



## Keeyask Generation Project Aquatic Effects Monitoring Plan

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

AEMP-2018-01



# KEEYASK GENERATION PROJECT

## AQUATIC EFFECTS MONITORING PLAN

REPORT #AEMP-2018-01

### ADULT LAKE STURGEON POPULATION MONITORING IN THE UPPER SPLIT LAKE AREA, 2017

Prepared for

Manitoba Hydro

By

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June 2018



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This report should be cited as follows:

Lacho, C.D., Hrenchuk, C.L., Nelson, P.A. and Barth, C.C. 2018. Adult Lake Sturgeon population monitoring in the Upper Split Lake Area, 2017. Keeyask Generation Project Aquatic Effects Monitoring Report #AEMP-2018-01. A report prepared for Manitoba Hydro by North/South Consultants Inc., June 2018. xvi + 94 pp.

# 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 map). 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 2017/18 winter.

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

- Estimating the number of adults;
- Estimating the number and growth of juveniles up to ten years old (less than 800mm);
- Identifying spawning locations and numbers of spawning fish; and
- Movement studies to record seasonal habitat use, long distance movements, and movements past barriers (*i.e.*, over GSs or Gull Rapids).

This report presents results from adult Lake Sturgeon population monitoring in spring 2017 in the Upper Split Lake Area<sup>1</sup> (see map). 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.

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<sup>1</sup> Includes the Burntwood River below First Rapids to Split Lake, the Odei River at the Burntwood River, the Nelson River below the Kelsey GS to Split Lake, the Grass River below Witchai Lake Falls, and Split Lake close to the mouths of the Nelson and Burntwood rivers.



Map of instream structures at the Keeyask Generating Station site, September 2017.

**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 how many Lake Sturgeon are in the Upper Split Lake Area?*

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 are different from other fish in Manitoba because they do not begin to reproduce until they are at least 15 years old and they can live a very long time (more than 60 years and even up to 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?*

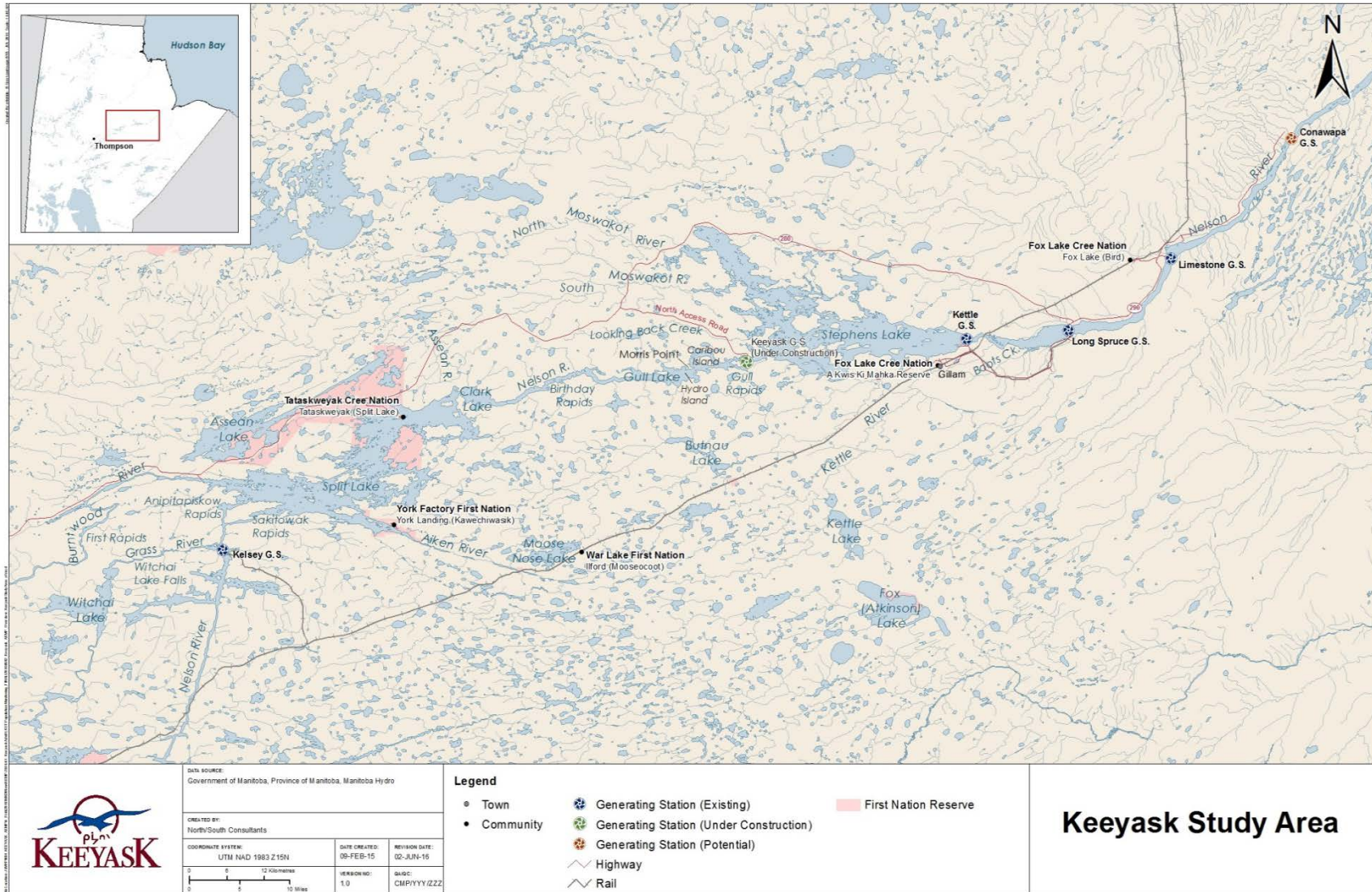
The rate at which sturgeon are dying is important to know if we want the population of sturgeon to increase. If the mortality rate increases, then we would need to try to find the cause and possibly a way to reduce it.

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

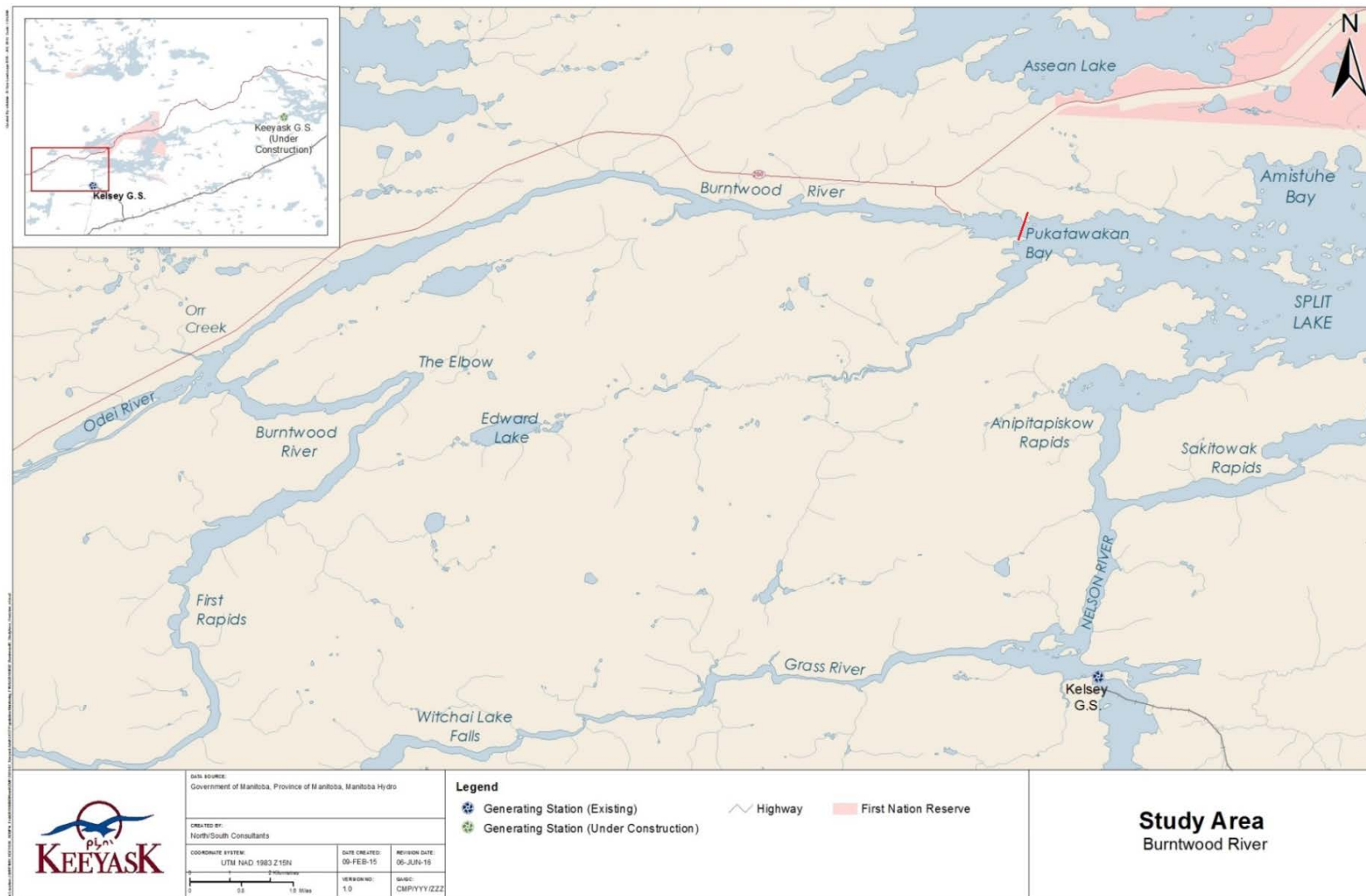
This question is important because if sturgeon become fatter or skinnier than they used to be, something is changing in their environment. In the long term (more than 10 or 15 years), it might also mean that stocking has increased population levels to the point that there is not enough food for all the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

**What was done?**

Sampling was conducted in the Upper Split Lake Area from May 29 to July 4, 2017, using gill nets to target adult sturgeon. For this study, sturgeon that were longer than 800 mm 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 along the rivers, including at spawning sites, because 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<sup>®</sup>) 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 sturgeon are in a population.



Map of the lower Nelson River showing the site of the Keeyask Generating Station and the Lake Sturgeon study setting.



Map of the Upper Split Lake Study Area. The red line marks the boundary between the Burntwood River and the Kelsey GS Area (includes Grass River and Split Lake).

## What was found?

A total of 354 Lake Sturgeon were caught in the Upper Split Lake Area in 2017. The majority (298) were classified as adults because they measured longer than 800 mm and 105 of these fish were expected to spawn in the current year - the highest number of spawners captured since studies began in 2001. One hundred and fourteen fish were recaptures of fish tagged in previous years. Of these recaptured fish, all were originally tagged in the Upper Split Lake Area, except four fish that were tagged downstream in the Nelson River between Birthday Rapids and Gull Rapids, and one that was tagged upstream in the Nelson River near the mouth of the Landing River (a tributary to the Nelson River approximately 90km upstream of Kelsey, and then 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: the Burntwood River between First Rapids and Split Lake, and the Kelsey GS Area (including the upstream end of Split Lake, the Grass River and the Nelson River to Split Lake). 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, based on information gathered to date. In 2017, the Burntwood River population was estimated at 561 fish, which is comparable to the updated 2015 estimate of 579 fish. Annual survival (chance of living year to year) of the Burntwood River population was 88%, similar to the survival of other populations on the lower Nelson River. The Kelsey GS Area population in 2017 was estimated at 592 individuals, which is comparable to the updated 2015 estimate of 580 fish. Annual survival of Kelsey GS Area sturgeon was 81%, which is lower than other Nelson River populations, but higher than the last survival estimate of 75% in 2015. As more data are collected and added to the model, the population estimates get more precise and accurate. 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 (and was thought to be dead), is captured again.

The condition factor (a measure of how fat a sturgeon is at a given size) was similar to previous years for sturgeon of all sizes in the Burntwood River. In the Kelsey GS Area, most sturgeon had similar condition factors to previous years, but a few of the smaller size ranges were thinner than in previous years. Overall, the condition factors of all the sturgeon were within the range seen elsewhere on the lower Nelson River.



Measuring (left) and PIT tagging (right) an adult Lake Sturgeon.

**What does it mean?**

The population estimate for both the Burntwood River and Kelsey GS populations has fluctuated from year-to-year. Population estimates can vary over time because not all sturgeon come to spawning areas each year. It can also be affected by unreported harvests of tagged fish which can cause a population estimate to be higher than the actual population of fish in an area. Continued monitoring will allow us to see if fluctuations will continue or if patterns will start to emerge. Currently, the model shows that the population size in both areas is similar to that measured in 2015. Condition factors have not changed much since studies began and fish captured before the construction of the Keeyask GS have similar condition factors to those captured after construction began.

**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 sturgeon generally occur slowly, unless a large number of sturgeon 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.

# ACKNOWLEDGMENTS

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

The following members of Tataskweyak Cree Nation (TCN), War Lake First Nation (WLFN), and York Factory First Nation (YFFN) are thanked for their local expertise and assistance in conducting the field work: Michael John Garson, Kelvin Kitchekeesik, and Peter Beardy of TCN, Tim Flett of WLFN, and Donovan Flett of YFFN.

The collection of biological samples described in this report was authorized by Manitoba Conservation and Water Stewardship, Fisheries Branch, under terms of the Scientific Collection Permit #09-17.

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# TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION .....</b>	<b>1</b>
<b>2.0</b>	<b>STUDY SETTING.....</b>	<b>4</b>
2.1	CONSTRUCTION SUMMARY.....ERROR! BOOKMARK NOT DEFINED.	
2.2	FLOWS AND WATER LEVELS .....	5
<b>3.0</b>	<b>METHODS.....</b>	<b>6</b>
3.1	GILLNETTING.....	6
3.2	DATA ANALYSIS .....	7
3.3	POPULATION ESTIMATION .....	8
<b>4.0</b>	<b>RESULTS.....</b>	<b>9</b>
4.1	BURNTWOOD RIVER .....	9
4.1.1	Relative Abundance/CPUE.....	9
4.1.2	Biological Metrics .....	9
4.1.3	Movements.....	10
4.1.4	Population Estimation.....	11
4.2	KELSEY GS AREA .....	11
4.2.1	Relative Abundance/CPUE.....	11
4.2.2	Biological Metrics .....	12
4.2.3	Movements.....	12
4.2.4	Population Estimation.....	13
<b>5.0</b>	<b>DISCUSSION .....</b>	<b>14</b>
5.1	EVALUATION OF METHODOLOGY .....	14
5.2	ADULT LAKE STURGEON ABUNDANCE.....	14
5.3	SPAWNING .....	15
5.4	SIZE DISTRIBUTION AND CONDITION FACTOR .....	15
5.5	MOVEMENT .....	16
5.6	KEY QUESTIONS.....	17
5.7	NEXT STEPS.....	18

<b>6.0</b>	<b>SUMMARY AND CONCLUSIONS .....</b>	<b>19</b>
<b>7.0</b>	<b>LITERATURE CITED .....</b>	<b>21</b>

# LIST OF TABLES

Table 1:	Number of fish, by species, captured during adult Lake Sturgeon population monitoring in the Burntwood River (29 May – 4 July) and the Kelsey GS Area (29 May – 4 July), spring 2017.....	25
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 2001–2017..	26
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 2017. ....	27
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, 2001–2017.....	28
Table 5:	Sex and maturity data for Lake Sturgeon captured in the Upper Split Lake Area during adult population monitoring, spring, 2001–2017.....	29
Table 6:	Recapture data for Lake Sturgeon captured in the Upper Split Lake Area during adult population monitoring, spring, 2002–2017. ....	30

# LIST OF FIGURES

Figure 1:	Mean daily water temperature in the Burntwood River mainstem, 29 May – 4 July, 2017. ....	32
Figure 2:	Length-frequency distribution for Lake Sturgeon captured in large mesh gill nets set in the Burntwood River, spring 2017.....	33
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) and construction monitoring (blue bars).....	34
Figure 4:	Length-weight regression for Lake Sturgeon captured in large mesh gill nets set in the Burntwood River, spring 2017.....	35
Figure 5:	Adult Lake Sturgeon abundance estimates based on POPAN best model (left y-axis) and population growth estimates based on the Pradel Lambda model (right y-axis) for the Burntwood River (2001–2017). k.....	36
Figure 6:	Mean daily water temperature in the Kelsey GS Area, 29 May – 4 July, 2017.....	37
Figure 7:	Length-frequency distribution for Lake Sturgeon captured in large mesh gill nets set in the Kelsey GS Area, spring 2017.....	38
Figure 8:	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).....	39
Figure 9:	Length-weight regression for Lake Sturgeon captured in large mesh gill nets set in the Kelsey GS Area, spring 2017.....	40
Figure 10:	Adult Lake Sturgeon abundance estimates based on POPAN best model (left y-axis) and population growth estimates based on the Pradel Lambda model (right y-axis) for Kelsey GS Area (2001–2017). ....	41
Figure 11:	2017 daily water level compared to average water level (1954 to 2016) in Split Lake.....	42

# LIST OF MAPS

Map 1:	Map of the Keeyask Study Area.....	44
Map 2:	Map of the Upper Split Lake Area Study Area. Red line demarcates Burntwood River from Kelsey GS Area .....	45
Map 3:	Sites fished with large mesh gill net gangs in the Burntwood River between First Rapids and Split Lake, spring 2017.....	46
Map 4:	Sites fished with large mesh gill net gangs in the Kelsey GS Area, spring 2017.....	47

# LIST OF APPENDICES

Appendix 1:	Tagging and biological information for Lake Sturgeon captured in the Upper Split Lake Area in spring 2017.....	49
Appendix 2:	Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake area during spring 2017. ....	59
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. ....	84
Appendix 4:	Population estimate information .....	88

# 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 during the construction and operational phases of the Project. The AEMP focuses on several components of the aquatic environment, including the fish community, and in particular, Lake Sturgeon. The AEMP study area for Lake Sturgeon encompasses the reach of the Nelson River from Kelsey GS to Kettle GS, as well as waterbodies immediately adjacent to the Nelson River (Map 1).

The Lake Sturgeon section in the AEMP lists four programs:

- Adult population monitoring – includes estimation of adult population size, condition factor and growth;
- Juvenile population monitoring – includes growth, condition factor and year-class-strength;
- Spawn monitoring – includes location, number and sex of spawning fish; and
- Movement monitoring – includes local movements (habitat use) and coarse scale movements between waterbodies.

Adult population monitoring studies were initiated in 2001. Two areas were considered:

- The area that would be directly affected by the Project, which includes 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 sturgeon in Gull Lake are a separate

population from sturgeon 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 measure<sup>1</sup>.

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 2008; MacDonald 2009; 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). 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 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 sturgeon movements. Mark-recapture data also have been used to develop adult abundance estimates for populations in the Upper Split Lake Area and in the Nelson River between Clark Lake and Gull Rapids. It has not been possible to develop an estimate for Stephens Lake because too few fish have been captured. The last population estimate for the Upper Split Lake Area was derived in 2015 (Henderson *et al.* 2016).

This report presents results of the adult Lake Sturgeon population monitoring conducted in the Upper Split Lake Area in spring 2017 (Map 2) and compares these results to previous years. Although data from the adult population in the Upper Split Lake Area have been collected since 2001, 2017 represents just the second year that separate population estimates were calculated for the Burntwood River Area and the Kelsey GS Area (*i.e.*, Nelson River below the Kelsey GS, the Grass River, and the upper reaches of Split Lake). These two areas were considered separately because: (i) genetic analysis indicated that Lake Sturgeon populations in the two areas are somewhat distinct (Gosselin *et al.* 2016); and (ii) the number of fish captured in the Kelsey GS Area has increased. Although the population estimate was previously combined, the methodology used allows for re-calculation of the estimates for each area for the entire period of study (back to 2001).

This report presents results of the second 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 during the field program address the adult population monitoring program and also provides 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:

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

- Is there a biologically relevant (and statistically significant) change in the rate of population growth for the Upper Split Lake Area population?
- 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? Over the long term, is there a measureable 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 (see adult movement report). 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 population monitoring in 2017 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 m<sup>3</sup>/s prior to diversion to 849.0 m<sup>3</sup>/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.

## 2.1 FLOWS AND WATER LEVELS

Inflow into Spit Lake from May to mid-August 2017 exceeded the 95<sup>th</sup> percentile flow and during the spring melt in May 2017, the flows rose to near the historical maximum flow observed in August 2005. These high inflows were due in large part to the Nelson River. On the Burntwood River, flows peaked at record levels in mid-May and then rapidly declined to somewhat below median levels by mid-June. Flows remained near median levels for the remainder of the study to early July.

## 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 (Maps 3 and 4). Gill nets were set in the Burntwood River and Kelsey GS Area between May 29 and July 4, 2017.

Gillnet gangs consisted of two or four 25 yd (22.9 m) long, 2.7 yd (2.5 m) deep panels of a combination 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 included one panel of each mesh size, attached to each other in a manner such that sequential net sizes were avoided. Equal numbers of all mesh sizes were set in order to maintain a consistent and quantifiable effort. 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;  $\pm 1$  mm), weighed (with a digital hand-held hanging scale, hand-held conventional scale, or pan scale  $\pm 1$  lb), and externally marked with individually numbered plastic Floy<sup>®</sup>-GD-94 T-bar anchor tag (Floy tag). Floy<sup>®</sup> tags were inserted between the basal pterygiophores of the dorsal fin using a Dennison<sup>®</sup> Mark II tagging gun. In addition to the external tag, each sturgeon had an individually numbered Passive Integrated Transponder (PIT) tag (Oregon RFID Ltd., Portland Oregon) injected under the third dorsal scute using Oregon<sup>®</sup> RFID tag injector needles, dipped in Polysporin<sup>®</sup> 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<sup>®</sup> 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

4 – spent (post-spawn)

11 – unknown

Male (M)

7 – maturing to spawn (pre-spawn)

8 – ripe

9 – spent (post-spawn)

11 – unknown

Species other than Lake Sturgeon were measured for FL (TL for Freshwater Drum), weighed, and released.

## 3.2 DATA ANALYSIS

Mean FL (mm), weight (g), and condition factor (K) were calculated for all first-time captures and recaptured fish 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 interval for adult Lake Sturgeon. Condition factor for baseline data (2001–2013) was then compared to the first two years of monitoring data (2015 and 2017), 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 distribution 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 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:

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

Where:

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

Lake Sturgeon that were tagged in a previous year and recaptured in 2017 were included in all analyses; however, current-year recaptures (*i.e.*, those captured multiple times within the same sampling year) were not.

### 3.3 POPULATION ESTIMATION

Before 2015, mark-recapture estimates were calculated for the Upper Split Lake Area as a whole. Starting in 2015, captured fish were split into two groups: fish collected during the spring of 12 different years from the Burntwood River (2001, 2002, 2005–2007, 2009–2013, 2015 and 2017); and 10 different years for the Kelsey GS Area (2001, 2002, 2005–2007, 2009, 2011, 2013, 2015 and 2017). All data for the period 2001–2013 were collected as part of environmental studies related to the pre-construction environment, while data from 2015 until 2043 has been, and will be, collected as part of monitoring studies related to the Keeyask Project (construction and post-construction monitoring).

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 the Burntwood River and the Kelsey GS Area.

Detailed methods can be found in Appendix 4.

## 4.0 RESULTS

In total, 388 individual fish, comprised of eight species, were captured in large mesh gill nets set in the Upper Split Lake Area during spring 2017 (Table 1). Of these, 354 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 Appendix 2.

### 4.1 BURNTWOOD RIVER

#### 4.1.1 RELATIVE ABUNDANCE/CPUE

Gill nets were set at 78 sites in the Burntwood River between May 29 and July 4, 2017 (Table 2; Map 3). Water temperature increased from 7 to 16°C over the duration of the study (Figure 1). A total of 221 fish, comprised of six species, were captured in the Burntwood River, the majority of which (94%) were Lake Sturgeon (Table 1). A total of 207 Lake Sturgeon were captured over 7,726 gillnetting hours, resulting in an overall CPUE of 0.64 LKST/91.4 m net/24 h, ranging from 0.0–6.0 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 5,717 hours (Map 3; Table 3). CPUE was also highest in this zone (Map 3; Table 3). Overall CPUE by zone was:

- BWR-A = 0.84 LKST/91.4 m net/24 h;
- BWR-B = 0.07 LKST/91.4 m net/24 h; and
- BWR-C = 0.12 LKST/91.4 m net/24 h (Table 3).

The first Lake Sturgeon was captured on May 31, when the water temperature measured 7.5°C, and the last Lake Sturgeon was captured on the final day of sampling on July 4, when the water temperature measured 16°C (Figure 1; Appendix 1). The catch peaked on June 7 ( $n = 28$ ) when water temperature was 12°C (Figure 1; Appendices 1 and 2).

#### 4.1.2 BIOLOGICAL METRICS

Lake Sturgeon captured in the Burntwood River had a mean FL of 931 mm (range: 336–1,457 mm), a mean weight of 7,305 g (range: 295–26,308 g) and a mean condition factor of 0.80 (range: 0.41–1.20) (Table 4). Of the 207 Lake Sturgeon captured during the study, 171 were considered adults (FL > 800 mm) and 36 were considered juveniles. Lake Sturgeon in the 900–949 and 950–999 mm FL intervals were captured most frequently ( $n = 73$ ), making up 35% of the total and 49% of the adult Lake Sturgeon catch (Figure 2).

Mean condition factor of adult Lake Sturgeon did not differ significantly between baseline (2001–2013) and construction (2015 and 2017) for any of the 12 FL intervals compared (Mann Whitney U test,  $P > 0.05$ ; Figure 3). The length-weight relationship of Lake Sturgeon in the Burntwood River is presented in Figure 4.

Sex and maturity were determined for 96 individuals, 16 of which were current year recaptures (captured more than once in 2017) whose maturity status progressed between captures (e.g., a fish was initially captured in pre-spawn condition and recaptured in ripe or spent condition) (Table 5). These included 26 pre-spawn, 77 ripe, and seven spent males, and two ripe females (Table 5). Sexually mature sturgeon were captured in zones BWR-A and BWR-B. Seven mature fish (Floy tag #74334/74335 [female], #108630 [female], #46405 [male], #75462 [male], #80070 [male], #108639 [male] and #108646 [male]) were used as broodstock for the Project's stocking program. Details on gamete collection, egg fertilization, egg transport, hatch, larval rearing, and stocking can be found in Klassen *et al.* 2018.

### 4.1.3 MOVEMENTS

PIT tags were applied to all 132 newly-captured Lake Sturgeon in the Burntwood River, while 131 fish received Floy® tags (one fish was released before being Floy® tagged) (Appendix 1). The remaining 75 fish had been previously PIT or Floy® tagged (or both). Two of these 75 fish (Floy® tags #89038/89039 and #103785) were hatchery fish released into the Burntwood River in 2014; these fish were implanted with PIT tags before release from the hatchery but had not been previously captured in gill nets (Appendix 2). The remaining 73 fish (35% of the total catch) were captured and tagged in a previous year (Table 6, Appendix 2), including:

- 51 originally tagged in the Burntwood River between 2001 and 2015:
  - 49 of which had only been captured in the Burntwood River.
  - Two of which were recaptured in both the Burntwood River and the Kelsey GS Area:
    - #46405 was tagged in the Burntwood River in 2001. It was recaptured multiple times in the Burntwood River between 2002 and 2013 and was recaptured in both the Burntwood River and the Kelsey GS Area in 2017.
    - #87943 was tagged in the Burntwood River in 2010, recaptured in the Kelsey GS Area in 2011, and recaptured multiple times in the Burntwood River between 2012 and 2017.
- 12 originally tagged in the Kelsey GS Area between 2001 and 2013 (Map 4):
  - Eleven of which (Floy® Tags #49026, #74796, #79554, #82334/82335, #89458, #94135, #98643, #98977, #98992, #108603, and #108639) had only been recaptured in the Burntwood River.

- One of which (Floy® Tag #74834) had been recaptured in both the Burntwood River and Kelsey GS Area.
- Six (Floy® tags #74305/74306, #75461, #75462, #76829, #89362, and #89872) originally tagged in the Odei River (Map 2) between 2005 and 2011.
- Four (Floy® tags #74332/74333, #74335, #91364, and #108606) originally tagged in zone SPL-A (upper Split Lake) of the Kelsey GS Area (Map 3) between 2005 and 2015.

#### 4.1.4 POPULATION ESTIMATION

The population estimate for the Burntwood River in 2017 was 561 individuals (range: 447–704), which was greater than the 95% confidence limits of estimates from between 2001 and 2009, but within the 95% confidence limits of estimates from between 2010 and 2015 (Figure 5; Appendix 3). The population lambda (growth rate) in 2017 was less than one (0.98), however the 95% confidence interval extended to an upper limit of 1.11 (Figure 5; Appendix 3). A population lambda of 1 indicates a stable population; however, given the distribution of the estimate there is a 62% probability that the population is decreasing and a 38% probability that the population is increasing. Annual survival rate was estimated to be 88% (Appendix 3).

## 4.2 KELSEY GS AREA

### 4.2.1 RELATIVE ABUNDANCE/CPUE

Large mesh gill nets were set at 63 sites in the Kelsey GS Area between May 29 and July 4, during which time water temperatures ranged from 9 to 16°C (Table 2; Figure 6; Map 4). A total of 162 fish were captured, comprised of seven fish species, the majority of which (91%) were Lake Sturgeon (Table 1). A total of 147 Lake Sturgeon were captured over 8,387 gillnet hours, resulting in an overall CPUE of 0.43 LKST/91.4 m net/24 h, ranging from 0.20–0.51 LKST/91.4 m net/24 h by zone (Table 2). Gillnetting effort was highest in zone KGS-A, the area downstream of the Kelsey GS including the Grass River (Map 4; Table 3). Overall CPUE by zone was:

- KGS-A = 0.51 LKST/91.4 m net/24 h;
- KGS-B = 0.20 LKST/91.4 m net/24 h;
- KGS-C = 0.18 LKST/91.4 m net/24 h;
- KGS-D = 0.51 LKST/91.4 m net/24 h; and
- SPL-A = 0.34 LKST/91.4 m net/24 h (Table 3).

The first Lake Sturgeon was captured on May 30 at a water temperature of 10°C, and the last on July 4 at a water temperature of 16°C (Figure 6; Appendices 1 and 2). The catch was highest on June 13 (n = 12) when water temperature measured 14°C (Figure 6; Appendices 1 and 2).

## 4.2.2 BIOLOGICAL METRICS

Lake Sturgeon captured in the Kelsey GS Area had a mean FL of 922 mm (range: 445–1,362 mm), a mean weight of 7,760 g (range: 454–24,948 g), and a mean condition factor of 0.93 (range: 0.51–1.34) (Table 4). Of the 147 Lake Sturgeon captured, 127 were classified as adults. Lake Sturgeon in the 850–899 and 900–949 mm FL intervals were captured most frequently (n = 52), comprising 35% of the total and 41% of the adult Lake Sturgeon catch (Figure 7).

Mean condition factor was higher during baseline monitoring than construction monitoring for three size classes between 900 and 1,049 mm FL (Figure 8). There were no significant differences in condition factors for any other size class. The length-weight relationship is presented in Figure 9.

Sex and maturity were determined for nine individuals, including seven ripe males and two spent males. The ripe males were captured in zones KGS-A and KGS-D (Map 4) between June 2 and 19, when water temperature measured between 11 and 14°C, while the spent males were captured in zones KGS-B and KGS-D on June 21 and 24, when the water temperature was 15°C (Map 4; Figure 6). No sexually mature females were captured in the Kelsey GS Area.

## 4.2.3 MOVEMENTS

Floy® tags and PIT tags were applied to all 105 untagged Lake Sturgeon. The remaining 42 fish (29% of the total catch) were recaptures tagged in a previous year (Table 6; Appendix 2), including:

- 29 originally tagged in the Kelsey GS Area between 2006 and 2013.
  - Eight had been captured multiple times since the original date of tagging; all recaptures occurred in the Kelsey GS Area.
- Seven originally tagged in the Burntwood River between 2006 and 2015, including one fish (#46405) that was recaptured in both the Burntwood River and the Kelsey GS Area in 2017 (Section 4.1.3).
- Five tagged downstream in the Nelson River between Clark Lake and Gull Rapids (Map 1):
  - One (Floy tag #105425) was tagged at Birthday Rapids (~65 km downstream of the Kelsey GS) in 2014.

- Four (Floy tags #86143, #87873, #100417, and #105692) were tagged in the future Keeyask Reservoir (~80–90 km downstream of the Kelsey GS) between 2008 and 2014.
- One (Floy tag #NE00934) tagged by Manitoba Fisheries Branch in the Nelson River approximately 90 km upstream of the Kelsey GS, near the mouth of the Landing River, in July 2011.

#### 4.2.4 POPULATION ESTIMATION

The 2017 population estimate for the Kelsey GS Area was 592 individuals (range: 440–797), which was above the 95% confidence limits of the 2002, 2009, and 2011 estimates, but within the 95% confidence limits of all other years (Figure 10; Appendix 3). The population lambda (growth rate) was 1.03, with a 95% confidence interval of 0.94–1.13. A population lambda of 1 indicates a stable population; however, given the distribution of the estimate there is a 29% probability that the population is decreasing and a 71% probability that the population is increasing. The estimated annual survival rate was 81% (Figure 10; Appendix 3).

## 5.0 DISCUSSION

The main objective of long-term adult Lake Sturgeon population monitoring is to identify potential changes in abundance and condition factor. In addition, continued monitoring will identify long-term trends in survival, spawning, the effect of stocking (initiated in 2013), and whether coarse scale movement patterns have been altered. Population monitoring is planned to occur on a biennial basis in the Upper Split Lake Area 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. Analyses suggest that this methodology is working well for determining Lake Sturgeon abundance as estimates have not fluctuated greatly between years and large numbers of outliers (*i.e.*, large increases in untagged fish) have not been observed. In 2017, CPUE was high in both the Burntwood River and Kelsey GS areas, with higher CPUEs only occurring in 2012 for the Burntwood River Area and 2013 for the Kelsey GS Area. In 2017, flows were extremely high (Figure 11); as a result some of the sites had to be changed from previous years, especially immediately downstream of First Rapids.

Since 2013, double tagging (Floy® and PIT) has been used to mark fish. This methodology is expected to improve confidence in the data set by reducing the probability that marked fish will be misidentified as unmarked fish due to Floy® tag loss. In 2017, seven fish were recaptured that 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. The inclusion of 25 tags from harvested Lake Sturgeon returned by local resource users since the last population estimate in 2015 also helped to refine the 2017 population estimate. When tagged fish are harvested and not reported, the population size is overestimated.

### 5.2 ADULT LAKE STURGEON ABUNDANCE

The 2017 population estimate for the Kelsey GS Area (592 individuals, 95% CI 440–797) was comparable to the updated estimate for 2015 (580 individuals). The population growth rate ( $\lambda$ ) indicates that there is a 71% probability that the population is increasing and a 29% probability that it is decreasing. The Burntwood River population estimate (561 individuals, 95% CI 447–704) was also comparable to the previous estimate in 2015 (579 individuals). However, the distribution of  $\lambda$  indicates that there is a 62% probability that the population is decreasing and a 38% probability of it increasing. Population estimates and  $\lambda$  values have fluctuated since 2001.

The population model was used to estimate a constant survival rate (*i.e.*, the proportion of the population that survives each year) for both the Kelsey and Burntwood populations (Appendix 3). The survival rate for the Burntwood population is 88%, which is comparable to the most recent survival rate (91%) calculated for the future Keeyask Reservoir/Stephens Lake in 2016 (Legge *et al.* 2017). The survival rate for the Kelsey population (81%) continues to be lower than that of other populations on the lower Nelson River. As mentioned in Henderson *et al.* (2016), the population viability analysis for the Keeyask population, which has similar growth patterns as the Kelsey population, indicated that populations are at increased risk of decline when the survival rate is less than 82.5%.

## 5.3 SPAWNING

A total of 105 Lake Sturgeon in spawning condition were captured in the Upper Split Lake Area in 2017, representing the highest number of spawners captured since the study began in 2001. The number of spawners in both the Burntwood River Area ( $n = 96$ ) and Kelsey GS Area ( $n = 9$ ) were more than double the numbers captured in any other year. In the Burntwood River Area, spawning sturgeon have been observed in 10 of the 11 previous years of sampling, representing between 22–69% of the total number of fish captured. In 2017, 46% of the captured sturgeon were in spawning condition, with the majority captured in the vicinity of First Rapids.

In the Kelsey GS Area, spawning Lake Sturgeon have been captured in only four of ten previous years of sampling, representing 2–7% of the total number captured. In 2017, 6% of the captured sturgeon were in spawning condition. As discussed in Henderson *et al.* (2016), fish may be spawning immediately below the Kelsey GS, as two spawning females have been captured in this location during previous studies (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.

## 5.4 SIZE DISTRIBUTION AND CONDITION FACTOR

In the Kelsey GS Area, the mean size of fish has not changed since 2015 (922 mm FL in both years), while in the Burntwood River Area, the mean size was lower than in 2015 (mean 931 mm FL in 2017 versus 971 mm in 2015). In both areas, fish smaller than 1,000 mm FL dominated the catch.

Condition factors of adult Lake Sturgeon captured during baseline studies and construction monitoring were similar for the majority of size classes in both the Burntwood River and the Kelsey GS areas. Mean condition factor was not significantly different between baseline and construction monitoring for any size classes in the Burntwood River. In the Kelsey GS Area, three size classes (900–949, 950–999, and 1,000–1,049 mm FL) had significantly higher

average condition factors during baseline studies than during construction. Similar changes were seen in 2015, when four size classes (850–899, 900–949, 950–999, and 1,000–1,049 mm FL) had significantly higher mean condition factors during baseline studies. Reasons for the decrease are not readily apparent and this trend will continue to be monitored in the coming years.

Mean adult Lake Sturgeon condition factors in this area (0.80–0.93) remain within the range typical for adult Lake Sturgeon populations in Manitoba (0.75–0.95).

## 5.5 MOVEMENT

A total of 405 Lake Sturgeon have been recaptured in the Upper Split Lake Area during spring population monitoring since 2001 (Table 6). The majority of recaptured sturgeon have not traveled far; most were tagged and recaptured in the same area (*i.e.*, those originally tagged in the Burntwood River were recaptured in the Burntwood River, and those originally tagged in the Kelsey GS Area were recaptured in the Kelsey GS Area). The majority of movements recorded between areas have been between the Burntwood River Area and the Kelsey GS Area.

For the third time since studies began in 2001, a Lake Sturgeon captured in the Kelsey GS Area was originally tagged upstream of the GS. The fish was tagged approximately 90 km upstream in the Nelson River at the mouth of the Landing River in 2011 (D. MacDonald, Fisheries Manager, Manitoba Sustainable Development, pers. comm.) and was recaptured in the Grass River, slightly upstream of the confluence with the Nelson River in 2017. The fish measured 889 mm total length in 2011 and 1,036 mm in 2017 (fork length was not measured in the initial capture). This fish is thought to have passed downstream via the spillway as the trashrack spacing (127 mm) at the Kelsey GS is thought to be too narrow to pass a sturgeon of this size. The other fish that have made this movement were tagged in 1996 and 2000 and recaptured in 2007 and 2013, respectively.

Only two fish tagged in the Upper Split Lake Area have been recaptured in the Keeyask Area since 2001. One of these fish was tagged in the Kelsey GS Area in 2011 (925 mm FL) and recaptured in Gull Lake in 2016 (970 mm FL) (Legge *et al.* 2017; Appendix 3), while the other was originally tagged in the Kelsey GS Area in 2007 (1,237 mm FL) and recaptured below Birthday Rapids in 2014 (1,331 mm FL) (Hrenchuk *et al.* 2015). Both of these fish exhibited no signs of spawning during initial capture or recapture (Appendix 3).

Upstream movement of fish from the Keeyask Area to the Upper Split Lake Area (specifically the Kelsey GS Area) has been more common (15 fish or 4% of total recaptures; Table 6). In 2017, five sturgeon originally tagged in the Clark Lake to Gull Lake reach of the Nelson River were recaptured in the Kelsey GS Area, representing 4% of the fish recaptured in 2017. Lake Sturgeon that have moved upstream from the Keeyask Area to the Upper Split Lake Area (specifically the Kelsey GS Area) are most often small adults (< 1,000 mm FL) and only one of these fish was in spawning condition when recaptured in the Upper Split Lake Area (Appendix 3). 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 between Upper Split Lake and the Keeyask Area. Acoustic telemetry data also suggest that the frequency of upstream movement from the Keeyask Area has not increased since construction began (Hrenchuk and Barth 2017).

## 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 Keeyask area population?*

The 2017 population estimates for both populations in the Upper Split Lake Area were comparable to the 2015 estimate. In terms of the population growth rate ( $\lambda$ ), there is a 71% probability that the Kelsey GS Area population is increasing and a 29% probability that it is decreasing. There is a 38% probability that the Burntwood Area population is increasing and a 62% probability that it is decreasing.

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

The best-fit model did not indicate a marked change in the survival rate during the course of the study. The survival rate for the Burntwood population is 88%, which is comparable to that observed in the Keeyask Area. The survival rate for the Kelsey population is 81%, which is lower than other populations in the lower Nelson River.

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

There were no significant differences in condition factor of sturgeon captured during baseline 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 fish measuring 900–1,049 mm, but there were no significant differences for any other size classes. Since 2017 represents only the second year of construction monitoring, further monitoring is necessary to see if the observed differences in condition factor are biologically relevant. It should be noted that the condition factor in Lake Sturgeon can vary considerably between years, and that condition factor from both areas continues to measure between 0.75 and 0.95, 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 2017, five sturgeon originally tagged in the Clark Lake to Gull Lake reach of the Nelson River were recaptured in the Kelsey GS Area, representing 4% of the fish recaptured in 2017. This is comparable to the overall rate noted since 2001.

## 5.7 NEXT STEPS

The 2017 adult Lake Sturgeon population monitoring results do not indicate a need to modify future field studies in the Upper Split Lake Area (scheduled for 2019). In 2018, adult Lake Sturgeon population monitoring is scheduled to occur in the Keeyask Area (future Keeyask reservoir and Stephens Lake). Methods will be same as employed in previous years.

Beginning in 2018, additional analyses will be conducted on the adult population monitoring data. Consistent sampling methodology for the population monitoring study was initiated in 2004. At the time that analyses in support of development of the AEMP were conducted, the number of sampling periods for the two areas (Upper Split Lake and Keeyask) was insufficient to provide reliable information on population trends, given between sampling period variation and a small number of sampling years. Since then, the multi-year record of mark/recapture data has been extended, and estimates have become more precise. Moving forward, statistical testing of population estimates will provide both short- and long-term tracking of changes in adult Lake Sturgeon population numbers in the future Keeyask reservoir and the Upper Split Lake Area. Population estimates (collected every two years) will be compared to estimates from the previous sampling period to determine whether a statistically significant change has occurred.

The adult population estimates will also be used to track the long-term population trajectory. To date, due to the relatively short record of population estimates,  $\lambda$  (population growth rate) was used as a measure of population trajectory.  $\lambda$  was calculated over the course of the full record of population estimates (beginning in the mid-1990s). As discussed above, there is now a long enough data record with consistent sampling protocols in the future Keeyask reservoir (since 2004) to analyse changes in population numbers. Thus, in 2018, statistical testing will be conducted to analyse long-term trends in population numbers. This will indicate if the population is increasing, decreasing, or has remained stable since sampling protocols became consistent (*i.e.*, 2004). A similar approach will be undertaken for the Upper Split Lake population.

## 6.0 SUMMARY AND CONCLUSIONS

- Population monitoring was conducted in spring 2017 to derive an adult Lake Sturgeon population estimate and examine size and condition of the Upper Split Lake Area sturgeon population.
- A total of 354 individual Lake Sturgeon were captured. Of these, 207 were caught in the Burntwood River, with 171 of these classified as adults. In the Kelsey GS Area, 147 Lake Sturgeon were captured, with 127 of these were classified as adults.
- The number of fish in spawning condition captured in 2017 was more than double the number captured during any other year of study in both the Burntwood River and Kelsey GS Area. Ninety-six Lake Sturgeon in spawning condition were captured in the Burntwood River, including 94 males and two females. In the Kelsey GS Area, nine males in spawning condition were captured.
- 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. A Lake Sturgeon tagged upstream of the Kelsey GS was recaptured downstream of the dam during the 2017 study. This fish moved downstream over 90 km and is the third record of a tagged sturgeon moving past the Kelsey GS. Since studies began in 2001, 15 adult Lake Sturgeon have moved from between Clark Lake and Gull Rapids 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.
- 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 2017 population estimate for the Kelsey GS Area (592 individuals, 95% CI 440–797) was comparable to the 2015 estimate (580 individuals). Given the distribution of the population growth rate,  $\lambda$ , there is a 71% probability that the population is increasing and a 29% probability that it is decreasing. The Burntwood River estimate (561 individuals, 95% CI 447–704) was also comparable to the previous estimate in 2015 (579 individuals). The distribution of the population growth rate indicates that the population has a 38% probability of increasing and a 62% probability of decreasing.

- *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 during the course of the study. The survival rate for the Burntwood population was 88%, comparable to that observed in the Keeyask Area from 2001–2016. The survival rate for the Kelsey population was 81%, which is lower than other populations in the lower Nelson River.

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

Condition factor of sturgeon captured during baseline monitoring and construction were similar for all size classes in the Burntwood River. However, mean condition factor was significantly lower than baseline for three size classes of adults measuring < 1,050 mm FL in the Kelsey GS Area (900–949, 950–999, and 1,000–1,049 mm FL). Future monitoring will determine if this trend continues. It should be noted, however, that the condition factor in Lake Sturgeon can vary considerably between years, and that condition factor from both areas continues to measure between 0.75 and 0.95, 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 2017, five sturgeon originally tagged in the Clark Lake to Gull Lake reach of the Nelson River were recaptured in the Kelsey GS Area, representing 4% of the fish recaptured in 2017. This is comparable to the overall rate noted since 2001.

- In 2018, adult Lake Sturgeon population monitoring is scheduled to occur in the Keeyask Area (future Keeyask reservoir and Stephens Lake). Methods will be same as employed in 2017, however, additional analyses will be conducted.
  - Statistical testing of population estimates will be used to provide both short- and long-term tracking of changes in adult Lake Sturgeon population numbers in the future Keeyask reservoir (2018) and the Upper Split Lake Area (2019).

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## TABLES

**Table 1: Number of fish, by species, captured during adult Lake Sturgeon population monitoring in the Burntwood River (29 May – 4 July) and the Kelsey GS Area (29 May – 4 July), spring 2017.**

Species	Scientific Name	Abbreviation	Burntwood River	Kelsey GS Area	Total
Channel Catfish	<i>Ictalurus punctatus</i>	CHCT	-	1	1
Common Carp	<i>Cyprinus carpio</i>	CMCR	1	4	5
Freshwater Drum	<i>Aplodinotus grunniens</i>	FRDR	2	2	4
<b>Lake Sturgeon</b>	<b><i>Acipenser fulvescens</i></b>	<b>LKST</b>	<b>207</b>	<b>147</b>	<b>354</b>
Northern Pike	<i>Esox lucius</i>	NRPK	6	6	12
Shorthead Redhorse	<i>Moxostoma macrolepidotum</i>	SHRD	-	1	1
Walleye	<i>Sander vitreus</i>	WALL	2	1	3
White Sucker	<i>Catostomus commersonii</i>	WHSC	3	-	3
<b>Total</b>			<b>221</b>	<b>162</b>	<b>383</b>

**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 2001–2017. All CPUE values have been standardized to 91.4 m (100 yd), the most common adult Lake Sturgeon net length (previous years reports had reported values standardized to 50 yd net lengths).**

Location	Year	# Sites	Total # Lake Sturgeon <sup>1</sup>	Total CPUE
Burntwood River	2001	26	23	0.28
	2002	30	16	0.38
	2005	18	14	0.18
	2006	16	37	0.34
	2007	27	60	0.24
	2009	21	70	0.54
	2010	15	30	0.42
	2011	29	65	0.50
	2012	19	29	1.18
	2013	79	123	0.38
	2015	67	109	0.44
	<b>2017</b>	<b>78</b>	<b>207</b>	<b>0.64</b>
Kelsey GS Area <sup>2</sup>	2001	44	13	0.12
	2002	26	5	0.06
	2005	20	7	0.10
	2006	56	29	0.08
	2007	78	69	0.13
	2009	61	48	0.24
	2010	5	1	0.10
	2011	50	50	0.20
	2013	150	125	0.42
	2015	98	147	0.38
	<b>2017</b>	<b>63</b>	<b>147</b>	<b>0.43</b>

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 2017.**

Location	Zone	# Sites	Total # Lake Sturgeon <sup>1</sup>	Total Gillnet Hours	Total CPUE
Burntwood River	BWR-A	53	200	5717	0.84
	BWR-B	17	4	1418	0.07
	BWR-C	8	3	591	0.12
Kelsey GS Area	KGS-A	20	73	3454	0.51
	KGS-B	8	4	480	0.20
	KGS-C	8	6	788	0.18
	KGS-D	17	43	2043	0.51
	SPL-A	10	21	1504	0.34

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, 2001–2017.**

Location	Year	Fork Length (mm)				Weight (g)				K		
		n <sup>1</sup>	Mean	Std <sup>2</sup>	Range	n <sup>1</sup>	Mean	Std <sup>2</sup>	Range	n <sup>1</sup>	Mean	Range
Burntwood River	2001	23	945	189	600–1436	22	6620	3279	1600–15600	22	0.76	0.46–1.04
	2002	15	982	173	644–1315	16	9227	5716	2200–22000	15	0.81	0.71–0.92
	2005	14	1002	146	838–1310	14	9542	5637	4990–22226	14	0.86	0.70–1.01
	2006	37	1014	148	734–1325	37	9654	5030	3629–23133	37	0.86	0.66–1.02
	2007	59	984	159	354–1362	57	9179	4324	2727–25000	57	0.88	0.71–1.12
	2009	69	965	156	485–1360	69	8263	3864	907–21772	68	0.85	0.56–1.09
	2010	30	919	166	242–1100	28	6520	2277	1361–10886	28	0.76	0.52–1.11
	2011	63	987	133	641–1350	63	8686	4066	2100–25855	63	0.85	0.57–1.10
	2012	29	966	76	809–1105	26	7820	1874	4082–12701	26	0.87	0.71–1.11
	2013	119	942	173	560–1720	122	7714	6025	1247–54658	119	0.76	0.47–1.07
	2015	109	971	152	260–1341	107	8756	3321	1588–22906	107	0.89	0.70–1.35
	<b>2017</b>	<b>206</b>	<b>931</b>	<b>178</b>	<b>336–1457</b>	<b>201</b>	<b>7305</b>	<b>3901</b>	<b>295–26308</b>	<b>200</b>	<b>0.80</b>	<b>0.41–1.20</b>
Kelsey GS Area	2001	13	940	198	692–1423	12	8334	6522	3200–26000	12	0.92	0.81–1.09
	2002	5	963	144	774–1130	5	9370	5549	4300–18500	5	0.97	0.77–1.28
	2005	7	841	78	737–960	7	5520	1582	3182–7500	7	0.90	0.77–1.01
	2006	29	936	168	698–1346	29	8904	6070	3402–27216	28	0.98	0.69–1.48
	2007	60	906	185	605–1475	56	7565	5988	1588–33112	56	0.88	0.54–1.15
	2009	44	886	122	688–1295	44	7093	3074	3175–19958	44	0.98	0.63–1.26
	2010	1	-	-	955	1	-	-	7711	1	-	0.89
	2011	46	890	148	292–1403	46	7753	3597	702–24040	46	1.02	0.70–1.46
	2013	122	911	145	270–1438	121	8035	4056	75–26082	121	0.99	0.38–2.20
	2015	147	922	133	225–1330	146	7159	2895	200–21999	144	0.84	0.36–1.76
	<b>2017</b>	<b>147</b>	<b>922</b>	<b>139</b>	<b>445–1362</b>	<b>147</b>	<b>7760</b>	<b>3598</b>	<b>454–24948</b>	<b>147</b>	<b>0.93</b>	<b>0.51–1.34</b>
Grass River <sup>3</sup>	2007	9	1191	248	840–1640	9	21747	13902	6804–49895	9	1.14	0.89–1.36
	2009	3	1310	382	910–1670	2	29257	32395	6350–52163	2	0.74	0.56–0.91
	2011	4	1353	335	888–1650	4	32432	19811	9979–19811	4	1.19	0.97–1.43
	2013	2	935	3	932–937	2	7598	340	7257–7938	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, 2001–2017.**

Location	Year	Sex and Maturity <sup>3</sup>						# of spawners	Unknown maturity	Total 1
		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	-	-	-	10(8)*	29	37
	2007	9	4	4	-	-	-	17(15)*	45	60
	2009	7	24	2	-	-	-	33(30)*	40	70
	2010	12	4	-	-	-	-	16	14	30
	2011	9	30	1	-	-	-	40	25	65
	2012	10	12	-	-	-	-	22(20)*	9	29
	2013	18	27	5	1	1	.	52	71	123
	2015	16	28	-	1	-	-	45(43)*	66	109
	2017	26	77	7	-	2	-	112(96)*	111	207
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
Grass River <sup>2</sup>	2007	-	-	1	-	-	-	1	8	9
	2009	-	-	1	-	-	-	1	2	3
	2011	-	1	-	-	-	-	1	3	4
	2013	-	1	-	-	-	-	1	1	2

- Does not include fish recaptured in the same waterbody in the season/year in which they were tagged.
- Data analyzed separately for fish captured in the Grass River during these years.
- Maturity codes were as follows:

Female (F)

2 – maturing to spawn (pre-spawn)  
 3 – ripe  
 4 – spent (post-spawn)  
 11 – unknown

Male (M)

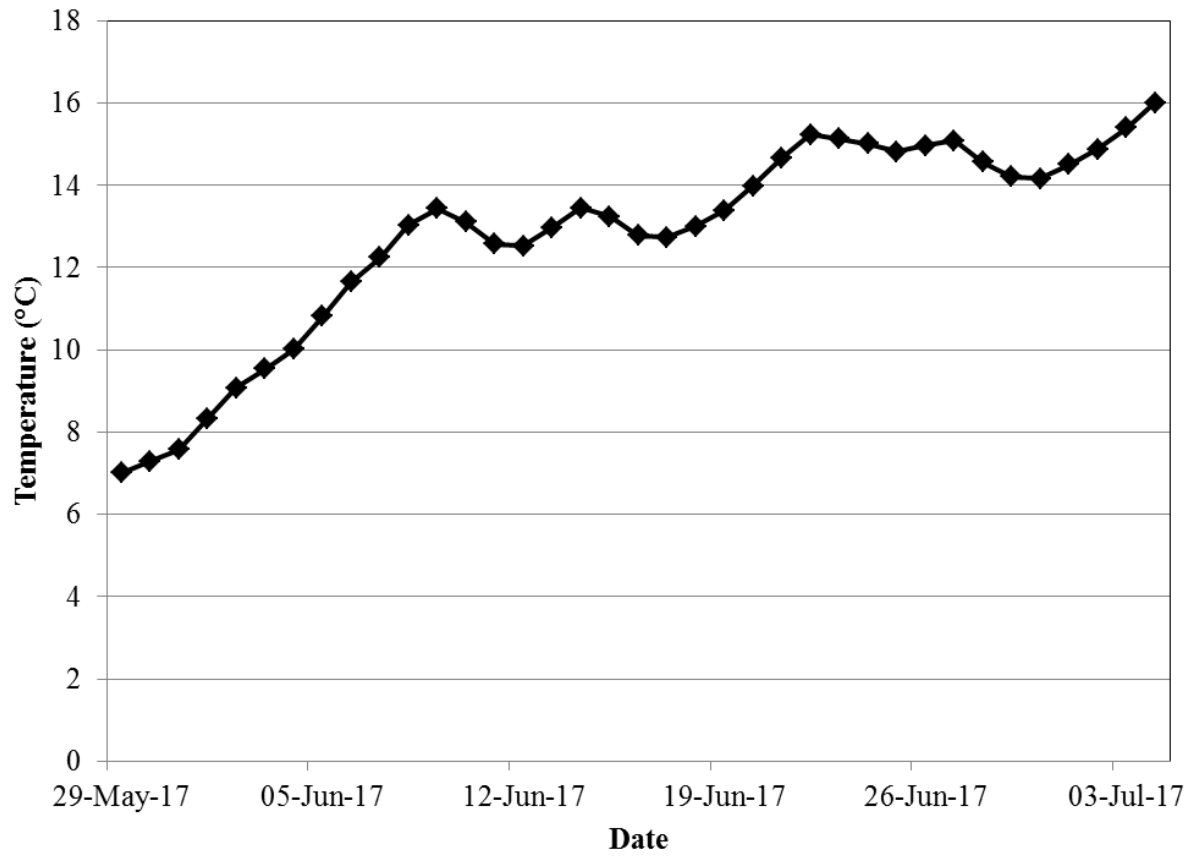
7 – maturing to spawn (pre-spawn)  
 8 – ripe  
 9 – spent (post-spawn)  
 11 – unknown

- \* Maturity status columns include recaptures of fish whose maturity status progressed between captures (e.g., would include recaptures of fish initially captured in maturing condition and recaptured in ripe or spent condition). Number in brackets indicates the total number of individual spawners captured.

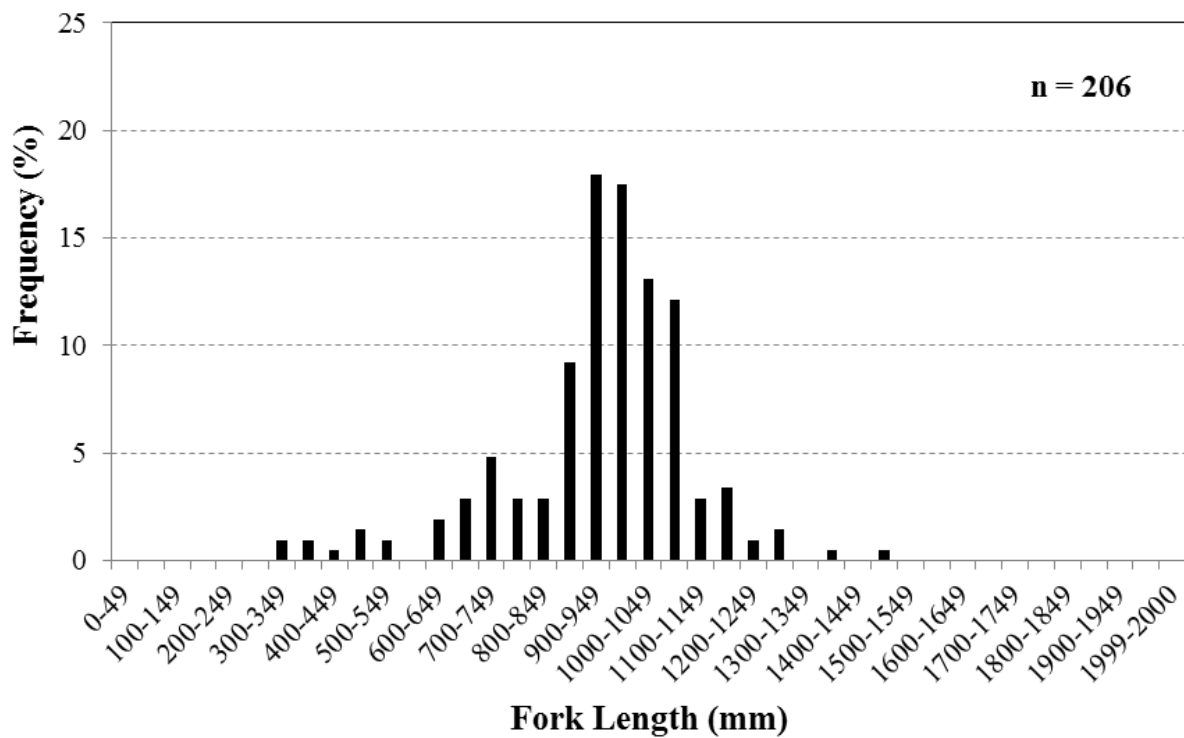
**Table 6: Recapture data for Lake Sturgeon captured in the Upper Split Lake Area during adult population monitoring, spring, 2002–2017.**

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

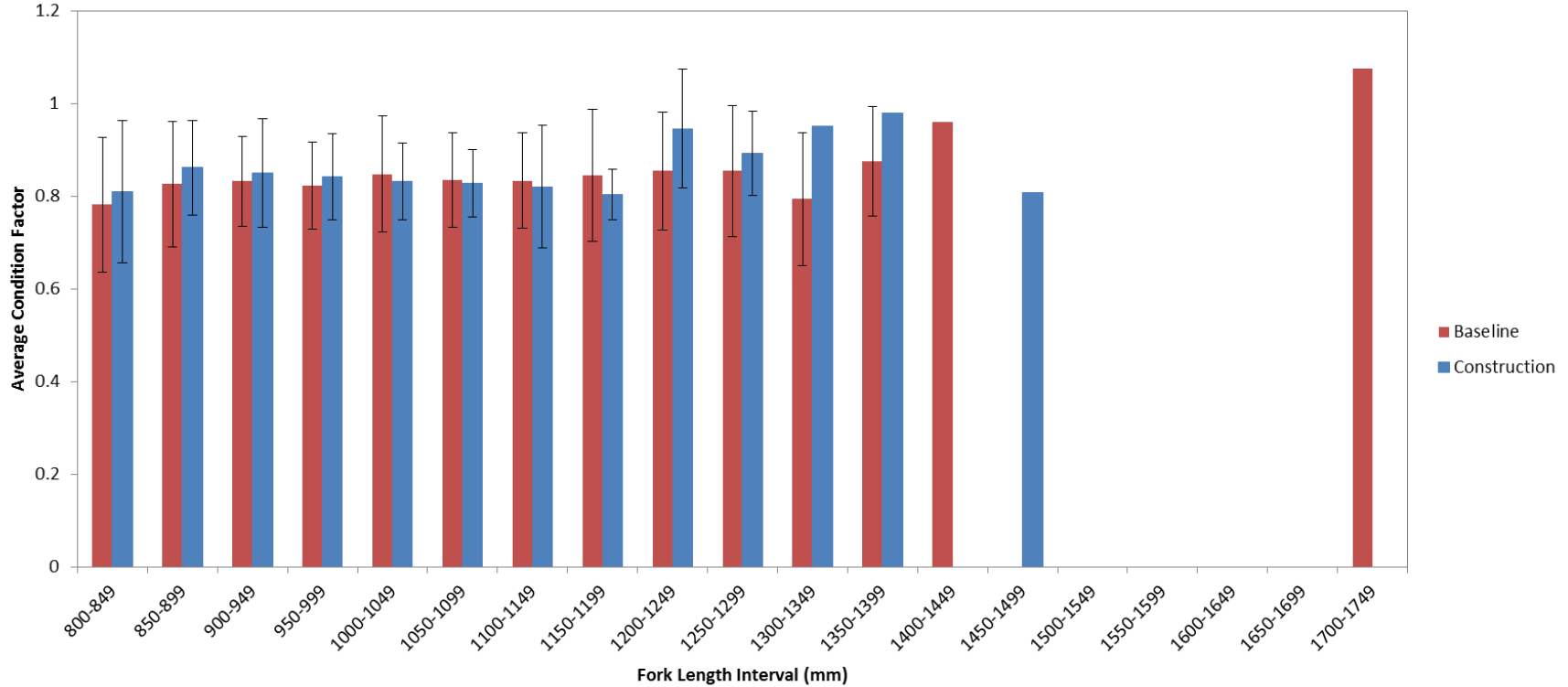
## FIGURES



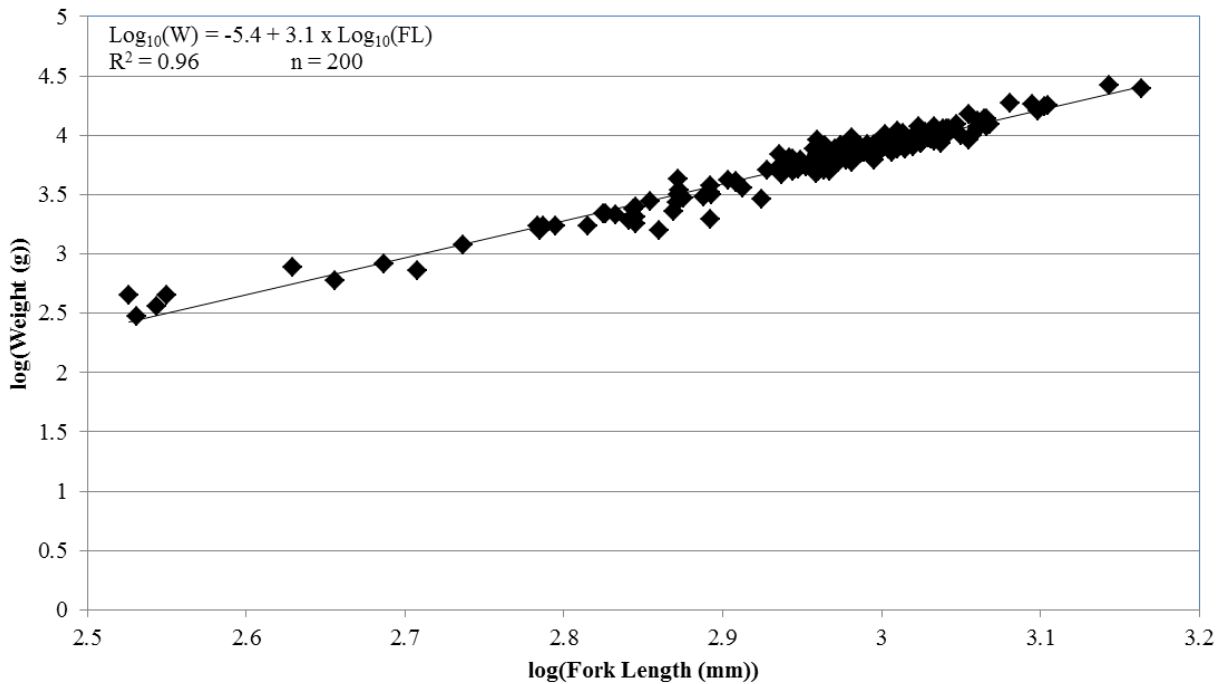
**Figure 1:** Mean daily water temperature in the Burntwood River mainstem, 29 May – 4 July, 2017.



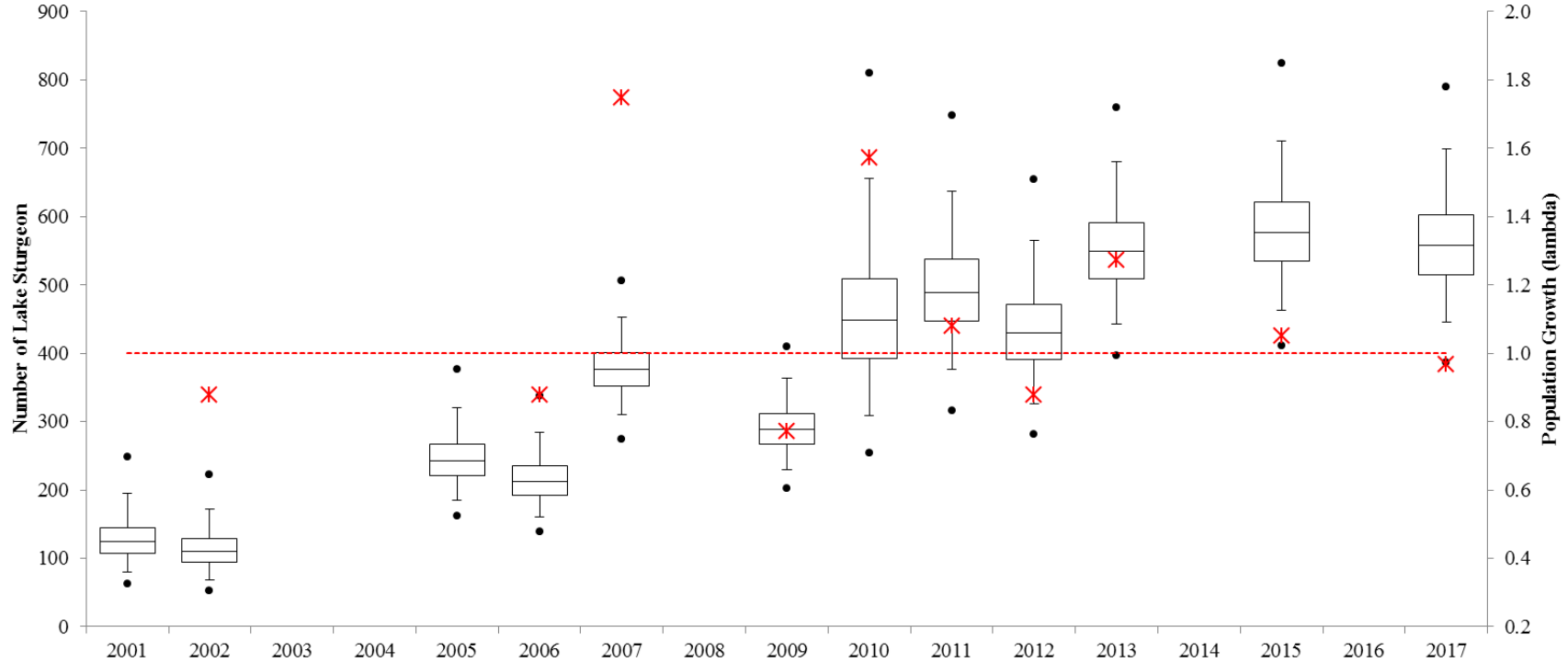
**Figure 2:** Length-frequency distribution for Lake Sturgeon captured in large mesh gill nets set in the Burntwood River, spring 2017.



**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) and construction monitoring (blue bars). 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 2017.



**Figure 5:** Adult Lake Sturgeon abundance estimates based on POPAN best model (left y-axis) and population growth estimates based on the Pradel Lambda model (right y-axis) for the Burntwood River (2001–2017). Results of the POPAN abundance estimate are presented in black. 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. Results of the Pradel Lambda population growth analysis are presented in red. The population lambda (*i.e.*, growth rate) is represented by an asterisk. The dotted line represents zero population growth (equilibrium), therefore lambda values above this line represent population growth, and those below represent population decline.

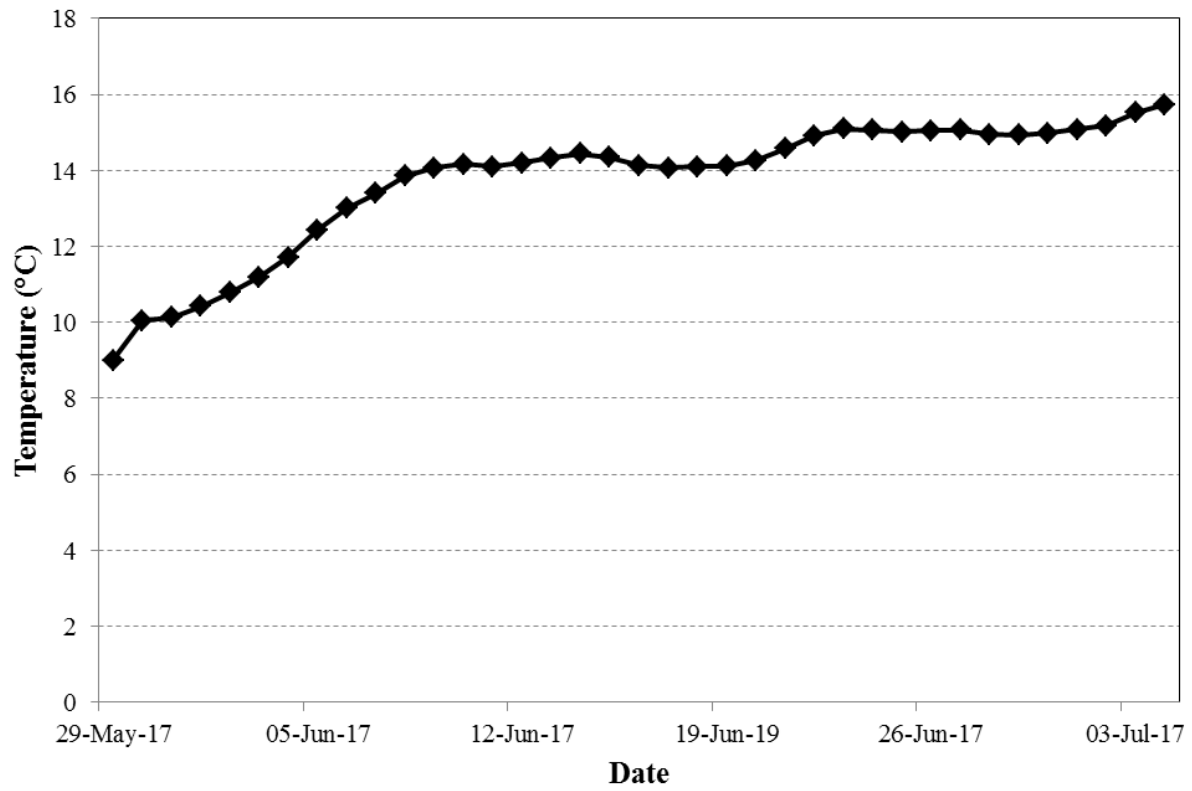
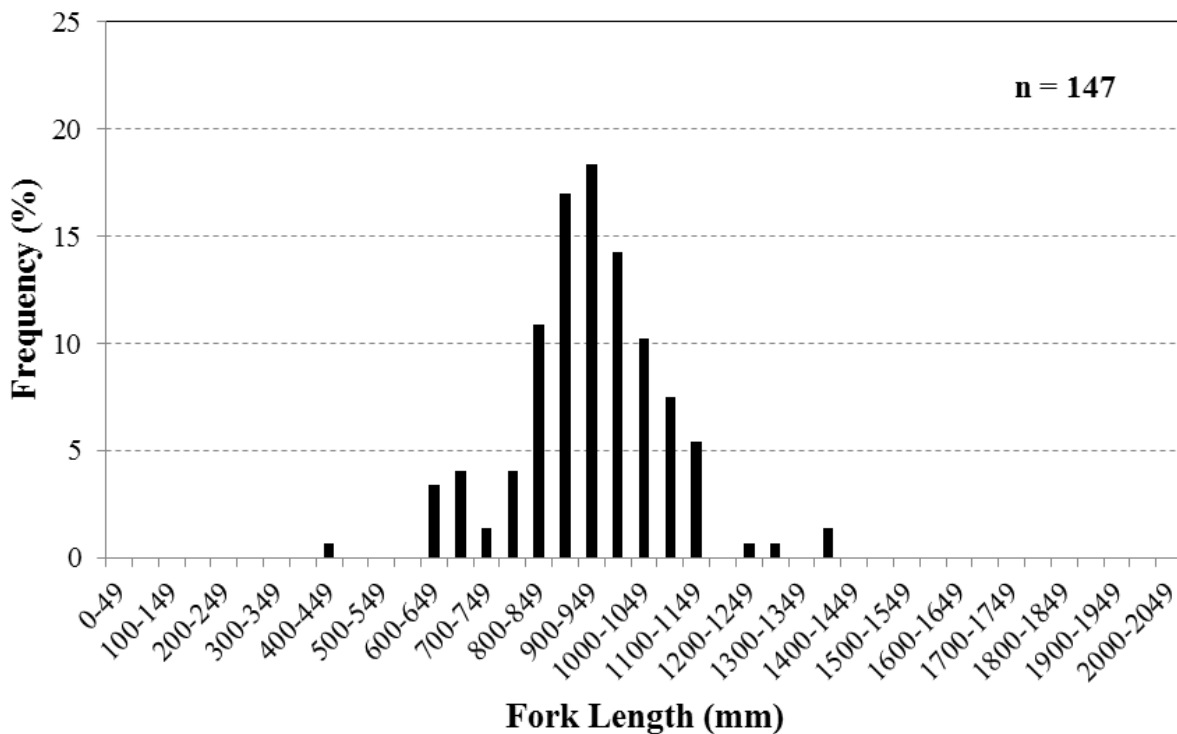
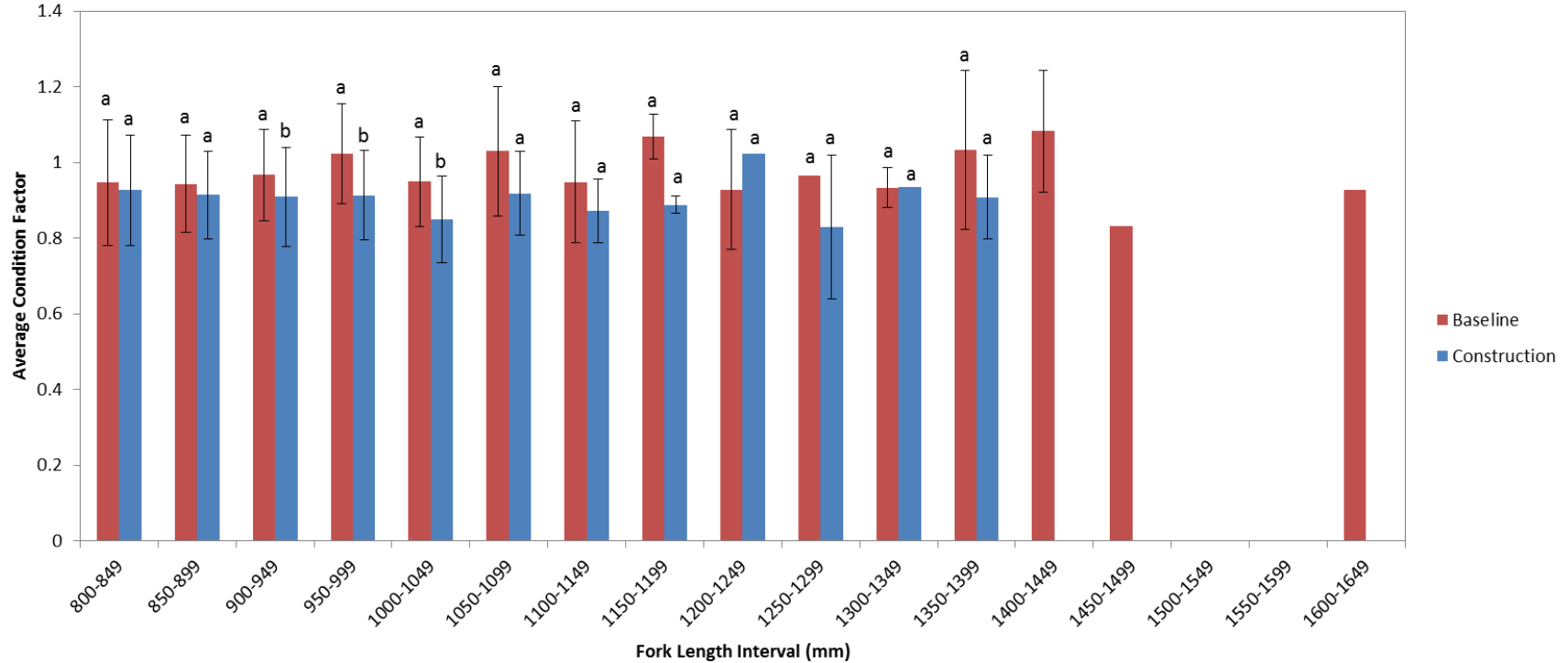


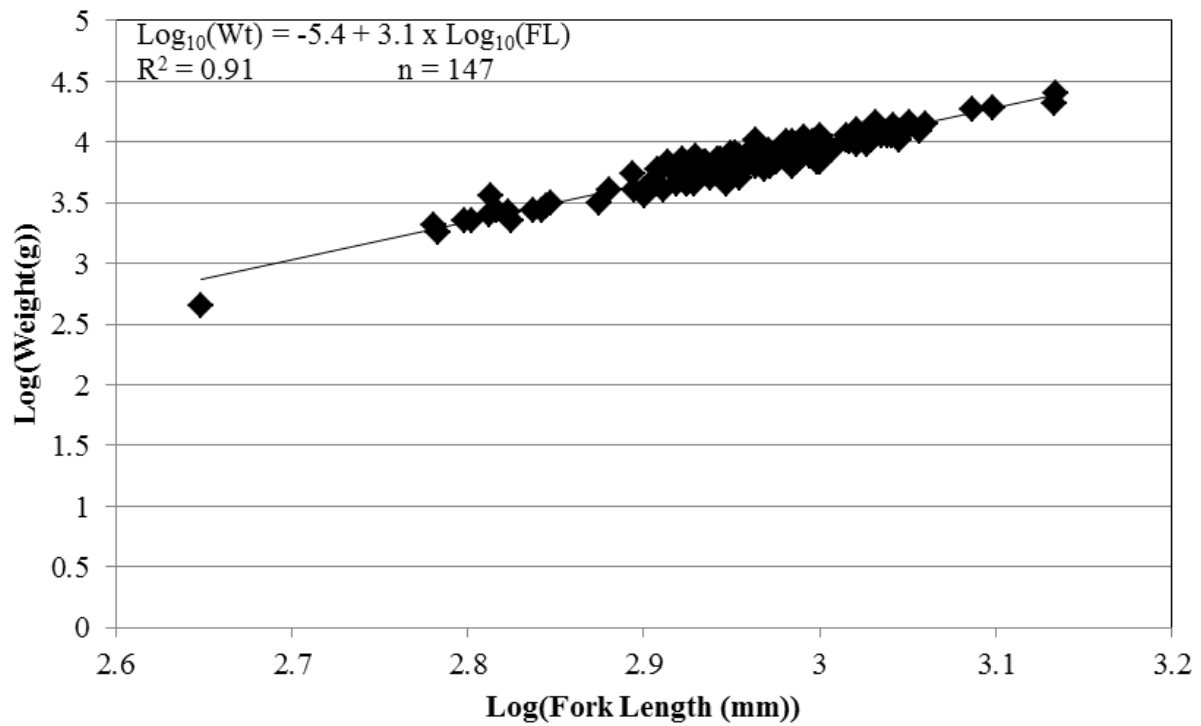
Figure 6: Mean daily water temperature in the Kelsey GS Area, 29 May – 4 July, 2017.



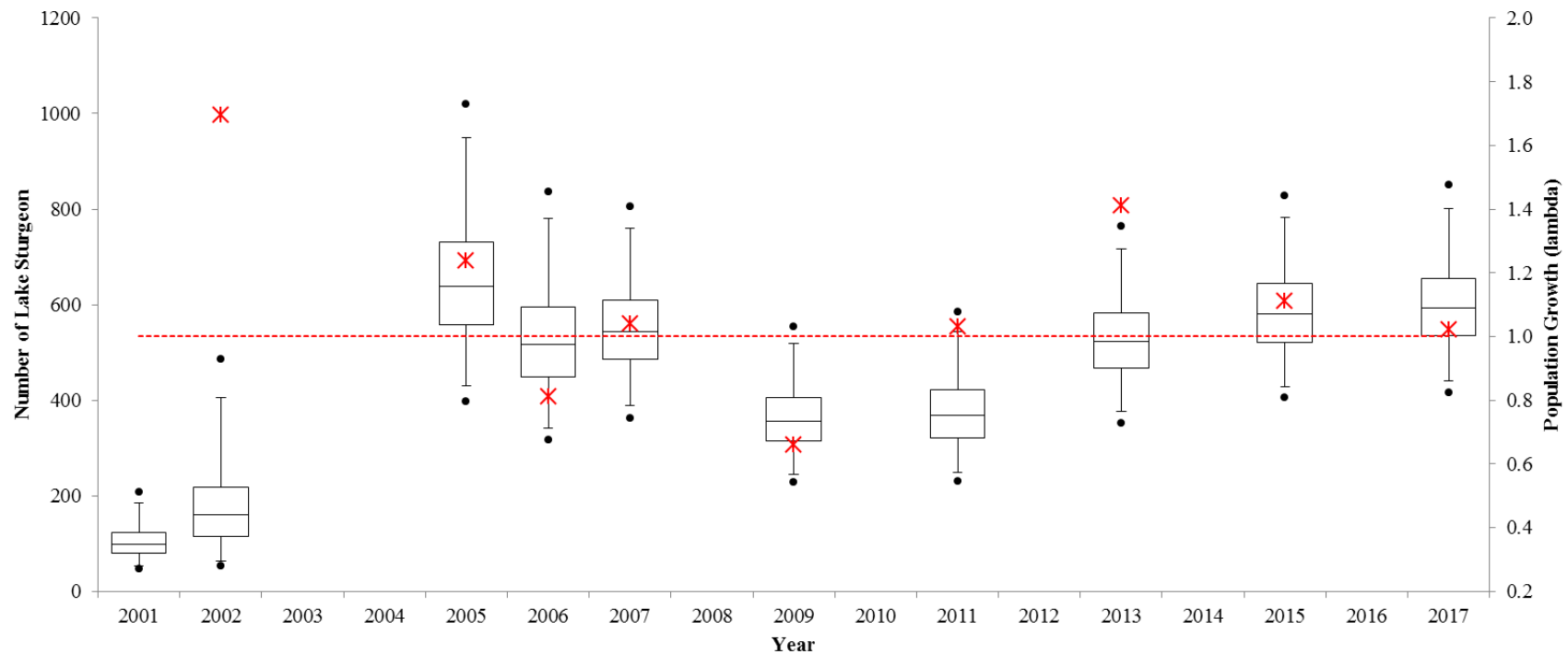
**Figure 7:** Length-frequency distribution for Lake Sturgeon captured in large mesh gill nets set in the Kelsey GS Area, spring 2017.



**Figure 8:** 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 9:** Length-weight regression for Lake Sturgeon captured in large mesh gill nets set in the Kelsey GS Area, spring 2017.



**Figure 10:** Adult Lake Sturgeon abundance estimates based on POPAN best model (left y-axis) and population growth estimates based on the Pradel Lambda model (right y-axis) for Kelsey GS Area (2001–2017). Results of the POPAN abundance estimate are presented in black. 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. Results of the Pradel Lambda population growth analysis are presented in red. The population lambda (*i.e.*, growth rate) is represented by an asterisk. The dotted line represents zero population growth (equilibrium), therefore lambda values above this line represent population growth, and those below represent population decline.

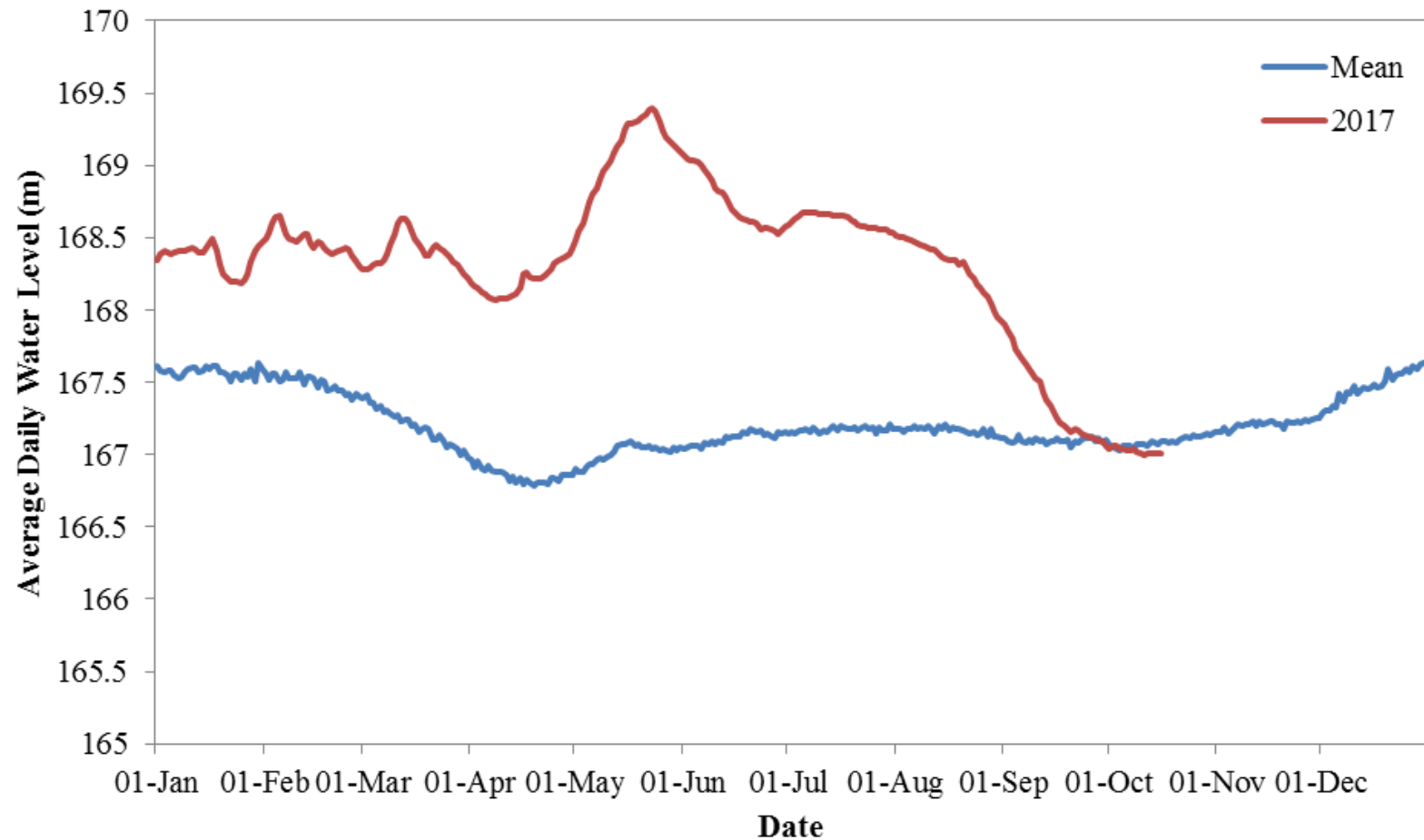
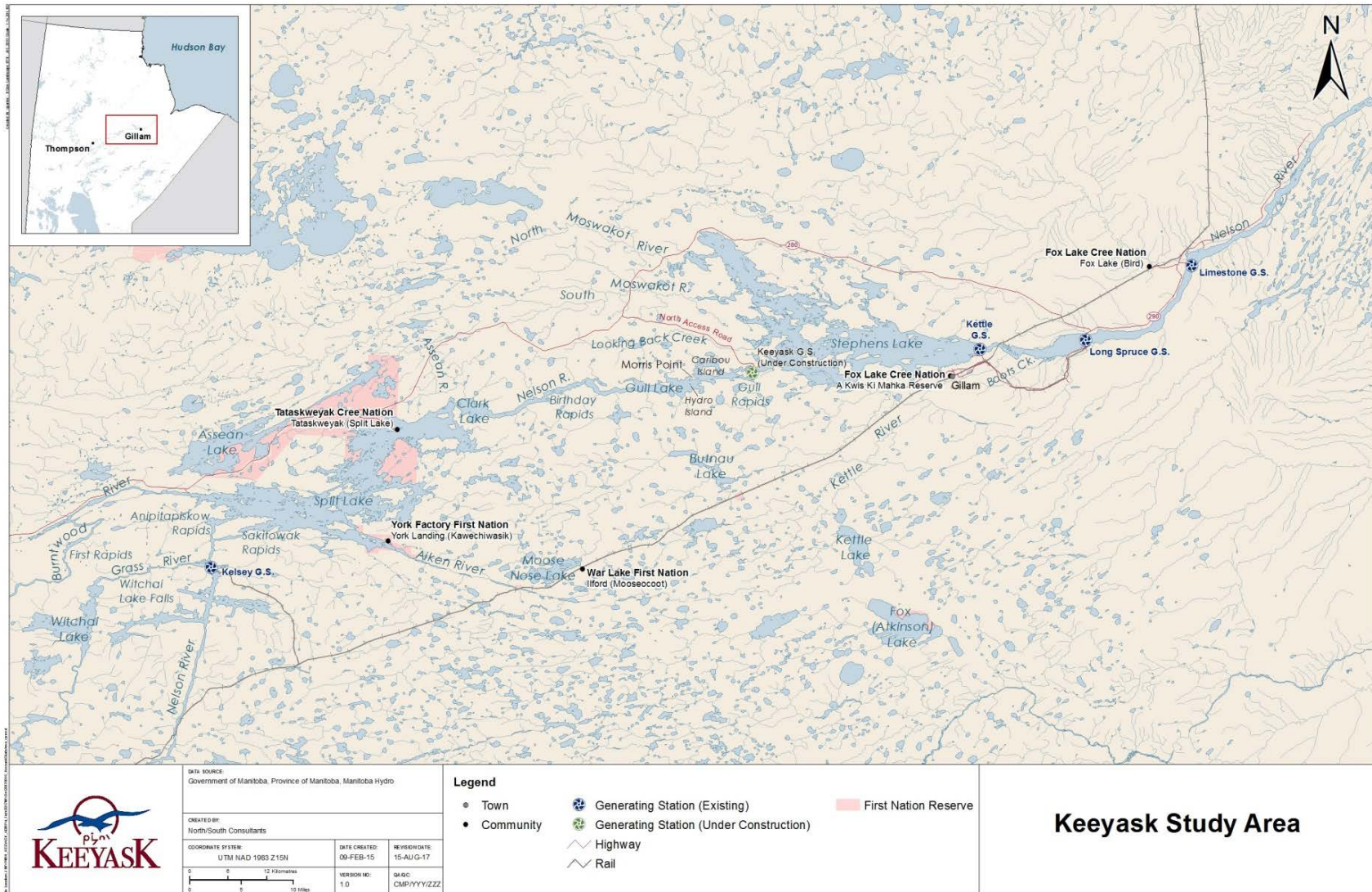
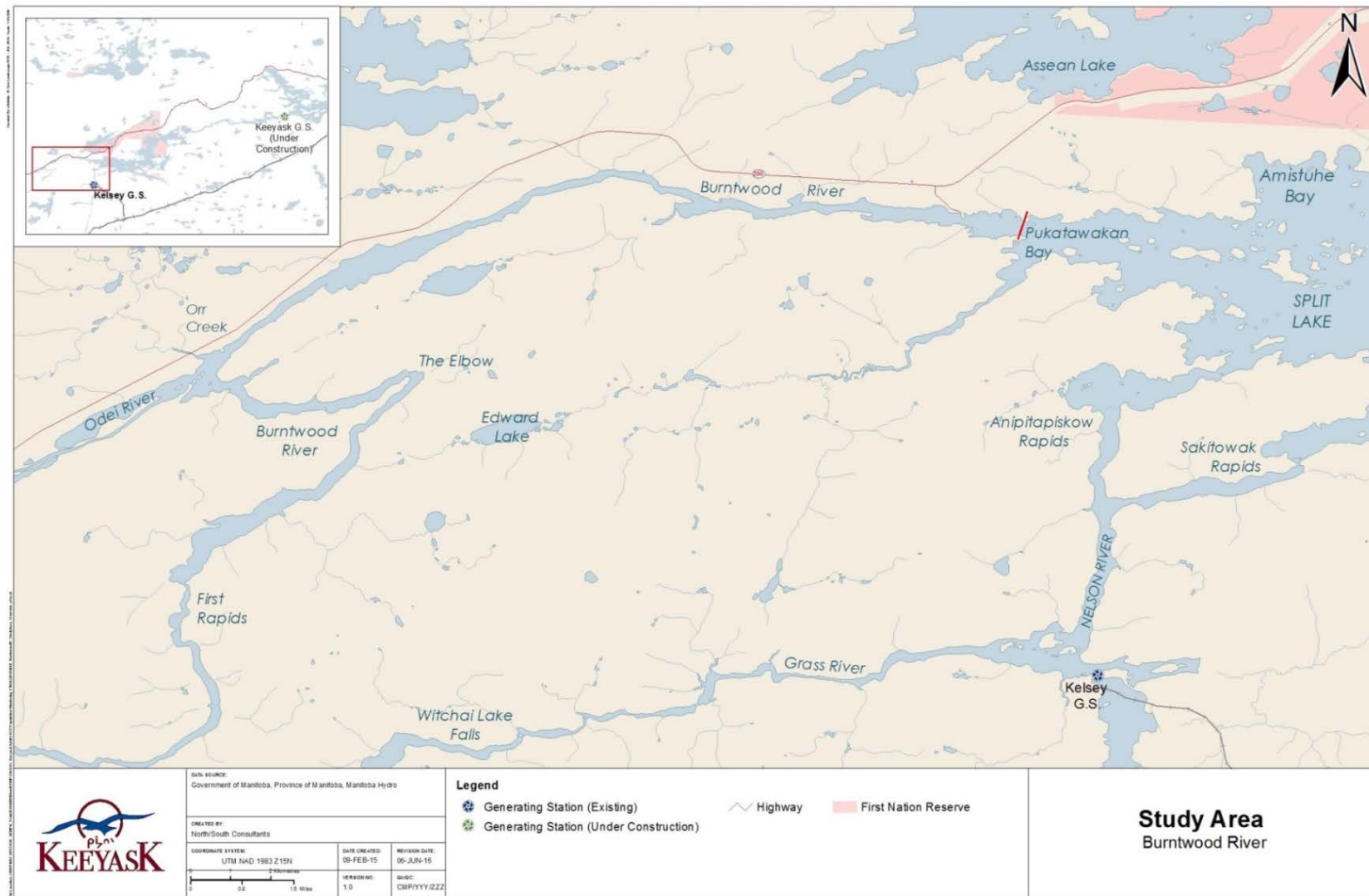


Figure 11: 2017 daily water level compared to average water level (1954 to 2016) in Split Lake. Data extracted from the Water Survey of Canada Station 05UF003 (Environment and Climate Change Canada; accessed November 29, 2017).

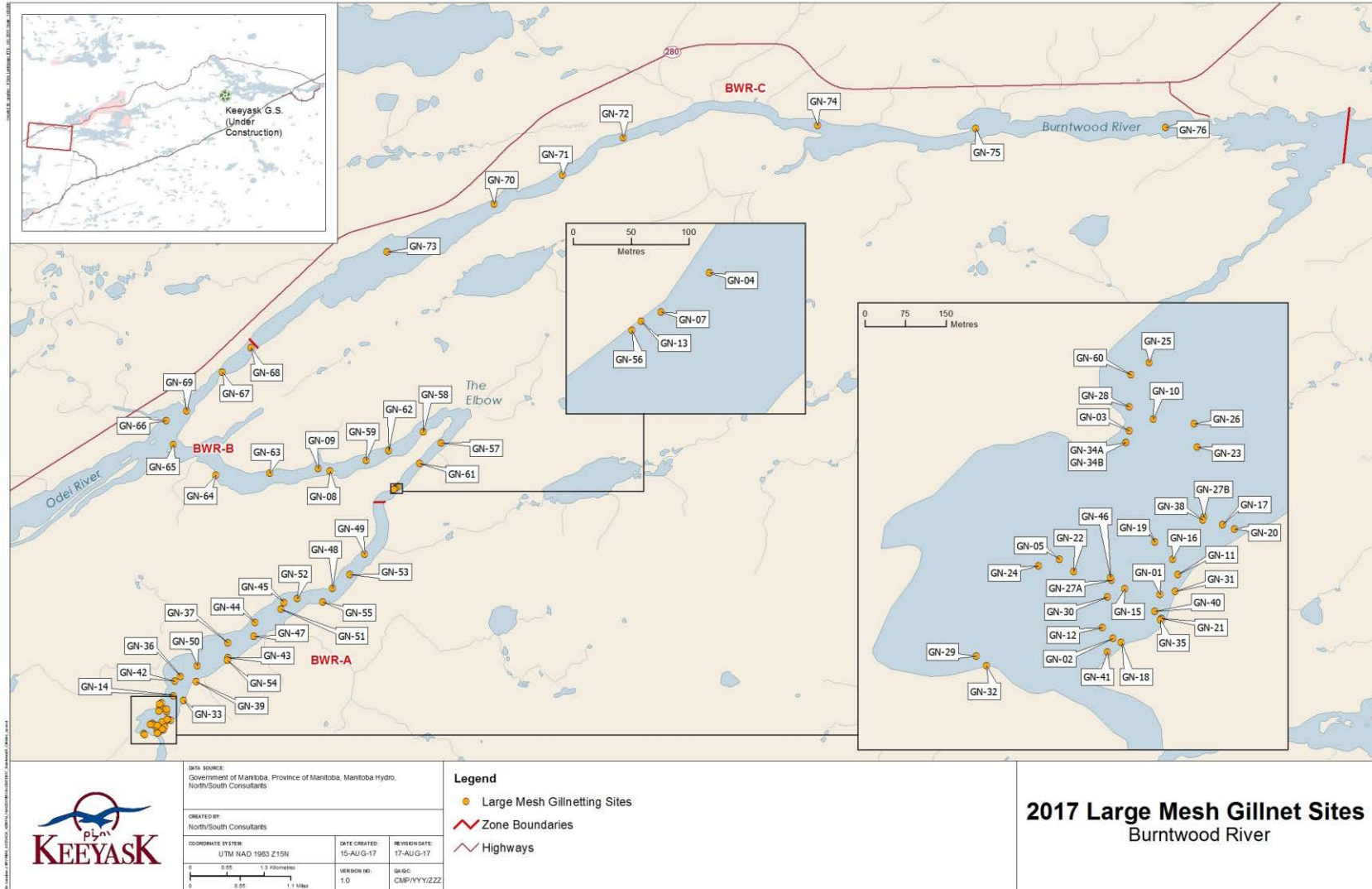
## MAPS



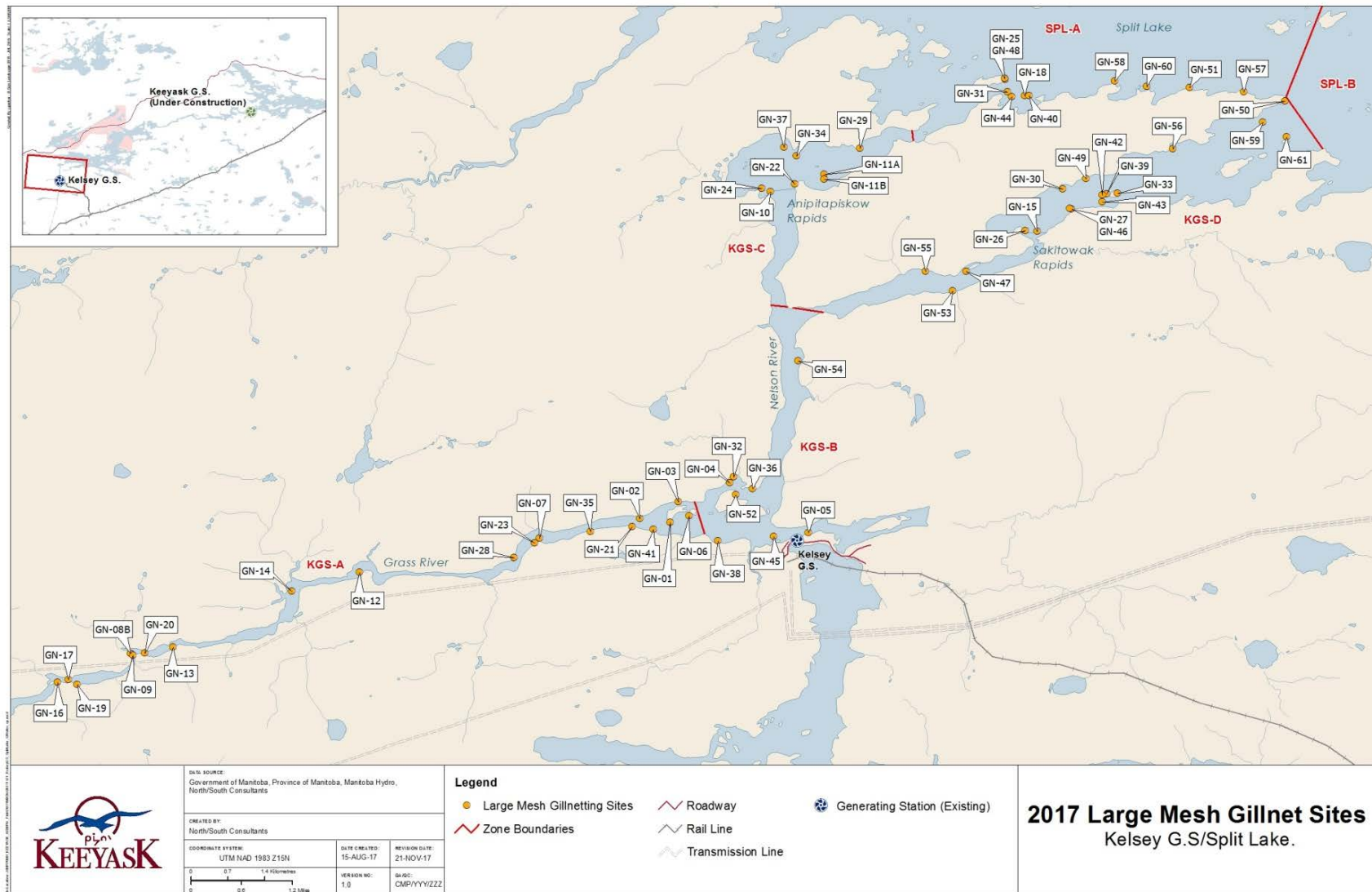
Map 1: Map of the Keeyask Study Area.



**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 3:** Sites fished with large mesh gill net gangs in the Burntwood River between First Rapids and Split Lake, spring 2017.



Map 4: Sites fished with large mesh gill net gangs in the Kelsey GS Area, spring 2017.

## APPENDICES

## **APPENDIX 1: TAGGING AND BIOLOGICAL INFORMATION FOR LAKE STURGEON CAPTURED IN THE UPPER SPLIT LAKE AREA IN SPRING 2017**

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Table A1-1: Tagging and biological information, by waterbody, for Lake Sturgeon marked with Floy® tags and PIT tags in the Upper Split Lake Area, spring 2017.....	50
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**Table A1-1: Tagging and biological information, by waterbody, for Lake Sturgeon marked with Floy® tags and PIT tags in the Upper Split Lake Area, spring 2017.**

Location	Zone	Date	Prefix	Floy® Tag	Pit Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Burntwood River	BWR-A	1-Jun-17	NSC	108626	900 226000768884	1065	1212	10659	-	-
Burntwood River	BWR-A	1-Jun-17	NSC	108627	900 226000768869	1033	1158	8618	M	7
Burntwood River	BWR-A	1-Jun-17	NSC	108628	900 226000768863	910	1003	6350	-	-
Burntwood River	BWR-A	1-Jun-17	NSC	108629	900 226000153469	1080	1196	11793	-	-
Burntwood River	BWR-B	1-Jun-17	NSC	108630	900 226000153480	1266	1403	17463	-	-
Burntwood River	BWR-A	2-Jun-17	NSC	108631	900 226000153460	892	1000	5670	-	-
Burntwood River	BWR-A	2-Jun-17	NSC	108632	900 226000548475	910	1023	4763	-	-
Burntwood River	BWR-A	3-Jun-17	NSC	108633	900 226000768844	1102	1221	11340	-	-
Burntwood River	BWR-A	3-Jun-17	NSC	108634	900 226000153414	917	1015	5443	M	7
Burntwood River	BWR-A	3-Jun-17	NSC	108635	900 226000768840	950	1078	7257	M	7
Burntwood River	BWR-A	3-Jun-17	NSC	108636	900 226000768882	922	1013	8165	-	-
Burntwood River	BWR-A	3-Jun-17	NSC	108637	900 226000768874	1084	1221	9979	-	-
Burntwood River	BWR-A	3-Jun-17	NSC	108638	900 226000153440	886	1014	5216	-	-
Burntwood River	BWR-A	4-Jun-17	NSC	108640	900 226000768892	953	1072	7031	M	8
Burntwood River	BWR-A	4-Jun-17	NSC	108641	900 226000153482	960	1062	8165	-	-
Burntwood River	BWR-A	4-Jun-17	NSC	108642	900 226000768836	890	995	6123	-	-
Burntwood River	BWR-A	5-Jun-17	NSC	108601	900 226000153497	956	1066	7711	M	7
Burntwood River	BWR-A	5-Jun-17	NSC	108602	900 226000153412	880	976	4990	-	-
Burntwood River	BWR-A	5-Jun-17	NSC	108604	900 226000768859	880	993	6350	M	8
Burntwood River	BWR-A	5-Jun-17	NSC	108605	900 226000768843	956	1070	7484	M	7
Burntwood River	BWR-A	5-Jun-17	NSC	108643	900 226000768827	745	844	3175	-	-
Burntwood River	BWR-A	5-Jun-17	NSC	108644	900 226000153491	912	1003	6123	-	-
Burntwood River	BWR-A	5-Jun-17	NSC	108646	900 226000153492	935	1061	7711	M	7
Burntwood River	BWR-A	5-Jun-17	NSC	108647	900 226000768833	1024	1058	10886	M	7
Burntwood River	BWR-A	5-Jun-17	NSC	108648	900 226000153422	891	995	5897	M	7
Burntwood River	BWR-A	5-Jun-17	NSC	108649	900 226000768875	903	1003	5897	M	7

**Table A1-1: Tagging and biological information, by waterbody, for Lake Sturgeon marked with Floy® tags and PIT tags in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy® Tag	Pit Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Burntwood River	BWR-A	6-Jun-17	NSC	108607	900 226000153464	922	1024	6350	M	8
Burntwood River	BWR-A	6-Jun-17	NSC	108608	900 226000768808	972	1080	7484	M	8
Burntwood River	BWR-A	6-Jun-17	NSC	108609	900 226000768834	941	1045	7257	-	-
Burntwood River	BWR-A	6-Jun-17	NSC	108610	900 226000768845	990	1108	8391	M	8
Burntwood River	BWR-A	6-Jun-17	NSC	108611	900 226000153484	973	1090	7257	M	8
Burntwood River	BWR-A	6-Jun-17	NSC	108612	900 226000768890	933	1046	7257	-	-
Burntwood River	BWR-A	6-Jun-17	NSC	108614	900 226000153427	1031	1160	10433	M	8
Burntwood River	BWR-A	6-Jun-17	NSC	108616	900 226000768828	945	1055	7031	M	7
Burntwood River	BWR-A	6-Jun-17	NSC	108617	900 226000153405	980	1097	8391	M	8
Burntwood River	BWR-A	6-Jun-17	NSC	108618	900 226000153430	1000	1130	7711	M	8
Burntwood River	BWR-A	6-Jun-17	NSC	108619	900 226000768826	1096	1223	9525	M	7
Burntwood River	BWR-A	7-Jun-17	NSC	103151	900 226000153447	740	835	2268	-	-
Burntwood River	BWR-A	7-Jun-17	NSC	103152	900 226000153475	1160	1281	13608	-	-
Burntwood River	BWR-A	7-Jun-17	NSC	103153	900 226000768887	996	1077	7711	M	7
Burntwood River	BWR-A	7-Jun-17	NSC	103154	900 226000768800	990	1090	8165	M	8
Burntwood River	BWR-A	7-Jun-17	NSC	103155	900 226000153428	1390	1535	26308	F	3
Burntwood River	BWR-A	7-Jun-17	NSC	103156	900 226000153444	1055	1170	11793	-	-
Burntwood River	BWR-A	7-Jun-17	NSC	103157	900 226000153437	1150	1265	11340	M	8
Burntwood River	BWR-A	7-Jun-17	NSC	103158	900 226000153413	955	1064	7257	M	7
Burntwood River	BWR-A	7-Jun-17	NSC	103159	900 226000768849	1090	1208	9979	M	8
Burntwood River	BWR-A	7-Jun-17	NSC	103160	900 226000153454	910	1028	6350	M	8
Burntwood River	BWR-A	7-Jun-17	NSC	103161	900 226000153465	965	1085	7257	-	-
Burntwood River	BWR-A	7-Jun-17	NSC	103162	900 226000153449	945	1036	-	M	8
Burntwood River	BWR-A	7-Jun-17	NSC	103163	900 226000768897	863	970	5443	M	8
Burntwood River	BWR-A	7-Jun-17	NSC	103164	900 226000153418	967	1065	7711	M	8
Burntwood River	BWR-A	7-Jun-17	NSC	103165	900 226000768807	1140	1261	9979	M	8
Burntwood River	BWR-A	7-Jun-17	NSC	108613	900 226000153443	940	1058	6350	M	7

**Table A1-1: Tagging and biological information, by waterbody, for Lake Sturgeon marked with Floy® tags and PIT tags in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy® Tag	Pit Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Burntwood River	BWR-A	7-Jun-17	NSC	108620	900 226000153424	1090	1203	8618	M	8
Burntwood River	BWR-A	7-Jun-17	NSC	108621	900 226000153401	1005	1143	10206	M	8
Burntwood River	BWR-A	7-Jun-17	NSC	108622	900 226000768891	912	1015	4990	M	8
Burntwood River	BWR-A	7-Jun-17	NSC	108623	900 226000153432	1000	1115	8165	M	8
Burntwood River	BWR-A	7-Jun-17	NSC	108624	900 226000768841	1020	1138	8618	M	7
Burntwood River	BWR-A	7-Jun-17	NSC	108625	900 226000768853	1050	1177	9525	M	8
Burntwood River	BWR-A	8-Jun-17	NSC	103166	900 226000153455	1023	1149	7711	M	8
Burntwood River	BWR-A	8-Jun-17	NSC	103167	900 226000768813	990	1108	6123	M	8
Burntwood River	BWR-A	8-Jun-17	NSC	103168	900 226000153470	995	1094	7938	M	8
Burntwood River	BWR-A	8-Jun-17	NSC	103169	900 226000153457	925	1025	6350	M	8
Burntwood River	BWR-A	8-Jun-17	NSC	103170	900 226000153462	1170	1280	12474	-	-
Burntwood River	BWR-A	8-Jun-17	NSC	103172	900 226000153434	745	838	4309	M	8
Burntwood River	BWR-A	8-Jun-17	NSC	103173	900 226000767126	880	980	6123	M	8
Burntwood River	BWR-A	9-Jun-17	NSC	103171	900 226000768838	1028	1144	8165	M	8
Burntwood River	BWR-A	9-Jun-17	NSC	103174	900 226000153411	950	1067	6123	M	8
Burntwood River	BWR-A	9-Jun-17	NSC	103175	900 226000153468	1255	1408	16103	-	-
Burntwood River	BWR-A	9-Jun-17	NSC	103176	900 226000153420	884	976	5670	M	8
Burntwood River	BWR-A	9-Jun-17	NSC	103177	900 226000768876	1272	1371	17917	F	3
Burntwood River	BWR-A	9-Jun-17	NSC	103178	900 226000153441	875	981	5670	M	8
Burntwood River	BWR-A	11-Jun-17	NSC	103179	900 226000768817	1015	1117	7257	-	-
Burntwood River	BWR-A	11-Jun-17	NSC	103180	900 226000153456	960	1045	6123	M	8
Burntwood River	BWR-A	11-Jun-17	NSC	103181	900 226000153463	818	903	3629	-	-
Burntwood River	BWR-A	11-Jun-17	NSC	103182	900 226000153473	927	1023	4990	-	-
Burntwood River	BWR-A	11-Jun-17	NSC	103183	900 226000153488	608	683	1701	-	-
Burntwood River	BWR-A	11-Jun-17	NSC	103184	900 226000153431	882	1007	5216	-	-
Burntwood River	BWR-A	12-Jun-17	NSC	103185	900 226000153472	970	1090	7484	M	8
Burntwood River	BWR-A	12-Jun-17	NSC	103186	900 226000768053	910	1015	5806	-	-

**Table A1-1: Tagging and biological information, by waterbody, for Lake Sturgeon marked with Floy® tags and PIT tags in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy® Tag	Pit Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Burntwood River	BWR-A	12-Jun-17	NSC	103187	900 226000768075	700	803	1814	-	-
Burntwood River	BWR-A	12-Jun-17	NSC	103188	900 226000768019	486	560	816	-	-
Burntwood River	BWR-A	12-Jun-17	NSC	103189	900 226000768090	610	690	1588	-	-
Burntwood River	BWR-A	12-Jun-17	NSC	103190	900 226000768011	780	882	1950	-	-
Burntwood River	BWR-A	13-Jun-17	NSC	103192	900 226000153479	698	783	2404	-	-
Burntwood River	BWR-A	13-Jun-17	NSC	103193	900 226000153408	956	1060	6441	-	-
Burntwood River	BWR-A	13-Jun-17	NSC	103194	900 226000153474	927	1027	6214	M	8
Burntwood River	BWR-A	13-Jun-17	NSC	103195	900 226000768810	780	862	3311	-	-
Burntwood River	BWR-A	13-Jun-17	NSC	103196	900 226000153419	545	620	1179	-	-
Burntwood River	BWR-A	14-Jun-17	NSC	88177	900 226000153495	680	767	2132	-	-
Burntwood River	BWR-A	14-Jun-17	NSC	103197	900 226000768007	855	975	-	-	-
Burntwood River	BWR-A	14-Jun-17	NSC	103198	900 226000768074	715	811	2767	-	-
Burntwood River	BWR-A	14-Jun-17	NSC	103200	900 226000768060	911	1015	5488	M	8
Burntwood River	BWR-A	15-Jun-17	NSC	88178	900 226000893284	1093	1211	10977	-	-
Burntwood River	BWR-A	15-Jun-17	NSC	88179	900 226000893378	840	980	2903	-	-
Burntwood River	BWR-A	15-Jun-17	NSC	88180	900 226000893303	954	1080	-	-	-
Burntwood River	BWR-A	15-Jun-17	NSC	88181	900 226000893484	801	910	4173	-	-
Burntwood River	BWR-A	15-Jun-17	NSC	88182	900 226000893404	810	911	4037	-	-
Burntwood River	BWR-A	16-Jun-17	NSC	88183	900 226000893482	460	524	-	-	-
Burntwood River	BWR-A	16-Jun-17	NSC	88184	900 226000768039	865	975	4672	-	-
Burntwood River	BWR-A	16-Jun-17	-	-	900 226000768029	350	416	363	-	-
Burntwood River	BWR-A	18-Jun-17	NSC	88185	900 226000768852	1058	1169	8528	M	8
Burntwood River	BWR-A	18-Jun-17	NSC	88186	900 226000154013	920	1030	5670	-	-
Burntwood River	BWR-A	18-Jun-17	NSC	88187	900 226000893371	947	1035	7212	-	-
Burntwood River	BWR-A	18-Jun-17	NSC	88188	900 226000768835	700	791	2041	-	-
Burntwood River	BWR-A	18-Jun-17	NSC	88189	900 226000154025	694	785	1905	-	-
Burntwood River	BWR-A	18-Jun-17	NSC	88190	900 226000154092	668	751	2177	-	-

**Table A1-1: Tagging and biological information, by waterbody, for Lake Sturgeon marked with Floy® tags and PIT tags in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy® Tag	Pit Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Burntwood River	BWR-A	19-Jun-17	NSC	88191	900 226000893356	453	505	590	-	-
Burntwood River	BWR-A	19-Jun-17	NSC	88194	982 000362432237	340	385	295	-	-
Burntwood River	BWR-A	19-Jun-17	NSC	88192 / 88193	900 226000768055	1022	1155	10115	M	8
Burntwood River	BWR-A	20-Jun-17	NSC	88195	900 226000768085	883	978	5443	M	8
Burntwood River	BWR-A	21-Jun-17	NSC	88196	900 226000768034	940	1020	5897	M	8
Burntwood River	BWR-A	21-Jun-17	NSC	88197	900 226000893480	911	1020	6804	M	8
Burntwood River	BWR-A	21-Jun-17	NSC	88198	900 226000768005	810	920	4082	-	-
Burntwood River	BWR-A	21-Jun-17	NSC	88199	900 226000768071	934	1050	5897	-	-
Burntwood River	BWR-B	22-Jun-17	NSC	103798	900 226000768099	781	880	3175	-	-
Burntwood River	BWR-A	22-Jun-17	NSC	103799	900 226000768044	911	1011	9072	-	-
Burntwood River	BWR-A	22-Jun-17	NSC	103800	900 226000768032	863	962	6804	-	-
Burntwood River	BWR-A	24-Jun-17	NSC	103796	900 226000768045	426	487	771	-	-
Burntwood River	BWR-A	24-Jun-17	NSC	103797	900 226000768026	910	1025	6260	-	-
Burntwood River	BWR-A	25-Jun-17	NSC	103793	900 226000768017	1034	1150	7802	-	-
Burntwood River	BWR-A	25-Jun-17	NSC	103794	900 226000768022	1205	1344	18824	-	-
Burntwood River	BWR-A	25-Jun-17	NSC	103795	900 226000893468	847	935	5035	-	-
Burntwood River	BWR-A	26-Jun-17	NSC	103792	900 226000893386	875	972	6486	-	-
Burntwood River	BWR-A	27-Jun-17	NSC	103790	900 226000153481	994	1116	7439	-	-
Burntwood River	BWR-A	27-Jun-17	NSC	103791	900 226000768049	1022	1134	9571	-	-
Burntwood River	BWR-B	1-Jul-17	NSC	103786	900 226000768037	996	1105	7257	-	-
Burntwood River	BWR-A	1-Jul-17	NSC	103787	900 226000893363	935	1041	6350	-	-
Burntwood River	BWR-A	1-Jul-17	NSC	103788	900 226000893406	907	1014	7711	-	-
Burntwood River	BWR-C	1-Jul-17	NSC	103789	900 226000768020	623	695	1724	-	-
Burntwood River	BWR-A	2-Jul-17	NSC	103784	900 226000768008	773	864	3039	-	-
Burntwood River	BWR-A	3-Jul-17	NSC	103783	900 226000768040	896	996	5443	-	-
Burntwood River	BWR-C	4-Jul-17	NSC	103782	900 226000768012	336	386	454	-	-

**Table A1-1: Tagging and biological information, by waterbody, for Lake Sturgeon marked with Floy® tags and PIT tags in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy® Tag	Pit Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Kelsey GS Area	KGS-A	30-May-17	NSC	110774	900 226000768283	875	984	7257	-	-
Kelsey GS Area	KGS-A	30-May-17	NSC	110775	900 226000768250	920	1040	7711	-	-
Kelsey GS Area	KGS-C	31-May-17	NSC	110771	900 226000768226	930	1040	8165	-	-
Kelsey GS Area	KGS-A	31-May-17	NSC	110772	900 226000768245	895	1010	8165	-	-
Kelsey GS Area	KGS-A	31-May-17	NSC	110773	900 226000768277	886	995	6804	-	-
Kelsey GS Area	KGS-A	2-Jun-17	NSC	110768	900 226000768255	890	1000	8165	M	8
Kelsey GS Area	KGS-A	2-Jun-17	NSC	110769	900 226000768262	879	985	7257	-	-
Kelsey GS Area	KGS-A	2-Jun-17	NSC	110770	900 226000768276	994	1120	9072	-	-
Kelsey GS Area	KGS-A	3-Jun-17	NSC	100417	900 226000768234	860	954	6804	-	-
Kelsey GS Area	KGS-A	4-Jun-17	NSC	110766	900 226000768292	935	1055	8618	-	-
Kelsey GS Area	KGS-D	5-Jun-17	NSC	110758	900 226000768223	1035	1155	11340	-	-
Kelsey GS Area	KGS-D	5-Jun-17	NSC	110759	900 226000768259	1000	1100	9525	M	8
Kelsey GS Area	KGS-C	5-Jun-17	NSC	110761	900 226000768266	650	705	3629	-	-
Kelsey GS Area	KGS-A	5-Jun-17	NSC	110762	900 226000768205	1084	1201	11340	-	-
Kelsey GS Area	KGS-A	5-Jun-17	NSC	110763	900 226000768209	900	1020	7257	-	-
Kelsey GS Area	KGS-A	5-Jun-17	NSC	110764	900 226000768274	1005	1125	9525	-	-
Kelsey GS Area	KGS-A	5-Jun-17	NSC	110765	900 226000768263	964	1080	9979	M	8
Kelsey GS Area	KGS-A	6-Jun-17	NSC	110756	900 226000548518	900	1010	7711	-	-
Kelsey GS Area	KGS-A	6-Jun-17	NSC	110757	900 226000768265	850	940	7711	-	-
Kelsey GS Area	KGS-D	7-Jun-17	NSC	110748	900 226000768227	920	1020	10433	-	-
Kelsey GS Area	KGS-D	7-Jun-17	NSC	110749	900 226000768286	990	1080	9525	-	-
Kelsey GS Area	KGS-A	7-Jun-17	NSC	110752	900 226000768211	944	1070	8165	M	8
Kelsey GS Area	KGS-A	7-Jun-17	NSC	110753	900 226000768212	883	979	6350	-	-
Kelsey GS Area	KGS-A	7-Jun-17	NSC	110754	900 226000768275	895	992	8165	-	-
Kelsey GS Area	KGS-A	7-Jun-17	NSC	110755	900 226000768298	820	926	6804	-	-
Kelsey GS Area	KGS-A	8-Jun-17	NSC	110746	900 226000768213	835	925	7257	-	-
Kelsey GS Area	KGS-A	8-Jun-17	NSC	110747	900 226000768203	1005	1110	10433	-	-

**Table A1-1: Tagging and biological information, by waterbody, for Lake Sturgeon marked with Floy® tags and PIT tags in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy® Tag	Pit Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Kelsey GS Area	KGS-A	9-Jun-17	NSC	110741	900 226000768299	980	1095	9979	-	-
Kelsey GS Area	KGS-A	9-Jun-17	NSC	110742	900 226000768220	925	1020	8165	M	8
Kelsey GS Area	KGS-D	10-Jun-17	NSC	110737	900 226000768237	1000	1110	8165	-	-
Kelsey GS Area	KGS-D	10-Jun-17	NSC	110738	900 226000768252	867	978	4990	-	-
Kelsey GS Area	KGS-D	10-Jun-17	NSC	110739	900 226000768294	785	882	4082	-	-
Kelsey GS Area	KGS-D	10-Jun-17	NSC	110740	900 226000768291	795	895	3629	-	-
Kelsey GS Area	KGS-A	11-Jun-17	NSC	110730	900 226000768231	1065	1165	9979	-	-
Kelsey GS Area	KGS-A	11-Jun-17	NSC	110731	900 226000768273	1000	1105	6804	-	-
Kelsey GS Area	KGS-A	11-Jun-17	NSC	110732	900 226000768236	1112	1241	12247	-	-
Kelsey GS Area	KGS-A	11-Jun-17	NSC	110733	900 226000768258	842	945	4717	-	-
Kelsey GS Area	KGS-D	11-Jun-17	NSC	110735	900 226000768235	666	748	2631	-	-
Kelsey GS Area	KGS-A	12-Jun-17	NSC	110727	900 226000768224	1010	1115	9072	-	-
Kelsey GS Area	KGS-A	12-Jun-17	NSC	110728	900 226000768225	849	954	5443	-	-
Kelsey GS Area	KGS-A	12-Jun-17	NSC	110729	900 226000768232	848	963	4536	-	-
Kelsey GS Area	KGS-D	13-Jun-17	NSC	110726	900 226000768210	935	1030	6804	-	-
Kelsey GS Area	KGS-D	13-Jun-17	NSC	111551	900 226000768260	920	1034	6350	-	-
Kelsey GS Area	KGS-A	13-Jun-17	NSC	111554	900 226000768253	916	1031	7257	-	-
Kelsey GS Area	KGS-A	13-Jun-17	NSC	111556	900 226000768251	830	945	5443	-	-
Kelsey GS Area	KGS-A	13-Jun-17	NSC	111557	900 226000768282	890	998	6350	-	-
Kelsey GS Area	KGS-A	13-Jun-17	NSC	111558	900 226000768289	950	1069	7711	-	-
Kelsey GS Area	KGS-D	14-Jun-17	NSC	111559	900 226000768246	934	1066	6804	-	-
Kelsey GS Area	KGS-A	14-Jun-17	NSC	111561	900 226000768230	996	1094	6804	-	-
Kelsey GS Area	KGS-A	14-Jun-17	NSC	111562	900 226000768267	931	1043	5897	-	-
Kelsey GS Area	KGS-A	15-Jun-17	NSC	111563	900 226000768965	1000	1132	7711	-	-
Kelsey GS Area	KGS-A	15-Jun-17	NSC	111565	900 226000768545	1100	1235	13608	-	-
Kelsey GS Area	KGS-A	16-Jun-17	NSC	111564	900 226000768218	815	929	4082	-	-
Kelsey GS Area	KGS-A	16-Jun-17	NSC	111566	900 226000768284	988	1110	7711	-	-

**Table A1-1: Tagging and biological information, by waterbody, for Lake Sturgeon marked with Floy® tags and PIT tags in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy® Tag	Pit Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Kelsey GS Area	KGS-D	17-Jun-17	NSC	111567	900 226000768254	840	947	4536	-	-
Kelsey GS Area	KGS-A	18-Jun-17	NSC	111569	900 226000768244	886	990	5897	-	-
Kelsey GS Area	KGS-A	18-Jun-17	NSC	111570	900 226000768222	880	973	6350	-	-
Kelsey GS Area	KGS-A	18-Jun-17	NSC	111572	900 226000768228	920	1038	8618	-	-
Kelsey GS Area	KGS-D	20-Jun-17	NSC	111573	900 226000768247	991	1110	8618	-	-
Kelsey GS Area	KGS-D	20-Jun-17	NSC	111574	900 226000768256	695	770	2722	-	-
Kelsey GS Area	KGS-D	20-Jun-17	NSC	111575	900 226000768287	700	795	2948	-	-
Kelsey GS Area	KGS-C	20-Jun-17	NSC	111577	900 226000768288	880	1000	5897	-	-
Kelsey GS Area	KGS-A	20-Jun-17	NSC	111578	900 226000768240	795	900	4082	-	-
Kelsey GS Area	KGS-D	21-Jun-17	NSC	111579	900 226000768297	656	735	2722	-	-
Kelsey GS Area	KGS-D	21-Jun-17	NSC	111580	900 226000768281	604	692	2041	-	-
Kelsey GS Area	KGS-D	21-Jun-17	NSC	111581	900 226000893449	649	738	2495	-	-
Kelsey GS Area	KGS-A	21-Jun-17	NSC	111582	900 226000768239	1015	1114	8618	-	-
Kelsey GS Area	KGS-A	22-Jun-17	NSC	111583	900 226000768295	1110	1205	11340	-	-
Kelsey GS Area	KGS-B	22-Jun-17	NSC	111584	900 226000768217	965	1082	6350	-	-
Kelsey GS Area	KGS-A	23-Jun-17	NSC	111585	900 226000768559	840	949	4536	-	-
Kelsey GS Area	KGS-A	24-Jun-17	NSC	111586	900 226000768200	901	1000	4990	-	-
Kelsey GS Area	KGS-D	24-Jun-17	NSC	111587	900 226000768293	607	677	1814	-	-
Kelsey GS Area	KGS-A	26-Jun-17	NSC	111588	900 226000768279	971	1105	9072	-	-
Kelsey GS Area	KGS-D	26-Jun-17	NSC	111589	900 226000768215	834	940	4990	-	-
Kelsey GS Area	KGS-D	26-Jun-17	NSC	111590	900 226000768219	760	845	4082	-	-
Kelsey GS Area	KGS-B	27-Jun-17	NSC	111591	900 226000768902	868	953	5443	-	-
Kelsey GS Area	KGS-D	27-Jun-17	NSC	111592	900 226000768966	1064	1183	11340	-	-
Kelsey GS Area	KGS-D	27-Jun-17	NSC	111593	900 226000768280	890	997	5443	-	-
Kelsey GS Area	KGS-D	27-Jun-17	NSC	111594	900 226000893710	628	704	2268	-	-
Kelsey GS Area	KGS-D	27-Jun-17	NSC	111595	900 226000768271	688	770	2722	-	-
Kelsey GS Area	KGS-A	28-Jun-17	NSC	111596	900 226000893285	830	934	4536	-	-

**Table A1-1: Tagging and biological information, by waterbody, for Lake Sturgeon marked with Floy® tags and PIT tags in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy® Tag	Pit Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Kelsey GS Area	KGS-D	28-Jun-17	NSC	111597	900 226000154042	890	996	5897	-	-
Kelsey GS Area	KGS-D	29-Jun-17	NSC	111598	900 226000154019	861	936	6804	-	-
Kelsey GS Area	KGS-D	30-Jun-17	NSC	111076	900 226000768527	814	915	5897	-	-
Kelsey GS Area	KGS-D	30-Jun-17	NSC	111077	900 226000154098	809	894	5897	-	-
Kelsey GS Area	KGS-D	30-Jun-17	NSC	111600	900 226000768906	783	877	5443	-	-
Kelsey GS Area	KGS-D	1-Jul-17	NSC	111079	900 226000768201	1360	1470	20865	-	-
Kelsey GS Area	KGS-D	1-Jul-17	NSC	111080	900 226000768998	802	905	4536	-	-
Split Lake	SPL-A	5-Jun-17	NSC	110760	900 226000768270	1255	1375	19051	-	-
Split Lake	SPL-A	7-Jun-17	NSC	110750	900 226000768272	1220	1335	18597	-	-
Split Lake	SPL-A	7-Jun-17	NSC	110751	900 226000768202	1075	1190	14515	-	-
Split Lake	SPL-A	9-Jun-17	NSC	110743	1380344660	445	513	454	-	-
Split Lake	SPL-A	9-Jun-17	NSC	110744	900 226000768206	1075	1175	13608	-	-
Split Lake	SPL-A	9-Jun-17	NSC	110745	900 226000768278	1000	1100	11340	-	-
Split Lake	SPL-A	10-Jun-17	NSC	110736	900 226000548240	1112	1226	11340	-	-
Split Lake	SPL-A	11-Jun-17	NSC	110734	900 226000768233	960	1070	9525	-	-
Split Lake	SPL-A	13-Jun-17	NSC	111552	900 226000768249	854	956	5443	-	-
Split Lake	SPL-A	17-Jun-17	NSC	111568	900 226000768216	882	992	6350	-	-
Split Lake	SPL-A	20-Jun-17	NSC	111576	900 226000768285	885	985	6804	-	-
Split Lake	SPL-A	29-Jun-17	NSC	111599	900 226000768264	971	1082	9525	-	-
Split Lake	SPL-A	30-Jun-17	NSC	111078	900 226000768913	944	1060	6804	-	-
Split Lake	SPL-A	3-Jul-17	NSC	111081	900 226000768269	668	750	2268	-	-
Split Lake	SPL-A	3-Jul-17	NSC	111082	900 226000768214	635	716	2268	-	-
Split Lake	SPL-A	3-Jul-17	NSC	111083	900 226000768955	900	1016	6804	-	-
Split Lake	SPL-A	4-Jul-17	NSC	111084	900 226000768518	704	785	3175	-	-

## **APPENDIX 2: TAGGING AND BIOLOGICAL INFORMATION FOR LAKE STURGEON RECAPTURED IN THE UPPER SPLIT LAKE AREA DURING SPRING 2017.**

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Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017. ....	60
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**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017.**

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	1-Jun-01	NSC	46405	-	-	995	1075	5800	M	7
Burntwood River	BWR-A	15-Jun-02	NSC	46405	-	-	1020	1125	8000	-	-
Burntwood River	BWR-A	8-Jun-06	NSC	46405	-	-	1057	1177	9752	-	-
Burntwood River	BWR-A	30-May-07	NSC	46405	-	-	1070	1179	10909	M	7
Burntwood River	BWR-A	31-May-07	NSC	46405	-	-	-	-	-	-	-
Burntwood River	BWR-A	18-Jun-09	NSC	46405	-	-	1100	1215	10886	M	8
Burntwood River	BWR-A	7-Jun-11	NSC	46405	-	-	1116	1219	10886	M	8
Burntwood River	BWR-A	29-May-13	NSC	46405	-	900 226000548468	1102	1235	12247	-	-
Burntwood River	BWR-A	30-May-13	NSC	46405	-	900 226000548468	-	-	-	-	-
Burntwood River	BWR-A	31-May-13	NSC	46405	-	900 226000548468	-	-	-	-	-
Burntwood River	BWR-A	1-Jun-13	NSC	46405	-	900 226000548468	-	-	-	-	-
Burntwood River	BWR-A	6-Jun-13	NSC	46405	-	900 226000548468	-	-	-	-	-
Burntwood River	BWR-A	7-Jun-13	NSC	46405	-	900 226000548468	-	-	-	-	-
Burntwood River	BWR-A	5-Jun-17	NSC	46405	-	900 226000548468	1150	1261	13154	M	7
Kelsey GS Area	KGS-D	4-Jul-17	NSC	46405	-	900 226000548468	-	-	-	-	-
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	-	-	-	-	-
Kelsey GS Area	KGS-C	1-Jun-01	NSC	49026	-	-	855	952	5800	-	-
Kelsey GS Area	KGS-A	7-Jun-01	NSC	49026	-	-	-	-	-	-	-
Burntwood River	BWR-A	17-Jun-09	NSC	49026	-	-	990	1095	7711	-	-
Burntwood River	BWR-A	27-Jun-09	NSC	49026	-	-	-	-	-	-	-
Burntwood River	BWR-A	31-May-11	NSC	49026	-	-	1000	1090	8165	-	-
Burntwood River	BWR-A	10-Jun-11	NSC	49026	-	-	-	-	-	-	-
Burntwood River	BWR-A	1-Jun-15	NSC	49026	-	900 226000629588	1055	1158	9979	-	-
Burntwood River	BWR-A	7-Jun-17	NSC	49026	-	900 226000629588	1067	1173	9979	M	8

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy <sup>®</sup> Tag 1	Floy <sup>®</sup> Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Burntwood River	BWR-A	1-Sep-15	NSC	56597	-	900 226000703418	680	780	2000	-	-
Burntwood River	BWR-A	9-Jun-17	NSC	56597	-	900 226000703418	700	797	2495	-	-
Odei River	ODR-A	25-Jun-05	NSC	74305	74306	-	679	754	2273	-	-
Burntwood River	BWR-A	18-Jun-17	NSC	74305	74306	900 226000153478	1010	1109	9208	-	-
Split Lake	SPL-A	29-Jun-05	NSC	74332	74333	-	785	872	4773	-	-
Burntwood River	BWR-A	2-Jun-11	NSC	74332	74333	-	1005	1115	9979	M	8
Burntwood River	BWR-A	31-May-13	NSC	74332	74333	900 226000548280	1020	1115	9752	M	7
Burntwood River	BWR-B	27-May-15	NSC	74332	74333	900 226000548280	1051	1113	11793	-	7
Burntwood River	BWR-B	6-Jun-15	NSC	74332	74333	900 226000548280	-	-	-	-	-
Burntwood River	BWR-A	9-Jun-17	NSC	74332	74333	900 226000548280	1055	1151	10206	M	8
Split Lake	SPL-A	29-Jun-05	NSC	74334	74335	-	995	1117	10455	-	-
Burntwood River	BWR-A	3-Jun-17	NSC	74334	74335	900 226000153483	1245	1390	18144	-	-
Kelsey GS	KGS-B	10-Jun-07	NSC	74796	-	-	1010	1135	9525	-	-
Burntwood River	BWR-A	30-May-13	NSC	74796	-	900 226000548457	1082	1213	9525	M	7
Burntwood River	BWR-A	2-Jun-17	NSC	74796	-	900 226000548457	1122	1253	9979	-	-
Burntwood River	BWR-A	7-Jun-17	NSC	74796	-	900 226000548457	-	-	-	M	8
Kelsey GS Area	KGS-A	12-Jun-07	NSC	74834	-	900 226000629594	779	880	4082	-	-
Kelsey GS Area	KGS-A	26-Jun-09	NSC	74834	-	900 226000629594	858	962	4536	-	-
Burntwood River	BWR-B	3-Jun-15	NSC	74834	-	900 226000629594	978	1090	8165	-	-
Burntwood River	BWR-A	9-Jun-15	NSC	74834	-	900 226000629594	-	-	-	-	-
Burntwood River	BWR-A	6-Jun-17	NSC	74834	108615	900 226000629594	1010	1112	8165	M	8
Burntwood River	BWR-A	9-Jun-17	NSC	108615	-	900 226000629594	-	-	-	M	8

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy <sup>®</sup> Tag 1	Floy <sup>®</sup> Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Burntwood River	BWR-A	4-Jul-05	NSC	75135	75136	-	838	935	5682	-	-
Burntwood River	BWR-A	11-Jun-17	NSC	75136	-	900 226000768050	997	1100	7938	-	-
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
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 <sup>1</sup>	1134	1253	14969	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

<sup>1</sup> Fish lost original PIT tag, received new one in 2017.

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy <sup>®</sup> Tag 1	Floy <sup>®</sup> Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
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
Odei River	ODR-A	6-Jun-07	NSC	76829	-	-	1000	1110	8636	-	-
Burntwood River	BWR-A	10-Jun-11	NSC	76829	-	-	1010	1138	9072	M	8
Burntwood River	BWR-A	8-Jun-13	NSC	76829	-	900 226000548433	1025	1134	5897	-	-
Burntwood River	BWR-A	5-Jun-17	NSC	76829	-	900 226000548433	1046	1157	7938	M	7
Burntwood River	BWR-A	7-Jun-17	NSC	76829	-	900 226000548433	-	-	-	M	8
Kelsey GS Area	KGS-C	27-Jun-07	NSC	79554	-	-	913	1004	7031	-	-
Burntwood River	BWR-A	14-Jun-13	NSC	79554	-	-	-	-	-	-	-
Burntwood River	BWR-A	3-Jun-15	NSC	79554	-	900 226000629532	1003	1097	9525	M	7
Burntwood River	BWR-A	31-May-17	NSC	79554	-	900 226000629532	1004	1104	7938	-	-
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	11-Jun-06	NSC	80048	80049	-	905	995	5897	-	-
Burntwood River	BWR-A	13-Jun-06	NSC	80048	80049	-	-	-	-	-	-
Burntwood River	BWR-A	9-Jun-12	NSC	80048	80049	-	990	1085	7711	M	8
Burntwood River	BWR-A	1-Jun-17	NSC	80048	80049	900 226000153425	1036	1232	8618	-	-

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy <sup>®</sup> Tag 1	Floy <sup>®</sup> Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
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	20-Jun-06	NSC	80069	80070	-	932	1032	6577	-	-
Burntwood River	BWR-A	24-Jun-09	NSC	80069	80070	-	970	1070	7711	M	8
Burntwood River	BWR-A	5-Jun-17	NSC	80070	-	900 226000153489	1050	1157	10206	-	-
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 226000548303	-	-	-	-	-
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 <sup>1</sup>	1060	1160	10886	-	-
Burntwood River	BWR-A	16-Jun-13	NSC	81955	-	900 226000548346	1439	1590	28576	-	-
Burntwood River	BWR-A	3-Jun-17	NSC	81955	-	900 226000548346	1457	1545	24948	-	-
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	-	-	-	-	-

<sup>1</sup> Fish lost original PIT tag, was retagged with new tag in 2013. Was given a new tag in 2015, now has two PIT tags.

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (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	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
Kelsey GS Area	KGS-B	21-Aug-06	NSC	82334	82335	-	1004	1120	10886	-	-
Burntwood River	BWR-A	5-Jun-11	NSC	82334	82335	-	1090	1175	11340	-	-
Burntwood River	BWR-A	10-Jun-11	NSC	82334	82335	-	-	-	-	-	-
Burntwood River	BWR-A	8-Jun-13	NSC	82334	82335	900 226000548404	1119	1216	10433	M	8
Burntwood River	BWR-A	6-Jun-15	NSC	82334	82335	900 226000548404	1147	1247	13608	M	8
Burntwood River	BWR-A	8-Jun-17	NSC	82334	82335	900 226000548404	1164	1262	13608	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-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	12-Jun-13	NSC	86948	-	900 226000548434	1044	1163	9525	M	8
Burntwood River	BWR-A	5-Jun-17	NSC	86948	-	900 226000548434	1115	1238	12474	M	8
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	24-May-10	NSC	87926	-	-	889	1010	6804	-	-
Burntwood River	BWR-A	8-Jun-13	NSC	87926	-	900 226000548335	918	1049	6577	M	8
Burntwood River	BWR-B	4-Jun-15	NSC	87926	-	900 226000548335	935	1048	7938	M	7
Burntwood River	BWR-A	6-Jun-17	NSC	87926	-	900 226000548335	943	1079	8165	M	8

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy <sup>®</sup> Tag 1	Floy <sup>®</sup> Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Burntwood River	BWR-A	2-Jun-10	NSC	87943	-	-	890	990	4990	M	7
Kelsey GS Area	KGS-A	10-Jun-11	NSC	87943	-	-	961	1065	10886	-	-
Burntwood River	BWR-A	6-Jun-12	NSC	87943	-	-	1015	1115	9072	M	8
Burntwood River	BWR-A	8-Jun-13	NSC	87943	-	900 226000548448	1029	1136	7711	M	9
Burntwood River	BWR-A	9-Jun-17	NSC	87943	-	900 226000548448	1080	1185	8845	M	9
Burntwood River	BWR-A	25-Jun-17	NSC	87943	-	900 226000548448	-	-	-	-	-
Burntwood River	BWR-A	22-Jun-13	NSC	81970	-	900 226000548441	670	753	1814	-	-
Burntwood River	BWR-A	14-Jun-17	NSC	88176 <sup>1</sup>	-	900 226000548441	746	835	3402	-	-
Burntwood River	BWR-A	31-May-14	-	-	-	982 000362432237	210	249	64	-	-
Burntwood River	BWR-A	19-Jun-17	NSC	88194	-	982 000362432237	340	380	295	-	-
Burntwood River	BWR-A	30-May-13	NSC	88678	-	900 226000548494	1108	1250	9299	-	-
Burntwood River	BWR-A	7-Jun-13	NSC	88678	-	900 226000548494	-	-	-	-	-
Burntwood River	BWR-A	1-Jun-17	NSC	88678	-	900 226000548494	1134	1265	9072	-	-
Burntwood River	BWR-A	30-May-13	NSC	88679	-	900 226000548342	870	975	5443	-	-
Burntwood River	BWR-A	6-Jun-13	NSC	88679	-	900 226000548342	-	-	-	-	-
Burntwood River	BWR-A	8-Jun-17	NSC	88679	-	900 226000548342	971	1078	7938	M	8
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	-	-	-	-	-
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

<sup>1</sup> Lost original Floy tag, new tag in 2017.

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy <sup>®</sup> Tag 1	Floy <sup>®</sup> Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Burntwood River	BWR-A	2-Jun-13	NSC	88692	-	900 226000548255	680	773	2268	-	-
Burntwood River	BWR-A	9-Jun-17	NSC	88692	-	900 226000548255	743	842	2722	-	-
Burntwood River	BWR-A	3-Jun-13	NSC	88695	-	900 226000548489	877	985	3175	-	-
Burntwood River	BWR-A	9-Jun-15	NSC	88695	-	900 226000548489	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	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-B	8-Jun-15	NSC	89032	-	900 226000628850	921	1140	6804	-	-
Burntwood River	BWR-A	7-Jun-17	NSC	89032	-	900 226000628850	965	1098	8391	M	8
Burntwood River	BWR-A	11-Jun-17	NSC	89032	-	900 226000628850	-	-	-	-	-
Burntwood River	BWR-A	9-Jun-15	NSC	89033	-	900 226000628916	971	1090	6804	-	-
Burntwood River	BWR-A	1-Jun-17	NSC	89033	-	900 226000628916	992	1109	8391	M	7
Burntwood River	BWR-A	6-Jun-17	NSC	89033	-	900 226000628916	-	-	-	M	8
Burntwood River	BWR-A	9-Jun-15	NSC	89038	89039	900 226000628998	963	1067	7711	M	8
Burntwood River	BWR-A	6-Jun-17	NSC	89038	89039	900 226000628998	980	1078	7484	M	7
Burntwood River	BWR-A	7-Jun-17	NSC	89038	89039	900 226000628998	-	-	-	M	7
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	-	-	-	-	-

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy <sup>®</sup> Tag 1	Floy <sup>®</sup> Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Odei River	ODR-A	23-Jun-09	NSC	89362	-	-	895	1000	5443	-	-
Burntwood River	BWR-A	14-Jun-17	NSC	89362	-	900 226000768066	1070	1182	9525	-	-
Burntwood River	BWR-A	28-Jun-09	NSC	89399	-	-	850	970	4990	-	-
Burntwood River	BWR-A	18-Jun-13	NSC	89399	-	900 226000548276	917	1043	5443	M	8
Burntwood River	BWR-A	8-Jun-17	NSC	89399	-	900 226000548276	953	1079	7484	-	-
Burntwood River	BWR-B	26-May-15	NSC	89055	-	900 226000703381	903	993	6804	-	-
Burntwood River	BWR-A	8-Jun-17	NSC	89055	-	900 226000703381	928	1032	7031	M	8
Kelsey GS Area	KGS-D	7-Jun-09	NSC	89458	-	-	720	791	3856	-	-
Burntwood River	BWR-A	5-Jun-17	NSC	89458	-	900 226000153477	937	1028	7484	M	7
Burntwood River	BWR-A	3-Jun-15	NSC	89064	-	900 226000628971	972	1078	7484	M	7
Burntwood River	BWR-A	13-Jun-15	NSC	89064	-	900 226000628971	-	-	-	-	-
Burntwood River	BWR-A	5-Jun-17	NSC	89064	-	900 226000628971	1000	1048	7938	M	8
Odei River	ODR-A	29-May-11	NSC	89872	-	-	1060	1180	8165	-	-
Burntwood River	BWR-A	6-Jun-15	NSC	89872	-	900 226000628847	1103	1218	11793	M	8
Burntwood River	BWR-A	3-Jun-17	NSC	89872	-	900 226000628847	1094	1205	11340	-	-
Burntwood River	BWR-A	6-Jun-17	NSC	89872	-	900 226000628847	-	-	-	M	8
Burntwood River	BWR-A	20-Jun-17	NSC	89872	-	900 226000628847	-	-	-	-	-
Burntwood River	BWR-A	19-Jun-11	NSC	91153	-	-	572	647	1375	-	-
Burntwood River	BWR-A	18-Jun-17	NSC	91153	-	900 226000768079	670	753	2177	-	-
Burntwood River	BWR-A	22-Jun-17	NSC	91153	-	900 226000768079	-	-	-	-	-

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy <sup>®</sup> Tag 1	Floy <sup>®</sup> Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Burntwood River	BWR-A	20-Jun-11	NSC	91157	-	-	501	572	1000	-	-
Burntwood River	BWR-A	31-Aug-12	NSC	91157	-	-	550	628	1125	-	-
Burntwood River	BWR-A	14-Jun-17	NSC	91157	-	900 226000153433	612	695	1724	-	-
Burntwood River	BWR-A	21-Jun-11	NSC	91164	-	-	1050	1163	7938	-	-
Burntwood River	BWR-A	8-Jun-13	NSC	91164	-	900 226000548271	1075	1185	8165	M	8
Burntwood River	BWR-B	27-Jun-17	NSC	91164	-	900 226000548271	1099	1223	11294	-	-
Burntwood River	BWR-A	22-Jun-11	NSC	91166	-	-	980	1087	7257	M	8
Burntwood River	BWR-A	23-Jun-13	NSC	91166	-	900 226000548325	970	1080	6350	M	8
Burntwood River	BWR-A	3-Jun-15	NSC	91166	-	900 226000548325	1009	1122	7938	M	7
Burntwood River	BWR-A	5-Jun-17	NSC	91166	-	900 226000548325	-	-	8618	M	8
Burntwood River	BWR-A	7-Jun-17	NSC	91166	-	900 226000548325	-	-	-	M	8
Burntwood River	BWR-B	2-Jun-15	NSC	91177	-	900 226000548337	900	976	6123	-	-
Burntwood River	BWR-A	8-Jun-17	NSC	91177	-	900 226000548337	910	1005	6350	M	8
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	18-Jun-11	NSC	91194	-	-	490	556	1000	-	-
Burntwood River	BWR-A	3-Jun-17	NSC	91194	-	900 226000153439	653	740	1701	-	-
Split Lake	SPL-A	18-Jun-13	NSC	91364	-	900 226000548175	859	962	5670	-	-
Burntwood River	BWR-A	9-Jun-17	NSC	91364	-	900 226000548017	1035	1162	7711	-	-
Kelsey GS Area	KGS-A	23-Jun-13	NSC	94135	-	900 226000548044	917	1024	8618	-	-
Burntwood River	BWR-A	10-Jun-15	NSC	94135	-	900 226000548044	939	1042	7711	-	-
Burntwood River	BWR-A	9-Jun-17	NSC	94135	-	900 226000548044	970	1078	7484	M	8

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy <sup>®</sup> Tag 1	Floy <sup>®</sup> Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Burntwood River	BWR-A	7-Jun-11	NSC	94486	-	-	1019	1058	9979	M	8
Burntwood River	BWR-A	10-Jun-12	NSC	94486	-	-	1018	1080	9979	M	8
Burntwood River	BWR-A	31-May-13	NSC	94486	-	900 226000548324	1030	1098	9752	M	8
Burntwood River	BWR-A	5-Jun-15	NSC	94486	-	900 226000548324	1052	1118	10433	M	8
Burntwood River	BWR-A	11-Jun-17	NSC	94486	-	900 226000548324	1085	1149	9979	M	8
Burntwood River	BWR-A	5-Jun-11	NSC	94498	-	-	960	1055	7257	M	7
Burntwood River	BWR-A	3-Jun-15	NSC	94498	-	900 226000577022	1000	1094	7938	M	7
Burntwood River	BWR-A	7-Jun-17	NSC	94498	-	900 226000577022	1010	1102	7711	M	8
Burntwood River	BWR-A	2-Jun-11	NSC	94801	-	-	940	1025	6804	-	-
Burntwood River	BWR-A	30-May-13	NSC	94801	-	900 226000548330	963	1052	8165	M	8
Burntwood River	BWR-A	14-Jun-13	NSC	94801	-	900 226000548330	-	-	-	-	-
Burntwood River	BWR-A	8-Jun-15	NSC	94801	-	900 226000628765	988	1084	8618	M	8
Burntwood River	BWR-A	12-Jun-15	NSC	94801	-	900 226000628765	-	-	-	-	-
Burntwood River	BWR-A	4-Jun-17	NSC	94801	-	900 226000628765 / 900 223000548330 <sup>1</sup>	1017	1110	9525	M	7
Burntwood River	BWR-A	5-Jun-11	NSC	94809	-	-	910	1015	5897	-	-
Burntwood River	BWR-A	12-Jun-17	NSC	94809	-	900 226000768000	991	1102	6781	M	8
Kelsey GS Area	KGS-C	15-Jun-15	NSC	98643	-	900 226000548729	963	1086	7711	-	-
Burntwood River	BWR-A	6-Jun-17	NSC	98643	-	900 226000548729	1010	1135	8391	M	8

<sup>1</sup> Original PIT tag did not scan at first, new PIT tag injected, when rescanned original and new tags were detected.

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy <sup>®</sup> Tag 1	Floy <sup>®</sup> Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Kelsey GS Area	KGS-A	4-Jun-15	NSC	98977	-	900 226000548577	855	947	6123	-	-
Burntwood River	BWR-A	27-Jun-17	NSC	98977	-	900 226000548577	862	960	5035	-	-
Burntwood River	BWR-A	2-Jul-17	NSC	98977	-	900 226000548577	-	-	-	-	-
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-A	3-Jun-12	NSC	102202	-	-	933	1038	6350	-	-
Burntwood River	BWR-A	5-Jun-12	NSC	102202	-	-	-	-	-	M	7
Burntwood River	BWR-A	7-Jun-12	NSC	102202	-	-	-	-	-	-	-
Burntwood River	BWR-A	6-Jun-17	NSC	102202	-	900 226000768893	987	1085	7031	M	8
Burntwood River	BWR-A	6-Jun-12	NSC	102207	-	-	1030	1145	9072	M	8
Burntwood River	BWR-A	31-May-17	NSC	102207	-	900 226000768806	1051	1181	9525	-	-
Burntwood River	BWR-A	5-Jun-17	NSC	102207	-	-	-	-	-	M	7
Burntwood River	BWR-A	8-Jun-12	NSC	102213	-	-	906	1010	-	-	-
Burntwood River	BWR-A	31-May-13	NSC	102213	-	900 226000548436	891	1012	4990	-	-
Burntwood River	BWR-A	15-Jun-17	NSC	102213	-	900 226000548436	920	1030	5080	-	-
Burntwood River	BWR-A	7-Jun-17	NSC	103152	-	900 226000153475	1160	1281	13608	-	-
Burntwood River	BWR-A	14-Jun-17	NSC	103152	-	900 226000153475	-	-	-	-	-
Burntwood River	BWR-A	7-Jun-17	NSC	103153	-	900 226000768887	996	1077	7711	M	7
Burntwood River	BWR-A	11-Jun-17	NSC	103153	-	900 226000768887	-	-	-	M	9
Burntwood River	BWR-A	12-Jun-17	NSC	103153	-	900 226000768887	-	-	-	-	-
Burntwood River	BWR-A	1-Jul-17	NSC	103153	-	900 226000768887	-	-	-	-	-

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy <sup>®</sup> Tag 1	Floy <sup>®</sup> Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Burntwood River	BWR-A	7-Jun-17	NSC	103164	-	900 226000153418	967	1065	7711	M	8
Burntwood River	BWR-A	11-Jun-17	NSC	103164	-	900 226000153418	-	-	-	M	9
Burntwood River	BWR-A	8-Jun-17	NSC	103170	-	900 226000153462	1170	1280	12474	-	-
Burntwood River	BWR-A	9-Jun-17	NSC	103170	-	900 226000153462	-	-	-	M	8
Burntwood River	BWR-A	9-Jun-17	NSC	103176	-	900 226000153420	884	976	5670	M	8
Burntwood River	BWR-A	13-Jun-17	NSC	103176	-	900 226000153420	-	-	-	-	-
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	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	12-Sep-14	NSC	56740		900 226000628078	391	447	425	-	-
Burntwood River	BWR-A	13-Jun-17	NSC	103191 <sub>1</sub>	-	900 226000628078	510	576	726	-	-
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	14-Jun-17	NSC	103197	-	900 226000768007	855	975	-	-	-
Burntwood River	BWR-A	18-Jun-17	NSC	103197	-	900 226000768007	-	-	-	-	-

<sup>1</sup> Original Floy tag lost; new tag applied in 2017

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy <sup>®</sup> Tag 1	Floy <sup>®</sup> Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
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	31-May-14	-	-	-	900 043000119526	201	230	46	-	-
Burntwood River	BWR-C	2-Jul-17	NSC	103785	-	900 043000119526	355	401	454	-	-
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	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-A	5-Jun-17	NSC	108602	-	900 226000153412	880	976	4990	-	-
Burntwood River	BWR-A	20-Jun-17	NSC	108602	-	900 226000153412	-	-	-	-	-
Kelsey GS Area	KGS-D	2-Jun-13	NSC	91664 <sup>1</sup>	-	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-A	5-Jun-17	NSC	108605	-	900 226000768843	956	1070	7484	M	7
Burntwood River	BWR-A	11-Jun-17	NSC	108605	-	900 226000768843	-	-	-	-	-
Split Lake	SPL-A	19-Jun-15	NSC	98628 <sup>1</sup>	-	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

<sup>1</sup> Original Floy tag lost; retagged in 2017.

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy <sup>®</sup> Tag 1	Floy <sup>®</sup> Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Burntwood River	BWR-A	6-Jun-17	NSC	108614	-	900 226000153427	1031	1160	10433	M	8
Burntwood River	BWR-A	26-Jun-17	NSC	108614	-	900 226000153427	-	-	-	-	-
Burntwood River	BWR-A	6-Jun-17	NSC	108618	-	900 226000153430	1000	1130	7711	M	8
Burntwood River	BWR-A	8-Jun-17	NSC	108618	-	900 226000153430	-	-	-	M	8
Burntwood River	BWR-A	6-Jun-17	NSC	108609	-	900 226000768834	941	1045	7257	-	-
Burntwood River	BWR-A	7-Jun-17	NSC	108609	-	900 226000768834	-	-	-	-	-
Burntwood River	BWR-A	15-Jun-17	NSC	108609	-	900 226000768834	-	-	-	-	-
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-A	7-Jun-17	NSC	108621	-	900 226000153401	1005	1143	10206	M	8
Burntwood River	BWR-A	16-Jun-17	NSC	108621	-	900 226000153401	-	-	-	-	-
Burntwood River	BWR-A	7-Jun-17	NSC	108622	-	900 226000768891	912	1015	4990	M	8
Burntwood River	BWR-A	11-Jun-17	NSC	108622	-	900 226000768891	-	-	-	M	9
Burntwood River	BWR-A	7-Jun-17	NSC	108623	-	900 226000153432	1000	1115	8165	M	8
Burntwood River	BWR-A	12-Jun-17	NSC	108623	-	900 226000153432	-	-	-	M	9
Burntwood River	BWR-A	7-Jun-17	NSC	108624	-	900 226000768841	1020	1138	8618	M	7
Burntwood River	BWR-A	21-Jun-17	NSC	108624	-	900 226000768841	-	-	-	-	-
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

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy <sup>®</sup> Tag 1	Floy <sup>®</sup> Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
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	1-Jun-17	NSC	108629	-	900 226000153469	1080	1196	11793	-	-
Burntwood River	BWR-A	9-Jun-17	NSC	108629	-	900 226000153469	-	-	-	-	-
Burntwood River	BWR-A	3-Jun-17	NSC	108633	-	900 226000768844	1102	1221	11340	-	-
Burntwood River	BWR-A	5-Jun-17	NSC	108633	-	900 226000768844	-	-	-	-	-
Burntwood River	BWR-A	1-Jul-17	NSC	108633	-	900 226000768844	-	-	-	-	-
Burntwood River	BWR-A	3-Jun-17	NSC	108634	-	900 226000153414	917	1015	5443	M	7
Burntwood River	BWR-A	21-Jun-17	NSC	108634	-	900 226000153414	-	-	-	-	-
Burntwood River	BWR-A	3-Jun-17	NSC	108636	-	900 226000768882	922	1013	8165	-	-
Burntwood River	BWR-A	3-Jul-17	NSC	108636	-	900 226000768882	-	-	-	-	-
Burntwood River	BWR-A	3-Jun-17	NSC	108637	-	900 226000768874	1084	1221	9979	-	-
Burntwood River	BWR-A	8-Jun-17	NSC	108637	-	900 226000768874	-	-	-	M	8
Burntwood River	BWR-A	3-Jun-17	NSC	108638	-	900 226000153440	886	1014	5216	-	-
Burntwood River	BWR-A	11-Jun-17	NSC	108638	-	900 226000153440	-	-	-	M	9
Kelsey GS Area	KGS-A	7-Jun-13	NSC	93894 <sup>1</sup>	-	900 226000548221	932	1039	7257	M	8
Burntwood River	BWR-A	4-Jun-17	NSC	108639	-	900 226000548221	1019	1132	8618	M	7

<sup>1</sup> Original Floy tag lost, retagged in 2017.

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy <sup>®</sup> Tag 1	Floy <sup>®</sup> Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Burntwood River	BWR-A	30-May-13	NSC	88677 <sup>1</sup>	-	900 226000548450	1040	1157	8165	M	7
Burntwood River	BWR-A	5-Jun-17	NSC	108645	-	900 226000548450	1058	1164	8618	M	7
Burntwood River	BWR-A	5-Jun-17	NSC	108647	-	900 226000768833	1024	1058	10886	M	7
Burntwood River	BWR-A	24-Jun-17	NSC	108647	-	900 226000768833	-	-	-	-	-
Burntwood River	BWR-A	8-Jun-06	NSC	80038	80039	-	1000	1100	6577	-	-
Kelsey GS Area	KGS-A	24-Jun-17	NSC	80039	-	900 226000768248	1099	1210	11340	-	-
Kelsey GS Area	KGS-D	2-Jun-07	NSC	74788	-	-	880	990	5670	-	-
Kelsey GS Area	KGS-A	4-Jun-17	NSC	74788	-	900 226000768204	1362	1415	24948	M	8
Kelsey GS Area	KGS-B	11-Jun-07	NSC	74800	-	-	878	920	6804	-	-
Kelsey GS Area	KGS-B	25-Jun-17	NSC	74800	-	900 226000768553	1125	1245	14515	-	-
Kelsey GS Area	KGS-B	11-Jun-07	NSC	74827	-	-	670	746	2722	-	-
Kelsey GS Area	KGS-A	16-Jun-13	NSC	74827	-	-	-	-	-	-	-
Kelsey GS Area	KGS-A	30-May-17	NSC	74827	-	900 226000768290	990	1095	9979	-	-
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	-	-
Kelsey GS	KGS-A	27-Jun-13	NSC	81977	-	900 226000548200	846	960	5443	-	-
Kelsey GS Area	KGS-A	13-Jun-17	NSC	81977	-	900 226000548200	935	1063	6804	-	-

<sup>1</sup> Original Floy tag lost, retagged in 2017.

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy® Tag 1	Floy® Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Nelson River (BR - GR)	GL-B	27-Sep-08	NSC	86143	-	-	608	692	1710	-	-
Kelsey GS Area	KGS-A	2-Jun-17	NSC	86143	-	900 226000768243	845	948	6804	-	-
Burntwood River	BWR-A	4-Jun-13	NSC	88698	-	900 226000548394	890	1027	7031	-	-
Burntwood River	BWR-A	7-Jun-13	NSC	88698	-	900 226000548394	-	-	-	-	-
Burntwood River	BWR-A	11-Jun-13	NSC	88698	-	900 226000548394	-	-	-	-	-
Kelsey GS Area	KGS-D	6-Jun-17	NSC	88698	-	900 226000548394	957	1080	9979	M	8
Burntwood River	BWR-A	16-Jun-15	NSC	89019	-	900 226000628953	890	992	5897	-	-
Kelsey GS Area	KGS-D	21-Jun-17	NSC	89019	-	900 226000628953	910	1020	6350	M	9
Burntwood River	BWR-B	14-Jun-15	NSC	89024	-	900 226000628989	980	1070	8165	-	-
Kelsey GS Area	KGS-D	30-Jun-17	NSC	89024	-	900 226000628989	999	1100	9979	-	-
Burntwood River	BWR-A	8-Jun-15	NSC	89029	-	900 226000628755	1060	1182	9525	-	-
Kelsey GS Area	KGS-D	30-Jun-17	NSC	89029	-	900 226000628753	1050	1174	9525	-	-
Kelsey GS Area	KGS-A	15-Jun-09	NSC	89470	-	-	805	895	4990	-	-
Kelsey GS Area	KGS-A	16-Jun-09	NSC	89470	-	-	-	-	-	-	-
Kelsey GS Area	KGS-A	21-Jun-13	NSC	89470	-	900 226000548160	989	1090	9299	-	-
Kelsey GS Area	KGS-A	11-Jun-17	NSC	89470	-	900 226000548160	1064	1160	9525	-	-
Kelsey GS Area	KGS-B	10-Jun-13	NSC	91352	-	900 226000548139	899	995	7257	-	-
Kelsey GS Area	KGS-A	13-Jun-17	NSC	91352	-	900 226000548139	938	1035	6350	-	-
Kelsey GS Area	KGS-A	21-Jun-13	NSC	91374	-	900 226000548000	917	1014	8845	-	-
Kelsey GS Area	KGS-A	30-May-17	NSC	91374	-	900 226000548000	980	1090	10886	-	-

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy <sup>®</sup> Tag 1	Floy <sup>®</sup> Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
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	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	7-Jun-13	NSC	93895	-	900 226000548100	964	1071	8845	-	-
Kelsey GS Area	KGS-D	27-Jun-17	NSC	93895	-	900 226000548100	1050	1151	12701	-	-
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	1-Jun-15	NSC	98619	-	900 226000548527	1036	1140	8165	-	-
Kelsey GS Area	KGS-A	14-Jun-15	NSC	98619	-	900 226000548527	-	-	-	-	-
Kelsey GS Area	KGS-A	5-Jun-17	NSC	98619	-	900 226000548527	1035	1143	10433	-	-
Kelsey GS Area	KGS-D	23-Jun-11	NSC	94843	-	-	808	-	4264	-	-
Kelsey GS Area	KGS-D	23-Jun-17	NSC	94843	-	900 226000768296	1000	1095	9072	-	-
Kelsey GS Area	KGS-A	10-Jun-11	NSC	94471	-	-	981	1091	9299	-	-
Kelsey GS Area	KGS-A	2-Jun-17	NSC	94471	-	900 226000768261	1092	1210	11340	-	-

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (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	1-Jun-15	NSC	98620	-	900 226000548709	984	1110	839	-	-
Kelsey GS Area	KGS-A	7-Jun-15	NSC	98620	-	900 226000548709	-	-	-	-	-
Kelsey GS Area	KGS-A	31-May-17	NSC	98620	-	900 226000548709	1040	1170	9979	-	-
Kelsey GS Area	KGS-A	3-Jun-17	NSC	98620	-	900 226000548709	-	-	-	-	-
Kelsey GS Area	KGS-A	18-Jun-15	NSC	98630	-	900 226000548748	822	913	4536	-	-
Kelsey GS Area	KGS-C	8-Jun-17	NSC	98630	-	900 226000548748	844	931	6350	-	-
Kelsey GS Area	KGS-B	22-Jun-15	NSC	98908	-	900 226000548645	889	997	5897	-	-
Kelsey GS Area	KGS-A	31-May-17	NSC	98908	-	900 226000548645	911	1030	8165	-	-
Kelsey GS Area	KGS-A	8-Jun-17	NSC	98908	-	900 226000548645	-	-	-	-	-
Kelsey GS Area	KGS-A	22-Jun-15	NSC	98911	-	900 226000548621	888	1005	6350	-	-
Kelsey GS Area	KGS-C	5-Jun-17	NSC	98911	-	900 226000548621	924	1050	8165	-	-
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	23-Jun-15	NSC	98918	-	900 226000548642	896	1008	5897	-	-
Kelsey GS Area	KGS-A	11-Jun-17	NSC	98918	-	900 226000548642	945	1067	6804	-	-
Kelsey GS Area	KGS-A	24-Jun-15	NSC	98924	-	900 226000548710	975	1087	7711	-	-
Kelsey GS Area	KGS-A	8-Jun-17	NSC	98924	-	900 226000548710	982	1100	8618	-	-
Kelsey GS Area	KGS-A	24-Jun-15	NSC	98925	-	900 226000548676	895	1007	6350	-	-
Kelsey GS Area	KGS-A	1-Jun-17	NSC	98925	-	900 226000548676	930	1045	7711	-	-
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	-	-

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy <sup>®</sup> Tag 1	Floy <sup>®</sup> Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Nelson River (CL-GR)	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	-	-
Burntwood River	BWR-A	6-Sep-12	NSC	102216	-	-	825	925	4082	M	8
Kelsey GS Area	KGS-D	21-Jun-17	NSC	102216	-	900 226000768229	938	1038	7711	-	-
Nelson River (BR - GR)	BR-D	5-Jun-14	NSC	105425	-	-	939	1070	9072	-	-
Kelsey GS Area	KGS-A	15-Jun-17	NSC	105425	-	900 226000768917	970	1110	6804	-	-
Split Lake	SPL-A	10-Jun-17	NSC	110736	-	900 226000548240	1112	1226	11340	-	-
Kelsey GS Area	KGS-A	13-Jun-17	NSC	110736	-	900 226000548240	-	-	-	-	-
Kelsey GS Area	KGS-D	10-Jun-17	NSC	110738	-	900 226000768252	867	978	4990	-	-
Kelsey GS Area	KGS-A	23-Jun-17	NSC	110738	-	900 226000768252	-	-	-	-	-
Kelsey GS Area	KGS-A	9-Jun-17	NSC	110741	-	900 226000768299	980	1095	9979	-	-
Kelsey GS Area	KGS-A	23-Jun-17	NSC	110741	-	900 226000768299	-	-	-	-	-
Kelsey GS Area	KGS-A	9-Jun-17	NSC	110742	-	900 226000768220	925	1020	8165	M	8
Kelsey GS Area	KGS-A	16-Jun-17	NSC	110742	-	900 226000768220	-	-	-	-	-
Kelsey GS Area	KGS-D	7-Jun-17	NSC	110748	-	900 226000768227	920	1020	10433	-	-
Kelsey GS Area	KGS-D	13-Jun-17	NSC	110748	-	900 226000768227	-	-	-	-	-
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	-	-	-	-	-

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy <sup>®</sup> Tag 1	Floy <sup>®</sup> Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
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	5-Jun-17	NSC	110764	-	900 226000768274	1005	1125	9525	-	-
Kelsey GS Area	KGS-A	7-Jun-17	NSC	110764	-	900 226000768274	-	-	-	-	-
Kelsey GS Area	KGS-A	5-Jun-17	NSC	110765	-	900 226000768263	964	1080	9979	M	8
Kelsey GS Area	KGS-A	7-Jun-17	NSC	110765	-	900 226000768263	-	-	-	-	-
Kelsey GS Area	KGS-A	4-Jun-17	NSC	110766	-	900 226000768292	935	1055	8618	-	-
Kelsey GS Area	KGS-A	13-Jun-17	NSC	110766	-	900 226000768292	-	-	-	-	-
Nelson River (BR - GR)	GL-B	2-Jul-14	NSC	105692	-	900 226000629079	865	985	5443	-	-
Kelsey GS Area	KGS-C	2-Jun-17	NSC	110767	-	900 226000629079	948	1072	8618	-	-
Kelsey GS Area	KGS-A	30-May-17	NSC	110775	-	900 226000768250	920	1040	7711	-	-
Kelsey GS Area	KGS-A	12-Jun-17	NSC	110775	-	900 226000768250	-	-	-	-	-
Kelsey GS Area	KGS-A	2-Jun-15	NSC	98623 <sup>1</sup>	-	900 226000548546	850	951	5443	-	-
Kelsey GS Area	KGS-A	13-Jun-17	NSC	111553	-	900 226000548546	870	972	5443	-	-
Kelsey GS Area	KGS-D	1-Jul-17	NSC	111553	-	900 226000548546	-	-	-	-	-

<sup>1</sup> Original Floy tag lost; retagged in 2017

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy <sup>®</sup> Tag 1	Floy <sup>®</sup> Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Kelsey GS Area	KGS-C	10-Jun-11	NSC	94474	-	-	963	1074	9525	-	-
Kelsey GS Area	KGS-A	2-Jun-13	NSC	94474	-	900 226000548199	1040	1163	10886	-	-
Kelsey GS Area	KGS-A	18-Jun-15	NSC	94474 <sup>1</sup>	-	900 226000548199	1091	1203	11340	-	-
Kelsey GS Area	KGS-A	13-Jun-17	NSC	111555	-	900 226000548199	1110	1222	10433	-	-
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	14-Jun-17	NSC	111561	-	900 226000768230	996	1094	6804	-	-
Kelsey GS Area	KGS-B	24-Jun-17	NSC	111561	-	900 226000768230	-	-	-	-	-
Kelsey GS Area	KGS-A	16-Jun-17	NSC	111566	-	900 226000768284	988	1110	7711	-	-
Kelsey GS Area	KGS-A	17-Jun-17	NSC	111566	-	900 226000768284	-	-	-	-	-
Kelsey GS Area	KGS-B	22-Jun-17	NSC	111566	-	900 226000768284	-	-	-	-	-
Upper Nelson River	Near Landing River Mouth	2-Jul-11	MB Fisheries NE	00934	-	985 121008563181	-	889	3787	-	-
Kelsey GS Area	KGS-A	2-Jun-17	MB Fisheries NE	00934	-	985 121008563181	925	1036	7711	-	-
Kelsey GS Area	SPL-A	22-Jun-13	NSC	94129	-	1380347911	698	782	3629	-	-
Kelsey GS Area	SPL-A	26-Jun-17	NSC	94129	-	1380347911	880	979	5897	-	-

<sup>1</sup> Original Floy tag lost; retagged in 2017.

**Table A2-1: Tagging and biological information for Lake Sturgeon recaptured in the Upper Split Lake Area, spring 2017 (continued).**

Location	Zone	Date	Prefix	Floy <sup>®</sup> Tag 1	Floy <sup>®</sup> Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Gull Lake	GL-C	28-Sep-10	NSC	87873	-		780	898	-	-	-
Kelsey GS Area	SPL-A	1-Jul-17	NSC	87873	-	900 226000768946	968	1091	7257	-	-
Burntwood River	BWR-A	8-Jun-15	NSC	89030	-	900 226000628841	1208	1255	11793	-	-
Burntwood River	BWR-A	13-Jun-15	NSC	89030	-	900 226000628841	-	-	-	-	-
Kelsey GS Area	SPL-A	8-Jun-17	NSC	89030	-	900 226000628841	1149	1270	14061	-	-
Burntwood River	BWR-A	7-Jun-17	NSC	103156	-	900 226000153444	1055	1170	11793	-	-
Kelsey GS Area	SPL-A	30-Jun-17	NSC	103156	-	900 226000153444	-	-	-	-	-
Burntwood River	BWR-A	8-Jun-17	NSC	103168	-	900 226000153470	995	1094	7938	M	8
Kelsey GS Area	SPL-A	1-Jul-17	NSC	103168	-	900 226000153470	-	-	-	-	-
Kelsey GS Area	SPL-A	8-Sep-16	NSC	103849	-	1380347913	755	840	-	-	-
Kelsey GS Area	SPL-A	13-Jun-17	NSC	103849	-	1380347913	750	842	3175	-	-

## **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.**

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Table A3-1: Tagging and biological information for Lake Sturgeon moving between the Upper Split Lake Area and the Nelson River between Birthday Rapids and Gull Rapids. ....	85
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**Table A3-1: Tagging and biological information for Lake Sturgeon moving between the Upper Split Lake Area and the Nelson River between Birthday Rapids and Gull Rapids.**

Capture Location	Zone	Date	Prefix	Floy Tag 1	Floy Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Nelson River (BR - GR)	GL-B	27-Sep-08	NSC	86143	-	-	608	692	1710	-	-
Kelsey GS Area	KGS-A	02-Jun-17	NSC	86143	-	900 226000768243	845	948	6804	-	-
Nelson River (CL-GR)	GL-B	06-Jul-12	NSC	100417	-	-	745	821	3100	-	-
Kelsey GS Area	KGS-A	13-Jun-17	NSC	100417	-	900 226000768234	860	954	6804	-	-
Nelson River (BR - GR)	BR-D	05-Jun-14	NSC	105425	-	-	939	1070	9072	-	-
Kelsey GS Area	KGS-A	15-Jun-17	NSC	105425	-	900 226000768917	970	1110	6804	-	-
Nelson River (BR - GR)	GL-B	02-Jul-14	NSC	105692	-	900 226000629079	865	985	5443	-	-
Kelsey GS Area	KGS-C	02-Jun-17	NSC	110767	-	900 226000629079	948	1072	8618	-	-
Gull Lake	GL-C	28-Sep-10	NSC	87873	-	-	780	898	-	-	-
Kelsey GS Area	SPL-A	01-Jul-17	NSC	87873	-	900 226000768946	968	1091	7257	-	-
Gull Lake	GL-B	31-Aug-06	NSC	82631	-	-	750	827	2722	-	-
Nelson River (CL-GR)	BR-D	09-Jun-11	NSC	82631	-	-	867	953	6124	-	-
Kelsey GS Area	KGS-A	03-Jun-13	NSC	82631	-	900 226000548029	898	993	6123	-	-
Kelsey GS Area	KGS-B	16-Jun-15	NSC	82631	-	900 226000548029	912	1013	5897	-	-

**Table A3-1: Tagging and biological information for Lake Sturgeon moving between the Upper Split Lake Area and the Nelson River between Birthday Rapids and Gull Rapids (continued).**

Capture Location	Zone	Date	Prefix	Floy Tag 1	Floy Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Nelson River (CL-GR)	BR-D	08-Jun-10	NSC	94030	-	-	900	998	6350	-	-
Nelson River (CL-GR)	BR-D	13-Jun-11	NSC	94030	-	-	915	1016	6804	M	7
Nelson River (CL-GR)	BR-D	09-Jun-14	NSC	94030	-	-	980	1085	9299	M	8
Kelsey GS Area	KGS-B	11-Jun-15	NSC	94030	-	900 226000548561	1009	1110	8165	-	-
Kelsey GS Area	KGS-B	13-Jun-15	NSC	94030	-	900 226000548561	-	-	-	-	-
Gull Lake	GL-B	23-Sep-11	NSC	94871	-	-	760	853	3500	-	-
Kelsey GS Area	KGS-A	22-Jun-15	NSC	94871	-	900 226000548557	818	911	4082	-	-
Nelson River (BR-GR)	BR-D	23-Jun-14	NSC	101447	-	900 226000629123	1045	1167	9072	-	-
Kelsey GS Area	KGS-A	01-Jun-15	NSC	101447	-	900 226000629123	1050	1192	9979	-	-
Kelsey GS Area	KGS-A	07-Jun-15	NSC	101447	-	900 226000629123	-	-	-	-	-
Kelsey GS Area	KGS-A	24-Jun-15	NSC	101447	-	900 226000629123	-	-	-	-	-
Nelson River (CL-GR)	BR-D	18-Jun-06	NSC	76414	-	-	768	848	4309	-	-
Kelsey GS (NR-SPL)	KGS-A	16-Jun-13	NSC	76414	-	900 226000548093	982	1090	9299	M	7
Kelsey GS (NR-SPL)	KGS-B	25-Jun-13	NSC	76414	-	900 226000548093	-	-	-	-	-
Nelson River (CL-GR)	GL-A	27-Jun-16	NSC	76414	-	900 226000548093	1033	1141	11340	-	-
Nelson River (CL-GR)	BR-D	09-Jun-11	NSC	82631	-	-	867	953	6124	-	-
Kelsey GS (NR-SPL)	KGS-A	03-Jun-13	NSC	82631	-	900 226000548029	898	993	6123	-	-

**Table A3-1: Tagging and biological information for Lake Sturgeon moving between the Upper Split Lake Area and the Nelson River between Birthday Rapids and Gull Rapids (continued).**

Capture Location	Zone	Date	Prefix	Floy Tag 1	Floy Tag 2	PIT Tag	Fork Length (mm)	Total Length (mm)	Weight (g)	Sex	Maturity
Nelson River (CL-GR)	BR-D	19-Jun-12	NSC	100485	-	-	810	930	4536	-	-
Kelsey GS (NR-SPL)	KGS-A	05-Jun-13	NSC	100485	-	900 226000548134	823	949	5443	-	-
Nelson River (CL-GR)	GL-C	20-Jun-12	NSC	100487	-	-	1410	1580	29030	-	-
Kelsey GS (NR-SPL)	KGS-B	21-Jun-13	NSC	100487	-	900 226000548156	1438	1530	26082	-	-
Gull Lake	GL-B	6 or 8-Oct-99	NSC	40006	-	-	-	-	-	-	-
Kelsey GS area	KGS-B	17-Aug-06	NSC	40006	82330	-	1005	1110	10433	-	-
Kelsey GS area	KGS-B	21-Aug-06	NSC	40006	82330	-	-	-	-	-	-
Kelsey GS area	KGS-C	16-Jun-07	NSC	40006	82330	-	1050	1110	-	-	-
Nelson River (CL-GR)	BR-D	07-Jun-03	NSC	50839	-	-	961	1065	7250	-	-
Kelsey GS area	KGS-D	17-Jun-06	NSC	50839	-	-	1025	1136	6391	-	-
Kelsey GS Area	KGS-C	16-Jun-11	NSC	94458	-	-	925	1007	9165	-	-
Nelson River (CL-GR)	GL-A	22-May-16	NSC	94458	-	-	970	1087	7484	-	-
Kelsey GS Area	KGS-A	21-Aug-07	NSC	76852	-	-	1237	1369	23587	-	-
Nelson River (CL-GR)	BR-D	12-Jun-14	NSC	76852	-	900 226000629153	1331	1431	21546	-	-

## APPENDIX 4:

### POPULATION ESTIMATE INFORMATION

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Table A4-1:	Results of POPAN analysis of adult Lake Sturgeon from the Burntwood River. Best model was constant survival and variable recapture..	91
Table A4-2:	Results of PRADEL Lambda Jolly-Seber analysis of adult Lake Sturgeon from the Burntwood River. ....	92
Table A4-3:	Results of POPAN analysis of adult Lake Sturgeon from the Kelsey GS Area..	93
Table A4-4:	Results of PRADEL Lambda Jolly-Seber analysis of adult Lake Sturgeon from the Kelsey GS Area..	94

Mark-recapture population estimates have been calculated for the Burntwood River during the spring of 12 different years (2001, 2002, 2005–2007, 2009–2013, 2015, and 2017) and for the Kelsey GS Area during the spring of 10 different years (2001, 2002, 2005–2007, 2009, 2011, 2013, 2015, and 2017). 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 ( $n = 25$ ) 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.

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 0's (not-encountered) and 1's (re-encountered live capture) to generate a probability distribution of tag recaptures which form the basis of population estimation. Re-encounters can also be from dead recoveries (*e.g.*, the animal is harvested) in which case the model uses a value of -1. For example, the history "10-1" indicates that an animal was captured for the first time at sampling occasion 1, not encountered at sampling occasion 2, and recovered dead at sampling occasion 3.

Several different population model variants exist, most of which can be classified as either closed or open models. Closed models assume there are no births, deaths, immigration, or emigration between sample periods, while open models assume these processes occur. 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 and 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).

- Model fit for survival was calculated to be 88% for the Burntwood River and 81% for the Kelsey GS Area.
- The probability of recapture varied among years. Recapture rates were split into four groups based on the model for the Burntwood River: i) 2001 and 2002 had mid-low

recapture rates (0.15); ii) 2005, 2010, and 2012) had low recapture rates (0.07); iii) 2006, 2007, 2013 and 2015 had mid-high recapture rates (0.21); iv) 2009 and 2017 had high recapture rates (0.30). For the Kelsey GS Area, recapture rates were split into four groups: i) 2001, 2002 and 2005 had low recapture rates (0.03); ii) 2006, 2007, 2009 and 2011 had moderate recapture rates (0.13); iii) 2013, 2015 and 2017 had high recapture rates (0.25).

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

To assess the long term trends in abundance, a Pradel Lambda variant of the Jolly-Seber model was run to estimate population growth (Pradel 1996). This model used the same inputs and parameters as the POPAN model but uses a different mathematical formulation; therefore estimates such as survival and recapture may differ slightly but not significantly from the POPAN model (Tables A3-2 and A3-4). The Lambda parameter provides a measure of population growth between years, with values less than one indicating population decline between the current and preceding year, values of one indicating equilibrium, and values greater than one indicating population growth.

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

Parameter	Mean	Standard Error	95% Confidence Interval	
			Low	High
Survival (all years)	0.88	0.02	0.84	0.91
2001, 2002 Recapture <sub>(low-mid)</sub>	0.15	0.02	0.11	0.20
2005, 2010, 2012 Recapture <sub>(low)</sub>	0.07	0.01	0.05	0.09
2006, 2007, 2013, 2015 Recapture <sub>(mid-high)</sub>	0.21	0.02	0.18	0.26
2009, 2017 Recapture <sub>(high)</sub>	0.30	0.04	0.24	0.37
2001 Abundance	128	29	82	200
2002 Abundance	112	26	72	176
2005 Abundance	246	35	186	326
2006 Abundance	216	32	161	289
2007 Abundance	377	36	312	455
2009 Abundance	291	34	231	365
2010 Abundance	456	88	313	665
2011 Abundance	493	67	379	642
2012 Abundance	433	61	328	571
2013 Abundance	551	62	443	686
2015 Abundance	579	64	467	718
2017 Abundance	561	65	447	704

**Table A4-2: Results of PRADEL Lambda Jolly-Seber analysis of adult Lake Sturgeon from the Burntwood River. Best model was constant survival and variable recapture. Confidence intervals are rounded.**

Parameter	Mean	Standard Error	95% Confidence Interval	
			Low	High
Survival (all years)	0.88	0.02	0.84	0.91
2001, 2002 Recapture <sub>(low-mid)</sub>	0.13	0.03	0.08	0.19
2005, 2010, 2012 Recapture <sub>(low)</sub>	0.07	0.01	0.05	0.11
2006, 2007, 2013, 2015 Recapture <sub>(mid-high)</sub>	0.21	0.02	0.17	0.26
2009, 2017 Recapture <sub>(high)</sub>	0.30	0.04	0.24	0.37
2002 Lambda	0.71	0.23	0.38	1.33
2005 Lambda	0.92	0.13	0.71	1.21
2006 Lambda	1.36	0.42	0.75	2.46
2007 Lambda	1.83	0.29	1.34	2.50
2009 Lambda	0.86	0.07	0.74	1.00
2010 Lambda	1.61	0.37	1.04	2.52
2011 Lambda	1.24	0.34	0.73	2.12
2012 Lambda	0.76	0.20	0.46	1.26
2013 Lambda	1.31	0.28	0.87	1.97
2015 Lambda	1.02	0.05	0.93	1.13
2017 Lambda	0.98	0.06	0.87	1.11

**Table A4-3: Results of POPAN analysis of adult Lake Sturgeon from the Kelsey GS Area. Best model was constant survival and variable recapture. Confidence intervals are rounded.**

Parameter	Mean	Standard Error	95% Confidence Interval	
			Low	High
Survival (all years)	0.81	0.02	0.76	0.85
2001, 2002, 2005 Recapture <sub>(low)</sub>	0.03	0.01	0.02	0.05
2006, 2007, 2009, 2011 Recapture <sub>(mid)</sub>	0.13	0.02	0.09	0.18
2013, 2015, 2017 Recapture <sub>(high)</sub>	0.25	0.04	0.18	0.33
2001 Abundance	330	124	162	671
2002 Abundance	267	101	131	546
2005 Abundance	649	133	436	964
2006 Abundance	525	111	349	790
2007 Abundance	548	94	393	765
2009 Abundance	359	69	247	523
2011 Abundance	371	75	251	549
2013 Abundance	522	85	380	717
2015 Abundance	580	89	429	783
2017 Abundance	592	90	440	797

**Table A4-4: Results of PRADEL Lambda Jolly-Seber analysis of adult Lake Sturgeon from the Kelsey GS Area. Best model was constant survival and variable recapture. Confidence intervals are rounded.**

Parameter	Mean	Standard Error	95% Confidence Interval	
			Low	High
Survival (all years)	0.80	0.03	0.75	0.85
2001, 2002, 2005 Recapture <sub>(low)</sub>	0.05	0.02	0.02	0.12
2006, 2007, 2009, 2011 Recapture <sub>(mid)</sub>	0.17	0.04	0.11	0.25
2013, 2015, 2017 Recapture <sub>(high)</sub>	0.25	0.04	0.19	0.34
2002 Lambda	0.43	0.20	0.18	1.04
2003 Lambda	-	-	-	-
2004 Lambda	-	-	-	-
2005 Lambda	1.54	0.23	1.15	2.07
2006 Lambda	3.14	0.78	1.94	5.08
2007 Lambda	0.99	0.17	0.71	1.38
2008 Lambda	-	-	-	-
2009 Lambda	0.50	0.11	0.33	0.76
2010 Lambda	-	-	-	-
2011 Lambda	1.01	0.08	0.86	1.19
2012 Lambda	-	-	-	-
2013 Lambda	1.31	0.14	1.06	1.62
2014 Lambda	-	-	-	-
2015 Lambda	1.05	0.05	0.95	1.17
2016 Lambda	-	-	-	-
2017 Lambda	1.03	0.05	0.94	1.13