



Keeyask Generation Project Aquatic Effects Monitoring Plan

Adult Lake Sturgeon Population Monitoring Report (Upper Split Lake Area)

AEMP-2020-05



KEEYASK GENERATION PROJECT

AQUATIC EFFECTS MONITORING PLAN

REPORT #AEMP-2020-05

ADULT LAKE STURGEON POPULATION MONITORING IN THE UPPER SPLIT LAKE AREA, 2019

Prepared for

Manitoba Hydro

By

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SUMMARY

Background

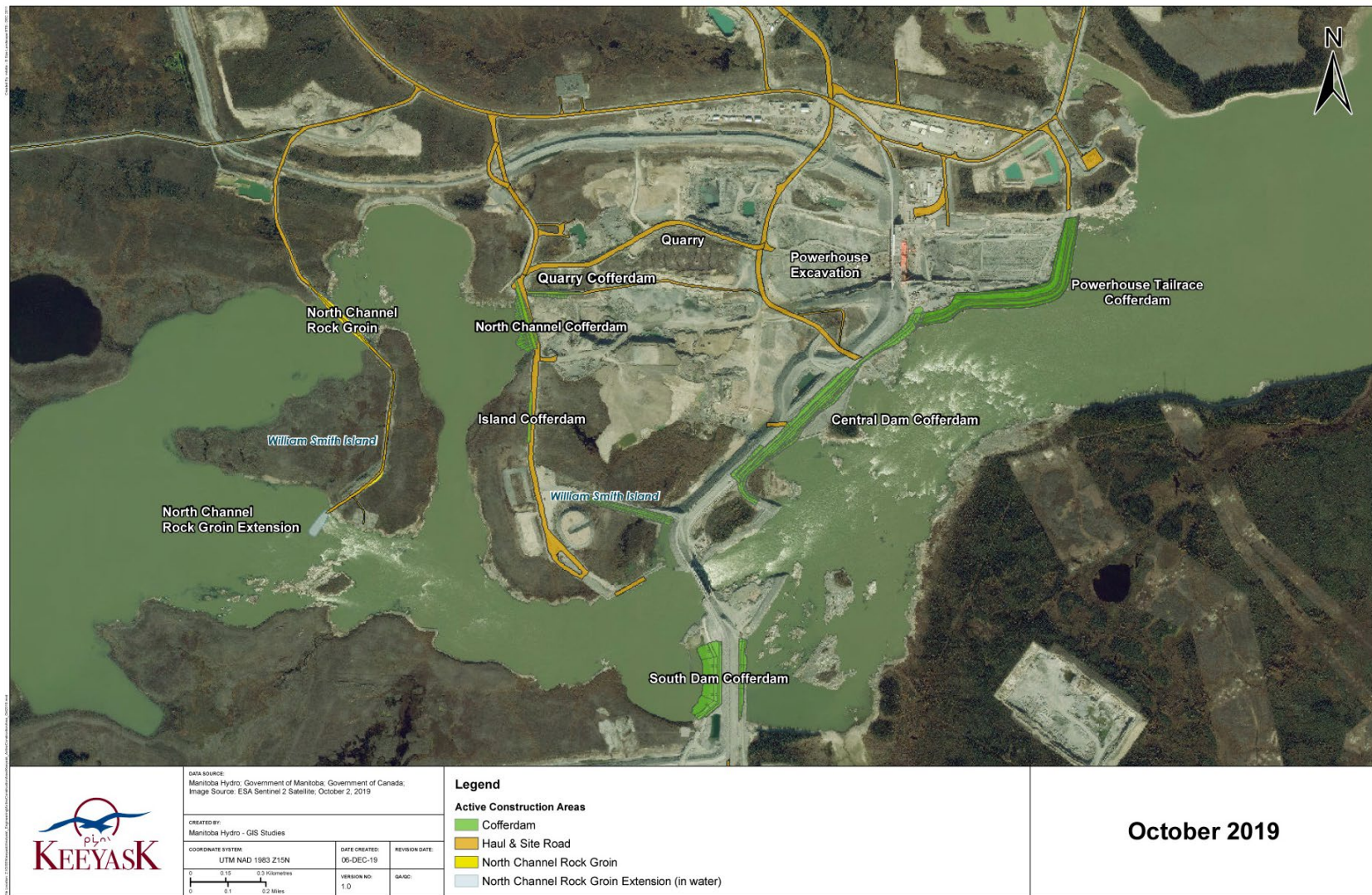
The Keeyask Hydropower Limited Partnership (KHLP) was required to prepare a plan to monitor the effects of construction and operation of the Keeyask Generating Station (GS) on the environment. Besides measuring the accuracy of the predictions made and actual effects of the GS on the environment, monitoring 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 that blocked flow in the north and central channels of Gull Rapids (see instream structures map below). During the winter of 2015/2016, the Spillway Cofferdam, which partially blocks the south channel was constructed. Beginning late in 2016 and continuing in 2017, the Tailrace Cofferdam was constructed. Work was completed in fall 2017 with the exception of an opening that was left to allow fish movement into and out of the cofferdam over the 2017/2018 winter. This opening was closed in spring 2018, and the area was dewatered. The spillway was commissioned in August 2018. The South Dam Cofferdam was completed in fall 2018, blocking the channel and forcing the entire flow of the river through the spillway. Almost all work in 2019 was in the dry. The construction activities included the excavation of the tailrace, construction of the tailrace spawning shoal, and completion of the dams and dykes.

The Lake Sturgeon was identified as one of the key species for monitoring. They were chosen because they are culturally important to partner First Nations, the local Lake 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:

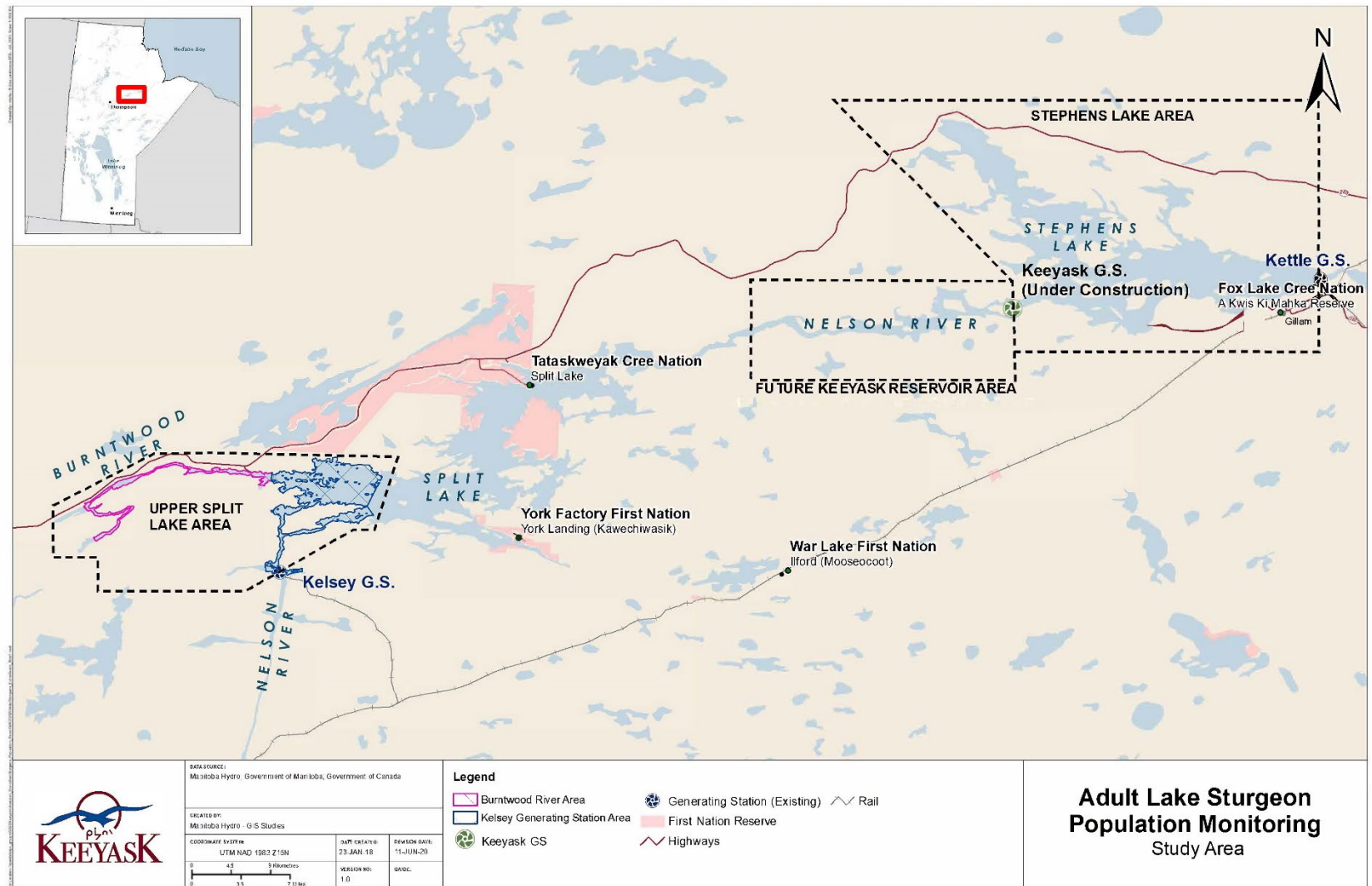
- Estimating the number of adults;
- Estimating the number and growth of juveniles (< 800 millimetres [mm] in length);
- Identifying spawning locations and numbers of spawning fish; and
- Recording seasonal habitat use and long distance movements (*i.e.*, over GS's or rapids) through movement studies.

This report presents results from adult Lake Sturgeon population monitoring in spring 2019 in the Upper Split Lake Area (see map on p. iv). This area was picked as a location where the KHLP could support an effort to help a population of Lake Sturgeon recover to a large enough size that they are not in danger of disappearing completely from the area. Stocking of young Lake Sturgeon (hatched from the eggs of wild adults and raised in a hatchery) is being done to help the population in this area.



Satellite Imagery - October, 2019

Map illustrating instream structures at the Keeyask Generating Station site, October 2019.



Map of the study area for the adult Lake Sturgeon population monitoring program. Sampling alternates between the Upper Split Lake area in odd years and the future Keeyask reservoir and Stephens Lake areas in even years.

Why is the study being done?

Monitoring of the adult Lake Sturgeon population in the Upper Split Lake Area is being done to answer several questions:

Is there a change in the number of Lake Sturgeon in the future Keeyask reservoir?

Population estimates will allow us to determine how the number of adults is changing as we try to increase the number of sturgeon by stocking young fish. Lake Sturgeon differ from other fish in Manitoba as they do not reproduce until they are at least 15 years old and can live a very long time (between 60 and 100 years). If the remaining adult fish disappear before enough young fish are born or stocked, then the population will not recover.

Is there a change in the mortality rate of Lake Sturgeon in the Upper Split Lake Area?

The rate at which Lake Sturgeon are dying is important to know if we want the population to increase. If the mortality rate increases, then steps would need to be taken to determine the cause and to develop a plan to stop further decreases in the population.

Is there a significant change in the condition (how fat they are) of Lake Sturgeon in the Upper Split Lake Area?

This question is important because if Lake Sturgeon become fatter or skinnier than they used to be, something is changing in their environment. In the long term (more than 10 or 15 years), it might also mean that stocking has increased population levels to the point that there is not enough food for all the fish, and stocking should be reduced or stopped.

What was done?

Sampling was conducted in the Upper Split Lake Area from May 21 to June 30, 2019, using gill nets to target adult Lake Sturgeon. For this study, individuals that were 800 mm or longer were classified as adults. Although the exact size at which Lake Sturgeon become mature and ready to reproduce can vary, previous information tells us that 800 mm is a good standard size to use to determine whether fish are mature. Nets were set at locations where adults are known to occur, including at spawning sites, because Lake Sturgeon gather there to spawn in spring and are easy to catch. When a fish was caught it was measured, weighed, and examined for signs of spawning. If the fish was not already tagged, then two different tags were applied; an external (Floy®) tag and a small internal (PIT) tag. 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 estimate how many Lake Sturgeon are in a population. Populations are estimated using a model. Each year as more data are collected and added to the model, the population estimates get more precise and accurate. Therefore, these estimates are recalculated each sampling year, so they might differ between reports.



Pulling a gill net (left), captured adult Lake Sturgeon (middle), and releasing an adult Lake Sturgeon after processing (right).

What was found?

A total of 403 Lake Sturgeon were caught in the Upper Split Lake Area in 2019. The majority (332) were classified as adults as they measured 800 mm or longer and 60 of these fish were expected to spawn in the current year (adult Lake Sturgeon do not spawn every year). One hundred and forty fish were recaptures of fish tagged in previous years. Of these recaptured fish, all were originally tagged in the Upper Split Lake Area, except six fish that were tagged downstream in the Nelson River between Birthday Rapids and Gull Rapids. Additionally, two Lake Sturgeon were hatchery fish released into the Burntwood River (one in 2014 and one in 2018), and two were wild fish tagged upstream in the Nelson River near Landing River (a tributary to the Nelson River approximately 90km upstream of Kelsey GS) that passed through the Kelsey GS, likely via the spillway.

A computer model is used each study year to generate estimates of population size and survival for adult Lake Sturgeon in the Upper Split Lake Area. The population estimate was separated into two populations because they have different genetics: the Burntwood River between First Rapids and Split Lake is one group, and the Kelsey GS Area (including the upstream end of Split Lake, the Grass River and the Nelson River to Split Lake) is a second group. The population model estimates population size based on numbers of fish captured and recaptured in a given period of time, and each time the model is run, new estimates are generated for all the study years. In 2019, the Burntwood River adult population was estimated at 678 fish, which is higher than the updated 2017 estimate of 540 fish. Annual survival (chance of living year to year) of the Burntwood River population was 87%. The Kelsey GS Area population in 2019 was estimated at 554 individuals, which is slightly lower than the updated 2017 estimate of 590 fish. Annual survival of Kelsey GS Area Lake Sturgeon was 81%. Particularly large changes in previous estimates occur when fish that were thought to be alive are reported as dead (for example from a tag return) or a fish that has not been captured for many years is captured again. Three tagged fish that were harvested from the Kelsey GS Area were reported in 2019. Three additional tagged fish were reported from the Burntwood River. These fish were juvenile sized or captured outside of the current project.

The condition factor (a measure of how fat a sturgeon is at a given size) was similar to previous years for Lake Sturgeon of all sizes in the Burntwood River. In the Kelsey GS Area, Lake

Sturgeon had a lower condition (were skinnier) during recent sampling years. Overall, the condition factors of all the Lake Sturgeon were within the range seen elsewhere in Northern Manitoba.



Weighing (left), measuring (middle), and scanning for a PIT tag (right) an adult Lake Sturgeon

What does it mean?

Sampling done in 2019 showed that the population of adult Lake Sturgeon in the Burntwood River is higher than in 2017 but the same as in 2015. Although the estimates change between years, overall, the population seems to be increasing since 2005. In the Kelsey GS Area, the population estimates from 2015, 2017, and 2019 were similar. Overall the population has not changed since 2005.

Condition factors in the Burntwood have not changed much since studies began, but were higher during earlier study years in the Kelsey GS Area than recent study years. Despite this, condition factor of Lake Sturgeon in both areas continue to be similar to those seen elsewhere in Northern Manitoba.

What will be done next?

Monitoring will continue in the Upper Split Lake Area every two years until 2043. Further monitoring will show whether the population increases, decreases, or remains similar to current levels. Changes in the numbers of adult Lake Sturgeon generally occur slowly, unless a large number move to a different area. The effects of stocking will not be seen in the adult population for 15–20 years, when the stocked fish grow to adult size.

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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, adult Lake Sturgeon populations, for the construction and operation phases of the Project.

Adult population monitoring studies were initiated in 2001. Two areas were considered: the area that would be directly affected by the Project (including the reach of the Nelson River from Clark Lake to Gull Rapids) and Stephens Lake; and rivers flowing into the upstream portion of Split Lake (referred to as the Upper Split Lake Area). When studies were initiated in 2001, it was known that Lake Sturgeon habitat in the Upper Split Lake Area would not be affected by the Project, but the degree of interaction between Lake Sturgeon in the Upper Split Lake Area and Gull and Stephens lakes was not known. Genetic studies completed since that time have demonstrated that Lake Sturgeon in Gull Lake are a separate population from those in the Upper Split Lake Area (Gosselin *et al.* 2016). However, some movement of adult Lake Sturgeon between Gull Lake and the Nelson River downstream of the Kelsey GS has been recorded. Studies have continued in the Upper Split Lake Area because this area was selected as a location where the KHLPP could support the recovery of a Lake Sturgeon population outside the direct influence of the Project as an offsetting measure¹.

Since 2001, Lake Sturgeon data have been collected in multiple years from the Upper Split Lake, Clark Lake to Gull Rapids, and Stephens Lake areas (Barth and Mochnacz 2004; Barth 2005; Barth and Murray 2005; Barth and Ambrose 2006; Barth and MacDonald 2008; MacDonald 2008a, b; Michaluk and MacDonald 2010; MacDonald and Barth 2011; Hrenchuk and McDougall 2012; Hrenchuk 2013; Groening *et al.* 2014; Henderson *et al.* 2016; Legge *et al.* 2017; Lacho *et al.* 2018). Studies focused on adults were conducted during alternate years among locations: in the Upper Split Lake Area during odd numbered years; and in the Nelson

¹ See the Fisheries Offsetting and Mitigation Plan for more information on the selection of stocking locations and the stocking plan.

River between Clark Lake and Gull Rapids and Stephens Lake in even numbered years. These studies were conducted during spring and identified sturgeon spawning areas, determined the relative importance of spawning sites, and contributed to the understanding of Lake Sturgeon movements. Mark-recapture data have also been used to develop adult abundance estimates for populations in the Upper Split Lake Area, the Nelson River between Clark Lake and Gull Rapids, and in Stephens Lake. The last population estimate for the Upper Split Lake Area was derived in 2017 (Lacho *et al.* 2018). The last population estimate for the future Keeyask reservoir and Stephens Lake was derived in 2018 (Holm and Hrenchuk 2019). It was the first time that an estimate could be developed for Stephens Lake.

This report presents results of the third monitoring study conducted on adult Lake Sturgeon in the Upper Split Lake Area (upstream of the Project's hydraulic zone of influence) since construction of the Project began in July 2014. Data collected address objectives of the adult population monitoring program and also provide information relevant to the movement monitoring program. The key questions set out in the AEMP for adult population monitoring in the Upper Split Lake Area were:

- Is there a biologically relevant (and statistically significant) change in the rate of population growth for the Upper Split Lake Area populations?
- Is there a biologically relevant (and statistically significant) change in survival for the Upper Split Lake Area population?
- Is there a biologically relevant (and statistically significant) change in the condition factor of Lake Sturgeon?
- Is the relative abundance/CPUE of adult Lake Sturgeon in Upper Split Lake Area changing?
- Over the long-term, is there a measurable effect on population growth due to stocking?
- Over the long-term, is the Lake Sturgeon population considered sustainable based on the size of the adult population and the population viability analysis?

The last two questions in this list relate to long-term changes and are not addressed in this report.

Movement monitoring, as described in the AEMP, is based on both mark/recapture methods (this report) and acoustic telemetry (Hrenchuk 2020). The key question addressed by mark/recapture methods in this study was:

- Will the frequency of long-distance movements (from the Keeyask/Stephens Lake area to the Upper Split Lake Area) by sub-adult and adult Lake Sturgeon increase during construction and operation of the Project?

Although Lake Sturgeon in the Upper Split Lake Area are not directly affected by construction and operation of the Project, for the purposes of data analysis, the period 2001 to 2014 is considered baseline and 2015 onward is considered construction monitoring. Use of the same

temporal division as in areas directly affected by the Project (the Clark to Gull Rapids reach and Stephens Lake) will allow comparison of changes to Lake Sturgeon among areas.

2.0 STUDY SETTING

Adult Lake Sturgeon population monitoring in 2019 was conducted in the Upper Split Lake Area, which consists of two locations: 1) the Burntwood River between First Rapids and Split Lake, and 2) the Nelson River between the Kelsey GS and Split Lake (including the Grass River downstream of Witchai Lake Falls and upper Split Lake) (Map 2). The sections of riverine and lacustrine habitat that represent the Upper Split Lake Area offer a diversity of physical conditions, including a variety of substrate types, variable water depths (ranging from 0 to 30 m) and water velocities. Water velocities were classified as low (0.2–0.5 m/s), moderate (0.5–1.5 m/s), or high (> 1.5 m/s), as described in the Keeyask AE SV.

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 (Map 1). It is unknown if First Rapids represents a natural barrier to upstream fish passage, but 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. The hydrology of the Burntwood River has been affected by the Churchill River Diversion (CRD). Outflow from the Burntwood River to Split Lake at First Rapids increased nearly 10-fold from 90.0 m³/s prior to diversion to 849.0 m³/s following diversion.

The Kelsey GS is located on the upper Nelson River, approximately 90 km upstream of Gull Rapids (Map 1). Kelsey GS was completed in 1961 and was the first hydroelectric station built on the Nelson River. Downstream of the GS there is an approximately 5 km long reach of the Nelson River, characterized by predominantly fast moving water with rocky shoreline and substrate, after which the Nelson River splits into two channels around a large island. Each channel contains a set of rapids: the Anipitapiskow Rapids (~7 km north of the GS on the north channel) and Sakitowak Rapids (~10.0 km northeast of the GS on the south channel). Both channels empty into Split Lake.

The Grass River enters the Nelson River from the west immediately downstream of the Kelsey GS (Map 1). Between Witchai Lake Falls (approximately 5.0 km upstream of the mouth) and the mouth of the Grass River, the shorelines are gradual in slope and water velocities are generally lower than in the Nelson River. Witchai Lake Falls appears to be a natural barrier to upstream fish passage.

Split Lake, which is immediately downstream of the Kelsey GS at the confluence of the Burntwood and Nelson rivers, is the second largest waterbody in the Keeyask study area (Map 1). Due to large inflows from the Nelson and Burntwood rivers, the lake has a 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.

3.0 METHODS

3.1 GILLNETTING

Large mesh gill nets were used to capture adult (> 800 mm fork length) Lake Sturgeon in two areas within the Upper Split Lake Area: the Burntwood River between First Rapids and Split Lake, and the Nelson River downstream of the Kelsey GS (including the Grass River and the upper reaches of Split Lake) (Map 2). The areas were divided into distinct geographical zones to simplify the presentation of results and discussion of fish movements. Gill nets were set in the Burntwood River (Map 3) and Kelsey GS Area (Map 4) between May 21 and June 30, 2019.

Gillnet gangs consisted of two or four 25 yd (22.9 m) long, 2.7 yd (2.5 m) deep panels of 8, 9, 10, and 12" (203, 229, 254, and 305 mm) twisted nylon stretched mesh. Two-panel gangs included 8 and 10" or 9 and 12" mesh, and four-panel gangs were arranged in order of 8, 10, 9, and 12" mesh. Gill nets were checked approximately every 24 hours, weather permitting. At each gillnetting site, UTM coordinates were taken using a hand-held GPS unit (Garmin Limited, Olathe, Kansas).

Water temperature was measured daily using a hand-held thermometer ($\pm 0.5^{\circ}\text{C}$). HOBO Water Temperature Pro data loggers ($\pm 0.2^{\circ}\text{C}$), set approximately 1 m off the substrate were also used to log water temperature at 6-hour intervals in the mainstem of both the Burntwood and Nelson rivers.

Captured Lake Sturgeon were measured for fork length (FL) and total length (TL; ± 1 mm), weighed (with a digital hand-held hanging scale, hand-held conventional scale, or pan scale ± 1 lb), and externally marked with an individually numbered plastic Floy[®]-GD-94 T-bar anchor tag (Floy tag). Floy tags were inserted between the basal pterygiophores of the dorsal fin using a Dennison[®] Mark II tagging gun. In addition to the external tag, each Lake Sturgeon had an individually numbered Passive Integrated Transponder (PIT) tag (Oregon RFID Ltd., Portland, Oregon) injected under the third dorsal scute using Oregon[®] RFID tag injector needles, dipped in Polysporin[®] to minimize the risk of infection. Tags were injected into dorsal muscle tissue parallel to the horizontal axis of the fish. Following implantation, the fish was scanned using an Agrident[®] APR 350 Reader (Agrident Ltd., Steinkippenstrasse, Germany).

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

Female (F)

- 2 – maturing to spawn (pre-spawn)
- 3 – ripe

Male (M)

- 7 – maturing to spawn (pre-spawn)
- 8 – ripe

4 – spent (post-spawn)

9 – spent (post-spawn)

Species other than Lake Sturgeon captured in the gill nets were measured for FL (TL for Burbot and Freshwater Drum), weighed, and released.

3.2 DATA ANALYSIS

As was done in previous years, data analysis included all sizes of Lake Sturgeon captured (as opposed to only those measuring more than 800 mm FL). Mesh sizes used target large Lake Sturgeon, but smaller fish are also captured. Including all fish in the summary statistics ensures comparability among years.

Mean FL (mm), weight (g), and condition factor (K) were calculated for all first-time captures and recaptured Lake Sturgeon tagged in a previous year. Condition factor was calculated for individual fish 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)

Mean condition factor was calculated by 50 mm FL intervals for adult Lake Sturgeon. Condition factor for pre-Project data (*i.e.*, 2001–2013) was then compared to the three years of construction monitoring data (2015, 2017, and 2019), by FL interval, using Mann-Whitney U-tests in XLSTAT® (Addinsoft 2006). Significance was determined using a p-value of 0.05.

A length-frequency histogram for Lake Sturgeon was plotted in 50 mm FL intervals (*e.g.*, 1,000–1,049 mm).

A length-weight relationship was calculated using least squares regression analysis on logarithmic transformations of FL and weight according to the following relationship:

$$\text{Log}_{10}(W) = \text{Log}_{10}(a) + b \cdot \text{Log}_{10}(L)$$

Where:

W = round weight (g);

L = fork length (mm);

a = Y-intercept; and

b = slope of the regression line

Catch-per-unit-effort (CPUE) was calculated and expressed as the number of Lake Sturgeon (LKST) captured in 91.4 m (100 yd; the standard length of adult Lake Sturgeon nets) of net per 24 hour period using the following formula:

$$\text{CPUE} = \Sigma \# \text{LKST} / \Sigma \text{gillnetting hours} \times 24 \text{ h} / \text{length of gill net used} \times 91.4 \text{ m}$$

Where:

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

For the calculation of CPUE, the gillnetting effort (in hours) was standardized to gillnet gang length. For example, the duration of a gillnet set at a site where a 2-panel gang (45.7 m in length) was used was halved to be the equivalent of a 4-panel gillnet gang (91.4 m in length).

Lake Sturgeon that were tagged in a previous year and recaptured in 2019 were included in all analyses; however, current-year recaptures (*i.e.*, those captured multiple times within the same sampling year) were only included for the first capture.

3.3 POPULATION ESTIMATION

Mark-recapture population estimates have been calculated for the Upper Split Lake Area in both the Burntwood River and Kelsey GS areas since 2001. The Burntwood River was sampled during the spring of 13 different years (2001, 2002, 2005–2007, 2009–2013, 2015, 2017, and 2019). The Kelsey GS Area was sampled during the spring of 11 different years (2001, 2002, 2005–2007, 2009, 2011, 2013, 2015, 2017, and 2019). In 2005, a standardized sampling methodology was implemented to sample adult Lake Sturgeon in the Keeyask study area. The protocol was developed to provide comparable effort (number of gill net sets and gill net hours) from year to year. As the sampling methodology changed in 2005, the 2001 and 2002 sampling years are omitted from the population estimate calculations. All data for the period 2001–2013 were collected as part of environmental studies related to the pre-Project environment, while data from 2015 until 2044 will be collected biennially as part of monitoring studies related to the Keeyask GS project. Detailed methods can be found in Appendix 4.

The Jolly-Seber model (POPAN formulation; Arnason and Schwarz 2002), as implemented within MARK, was used to estimate the annual abundance of adult Lake Sturgeon in both the Burntwood River and Kelsey GS area. Survival was also calculated. A best-fit model was used to determine if survival has been constant or has changed since sampling began.

In order to track short-term trends in population size, current year estimates were compared to those from the previous two sampling periods (*i.e.*, 2015 and 2017). A statistically significant change was determined as an increase beyond the 95th percentile or a decrease below the 5th percentile (*e.g.*, if the 2019 estimate was greater than the 95th percentile from the 2017 estimate, the increase in population size was significant).

The long-term population trajectory was analysed using a standard linear regression. Slopes that were significantly different than zero (F-tests, $p < 0.05$) indicated an increasing or decreasing trend.

The population growth rate (λ) was calculated as an annual change in population abundance. The annual change was calculated as a percent and plotted.

4.0 RESULTS

In total, 471 individual fish, comprised of ten species, were captured in large mesh gill nets set in the Upper Split Lake Area during spring 2019 (Table 1). Of these, 403 were Lake Sturgeon. Tag and biological data for first-time Lake Sturgeon captures are presented in Appendix 1. Data from recaptured Lake Sturgeon are presented in Appendices 2 and 3.

4.1 BURNTWOOD RIVER

4.1.1 RELATIVE ABUNDANCE/CPUE

Gill nets were set at 72 sites in the Burntwood River between May 21 and June 30, 2019 (Table 2; Map 3). Water temperature increased from 5.0 to a maximum of 16.5°C over the 41 day study (Figure 1). A total of 236 fish, comprised of four species, were captured in the Burntwood River, the majority of which (98%) were Lake Sturgeon (Table 1). A total of 231 Lake Sturgeon were captured over 9,258 gillnetting hours, resulting in an overall CPUE of 0.60 LKST/91.4 m net/24 h, ranging from 0.0–3.6 LKST/91.4 m net/24 h by site (Table 2).

Gillnetting effort was highest in Zone BWR-A (the area immediately downstream of First Rapids), at 7,511 hours and CPUE was highest in Zone BWR-B (Table 3; Map 3). Overall CPUE by zone was:

- BWR-A = 0.46 LKST/91.4 m net/24 h;
- BWR-B = 1.61 LKST/91.4 m net/24 h; and
- BWR-C = 0.00 LKST/91.4 m net/24 h (Table 3).

The first Lake Sturgeon was captured on May 22, when the water temperature measured 6.0°C, and the last Lake Sturgeon was captured on the second last day of sampling (June 29), when the water temperature measured 16.5°C (Figure 1). The catch peaked on May 31 ($n = 17$) when the water temperature was 7.8°C (Figure 1).

4.1.2 BIOLOGICAL METRICS

Lake Sturgeon captured in the Burntwood River had a mean FL of 932 mm ($n = 228$; range: 254–1,390 mm), a mean weight of 6,908 g ($n = 228$; range: 100–24,494 g), and a mean condition factor of 0.77 ($n = 227$; range: 0.46–1.31) (Table 4). Three fish were unintentionally released prior to being measured, and one additional fish was measured but released prior to being weighed. Of the 228 Lake Sturgeon measured for FL, 197 were considered adults (FL \geq 800 mm) and 31 were considered juveniles (FL < 800 mm). Lake Sturgeon in the 900–949 mm

FL interval were captured most frequently ($n = 46$), accounting for 20% of the Lake Sturgeon catch (Figure 2).

Mean condition factor of adult Lake Sturgeon did not differ significantly between baseline (2001–2013) and construction (2015, 2017, and 2019) for any of the eight FL intervals for which comparisons were possible (Mann Whitney U test, $p > 0.05$; Figure 3). The length-weight relationship is presented in Figure 4.

Sex and maturity were determined for 60 individuals, including 58 males and two females (Table 5). The catch included 28 pre-spawn, 27 ripe (including one male previously captured in pre-spawn condition), and four spent males, and two pre-spawn females that were used as broodstock (described below) (Table 5). The first males in spawning condition were captured on May 29 when the water temperature was 8.0°C and 60% ($n = 33$) were captured between June 6 and June 13 at an average water temperature of 10.2°C (range: 9.1–11.1°C) (Figure 5). The two pre-spawn females were captured on May 31 when the water temperature was 7.8°C.

Eight fish, including two females (Floy #94499 and #114156) and six males (Floy #75462, #88690, #89400, #108619, #114153, and #114154) were used as broodstock for the Project's stocking program. Details on gamete collection, egg fertilization, egg transport, hatch, larval rearing, PIT tagging, and stocking can be found in Klassen *et al.* (2020).

4.1.3 MOVEMENTS

Of the 231 Lake Sturgeon captured in the Burntwood River, 93 were recaptures from previous gillnetting studies, two were hatchery-reared fish, and 136 were newly-captured fish (Table 6; Appendix 2). Of these, PIT tags were applied to all 136 newly-captured fish and Floy-tags were applied to 134 (two were released before being Floy tagged; Appendix 1).

Of the two hatchery-reared fish:

- One (PIT #900043000102990) was stocked in the Burntwood River in Zone BWR-B on October 2, 2014 and measured 260 mm FL. It was captured in the same zone on June 26, 2019 and measured 406 mm FL, an increase of 146 mm FL since release.
- One (PIT #900067000109920) was stocked in the Burntwood River in Zone BWR-B on June 7, 2018 and measured 204 mm FL. It was captured upstream in Zone BWR-A on June 5, 2019 and measured 254 mm FL, an increase of 50 mm since release.

Neither Lake Sturgeon have been captured or made significant movements since initial stocking.

Excluding the two hatchery fish, 40% of Lake Sturgeon captured were recaptures from previous gillnetting studies ($n = 93$) (Table 6). Six of the 93 recaptured Lake Sturgeon (6%) lost their Floy tag but retained their PIT tag. Biological and previous year capture information are provided in Appendices 2 and 3 and movements are summarized below:

- Seventy-five (81%) were originally tagged in the Burntwood River between 2005 and 2017:
 - Seventy-three were exclusively recaptured in the Burntwood River (between two and 11 times);
 - One (Floy #80042/80043) was tagged in June 2006 and recaptured in the Kelsey GS Area in 2015; and
 - One (Floy #89030) was tagged in June 2017 and recaptured in the Upper Split Lake Area (Zone SPL-A) in 2017.
- Nine were originally tagged in the Kelsey GS Area between 2007 and 2017:
 - Eight were exclusively recaptured in the Burntwood River (between two and six times); and
 - One (Floy #74826) was tagged in June 2007, recaptured in the Burntwood River in 2007 and the Odei River in 2009.
- Three (Floy #74305/74306, #75461 and #75462) were originally tagged in the Odei River (Zone ODR-A) but were exclusively recaptured in the Burntwood River (between four and six times).
- Three (Floy #74330/74331, #108606, and #110745) were originally tagged in Split Lake proper (Zone SPL-A) but have been exclusively recaptured in the Burntwood River since initial tagging (between two and four times).
- Three were originally tagged in the Nelson River between Birthday Rapids and the Keeyask GS:
 - Two were originally tagged in the upper and middle basins of Gull Lake: one (Floy #107706) in 2016 and one (Floy #113803) in 2018.
 - One (Floy #107244) was originally tagged downstream of Birthday Rapids (Zone BR-D) in 2016 and recaptured in 2019 in spawning condition in the Burntwood River.

4.1.4 POPULATION ESTIMATION

Three Lake Sturgeon (Floy #74337, #74324, and #74325) were reported as harvested by a local resource user. These fish were tagged in the Burntwood River in 2005. Two fish (#74324 and #74325) were juvenile sized when tagged, and all three fish were tagged outside of the current study. None of these three fish were used to calculate the population estimate.

The population estimate for the Burntwood River in 2019 was 678 individuals (range: 536–857), which was greater than the 95% confidence limits of estimates from 2005–2009 and 2012–2013, but within the 95% confidence limits of estimates derived from 2010–2011, 2015, and 2017 (Figure 6; Appendix 4). The population lambda (growth rate) fluctuated greatly between

2005 and 2011 (between 12.8 and 77% annual change), but only ranged from 1.0 to 12.8% change between 2012 and 2019. This indicates a relatively stable population. Annual survival rate was estimated to be 87%.

There was no significant difference in mean population abundance between 2015 and 2019, but the 2019 estimate was significantly higher than the 2017 estimate (Figure 8). Overall, abundance estimates calculated between 2005 and 2019 show a significant increasing trend ($r^2 = 0.93$, $F = 142.8$, $p = < 0.001$) (Figure 9).

4.2 KELSEY GS AREA

4.2.1 RELATIVE ABUNDANCE/CPUE

Large mesh gill nets were set at 58 sites in the Kelsey GS (KGS) Area between May 21 and June 30, during which time the water temperature ranged from 5.0 to 18.0°C (Table 2; Figure 10; Map 4). In total, 235 fish were captured, comprised of ten species, the majority of which (73%) were Lake Sturgeon (Table 1). One hundred and seventy-two Lake Sturgeon were captured in 9,138 gillnet hours, resulting in an overall CPUE of 0.45 LKST/91.4 m net/24 h, ranging from 0.0–1.2 LKST/91.4 m net/24 h by site (Table 2). Gillnetting effort was highest in Zone KGS-A, the area downstream of the Kelsey GS including the Grass River, however, CPUE was highest in Split Lake proper (Zone SPL-A) (Table 3; Map 4). Overall CPUE by Zone was:

- KGS-A = 0.58 LKST/91.4 m net/24 h;
- KGS-B = 0.21 LKST/91.4 m net/24 h;
- KGS-C = 0.40 LKST/91.4 m net/24 h.
- KGS-D = 0.10 LKST/91.4 m net/24 h; and
- SPL-A = 0.61 LKST/91.4 m net/24 h;

The first Lake Sturgeon was captured on May 22 at a water temperature of 5.0°C, and the last was captured on June 30 at a water temperature of 18.0°C (Figure 10). The catch peaked on May 29 ($n = 12$) when water temperature measured 7.4°C (Figure 10).

4.2.2 BIOLOGICAL METRICS

Lake Sturgeon captured in the KGS Area had a mean FL of 895 mm ($n = 172$; range: 411–1,270 mm), a mean weight of 6,081 g ($n = 172$; range: 500–18,144 g), and a mean condition factor of 0.79 ($n = 172$; range: 0.43–1.25) (Table 4). Of the 172 Lake Sturgeon captured, 135 were considered adults (FL ≥ 800 mm) and 37 were considered juveniles (FL < 800 mm). Lake

Sturgeon in the 900–949 mm FL interval were captured most frequently ($n = 32$), accounting for 19% of the catch (Figure 11).

Mean condition factor was significantly higher during baseline monitoring (2001, 2005–2007, 2011, and 2013) than during construction monitoring (2015, 2017, and 2019) for all seven size classes for which comparisons were possible (800–1,149 mm FL intervals) (Figure 12). The length-weight relationship is presented in Figure 13.

Sex and maturity was determined for one pre-spawn male on June 8 when the water temperature was 10.9°C (Table 5).

4.2.3 MOVEMENTS

Of the 172 Lake Sturgeon captured in the KGS Area, 47 were recaptures from previous Keeyask gillnetting studies, two were PIT tagged upstream of the Kelsey GS, and 123 were newly-captured fish (Table 6; Appendices 1 and 2). Of these, Floy-tags were applied to all 123 newly-captured fish and PIT tags were applied to 122 (one was released before being PIT tagged; Appendix 1).

The two Lake Sturgeon that originated from upstream of Kelsey GS were PIT tagged during spawning studies conducted by the Nelson River Sturgeon Board (NRSB):

- One (PIT #985121008489082) was tagged on June 30, 2008, at Gap Creek on the Nelson River approximately 64 km upstream of the Kelsey GS (Site One; Map 5). It measured 641 mm TL (FL was not measured) at time of initial capture. Upon capture in 2019, the fish measured 1,000 mm TL, an increase of 359 mm since initial capture; and
- One (PIT #985121011209616) was tagged on July 6, 2011, across from the Hunting River on the Nelson River approximately 80 km upstream of the Kelsey GS (Site Two; Map 5). It measured 927 mm TL (FL was not measured) at the time of initial capture, and measured 1,153 mm TL in 2019, an increase of 226 mm.

Excluding the NRSB fish, 27% of Lake Sturgeon were recaptures from previous gillnetting studies ($n = 47$) (Table 6). Three of the 47 recaptured Lake Sturgeon (6%) lost their Floy tag but retained their PIT tag. Biological and previous capture information are provided in Appendices 2 and 3 and movements are summarized below:

- Thirty-six (77%) were originally tagged in the KGS Area between 2007 and 2017:
 - Thirty were exclusively recaptured in the KGS Area (between two and seven times);
 - Four (Floy #91361, #111080, #111599, and 111570) were recaptured in the Upper Split Lake Area for the first time since initial tagging;
 - Two were recaptured in Split Lake proper (Zone SPL-A);

- One (Floy #79552) was tagged in June 2007, and recaptured in 2011 and 2017 in the KGS Area (Zone SPL-A); and
- One (Floy #98988) was tagged in June 2015 and recaptured in the KGS Area in 2017.
- Four were originally tagged in the Burntwood River between 2001 and 2015:
 - Two (Floy #94802 and #89026) were tagged in June 2011 and 2015, respectively, and were recaptured in Split Lake proper in 2019;
 - One (Floy #46446) was previously captured exclusively in the Burntwood River (in 2001, 2012, and 2017); and
 - One (Floy #80023/80024) was previously captured in both the Burntwood River (in 2011, 2013, and 2015) and the KGS Area (in 2006 and 2007).
- Four (Floy #98921, #110760, #111568, and #111576) were originally tagged in the Upper Split Lake Area between 2015 and 2017 and were recaptured in the same waterbody in 2019.
- Three were originally tagged in Gull Lake:
 - One (Floy #82638/82639) was tagged in August 2006 and recaptured in Gull Lake in June 2014;
 - One (Floy #94871) was tagged in July 2011 and was recaptured in the KGS Area in 2015; and
 - One (Floy #100417) was tagged in July 2012, and was recaptured in the KGS Area in 2017.

4.2.4 POPULATION ESTIMATION

Three Lake Sturgeon (Floy #80058/80059, #74778, and #94461) were reported as harvested by a local resource user. These fish were tagged in the KGS Area in 2006, 2007, and 2011, respectively. Exact timing and location of harvest is unknown.

The 2019 population estimate for the Kelsey GS Area was 554 individuals (range: 403–762), which was above the 95% confidence limits of the 2009 estimate, but within the 95% confidence limits of all other years (2005–2007 and 2011–2017) (Figure 14; Appendix 4). The population lambda (growth rate) has been relatively stable since 2015, ranging from 2.8 to 3.0% annual change (Figure 15). The estimated annual survival rate was 81% (Appendix 4).

Overall there has been no significant change in the estimated mean abundance of Lake Sturgeon in the Kelsey GS Area (Figure 16; Appendix 4). The population growth rate (trajectory) has been slightly negative since 2005, however, this trend is not statistically significant (r^2 : 0.37; F = 5.37; p = 0.05; Figure 17; Appendix 4).

5.0 DISCUSSION

The main objective of long-term adult Lake Sturgeon population monitoring in the Upper Split Lake Area is to identify changes in abundance, survival, and condition factor. Continued monitoring will also identify long-term trends in the size of the spawning population, the influence of stocking (initiated in 2013), and whether coarse-scale movement patterns change. Adult Lake Sturgeon population monitoring is planned to occur in the Upper Split Lake Area on a biennial basis until 2043.

5.1 EVALUATION OF METHODOLOGY

Population monitoring data for adult Lake Sturgeon in the Keeyask area are currently being collected by area (Upper Split Lake and future Keeyask reservoir/Stephens Lake) every two years. Gill net mortality remains low. In 2019, no mortalities occurred from a total of 403 captures. Analyses suggest that this methodology is performing well for determining Lake Sturgeon abundance as estimates in recent years have not fluctuated greatly and large numbers of outliers (*i.e.*, large increases in untagged fish) have not been observed. In both areas, annual abundance estimates showed large fluctuations between years when sampling began (*e.g.* there was a 77.1% increase in the Burntwood River population 2006 and 2007 and a 66.3% increase between 2009 and 2010). However, as more data have been added to the population model, fluctuations in abundance estimates have decreased. In the past three sampling periods, (2015, 2017, and 2019), population abundance has only changed between 1.0 and 12.7% annually.

Since 2013, two tag types (Floy and PIT) have been applied to adult Lake Sturgeon. This is expected to improve confidence in the data set by reducing the possibility that marked fish will be misidentified as unmarked fish due to tag loss. In 2019, nine fish (6% of recaptures) had lost Floy tags. Without PIT tags, these fish would have been misidentified as newly-captured fish, leading to an artificially low recapture rate and an over-estimate of the population size. Three Floy-tags from harvested Lake Sturgeon were reported by local resource users in 2019. The inclusion of these tags helps to refine the population estimate and reduces the chance of overestimating Lake Sturgeon abundance (*i.e.*, by counting fish which are no longer in the population).

5.2 ADULT LAKE STURGEON ABUNDANCE

Overall abundance estimates calculated between 2005 and 2019 for the Burntwood River show a significant increasing trend over time, indicating successful recruitment of juvenile and sub-adult Lake Sturgeon into the adult population. In the short term, the 2019 population estimate for the Burntwood River was significantly higher than the 2017 estimate. Although the 2019

population estimate was higher than the 2015 estimate, the increase was not statically significant.

In the short-term, population abundance in the Kelsey GS has remained stable with no statistically significant change between 2015, 2017, and 2019. The long-term trajectory for the Kelsey GS population shows no significant change.

With the addition of data collected in 2019 to the population models for both the Burntwood River and Kelsey GS Area a substantial change in the survival rate was not observed. Therefore, as in previous years, a single survival rate for the 2005–2019 period was used (Appendix 4). The survival rate for the Burntwood population is 87%, while that for the Kelsey population is 81%. Although the estimated survival rate for Kelsey is lower than that for the Burntwood River, the population does not appear to be increasing or decreasing over the past 14 years.

5.3 SPAWNING

In 2019, 15% ($n = 61$) of captured Lake Sturgeon in the Upper Split Lake Area were in spawning condition. This is lower than the 30% ($n = 105$) identified in 2017, however, 2017 was the highest number of spawners captured in the area since the study began in 2001 (Lacho *et al.* 2018).

In the Burntwood River, spawning sturgeon have been observed in 12 of the 13 previous years of sampling, representing between 22 and 69% of the total number of fish captured. In 2019, 26% of the captured Lake Sturgeon were in spawning condition, with the majority captured in the vicinity of First Rapids. Lake Sturgeon do not typically spawn every year (particularly females), therefore the observed yearly fluctuations in spawning numbers is expected. Fish caught in spawning condition in one year may not return to spawn for several years which may impact the number of spawners recorded in a given study year.

In the Kelsey GS Area, spawning Lake Sturgeon have been captured in six of twelve previous years, representing 1–7% of the total number captured. In 2019, only one fish in spawning condition was captured. As discussed in Henderson *et al.* (2016), fish may be spawning immediately below the Kelsey GS, as two spawning females were captured in this location in 2006 and 2013 (MacDonald 2008; Groening *et al.* 2014). High water velocities make it difficult to set gill nets in this area to confirm if spawning is occurring at this location.

5.4 SIZE DISTRIBUTION AND CONDITION FACTOR

The mean size of Lake Sturgeon captured in the Burntwood River has not changed since 2017 (931 mm FL [2017] and 932 mm FL [2019]), while in the Kelsey GS Area, the mean size was

lower in 2019 than in both 2015 and 2017 (mean 922 mm FL in both years versus 895 mm in 2019). In both areas, fish smaller than 1,000 mm FL dominated the catch.

Mean condition factor of adult Lake Sturgeon captured during baseline studies and construction monitoring were similar for the majority of size classes in the Burntwood River. In the Kelsey GS Area, mean condition factor was significantly higher during baseline studies than during construction for all size classes between 800–1,149 mm FL. This pattern was first observed during sampling conducted in 2015 and persisted in 2017. Despite this, mean adult Lake Sturgeon condition factors in both the Burntwood River (0.77) and Kelsey GS Area (0.79) remain within the range typical for adult Lake Sturgeon populations in Manitoba (0.75–0.95).

5.5 MOVEMENT

A total of 549 Lake Sturgeon have been recaptured in the Upper Split Lake Area during spring population monitoring since 2001 (Table 6). The majority of recaptured Lake Sturgeon were tagged and recaptured in the same area (*i.e.*, those originally tagged in the Burntwood River were recaptured in the Burntwood River). Of the fish that have been recaptured in a different location, the majority of recorded movements have been between the Burntwood River Area and the Kelsey GS Area.

Two hatchery-reared Lake Sturgeon were captured in the Burntwood River in spring 2019. Very few hatchery-reared Lake Sturgeon have been recaptured in the Burntwood River as most are caught further downstream in Split Lake (Burnett and Hrenchuk 2020). The recapture of several hatchery fish within the Burntwood River provides evidence that some stocked fish remain in the river post-stocking.

For the fourth year since studies began in 2001, Lake Sturgeon originally tagged upstream of the Kelsey GS have been recaptured downstream in the Kelsey GS Area. Two fish captured in 2019 were tagged in 2008 and 2011 approximately 90 km upstream in the Nelson River near Landing River (D. Macdonald, pers. comm.). Only three other Lake Sturgeon tagged upstream of the Kelsey GS have been recaptured in the KGS area since 2001; one in 2007, one in 2013, and one in 2017.

In 2019, six Lake Sturgeon originally tagged in the Birthday Rapids to Keeyask GS reach of the Nelson River (future Keeyask reservoir) were recaptured in the Upper Split Lake Area, representing 4% of recaptured fish. For the first time since studies began, three fish tagged in the future Keeyask reservoir were recaptured in the Burntwood River; the remaining three fish were recaptured in the Kelsey GS Area (Appendix 3). To date, 21 Lake Sturgeon from the future Keeyask reservoir (4% of total recaptures) have been recaptured in the Upper Split Lake Area (Table 6). One potential effect of construction of the Keeyask GS identified during the Project assessment was increased emigration of adult Lake Sturgeon upstream to the Upper Split Lake Area. Mark-recapture data continue to show that low numbers of fish move from the future Keeyask reservoir to the Upper Split Lake Area. Acoustic telemetry data also suggests the

frequency of upstream movement from the future Keeyask reservoir has not increased since construction began (Hrenchuk 2020).

5.6 KEY QUESTIONS

Information related to the key questions posed in the AEMP regarding adult Lake Sturgeon in the Upper Split Lake Area is presented in the preceding discussion. The current understanding of the answers to the key questions is summarized below.

Is there a biologically relevant (and statistically significant) change in the rate of population growth for the Upper Split Lake Area population and the future Keeyask reservoir population?

The 2019 population estimate for the Burntwood River shows a significant increase from the 2017 estimate but not the 2015 estimate. Based on data collected from 2005 to 2019 the population appears to be increasing.

The 2019 population estimate for the Kelsey GS Area did not differ significantly from either the 2015 or 2017 estimates. The long-term population trajectory shows no significant change.

Is there a biologically relevant (and statistically significant) change in survival for the Upper Split Lake Area and future Keeyask reservoir population?

The best-fit model did not indicate a marked change in the survival rate. The survival rate for the Burntwood population was 87%. The survival rate for the Kelsey population is 81%, which is slightly lower than other populations in the lower Nelson River. Survival in both populations appears to be stable with no substantive changes since 2015.

Is there a biologically relevant (and statistically observable) change in the condition factor of Lake Sturgeon?

There were no significant differences in the condition factor of adult Lake Sturgeon captured during baseline studies and construction monitoring in the Burntwood River for any size class. In the Kelsey GS Area, condition factor of sturgeon captured during baseline monitoring was significantly higher for all size classes. It should be noted that the condition factor in Lake Sturgeon can vary considerably between years, and that average condition factor from both areas post-construction continues to be between 0.82–0.85, which is typical for adult Lake Sturgeon in Manitoba.

Will the frequency of long-distance movements (from the Keeyask/Stephens Lake area to the Upper Split Lake Area) by sub-adult and adult Lake Sturgeon increase during construction and operation of the Project?

In 2019, six sturgeon originally tagged in the Clark Lake to Gull Lake reach of the Nelson River were recaptured in the Upper Split Lake Area (three in the Burntwood River and three in the Kelsey GS area). This is comparable to the number recaptured previously.

6.0 SUMMARY AND CONCLUSIONS

- Population monitoring was conducted in spring 2019 to obtain an adult Lake Sturgeon population estimate and examine size and condition of the Upper Split Lake Area sturgeon population.
- A total of 403 individual Lake Sturgeon were captured. Of these, 231 were caught in the Burntwood River, with 197 of these classified as adults (≥ 800 mm). In the Kelsey GS Area, 172 Lake Sturgeon were captured, with 135 of these classified as adults.
- Sixty Lake Sturgeon in spawning condition were captured in the Burntwood River, including 58 males and two females; one pre-spawn male was captured in the Kelsey GS Area.
- Mark-recapture data indicate that most of the fish tagged in the study area tend to stay in the area in which they were originally tagged. Since studies began in 2001, 21 adult Lake Sturgeon have moved from the Clark Lake to Keeyask GS section of the Nelson River into the Upper Split Lake Area. Continued monitoring will reveal if long-range upstream movements become more common as construction of the Keeyask GS progresses. Emigration of Lake Sturgeon in response to water level changes in the future Keeyask reservoir was identified as a potential effect of the construction of the Keeyask GS.
- Two hatchery stocked Lake Sturgeon were captured in the Burntwood River. One was stocked in 2014 and the other in 2018; both were captured for the first time since stocking.
- Two Lake Sturgeon tagged upstream of the Kelsey GS were recaptured over 90 km downstream in the Kelsey GS area during the 2019 study. Including the two fish in 2019, five Lake Sturgeon tagged upstream of the Kelsey GS have been recaptured downstream in the Kelsey GS area since studies began.
- Key questions in the AEMP related to Lake Sturgeon monitoring in the Upper Split Lake Area are addressed below:
 - *Is there a biologically relevant (and statistically significant) change in the rate of population growth for the Burntwood and Kelsey populations?*

The 2019 Burntwood River estimate (678 individuals; 95% CI 536–857) was significantly higher than the 2017 estimate (540 individuals; 95% CI 429–680) but not significantly higher when compared to the 2015 estimate (551 individuals; 95% CI 423–716). The population growth rate (trajectory) indicates that the population is increasing significantly. The 2019 population estimate for the Kelsey GS Area (554 individuals; 95% CI 403–762) did not differ significantly from the 2017 (590 individuals; 95% CI 429–812) or 2015

(559 individuals; 95% CI 404–773) estimates. The population growth rate (trajectory) shows no significant change since 2005.

- *Is there a biologically relevant (and statistically significant) change in survival for the Burntwood and Kelsey populations?*

The best-fit model did not indicate a marked change in the survival rate. The survival rate for the Burntwood River population was 87%. The survival rate for the Kelsey population is 81%. Survival in both populations appears to be stable with no substantive changes in the last three study years (2015, 2017, and 2019).

- *Is there a biologically relevant (and statistically observable) change in the condition factor of Lake Sturgeon?*

Condition factor of sturgeon captured during baseline and construction were similar for all size classes in the Burntwood River. However, mean condition factor was significantly lower during construction than baseline for all size classes in the Kelsey GS Area.

- *Will the frequency of long-distance movements (from the Keeyask/Stephens Lake area to the Upper Split Lake Area) by sub-adult and adult Lake Sturgeon increase during construction and operation of the Project?*

In 2019, six Lake Sturgeon originally tagged in the Clark Lake to Gull Lake reach of the Nelson River were recaptured in the Upper Split Lake Area. This is comparable to the number recaptured previously.

- Monitoring will continue in the Upper Split Lake Area every two years until 2043. Further monitoring will show whether the population increases, decreases, or remains similar to current levels.

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TABLES

Table 1: Number of fish, by species, captured during adult Lake Sturgeon population monitoring in the Burntwood River (21 May-30 June) and Kelsey GS area (21 May-30 June), spring 2019.

Species	Scientific Name	Abbreviation	Burntwood River	Kelsey GS Area	Total ¹
Burbot	<i>Lota lota</i>	BURB	1	1	2
Common Carp	<i>Cyprinus carpio</i>	CMCR	-	4	4
Freshwater Drum	<i>Aplodinotus grunniens</i>	FRDR	-	19	19
Lake Sturgeon	<i>Acipenser fulvescens</i>	LKST	231	172	403
Longnose Sucker	<i>Catostomus catostomus</i>	LNSC	-	2	2
Mooneye	<i>Hiodon tergisus</i>	MOON	-	1	1
Northern Pike	<i>Esox lucius</i>	NRPK	1	29	30
Sauger	<i>Sander canadense</i>	SAUG	-	4	4
Walleye	<i>Sander vitreus</i>	WALL	3	2	5
White Sucker	<i>Catostomus commersonii</i>	WHSC	-	1	1
Total¹			236	235	471

1. Does not include fish recaptured in the same waterbody in the season/year in which they were tagged.

Table 2: Lake Sturgeon catch-per-unit-effort (CPUE; # LKST/91.4 m net/24 h) values observed during mark/recapture studies in the Upper Split Lake Area from 2001-2019. All CPUE values have been standardized to 91.4 m (100 yd), the most common adult Lake Sturgeon net length (previous year reports had reported values standardized to 45.7 m (50 yd) net lengths).

Location	Year	# Sites	Total Lake Sturgeon ¹	Total Gillnet Hours	Total CPUE
Burntwood River	2001	26	23	1,975	0.28
	2002	30	16	-	0.38
	2005	18	14	1,874	0.18
	2006	16	37	2,577	0.34
	2007	27	60	6,247	0.24
	2009	21	70	3,139	0.54
	2010	15	30	1,716	0.42
	2011	29	65	2,728	0.50
	2012	19	29	590	1.18
	2013	79	123	7,610	0.38
	2015	67	109	5,835	0.44
	2017	78	207	7,726	0.64
	2019	72	231	9,258	0.60
Kelsey GS Area²	2001	44	13	2,813	0.12
	2002	26	5	-	0.06
	2005	20	7	1,753	0.10
	2006	56	29	8,709	0.08
	2007	78	69	13,150	0.13
	2009	61	48	4,689	0.24
	2010	5	1	239	0.10
	2011	50	50	6,032	0.20
	2013	150	125	7,088	0.42
	2015	98	147	7,647	0.38
	2017	63	147	8,387	0.43
	2019	58	172	9,138	0.45

1. Does not include fish recaptured in the same waterbody in the season/year in which they were tagged.

2. Includes Grass River.

Table 3: Number and catch-per-unit-effort (CPUE; # LKST/91.4 m net/24 h) values, by zone, observed during adult Lake Sturgeon population monitoring in the Upper Split Lake Area, spring 2019.

Location	Zone	# Sites	Total Lake Sturgeon ¹	Total Gillnet Hours	Total CPUE
Burntwood River	BWR-A	48	143	7,511	0.46
	BWR-B	16	88	1,311	1.61
	BWR-C	8	0	436	0.00
Kelsey GS Area	KGS-A	14	76	3,161	0.58
	KGS-B	8	7	804	0.21
	KGS-C	12	29	1,759	0.40
	KGS-D	16	5	1,240	0.10
	SPL-A	8	55	2,174	0.61

1. Does not include fish recaptured in the same waterbody in the season/year in which they were tagged.

Table 4: Mean fork length (mm), weight (g), and relative condition factor (K) of Lake Sturgeon captured during adult Lake Sturgeon population monitoring in the Upper Split Lake Area, spring 2001–2019.

Location	Year	Fork Length (mm)				Weight (g)				K		
		n ¹	Mean	Std ²	Range	n ¹	Mean	Std ²	Range	n ¹	Mean	Range
Burntwood River	2001	23	945	189	600–1,436	22	6,620	3,279	1,600–15,600	22	0.76	0.46–1.04
	2002	15	982	173	644–1,315	16	9,227	5,716	2,200–22,000	15	0.81	0.71–0.92
	2005	14	1,002	146	838–1,310	14	9,542	5,637	4,990–22,226	14	0.86	0.70–1.01
	2006	37	1,014	148	734–1,325	37	9,654	5,030	3,629–23,133	37	0.86	0.66–1.02
	2007	59	984	159	354–1,362	57	9,179	4,324	2,727–25,000	57	0.88	0.71–1.12
	2009	69	965	156	485–1,360	69	8,263	3,864	907–21,772	68	0.85	0.56–1.09
	2010	30	919	166	242–1,100	28	6,520	2,277	1,361–10,886	28	0.76	0.52–1.11
	2011	63	987	133	641–1,350	63	8,686	4,066	2,100–25,855	63	0.85	0.57–1.10
	2012	29	966	76	809–1,105	26	7,820	1,874	4,082–12,701	26	0.87	0.71–1.11
	2013	119	942	173	560–1,720	122	7,714	6,025	1,247–54,658	119	0.76	0.47–1.07
	2015	109	971	152	260–1,341	107	8,756	3,321	1,588–22,906	107	0.89	0.70–1.35
	2017	206	931	178	336–1,457	210	7,305	3,901	295–26,308	200	0.80	0.41–1.20
	2019	228	932	155	254–1,390	228	6,908	3,648	100–24,494	227	0.77	0.46–1.31
Kelsey GS Area	2001	13	940	198	692–1,423	12	8,334	6,522	3,200–26,000	12	0.92	0.81–1.09
	2002	5	963	144	774–1,130	5	9,370	5,549	4,300–18,500	5	0.97	0.77–1.28
	2005	7	841	78	737–960	7	5,520	1,582	3,182–7,500	7	0.90	0.77–1.01
	2006	29	936	168	698–1,346	29	8,904	6,070	3,402–27,216	28	0.98	0.69–1.48
	2007	60	906	185	605–1,475	56	7,565	5,988	1,588–33,112	56	0.88	0.54–1.15
	2009	44	886	122	688–1,295	44	7,093	3,074	3,175–19,958	44	0.98	0.63–1.26
	2010	1	-	-	955	1	-	-	7,711	1	-	0.89
	2011	46	890	148	292–1,403	46	7,753	3,597	702–24,040	46	1.02	0.70–1.46
	2013	122	911	145	270–1,438	121	8,035	4,056	75–26,082	121	0.99	0.38–2.20
	2015	147	922	139	445–1,362	146	7,159	2,895	200–21,999	144	0.84	0.36–1.76
	2017	147	922	139	445–1,362	147	7,760	3,598	454–24,948	147	0.93	0.51–1.34
	2019	172	895	133	411–1,270	172	6,081	2,778	500–18,144	172	0.79	0.43–1.25
Grass River ³	2007	9	1,191	248	840–1,640	9	21,747	13,902	6,804–49,895	9	1.14	0.89–1.36
	2009	3	1,310	382	910–1,670	2	29,257	32,395	6,350–52,163	2	0.74	0.56–0.91
	2011	4	1,353	335	888–1,650	4	32,432	19,811	9,979–19,811	4	1.19	0.97–1.43
	2013	2	935	3	932–937	2	7,598	340	7,257–7,938	2	0.93	0.90–0.10

1. Number of fish measured.

2. Standard deviation.

3. Data analyzed separately for fish captured in the Grass River during these years.

Table 5: Sex and maturity data for Lake Sturgeon captured in the Upper Split Lake area during adult population monitoring, spring 2001–2019.

Location	Year	Sex and Maturity ¹						# of Individual Spawners ²	# of CYTR Spawners ³	Unknown maturity	Total ⁴
		Male			Female						
		7	8	9	2	3	4				
Burntwood River	2001	7	-	-	-	-	-	7	-	16	23
	2002	3	-	1	-	-	-	4	-	12	16
	2005	-	-	-	-	-	-	-	-	14	14
	2006	-	7	3	-	-	-	8	2	29	37
	2007	9	4	4	-	-	-	15	2	45	60
	2009	7	24	2	-	-	-	30	3	40	70
	2010	12	4	-	-	-	-	16	-	14	30
	2011	9	30	1	-	-	-	40	-	25	65
	2012	10	12	-	-	-	-	20	2	9	29
	2013	18	27	5	1	1	.	52	-	71	123
	2015	16	28	-	1	-	-	43	2	66	109
	2017	26	77	7	-	2	-	96	16	111	207
	2019	28	27	4	2	-	-	60	1	171	231⁵
Kelsey GS Area	2001	-	-	-	-	-	-	-	-	13	13
	2002	-	-	-	-	-	-	-	-	5	5
	2005	-	-	-	-	-	-	-	-	7	7
	2006	-	1	-	1	-	-	2	-	27	29
	2007	-	1	-	-	-	-	1	-	59	60
	2009	-	-	-	-	-	-	-	-	45	45
	2010	-	-	-	-	-	-	-	-	1	1
	2011	-	-	-	-	-	-	-	-	46	46
	2013	3	-	-	-	1	-	4	-	119	123
	2015	1	2	-	-	-	-	3	-	143	146
	2017	-	7	2	-	-	-	9	-	138	147
	2019	1	-	-	-	-	-	1	-	171	172
Grass River ²	2007	-	-	1	-	-	-	1	-	8	9
	2009	-	-	1	-	-	-	1	-	2	3
	2011	-	1	-	-	-	-	1	-	3	4
	2013	-	1	-	-	-	-	1	-	1	2

1. Refer to Section 3.1 for maturity codes.

2. Number of individual Lake Sturgeon captured in spawn condition.

3. Number of current year recaptured Lake Sturgeon which progressed in maturity between captures.

4. Does not include fish recaptured in the same waterbody in the season/year in which they were tagged.

5. One CYTR spawner not included in calculation of total.

Table 6: Recapture data for Lake Sturgeon captured in the Upper Split Lake Area during adult population monitoring, spring 2002–2019.

Recapture Location	Year	Original Tagging Location								Total Recaptures	% Recaptures	Total LKST Captured	Total CPUE
		Grand Rapids Hatchery	U/S of Kelsey GS	D/S of Kelsey GS	Burntwood River	Odei River	Split Lake	D/S of Birthday Rapids	Gull Lake				
Burntwood River	2002	0	0	0	2	0	0	0	0	2	12.5	16	0.38
	2005	0	0	1	2	0	0	0	0	3	21.4	14	0.18
	2006	0	0	1	8	0	0	0	0	9	24.3	37	0.34
	2007	0	0	4	13	0	0	0	0	17	28.3	60	0.24
	2009	0	0	6	30	0	0	0	0	36	51.4	70	0.54
	2010	0	0	2	7	0	0	0	0	9	30.0	30	0.42
	2011	0	0	6	19	0	0	0	0	25	38.5	65	0.50
	2012	0	0	1	11	0	0	0	0	12	41.4	29	1.18
	2013	0	0	8	33	0	0	0	0	41	33.3	123	0.38
	2015	0	0	9	33	0	0	0	0	42	38.5	109	0.44
	2017	0	0	16	57	0	0	0	0	73	35.3	207	0.64
	2019	2	0	9	75	3	3	1	2	95	40.3¹	231	0.60
Kelsey GS Area	2002	0	0	0	0	0	0	0	0	0	0.0	5	0.06
	2005	0	0	0	0	0	0	0	0	0	0.0	7	0.10
	2006	0	0	2	0	0	0	1	0	3	10.3	29	0.08
	2007	0	1	5	1	0	0	0	1	8	11.6	69	0.13
	2009	0	0	12	0	0	0	0	0	12	25.0	48	0.24
	2010	0	0	1	0	0	0	0	0	0	0.0	1	0.10
	2011	0	0	11	1	0	0	0	0	12	24.0	50	0.20
	2013	0	1	17	5	0	0	3	1	27	21.6	125	0.42
	2015	0	0	21	7	0	0	2	2	32	21.8	147	0.38
	2017	0	1	29	7	0	0	1	4	42	28.6	147	0.43
	2019	0	2	36	4	0	4	0	3	49	27.3²	172	0.45

1. Number excludes the two hatchery-reared fish released in the Burntwood River.

2. Number excludes two fish originally tagged upstream of the Kelsey GS.

FIGURES

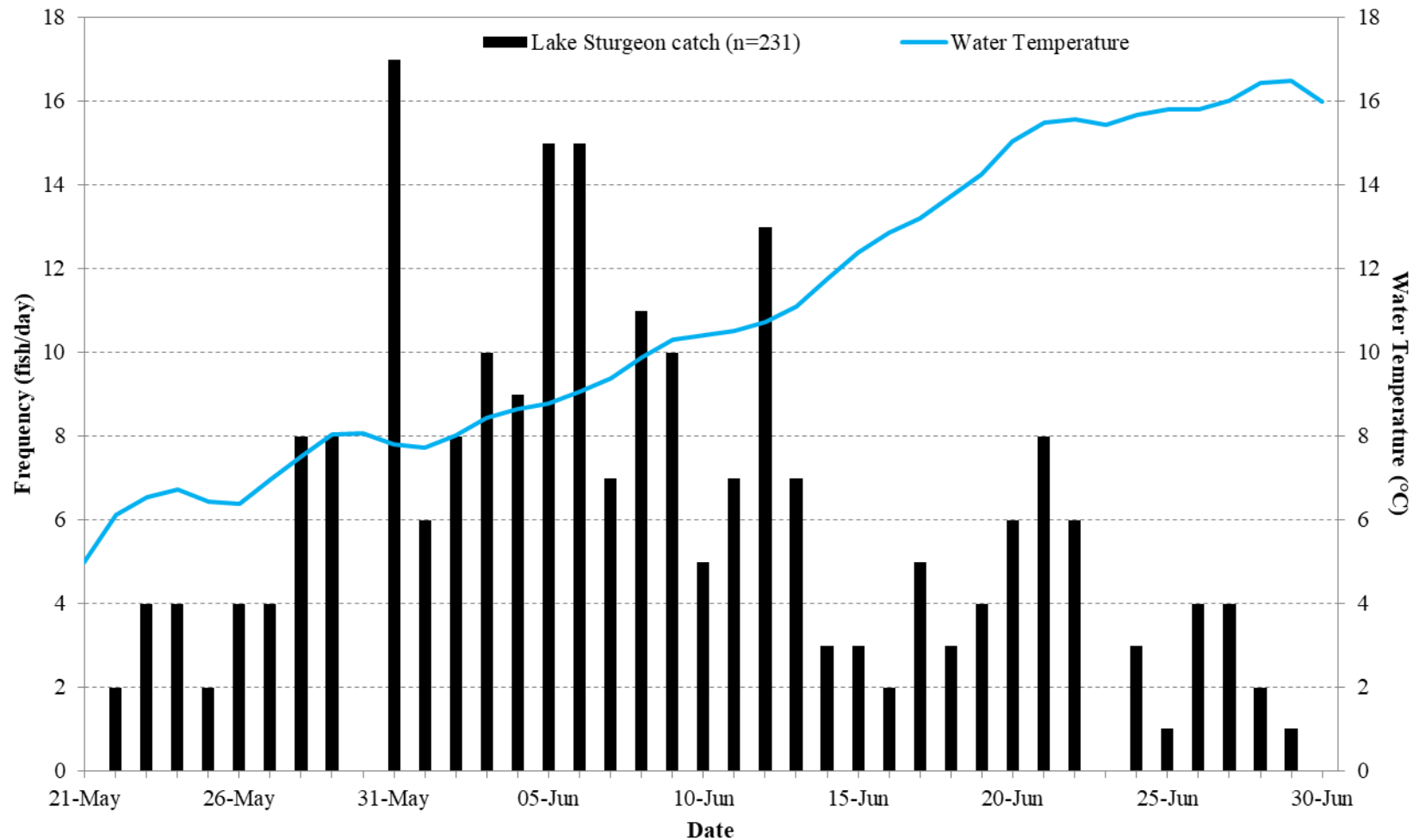


Figure 1: Mean daily water temperature and number of Lake Sturgeon captured per day in large mesh gill nets set in the Burntwood River, May 21 to June 30, 2019 (does not include current year recaptures).

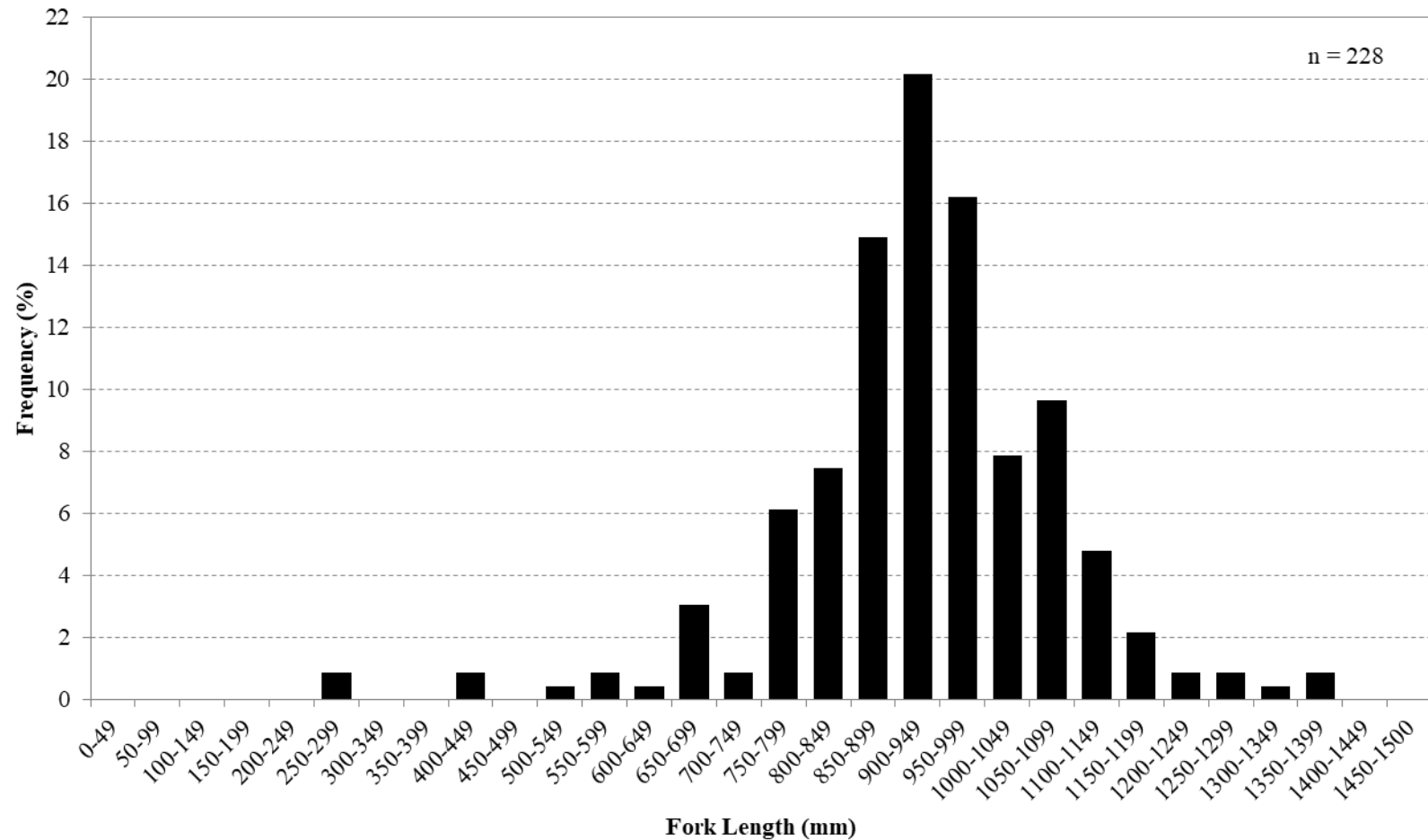


Figure 2: Length-frequency distribution for Lake Sturgeon captured in large mesh gill nets set in the Burntwood River, spring 2019.

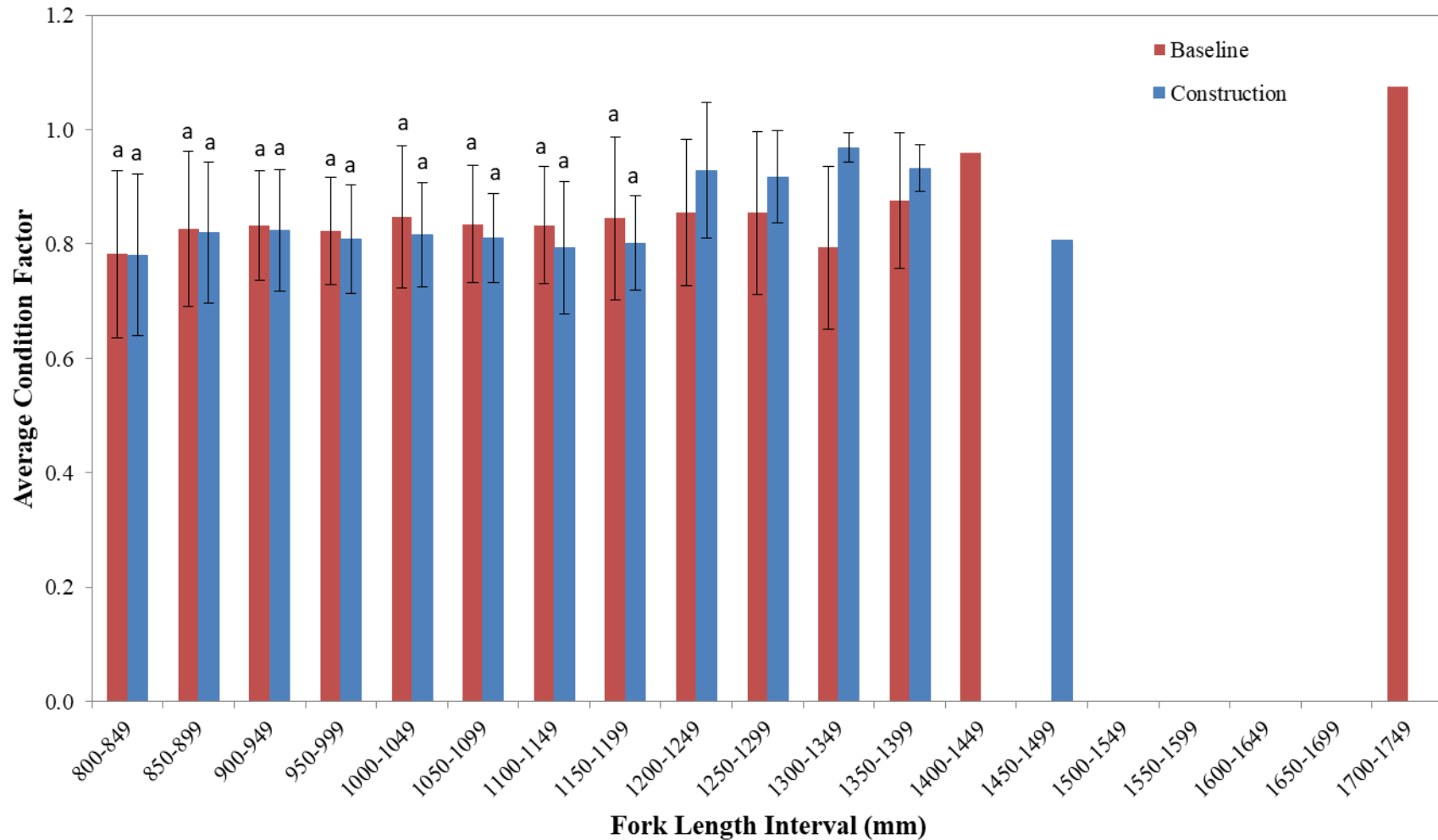


Figure 3: Mean condition factor by 50 mm length intervals for adult (≥ 800 mm) Lake Sturgeon captured in the Burntwood River during baseline studies (red bars; 2001, 2002, 2005–2007, and 2009–2013) and construction monitoring (blue bars; 2015, 2017, and 2019). There were no significant differences between groups (Mann Whitney U test, $p > 0.05$). Error bars represent standard deviations.

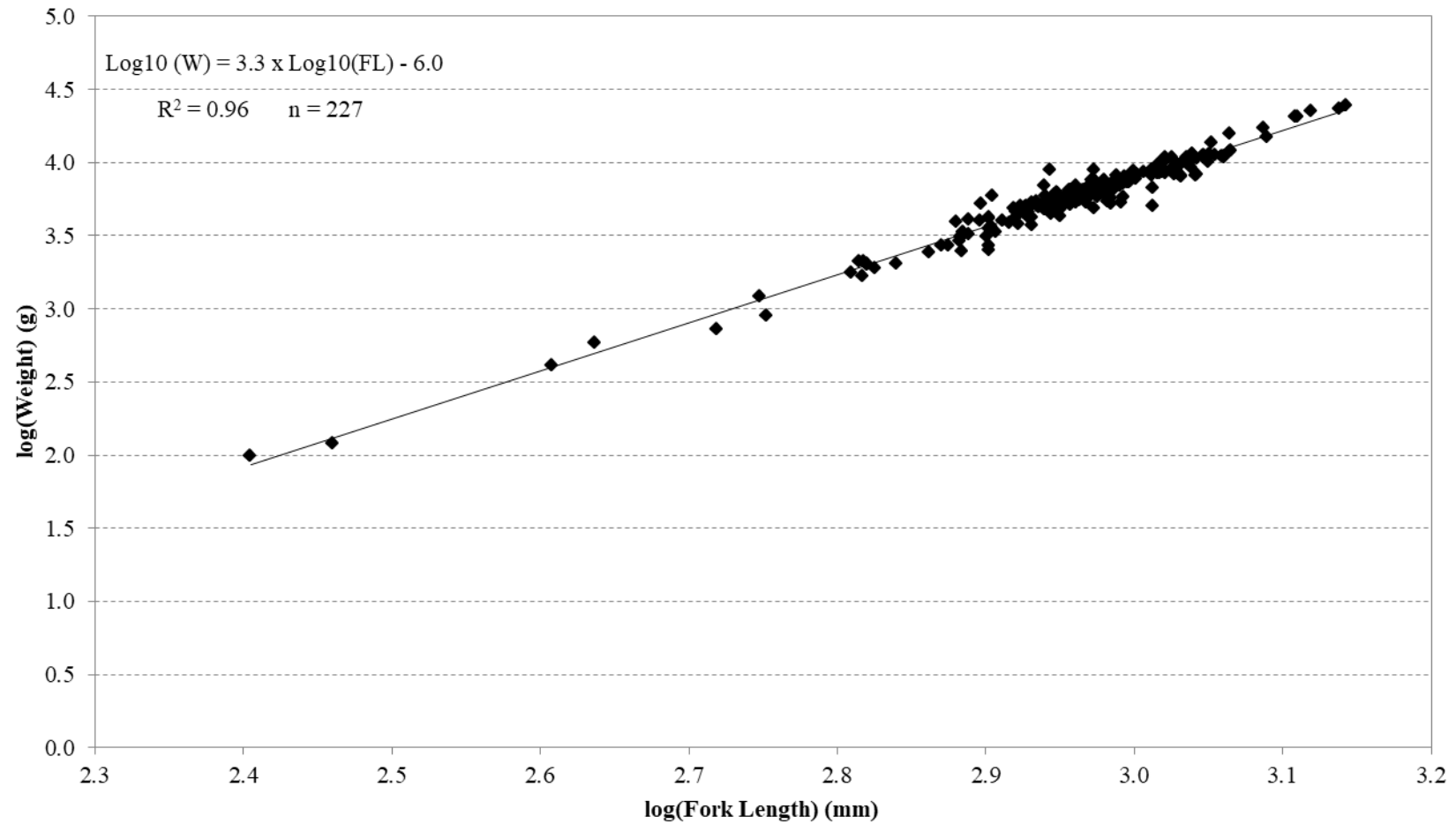


Figure 4: Length-weight regression for Lake Sturgeon captured in large mesh gill nets set in the Burntwood River, spring 2019.

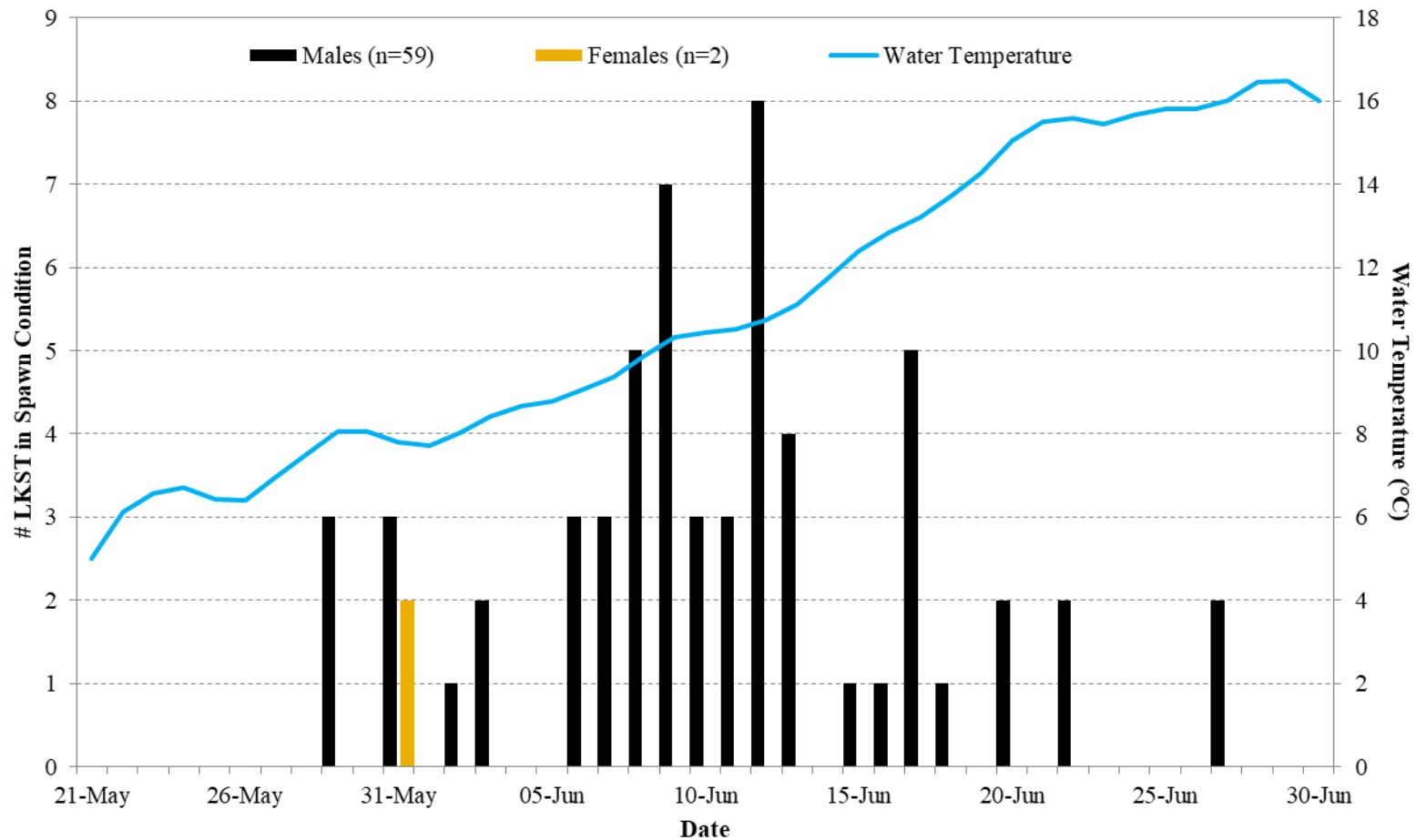


Figure 5. Mean daily water temperature and number of Lake Sturgeon captured per day in spawn condition in large mesh gill nets set in the Burntwood River, spring 2019.

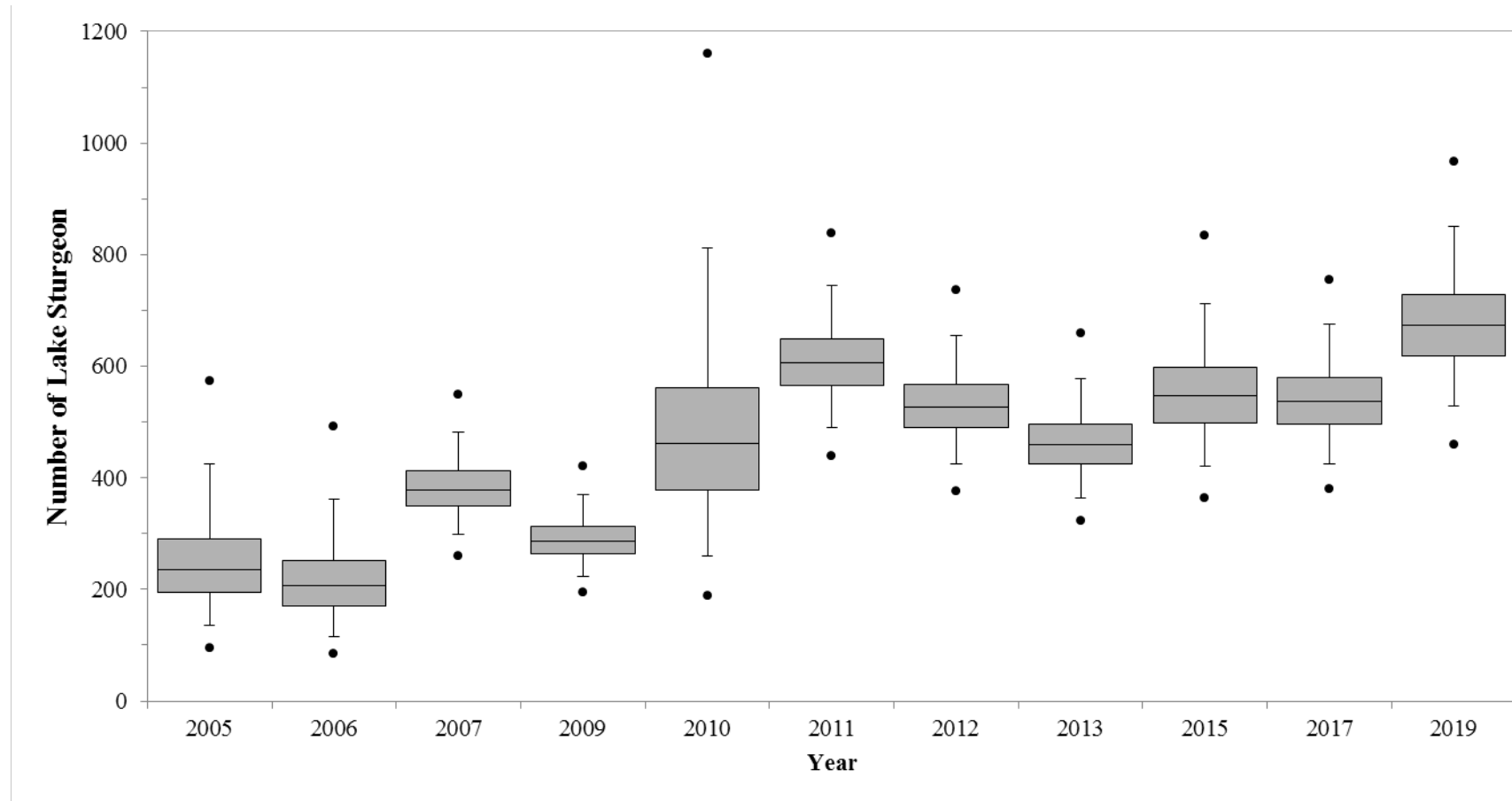


Figure 6: Adult Lake Sturgeon abundance estimates based on POPAN best model for the Burntwood River (2001–2019). Horizontal line inside the box represents the estimated abundance (*i.e.*, the number of adult Lake Sturgeon in the area during the time of capture), the dots represent the minimum and maximum estimates, and the vertical bar lines represent the upper and lower 95% confidence intervals.

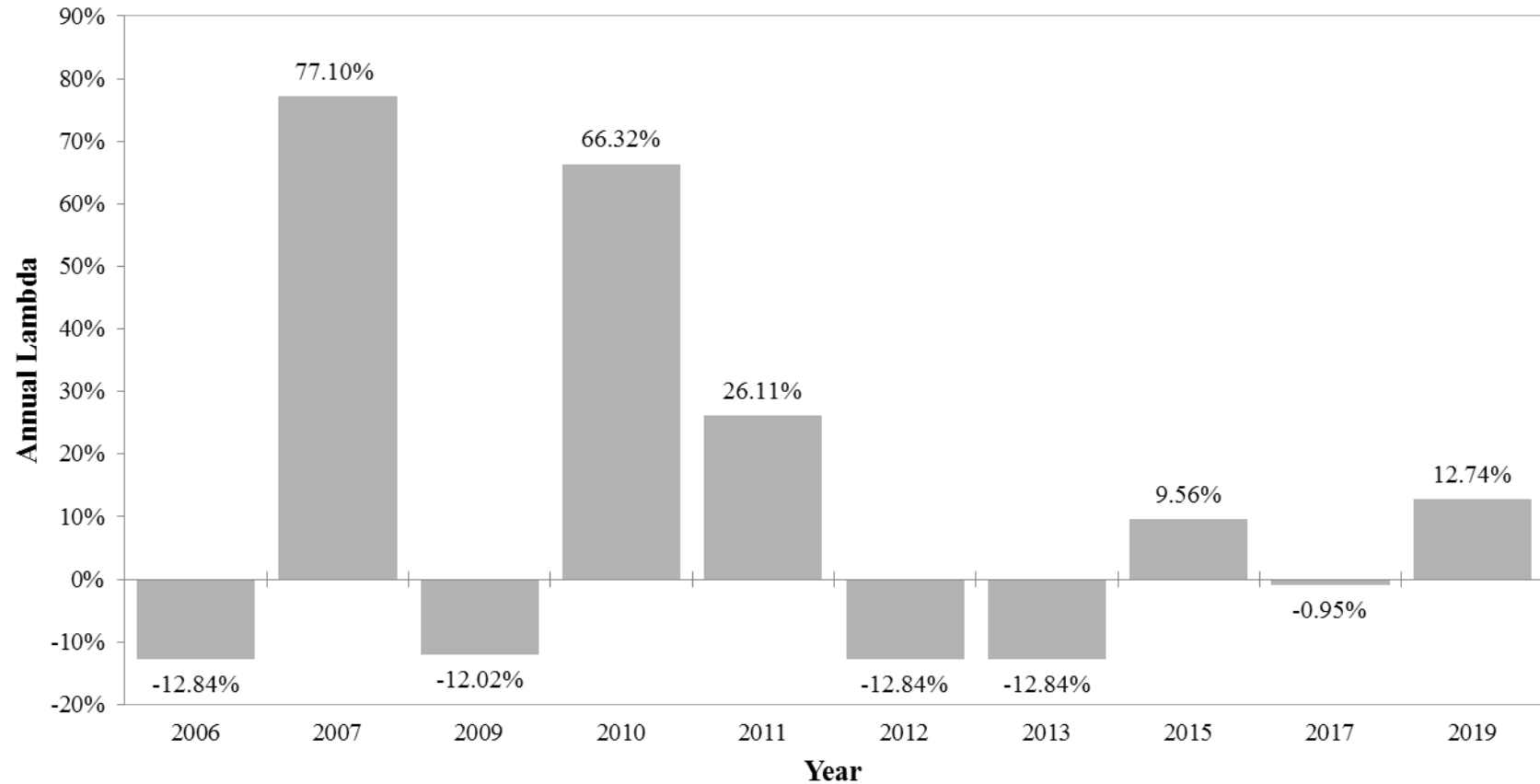


Figure 7. Annual percent change in adult Lake Sturgeon population growth estimates (lambda) based on the POPAN annual estimates for the Burntwood River. Percentages indicate change in population abundance between years.

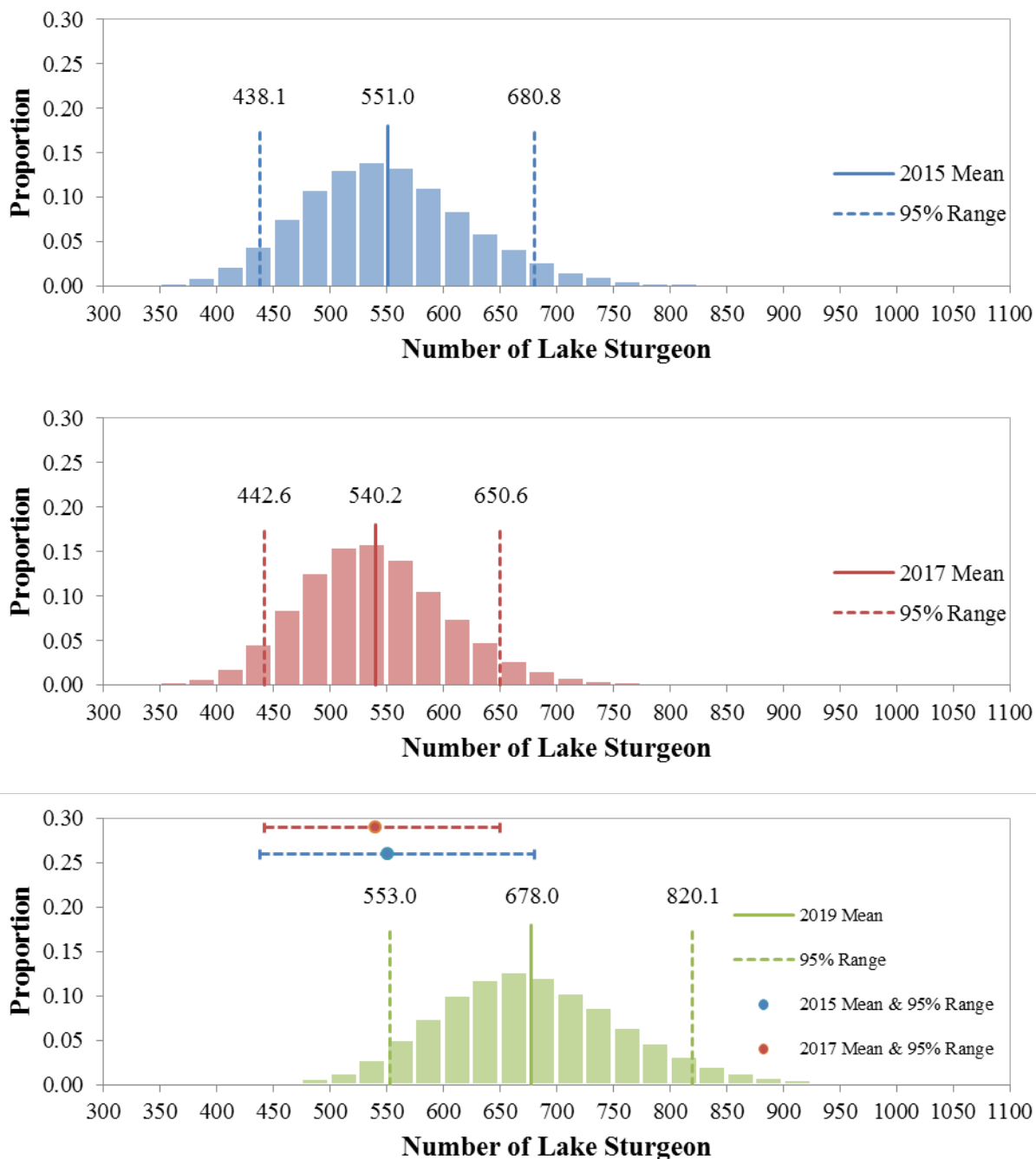


Figure 8: Analysis of change in mean population abundance estimates for the Burntwood River between one sample period (2017 to 2019) and two sampling periods (2015 to 2019). A significant change from the 2015 estimate would be a 21% decrease or a 24% increase. A significant change from the 2017 estimate would be a 18% decrease or a 20% increase. The mean population estimate in 2019 showed a 23% increase from 2015 and a 26% increase from 2017.

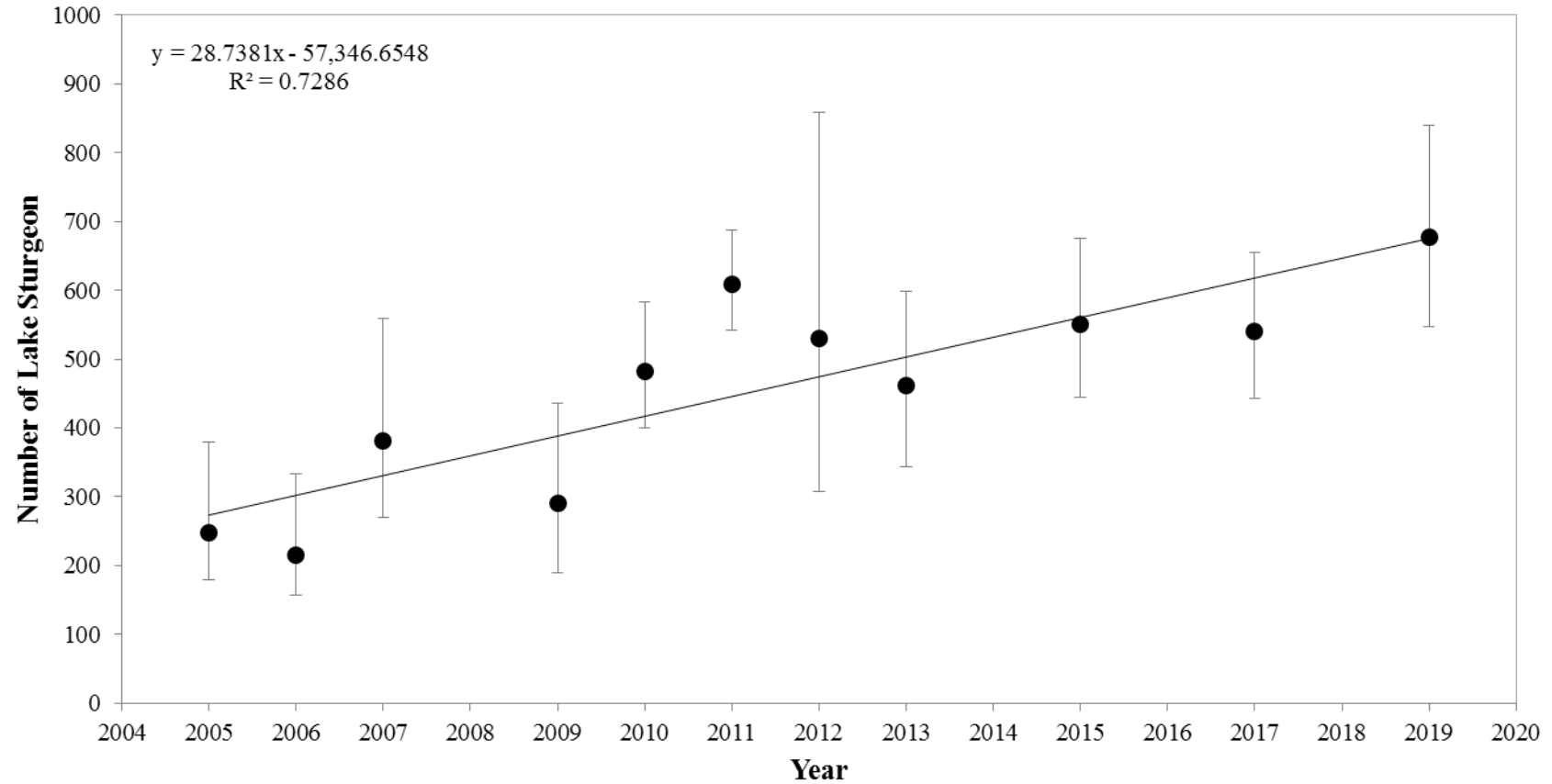


Figure 9: Abundance estimates for adult Lake Sturgeon in the Burntwood River by sampling year (2005–2019) showing a significant positive trend in population trajectory.

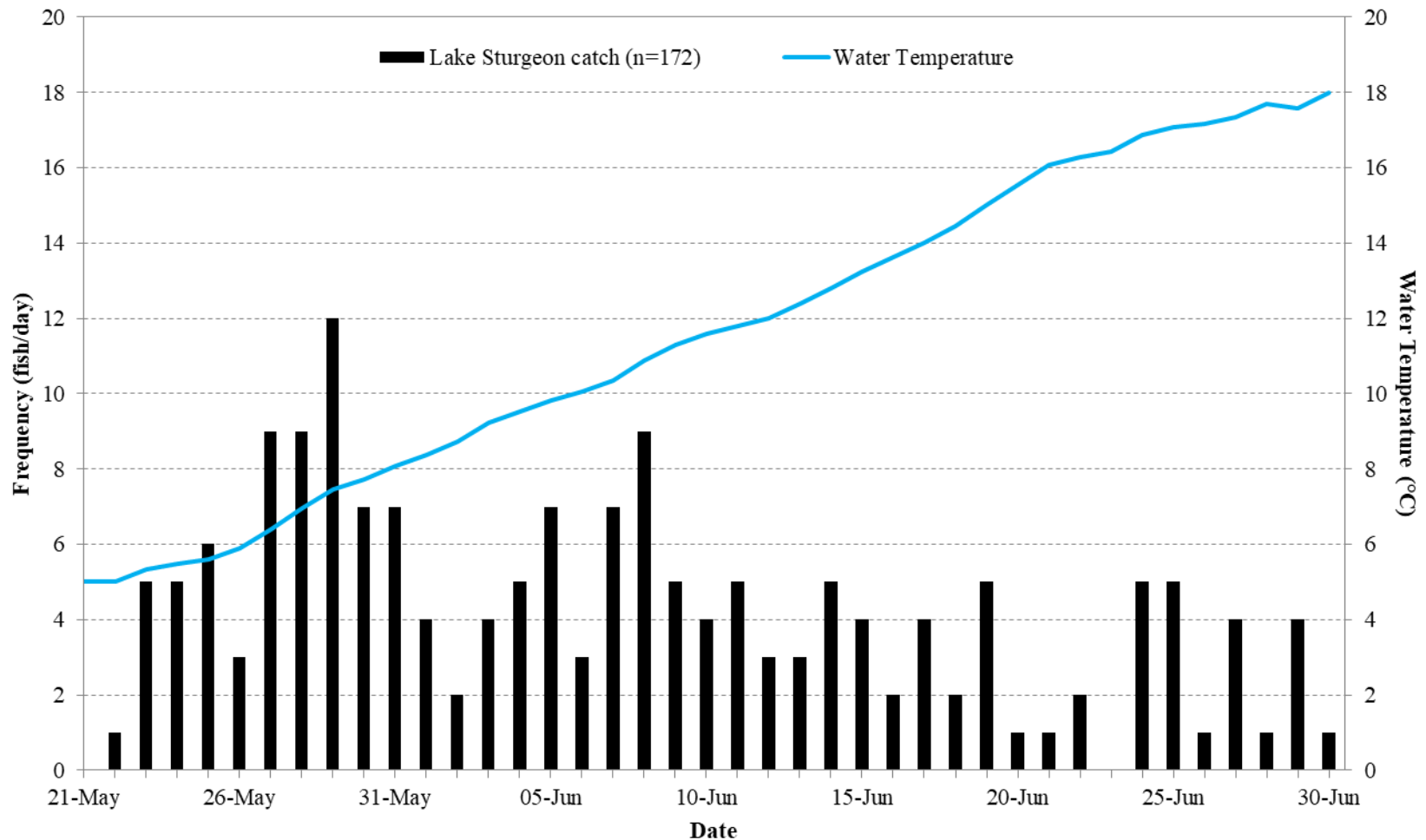


Figure 10. Mean daily water temperature of the Nelson River and number of Lake Sturgeon captured per day in large mesh gill nets set in the Kelsey GS Area, 21-May – 30 June, 2019 (does not include current year recaptures).

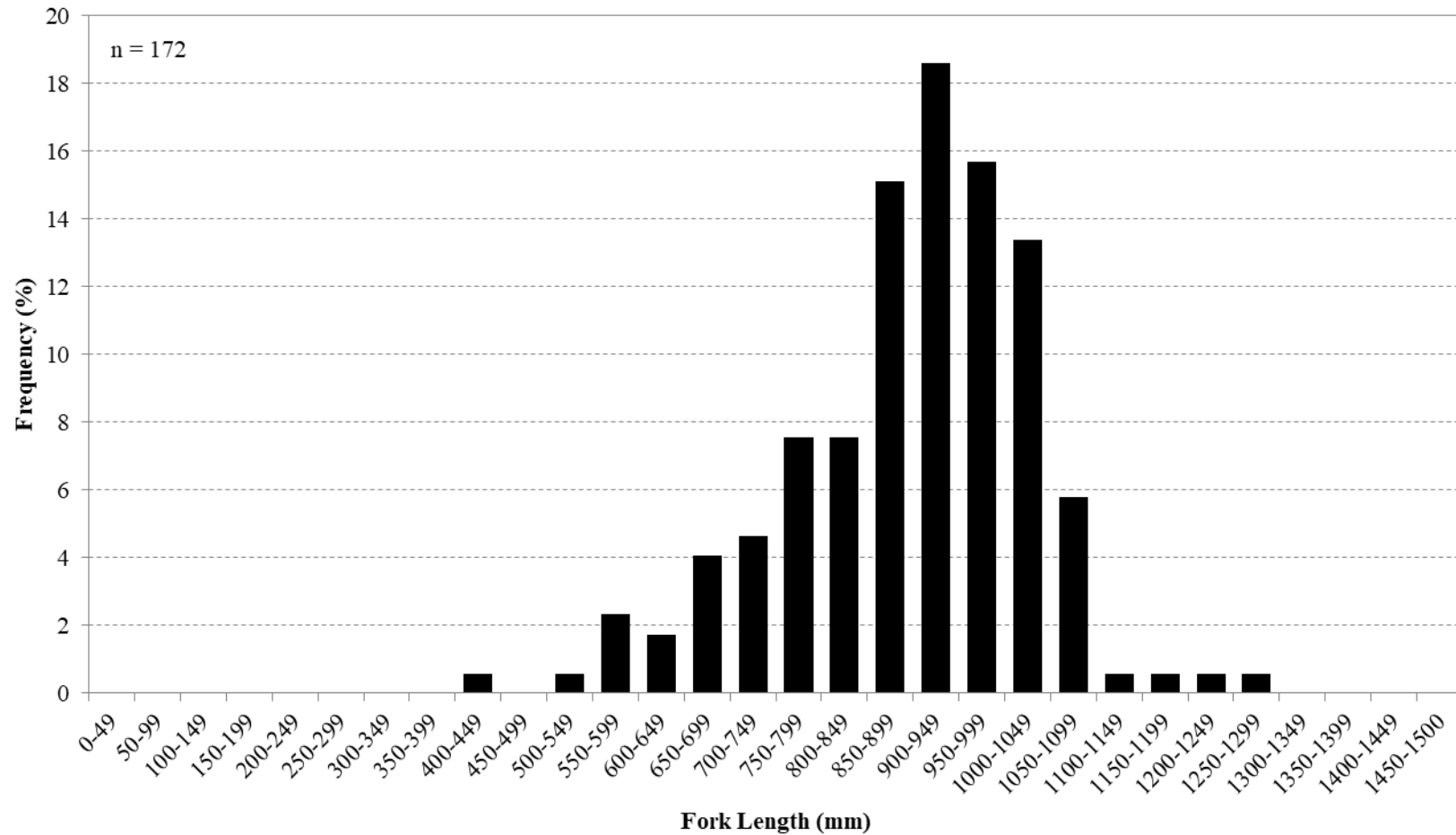


Figure 11: Length-frequency distribution for Lake Sturgeon captured in large mesh gill nets set in the Kelsey GS Area, spring 2019.

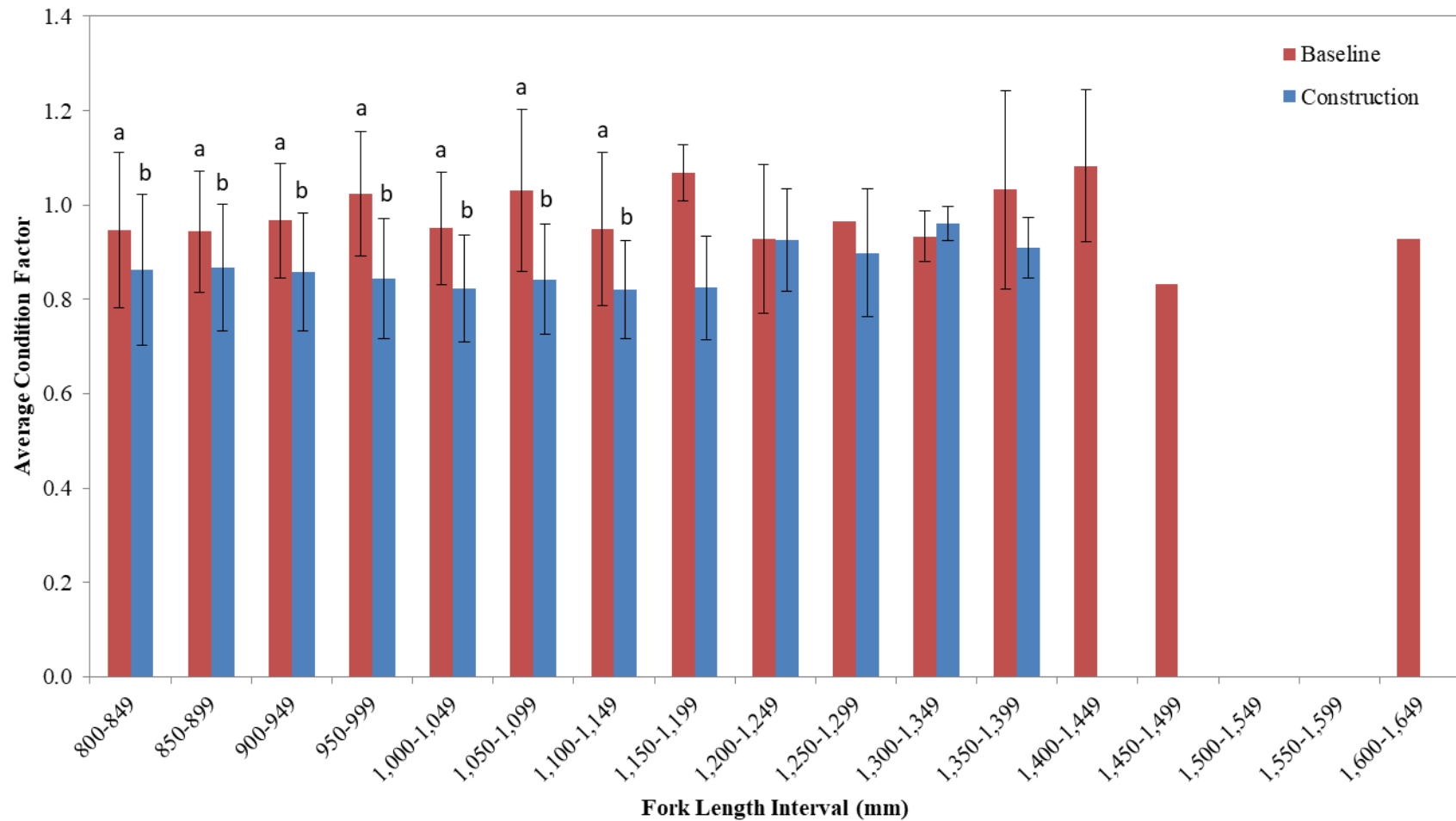


Figure 12: Mean condition factor by 50 mm length intervals for adult (≥ 800 mm) Lake Sturgeon captured in the Kelsey GS Area during baseline studies (red bars) and construction monitoring (blue bars). Letters denote significant differences between groups (Mann Whitney U test, $p < 0.05$). Error bars represent standard deviations.

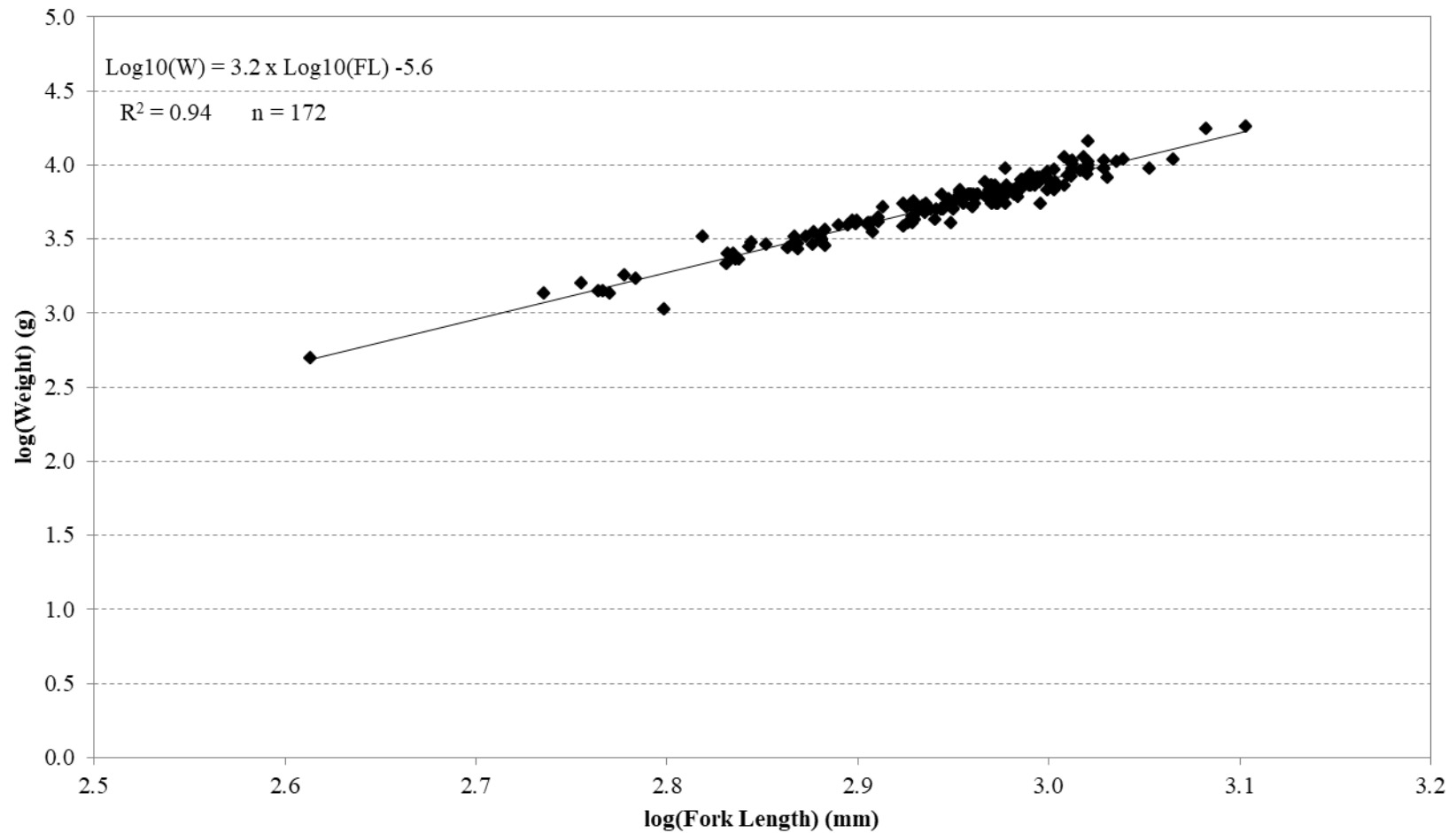


Figure 13: Length-weight regression for Lake Sturgeon captured in large mesh gill nets set in the Kelsey GS Area, spring 2019.

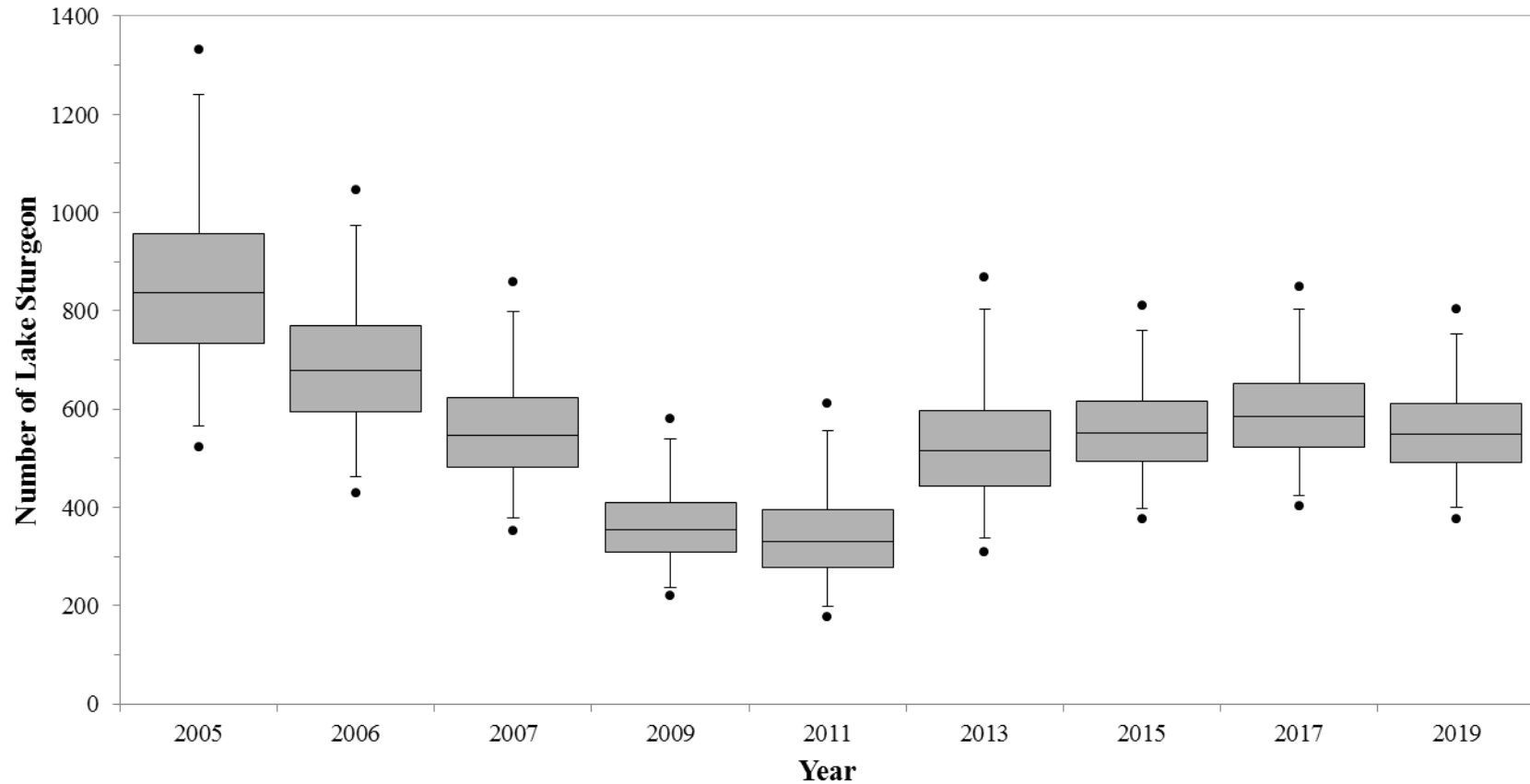


Figure 14: Adult Lake Sturgeon abundance estimates based on POPAN best model for the Kelsey GS Area (2001–2019). Horizontal line inside the box represents the estimated abundance (*i.e.*, the number of adult Lake Sturgeon in the area during the time of capture), the dots represent the minimum and maximum estimates, and the vertical bar lines represent the upper and lower 95% confidence intervals.

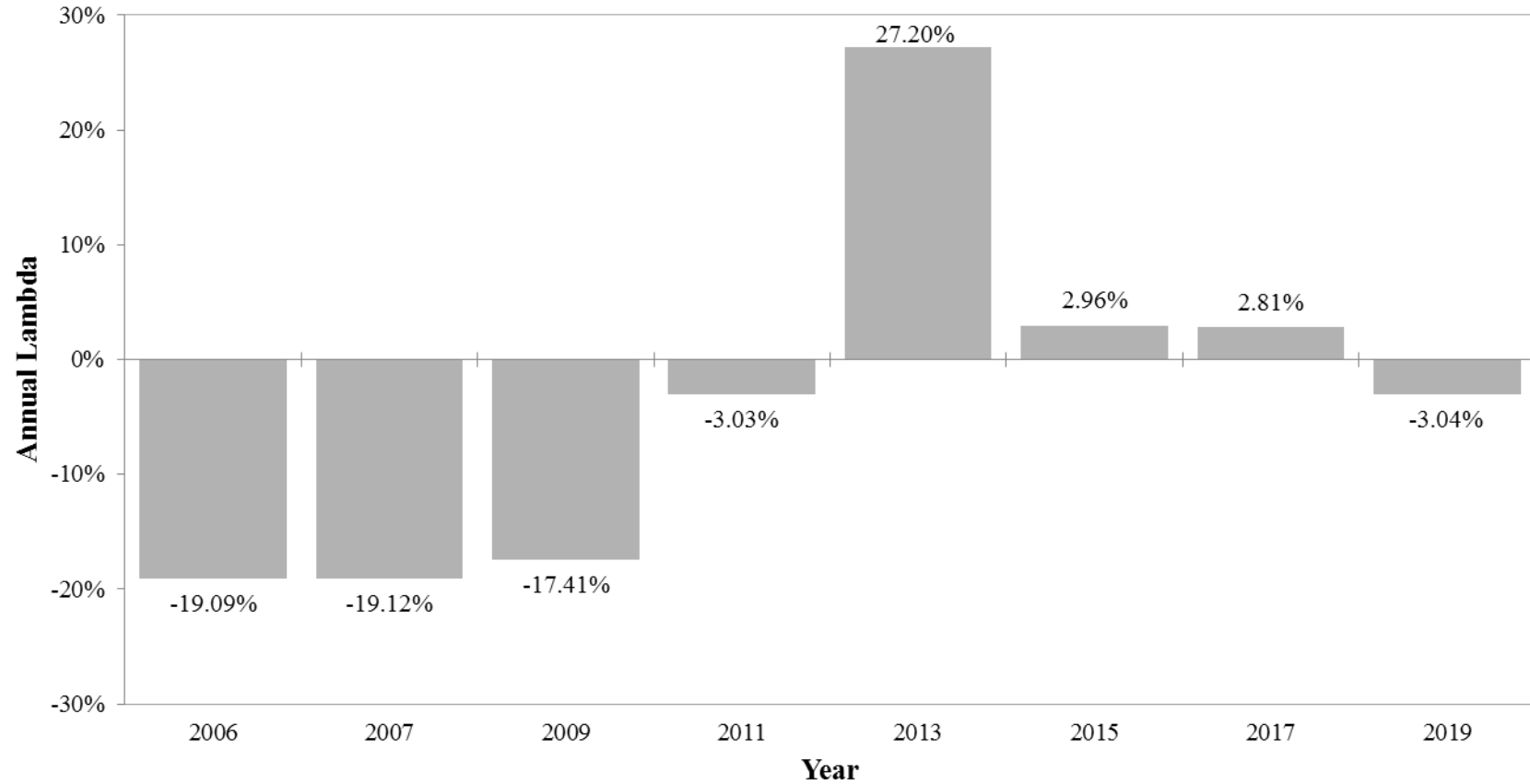


Figure 15. Annual percent change in adult Lake Sturgeon population growth estimates (lambda) based on the POPAN annual estimates for the Kelsey GS Area. Percentages indicate the change in population abundance between years.

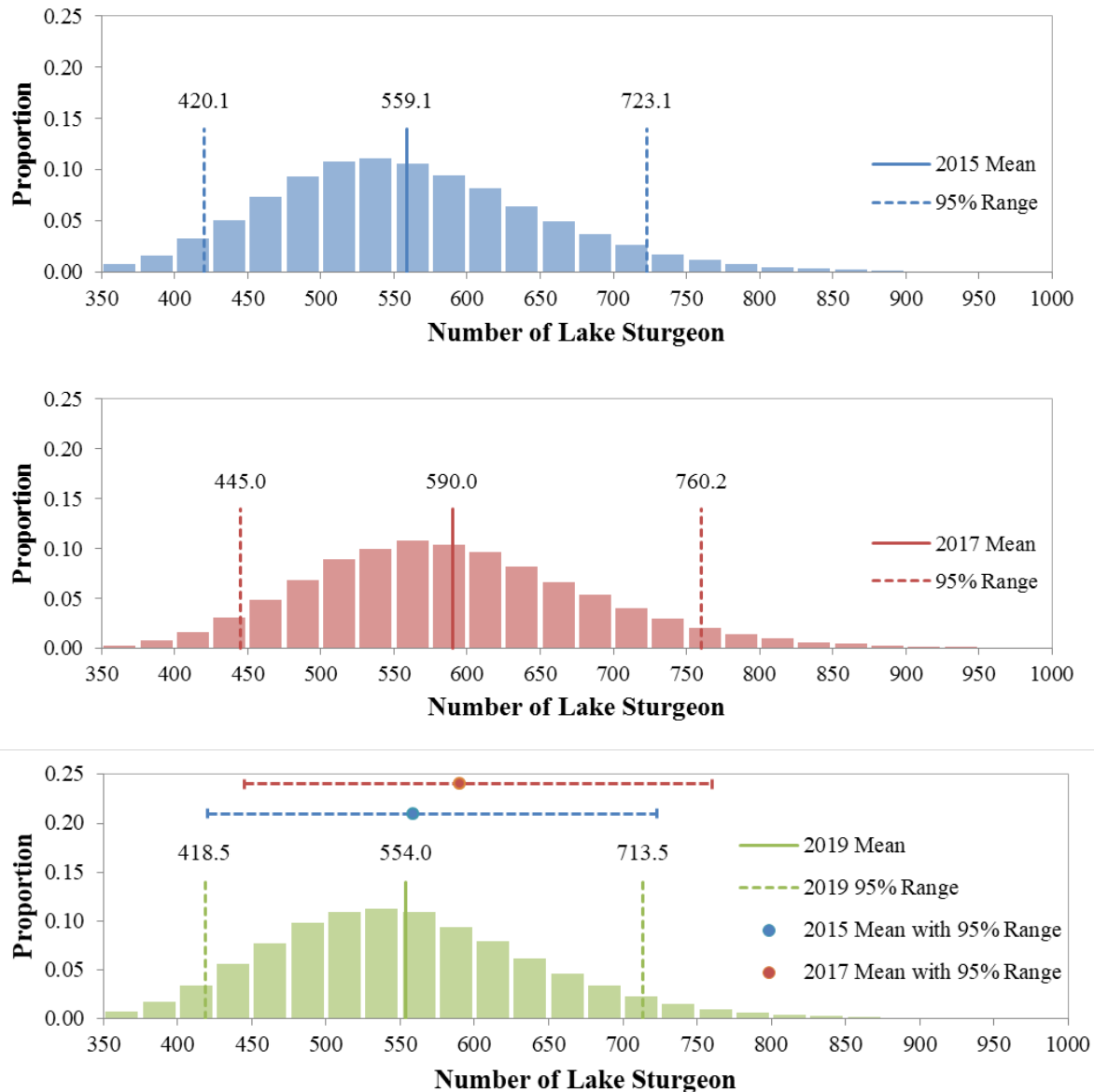


Figure 16: Analysis of change in mean population abundance estimates for the Kelsey GS Area between one sample period (2017 to 2019) and two sampling periods (2015 to 2019). A significant change from the 2015 estimate would be a 25% decrease or a 29% increase. A significant change from the 2017 estimate would be a 25% decrease or a 29% increase. The mean population estimate in 2019 showed a 1% decrease from 2015 and a 6% decrease from 2017.

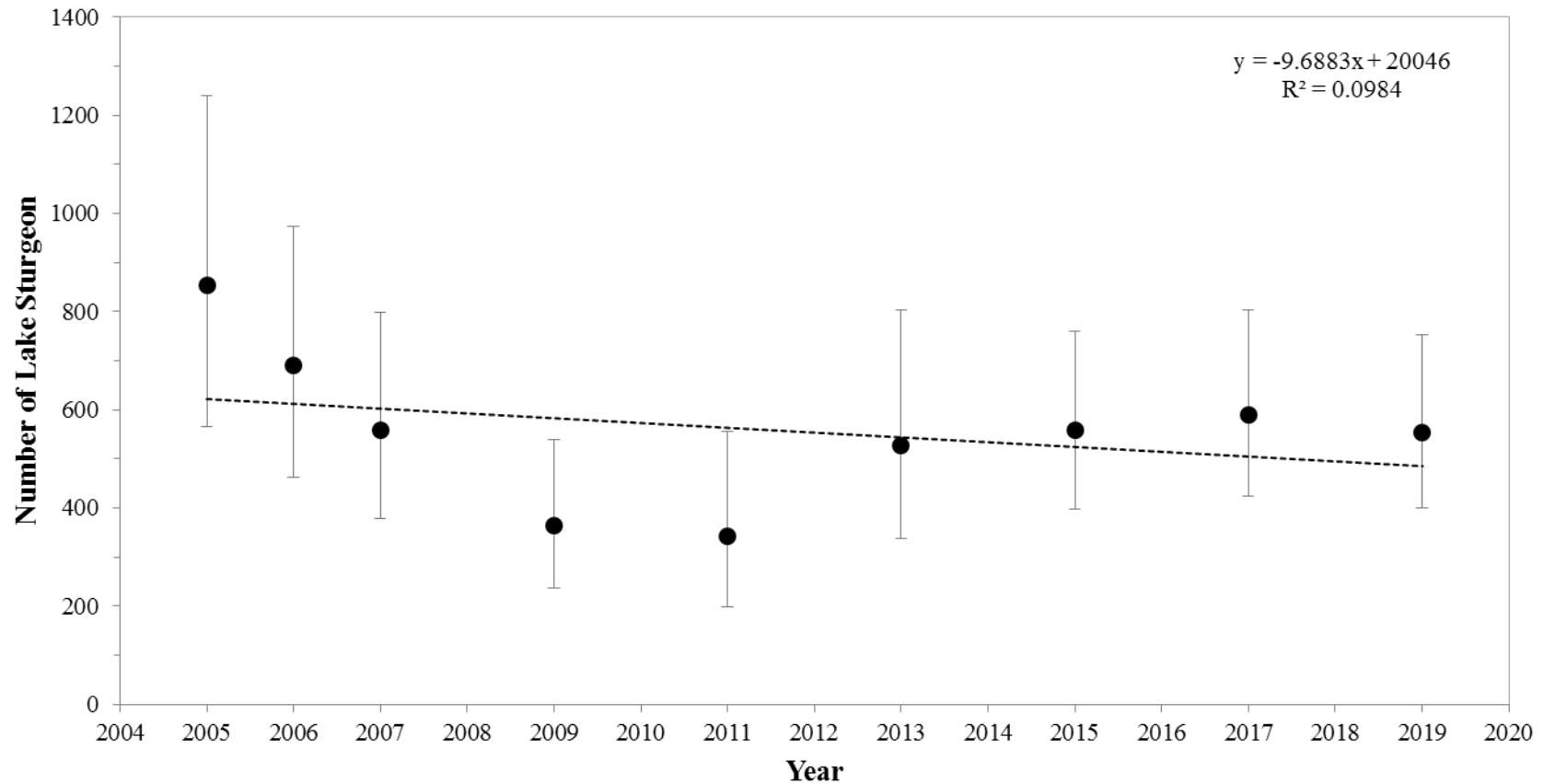
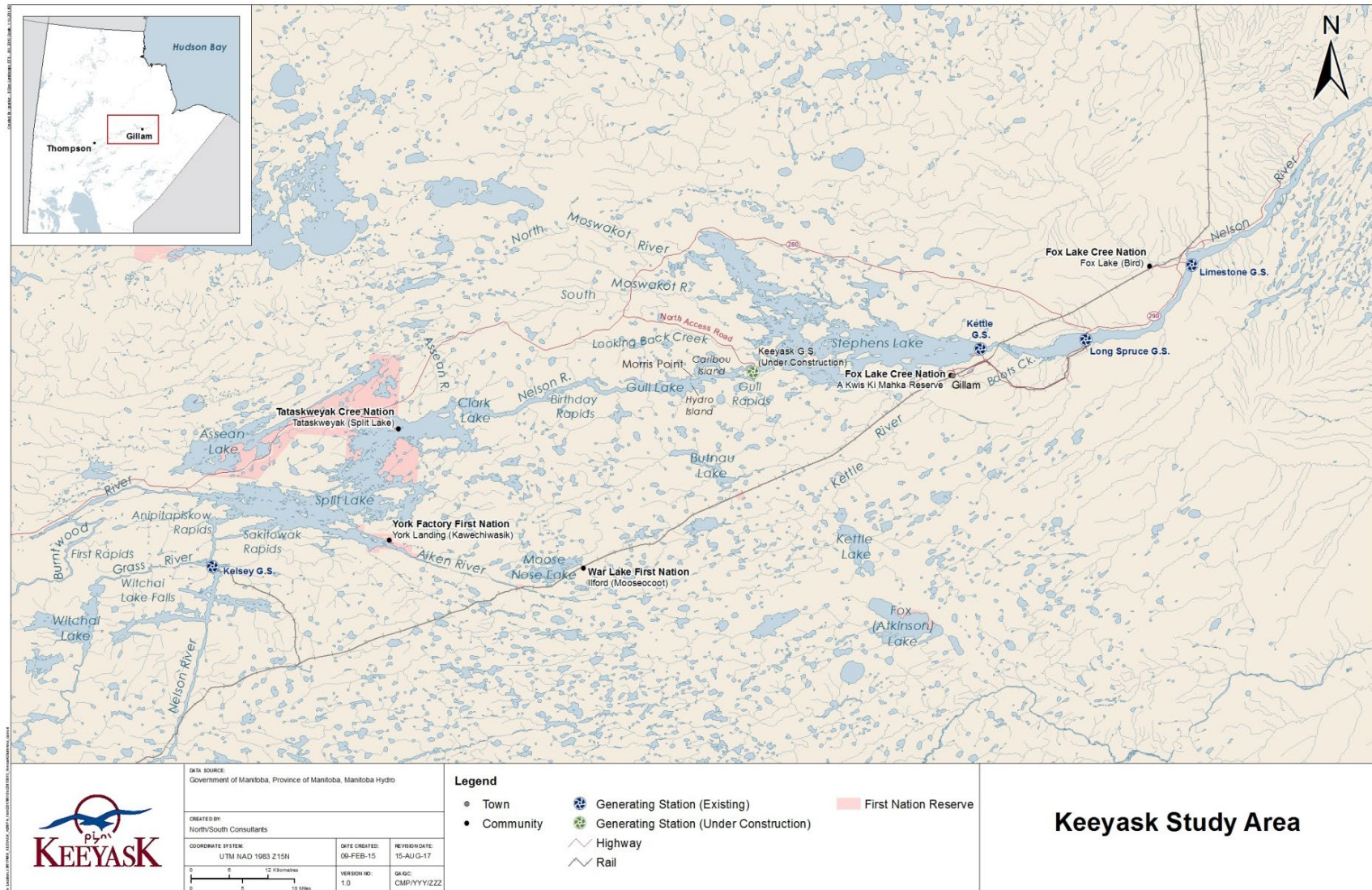
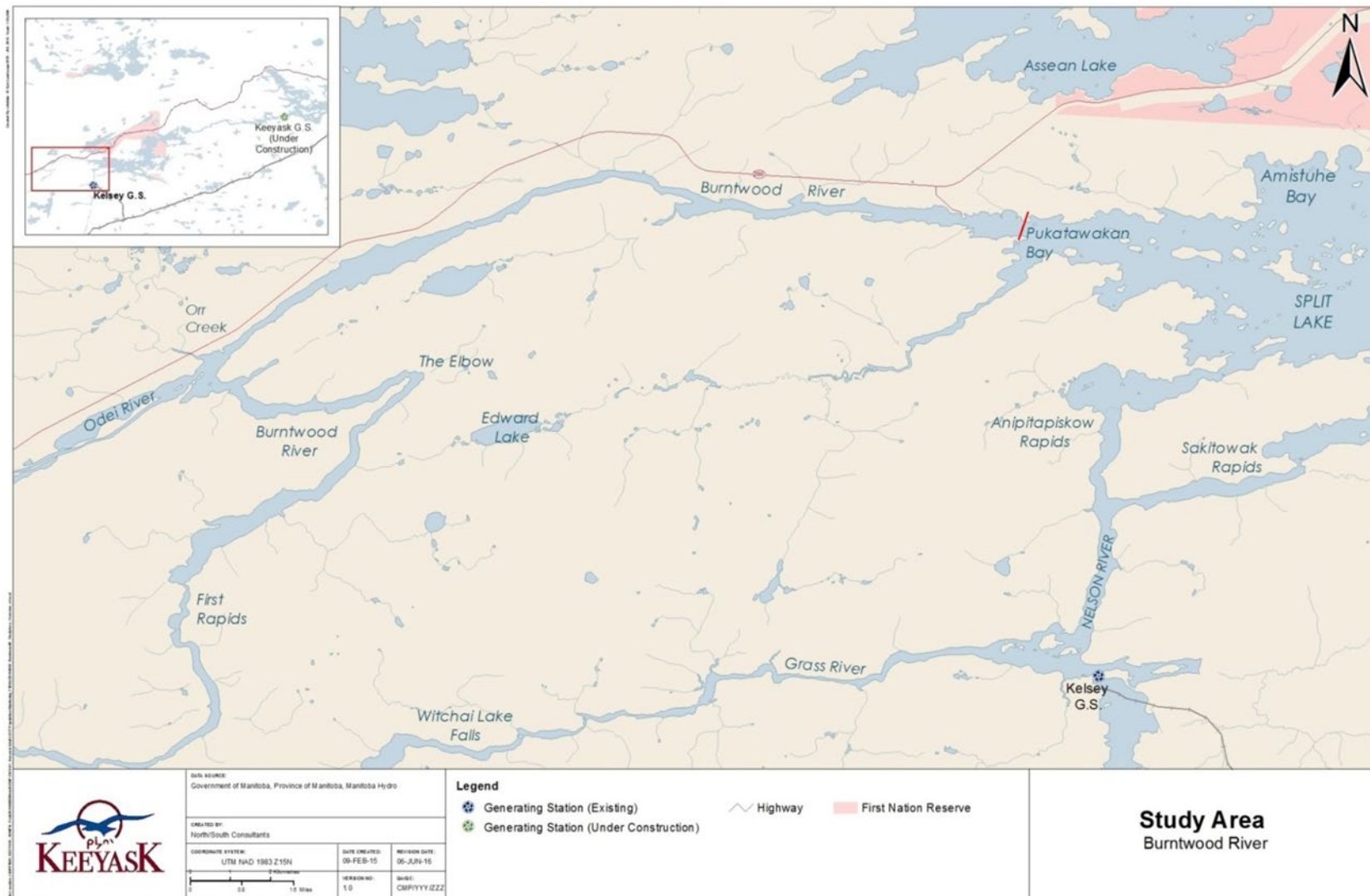


Figure 17: Abundance estimates for adult Lake Sturgeon in the Kelsey GS Area by sampling year (2005–2019) showing no significant trend in population trajectory.

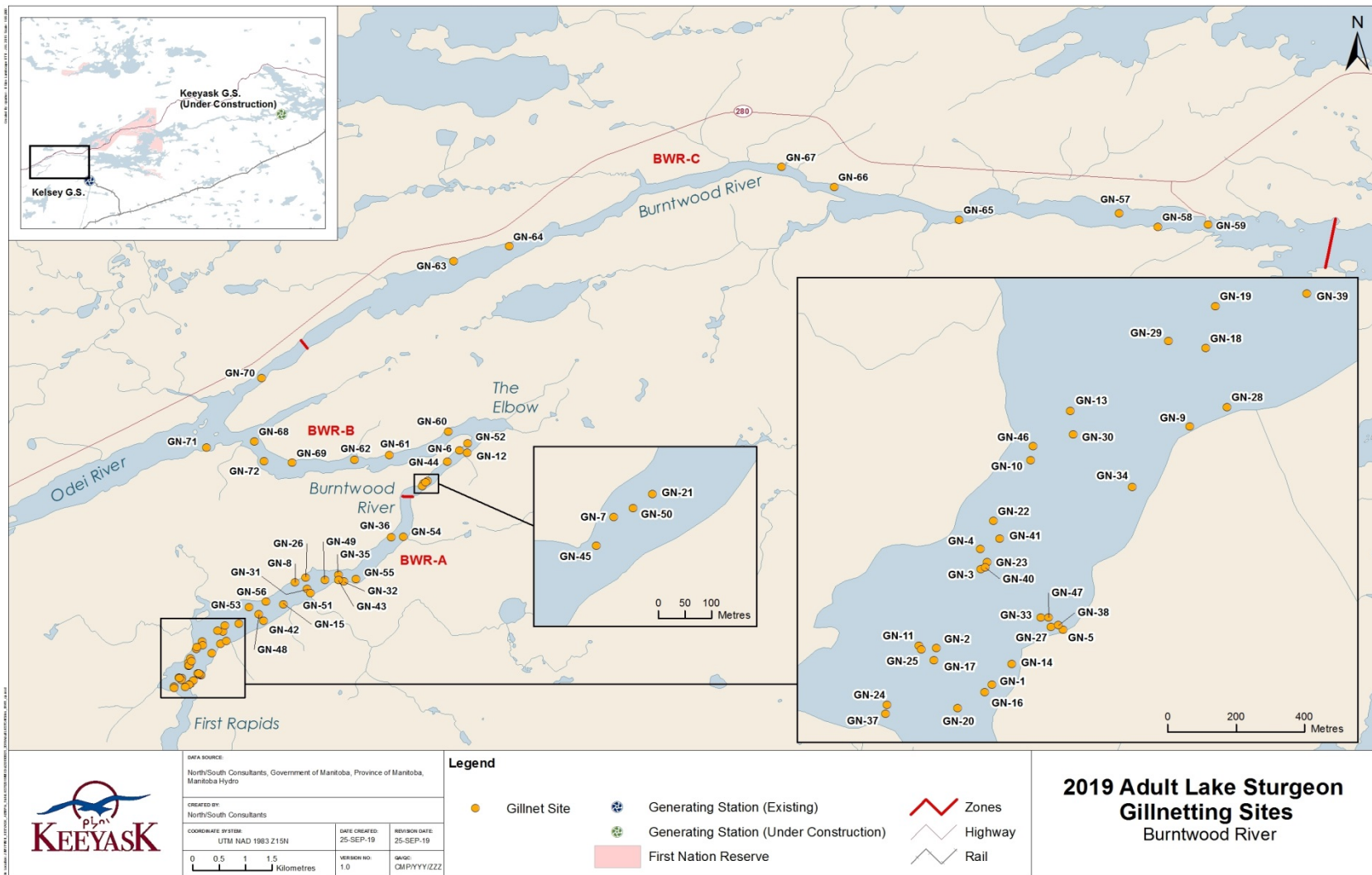
MAPS

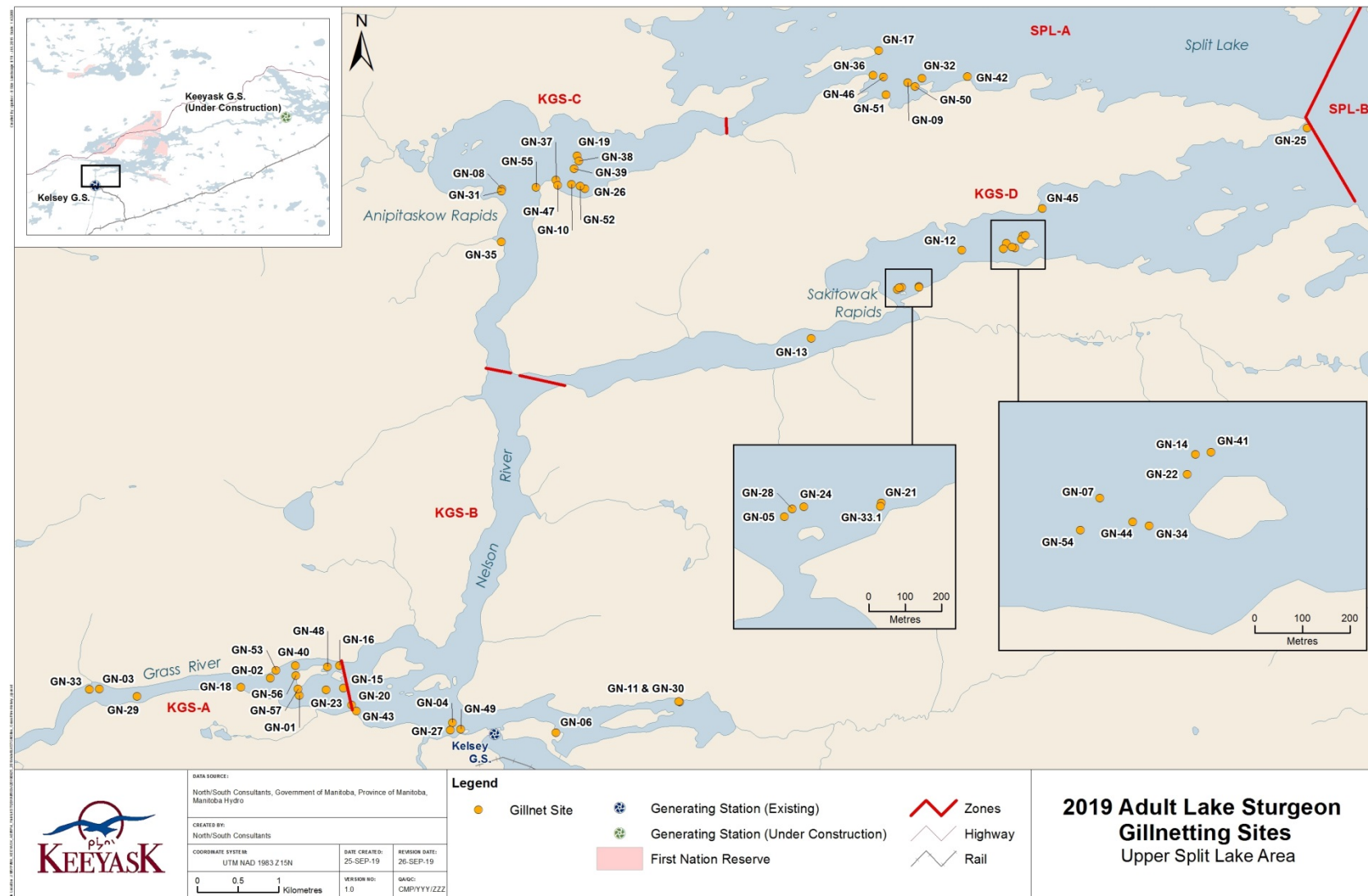


Map 1: Map of the Keeyask Study Area.



Map 2: Map of the Upper Split Lake Area Study Area. Red line demarcates Burntwood River from Kelsey GS Area (including Grass River and Split Lake).





Map 4: Sites fished with large mesh gill net gangs in the Kelsey GS Area, spring 2019.



Map 5: Original tagging locations of two Lake Sturgeon tagged upstream of the Kelsey GS by the Nelson River Sturgeon Board and recaptured downstream of the Kelsey GS in 2019.

APPENDICES

APPENDIX 1: TAGGING AND BIOLOGICAL INFORMATION FOR LAKE STURGEON CAPTURED IN THE UPPER SPLIT LAKE AREA, SPRING 2019

Table A1-1: Tagging and biological information for Lake Sturgeon marked with Floy® tags and PIT tags in the Upper Split Lake Area, spring 2019.	58
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Table A1-1: Tagging and biological information for Lake Sturgeon marked with Floy® tags and PIT tags in the Upper Split Lake Area, spring 2019.

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Burntwood River	BWR-B	23-May-19	NSC	114051	-	900 226000327434	974	1082	8119	-	-
Burntwood River	BWR-A	23-May-19	NSC	114052	-	900 226000327403	774	875	3266	-	-
Burntwood River	BWR-A	23-May-19	NSC	114053	-	900 226000327406	907	1020	6532	-	-
Burntwood River	BWR-A	23-May-19	NSC	114054	-	900 226000327412	833	931	4218	-	-
Burntwood River	BWR-B	24-May-19	NSC	114055	-	900 226000327432	1071	1176	9571	-	-
Burntwood River	BWR-A	24-May-19	NSC	114056	-	900 226000327445	941	1059	8890	-	-
Burntwood River	BWR-B	25-May-19	NSC	114058	-	900 226000327484	905	1010	6532	-	-
Burntwood River	BWR-B	25-May-19	NSC	114059	-	900 226000327023	860	956	5398	-	-
Burntwood River	BWR-B	26-May-19	NSC	114060	114061	900 226000327009	910	994	5579	-	-
Burntwood River	BWR-B	26-May-19	NSC	114062	-	900 226000327867	942	1051	7530	-	-
Burntwood River	BWR-B	26-May-19	NSC	114063	-	900 226000327800	886	980	5806	-	-
Burntwood River	BWR-B	27-May-19	NSC	114164	-	900 226000327859	1284	1426	20548	-	-
Burntwood River	BWR-B	27-May-19	NSC	114065	114066	900 226000327477	936	1049	7076	-	-
Burntwood River	BWR-B	28-May-19	NSC	114067	-	900 226000327052	1134	1242	11340	-	-
Burntwood River	BWR-B	28-May-19	NSC	114069	-	900 226000327806	951	1054	6532	-	-
Burntwood River	BWR-B	28-May-19	NSC	114070	-	900 226000327446	949	1052	7031	-	-
Burntwood River	BWR-B	28-May-19	NSC	114071	-	900 226000327479	996	1116	8301	-	-
Burntwood River	BWR-A	28-May-19	-	-	-	900 067000121188	289	322	120	-	-
Burntwood River	BWR-A	28-May-19	NSC	114072	-	900 226000327443	788	873	3992	-	-
Burntwood River	BWR-B	29-May-19	NSC	114073	-	900 226000327468	966	1086	5262	M	7
Burntwood River	BWR-B	29-May-19	NSC	114074	-	900 226000327427	1030	1149	5080	M	7
Burntwood River	BWR-B	29-May-19	-	-	-	900 226000327835	816	912	4037	M	7
Burntwood River	BWR-B	29-May-19	NSC	114151	-	900 226000327882	1028	1152	8936	-	-
Burntwood River	BWR-A	29-May-19	NSC	114152	-	900 226000327837	796	902	3130	-	-
Burntwood River	BWR-B	31-May-19	NSC	114153	-	900 226000327511	932	1040	6169	M	7
Burntwood River	BWR-B	31-May-19	NSC	114154	-	900 226000327421	1066	1164	8391	M	7
Burntwood River	BWR-A	31-May-19	NSC	114155	-	900 226000327404	825	930	3856	-	-
Burntwood River	BWR-A	31-May-19	NSC	114156	-	900 226000327871	1290	1436	20638	F	2
Burntwood River	BWR-A	31-May-19	NSC	114157	-	900 226000327008	765	856	3130	-	-
Burntwood River	BWR-A	31-May-19	NSC	114158	-	900 226000327854	896	973	4990	-	-

Table A1-1: Tagging and biological information for Lake Sturgeon marked with Floy® tags and PIT tags in the Upper Split Lake Area, spring 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Burntwood River	BWR-A	31-May-19	NSC	114159	-	900 226000327844	766	852	2495	-	-
Burntwood River	BWR-A	1-Jun-19	NSC	114160	-	900 226000327814	966	1075	7076	-	-
Burntwood River	BWR-A	1-Jun-19	NSC	114161	-	900 226000327888	925	1044	6441	-	-
Burntwood River	BWR-B	1-Jun-19	NSC	114162	-	900 226000327869	880	973	4445	-	-
Burntwood River	BWR-A	2-Jun-19	NSC	114165	-	900 226000327825	799	895	4264	-	-
Burntwood River	BWR-A	2-Jun-19	NSC	114166	-	900 226000327017	889	981	5352	-	-
Burntwood River	BWR-A	2-Jun-19	NSC	114167	-	900 226000327891	952	1066	6622	-	-
Burntwood River	BWR-A	2-Jun-19	NSC	114168	-	900 226000327862	1128	1260	13835	-	-
Burntwood River	BWR-B	2-Jun-19	NSC	114169	-	900 226000327866	986	1095	8074	-	-
Burntwood River	BWR-B	2-Jun-19	NSC	114170	-	900 226000327861	847	959	5080	-	-
Burntwood River	BWR-B	3-Jun-19	NSC	114171	-	900 226000327829	856	965	5126	-	-
Burntwood River	BWR-B	3-Jun-19	NSC	114172	-	900 226000327846	954	1055	6577	-	-
Burntwood River	BWR-B	3-Jun-19	NSC	114173	-	900 226000327013	1028	1146	8210	-	-
Burntwood River	BWR-A	3-Jun-19	NSC	114174	-	900 226000327840	646	741	1769	-	-
Burntwood River	BWR-A	3-Jun-19	NSC	114175	-	900 226000327838	662	740	1996	-	-
Burntwood River	BWR-A	3-Jun-19	NSC	114176	-	900 226000327896	661	752	2041	-	-
Burntwood River	BWR-A	4-Jun-19	NSC	114177	-	900 226000327834	742	823	2722	-	-
Burntwood River	BWR-B	4-Jun-19	NSC	114178	-	900 226000327850	1115	1259	11249	-	-
Burntwood River	BWR-B	4-Jun-19	NSC	114179	-	900 226000327880	1091	1203	10070	-	-
Burntwood River	BWR-B	4-Jun-19	NSC	114181	-	900 226000327856	890	1004	6123	-	-
Burntwood River	BWR-B	4-Jun-19	NSC	114182	-	900 226000327874	920	1023	5534	-	-
Burntwood River	BWR-A	5-Jun-19	NSC	114183	-	900 226000327865	920	1021	6214	-	-
Burntwood River	BWR-A	5-Jun-19	NSC	114184	-	900 226000893404	802	903	3674	-	-
Burntwood River	BWR-A	5-Jun-19	NSC	114185	-	900 226000327864	670	764	1905	-	-
Burntwood River	BWR-B	5-Jun-19	NSC	114187	-	900 226000327802	899	987	5670	-	-
Burntwood River	BWR-B	5-Jun-19	NSC	114189	-	900 226000327849	872	983	5942	-	-
Burntwood River	BWR-B	5-Jun-19	NSC	114190	-	900 226000327076	760	847	3946	-	-
Burntwood River	BWR-B	5-Jun-19	NSC	114191	-	900 226000327890	1050	1161	8845	-	-
Burntwood River	BWR-B	5-Jun-19	NSC	114192	-	900 226000327839	876	980	5307	-	-
Burntwood River	BWR-A	6-Jun-19	NSC	114193	-	900 226000327084	930	1034	5670	M	7

Table A1-1: Tagging and biological information for Lake Sturgeon marked with Floy® tags and PIT tags in the Upper Split Lake Area, spring 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Burntwood River	BWR-A	6-Jun-19	NSC	114194	-	900 226000327836	998	1105	8346	-	-
Burntwood River	BWR-A	6-Jun-19	NSC	114195	-	900 226000327057	928	1022	6532	-	-
Burntwood River	BWR-A	6-Jun-19	NSC	114196	-	900 226000327858	916	1014	6577	-	-
Burntwood River	BWR-A	6-Jun-19	NSC	114197	-	900 226000327870	931	1033	6441	-	-
Burntwood River	BWR-A	6-Jun-19	NSC	114198	55293	900 226000327879	905	994	6260	-	-
Burntwood River	BWR-B	6-Jun-19	NSC	114199	-	900 226000327863	845	952	4990	-	-
Burntwood River	BWR-B	6-Jun-19	NSC	114200	-	900 226000327857	971	1070	6577	M	7
Burntwood River	BWR-A	7-Jun-19	NSC	114126	-	900 226000327843	972	1091	7031	M	8
Burntwood River	BWR-B	7-Jun-19	NSC	114127	-	900 226000327832	1049	1170	10206	-	-
Burntwood River	BWR-B	7-Jun-19	NSC	114128	-	900 226000327893	871	978	4763	-	-
Burntwood River	BWR-B	7-Jun-19	NSC	114129	-	900 226000327807	1080	1189	10206	M	8
Burntwood River	BWR-B	7-Jun-19	NSC	114130	-	900 226000327841	915	1030	5307	M	7
Burntwood River	BWR-B	7-Jun-19	NSC	114131	-	900 226000327868	914	1021	6985	-	-
Burntwood River	BWR-A	8-Jun-19	NSC	114132	-	900 226000327873	1095	1230	11567	M	8
Burntwood River	BWR-A	8-Jun-19	NSC	114133	-	900 226000327898	915	1033	5942	M	8
Burntwood River	BWR-A	8-Jun-19	NSC	114134	-	900 226000327033	936	1038	6759	M	7
Burntwood River	BWR-A	8-Jun-19	NSC	114150	-	900 226000327822	1028	1161	8709	-	-
Burntwood River	BWR-A	8-Jun-19	NSC	114148	-	900 226000327819	893	1002	4309	-	-
Burntwood River	BWR-B	8-Jun-19	NSC	114146	-	900 226000327952	871	947	6940	-	-
Burntwood River	BWR-B	8-Jun-19	NSC	114147	-	900 226000327833	1224	1356	17327	-	-
Burntwood River	BWR-A	9-Jun-19	NSC	114144	-	900 226000327815	940	1051	6396	M	7
Burntwood River	BWR-A	9-Jun-19	NSC	114137	-	900 226000327897	854	956	4218	M	7
Burntwood River	BWR-A	9-Jun-19	NSC	114138	-	900 226000327918	768	854	3357	-	-
Burntwood River	BWR-B	9-Jun-19	NSC	114139	-	900 226000327827	1016	1138	8618	M	8
Burntwood River	BWR-A	10-Jun-19	NSC	114140	-	900 226000327954	941	1057	7303	M	7
Burntwood River	BWR-A	10-Jun-19	NSC	114141	-	900 226000327823	895	1004	5625	M	8
Burntwood River	BWR-B	10-Jun-19	NSC	114142	-	900 226000327878	1230	1365	15059	-	-
Burntwood River	BWR-A	11-Jun-19	NSC	114143	-	900 226000327887	884	979	5126	-	-
Burntwood River	BWR-A	11-Jun-19	NSC	114101	-	900 226000327895	1123	1222	10160	M	7
Burntwood River	BWR-B	11-Jun-19	NSC	114102	-	900 226000327070	434	496	590	-	-

Table A1-1: Tagging and biological information for Lake Sturgeon marked with Floy® tags and PIT tags in the Upper Split Lake Area, spring 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Burntwood River	BWR-B	11-Jun-19	NSC	114103	-	900 226000327826	653	734	2132	-	-
Burntwood River	BWR-B	11-Jun-19	NSC	114104	-	900 226000327808	928	1037	6532	M	7
Burntwood River	BWR-A	12-Jun-19	NSC	114105	-	900 226000327711	1062	1175	9163	M	7
Burntwood River	BWR-A	12-Jun-19	NSC	114106	-	900 226000327872	906	1002	5171	M	7
Burntwood River	BWR-A	12-Jun-19	NSC	114108	-	900 226000327083	956	1072	7439	-	-
Burntwood River	BWR-A	12-Jun-19	NSC	114109	-	900 226000327883	885	977	6078	M	7
Burntwood River	BWR-A	12-Jun-19	NSC	114110	-	900 226000327817	844	934	4536	-	-
Burntwood River	BWR-A	12-Jun-19	NSC	114111	-	900 226000327472	891	989	5625	M	7
Burntwood River	BWR-A	13-Jun-19	NSC	114112	-	900 226000327824	833	919	4627	M	8
Burntwood River	BWR-A	13-Jun-19	NSC	114113	-	900 226000327733	951	1050	6895	-	-
Burntwood River	BWR-A	13-Jun-19	NSC	114114	-	900 226000327810	1150	1264	10977	M	9
Burntwood River	BWR-A	13-Jun-19	NSC	114115	-	900 226000327728	989	1103	7394	-	-
Burntwood River	BWR-A	14-Jun-19	NSC	114116	-	900 226000327086	1318	1443	22589	-	-
Burntwood River	BWR-A	14-Jun-19	NSC	114117	-	900 226000327853	946	1073	5851	-	-
Burntwood River	BWR-A	14-Jun-19	NSC	114118	-	900 226000327000	923	1041	6033	-	-
Burntwood River	BWR-A	15-Jun-19	NSC	114119	-	900 226000327805	1103	1241	10659	-	-
Burntwood River	BWR-A	15-Jun-19	NSC	114120	-	900 226000327433	921	1020	6123	M	7
Burntwood River	BWR-A	16-Jun-19	NSC	114121	-	900 226000327437	884	994	4944	-	-
Burntwood River	BWR-A	16-Jun-19	NSC	114122	-	900 226000327499	993	1113	7394	-	-
Burntwood River	BWR-A	17-Jun-19	NSC	114123	-	900 226000327460	831	914	4853	-	-
Burntwood River	BWR-A	18-Jun-19	NSC	114124	-	900 226000327431	1093	1233	9344	-	-
Burntwood River	BWR-A	18-Jun-19	NSC	55299	-	900 226000327422	866	961	5126	-	-
Burntwood River	BWR-A	18-Jun-19	NSC	55298	-	900 226000327419	524	592	726	-	-
Burntwood River	BWR-A	19-Jun-19	NSC	55297	-	900 226000327782	915	1023	6260	-	-
Burntwood River	BWR-A	19-Jun-19	NSC	55296	-	900 226000327899	1096	1213	11431	-	-
Burntwood River	BWR-A	19-Jun-19	NSC	55295	-	900 226000327781	946	1061	6486	-	-
Burntwood River	BWR-A	20-Jun-19	NSC	55292	-	900 226000327416	907	992	5488	-	-
Burntwood River	BWR-A	20-Jun-19	NSC	55291	-	900 226000327453	889	986	4990	-	-
Burntwood River	BWR-A	20-Jun-19	NSC	55290	-	900 226000327078	970	1071	7348	-	-
Burntwood River	BWR-A	20-Jun-19	NSC	55289	-	900 226000327006	800	893	4128	-	-

Table A1-1: Tagging and biological information for Lake Sturgeon marked with Floy® tags and PIT tags in the Upper Split Lake Area, spring 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Burntwood River	BWR-A	21-Jun-19	NSC	55288	-	900 226000327449	837	932	3810	-	-
Burntwood River	BWR-A	21-Jun-19	NSC	55286	-	900 226000327732	808	903	3357	-	-
Burntwood River	BWR-A	21-Jun-19	NSC	55285	-	900 226000327739	1103	1165	8346	-	-
Burntwood River	BWR-A	21-Jun-19	NSC	55284	-	900 226000327003	1124	1241	11340	-	-
Burntwood River	BWR-A	21-Jun-19	NSC	55283	55270	900 226000327417	864	965	4990	-	-
Burntwood River	BWR-A	22-Jun-19	NSC	55282	-	900 226000327420	658	788	2132	-	-
Burntwood River	BWR-A	22-Jun-19	NSC	55281	-	900 226000327042	881	992	5080	-	-
Burntwood River	BWR-A	22-Jun-19	NSC	55280	-	900 226000327714	937	1040	7620	-	-
Burntwood River	BWR-A	22-Jun-19	NSC	55279	-	900 226000327753	888	987	6305	-	-
Burntwood River	BWR-A	24-Jun-19	NSC	55278	-	900 226000327081	930	1046	5352	-	-
Burntwood River	BWR-A	24-Jun-19	NSC	55277	-	900 226000327061	566	649	907	-	-
Burntwood River	BWR-A	26-Jun-19	NSC	55274	-	900 226000327019	992	1110	7394	-	-
Burntwood River	BWR-B	27-Jun-19	NSC	55273	-	900 226000327020	882	972	5126	-	-
Burntwood River	BWR-A	27-Jun-19	NSC	55272	-	900 226000327707	855	955	5352	M	8
Burntwood River	BWR-A	28-Jun-19	NSC	55271	-	900 226000327767	839	944	5035	-	-
Burntwood River	BWR-A	29-Jun-19	NSC	55269	-	900 226000327005	848	961	4763	-	-
Kelsey GS Area	KGS-A	23-May-19	NSC	90281	-	900 226000327635	873	965	4309	-	-
Kelsey GS Area	KGS-A	23-May-19	NSC	90282	-	900 226000327679	765	849	2850	-	-
Kelsey GS Area	KGS-A	23-May-19	NSC	90283	-	900 226000327652	1000	1110	6804	-	-
Kelsey GS Area	KGS-C	24-May-19	NSC	90284	-	900 226000327647	810	910	3500	-	-
Kelsey GS Area	KGS-C	25-May-19	NSC	90286	-	900 226000327695	685	774	2500	-	-
Kelsey GS Area	KGS-C	25-May-19	NSC	90287	-	900 226000327663	943	1029	6350	-	-
Kelsey GS Area	KGS-C	25-May-19	NSC	90288	-	900 226000327675	820	930	5216	-	-
Kelsey GS Area	KGS-C	25-May-19	NSC	90289	-	900 226000327664	786	882	3900	-	-
Kelsey GS Area	KGS-C	25-May-19	NSC	90290	-	900 226000327676	1071	1223	10659	-	-
Kelsey GS Area	KGS-D	26-May-19	NSC	90291	-	900 226000327639	731	821	2750	-	-
Kelsey GS Area	KGS-A	26-May-19	NSC	90293	-	900 226000327612	882	998	4990	-	-
Kelsey GS Area	KGS-D	27-May-19	NSC	90296	-	900 226000327604	840	948	3856	-	-
Kelsey GS Area	KGS-A	27-May-19	NSC	90297	-	900 226000327626	945	1073	6350	-	-
Kelsey GS Area	KGS-A	27-May-19	NSC	90298	-	900 226000327684	874	966	4990	-	-

Table A1-1: Tagging and biological information for Lake Sturgeon marked with Floy® tags and PIT tags in the Upper Split Lake Area, spring 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Kelsey GS Area	KGS-A	27-May-19	NSC	90299	-	900 226000327667	969	1061	7938	-	-
Kelsey GS Area	KGS-A	28-May-19	NSC	101753	-	900 226000327680	815	906	4150	-	-
Kelsey GS Area	KGS-A	28-May-19	NSC	101754	-	900 226000327629	968	1081	6804	-	-
Kelsey GS Area	KGS-A	28-May-19	NSC	101755	-	900 226000327685	761	847	3300	-	-
Kelsey GS Area	KGS-C	29-May-19	NSC	101758	-	900 226000327607	740	815	2950	-	-
Kelsey GS Area	KGS-C	29-May-19	NSC	101759	-	900 226000327653	737	839	3300	-	-
Kelsey GS Area	KGS-A	29-May-19	NSC	101761	-	900 226000327654	893	990	5100	-	-
Kelsey GS Area	KGS-A	29-May-19	NSC	101762	-	900 226000327622	852	968	4250	-	-
Kelsey GS Area	KGS-C	30-May-19	NSC	101766	-	900 226000327615	790	894	4100	-	-
Kelsey GS Area	KGS-A	30-May-19	NSC	101767	-	900 226000327668	948	1060	6750	-	-
Kelsey GS Area	KGS-B	30-May-19	NSC	101768	-	900 226000327641	753	880	2900	-	-
Kelsey GS Area	KGS-B	30-May-19	NSC	101769	-	900 226000327644	737	833	3000	-	-
Kelsey GS Area	KGS-A	31-May-19	NSC	101771	-	900 226000327665	1030	1138	10659	-	-
Kelsey GS Area	KGS-A	31-May-19	NSC	112881	-	900 226000327693	973	1098	7711	-	-
Kelsey GS Area	KGS-A	31-May-19	NSC	112882	-	900 226000327613	864	974	5443	-	-
Kelsey GS Area	KGS-C	1-Jun-19	NSC	112885	-	900 226000327670	964	1081	7031	-	-
Kelsey GS Area	KGS-C	1-Jun-19	NSC	112886	-	900 226000327627	1008	1114	9299	-	-
Kelsey GS Area	KGS-C	2-Jun-19	NSC	112887	-	900 226000327632	609	688	1700	-	-
Kelsey GS Area	KGS-C	2-Jun-19	NSC	112888	-	900 226000327634	679	759	2150	-	-
Kelsey GS Area	KGS-D	3-Jun-19	NSC	112893	-	900 226000327658	793	890	3950	-	-
Kelsey GS Area	KGS-A	4-Jun-19	NSC	112894	-	900 226000327621	893	971	4990	-	-
Kelsey GS Area	KGS-A	4-Jun-19	NSC	112896	-	900 226000327603	957	1015	6804	-	-
Kelsey GS Area	KGS-A	4-Jun-19	NSC	112897	-	900 226000327683	900	1007	6804	-	-
Kelsey GS Area	KGS-A	4-Jun-19	NSC	112898	-	900 226000327610	858	963	4990	-	-
Kelsey GS Area	KGS-A	5-Jun-19	NSC	114276	-	900 226000327620	905	1009	6078	-	-
Kelsey GS Area	KGS-A	5-Jun-19	NSC	114277	-	900 226000327623	1000	1104	8936	-	-
Kelsey GS Area	KGS-A	6-Jun-19	NSC	114279	-	900 226000327600	880	997	6350	-	-
Kelsey GS Area	KGS-A	6-Jun-19	NSC	114280	-	900 226000327638	1050	1168	9525	-	-
Kelsey GS Area	KGS-A	7-Jun-19	NSC	114282	-	900 226000327662	1002	1300	7711	-	-
Kelsey GS Area	KGS-C	7-Jun-19	NSC	114283	-	900 226000327657	630	700	1065	-	-

Table A1-1: Tagging and biological information for Lake Sturgeon marked with Floy® tags and PIT tags in the Upper Split Lake Area, spring 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Kelsey GS Area	KGS-D	8-Jun-19	NSC	114288	-	900 226000327674	942	1058	5443	-	-
Kelsey GS Area	KGS-C	8-Jun-19	NSC	114294	-	900 226000327608	851	965	4500	-	-
Kelsey GS Area	KGS-A	8-Jun-19	NSC	114295	-	900 226000327672	940	1040	6100	-	-
Kelsey GS Area	KGS-A	8-Jun-19	NSC	114296	-	900 226000327645	845	960	4050	-	-
Kelsey GS Area	KGS-A	9-Jun-19	NSC	114298	-	900 226000327699	1050	1128	9979	-	-
Kelsey GS Area	KGS-A	9-Jun-19	NSC	114299	-	900 226000327624	762	859	3100	-	-
Kelsey GS Area	KGS-C	10-Jun-19	NSC	114327	-	900 226000327659	808	930	4000	-	-
Kelsey GS Area	KGS-A	10-Jun-19	NSC	114328	-	900 226000327648	851	958	5650	-	-
Kelsey GS Area	KGS-A	11-Jun-19	NSC	114331	-	900 226000327655	858	955	4990	-	-
Kelsey GS Area	KGS-A	12-Jun-19	NSC	114333	-	900 226000327965	1030	1140	9525	-	-
Kelsey GS Area	KGS-A	13-Jun-19	NSC	114336	-	900 226000327649	808	921	4082	-	-
Kelsey GS Area	KGS-C	14-Jun-19	NSC	114284	-	900 226000327640	1000	1099	8165	-	-
Kelsey GS Area	KGS-C	14-Jun-19	NSC	114329	-	900 226000327959	686	778	2300	-	-
Kelsey GS Area	KGS-C	15-Jun-19	NSC	114337	-	900 226000767630	980	1101	8618	-	-
Kelsey GS Area	KGS-A	16-Jun-19	NSC	114349	-	900 226000327682	868	975	5000	-	-
Kelsey GS Area	KGS-C	16-Jun-19	NSC	114350	-	-	600	671	1800	-	-
Kelsey GS Area	KGS-C	17-Jun-19	NSC	114344	-	900 226000327697	952	1030	7257	-	-
Kelsey GS Area	KGS-C	18-Jun-19	NSC	114342	-	900 226000327983	754	847	3500	-	-
Kelsey GS Area	KGS-A	19-Jun-19	NSC	114338	-	900 226000327630	1130	1268	9525	-	-
Kelsey GS Area	KGS-A	19-Jun-19	NSC	114340	-	900 226000327955	850	955	4536	-	-
Kelsey GS Area	KGS-B	22-Jun-19	NSC	114303	-	900 226000327690	935	1042	5443	-	-
Kelsey GS Area	KGS-A	24-Jun-19	NSC	114304	-	900 226000327998	930	1042	6350	-	-
Kelsey GS Area	KGS-A	24-Jun-19	NSC	114305	-	900 226000327984	740	840	2722	-	-
Kelsey GS Area	KGS-A	24-Jun-19	NSC	114306	-	900 226000327985	959	1082	6804	-	-
Kelsey GS Area	KGS-C	25-Jun-19	NSC	114307	-	900 226000327981	590	673	1361	-	-
Kelsey GS Area	KGS-C	25-Jun-19	NSC	114308	-	900 226000327946	920	1030	6350	-	-
Kelsey GS Area	KGS-A	25-Jun-19	NSC	114309	-	900 226000327968	805	905	4082	-	-
Kelsey GS Area	KGS-A	25-Jun-19	NSC	114310	-	900 226000767949	1070	1210	9525	-	-
Kelsey GS Area	KGS-A	25-Jun-19	NSC	114311	-	900 226000327986	950	1072	6804	-	-
Kelsey GS Area	KGS-A	26-Jun-19	NSC	114312	-	900 226000327996	1070	1209	9525	-	-

Table A1-1: Tagging and biological information for Lake Sturgeon marked with Floy® tags and PIT tags in the Upper Split Lake Area, spring 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Kelsey GS Area	KGS-A	27-Jun-19	NSC	114314	-	900 226000893838	933	1044	6804	-	-
Kelsey GS Area	KGS-A	27-Jun-19	NSC	114316	-	900 226000327978	940	1030	5443	-	-
Kelsey GS Area	KGS-A	28-Jun-19	NSC	114317	-	900 226000327911	853	965	4990	-	-
Kelsey GS Area	KGS-A	29-Jun-19	NSC	114318	-	900 226000327940	985	1103	7257	-	-
Kelsey GS Area	KGS-A	29-Jun-19	NSC	114319	-	900 226000327651	545	615	1361	-	-
Kelsey GS Area	KGS-A	29-Jun-19	NSC	114320	-	900 226000767965	934	1046	7257	-	-
Kelsey GS Area	KGS-A	30-Jun-19	NSC	114321	-	900 226000327910	765	840	3629	-	-
Split Lake	SPL-A	24-May-19	NSC	90285	-	900 226000327677	804	919	4000	-	-
Split Lake	SPL-A	26-May-19	NSC	90292	-	900 226000327606	904	976	5443	-	-
Split Lake	SPL-A	27-May-19	NSC	90294	-	900 226000327618	777	863	3900	-	-
Split Lake	SPL-A	27-May-19	NSC	90295	-	900 067000121192	411	471	500	-	-
Split Lake	SPL-A	28-May-19	NSC	90300	-	900 226000327614	981	1071	8391	-	-
Split Lake	SPL-A	28-May-19	NSC	101751	-	900 226000327656	932	1041	6577	-	-
Split Lake	SPL-A	28-May-19	NSC	101752	-	900 226000327660	980	1106	7257	-	-
Split Lake	SPL-A	29-May-19	NSC	101756	-	900 226000327669	987	1101	8165	-	-
Split Lake	SPL-A	30-May-19	NSC	101763	-	900 226000327678	712	806	2900	-	-
Split Lake	SPL-A	30-May-19	NSC	101764	-	900 226000327625	978	1103	7257	-	-
Split Lake	SPL-A	30-May-19	NSC	101765	-	900 226000327692	911	1011	6350	-	-
Split Lake	SPL-A	31-May-19	NSC	101770	-	900 226000327673	990	1109	7938	-	-
Split Lake	SPL-A	1-Jun-19	NSC	112883	-	900 226000327616	747	839	3300	-	-
Split Lake	SPL-A	1-Jun-19	NSC	112884	-	900 226000327637	910	1010	6350	-	-
Split Lake	SPL-A	3-Jun-19	NSC	112889	-	900 226000327650	1020	1150	11340	-	-
Split Lake	SPL-A	3-Jun-19	NSC	112890	-	900 226000327687	895	1000	5897	-	-
Split Lake	SPL-A	3-Jun-19	NSC	112892	-	900 226000327661	790	892	4200	-	-
Split Lake	SPL-A	5-Jun-19	NSC	112899	-	900 226000327691	863	972	4717	-	-
Split Lake	SPL-A	5-Jun-19	NSC	112900	-	900 226000327601	931	1024	5987	-	-
Split Lake	SPL-A	6-Jun-19	NSC	114278	-	900 226000327633	1025	1257	8437	-	-
Split Lake	SPL-A	7-Jun-19	NSC	114285	-	900 226000327631	1050	1150	10433	-	-
Split Lake	SPL-A	7-Jun-19	NSC	114286	-	900 226000327609	582	690	1400	-	-
Split Lake	SPL-A	7-Jun-19	NSC	114287	-	900 226000327642	930	1033	6000	-	-

Table A1-1: Tagging and biological information for Lake Sturgeon marked with Floy® tags and PIT tags in the Upper Split Lake Area, spring 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Split Lake	SPL-A	8-Jun-19	NSC	114291	-	900 226000327688	585	657	1400	-	-
Split Lake	SPL-A	8-Jun-19	NSC	114292	-	900 226000327696	680	772	2500	-	-
Split Lake	SPL-A	8-Jun-19	NSC	114293	-	900 226000327605	795	893	4200	-	-
Split Lake	SPL-A	9-Jun-19	NSC	114297	-	900 226000327602	937	1033	5897	-	-
Split Lake	SPL-A	10-Jun-19	NSC	114300	-	900 226000327671	860	965	5300	-	-
Split Lake	SPL-A	10-Jun-19	NSC	114326	-	900 226000327698	1050	1280	14515	-	-
Split Lake	SPL-A	11-Jun-19	NSC	114330	-	900 226000327643	916	1050	5443	-	-
Split Lake	SPL-A	12-Jun-19	NSC	114332	-	900 226000327909	570	645	1600	-	-
Split Lake	SPL-A	13-Jun-19	NSC	114334	-	900 226000327979	950	1060	6350	-	-
Split Lake	SPL-A	13-Jun-19	NSC	114335	-	900 226000154207	927	1040	7711	-	-
Split Lake	SPL-A	14-Jun-19	NSC	114290	-	900 226000327906	698	788	2800	-	-
Split Lake	SPL-A	15-Jun-19	NSC	112891	-	900 226000327931	890	991	5443	-	-
Split Lake	SPL-A	15-Jun-19	NSC	114289	-	900 226000893387	1040	1150	9072	-	-
Split Lake	SPL-A	17-Jun-19	NSC	114345	-	900 226000327628	762	864	3175	-	-
Split Lake	SPL-A	17-Jun-19	NSC	114346	-	900 226000327900	941	1061	5443	-	-
Split Lake	SPL-A	18-Jun-19	NSC	114343	-	900 226000327927	951	1071	9525	-	-
Split Lake	SPL-A	19-Jun-19	NSC	114341	-	900 226000327939	888	1000	5897	-	-
Split Lake	SPL-A	20-Jun-19	NSC	114301	-	900 226000327646	689	793	2300	-	-
Split Lake	SPL-A	21-Jun-19	NSC	114302	-	900 226000327935	840	934	5500	-	-

APPENDIX 2: TAGGING AND BIOLOGICAL INFORMATION FOR LAKE STURGEON RECAPTURED IN THE UPPER SPLIT LAKE AREA, SPRING 2019.

Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2019. Bold number indicates a Floy tag that was lost and fish was retagged in 2019.....	68
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Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2019. Bold number indicates a Floy tag that was lost and fish was retagged in 2019.

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag 1	PIT Tag 2	FL (mm)	TL (mm)	Weight (g)	Sex	Mat.
Burntwood River	BWR-A	13-Jun-17	NSC	103196	-	900 226000153419	-	545	620	1179	-	-
Burntwood River	BWR-A	22-Jun-17	NSC	103196	-	900 226000153419	-	-	-	-	-	-
Burntwood River	BWR-A	25-Jun-19	NSC	55276	-	900 226000153419	-	560	636	1225	-	-
Burntwood River	BWR-A	20-Jun-13	NSC	81966	-	900 226000548279	-	910	1020	6350	-	-
Burntwood River	BWR-A	21-Jun-19	NSC	55287	-	900 226000548279	-	995	1106	7711	-	-
Odei River	ODR-A	25-Jun-05	NSC	74305	74306	-	-	679	754	2268	-	-
Burntwood River	BWR-A	18-Jun-17	NSC	74305	74306	900 226000153478	-	1010	1109	9208	-	-
Burntwood River	BWR-A	11-Jun-19	NSC	74305	74306	900 226000153478	-	1036	1136	8845	-	-
Burntwood River	BWR-A	17-Jun-19	NSC	74305	74306	900 226000153478	-	-	-	-	M	8
Split Lake	SPL-A	29-Jun-05	NSC	74330	74331	-	-	626	711	1814	-	-
Burntwood River	BWR-A	12-Jun-13	NSC	74330	74331	900 226000548403	-	900	1020	5670	-	-
Burntwood River	BWR-B	1-Jun-19	NSC	74330	74331	900 226000548403	-	955	1072	7620	-	-
Kelsey GS Area	KGS-C	11-Jun-07	NSC	74826	-	-	-	940	1010	6350	-	-
Burntwood River	BWR-B	21-Jun-07	NSC	74826	-	-	-	-	-	-	-	-
Odei River	ODR-A	14-Jun-09	NSC	74826	-	-	-	970	1050	7257	-	-
Odei River	ODR-A	21-Jun-09	NSC	74826	-	-	-	-	-	-	-	-
Burntwood River	BWR-A	12-Jun-19	NSC	74826	-	900 226000327816	-	1076	1170	8029	-	-
Burntwood River	BWR-A	4-Jul-05	NSC	75136	-	-	-	838	935	5682	-	-
Burntwood River	BWR-A	11-Jun-17	NSC	75136	-	900 226000768050	-	997	1100	7938	-	-
Burntwood River	BWR-A	19-Jun-19	NSC	75136	-	900 226000768050	-	1005	1103	8119	-	-
Burntwood River	BWR-B	20-Jun-07	NSC	75457	-	-	-	981	1070	7727	-	-
Burntwood River	BWR-A	5-Jun-10	NSC	75457	-	-	-	1000	1121	6350	M	8
Burntwood River	BWR-A	2-Jun-13	NSC	75457	-	900 226000548428	-	1032	1159	9979	M	7
Burntwood River	BWR-A	17-Jun-13	NSC	75457	-	900 226000548428	-	-	-	-	-	-
Burntwood River	BWR-B	7-Jun-15	NSC	75457	-	900 226000548428	-	1060	1193	9525	M	8
Burntwood River	BWR-A	11-Jun-15	NSC	75457	-	900 226000548428	-	-	-	9979	-	-
Burntwood River	BWR-A	12-Jun-15	NSC	75457	-	900 226000548428	-	-	-	9525	-	-
Burntwood River	BWR-C	25-Jun-15	NSC	75457	-	900 226000548428	-	-	-	9525	-	-
Burntwood River	BWR-A	7-Jun-17	NSC	75457	-	900 226000548428	-	1070	1200	10206	M	8
Burntwood River	BWR-B	12-Jun-19	NSC	75457	-	900 226000548428	-	1087	1221	10932	M	8
Burntwood River	BWR-A	18-Jun-19	NSC	75457	-	900 226000548428	-	-	-	-	-	-

Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2019. Bold number indicates a Floy tag that was lost and fish was retagged in 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag 1	PIT Tag 2	FL (mm)	TL (mm)	Weight (g)	Sex	Mat.
Odei River	ODR-A	22-Jun-07	NSC	75461	-	-	-	985	1080	10227	-	-
Odei River	ODR-A	23-Jun-07	NSC	75461	-	-	-	-	-	-	-	-
Burntwood River	BWR-A	13-Jun-15	NSC	75461	-	900 226000548500	-	1075	1250	9072	-	-
Burntwood River	BWR-A	7-Jun-17	NSC	75461	-	900 226000153423	-	1134	1253	14969	M	8
Burntwood River	BWR-A	17-Jun-19	NSC	75461	-	900 226000153423	-	1161	1240	15876	M	8
Odei River	ODR-A	22-Jun-07	NSC	75462	-	-	-	1068	1172	10227	-	-
Burntwood River	BWR-A	18-Jun-09	NSC	75462	-	-	-	1090	1220	9979	M	8
Burntwood River	BWR-A	2-Jun-11	NSC	75462	-	-	-	1090	1220	9979	M	8
Burntwood River	BWR-A	9-Jun-15	NSC	75462	-	900 226000628861	-	1142	1261	9979	-	-
Burntwood River	BWR-A	5-Jun-17	NSC	75462	-	900 226000628861	-	1150	1271	11793	M	8
Burntwood River	BWR-B	31-May-19	NSC	75462	-	900 226000628861	-	1146	1272	11113	M	7
Burntwood River	BWR-A	23-Jun-07	NSC	75465	-	-	-	767	846	4091	-	-
Burntwood River	BWR-A	27-Jun-09	NSC	75465	-	-	-	790	890	4990	-	-
Burntwood River	BWR-A	30-May-10	NSC	75465	-	-	-	800	905	3629	-	-
Burntwood River	BWR-A	7-Jun-13	NSC	75465	-	900 226000548334	-	836	925	4082	-	-
Burntwood River	BWR-A	14-Jun-17	NSC	75465	-	900 226000548334	-	864	966	-	M	8
Burntwood River	BWR-A	29-May-19	NSC	75465	-	900 226000548334	-	855	960	3719	-	-
Burntwood River	BWR-B	27-Jun-07	NSC	75468	-	-	-	1354	1451	25000	-	-
Burntwood River	BWR-A	20-Jun-19	NSC	75468	-	900 226000327801	-	1376	1493	23587	M	8
Burntwood River	BWR-A	2-Jun-06	NSC	80021	80022	-	-	761	845	4082	-	-
Burntwood River	BWR-A	12-Jun-09	NSC	80021	80022	-	-	-	930	4536	-	-
Burntwood River	BWR-A	24-Jun-09	NSC	80021	80022	-	-	-	-	-	-	-
Burntwood River	BWR-A	4-Jun-17	NSC	80022	-	900 226000153438	-	935	1031	6350	M	7
Burntwood River	BWR-A	11-Jun-17	NSC	80022	-	900 226000153438	-	-	-	-	M	9
Burntwood River	BWR-A	14-Jun-17	NSC	80022	-	900 226000153438	-	-	-	-	-	-
Burntwood River	BWR-A	1-Jun-19	NSC	80022	-	900 226000153438	-	935	1040	6305	-	-
Burntwood River	BWR-A	8-Jun-19	NSC	80022	-	900 226000153438	-	-	-	-	-	-
Burntwood River	BWR-A	3-Jun-06	NSC	80027	-	-	-	1070	1175	11340	M	8
Burntwood River	BWR-A	4-Jun-06	NSC	80027	-	-	-	-	-	-	M	8
Burntwood River	BWR-A	5-Jun-06	NSC	80027	-	-	-	-	-	-	M	8
Burntwood River	BWR-A	8-Jun-06	NSC	80027	-	-	-	-	-	-	M	9

Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2019. Bold number indicates a Floy tag that was lost and fish was retagged in 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag 1	PIT Tag 2	FL (mm)	TL (mm)	Weight (g)	Sex	Mat.
Burntwood River	BWR-A	18-Jun-09	NSC	80027	-	-	-	1080	1185	12247	-	-
Burntwood River	BWR-A	11-Jun-11	NSC	80027	-	-	-	1090	1204	11340	M	8
Burntwood River	BWR-A	6-Jun-19	NSC	80027	-	900 226000327818	-	-	-	12020	-	-
Burntwood River	BWR-A	9-Jun-06	NSC	80042	80043	-	-	833	933	4082	-	-
Burntwood River	BWR-A	18-Jun-06	NSC	80042	80043	-	-	-	-	-	-	-
Kelsey GS Area	KGS-A	12-Jun-15	NSC	80042	80043	900 226000548648	-	1070	1184	11113	-	-
Burntwood River	BWR-B	31-May-19	NSC	80042	80043	900 226000548648	-	1101	1214	8165	M	7
Burntwood River	BWR-A	10-Jun-19	NSC	80042	80043	900 226000548648	-	-	-	-	-	-
Burntwood River	BWR-A	13-Jun-06	NSC	80056	80057	-	-	858	954	4990	-	-
Burntwood River	BWR-A	19-Jun-06	NSC	80056	80057	-	-	-	-	-	-	-
Burntwood River	BWR-A	3-Jun-15	NSC	80056	80057	900 226000629666	-	987	1084	6804	-	-
Burntwood River	BWR-A	5-Jun-17	NSC	80056	80057	900 226000629666	-	1010	1122	7938	-	-
Burntwood River	BWR-A	22-May-19	NSC	80056	80057	900 226000629666	-	1030	1128	9026	-	-
Burntwood River	BWR-A	23-Jun-06	NSC	80087	80088	-	-	981	1089	7031	-	-
Burntwood River	BWR-A	29-Jun-06	NSC	80087	80088	-	-	-	-	-	-	-
Burntwood River	BWR-A	29-May-10	NSC	80087	80088	-	-	1000	1100	6350	M	7
Burntwood River	BWR-A	28-May-13	NSC	80087	-	900 226000548442	-	1020	1125	8165	M	7
Burntwood River	BWR-A	31-May-13	NSC	80087	-	900 226000548442	-	-	-	-	-	-
Burntwood River	BWR-A	29-May-15	NSC	80087	-	900 226000577126	-	1031	1199	8845	M	7
Burntwood River	BWR-A	19-Jun-17	NSC	80087	-	900 226000548303	-	1060	1160	10886	-	-
Burntwood River	BWR-A	31-May-19	NSC	80087	-	900 226000577126	900 226000548303	1091	1201	10206	-	-
Burntwood River	BWR-A	14-Jun-19	NSC	80087	-	900 226000577126	-	-	-	-	-	-
Burntwood River	BWR-A	16-Jun-13	NSC	81954	-	900 226000548347	-	833	932	4450	-	-
Burntwood River	BWR-C	20-Jun-15	NSC	81954	-	900 226000548347	-	870	974	5670	-	-
Burntwood River	BWR-B	8-Jun-19	NSC	81954	-	900 226000548347	-	925	1032	6078	-	-
Burntwood River	BWR-A	16-Jun-13	NSC	81956	-	900 226000548323	-	720	821	2550	-	-
Burntwood River	BWR-A	21-Jun-15	NSC	81956	-	900 226000548323	-	738	840	3175	-	-
Burntwood River	BWR-A	13-Jun-17	NSC	81956	-	900 226000548323	-	780	885	3719	-	-
Burntwood River	BWR-A	15-Jun-17	NSC	81956	-	900 226000548323	-	-	-	-	-	-
Burntwood River	BWR-A	22-May-19	NSC	81956	-	900 226000548323	-	790	896	5262	-	-
Burntwood River	BWR-A	31-May-19	NSC	81956	-	900 226000548323	-	-	-	-	-	-

Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2019. Bold number indicates a Floy tag that was lost and fish was retagged in 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag 1	PIT Tag 2	FL (mm)	TL (mm)	Weight (g)	Sex	Mat.
Burntwood River	BWR-A	8-Jun-19	NSC	81956	-	900 226000548323	-	-	-	-	-	-
Burntwood River	BWR-A	10-Jun-19	NSC	81956	-	900 226000548323	-	-	-	-	-	-
Burntwood River	BWR-A	18-Jun-13	NSC	81958	-	900 226000548270	-	722	816	2500	-	-
Burntwood River	BWR-A	21-Jun-19	NSC	81958	-	900 226000548270	-	800	909	3538	-	-
Burntwood River	BWR-A	25-Jun-13	NSC	81974	-	900 226000548371	-	1050	1160	9525	M	9
Burntwood River	BWR-A	10-Jun-15	NSC	81974	-	900 226000548371	-	1065	1184	9752	-	-
Burntwood River	BWR-A	15-Jun-15	NSC	81974	-	900 226000548371	-	-	-	-	-	-
Burntwood River	BWR-A	17-Jun-19	NSC	81974	-	900 226000548371	-	1073	1190	8346	-	-
Burntwood River	BWR-A	20-Jun-19	NSC	81974	-	900 226000548371	-	-	-	-	-	-
Burntwood River	BWR-A	25-Jun-13	NSC	81975	-	900 226000548375	-	945	1030	6350	-	-
Burntwood River	BWR-A	7-Jun-17	NSC	81975	-	900 226000548375	-	1022	1113	9072	M	8
Burntwood River	BWR-B	7-Jun-19	NSC	81975	-	900 226000548375	-	1045	1140	8618	-	-
Burntwood River	BWR-A	28-Jun-15	NSC	85945	-	900 226000628892	-	876	999	5670	-	-
Burntwood River	BWR-B	3-Jun-19	NSC	85945	-	900 226000628892	-	936	1056	6668	-	-
Burntwood River	BWR-A	20-Jun-19	NSC	85945	-	900 226000628892	-	-	-	-	-	-
Burntwood River	BWR-A	6-Jun-13	NSC	86928	-	900 226000548473	-	1114	1217	10433	M	7
Burntwood River	BWR-A	9-Jun-19	NSC	86928	-	900 226000548473	-	1162	1263	12020	M	7
Burntwood River	BWR-A	19-Jun-19	NSC	86928	-	900 226000548473	-	-	-	-	-	-
Burntwood River	BWR-A	7-Jun-13	NSC	86932	-	900 226000548352	-	858	973	5443	M	7
Burntwood River	BWR-B	5-Jun-15	NSC	86932	-	900 226000548352	-	888	1005	7938	M	7
Burntwood River	BWR-B	6-Jun-15	NSC	86932	-	900 226000548352	-	-	-	-	-	-
Burntwood River	BWR-B	4-Jun-19	NSC	86932	-	900 226000548352	-	942	1063	7484	-	-
Burntwood River	BWR-B	9-Jun-19	NSC	86932	-	900 226000548352	-	-	-	-	-	-
Burntwood River	BWR-A	7-Jun-13	NSC	86933	-	900 226000548379	-	914	1014	4990	-	-
Burntwood River	BWR-A	25-Jun-13	NSC	86933	-	900 226000548379	-	-	-	-	-	-
Burntwood River	BWR-A	14-Jun-17	NSC	86933	-	900 226000548379	-	944	1045	-	-	-
Burntwood River	BWR-A	1-Jul-17	NSC	86933	-	900 226000548379	-	-	-	-	-	-
Burntwood River	BWR-A	6-Jun-19	NSC	86933	-	900 226000548379	-	941	1045	4899	-	-
Burntwood River	BWR-A	7-Jun-13	NSC	86934	-	900 226000548264	-	866	970	3856	-	-
Burntwood River	BWR-A	26-Jun-13	NSC	86934	-	900 226000548264	-	-	-	-	-	-
Burntwood River	BWR-A	28-May-19	NSC	86934	-	900 226000548264	-	878	1061	8890	-	-

Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2019. Bold number indicates a Floy tag that was lost and fish was retagged in 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag 1	PIT Tag 2	FL (mm)	TL (mm)	Weight (g)	Sex	Mat.
Burntwood River	BWR-A	2-Jun-19	NSC	86934	-	900 226000548264	-	-	-	-	-	-
Burntwood River	BWR-A	7-Jun-19	NSC	86934	-	900 226000548264	-	-	-	-	-	-
Burntwood River	BWR-A	16-Jun-19	NSC	86934	-	900 226000548264	-	-	-	-	M	9
Burntwood River	BWR-A	21-Jun-19	NSC	86934	-	900 226000548264	-	-	-	-	-	-
Burntwood River	BWR-A	9-Jun-13	NSC	86943	-	900 226000548415	-	881	984	4990	-	-
Burntwood River	BWR-A	1-Jul-13	NSC	86943	-	900 226000548415	-	-	-	-	-	-
Burntwood River	BWR-B	31-May-19	NSC	86943	-	900 226000548415	-	966	1070	7031	-	-
Burntwood River	BWR-A	12-Jun-13	NSC	86949	-	900 226000548286	-	655	736	1825	-	-
Burntwood River	BWR-A	11-Jun-17	NSC	86949	-	900 226000548286	-	751	842	2948	-	-
Burntwood River	BWR-A	4-Jun-19	NSC	86949	-	900 226000548286	-	764	858	2903	-	-
Burntwood River	BWR-A	22-Jun-13	NSC	81970	-	900 226000548441	-	670	753	1814	-	-
Burntwood River	BWR-A	14-Jun-17	NSC	88176	-	900 226000548441	-	746	835	3402	-	-
Burntwood River	BWR-A	10-Jun-19	NSC	88176	-	900 226000548441	-	766	855	3130	-	-
Burntwood River	BWR-A	18-Jun-17	NSC	88186	-	900 226000154013	-	920	1030	5670	-	-
Burntwood River	BWR-A	5-Jun-19	NSC	88186	-	900 226000154013	-	937	1050	6078	-	-
Kelsey GS Area	KGS-C	25-Jun-11	NSC	88605	-	-	-	800	890	3600	-	-
Burntwood River	BWR-A	6-Jun-19	NSC	88605	-	900 226000327875	-	1004	1110	7756	-	-
Burntwood River	BWR-A	15-Jun-19	NSC	88605	-	900 226000327875	-	-	-	-	-	-
Burntwood River	BWR-C	27-Jun-11	NSC	88618	-	-	-	534	602	1095	-	-
Burntwood River	BWR-B	29-May-19	NSC	88618	-	900 226000327830	-	850	943	4218	-	-
Burntwood River	BWR-A	29-May-13	NSC	88676	-	900 226000548360	-	883	983	5216	-	-
Burntwood River	BWR-B	6-Jun-19	NSC	88676	-	900 226000548360	-	981	1080	5352	M	8
Burntwood River	BWR-A	31-May-13	NSC	88682	-	900 226000548343	-	957	1062	7756	M	7
Burntwood River	BWR-A	6-Jun-13	NSC	88682	-	900 226000548343	-	-	-	-	-	-
Burntwood River	BWR-A	9-Jun-13	NSC	88682	-	900 226000548343	-	-	-	-	-	-
Burntwood River	BWR-B	1-Jun-19	NSC	114163	-	900 226000327886	900 226000548343	1076	1160	9752	-	-
Burntwood River	BWR-A	18-Jun-19	NSC	114163	-	900 226000548343	-	1062	1151	9026	-	-
Burntwood River	BWR-A	2-Jun-13	NSC	88690	-	900 226000548438	-	875	998	5216	M	7
Burntwood River	BWR-A	9-Jun-13	NSC	88690	-	900 226000548438	-	-	-	-	-	-
Burntwood River	BWR-A	18-Jun-13	NSC	88690	-	900 226000548438	-	-	-	-	-	-
Burntwood River	BWR-A	19-Jun-13	NSC	88690	-	900 226000548438	-	-	-	-	-	-

Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2019. Bold number indicates a Floy tag that was lost and fish was retagged in 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag 1	PIT Tag 2	FL (mm)	TL (mm)	Weight (g)	Sex	Mat.
Burntwood River	BWR-A	6-Jun-17	NSC	88690	-	900 226000548438	-	975	1094	7257	M	8
Burntwood River	BWR-A	7-Jun-17	NSC	88690	-	900 226000548438	-	-	-	-	M	8
Burntwood River	BWR-A	3-Jun-19	NSC	88690	-	900 226000548438	-	990	1110	7484	M	8
Burntwood River	BWR-A	3-Jun-13	NSC	88695	-	900 226000548489	-	877	985	3175	-	-
Burntwood River	BWR-A	9-Jun-15	NSC	88695	-	-	-	901	1006	5443	M	8
Burntwood River	BWR-A	5-Jun-17	NSC	88695	-	900 226000548489	-	958	1075	5897	-	-
Burntwood River	BWR-A	11-Jun-17	NSC	88695	-	900 226000548489	-	-	-	-	-	-
Burntwood River	BWR-A	5-Jun-19	NSC	88695	-	900 226000548489	-	960	1076	5398	-	-
Burntwood River	BWR-A	15-Jun-19	NSC	88695	-	900 226000548489	-	-	-	-	-	-
Burntwood River	BWR-A	15-Jun-15	NSC	89020	-	900 226000628778	-	943	1060	8391	-	-
Burntwood River	BWR-A	27-Jun-19	NSC	89020	-	900 226000628778	-	991	1096	7666	M	8
Burntwood River	BWR-A	15-Jun-15	NSC	89021	-	900 226000628970	-	970	1091	8845	M	8
Burntwood River	BWR-B	29-May-19	NSC	89021	-	900 226000628970	-	1030	1154	6713	-	-
Burntwood River	BWR-A	15-Jun-15	NSC	89023	-	900 226000628868	-	1080	1200	9979	-	-
Burntwood River	BWR-A	17-Jun-15	NSC	89023	-	900 226000628868	-	-	-	-	-	-
Burntwood River	BWR-A	24-Jun-15	NSC	89023	-	900 226000628868	-	-	-	-	-	-
Burntwood River	BWR-A	6-Jun-17	NSC	89023	-	900 226000628868	-	1098	1223	10433	M	8
Burntwood River	BWR-A	11-Jun-19	NSC	89023	-	900 226000628868	-	1124	1246	11521	M	7
Burntwood River	BWR-A	8-Jun-15	NSC	89030	-	900 226000628841	-	1208	1255	12474	-	-
Burntwood River	BWR-A	13-Jun-15	NSC	89030	-	900 226000628841	-	-	-	-	-	-
Split Lake	SPL-A	8-Jun-17	NSC	89030	-	900 226000628841	-	1149	1270	14061	-	-
Burntwood River	BWR-B	31-May-19	NSC	89030	-	900 226000628841	-	1151	1280	11068	M	8
Burntwood River	BWR-A	9-Jun-15	NSC	89040	-	900 226000628965	-	941	1046	6804	-	-
Burntwood River	BWR-A	13-Jun-15	NSC	89040	-	900 226000628965	-	-	-	-	-	-
Burntwood River	BWR-A	11-Jun-17	NSC	89040	-	900 226000628965	-	982	1085	7530	M	8
Burntwood River	BWR-A	26-Jun-17	NSC	89040	-	900 226000628965	-	-	-	-	-	-
Burntwood River	BWR-B	4-Jun-19	NSC	89040	-	900 226000628965	-	995	1098	7530	-	-
Burntwood River	BWR-A	11-Jun-15	NSC	89044	-	-	-	877	970	6124	-	-
Burntwood River	BWR-A	9-Jun-19	NSC	89044	-	900 226000327848	-	895	1004	5262	M	7

Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2019. Bold number indicates a Floy tag that was lost and fish was retagged in 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag 1	PIT Tag 2	FL (mm)	TL (mm)	Weight (g)	Sex	Mat.
Burntwood River	BWR-A	11-Jun-15	NSC	89045	-	-	-	1070	1218	8845	M	8
Burntwood River	BWR-A	13-Jun-15	NSC	89045	-	-	-	-	-	-	-	-
Burntwood River	BWR-A	12-Jun-19	NSC	89045	-	900 226000327889	-	1062	1172	10841	M	7
Burntwood River	BWR-A	11-Jun-15	NSC	89046	-	-	-	982	1091	7484	M	8
Burntwood River	BWR-B	24-May-19	NSC	89046	-	900 226000327457	-	1038	1114	8528	-	-
Burntwood River	BWR-A	13-Jun-15	NSC	89050	-	900 226000628817	-	849	971	9124	-	-
Burntwood River	BWR-A	28-Jun-15	NSC	89050	-	900 226000628817	-	-	-	-	-	-
Burntwood River	BWR-B	6-Jun-19	NSC	89050	-	900 226000628817	-	890	1000	5625	-	-
Burntwood River	BWR-B	10-Jun-19	NSC	89050	-	900 226000628817	-	-	-	-	-	-
Burntwood River	BWR-B	16-Jun-19	NSC	89050	-	900 226000628817	-	-	-	-	-	-
Burntwood River	BWR-A	21-Jun-09	NSC	89361	-	-	-	960	1055	7257	-	-
Burntwood River	BWR-B	6-Jun-19	NSC	89361	-	900 226000327811	-	1050	1156	8437	-	-
Burntwood River	BWR-A	27-Jun-09	NSC	89400	-	-	-	888	980	5443	-	-
Burntwood River	BWR-A	3-Jun-12	NSC	89400	-	-	-	908	1011	6804	M	7
Burntwood River	BWR-A	3-Jun-13	NSC	89400	-	900 226000548272	-	900	1005	5216	-	-
Burntwood River	BWR-A	3-Jun-19	NSC	89400	-	900 226000548272	-	955	1052	6078	M	7
Burntwood River	BWR-A	20-Jun-11	NSC	91161	-	-	-	565	644	1225	-	-
Burntwood River	BWR-A	5-Jun-19	NSC	91161	-	900 226000327894	-	657	742	1678	-	-
Burntwood River	BWR-A	15-Jun-11	NSC	91182	-	-	-	1030	1147	7711	M	8
Burntwood River	BWR-A	11-Jun-17	NSC	91182	-	900 226000153450	-	1075	1196	9299	-	-
Burntwood River	BWR-A	21-Jun-19	NSC	91182	-	900 226000153450	-	1077	1192	8210	-	-
Burntwood River	BWR-A	5-Jun-11	NSC	94497	-	-	-	870	990	6350	M	8
Burntwood River	BWR-A	31-May-19	NSC	94497	-	900 226000327485	-	985	1004	5806	-	-
Burntwood River	BWR-A	5-Jun-11	NSC	94499	-	-	-	1290	1445	19958	-	-
Burntwood River	BWR-B	31-May-19	NSC	94499	-	900 226000327813	-	1390	1530	24494	F	2
Burntwood River	BWR-A	5-Jun-11	NSC	94806	-	-	-	960	1053	7711	M	7
Burntwood River	BWR-A	22-Jun-19	NSC	94806	-	900 226000327053	-	1065	1171	10251	M	8
Burntwood River	BWR-A	5-Jun-11	NSC	94807	-	-	-	925	1025	7257	M	7
Burntwood River	BWR-B	5-Jun-15	NSC	94807	-	900 226000628972	-	1004	1100	9072	M	7
Burntwood River	BWR-B	3-Jun-19	NSC	94807	-	900 226000628972	-	1041	1150	8528	-	-

Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2019. Bold number indicates a Floy tag that was lost and fish was retagged in 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag 1	PIT Tag 2	FL (mm)	TL (mm)	Weight (g)	Sex	Mat.
Kelsey GS Area	KGS-A	28-May-15	NSC	98606	-	900 226000548580	-	837	940	4990	-	-
Kelsey GS Area	KGS-A	29-May-15	NSC	98606	-	900 226000548580	-	-	-	-	-	-
Burntwood River	BWR-A	14-Jun-15	NSC	98606	-	900 226000548580	-	829	945	5670	-	-
Burntwood River	BWR-B	9-Jun-19	NSC	98606	-	900 226000548580	-	880	984	5035	M	7
Burntwood River	BWR-A	27-Jun-19	NSC	98606	-	900 226000548580	-	-	-	-	-	-
Kelsey GS Area	KGS-B	8-Jun-15	NSC	98991	-	900 226000548085	-	980	1086	8845	-	-
Burntwood River	BWR-B	6-Jun-19	NSC	98991	-	900 226000548085	-	1040	1146	9163	-	-
Kelsey GS Area	KGS-B	8-Jun-15	NSC	98992	-	900 226000548509	-	935	1023	7711	-	-
Burntwood River	BWR-A	30-Jun-15	NSC	98992	-	900 226000548509	-	920	1002	6804	-	-
Burntwood River	BWR-A	22-Jun-17	NSC	98992	-	900 226000548509	-	958	1051	9525	-	-
Burntwood River	BWR-B	5-Jun-19	NSC	98992	-	900 226000548509	-	1005	1100	8391	-	-
Burntwood River	BWR-A	18-Jun-19	NSC	98992	-	900 226000548509	-	-	-	-	-	-
Burntwood River	BWR-A	20-Jun-19	NSC	98992	-	900 226000548509	-	-	-	-	-	-
Burntwood River	BWR-A	5-Jun-12	NSC	102206	-	-	-	851	948	5897	-	-
Burntwood River	BWR-B	10-Jun-19	NSC	102206	-	900 226000327842	-	970	1086	6985	M	7
Burntwood River	BWR-A	8-Jun-12	NSC	102212	-	-	-	1045	1163	-	M	8
Burntwood River	BWR-B	5-Jun-19	NSC	102212	-	900 226000327022	-	1160	1282	11975	-	-
Burntwood River	BWR-A	7-Jun-17	NSC	103158	-	900 226000153413	-	955	1064	7257	M	7
Burntwood River	BWR-A	22-Jun-19	NSC	103158	-	900 226000153413	-	975	1087	7303	M	8
Burntwood River	BWR-A	7-Jun-17	NSC	103162	-	900 226000153449	-	945	1036	-	M	8
Burntwood River	BWR-B	27-May-19	NSC	103162	-	900 226000153449	-	955	1051	6214	-	-
Burntwood River	BWR-A	13-Jun-19	NSC	103162	-	900 226000153449	-	-	-	-	-	-
Burntwood River	BWR-A	9-Jun-17	NSC	103171	-	900 226000768838	-	1028	1144	8165	-	-
Burntwood River	BWR-A	12-Jun-19	NSC	103171	-	900 226000768838	-	1050	1168	10932	-	-
Burntwood River	BWR-A	8-Jun-17	NSC	103172	-	900 226000153434	-	745	838	4309	M	8
Burntwood River	BWR-A	20-Jun-19	NSC	103172	-	900 226000153434	-	775	871	4082	-	-
Burntwood River	BWR-A	9-Jun-17	NSC	103178	-	900 226000153441	-	875	981	5670	M	8
Burntwood River	BWR-A	14-Jun-17	NSC	103178	-	900 226000153441	-	-	-	-	-	-
Burntwood River	BWR-A	24-Jun-19	NSC	103178	-	900 226000153441	-	892	996	4763	-	-

Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2019. Bold number indicates a Floy tag that was lost and fish was retagged in 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag 1	PIT Tag 2	FL (mm)	TL (mm)	Weight (g)	Sex	Mat.
Burntwood River	BWR-A	11-Jun-17	NSC	103184	-	900 226000153431	-	882	1007	5216	-	-
Burntwood River	BWR-A	26-May-19	NSC	103184	-	900 226000153431	-	890	1012	4899	-	-
Burntwood River	BWR-A	18-Jun-19	NSC	103184	-	900 226000153431	-	-	-	-	M	8
Burntwood River	BWR-A	12-Jun-17	NSC	103186	-	900 226000768053	-	910	1015	5806	-	-
Burntwood River	BWR-A	14-Jun-17	NSC	103186	-	900 226000768053	-	-	-	-	-	-
Burntwood River	BWR-A	13-Jun-19	NSC	103186	-	900 226000768053	-	934	1040	6396	M	7
Burntwood River	BWR-A	12-Jun-17	NSC	103190	-	900 226000768011	-	780	882	1950	-	-
Burntwood River	BWR-A	31-May-19	NSC	103190	-	900 226000768011	-	799	904	2722	-	-
Burntwood River	BWR-A	13-Jun-17	NSC	103195	-	900 226000768810	-	780	862	3311	-	-
Burntwood River	BWR-A	8-Jun-19	NSC	103195	-	900 226000768810	-	800	978	2540	-	-
Burntwood River	BWR-A	14-Jun-17	NSC	103198	-	900 226000768074	-	715	811	2767	-	-
Burntwood River	BWR-A	27-Jun-19	NSC	103198	-	900 226000768074	-	729	825	2449	-	-
Burntwood River	BWR-A	14-Jun-17	NSC	103200	-	900 226000768060	-	911	1015	5488	M	8
Burntwood River	BWR-A	20-Jun-17	NSC	103200	-	900 226000768060	-	-	-	-	-	-
Burntwood River	BWR-A	13-Jun-19	NSC	103200	-	900 226000768060	-	929	1038	5579	-	-
Burntwood River	BWR-A	21-Jun-19	NSC	103200	-	900 226000768060	-	-	-	-	-	-
Burntwood River	BWR-A	10-Sep-16	NSC	103839	-	900 226000768529	-	659	720	2059	-	-
Burntwood River	BWR-A	15-Jun-19	NSC	103839	-	900 226000768529	-	692	772	2041	-	-
Burntwood River	BWR-A	25-Jun-13	NSC	104527	-	900 226000548366	-	650	745	1701	-	-
Burntwood River	BWR-A	9-Jun-17	NSC	104527	-	900 226000548366	-	725	820	1588	-	-
Burntwood River	BWR-A	31-May-19	NSC	104527	-	900 226000548366	-	750	835	2722	-	-
Burntwood River	BWR-A	26-Jun-13	NSC	104528	-	900 226000548295	-	825	910	4536	-	-
Burntwood River	BWR-B	17-Jun-19	NSC	104528	-	900 226000548295	-	804	1004	5942	M	8
Burntwood River	BWR-A	5-Jun-17	NSC	108601	-	900 226000153497	-	956	1066	7711	M	7
Burntwood River	BWR-A	7-Jun-17	NSC	108601	-	900 226000153497	-	-	-	-	M	8
Burntwood River	BWR-B	5-Jun-19	NSC	108601	-	900 226000153497	-	967	1084	6985	-	-
Kelsey GS Area	KGS-D	2-Jun-13	NSC	91664	-	900 226000548081	-	875	971	6350	-	-
Burntwood River	BWR-A	5-Jun-17	NSC	108603	-	900 226000548081	-	942	1045	8165	M	7
Burntwood River	BWR-A	6-Jun-17	NSC	108603	-	900 226000548081	-	-	-	-	M	8
Burntwood River	BWR-A	15-Jun-17	NSC	108603	-	900 226000548081	-	-	-	-	-	-
Burntwood River	BWR-B	9-Jun-19	NSC	108603	-	900 226000548081	-	962	1064	6940	-	-

Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2019. Bold number indicates a Floy tag that was lost and fish was retagged in 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag 1	PIT Tag 2	FL (mm)	TL (mm)	Weight (g)	Sex	Mat.
Burntwood River	BWR-A	5-Jun-17	NSC	108605	-	900 226000768843	-	956	1070	7484	M	7
Burntwood River	BWR-A	11-Jun-17	NSC	108605	-	900 226000768843	-	-	-	-	-	-
Burntwood River	BWR-A	17-Jun-19	NSC	108605	-	900 226000768843	-	984	1094	7257	M	8
Split Lake	SPL-A	19-Jun-15	NSC	98628	-	900 226000548696	-	1102	1220	-	-	-
Burntwood River	BWR-A	6-Jun-17	NSC	108606	-	900 226000548696	-	1097	1217	10659	M	8
Burntwood River	BWR-A	7-Jun-17	NSC	108606	-	900 226000548696	-	-	-	-	M	8
Burntwood River	BWR-B	28-May-19	NSC	108606	-	900 226000548696	-	1093	1230	10523	-	-
Burntwood River	BWR-A	6-Jun-17	NSC	108610	-	900 226000768845	-	990	1108	8391	M	8
Burntwood River	BWR-A	2-Jun-19	NSC	108610	-	900 226000768845	-	1000	1125	8845	M	7
Burntwood River	BWR-A	6-Jun-17	NSC	108612	-	900 226000768890	-	933	1046	7257	-	-
Burntwood River	BWR-A	22-Jun-17	NSC	108612	-	900 226000768890	-	-	-	-	-	-
Burntwood River	BWR-B	24-May-19	NSC	108612	-	900 226000768890	-	942	1055	6260	-	-
Burntwood River	BWR-A	6-Jun-17	NSC	108619	-	900 226000768826	-	1096	1223	9525	M	7
Burntwood River	BWR-B	31-May-19	NSC	108619	-	900 226000768826	-	1113	1244	11113	M	7
Burntwood River	BWR-A	1-Jun-17	NSC	108626	-	900 226000768884	-	1065	1212	10659	-	-
Burntwood River	BWR-A	9-Jun-17	NSC	108626	-	900 226000768884	-	-	-	-	M	8
Burntwood River	BWR-B	27-May-19	NSC	108626	-	900 226000768884	-	1091	1236	10569	-	-
Burntwood River	BWR-A	1-Jun-17	NSC	108627	-	900 226000768869	-	1033	1158	8618	M	7
Burntwood River	BWR-A	26-Jun-17	NSC	108627	-	900 226000768869	-	-	-	-	-	-
Burntwood River	BWR-A	26-Jun-19	NSC	108627	-	900 226000768869	-	1039	1162	9798	-	-
Burntwood River	BWR-A	4-Jun-17	NSC	108640	-	900 226000768892	-	953	1072	7031	M	8
Burntwood River	BWR-A	12-Jun-19	NSC	108640	-	900 226000768892	-	965	1082	5761	M	8
Burntwood River	BWR-A	4-Jun-17	NSC	108642	-	900 226000768836	-	890	995	6123	-	-
Burntwood River	BWR-B	8-Jun-19	NSC	108642	-	900 226000768836	-	910	1018	6350	-	-
Burntwood River	BWR-A	5-Jun-17	NSC	108646	-	900 226000153492	-	935	1061	7711	M	7
Burntwood River	BWR-B	9-Jun-19	NSC	108646	-	900 226000153492	-	948	1067	-	-	-
Burntwood River	BWR-A	5-Jun-17	NSC	108648	-	900 226000153422	-	891	995	5897	M	7
Burntwood River	BWR-B	2-Jun-19	NSC	108648	-	900 226000153422	-	-	-	-	-	-
Split Lake	SPL-A	9-Jun-17	NSC	110745	-	900 226000768278	-	1000	1100	11340	-	-
Burntwood River	BWR-A	26-Jun-19	NSC	110745	-	900 226000768278	-	-	-	-	-	-

Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2019. Bold number indicates a Floy tag that was lost and fish was retagged in 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag 1	PIT Tag 2	FL (mm)	TL (mm)	Weight (g)	Sex	Mat.
Kelsey GS Area	KGS-A	7-Jun-17	NSC	110754	-	900 226000768275	-	895	992	8165	-	-
Kelsey GS Area	KGS-D	2-Jul-17	NSC	110754	-	900 226000768275	-	-	-	-	-	-
Burntwood River	BWR-B	8-Jun-19	NSC	110754	-	900 226000768275	-	920	1018	6169	M	8
Kelsey GS Area	KGS-D	5-Jun-13	NSC	93886	-	900 226000548172	-	840	934	5443	-	-
Burntwood River	BWR-A	12-Jun-19	NSC	114107	-	900 226000548172	-	930	1037	6169	M	9
Kelsey GS Area	KGS-A	31-May-15	NSC	98615	-	900 226000548531	-	890	990	6124	-	-
Burntwood River	BWR-A	9-Jun-19	NSC	114145	-	900 226000548531	-	980	1068	6985	M	8
Burntwood River	BWR-A	7-Jun-13	NSC	86931	-	900 226000548389	-	965	1080	6350	M	8
Burntwood River	BWR-A	2-Jun-17	NSC	86931	-	900 226000548389	-	1032	1156	8618	-	-
Burntwood River	BWR-B	4-Jun-19	NSC	114180	-	900 226000548389	-	1066	1190	9117	-	-
Burntwood River	BWR-B	2-Oct-14	-	-	-	900 043000102990	-	260	300	98	-	-
Burntwood River	BWR-B	26-Jun-19	NSC	55275	-	900 043000102990	-	406	461	408	-	-
Burntwood River	BWR-B	7-Jun-18	-	-	-	900 067000109920	-	204	235	58	-	-
Burntwood River	BWR-A	5-Jun-19	-	-	-	900 067000109920	-	254	291	100	-	-
Burntwood River	BWR-A	21-Jun-19	NSC	55283	-	900 226000327417	-	864	965	4990	-	-
Burntwood River	BWR-A	28-Jun-19	NSC	55283	55270	900 226000327417	-	-	-	-	-	-
Burntwood River	BWR-B	23-May-19	NSC	114051	-	900 226000327434	-	974	1082	8119	-	-
Burntwood River	BWR-A	31-May-19	NSC	114051	-	900 226000327434	-	-	-	-	-	-
Burntwood River	BWR-A	24-May-19	NSC	114056	-	900 226000327445	-	941	1059	8890	-	-
Burntwood River	BWR-A	29-May-19	NSC	114056	-	900 226000327445	-	-	-	-	-	-
Burntwood River	BWR-B	25-May-19	NSC	114058	-	900 226000327484	-	905	1010	6532	-	-
Burntwood River	BWR-A	3-Jun-19	NSC	114058	-	900 226000327484	-	-	-	-	-	-
Burntwood River	BWR-B	7-Jun-19	NSC	114058	-	900 226000327484	-	-	-	-	-	-
Burntwood River	BWR-B	26-May-19	NSC	114060	114061	900 226000327009	-	910	994	5579	-	-
Burntwood River	BWR-A	3-Jun-19	NSC	114060	114061	900 226000327009	-	-	-	-	-	-
Burntwood River	BWR-B	26-May-19	NSC	114062	-	900 226000327867	-	942	1051	7530	-	-
Burntwood River	BWR-A	10-Jun-19	NSC	114062	-	900 226000327867	-	-	-	-	-	-
Burntwood River	BWR-B	27-May-19	NSC	114065	114066	900 226000327477	-	936	1049	7076	-	-
Burntwood River	BWR-B	6-Jun-19	NSC	114065	114066	900 226000327477	-	-	-	-	-	-
Burntwood River	BWR-A	19-Jun-19	NSC	114065	114066	900 226000327477	-	-	-	-	-	-

Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2019. Bold number indicates a Floy tag that was lost and fish was retagged in 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag 1	PIT Tag 2	FL (mm)	TL (mm)	Weight (g)	Sex	Mat.
Burntwood River	BWR-B	28-May-19	NSC	114067	-	900 226000327052	-	1134	1242	11340	-	-
Burntwood River	BWR-B	29-May-19	NSC	114067	-	900 226000327052	-	-	-	-	-	-
Burntwood River	BWR-B	28-May-19	NSC	114069	-	900 226000327806	-	951	1054	6532	-	-
Burntwood River	BWR-A	8-Jun-19	NSC	114069	-	900 226000327806	-	-	-	-	-	-
Burntwood River	BWR-B	10-Jun-19	NSC	114069	-	900 226000327806	-	-	-	-	-	-
Burntwood River	BWR-A	20-Jun-19	NSC	114069	-	900 226000327806	-	-	-	-	M	8
Burntwood River	BWR-B	28-May-19	NSC	114071	-	900 226000327479	-	996	1116	8301	-	-
Burntwood River	BWR-A	6-Jun-19	NSC	114071	-	900 226000327479	-	-	-	-	-	-
Burntwood River	BWR-B	29-May-19	NSC	114073	-	900 226000327468	-	966	1086	5262	M	7
Burntwood River	BWR-B	6-Jun-19	NSC	114073	-	900 226000327468	-	-	-	-	-	-
Burntwood River	BWR-A	11-Jun-19	NSC	114101	-	900 226000327895	-	1123	1222	10160	M	7
Burntwood River	BWR-A	17-Jun-19	NSC	114101	-	900 226000327895	-	-	-	-	M	8
Burntwood River	BWR-A	12-Jun-19	NSC	114108	-	900 226000327083	-	956	1072	7439	-	-
Burntwood River	BWR-A	14-Jun-19	NSC	114108	-	900 226000327083	-	-	-	-	-	-
Burntwood River	BWR-A	27-Jun-19	NSC	114108	-	900 226000327083	-	-	-	-	-	-
Burntwood River	BWR-A	16-Jun-19	NSC	114121	-	900 226000327437	-	884	994	4944	-	-
Burntwood River	BWR-A	22-Jun-19	NSC	114121	-	900 226000327437	-	-	-	-	-	-
Burntwood River	BWR-A	7-Jun-19	NSC	114126	-	900 226000327843	-	972	1091	7031	M	8
Burntwood River	BWR-A	17-Jun-19	NSC	114126	-	900 226000327843	-	-	-	-	-	-
Burntwood River	BWR-A	8-Jun-19	NSC	114132	-	900 226000327873	-	1095	1230	11567	M	8
Burntwood River	BWR-A	20-Jun-19	NSC	114132	-	900 226000327873	-	-	-	-	-	-
Burntwood River	BWR-A	11-Jun-19	NSC	114143	-	900 226000327887	-	884	979	5126	-	-
Burntwood River	BWR-A	14-Jun-19	NSC	114143	-	900 226000327887	-	-	-	-	-	-
Burntwood River	BWR-A	8-Jun-19	NSC	114150	-	900 226000327822	-	1028	1161	8709	-	-
Burntwood River	BWR-A	14-Jun-19	NSC	114150	-	900 226000327822	-	-	-	-	-	-
Burntwood River	BWR-A	31-May-19	NSC	114157	-	900 226000327008	-	765	856	3130	-	-
Burntwood River	BWR-A	7-Jun-19	NSC	114157	-	900 226000327008	-	-	-	-	-	-
Burntwood River	BWR-A	1-Jun-19	NSC	114160	-	900 226000327814	-	966	1075	7076	-	-
Burntwood River	BWR-A	13-Jun-19	NSC	114160	-	900 226000327814	-	-	-	-	-	-
Burntwood River	BWR-B	3-Jun-19	NSC	114171	-	900 226000327829	-	856	965	5126	-	-
Burntwood River	BWR-A	10-Jun-19	NSC	114171	-	900 226000327829	-	-	-	-	-	-

Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2019. Bold number indicates a Floy tag that was lost and fish was retagged in 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag 1	PIT Tag 2	FL (mm)	TL (mm)	Weight (g)	Sex	Mat.
Burntwood River	BWR-B	3-Jun-19	NSC	114172	-	900 226000327846	-	954	1055	6577	-	-
Burntwood River	BWR-B	4-Jun-19	NSC	114172	-	900 226000327846	-	-	-	-	-	-
Burntwood River	BWR-A	14-Jun-19	NSC	114172	-	900 226000327846	-	-	-	-	-	-
Burntwood River	BWR-B	4-Jun-19	NSC	114181	-	900 226000327856	-	890	1004	6123	-	-
Burntwood River	BWR-B	14-Jun-19	NSC	114181	-	900 226000327856	-	-	-	-	-	-
Burntwood River	BWR-A	5-Jun-19	NSC	114183	-	900 226000327865	-	920	1021	6214	-	-
Burntwood River	BWR-A	16-Jun-19	NSC	114183	-	900 226000327865	-	-	-	-	-	-
Burntwood River	BWR-B	5-Jun-19	NSC	114187	-	900 226000327802	-	899	987	5670	-	-
Burntwood River	BWR-A	20-Jun-19	NSC	114187	-	900 226000327802	-	-	-	-	-	-
Burntwood River	BWR-B	5-Jun-19	NSC	114189	-	900 226000327849	-	872	983	5942	-	-
Burntwood River	BWR-B	7-Jun-19	NSC	114189	-	900 226000327849	-	-	-	-	-	-
Burntwood River	BWR-B	5-Jun-19	NSC	114190	-	900 226000327076	-	760	847	3946	-	-
Burntwood River	BWR-A	11-Jun-19	NSC	114190	-	900 226000327076	-	-	-	-	-	-
Burntwood River	BWR-A	6-Jun-19	NSC	114193	-	900 226000327084	-	930	1034	5670	M	7
Burntwood River	BWR-A	7-Jun-19	NSC	114193	-	900 226000327084	-	-	-	-	-	-
Burntwood River	BWR-B	11-Jun-19	NSC	114193	-	900 226000327084	-	-	-	-	-	-
Burntwood River	BWR-A	6-Jun-19	NSC	114196	-	900 226000327858	-	916	1014	6577	-	-
Burntwood River	BWR-A	12-Jun-19	NSC	114196	-	900 226000327858	-	-	-	-	-	-
Burntwood River	BWR-A	6-Jun-19	NSC	114197	-	900 226000327870	-	931	1033	6441	-	-
Burntwood River	BWR-A	20-Jun-19	NSC	114197	-	900 226000327870	-	-	-	-	-	-
Burntwood River	BWR-A	22-Jun-19	NSC	114197	-	900 226000327870	-	-	-	-	-	-
Burntwood River	BWR-A	6-Jun-19	NSC	114198	55293	900 226000327879	-	905	994	6260	-	-
Burntwood River	BWR-A	19-Jun-19	NSC	114198	55293	900 226000327879	-	888	992	5851	-	-
Burntwood River	BWR-A	20-Jun-01	NSC	46446	-	-	-	760	853	3500	-	-
Burntwood River	BWR-B	8-Jun-12	NSC	46446	-	-	-	1105	1207	12701	-	-
Burntwood River	BWR-A	3-Jun-17	NSC	46446	-	900 226000548213	-	1165	1275	11793	-	-
Burntwood River	BWR-A	7-Jun-17	NSC	46446	-	900 226000548213	-	-	-	-	-	-
Split Lake	SPL-A	29-May-19	NSC	46446	-	900 226000548213	-	1163	1265	10886	-	-
Kelsey GS Area	KGS-C	27-Jun-07	NSC	79552	-	-	-	774	856	4082	-	-
Kelsey GS Area	KGS-C	25-Jun-11	NSC	79552	-	-	-	864	955	6175	-	-
Kelsey GS Area	KGS-D	26-Jun-17	NSC	79552	-	900 226000768207	-	1002	1099	9979	-	-
Split Lake	SPL-A	24-May-19	NSC	79552	-	900 226000768207	-	1029	1300	10433	-	-

Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2019. Bold number indicates a Floy tag that was lost and fish was retagged in 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag 1	PIT Tag 2	FL (mm)	TL (mm)	Weight (g)	Sex	Mat.
Burntwood River	BWR-A	3-Jun-06	NSC	80023	80024	-	-	1004	1100	9072	-	-
Burntwood River	BWR-A	5-Jun-06	NSC	80023	80024	-	-	-	-	-	-	-
Kelsey GS Area	KGS-C	7-Jun-07	NSC	80023	80024	-	-	1005	1115	9072	-	-
Burntwood River	BWR-A	2-Jun-11	NSC	80023	80024	-	-	1030	1145	9979	M	7
Burntwood River	BWR-A	3-Jun-11	NSC	80023	80024	-	-	-	-	-	-	-
Burntwood River	BWR-A	30-May-13	NSC	80023	80024	900 226000548297	-	1057	1172	10206	M	7
Burntwood River	BWR-A	11-Jun-13	NSC	80023	80024	900 226000548297	-	-	-	-	-	-
Burntwood River	BWR-A	13-Jun-13	NSC	80023	80024	900 226000548297	-	-	-	-	-	-
Burntwood River	BWR-A	16-Jun-13	NSC	80023	80024	900 226000548297	-	-	-	-	-	-
Burntwood River	BWR-B	27-May-15	NSC	80023	80024	900 226000548297	-	1070	1169	11340	-	-
Burntwood River	BWR-A	11-Jun-15	NSC	80023	80024	900 226000548297	-	-	-	-	-	-
Kelsey GS Area	KGS-C	28-May-19	NSC	80023	80024	900 226000703366	-	1095	1212	10886	-	-
Burntwood River	BWR-A	7-Jun-15	NSC	89026	-	900 226000628882	-	934	1061	6804	-	-
Split Lake	SPL-A	19-Jun-19	NSC	89026	-	900 226000628882	-	950	1082	5443	-	-
Kelsey GS Area	KGS-D	16-Jun-13	NSC	91361	-	900 226000548017	-	969	1091	7711	-	-
Split Lake	SPL-A	5-Jun-19	NSC	91361	-	900 226000548017	-	1049	1179	8618	-	-
Kelsey GS Area	KGS-A	21-Jun-13	NSC	91369	-	900 226000548123	-	885	997	7484	-	-
Kelsey GS Area	KGS-A	12-Jun-19	NSC	91369	-	900 226000548123	-	990	1010	7711	-	-
Kelsey GS Area	KGS-C	1-Jun-13	NSC	91657	-	900 226000548125	-	838	943	5216	-	-
Kelsey GS Area	KGS-A	24-Jun-17	NSC	91657	-	900 226000548125	-	885	994	4536	-	-
Kelsey GS Area	KGS-A	29-Jun-19	NSC	91657	-	900 226000548125	-	890	999	4082	-	-
Kelsey GS Area	KGS-A	2-Jun-13	NSC	91668	-	900 226000548023	-	836	949	5443	-	-
Kelsey GS Area	KGS-A	6-Jun-15	NSC	91668	-	900 226000548023	-	910	1034	7031	-	-
Kelsey GS Area	KGS-A	30-May-17	NSC	91668	-	900 226000548023	-	960	1100	9525	-	-
Kelsey GS Area	KGS-A	3-Jun-17	NSC	91668	-	900 226000548023	-	-	-	-	-	-
Kelsey GS Area	KGS-A	24-Jun-19	NSC	91668	-	900 226000548023	-	980	1111	7257	-	-
Kelsey GS Area	KGS-A	3-Jun-13	NSC	93877	-	900 226000548066	-	900	1000	7711	-	-
Kelsey GS Area	KGS-A	4-Jun-13	NSC	93877	-	900 226000548066	-	-	-	-	-	-
Kelsey GS Area	KGS-A	16-Jun-13	NSC	93877	-	900 226000548066	-	-	-	-	-	-
Kelsey GS Area	KGS-A	17-Jun-13	NSC	93877	-	900 226000548066	-	-	-	-	-	-
Kelsey GS Area	KGS-A	23-May-19	NSC	93877	-	900 226000548066	-	952	1050	6350	-	-

Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2019. Bold number indicates a Floy tag that was lost and fish was retagged in 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag 1	PIT Tag 2	FL (mm)	TL (mm)	Weight (g)	Sex	Mat.
Kelsey GS Area	KGS-A	4-Jun-13	NSC	93885	-	900 226000548126	-	973	1080	8845	-	-
Kelsey GS Area	KGS-A	17-Jun-19	NSC	93885	-	900 226000548126	-	1030	1135	9072	-	-
Kelsey GS Area	KGS-A	24-Jun-13	NSC	94316	-	900 226000548072	-	1197	1306	16783	-	-
Kelsey GS Area	KGS-D	29-May-19	NSC	94316	-	900 226000548072	-	1210	1322	17463	-	-
Kelsey GS Area	KGS-A	26-Jun-13	NSC	94139	-	1380347894	-	620	705	1474	-	-
Kelsey GS Area	KGS-A	24-May-19	NSC	94139	-	1380347894	-	815	920	4400	-	-
Kelsey GS Area	KGS-A	26-Jun-13	NSC	94149	-	900 226000548084	-	797	905	4876	-	-
Kelsey GS Area	KGS-C	14-Jun-19	NSC	94149	-	900 226000548084	-	935	1057	7257	-	-
Kelsey GS Area	KGS-A	16-Jun-11	NSC	94456	-	-	-	925	1025	10121	-	-
Kelsey GS Area	KGS-A	5-Jun-13	NSC	94456	-	900 226000548247	-	990	1100	10433	-	-
Kelsey GS Area	KGS-A	16-Jun-13	NSC	94456	-	900 226000548247	-	-	-	-	-	-
Kelsey GS Area	KGS-B	26-Jun-13	NSC	94456	-	900 226000548247	-	-	-	-	-	-
Kelsey GS Area	KGS-B	8-Jun-15	NSC	94456	-	900 226000548247	-	1035	1140	9979	-	-
Kelsey GS Area	KGS-A	21-Jun-17	NSC	94456	-	900 226000548247	-	1070	1170	10433	-	-
Kelsey GS Area	KGS-A	29-May-19	NSC	94456	-	900 226000548247	-	1087	1200	10433	-	-
Burntwood River	BWR-A	2-Jun-11	NSC	94802	94803	-	-	1000	1100	7711	M	7
Split Lake	SPL-A	22-Jun-19	NSC	94802	94803	900 226000327953	-	1075	1183	8165	-	-
Kelsey GS Area	KGS-A	1-Jun-15	NSC	98618	-	900 226000548663	-	815	905	5216	-	-
Kelsey GS Area	KGS-A	10-Jun-15	NSC	98618	-	900 226000548663	-	-	-	-	-	-
Kelsey GS Area	KGS-B	17-Jun-15	NSC	98618	-	900 226000548663	-	-	-	-	-	-
Kelsey GS Area	KGS-A	25-Jun-15	NSC	98618	-	900 226000548663	-	-	-	-	-	-
Kelsey GS Area	KGS-A	5-Jun-19	NSC	98618	-	900 226000548663	-	900	996	6577	-	-
Kelsey GS Area	KGS-A	1-Jun-15	NSC	98621	-	900 226000548524	-	809	890	4763	-	-
Kelsey GS Area	KGS-B	20-Jun-15	NSC	98621	-	900 226000548524	-	-	-	-	-	-
Kelsey GS Area	KGS-C	14-Jun-19	NSC	98621	-	900 226000548524	-	857	938	4990	-	-
Kelsey GS Area	KGS-C	16-Jun-19	NSC	98621	-	900 226000548524	-	-	-	-	-	-
Kelsey GS Area	KGS-A	19-Jun-15	NSC	98629	-	900 226000548668	-	594	673	2041	-	-
Kelsey GS Area	KGS-A	11-Jun-19	NSC	98629	-	900 226000548668	-	700	790	3000	-	-
Kelsey GS Area	KGS-B	22-Jun-15	NSC	98907	-	900 226000548538	-	687	767	2495	-	-
Kelsey GS Area	KGS-A	9-Jun-19	NSC	98907	-	900 226000548538	-	660	768	3300	-	-

Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2019. Bold number indicates a Floy tag that was lost and fish was retagged in 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag 1	PIT Tag 2	FL (mm)	TL (mm)	Weight (g)	Sex	Mat.
Kelsey GS Area	KGS-A	22-Jun-15	NSC	98912	-	900 226000548744	-	965	1081	7257	-	-
Kelsey GS Area	KGS-B	24-Jun-17	NSC	98912	-	900 226000548744	-	1000	1114	7257	M	9
Kelsey GS Area	KGS-A	27-May-19	NSC	98912	-	900 226000548744	-	1029	1149	8391	-	-
Kelsey GS Area	KGS-A	11-Jun-19	NSC	98912	-	900 226000548744	-	1035	1141	8618	-	-
Kelsey GS Area	KGS-A	23-Jun-15	NSC	98916	-	900 226000548647	-	925	1042	4763	-	-
Kelsey GS Area	KGS-C	19-Jun-19	NSC	98916	-	900 226000548647	-	1020	1140	7257	-	-
Kelsey GS Area	KGS-A	24-Jun-15	NSC	98923	-	900 226000548519	-	937	1045	7938	-	-
Kelsey GS Area	KGS-C	24-May-19	NSC	98923	-	900 226000548519	-	990	1105	8165	-	-
Kelsey GS Area	KGS-A	4-Jun-15	NSC	98976	-	900 226000548537	-	868	970	5897	-	-
Kelsey GS Area	KGS-A	31-May-19	NSC	98976	-	900 226000548537	-	939	1048	6350	-	-
Kelsey GS Area	KGS-A	7-Jun-15	NSC	98988	-	900 226000548541	-	941	1068	7484	-	-
Kelsey GS Area	KGS-A	2-Jun-17	NSC	98988	-	900 226000548541	-	974	1105	9072	-	-
Split Lake	SPL-A	15-Jun-19	NSC	98988	-	900 226000548541	-	1005	1130	7257	-	-
Kelsey GS Area	KGS-A	8-Jun-15	NSC	98990	-	900 226000548555	-	878	988	5670	-	-
Kelsey GS Area	KGS-A	22-May-19	NSC	98990	-	900 226000548555	-	970	1089	7938	-	-
Kelsey GS Area	KGS-B	9-Jun-15	NSC	98995	-	900 226000548623	-	970	1085	8391	-	-
Kelsey GS Area	KGS-B	16-Jun-15	NSC	98995	-	900 226000548623	-	-	-	-	-	-
Kelsey GS Area	KGS-A	8-Jun-19	NSC	98995	-	900 226000548623	-	1008	1111	6804	M	7
Kelsey GS Area	KGS-A	27-Jun-15	NSC	98934	-	900 226000548517	-	992	1084	8845	-	-
Kelsey GS Area	KGS-A	29-May-19	NSC	101760	-	900 226000548517	-	1010	1118	7711	-	-
Kelsey GS Area	KGS-C	9-Sep-16	NSC	103847	-	900 226000153852	-	870	963	5139	-	-
Kelsey GS Area	KGS-A	4-Jun-19	NSC	103847	-	900 226000153852	-	915	1027	6350	-	-
Kelsey GS Area	KGS-D	13-Jun-17	NSC	110726	-	900 226000768210	-	935	1030	6804	-	-
Kelsey GS Area	KGS-B	5-Jun-19	NSC	110726	-	900 226000768210	-	950	1047	6441	-	-
Kelsey GS Area	KGS-A	11-Jun-17	NSC	110731	-	900 226000768273	-	1000	1105	6804	-	-
Kelsey GS Area	KGS-A	23-May-19	NSC	110731	-	900 226000768273	-	1010	1127	7031	-	-
Kelsey GS Area	KGS-D	10-Jun-17	NSC	110737	-	900 226000768237	-	1000	1110	8165	-	-
Kelsey GS Area	KGS-B	28-May-19	NSC	110737	-	900 226000768237	-	1010	1223	7257	-	-
Kelsey GS Area	KGS-A	8-Jun-17	NSC	110746	-	900 226000768213	-	835	925	7257	-	-
Kelsey GS Area	KGS-A	31-May-19	NSC	110746	-	900 226000768213	-	844	944	5216	-	-

Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2019. Bold number indicates a Floy tag that was lost and fish was retagged in 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag 1	PIT Tag 2	FL (mm)	TL (mm)	Weight (g)	Sex	Mat.
Kelsey GS Area	KGS-A	8-Jun-17	NSC	110747	-	900 226000768203	-	1005	1110	10433	-	-
Kelsey GS Area	KGS-A	8-Jun-19	NSC	110747	-	900 226000768203	-	1045	1159	11340	-	-
Kelsey GS Area	KGS-A	14-Jun-19	NSC	110747	-	900 226000768203	-	-	-	-	-	-
Kelsey GS Area	KGS-A	29-Jun-19	NSC	110747	-	900 226000768203	-	-	-	-	-	-
Kelsey GS Area	KGS-A	6-Jun-17	NSC	110756	-	900 226000548518	-	900	1010	7711	-	-
Kelsey GS Area	KGS-D	10-Jun-17	NSC	110756	-	900 226000548518	-	-	-	-	-	-
Kelsey GS Area	KGS-A	7-Jun-19	NSC	110756	-	900 226000768257	900 226000768257	939	1062	7257	-	-
Kelsey GS Area	KGS-A	25-Jun-19	NSC	110756	-	900 226000548518	-	943	1063	7257	-	-
Split Lake	SPL-A	5-Jun-17	NSC	110760	-	900 226000768270	-	1255	1375	19051	-	-
Split Lake	SPL-A	27-Jun-19	NSC	110760	-	900 226000768270	-	1270	1397	18144	-	-
Kelsey GS Area	KGS-D	1-Jul-17	NSC	111080	-	900 226000768998	-	802	905	4536	-	-
Split Lake	SPL-A	11-Jun-19	NSC	111080	-	900 226000768998	-	850	962	4082	-	-
Kelsey GS Area	KGS-A	13-Jun-17	NSC	111557	-	900 226000768282	-	890	998	6350	-	-
Kelsey GS Area	KGS-A	16-Jun-17	NSC	111557	-	900 226000768282	-	-	-	-	-	-
Kelsey GS Area	KGS-A	24-Jun-19	NSC	111557	-	900 226000768282	-	919	1032	6350	-	-
Kelsey GS Area	KGS-D	14-Jun-17	NSC	111599	-	900 226000768246	-	934	1066	6804	-	-
Split Lake	SPL-A	27-May-19	NSC	111559	-	900 226000768246	-	965	1110	6124	-	-
Split Lake	SPL-A	17-Jun-17	NSC	111568	-	900 226000768216	-	882	992	6350	-	-
Split Lake	SPL-A	25-May-19	NSC	111568	-	900 226000768216	-	908	1019	6350	-	-
Kelsey GS Area	KGS-A	18-Jun-17	NSC	111570	-	900 226000768222	-	880	973	6350	-	-
Split Lake	SPL-A	11-Jun-19	NSC	111570	-	900 226000327611	-	991	1088	5443	-	-
Split Lake	SPL-A	20-Jun-17	NSC	111576	-	900 226000768285	-	885	985	6804	-	-
Split Lake	SPL-A	2-Jul-17	NSC	111576	-	900 226000768285	-	-	-	-	-	-
Split Lake	SPL-A	29-May-19	NSC	111576	-	900 226000768285	-	895	1000	5800	-	-
Kelsey GS Area	KGS-A	24-Jun-17	NSC	111586	-	900 226000768200	-	901	1000	4990	-	-
Kelsey GS Area	KGS-A	27-May-19	NSC	111586	-	900 226000768200	-	914	1024	5216	-	-
Kelsey GS Area	KGS-A	28-Jun-19	NSC	111586	-	900 226000768200	-	-	-	-	-	-
Kelsey GS Area	KGS-A	7-Jun-15	NSC	98989	-	900 226000548718	-	835	930	5443	-	-
Kelsey GS Area	KGS-A	7-Jun-19	NSC	114281	-	900 226000548718	-	885	982	5443	-	-
Split Lake	SPL-A	24-Jun-15	NSC	98921	-	900 226000548736	-	976	1092	8391	-	-
Split Lake	SPL-A	28-May-19	NSC	126860	-	900 226000548736	-	1030	1165	10206	-	-

Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2019. Bold number indicates a Floy tag that was lost and fish was retagged in 2019 (continued).

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag 1	PIT Tag 2	FL (mm)	TL (mm)	Weight (g)	Sex	Mat.
Upstream KGS	Hunting R.	6-Jul-11	MBGOV	975		985 121011209616	-	-	927	4785		
Kelsey GS Area	KGS-A	27-Jun-19	NSC	114313	-	985 121011209616	900 226000327908	1045	1153	9072	-	-
Upstream KGS	Gap Creek	30-Jun-08	MBGOV	804		985 121008489082	-	-	641	2676		
Kelsey GS Area	KGS-B	31-May-19	MBGOV	804	-	985 121008489082	-	912	1000	6350	-	-
Kelsey GS Area	KGS-A	28-May-19	NSC	101753	-	900 226000327680	-	815	906	4150	-	-
Kelsey GS Area	KGS-A	31-May-19	NSC	101753	-	900 226000327680	-	-	-	-	-	-
Kelsey GS Area	KGS-A	28-May-19	NSC	101755	-	900 226000327685	-	761	847	3300	-	-
Kelsey GS Area	KGS-A	17-Jun-19	NSC	101755	-	900 226000327685	-	-	-	-	-	-
Kelsey GS Area	KGS-C	29-May-19	NSC	101759	-	900 226000327653	-	737	839	3300	-	-
Kelsey GS Area	KGS-C	14-Jun-19	NSC	101759	-	900 226000327653	-	-	-	-	-	-
Kelsey GS Area	KGS-A	29-May-19	NSC	101761	-	900 226000327654	-	893	990	5100	-	-
Kelsey GS Area	KGS-A	11-Jun-19	NSC	101761	-	900 226000327654	-	-	-	-	-	-
Kelsey GS Area	KGS-A	31-May-19	NSC	112881	-	900 226000327693	-	973	1098	7711	-	-
Kelsey GS Area	KGS-A	15-Jun-19	NSC	112881	-	900 226000327693	-	-	-	-	-	-
Kelsey GS Area	KGS-A	31-May-19	NSC	112882	-	900 226000327613	-	864	974	5443	-	-
Kelsey GS Area	KGS-A	5-Jun-19	NSC	112882	-	900 226000327613	-	-	-	-	-	-
Kelsey GS Area	KGS-A	4-Jun-19	NSC	112897	-	900 226000327683	-	900	1007	6804	-	-
Kelsey GS Area	KGS-A	26-Jun-19	NSC	112897	-	900 226000327683	-	-	-	-	-	-
Kelsey GS Area	KGS-A	10-Jun-19	NSC	114328	-	900 226000327648	-	851	958	5650	-	-
Kelsey GS Area	KGS-A	25-Jun-19	NSC	114328	-	900 226000327648	-	-	-	-	-	-
Split Lake	SPL-A	30-May-19	NSC	101763	-	900 226000327678	-	712	806	2900	-	-
Kelsey GS Area	KGS-A	24-Jun-19	NSC	101763	-	900 226000327654	-	-	-	-	-	-
Split Lake	SPL-A	7-Jun-19	NSC	114285	-	900 226000327631	-	1050	1150	10433	-	-
Split Lake	SPL-A	22-Jun-19	NSC	114285	-	900 226000327631	-	-	-	-	-	-

APPENDIX 3: TAGGING AND BIOLOGICAL INFORMATION FOR LAKE STURGEON MOVING BETWEEN THE UPPER SPLIT LAKE AREA AND THE NELSON RIVER BETWEEN BIRTHDAY RAPIDS AND GULL RAPIDS.

Table A3-1.	Tagging and biological information for Lake Sturgeon moving between the Upper Split Lake Area and the future Keeyask reservoir.....	87
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Table A3-1. Tagging and biological information for Lake Sturgeon moving between the Upper Split Lake Area and the future Keeyask reservoir.

Location	Zone	Date	Prefix	Floy-tag 1	Floy-tag 2	PIT Tag	FL (mm)	TL (mm)	Weight (g)	Sex	Mat.
Nelson River (CL-GR)	BR-D	29-May-16	NSC	107244	-	900 226000629081	905	1021	7257	-	-
Burntwood River	BWR-A	13-Jun-19	NSC	107244	-	900 226000629081	931	1047	6123	M	9
Gull Lake	GL-B	22-Jun-16	NSC	107706	-	900 226000153803	901	1025	6577	-	-
Burntwood River	BWR-A	28-Jun-19	NSC	107706	-	900 226000153803	955	1078	7257	-	-
Gull Lake	GL-A	17-Sep-18	NSC	113803	-	900 226000327526	943	1030	7650	-	-
Burntwood River	BWR-A	12-Jun-19	NSC	113803	-	900 226000327526	956	1025	6849	-	-
Gull Lake	GL-B	26-Aug-06	NSC	82638	82639	-	593	656	1588	-	-
Gull Lake	GL-B	25-Jun-14	NSC	82638	82639	900 226000629244	845	923	4082	-	-
Gull Lake	GL-B	6-Jul-14	NSC	82638	82639	900 226000629244	-	-	-	-	-
Kelsey GS Area	KGS-B	29-May-19	NSC	82638	82639	900 226000629244	961	1052	6350	-	-
Gull Lake	GL-B	23-Jul-11	NSC	94871	-	-	760	853	3500		
Kelsey GS Area	KGS-A	22-Jun-15	NSC	94871	-	900 226000548557	818	911	4309	-	-
Kelsey GS Area	KGS-A	9-Jun-19	NSC	94871	-	900 226000548557	849	954	5450	-	-
Gull Lake	GL-B	6-Jul-12	NSC	100417	-	-	745	821	3100	-	-
Kelsey GS Area	KGS-A	13-Jun-17	NSC	100417	-	900 226000768234	860	954	6804	-	-
Kelsey GS Area	KGS-A	29-May-19	NSC	100417	-	900 226000768234	879	972	4990	-	-

APPENDIX 4:

POPULATION ESTIMATE INFORMATION

Table A4-1:	Results of POPAN analysis of adult Lake Sturgeon from the Upper Split Lake Burntwood River Area. Best model was constant survival and variable recapture. Confidence intervals are rounded.	92
Table A4-2:	Results of POPAN analysis of adult Lake Sturgeon from the Upper Split Lake Kelsey GS Area. Best model was constant survival and variable recapture. Confidence intervals are rounded.....	93

Mark-recapture population estimates have been calculated for the upper Split Lake Area in both the Burntwood River and Kelsey GS areas. The Burntwood River was sampled during the spring of 13 different years (2001, 2002, 2005-2007, 2009-2013, 2015, 2017, and 2019). The Kelsey GS area was sampled during the spring of 11 different years (2001, 2002, 2005-2007, 2009, 2011, 2013, 2015, 2017, and 2019). Sampling methods and protocols were comparable among time periods. All data for the period 2001–2012 were collected annually as part of environmental studies related to the pre-Project environment, while data from 2014 until 2044 will be collected biennially as part of monitoring studies related to the Keeyask GS project.

Only Lake Sturgeon classified as adults (*i.e.*, fork length equal to or greater than 800 mm) were included in the population estimate. Floy tag returns from local fishers were also included in the dataset to provide information on harvested Lake Sturgeon and to ensure that individuals harvested were removed from the tagged population. Between 2001 and 2017, 25 tags from Lake Sturgeon harvested in the Upper Split Lake Area were returned to North/South Consultants (Nelson and Barth 2012). Three Floy-tags from harvested Lake Sturgeon were returned by local resource users in 2019.

Data were analysed using the program MARK (White and Burnham 1999), 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 1's (encountered live capture) and 0's (not-encountered) 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 "101 -1;" indicates that an animal was captured for the first time at sampling occasion 1, not encountered at sampling occasion 2, and recovered dead at sampling occasion 3, and an animal that was released alive would have the history "101 1;" where the -1 tells the model the animal is dead, and 1 indicates alive.

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 (*i.e.*, marking and recapture periods), while open models assume these processes occur. Prior to 2014, a Robust Design (Kendall 2001) model was used to estimate the annual abundance of adult Lake Sturgeon (outlined in the AEMP). This model incorporates both open (*i.e.*, between sampling years) and closed (*i.e.*, pre- and post-spawning periods within a single year) population models. However, this model requires numerous assumptions, for example that the population is closed between the pre- and post-spawn sampling periods. Estimates may be confounded by variables such as spawning periodicity, inter-annual variation in environmental conditions, the timing of spawning (which was estimated based on water temperature), and harvest during the spawning period. Thus, after 2014, the Jolly-Seber model (POPAN formulation; Arnason and Schwarz 2002), as implemented within MARK, was used to estimate the annual abundance of adult Lake Sturgeon. This is an open model that requires fewer assumptions and modeled variables, and thus likely provides a more 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 adult Lake Sturgeon in the area during each capture period) (Tables A3-1 and A3-3).

Survival estimates for the best-fit model are as follows:

- Model fit for survival in the Upper Split Lake Burntwood River Area was best using constant survival for the period 2005–2019 estimated at 87% survival.
- Model fit for survival in Upper Split Lake Kelsey Area GS was best using constant survival for the period 2005–2019 estimated at 81%.

As more data is added to each model, the best-fit for survival may change, and additional time periods may be added (even if sampling methods remain consistent). For example, should survival be very different in one year, the analysis may recommend that a different model variant is a better fit to the data.

The probability of recapture varied among years and locations.

- Recapture rates for the Upper Split Lake Burntwood River Area varied annually between with a mean of 0.19 +/- 0.099 (Range: 0.05 and 0.31). Recapture rates have remained consistently high since 2013 between 0.23 and 0.31.
- Recapture rates for the Upper Split Lake Kelsey GS Area varied annually between with a mean of 0.19 +/- 0.16 (Range: 0.00 and 0.60). Recapture rates have remained consistently high since 2013 between 0.24 and 0.26.

An abundance estimate is provided for each year sampling was conducted for both the Burntwood River Area and Kelsey GS Area. 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.

References

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Table A4-1: Results of POPAN analysis of adult Lake Sturgeon from the Upper Split Lake Burntwood River Area. Best model was constant survival and variable recapture. Confidence intervals are rounded.

Period	Mean	SE	95% Confidence Interval	
			Low	High
Survival Constant	0.87	0.01	0.84	0.90
2005 Recapture	0.07	0.03	0.03	0.14
2006 Recapture	0.21	0.07	0.11	0.36
2007 Recapture	0.21	0.03	0.15	0.28
2009 Recapture	0.30	0.05	0.22	0.39
2010 Recapture	0.06	0.02	0.03	0.12
2011 Recapture	0.12	0.02	0.09	0.16
2012 Recapture	0.05	0.01	0.03	0.08
2013 Recapture	0.26	0.04	0.20	0.34
2015 Recapture	0.23	0.04	0.17	0.31
2017 Recapture	0.31	0.04	0.24	0.40
2019 Recapture	0.29	0.04	0.22	0.38
2005 Abundance	247	73	141	435
2006 Abundance	216	64	122	380
2007 Abundance	382	47	300	486
2009 Abundance	290	38	225	374
2010 Abundance	483	144	272	856
2011 Abundance	609	64	496	747
2012 Abundance	531	58	428	657
2013 Abundance	462	54	368	581
2015 Abundance	551	74	423	716
2017 Abundance	540	64	429	680
2019 Abundance	678	81	536	857

Table A4-2: Results of POPAN analysis of adult Lake Sturgeon from the Upper Split Lake Kelsey GS Area. Best model was constant survival and variable recapture. Confidence intervals are rounded.

Period	Mean	SE	95% Confidence Interval	
			Low	High
Survival Constant	0.81	0.02	0.76	0.85
2005 Recapture	0.02	0.01	0.01	0.04
2006 Recapture	0.09	0.02	0.06	0.14
2007 Recapture	0.12	0.03	0.08	0.18
2009 Recapture	0.14	0.03	0.08	0.22
2011 Recapture	0.14	0.04	0.08	0.25
2013 Recapture	0.24	0.06	0.15	0.37
2015 Recapture	0.26	0.05	0.18	0.36
2017 Recapture	0.25	0.04	0.17	0.35
2019 Recapture	0.24	0.04	0.17	0.34
2005 Abundance	853	171	578	1259
2006 Abundance	690	135	473	1008
2007 Abundance	558	110	381	817
2009 Abundance	364	77	242	547
2011 Abundance	342	92	204	573
2013 Abundance	528	118	342	814
2015 Abundance	559	93	404	773
2017 Abundance	590	96	429	812
2019 Abundance	554	91	403	762