have been captured within the reservoir accounting for 11% of the total sturgeon released. Similarly, for Stephens Lake, of the 1,528 fish released, 210 have been recaptured accounting for 14% of the total sturgeon released.

5.4 KEY QUESTIONS

The AEMP identified key questions for juvenile Lake Sturgeon monitoring, four of which are relevant to the construction period. Keeyask reservoir impoundment was completed on September 5 and monitoring began ten days later in the newly-formed reservoir. An additional key question presented in the AEMP is relevant to this period. Key questions are addressed below.

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

In 2020, three wild YOY Lake Sturgeon were caught in the vicinity of the Keeyask GS: one in the Keeyask reservoir, and two in Stephens Lake. The capture of these YOY both upstream and downstream of the GS suggests that successful spawning occurred in 2020. Successful spawning has been demonstrated in every year since construction began (*i.e.*, 2015–2020; with the exception of 2018 Stephens Lake) in both the Keeyask reservoir and Stephens Lake.

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 all three study areas in 2020 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.

Two questions related to the stocking program are addressed below:

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

In 2020, modelling results estimated the annual survival rate of stocked sturgeon at 91% in the Upper Split Lake Area, 84% in the Keeyask reservoir, and 76% in Stephens Lake. The population of hatchery-reared Lake Sturgeon in the Upper Split Lake Area was estimated at 1,528 individuals (26% of the total juvenile population). The population of hatchery-reared Lake Sturgeon in the Keeyask reservoir was estimated at 778 individuals (24% of the total juvenile population). The population of hatchery-reared Lake Sturgeon in Stephens Lake was estimated at 725 individuals (60% of the total juvenile population). 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.

Since stocking began in 2015, the proportion of hatchery-reared to wild Lake Sturgeon captured in both the Keeyask reservoir and Stephens Lake has increased. In the Keeyask reservoir, the proportion of hatchery-reared Lake Sturgeon in the catch has increased from 2% in 2015 to a high of 23% in 2019. Similarly, in Stephens Lake, hatchery recaptures have increased from 7% in 2015 to a high of 52% in 2019. The proportion of hatchery-reared fish in both areas was slightly lower in 2020 (18% in the Keeyask reservoir and 35% in Stephens Lake), however, hatchery fish remain a large portion of the catch. The 2018 cohort is dominated by hatchery-reared fish (94% and 100% of the Keeyask reservoir and Stephens Lake catches, respectively), reflecting the finding that wild recruitment was weak or absent in 2018. Hatchery-reared fish also account for a large proportion of the 2014 cohort in both the Keeyask reservoir (27%) and Stephens Lake (82%). Catches of hatchery-reared fish are also increasing in the Burntwood River and Split Lake accounting for 22% and 10% of the catch in 2020, respectively. The proportion of hatchery-reared fish caught in the Burntwood River was more than four times as high as in any other study year.

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?

The 2020 study year represented the first year in which the Keeyask reservoir was fully impounded. Preliminary results indicate juvenile Lake Sturgeon were largely present in the same locations within the reservoir and in Stephens Lake as in previous years. Upstream of the GS, juvenile Lake Sturgeon continued to be concentrated 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). In Stephens Lake, the majority of fish were concentrated within the deep areas of water north of the islands located approximately 6 km downstream of the GS. Impoundment occurred fairly close to the sampling period (*i.e.*, within ten days) and a shift in habitat use due to a change in flow and/or habitat availability may not have been fully captured at the time of sampling. 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.

5.5 NEXT STEPS

Sampling conducted in 2020 represents the first year of monitoring following impoundment of the Keeyask GS reservoir. The juvenile Lake Sturgeon population monitoring program will be repeated in 2021; however, the Upper Split Lake Area will not be sampled. As described in the AEMP, juvenile population monitoring is scheduled to occur annually in the future Keeyask reservoir and Stephens Lake, and biennially in the Upper Split Lake Area. Prior to 2020, sampling in the Upper Split Lake Area was conducted annually as a means to locate stocked hatchery fish. Because hatchery fish were located in Split Lake in 2019 and 2020 and their survival was confirmed, sampling in the Upper Split Lake Area will be conducted on a biennial schedule, as per the AEMP, and thus occur again in fall 2022.

6.0 SUMMARY AND CONCLUSIONS

- Sampling locations in the Burntwood River, the Keeyask reservoir, and Stephens Lake remained similar to previous years. Sampling effort Split Lake was focussed on locations that yielded wild and hatchery juveniles in 2019.
- A total of 168 Lake Sturgeon were captured in the Upper Split Lake Area: 36 (all juveniles) in the Burntwood River (845.4 gillnet hours, CPUE of 1.02 Lake Sturgeon/100 m net/24 h) and 132 (117 juvenile and 15 adult) in Split Lake (701.3 gillnet hours, CPUE of 4.52 Lake Sturgeon/100 m net/24 h). Nineteen previously tagged Lake Sturgeon were captured in Split Lake and a further eight were captured in the Burntwood River. Of the 27 recaptured fish, 21 (77.8%) were hatchery-reared age-1 fish released in the Burntwood River: six in 2014, two in 2016, 12 in 2018, and one in 2020. No YOY (2020 cohort) were caught in the Burntwood River but one was caught in Split Lake.
- In the Keeyask reservoir, 205 (200 juvenile and five adult) Lake Sturgeon were captured in 1,598.5 gillnet hours for a total CPUE of 3.08 Lake Sturgeon/100 m net/24 h. Aged Lake Sturgeon (n = 199) ranged from 0 to 16 years old with four-year-old fish (2016 cohort) being the most prevalent in the catch (n = 69; 34.7%). One YOY was captured. A total of 26 Lake Sturgeon tagged in previous years and 36 stocked yearlings were captured. Of the 36 hatchery-reared fish: six were released into the Keeyask reservoir in 2015 (2014 cohort), 12 were released in 2017 (2016 cohort), and 17 were released in 2019 (2018 cohort). One additional hatchery fish was released in the Burntwood River in 2014 (2013 cohort) and was captured 116 km downstream of its release location.
- In Stephens Lake, 142 (131 juvenile and 11 adult) Lake Sturgeon were captured in 1,605.2 gillnet hours for a total CPUE of 2.12 Lake Sturgeon/100 m net/24 h. Lake Sturgeon ages ranged from 0 to 12 with the 2015 cohort (age-5) captured most frequently (n = 33; 26.4%). Two YOY fish were captured. A total of 42 Lake Sturgeon tagged in a previous year and 49 stocked yearlings were captured. Two of the 42 recaptured wild Lake Sturgeon were initially tagged upstream of the Keeyask GS: one in the Keeyask reservoir in 2008 and one in Split Lake in 2019. Of the 49 hatchery-reared fish caught in 2020: 16 were released in Stephens Lake in 2015 (2014 cohort), four were released in 2017 (2016 cohort) and 22 were released in 2019 (2018 cohort). A further six were hatchery recaptures stocked in the Keeyask reservoir: two in 2015, one in 2017 and three in 2019. One hatchery-reared fish was stocked 137 km upstream in the Burntwood River in 2018.
- Abundance estimates were calculated for wild juvenile Lake Sturgeon in the Upper Split Lake Area, Keeyask reservoir and Stephens Lake. Survival was estimated to be 73% in each of the three areas. The population estimate in 2020 was 4,334 wild juvenile Lake Sturgeon (95% CI: 1,686–11,143) for the Upper Split Lake Area, 2,442 (95% CI: 1,435–4,157) for the Keeyask reservoir, and 491 (95% CI: 330–729) in Stephens Lake.
- The key questions, as described in the AEMP, for juvenile Lake Sturgeon population monitoring during construction of the Keeyask GS are as follows:

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

  In 2020, three wild YOY Lake Sturgeon were caught in the vicinity of the Keeyask GS: one in the Keeyask reservoir, and two in Stephens Lake. The capture of these YOY both upstream and downstream of the GS suggests that successful spawning occurred in 2020. Successful spawning has been demonstrated in every year since construction began (i.e., 2015–2020; with the exception of 2018 Stephens Lake) in both the Keeyask reservoir and Stephens Lake.

- *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 all three study areas in 2020 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.

- *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)?*

  The survival rates of stocked sturgeon were 91% in the Upper Split Lake Area, 84% in the Keeyask reservoir, and 76% in Stephens Lake. Based on these survival rates, the population of stocked fish was estimated at 1,528 fish (or 26% of the juvenile population) in the upper Split Lake Area, 778 fish (24%) in the Keeyask reservoir, and 725 fish (60%) in Stephens Lake. Hatchery fish made up 22% of the catch in the Burntwood River and 10% in Split Lake. Hatchery fish made up 18% of the catch in the Keeyask reservoir and 35% in Stephens Lake.

- *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?*

  Following reservoir impoundment in September 2020, juvenile Lake Sturgeon were captured in the same locations (at relatively similar CPUEs) within the reservoir and in Stephens Lake as in previous years. Impoundment occurred fairly close to the sampling period and a shift in habitat use due to a change in flow and/or habitat availability may not have been fully captured at the time of sampling. A continued effort to sample juvenile Lake Sturgeon in the Keeyask study area will be crucial in determining both the short- and long-term impacts of impoundment on habitat utilization.

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TABLES

Table 1: Summary of Lake Sturgeon stocking since 2014. Numbers of stocked fish are from Klassen *et al.* 2020.

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	-	-	1,010	-
2019		(3,681)				398			390
2020	-	-	574[d]	-	-	-	-	-	-
Total	**71,740**	**7,446**	**1,931**	**345,093**	**6,369**	**1,284**	**184,134**	**1,809**	**1,528**

a - Stocking year

b - From Birthday Rapids to Gull Rapids

c - numbers in parentheses were stocked after the 2018 juvenile survey

d - A total of 190 age-1 fish stocked in the Burntwood River were stocked after the sampling program

Table 2: Summary of start and completion dates for juvenile Lake Sturgeon monitoring during fall, 2020, by location.

Location	Start Date	Completion Date	# Sites
Upper Split Lake Area			
Burntwood River	08-Sep-20	18-Sep-20	23
Split Lake	08-Sep-20	18-Sep-20	20
Keeyask Reservoir	15-Sep-20	25-Sep-20	38
Stephens Lake	15-Sep-20	25-Sep-20	54

Table 3: Number (n) and frequency of occurrence (%), by species and sampling location, fall 2020.

Species	Scientific Name	Upper Split Lake Area[a]				Keeyask Reservoir		Stephens Lake		Total n	Total %
		Burntwood River		Split Lake							
		n	%	n	%	n	%	n	%		
Burbot	*Lota lota*	-	-	-	-	32	8.9	74	16.2	106	10.8
Lake Chub	*Couesius plumbeus*	-	-	-	-	1	0.3	1	0.2	2	0.2
Lake Sturgeon	***Acipenser fulvescens***	***36***	***-***	***132***	***-***	***205***	***57.1***	***142***	***31.0***	***515***	***52.3***
Lake Whitefish	*Coregonus clupeaformis*	-	-	-	-	1	0.3	15	3.3	16	1.6
Longnose Sucker	*Catostomus catostomus*	-	-	-	-	84	23.4	145	31.7	229	23.2
Northern Pike	*Esox lucius*	-	-	-	-	0	0.0	2	0.4	2	0.2
Rainbow Smelt	*Osmerus mordax*	-	-	-	-	0	0.0	1	0.2	1	0.1
Sauger	*Sander canadensis*	-	-	-	-	5	1.4	39	8.5	44	4.5
Shorthead Redhorse	*Moxostoma macrolepidotum*	-	-	-	-	2	0.6	1	0.2	3	0.3
Trout-perch	*Percopsis omiscomaycus*	-	-	-	-	1	0.3	0	0.0	1	0.1
Walleye	*Sander vitreus*	-	-	-	-	1	0.3	0	0.0	1	0.1
White Sucker	*Catostomus commersoni*	-	-	-	-	27	7.5	38	8.3	65	6.6
Total		**36**	**-**	**132**	**-**	**359**	**100**	**458**	**100**	**985**	**100**

a - By-catch data not recorded in the Burntwood River and Split Lake in 2020

Table 4: Lake Sturgeon catch-per-unit effort (CPUE; # fish/100 m net/24 h) by location and zone, for gill nets set during juvenile Lake Sturgeon monitoring, fall, 2020.

Location	Zone	# of Sites	Effort (gillnet hours)	# of Lake Sturgeon	CPUE (#LKST/100m/24h)
Burntwood River	BWR-A	4	105.6	0	0.00
	BWR-B	4	150.1	4	0.64
	BWR-C	15	589.7	32	1.30
Total		**23**	**845.4**	**36**	**1.02**
Split Lake	SPL-A	20	701.3	132	4.52
Total		**20[a]**	**701.3**	**132[b]**	**4.52**
Keeyask Reservoir	BR-D	4	134.5	11	1.96
	GL-A	8	242.1	10	0.99
	GL-B	11	531.7	76	3.43
	GL-C	15	690.2	108	3.76
Total		**38**	**1598.5**	**205**	**3.08**
Stephens Lake	STL-A	2	101.7	2	0.47
	STL-B	52	1503.5	140	2.23
Total		**54**	**1605.2**	**142**	**2.12**

a – two sites were located in zone KGS-C but for the purpose of this report were included in zone SPL-A

b – three fish caught in zone KGS-C were included in SPL-A for the purpose of this report

Table 5: Lake Sturgeon catch-per-unit-effort (CPUE; #fish/100 m net/24 h) for gill nets set to target juvenile Lake Sturgeon between 2007 and 2020. Grey highlighted rows indicate construction monitoring.

Location	Year	Start Date	Completion date	Mesh Size	# Sites	Effort (gillnet hrs[a])	# Lake Sturgeon[b]	CPUE
Upper Split Lake Area								
Burntwood River	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
Kelsey GS Area[c]	2015	29-Aug	04-Oct	1" - 6"	7	248	7	0.68
	2016	07-Sep	18-Sep	1" - 6"	9	203	8	0.95
	2017	14-Sep	15-Sep	1" - 6"	10	232	6	0.62
Split Lake	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
Keeyask Reservoir[d]	2007	28-Sep	03-Oct	8mm - 5"	26	165	0	0
	2008	12-Sep	27-Sep	1.5"- 8"	15	3072	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	1551	177	2.74
	2018	09-Sep	19-Sep	1" - 6"	50	1377	150	2.61
	2019	10-Sep	20-Sep	1" - 6"	39	1561	244	3.75
	2020	15-Sep	25-Sep	1" - 6"	38	1599	205	3.08
Stephens Lake	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	1193	87	1.75
	2014	18-Sep	28-Sep	1" - 6"	94	921	47	1.23
	2015	22-Sep	02-Oct	1" - 6"	44	1154	54	1.12
	2016	12-Sep	23-Sep	1" - 6"	37	1384	66	1.14
	2017	09-Sep	19-Sep	1" - 6"	40	1796	148	1.98
	2018	09-Sep	21-Sep	1" - 6"	49	1599	74	1.11
	2019	11-Sep	21-Sep	1" - 6"	40	1561	229	3.52
	2020	15-Sep	25-Sep	1" - 6"	54	1605	142	2.12

a - Gillnet set durations were standardized to 100 m of net and then summed to calculate the total gillnet hours for each study.
b - Does not include Lake Sturgeon recaptured more than once in the same study.
c – Removed from sampling in 2018.
d - Birthday Rapids to Gull Rapids.

Table 6: **Number of wild Lake Sturgeon captured from 2008 to 2020, from which ages and cohorts were determined. Grey highlighted columns indicate cohorts spawned during Keeyask GS construction and red values indicate cohorts not present in the corresponding study year. The Kelsey GS area was not sampled and more sampling sites were added to Split Lake in 2019 and 2020 in an attempt to locate hatchery-reared fish stocked in the Burntwood River. Ageing Structures from the Burntwood River in 2014 were not ageable.**

Location	Cohort Year																				
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Upper Split Lake Area																					
Burntwood River																					
2012 Study Year	1	4	0	4	0	1	5	3	1	0	3	7	1	-	-	-	-	-	-	-	-
2015 Study Year	0	1	0	1	1	1	3	1	2	0	0	5	4	4	0	0	-	-	-	-	-
2016 Study Year	0	0	0	1	1	0	0	0	1	0	4	5	0	7	2	0	1	-	-	-	-
2017 Study Year	0	0	1	2	1	0	0	0	2	1	5	2	0	2	3	1	7	3	-	-	-
2018 Study Year	0	0	1	0	0	0	0	0	0	0	2	0	0	1	0	2	2	1	0	-	-
2019 Study Year	2	0	0	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	0	0	0	1	0	0	1	1	4	0	4	8	3	2	1	0
Total	**3**	**5**	**2**	**8**	**3**	**2**	**8**	**5**	**7**	**1**	**15**	**21**	**8**	**23**	**7**	**7**	**21**	**8**	**3**	**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**	**Yes**	**No**
Split Lake																					
2015 Study Year	0	0	0	0	0	0	0	0	1	0	0	1	0	4	1	0	-	-	-	-	-
2016 Study Year	0	0	0	0	0	0	0	1	1	0	1	0	0	0	1	1	0	-	-	-	-
2017 Study Year	0	0	0	1	0	0	1	1	3	1	3	1	0	2	0	0	3	0	-	-	-
2018 Study Year	0	0	0	1	0	2	2	1	1	0	3	9	1	26	2	1	2	1	0	-	-
2019 Study Year	0	0	0	0	5	0	0	5	5	3	9	14	5	45	14	6	10	5	2	0	-
2020 Study Year	0	0	0	3	0	0	0	0	2	0	4	8	2	36	9	6	16	9	2	0	1
Total	**0**	**0**	**0**	**5**	**5**	**2**	**3**	**8**	**13**	**4**	**20**	**33**	**8**	**113**	**27**	**14**	**31**	**15**	**4**	**0**	**1**
Present in the Catch	**No**	**No**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**Yes**
Keeyask Reservoir																					
2008 Study Year	0	0	0	0	0	0	12	2	14	-	-	-	-	-	-	-	-	-	-	-	-
2010 Study Year	1	0	0	6	3	1	3	5	18	0	0	-	-	-	-	-	-	-	-	-	-
2011 Study Year	0	0	0	5	2	2	7	5	94	1	2	0	-	-	-	-	-	-	-	-	-
2012 Study Year	0	0	0	2	2	2	12	6	60	3	1	4	0	-	-	-	-	-	-	-	-
2014 Study Year	0	1	0	1	0	1	6	2	58	3	4	7	3	9	0	-	-	-	-	-	-
2015 Study Year	0	0	0	0	1	3	10	7	71	1	1	3	6	11	3	4	-	-	-	-	-
2016 Study Year	0	0	0	0	0	1	15	0	29	2	1	5	6	13	6	4	4	-	-	-	-
2017 Study Year	0	0	0	1	1	0	6	3	56	2	2	11	7	20	10	10	10	1	-	-	-
2018 Study Year	0	0	0	0	0	0	3	4	33	5	3	6	4	9	5	9	34	5	1	-	-
2019 Study Year	0	0	0	0	0	0	2	1	30	2	3	6	6	20	20	17	44	15	1	4	-
2020 Study Year	0	0	0	0	1	1	1	0	18	3	1	6	5	24	16	13	57	12	1	5	1
Total	**1**	**1**	**0**	**15**	**10**	**11**	**77**	**35**	**481**	**22**	**18**	**48**	**37**	**106**	**60**	**57**	**149**	**33**	**3**	**9**	**1**
Present in the Catch	**Yes**	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Stephens Lake																					
2009 Study Year	1	1	0	0	1	3	1	0	2	0	-	-	-	-	-	-	-	-	-	-	-
2010 Study Year	0	0	1	3	0	1	5	7	14	0	0	-	-	-	-	-	-	-	-	-	-
2011 Study Year	0	0	0	1	0	0	0	2	28	2	0	1	-	-	-	-	-	-	-	-	-
2012 Study Year	0	0	0	0	0	0	7	4	49	1	2	2	0	-	-	-	-	-	-	-	-
2014 Study Year	0	0	0	1	1	0	5	4	25	1	4	5	0	0	0	-	-	-	-	-	-
2015 Study Year	0	0	0	0	0	0	4	3	19	1	1	3	0	4	2	11	-	-	-	-	-
2016 Study Year	0	0	0	0	1	0	4	4	31	0	0	2	1	3	4	8	0	-	-	-	-
2017 Study Year	0	0	0	0	0	0	0	0	19	2	0	3	0	11	4	20	9	5	-	-	-
2018 Study Year	0	0	0	0	0	0	0	0	4	0	0	4	1	9	3	20	4	3	0	-	-
2019 Study Year	0	0	0	0	0	0	0	0	11	0	2	6	3	11	8	33	15	9	0	0	-
2020 Study Year	1	0	0	0	0	0	0	0	9	1	0	3	1	10	4	33	13	5	0	1	2
Total	**2**	**1**	**1**	**5**	**3**	**4**	**26**	**24**	**211**	**8**	**9**	**29**	**6**	**48**	**25**	**125**	**41**	**22**	**0**	**1**	**2**
Present in the Catch	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**

Table 7: Mean length, weight, and condition factor of Lake Sturgeon captured during juvenile Lake Sturgeon monitoring, fall 2020.

Waterbody	Fork Length (mm)				Weight (g)				Condition Factor			
	n[a]	Mean	Std[b]	Range	n	Mean	Std	Range	n	Mean	Std	Range
Burntwood River												
Wild	28	418	132	221-781	28	665	800	110-3,380	28	0.68	0.11	0.40-1.02
Hatchery	8	380	71	264-469	8	394	199	100-690	8	0.65	0.08	0.54-0.76
	36	**409**	**122**	**221-781**	**36**	**605**	**717**	**100-3,380**	**36**	**0.67**	**0.10**	**0.40-1.02**
Split Lake												
Wild	119	584	168	125-1,034	119	1,842	1,708	15-9,210	119	0.71	0.09	0.50-1.16
Hatchery	13	405	72	314-523	13	463	252	220-930	13	0.72	0.27	0.58-1.61
	132	**567**	**169**	**125-1,034**	**132**	**1,706**	**1,674**	**15-9,210**	**132**	**0.71**	**0.12**	**0.50-1.61**
Keeyask Reservoir												
Wild	169	508	140	104-860	169	1,151	1,043	6-5,300	169	0.68	0.11	0.46-1.35
Hatchery	36	422	62	337-573	36	476	244	200-1,175	36	0.58	0.07	0.44-0.71
	205	**493**	**134**	**104-860**	**205**	**1,033**	**986**	**6-5,300**	**205**	**0.67**	**0.11**	**0.46-1.35**
Stephens Lake												
Wild	93	552	165	97-1,050	93	1,586	1,613	4-9,000	93	0.71	0.10	0.39-0.95
Hatchery	49	453	101	330-630	49	677	491	200-1,950	49	0.61	0.08	0.44-0.86
	142	**518**	**153**	**97-1,050**	**142**	**1,272**	**1,403**	**75-11,500**	**142**	**0.67**	**0.10**	**0.39-0.95**

a – Number of fish measured.

b – Standard deviation.

Table 8: Catch-per-unit-effort (CPUE; # fish/100 m net/24 h) for hatchery and wild caught Lake Sturgeon in the Burntwood River, Split Lake, Stephens Lake and the Keeyask reservoir, fall 2020.

Location	Effort (gillnet hours)	# of Lake Sturgeon	CPUE (#LKST/100m/24h)
Burntwood River			
Wild	845.4	28	0.79
Hatchery	845.4	8	0.23
	Total	**36**	**1.02**
Split Lake			
Wild	701.3	119	4.07
Hatchery	701.3	13	0.44
	Total	**129**	**4.52**
Keeyask Reservoir			
Wild	1,598.5	169	2.54
Hatchery	1,598.5	36	0.54
	Total	**205**	**3.08**
Stephens Lake			
Wild	1,605.2	93	1.39
Hatchery	1,605.2	49	0.73
	Total	**142**	**2.12**

Table 9: Mean length, weight, and condition factor of wild Lake Sturgeon captured during juvenile Lake Sturgeon monitoring, since 2008. Grey highlighted rows indicate construction monitoring

Waterbody	Fork Length (mm)				Weight (g)				Condition Factor			
	n[a]	Mean	Std[b]	Range	n	Mean	Std	Range	n	Mean	Std	Range
Burntwood River												
2011 Study Year	33	437	156	107-715	30	819	610	25-2,125	30	0.63	0.15	0.16-0.80
2012 Study Year	41	431	153	215-807	40	852	914	50-4,100	40	0.75	0.23	0.36-1.65
2015 Study Year	44	465	159	210-860	44	1,002	1,205	100-6,577	44	0.71	0.20	0.47-1.61
2016 Study Year	25	424	161	98-836	23	756	834	110-3,760	23	0.62	0.06	0.50-0.74
2017 Study Year	17	462	196	99-786	17	887	832	4-2,994	17	0.57	0.08	0.40-0.66
2018 Study Year	11	455	191	205-764	11	950	1,043	25-3,000	11	0.64	0.16	0.29-0.87
2019 Study Year	19	430	114	275-694	19	609	531	100-2,120	19	0.62	0.06	0.48-0.71
2020 Study Year	28	418	132	221-781	28	665	800	110-3,380	28	0.68	0.11	0.40-1.02
Split Lake												
2014 Study Year	0	-	-	-	-	-	-	-	-	-	-	-
2015 Study Year	9	368	155	210-710	9	539	773	773-2,450	9	0.73	0.15	0.61-0.91
2016 Study Year	6	536	257	165-805	5	1,509	1,621	23-3,942	5	0.69	0.12	0.51-0.79
2017 Study Year	18	628	206	235-884	18	2,482	1,807	77-6,713	18	0.75	0.09	0.59-0.97
2018 Study Year	56	584	152	230-996	56	1,829	1,437	25-7,350	56	0.75	0.15	0.21-1.46
2019 Study Year	153	606	168	161-1,000	130	1,553	994	40-3,860	130	0.72	0.08	0.35-0.91
2020 Study Year	119	584	168	125-1,034	119	1,842	1,708	15-9,210	119	0.71	0.09	0.50-1.16
Keeyask Reservoir												
2008 Study Year	112	607	169	132-1,200	53	1,663	1,138	110-6,804	53	0.74	0.08	0.62-1.03
2010 Study Year	69	389	119	292-780	68	514	620	150-3,250	68	0.69	0.10	0.48-1.03
2011 Study Year	121	433	90	263-835	121	657	648	100-4,950	121	0.68	0.09	0.42-0.99
2012 Study Year	101	488	99	250-842	99	825	541	75-3,150	99	0.66	0.09	0.45-1.16
2014 Study Year	112	533	140	225-946	111	1,279	995	50-5,750	111	0.72	0.13	0.11-1.20
2015 Study Year	136	537	177	101-908	131	1,583	1,189	11-7,257	131	0.75	0.13	0.55-1.68
2016 Study Year	89	534	181	98-836	86	1,601	1,177	8-4,560	86	0.75	0.11	0.42-1.10
2017 Study Year	152	560	171	129-919	147	1,706	1,255	100-6,100	147	0.72	0.09	0.47-0.96
2018 Study Year	133	518	205	87-1,031	132	1,519	1,620	50-8,500	132	0.72	0.13	0.32-1.30
2019 Study Year	187	502	178	95-1,060	183	1,294	1,430	100-8,550	183	0.68	0.11	0.25-1.24
2020 Study Year	169	508	140	104-860	169	1,151	1,043	6-5,300	169	0.68	0.11	0.46-1.35
Stephens Lake												
2009 Study Year	23	344	166	110-770	7	346	167	150-525	7	0.95	0.31	0.59-1.32
2010 Study Year	32	423	136	304-772	32	862	978	210-3,570	31	0.74	0.10	0.58-1.10
2011 Study Year	37	450	109	168-756	36	921	894	375-4,125	36	0.81	0.11	0.58-1.03
2012 Study Year	87	539	124	250-970	83	1,373	1,175	75-5,525	83	0.74	0.13	0.40-0.99
2014 Study Year	51	612	121	373-971	51	2,049	1,525	350-8,700	51	0.78	0.12	0.62-1.36
2015 Study Year	50	496	233	120-795	49	1,473	1,143	15-3,650	49	0.88	0.28	0.60-2.05
2016 Study Year	61	607	182	233-1,000	61	2,234	1,520	80-8,400	61	0.77	0.12	0.49-1.12
2017 Study Year	97	487	208	135-851	92	1,497	1,560	75-5,425	92	0.72	0.12	0.44-1.03
2018 Study Year	57	481	154	222-837	57	1,113	1,215	50-4,925	57	0.72	0.10	0.46-0.90
2019 Study Year	111	542	175	287-1,060	110	1,594	1,818	100-11,500	110	0.72	0.11	0.32-1.01
2020 Study Year	93	552	165	97-1,050	93	1,586	1,613	4-9,000	93	0.71	0.10	0.39-0.95

a – Number of fish measured
b – Standard deviation

Table 10: Mean length, weight, and condition factor of hatchery-reared Lake Sturgeon captured during juvenile Lake Sturgeon monitoring, since 2014.

Waterbody	Fork Length (mm)				Weight (g)				Condition Factor			
	n[a]	Mean	Std[b]	Range	n	Mean	Std	Range	n	Mean	Std	Range
Upper Split Lake Area												
2014 Study Year	1	309	-	-	1	100	-	-	1	0.33	-	-
2015 Study Year	0	-	-	-	0	-	-	-	0	-	-	-
2016 Study Year	1	339	-	-	1	300	-	-	1	0.77	-	-
2017 Study Year	3	393	14	381-408	3	356	53	303-408	3	0.59	0.03	0.54-0.61
2018 Study Year	1	520	-	-	1	1100	-	-	1	0.78	-	-
2019 Study Year	10	364	66	304-481	10	335	212	160-740	10	0.63	0.06	0.54-0.74
2020 Study Year	21	449	77	310-590	21	437	231	100-930	21	0.70	0.22	0.54-1.61
Keeyask Reservoir												
2014 Study Year	1	272	-	-	1	150	-	-	1	0.75		
2015 Study Year	3	310	26	280-330	2	200	35	175-225	2	0.58	0.06	0.54-0.63
2016 Study Year	7	366	25	320-396	7	335	44	280-400	7	0.69	0.10	0.52-0.85
2017 Study Year	21	380	69	285-465	21	355	176	100-600	21	0.59	0.07	0.43-0.74
2018 Study Year	17	396	57	255-479	17	394	148	100-700	17	0.60	0.05	0.53-0.72
2019 Study Year	57	364	72	265-530	56	307	214	75-950	56	0.54	0.12	0.28-0.95
2020 Study Year	36	422	62	337-573	36	476	244	200-1,175	36	0.58	0.07	0.44-0.71
Stephens Lake												
2014 Study Year	0	-	-	-	0	-	-	-	0	-	-	-
2015 Study Year	4	320	18	297-340	4	375	122	200-480	4	1.11	0.23	0.76-1.27
2016 Study Year	5	394	24	363-418	5	348	87	260-440	5	0.56	0.06	0.47-0.61
2017 Study Year	51	362	66	262-487	51	322	191	75-750	51	0.61	0.08	0.42-0.78
2018 Study Year	17	432	64	346-503	17	596	239	275-900	17	0.70	0.06	0.55-0.85
2019 Study Year	118	354	92	261-586	118	318	330	75-1,300	118	0.54	0.12	0.29-1.03
2020 Study Year	49	453	101	330-630	49	677	491	200-1,950	49	0.61	0.08	0.44-0.86

a – Number of fish measured

b – Standard deviation

Table 11: Recapture summary for wild Lake Sturgeon caught in the Keeyask Study Area between 2008 and 2020.

Recapture Location	Sampling Year	Tagging Location		
		Upper Split Lake Area	Keeyask Reservoir	Stephens Lake
		n[a]	n	n
Upper Split Lake Area	2011	0	0	0
	2012	2	0	0
	2014	2	0	0
	2015	2	0	0
	2016	2	0	0
	2017	3	0	0
	2018	4	0	0
	2019	9	2	0
	2020	6	0	0
Keeyask Reservoir	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
Stephens Lake	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[b]	1	1	38

a - Number of Lake Sturgeon

b - the initial tagging information for two fish caught in Stephens Lake and identified as previous year recaptures were not found

Table 12: Number (n) and percentage (%) of catch of hatchery-reared Lake Sturgeon caught in the Keeyask Study Area between 2014 and 2020.

Capture Location	Sample Year	Release Location						Total	% of Total Catch
		Burntwood River		Keeyask Reservoir		Stephens Lake			
		n[a]	% of Catch	n	% of Catch	n	% of Catch		
Upper Split Lake Area	2014	1	2.4	-	-	-	-	1	2.4
	2015	0	0.0	0	0.0	0	0.0	0	0.0
	2016	1	2.5	0	0.0	0	0.0	1	2.5
	2017	3	5.1	0	0.0	0	0.0	3	5.1
	2018	1	1.8	0	0.0	0	0.0	1	1.8
	2019	10	6.1	0	0.0	0	0.0	10	6.1
	2020	21[b]	15.9	0	0.0	0	0.0	21	15.9
Keeyask Reservoir	2014	1	0.9	-	-	-	-	1	0.9
	2015	1	0.7	2	1.4	0	0.0	3	2.2
	2016	0	0.0	7	7.3	0	0.0	7	7.3
	2017	1	0.6	20	11.6	0	0.0	21	11.9
	2018	1	0.7	16	10.7	0	0.0	17	11.3
	2019	2	0.8	55	22.5	0	0.0	57	23.4
	2020	1	0.5	35	17.1	0	0.0	36	17.6
Stephens Lake	2014	0	0.0	-	-	-	-	0	0.0
	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

a - Number of Lake Sturgeon

b – 8 of the 21 fish were caught in the Burntwood River

Table 13: Number and ages of hatchery-reared Lake Sturgeon released as age-1 fish and captured during juvenile Lake Sturgeon studies since 2014.

Monitoring Year	Capture Location		
	Upper Split Lake Area	**Keeyask Reservoir**	**Stephens Lake**
2014	1 (1 year old)	1 (1 year old)[c]	-
2015	-	3 (2 were 1 year old) (1 was 2 years old)[c]	4 (All were 1 year old)
2016	1 (3 years old)	7 (All were 2 years old)	5 (All were 2 years old)
2017	3 (All were 4 years old)	21 (9 were 1 year old) (11 were 3 years old) (1 was 4 years old)[c]	51 (33 were 1 year old) (18 were 3 years old)
2018	1[a] (5 years old)	18 (1 was 1 years old)[c] (8 were 2 years old) (8 were 4 years old) (1 was 5 years old)[c]	17 (7 were 2 years old) (10 were 4 years old)
2019	10[a] (8 were 2 years old) (2 were 6 years old)	57 (27 were 1 years old) (1 was 2 years old)[c] (16 were 3 years old) (12 were 5 years old) (1 was 6 years old)[c]	118 (84 were 1 years old) (13 were 3 years old) (20 were 5 years old) (1 was 6 years old)[c]
2020	21[b] (1 was 1 years old) (12 were 3 years old) (2 were 5 years old) (6 were 7 years old)	36 (17 were 2 years old) (12 were 4 years old) (6 were 6 years old) (1 was 7 years old)[c]	49 (25 were 2 years old) (1 was 3 years old)[c] (5 were 4 years old) (18 were 6 years old)

a – Fish released in the Burntwood River but caught in Split Lake

b – 13 of the 21 fish were released in the Burntwood River but caught in Split Lake

c – Fish released in the Burntwood River

FIGURES

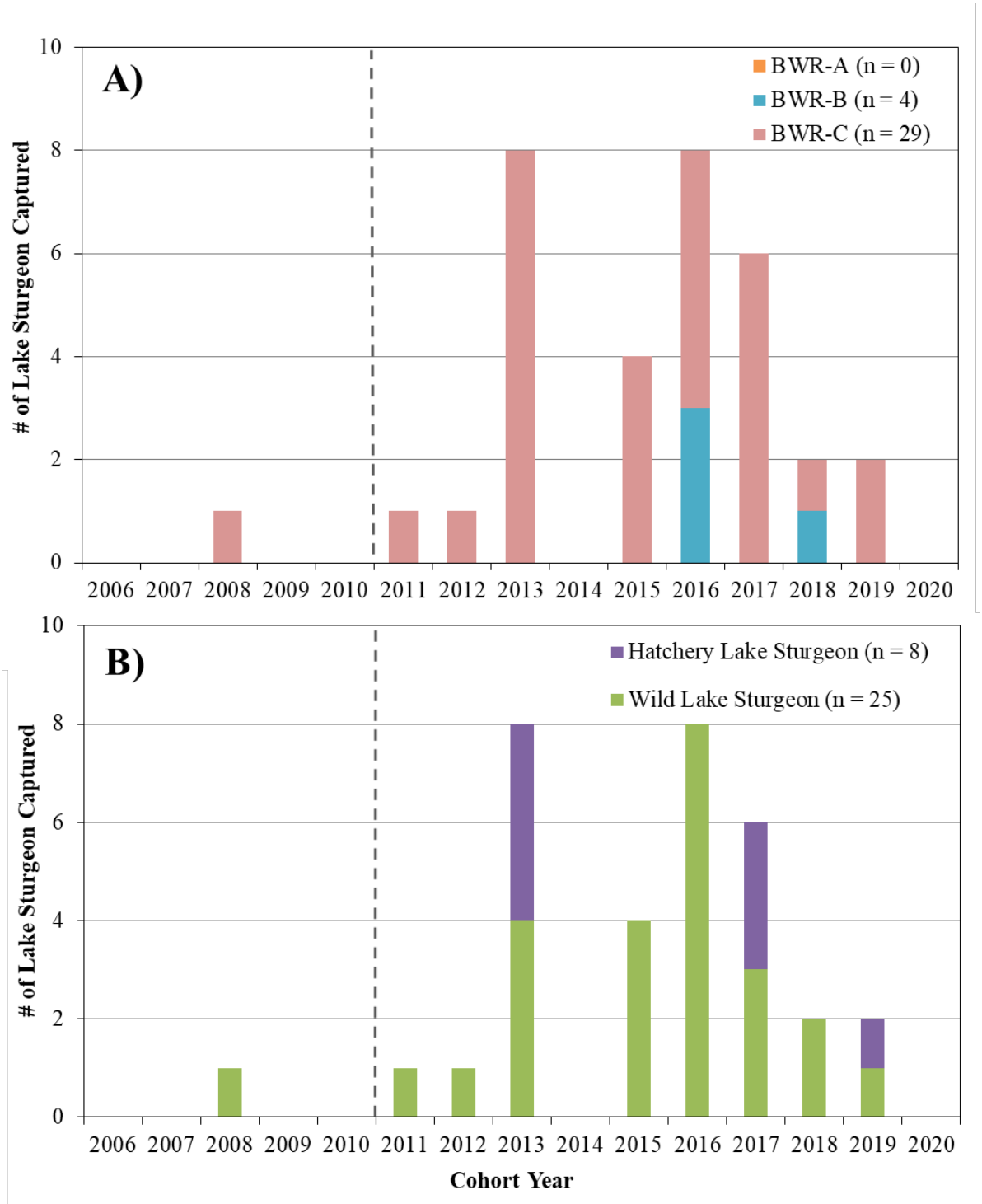


Figure 1: **Cohort frequency distributions for all aged juvenile Lake Sturgeon captured by zone in the Burntwood River (A) and by hatchery and wild Lake Sturgeon (B), fall 2020. Cohorts prior to 2011 (*i.e.*, age-9 fish) are not fully represented as ageing structures are not collected from fish > 800 mm fork length (indicated by vertical dashed line).**

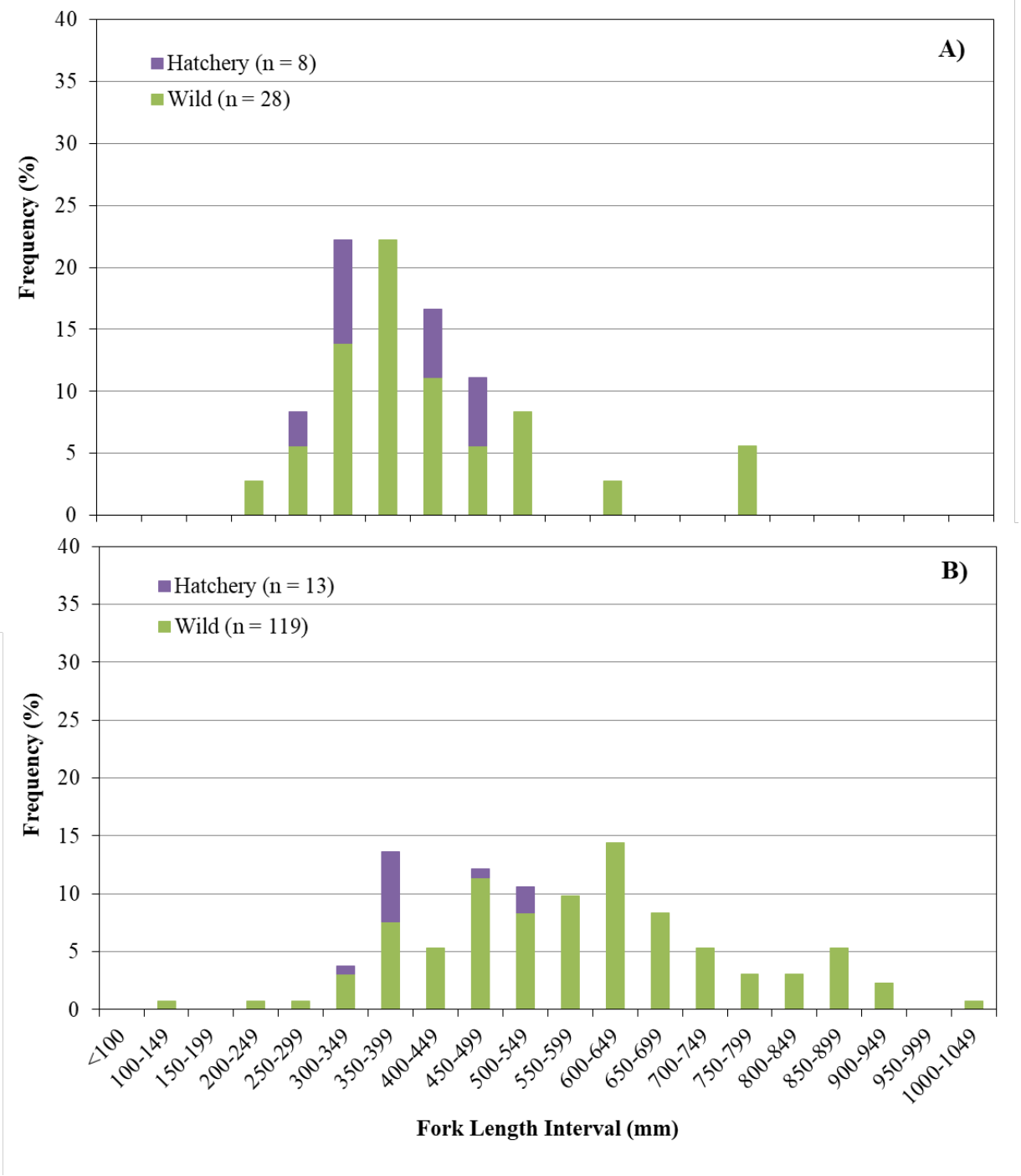


Figure 2: Length-frequency distributions for Lake Sturgeon captured in gill nets set in the Upper Split Lake Area: A) the Burntwood River and B) Split Lake, fall 2020.

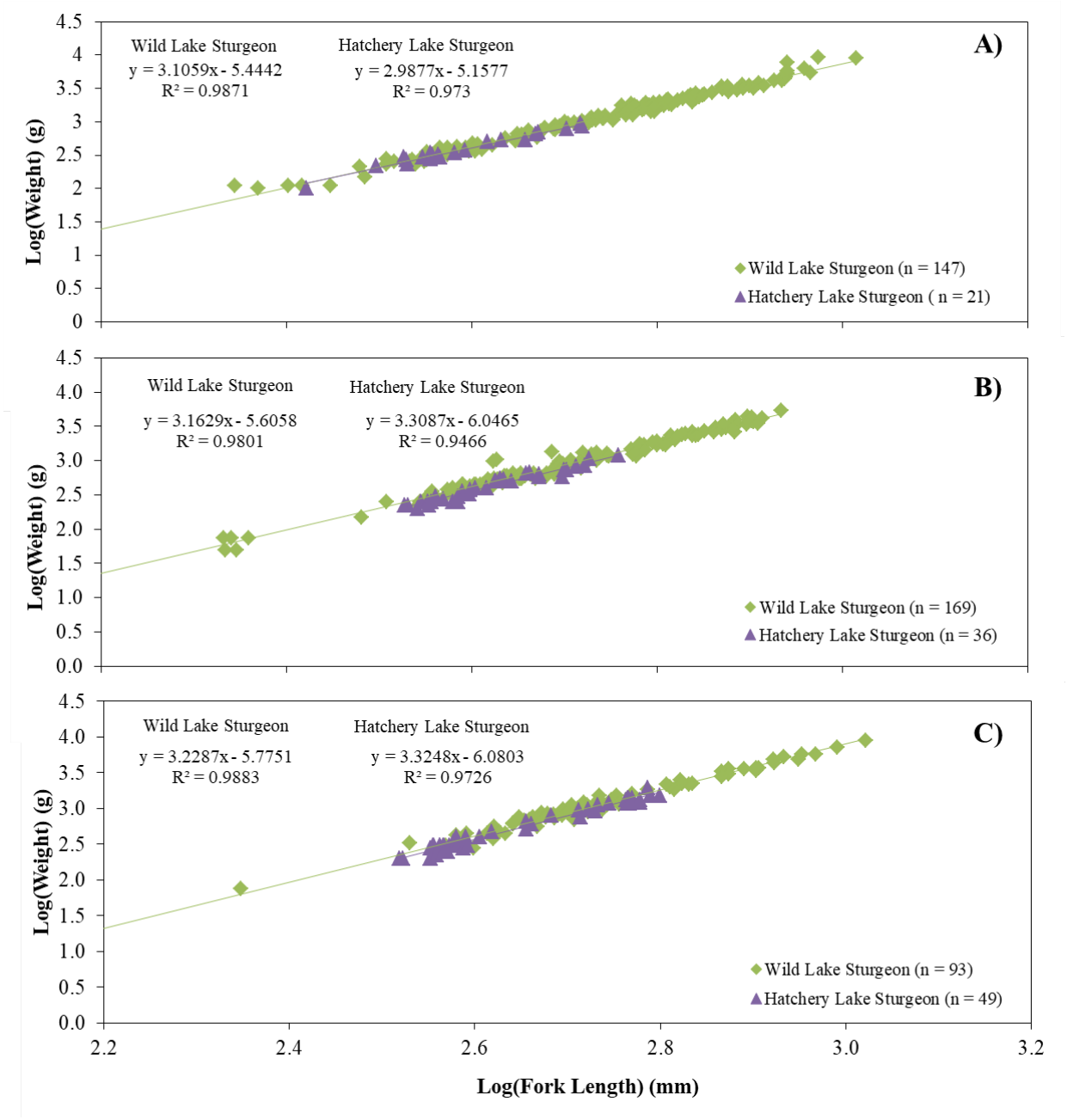


Figure 3: Comparison of weight (g) at-fork length (mm) (log transformed) for Lake Sturgeon captured in: A) the Upper Split Lake Area B) the Keeyask reservoir and C) Stephens Lake, fall 2020.

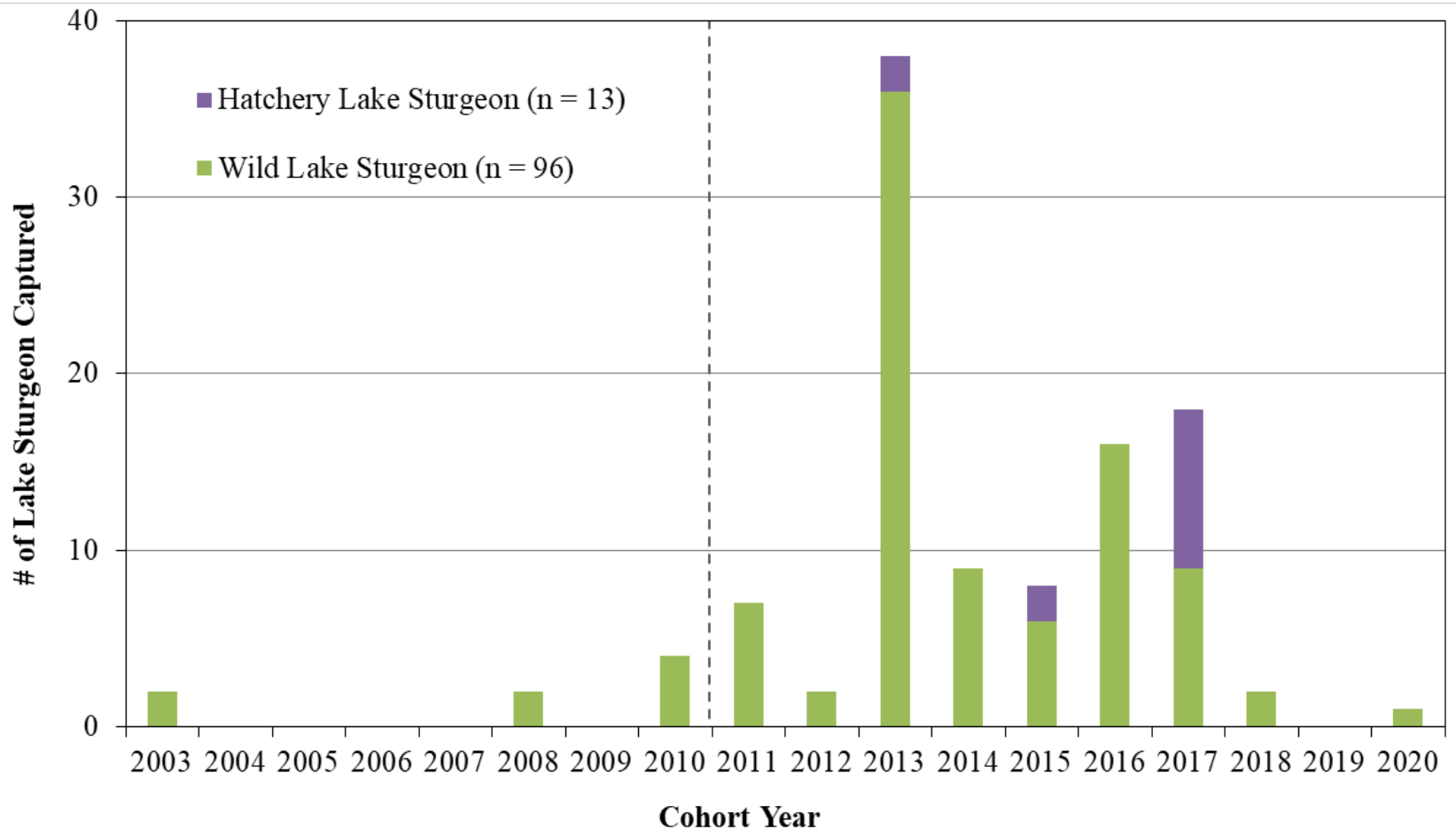


Figure 4: **Cohort frequency distributions for juvenile Lake Sturgeon captured in Zone SPL-A of Split Lake, fall 2020. Cohorts prior to 2011 (i.e., age-9 fish) are not fully represented as ageing structures are not collected from fish > 800 mm fork length (indicated by vertical dashed line).**

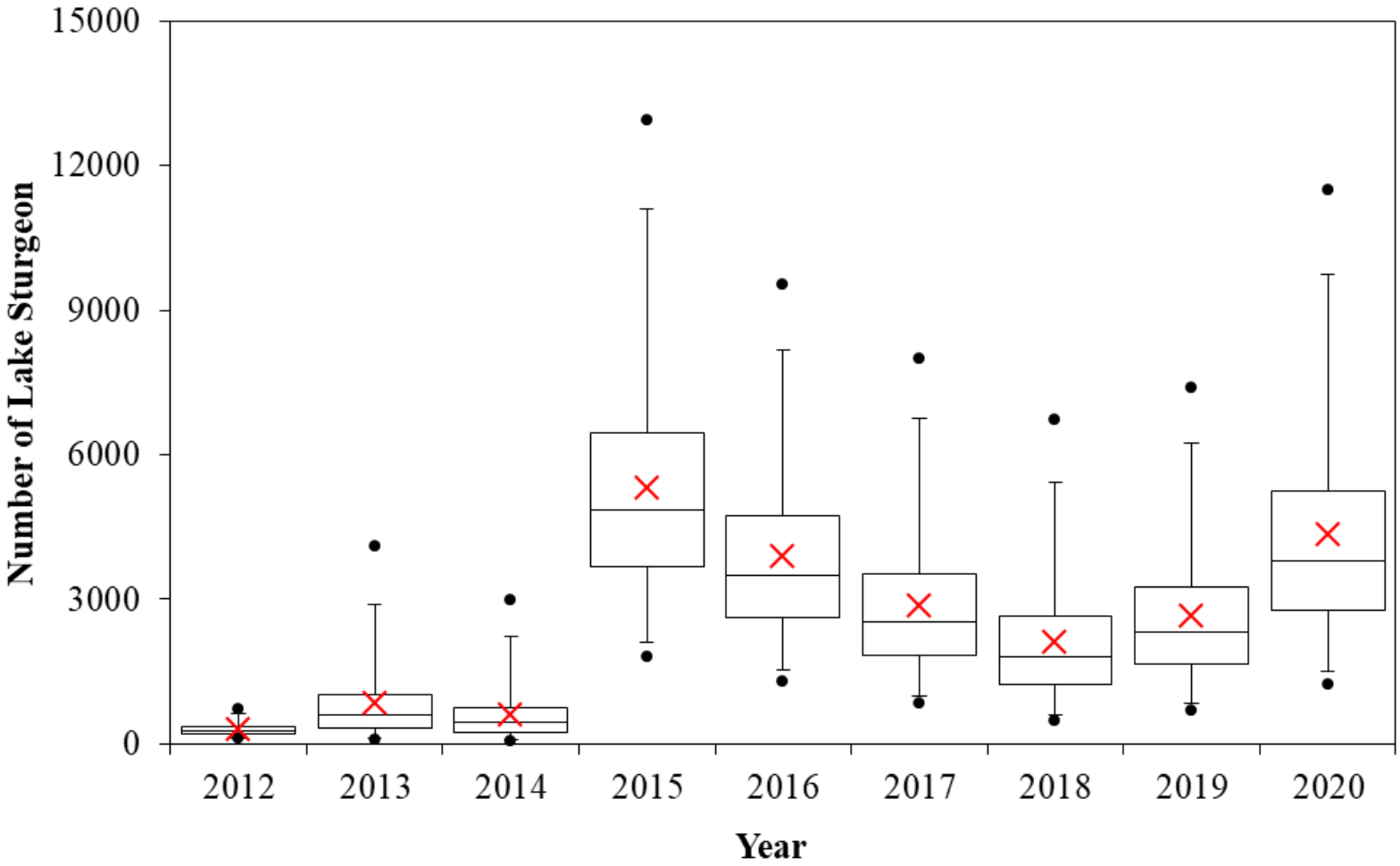


Figure 5: **Juvenile Lake Sturgeon abundance (*i.e.*, fish < 800 mm fork length) estimates based on POPAN best model for the Upper Split Lake Area (2012–2020). Each red x marks the estimated abundance for each year (*i.e.*, the number of juvenile Lake Sturgeon), the black dots represent the min and max estimates, and the vertical bar lines represent the upper and lower 95% confidence range.**

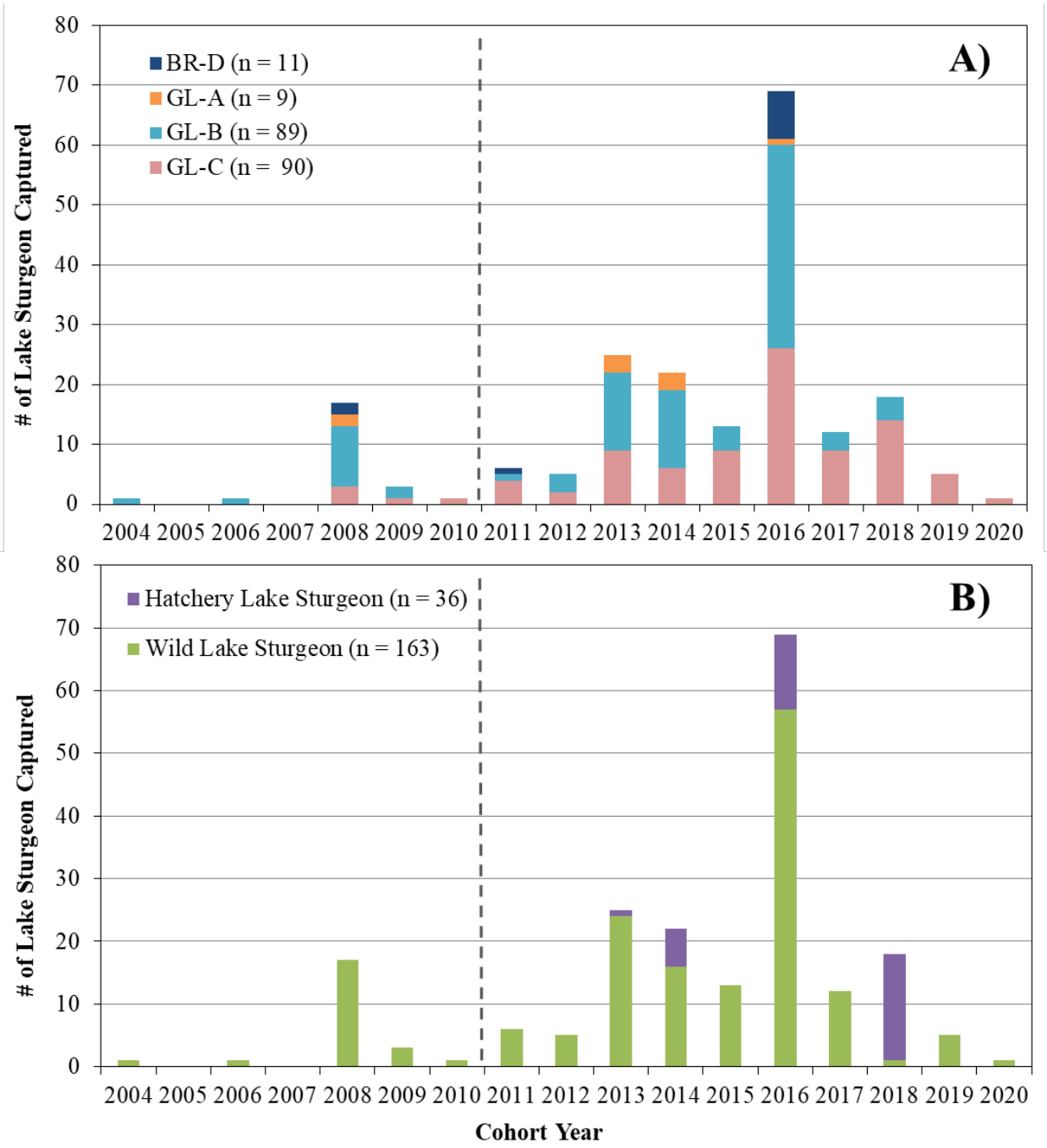


Figure 6: **Cohort frequency distributions for all aged juvenile Lake Sturgeon captured by zone in the Keeyask reservoir (A) and by hatchery and wild Lake Sturgeon (B), fall 2020. Cohorts prior to 2011 (*i.e.*, age-9 fish) are not fully represented as ageing structures are not collected from fish > 800 mm fork length (indicated by vertical dashed line).**

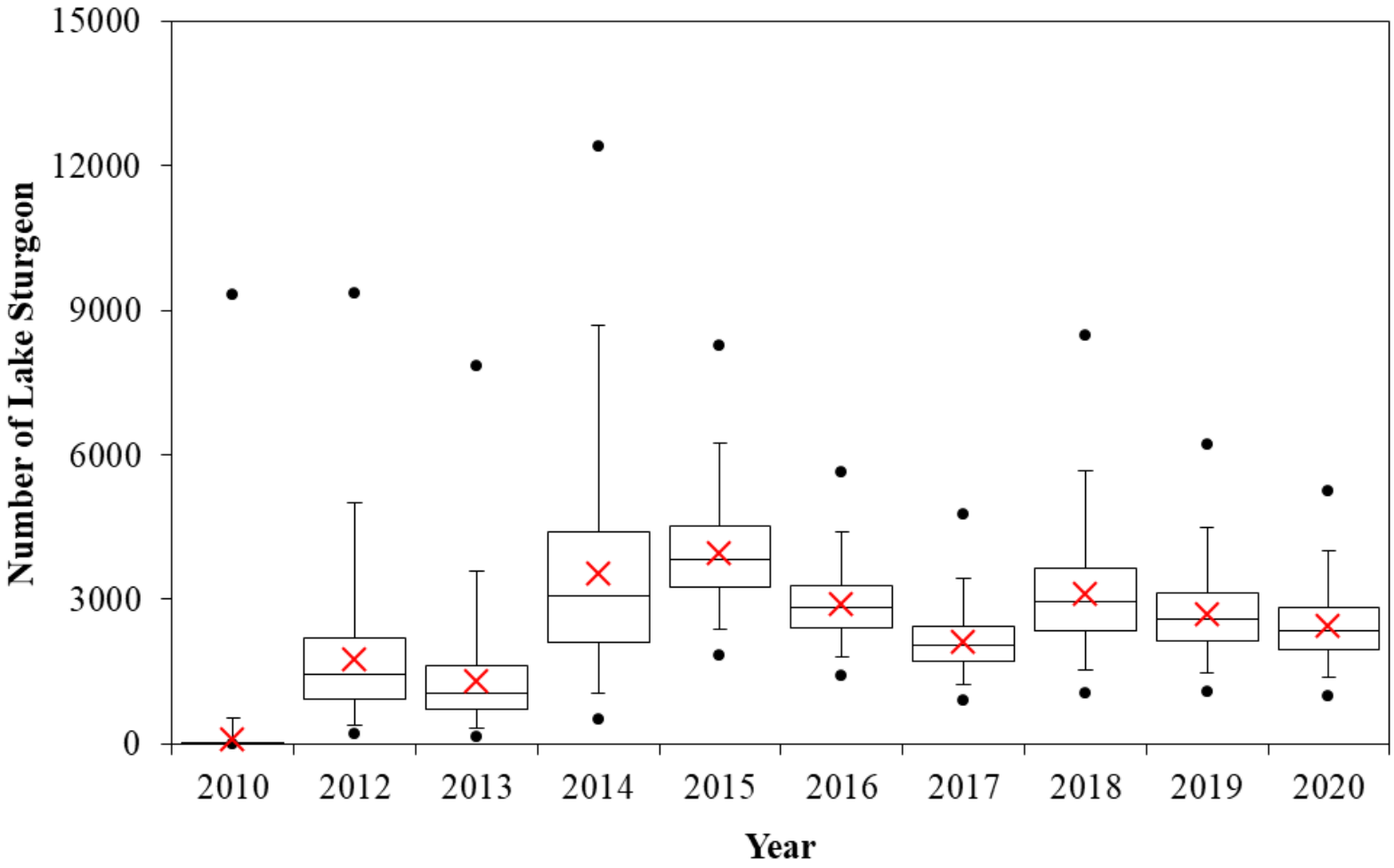


Figure 7: **Juvenile Lake Sturgeon abundance (*i.e.*, fish < 800 mm fork length) estimates based on POPAN best model for the Keeyask reservoir (2010, 2012–2020). Each red x marks the estimated abundance for each year (*i.e.*, the number of juvenile Lake Sturgeon), the black dots represent the min and max estimates, and the vertical bar lines represent the upper and lower 95% confidence range.**

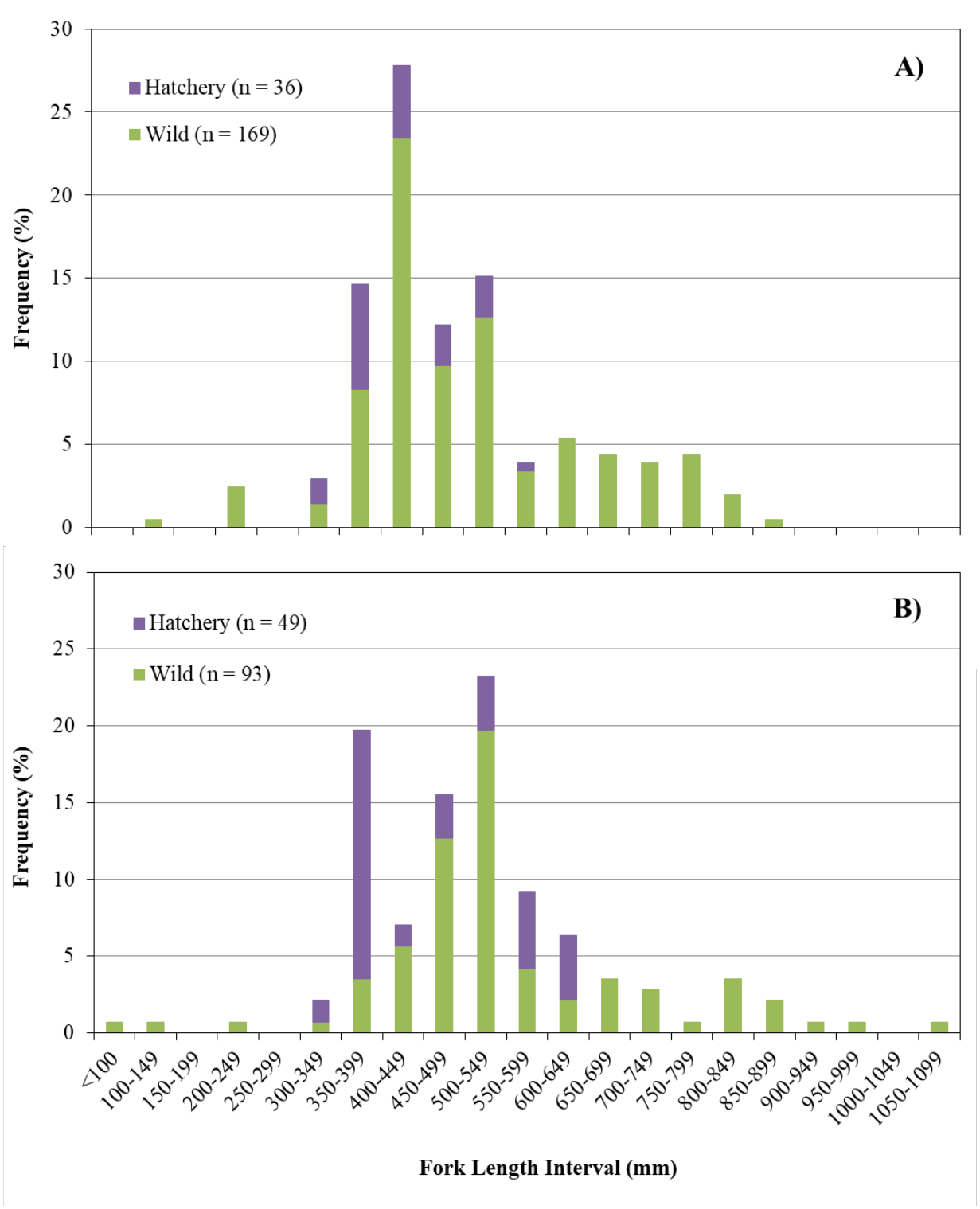


Figure 8: Fork length frequency distributions for Lake Sturgeon captured in gill nets set in: A) the Keeyask reservoir and B) Stephens Lake, fall 2020.

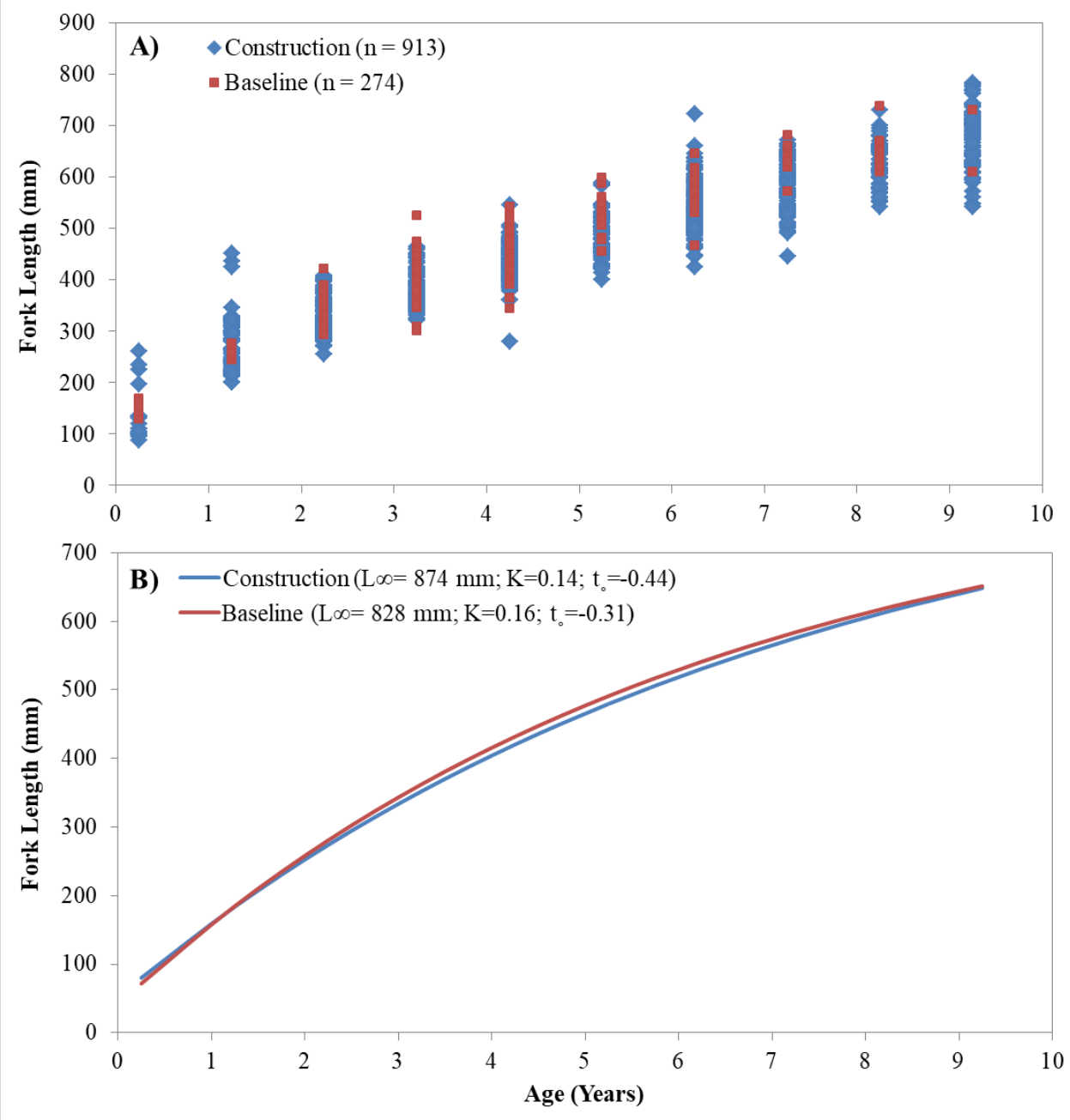


Figure 9: **Fork length-at-age (A) and von Bertalanffy growth curve analysis (B) for all Lake Sturgeon caught during baseline (red; 2008–2012) and construction (blue; 2014–2020) monitoring years in the Keeyask reservoir. Fish older than age-9 were not included in the analysis as they are not fully represented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

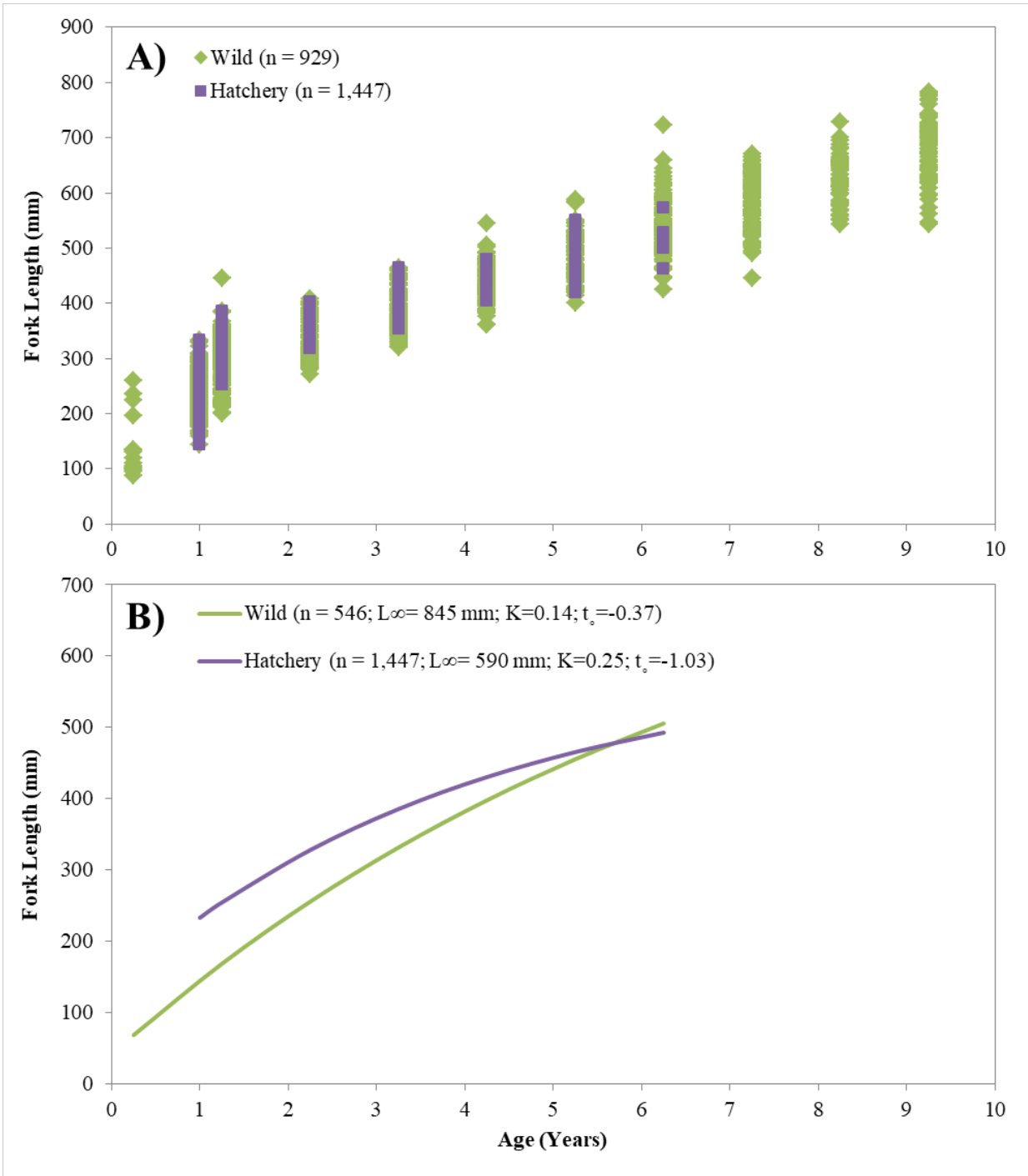


Figure 10: **Fork length-at-age (A) and von Bertalanffy growth curve analysis (B) for all wild (blue) and hatchery-reared (red) Lake Sturgeon released and/or recaptured in the Keeyask reservoir since stocking began in 2014. Fish older than age-9 were not included in the analysis as they are not fully represented in the catch (ageing structures are not collected from fish > 800 mm fork length, which corresponds to fish older than age-9).**

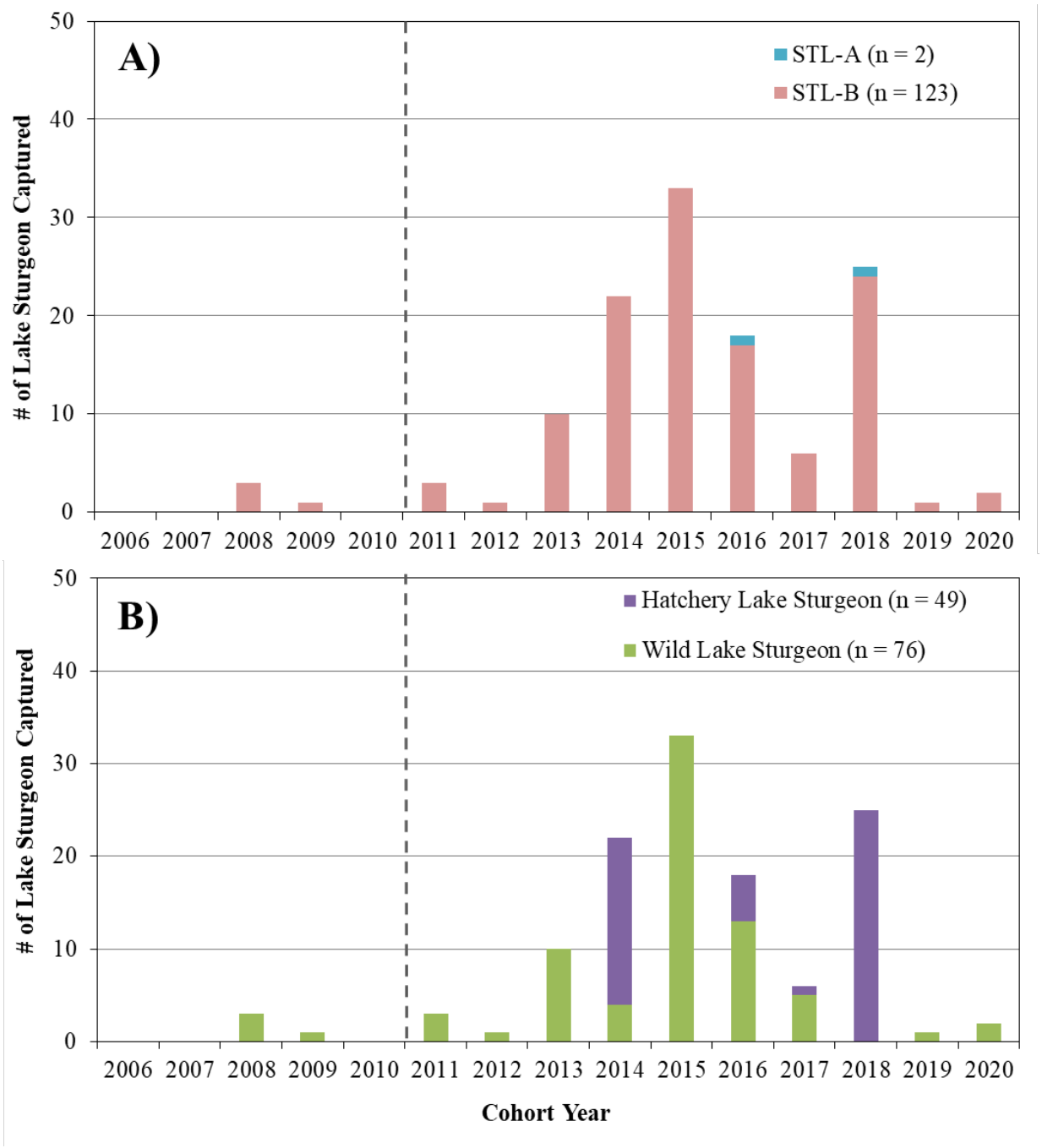


Figure 11: Cohort frequency distributions for all aged juvenile Lake Sturgeon captured in Stephens Lake by zone (A) and by hatchery and wild Lake Sturgeon (B), fall 2020. Cohorts prior to 2011 (*i.e.*, age-9 fish) are not fully represented as ageing structures are not collected from fish > 800 mm fork length (indicated by vertical dashed line).

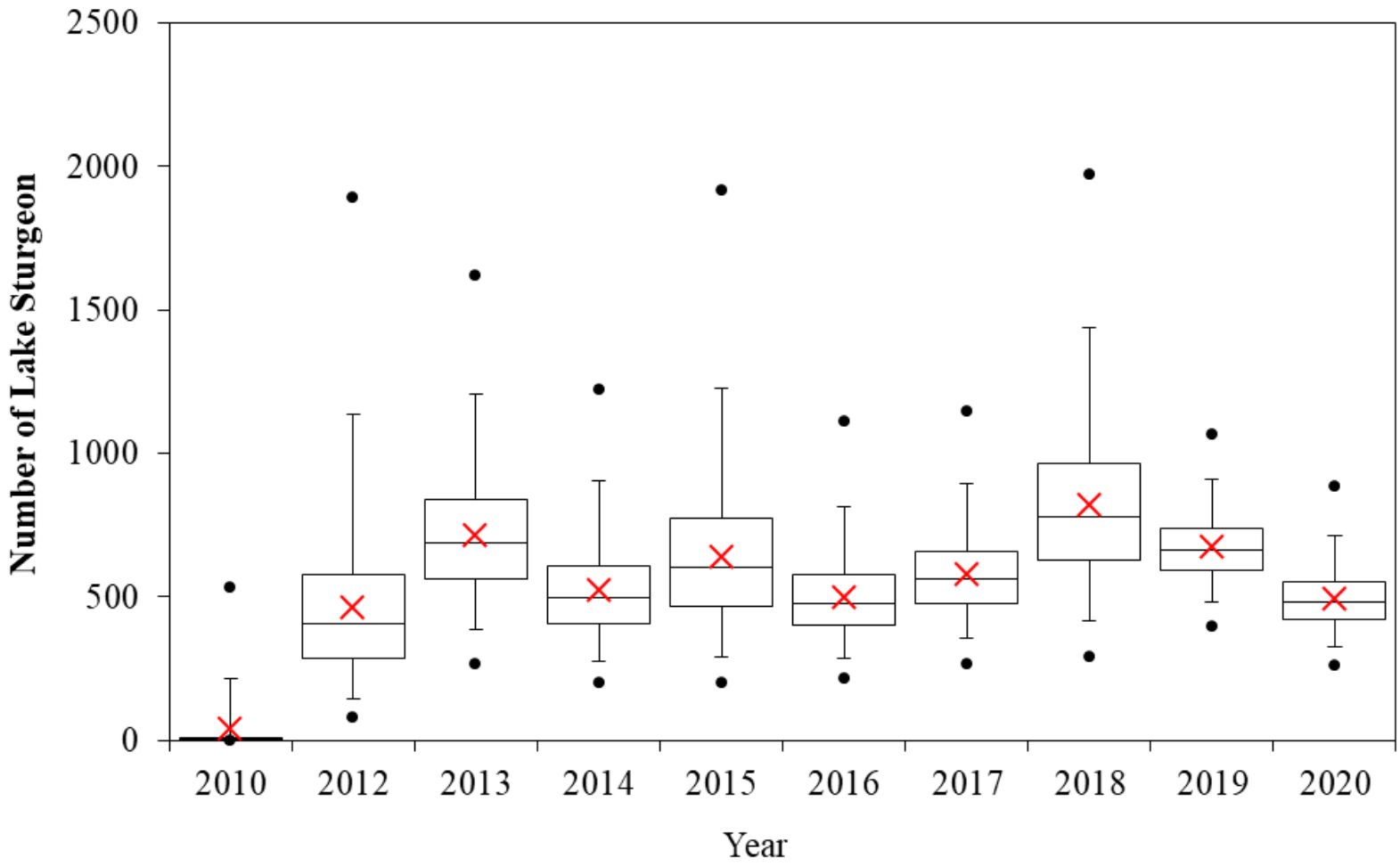


Figure 12: Juvenile Lake Sturgeon abundance estimates based on POPAN best model for Stephens Lake (2010, 2012–2020). Results of the POPAN abundance estimate are presented in black. Each red x marks the estimated abundance for each year (*i.e.*, the number of juvenile Lake Sturgeon), the black dots represent the min and max estimates, and the vertical bar lines represent the upper and lower 95% confidence range.

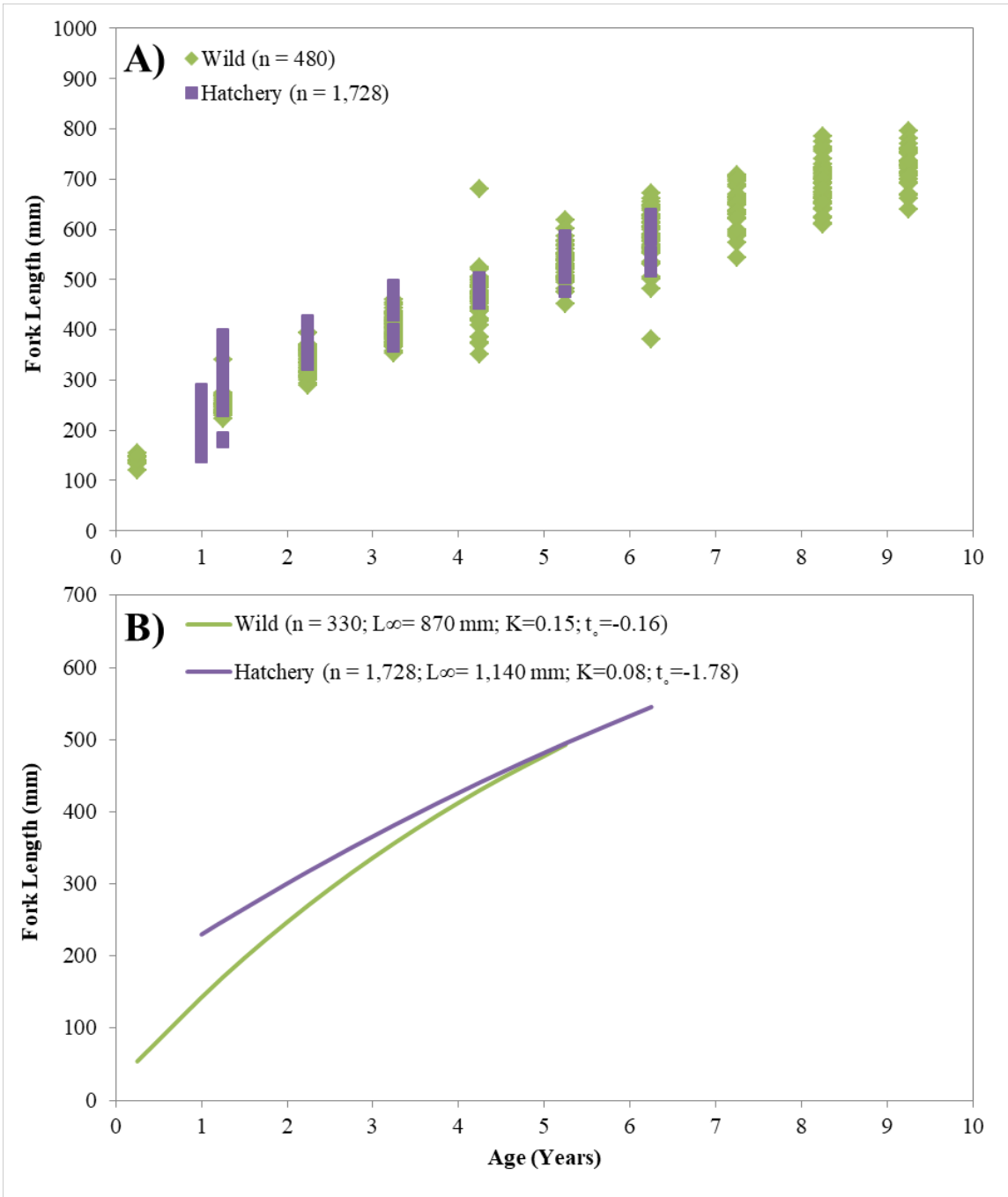
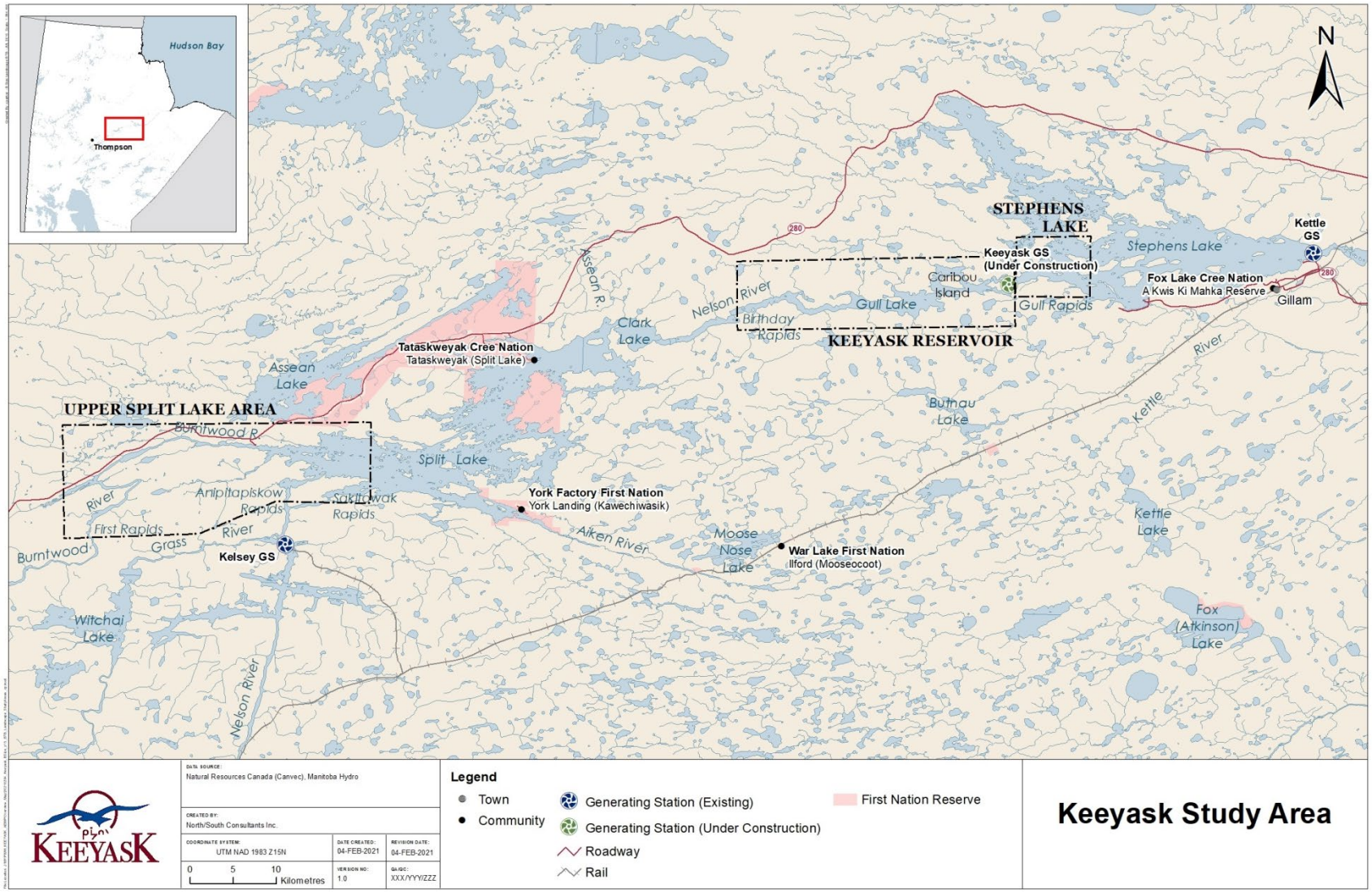
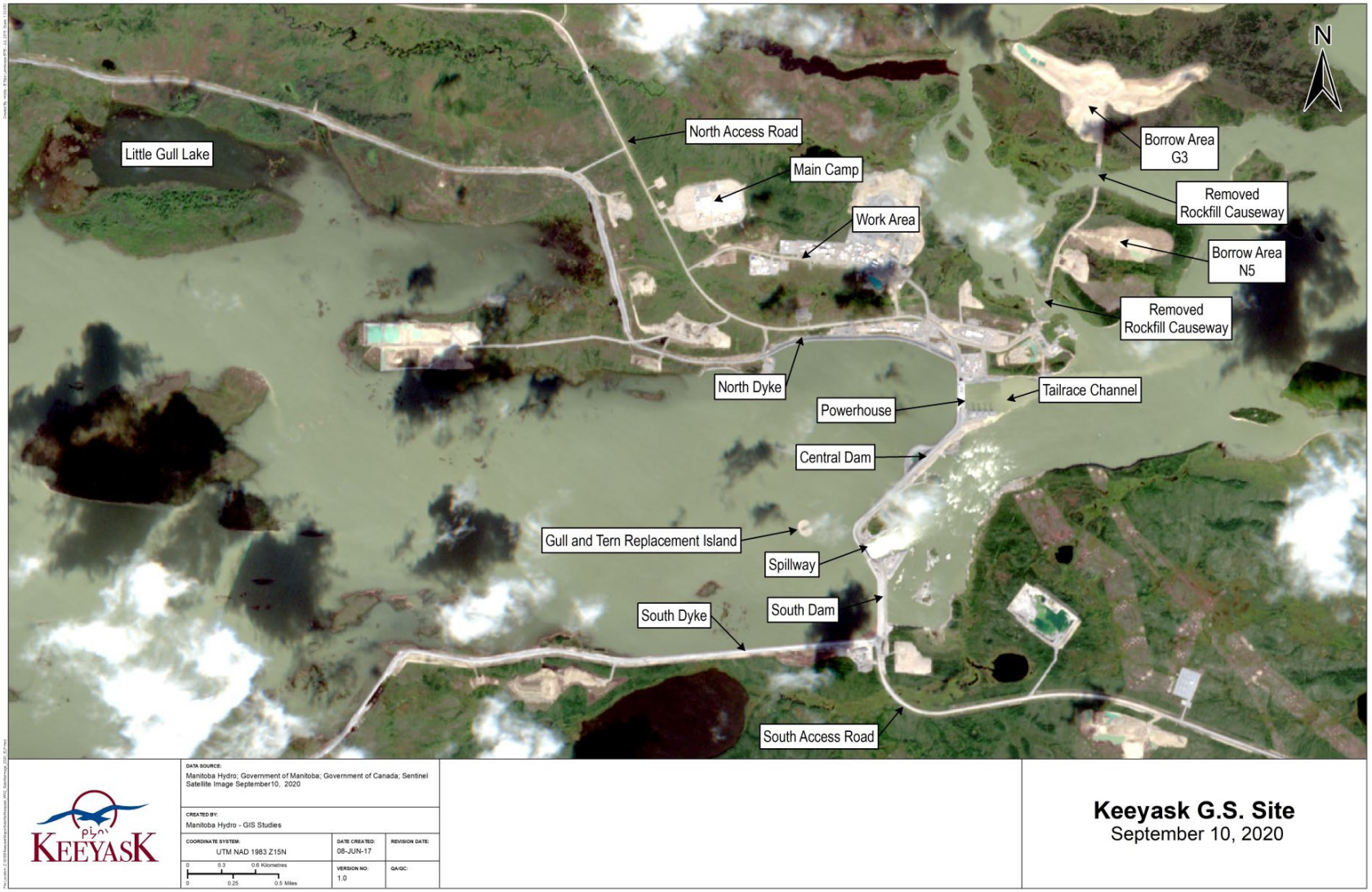


Figure 13: **Fork length-at-age (A) and von Bertalanffy growth curve analysis (B) for all wild (blue) and hatchery-reared (red) Lake Sturgeon released and/or recaptured in the Stephens Lake since stocking began in 2014. Fish older than age-9 were not included in the analysis as they are not fully represented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

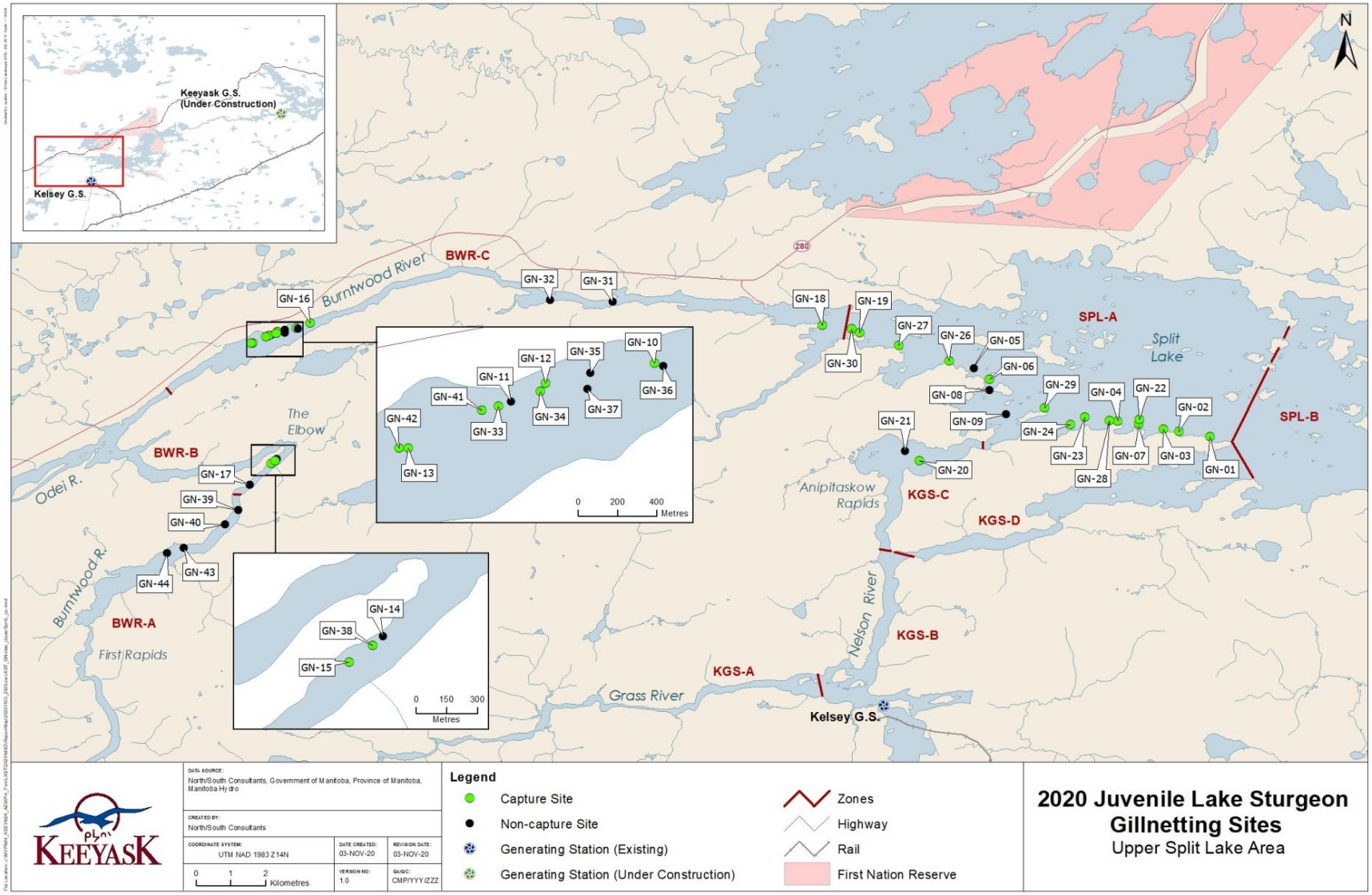
MAPS



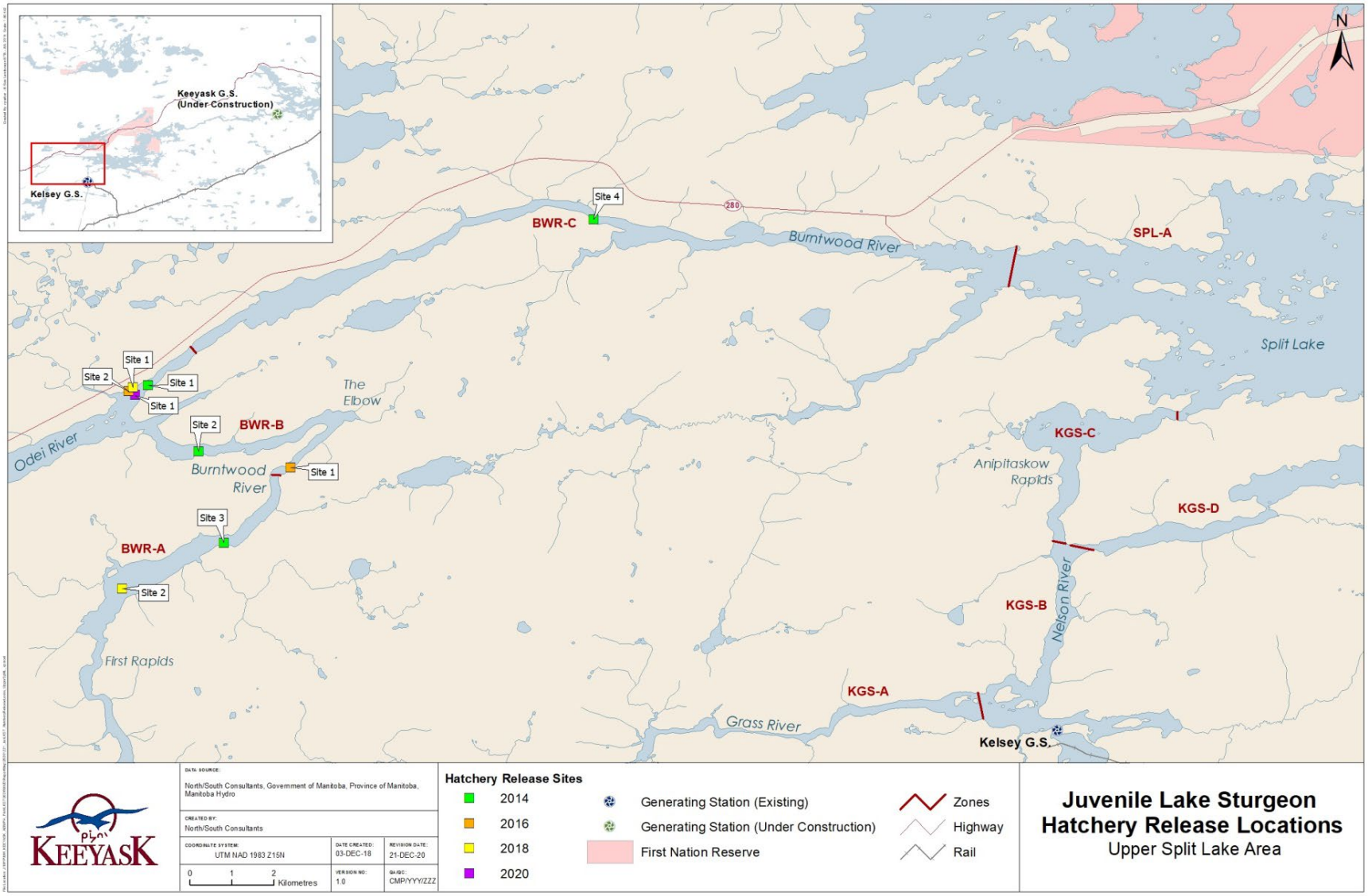
Map 1: **Map of Nelson River showing the site of Keeyask Generating Station and the juvenile Lake Sturgeon population monitoring study setting.**



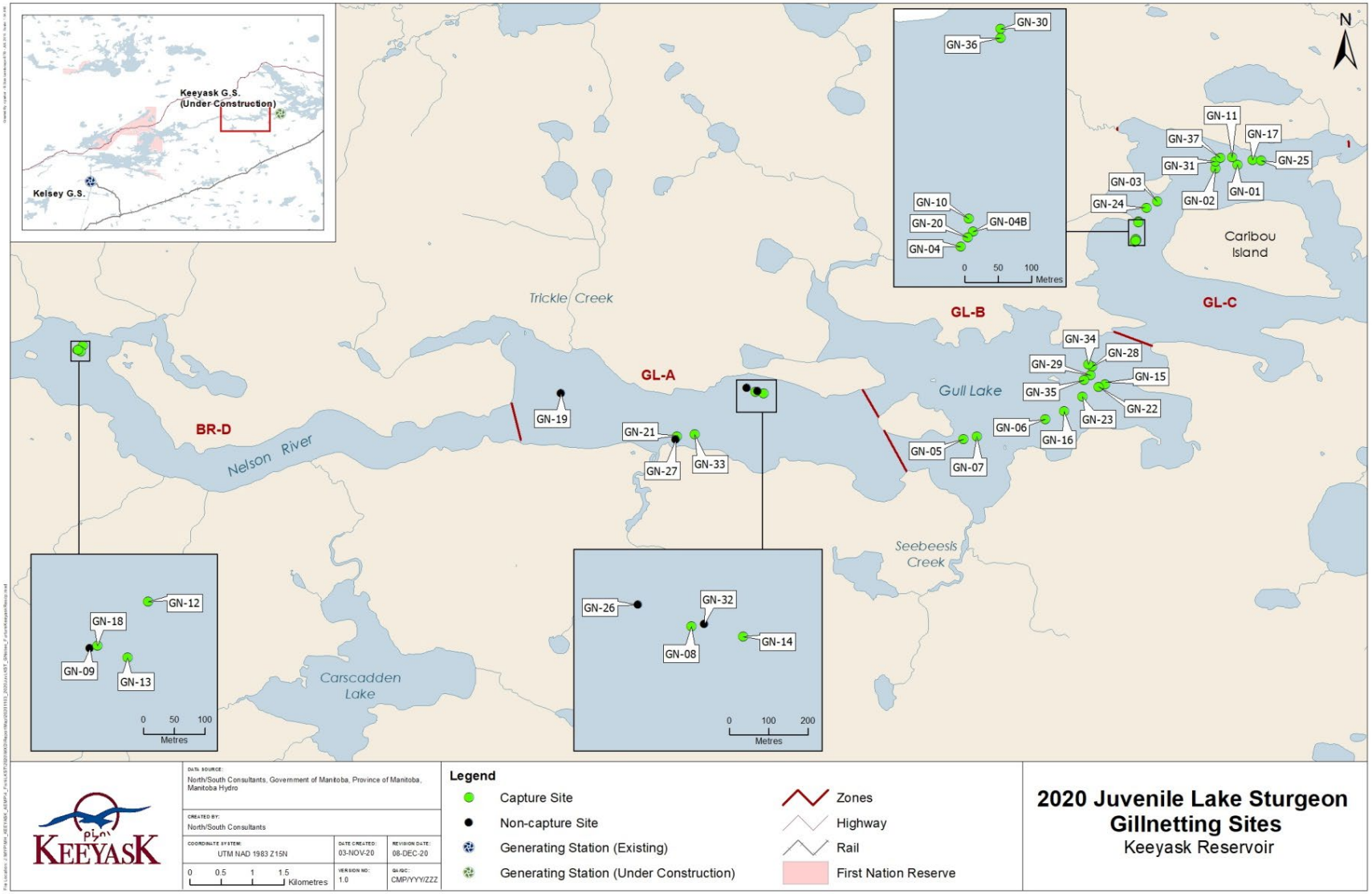
Map 2: Map illustrating instream structures at the Keeyask Generating Station site after reservoir flooding, September 2020.



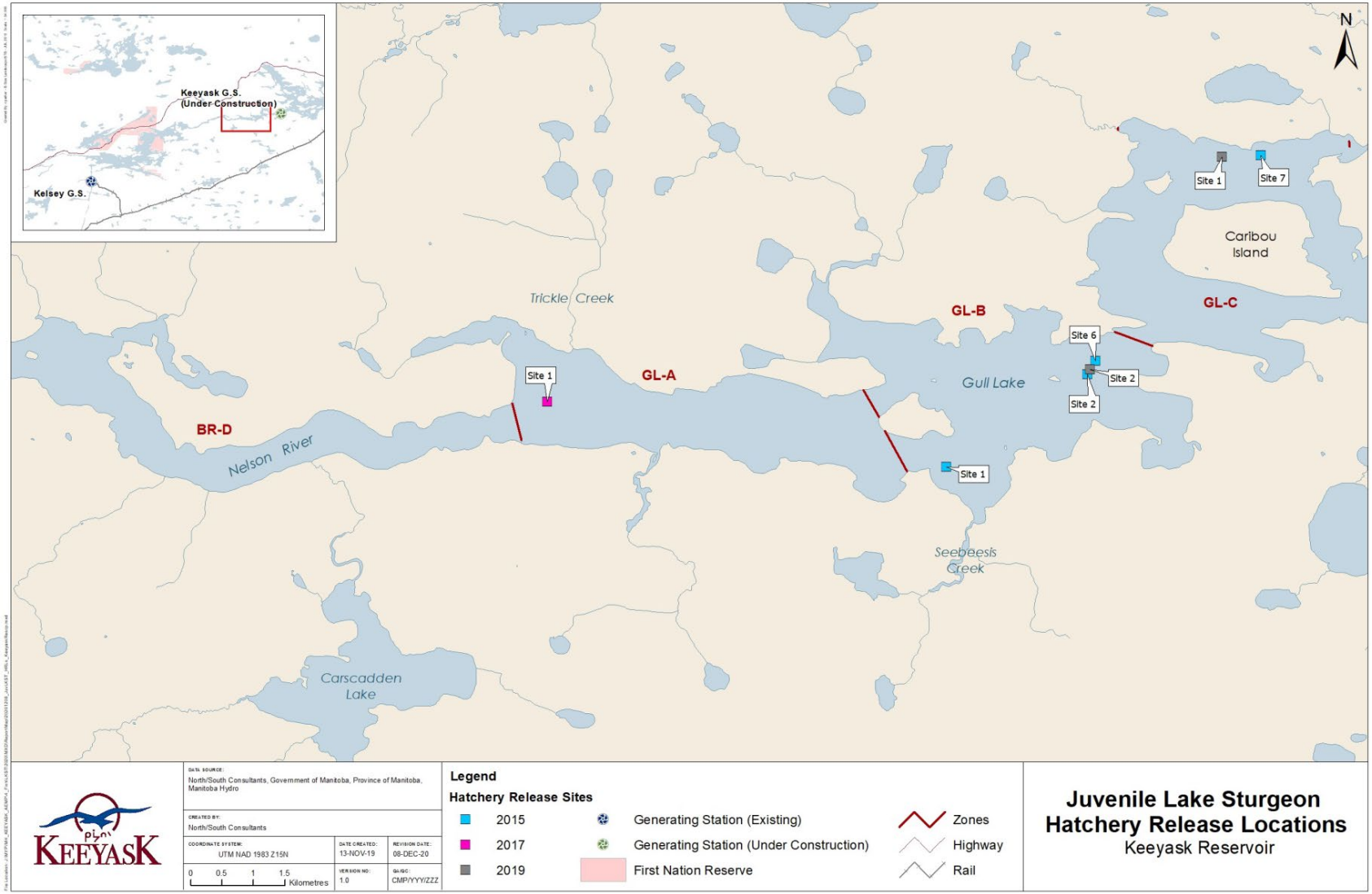
Map 3: Map of sites fished with gill nets in the Upper Split Lake Area (Burntwood River and Split Lake), fall 2020.



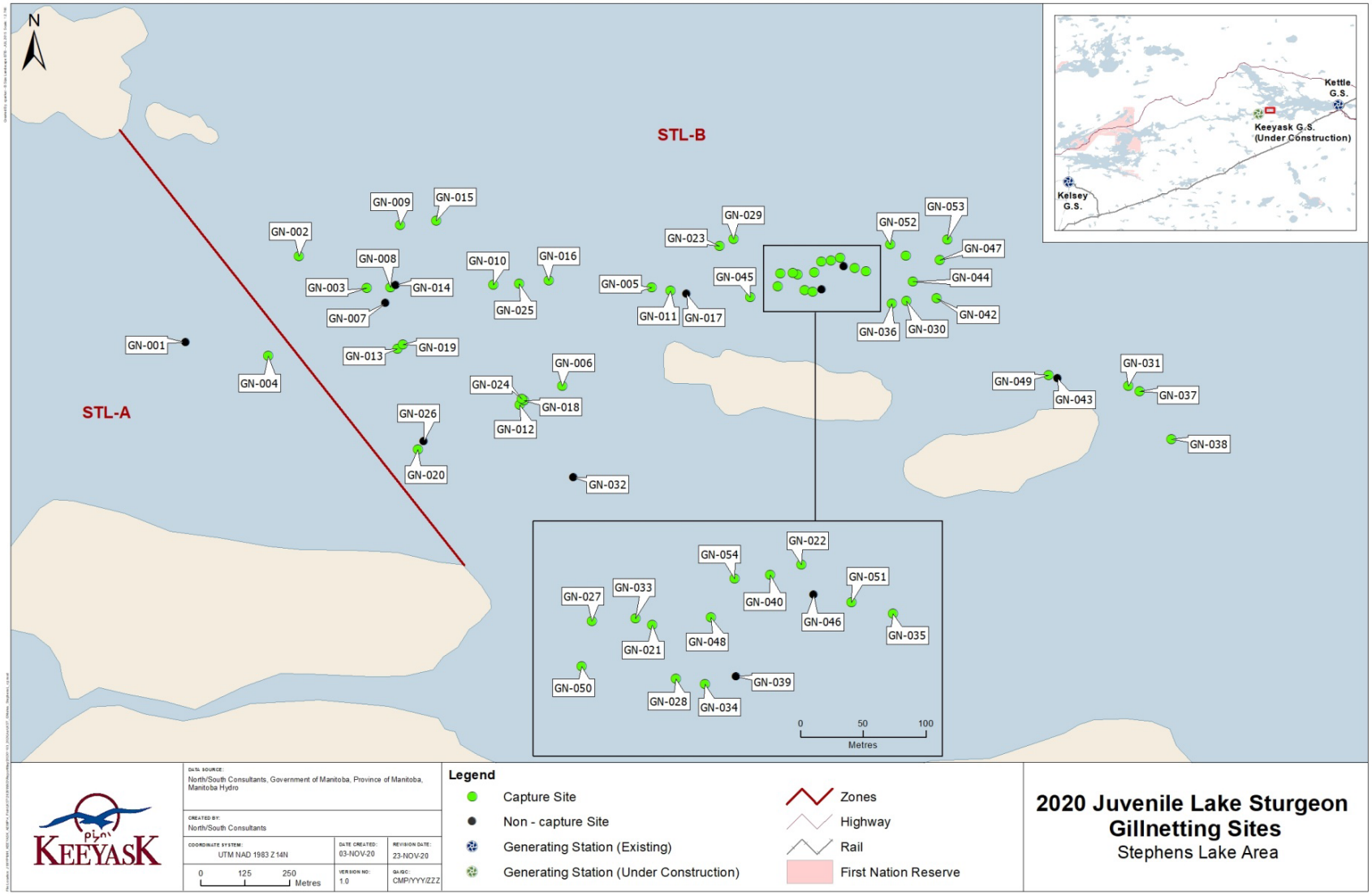
Map 4: Map of Lake Sturgeon yearling stocking sites in the Burntwood River since 2014.



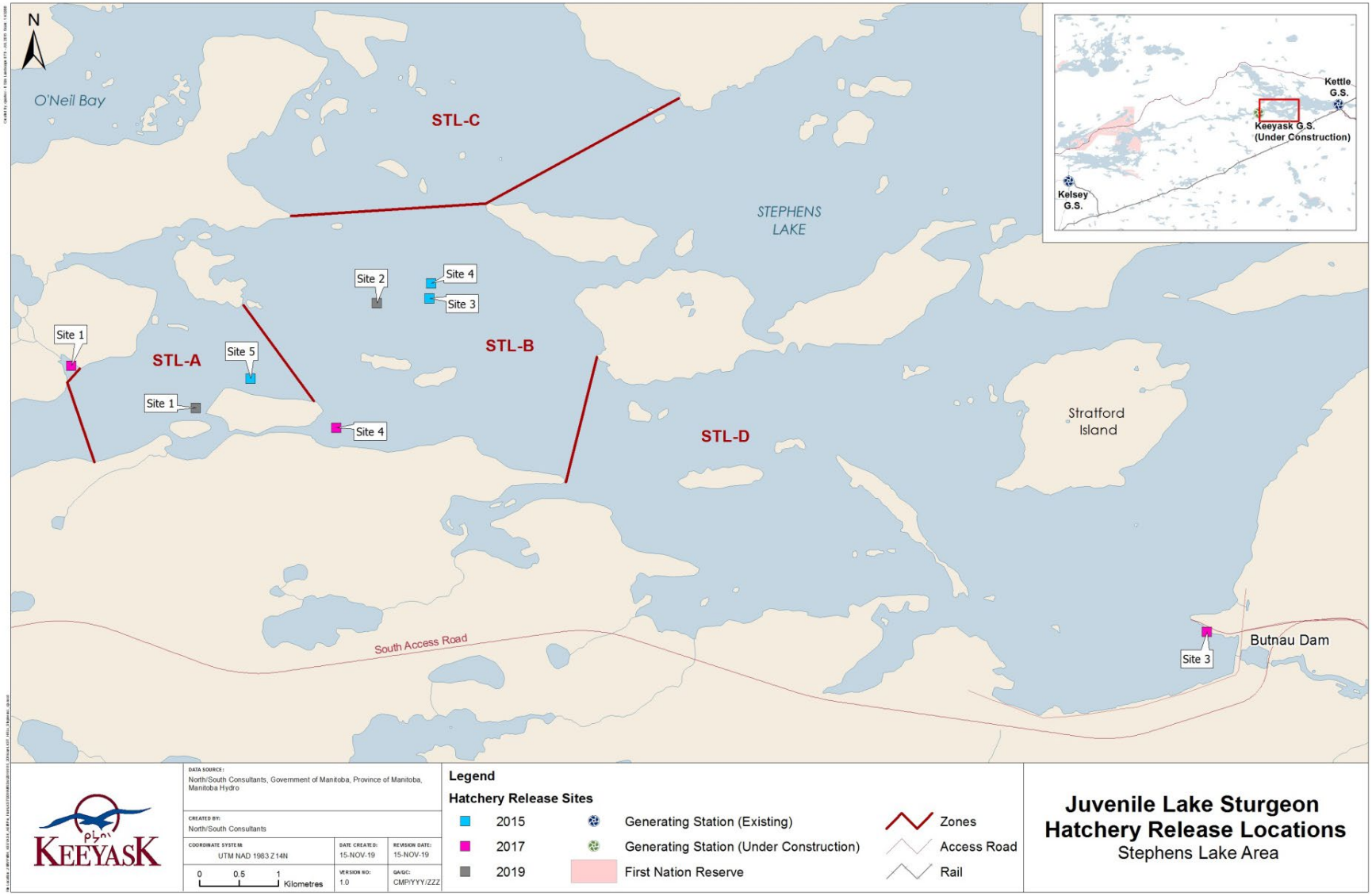
Map 5: Map of sites fished with gill nets in the Keeyask reservoir, fall 2020 (pre-impoundment shoreline).



Map 6: Map of Lake Sturgeon yearling stocking sites in the Keeyask reservoir since 2014.



Map 7: Map of sites fished with gill nets in Stephens Lake, fall 2020.



Map 8: Map of Lake Sturgeon yearling stocking sites in Stephens Lake since 2014.

APPENDICES

APPENDIX 1:
LOCATIONS AND SITE-SPECIFIC PHYSICAL MEASUREMENTS COLLECTED AT GILLNETTING SITES, FALL 2020.

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 2020. Sites set in each region are indicated as follows Burntwood River (BWR) and Split Lake (SPL).

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	SPL-A	662061	6221820	8-Sep-20	9.5	9-Sep-20	-	22.23	6.8	12.2
GN-02	SPL-A	661171	6221893	8-Sep-20	9.5	9-Sep-20	-	22.17	6.1	8.4
GN-03	SPL-A	660713	6221922	8-Sep-20	9.5	9-Sep-20	-	22.22	11.4	7.9
GN-03	SPL-A	660713	6221922	9-Sep-20	-	10-Sep-20	14.0	22.98	11.4	7.9
GN-04	SPL-A	659374	6222032	8-Sep-20	9.5	9-Sep-20	-	23.30	12.3	8.8
GN-04	SPL-A	659374	6222032	9-Sep-20	-	10-Sep-20	14.0	23.12	12.3	8.8
GN-05	SPL-A	655139	6223181	8-Sep-20	9.5	9-Sep-20	-	25.05	5.7	5.4
GN-06	SPL-A	655619	6222920	8-Sep-20	9.5	9-Sep-20	-	25.33	6.1	7.3
GN-06	SPL-A	655619	6222920	9-Sep-20	-	10-Sep-20	14.0	21.68	6.1	7.3
GN-07	SPL-A	660002	6222007	9-Sep-20	-	10-Sep-20	14.0	22.43	9.6	8.1
GN-08	SPL-A	655640	6222603	9-Sep-20	-	10-Sep-20	14.0	21.57	7.7	6.9
GN-09	SPL-A	656187	6221948	9-Sep-20	-	10-Sep-20	14.0	21.73	10.4	12.8
GN-10	BWR-C	635672	6222645	10-Sep-20	14.0	11-Sep-20	14.0	19.88	10.3	10.9
GN-10	BWR-C	635672	6222645	11-Sep-20	14.0	12-Sep-20	13.0	25.47	10.3	10.9
GN-11	BWR-C	634963	6222389	10-Sep-20	14.0	11-Sep-20	14.0	20.37	12.7	10.9
GN-12	BWR-C	635130	6222495	10-Sep-20	14.0	11-Sep-20	14.0	20.62	8.1	8.3
GN-12	BWR-C	635130	6222495	11-Sep-20	14.0	12-Sep-20	13.0	23.93	8.1	8.3
GN-13	BWR-C	634462	6222106	10-Sep-20	14.0	11-Sep-20	14.0	20.85	11.7	10.7
GN-13	BWR-C	634462	6222106	11-Sep-20	14.0	12-Sep-20	13.0	23.13	11.7	10.7
GN-14	BWR-B	635444	6218856	10-Sep-20	14.0	11-Sep-20	14.0	20.22	5.0	6.2
GN-15	BWR-B	635291	6218714	10-Sep-20	14.0	11-Sep-20	14.0	20.88	11.4	6.0

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 2020. Sites set in each region are indicated as follows Burntwood River (BWR) and Split Lake (SPL) (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-B	635291	6218714	11-Sep-20	14.0	12-Sep-20	13.0	21.30	11.4	6.0
GN-16	BWR-C	636044	6222829	11-Sep-20	14.0	12-Sep-20	13.0	25.02	6.2	5.9
GN-17	BWR-B	634722	6218054	11-Sep-20	14.0	12-Sep-20	13.0	22.18	8.1	6.9
GN-18	BWR-C	650696	6224044	12-Sep-20	13.0	13-Sep-20	13.0	26.13	5.9	8.1
GN-18	BWR-C	650696	6224044	13-Sep-20	13.0	14-Sep-20	12.5	22.02	5.9	8.1
GN-18	BWR-C	650696	6224044	14-Sep-20	12.5	15-Sep-20	12.5	23.37	5.9	8.1
GN-19	SPL-A	651785	6223923	12-Sep-20	13.0	13-Sep-20	13.0	25.58	7.3	8.4
GN-19	SPL-A	651785	6223923	13-Sep-20	13.0	14-Sep-20	12.5	21.75	7.3	8.4
GN-19	SPL-A	651785	6223923	14-Sep-20	12.5	15-Sep-20	12.5	23.50	7.3	8.4
GN-20	SPL-A	653816	6220415	12-Sep-20	13.0	13-Sep-20	13.0	23.02	11.6	13.2
GN-21	SPL-A	653386	6220656	12-Sep-20	13.0	13-Sep-20	13.0	23.65	10.5	11.3
GN-22	SPL-A	659999	6222141	12-Sep-20	13.0	13-Sep-20	13.0	20.38	7.4	8.8
GN-23	SPL-A	658431	6222064	12-Sep-20	13.0	13-Sep-20	13.0	19.32	11.1	12.3
GN-23	SPL-A	658431	6222064	13-Sep-20	13.0	14-Sep-20	12.5	23.93	11.1	12.3
GN-24	SPL-A	658051	6221816	13-Sep-20	13.0	14-Sep-20	12.5	22.82	10.6	14.2
GN-26	SPL-A	654424	6223342	13-Sep-20	13.0	14-Sep-20	12.5	21.55	8.2	5.3
GN-26	SPL-A	654424	6223342	14-Sep-20	12.5	15-Sep-20	12.5	23.17	8.2	5.3
GN-27	SPL-A	652944	6223654	13-Sep-20	13.0	14-Sep-20	12.5	21.60	6.8	6.2
GN-28	SPL-A	659153	6222024	14-Sep-20	12.5	15-Sep-20	12.5	23.32	13.5	13.1
GN-29	SPL-A	657266	6222225	14-Sep-20	12.5	15-Sep-20	12.5	23.25	7.9	12.9
GN-30	SPL-A	651542	6224010	14-Sep-20	12.5	15-Sep-20	12.5	22.88	7.6	7.8

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 2020. Sites set in each region are indicated as follows Burntwood River (BWR) and Split Lake (SPL) (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-31	BWR-C	644656	6224187	15-Sep-20	12.5	16-Sep-20	12.0	20.78	12.1	11.7
GN-32	BWR-C	642850	6224086	15-Sep-20	12.5	16-Sep-20	12.0	20.72	8.8	10.9
GN-33	BWR-C	634901	6222359	15-Sep-20	12.5	16-Sep-20	12.0	21.97	13.2	12.3
GN-33	BWR-C	634901	6222359	16-Sep-20	12.0	17-Sep-20	10.0	23.10	13.2	12.3
GN-34	BWR-C	635105	6222452	15-Sep-20	12.5	16-Sep-20	12.0	21.28	11.5	11.1
GN-34	BWR-C	635105	6222452	16-Sep-20	12.0	17-Sep-20	10.0	23.30	11.5	11.1
GN-34	BWR-C	635105	6222452	17-Sep-20	10.0	18-Sep-20	10.0	23.35	11.5	11.1
GN-35	BWR-C	635351	6222569	15-Sep-20	12.5	16-Sep-20	12.0	20.75	8.2	5.9
GN-36	BWR-C	635719	6222637	15-Sep-20	12.5	16-Sep-20	12.0	20.08	12.0	10.3
GN-37	BWR-C	635345	6222487	16-Sep-20	12.0	17-Sep-20	10.0	23.45	12.3	14.1
GN-38	BWR-B	635398	6218805	16-Sep-20	12.0	17-Sep-20	10.0	23.52	9.7	12.2
GN-38	BWR-B	635398	6218805	17-Sep-20	10.0	18-Sep-20	10.0	23.23	9.7	12.2
GN-39	BWR-A	634465	6217307	16-Sep-20	12.0	17-Sep-20	10.0	23.48	9.2	7.3
GN-40	BWR-A	634127	6216854	16-Sep-20	12.0	17-Sep-20	10.0	23.43	7.8	11.2
GN-41	BWR-C	634816	6222332	17-Sep-20	10.0	18-Sep-20	10.0	23.17	11.6	12.1
GN-42	BWR-C	634415	6222102	17-Sep-20	10.0	18-Sep-20	10.0	23.18	9.6	11.3
GN-43	BWR-A	633001	6216087	17-Sep-20	10.0	18-Sep-20	10.0	22.68	7.5	7.6
GN-44	BWR-A	632529	6215892	17-Sep-20	10.0	18-Sep-20	10.0	22.82	10.4	9.2

Table A1-2: Location and site-specific physical measurements collected at gillnetting sites during juvenile Lake Sturgeon investigations conducted in the Keeyask reservoir, fall 2020.

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-C	356775	6248066	15-Sep-20	11.3	17-Sep-20	9.8	47.98	11.0	14.0
GN-01	GL-C	356775	6248066	17-Sep-20	9.8	18-Sep-20	9.6	18.37	11.0	14.0
GN-02	GL-C	356420	6248009	15-Sep-20	11.3	17-Sep-20	9.8	48.83	12.0	11.0
GN-02	GL-C	356420	6248009	17-Sep-20	9.8	18-Sep-20	9.6	17.73	12.0	11.0
GN-03	GL-C	355490	6247486	15-Sep-20	11.3	17-Sep-20	9.8	49.23	14.0	16.0
GN-03	GL-C	355490	6247486	17-Sep-20	9.8	18-Sep-20	9.6	22.77	14.0	16.0
GN-04	GL-C	355138	6246841	15-Sep-20	11.3	17-Sep-20	9.8	49.17	12.0	14.0
GN-05	GL-B	352407	6243694	15-Sep-20	11.3	17-Sep-20	9.8	49.13	14.0	17.0
GN-06	GL-B	353713	6244015	15-Sep-20	11.3	17-Sep-20	9.8	49.83	13.0	140
GN-06	GL-B	353713	6244015	17-Sep-20	9.8	18-Sep-20	9.6	18.95	13.0	14.0
GN-06	GL-B	353713	6244015	18-Sep-20	9.6	19-Sep-20	9.6	23.33	13.0	14.0
GN-06	GL-B	353713	6244015	19-Sep-20	9.6	20-Sep-20	9.8	22.83	13.0	14.0
GN-04B	GL-C	355157	6246864	17-Sep-20	9.8	18-Sep-20	9.6	23.00	12.7	14.7
GN-07	GL-B	352620	6243737	17-Sep-20	9.8	18-Sep-20	9.6	18.83	19.4	20.8
GN-07	GL-B	352620	6243737	18-Sep-20	9.6	19-Sep-20	9.6	23.38	19.4	20.8
GN-07	GL-B	352620	6243737	19-Sep-20	9.6	20-Sep-20	9.8	22.92	19.4	20.8
GN-08	GL-A	349098	6244452	18-Sep-20	9.6	19-Sep-20	9.6	24.73	12.7	17.6
GN-08	GL-A	349098	6244452	19-Sep-20	9.6	20-Sep-20	9.8	22.87	12.7	17.6
GN-09	BR-D	338299	6245112	18-Sep-20	9.6	19-Sep-20	9.6	23.20	13.4	8.4
GN-10	GL-C	355150	6246883	18-Sep-20	9.6	19-Sep-20	9.6	23.03	12.7	14.8
GN-10	GL-C	355150	6246883	19-Sep-20	9.6	20-Sep-20	9.8	23.28	12.7	14.8
GN-10	GL-C	355150	6246883	20-Sep-20	9.8	21-Sep-20	10.3	24.73	12.7	14.8

Table A1-2: Location and site-specific physical measurements collected at gillnetting sites during juvenile Lake Sturgeon investigations conducted in the Keeyask reservoir, fall 2020 (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-11	GL-C	356690	6248185	18-Sep-20	9.6	19-Sep-20	9.6	23.28	-	-
GN-11	GL-C	356690	6248185	19-Sep-20	9.6	20-Sep-20	9.8	22.85	-	-
GN-12	BR-D	338393	6245188	19-Sep-20	9.6	20-Sep-20	9.8	22.92	10.1	12.1
GN-13	BR-D	338360	6245097	20-Sep-20	9.8	21-Sep-20	10.3	23.77	13.9	12.9
GN-14	GL-A	349229	6244425	20-Sep-20	9.8	21-Sep-20	10.3	24.20	17.5	17.4
GN-15	GL-B	354666	6244573	20-Sep-20	9.8	21-Sep-20	10.3	24.35	16.7	13.5
GN-15	GL-B	354666	6244573	21-Sep-20	10.3	22-Sep-20	10.6	25.92	16.7	13.5
GN-16	GL-B	354012	6244140	20-Sep-20	9.8	21-Sep-20	10.3	24.32	16.1	15.4
GN-16	GL-B	354012	6244140	21-Sep-20	10.3	22-Sep-20	10.6	26.13	16.1	15.4
GN-17	GL-C	357010	6248146	20-Sep-20	9.8	21-Sep-20	10.3	24.83	16.4	17.5
GN-17	GL-C	357010	6248146	21-Sep-20	10.3	22-Sep-20	10.6	25.53	16.4	17.5
GN-18	BR-D	338311	6245116	21-Sep-20	10.3	22-Sep-20	10.6	23.90	13.4	14.2
GN-18	BR-D	338311	6245116	22-Sep-20	10.6	23-Sep-20	10.7	23.87	13.4	14.2
GN-19	GL-A	346004	6244422	21-Sep-20	10.3	22-Sep-20	10.6	24.40	11.6	10.9
GN-20	GL-C	355149	6246855	21-Sep-20	10.3	22-Sep-20	10.6	25.32	13.0	14.1
GN-21	GL-A	347848	6243740	22-Sep-20	10.6	23-Sep-20	10.7	23.20	17.3	17.7
GN-22	GL-B	354559	6244524	22-Sep-20	10.6	23-Sep-20	10.7	22.38	14.6	16.7
GN-23	GL-B	354304	6244375	22-Sep-20	10.6	23-Sep-20	10.7	22.05	19.1	16.4
GN-24	GL-C	355320	6247383	22-Sep-20	10.6	23-Sep-20	10.7	23.93	10.8	14.9
GN-25	GL-C	357150	6248136	22-Sep-20	10.6	23-Sep-20	10.7	23.95	16.4	18.8
GN-26	GL-A	348962	6244506	23-Sep-20	10.7	24-Sep-20	-	22.50	13.2	12.3
GN-27	GL-A	347833	6243684	23-Sep-20	10.7	24-Sep-20	-	22.42	13.1	12.8

Table A1-2: Location and site-specific physical measurements collected at gillnetting sites during juvenile Lake Sturgeon investigations conducted in the Keeyask reservoir, fall 2020 (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-28	GL-B	354456	6244849	23-Sep-20	10.7	24-Sep-20	-	21.78	14.1	18.4
GN-29	GL-B	354427	6244712	23-Sep-20	10.7	24-Sep-20	-	21.78	16.4	16.9
GN-30	GL-C	355198	6247167	23-Sep-20	10.7	24-Sep-20	-	19.50	10.0	12.2
GN-31	GL-C	356420	6248118	23-Sep-20	10.7	24-Sep-20	-	19.50	14.4	13.8
GN-32	GL-A	349131	6244457	24-Sep-20	-	25-Sep-20	-	23.80	14.2	17.6
GN-33	GL-A	348130	6243771	24-Sep-20	-	25-Sep-20	-	23.73	17.4	13.6
GN-34	GL-B	354401	6244884	24-Sep-20	-	25-Sep-20	-	23.78	11.4	14.2
GN-35	GL-B	354329	6244639	24-Sep-20	-	25-Sep-20	-	23.45	14.2	17.4
GN-36	GL-C	355198	6247153	24-Sep-20	-	25-Sep-20	-	23.58	11.7	17.2
GN-37	GL-C	356493	6248179	24-Sep-20	-	25-Sep-20	-	23.50	15.4	16.8

Table A1-3: Location and site-specific physical measurements collected at gillnetting sites during juvenile Lake Sturgeon investigations conducted in Stephens Lake, fall 2020.

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-001	STL-A	367330	6247953	15-Sep-20	11.4	17-Sep-20	10.0	43.37	13.2	14.1
GN-002	STL-B	367647	6248195	15-Sep-20	11.4	17-Sep-20	10.0	45.13	16.3	15.3
GN-003	STL-B	367837	6248106	15-Sep-20	11.4	17-Sep-20	10.0	43.87	16.1	15.9
GN-004	STL-A	367561	6247916	15-Sep-20	11.4	17-Sep-20	10.0	45.62	15.4	16.8
GN-005	STL-B	368635	6248108	15-Sep-20	11.4	17-Sep-20	10.0	46.40	13.7	14.2
GN-006	STL-B	368266	6247795	15-Sep-20	11.4	17-Sep-20	10.0	47.25	15.8	15.7
GN-007	STL-B	367890	6248064	17-Sep-20	10.0	18-Sep-20	9.7	23.85	16.5	16.7
GN-008	STL-B	367903	6248107	17-Sep-20	10.0	18-Sep-20	9.7	24.42	15.0	15.8
GN-009	STL-B	367931	6248283	17-Sep-20	10.0	18-Sep-20	9.7	24.35	15.3	15.9
GN-010	STL-B	368191	6248115	17-Sep-20	10.0	18-Sep-20	9.7	24.68	15.8	14.2
GN-011	STL-B	368688	6248099	17-Sep-20	10.0	18-Sep-20	9.7	24.25	14.7	14.3
GN-012	STL-B	368265	6247779	17-Sep-20	10.0	18-Sep-20	9.7	24.05	14.8	14.8
GN-013	STL-B	367924	6247936	18-Sep-20	9.7	19-Sep-20	9.7	23.12	15.8	16.2
GN-014	STL-B	367919	6248114	18-Sep-20	9.7	19-Sep-20	9.8	22.95	15.5	16.4
GN-015	STL-B	368032	6248294	18-Sep-20	9.7	19-Sep-20	9.8	22.85	16.8	14.4
GN-016	STL-B	368347	6248127	18-Sep-20	9.7	19-Sep-20	9.8	22.70	14.6	14.4
GN-017	STL-B	368733	6248090	18-Sep-20	9.7	19-Sep-20	9.8	22.50	14.7	14.1
GN-018	STL-B	368278	6247791	18-Sep-20	9.7	19-Sep-20	9.8	22.53	15.0	16.9
GN-019	STL-B	367938	6247948	19-Sep-20	9.7	20-Sep-20	10.1	24.18	16.2	15.8
GN-020	STL-B	367981	6247654	19-Sep-20	9.8	20-Sep-20	10.1	23.65	15.5	16.6
GN-021	STL-B	369044	6248143	19-Sep-20	9.8	20-Sep-20	10.1	23.50	14.3	15.5
GN-022	STL-B	369163	6248191	19-Sep-20	9.8	20-Sep-20	10.1	23.92	13.8	13.6

Table A1-3: Location and site-specific physical measurements collected at gillnetting sites during juvenile Lake Sturgeon investigations conducted in Stephens Lake, fall 2020 (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-023	STL-B	368825	6248223	19-Sep-20	9.8	20-Sep-20	10.1	24.17	13.4	13.5
GN-024	STL-B	368272	6247796	19-Sep-20	9.8	20-Sep-20	10.1	24.00	15.1	14.9
GN-025	STL-B	368264	6248118	20-Sep-20	10.1	21-Sep-20	9.0	23.58	14.8	14.7
GN-026	STL-B	367997	6247676	20-Sep-20	10.1	21-Sep-20	9.0	23.63	16.2	17.0
GN-027	STL-B	368996	6248146	20-Sep-20	10.1	21-Sep-20	9.0	23.60	13.8	12.9
GN-028	STL-B	369063	6248100	20-Sep-20	10.1	21-Sep-20	9.0	22.88	13.7	13.7
GN-029	STL-B	368865	6248243	20-Sep-20	10.1	21-Sep-20	9.0	23.50	14.2	14.1
GN-030	STL-B	369349	6248069	20-Sep-20	10.1	21-Sep-20	9.0	23.48	13.6	17.6
GN-031	STL-B	369970	6247831	21-Sep-20	9.0	22-Sep-20	9.0	23.75	14.6	14.3
GN-032	STL-B	368416	6247575	21-Sep-20	9.0	22-Sep-20	9.0	23.77	14.4	15.2
GN-033	STL-B	369031	6248148	21-Sep-20	9.0	22-Sep-20	9.0	23.75	13.4	13.7
GN-034	STL-B	369086	6248096	21-Sep-20	9.0	22-Sep-20	9.0	24.03	12.7	13.4
GN-035	STL-B	369236	6248152	21-Sep-20	9.0	22-Sep-20	9.0	23.92	14.6	16.0
GN-036	STL-B	369308	6248062	21-Sep-20	9.0	22-Sep-20	9.0	24.25	13.3	13.9
GN-037	STL-B	370002	6247817	22-Sep-20	9.0	23-Sep-20	9.5	23.97	15.1	15.2
GN-038	STL-B	370091	6247682	22-Sep-20	9.0	23-Sep-20	9.5	23.58	14.2	19.2
GN-039	STL-B	369111	6248102	22-Sep-20	9.0	23-Sep-20	9.5	23.85	15.3	11.3
GN-040	STL-B	369138	6248183	22-Sep-20	9.0	23-Sep-20	9.5	23.80	13.7	13.8
GN-041	STL-B	369347	6248197	22-Sep-20	9.0	23-Sep-20	9.5	23.58	15.3	15.8
GN-042	STL-B	369433	6248078	22-Sep-20	9.0	23-Sep-20	9.5	23.10	15.4	16.1
GN-043	STL-B	369773	6247852	23-Sep-20	9.5	24-Sep-20	9.5	23.67	14.9	16.6
GN-044	STL-B	369367	6248124	23-Sep-20	9.5	24-Sep-20	9.5	22.95	14.4	17.3

Table A1-3: Location and site-specific physical measurements collected at gillnetting sites during juvenile Lake Sturgeon investigations conducted in Stephens Lake, fall 2020 (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-045	STL-B	368911	6248080	23-Sep-20	9.5	24-Sep-20	9.5	23.38	13.6	13.9
GN-046	STL-B	369173	6248167	23-Sep-20	9.5	24-Sep-20	9.5	23.47	13.8	14.1
GN-047	STL-B	369442	6248184	23-Sep-20	9.5	24-Sep-20	9.5	23.15	18.1	17.5
GN-048	STL-B	369091	6248149	23-Sep-20	9.5	24-Sep-20	9.5	23.03	13.8	13.9
GN-049	STL-B	369747	6247861	24-Sep-20	9.5	25-Sep-20	9.5	23.92	14.4	14.1
GN-050	STL-B	368988	6248110	24-Sep-20	9.5	25-Sep-20	9.5	23.88	13.6	13.6
GN-051	STL-B	369203	6248161	24-Sep-20	9.5	25-Sep-20	9.5	23.68	14.0	14.1
GN-052	STL-B	369303	6248228	24-Sep-20	9.5	25-Sep-20	9.5	23.45	15.8	15.1
GN-053	STL-B	369463	6248242	24-Sep-20	9.5	25-Sep-20	9.5	23.28	15.1	15.5
GN-054	STL-B	369110	6248180	24-Sep-20	9.5	25-Sep-20	9.5	23.18	14.3	14.8

APPENDIX 2:
BIOLOGICAL AND TAG INFORMATION FOR LAKE STURGEON CAPTURED IN FALL 2020.

Table A2-1: Biological and tag information for Lake Sturgeon captured in the Upper Split Lake Area (Burntwood River and Split Lake), fall 2020. Red text indicates fish that did not survive sampling.

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Split Lake	GN-01	SPL-A	9-Sep-20	119901	900 226001055849	343	386	270	3
Split Lake	GN-02	SPL-A	9-Sep-20	119902	900 226001055856	619	700	1750	7
Split Lake	GN-03	SPL-A	9-Sep-20	119903	900 226001055873	780	889	3540	-
Split Lake	GN-03	SPL-A	9-Sep-20	119904	900 067000058310	466	515	660	5
Split Lake	GN-03	SPL-A	9-Sep-20	119905	900 226001055891	578	653	1740	7
Split Lake	GN-03	SPL-A	9-Sep-20	119906	900 226001055807	802	912	3210	-
Split Lake	GN-03	SPL-A	9-Sep-20	119907	900 226001055814	753	851	2860	-
Split Lake	GN-03	SPL-A	9-Sep-20	119908	900 226001055868	942	1062	9210	-
Split Lake	GN-03	SPL-A	9-Sep-20	119909	900 226001055878	871	980	7670	-
Split Lake	GN-04	SPL-A	9-Sep-20	119910	900 226001055829	476	535	780	6
Split Lake	GN-04	SPL-A	9-Sep-20	119911	900 043000102902	523	590	870	7
Split Lake	GN-04	SPL-A	9-Sep-20	119912	900 226001055800	621	697	1420	10
Split Lake	GN-04	SPL-A	9-Sep-20	119913	900 226001055802	536	603	1150	7
Split Lake	GN-04	SPL-A	9-Sep-20	119914	900 226001055890	384	440	420	3
Split Lake	GN-04	SPL-A	9-Sep-20	119915	900 226001055821	551	621	1130	7
Split Lake	GN-04	SPL-A	9-Sep-20	119916	900 226001055823	458	533	730	4
Split Lake	GN-04	SPL-A	9-Sep-20	119917	900 226001055842	740	830	3410	-
Split Lake	GN-04	SPL-A	9-Sep-20	119918	900 226001055883	513	576	960	4
Split Lake	GN-04	SPL-A	9-Sep-20	119919	900 226001055808	664	755	2100	10
Split Lake	GN-04	SPL-A	9-Sep-20	119920	900 226000327721	532	607	970	7
Split Lake	GN-04	SPL-A	9-Sep-20	119922	900 226001030675	673	758	2240	7
Split Lake	GN-04	SPL-A	9-Sep-20	119923	900 226001030638	636	710	1820	7
Split Lake	GN-04	SPL-A	9-Sep-20	119924	900 226000767233	495	552	870	7
Split Lake	GN-04	SPL-A	9-Sep-20	119925	900 226000767299	685	768	2490	10
Split Lake	GN-04	SPL-A	9-Sep-20	119926	900 226001030318	537	612	1070	5

Table A2-1: Biological and tag information for Lake Sturgeon captured in the Upper Split Lake Area (Burntwood River and Split Lake), fall 2020. Red text indicates fish that did not survive sampling (continued).

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Split Lake	GN-04	SPL-A	9-Sep-20	113549	900 226000153795	565	642	1060	6
Split Lake	GN-04	SPL-A	9-Sep-20	119927	900 226001030632	600	688	1650	7
Split Lake	GN-04	SPL-A	9-Sep-20	119928	900 226000767243	923	1060	5410	-
Split Lake	GN-04	SPL-A	9-Sep-20	-	-	812	918	3790	9
Split Lake	GN-06	SPL-A	9-Sep-20	119930	900 226001030664	468	518	590	6
Split Lake	GN-03	SPL-A	10-Sep-20	119931	900 226001031889	858	964	4380	-
Split Lake	GN-03	SPL-A	10-Sep-20	119932	900 226001031845	742	833	3160	-
Split Lake	GN-03	SPL-A	10-Sep-20	119933	900 226001031899	707	792	2510	12
Split Lake	GN-03	SPL-A	10-Sep-20	119934	900 226001031877	534	598	1080	5
Split Lake	GN-07	SPL-A	10-Sep-20	119935	900 226001031862	611	691	1550	7
Split Lake	GN-07	SPL-A	10-Sep-20	119936	900 226001031841	554	599	1230	7
Split Lake	GN-07	SPL-A	10-Sep-20	119937	900 226001031861	865	974	4350	-
Split Lake	GN-07	SPL-A	10-Sep-20	119938	900 226001031849	861	964	4210	-
Split Lake	GN-07	SPL-A	10-Sep-20	119939	900 226001031879	446	515	650	4
Split Lake	GN-07	SPL-A	10-Sep-20	119940	900 226001055846	694	780	2220	17
Split Lake	GN-07	SPL-A	10-Sep-20	119941	900 226001031869	477	543	810	7
Split Lake	GN-07	SPL-A	10-Sep-20	-	-	868	969	4610	17
Split Lake	GN-04	SPL-A	10-Sep-20	119942	900 226001031856	502	570	1000	6
Split Lake	GN-04	SPL-A	10-Sep-20	119943	900 226001055898	451	506	640	4
Split Lake	GN-04	SPL-A	10-Sep-20	119944	900 067000111870	359	415	340	3
Split Lake	GN-04	SPL-A	10-Sep-20	119945	900 226001031850	641	730	1730	7
Split Lake	GN-04	SPL-A	10-Sep-20	119946	900 226001031864	646	743	2100	10
Split Lake	GN-04	SPL-A	10-Sep-20	119947	900 226001031863	408	459	380	4
Split Lake	GN-04	SPL-A	10-Sep-20	119948	900 226001031859	443	506	530	4
Split Lake	GN-04	SPL-A	10-Sep-20	119949	900 226001055867	356	397	350	3

Table A2-1: Biological and tag information for Lake Sturgeon captured in the Upper Split Lake Area (Burntwood River and Split Lake), fall 2020. Red text indicates fish that did not survive sampling (continued).

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Split Lake	GN-04	SPL-A	10-Sep-20	-	900 067000058215	521	586	930	5
Burntwood River	GN-10	BWR-C	11-Sep-20	119950	900 226001055845	526	584	980	9
Burntwood River	GN-12	BWR-C	11-Sep-20	119975	900 226001031881	449	520	600	7
Burntwood River	GN-12	BWR-C	11-Sep-20	119974	900 043000192316	322	364	280	4
Burntwood River	GN-13	BWR-C	11-Sep-20	119973	900 043000192334	375	439	410	5
Burntwood River	GN-13	BWR-C	11-Sep-20	-	900 043000192330	221	249	110	1
Burntwood River	GN-15	BWR-B	11-Sep-20	119972	900 043000192340	354	410	270	4
Burntwood River	GN-15	BWR-B	12-Sep-20	119971	900 226001031808	341	389	250	4
Burntwood River	GN-15	BWR-B	12-Sep-20	119970	900 226001031860	322	369	230	4
Burntwood River	GN-12	BWR-C	12-Sep-20	119969	900 043000119578	454	505	530	7
Burntwood River	GN-12	BWR-C	12-Sep-20	119968	900 226001055815	455	513	600	7
Burntwood River	GN-12	BWR-C	12-Sep-20	119967	900 226001031826	419	474	440	5
Burntwood River	GN-12	BWR-C	12-Sep-20	119966	900 043000119879	414	456	500	7
Burntwood River	GN-12	BWR-C	12-Sep-20	119965	900 226001031801	399	461	470	5
Burntwood River	GN-12	BWR-C	12-Sep-20	119964	900 067000111318	336	383	290	3
Burntwood River	GN-10	BWR-C	12-Sep-20	119963	900 067000110099	339	390	230	3
Burntwood River	GN-10	BWR-C	12-Sep-20	119962	900 226001031843	446	515	590	5
Burntwood River	GN-16	BWR-C	12-Sep-20	119961	900 226001031802	626	706	1420	12
Split Lake	GN-23	SPL-A	13-Sep-20	116676	900 226000327787	742	843	3060	9
Split Lake	GN-23	SPL-A	13-Sep-20	119960	900 226001031818	619	700	1750	7
Split Lake	GN-23	SPL-A	13-Sep-20	119959	900 226001031804	613	689	1900	8
Split Lake	GN-23	SPL-A	13-Sep-20	119958	900 226001031827	793	894	3500	-
Split Lake	GN-23	SPL-A	13-Sep-20	119957	900 226001031811	634	718	1860	8
Split Lake	GN-23	SPL-A	13-Sep-20	119956	900 226001031880	490	558	880	5
Split Lake	GN-23	SPL-A	13-Sep-20	119955	900 226001031842	609	690	1750	7

Table A2-1: Biological and tag information for Lake Sturgeon captured in the Upper Split Lake Area (Burntwood River and Split Lake), fall 2020. Red text indicates fish that did not survive sampling (continued).

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Split Lake	GN-23	SPL-A	13-Sep-20	119954	900 226001031882	584	659	1280	5
Split Lake	GN-23	SPL-A	13-Sep-20	119953	900 226001031824	591	671	1850	7
Split Lake	GN-23	SPL-A	13-Sep-20	113541	900 226000153701	523	574	1030	7
Split Lake	GN-23	SPL-A	13-Sep-20	119952	900 226001031855	610	677	1620	7
Split Lake	GN-23	SPL-A	13-Sep-20	119951	900 226001031837	632	691	1710	7
Split Lake	GN-23	SPL-A	13-Sep-20	113536	900 226000153705	688	771	2000	9
Split Lake	GN-23	SPL-A	13-Sep-20	119976	900 226001055877	600	672	1580	7
Split Lake	GN-23	SPL-A	13-Sep-20	119977	900 226001031887	681	770	2350	9
Split Lake	GN-23	SPL-A	13-Sep-20	113799	900 226000327043	650	725	1870	7
Split Lake	GN-23	SPL-A	13-Sep-20	119978	900 226001055831	573	637	1340	7
Split Lake	GN-23	SPL-A	13-Sep-20	119979	900 226001055819	451	507	640	4
Split Lake	GN-23	SPL-A	13-Sep-20	119980	900 226001055885	401	451	360	3
Split Lake	GN-23	SPL-A	13-Sep-20	119981	900 226001055822	542	610	1070	6
Split Lake	GN-23	SPL-A	13-Sep-20	119982	900 226001055864	552	626	1110	7
Split Lake	GN-22	SPL-A	13-Sep-20	119983	900 226001055809	1034	1155	9050	-
Split Lake	GN-22	SPL-A	13-Sep-20	119984	900 226001055850	688	778	2440	17
Split Lake	GN-22	SPL-A	13-Sep-20	119985	900 226001055880	490	555	870	4
Split Lake	GN-20	SPL-A	13-Sep-20	119986	900 226001055847	545	618	1240	6
Split Lake	GN-20	SPL-A	13-Sep-20	119987	900 226001055824	822	918	3480	-
Split Lake	GN-20	SPL-A	13-Sep-20	119988	900 226001055869	594	666	1280	9
Split Lake	GN-19	SPL-A	13-Sep-20	119989	900 226001055882	362	408	280	4
Split Lake	GN-19	SPL-A	13-Sep-20	119990	900 226001055852	488	550	780	6
Split Lake	GN-19	SPL-A	13-Sep-20	119991	900 226001055820	448	516	550	7
Split Lake	GN-19	SPL-A	13-Sep-20	119992	900 226001055876	356	409	270	4
Split Lake	GN-19	SPL-A	13-Sep-20	119993	900 226001055861	444	499	510	5

Table A2-1: Biological and tag information for Lake Sturgeon captured in the Upper Split Lake Area (Burntwood River and Split Lake), fall 2020. Red text indicates fish that did not survive sampling (continued).

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Burntwood River	GN-18	BWR-C	13-Sep-20	119994	900 226001055894	506	584	950	8
Burntwood River	GN-18	BWR-C	13-Sep-20	119995	900 226001055835	350	403	270	4
Burntwood River	GN-18	BWR-C	13-Sep-20	119996	900 226001055872	386	435	340	4
Burntwood River	GN-18	BWR-C	13-Sep-20	-	900 067000108477	264	310	100	1
Burntwood River	GN-18	BWR-C	13-Sep-20	-	-	261	295	110	2
Split Lake	GN-23	SPL-A	14-Sep-20	119997	900 226001030923	584	656	1340	7
Split Lake	GN-23	SPL-A	14-Sep-20	119998	900 226001055865	597	675	1740	7
Split Lake	GN-23	SPL-A	14-Sep-20	119999	900 226001055899	634	710	2000	7
Split Lake	GN-23	SPL-A	14-Sep-20	120000	900 226001055897	587	635	1510	7
Split Lake	GN-23	SPL-A	14-Sep-20	119225	900 226001031821	625	700	1910	7
Split Lake	GN-23	SPL-A	14-Sep-20	119224	900 226001055881	626	720	1650	7
Split Lake	GN-23	SPL-A	14-Sep-20	119223	900 043000192359	650	731	1950	12
Split Lake	GN-23	SPL-A	14-Sep-20	119222	900 226001055860	654	733	1820	6
Split Lake	GN-23	SPL-A	14-Sep-20	119221	900 067000110344	391	448	370	3
Split Lake	GN-24	SPL-A	14-Sep-20	119220	900 226001055813	700	786	2350	9
Split Lake	GN-24	SPL-A	14-Sep-20	119219	900 226001055828	472	533	720	4
Split Lake	GN-24	SPL-A	14-Sep-20	119218	900 226001055854	404	455	460	-
Split Lake	GN-26	SPL-A	14-Sep-20	119216	900 043000119845	504	565	790	7
Split Lake	GN-26	SPL-A	14-Sep-20	119215	900 226001055806	354	395	290	3
Split Lake	GN-26	SPL-A	14-Sep-20	119213	900 067000110311	381	424	340	3
Split Lake	GN-26	SPL-A	14-Sep-20	119212	900 067000110479	361	414	320	3
Split Lake	GN-26	SPL-A	14-Sep-20	119211	900 043000192350	351	394	280	2
Split Lake	GN-26	SPL-A	14-Sep-20	119210	900 067000110780	368	417	290	3
Split Lake	GN-26	SPL-A	14-Sep-20	119209	900 043000192377	346	389	230	3
Split Lake	GN-26	SPL-A	14-Sep-20	119208	900 043000192311	301	350	210	2

Table A2-1: Biological and tag information for Lake Sturgeon captured in the Upper Split Lake Area (Burntwood River and Split Lake), fall 2020. Red text indicates fish that did not survive sampling (continued).

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Split Lake	GN-26	SPL-A	14-Sep-20	-	-	125	132	15	0
Split Lake	GN-27	SPL-A	14-Sep-20	119207	900 226001031838	490	565	760	6
Split Lake	GN-19	SPL-A	14-Sep-20	119206	900 226001055826	345	390	230	3
Split Lake	GN-19	SPL-A	14-Sep-20	-	900 043000192327	234	267	100	3
Burntwood River	GN-18	BWR-C	14-Sep-20	119205	900 043000192392	305	341	150	3
Split Lake	GN-28	SPL-A	15-Sep-20	119204	900 226001055848	695	779	2630	9
Split Lake	GN-28	SPL-A	15-Sep-20	119203	900 226001055837	844	947	4210	-
Split Lake	GN-28	SPL-A	15-Sep-20	119202	900 226001055810	648	724	2160	7
Split Lake	GN-28	SPL-A	15-Sep-20	119250	900 226001055801	871	982	5310	-
Split Lake	GN-28	SPL-A	15-Sep-20	116641	900 226000327465	608	676	1520	7
Split Lake	GN-28	SPL-A	15-Sep-20	119249	900 226001055892	770	868	2980	-
Split Lake	GN-28	SPL-A	15-Sep-20	119248	900 226001055827	709	797	2610	9
Split Lake	GN-28	SPL-A	15-Sep-20	119247	900 226001055844	583	658	1330	7
Split Lake	GN-28	SPL-A	15-Sep-20	119246	900 226001055879	723	829	2730	-
Split Lake	GN-28	SPL-A	15-Sep-20	119245	900 226001055841	363	408	310	4
Split Lake	GN-28	SPL-A	15-Sep-20	119244	900 226001055834	452	515	620	4
Split Lake	GN-28	SPL-A	15-Sep-20	119243	900 067000110709	352	403	290	3
Split Lake	GN-29	SPL-A	15-Sep-20	119242	900 226001055812	909	1010	6300	-
Split Lake	GN-29	SPL-A	15-Sep-20	119241	900 226001055858	872	956	5760	-
Split Lake	GN-26	SPL-A	15-Sep-20	119240	900 226001055817	526	608	950	7
Split Lake	GN-26	SPL-A	15-Sep-20	119239	900 226001055832	452	510	600	5
Split Lake	GN-26	SPL-A	15-Sep-20	116624	900 067000109957	366	424	320	3
Split Lake	GN-26	SPL-A	15-Sep-20	119238	900 067000111818	359	410	280	3
Split Lake	GN-26	SPL-A	15-Sep-20	119237	900 226001055870	375	428	320	4
Split Lake	GN-26	SPL-A	15-Sep-20	119236	900 067000110456	314	354	220	3

Table A2-1: Biological and tag information for Lake Sturgeon captured in the Upper Split Lake Area (Burntwood River and Split Lake), fall 2020. Red text indicates fish that did not survive sampling (continued).

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Split Lake	GN-30	SPL-A	15-Sep-20	119233	900 226001055816	513	575	970	7
Split Lake	GN-30	SPL-A	15-Sep-20	119232	900 226001055833	452	511	560	7
Split Lake	GN-30	SPL-A	15-Sep-20	119231	900 226001055804	395	452	360	4
Split Lake	GN-30	SPL-A	15-Sep-20	119230	900 226001055896	354	403	250	4
Split Lake	GN-30	SPL-A	15-Sep-20	-	900 043000192372	280	316	110	3
Burntwood River	GN-34	BWR-C	16-Sep-20	119229	900 226001055889	781	886	3190	-
Burntwood River	GN-34	BWR-C	16-Sep-20	119227	900 043000103164	428	484	540	7
Burntwood River	GN-34	BWR-C	16-Sep-20	119226	900 226001055866	368	418	410	3
Burntwood River	GN-33	BWR-C	16-Sep-20	119150	900 043000119848	469	541	690	7
Burntwood River	GN-33	BWR-C	16-Sep-20	119149	900 067000109967	338	385	270	3
Burntwood River	GN-33	BWR-C	16-Sep-20	119148	900 226001055871	458	513	650	4
Burntwood River	GN-33	BWR-C	16-Sep-20	119147	900 226001031832	392	442	410	-
Burntwood River	GN-34	BWR-C	17-Sep-20	119146	900 226001055862	362	413	320	3
Burntwood River	GN-38	BWR-B	17-Sep-20	-	900 043000192352	252	295	110	2
Burntwood River	GN-34	BWR-C	18-Sep-20	119145	900 226001031810	433	470	560	7
Burntwood River	GN-41	BWR-C	18-Sep-20	119144	900 226001031835	752	843	3380	-
Burntwood River	GN-42	BWR-C	18-Sep-20	119143	900 226001031886	502	566	880	7
Burntwood River	GN-42	BWR-C	18-Sep-20	119142	900 226001055874	328	371	250	4

Table A2-2: Biological and tag information for Lake Sturgeon captured in the Keeyask reservoir, fall 2020. Red text indicates fish that did not survive sampling.

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Keeyask Reservoir	GN-01	GL-C	17-Sep-20	93864	900 226001658877	760	854	3450	11
Keeyask Reservoir	GN-01	GL-C	17-Sep-20	118001	900 226001658756	641	728	1750	7
Keeyask Reservoir	GN-01	GL-C	17-Sep-20	103113	900 226001658760	799	880	3800	-
Keeyask Reservoir	GN-01	GL-C	17-Sep-20	118002	900 226001658799	544	615	1000	5
Keeyask Reservoir	GN-01	GL-C	17-Sep-20	118003	900 226001658780	592	672	1475	7
Keeyask Reservoir	GN-01	GL-C	17-Sep-20	118004	900 226001658874	607	677	1650	7
Keeyask Reservoir	GN-01	GL-C	17-Sep-20	118005	900 226001658902	523	595	775	6
Keeyask Reservoir	GN-02	GL-C	17-Sep-20	118006	900 067000113767	396	449	325	2
Keeyask Reservoir	GN-02	GL-C	17-Sep-20	118007	900 067000112891	371	427	275	2
Keeyask Reservoir	GN-03	GL-C	17-Sep-20	113162	900 226000327544	361	410	350	4
Keeyask Reservoir	GN-03	GL-C	17-Sep-20	118008	900 226001658784	357	403	300	3
Keeyask Reservoir	GN-03	GL-C	17-Sep-20	-	-	653	767	2300	12
Keeyask Reservoir	GN-04	GL-C	17-Sep-20	118886	900 067000109342	380	436	250	2
Keeyask Reservoir	GN-04	GL-C	17-Sep-20	106454	900 226000767412	632	724	1700	9
Keeyask Reservoir	GN-04	GL-C	17-Sep-20	118887	900 226001055089	504	577	800	5
Keeyask Reservoir	GN-04	GL-C	17-Sep-20	118888	900 226001658018	407	462	450	4
Keeyask Reservoir	GN-04	GL-C	17-Sep-20	118889	900 226001055016	365	414	275	3
Keeyask Reservoir	GN-04	GL-C	17-Sep-20	118890	900 226001055012	645	735	1800	9
Keeyask Reservoir	GN-04	GL-C	17-Sep-20	118891	900 067000109292	340	397	225	2
Keeyask Reservoir	GN-04	GL-C	17-Sep-20	118892	900 226001055053	418	478	400	4
Keeyask Reservoir	GN-04	GL-C	17-Sep-20	118893	900 226001055026	558	620	1200	7
Keeyask Reservoir	GN-04	GL-C	17-Sep-20	118894	900 226001055093	420	477	500	4
Keeyask Reservoir	GN-04	GL-C	17-Sep-20	118895	900 067000112548	460	529	675	4
Keeyask Reservoir	GN-04	GL-C	17-Sep-20	118896	900 226001055010	600	690	1150	6
Keeyask Reservoir	GN-04	GL-C	17-Sep-20	118897	900 226001055079	650	710	2000	10

Table A2-2: Biological and tag information for Lake Sturgeon captured in the Keeyask reservoir, fall 2020. Red text indicates fish that did not survive sampling (continued).

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Keeyask Reservoir	GN-05	GL-B	17-Sep-20	118009	900 067000059347	471	535	575	4
Keeyask Reservoir	GN-05	GL-B	17-Sep-20	117130	900 226001031109	489	564	625	6
Keeyask Reservoir	GN-05	GL-B	17-Sep-20	118010	900 226001658826	397	467	375	4
Keeyask Reservoir	GN-05	GL-B	17-Sep-20	118011	900 226001658810	508	573	825	7
Keeyask Reservoir	GN-05	GL-B	17-Sep-20	118012	900 226001658823	399	457	400	4
Keeyask Reservoir	GN-05	GL-B	17-Sep-20	118013	900 226001658978	455	527	600	5
Keeyask Reservoir	GN-05	GL-B	17-Sep-20	116781	900 226001031181	413	474	400	4
Keeyask Reservoir	GN-06	GL-B	17-Sep-20	118014	900 067000058475	504	586	725	6
Keeyask Reservoir	GN-06	GL-B	17-Sep-20	118015	900 067000055470	501	593	725	6
Keeyask Reservoir	GN-06	GL-B	17-Sep-20	118016	900 226001658990	494	572	900	7
Keeyask Reservoir	GN-06	GL-B	17-Sep-20	118017	900 226001658991	402	466	425	4
Keeyask Reservoir	GN-06	GL-B	17-Sep-20	118018	900 226001658847	442	507	650	4
Keeyask Reservoir	GN-06	GL-B	17-Sep-20	118019	900 226001658948	394	450	325	4
Keeyask Reservoir	GN-01	GL-C	18-Sep-20	118020	900 067000109309	402	462	400	2
Keeyask Reservoir	GN-02	GL-C	18-Sep-20	118021	900 067000113739	351	406	250	2
Keeyask Reservoir	GN-02	GL-C	18-Sep-20	118022	900 226001658930	803	904	3675	-
Keeyask Reservoir	GN-07	GL-B	18-Sep-20	118023	900 226001658837	520	580	925	7
Keeyask Reservoir	GN-07	GL-B	18-Sep-20	118024	900 226001658831	373	426	300	3
Keeyask Reservoir	GN-07	GL-B	18-Sep-20	118025	900 226001658886	530	600	1000	7
Keeyask Reservoir	GN-07	GL-B	18-Sep-20	118026	900 226001658833	430	512	475	4
Keeyask Reservoir	GN-07	GL-B	18-Sep-20	118027	900 226000893628	529	616	950	7
Keeyask Reservoir	GN-06	GL-B	18-Sep-20	118028	900 067000058450	499	570	575	6
Keeyask Reservoir	GN-06	GL-B	18-Sep-20	118029	900 226001658848	743	823	3025	12
Keeyask Reservoir	GN-06	GL-B	18-Sep-20	118030	900 226001658835	440	491	495	4
Keeyask Reservoir	GN-06	GL-B	18-Sep-20	118031	900 226001658858	750	864	3050	14

Table A2-2: Biological and tag information for Lake Sturgeon captured in the Keeyask reservoir, fall 2020. Red text indicates fish that did not survive sampling (continued).

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Keeyask Reservoir	GN-06	GL-B	18-Sep-20	118032	900 226001658860	790	880	4425	16
Keeyask Reservoir	GN-06	GL-B	18-Sep-20	118033	900 226001658843	380	441	400	3
Keeyask Reservoir	GN-06	GL-B	18-Sep-20	118034	900 226001658942	442	501	575	4
Keeyask Reservoir	GN-04B	GL-C	18-Sep-20	-	900 067000121447	215	240	75	1
Keeyask Reservoir	GN-04B	GL-C	18-Sep-20	-	900 067000121216	219	245	75	1
Keeyask Reservoir	GN-04B	GL-C	18-Sep-20	118035	900 067000059436	431	500	525	4
Keeyask Reservoir	GN-04B	GL-C	18-Sep-20	118037	900 067000113003	364	410	300	2
Keeyask Reservoir	GN-04B	GL-C	18-Sep-20	118038	900 226001658884	660	747	2025	8
Keeyask Reservoir	GN-08	GL-A	19-Sep-20	118039	900 226001658934	514	579	875	6
Keeyask Reservoir	GN-07	GL-B	19-Sep-20	118040	900 226001658782	410	465	450	4
Keeyask Reservoir	GN-07	GL-B	19-Sep-20	118041	900 226001658817	450	510	550	4
Keeyask Reservoir	GN-07	GL-B	19-Sep-20	118042	900 067000112339	430	495	500	4
Keeyask Reservoir	GN-07	GL-B	19-Sep-20	118043	900 226001658805	420	478	475	4
Keeyask Reservoir	GN-07	GL-B	19-Sep-20	118044	900 226001658840	500	576	900	6
Keeyask Reservoir	GN-07	GL-B	19-Sep-20	118045	900 226001658918	390	450	375	4
Keeyask Reservoir	GN-06	GL-B	19-Sep-20	118046	900 226001658995	303	336	150	2
Keeyask Reservoir	GN-06	GL-B	19-Sep-20	118047	900 226001658871	400	457	425	4
Keeyask Reservoir	GN-06	GL-B	19-Sep-20	118048	900 226001658941	800	916	4200	-
Keeyask Reservoir	GN-10	GL-C	19-Sep-20	118049	900 067000059312	423	480	500	4
Keeyask Reservoir	GN-10	GL-C	19-Sep-20	118050	900 226001658921	322	361	250	3
Keeyask Reservoir	GN-10	GL-C	19-Sep-20	118075	900 226001658753	510	590	1000	6
Keeyask Reservoir	GN-10	GL-C	19-Sep-20	118074	900 226001658814	496	570	975	5
Keeyask Reservoir	GN-10	GL-C	19-Sep-20	118073	900 226001658943	612	685	1700	7
Keeyask Reservoir	GN-10	GL-C	19-Sep-20	89674	900 226001658968	767	880	3850	12
Keeyask Reservoir	GN-10	GL-C	19-Sep-20	89655	900 226001658822	730	822	3050	12

Table A2-2: Biological and tag information for Lake Sturgeon captured in the Keeyask reservoir, fall 2020. Red text indicates fish that did not survive sampling (continued).

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Keeyask Reservoir	GN-11	GL-C	19-Sep-20	118071	900 067000113002	397	460	375	2
Keeyask Reservoir	GN-11	GL-C	19-Sep-20	118070	900 067000113720	389	446	350	2
Keeyask Reservoir	GN-11	GL-C	19-Sep-20	118069	900 067000113244	360	415	250	2
Keeyask Reservoir	GN-12	BR-D	20-Sep-20	118068	900 226001658923	450	510	550	4
Keeyask Reservoir	GN-08	GL-A	20-Sep-20	118066	900 226001658759	499	570	750	6
Keeyask Reservoir	GN-08	GL-A	20-Sep-20	118065	900 226001658963	545	631	1150	7
Keeyask Reservoir	GN-08	GL-A	20-Sep-20	118064	900 226001658834	766	885	2600	12
Keeyask Reservoir	GN-07	GL-B	20-Sep-20	118063	900 226001658872	431	492	500	4
Keeyask Reservoir	GN-07	GL-B	20-Sep-20	118062	900 043000103881	645	726	1700	12
Keeyask Reservoir	GN-07	GL-B	20-Sep-20	118061	900 226001658870	632	714	1900	11
Keeyask Reservoir	GN-07	GL-B	20-Sep-20	118060	900 226001658812	690	775	2600	12
Keeyask Reservoir	GN-06	GL-B	20-Sep-20	116830	900 067000109619	385	438	250	2
Keeyask Reservoir	GN-06	GL-B	20-Sep-20	118059	900 226001658876	480	544	600	6
Keeyask Reservoir	GN-06	GL-B	20-Sep-20	118058	900 226001658954	558	625	1250	7
Keeyask Reservoir	GN-06	GL-B	20-Sep-20	117122	900 226001031249	560	635	1200	6
Keeyask Reservoir	GN-10	GL-C	20-Sep-20	118055	900 226001658890	547	635	1150	7
Keeyask Reservoir	GN-10	GL-C	20-Sep-20	118054	900 226001658838	419	473	475	4
Keeyask Reservoir	GN-10	GL-C	20-Sep-20	118051	900 067000112519	456	526	650	4
Keeyask Reservoir	GN-10	GL-C	20-Sep-20	118056	900 226001658985	349	394	225	3
Keeyask Reservoir	GN-10	GL-C	20-Sep-20	-	900 043000103655	229	260	75	1
Keeyask Reservoir	GN-11	GL-C	20-Sep-20	118052	900 226001658752	520	596	900	5
Keeyask Reservoir	GN-11	GL-C	20-Sep-20	118053	900 067000121302	450	514	650	4
Keeyask Reservoir	GN-11	GL-C	20-Sep-20	118076	900 226001658786	390	441	450	3
Keeyask Reservoir	GN-11	GL-C	20-Sep-20	118077	900 226001658946	417	480	500	4
Keeyask Reservoir	GN-11	GL-C	20-Sep-20	-	972 273000041194	222	255	50	1

Table A2-2: Biological and tag information for Lake Sturgeon captured in the Keeyask reservoir, fall 2020. Red text indicates fish that did not survive sampling (continued).

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Keeyask Reservoir	GN-13	BR-D	21-Sep-20	405	989 001038119641	415	472	475	4
Keeyask Reservoir	GN-13	BR-D	21-Sep-20	118078	900 226001658999	416	480	500	4
Keeyask Reservoir	GN-13	BR-D	21-Sep-20	118079	900 226001658765	418	483	475	4
Keeyask Reservoir	GN-14	GL-A	21-Sep-20	118080	900 226001658972	527	600	1025	7
Keeyask Reservoir	GN-14	GL-A	21-Sep-20	118081	900 226001658851	525	595	1300	7
Keeyask Reservoir	GN-15	GL-B	21-Sep-20	118083	900 226001658901	467	543	550	5
Keeyask Reservoir	GN-15	GL-B	21-Sep-20	118084	900 067000059393	440	505	500	4
Keeyask Reservoir	GN-15	GL-B	21-Sep-20	118085	900 226001658966	547	620	1100	7
Keeyask Reservoir	GN-15	GL-B	21-Sep-20	118086	900 226001658789	480	552	650	4
Keeyask Reservoir	GN-15	GL-B	21-Sep-20	118088	900 226001658750	605	682	1725	8
Keeyask Reservoir	GN-15	GL-B	21-Sep-20	118089	900 226001658904	695	791	2300	12
Keeyask Reservoir	GN-15	GL-B	21-Sep-20	118090	900 226001658855	677	763	2450	12
Keeyask Reservoir	GN-15	GL-B	21-Sep-20	118091	900 226001658839	495	564	850	6
Keeyask Reservoir	GN-15	GL-B	21-Sep-20	118092	900 226001658939	510	573	1000	7
Keeyask Reservoir	GN-15	GL-B	21-Sep-20	116768	900 226001031267	533	615	1000	7
Keeyask Reservoir	GN-15	GL-B	21-Sep-20	116770	900 226001031179	389	445	450	4
Keeyask Reservoir	GN-16	GL-B	21-Sep-20	118093	900 226001658927	690	792	2350	12
Keeyask Reservoir	GN-16	GL-B	21-Sep-20	118094	900 226001658909	544	612	1300	7
Keeyask Reservoir	GN-16	GL-B	21-Sep-20	118095	900 226001658827	595	670	1225	9
Keeyask Reservoir	GN-16	GL-B	21-Sep-20	79425	900 226000154259	672	770	2400	11
Keeyask Reservoir	GN-16	GL-B	21-Sep-20	113003	900 226000327527	486	562	700	6
Keeyask Reservoir	GN-10	GL-C	21-Sep-20	113165	900 226000327551	665	750	2250	9
Keeyask Reservoir	GN-10	GL-C	21-Sep-20	118096	900 067000055192	573	646	1175	6
Keeyask Reservoir	GN-10	GL-C	21-Sep-20	118097	900 226001658865	414	461	450	5
Keeyask Reservoir	GN-10	GL-C	21-Sep-20	118098	900 226001658757	436	496	550	4

Table A2-2: Biological and tag information for Lake Sturgeon captured in the Keeyask reservoir, fall 2020. Red text indicates fish that did not survive sampling (continued).

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Keeyask Reservoir	GN-10	GL-C	21-Sep-20	118099	900 067000113064	337	390	225	2
Keeyask Reservoir	GN-10	GL-C	21-Sep-20	-	900 067000121328	216	241	50	1
Keeyask Reservoir	GN-17	GL-C	21-Sep-20	-	-	104	113	6	0
Keeyask Reservoir	GN-17	GL-C	21-Sep-20	118100	900 226001658882	424	593	1025	6
Keeyask Reservoir	GN-17	GL-C	21-Sep-20	113167	900 226000327532	486	546	1350	5
Keeyask Reservoir	GN-17	GL-C	21-Sep-20	118072	900 043000119864	533	560	1075	7
Keeyask Reservoir	GN-17	GL-C	21-Sep-20	118067	900 226001658945	599	678	1300	8
Keeyask Reservoir	GN-17	GL-C	21-Sep-20	118301	900 226001658824	421	473	500	4
Keeyask Reservoir	GN-17	GL-C	21-Sep-20	118302	900 226001658958	450	507	600	4
Keeyask Reservoir	GN-17	GL-C	21-Sep-20	118303	900 226001658961	415	467	475	4
Keeyask Reservoir	GN-18	BR-D	22-Sep-20	118304	900 226001658772	700	792	2375	9
Keeyask Reservoir	GN-18	BR-D	22-Sep-20	118305	900 226001658856	770	867	3350	12
Keeyask Reservoir	GN-18	BR-D	22-Sep-20	244	989 001038119792	761	872	2900	12
Keeyask Reservoir	GN-18	BR-D	22-Sep-20	118306	900 226001658936	401	457	450	4
Keeyask Reservoir	GN-18	BR-D	22-Sep-20	118307	900 226001658982	442	493	575	4
Keeyask Reservoir	GN-18	BR-D	22-Sep-20	117068	900 226001031183	447	516	600	4
Keeyask Reservoir	GN-15	GL-B	22-Sep-20	118309	900 067000055431	516	594	825	6
Keeyask Reservoir	GN-15	GL-B	22-Sep-20	118310	900 226001658854	400	454	400	4
Keeyask Reservoir	GN-15	GL-B	22-Sep-20	118311	900 067000111917	471	541	625	4
Keeyask Reservoir	GN-15	GL-B	22-Sep-20	887837	900 067000055102	528	610	850	6
Keeyask Reservoir	GN-15	GL-B	22-Sep-20	116825	900 226001031220	498	566	725	6
Keeyask Reservoir	GN-15	GL-B	22-Sep-20	118312	900 226001658986	860	980	5300	-
Keeyask Reservoir	GN-15	GL-B	22-Sep-20	118313	900 226001658906	789	902	3350	12
Keeyask Reservoir	GN-16	GL-B	22-Sep-20	118314	900 226001658889	560	641	1150	7
Keeyask Reservoir	GN-20	GL-C	22-Sep-20	118315	900 067000059257	428	480	550	4

Table A2-2: Biological and tag information for Lake Sturgeon captured in the Keeyask reservoir, fall 2020. Red text indicates fish that did not survive sampling (continued).

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Keeyask Reservoir	GN-20	GL-C	22-Sep-20	118316	900 226001658852	415	465	475	4
Keeyask Reservoir	GN-17	GL-C	22-Sep-20	118317	900 226001658783	435	497	600	4
Keeyask Reservoir	GN-17	GL-C	22-Sep-20	118318	900 226001658998	500	572	800	5
Keeyask Reservoir	GN-17	GL-C	22-Sep-20	117008	900 226001031111	350	390	250	3
Keeyask Reservoir	GN-18	BR-D	23-Sep-20	118319	900 226001658933	406	462	425	4
Keeyask Reservoir	GN-21	GL-A	23-Sep-20	118320	900 226001658887	525	601	1000	6
Keeyask Reservoir	GN-21	GL-A	23-Sep-20	118321	900 226001658777	430	502	525	4
Keeyask Reservoir	GN-22	GL-B	23-Sep-20	118322	900 226001031253	511	583	975	7
Keeyask Reservoir	GN-22	GL-B	23-Sep-20	118323	900 226001658997	613	697	1425	8
Keeyask Reservoir	GN-22	GL-B	23-Sep-20	118324	900 226001658955	385	432	375	4
Keeyask Reservoir	GN-23	GL-B	23-Sep-20	118325	900 067000112897	358	417	225	2
Keeyask Reservoir	GN-23	GL-B	23-Sep-20	118326	900 226001658761	427	485	525	4
Keeyask Reservoir	GN-24	GL-C	23-Sep-20	118327	900 226001658919	711	807	2700	9
Keeyask Reservoir	GN-25	GL-C	23-Sep-20	118328	900 226001658790	430	500	525	4
Keeyask Reservoir	GN-25	GL-C	23-Sep-20	118329	900 226001658868	540	611	1200	7
Keeyask Reservoir	GN-25	GL-C	23-Sep-20	113019	900 226000327533	419	476	500	4
Keeyask Reservoir	GN-25	GL-C	23-Sep-20	117106	900 226001031164	425	500	525	5
Keeyask Reservoir	GN-28	GL-B	24-Sep-20	118330	900 226001658788	537	617	1225	7
Keeyask Reservoir	GN-28	GL-B	24-Sep-20	118331	900 226001658794	375	428	375	3
Keeyask Reservoir	GN-28	GL-B	24-Sep-20	109569	900 226000893788	465	537	650	5
Keeyask Reservoir	GN-28	GL-B	24-Sep-20	118332	900 226001658937	421	483	550	4
Keeyask Reservoir	GN-28	GL-B	24-Sep-20	118333	900 226001658793	434	490	575	4
Keeyask Reservoir	GN-28	GL-B	24-Sep-20	118334	900 226001658861	504	580	750	6
Keeyask Reservoir	GN-29	GL-B	24-Sep-20	118335	900 226001658881	418	467	450	4
Keeyask Reservoir	GN-29	GL-B	24-Sep-20	118336	900 226001658776	625	734	1850	8

Table A2-2: Biological and tag information for Lake Sturgeon captured in the Keeyask reservoir, fall 2020. Red text indicates fish that did not survive sampling (continued).

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Keeyask Reservoir	GN-29	GL-B	24-Sep-20	118337	900 226001658922	448	507	550	4
Keeyask Reservoir	GN-29	GL-B	24-Sep-20	118338	900 067000112169	430	493	500	4
Keeyask Reservoir	GN-29	GL-B	24-Sep-20	118339	900 067000113266	348	401	200	2
Keeyask Reservoir	GN-29	GL-B	24-Sep-20	118340	900 226001658763	403	457	450	4
Keeyask Reservoir	GN-29	GL-B	24-Sep-20	118341	900 226001658767	415	474	525	4
Keeyask Reservoir	GN-29	GL-B	24-Sep-20	118342	900 226001658849	397	438	425	4
Keeyask Reservoir	GN-30	GL-C	24-Sep-20	118343	900 226001658778	811	882	3524	12
Keeyask Reservoir	GN-30	GL-C	24-Sep-20	118344	900 067000059554	422	472	500	4
Keeyask Reservoir	GN-31	GL-C	24-Sep-20	118345	900 226001658987	380	424	375	3
Keeyask Reservoir	GN-31	GL-C	24-Sep-20	118346	900 067000112881	357	404	250	2
Keeyask Reservoir	GN-33	GL-A	25-Sep-20	97334	900 226000548842	820	925	4100	15
Keeyask Reservoir	GN-33	GL-A	25-Sep-20	118347	900 226001658766	747	845	3200	12
Keeyask Reservoir	GN-34	GL-B	25-Sep-20	118349	900 226001658806	728	827	2600	12
Keeyask Reservoir	GN-34	GL-B	25-Sep-20	118350	901 226001658801	742	841	2800	12
Keeyask Reservoir	GN-34	GL-B	25-Sep-20	118348	900 226001658857	418	477	450	4
Keeyask Reservoir	GN-35	GL-B	25-Sep-20	118626	900 226001658924	744	824	3350	12
Keeyask Reservoir	GN-35	GL-B	25-Sep-20	118627	900 226001658914	432	483	600	4
Keeyask Reservoir	GN-35	GL-B	25-Sep-20	113016	900 226000327568	423	467	500	5
Keeyask Reservoir	GN-36	GL-C	25-Sep-20	118628	900 226001658895	528	590	950	7
Keeyask Reservoir	GN-36	GL-C	25-Sep-20	118629	900 226001658894	499	591	750	6
Keeyask Reservoir	GN-36	GL-C	25-Sep-20	118630	900 226001658846	416	465	425	4
Keeyask Reservoir	GN-36	GL-C	25-Sep-20	118631	900 226001658900	425	486	500	4
Keeyask Reservoir	GN-36	GL-C	25-Sep-20	118632	900 226001658825	451	508	550	4
Keeyask Reservoir	GN-37	GL-C	25-Sep-20	118633	900 226001658940	421	484	500	3
Keeyask Reservoir	GN-37	GL-C	25-Sep-20	118634	900 226001658796	461	515	625	4

Table A2-2: Biological and tag information for Lake Sturgeon captured in the Keeyask reservoir, fall 2020. Red text indicates fish that did not survive sampling (continued).

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Keeyask Reservoir	GN-37	GL-C	25-Sep-20	118635	900 226001658792	420	488	975	5
Keeyask Reservoir	GN-37	GL-C	25-Sep-20	118636	900 067000108671	385	417	300	2
Keeyask Reservoir	GN-37	GL-C	25-Sep-20	118637	900 226001658976	362	417	325	3
Keeyask Reservoir	GN-37	GL-C	25-Sep-20	118638	900 067000113692	357	404	250	2
Keeyask Reservoir	GN-37	GL-C	25-Sep-20	118639	900 226001658811	420	478	475	4
Keeyask Reservoir	GL-B	GN-32	19-Sep-19	117128	900 067000113012	297	343	100	1
Keeyask Reservoir	GL-B	GN-32	19-Sep-19	117129	900 067000112099	389	440	300	3
Keeyask Reservoir	GL-B	GN-32	19-Sep-19	117130	900 226001031109	453	520	450	5
Keeyask Reservoir	GL-B	GN-32	19-Sep-19	117131	900 226001031105	448	518	500	5
Keeyask Reservoir	GL-B	GN-32	19-Sep-19	117132	900 067000055156	480	555	650	5
Keeyask Reservoir	GL-B	GN-32	19-Sep-19	117133	900 067000058546	480	555	600	5
Keeyask Reservoir	GL-B	GN-32	19-Sep-19	117134	900 226001031128	658	-	1950	11
Keeyask Reservoir	GL-C	GN-34	19-Sep-19	117135	900 067000107911	310	351	100	1
Keeyask Reservoir	GL-C	GN-34	19-Sep-19	117136	900 226001031166	372	424	400	3
Keeyask Reservoir	GL-C	GN-34	19-Sep-19	117137	900 226001031123	785	890	3700	-
Keeyask Reservoir	GL-C	GN-33	19-Sep-19	117138	900 067000113685	345	394	150	1
Keeyask Reservoir	GL-C	GN-33	19-Sep-19	117139	900 226001031279	495	555	600	5
Keeyask Reservoir	GL-A	GN-36	20-Sep-19	117140	900 226001031271	451	518	450	5
Keeyask Reservoir	GL-A	GN-36	20-Sep-19	117141	900 226001031186	540	618	950	5
Keeyask Reservoir	GL-A	GN-35	20-Sep-19	117142	900 067000058522	460	531	500	5
Keeyask Reservoir	GL-A	GN-35	20-Sep-19	117143	900 226001031187	780	878	3400	11
Keeyask Reservoir	GL-B	GN-37	20-Sep-19	117144	900 226001031193	347	402	200	3
Keeyask Reservoir	GL-B	GN-37	20-Sep-19	117145	900 067000055691	502	585	700	5
Keeyask Reservoir	GL-B	GN-37	20-Sep-19	117146	900 067000055755	420	478	400	5
Keeyask Reservoir	GL-B	GN-37	20-Sep-19	117147	900 226001031100	655	743	2250	11

Table A2-2: Biological and tag information for Lake Sturgeon captured in the Keeyask reservoir, fall 2020. Red text indicates fish that did not survive sampling (continued).

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Keeyask Reservoir	GL-B	GN-38	20-Sep-19	117148	900 067000113049	280	330	125	1
Keeyask Reservoir	GL-B	GN-38	20-Sep-19	117149	900 067000059461	380	438	400	3
Keeyask Reservoir	GL-B	GN-38	20-Sep-19	117150	900 067000111902	390	453	400	3
Keeyask Reservoir	GL-B	GN-38	20-Sep-19	117001	900 226001031182	330	375	250	3
Keeyask Reservoir	GL-B	GN-38	20-Sep-19	117002	900 226001031135	345	399	300	3
Keeyask Reservoir	GL-B	GN-38	20-Sep-19	117003	900 226001031119	370	420	300	3
Keeyask Reservoir	GL-B	GN-38	20-Sep-19	117004	900 226001031185	360	424	325	3
Keeyask Reservoir	GL-B	GN-38	20-Sep-19	117005	900 226001031144	484	548	700	6
Keeyask Reservoir	GL-B	GN-38	20-Sep-19	117006	900 226001031149	540	631	1025	6
Keeyask Reservoir	GL-C	GN-39	20-Sep-19	117007	900 067000113724	320	368	-	1
Keeyask Reservoir	GL-C	GN-39	20-Sep-19	117008	900 226001031111	285	313	100	2
Keeyask Reservoir	GL-C	GN-39	20-Sep-19	117009	900 226001031240	688	770	2300	11
Keeyask Reservoir	GL-C	GN-39	20-Sep-19	79415	900 226000893260	823	910	3800	-
Keeyask Reservoir	GL-C	GN-34	20-Sep-19	113021	900 226000327576	369	419	300	3
Keeyask Reservoir	GL-C	GN-34	20-Sep-19	117011	900 067000113693	297	347	250	1

Table A2-3: Biological and tag information for Lake Sturgeon captured in Stephens Lake, fall 2020. Red text indicates fish that did not survive sampling.

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Stephens Lake	STL-B	GN-003	17-Sep-20	118876	900 226001658069	430	490	450	-
Stephens Lake	STL-B	GN-003	17-Sep-20	118877	900 226001658186	397	434	275	3
Stephens Lake	STL-B	GN-003	17-Sep-20	118878	900 067000113394	377	441	300	2
Stephens Lake	STL-B	GN-002	17-Sep-20	113299	900 226000327930	465	540	550	5
Stephens Lake	STL-B	GN-002	17-Sep-20	117585	900 226000767206	417	476	375	4
Stephens Lake	STL-A	GN-004	17-Sep-20	118879	900 067000109651	372	430	250	2
Stephens Lake	STL-A	GN-004	17-Sep-20	118881	900 226001055087	418	480	550	4
Stephens Lake	STL-B	GN-005	17-Sep-20	118882	900 067000113447	377	427	300	2
Stephens Lake	STL-B	GN-005	17-Sep-20	118883	900 067000109284	360	420	300	2
Stephens Lake	STL-B	GN-005	17-Sep-20	116024	900 067000121286	380	430	300	3
Stephens Lake	STL-B	GN-005	17-Sep-20	110332	900 226000768822	559	628	1300	7
Stephens Lake	STL-B	GN-005	17-Sep-20	118884	900 226001658202	522	600	1050	5
Stephens Lake	STL-B	GN-006	17-Sep-20	115843	900 226000768940	928	1064	5750	12
Stephens Lake	STL-B	GN-006	17-Sep-20	118885	900 067000058469	580	666	1300	6
Stephens Lake	STL-B	GN-008	18-Sep-20	117671	900 067000109666	357	410	200	2
Stephens Lake	STL-B	GN-009	18-Sep-20	116056	900 067000109332	357	410	275	2
Stephens Lake	STL-B	GN-010	18-Sep-20	118898	900 067000113231	330	380	200	2
Stephens Lake	STL-B	GN-010	18-Sep-20	116040	900 067000109581	365	420	300	2
Stephens Lake	STL-B	GN-010	18-Sep-20	111062	900 226000154242	484	555	825	5
Stephens Lake	STL-B	GN-011	18-Sep-20	118899	900 226001055099	438	500	600	4
Stephens Lake	STL-B	GN-012	18-Sep-20	118900	900 226001055009	653	745	1850	7
Stephens Lake	STL-B	GN-012	18-Sep-20	86140	900 226000893314	980	1008	7100	20
Stephens Lake	STL-B	GN-013	19-Sep-20	-	-	97	115	4	0
Stephens Lake	STL-B	GN-013	19-Sep-20	116587	900 043000103528	507	578	825	7

Table A2-3: Biological and tag information for Lake Sturgeon captured in Stephens Lake, fall 2020. Red text indicates fish that did not survive sampling (continued).

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Stephens Lake	STL-B	GN-015	19-Sep-20	116012	900 067000108610	368	422	300	2
Stephens Lake	STL-B	GN-015	19-Sep-20	88492	900 226000629276	800	904	3400	12
Stephens Lake	STL-B	GN-015	19-Sep-20	118875	900 226001055021	535	600	1100	5
Stephens Lake	STL-B	GN-016	19-Sep-20	118874	900 067000113414	380	437	325	2
Stephens Lake	STL-B	GN-018	19-Sep-20	68671	900 226001055098	777	883	3600	-
Stephens Lake	STL-B	GN-018	19-Sep-20	118873	900 067000055260	555	637	1175	6
Stephens Lake	STL-B	GN-019	20-Sep-20	118872	900 067000056732	415	480	475	4
Stephens Lake	STL-B	GN-020	20-Sep-20	116007	900 067000055209	583	675	1400	6
Stephens Lake	STL-B	GN-020	20-Sep-20	118871	900 067000121306	458	531	650	-
Stephens Lake	STL-B	GN-021	20-Sep-20	116078	900 226001030346	470	541	800	5
Stephens Lake	STL-B	GN-021	20-Sep-20	118870	900 067000055340	600	688	1200	6
Stephens Lake	STL-B	GN-021	20-Sep-20	116094	900 226001030360	523	595	1000	5
Stephens Lake	STL-B	GN-021	20-Sep-20	118869	900 226001055029	390	444	450	3
Stephens Lake	STL-B	GN-021	20-Sep-20	118868	900 067000108602	378	440	350	2
Stephens Lake	STL-B	GN-021	20-Sep-20	118867	900 226001055025	514	590	1000	5
Stephens Lake	STL-B	GN-021	20-Sep-20	118866	900 067000055518	540	628	1100	6
Stephens Lake	STL-B	GN-021	20-Sep-20	118865	900 226001055050	457	513	650	4
Stephens Lake	STL-B	GN-021	20-Sep-20	116081	900 226001030388	646	742	2000	7
Stephens Lake	STL-B	GN-021	20-Sep-20	118864	900 226001055036	542	628	1300	5
Stephens Lake	STL-B	GN-021	20-Sep-20	118863	900 067000113411	380	435	400	2
Stephens Lake	STL-B	GN-021	20-Sep-20	118862	900 226001055094	495	560	800	-
Stephens Lake	STL-B	GN-021	20-Sep-20	118861	900 226001055088	588	675	1600	6
Stephens Lake	STL-B	GN-021	20-Sep-20	118860	900 226001055062	537	612	1050	7
Stephens Lake	STL-B	GN-021	20-Sep-20	91715	900 226001055084	805	910	3625	12

Table A2-3: Biological and tag information for Lake Sturgeon captured in Stephens Lake, fall 2020. Red text indicates fish that did not survive sampling (continued).

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Stephens Lake	STL-B	GN-022	20-Sep-20	118858	900 067000055314	615	710	1500	6
Stephens Lake	STL-B	GN-022	20-Sep-20	115147	900 226000327949	535	610	1000	5
Stephens Lake	STL-B	GN-022	20-Sep-20	116035	900 226001030347	545	615	1100	5
Stephens Lake	STL-B	GN-022	20-Sep-20	115738	900 226000768013	612	692	1850	9
Stephens Lake	STL-B	GN-023	20-Sep-20	118857	900 226001055014	423	474	475	5
Stephens Lake	STL-B	GN-023	20-Sep-20	118856	900 226001055042	897	1000	5725	-
Stephens Lake	STL-B	GN-024	20-Sep-20	115795	900 226000152920	837	942	4300	-
Stephens Lake	STL-B	GN-027	21-Sep-20	118855	900 226001055095	371	430	300	-
Stephens Lake	STL-B	GN-027	21-Sep-20	118854	900 226001055046	438	500	625	4
Stephens Lake	STL-B	GN-027	21-Sep-20	118853	900 226001055064	520	600	925	7
Stephens Lake	STL-B	GN-027	21-Sep-20	118852	900 226001055030	522	599	925	5
Stephens Lake	STL-B	GN-028	21-Sep-20	-	-	105	115	5	0
Stephens Lake	STL-B	GN-028	21-Sep-20	115850	900 226000153905	1050	1190	9000	-
Stephens Lake	STL-B	GN-028	21-Sep-20	100669	900 226000768162	510	580	700	5
Stephens Lake	STL-B	GN-028	21-Sep-20	118851	900 226001031762	490	574	800	5
Stephens Lake	STL-B	GN-028	21-Sep-20	116017	900 226001030311	528	605	1000	5
Stephens Lake	STL-B	GN-028	21-Sep-20	116783	900 067000109883	403	469	400	3
Stephens Lake	STL-B	GN-029	21-Sep-20	113288	900 226000153878	470	540	875	5
Stephens Lake	STL-B	GN-030	21-Sep-20	118726	900 067000055379	589	683	1400	6
Stephens Lake	STL-B	GN-030	21-Sep-20	117635	900 226001030312	522	605	1200	5
Stephens Lake	STL-B	GN-031	22-Sep-20	118727	900 226001031037	857	960	5300	-
Stephens Lake	STL-B	GN-031	22-Sep-20	118728	900 226001031753	748	841	3600	12
Stephens Lake	STL-B	GN-031	22-Sep-20	101485	900 226000548851	641	725	2150	9
Stephens Lake	STL-B	GN-031	22-Sep-20	118729	900 067000055516	537	616	925	6

Table A2-3: Biological and tag information for Lake Sturgeon captured in Stephens Lake, fall 2020. Red text indicates fish that did not survive sampling (continued).

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Stephens Lake	STL-B	GN-031	22-Sep-20	118730	900 226000767413	835	928	4800	12
Stephens Lake	STL-B	GN-033	22-Sep-20	118731	900 226001055074	684	770	2250	7
Stephens Lake	STL-B	GN-033	22-Sep-20	118732	900 226001055032	735	823	3250	12
Stephens Lake	STL-B	GN-034	22-Sep-20	118733	900 067000121375	223	255	75	1
Stephens Lake	STL-B	GN-034	22-Sep-20	118734	900 226001031063	553	625	1100	5
Stephens Lake	STL-B	GN-034	22-Sep-20	118735	900 226001031010	456	525	700	4
Stephens Lake	STL-B	GN-034	22-Sep-20	118736	900 226001031033	547	625	975	5
Stephens Lake	STL-B	GN-034	22-Sep-20	118737	900 226001031227	528	605	950	6
Stephens Lake	STL-B	GN-034	22-Sep-20	118739	900 226001031009	485	555	725	5
Stephens Lake	STL-B	GN-034	22-Sep-20	118738	900 226001055033	536	626	1050	6
Stephens Lake	STL-B	GN-034	22-Sep-20	118740	900 067000055329	585	679	1175	6
Stephens Lake	STL-B	GN-034	22-Sep-20	118741	900 226001031002	570	657	1150	7
Stephens Lake	STL-B	GN-034	22-Sep-20	118743	900 067000055360	515	583	950	6
Stephens Lake	STL-B	GN-034	22-Sep-20	118745	900 067000108653	387	445	275	2
Stephens Lake	STL-B	GN-035	22-Sep-20	118746	900 226001031079	566	639	1500	5
Stephens Lake	STL-B	GN-035	22-Sep-20	118747	900 226001031740	543	593	1525	7
Stephens Lake	STL-B	GN-035	22-Sep-20	101999	900 226000703460	748	835	3000	11
Stephens Lake	STL-B	GN-035	22-Sep-20	117579	900 067000055440	615	703	1510	6
Stephens Lake	STL-B	GN-036	22-Sep-20	110559	900 067000055361	630	731	1525	6
Stephens Lake	STL-B	GN-036	22-Sep-20	110564	900 043000103645	529	605	1000	5
Stephens Lake	STL-B	GN-037	23-Sep-20	118749	900 067000055126	528	612	975	6
Stephens Lake	STL-B	GN-038	23-Sep-20	118801	900 067000059086	452	529	510	4
Stephens Lake	STL-B	GN-038	23-Sep-20	101488	900 226000120162	890	985	4900	12
Stephens Lake	STL-B	GN-040	23-Sep-20	113252	900 226000327941	520	586	1050	5

Table A2-3: Biological and tag information for Lake Sturgeon captured in Stephens Lake, fall 2020. Red text indicates fish that did not survive sampling (continued).

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Stephens Lake	STL-B	GN-040	23-Sep-20	118802	900 067000059376	458	523	600	4
Stephens Lake	STL-B	GN-040	23-Sep-20	118804	900 226001031085	469	530	750	4
Stephens Lake	STL-B	GN-041	23-Sep-20	110576	900 226000767155	800	891	3700	12
Stephens Lake	STL-B	GN-041	23-Sep-20	118805	900 226001031031	677	771	2150	7
Stephens Lake	STL-B	GN-044	24-Sep-20	117684	900 226001031072	368	430	250	2
Stephens Lake	STL-B	GN-044	24-Sep-20	118806	900 226001031035	505	593	1025	5
Stephens Lake	STL-B	GN-044	24-Sep-20	118807	900 226001030341	663	756	2475	8
Stephens Lake	STL-B	GN-044	24-Sep-20	118808	900 226001031043	450	510	675	4
Stephens Lake	STL-B	GN-045	24-Sep-20	117666	900 226000327567	540	616	1100	5
Stephens Lake	STL-B	GN-045	24-Sep-20	118809	900 067000121243	460	527	750	4
Stephens Lake	STL-B	GN-045	24-Sep-20	116092	900 067000055366	600	680	1300	6
Stephens Lake	STL-B	GN-045	24-Sep-20	110282	900 226001031099	496	576	975	-
Stephens Lake	STL-B	GN-045	24-Sep-20	118810	900 067000113248	391	452	300	2
Stephens Lake	STL-B	GN-047	24-Sep-20	117576	900 067000055643	518	594	750	6
Stephens Lake	STL-B	GN-047	24-Sep-20	112924	900 226000768894	528	571	900	5
Stephens Lake	STL-B	GN-047	24-Sep-20	117552	900 226000327524	527	603	1100	5
Stephens Lake	STL-B	GN-048	24-Sep-20	113260	900 226000327828	522	600	1025	5
Stephens Lake	STL-B	GN-048	24-Sep-20	118811	900 226001031029	520	608	1025	5
Stephens Lake	STL-B	GN-048	24-Sep-20	118812	900 067000121184	458	527	700	4
Stephens Lake	STL-B	GN-048	24-Sep-20	118813	900 226001031013	411	470	450	4
Stephens Lake	STL-B	GN-048	24-Sep-20	118814	900 067000055782	581	666	1175	6
Stephens Lake	STL-B	GN-049	25-Sep-20	113298	900 226000327925	507	576	1100	5
Stephens Lake	STL-B	GN-049	25-Sep-20	118815	900 226001031707	445	504	750	4
Stephens Lake	STL-B	GN-050	25-Sep-20	118816	900 226001031036	666	756	2225	9

Table A2-3: Biological and tag information for Lake Sturgeon captured in Stephens Lake, fall 2020. Red text indicates fish that did not survive sampling (continued).

Waterbody	Site	Zone	Date	Floy-tag #	Pit-tag #	Fork Length (mm)	Total Length (mm)	Weight (g)	Age
Stephens Lake	STL-B	GN-050	25-Sep-20	118817	900 067000108650	361	412	250	2
Stephens Lake	STL-B	GN-050	25-Sep-20	118818	900 067000109612	357	410	200	2
Stephens Lake	STL-B	GN-050	25-Sep-20	118819	900 067000113712	364	416	250	2
Stephens Lake	STL-B	GN-050	25-Sep-20	118820	900 067000113027	359	421	300	2
Stephens Lake	STL-B	GN-050	25-Sep-20	118821	900 067000113219	362	423	225	2
Stephens Lake	STL-B	GN-051	25-Sep-20	118823	900 067000055395	582	661	1375	6
Stephens Lake	STL-B	GN-051	25-Sep-20	118824	900 067000055234	611	703	1950	6
Stephens Lake	STL-B	GN-051	25-Sep-20	118825	900 067000109639	333	280	200	2
Stephens Lake	STL-B	GN-052	25-Sep-20	118826	900 226001030364	571	646	1200	6
Stephens Lake	STL-B	GN-052	25-Sep-20	117662	900 226000767279	339	384	325	3
Stephens Lake	STL-B	GN-052	25-Sep-20	118827	900 226000152911	501	571	900	5
Stephens Lake	STL-B	GN-052	25-Sep-20	117573	900 067000113448	369	422	300	2
Stephens Lake	STL-B	GN-052	25-Sep-20	118828	900 067000113181	389	449	400	2
Stephens Lake	STL-B	GN-052	25-Sep-20	-	-	455	510	650	4
Stephens Lake	STL-B	GN-053	25-Sep-20	118829	900 067000111968	481	558	800	4
Stephens Lake	STL-B	GN-053	25-Sep-20	118831	900 226001031056	477	549	850	5
Stephens Lake	STL-B	GN-054	25-Sep-20	118832	900 226001031050	735	842	2800	12
Stephens Lake	STL-B	GN-054	25-Sep-20	118835	900 067000112985	365	425	300	2
Stephens Lake	STL-B	GN-054	25-Sep-20	118836	900 226001031000	380	435	425	3
Stephens Lake	STL-B	GN-054	25-Sep-20	117663	900 226000767258	475	536	750	5
Stephens Lake	STL-B	GN-054	25-Sep-20	118837	900 067000113489	452	525	650	4
Stephens Lake	STL-B	GN-054	25-Sep-20	118833	900 067000113731	374	430	300	2

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

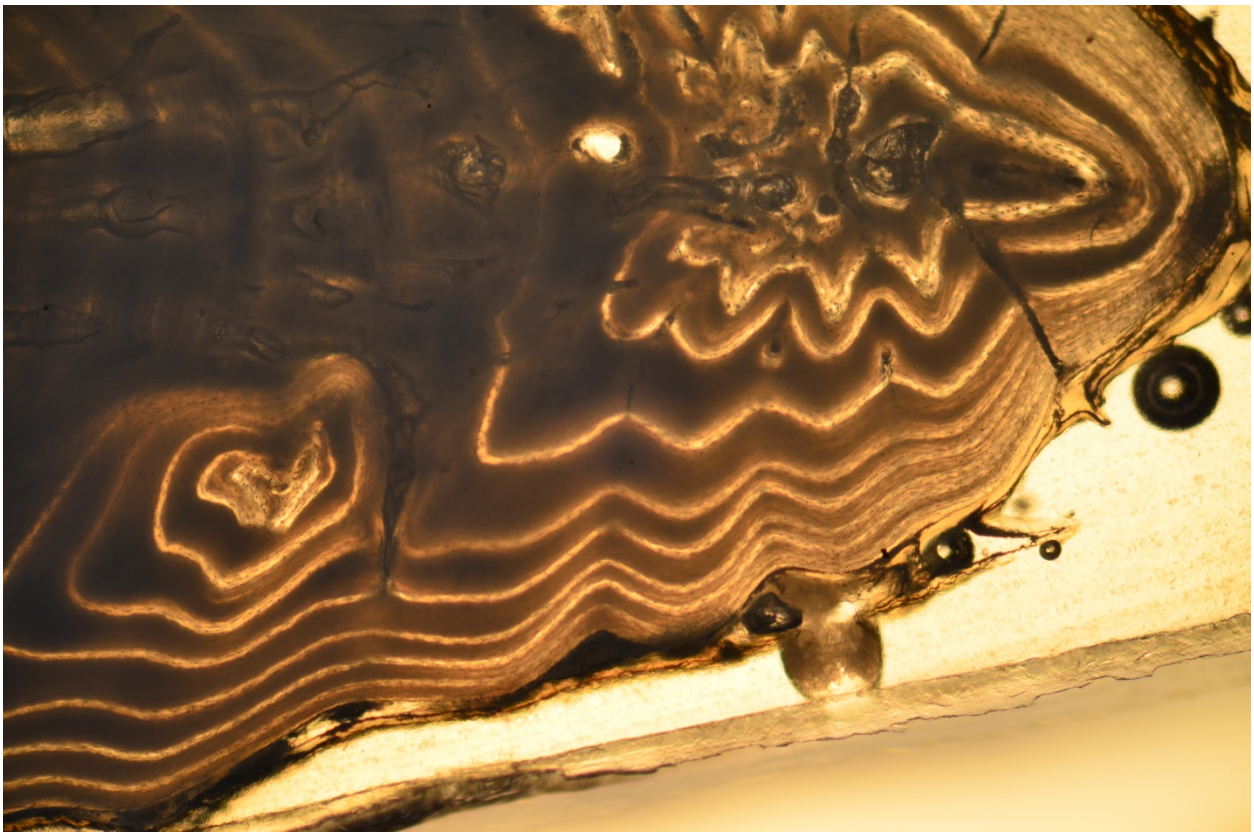


Figure A3-1: Ageing structure from a wild juvenile Lake Sturgeon (8-year-old) caught in the Keeyask reservoir.

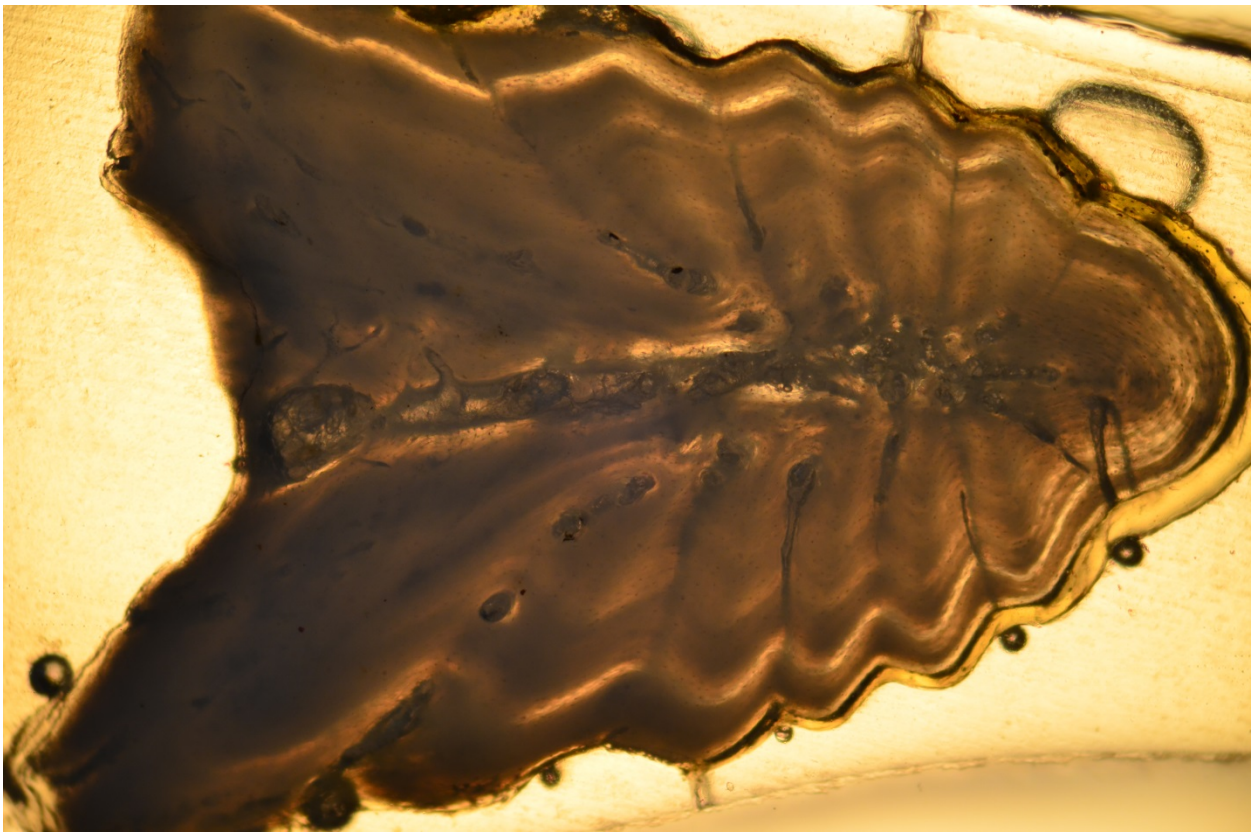


Figure A3-2: Ageing structure from a hatchery-reared juvenile Lake Sturgeon caught in Stephens Lake (2-year-old). Agers noted the presence of a weak first annulus and false annuli typically observed in hatchery-reared Lake Sturgeon.

APPENDIX 4:
WILD AND HATCHERY LAKE STURGEON RECAPTURE DATA, FALL 2020.

Table A4-1: Original capture date and biological data for wild Lake Sturgeon recaptured in gill nets, fall 2020.

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Split Lake	113549	900 226000153795	SPL-A	9-Sep-20	565	642	1060	6*	0.2	729
Split Lake	-	-	SPL-A	11-Sep-18	496	564	750	4		
			Growth		**69**	**78**	**310**			
Split Lake	116676	900 226000327787	SPL-A	13-Sep-20	742	843	3060	9*	1.0	366
Split Lake	-	-	SPL-A	13-Sep-19	713	806	2860	8		
			Growth		**29**	**37**	**200**			
Split Lake	113541	900 226000153701	SPL-A	13-Sep-20	523	574	1030	7*	0.2	733
Split Lake	-	-	SPL-A	11-Sep-18	441	486	675	5		
			Growth		**82**	**88**	**355**			
Split Lake	113536	900 226000153705	SPL-A	13-Sep-20	688	771	2000	9*	0.2	733
Split Lake	-	-	SPL-A	11-Sep-18	616	692	1600	7		
			Growth		**72**	**79**	**400**			
Split Lake	113799	900 226000327043	SPL-A	13-Sep-20	650	725	1870	7*	1.0	366
Split Lake	-	-	SPL-A	13-Sep-19	597	669	1380	6		
			Growth		**53**	**56**	**490**			
Split Lake	116641	900 226000327465	SPL-A	15-Sep-20	608	676	1520	7*	0.7	366
Split Lake	-	-	SPL-A	15-Sep-19	565	634	1280	6		
			Growth		**43**	**42**	**240**			
Keeyask Reservoir	93864	900 226001658877	GL-C	17-Sep-20	760	854	3450	-	-	3285
Keeyask Reservoir	-	-	GL-B	20-Sep-11	374	431	325	-	-	-
			Growth		**386**	**423**	**3125**			
Keeyask Reservoir	103113	900 226001658760	GL-C	17-Sep-20	799	880	3800	-	0.3	2577
Keeyask Reservoir	-	-	GL-C	28-Aug-13	585	650	1350	-		
			Growth		**214**	**230**	**2450**			
Keeyask Reservoir	113162	900 226000327544	GL-C	17-Sep-20	361	410	350	4	2.9	729
Keeyask Reservoir	-	-	GL-B	19-Sep-18	304	345	200	2		
			Growth		**57**	**65**	**150**			

Table A4-1: Original capture date and biological data for wild Lake Sturgeon recaptured in gill nets, fall 2020 (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	106454	900 226000767412	GL-C	17-Sep-20	632	724	1700	9	0.6	1103
Keeyask Reservoir	-	-	GL-C	10-Sep-17	545	624	1200	6		
				Growth	**87**	**100**	**500**			
Keeyask Reservoir	117130	900 226001031109	GL-B	17-Sep-20	489	564	625	6	1.5	364
Keeyask Reservoir	-	-	GL-B	19-Sep-19	453	520	450	5		
				Growth	**36**	**44**	**175**			
Keeyask Reservoir	118027	900 226000893628	GL-B	18-Sep-20	529	616	950	7	2.2	1458
Keeyask Reservoir	-	-	GL-B	21-Sep-16	408	469	480	3		
				Growth	**121**	**147**	**470**			
Keeyask Reservoir	89674	900 226001658968	GL-C	19-Sep-20	767	880	3850	12	1.6	2940
Keeyask Reservoir	-	-	GL-C	01-Sep-12	420	485	500	4	0.3	708
Keeyask Reservoir	-	-	GL-C	24-Sep-10	319	366	225	2		
				Growth	**448**	**514**	**3625**			
Keeyask Reservoir	89655	900 226001658822	GL-C	19-Sep-20	730	822	3050	-	2.5	3649
Keeyask Reservoir	-	-	GL-C	23-Sep-10	321	362	250	-		
				Growth	**409**	**460**	**2800**			
Keeyask Reservoir	118062	900 043000103881	GL-B	20-Sep-20	645	726	1700	-	0.9	2275
Keeyask Reservoir	-	-	GL-B	29-Jun-14	502	570	750	-		
				Growth	**143**	**156**	**950**			
Keeyask Reservoir	117122	900 226001031249	GL-B	20-Sep-20	560	635	1200	6	1.0	367
Keeyask Reservoir	-	-	GL-B	19-Sep-19	514	579	800	5		
				Growth	**46**	**56**	**400**			
Keeyask Reservoir	118053	900 067000121302	GL-C	20-Sep-20	450	514	650	4	1.8	1104
Keeyask Reservoir	-	-	GL-C	12-Sep-17	264	302	100	1		
				Growth	**186**	**212**	**550**			
Keeyask Reservoir	116768	900 226001031267	GL-B	21-Sep-20	533	615	1000	7	0.0	375
Keeyask Reservoir	-	-	GL-B	12-Sep-19	502	578	800	6		
				Growth	**31**	**37**	**200**			

Table A4-1: Original capture date and biological data for wild Lake Sturgeon recaptured in gill nets, fall 2020 (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	116770	900 226001031179	GL-B	21-Sep-20	389	445	450	4	0.7	375
Keeyask Reservoir	-	-	GL-B	12-Sep-19	340	394	300	3		
				Growth	**49**	**51**	**150**			
Keeyask Reservoir	79425	900 226000154259	GL-B	21-Sep-20	672	770	2400	12	1.0	369
Keeyask Reservoir	79425	900 226000154259	GL-B	18-Sep-19	667	758	2100	11	1.6	447
Keeyask Reservoir	-	-	GL-B	28-Jun-18	656	749	-9999	-		
				Growth	**16**	**21**	**300**			
Keeyask Reservoir	113003	900 226000327527	GL-B	21-Sep-20	486	562	700	6	0.7	741
Keeyask Reservoir	-	-	GL-B	11-Sep-18	429	494	500	4		
				Growth	**57**	**68**	**200**			
Keeyask Reservoir	113165	900 226000327551	GL-C	21-Sep-20	665	750	2250	9	1.7	733
Keeyask Reservoir	-	-	GL-C	19-Sep-18	590	670	1550	7		
				Growth	**75**	**80**	**700**			
Keeyask Reservoir	113167	900 226000327532	GL-C	21-Sep-20	486	546	1350	5	0.6	733
Keeyask Reservoir	-	-	GL-C	19-Sep-18	387	439	400	3		
				Growth	**99**	**107**	**950**			
Keeyask Reservoir	117068	900 226001031183	BR-D	22-Sep-20	447	516	600	4	0.0	374
Keeyask Reservoir	-	-	BR-D	14-Sep-19	397	460	450	3		
				Growth	**50**	**56**	**150**			
Keeyask Reservoir	116825	900 226001031220	GL-B	22-Sep-20	498	566	725	6	0.2	371
Keeyask Reservoir	-	-	GL-B	17-Sep-19	438	499	500	5		
				Growth	**60**	**67**	**225**			
Keeyask Reservoir	117008	900 226001031111	GL-C	22-Sep-20	350	390	250	3	1.1	368
Keeyask Reservoir	-	-	GL-C	20-Sep-19	285	313	100	2		
				Growth	**65**	**77**	**150**			
Keeyask Reservoir	118322	900 226001031253	GL-B	23-Sep-20	511	583	975	7	0.4	373
Keeyask Reservoir	-	-	GL-B	16-Sep-19	489	557	800	6		
				Growth	**22**	**26**	**175**			

Table A4-1: Original capture date and biological data for wild Lake Sturgeon recaptured in gill nets, fall 2020 (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	113019	900 226000327533	GL-C	23-Sep-20	419	476	500	4	2.1	742
Keeyask Reservoir	-	-	GL-C	12-Sep-18	307	350	300	2		
				Growth	**112**	**126**	**200**			
Keeyask Reservoir	117106	900 226001031164	GL-C	23-Sep-20	425	500	525	5	0.5	371
Keeyask Reservoir	-	-	GL-C	18-Sep-19	377	440	300	4		
				Growth	**48**	**60**	**225**			
Keeyask Reservoir	109569	900 226000893788	GL-B	24-Sep-20	465	537	650	5	0.7	1107
Keeyask Reservoir	-	-	GL-B	13-Sep-17	350	408	300	2		
				Growth	**115**	**129**	**350**			
Keeyask Reservoir	97334	900 226000548842	GL-A	25-Sep-20	820	925	4100	15*	6.6	1836
Keeyask Reservoir	-	-	GL-B	16-Sep-15	734	828	3180	10		
				Growth	**86**	**97**	**920**			
Keeyask Reservoir	113016	900 226000327568	GL-B	25-Sep-20	423	467	500	5	2.7	378
Keeyask Reservoir	-	-	GL-C	13-Sep-19	384	422	400	4		366
Keeyask Reservoir	-	-	GL-C	12-Sep-18	357	395	400	3		
				Growth	**66**	**72**	**100**			
Stephens Lake	113299	900 226000327930	STL-B	17-Sep-20	465	540	550	5	0.2	728
Stephens Lake	-	-	STL-A	20-Sep-18	375	438	400	3		
				Growth	**90**	**102**	**150**			
Stephens Lake	117585	900 226000767206	STL-B	17-Sep-20	417	476	375	4	0.5	367
Stephens Lake	-	-	STL-B	16-Sep-19	357	405	300	3		
				Growth	**60**	**71**	**75**			
Stephens Lake	116024	900 067000121286	STL-B	17-Sep-20	380	430	300	3	2.2	370
Stephens Lake	-	-	STL-A	13-Sep-19	315	360	200	2		
				Growth	**65**	**70**	**100**			
Stephens Lake	110332	900 226000768822	STL-B	17-Sep-20	559	628	1300	7	1.0	1099
Stephens Lake	-	-	STL-A	14-Sep-17	455	505	675	4	3.0	361
Stephens Lake	-	-	STL-B	18-Sep-16	405	466	490	-		
				Growth	**154**	**162**	**810**			

Table A4-1: Original capture date and biological data for wild Lake Sturgeon recaptured in gill nets, fall 2020 (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	115843	900 226000768940	STL-B	17-Sep-20	928	1064	5750	-	2.9	472
Stephens Lake	-	-	STL-A	3-Jun-19	893	1021	5443	-	0.2	356
Stephens Lake	-	-	STL-A	12-Jun-18	867	993	5050	-		
				Growth	**61**	**71**	**700**			
Stephens Lake	111062	900 226000154242	STL-B	18-Sep-20	484	555	825	5	1.7	1102
Stephens Lake	-	-	STL-A	12-Sep-17	326	367	200	2		
				Growth	**158**	**188**	**625**			
Stephens Lake	86140	900 226000893314	STL-B	18-Sep-20	980	1008	7100	-	14.9	840
Stephens Lake	-	-	STL-A	1-Jun-18	950	1020	6078	-	12.7	3534
Keeyask Reservoir	-	-	GL-B	27-Sep-08	644	739	1930	-		
				Growth	**336**	**269**	**5170**			
Stephens Lake	116587	900 043000103528	STL-B	19-Sep-20	507	578	825	7	100.5	373
Split Lake	-	900 226000327001	SPL-A	12-Sep-19	424	471	470	6		
				Growth	**83**	**107**	**355**			
Stephens Lake	88492	900 226000629276	STL-B	19-Sep-20	800	904	3400	12	0.8	2188
Stephens Lake	-	-	STL-B	23-Sep-14	622	711	1575	6		
				Growth	**178**	**193**	**1825**			
Stephens Lake	68671	900 226001055098	STL-B	19-Sep-20	777	883	3600	-	-	-
-	-	-	-	-	-	-	-			
				Growth						
Stephens Lake	116078	900 226001030346	STL-B	20-Sep-20	470	541	800	5	0.4	371
Stephens Lake	-	-	STL-B	15-Sep-19	420	491	550	4		
				Growth	**50**	**50**	**250**			
Stephens Lake	116094	900 226001030360	STL-B	20-Sep-20	523	595	1000	5	1.2	371
Stephens Lake	-	-	SPL-A	15-Sep-19	473	537	725	4		
				Growth	**50**	**58**	**275**			

Table A4-1: Original capture date and biological data for wild Lake Sturgeon recaptured in gill nets, fall 2020 (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	116081	900 226001030388	STL-B	20-Sep-20	646	742	2000	7	0.4	372
Stephens Lake	-	-	STL-B	14-Sep-19	611	697	1650	6		
				Growth	**35**	**45**	**350**			
Stephens Lake	91715	900 226001055084	STL-B	20-Sep-20	805	910	3625	12	2.7	3278
Stephens Lake	-	-	SPL-A	30-Sep-11	434	497	550	3		
				Growth	**371**	**413**	**3075**			
Stephens Lake	115147	900 226000327949	STL-B	20-Sep-20	535	610	1000	5	0.6	739
Stephens Lake	-	-	STL-B	12-Sep-18	430	500	500	3		
				Growth	**105**	**110**	**500**			
Stephens Lake	116035	900 226001030347	STL-B	20-Sep-20	545	615	1100	5	2.7	372
Stephens Lake	-	-	STL-A	14-Sep-19	472	542	700	4		
				Growth	**73**	**73**	**400**			
Stephens Lake	115738	900 226000768013	STL-B	20-Sep-20	612	692	1850	-	3.8	844
Stephens Lake	-	-	STL-A	30-May-18	518	586	1050	-		
				Growth	**94**	**106**	**800**			
Stephens Lake	115795	900 226000152920	STL-B	20-Sep-20	837	942	4300	-	3.3	837
Stephens Lake	-	-	STL-A	6-Jun-18	775	870	3650	-		
				Growth	**62**	**72**	**650**			
Stephens Lake	115850	900 226000153905	STL-B	21-Sep-20	1050	1190	9000	-	2.9	830
Stephens Lake	-	-	STL-A	14-Jun-18	975	1110	8150	-		
				Growth	**75**	**80**	**850**			
Stephens Lake	100669	900 226000768162	STL-B	21-Sep-20	510	580	700	5	0.6	1101
Stephens Lake	-	-	STL-B	16-Sep-17	356	397	200	2		
				Growth	**154**	**183**	**500**			
Stephens Lake	116017	900 226001030311	STL-B	21-Sep-20	528	605	1000	5	0.4	374
Stephens Lake	-	-	STL-B	13-Sep-19	477	552	775	4		
				Growth	**51**	**53**	**225**			

Table A4-1: Original capture date and biological data for wild Lake Sturgeon recaptured in gill nets, fall 2020 (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	113288	900 226000153878	STL-B	21-Sep-20	470	540	875	5	1.0	733
Stephens Lake	-	-	STL-B	19-Sep-18	366	412	325	3		
				Growth	**104**	**128**	**550**			
Stephens Lake	117635	900 226001030312	STL-B	21-Sep-20	522	605	1200	5	0.6	366
Stephens Lake	-	-	STL-B	21-Sep-19	486	560	900	4		
				Growth	**36**	**45**	**300**			
Stephens Lake	101485	900 226000548851	STL-B	22-Sep-20	641	725	2150	9	0.9	1822
Stephens Lake	-	-	STL-B	27-Sep-15	444	492	750	4		
				Growth	**197**	**233**	**1400**			
Stephens Lake	118730	900 226000767413	STL-B	22-Sep-20	835	928	4800	-	1.2	815
Stephens Lake	-	-	STL-B	30-Jun-18	764	840	3900	-		
				Growth	**71**	**88**	**900**			
Stephens Lake	101999	900 226000703460	STL-B	22-Sep-20	748	835	3000	11	0.3	1824
Stephens Lake	-	-	STL-B	25-Sep-15	605	671	1600	6		
				Growth	**143**	**164**	**1400**			
Stephens Lake	110564	900 043000103645	STL-B	22-Sep-20	529	605	1000	5	2.8	370
Stephens Lake	110564	900 043000103645	STL-B	18-Sep-19	472	540	600	4	3.33	729
Stephens Lake	-	-	STL-A	19-Sep-17	347	397	225	2	0.15	365
Stephens Lake	-	-	STL-A	19-Sep-16	233	275	80	-		
				Growth	**296**	**330**	**920**			
Stephens Lake	101488	900 226000120162	STL-B	23-Sep-20	890	985	4900	12	1.6	1822
Stephens Lake	-	-	STL-B	28-Sep-15	695	751	2350	7		
				Growth	**195**	**234**	**2550**			
Stephens Lake	113252	900 226000327941	STL-B	23-Sep-20	520	586	1050	5*	2.6	741
Stephens Lake	-	-	STL-A	13-Sep-18	418	472	575	3		
				Growth	**102**	**114**	**475**			

Table A4-1: Original capture date and biological data for wild Lake Sturgeon recaptured in gill nets, fall 2020 (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	110576	900 226000767155	STL-B	23-Sep-20	800	891	3700	12	0.4	1100
Stephens Lake	-	-	STL-A	19-Sep-17	727	806	3000	9	3.06	366
Stephens Lake	-	-	STL-B	18-Sep-16	680	761	2380	-		
				Growth	**120**	**130**	**1320**			
Stephens Lake	118807	900 226001030341	STL-B	24-Sep-20	663	756	2475	8	0.6	372
Stephens Lake	-	-	STL-B	18-Sep-19	623	700	2000	7		
				Growth	**40**	**56**	**475**			
Stephens Lake	117666	900 226000327567	STL-B	24-Sep-20	540	616	1100	6	0.3	371
Stephens Lake	-	-	STL-B	19-Sep-19	482	545	700	5		
				Growth	**58**	**71**	**400**			
Stephens Lake	118809	900 067000121243	STL-B	24-Sep-20	460	527	750	4	0.8	1104
Stephens Lake	-	-	STL-B	16-Sep-17	253	284	100	1		
				Growth	**207**	**243**	**650**			
Stephens Lake	110282	900 226001031099	STL-B	24-Sep-20	496	576	975	-		
-	-	-	-	-	-	-	-			
				Growth						
Stephens Lake	112924	900 226000768894	STL-B	24-Sep-20	528	571	900	5	2.9	735
Stephens Lake	-	-	STL-B	20-Sep-18	410	447	550	3	2.48	371
Stephens Lake	-	-	STL-B	14-Sep-17	363	398	280	2		
				Growth	**165**	**173**	**620**			
Stephens Lake	117552	900 226000327524	STL-B	24-Sep-20	527	603	1100	5	0.6	373
Stephens Lake	-	-	STL-B	17-Sep-19	487	555	800	4		
				Growth	**40**	**48**	**300**			
Stephens Lake	113260	900 226000327828	STL-B	24-Sep-20	522	600	1025	5	0.6	740
Stephens Lake	-	-	STL-B	15-Sep-18	421	480	575	3		
				Growth	**101**	**120**	**450**			

Table A4-1: Original capture date and biological data for wild Lake Sturgeon recaptured in gill nets, fall 2020 (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	113298	900 226000327925	STL-B	25-Sep-20	507	576	1100	5	2.0	378
Stephens Lake	113298	900 226000327925	STL-B	13-Sep-19	437	500	600	4	1.00	358
Stephens Lake	-	-	STL-B	20-Sep-18	410	468	525	3		
				Growth	**97**	**108**	**575**			
Stephens Lake	118826	900 226001030364	STL-B	25-Sep-20	571	646	1200	6	1.0	377
Stephens Lake	-	-	STL-B	14-Sep-19	520	591	900	5		
				Growth	**51**	**55**	**300**			
Stephens Lake	117662	900 226000767279	STL-B	25-Sep-20	339	384	325	3	1.6	373
Stephens Lake	-	-	STL-A	18-Sep-19	309	345	250	2		
				Growth	**30**	**39**	**75**			
Stephens Lake	118827	900 226000152911	STL-B	25-Sep-20	501	571	900	-	2.8	844
Stephens Lake	-	-	STL-A	4-Jun-18	361	418	250	-		
				Growth	**140**	**153**	**650**			
Stephens Lake	117663	900 226000767258	STL-B	25-Sep-20	475	536	750	5	1.5	373
Stephens Lake	-	-	STL-A	18-Sep-19	417	471	600	4		
				Growth	**58**	**65**	**150**			

* - Ages assigned based on structures aged in a previous study year.

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 2020.

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Split Lake	119904	900 067000058310	SPL-A	9-Sep-20	466	515	660	5	26.3	1562
Burntwood River	-	-	BWR-B	31-May-16	269	305	144	1		
				Growth	**197**	**210**	**516**			
Split Lake	119911	900 043000102902	SPL-A	9-Sep-20	523	590	870	7	26.8	2169
Burntwood River	-	-	BWR-A	2-Oct-14	260	296	102	1		
				Growth	**263**	**294**	**768**			
Split Lake	119944	900 067000111870	SPL-A	10-Sep-20	359	415	340	3	28.8	833
Burntwood River	-	-	BWR-B	31-May-18	220	259	62	1		
				Growth	**139**	**156**	**278**			
Split Lake	-9999	900 067000058215	SPL-A	10-Sep-20	521	586	930	5	25.0	1563
Burntwood River	-	-	BWR-B	31-May-16	292	338	182	1		
				Growth	**229**	**248**	**748**			
Split Lake	119221	900 067000110344	SPL-A	14-Sep-20	391	448	370	3	27.8	837
Burntwood River	-	-	BWR-B	31-May-18	210	250	56	1		
				Growth	**181**	**198**	**314**			
Split Lake	119216	900 043000119845	SPL-A	14-Sep-20	504	565	790	7	22.5	2299
Burntwood River	-	-	BWR-B	30-May-14	196	225	39	1		
				Growth	**308**	**340**	**751**			
Split Lake	119213	900 067000110311	SPL-A	14-Sep-20	381	424	340	3	25.0	830
Burntwood River	-	-	BWR-A	7-Jun-18	219	259	71	1		
				Growth	**162**	**165**	**269**			
Split Lake	119212	900 067000110479	SPL-A	14-Sep-20	361	414	320	3	25.0	830
Burntwood River	-	-	BWR-A	7-Jun-18	225	264	78	1		
				Growth	**136**	**150**	**242**			

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 2020 (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	119210	900 067000110780	SPL-A	14-Sep-20	368	417	290	3	25.0	830
Burntwood River	-	-	BWR-A	7-Jun-18	240	285	79	1		
				Growth	**128**	**132**	**211**			
Split Lake	119243	900 067000110709	SPL-A	15-Sep-20	352	403	290	3	29.1	831
Burntwood River	-	-	BWR-A	7-Jun-18	215	256	75	1		
				Growth	**137**	**147**	**215**			
Split Lake	116624	900 067000109957	SPL-A	15-Sep-20	366	424	320	3	25.0	831
Split Lake	-	-	SPL-A	15-Sep-19	315	367	200	2	25.5	465
Burntwood River	-	-	BWR-A	7-Jun-18	211	253	66	1		
				Growth	**155**	**171**	**254**			
Split Lake	119238	900 067000111818	SPL-A	15-Sep-20	359	410	280	3	24.0	852
Burntwood River	-	-	BWR-B	17-May-18	196	237	50	1		
				Growth	**163**	**173**	**230**			
Split Lake	15-Jun-26	900 067000110456	SPL-A	15-Sep-20	314	354	220	3	25.0	831
Burntwood River	-	-	BWR-A	7-Jun-18	210	248	66	1		
				Growth	**104**	**106**	**154**			
Burntwood River	119964	900 067000111318	BWR-C	12-Sep-20	336	383	290	3	5.36	849
Burntwood River	-	-	BWR-B	17-May-18	229	274	82	1		
				Growth	**107**	**109**	**208**			
Burntwood River	119227	900 043000103164	BWR-C	16-Sep-20	428	484	540	7	6.67	2176
Burntwood River	-	-	BWR-A	2-Oct-14	298	340	150	1		
				Growth	**130**	**144**	**390**			

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 2020 (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	119150	900 043000119848	BWR-C	16-Sep-20	469	541	690	7	4.85	2301
Burntwood River	-	-	BWR-B	30-May-14	198	233	43	1		
			Growth		**271**	**308**	**647**			
Burntwood River	119149	900 067000109967	BWR-C	16-Sep-20	338	385	270	3	8.57	832
Burntwood River	-	-	BWR-A	7-Jun-18	196	227	42	1		
			Growth		**142**	**158**	**228**			
Burntwood River	119969	900 043000119578	BWR-C	12-Sep-20	454	505	530	7	6.72	2296
Burntwood River	-	-	BWR-A	31-May-14	145	179	80	1		
			Growth		**309**	**326**	**450**			
Burntwood River	119966	900 043000119879	BWR-C	12-Sep-20	414	456	500	7	4.89	2297
Burntwood River	-	-	BWR-B	30-May-14	200	232	51	1		
			Growth		**214**	**224**	**449**			
Burntwood River	119963	900 067000110099	BWR-C	12-Sep-20	339	390	230	3	5.90	835
Burntwood River	-	-	BWR-B	31-May-18	230	270	69	1		
			Growth		**109**	**120**	**161**			
Burntwood River	-9999	900 067000108477	BWR-C	13-Sep-20	264	310	100	1	20.5	85
Burntwood River	-	-	BWR-B	20-Jun-20	196	233	44	1		
			Growth		**68**	**77**	**56**			

Table A4-3: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in the Keeyask reservoir, fall 2020.

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Keeyask Reservoir	118006	900 067000113767	GL-C	17-Sep-20	396	449	325	2	0.21	469
Keeyask Reservoir	-	-	GL-C	6-Jun-19	210	250	49	1		
				Growth	**186**	**199**	**276**			
Keeyask Reservoir	118007	900 067000112891	GL-C	17-Sep-20	371	427	275	2	0.21	469
Keeyask Reservoir	-	-	GL-C	6-Jun-19	237	282	82	1		
				Growth	**134**	**145**	**193**			
Keeyask Reservoir	118886	900 067000109342	GL-C	17-Sep-20	380	436	250	2	1.93	469
Keeyask Reservoir	-	-	GL-C	6-Jun-19	243	285	86	1		
					137	**151**	**164**			
Keeyask Reservoir	118891	900 067000109292	GL-C	17-Sep-20	340	397	225	2	2.15	469
Keeyask Reservoir	-	-	GL-B	6-Jun-19	218	259	55	1		
				Growth	**122**	**138**	**170**			
Keeyask Reservoir	118895	900 067000112548	GL-C	17-Sep-20	460	529	675	4	9.71	1197
Keeyask Reservoir	-	-	GL-A	8-Jun-17	201	238	50	1		
				Growth	**259**	**291**	**625**			
Keeyask Reservoir	118009	900 067000059347	GL-B	17-Sep-20	471	535	575	4	6.66	1197
Keeyask Reservoir	-	-	GL-A	8-Jun-17	238	278	77	1		
				Growth	**233**	**257**	**498**			
Keeyask Reservoir	116781	900 226001031181	GL-B	17-Sep-20	413	474	400	4	6.66	1197
Keeyask Reservoir	-	-	GL-B	12-Sep-20	390	452	350	3	6.84	1192
Keeyask Reservoir	-	900 067000112106	GL-A	8-Jun-17	236	281	72	1		
				Growth	**177**	**193**	**328**			

Table A4-3: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in the Keeyask reservoir, fall 2020 (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	118014	900 067000058475	GL-B	17-Sep-20	504	586	725	6	0.97	1914
Keeyask Reservoir	-	-	GL-B	22-Jun-15	242	285	79	1		
				Growth	**262**	**301**	**646**			
Keeyask Reservoir	118015	900 067000055470	GL-B	17-Sep-20	501	593	725	6	0.97	1914
Keeyask Reservoir	-	-	GL-B	22-Jun-15	266	319	100	1		
				Growth	**235**	**274**	**625**			
Keeyask Reservoir	118020	900 067000109309	GL-C	18-Sep-20	402	462	400	2	4.02	470
Keeyask Reservoir	-	-	GL-B	6-Jun-19	228	274	70	1		
				Growth	**174**	**188**	**330**			
Keeyask Reservoir	118021	900 067000113739	GL-C	18-Sep-20	351	406	250	2	0.21	470
Keeyask Reservoir	-	-	GL-C	6-Jun-19	235	275	69	1		
				Growth	**116**	**131**	**181**			
Keeyask Reservoir	118028	900 067000058450	GL-B	18-Sep-20	499	570	575	6	1.22	1829
Keeyask Reservoir	-	-	GL-B	16-Sep-15	311	360	164	1		
				Growth	**188**	**210**	**411**			
Keeyask Reservoir	118035	900 067000059436	GL-C	18-Sep-20	431	500	525	4	9.73	1198
Keeyask Reservoir	-	-	GL-A	8-Jun-17	236	277	76	1		
				Growth	**195**	**223**	**449**			
Keeyask Reservoir	118037	900 067000113003	GL-C	18-Sep-20	364	410	300	2	1.90	470
Keeyask Reservoir	-	-	GL-C	6-Jun-19	220	257	61	1		
				Growth	**144**	**153**	**239**			
Keeyask Reservoir	118042	900 067000112339	GL-B	19-Sep-20	430	495	500	4	6.87	1199
Keeyask Reservoir	-	-	GL-A	8-Jun-17	220	259	64	1		
				Growth	**210**	**236**	**436**			

Table A4-3: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in the Keeyask reservoir, fall 2020 (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	118049	900 067000059312	GL-C	19-Sep-20	423	480	500	4	9.73	1199
Keeyask Reservoir	-	-	GL-A	8-Jun-17	220	256	60	1		
			Growth		**203**	**224**	**440**			
Keeyask Reservoir	118071	900 067000113002	GL-C	19-Sep-20	397	460	375	2	4.07	471
Keeyask Reservoir	-	-	GL-B	6-Jun-19	230	269	58	1		
			Growth		**167**	**191**	**317**			
Keeyask Reservoir	118070	900 067000113720	GL-C	19-Sep-20	389	446	350	2	0.18	471
Keeyask Reservoir	-	-	GL-C	6-Jun-19	210	250	56	1		
			Growth		**179**	**196**	**294**			
Keeyask Reservoir	118069	900 067000113244	GL-C	19-Sep-20	360	415	250	2	4.07	471
Keeyask Reservoir	-	-	GL-B	6-Jun-19	195	231	41	1		
			Growth		**165**	**184**	**209**			
Keeyask Reservoir	116830	900 067000109619	GL-B	20-Sep-20	385	438	250	2	5.03	472
Keeyask Reservoir	-	-	GL-C	17-Sep-19	325	377	150	1	0.32	103
Keeyask Reservoir	-	-	GL-C	6-Jun-19	240	277	72	1		
			Growth		**145**	**161**	**178**			
Keeyask Reservoir	118051	900 067000112519	GL-C	20-Sep-20	456	526	650	4	9.73	1200
Keeyask Reservoir	-	-	GL-A	8-Jun-17	240	282	84	1		
			Growth		**216**	**244**	**566**			
Keeyask Reservoir	118084	900 067000059393	GL-B	21-Sep-20	440	505	500	4	8.90	1201
Keeyask Reservoir	-	-	GL-A	8-Jun-17	228	264	65	1		
			Growth		**212**	**241**	**435**			

Table A4-3: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in the Keeyask reservoir, fall 2020 (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	118096	900 067000055192	GL-C	21-Sep-20	573	646	1175	6	2.29	1918
Keeyask Reservoir	-	-	GL-B	22-Jun-15	238	275	78	1		
			Growth		**335**	**371**	**1097**			
Keeyask Reservoir	118099	900 067000113064	GL-C	21-Sep-20	337	390	225	2	2.20	473
Keeyask Reservoir	-	-	GL-B	6-Jun-19	198	239	42	1		
			Growth		**139**	**151**	**183**			
Keeyask Reservoir	118072	900 043000119864	GL-C	21-Sep-20	533	560	1075	7	115.8	2306
Burntwood River	-	-	BWR-B	30-May-14	211	238	59	1		
			Growth		**322**	**322**	**1016**			
Keeyask Reservoir	118309	900 067000055431	GL-B	22-Sep-20	516	594	825	6	0.41	1833
Keeyask Reservoir	-	-	GL-B	16-Sep-15	318	365	170	1		
			Growth		**198**	**229**	**655**			
Keeyask Reservoir	118311	900 067000111917	GL-B	22-Sep-20	471	541	625	4	8.90	1202
Keeyask Reservoir	-	-	GL-A	8-Jun-17	264	315	101	1		
			Growth		**207**	**226**	**524**			
Keeyask Reservoir	887837	900 067000055102	GL-B	22-Sep-20	528	610	850	6	0.34	1919
Keeyask Reservoir	-	-	GL-B	21-Sep-17	451	521	550	3	0.15	822
Keeyask Reservoir	-	-	GL-B	22-Jun-15	202	236	49	1		
			Growth		**326**	**374**	**801**			
Keeyask Reservoir	118315	900 067000059257	GL-C	22-Sep-20	428	480	550	4	9.72	1202
Keeyask Reservoir	-	-	GL-A	8-Jun-17	202	234	48	1		
			Growth		**226**	**246**	**502**			

Table A4-3: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in the Keeyask reservoir, fall 2020 (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	118325	900 067000112897	GL-B	23-Sep-20	358	417	225	2	0.45	475
Keeyask Reservoir	-	-	GL-B	6-Jun-19	246	287	74	1		
			Growth		**112**	**130**	**151**			
Keeyask Reservoir	118338	900 067000112169	GL-B	24-Sep-20	430	493	500	4	8.67	1204
Keeyask Reservoir	-	-	GL-A	8-Jun-17	294	82	-	1		
			Growth		**136**	**411**	**-**			
Keeyask Reservoir	118339	900 067000113266	GL-B	24-Sep-20	348	401	200	2	0.10	476
Keeyask Reservoir	-	-	GL-B	6-Jun-19	220	261	59	1		
			Growth		**128**	**140**	**141**			
Keeyask Reservoir	118344	900 067000059554	GL-C	24-Sep-20	422	472	500	4	9.85	1204
Keeyask Reservoir	-	-	GL-A	8-Jun-17	216	247	58	1		
			Growth		**206**	**225**	**442**			
Keeyask Reservoir	118346	900 067000112881	GL-C	24-Sep-20	357	404	250	2	0.12	476
Keeyask Reservoir	-	-	GL-C	6-Jun-19	231	271	66	1		
			Growth		**126**	**133**	**184**			
Keeyask Reservoir	118636	900 067000108671	GL-C	25-Sep-20	385	417	300	2	0.03	477
Keeyask Reservoir	-	-	GL-C	6-Jun-19	225	260	53	1		
			Growth		**160**	**157**	**247**			
Keeyask Reservoir	118638	900 067000113692	GL-C	25-Sep-20	357	404	250	2	0.03	477
Keeyask Reservoir	-	-	GL-C	6-Jun-19	235	270	63	1		
			Growth		**122**	**134**	**187**			

Table A4-4: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in Stephens Lake, fall 2020.

Location	Floy-tag #	Pit-tag No.	Zone	Date	Fork Length (mm)	Total Length (mm)	Weight (g)	Age	Distance (km)	Days Between Capture
Stephens Lake	118878	900 067000113394	STL-B	17-Sep-20	377	441	300	2	1.52	462
Stephens Lake	-	-	STL-A	13-Jun-19	245	266	66	1		
			Growth		**132**	**175**	**234**			
Stephens Lake	118879	900 067000109651	STL-A	17-Sep-20	372	430	250	2	1.47	462
Stephens Lake	-	-	STL-B	13-Jun-19	254	295	94	1		
			Growth		**118**	**135**	**156**			
Stephens Lake	118882	900 067000113447	STL-B	17-Sep-20	377	427	300	2	2.22	462
Stephens Lake	-	-	STL-B	13-Sep-19	325	370	200	1	2.47	92
Stephens Lake	-	-	STL-A	13-Jun-19	267	310	117	1		
			Growth		**110**	**117**	**183**			
Stephens Lake	118883	900 067000109284	STL-B	17-Sep-20	360	420	300	2	0.53	462
Stephens Lake	-	-	STL-B	13-Jun-19	192	229	45	1		
			Growth		**168**	**191**	**255**			
Stephens Lake	118885	900 067000058469	STL-B	17-Sep-20	580	666	1300	6	1.54	1914
Stephens Lake			STL-B	22-Jun-15	249	289	81	1		
			Growth		**331**	**377**	**1219**			
Stephens Lake	117671	900 067000109666	STL-B	18-Sep-20	357	410	200	2	13.9	470
Stephens Lake	117671	900 067000109666	STL-B	19-Sep-19	290	330	250	1	15.8	105
Keeyask Reservoir	-	-	GL-B	6-Jun-19	212	245	51	1		
			Growth		**145**	**165**	**149**			
Stephens Lake	116056	900 067000109332	STL-B	18-Sep-20	357	410	275	2	0.99	463
Stephens Lake	116056	900 067000109332	STL-B	14-Sep-19	313	365	150	1	0.04	93
Stephens Lake	-	-	STL-B	13-Jun-19	244	290	85	1		
			Growth		**113**	**120**	**190**			

Table A4-4: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in Stephens Lake, fall 2020 (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	118898	900 067000113231	STL-B	18-Sep-20	330	380	200	2	1.82	463
Stephens Lake	-	-	STL-A	13-Jun-19	230	273	73	1		
				Growth	**100**	**107**	**127**			
Stephens Lake	116040	900 067000109581	STL-B	18-Sep-20	365	420	300	2	0.83	463
Stephens Lake	-	-	STL-B	13-Jun-19	275	315	120	1		
				Growth	**90**	**105**	**180**			
Stephens Lake	116012	900 067000108610	STL-B	19-Sep-20	368	422	300	2	11.5	471
Stephens Lake	116012	900 067000108610	STL-B	13-Sep-19	298	337	125	1	14.4	99
Keeyask Reservoir	-	-	GL-C	6-Jun-19	208	242	50	1		
				Growth	**160**	**180**	**250**			
Stephens Lake	118874	900 067000113414	STL-B	19-Sep-20	380	437	325	2	1.97	464
Stephens Lake	-	900 067000113414	STL-B	12-Sep-19	310	360	175	1	2.68	91
Stephens Lake	-	-	STL-A	13-Jun-19	228	267	62	1		
				Growth	**152**	**170**	**263**			
Stephens Lake	118873	900 067000055260	STL-B	19-Sep-20	555	637	1175	6	1.02	1832
Stephens Lake			STL-B	14-Sep-15	299	350	152	1		
				Growth	**256**	**287**	**1023**			
Stephens Lake	118872	900 067000056732	STL-B	20-Sep-20	415	480	475	4	22.5	1200
Keeyask Reservoir	-	-	GL-A	8-Jun-17	228	264	66	1		
				Growth	**187**	**216**	**409**			
Stephens Lake	116007	900 067000055209	STL-B	20-Sep-20	583	675	1400	6	1.85	1917
Stephens Lake	116007	900 067000055209	STL-B	12-Sep-19	540	623	1075	5	1.58	1543
Stephens Lake			STL-B	22-Jun-15	218	257	60	1		
				Growth	**365**	**418**	**1340**			

Table A4-4: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in Stephens Lake, fall 2020 (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	118870	900 067000055340	STL-B	20-Sep-20	600	688	1200	6	1.84	1833
Stephens Lake			STL-B	14-Sep-15	335	388	196	1		
			Growth		**265**	**300**	**1004**			
Stephens Lake	118868	900 067000108602	STL-B	20-Sep-20	378	440	350	2	2.62	465
Stephens Lake	-	-	STL-A	13-Jun-19	240	284	75	1		
			Growth		**138**	**156**	**275**			
Stephens Lake	118866	900 067000055518	STL-B	20-Sep-20	540	628	1100	6	11.9	1831
Keeyask Reservoir			GL-C	16-Sep-15	319	367	174	1		
			Growth		**221**	**261**	**926**			
Stephens Lake	118863	900 067000113411	STL-B	20-Sep-20	380	435	400	2	2.62	465
Stephens Lake	-	-	STL-A	13-Jun-19	250	293	85	1		
			Growth		**130**	**142**	**315**			
Stephens Lake	118858	900 067000055314	STL-B	20-Sep-20	615	710	1500	6	0.59	1917
Stephens Lake			STL-B	22-Jun-15	237	284	72	1		
			Growth		**378**	**426**	**1428**			
Stephens Lake	116783	900 067000109883	STL-B	21-Sep-20	403	469	400	3	137.2	837
Keeyask Reservoir	116783	900 067000109883	GL-C	13-Sep-19	338	387	227	2	128.9	463
Burntwood River			BWR-A	7-Jun-18	241	280	87	1		
			Growth		**162**	**189**	**313**			
Stephens Lake	118726	900 067000055379	STL-B	21-Sep-20	589	683	1400	6	0.61	1918
Stephens Lake			STL-B	22-Jun-15	198	236	43	1		
			Growth		**391**	**447**	**1357**			
Stephens Lake	118729	900 067000055516	STL-B	22-Sep-20	537	616	925	6	1.08	1835
Stephens Lake			STL-B	14-Sep-15	280	327	115	1		
			Growth		**257**	**289**	**810**			

Table A4-4: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in Stephens Lake, fall 2020 (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	118740	900 067000055329	STL-B	22-Sep-20	585	679	1175	6	0.72	1919
Stephens Lake			STL-B	22-Jun-15	202	236	40	1		
			Growth		**383**	**443**	**1135**			
Stephens Lake	118743	900 067000055360	STL-B	22-Sep-20	515	583	950	6	1.87	1835
Stephens Lake			STL-B	14-Sep-15	250	283	76	1		
			Growth		**265**	**300**	**874**			
Stephens Lake	118745	900 067000108653	STL-B	22-Sep-20	387	445	275	2	2.64	467
Stephens Lake	-	-	STL-A	13-Jun-19	233	270	60	1		
			Growth		**154**	**175**	**215**			
Stephens Lake	117579	900 067000055440	STL-B	22-Sep-20	615	703	1510	6	0.58	1919
Stephens Lake	117579	900 067000055440	STL-B	16-Sep-19	577	655	1200	5	0.33	1547
Stephens Lake			STL-B	22-Jun-15	225	258	58	1		
			Growth		**390**	**445**	**1452**			
Stephens Lake	110559	900 067000055361	STL-B	22-Sep-20	630	731	1525	6	0.63	1919
Stephens Lake	-	-	STL-A	15-Sep-19	586	683	1300	5	1.83	1546
Stephens Lake	-	-	STL-A	18-Sep-16	418	492	440	2	3.32	454
Stephens Lake	-	-	STL-B	22-Jun-15	236	279	75	1		
			Growth		**394**	**452**	**1450**			
Stephens Lake	118749	900 067000055126	STL-B	23-Sep-20	528	612	975	6	12.9	1834
Keeyask Reservoir			GL-C	16-Sep-15	301	346	155	1		
			Growth		**227**	**266**	**820**			
Stephens Lake	118801	900 067000059086	STL-B	23-Sep-20	452	529	510	4	1.86	1084
Stephens Lake			STL-B	5-Oct-17	295	340	175	1		
			Growth		**157**	**189**	**335**			

Table A4-4: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in Stephens Lake, fall 2020 (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	118802	900 067000059376	STL-B	23-Sep-20	458	523	600	4	4.15	1196
Stephens Lake			STL-A	15-Jun-17	217	255	58	1		
				Growth	**241**	**268**	**542**			
Stephens Lake	117684	900 226001031072	STL-B	24-Sep-20	368	430	250	2	2.92	469
Stephens Lake	-	900 067000113412	STL-A	13-Jun-19	235	288	84	1		
				Growth	**133**	**142**	**166**			
Stephens Lake	116092	900 067000055366	STL-B	24-Sep-20	600	680	1300	6	0.85	1921
Stephens Lake	116092	-	STL-B	15-Sep-19	551	623	1100	5		
Stephens Lake	-	-	STL-B	22-Jun-15	232	269	66	1		
				Growth	**368**	**411**	**1234**			
Stephens Lake	118810	900 067000113248	STL-B	24-Sep-20	391	452	300	2	0.50	469
Stephens Lake	-	-	STL-B	13-Jun-19	220	255	53	1		
				Growth	**171**	**197**	**247**			
Stephens Lake	117576	900 067000055643	STL-B	24-Sep-20	518	594	750	6	0.66	1837
Stephens Lake	-	-	STL-B	16-Sep-19	476	550	575	5	0.43	1463
Stephens Lake			STL-B	14-Sep-15	290	338	126	1		
				Growth	**228**	**256**	**624**			
Stephens Lake	118814	900 067000055782	STL-B	24-Sep-20	581	666	1175	6	1.89	1837
Stephens Lake			STL-B	14-Sep-15	288	336	130	1		
				Growth	**293**	**330**	**1045**			
Stephens Lake	118817	900 067000108650	STL-B	25-Sep-20	361	412	250	2	14.9	477
Keeyask Reservoir	-	-	GL-B	6-Jun-19	210	243	51	1		
				Growth	**151**	**169**	**199**			

Table A4-4: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in Stephens Lake, fall 2020 (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	118818	900 067000109612	STL-B	25-Sep-20	357	410	200	2	2.55	470
Stephens Lake	-	-	STL-A	13-Jun-19	217	253	53	1		
			Growth		**140**	**157**	**147**			
Stephens Lake	118819	900 067000113712	STL-B	25-Sep-20	364	416	250	2	2.55	470
Stephens Lake	-	-	STL-A	13-Jun-19	235	275	80	1		
			Growth		**129**	**141**	**170**			
Stephens Lake	118820	900 067000113027	STL-B	25-Sep-20	359	421	300	2	0.49	470
Stephens Lake	-	-	STL-B	13-Jun-19	225	272	68	1		
			Growth		**134**	**149**	**232**			
Stephens Lake	118821	900 067000113219	STL-B	25-Sep-20	362	423	225	2	2.55	470
Stephens Lake	-	-	STL-A	13-Jun-19	220	260	47	1		
			Growth		**142**	**163**	**178**			
Stephens Lake	118823	900 067000055395	STL-B	25-Sep-20	582	661	1375	6	2.00	1838
Stephens Lake			STL-B	14-Sep-15	294	340	160	1		
			Growth		**288**	**321**	**1215**			
Stephens Lake	118824	900 067000055234	STL-B	25-Sep-20	611	703	1950	6	0.59	1922
Stephens Lake			STL-B	22-Jun-15	219	255	59	1		
			Growth		**392**	**448**	**1891**			
Stephens Lake	118825	900 067000109639	STL-B	25-Sep-20	333	280	200	2	2.77	470
Stephens Lake	117628	900 067000109639	STL-B	21-Sep-19	265	301	100	1	2.83	100
Stephens Lake	-	-	STL-A	13-Jun-19	181	211	32	1		
			Growth		**152**	**69**	**168**			

Table A4-4: Original release date and biological data for hatchery-reared Lake Sturgeon captured in gill nets set in Stephens Lake, fall 2020 (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	117573	900 067000113448	STL-B	25-Sep-20	369	422	300	2	0.56	470
Stephens Lake	-	-	STL-B	18-Sep-19	308	354	150	1	0.17	97
Stephens Lake	-	-	STL-B	13-Jun-19	235	278	80	1		
			Growth		**134**	**144**	**220**			
Stephens Lake	118828	900 067000113181	STL-B	25-Sep-20	389	449	400	2	0.56	470
Stephens Lake	-	-	STL-B	13-Jun-19	230	269	62	1		
			Growth		**159**	**180**	**338**			
Stephens Lake	118829	900 067000111968	STL-B	25-Sep-20	481	558	800	4	4.48	1198
Stephens Lake			STL-A	15-Jun-17	255	297	102	1		
			Growth		**226**	**261**	**698**			
Stephens Lake	118835	900 067000112985	STL-B	25-Sep-20	365	425	300	2	0.47	470
Stephens Lake	-	-	STL-B	13-Jun-19	200	239	46	1		
			Growth		**165**	**186**	**254**			
Stephens Lake	118837	900 067000113489	STL-B	25-Sep-20	452	525	650	4	4.13	1198
Stephens Lake			STL-A	15-Jun-17	243	287	93	1		
			Growth		**209**	**238**	**557**			
Stephens Lake	118833	900 067000113731	STL-B	25-Sep-20	374	430	300	2	2.69	470
Stephens Lake	-	-	STL-A	13-Jun-19	220	260	57	1		
			Growth		**154**	**170**	**243**			

APPENDIX 5:
POPULATION ESTIMATE INFORMATION.

Mark-recapture population estimates were calculated for wild fish in the Upper Split Lake Area, Keeyask reservoir and Stephens Lake during the fall of ten different years (2010 and 2012-2020). 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 than 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, A5-2 and A5-4).

- Model fit for survival was calculated as 73% for the Upper Split Lake Area, 73% for the Keeyask reservoir and 73% 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 (0.08); ii) 2013 (0.00); iii) 2014 (0.07); iv) 2015-2016 (0.1); v) 2017 (0.02); vi) 2018 and 2020 (0.03); and vii) 2019 (0.05).
    - For the Keeyask reservoir rates were split into six groups: i) 2010 (0.72); ii) 2012 and 2018 (0.04); iii) 2013 (0.02); iv) 2014-2016 (0.03); v) 2017 and 2020 (0.07); and vi) 2019 (0.06).
    - For Stephens Lake, recapture rates were split into eight groups: i) 2010 (0.80); ii) 2012 and 2020 (0.18); iii) 2013 (0.04); iv) 2014 (0.09); v) 2015 and 2018 (0.07); vi) 2016 (0.13); vii) 2017 (0.16); and viii) 2019 (0.15).

- Abundance estimates for the Upper Split Lake Area are provided for the 2012-2020 study years and for the Keeyask reservoir and Stephens Lake are provided for the 2010 and 2012-2020 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 2020. 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 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.

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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)	0.73	0.12	0.46	0.90
2012 Recapture	0.08	0.04	0.03	0.19
2013 Recapture	0.00	0.00	0.00	0.02
2014 Recapture	0.07	0.07	0.01	0.39
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	0.06
2018 Recapture	0.03	0.02	0.01	0.09
2019 Recapture	0.05	0.03	0.02	0.15
2020 Recapture	0.03	0.02	0.01	0.09
2012 Abundance	306	133	135	692
2013 Abundance	829	808	167	4,113
2014 Abundance	608	612	118	3,133
2015 Abundance	5,302	2,339	2,320	12,118
2016 Abundance	3,892	1,760	1,671	9,064
2017 Abundance	2,857	1,473	1,103	7,397
2018 Abundance	2,097	1,290	691	6,363
2019 Abundance	2,646	1,431	981	7,139
2020 Abundance	4,334	2,215	1,686	11,143

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.

Parameter	Mean	SE	95% Confidence Interval	
			Low	High
Survival	0.91	0.08	0.62	0.98
2014 Recapture	0.00	0.00	0.00	0.02
2015 Recapture	0.00	0.00	0.00	0.01
2016 Recapture	0.00	0.00	0.00	0.02
2017 Recapture	0.01	0.01	0.00	0.03
2018 Recapture	0.00	0.00	0.00	0.01
2019 Recapture	0.01	0.01	0.01	0.03
2020 Recapture	0.02	0.01	0.01	0.05
2013 Cohort at Large	331		33	537
2015 Cohort at Large	16		3	21
2017 Cohort at Large	608		283	714
2019 Cohort at Large	574		574	574
2020 Stocked	1,528		894	1847
2020 Wild	4334	2215	1686	11143
Percent Hatchery	26.1%			

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 (2010-2012)	0.98	0.23	0.00	1.00
Survival (2012-2020)	0.73	0.05	0.62	0.82
2010 Recapture	0.72	10.79	0.00	1.00
2012 and 2018 Recapture	0.04	0.03	0.01	0.17
2013 Recapture	0.02	0.01	0.00	0.07
2014-2016 Recapture	0.03	0.02	0.01	0.10
2017 and 2020 Recapture	0.07	0.02	0.04	0.12
2019 Recapture	0.06	0.02	0.04	0.12
2010 Abundance	95	1,423	1	9,108
2012 Abundance	1,761	1,250	503	6,160
2013 Abundance	1,291	873	388	4,296
2014 Abundance	3,529	2,077	1,212	10,277
2015 Abundance	3,944	981	2,441	6,374
2016 Abundance	2,892	654	1,867	4,480
2017 Abundance	2,117	565	1,265	3,541
2018 Abundance	3,100	1,070	1,606	5,984
2019 Abundance	2,693	791	1,532	4,732
2020 Abundance	2,442	675	1,435	4,157

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.

Parameter	Mean	SE	95% Confidence Interval	
			Lower	Upper
Survival	0.84	0.04	0.73	0.90
2015 Recapture	0.01	0.00	0.00	0.02
2016 Recapture	0.03	0.01	0.02	0.06
2017 Recapture	0.05	0.01	0.03	0.07
2018 Recapture	0.04	0.01	0.02	0.06
2019 Recapture	0.08	0.02	0.06	0.12
2020 Recapture	0.06	0.01	0.04	0.10
2014 Cohort at Large	174		90	257
2016 Cohort at Large	271		183	343
2018 Cohort at Large	333		292	360
Stocked	778		566	960
Wild	2442	675	1435	4157
Percent Hatchery	24.2%			

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 (2010-2012)	0.93	0.19	0.04	1.00
Survival (2012-2020)	0.73	0.04	0.65	0.80
2010 Recapture	0.80	17.86	0.00	1.00
2012 and 2020 Recapture	0.18	0.10	0.05	0.46
2013 Recapture	0.04	0.01	0.02	0.08
2014 Recapture	0.09	0.03	0.05	0.17
2015 and 2018 Recapture	0.07	0.03	0.03	0.15
2016 Recapture	0.13	0.04	0.07	0.23
2017 Recapture	0.16	0.04	0.10	0.26
2019 Recapture	0.15	0.03	0.10	0.21
2010 Abundance	40	899	0	5,326
2012 Abundance	465	260	167	1,293
2013 Abundance	715	214	403	1,269
2014 Abundance	522	160	290	940
2015 Abundance	641	246	310	1,324
2016 Abundance	497	136	294	843
2017 Abundance	576	138	362	916
2018 Abundance	818	263	443	1,513
2019 Abundance	671	110	487	924
2020 Abundance	491	100	330	729

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.

Parameter	Mean	SE	95% Confidence Interval	
			Lower	Upper
Survival	0.76	0.06	0.63	0.86
2015 Recapture	0.01	0.01	0.01	0.04
2016 Recapture	0.02	0.01	0.01	0.05
2017 Recapture	0.07	0.01	0.05	0.09
2018 Recapture	0.04	0.01	0.02	0.07
2019 Recapture	0.21	0.03	0.16	0.28
2020 Recapture	0.13	0.03	0.08	0.19
2014 Cohort at Large	108		40	197
2016 Cohort at Large	319		177	459
2018 Cohort at Large	297		244	336
Stocked	725		461	991
Wild	491	100	330	729
Percent Hatchery	59.6%			