

**Lake Trout Monitoring Program  
2019 Program Update**

May 2020



# Lake Trout Monitoring Program 2019 Program Update

Government of Yukon  
Fish and Wildlife Branch  
**SR-20-02**

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## Summary

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The Department of Environment conducts yearly population assessments of lake trout. This document provides an overview of the program as well as providing results from all individual lakes, as assessed from 2010 through 2019.

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# Table of Contents

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Summary.....	iii
Table of Contents.....	iv
List of Figures .....	vi
List of Tables .....	vi
Introduction.....	1
Overview.....	1
Key lake trout and lake whitefish biological characteristics .....	1
Lake Trout.....	1
Lake Whitefish.....	2
Program Methods .....	3
SPIN .....	3
Length / Growth / Age.....	3
Habitat.....	3
Results.....	3
Data Uncertainties.....	4
Report Usage.....	4
Alsek River Watershed .....	6
Aishihik Lake 2017 .....	7
Dezadeash Lake 2013 .....	9
Pine Lake 2010.....	11
Sekulmun Lake 2010 .....	13
Mackenzie River Watershed.....	15
Frances Lake 2017 .....	16
Simpson Lake 2014.....	18
Toobally Lakes 2019 .....	20
Watson Lake 2015.....	22
Yukon River Watershed.....	24
Atlin Lake 2014.....	25
Bennett Lake 2014.....	27
Braeburn Lake 2016 .....	29
Caribou Lake 2011 .....	31
Caribou Lake 2012 .....	33
Chadburn Lake 2015.....	35
Ethel Lake 2011.....	37
Fish Lake 2010.....	39
Fish Lake 2012.....	41
Fox Lake 2013.....	43
Frenchman Lake 2012.....	45
Kathleen Lakes 2019 .....	47
Kluane Lake 2013 .....	49
Kusawa Lake 2014.....	51
Ladue Lake 2017.....	53
Lake Laberge 2016.....	55
Lewes Lake 2010.....	57
Little Atlin Lake 2015.....	59
Little Fox Lakes 2016.....	61
Little Salmon Lake 2015.....	63
Louise (Jackson) Lake 2011 .....	65
Mandanna Lake 2013.....	67
Marsh Lake 2015 .....	69
Mayo Lake 2013.....	71

Michie Lake 2017 .....	73
Minto Lake 2014.....	75
Morley Lake 2018 .....	77
Quiet Lake 2012.....	79
Snafu Lake (lower) 2010 .....	81
Snafu Lake (Gazetted) 2018.....	83
Tagish Lake 2015.....	85
Tarfu Lake 2010.....	87
Ta'tla Mun 2011 .....	89
Ten Mile Lake 2016 .....	91
Teslin Lake 2016 .....	93
Twin Lake (east) 2013.....	95
Twin Lake (west) 2013 .....	97
Wolf Lake 2018 .....	99
<b>References.....</b>	<b>101</b>

---

## List of Figures

---

Figure 1. Major Yukon Drainages..... 5

---

## List of Tables

---

Table 1. Yukon lake size categories. .... 3  
Table 2. Major Yukon Drainages and watersheds. .... 3

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## Introduction

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The Department of Environment conducts yearly population assessments of lake trout (*Salvelinus namaycush*) and lake whitefish (*Coregonus clupeaformis*) as part of its' delegated mandate under the 1989 Canada-Yukon Freshwater Fisheries Agreement. These assessments provide data to aid in fisheries management decisions.

This document provides information on the Yukon Lake Trout Monitoring Program, including: an overview of the program and its goals; the key biological characteristics of lake trout and lake whitefish; current scientific methodology used in the program; and the current results of all assessed lakes from 2010 through 2019.

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## Overview

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Freshwater fisheries have long been determined to be valued and integral components of Yukon society and culture (Department of Environment 2010).

Historically, fisheries have always played an important role in First Nations substance. However, in the early 1900' commercial fisheries became prevalent, to supply cheap and readily available food sources to miners associated with the Dawson gold rush. Later, commercial fisheries supplied food for workers developing the Alaska Highway. Historic records suggest that these commercial fisheries may have depleted many lake's fish populations.

Today, the value of recreational fishing to Yukon residents remains evident as recreational fishing pressures continue to grow (Sinclair and Perry 2019). For example, the 2015 National Recreational Fishing Survey (Fisheries and Oceans 2019) indicated that the amount of freshwater fish annually caught in Yukon was approximately 200,000. With this level of pressure, it is important for the Government of Yukon monitor fish stocks to ensure the sport fishery remains healthy and sustainable.

Since 1990, fish populations have been annually assessed across the territory by the Department of Environment. In 2010, the Lake Trout Monitoring Program was launched, which has been providing lake trout population

estimates and lake whitefish population information.

The goals of this program are to provide scientific data on the status of fish populations and their health to aid in the management and establishment of regulatory decisions. The Lake Trout Monitoring Program has also provided data to determine population trends to further support population modelling in response to climate change.

The Lake Trout Monitoring Program in combination with Angler Harvest Surveys, the Fish Health program, and the Southern Lakes Lake Trout Movement Project, forms the basis of Yukon's Fisheries Program, providing accurate data on the condition, life history and recreational use of Yukon's freshwater fish stocks.

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## Key lake trout and lake whitefish biological characteristics

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While the principle objective of this program is to provide population data to assist fisheries management decisions, it is also important to understand the key biological characteristics of lake trout and lake whitefish. It is also important to understand that Yukon lakes have been found to be low in productivity, as compared to southern Canadian Lakes (Milligan 2018). Below is an overview of these characteristics which includes: distribution; habitat; diet; age and growth, and spawning information.

### Lake Trout

#### Distribution

Lake trout are distributed across Canada and can be found throughout the Yukon (Scott and Crossman 1973). Current Yukon distribution of lake trout include all watersheds, with an absence noted in northwestern Beringia (Lindsey 1964).

#### Habitat

The key habitat requirements of lake trout are cold, clear waters with suitable temperature and oxygen limits. While lake trout can tolerate a range of temperatures below 15°C, the optimum thermal range for their habitat lies within 8°C to 12°C (Christie et. al. 1988). Within this range, the minimum dissolved oxygen level to support lake trout is above 4 mg/L (Clark et al. 2004), with

optimal levels being greater than 7 mg/L (Evans 2005).

### **Diet**

Lake trout are a top predator in Yukon lakes, feeding on a broad range of organisms from zooplankton and benthic invertebrates to fish (Scott and Crossman 1973). In Yukon lakes, stomach content analysis has continued to show that ciscoes and lake whitefish are a primary food source for lake trout.

### **Age and Growth**

Lake trout in northern regions are known to be slow-growing and long-lived fish (Martin and Oliver 1980). In Yukon, it is not uncommon to find lake trout over 30 years of age, reaching upwards of 50 (Environment Yukon 2010). Lake trout growth rates are related to prey availability, particularly the presence or absence of lake whitefish and ciscoes. Studies have found that higher densities of large lake trout (large-bodied morphs) occur in lakes where lake whitefish are present, while lakes void of whitefish and ciscoes (simple biological communities) tend to support high densities of small non-piscivorous lake trout (small-bodied morphs; Carl 2008). Evidence from the Lake Trout Monitoring Program supports this observation. Yukon's 'small-bodied' lake trout morphs have been found in lakes absent of lake whitefish (e.g. Kathleen Lake), and 'large-bodied' morphs have been found in lakes where lake whitefish are present (e.g. Mayo Lake).

### **Spawning**

Lake trout are fall-spawners and can be found spawning in Yukon throughout September and October, as water temperatures cool. Unlike many other salmonids, lake trout do not construct spawning nests. Lake trout typically spawn over coarse or angular clean rocks, depositing eggs into the cracks between the rock substrate (McPhail 2007). While lake trout maturity is dependant on the individual population and morph-type, this species generally matures between 5 and 13 years of age.

## **Lake Whitefish**

### **Distribution**

Lake whitefish are a cold-water species, are widely distributed across Canada, mainly found in large, deep lakes and rivers (Scott and Crossman 1973). In Yukon lakes, where ciscoes are absent, lake whitefish have been found to co-occur with

European whitefish (*Coregonus lazarettos*) (Mee et al. 2015). While these two species can exhibit physical differences (e.g. number and size of gill rakers), they are often hard to distinguish with the naked eye and require genetic analysis (Mee et al. 2015, COSEWIC 2018).

### **Habitat**

While there is limited results on the defined habitat needs of lake whitefish, adults of this species are predominately found in deep, cool lakes, with temperatures ranging from 8°C to 14°C (McPhail 2007). Throughout the Yukon Lake Trout Monitoring Program, lake whitefish have been found to reside mainly in depths greater than 20 m. Dissolved oxygen levels suitable for lake whitefish are found at levels greater than 4 mg/L (Havens et al. 2014).

### **Diet**

Lake whitefish feed on a variety of aquatic organisms, focusing on zooplankton as juveniles, and larger benthic invertebrates as adults (e.g. snails; McPhail 2007). In many systems lake whitefish are known to also prey on smaller coarse fish (Scott and Crossman 1973). By examining lake whitefish stomach content, we have seen evidence of this, as well as observing that lake whitefish feed on midges, mussels and caddisflies.

### **Age and Growth**

Similar to lake trout, lake whitefish in Yukon lakes are a slow growing and long-lived fish species (Scott and Crossman 1973). Lake whitefish can be found to live upwards of 35 years within Yukon lakes. Growth rates in lake whitefish are a factor of lake productivity, temperature, age at maturity and population density (Healy 1980, McPhail 2007).

### **Spawning**

Lake whitefish spawn in the fall, throughout September and October as temperatures cool, however exact spawning dates differ between lakes and temperature ranges, and may occur bi-annually (McPhail 2007, Kennedy 1953). Spawning occurs at night and is associated with increased activity, prior to eggs settling on the substrate (Becker 1983). Lake whitefish tend to reach maturity faster than lake trout, with age at maturity between 4 and 10 years (McPhail 2007).

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## Program Methods

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### SPIN

The methodology used to effectively assess lake trout populations in the Yukon has evolved over the years (Jessup and Millar 2011). Presently, the method used is the Summer Profundal Index Netting (SPIN) lake trout assessment model, developed by the Ontario Ministry of Natural Resources and Forestry (Sandstrom and Lester 2009). This method was adopted by Environment Yukon in 2010 to replace the previous technique, which primarily sampled nearshore habitat (Jessup and Millar 2011). In Yukon, these surveys are conducted in several lakes in the summer months from late June through early August.

The SPIN method allows for the determination of harvestable lake trout population sizes through standardized gillnetting. Nets are set at varied depths across each lake, and the number of nets differ depending on catch rates and area of lake with depths >10 m (see Sandstrom and Lester 2009 for further information on methodology). By using this standardized method, Environment Yukon aims to produce results which will allow for detecting population changes over 25%.

### Length / Growth / Age

During each survey, lake trout are measured for length (mm) and weight (g), with mortalities assessed to determine sex, maturity and age (through the analysis of otoliths). This allows Environment Yukon to calculate growth rates, as well as define the age-class structure, for each population. Values such as these are an important tool when assessing population health, they provide information on the size and condition of these species at different life stages.

### Habitat

In addition to determining population levels, the Lake Trout Monitoring Program also collects relevant habitat data. At a minimum, during each lake assessment bathymetric mapping is conducted, and temperature (°C) and dissolved oxygen (mg/L) profiles are conducted. As previously discussed, lake trout and lake whitefish require suitable oxygen and temperature habitats to survive.

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## Results

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The results of the Lake Trout Monitoring Program are appended to this report as alphabetically categorized based upon watershed. These results provide a status overview of the lake trout and lake whitefish population within each lake, including: estimated population size and density; length range and frequency; age distribution; temperature and dissolved oxygen profiles as well as lake size classifications (Table 1); geographical and watershed location (Table 2, figure 1); access; and potential lake recommendations.

**Table 1.** Yukon lake size categories.

Size Category	Size Range (ha)
A	< 100
B	101 - 1,000
C	1,001 - 2,500
D	2,501 - 5,000
E	5,001 - 15,000
F	15,001 - 65,000

**Table 2.** Major Yukon Drainages and watersheds.

Major Drainage	Watershed
Yukon River	Yukon Headwaters
	Upper Yukon
	Pelly
	Stewart
	Central Yukon
Mackenzie River	Porcupine
	Upper Liard
	Central Liard
	Peel and Southwestern Beaufort
Alsek	Alsek River

## Data Uncertainties

The results contained within this report should be interpreted with a measure of caution. Many of the population estimates have large uncertainties, herein expressed as population ranges. The larger the range, the greater the uncertainty.

Additionally, many of the sampled lake trout and lake whitefish populations lack sufficient data for their age compositions. This makes it difficult to draw meaningful conclusions regarding population health.

The recommendations contained in this report have largely been based on the data and methods used in the program between 2010 and 2019. During this period, the programs principle direction was to improve certainties associated with population estimates through increased sampling (by an increase in net sets). Going forward, Yukon Fisheries will be refocusing some of it's efforts by gathering additional information on fish age, their growth and habitats. This information will advance our understanding of these populations. For example, by improving our age data we will be able to further our analysis of growth and mortality rates. This will help us when determining lake-specific size and retention limits. Ultimately, this information will be incorporated when making management recommendations and will be added to fisheries reports in the years to follow.

## Report Usage

These results are designed to provide communities, public, First Nations, Renewable Resource Councils and fisheries managers with an overview of lake trout and lake whitefish population estimates for individual lakes. They have been formatted to enable our fellow stakeholders to pull individual lake results as necessary, while providing a short program overview. For further information regarding the Lake Trout Monitoring Program, stakeholders are encouraged to contact the Department of Environment Fisheries section by email at [fisheries@gov.yk.ca](mailto:fisheries@gov.yk.ca).

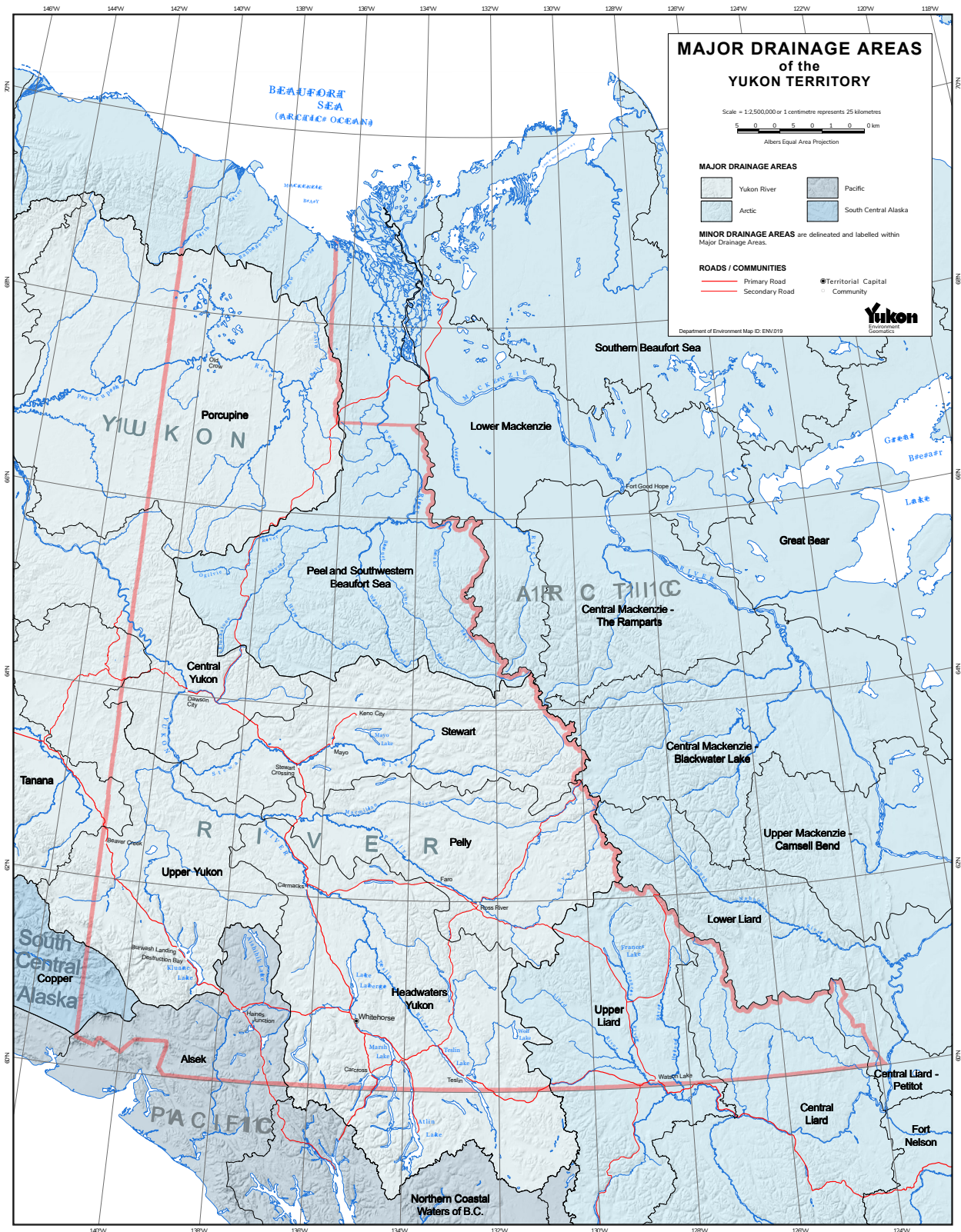


Figure 1. Major Yukon Drainages

**Alsek River Watershed**  
**Alsek River**





## Lake Information

<b>WATERSHED</b>	<b>LAKE CLASS</b>
Alsek	E
<b>SURFACE AREA</b>	<b>ELEVATION</b>
37,720 ha	930 m
<b>MAXIMUM DEPTH</b>	<b>AVERAGE DEPTH</b>
120 m	35.5 m
<b>SURFACE TEMPS.</b>	<b>REGULATIONS</b>
11.1°C	Conservation Waters
<b>SAMPLING DATES</b>	<b>NET SETS</b>
July 31 - Aug 4, 2017	140

### Location

Aishihik Lake is located in southwest Yukon, within the Traditional Territory of the Champagne and Aishihik First Nations. It is located 43 km north of the Alaska highway, on the Aishihik Road.

### Access and Use

Aishihik Lake is accessed by the Aishihik Road, with a government campground on the southern end, and Aishihik Village on the north end. This lake serves as the Aishihik Generating Station reservoir, operated by Yukon Energy Corp, constructed in 1975. A fish ladder on the southern end, currently limits passage.

# Aishihik Lake 2017

## Lake Trout Monitoring Program

## Overall Status

### Lake Trout

The lake trout population in Aishihik Lake as observed during the 2017 survey, showed a moderate density of large-bodied lake trout, as compared to lakes within this size category. This population appears healthy, despite high angling pressure.

### Lake Whitefish

Survey results indicate a healthy lake whitefish population within Aishihik Lake. Whitefish populations are being monitored for recruitment on a yearly basis by Yukon Energy. To date little variation in recruitment has been observed.

### Recommendation

The recommendation for future surveys of the Aishihik Lake is to improve population estimate power, by increasing net sets and biological samples. This population should be monitored for any cumulative effects of the hydro system and incorporate monitoring with hydro operations.

## Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

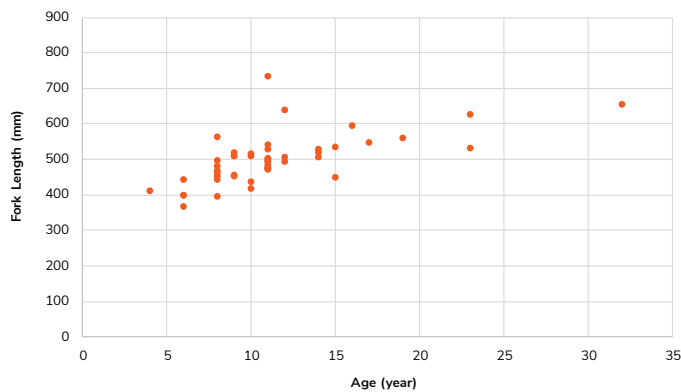
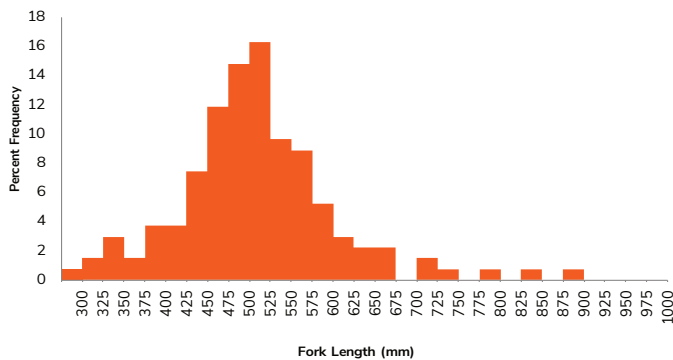
## Lake Trout

### Overview

During the 2017 survey of Aishihik Lake, a total of 134 lake trout were captured. These large-bodied lake trout ranged in fork length from 225 mm to 889 mm, with an average length of 510 mm and weight of 1,738 g. Age structures, obtained from 48 lake trout, showed an age variation from 4 through 32 years of age.

### Population Estimate / Density

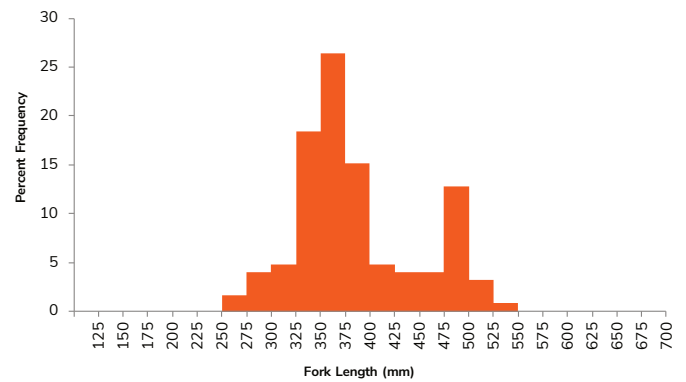
The population of lake trout in Aishihik Lake, as assessed in the 2017 survey, was **66,500**. However our confidence in the estimate was weak (estimate range: 40,700 to 93,300). This estimate equates to an average density of 4.5 lake trout per hectare.



## Lake Whitefish

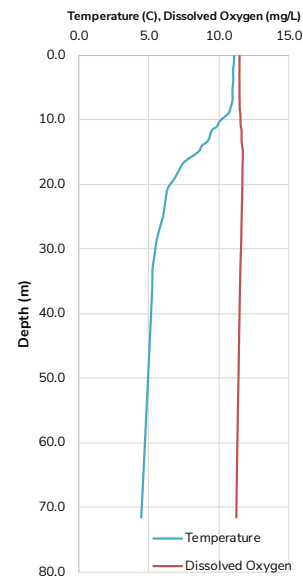
### Overview

During the 2017 survey, a total of 125 lake whitefish were sampled in Aishihik Lake. The size of these fish ranged from 235 mm to 540 mm, with an average fork length of 387 mm and weight of 863 g.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were obtained on August 1. The temperature profile displayed a thermocline between 10 m and 18 m, followed by a slow decline to 72 m. The oxygen profile was stable throughout the water column. Overall, optimal lake trout habitat existed throughout the entire water column.



### For more information, please contact

Department of Environment  
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# Dezadeash Lake 2013

## Lake Trout Monitoring Program

### Lake Information

<b>WATERSHED</b> Alsek	<b>LAKE CLASS</b> E
<b>SURFACE AREA</b> 7968 ha	<b>ELEVATION</b> 690 m
<b>MAXIMUM DEPTH</b> 7.4 m	<b>AVERAGE DEPTH</b> 4.1 m
<b>SURFACE TEMPS.</b> 8.54°C	<b>REGULATIONS</b> Special Management
<b>SAMPLING DATES</b> June 3-9, 2013	<b>NET SETS</b> 140

#### Location

Dezadeash Lake is in southwestern Yukon, within the Traditional Territory of the Champagne and Aishihik First Nations. This lake lies on the eastern border of Kluane National Park and Reserve, approximately 40 km south of Haines Junction.

#### Access and Use

Access to Dezadeash is along the Haines Road (Hwy 3). This lake has a government campground near the southern end with an accessible boat launch, as well as several residences.

### Overall Status

#### Lake Trout

Dezadeash Lake is a shallow, productive lake with a healthy population of large-bodied lake trout. This finding agrees with previous sampling results. This population may be at risk due to decreasing thermal habitat availability as water temperatures increase with climate change.

#### Lake Whitefish

The lake whitefish population within Dezadeash Lake was healthy with a high relative density. Of interest, this lake also contains Squanga Whitefish, a species listed federally as one of Special Concern.

#### Recommendation

The recommendation from the 2013 survey is to slightly increase the number of biological samples in future surveys to improve our certainty in the population status. This uniquely shallow lake should be monitored for habitat changes due to increasing temperatures associated with climate change.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

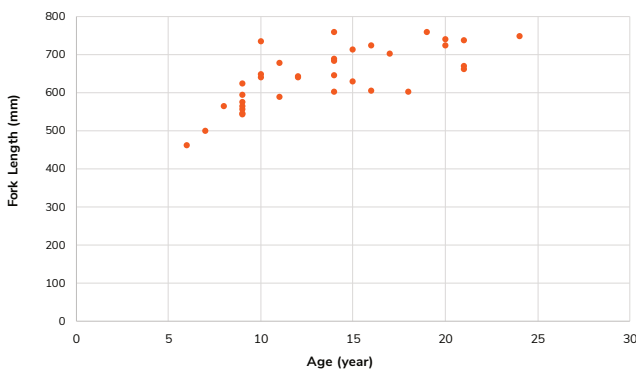
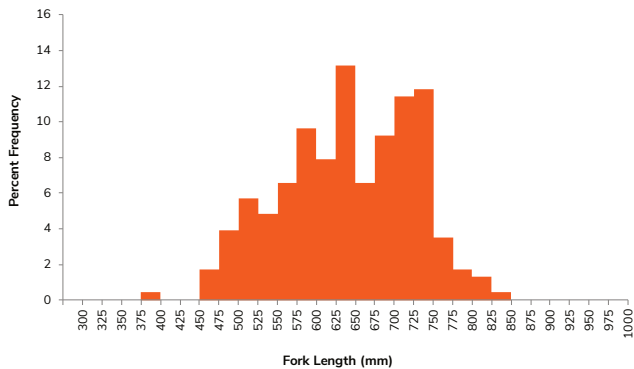
## Lake Trout

### Overview

During the 2013 survey, a total of 228 lake trout were captured. Fork lengths ranged from 395 mm to 829 mm, with an average length of 642 mm and weight of 3,323 g. Age structures were obtained from 36 lake trout during the 2013 survey, with ages ranging from 6 to 24 years.

### Population Estimate / Density

The lake trout population in Dezadeash Lake was estimated at **50,205** individuals. However our confidence in the estimate was weak (estimate range: 34, 536 – 66,694). This corresponded to a density of 6.3 lake trout per hectare.



### For more information, please contact

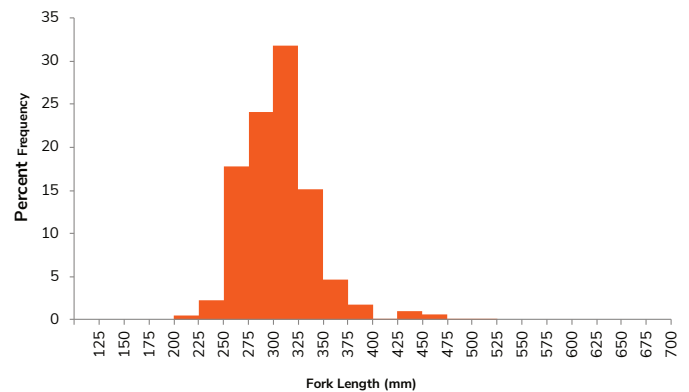
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SR-20-02 Table of Contents

## Lake Whitefish

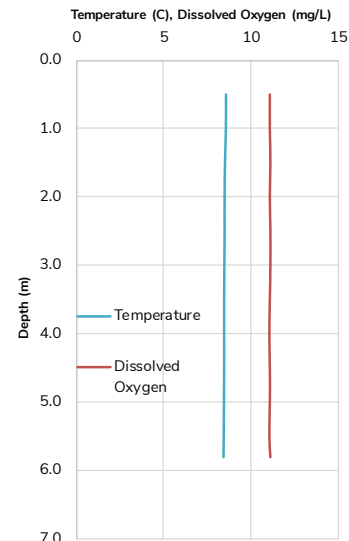
### Overview

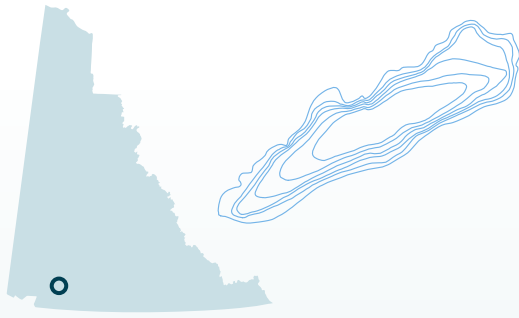
A total of 629 lake whitefish were captured during this survey. They ranged in fork length from 208 mm to 510 mm, with an average length of 307 mm and weight of 386 g. Age structures were interpreted from 139 lake whitefish. Ages ranged between 3 and 16 years. This population appears healthy.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken from the middle of the lake on June 9, 2013. Both temperature and dissolved oxygen were consistent throughout the water column. This is expected in a system as shallow as Dezadeash Lake.





## Pine Lake 2010

### Lake Trout Monitoring Program

#### Lake Information

<b>WATERSHED</b> Alsek	<b>LAKE CLASS</b> B
<b>SURFACE AREA</b> 603 ha	<b>ELEVATION</b> 625 m
<b>MAXIMUM DEPTH</b> 28 m	<b>AVERAGE DEPTH</b> 14.7 m
<b>SURFACE TEMPS.</b> Not available	<b>REGULATIONS</b> Special management
<b>SAMPLING DATES</b> July 5-7, 2010	<b>NET SETS</b> 27

#### Location

Pine Lake is near the community of Haines Junction along the Alaska Highway. It is in the Traditional Territory of the Champagne and Aishihik First Nations.

#### Access and Use

Pine Lake is accessed by the Alaska Highway via a popular government campground with an accessible boat ramp. There are also several permanent residences along the lakeshore.

#### Overall Status

##### Lake Trout

Results indicate that Pine Lake has a critically small population of lake trout. Evidence suggests that levels of lake trout in Pine Lake are depleted and the population may have collapsed.

##### Lake Whitefish

Pine lake contains a healthy population of lake whitefish, which are likely the main diet for other predators in this lake, such as northern pike and burbot.

##### Recommendation

The recommendation from the 2010 survey is to minimize all lake trout harvest, in an effort to naturally rebuild this population. This process may take many years to occur. A secondary survey is recommended in 2020 to determine if the population is responding to newly established regulation changes.

#### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the

## Lake Trout

### Overview

Only two lake trout were captured during this survey, averaging 503 mm in length (as measured to the fork) and 1600 g in weight. Age structures were only taken from one of these fish, which was determined to be 23 years old.

### Population Estimate / Density

Due to the limited number of lake trout captured during this survey, the population estimate is uncertain. The density calculated shows a potential of 1.4 lake trout per hectare, however there is little confidence in this estimate.

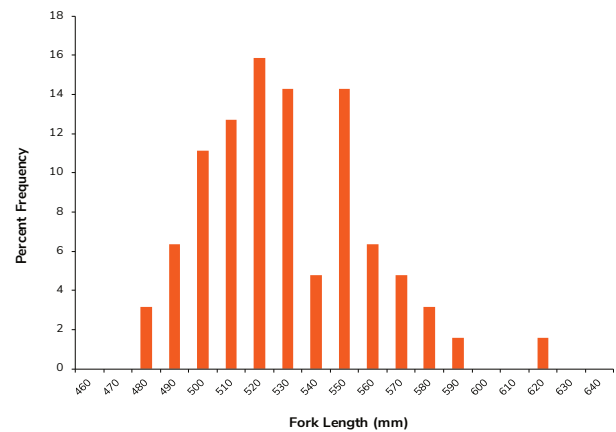
Nevertheless, the limited number of lake trout captured suggests the population may have undergone a collapse.

The low numbers captured do not allow for accurate catch frequency or age comparisons.

## Lake Whitefish

### Overview

During this survey 66 lake whitefish were captured, ranging from 460 mm to 620 mm in length (as measured to the fork), with an average length of 528 mm and weight of 2,287 g. Twenty-four lake whitefish were sampled for age, which showed a range from 11 to 24 years old, with an average age of 16.



## Temperature and Oxygen

Temperature and oxygen profiles were not assessed during the 2010 survey as this specialized equipment was not available.

### For more information, please contact

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fisheries@gov.yk.ca  
867-667-5652

SR-20-02 Table of Contents





# Sekulmun Lake 2010

## Lake Trout Monitoring Program

### Lake Information

<b>WATERSHED</b> Alsek	<b>LAKE CLASS</b> D
<b>SURFACE AREA</b> 4985 ha	<b>ELEVATION</b> 921 m
<b>MAXIMUM DEPTH</b> 53 m	<b>AVERAGE DEPTH</b> 28 m
<b>SURFACE TEMPS.</b> Not available	<b>REGULATIONS</b> Conservation waters
<b>SAMPLING DATES</b> August 18-21, 2010	<b>NET SETS</b> 86

#### Location

Sekulmun Lake lies to the west of Aishihik Lake, southwest of Aishihik Village. The lake is in the Traditional Territory of the Champagne and Aishihik First Nations.

#### Access and Use

Sekulmun Lake is accessed via a trail from Aishihik Village, as well as by the Sekulmun River, which connects to Aishihik Lake.

### Overall Status

#### Lake Trout

Results from sampling indicated Sekulmun Lake has a healthy population of large-bodied lake trout. Due to its inaccessibility, the lake receives minimal recreational pressure. This may account for the healthy population.

#### Lake Whitefish

We could not determine the status of lake whitefish populations during the 2010 survey, as only a single lake whitefish was captured. Given the small sample, the population may not be large. Additional species that are present in the lake include: round whitefish, pygmy whitefish, arctic grayling, northern pike, burbot and longnose suckers.

#### Recommendation

The recommendation from the 2010 survey is to increase the number of net sets and biological samples for age analysis for future surveys.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

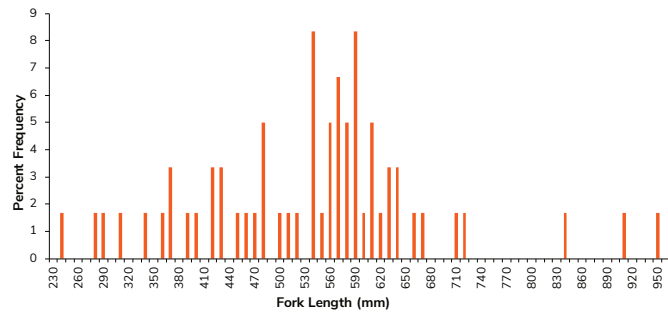
## Lake Trout

### Overview

Sixty lake trout were captured during this survey, averaging 506 mm in length (as measured to the fork) and 2,345 g in weight. Age structures were not obtained during this survey.

### Population Estimate / Density

The population of lake trout is estimated at approximately 18,651 (ranging between 10,303 – 27,303). This corresponds with a density of 3.7 lake trout per lake hectare.



## Lake Whitefish

### Overview

During this survey only one lake whitefish was captured, which does not allow us to accurately estimate population status.

### Temperature and Oxygen

Temperature and oxygen profiles were not assessed during the 2010 survey as this equipment was not available at the time.

### For more information, please contact

Department of Environment  
Fish and Wildlife, Fisheries  
fisheries@gov.yk.ca  
867-667-5652

SR-20-02 Table of Contents



**Mackenzie River Watershed**  
Upper Liard, Central Liard, Peel and  
Southwestern Beaufort Sea





## Lake Information

<b>WATERHSED</b> Upper Liard	<b>LAKE CLASS</b> E
<b>SURFACE AREA</b> 9,941 ha	<b>ELEVATION</b> 734 m
<b>MAXIMUM DEPTH</b> 93 m	<b>AVERAGE DEPTH</b> 31 m
<b>SURFACE TEMPS.</b> 17.4°C	<b>REGULATIONS</b> Conservation Waters
<b>SAMPLING DATES</b> Aug 11 - 15, 2017	<b>NET SETS</b> 149

### Location

Frances Lake is located in southeast Yukon, approximately 171 km north of Watson Lake, along the Robert Campbell Highway. This lake lies within the Kaska Dena Council Traditional Territory.

### Access and Use

Frances Lake is accessed by a government campground on the west arm, as well as a public boat launch and wilderness lodge, located on the southern end. There are a few cabins located along the shoreline.

# Frances Lake 2017

## Lake Trout Monitoring Program

## Overall Status

### Lake Trout

In accordance with 2017 survey results, the lake trout population in Frances Lake, is a healthy, large-bodied population. The lake had a moderate density and healthy age demographic of lake trout.

### Lake Whitefish

The population of lake whitefish in Frances Lake is a healthy population, with a wide age range.

### Recommendation

The recommendation for future surveys is to determine recreational angling pressure by conducting an Angler Harvest Survey. If this lake is sampled by the SPIN method again, an increase in biological data for age analysis will provide more information on the health of this population.

## Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

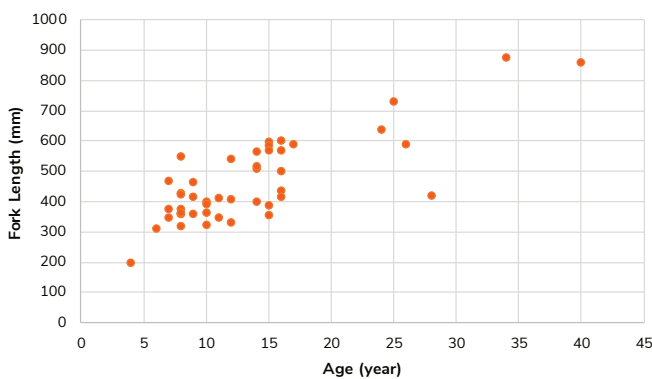
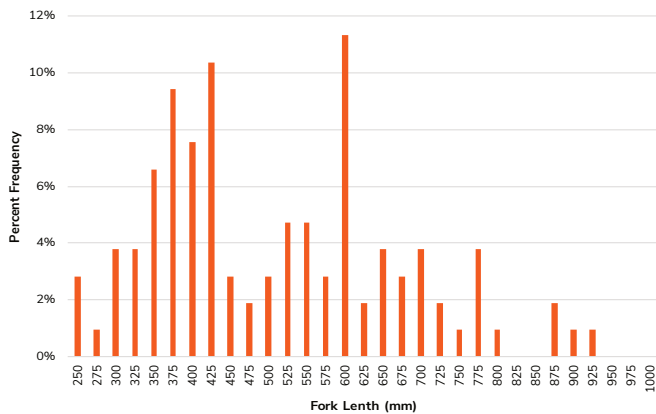
# Lake Trout

## Overview

During the 2017 survey of Frances Lake, a total of 106 lake trout were captured. These large-bodied lake trout ranged in fork length from 154 mm to 917 mm with an average length of 476 mm and weight of 1,838 g. Age structures, obtained from 46 lake trout, showed an age variation from 4 through 40 years.

## Population Estimate / Density

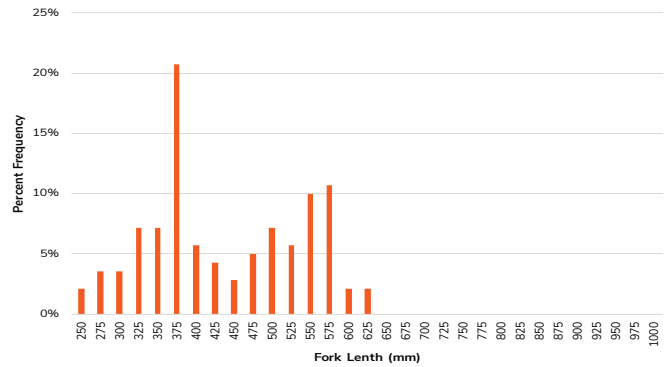
The population of lake trout in Frances Lake, as assessed in the 2017 survey, was **37,551** (estimate range: 19,189 to 56,525). This estimate equates to an average density of 3.4 lake trout per hectare.



# Lake Whitefish

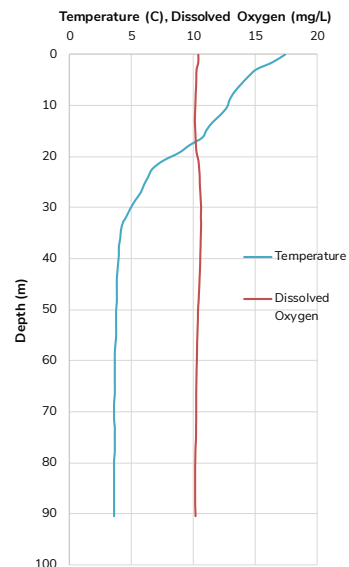
## Overview

During the 2017 survey, a total of 140 lake whitefish were captured in Frances Lake. The size range of these fish ranged from 240 mm to 617 mm, with an average fork length of 416 mm and weight of 1,181 g. The 74 sampled lake whitefish had an age range from 4 to 20 years of age.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were obtained on August 15. The temperature profile displayed a steep decline from the surface through 30 m, decreasing from 17°C to 5°C. From 30 m to the bottom the temperature remained constant. Dissolved oxygen was stable across the profile. Overall, optimum lake trout habitat ranged from 15 m to 90 m.



### For more information, please contact

Department of Environment  
Fish and Wildlife, Fisheries  
fisheries@gov.yk.ca  
867-667-5652



# Simpson Lake 2014

## Lake Trout Monitoring Program

### Lake Information

<b>WATERHSED</b> Upper Liard	<b>LAKE CLASS</b> C
<b>SURFACE AREA</b> 2,180 ha	<b>ELEVATION</b> 694 m
<b>MAXIMUM DEPTH</b> 58 m	<b>AVERAGE DEPTH</b> 38 m
<b>SURFACE TEMPS.</b> 16.5°C	<b>REGULATIONS</b> General waters
<b>SAMPLING DATES</b> June 24-27, 2014	<b>NET SETS</b> 69

### Location

Simpson Lake is located within the Liard watershed in south eastern Yukon. This lake lies within the Traditional Territory of the Kaska Dena Council.

### Access and Use

Simpson Lake is accessed along the Robert Campbell highway, 73 km north of Watson Lake. There is a government campground at the southern end of the lake, with an accessible boat ramp.

### Overall Status

#### Lake Trout

In accordance with the 2014 survey, the results of Simpson Lake showed a moderate density of large-bodied lake trout. This population appears healthy.

#### Lake Whitefish

The 2014 survey of Simpson Lake captured few lake whitefish, an indication the population may be small. However, round whitefish were captured in larger numbers. This may be an important prey species for lake trout in this lake.

#### Recommendation

The recommendation for future surveys is to perform an Angler Harvest Survey on Simpson Lake to determine recreational pressure. In addition, if this lake is surveyed in the future, net sets should be increased to ensure greater precision in the population estimate.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

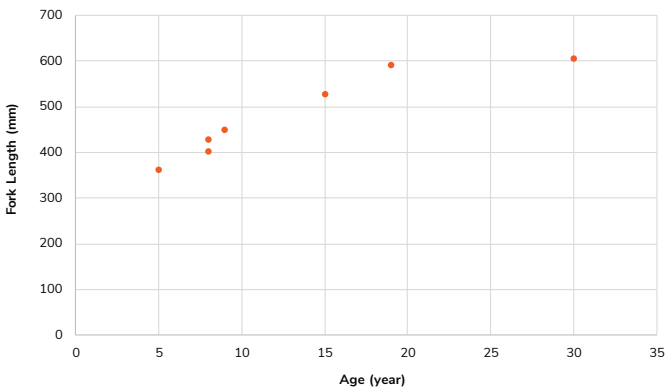
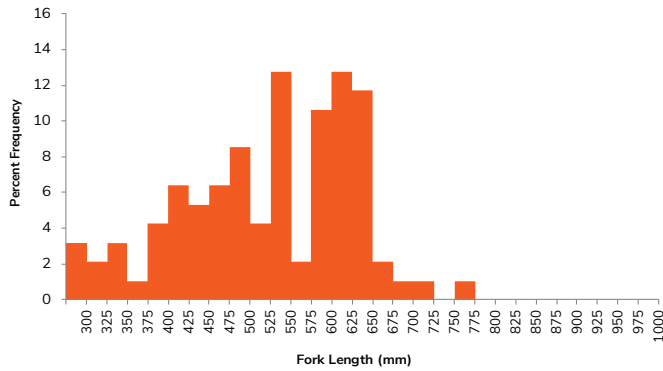
# Lake Trout

## Overview

During the 2014 Simpson Lake survey a total of 46 lake trout were sampled. These ranged in size (fork length) from 337 mm to 812 mm, with an average length of 594 mm and weight of 2,784 g. Age structures were obtained from seven fish, with an age range from 5 to 30 years.

## Population Estimate / Density

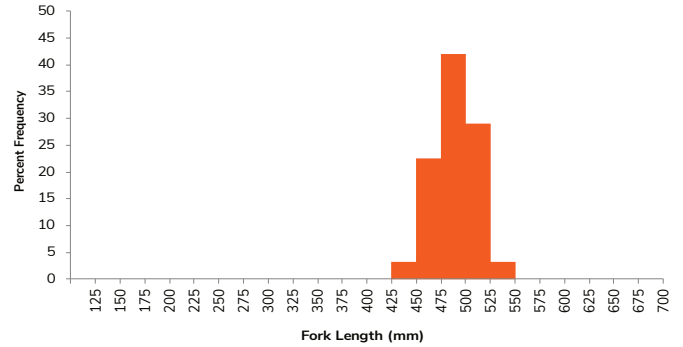
The population of lake trout in Simpson Lake, as assessed during the 2014 survey was estimated at **7,240** (estimate range: 3,663 – 10,936). This equates to a density of 3.3 lake trout per hectare.



# Lake Whitefish

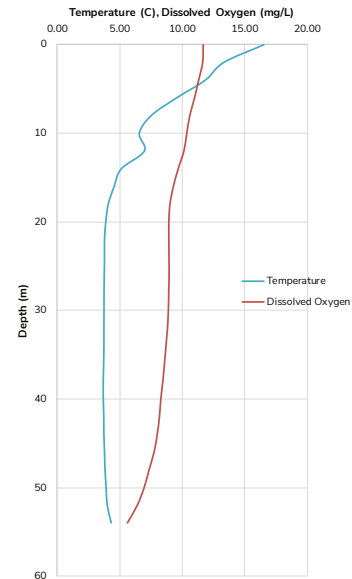
## Overview

Only 8 lake whitefish were captured, ranging in length from 364 mm to 570 mm in length, with an average fork length and weight of 501 mm and 2,000 g. Age structures were not obtained.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken in the main basin, near the center of the lake on June 27, 2014. The temperature profile displayed a sharp decrease in temperature from the surface to 10 m, then steadily decreased to 20 m, where it remained constant through the remaining water column. Dissolved oxygen levels gradually decreased with depth, however they remained optimal for lake trout throughout the water column.



### For more information, please contact

Department of Environment  
Fish and Wildlife, Fisheries  
fisheries@gov.yk.ca  
867-667-5652

SR-20-02 Table of Contents



# Toobally Lakes 2019

## Lake Trout Monitoring Program

The 2019 survey was performed at Upper Toobally and Lower Toobally Lake.

### Lake Information

<b>WATERSHED</b> Central Liard	<b>LAKE CLASS</b> C
<b>SURFACE AREA</b> 1170(U),1081(L) ha	<b>ELEVATION</b> 623 m
<b>MAXIMUM DEPTH</b> 118(U),60(L) m	<b>AVERAGE DEPTH</b> 22.8(U), 16.7(L) m
<b>SURFACE TEMPS.</b> 17.3°C(U)17.3°C(L)	<b>REGULATIONS</b> General waters
<b>SAMPLING DATES</b> July 24-28, 2019	<b>NET SETS</b> 45(U),44(L)

#### Location

The Toobally Lakes (Upper and Lower) are located in the southeastern corner of Yukon, approximately 140 km east of town of Watson Lake. These lakes lie within the Traditional Territory of the Kaska Dena Council.

#### Access and Use

The Toobally Lakes are accessible by fly-in only, with an established outfitting lodge operating with cabins at each lake. There is no road access, nor additional private residences on these lakes.

### Overall Status

#### Lake Trout

As estimated from the 2019 survey, the lake trout populations in Upper (U) and Lower (L) Toobally, are healthy and moderately sized. The oxygen levels were found to be at the low end of optimal for lake trout in Lower Toobally, however there is no indication that this population is currently being limited by these low levels.

#### Lake Whitefish

The lake whitefish populations in the Toobally Lakes also appear healthy, at a low to moderate level.

#### Recommendation

The recommendation for future surveys of the Toobally Lakes is to continue working with the sport fishing lodge to determine their angling pressure and to monitor dissolved oxygen levels. Additional age analysis will assist in providing more information on the health of this population.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

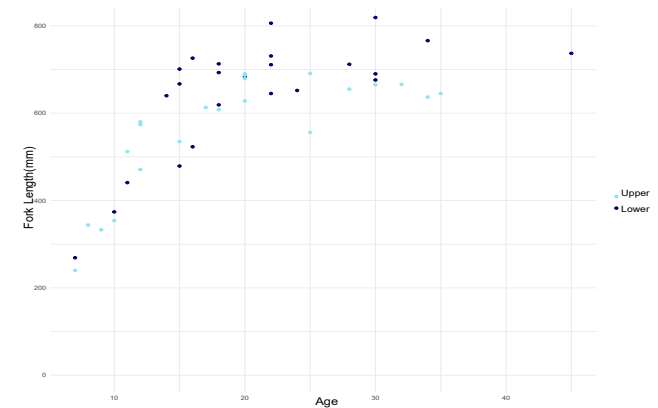
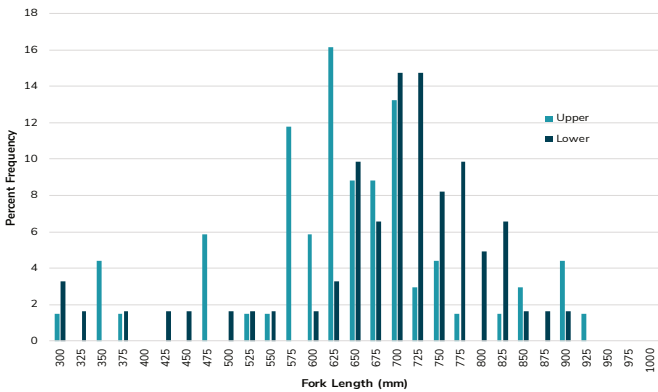
# Lake Trout

## Overview

During the 2019 survey of Upper (U) and Lower (L) Toobally Lakes, a total of 68 (U) and 61 (L) lake trout were captured. The lake trout ranged in size from 240 to 915 mm (U), 269 to 876 mm (L), with an average fork lengths of 625 mm (U) and 672 mm (L). This resulted in average lake trout weights of 3243 g (U) and 4342 g (L). Age structures were taken from 49 lake trout (25(L), 24(U)). Ages ranged from 5 to 45, with the average age in the Lower lake of 15 and for the Upper lake at 14.

## Population Estimate / Density

The population of lake trout within the Toobally Lakes, as estimated during the 2019 survey indicated a population in Upper Toobally of **4,564** (estimate range: 2,589 – 6,614) and in Lower Toobally of **4,235** (estimate range: 2,419 – 6,121). This corresponded to densities of 3.9 lake trout /ha in both lakes.



## For more information, please contact

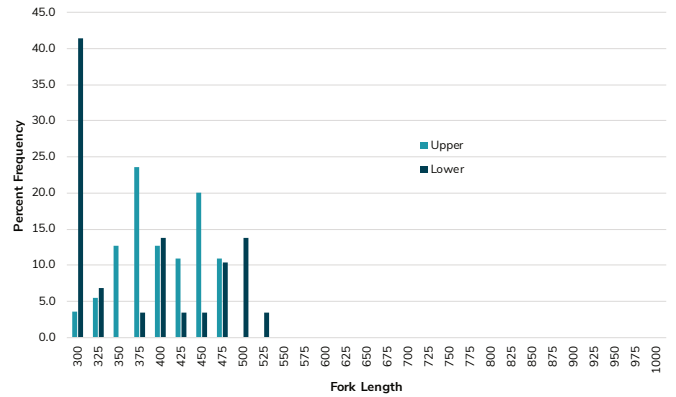
Department of Environment  
Fish and Wildlife, Fisheries  
fisheries@gov.yk.ca  
867-667-5652

SR-20-02 Table of Contents

# Lake Whitefish

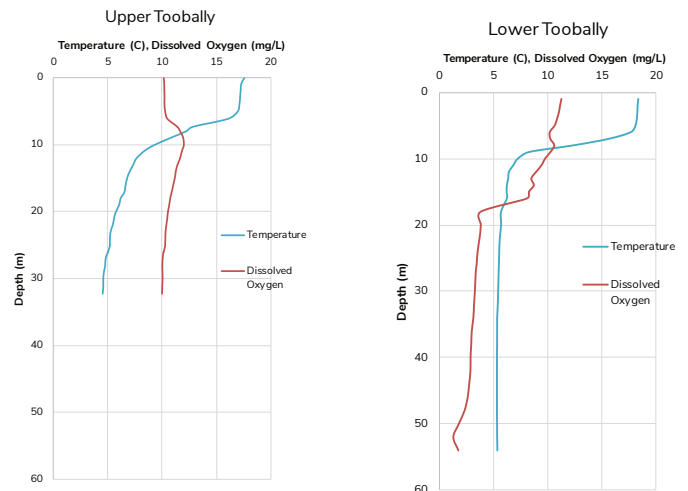
## Overview

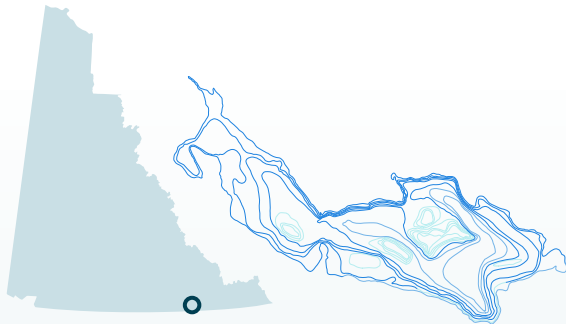
A total of 55 (U) and 29 (L) lake whitefish were captured in 2019. These fish ranged in size from 215 to 460 mm (U), 196 to 509 mm (L), with an average fork lengths of 388 (U) and 509 (L). This resulted in average weights of 859 g (U) and 932 g (L). Ages were interpreted from 68 lake whitefish (24L, 44U). Ages ranged from 5 to 22, with the average age in the Lower lake of 9 and the Upper lake of 11.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken in both the upper and lower lakes. Profiles in both lakes display a sharp thermocline from 5 m to 12 m, with temperatures decreasing gradually throughout the rest of the water column. Overall, Upper Toobally provided optimum lake trout habitat from 8 m to lake bottom, with Lower Toobally providing suitable habitat from 8 m to 20m, with tolerable, but low oxygen levels below 20m.





# Watson Lake 2015

## Lake Trout Monitoring Program

### Lake Information

<b>WATERSHED</b> Upper Liard	<b>LAKE CLASS</b> C
<b>SURFACE AREA</b> 1,410 ha	<b>ELEVATION</b> 680 m
<b>MAXIMUM DEPTH</b> 32 m	<b>AVERAGE DEPTH</b> 14.5 m
<b>SURFACE TEMPS.</b> 17.3°C	<b>REGULATIONS</b> Special management
<b>SAMPLING DATES</b> July 7-12, 2015	<b>NET SETS</b> 46

### Location

Watson Lake is located approximately 4 km north of the community of Watson Lake, in southeastern Yukon, along the Robert Campbell highway. This lake lies within the Kaska Dena Council Traditional Territory.

### Access and Use

Watson Lake is a popular recreational lake with access available at the government campground and along the Robert Campbell highway. The Watson Lake airport is situated on the north shore, it was constructed just prior to the development of the Alaska Highway.

### Overall Status

#### Lake Trout

The lake trout population in Watson Lake displayed a lower than average density, when compared to Yukon lakes of similar size and productivity. This may indicate that the lake trout population in Watson Lake is small and at risk of depletion if fishing pressures increase.

#### Lake Whitefish

Results from the 2015 survey indicated a healthy population of lake whitefish, with considerable habitat for this species.

#### Recommendation

The recommendation for future surveys of Watson Lake is to increase the number of net set and collection of age structures for analysis. This will help increase our ability to detect changes in population and provide information on the health of this population.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

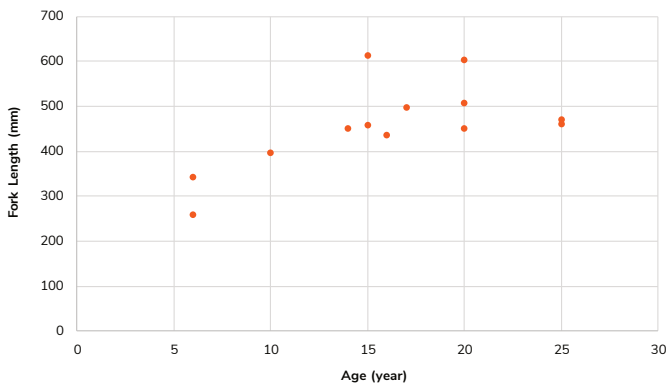
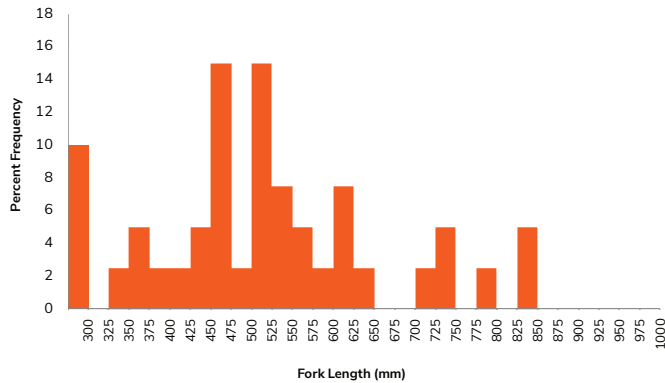
## Lake Trout

### Overview

During the Watson Lake 2015 survey a total of 41 lake trout were captured, ranging in size (fork length) from 182 mm to 830 mm, with an average length of 513 mm and weight of 1,728 g. Age Structures were obtained from 14 lake trout. Ages ranged from 6 to 25 years.

### Population Estimate / Density

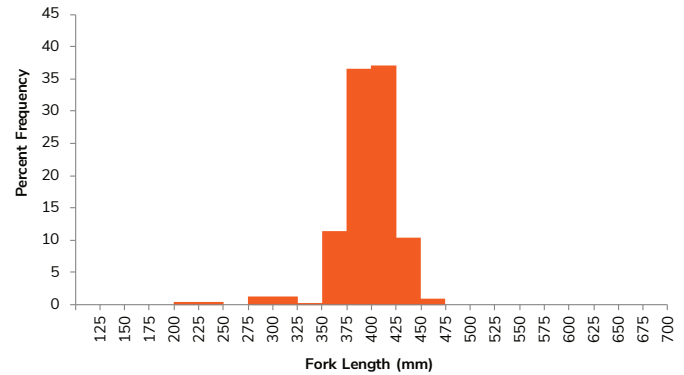
The population estimate of lake trout in Watson Lake was **4,105** (range: 1,831 – 6,445). This equated to a density of 2.9 large-bodied lake trout per hectare.



## Lake Whitefish

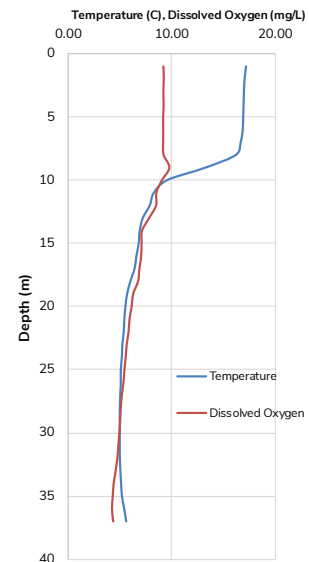
### Overview

A total of 415 lake whitefish were captured during the 2015 Watson Lake survey, ranging in size from 219 mm to 472 mm in length. The average fork length was 396 mm and weight was 808 g. Age structures were obtained from 61 lake whitefish. Ages ranged from 4 through 31 years.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken on July 23, 2015. The temperature profile displayed a sharp thermocline from 8 m to 10 m. Temperature slowly declined throughout the rest of the water column. Dissolved oxygen was stable, decreasing with depth. Given the observed temperatures, suitable lake trout habitat was found between 10 m and lake bottom.



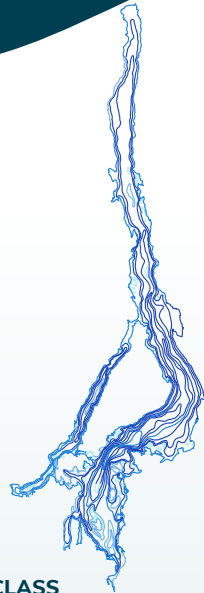
### For more information, please contact

Department of Environment  
Fish and Wildlife, Fisheries  
fisheries@gov.yk.ca  
867-667-5652

# **Yukon River Watershed**

**Yukon Headwaters, Upper Yukon, Pelly, Stewart,  
Central Yukon and Porcupine drainages**





## Lake Information

<b>WATERSHED</b>	<b>LAKE CLASS</b>
Yukon Headwaters	F
<b>SURFACE AREA</b>	<b>ELEVATION</b>
58, 792 ha	670 m
<b>MAXIMUM DEPTH</b>	<b>AVERAGE DEPTH</b>
283 m	85.6 m
<b>SURFACE TEMPS.</b>	<b>REGULATIONS</b>
21°C	Special Management
<b>SAMPLING DATES</b>	<b>NET SETS</b>
August 5-13, 2014	150

### Location

Atlin Lake is a large, deep lake primarily located in north-western British Columbia, with only the northern end extending into southern Yukon. It is approximately 120 km south-east of Whitehorse. Atlin Lake forms the headwaters of the Yukon River drainage. Atlin Lake lies within the Traditional Territories of the Taku River Tlingit and Carcross/Tagish First Nations.

### Access and Use

Atlin Lake is accessed via the Atlin Road and the town of Atlin, BC, with accessible boat ramps. Atlin is a popular recreational fishery.

# Atlin Lake 2014

## Lake Trout Monitoring Program

The 2014 Atlin Lake survey was conducted as a joint effort with the Taku River Tlingit First Nation

## Overall Status

### Lake Trout

In accordance with the 2014 survey results, the lake trout population in Atlin Lake is of the large-bodied form and population is healthy. Although this is a popular recreational angling destination, due to the size of the lake, its lake trout population is larger and can sustain greater pressure.

### Lake Whitefish

Given the 2014 survey results, the population of lake whitefish in Atlin Lake appears to be small. Care needs to be taken to ensure the population remains healthy.

### Recommendation

The recommendation for future surveys is to maintain the sampling protocols implemented in 2014, by using the same number of net sets. This number of sets gave suitable confidence for the population estimate.

## Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

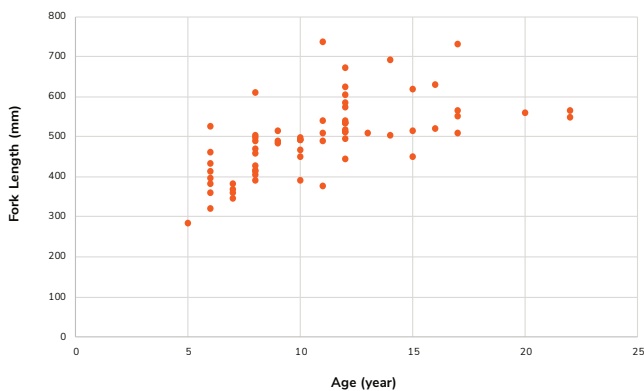
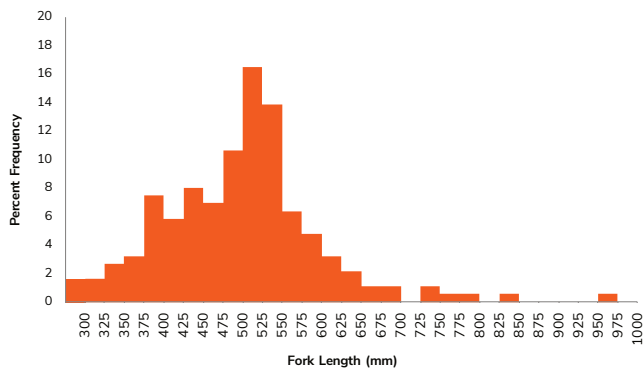
## Lake Trout

### Overview

During the 2014 survey, a total of 140 lake trout were captured, ranging in size from 248 mm to 960 mm in fork length. Sampled lake trout had an average length of 499 mm and weight of 1,677 g. Age structures were obtained from 68 individuals. Ages ranged from 5 to 22 years old.

### Population Estimate / Density

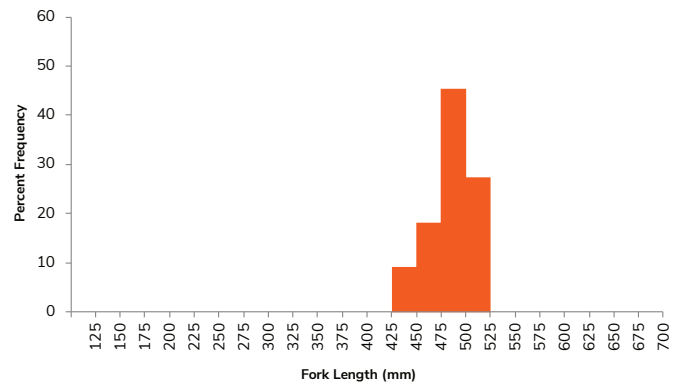
The population of lake trout within Atlin Lake was estimated to be at **243,000** (estimate range: 142,808 – 346,689). This equates to a density of 4.2 lake trout per hectare.



## Lake Whitefish

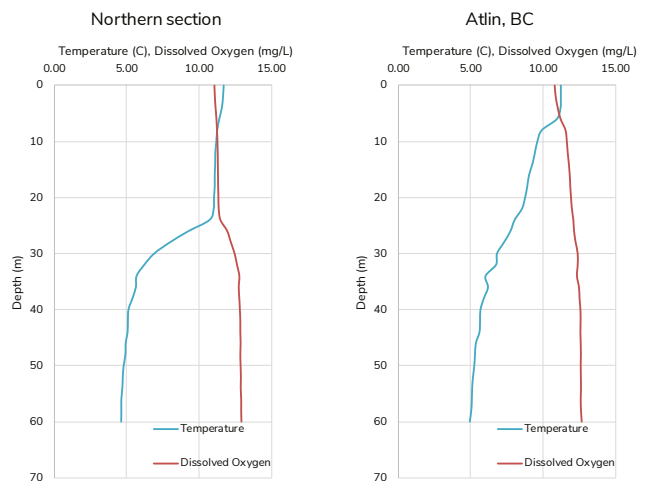
### Overview

During this survey, 11 lake whitefish were captured in Atlin Lake. The lake whitefish captured ranged from 429 mm to 520 mm, with an average length of 482 mm and weight of 1,479 g. No aging structures were obtained from these fish.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken at two locations, one in the northern section of the lake and one adjacent to Atlin, BC. Temperatures declined slowly over the first 25 m. There was a defined thermocline observed in the northern section between 25 m and 30 m, however no sharp thermocline was evident at the Atlin, BC sampling location. Temperature and dissolved oxygen levels were suitable for lake trout and whitefish from the surface to 60 m.



### For more information, please contact

Department of Environment  
Fish and Wildlife, Fisheries  
fisheries@gov.yk.ca  
867-667-5652

SR-20-02 Table of Contents



## Lake Information

<b>WATERSHED</b>	<b>LAKE CLASS</b>
Yukon Headwaters	E
<b>SURFACE AREA</b>	<b>ELEVATION</b>
9068 ha	656 m
<b>MAXIMUM DEPTH</b>	<b>AVERAGE DEPTH</b>
123 m	62 m
<b>SURFACE TEMPS.</b>	<b>REGULATIONS</b>
14.2°C	Special Management
<b>SAMPLING DATES</b>	<b>NET SETS</b>
July 15-24, 2014	136

### Location

Bennett Lake is located within the southern lakes complex in southern Yukon and is adjacent to the community of Carcross. Bennett Lake lies within the Traditional Territory of the Carcross/Tagish First Nation. This is a transboundary water, with the southern portion in British Columbia.

### Access and Use

Bennett Lake is accessed via Carcross, with an accessible boat ramp. This lake is known for its high winds and as such, sees little recreational pressure, however this is an important lake as identified by the Carcross/Tagish First Nation.

# Bennett Lake 2014

## Lake Trout Monitoring Program

### Overall Status

#### Lake Trout

In accordance with the 2014 survey results, the lake trout population in Bennett Lake is healthy. The lake has a moderate density of lake trout when compared to lakes of similar size. This finding is consistent with previous surveys, which used alternate sampling methods.

#### Lake Whitefish

The population of lake whitefish in Bennett Lake appears small. Given the low productivity of the lake, this result may be normal. Nevertheless, as this is a large and deep lake, there is a potential that this survey did not adequately sample lake whitefish.

#### Recommendation

The recommendation for future surveys is to continue using the same number of net sets performed in 2014, as we were capable of generating a reliable population estimate.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

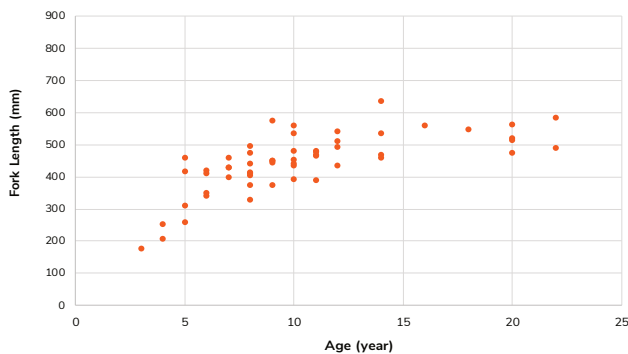
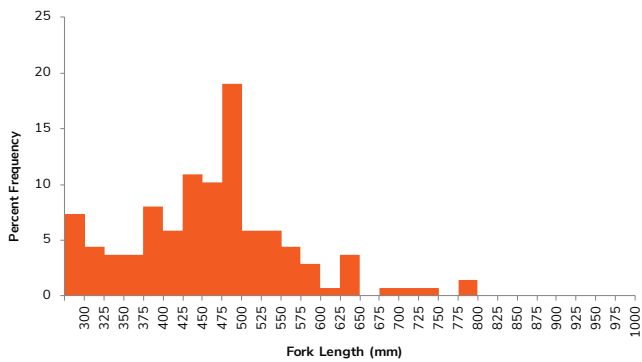
# Lake Trout

## Overview

During the 2014 survey of Bennett Lake, a total of 128 lake trout were captured, ranging in size from 177 mm to 795 mm in fork length. Sampled lake trout had an average length of 462 mm and weight of 1,315 g. Age structures were obtained from 82 individuals. Ages ranged from 3 to 22.

## Population Estimate / Density

The population of lake trout in Bennett Lake was estimated at **28,629** (estimate range: 13,855 – 43,870). This equates to a density of 3.2 lake trout per hectare.



**For more information, please contact**

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SR-20-02 Table of Contents

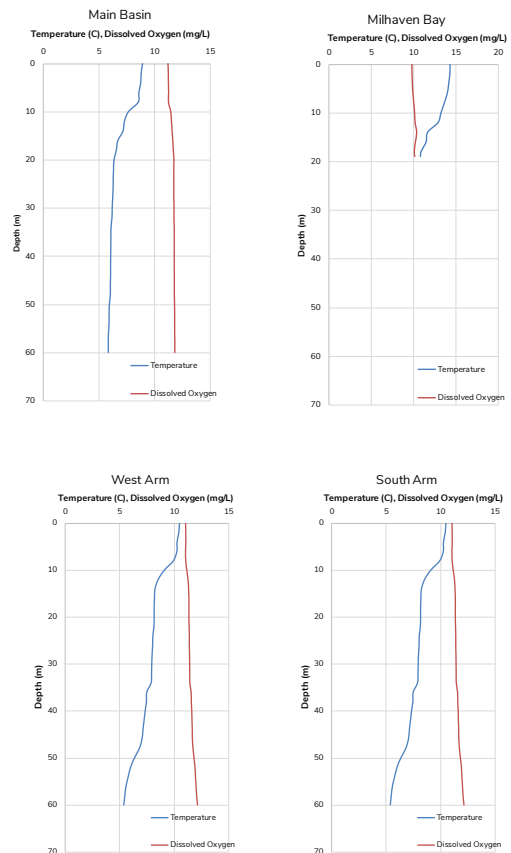
# Lake Whitefish

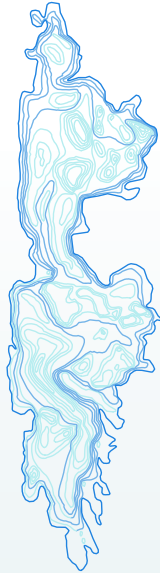
## Overview

During this survey, there were 39 lake whitefish sampled in Bennett Lake. The captured lake whitefish ranged in size from 280 mm to 580 mm, with an average length of 424 mm and weight of 1,034 g. Age structures were obtained from six lake whitefish. Ages ranged from 5 to 20 years.

## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken within the main basin, Milhaven Bay, west arm and south arm. Measurements were taken to a depth of 60 m, which was the limit of our equipment. The main basin, west and south arms, showed similar profiles, with a weak thermocline between 5 and 11 m. Milhaven bay was shallow and exhibited a higher surface temperature, which gradually declined with depth. No thermocline was evident. Overall, Bennett Lake profiles illustrated suitable habitat throughout the water body for lake trout and lake whitefish.





## Lake Information

<b>WATERSHED</b> Yukon Headwaters	<b>LAKE CLASS</b> B
<b>SURFACE AREA</b> 562 ha	<b>ELEVATION</b> 695 m
<b>MAXIMUM DEPTH</b> 50 m	<b>AVERAGE DEPTH</b> 14.3 m
<b>SURFACE TEMPS.</b> 15.6°C	<b>REGULATIONS</b> Special management
<b>SAMPLING DATES</b> June 22-23, 2016	<b>NET SETS</b> 50

### Location

Braeburn Lake is located approximately 103 km north of Whitehorse, near the North Klondike Highway, surrounded by a small community. This lake lies within the Traditional Territories of the Ta'an Kwäch'än Council, Little Salmon/Carmacks First Nation, Champagne/Aishihik First Nation and Kwanlin Dün First Nation.

### Access and Use

Braeburn Lake is accessed through a public boat launch, near the north end of the lake, with multiple private residences along the east and west shoreline.

# Braeburn Lake 2016

## Lake Trout Monitoring Program

## Overall Status

### Lake Trout

Survey results from 2016 indicate Braeburn Lake has a small population of large-bodied lake trout when compared across Yukon lakes of similar size. Populations this size may not indicate collapse or depletion, however they should be monitored to prevent overharvest.

### Lake Whitefish

The 2016 survey results indicate a small population of lake whitefish. The harvest pressure on lake whitefish is unknown. However our survey results suggest a conservative approach to harvest may be warranted, given the importance of this species as a lake trout food source.

### Recommendation

The recommendation for future surveys would be to increase the number of net sets and biological samples for age analysis. This would help increase the accuracy of our population estimates and to detect changes in abundance and population structure. The performance of an Angler Harvest Survey on this lake would also assist in determining recreational fishing pressures.

## Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

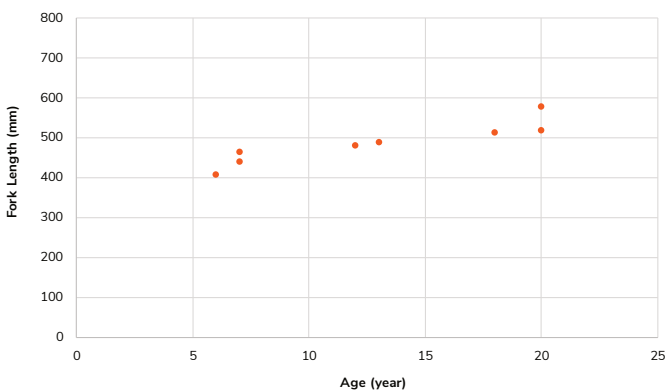
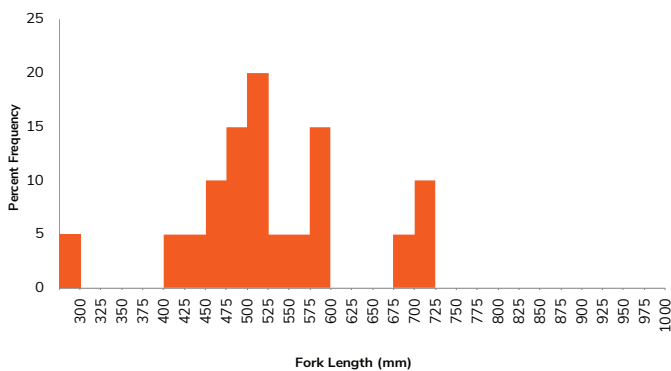
## Lake Trout

### Overview

During the 2016 survey of Braeburn Lake a total of 18 lake trout were sampled. They ranged in size (fork length) from 258 mm to 712 mm. Their average length was 527 mm and their average weight was 1,978 g. Age structures were obtained from eight lake trout. Ages ranged from 6 to 20 years.

### Population Estimate / Density

The population of lake trout in Braeburn Lake, as assessed during the 2016 survey was estimated to be **1,034** (estimate range: 135 – 1,950). This equated to a density of 1.8 large-bodied lake trout per hectare. Given the small sample size, there is little confidence in this estimate.



### For more information, please contact

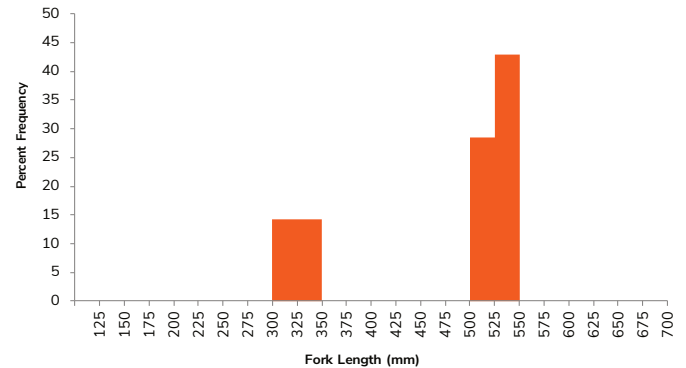
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SR-20-02 Table of Contents

## Lake Whitefish

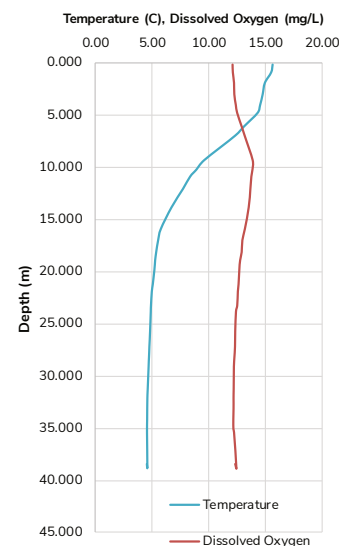
### Overview

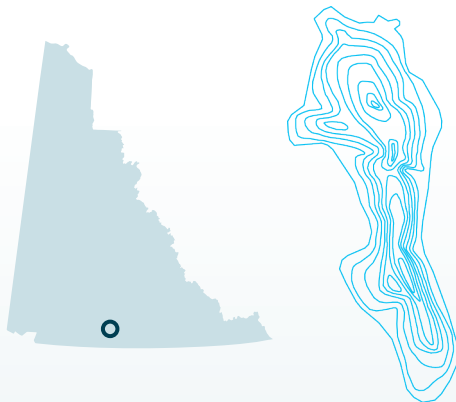
A total of only seven lake whitefish were sampled, ranging in size from 312 mm to 521 mm, with an average fork length of 491 mm and an average weight of 1,811 g. Age structures were obtained from 6 lake whitefish. Ages ranged from 4 to 26 years.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken on June 22, 2016. The temperature profile displayed a gradual thermocline from 6 m to 15 m and a temperature range suitable for lake trout between 9 m and 40 m. Dissolved oxygen was relatively stable, decreased with depth and was suitable for lake trout throughout the water column.





## Caribou Lake 2011

### Lake Trout Monitoring Program

#### Lake Information

<b>WATERSHED</b>	<b>LAKE CLASS</b>
Yukon Headwaters	A
<b>SURFACE AREA</b>	<b>ELEVATION</b>
51 ha	820 m
<b>MAXIMUM DEPTH</b>	<b>AVERAGE DEPTH</b>
21 m	16.5 m
<b>SURFACE TEMPS.</b>	<b>REGULATIONS</b>
17.2°C	Special management
<b>SAMPLING DATES</b>	<b>NET SETS</b>
July 5-7, 12, 2011	32

#### Location

Caribou Lake is located approximately 50 km southeast of Whitehorse, east of Marsh Lake. This lake is found within the Traditional Territories of the Carcross/Tagish and Kwanlin Dün First Nations.

#### Access and Use

Access to Caribou Lake is by an unmaintained road from the Alaska Highway. There is no boat launch at the lake. There is one residence on the lake.

#### Overall Status

##### Lake Trout

Survey results indicated the lake is productive and has a large density of small-bodied lake trout. This finding agrees with historical Angler Harvest Surveys and previous netting surveys. The population of lake trout in Caribou Lake appears healthy.

##### Lake Whitefish

There were no lake whitefish captured during this survey. Additional species captured during the survey included arctic grayling and round whitefish.

##### Recommendation

The recommendation from the 2011 survey was to replicate this survey in 2012 and to use this lake to determine the accuracy of SPIN methods.

#### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

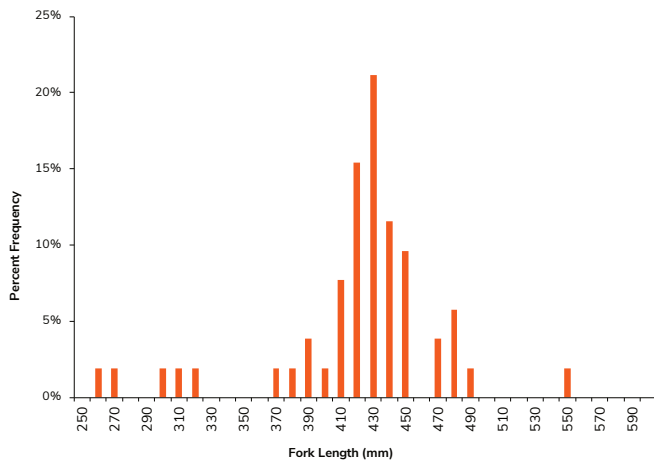
## Lake Trout

### Overview

A total of 87 lake trout were captured during the 2011 survey, ranging from 280 mm to 460 mm in fork length. Age structures were not obtained during the 2011 survey.

### Population Estimate / Density

The lake trout population was estimated at **2,716** (estimate range: 2,238 – 3,237). This equates to a density of 53.2 lake trout per hectare, which is the largest recorded density of all sampled Yukon lakes.



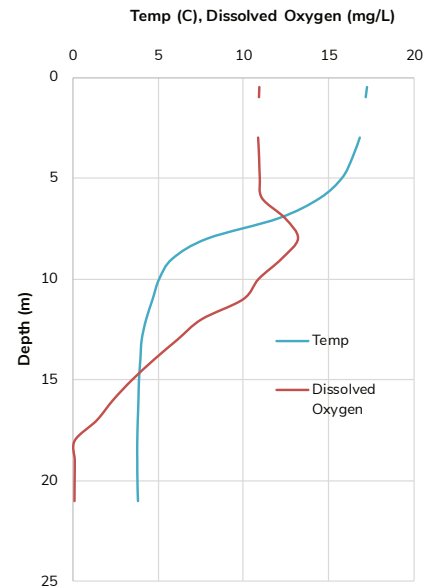
## Lake Whitefish

### Overview

No lake whitefish were captured in Caribou Lake during the 2011 survey.

## Temperature and Oxygen

Temperature and dissolved oxygen profile were taken in the north basin of Caribou Lake. The lake exhibited stratification at 6.5 m. Dissolved oxygen levels were optimal (>7 mg/L) down to 13 m, and suitable between 13 and 15 m.



### For more information, please contact

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SR-20-02 Table of Contents





## Caribou Lake 2012

### Lake Trout Monitoring Program

#### Lake Information

<b>WATERSHED</b> Yukon Headwaters	<b>LAKE CLASS</b> A
<b>SURFACE AREA</b> 51 ha	<b>ELEVATION</b> 820 m
<b>MAXIMUM DEPTH</b> 21 m	<b>AVERAGE DEPTH</b> 16.5 m
<b>SURFACE TEMPS.</b> 16.9°C	<b>REGULATIONS</b> Special management
<b>SAMPLING DATES</b> June 25-27, 2012	<b>NET SETS</b> 30

#### Location

Caribou Lake is located approximately 50 km southeast of Whitehorse, east of the northern end of Marsh Lake. This lake is found within the Traditional Territories of the Carcross/Tagish and Kwanlin Dün First Nations.

#### Access and Use

Access to Caribou Lake is by an unmaintained road from the Alaska Highway. There is no boat launch at the lake. There is one residence on the lake.

#### Overall Status

##### Lake Trout

Caribou Lake was found to have a healthy population of small-bodied lake trout in 2012. This survey showed no statistical difference in population or density for lake trout, when compared to the 2011 survey. This result helped to validate the effectiveness of the SPIN method in estimating lake trout population size.

##### Lake Whitefish

There were no lake whitefish captured during this survey.

##### Recommendation

The recommendation from the 2012 survey is to continue using the SPIN methodology. Given our experimental results, in most instances, the number of nets should be increased to improve the precision of our population estimates.

#### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

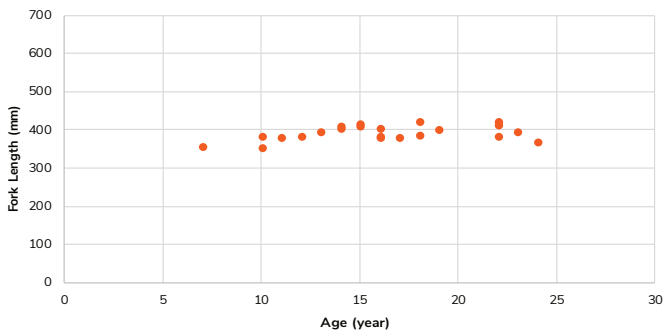
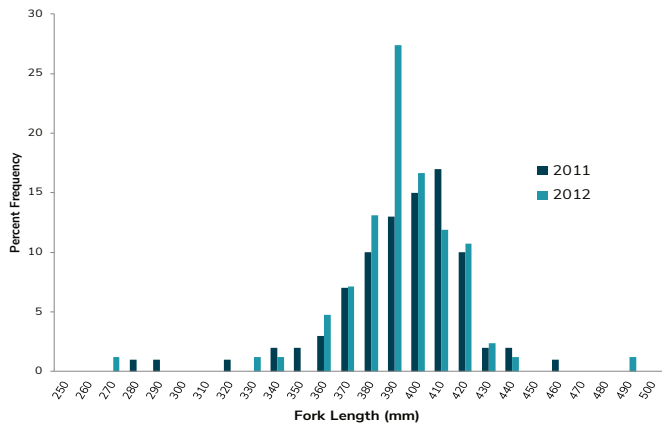
## Lake Trout

### Overview

A total of 83 lake trout were captured during the 2012 survey. They ranged in size from 260 mm to 490 mm in fork length. The sampled lake trout had an average length of 390 mm and average weight of 630 g. Age structures were obtained from 22 lake trout. Ages ranged from 7 to 24 years.

### Population Estimate / Density

The lake trout population in Caribou Lake was estimated at **2,851** (estimate range: 2,360 – 3,381). This equates to a density of 55.9 lake trout per hectare. This population and density estimate is similar to the 2011 survey (estimate **2,716**, density 53.2), with no significant difference between the two years.



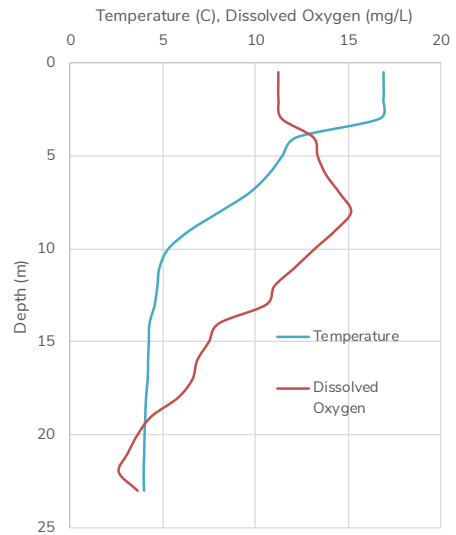
## Lake Whitefish

### Overview

No lake whitefish were captured in Caribou lake during the 2012 survey.

## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken in the north basin of Caribou Lake on June 25, 2012. This location was the deepest part of the lake. Temperatures and oxygen levels were within suitable levels for lake trout. We found a thermocline occurring between 3 m and 4 m with a sudden drop from 15°C to 12°C. Optimal dissolved oxygen levels were found to a depth of 15 m.

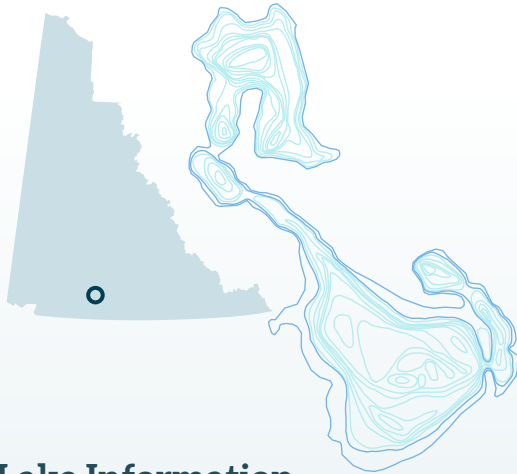


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SR-20-02 Table of Contents





## Lake Information

<b>WATERSHED</b> Yukon Headwaters	<b>LAKE CLASS</b> B
<b>SURFACE AREA</b> 144 ha	<b>ELEVATION</b> 877 m
<b>MAXIMUM DEPTH</b> 43 m	<b>AVERAGE DEPTH</b> 15 m
<b>SURFACE TEMPS.</b> 15.8°C	<b>REGULATIONS</b> Special management
<b>SAMPLING DATES</b> June 23-25, 2015	<b>NET SETS</b> 37

### Location

Chadburn Lake is located within the city of Whitehorse, in southern Yukon. This lake is found within the Traditional Territories of the Kwanlin Dün First Nation and the Ta'an Kwäch'än Council.

### Access and Use

Chadburn Lake is accessed via the Chadburn Lake Road, in the Whitehorse subdivision of Riverdale. This is a popular recreational lake with an accessible dock. This lake is part of Whitehorse's Chadburn Lake Park.

# Chadburn Lake 2015

## Lake Trout Monitoring Program

## Overall Status

### Lake Trout

Chadburn Lake has a large density of small-bodied lake trout when compared to most other Yukon lakes. However this density is slightly lower when compared to other lakes of a similar size. The population appears healthy, however given our estimate of population size a harvest strategy that is conservative may be warranted.

### Lake Whitefish

There were no lake whitefish captured during this survey. Other sampled species included round whitefish.

### Recommendation

The recommendation for future surveys is to increase the amount of net sets and collection of biological data for age analysis. This would improve our precision for population estimates and our ability to detect changes.

## Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

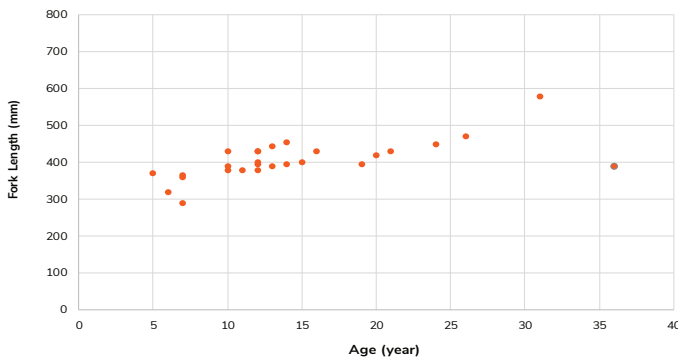
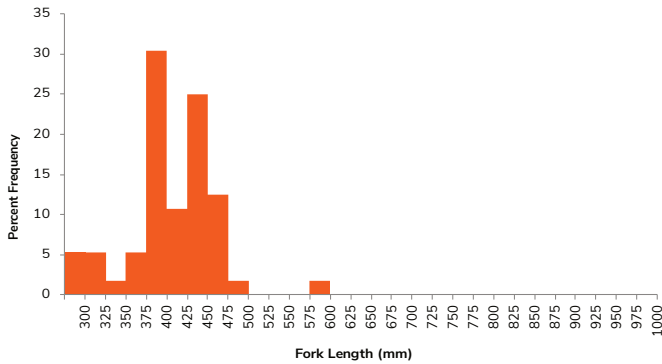
## Lake Trout

### Overview

During the 2015 survey of Chadburn Lake, a total of 53 lake trout were captured, ranging from 260 mm to 580 mm in fork length. The average length and weight of sampled fish were 406 mm and 817 g. Age structures were obtained from 27 lake trout. Ages ranged from 5 to 36 years.

### Population Estimate / Density

The population estimate was **2,941** (estimate range: 2,014 – 3,916). This equates to a density of 20.4 lake trout per hectare. To date, this is one of the largest densities assessed within Yukon lakes.



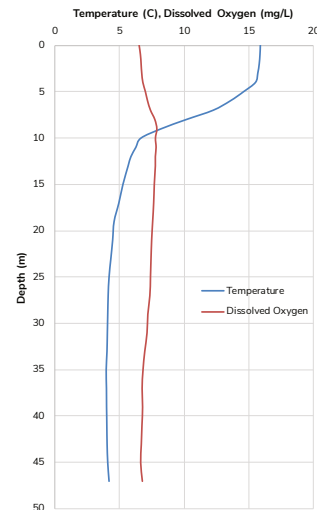
## Lake Whitefish

### Overview

There were no lake whitefish captured during this survey. The only additional species captured was round whitefish, of which 139 were captured. This species had an average length of 345 mm and an average weight of 410 g. Given the number of round whitefish sampled, this species may serve as the principle prey species for lake trout.

## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken on June 25. The temperature profile shows a strong thermocline between 5 m and 8 m, with temperatures unsuitable for lake trout within the first 5 m. Dissolved oxygen was found to be within an acceptable level throughout the water column.

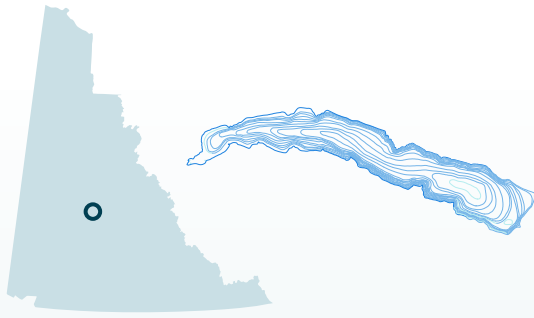


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SR-20-02 Table of Contents





# Ethel Lake 2011

## Lake Trout Monitoring Program

### Lake Information

<b>WATERSHED</b> Upper Stewart	<b>LAKE CLASS</b> D
<b>SURFACE AREA</b> 4610 ha	<b>ELEVATION</b> 760 m
<b>MAXIMUM DEPTH</b> 62 m	<b>AVERAGE DEPTH</b> 31 m
<b>SURFACE TEMPS.</b> 14.7°C	<b>REGULATIONS</b> Conservation waters
<b>SAMPLING DATES</b> July 18-21, 2011	<b>NET SETS</b> 90

#### Location

Ethel Lake is located approximately 20 km east of Stewart Crossing. Ethel Lake is in the Traditional Territory of the First Nation of Na-Cho Nyäk Dun.

#### Access and Use

A seasonal access road is located approximately 10 km south of Stewart Crossing off the Klondike Highway. There is a government campground and a boat launch at the western end of the lake, along with several private residences.

### Overall Status

#### Lake Trout

The density of lake trout in Ethel Lake was lower than expected, in comparison to similar sized Yukon lakes. This may be related to recreational harvest pressures, as well as a former commercial fishery, which closed in 1967.

#### Lake Whitefish

Only 15 lake whitefish were captured during the 2011 survey. This may indicate small lake whitefish numbers in Ethel Lake. Additional species sampled included: arctic grayling and round whitefish.

#### Recommendation

The number of net sets used during the survey should be increased as well as the collection and analysis of age structures. This will help increase the precision of our population estimates and understanding of the population structure.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

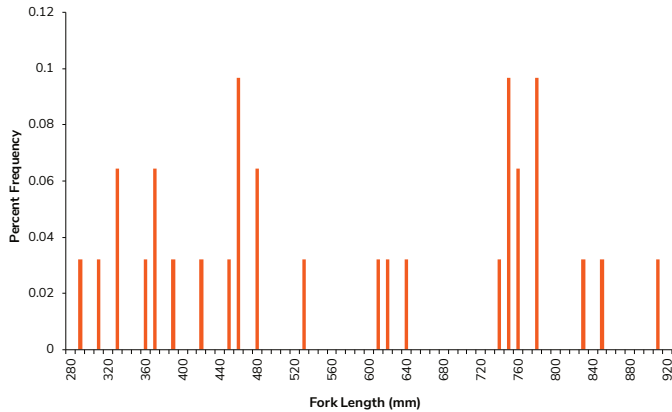
## Lake Trout

### Overview

A total of 30 lake trout were captured during the 2011 survey, ranging from 290 mm to 910 mm in fork length. Sampled fish had an average length of 573 mm and weight of 3,333 g. Age structures were not obtained during the 2011 survey.

### Population Estimate / Density

The lake trout population was estimated at **9,102** (estimate range: 1,902 – 16,450). This equates to a density of 2.0 lake trout per hectare. However given the small sample size, our confidence in this estimate is weak.



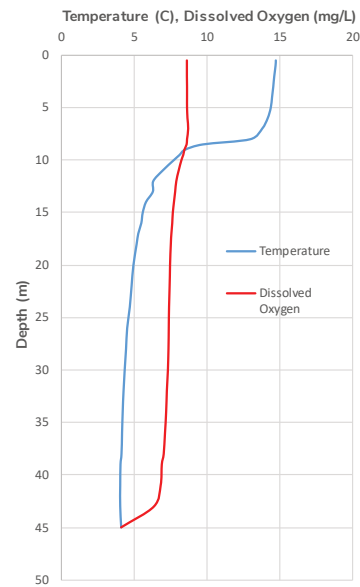
## Lake Whitefish

### Overview

A total of 15 lake whitefish were captured during the 2011 survey. As such, we did not determine population numbers. Given the small sample size, we have concerns the population may be low, or there is limited habitat for lake whitefish.

### Temperature and Oxygen

The profiles of oxygen and temperature indicated water conditions were suitable for lake trout. However, optimal habitat ranged from 8 – 38 m. There may be less suitable habitat at the surface due to higher temperatures.



### For more information, please contact

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SR-20-02 Table of Contents





# Fish Lake 2010

## Lake Trout Monitoring Program

### Lake Information

<b>WATERSHED</b> Yukon Headwaters	<b>LAKE CLASS</b> C
<b>SURFACE AREA</b> 1386 ha	<b>ELEVATION</b> 1123 m
<b>MAXIMUM DEPTH</b> 37 m	<b>AVERAGE DEPTH</b> 16.5 m
<b>SURFACE TEMPS.</b> 14.3°C	<b>REGULATIONS</b> Special Management
<b>SAMPLING DATES</b> August 19-20, 2010	<b>NET SETS</b> 29

### Location

Fish Lake is located approximately 15 km southwest of Whitehorse at the end of the Fish Lake Road. The lake is found within the Traditional Territory of the Kwanlin Dün First Nation.

### Access and Use

Fish Lake is accessed by Fish Lake Road, along the Alaska Highway near Whitehorse. There is an accessible boat launch at the lake and a private campground nearby.

### Overall Status

#### Lake Trout

The results from this survey indicated Fish Lake has a large population of small-body lake trout. This population appears healthy. Lake trout appear to be the top predators in this moderately productive lake.

#### Lake Whitefish

Fish Lake does not contain lake whitefish. The additional fish species sampled in this lake included arctic grayling and a small population of round whitefish.

#### Recommendation

The recommendation from the 2010 survey is to revisit and sample this lake in 2012 to compare results.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

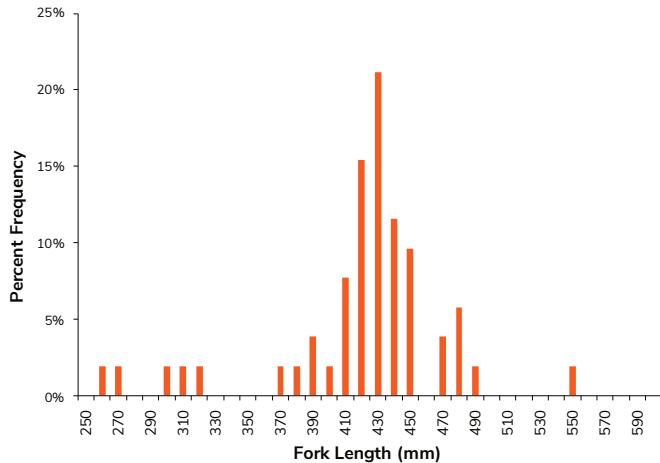
## Lake Trout

### Overview

Fifty lake trout were captured during the survey, ranging in size from 265 mm to 865 mm in fork length. The average length was 426 mm, while the average weight was 926 g. During the 2010 survey, no lake trout were sampled for age structures. As such, we are unable to present length/age relationships.

### Population Estimate / Density

The lake trout population was estimated at approximately **41,787** (ranging between 31,770 – 52,486). This corresponds to an estimate of 30.1 lake trout per hectare.



## Lake Whitefish

### Overview

During the survey of Fish Lake, no lake whitefish were captured.

## Temperature and Oxygen

Temperature and oxygen profiles were not assessed during the 2010 survey as this specialized equipment was not available.

### For more information, please contact

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SR-20-02 Table of Contents





## Fish Lake 2012

### Lake Trout Monitoring Program

#### Lake Information

<b>WATERSHED</b> Yukon Headwaters	<b>LAKE CLASS</b> C
<b>SURFACE AREA</b> 1386 ha	<b>ELEVATION</b> 1123 m
<b>MAXIMUM DEPTH</b> 37 m	<b>AVERAGE DEPTH</b> 16.5 m
<b>SURFACE TEMPS.</b> 7.16°C	<b>REGULATIONS</b> Special Management
<b>SAMPLING DATES</b> July 5-12, 2012	<b>NET SETS</b> 29

#### Location

Fish Lake is located approximately 15 km southwest of Whitehorse at the end of the Fish Lake Road. The lake is found within the Traditional Territory of the Kwanlin Dün First Nation.

#### Access and Use

Fish Lake is accessed by Fish Lake Road, along the Alaska Highway near Whitehorse, with a boat launch at the lake and a private campground nearby.

#### Overall Status

##### Lake Trout

The small-bodied lake trout population in Fish Lake remains healthy. Fish Lake continues to have a high density of lake trout.

##### Lake Whitefish

During the 2012 survey, no lake whitefish were captured.

##### Recommendation

The recommendation from the 2012 survey is to maintain consistent survey timing for repeated SPIN sampling. This will reduce variations in fish numbers due to seasonal differences. Additionally, for Yukon a standardized sampling period should be adopted for all SPIN surveys. It is also recommended to sample for temperature and dissolved oxygen content.

#### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

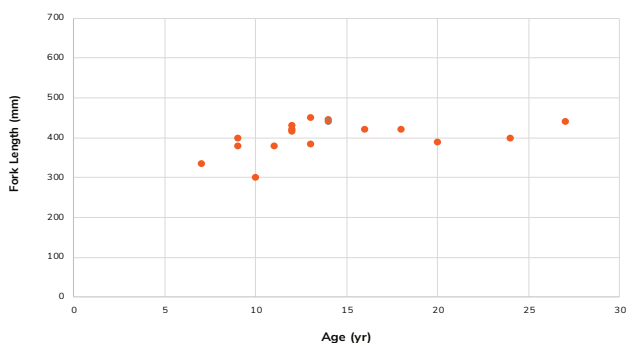
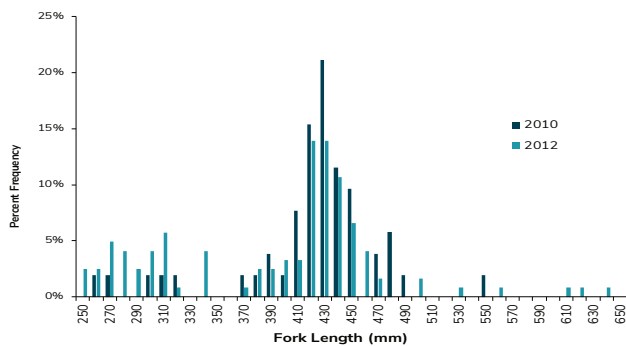
## Lake Trout

### Overview

A total of 122 lake trout were captured during the 2012 survey, ranging from 225 mm to 640 mm in fork length. Sampled fish had an average length of 390 mm and average weight of 732 g. Age structures were obtained from 18 lake trout during the 2012 survey, ages ranged from 7 to 27 years old.

### Population Estimate / Density

The lake trout population within Fish Lake was estimated to be **75,562** (estimate range: 62,403 – 89,955). This equates to a density of 54.4 lake trout per hectare. This population estimate was larger than the 2010 estimate. This may be due to variation in survey dates. This survey was conducted during July, as opposed to the August survey in 2010. This shift in sampling dates may have created changes in lake trout distributions associated with habitat availability. Their preferred temperatures may have been confined to deeper waters. As such, it is difficult to compare these two surveys.



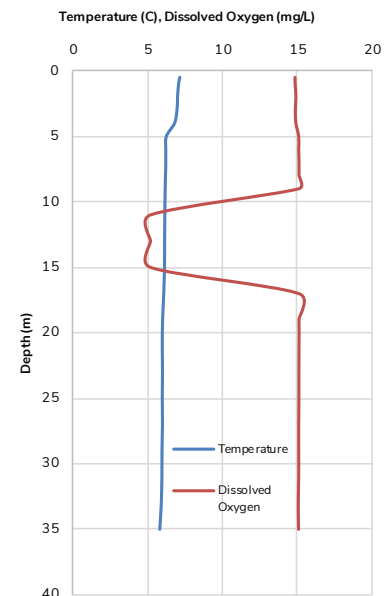
## Lake Whitefish

### Overview

During the survey of Fish Lake, no lake whitefish were captured.

## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken near the middle of Fish Lake, on July 5, 2012. We did not record temperature stratification and there was an odd shift recorded for dissolved oxygen levels between 9 and 17 m. There is an uncertainty associated with instrument error. Future surveys should resample to ensure accuracy.



### For more information, please contact

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SR-20-02 Table of Contents





## Lake Information

<b>WATERSHED</b>	<b>LAKE CLASS</b>
Yukon Headwaters	C
<b>SURFACE AREA</b>	<b>ELEVATION</b>
1602 ha	957 m
<b>MAXIMUM DEPTH</b>	<b>AVERAGE DEPTH</b>
47 m	28.6 m
<b>SURFACE TEMPS.</b>	<b>REGULATIONS</b>
14.54°C	Special Management
<b>SAMPLING DATES</b>	<b>NET SETS</b>
July 3-5,10, 2013	81

### Location

Fox Lake is located approximately 60 km north of Whitehorse and is found within the Ta'an Kwäch'än Council and Kwanlin Dün First Nation Traditional Territories.

### Access and Use

Access to Fox Lake is along the North Klondike Highway. There is a popular campground on the eastern shore, with an accessible boat launch. There is a second boat launch near the southern end, along with several residences along the eastern shoreline.

# Fox Lake 2013

## Lake Trout Monitoring Program

## Overall Status

### Lake Trout

Fox Lake has a population of lake trout that are large-bodied. When compared to lakes of similar size, this population appears smaller. This may be due to the lakes popularity as a recreational angling destination.

### Lake Whitefish

The lake whitefish population in Fox Lake was found to be healthy with a large relative density, as well as a large average size, when compared to other Yukon lakes. This healthy population may be an indication of a decreased lake trout (predator) population size.

### Recommendation

The recommendation from the 2013 survey is to place this lake into Special Management regulations, wherein we will limit harvest pressure. This may assist with this populations natural recovery. An increase in net sets and collection of biological data for age analysis is recommended to increase confidence in our population estimates and provide more information on population structure.

## Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

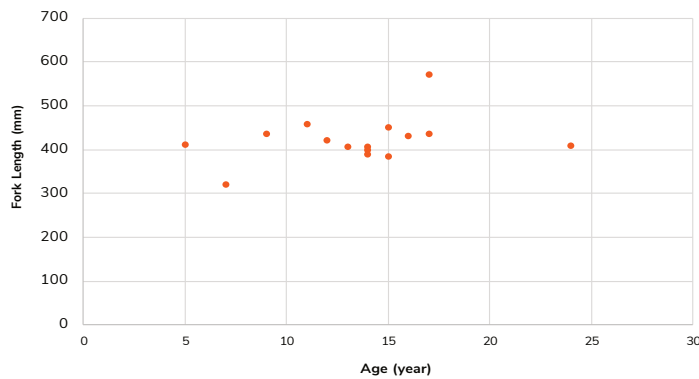
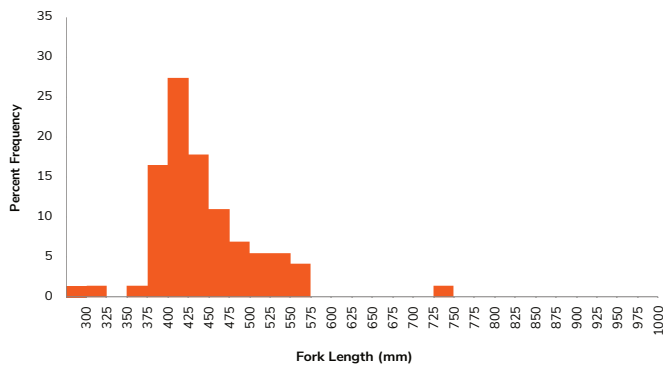
## Lake Trout

### Overview

During the 2013 survey, a total of 73 lake trout were captured, ranging in length from 232 mm to 730 mm. The average length and weight of sampled fish were 448 mm and 1,114 g. Age structures were obtained from 15 lake trout. Ages ranged from 7 to 24 years.

### Population Estimate / Density

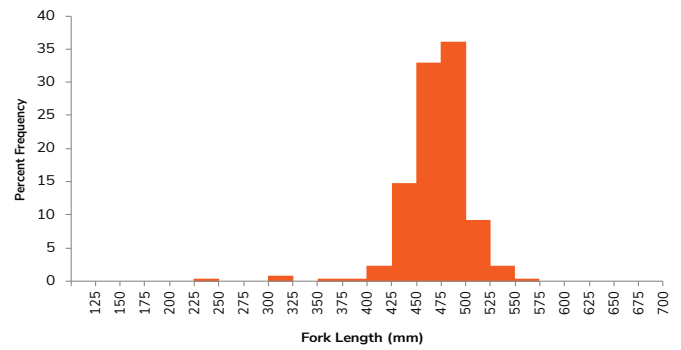
The lake trout population in Fox Lake was estimated at **5,397** (estimate range: 2,763 – 8,120). This equates to a density of 3.4 lake trout per hectare. There is some evidence this population may be depleted, when compared to similar sized Yukon Lakes.



## Lake Whitefish

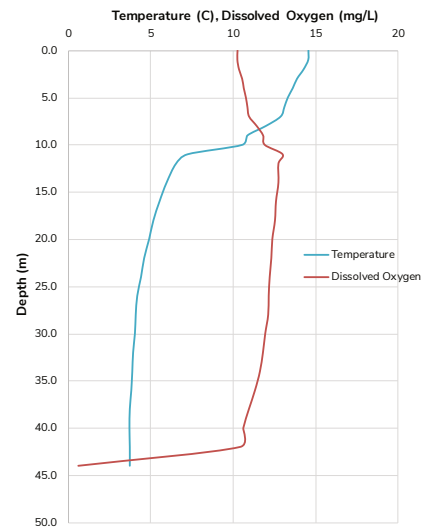
### Overview

A total of 261 lake whitefish were sampled during the survey, ranging in size from 173 mm to 565 mm in fork length. The average length was 469 mm and the average weight was 1,328g. Age structures were analyzed from 93 lake whitefish. Ages ranged from 4 to 34 years. This population appears healthy.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken from the middle of the lake on July 3, 2013. The lake was stratified with a defined thermocline between 10 m and 11 m. Temperatures were suitable throughout the water column. Dissolved oxygen levels were optimal between 7 m and 42 m.



### For more information, please contact

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SR-20-02 Table of Contents



## Lake Information

<b>WATERSHED</b>	<b>LAKE CLASS</b>
Yukon Headwaters	C
<b>SURFACE AREA</b>	<b>ELEVATION</b>
1441 ha	575 m
<b>MAXIMUM DEPTH</b>	<b>AVERAGE DEPTH</b>
65 m	14.6 m
<b>SURFACE TEMPS.</b>	<b>REGULATIONS</b>
14.3°C	Special Management
<b>SAMPLING DATES</b>	<b>NET SETS</b>
June 18-19, 2012	58

### Location

Frenchman Lake is located approximately 26 km east of the Village of Carmacks within the Traditional Territory of the Little Salmon/Carmacks First Nation.

### Access and Use

Access to Frenchman Lake is via the seasonal Frenchman Lake Road which turns north off of the Robert Campbell Highway 39 km east of the Village of Carmacks and connects with the Klondike Highway at km 384, just north of Tatchun Creek. There are two government campgrounds along Frenchman Lake with accessible and popular boat launches.

# Frenchman Lake 2012

## Lake Trout Monitoring Program

## Overall Status

### Lake Trout

The lake trout population in Frenchman Lake appears to be smaller in density than similar sized lakes in Yukon. This large-bodied population may be showing signs of depletion due to higher angler activity and competition for prey with northern pike.

### Lake Whitefish

The lake whitefish population appears healthy, however it was observed that the average fork length of this population is slightly smaller than observed in other Yukon lakes.

### Recommendation

We recommend an increase in the number of net sets used when this lake is resampled in the future. This will aid in detecting population changes and increase the precision of our estimates. It is also recommended that catch and possession limits are reduced, to allow this population to recover.

## Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

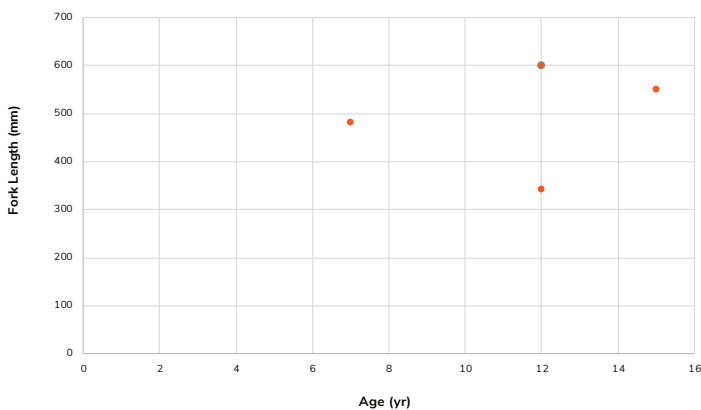
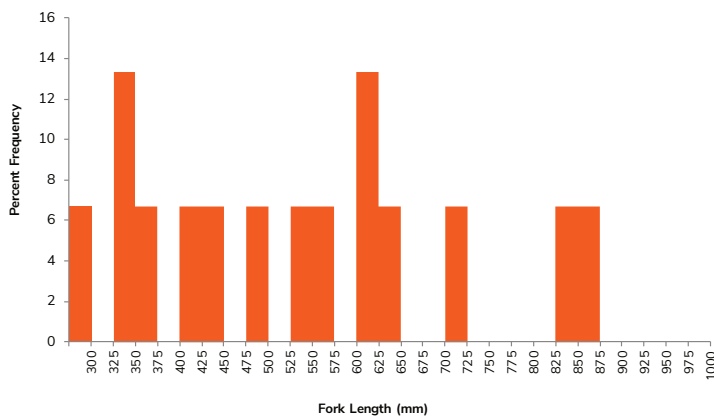
## Lake Trout

### Overview

A total of 15 lake trout were captured during the 2012 survey, ranging in size from 267 mm to 870 mm. Sampled fish averaged 533 mm in length and 870 g in weight. Age structures were obtained from 4 lake trout. Ages ranged from 7 to 15 years.

### Population Estimate / Density

The lake trout population estimate for Frenchman Lake was **2,874** (estimate range: 624 – 5,172). This equated to a density of 2.0 lake trout per hectare. This is a lower estimate than other similarly sized lakes surveyed in Yukon (prior to 2012).



### For more information, please contact

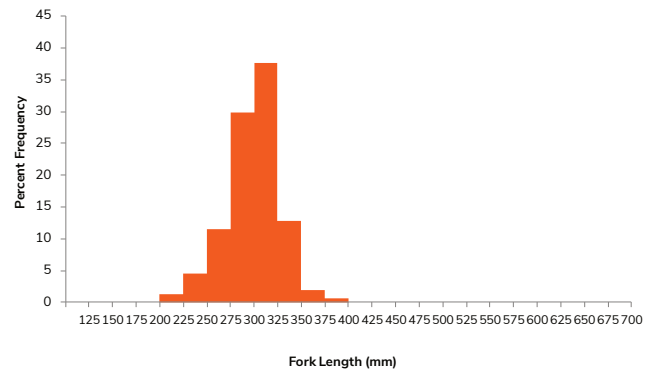
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SR-20-02 Table of Contents

## Lake Whitefish

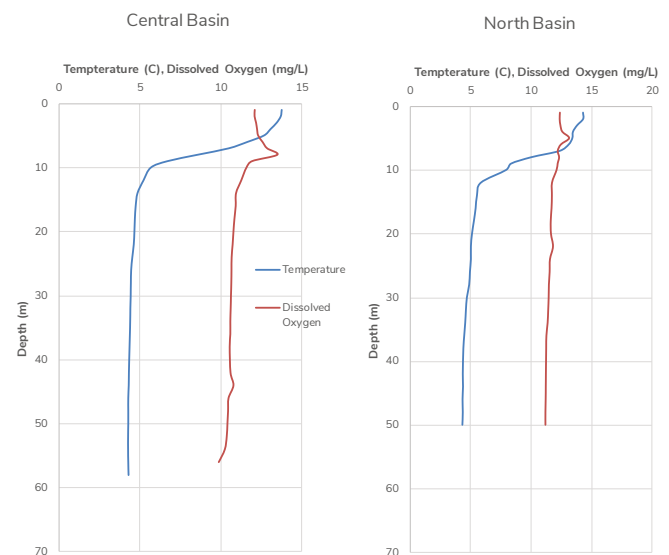
### Overview

A total of 158 lake whitefish were captured during this survey. They ranged in fork length from 202 mm to 387 mm. Sampled fish had an average length of 300 mm and weight of 392 g. This average length is smaller than average lengths reported for other assessed Yukon lakes (avg: 413 mm). Age structures were analyzed from 33 lake whitefish. Ages ranged from 4 to 17 years.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken in both of the lake's basins. Basins were sharply stratified, with suitable lake trout temperatures beginning at 7 m and continuing to lake bottom. Dissolved oxygen levels were optimal over the depth range of both profiles.





# Kathleen Lakes 2019

## Lake Trout Monitoring Program

### Lake Information

<b>WATERSHED</b> Stewart	<b>LAKE CLASS</b> B
<b>SURFACE AREA</b> 1389(U), 753 (L) ha	<b>ELEVATION</b> 723 m
<b>MAXIMUM DEPTH</b> 59(U), 43(L) m	<b>AVERAGE DEPTH</b> 4.4(U), 3.5(L) m
<b>SURFACE TEMPS.</b> 17.3°C	<b>REGULATIONS</b> General waters
<b>SAMPLING DATES</b> July 07-09, 2019	<b>NET SETS</b> 31

#### Location

The Kathleen Lakes are located 109 km northeast of the community of Mayo. These lakes are found within the Traditional Territory of the First Nation of Na-Cho Nyäk Dun.

#### Access and Use

The Kathleen Lakes are accessible by fly-in only, with an established outfitting lodge on the west basin. There is no road access, nor additional private residences on these lakes.

### Overall Status

#### Lake Trout

The lake trout population in the two basins of the Kathleen Lakes were small in number, when compared to lakes of similar size. However, due to high temperatures and low oxygen levels lake trout habitat is limited in the east basin and this may be contributing to the smaller population size.

#### Lake Whitefish

There were no lake whitefish captured within this system.

#### Recommendation

The recommendation for future surveys of the Kathleen Lakes is to continue monitoring the depth profiles and to determine recreational harvest pressures. If this lake is repeated, an effort to increase net sets and determine age cohorts will assist in determining population size and health.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

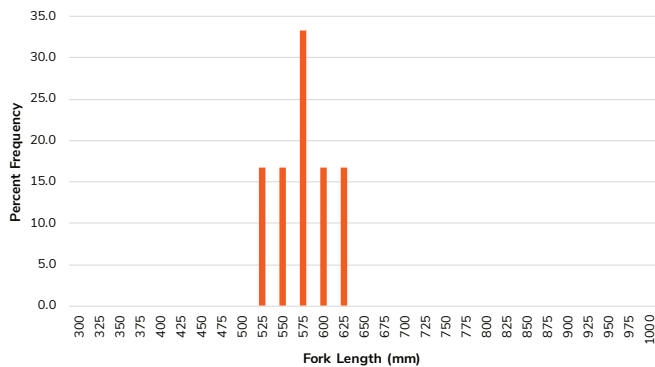
## Lake Trout

### Overview

During the 2019 survey of the east and west basins of the Kathleen Lake, there were only 6 lake trout captured. The sampled lake trout ranged in fork length from 522 mm to 601 mm. They had an average length of 565 mm and an average weight of 2158 g. Age structures were not obtained from these fish.

### Population Estimate / Density

The lake trout population estimate for Kathleen Lakes was estimated at **593** (estimate range: 1 to 1,218). This resulted in a density of 1.5 lake trout per hectare. However due to the small sample size there is little confidence in this estimate.



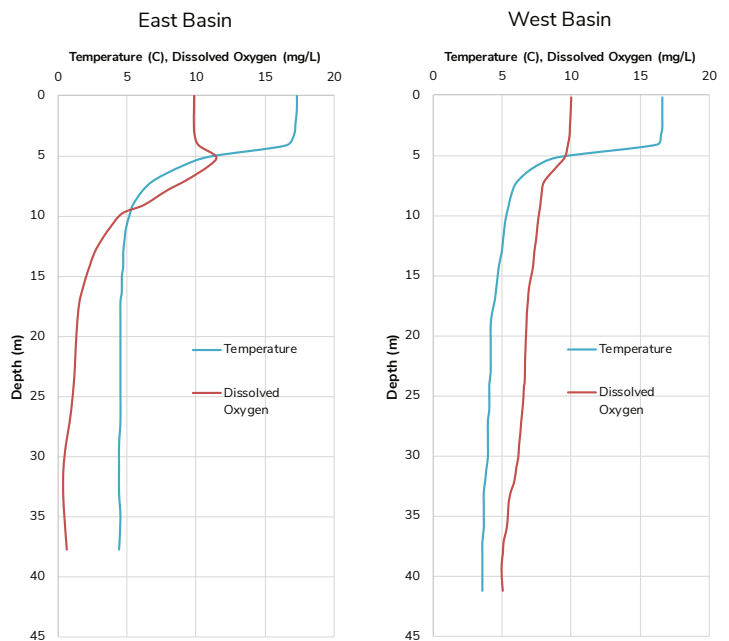
## Lake Whitefish

### Overview

No lake whitefish were captured during this survey.

## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken in both the west and east basin on July 8 and 9, respectively. The temperature profiles indicated a sharp thermocline between 4 m and 7 m, with temperatures decreasing from 16°C to 5°C within the thermocline. Temperatures gradually declined below this, through the rest of the water column. Dissolved oxygen profiles in both basins displayed a sharp decrease from 5 m through 10 m. In the east basin, below 9 m, oxygen levels were unsuitable to support lake trout. Suitable lake trout habitat in the west basin was found from 5 m to the lake's bottom.



### For more information, please contact

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SR-20-02 Table of Contents





## Lake Information

<b>WATERSHED</b>	<b>LAKE CLASS</b>
Alsek	F
<b>SURFACE AREA</b>	<b>ELEVATION</b>
40,821 ha	781 m
<b>MAXIMUM DEPTH</b>	<b>AVERAGE DEPTH</b>
91 m	31 m
<b>SURFACE TEMPS.</b>	<b>REGULATIONS</b>
9.4°C	Conservation waters
<b>SAMPLING DATES</b>	<b>NET SETS</b>
August 6-11, 2013	129

### Location

Kluane Lake is located approximately 60 km northwest of Haines Junction and borders Kluane National Park and Reserve. Kluane Lake is within the White River First Nation and Kluane First Nation Traditional Territories.

### Access and Use

Kluane Lake is accessed along the Alaska Highway, with a government campground at Congdon Creek, as well as multiple private campgrounds and residences along the lake. Boat ramps are available in several locations, however not all of them are in useable condition.

# Kluane Lake 2013

## Lake Trout Monitoring Program

## Overall Status

### Lake Trout

Kluane Lake has a high density and healthy population of large-bodied lake trout. The lake trout population in Kluane receives minimal angling pressure, relative to other Yukon lakes, due to its remote location, wind and size.

### Lake Whitefish

The lake whitefish population in Kluane Lake was found to be healthy, with a higher relative density when compared to similar sized lakes in Yukon.

### Recommendation

The 2013 survey of Kluane Lake was conducted prior to the natural diversion of the Kaskawalsh Glacier away from Slims River, historically a major input to this lake. As such, the data from this survey serves as baseline for lake trout and lake whitefish population levels. It is recommended that Kluane lake is reassessed based on these prior levels. A slight increase in the number of net sets, should also occur to increase our ability to determine population change. It is also recommended that habitat mapping of lake trout spawning locations is conducted along with analysis of ages.

## Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

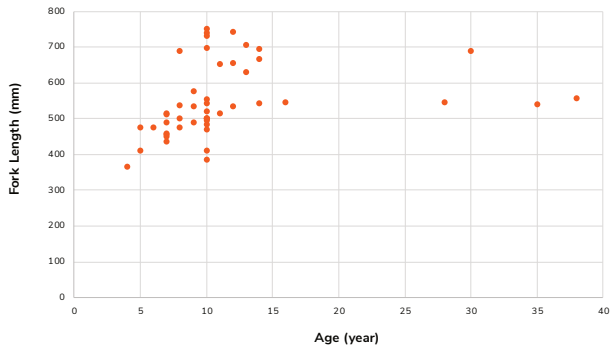
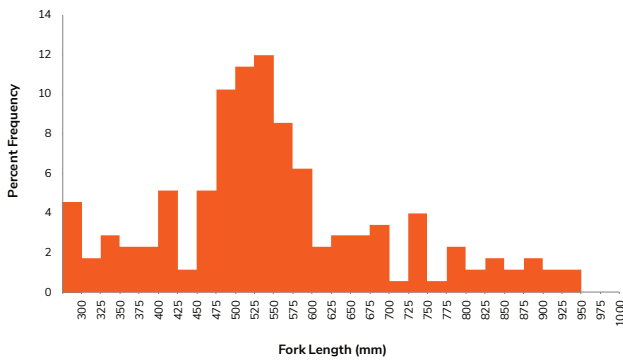
## Lake Trout

### Overview

During the 2013 survey, a total of 168 lake trout were captured, ranging in fork length from 240 mm to 950 mm. The sampled fish had an average length of 552 mm and average weight of 2,348 g. Age structures were obtained from 51 lake trout. Ages ranged from 4 to 38 years.

### Population Estimate / Density

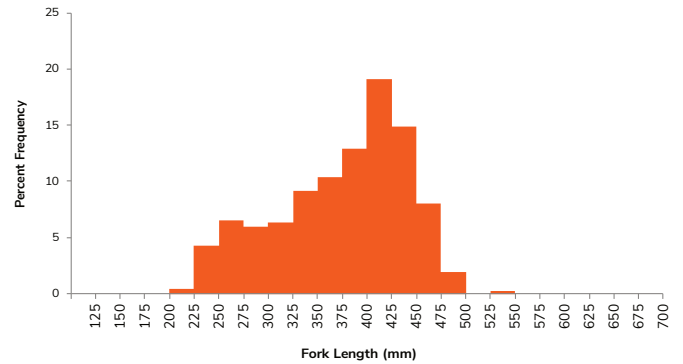
The population of lake trout within Kluane Lake was estimated at **168,712** (estimate range: 99,487 – 240,691). This equates to a density of 4.3 lake trout per hectare, which can be considered a moderate to high density for this large-bodied population.



## Lake Whitefish

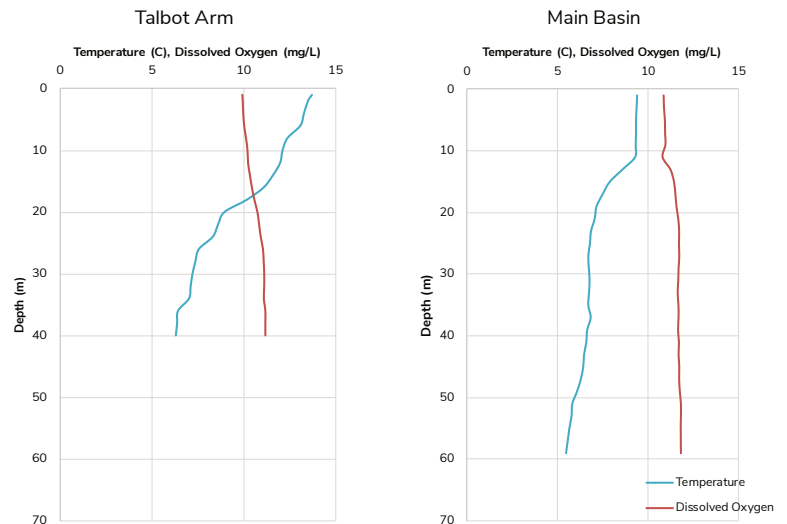
### Overview

A total of 471 lake whitefish were captured during this survey. These sampled whitefish ranged in size from 217 mm to 545 mm in fork length, with an average length of 376 mm and weight of 792 g. Age structures were analyzed from 202 lake whitefish. Ages ranged from 3 to 37 years.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken in two locations, the main basin and Talbot Arm. Temperatures and dissolved oxygen were optimal in the main basin from the surface to 60 m (maximum equipment depth). In Talbot Arm, temperatures steadily declined, with dissolved oxygen relatively constant through the water column.



### For more information, please contact

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## Lake Information

<b>WATERSHED</b> Yukon Headwaters	<b>LAKE CLASS</b> E
<b>SURFACE AREA</b> 14,018 ha	<b>ELEVATION</b> 671 m
<b>MAXIMUM DEPTH</b> 140 m	<b>AVERAGE DEPTH</b> 54 m
<b>SURFACE TEMPS.</b> 12.2°C	<b>REGULATIONS</b> Conservation waters
<b>SAMPLING DATES</b> July 2,3,7-10, 2014	<b>NET SETS</b> 158

### Location

Kusawa Lake is located in southern Yukon and forms the basis of Kusawa Territorial Park. This lake is within the Traditional Territories of the Carcross/Tagish First Nation and the Champagne/Aishihik First Nation.

### Access and Use

Kusawa Lake is accessed via the Kusawa Lake Road, from the Alaska Highway. There is a popular government campground at the lake, with an established boat ramp. This is a popular recreational angling site for Yukon residents.

# Kusawa Lake 2014

## Lake Trout Monitoring Program

## Overall Status

### Lake Trout

In accordance with our sampling results the lake trout population in Kusawa Lake, appears healthy. The population appears to be of a slightly smaller physical size than can be found in similar sized lakes.

### Lake Whitefish

The population of lake whitefish in Kusawa Lake appears to be smaller than expected for a lake of it's size and productivity. However detailed baseline information on this population is not available.

### Recommendation

We achieved acceptable precision in our population estimate, therefore the recommendation for future surveys is to repeat the number of net sets performed in 2014. The results of this SPIN survey should taken under consideration when examining the results of the 2014 Angler Harvest Survey. In combination it will help us better understand the influences of recreational angling on the resource.

## Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

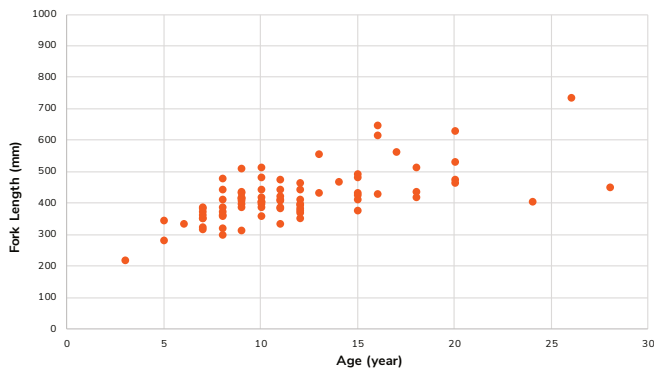
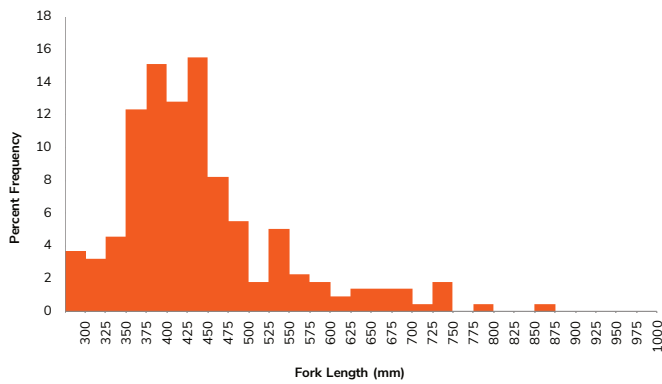
## Lake Trout

### Overview

During the 2014 survey of Kusawa Lake, a total of 213 lake trout were sampled. They ranged from 174 mm to 875 mm in fork length. The sampled fish had an average length of 443 mm and an average weight of 1,174 g. Age structures were obtained from 80 individuals. Ages ranged from 3 to 28 years.

### Population Estimate / Density

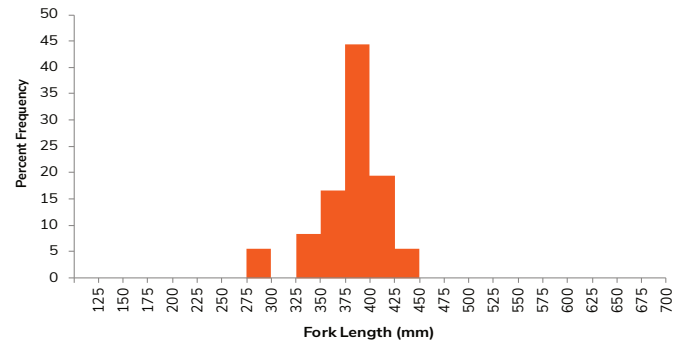
The population of lake trout within Kusawa Lake during the 2014 survey was estimated at **78,045** (estimate range: 51,860 – 105,506). This equates to a density of 5.6 lake trout per hectare. This density indicates a healthy population of large-bodied lake trout.



## Lake Whitefish

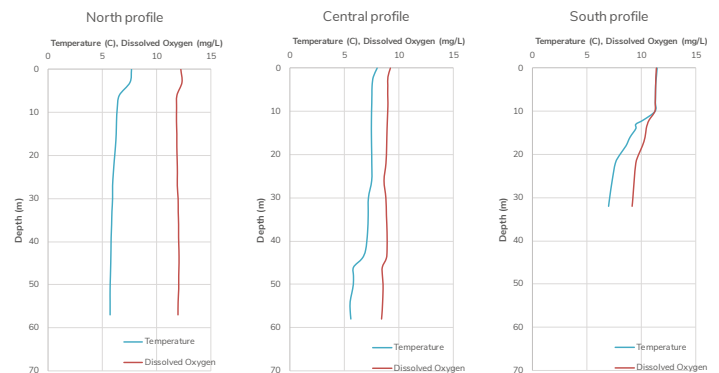
### Overview

During this survey, there were 37 lake whitefish sampled. The lake whitefish ranged from 325 mm to 450 mm. These sampled fish had an average length of 383 mm and an average weight of 730 g. Age structures were obtained from eight lake whitefish. Ages ranged from 5 to 24 years. The catch rate for lake whitefish was less than we would expect for a lake of similar size and productivity.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken at three locations in Kusawa Lake; a northern profile, a central profile, and a southern profile. The north and central profiles exhibited relative stability in the water column, with slightly warmer surface water. The south profile, in a shallower section of the lake, indicated a stratified water column, with a thermocline between 9°C and 12°C. All profiles displayed optimal dissolved oxygen levels.



### For more information, please contact

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SR-20-02 Table of Contents



# Ladue Lake 2017

## Lake Trout Monitoring Program

### Lake Information

<b>WATERSHED</b> Stewart	<b>LAKE CLASS</b> B
<b>SURFACE AREA</b> 253 ha	<b>ELEVATION</b> 717 m
<b>MAXIMUM DEPTH</b> 48 m	<b>AVERAGE DEPTH</b> N/A
<b>SURFACE TEMPS.</b> 16.89°C	<b>REGULATIONS</b> Special Management
<b>SAMPLING DATES</b> June 26-28, 2017	<b>NET SETS</b> 32

#### Location

Ladue Lake is located approximately 15 km north of Keno City. Ladue Lake is found within the Traditional Territory of the First Nation of Na-Cho Nyäk Dun.

#### Access and Use

Ladue Lake is accessed by a 4x4 trail, off the Mayo Elsa Road. There are no government campground and no accessible boat launches at the lake.

### Overall Status

#### Lake Trout

Survey results from 2017 indicated the lake trout population in Ladue Lake appears to be low to moderate in abundance when compared to lakes of similar surface area. However this lake is small and relatively shallow, therefore the lake may only be capable of supporting a small population of lake trout, based on habitat availability.

#### Lake Whitefish

The population of lake whitefish in Ladue Lakes seems healthy. A wide age demographic was sampled, suggesting the population is stable.

#### Recommendation

To increase our confidence in population estimates the recommendation for future surveys of Ladue Lake is to increase net sets. Also, lake trout habitat availability should be determined and increased age analysis. Subsequent to improved access, an Angler Harvest Survey should also be performed.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

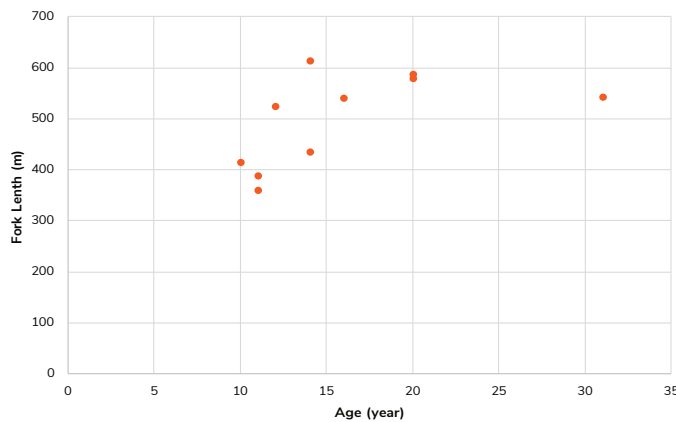
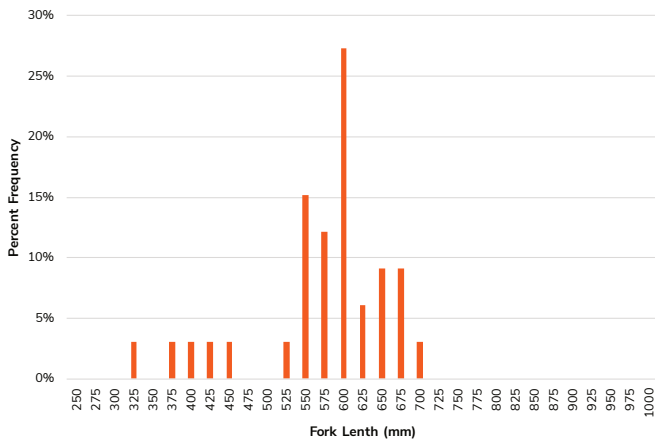
# Lake Trout

## Overview

During the 2017 survey of Ladue Lake, a total of 33 lake trout were sampled. These large-bodied lake trout ranged in fork length from 317 mm to 698 mm. The average length of sampled fish was 561 mm with an average weight of 1,866 g. Age structures were only obtained from 10 lake trout. Ages ranged from 11 to 31 years.

## Population Estimate / Density

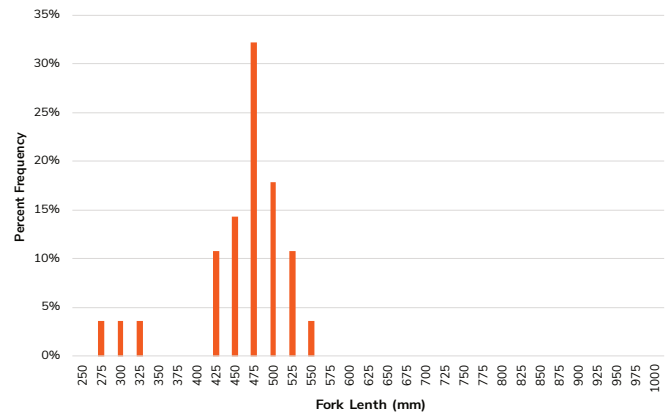
The population estimate for lake trout was **789** (estimate range: 377 to 1,215). This resulted in a density of 3.1 lake trout per hectare.



# Lake Whitefish

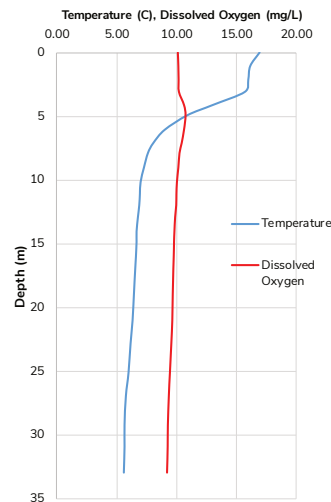
## Overview

During the 2017 survey, a total of 28 lake whitefish were sampled. The size of these fish ranged from 265 mm to 528 mm. Sampled fish had an average fork length of 446 mm and an average weight of 1,224 g. Age structures were taken from 18 lake whitefish. Ages ranged from 6 to 30 years.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were obtained on June 27th. The temperature profile displayed a sharp thermocline from 3 m to 7 m, followed by a gradual decline through the water column. Dissolved oxygen displayed a slight increase from 4 m to 7 m, followed by a gradual decline. Overall, optimum habitat existed between 6 m to the lake's bottom.



## For more information, please contact

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SR-20-02 Table of Contents



## Lake Information

<b>WATERSHED</b> Yukon Headwaters	<b>LAKE CLASS</b> F
<b>SURFACE AREA</b> 20,099 ha	<b>ELEVATION</b> 628 m
<b>MAXIMUM DEPTH</b> 146 m	<b>AVERAGE DEPTH</b> 54 m
<b>SURFACE TEMPS.</b> 14.2°C	<b>REGULATIONS</b> Conservation waters
<b>SAMPLING DATES</b> July 27 - Aug 1, 2016	<b>NET SETS</b> 141

### Location

Lake Laberge is located approximately 47 km north of Whitehorse, on the North Klondike Highway. This lake is found within the Traditional Territories of the Ta'an Kwäch'än Council and Kwanlin Dün First Nation. This lake is part of the Yukon River.

### Access and Use

Lake Laberge is accessed through a public boat launch, which is available at a government campground. There are several private residences along the lake shore. Historically, lake trout in this lake were depleted by commercial fishing in the early 1900s.

# Lake Laberge 2016

## Lake Trout Monitoring Program

## Overall Status

### Lake Trout

The 2016 survey results for Lake Laberge indicate a moderate to low density of lake trout, when compared to lakes of similar size. Survey results also indicated a younger than expected lake trout population, which may suggest overharvest.

### Lake Whitefish

The 2016 Lake Laberge survey indicated a moderate and healthy population of lake whitefish.

### Recommendation

The recommendation for future surveys is to potentially increase the number net sets during sampling. This would help increase the precision of our population estimate. An increase in the number of collected age structures to analyze is also recommended. Lakes of this size category are difficult to accurately assess.

## Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

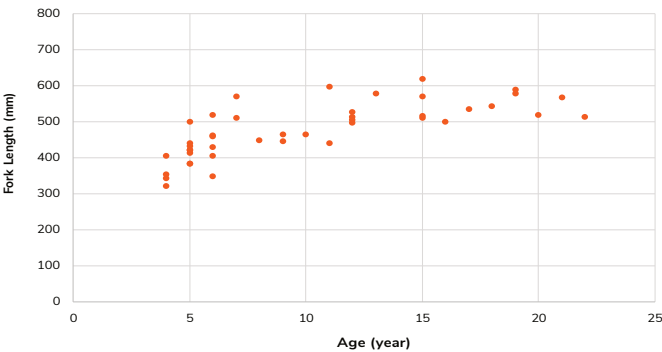
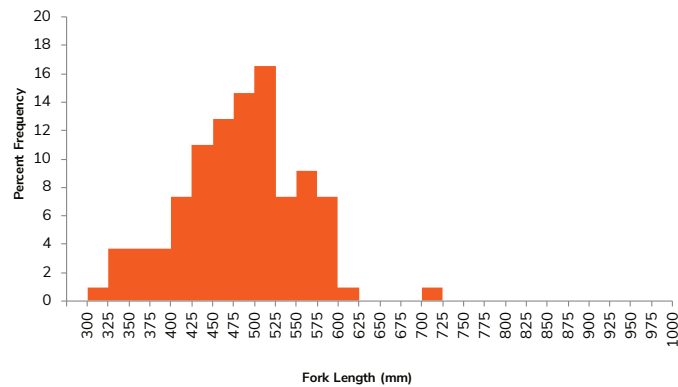
## Lake Trout

### Overview

During the 2016 survey of Lake Laberge a total of 109 lake trout were sampled, ranging in size (fork length) from 310 mm to 716 mm. The sampled fish had an average length of 485 mm and an average weight of 1,737 g. Age structures were obtained from 43 lake trout. Ages ranged from 4 to 22 years.

### Population Estimate / Density

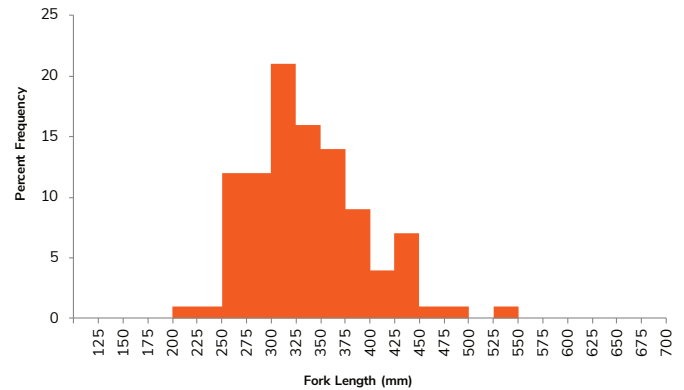
The lake trout population estimate was **51,121** (estimate range: 19,475 – 83,602). This equates to a density of 2.6 large-bodied lake trout per hectare. Given the range of our population estimate, our confidence in this number is weak.



## Lake Whitefish

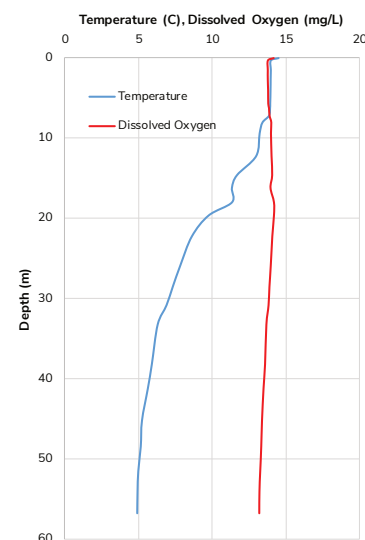
### Overview

A total of 100 lake whitefish were captured during the 2016. The size of these fish ranged from 215 mm to 550 mm in length, with an average fork length of 339 mm and an average weight of 520 g. Age structures were obtained from 53 lake whitefish. Ages ranged from 5 to 16 years.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken on July 22, 2016. The temperature profile displayed a gradual decline from the surface to 12 m, followed by a sharp thermocline to 18 m. Optimal temperatures for lake trout occurred between 14 m and 57 m. Dissolved oxygen remained stable and optimal throughout the water column.



### For more information, please contact

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SR-20-02 Table of Contents



## Lake Information

<b>WATERSHED</b>	<b>LAKE CLASS</b>
Yukon Headwaters	B
<b>SURFACE AREA</b>	<b>ELEVATION</b>
131 ha	728 m
<b>MAXIMUM DEPTH</b>	<b>AVERAGE DEPTH</b>
40 m	17 m
<b>SURFACE TEMPS.</b>	<b>REGULATIONS</b>
12.2°C	General Waters
<b>SAMPLING DATES</b>	<b>NET SETS</b>
June 26-27, 2010	24 per survey
Augst 16-17, 2010	

### Location

Lewes Lake is located near the South Klondike Highway between Whitehorse and Carcross in the Yukon River watershed. Lewes Lake is in the Traditional Territories of the Carcross/Tagish and Kwanlin Dün First Nations.

### Access and Use

Lewes Lake is accessed by Lewes Lake Road, off the South Klondike Highway. There are a number of permanent residences along the road, with makeshift campsites near the lake. There is no boat ramp available at the lake.

# Lewes Lake 2010

## Lake Trout Monitoring Program

## Overall Status

### Lake Trout

Two surveys of Lewes Lake were conducted in the summer of 2010. The two surveys were used in an experiment to test the efficacy of the SPIN methodology. The combined results indicated that Lewes Lake has a high density of small-bodied lake trout. This population appears healthy based on this survey.

### Lake Whitefish

Lewes Lake does not contain lake whitefish. The additional fish species sampled included arctic grayling and round whitefish.

### Recommendation

This lake was used as an experimental waterbody to test the efficacy of the Summer Profundal Index Netting program (SPIN) for Yukon. The recommendation from the 2010 survey is to perform future surveys in June or July, when water temperatures are cooler, resulting in more available habitat.

## Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

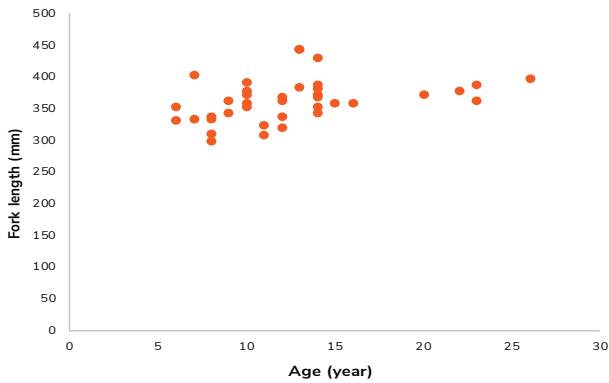
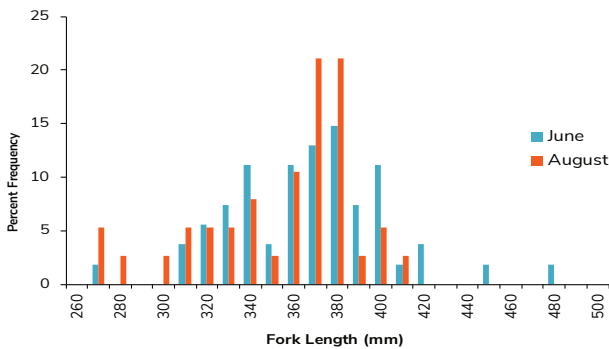
# Lake Trout

## Overview

Eighty eight lake trout were captured during the two surveys. They averaged 358 mm in length (as measured to the fork) and 533 g in weight. Age structures were taken from 31 lake trout. Ages ranged from 5 to 27 years.

## Population Estimate / Density

The estimated population of lake trout was **6,369** (ranging between 5,202 – 7,639). Density estimated from the June survey was 48.6 lake trout per hectare and was 30.5 lake trout per hectare from the August survey. The difference in density estimates likely resulted from differences in distributins of lake trout between the two periods.



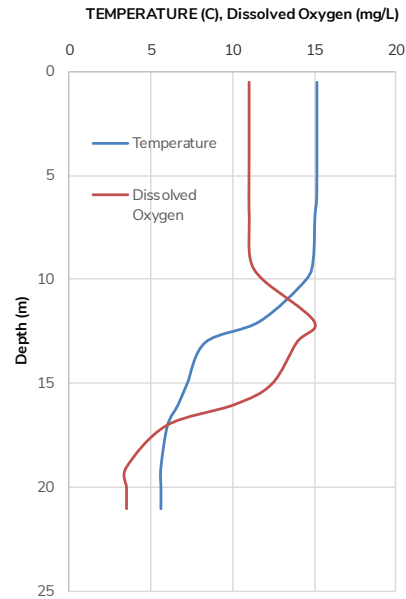
# Lake Whitefish

## Overview

During the two surveys of Lewes Lake, no lake whitefish were captured.

## Temperature and Oxygen

Temperature profiles for June and August show that the lake was strongly stratified during both months. The thermocline (zone of steep temperature decline) was located at a shallower depth in June (8.5 -10.5 m) when compared to August (10.5 -12.5 m). Dissolved oxygen levels were obtained in the August survey. Optimal oxygen levels were found at a depth of 11 m and extended to the lakes bottom.



### For more information, please contact

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867-667-5652

SR-20-02 Table of Contents





## Lake Information

<b>WATERSHED</b> Yukon Headwaters	<b>LAKE CLASS</b> D
<b>SURFACE AREA</b> 4032 ha	<b>ELEVATION</b> 669 m
<b>MAXIMUM DEPTH</b> 42 m	<b>AVERAGE DEPTH</b> 10.6 m
<b>SURFACE TEMPS.</b> 18.0°C	<b>REGULATIONS</b> Special management
<b>SAMPLING DATES</b> July 7-10, 2015	<b>NET SETS</b> 67

### Location

Little Atlin Lake is located 4 km south on of Jake's Corner, on the Atlin Road. This lake is located within the Traditional Territory of the Carcross/Tagish First Nation and the Taku River Tlingit First Nation, in southern Yukon.

### Access and Use

Little Atlin Lake is accessed primarily by a boat ramp, located in the north-east end of the lake. This is a popular destination for northern pike fishing.

# Little Atlin Lake 2015

## Lake Trout Monitoring Program

### Overall Status

#### Lake Trout

Survey results from 2015 indicate the lake trout population in Little Atlin Lake is small. Bathymetric analysis of Little Atlin Lake indicates that less than 20% of this lake is deeper than 20m, which limits lake trout habitat. This may suggest that the lake trout population may not be depleted, but rather is a small population, limited by habitat availability. Conversely, this lake has an abundance of shallow water habitat and is suitable for northern pike.

#### Lake Whitefish

The lake whitefish population within Little Atlin Lake appears healthy.

#### Recommendation

The recommendation for future surveys is to increase the amount of net sets. This will increase our precision when estimating population size. Another recommendation is to increase thermal habitat mapping of this lake and increase the number of age structures analyzed.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

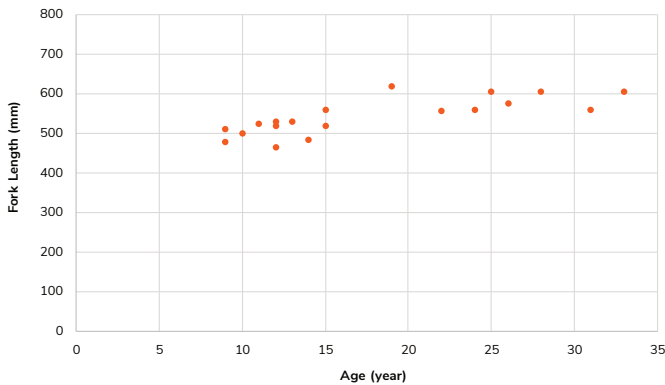
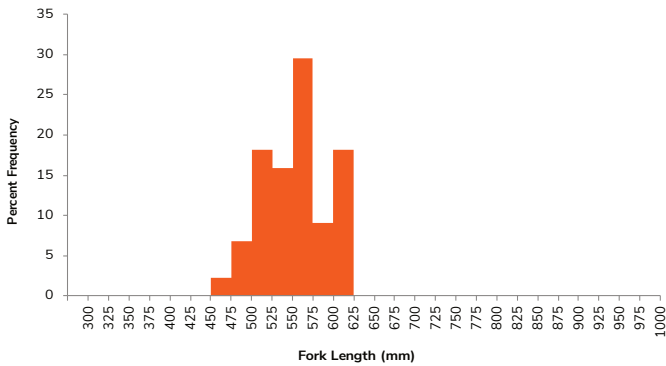
## Lake Trout

### Overview

A total of 44 lake trout were captured during the survey. These sampled lake trout ranged from 465 mm to 620 mm in fork length, with an average length of 554 mm and an average weight of 2,255 g. Age structures were obtained from 19 lake trout. Ages ranged from 9 to 33 years.

### Population Estimate / Density

The population of lake trout was estimated at **7,178** (estimate range: 913 – 13,559). This equates to a density of 1.8 lake trout per hectare. Given the wide range of our population estimate, we have little confidence in this number.



### For more information, please contact

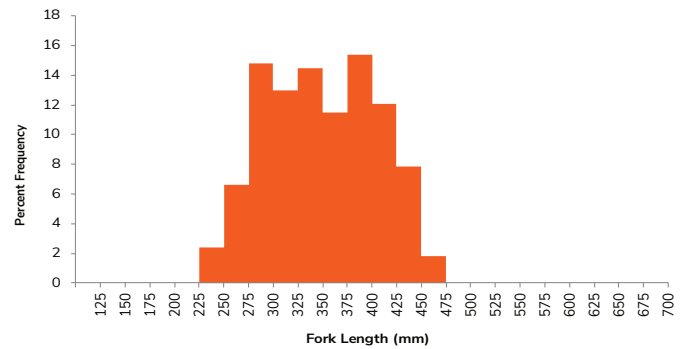
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SR-20-02 Table of Contents

## Lake Whitefish

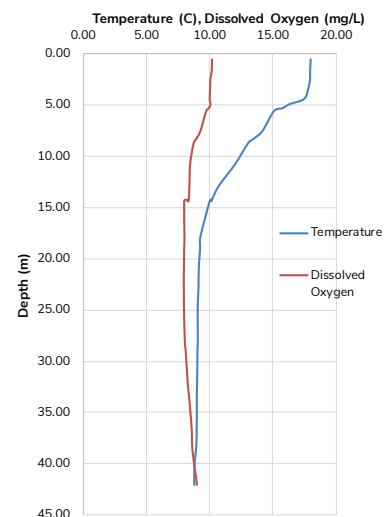
### Overview

A total of 341 lake whitefish were captured during the 2015 survey. These fish ranged in size from 240 mm to 470 mm in length. Sampled whitefish had an average length of 351 mm and an average weight of 606 g. Age structures were obtained from 33 lake whitefish. Ages ranged from 5 to 19 years.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken on July 7, 2015. The temperature profile illustrated a strong thermocline between 4 m and 8 m, with temperatures unsuitable for lake trout within the first 5 m. Dissolved oxygen was found to be suitable for lake trout throughout the water column. This indicates suitable habitat from 5 m to the lake's bottom.





# Little Fox Lakes 2016

## Lake Trout Monitoring Program

### Lake Information

<b>WATERSHED</b>	<b>LAKE CLASS</b>
Yukon Headwaters	A(N), B(S)
<b>SURFACE AREA</b>	<b>ELEVATION</b>
227 ha	818 m
<b>MAXIMUM DEPTH</b>	<b>AVERAGE DEPTH</b>
44(N), 50(S)	16.3(N), 10.7(S) m
<b>SURFACE TEMPS.</b>	<b>REGULATIONS</b>
17.1°C	Special Management
<b>SAMPLING DATES</b>	<b>NET SETS</b>
July 4-5, 13, 2016	24(N), 30(S)

#### Location

Little Fox Lakes, is a system of two basins (North basin, South basin), located approximately 85 km north of Whitehorse, on the North Klondike Highway. This lake system is within the Traditional Territories of the Little Salmon Carmacks First Nation, Champagne Aishihik First Nation, Ta'an Kwäch'än Council and the Kwanlin Dün First Nation.

#### Access and Use

Little Fox Lakes are accessed through a public boat launch, with some private residences along the shores of both basins. These are popular recreational angling lakes.

### Overall Status

#### Lake Trout

The lake trout populations in the Little Fox Lakes are healthy, containing a large density of small-bodied lake trout. The southern basin was found to have the largest density of lake trout, in comparison to all previously sampled Yukon lakes.

#### Lake Whitefish

Lake whitefish do not inhabit this system.

#### Recommendation

The recommendation for future surveys of the Little Fox Lakes systems is to perform an Angler Harvest Survey to determine the recreational pressure. It is also recommended that we increase the number of net sets to improve the precision of our population estimates.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

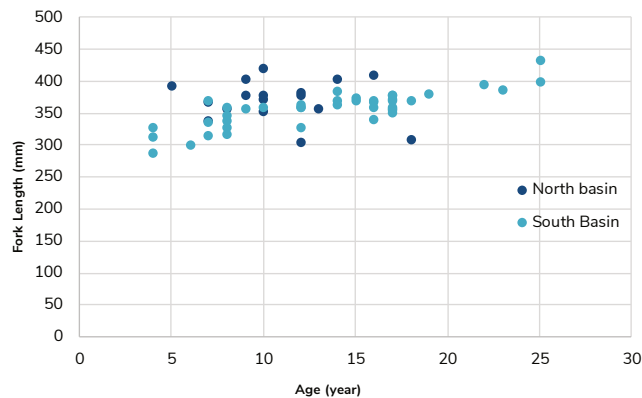
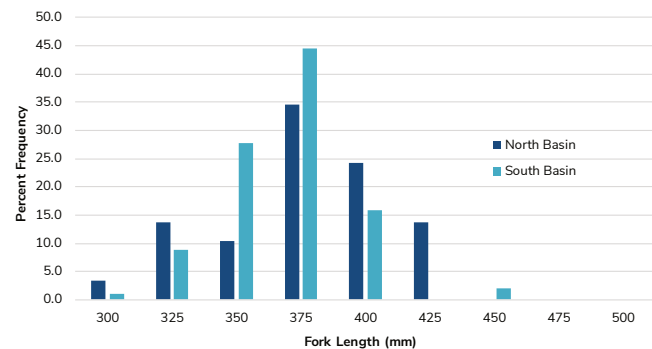
## Lake Trout

### Overview

During the 2016 survey of Little Fox Lakes a total of 28 lake trout were sampled in the north basin and 100 in the south. The north basin lake trout ranged from 288 mm to 421 mm (averaging 362 mm and 601 g). The south basin sampled ranged between 290 mm to 437 mm (averaging 356 mm and 509 g). Age structures taken from lake trout in both basins (18(N), 41(S)), displaying an age range from 4 to 25 years.

### Population Estimate / Density

The population estimates for lake trout in the Little Fox Lakes was **1,584** (estimate range: 1,009 – 2,186) in the north basin and **12,069** (estimate range: 10,267 – 14,068) in the south. This resulted in densities of 17 lake trout / ha in the north basin and 88 lake trout / ha in the south basin.



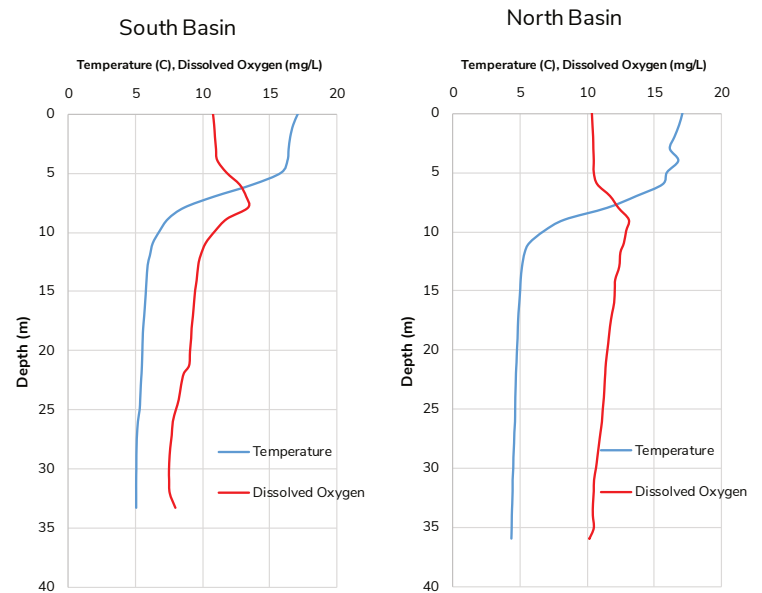
## Lake Whitefish

### Overview

There are no lake whitefish in either the north or south basins of Little Fox Lakes. Other species known in these lakes include arctic grayling and burbot.

## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken in both basins. A sharp thermocline occurred between 6 m and 9 m. Dissolved oxygen in both basins showed an increase between 5 m and 10 m, followed by a gradual decline. Overall, suitable lake trout habitat existed between 12 m and 40 m.

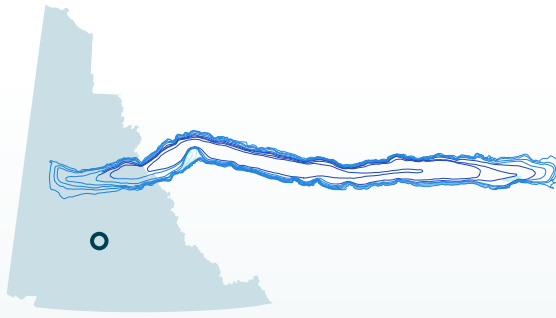


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867-667-5652

SR-20-02 Table of Contents





# Little Salmon Lake 2015

## Lake Trout Monitoring Program

### Lake Information

<b>WATERSHED</b>	<b>LAKE CLASS</b>
Yukon Headwaters	E
<b>SURFACE AREA</b>	<b>ELEVATION</b>
6,321 ha	885 m
<b>MAXIMUM DEPTH</b>	<b>AVERAGE DEPTH</b>
N/A	92.6 m
<b>SURFACE TEMPS.</b>	<b>REGULATIONS</b>
11.46°C	Special management
<b>SAMPLING DATES</b>	<b>NET SETS</b>
July 30-Aug 6, 2015	143

### Location

Little Salmon Lake is located in central Yukon, between Carmacks and Faro, off of the Robert Campbell Highway. This lake is located within the Traditional Territory of the Little Salmon/ Carmacks First Nation and the Kaska Dena Council.

### Access and Use

Little Salmon Lake is accessed primarily from two campgrounds (Drury Creek and Little Salmon), both of which have accessible boat ramps. There are a number of residences along the lake. There was a commercial fishing operation on the lake, which closed in 1969, which had operated with a quota of 2,727 kg.

### Overall Status

#### Lake Trout

Results from the 2015 survey of Little Salmon Lake were uncertain and as a result, we have little confidence in our population estimate. This was in part due to the bathymetric properties of the lake, which are very deep with a steep gradient. These properties make it difficult to apply the SPIN methodology appropriately.

#### Lake Whitefish

We also had difficulty sampling lake whitefish. This resulted in an insufficient number being sampled to generate an accurate population estimate.

#### Recommendation

The recommendation for future surveys is to increase the amount of net sets, as well as obtain more lake trout samples. It is anticipated that future surveys will also encounter the same sampling difficulty, however we may be able to overcome this by increasing the number of fish sampled. We would gain more information on the age structure of the population, along with natural mortality rates.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

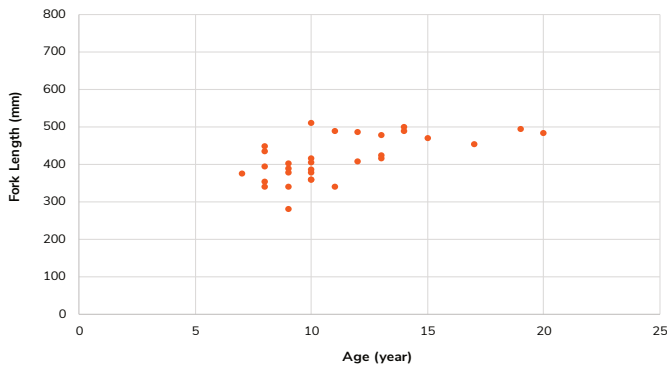
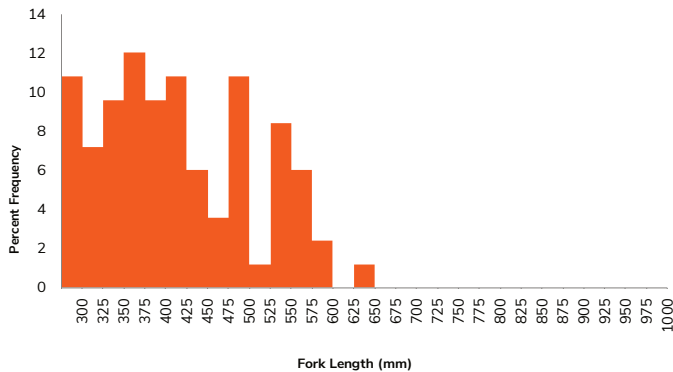
# Lake Trout

## Overview

There were a total of 74 lake trout sampled during this survey. These fish ranged in size (fork length) from 310 mm to 649 mm. They had an average length of 434 mm and an average weight of 988 g. Age structures were obtained from 31 lake trout. Ages ranged from 7 to 20 years.

## Population Estimate / Density

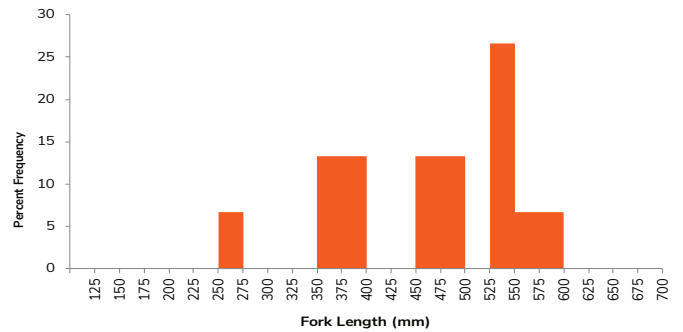
The population estimate for lake trout within Little Salmon Lake was estimated at **10,008** (estimate range from 232 – 19,947). This equates to a density of 1.6 lake trout per hectare. Given the range of the estimate, we have little confidence in this population number.



# Lake Whitefish

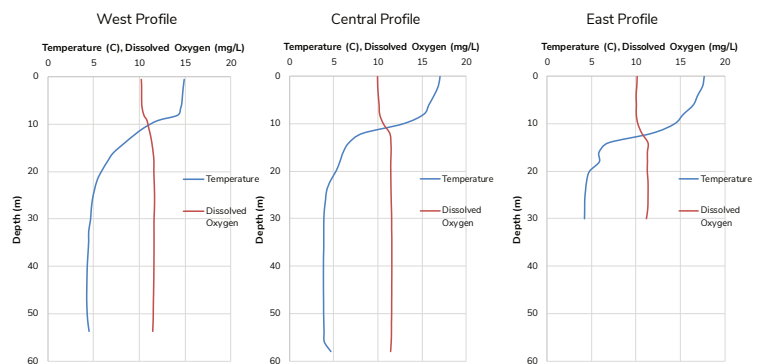
## Overview

A total of 15 lake whitefish were sampled during the 2015 survey. They ranged in size from 270 mm to 576 mm in length, with an average fork length of 463 mm and an average weight of 1,483 g. Age structures obtained from 9 fish. Ages ranged from 6 to 30 years.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken at three locations (west, central, east). The temperature profiles were similar. A thermocline was evident between 7.5 m and 12 m across the lake. The dissolved oxygen profiles were relatively stable through the water column. We were unable to determine temperature and dissolved oxygen at depths greater than 60 m as that was the limit for our instruments.



## For more information, please contact

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SR-20-02 Table of Contents





# Louise (Jackson) Lake 2011

## Lake Trout Monitoring Program

### Lake Information

<b>WATERSHED</b> Yukon Headwaters	<b>LAKE CLASS</b> A
<b>SURFACE AREA</b> 68 ha	<b>ELEVATION</b> 1020 m
<b>MAXIMUM DEPTH</b> 13 m	<b>AVERAGE DEPTH</b> 6.8 m
<b>SURFACE TEMPS.</b> 11.7°C	<b>REGULATIONS</b> Special management
<b>SAMPLING DATES</b> July 27-29, 2011	<b>NET SETS</b> 24

### Location

Louise Lake (locally known as Jackson) is located approximately 12 km west of Whitehorse, off the Fish Lake Road. The lake is within the Traditional Territory of the Kwanlin Dün First Nation.

### Access and Use

There are several private residences, mostly along the north shoreline. There are no formal campgrounds, day use areas or boat launches on the lake. The lake drains via Porter Creek to the northeast where flows get diverted through a micro-hydroelectric generating facility into McIntyre Creek, part of the Yukon River system.

### Overall Status

#### Lake Trout

The 2011 survey results indicate there is a small population of lake trout in Louise Lake. This lake is a popular angling destination and is potentially at risk for over harvest (given the current catch limits).

#### Lake Whitefish

During the 2011 survey, there were no lake whitefish captured. Additional species sampled included arctic grayling and round whitefish.

#### Recommendation

The recommendation from the 2011 survey is to increase the number of net sets used on subsequent surveys to increase our precision when making population estimates. It is also recommended that catch limits are reduced through regulation changes. This will assist in maintaining this population.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

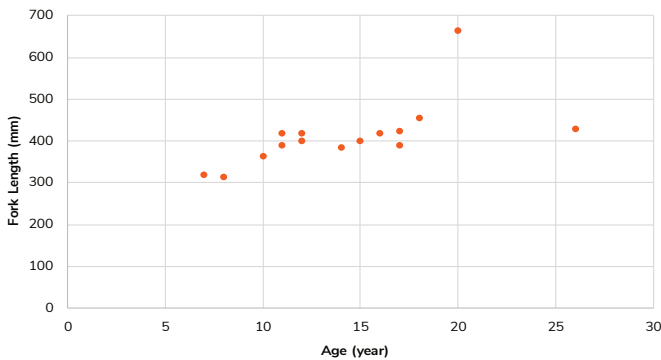
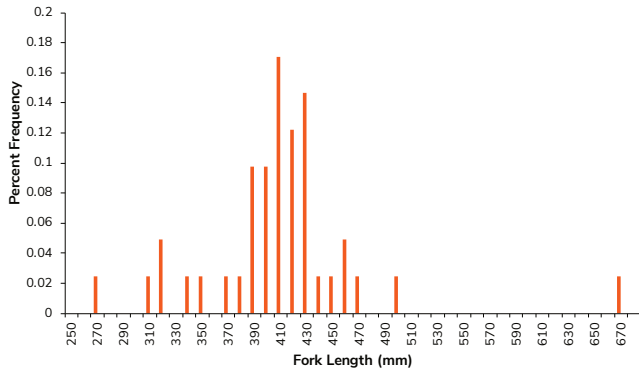
## Lake Trout

### Overview

A total of 40 lake trout were sampled during the survey. These fish ranged in fork length from 270 mm to 670 mm. The sampled fish had an average length of 409 mm and average weight of 971 g. Age structures were obtained from 15 lake trout. Ages ranged from 7 to 26 years.

### Population Estimate / Density

The lake trout population in Louise Lake was estimated at **2,024** (estimate range from 1,534 – 2546). This equates to a density of 29.8 lake trout per hectare. Lake trout found in Louise lake were of the small-bodied type.



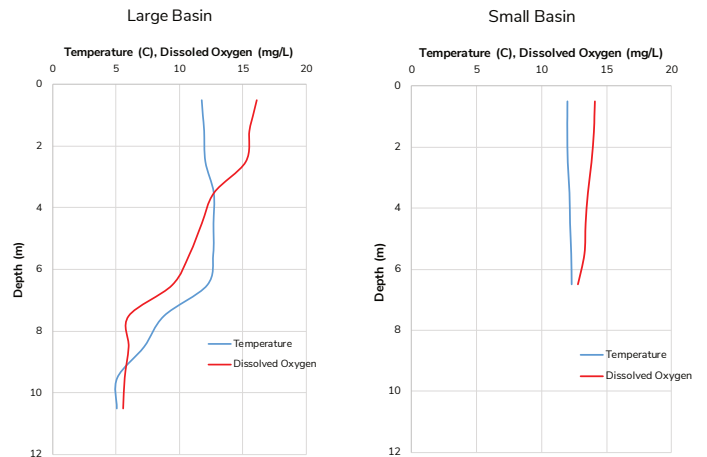
## Lake Whitefish

### Overview

No lake whitefish were captured during the 2011 survey. This may explain why this lake contains small-bodied lake trout.

## Temperature and Oxygen

The lake was strongly stratified in the larger basin, with a thermocline from 6.5 m – 9.5 m. The small basin was not stratified. Oxygen profiles did not fall below 4 mg/L. However, below 7 m oxygen levels did drop beneath 7 mg/L.

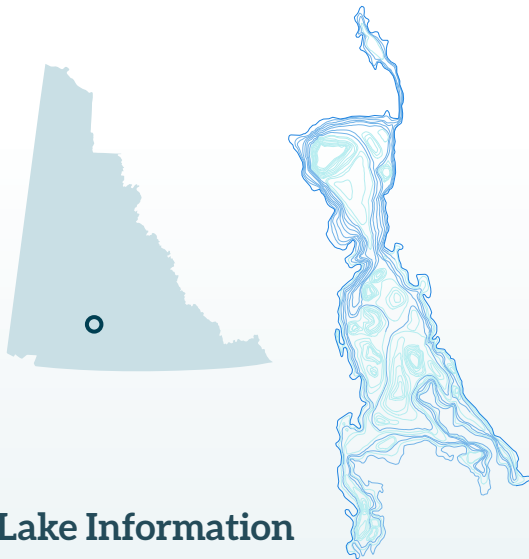


### For more information, please contact

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SR-20-02 Table of Contents





## Lake Information

<b>WATERSHED</b> Yukon Headwaters	<b>LAKE CLASS</b> B
<b>SURFACE AREA</b> 786 ha	<b>ELEVATION</b> 781 m
<b>MAXIMUM DEPTH</b> 64 m	<b>AVERAGE DEPTH</b> 21 m
<b>SURFACE TEMPS.</b> 18.01°C	<b>REGULATIONS</b> Special management
<b>SAMPLING DATES</b> August 18-22, 2013	<b>NET SETS</b> 48

### Location

Mandanna Lake is located within central Yukon, approximately 30 km southeast Carmacks, within the Little Salmon/Carmacks First Nation Traditional Territory.

### Access and Use

Mandanna Lake can be accessed by float plane in the summer and snowmachine in the winter months, along the Yukon Quest trail system. Management of Mandanna Lake is guided by the **Manadanna Lake Management Plan**.

# Mandanna Lake 2013

## Lake Trout Monitoring Program

## Overall Status

### Lake Trout

The lake trout population in Mandanna Lake was found to have a moderate density when compared to lakes of similar size. This indicates that the population is healthy. Although these lake trout were slightly smaller than lake trout in comparable lakes, the observed age/length data suggests this may be typical for this lake.

### Lake Whitefish

The lake whitefish population in Mandanna Lake was found to be of moderate to low density when compared to similar sized lakes. However their size was slightly larger. Overall this population appears healthy.

### Recommendation

It is recommended to increase the number of net sets to improve the accuracy of population estimates and to obtain more age structures for analysis.

## Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

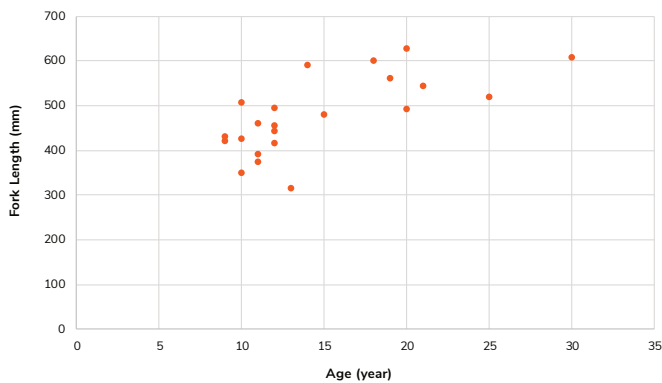
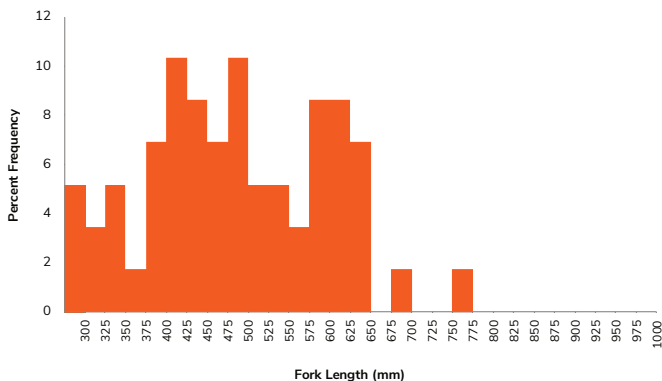
## Lake Trout

### Overview

A total of 94 lake trout were captured during this survey of Mandanna Lake. These lake trout were of the large-bodied form and ranged in fork length from 261 mm to 770 mm. They had an average length of 487 mm and average weight 1,439 g. Age structures were obtained from 22 lake trout. Ages ranged from 9 to 30 years.

### Population Estimate / Density

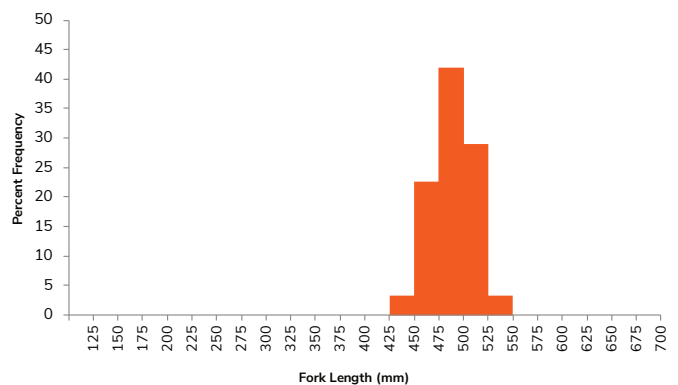
The population estimate for lake trout was **3,487** (estimate range: 2,123 – 4,903). This equates to a density of 4.4 lake trout per hectare. This suggests the population is healthy.



## Lake Whitefish

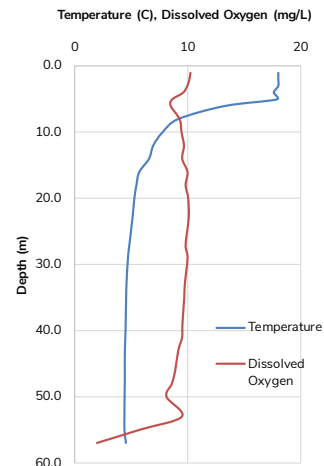
### Overview

During this survey, 31 lake whitefish were sampled. The sampled lake whitefish ranged in fork length from 449 mm to 530 mm, with an average length of 491 mm and average weight 1,692 g. The lake whitefish in Mandanna Lake were larger than other Yukon lakes of comparable size. Age structures were analyzed from 17 lake whitefish. Ages ranged from 7 to 17 years.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken near the middle of Mandanna Lake on August 18, 2013. The lake was stratified with the thermocline between 5 m and 8 m. Temperatures were unsuitable for lake trout between the surface and 6 m, with dissolved oxygen levels being suitable from the surface to a depth of 56 m.



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SR-20-02 Table of Contents



## Lake Information

<b>WATERSHED</b> Yukon Headwaters	<b>LAKE CLASS</b> E
<b>SURFACE AREA</b> 2,015 ha	<b>ELEVATION</b> 660 m
<b>MAXIMUM DEPTH</b> 51.5 m	<b>AVERAGE DEPTH</b> 12.8 m
<b>SURFACE TEMPS.</b> 15.2°C	<b>REGULATIONS</b> Conservation waters
<b>SAMPLING DATES</b> July 13-18, 2015	<b>NET SETS</b> 149

### Location

Marsh Lake is located 50 km south of Whitehorse, along the Alaska Highway in southern Yukon. Marsh Lake is within the Traditional Territories of the Carcross/Tagish First Nation and the Kwanlin Dün First Nation.

### Access and Use

Marsh Lake is accessed along the Alaska Highway, with three accessible boat ramps along the lake. The lake also has a government campground at the northern end, along with a high number of residences along the lake, when compared to all other Yukon lakes.

# Marsh Lake 2015

## Lake Trout Monitoring Program

### Overall Status

#### Lake Trout

In accordance with the 2015 survey, the lake trout population in Marsh Lake was smaller than expected. This lake has a higher productivity value than the other southern lakes (Bennett and Tagish), however Marsh Lake has a shallower profile. This may indicate less available habitat for lake trout and their top prey, lake whitefish. As such, this population may not be small in number due to angling pressure but rather naturally small, due to a lack of available habitat.

#### Lake Whitefish

The 2015 Marsh Lake survey indicated a small population of lake whitefish. However, this species prefers depths which are greater than 20 m, of which there is a limited amount of habitat in Marsh Lake. Therefore, it is likely that this population is limited based on habitat availability.

### Recommendation

The recommendation for future surveys is to perform an Angler Harvest Survey on the southern lakes system to gauge angling pressure. In addition, these results should be incorporated into the Southern Lakes Lake Trout Telemetry, to compare seasonal habitat usage.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

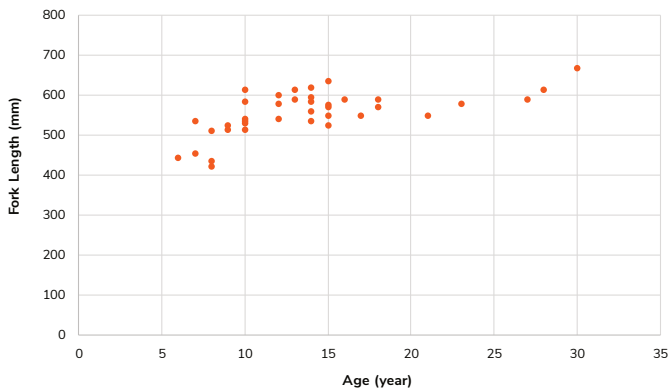
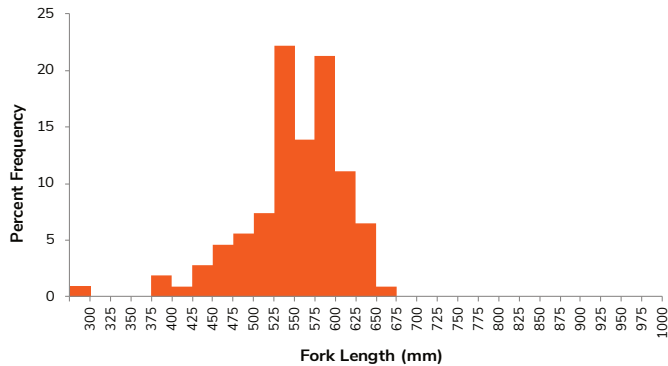
## Lake Trout

### Overview

A total of 108 lake trout were sampled during this survey. These sampled fish ranged in size (fork length) from 265 mm to 669 mm. The average length was 552 mm and the average weight was 2,212 g. Age structures were obtained from 38 lake trout. Ages ranged from 6 to 30 years.

### Population Estimate / Density

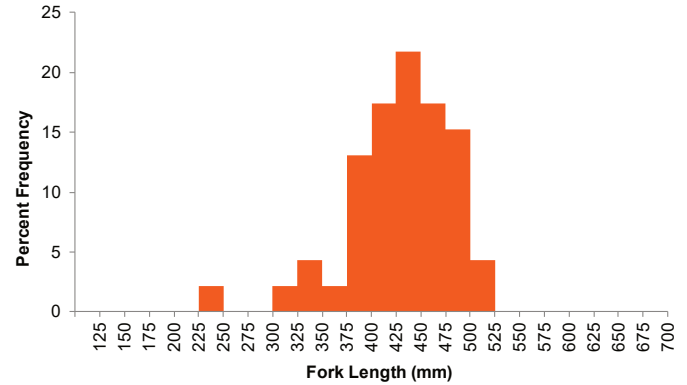
The population of lake trout within Marsh Lake was estimated at **17,392** (estimate range: 2,532 – 32,525). This equates to a density of 1.8 lake trout per hectare.



## Lake Whitefish

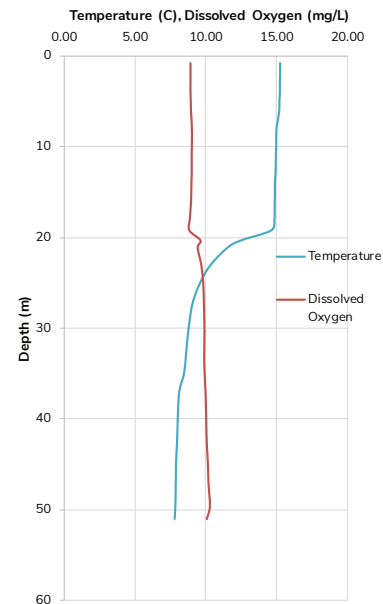
### Overview

A total of 46 lake whitefish were captured during the 2015 survey. They ranged in size from 240 mm to 520 mm in length, with an average fork length of 430 mm and an average weight of 1,139 g. Age structures were obtained from 14 lake whitefish. Ages ranged from 4 to 17 years.



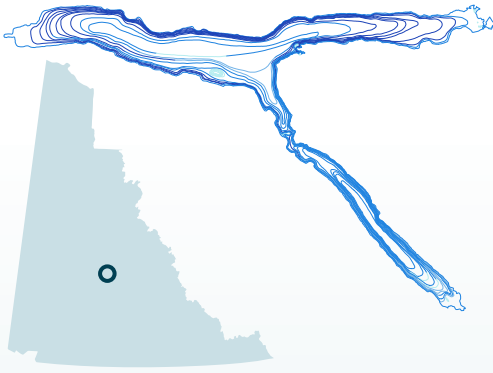
## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken on July 13. The temperature profile indicated a sharp thermocline between 19 m and 22 m, followed by a gradual temperature decline to 60 m. Dissolved oxygen levels were stable throughout the profile.



### For more information, please contact

Department of Environment  
Fish and Wildlife, Fisheries  
fisheries@gov.yk.ca  
867-667-5652



## Lake Information

<b>WATERSHED</b>	<b>LAKE CLASS</b>
Stewart	E
<b>SURFACE AREA</b>	<b>ELEVATION</b>
9963 ha	583 m
<b>MAXIMUM DEPTH</b>	<b>AVERAGE DEPTH</b>
106 m	56.5 m
<b>SURFACE TEMPS.</b>	<b>REGULATIONS</b>
15.1°C	Conservation waters
<b>SAMPLING DATES</b>	<b>NET SETS</b>
July 24 - Aug 4, 2013	140

### Location

Mayo Lake is located in central Yukon, approximately 50 km northwest of Mayo, within the Traditional Territory of the First Nation of Na-Cho Nyäk Dun. Mayo Lake is the reservoir for the Mayo electrical generating station and as such, the lake levels are controlled by this facility.

### Access and Use

Mayo Lake is primarily accessed from the public boat launch at the west end of the lake, near the hydro dam. There are several private residences along the northwest shore of the lake.

# Mayo Lake 2013

## Lake Trout Monitoring Program

## Overall Status

### Lake Trout

The lake trout population in Mayo Lake was found to be smaller in number than other comparably sized Yukon lakes. However our confidence in the population estimate is weak. This may be due to the morphology of the lake, making it difficult to thoroughly sample.

### Lake Whitefish

The lake whitefish population appeared healthy, however this population is also difficult to assess.

### Recommendation

The recommendation from this survey is to increase the number of age structures obtained and analyzed. This will allow for increased knowledge of the population structure and further management of the lake trout and lake whitefish populations within this lake.

## Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

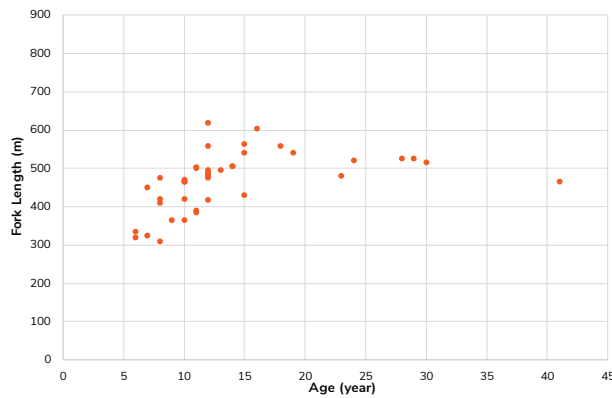
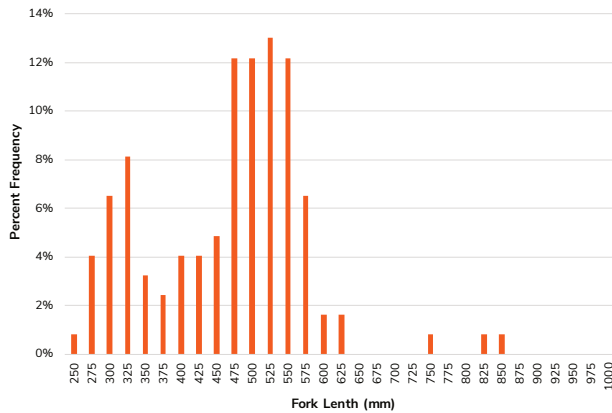
# Lake Trout

## Overview

A total of 123 lake trout were captured during this survey. The sampled lake trout ranged in size from 250 mm to 835 mm in fork length, with an average length of 456 mm and average weight 1,261 g. Age structures were obtained from 42 individuals. Ages ranged from 6 to 41 years.

## Population Estimate / Density

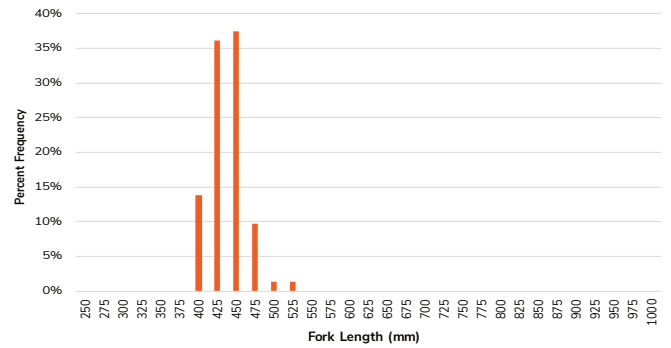
The population of lake trout within Mayo Lake was estimated to be at **21,229** (estimate range: 5,603 – 37, 202). This equates to a density of 2.1 lake trout per hectare, however there was a low confidence level with this population estimate, as evident by the wide range.



# Lake Whitefish

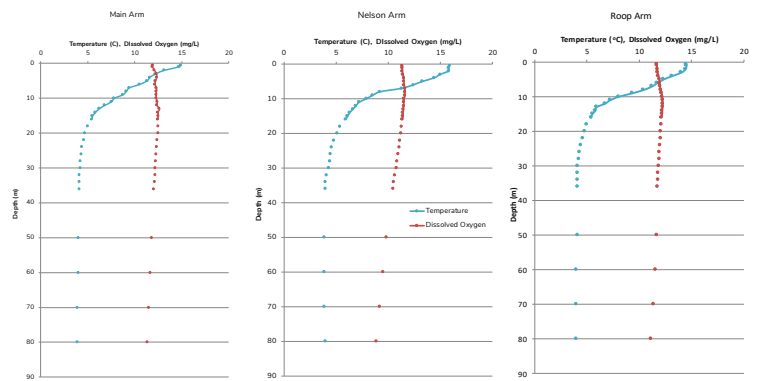
## Overview

During this survey, 72 lake whitefish were captured. The captured lake whitefish ranged from 385 mm to 525 mm in fork length, with an average length of 430 mm and average weight 1,175 g. Age structures from 39 lake whitefish. Ages ranged from 7 to 30 years.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken within the Main arm, Roop arm and Nelson arm of the lake. Each of the three lake arms, were stratified in temperature, displaying a thermocline between 6 m and 12 m in depth. Dissolved oxygen levels were found to be suitable for lake trout throughout the water column in all three arms.



### For more information, please contact

Department of Environment  
Fish and Wildlife, Fisheries  
fisheries@gov.yk.ca  
867-667-5652

SR-20-02 Table of Contents





# Michie Lake 2017

## Lake Trout Monitoring Program

### Lake Information

<b>WATERSHED</b> Yukon Headwaters	<b>LAKE CLASS</b> B
<b>SURFACE AREA</b> 371 ha	<b>ELEVATION</b> 795 m
<b>MAXIMUM DEPTH</b> 50 m	<b>AVERAGE DEPTH</b> N/A
<b>SURFACE TEMPS.</b> 15.55°C	<b>REGULATIONS</b> General waters
<b>SAMPLING DATES</b> July 10-13, 2017	<b>NET SETS</b> 43

### Location

Michie Lake is located approximately 50 km southeast of Whitehorse. Michie lake lies within the Traditional Territories of the Ta'an Kwach'an Council and the Kwanlin Dun First Nation.

### Access and Use

Michie Lake is accessed by a 4x4/ATV trail, which branches off from the M'Clintok River agricultural area. There is a small trappers cabin and rough campsite on the northern shore.

### Overall Status

#### Lake Trout

In accordance with the 2017 survey results, Michie Lake has a small to moderate sized population of lake trout, when compared to similar sized lakes.

#### Lake Whitefish

The population of lake whitefish within Michie Lake appears healthy and stable, given the small size of the lake.

#### Recommendation

The recommendation for future surveys of Michie Lake is to increase net sets. This will help improve our confidence in the population estimate. Additional habitat information will help quantify viable lake trout habitat for this population.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

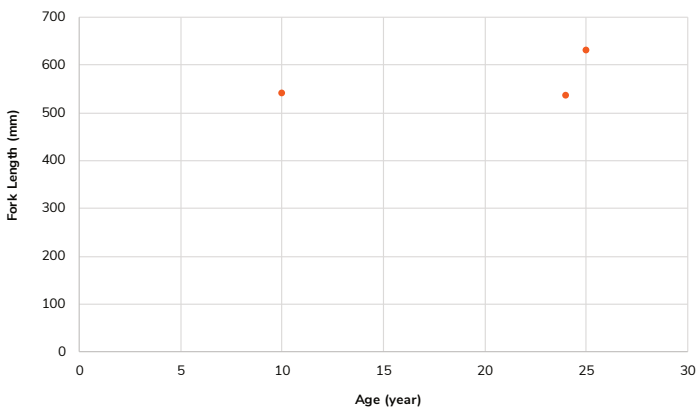
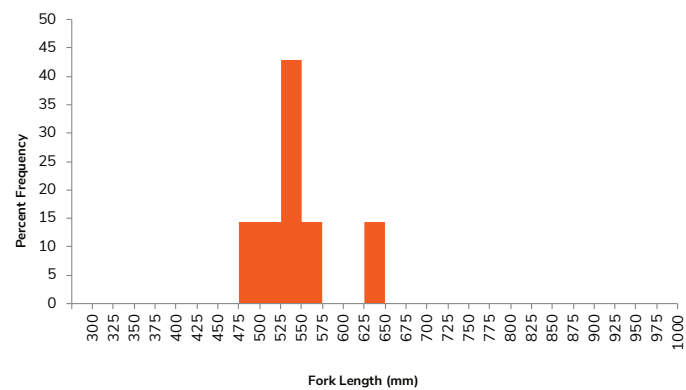
# Lake Trout

## Overview

During the 2017 survey of Michie Lake, a total of seven lake trout were sampled. These sampled fish were large-bodied lake trout and ranged in fork length from 494 mm to 631 mm. They had an average length of 543 mm with an average weight of 2,082g. Age structures were only obtained from three lake trout, with ages of 10, 24 and 25.

## Population Estimate / Density

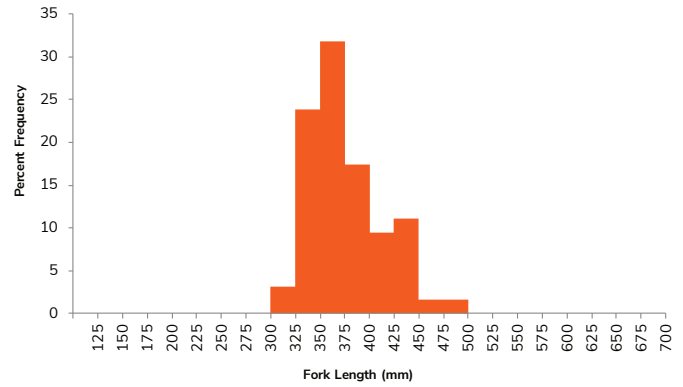
The population estimate of lake trout within Michie Lake, was **562** (estimate range: 0 to 1,144). This equates to a density of 1.5 lake trout per hectare. However our confidence in the population estimate is weak.



# Lake Whitefish

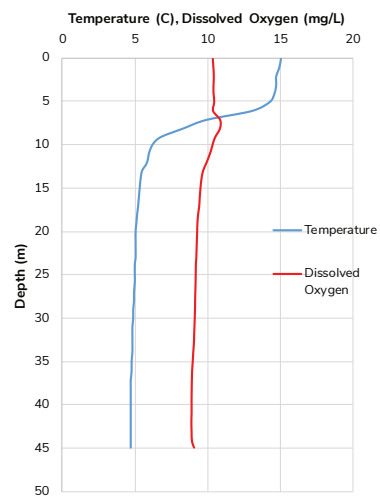
## Overview

During the 2017 survey, a total of 63 lake whitefish were sampled. The size of these fish ranged in fork length from 320 mm to 477 mm, with an average length of 377 mm and an average weight of 728 g. Age structures were obtained from 29 lake whitefish. Ages ranged from 6 to 35 years.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were obtained on July 13. The temperature profile displayed a sharp thermocline from 5 m to 9 m, followed by a gradual decline through the water column. Dissolved oxygen displayed a slight increase from 6 m to 8 m. Overall, optimum habitat for lake trout existed from 7 m to 50 m.



### For more information, please contact

Department of Environment  
Fish and Wildlife, Fisheries  
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867-667-5652





# Minto Lake 2014

## Lake Trout Monitoring Program

### Lake Information

<b>WATERSHED</b> Stewart	<b>LAKE CLASS</b> B
<b>SURFACE AREA</b> 420 ha	<b>ELEVATION</b> 6761 m
<b>MAXIMUM DEPTH</b> 37 m	<b>AVERAGE DEPTH</b> 13.8 m
<b>SURFACE TEMPS.</b> 15.8°C	<b>REGULATIONS</b> Special management
<b>SAMPLING DATES</b> July 16-18, 2014	<b>NET SETS</b> 34

### Location

Minto Lake is a small lake located about 16 km north-west of the community of Mayo, in central Yukon. Minto Lake is within the Traditional Territory of the First Nation of Na-cho Nyäk Dun.

### Access and Use

Minto Lake is accessible from an unpaved road off the Silver Trail. There are several seasonal residences along the lake and a small boat launch along the east shore. Recreational angling has not been assessed on this lake.

### Overall Status

#### Lake Trout

The lake trout population in Minto Lake was smaller than expected for a lake of this size. However this is a small unproductive lake, which would not naturally support a large population. As such, regulations that promote a conservative approach to harvest should be established. This will help support a sustainable fishery.

#### Lake Whitefish

The population of lake whitefish in Minto Lake appears healthy, although smaller in physical size, compared to other populations from similar sized lakes.

#### Recommendation

To improve confidence in the population estimate, we recommend that for future surveys, to increase the amount of net sets. This will increase our sample size, however as this is a small population, caution should be taken when setting nets, to ensure minimal mortalities.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

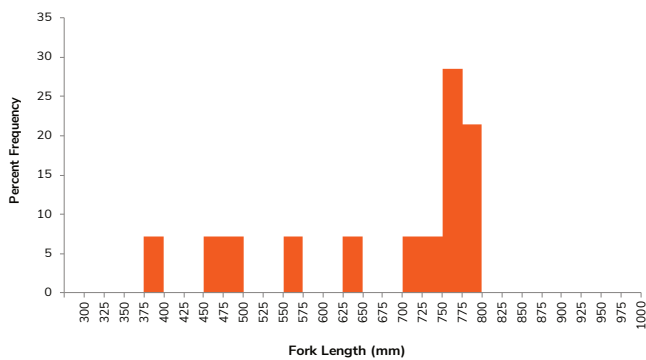
## Lake Trout

### Overview

During the 2014 survey, a total of 14 large-bodied lake trout were sampled. These fish ranged in fork length size from 394 mm to 799 mm. These sampled fish had an average length of 674 mm and an average weight of 3,927g. Age structures were only obtained from a single lake trout, which was 7 years old.

### Population Estimate / Density

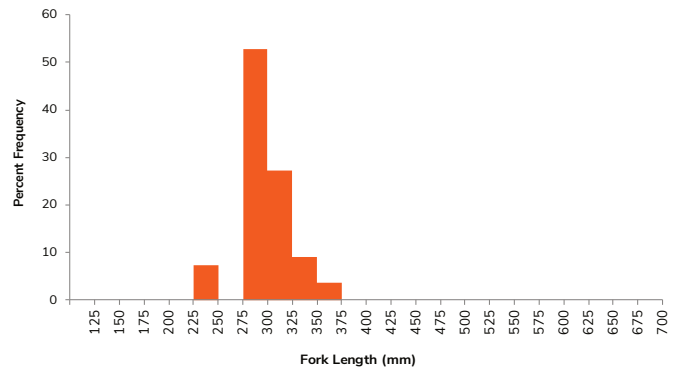
The population estimate of lake trout in Minto Lake was **1,062** (estimate range: 396 – 1,745). This equates to a density of 2.5 lake trout per hectare. This represents a small population, however we have little confidence in this estimate.



## Lake Whitefish

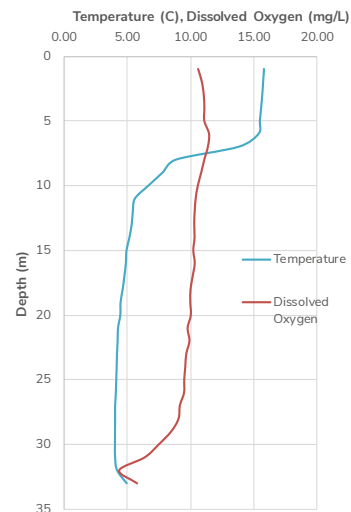
### Overview

During this survey 56 lake whitefish were sampled. The sampled lake whitefish ranged in fork length from 230 mm to 368 mm. They had an average length of 298 mm and an average weight of 385 g. Age structures were obtained from 13 lake whitefish. Ages ranged from 6 to 18 years.



## Temperature and Oxygen

The temperature profile showed a strongly stratified water column, with a thermocline evident between 7 m and 10 m. The dissolved oxygen levels were relatively stable down to a depth of 30 m, at which point they decreased. Overall, there was suitable habitat for lake trout below 6 m.



### For more information, please contact

Department of Environment  
Fish and Wildlife, Fisheries  
fisheries@gov.yk.ca  
867-667-5652

SR-20-02 Table of Contents



# Morley Lake 2018

## Lake Trout Monitoring Program

### Lake Information

<b>WATERSHED</b> Yukon Headwaters	<b>LAKE CLASS</b> C
<b>SURFACE AREA</b> 1,114 ha	<b>ELEVATION</b> 814 m
<b>MAXIMUM DEPTH</b> 30 m	<b>AVERAGE DEPTH</b> 8.07 m
<b>SURFACE TEMPS.</b> 15.6°C	<b>REGULATIONS</b> Conservation waters
<b>SAMPLING DATES</b> July 09-12, 2018	<b>NET SETS</b> 34

#### Location

Morley Lake is located approximately 220 km southeast of Whitehorse, along the Alaska Highway, in south-central Yukon. Morley Lake is within the Traditional Territory of the Teslin Tlingit Council, with the southern end of the lake crossing into British Columbia.

#### Access and Use

Morley Lake is accessed via the Morley Lake Recreational Site, located on the southwest shore. This location contains camping sites and a gravel shoreline, which can be used as a boat ramp. The rest of the lake shoreline is undeveloped.

### Overall Status

#### Lake Trout

The lake trout population in Morley Lake was low to moderate in density, when compared to lakes of similar size and productivity. This population of large-bodied lake trout appears healthy.

#### Lake Whitefish

The population of lake whitefish in Morley Lake appears healthy. There was a large density of lake whitefish, with a large availability of suitable habitat.

#### Recommendation

The recommendation for future surveys is to increase net sets and obtain a greater number of aging structures to analyze. This will give us a larger sample size from which to base our population estimates upon. Our current confidence in the population estimate is low. An Angler Harvest Survey would assist in determining recreational pressure for the lake.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

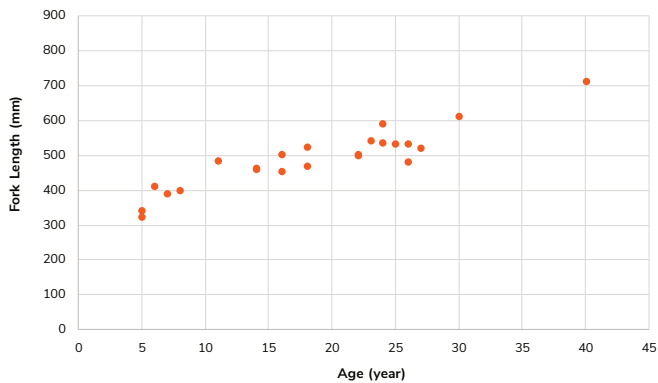
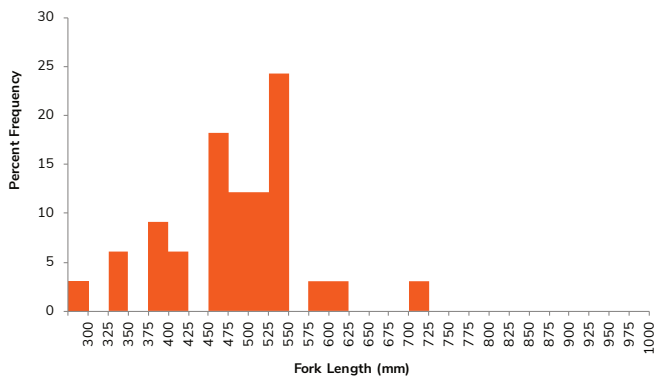
# Lake Trout

## Overview

A total of 37 lake trout were sampled. These large-bodied lake trout ranged in fork length from 279 mm to 714 mm. They had an average length of 482 mm with an average weight of 1,367g. Age structures were obtained from 23 lake trout. Ages ranged from 5 to 40 years.

## Population Estimate / Density

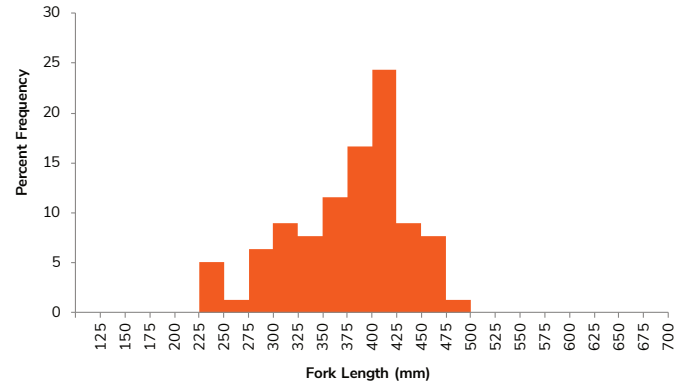
The population estimate of lake trout within Morley Lake was **3,963** (estimate range: 2,122 - 5,868). This corresponds to a density of 3.6 lake trout per hectare.



# Lake Whitefish

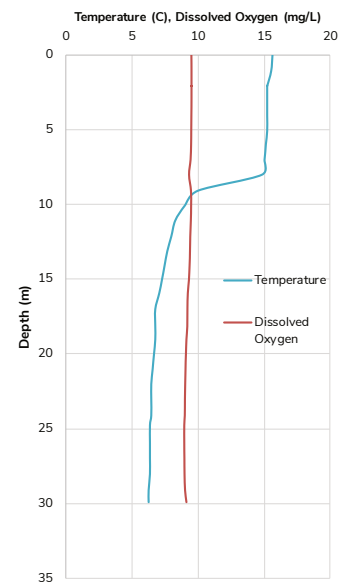
## Overview

During the 2018 survey, a total of 78 lake whitefish were sampled in Morley Lake. The size of these fish ranged from 226 mm to 492 mm, and had an average fork length of 377 mm and an average weight of 750 g. Age structures were obtained from 34 sampled lake whitefish. Ages ranged from 3 to 26 years.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles showed a sharp thermocline between 8 m and 9 m, followed by a gradual temperature decline throughout the water column. Dissolved oxygen remained relatively constant. Optimal lake trout habitat existed from 9 m to lake bottom.



### For more information, please contact

Department of Environment  
Fish and Wildlife, Fisheries  
fisheries@gov.yk.ca  
867-667-5652



## Lake Information

<b>WATERSHED</b> Yukon Headwaters	<b>LAKE CLASS</b> E
<b>SURFACE AREA</b> 5441 ha	<b>ELEVATION</b> 787 m
<b>MAXIMUM DEPTH</b> 170 m	<b>AVERAGE DEPTH</b> 56.8 m
<b>SURFACE TEMPS.</b> 11.4°C	<b>REGULATIONS</b> Conservation waters
<b>SAMPLING DATES</b> July 16-20, 2012	<b>NET SETS</b> 102

### Location

Quiet Lake is located approximately 60 km north of Johnson's Crossing in south-central Yukon, along the South Canol Highway. Quiet Lake is within the Traditional Territory of the Teslin Tlingit First Nation and the Kaska Dena Nation (northern section of the lake).

### Access and Use

Access to Quiet Lake is via the South Canol Road, which is only open to vehicles in the summer season and not maintained in the winter. There are two government campgrounds along the lake with two available boat launches.

# Quiet Lake 2012

## Lake Trout Monitoring Program

### Overall Status

#### Lake Trout

The lake trout population in Quiet Lake appears healthy. The 2012 survey results indicate that this large-bodied lake trout population is stable. This lake receives minimal angler effort.

#### Lake Whitefish

The lake whitefish population in Quiet Lake was lower in number when compared to similarly sized Yukon lakes. This may be related to commercial fishing operations which occurred from 1961 - 1989, which included a yearly quota of 2,722kg of lake whitefish.

#### Recommendation

The recommendation from the 2012 survey is to slightly increase the number of net sets and collection of aging structures, if this lake is sampled in the future. This will improve the accuracy of the population estimate.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

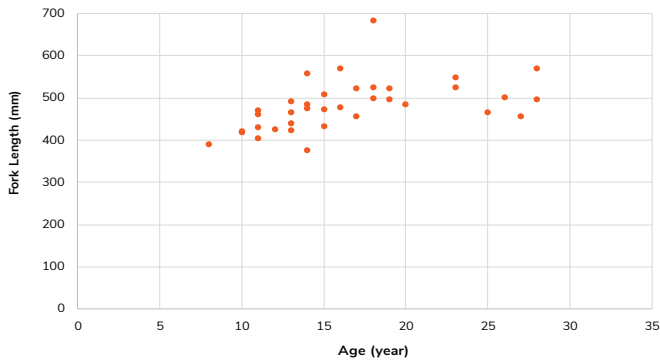
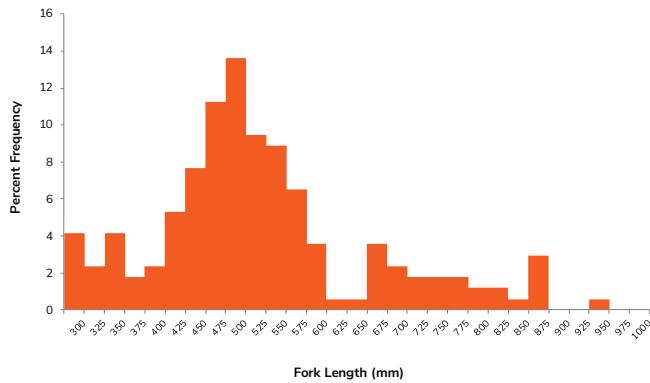
## Lake Trout

### Overview

During the survey, a total of 162 lake trout were captured, ranging from 231 mm to 949 mm in fork length. They had an average length of 519 mm and an average weight of 1,852 g. Age structures were obtained from 37 lake trout during the 2012 survey. Ages ranged from 8 to 32 years.

### Population Estimate / Density

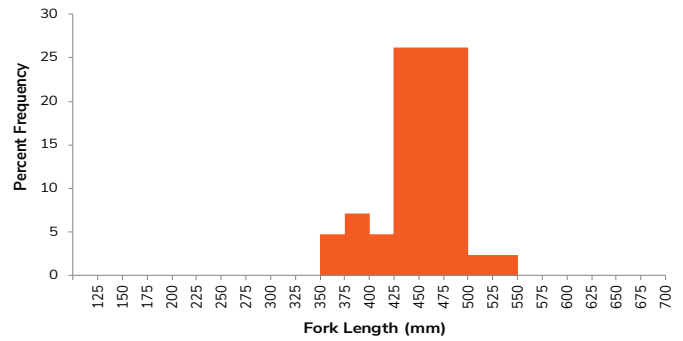
The lake trout population within Quiet Lake was estimated to be **17,865** (estimate range: 8,951 – 27,071). This equates to a density of 3.3 lake trout per hectare.



## Lake Whitefish

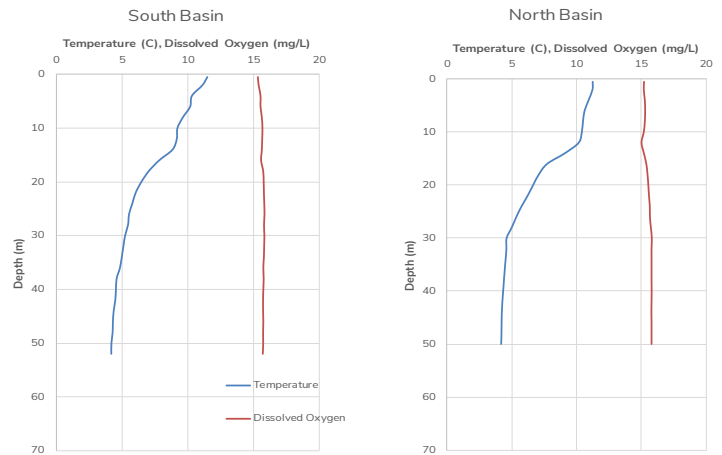
### Overview

A total of 42 lake whitefish were captured during this survey, ranging from 352 mm to 544 mm in fork length, with an average length of 454 mm and average weight of 1,270 g. Age structures were analyzed from 4 lake whitefish. Ages ranged from 7 to 31 years.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken near the middle of Fish Lake on July 17, 2012. The lake was not stratified in temperature. Dissolved oxygen levels declined between 9 and 17 m.



### For more information, please contact

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Fish and Wildlife, Fisheries  
fisheries@gov.yk.ca  
867-667-5652

SR-20-02 Table of Contents





## Lake Information

<b>WATERSHED</b> Yukon Headwaters	<b>LAKE CLASS</b> B
<b>SURFACE AREA</b> 248 ha	<b>ELEVATION</b> 759 m
<b>MAXIMUM DEPTH</b> 25 m	<b>AVERAGE DEPTH</b> 6.3 m
<b>SURFACE TEMPS.</b> Not available	<b>REGULATIONS</b> Special management
<b>SAMPLING DATES</b> July 5-6, 2010	<b>NET SETS</b> 22

### Location

Snafu Lake (lower) is located approximately 25 km southeast of Jakes Corner along the Atlin Road. The lake belongs to a chain of lakes collectively referred to as Snafu Lakes. The lakes are within the Traditional Territory of the Carcross/Tagish First Nation.

### Access and Use

Access to Snafu Lake (lower) is from the Atlin Road. This lake has a popular government campground and an accessible boat ramp.

# Snafu Lake (lower) 2010 Lake Trout Monitoring Program

## Overall Status

### Lake Trout

No lake trout were sampled during the survey of Snafu Lake. This indicates the lake trout population may have collapsed. Historically, constant fishing pressure from commercial and recreational angling may have led to this decline.

### Lake Whitefish

Snafu Lake was found to contain a healthy population of lake whitefish. They likely form the primary diet of northern pike in this lake. Other sampled fish included: broad whitefish, arctic grayling, least cisco and northern pike.

### Recommendation

The recommendation from the 2010 survey is to present a regulation change to prohibit retention of lake trout on this lake. This lake cannot sustain lake trout harvest at this time.

## Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

## Lake Trout

### Overview

No lake trout were sampled during this survey. The lack of lake trout captured indicates a collapsed population in this lake. This information agrees with results from Angler Harvest Surveys, which documented small numbers of lake trout in the catch composition.

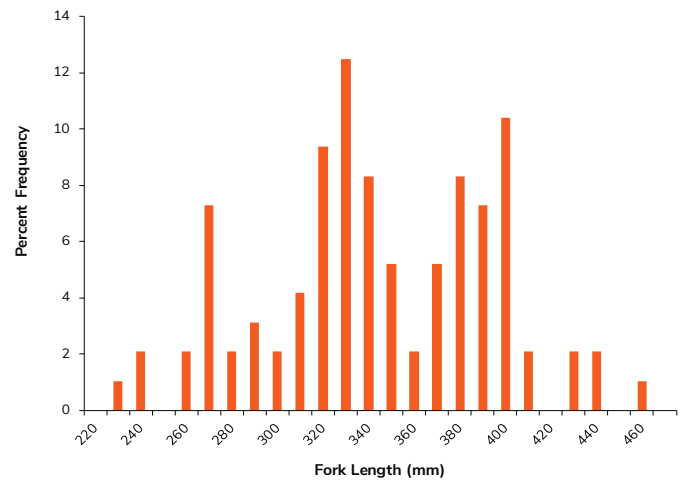
### Population Estimate / Density

As no lake trout were captured, population estimates can not be derived.

## Lake Whitefish

### Overview

During this survey, 96 lake whitefish were captured, ranging in fork length size from 220 mm to 470 mm in length. Aging structures for lake whitefish were not obtained in 2010. However, given the large number sampled, it is believed that this population is healthy.



## Temperature and Oxygen

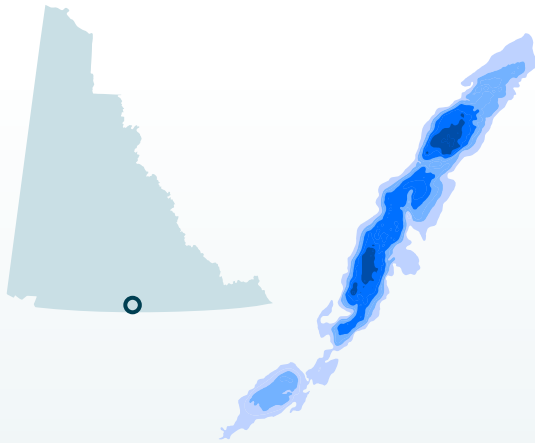
Temperature and oxygen profiles were not assessed during the 2010 survey as this equipment was not available at the time.

### For more information, please contact

Department of Environment  
Fish and Wildlife, Fisheries  
fisheries@gov.yk.ca  
867-667-5652

SR-20-02 Table of Contents





# Snafu Lake (Gazetted) 2018

## Lake Trout Monitoring Program

### Lake Information

<b>WATERSHED</b> Yukon Headwaters	<b>LAKE CLASS</b> B
<b>SURFACE AREA</b> 475 ha	<b>ELEVATION</b> 878 m
<b>MAXIMUM DEPTH</b> 35 m	<b>AVERAGE DEPTH</b> 14.7 m
<b>SURFACE TEMPS.</b> 14–17 °C	<b>REGULATIONS</b> General waters
<b>SAMPLING DATES</b> July 6–11, 2018	<b>NET SETS</b> 47

#### Location

Gazetted Snafu is located in the Southern Lakes region and is within the Traditional Territories of the Teslin Tlingit Council and the Carcross/Tagish First Nation.

#### Access and Use

Gazetted Snafu is difficult to access and receives little to no recreational angling pressure.

### Overall Status

#### Lake Trout

The results from this survey suggest that the lake trout population is healthy, although the population is not large. The lake trout population is likely healthy due to the inaccessibility of this lake.

#### Lake Whitefish

The population of lake whitefish within Gazetted Snafu Lake consists of a large number of smaller whitefish. This population is currently healthy.

#### Recommendation

No change in current regulation. Due to the inaccessibility of this lake, this lake is a good candidate lake to be used as a control when studying lakes such as Snafu Lake and Tarfu Lake.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

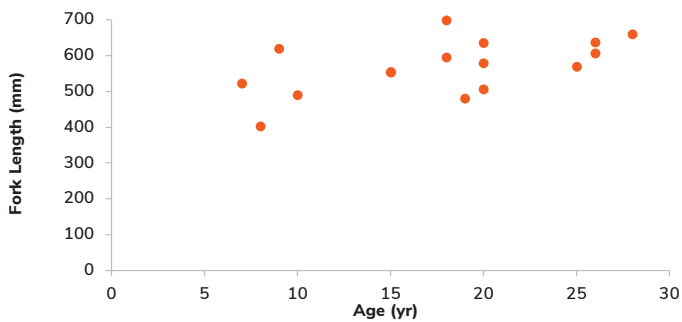
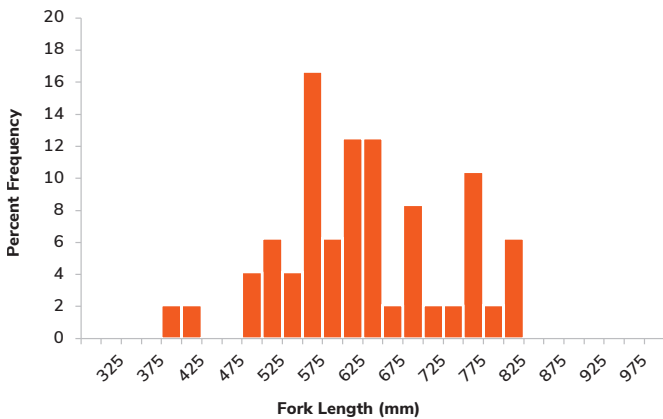
## Lake Trout

### Overview

There were 48 lake trout sampled during the survey, ranging from 400 mm to 815 mm in length (as measured to the fork). Seventeen were sampled for age. Ages ranged from 7 to 28 years.

### Population Estimate / Density

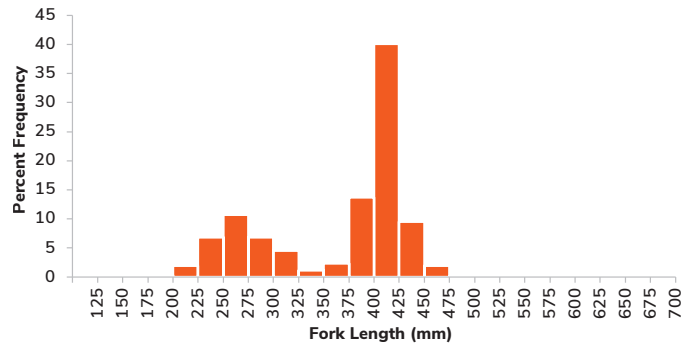
The lake trout population estimate was approximately **1,560** (estimate range: 781 – 2364). The estimated density of lake trout is 3.3 per hectare.



## Lake Whitefish

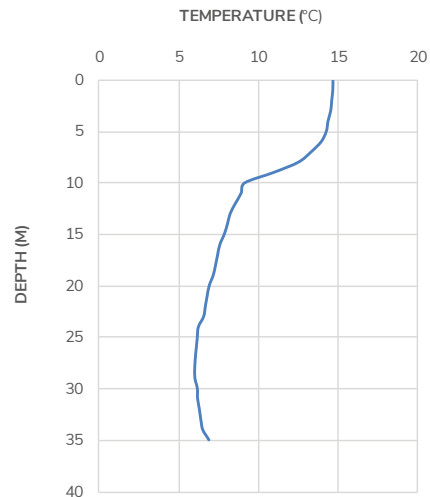
### Overview

There were 262 lake whitefish captured during the survey, ranging from 200 mm to 474 mm in length (as measured to the fork). Fifty three were sampled for age. Ages ranged from 3 to 37 years.



## Temperature and Oxygen

Temperature at the lake surface was close to 15°C, declining slowly over 8 m, with a thermocline noted between 6 m and 10 m. An oxygen profile was not conducted due to equipment malfunction.



### For more information, please contact

Department of Environment  
Fish and Wildlife, Fisheries  
fisheries@gov.yk.ca  
867-667-5652

SR-20-02 Table of Contents



## Lake Information

<b>WATERSHED</b>	<b>LAKE CLASS</b>
Yukon Headwaters	F
<b>SURFACE AREA</b>	<b>ELEVATION</b>
35,458 ha	662 m
<b>MAXIMUM DEPTH</b>	<b>AVERAGE DEPTH</b>
307 m	12.8 m
<b>SURFACE TEMPS.</b>	<b>REGULATIONS</b>
14.2°C	Conservation waters
<b>SAMPLING DATES</b>	<b>NET SETS</b>
August 8-14, 2015	140

### Location

Tagish Lake is a large lake with multiple basins (Windy Arm, Taku Arm, Nares, Graham Inlet, Moose Arm), located in southern Yukon. This is a transboundary lake with British Columbia and is within the Traditional Territory of the Carcross/Tagish First Nation and the Taku River Tlingit First Nation.

### Access and Use

Tagish Lake is accessed via the South Klondike Highway and Tagish Road. Main access points are at Carcross and Tagish. There are two government campgrounds and multiple boat ramps on this lake. There are multiple private residences found along this lake.

# Tagish Lake 2015

## Lake Trout Monitoring Program

## Overall Status

### Lake Trout

Tagish Lake is one of the largest lakes in Yukon and the lakes multiple basins and depth make it difficult to effectively sample lake trout populations using the SPIN program. The lake trout population in Tagish Lake appears healthy. It has a large-bodied population. Numbers are similar to lakes of comparable size (Kluane, Atlin).

### Lake Whitefish

The 2015 Tagish Lake survey results indicate a healthy population of lake whitefish. There is significant available habitat for this species. This population had similar catch rates as other Yukon lakes of this size.

### Recommendation

The recommendation for future surveys is to perform an Angler Harvest Survey on the southern lakes system to gauge angling pressure.

## Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

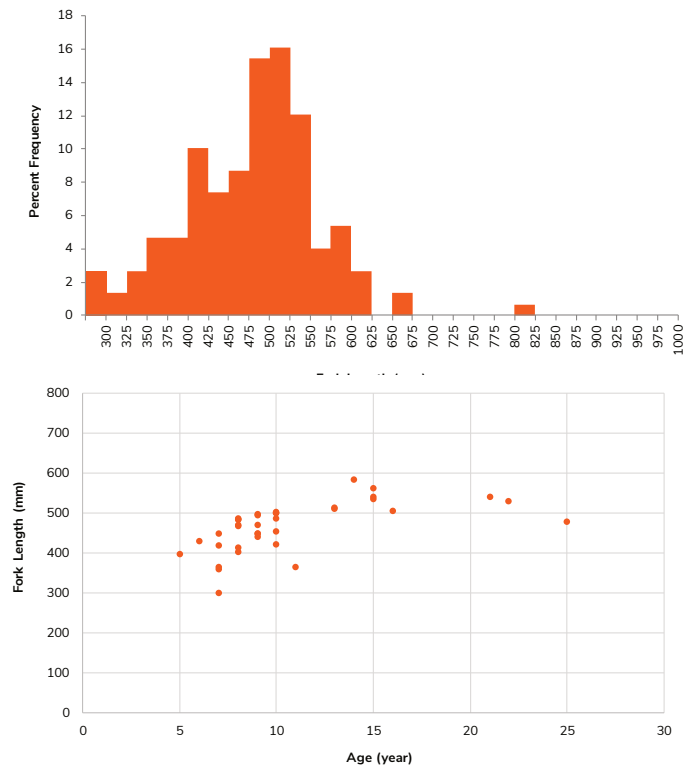
# Lake Trout

## Overview

A total of 149 lake trout were sampled during the 2015 survey. These lake trout ranged in size (fork length) from 243 mm to 805 mm. Sampled fish had an average length of 480 mm and an average weight of 1,438 g. Age Structures were obtained from 37 lake trout. Ages ranged from 5 to 25 years.

## Population Estimate / Density

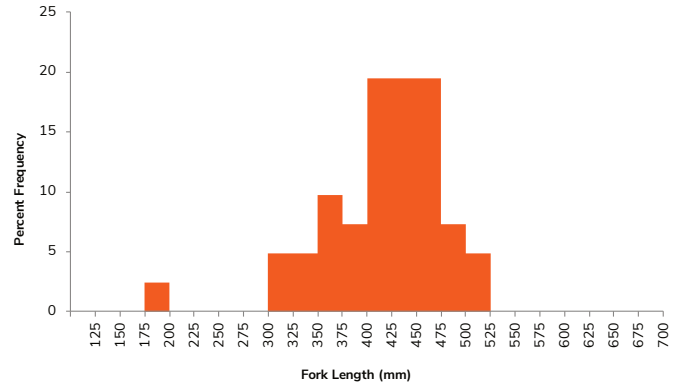
The population estimate for lake trout in Tagish Lake was **162,460** (estimate range: 100,263 – 227,310). This equates to a density of 4.6 lake trout per hectare. Given the wide range of our population estimate, we believe the strength of this estimate can be improved.



# Lake Whitefish

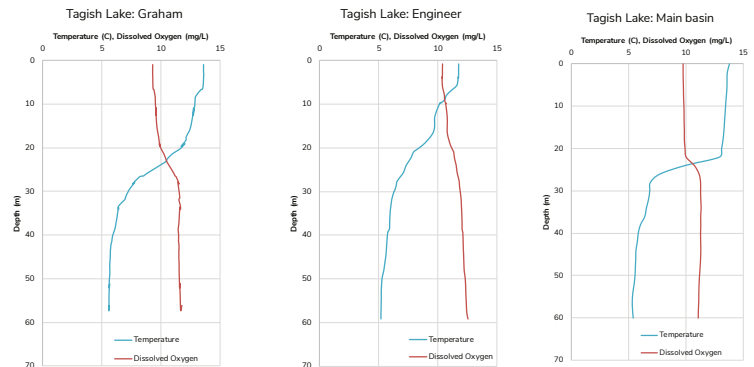
## Overview

A total of 41 lake whitefish were captured during the 2015 survey. They ranged in size from 200 mm to 510 mm in fork length, with an average length of 419 mm and an average weight of 1,036 g. Age structures were only obtained from 4 lake whitefish. Ages ranged from 8 to 19 years.



## Temperature and Oxygen

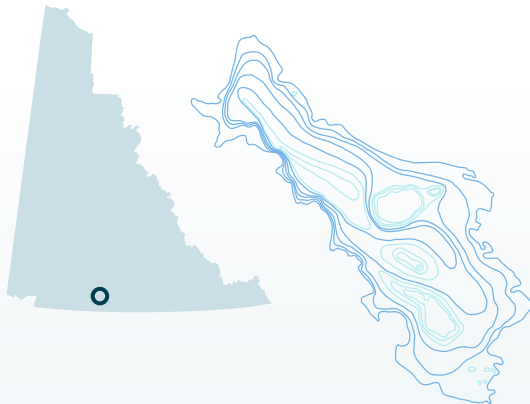
Temperature and dissolved oxygen profiles were taken at five locations (Racine River, Graham Inlet, Engineer, Windy Arm and the main basin). Profiles at Graham Inlet and near the Racine River were nearly identical, with a strong thermocline between 20 m and 24 m. Near Engineer, the thermocline was weaker, but present between 15 m and 20 m, with a highly defined thermocline in the main basin at 22 m. No thermocline was present in Windy Arm, with steady temperatures near 13°C throughout the water column. Dissolved oxygen was constant in all locations. Overall Tagish Lake was suitable for lake trout.



### For more information, please contact

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## Tarfu Lake 2010

### Lake Trout Monitoring Program

#### Lake Information

<b>WATERSHED</b>	<b>LAKE CLASS</b>
Yukon Headwaters	B
<b>SURFACE AREA</b>	<b>ELEVATION</b>
404 ha	773 m
<b>MAXIMUM DEPTH</b>	<b>AVERAGE DEPTH</b>
33 m	11.6 m
<b>SURFACE TEMPS.</b>	<b>REGULATIONS</b>
Not available	Special management
<b>SAMPLING DATES</b>	<b>NET SETS</b>
July 7-8, 2010	23

#### Location

Tarfu Lake is a small lake located approximately 35 km southeast of Jakes Corner, along the Atlin Road. Tarfu Lake is within the Traditional Territory of the Carcross/Tagish First Nation and Taku River Tlingit First Nation.

#### Access and Use

Access to Tarfu Lake is from the Atlin Road. This lake has a popular government campground and accessible boat ramp.

#### Overall Status

##### Lake Trout

The results from this survey suggest that this productive, small lake has a smaller density of lake trout. This agrees with findings from historic angler harvest surveys, which show low catch rates for lake trout. Given the small population of lake trout, and in combination with the lakes popularity as a fishing destination, we suggest that the lake trout population could be at risk of collapse.

##### Lake Whitefish

There were no lake whitefish captured during this survey. Additional species sampled included: arctic grayling, northern pike and round whitefish.

##### Recommendation

We recommend a regulation change to prohibit lake trout retention for this lake.

#### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

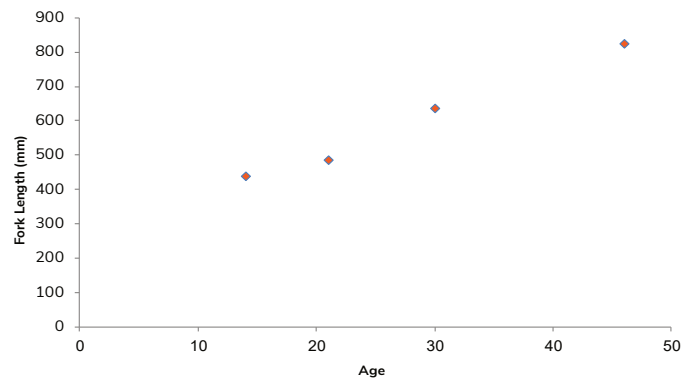
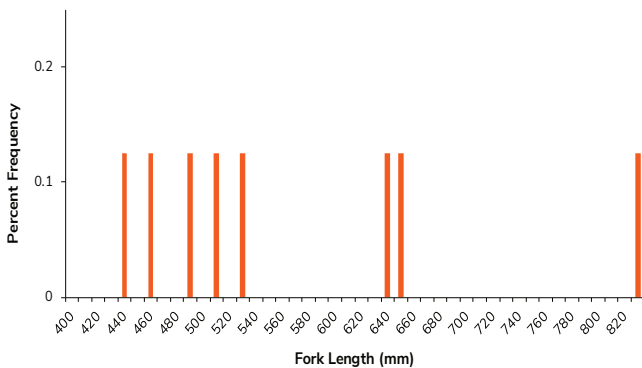
## Lake Trout

### Overview

A total of eight lake trout were sampled during the 2010 survey. They ranged from 440 mm to 824 mm in fork length. Age structures were taken from four lake trout. Ages ranged from 11 to 45 years.

### Population Estimate / Density

The lake trout population estimate for Tarfu Lake was **680** (estimate range 52 – 1,319). This equates to a density of 1.7 lake trout per hectare, which is less than predicted for a small productive lake. There is uncertainty in this population estimate due to the small number of lake trout sampled.



## Lake Whitefish

### Overview

During this survey, 96 lake whitefish were sampled. They ranged in fork length size from 220 mm to 470 mm. Age structures for lake whitefish were not obtained in 2010. However, given the numbers sampled and their size, we suspect that this population is healthy.

### Temperature and Oxygen

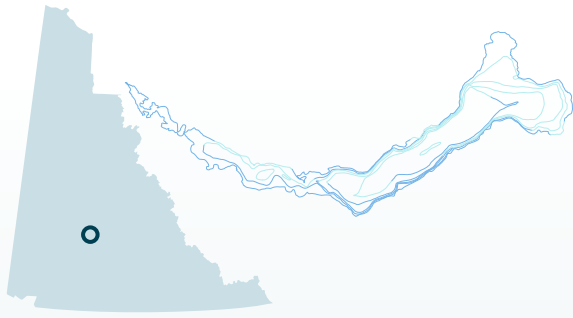
Temperature and oxygen profiles were not assessed during the 2010 survey as this equipment was not available.

### For more information, please contact

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fisheries@gov.yk.ca  
867-667-5652

SR-20-02 Table of Contents





# Ta'tla Mun 2011

## Lake Trout Monitoring Program

### Lake Information

<b>WATERSHED</b>	<b>LAKE CLASS</b>
Pelly	D
<b>SURFACE AREA</b>	<b>ELEVATION</b>
3141 ha	525 m
<b>MAXIMUM DEPTH</b>	<b>AVERAGE DEPTH</b>
48 m	27 m
<b>SURFACE TEMPS.</b>	<b>REGULATIONS</b>
16.5°C	Special management
<b>SAMPLING DATES</b>	<b>NET SETS</b>
July 5-8, 2011	63

#### Location

Ta'tla Mun is located approximately 30 km southeast of Pelly Crossing. The lake is within the Traditional Territory of the Selkirk First Nation. This lake is of historical and cultural significance and as such, has been designated as a **Special Management Area**.

#### Access and Use

There is no road access to the lake, however there is a well-defined trail from Pelly Crossing, accessible by off-road vehicles.

### Overall Status

#### Lake Trout

Ta'tla Mun was found to have a healthy population of large-bodied lake trout, as evidenced by the large numbers of lake trout sampled during our survey. This finding agrees with our past (1991) survey which also reported a healthy lake trout population.

#### Lake Whitefish

The lake whitefish population was found to be healthy. Additional species sampled included: burbot and northern pike.

#### Recommendation

The recommendation resulting from the 2011 survey is to use this data to guide the Ta'tla Mun Special Management Area plan. If this lake is to be resampled, we recommend increasing the number of net set and age structures obtained, which will aid our confidence in the population number and provide adequate information on population structure.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

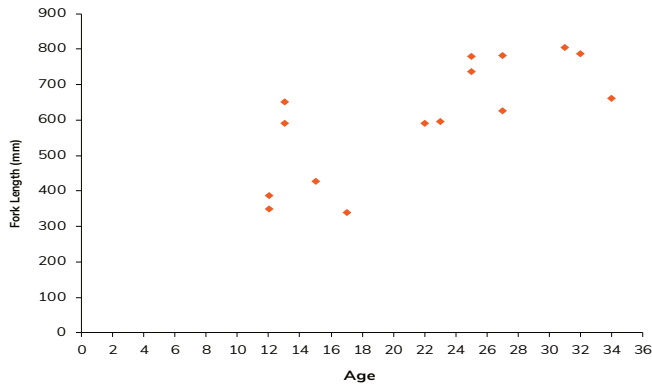
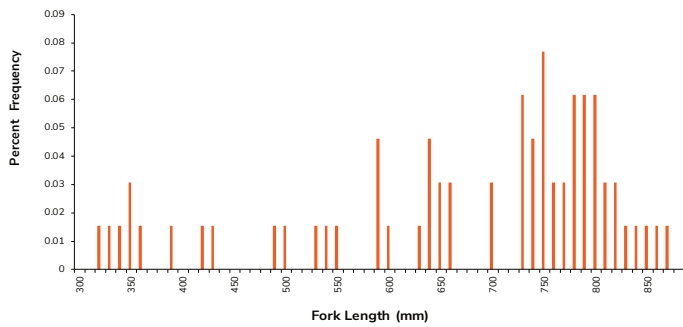
## Lake Trout

### Overview

A total of 65 lake trout were captured during the 2011 survey, ranging from 320 mm to 870 mm in fork length. Sampled fish had an average fork length of 671 mm and average weight of 4,250 g. Age structures were obtained from 15 lake trout. Ages ranged from 12 to 34 years.

### Population Estimate / Density

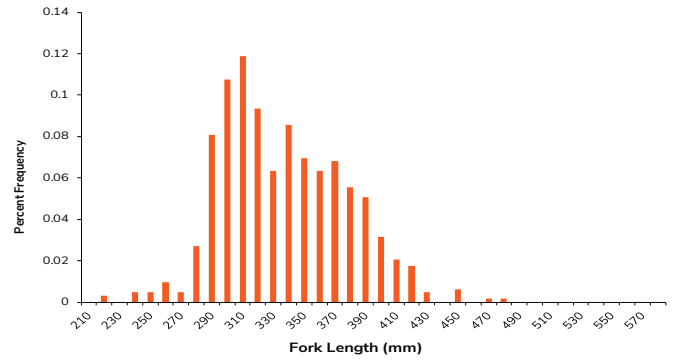
The lake trout population estimate within Ta'tla Mun was **12,937** (estimate range: 7,570 – 18,515). This equates to a density of 4.1 lake trout per hectare.



## Lake Whitefish

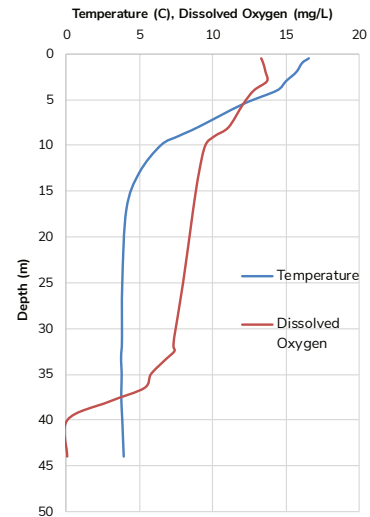
### Overview

A total of 632 lake whitefish were sampled during the 2011 survey. Sampled lake whitefish fork length ranged from 220 mm to 560 mm, with an average length of 335 mm and an average weight of 538 g. Age structures were taken from 6 fish. Ages ranged from 7 to 20 years.



## Temperature and Oxygen

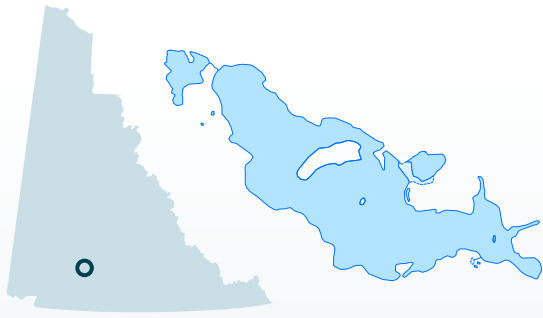
Temperature and dissolved oxygen profiles were taken in the deepest part of the lake. The lake was thermally stratified with the thermocline extending from the surface to about 13 m. Below this the temperature remained at 4°C to the bottom.



### For more information, please contact

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fisheries@gov.yk.ca  
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SR-20-02 Table of Contents



# Ten Mile Lake 2016

## Lake Trout Monitoring Program

### Lake Information

<b>WATERSHED</b> Yukon Headwaters	<b>LAKE CLASS</b> B
<b>SURFACE AREA</b> 326 ha	<b>ELEVATION</b> 808 m
<b>MAXIMUM DEPTH</b> 48 m	<b>AVERAGE DEPTH</b> 23 m
<b>SURFACE TEMPS.</b> 16.0°C	<b>REGULATIONS</b> Conservation Waters
<b>SAMPLING DATES</b> June 27-29, 2017	<b>NET SETS</b> 26

#### Location

Ten Mile Lake is located approximately 110 km north of Whitehorse, along the North Klondike Highway. This lake is within the Traditional Territories of the Ta'an Kwäch'än Council, Kwanlin Dün First Nation and the Little Salmon/Carmacks First Nation.

#### Access and Use

Ten Mile lake is accessed by float plane or a 15km 4x4 access trail. There is a wilderness outfitter operating on this lake.

### Overall Status

#### Lake Trout

Survey results indicate that the lake trout population in Ten Mile Lake is small, and is vulnerable to collapse. However, our confidence in the population estimate is weak. The lake trout population is composed of the large-bodied type.

#### Lake Whitefish

The population of lake whitefish in Ten Mile Lake also appears small in number.

#### Recommendation

The recommendation for future surveys of the Ten Mile Lake is to increase the number of net sets, while attempting to minimize mortalities. Increasing the number of sets will improve the precision of our population estimate. Angler Harvest surveys and collaboration with the outfitter will assist in determining recreational angling pressure and success.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

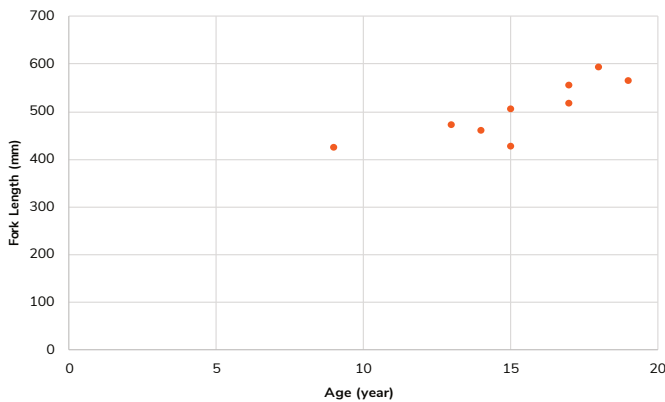
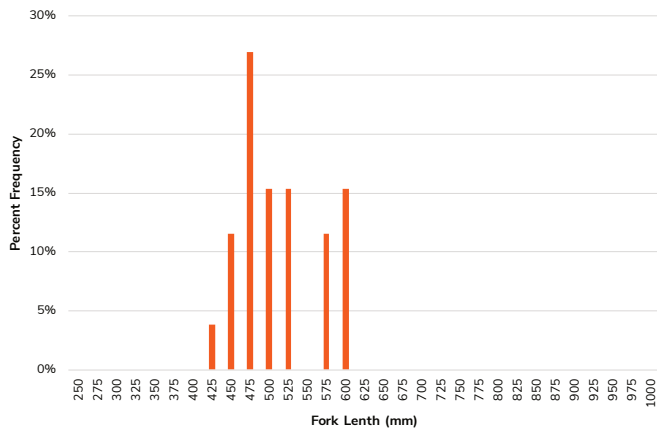
# Lake Trout

## Overview

A total of 26 lake trout were sampled during this survey. These large-bodied lake trout ranged in fork length from 424 mm to 597 mm. They had an average length of 503 mm with an average weight of 1,610 g. Age structures were obtained from nine lake trout. Ages ranged from 9 to 19 years.

## Population Estimate / Density

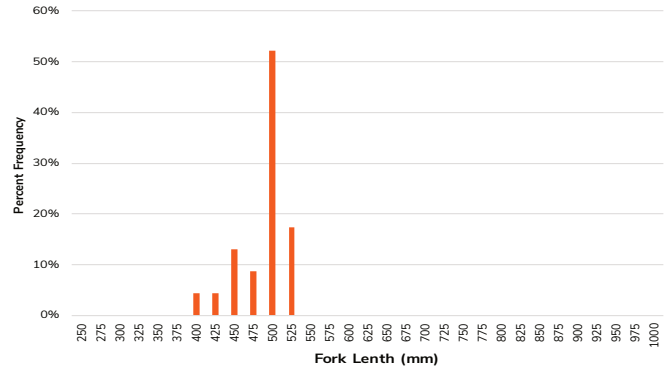
The population estimate for lake trout in Ten Mile Lake was **522** (estimate range: 1 - 1,117). Given the variability associated with this population estimate, there is little confidence in this number.



# Lake Whitefish

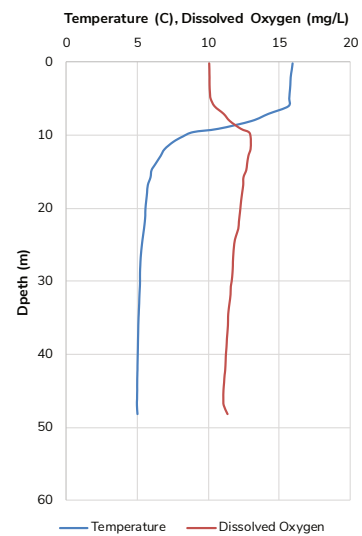
## Overview

During the 2016 survey, a total of 23 lake whitefish were sampled. The size of these fish ranged from 397 mm to 515 mm, with an average fork length of 475 mm and an average weight of 1,522 g. Age structures were obtained from 12 lake whitefish. Ages ranged from 5 to 28 years.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were obtained on June 27, 2016. The temperature profile shows a steep thermocline from 5 m to 10 m, followed by a gradual decline through the remaining water column. Dissolved oxygen displayed an increase in concentration from 5 m to 10 m, followed by a gradual decline. Overall, optimum habitat for lake trout existed between 8 m and lake bottom.



### For more information, please contact

Department of Environment  
Fish and Wildlife, Fisheries  
fisheries@gov.yk.ca  
867-667-5652



### Lake Information

<b>WATERSHED</b> Yukon Headwaters	<b>LAKE CLASS</b> F
<b>SURFACE AREA</b> 37,720 ha	<b>ELEVATION</b> 684 m
<b>MAXIMUM DEPTH</b> 232 m	<b>AVERAGE DEPTH</b> 54 m
<b>SURFACE TEMPS.</b> 15.9°C	<b>REGULATIONS</b> Special Management
<b>SAMPLING DATES</b> July 18-22, 2016	<b>NET SETS</b> 135

### Location

Teslin Lake is a transboundary lake with British Columbia, located in southern Yukon, approximately 125 km east of Whitehorse. The community of Teslin, sits on the eastern shore, along the Alaska Highway. This lake is within the Traditional Territories of the Taku River Tlingit First Nation and the Teslin Tlingit Council.

### Access and Use

Teslin is accessed from numerous locations, within the community of Teslin and the government campground, both have accessible boat ramps. There are also a number of private residences along the lake.

## Teslin Lake 2016 Lake Trout Monitoring Program

### Overall Status

#### Lake Trout

Survey results suggest that the lake trout population in Teslin Lake is small. Concerns over the health of this stock have been ongoing. Our survey results indicated that this population is still recovering, however there is a large uncertainty with our population estimate, which makes definitive judgements about this population difficult.

#### Lake Whitefish

Based on our low catch rates, the population of lake whitefish in Teslin lake appears small. Additional species sampled included: arctic grayling, northern pike, lease cisco, slimy sculpin, chinook salmon and chum salmon.

#### Recommendation

The recommendation for future surveys of Teslin Lake, is to slightly increase the number of net sets as well as increase the number of aging stuctres collected for analysis. Lakes of this size can be difficult to establish precise population estimates. Increased analysis of age structures will allow improved information on the population structure of lake trout within this lake.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

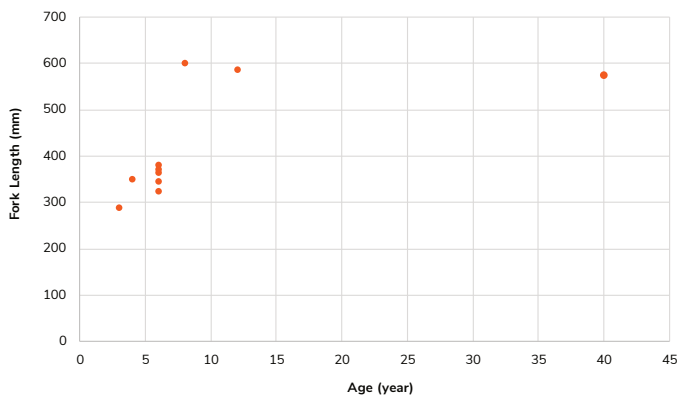
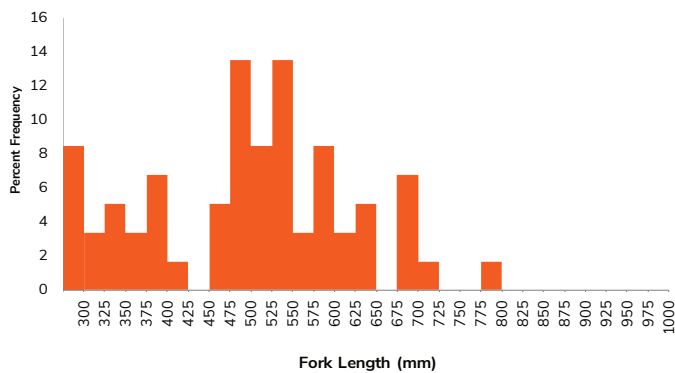
## Lake Trout

### Overview

During the 2016 survey of Teslin Lake, a total of 59 lake trout were sampled. These large-bodied fish, ranged from 261 mm to 793 mm in fork length. They had an average length of 500 mm and an average weight of 1,764 g. Age structures were obtained from 11 lake trout. Ages ranged from 3 to 40 years.

### Population Estimate / Density

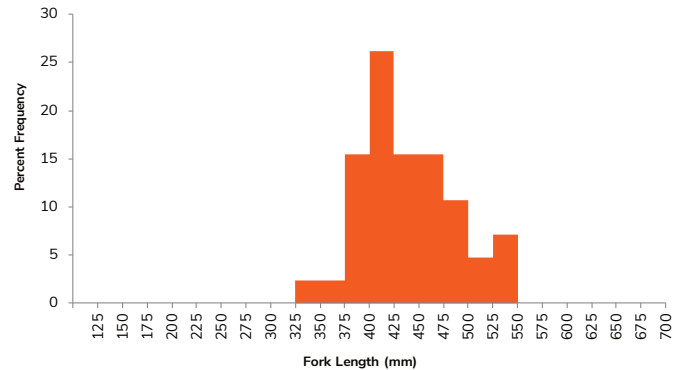
The population estimate for lake trout in Teslin Lake was **63,759** (estimate range: 7,558 -121,001). The survey results were uncertain, as evident by the wide range in the population estimate. This estimate equates to an average density of 1.8 lake trout per hectare.



## Lake Whitefish

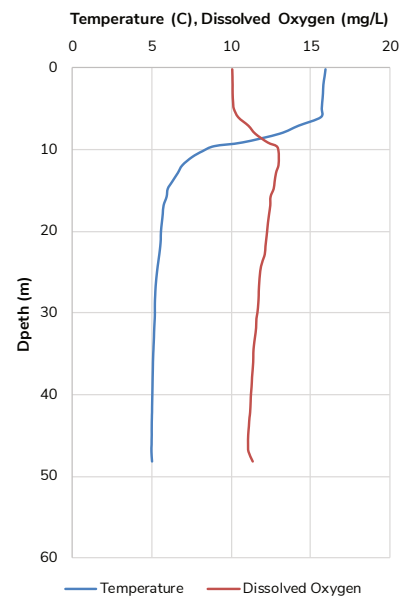
### Overview

During 2016 a total of 87 lake whitefish were captured. The lake whitefish sampled had an average fork length of 440 mm and an average weight of 1,204 g.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken on July 27. The temperature profile displays a strong thermocline between 6 m and 10 m, followed by a gradual decline throughout the rest of the water column. The dissolved oxygen levels near the surface were high, followed by a decline to 10 m. Overall, habitat was suitable for lake trout from 10 m to 50 m.



### For more information, please contact

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867-667-5652



## Twin Lake (east) 2013 Lake Trout Monitoring Program

### Lake Information

<b>WATERSHED</b> Yukon headwaters	<b>LAKE CLASS</b> A
<b>SURFACE AREA</b> 61 ha	<b>ELEVATION</b> 630 m
<b>MAXIMUM DEPTH</b> 34 m	<b>AVERAGE DEPTH</b> 14.6 m
<b>SURFACE TEMPS.</b> 21°C	<b>REGULATIONS</b> Special Management
<b>SAMPLING DATES</b> June 26-27, 2013	<b>NET SETS</b> 24

### Location

Twin Lake (east) lies along the North Klondike Highway, in central Yukon. This lake is within the Traditional Territories of the Kwanlin Dün and Little Salmon/Carmacks First Nations.

### Access and Use

Twin Lake (east) is accessed from the Klondike Highway, with a popular government campground across this lake at Twin (west). There is an accessible gravelled area that acts as a rough boat ramp.

### Overall Status

#### Lake Trout

The lake trout population in Twin Lake East appears small. This may be due to a mix of available habitat, as well as recreational pressure.

#### Lake Whitefish

We did not sample any lake whitefish in Twin Lake East during this survey.

#### Recommendation

Although recreational angling effort on Twin Lake East was not formally at the time of this survey, prior surveys conducted on Twin Lake West, showed a moderate level of pressure. It can be inferred that due to the close proximity of this lake, the pressure may be the same.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

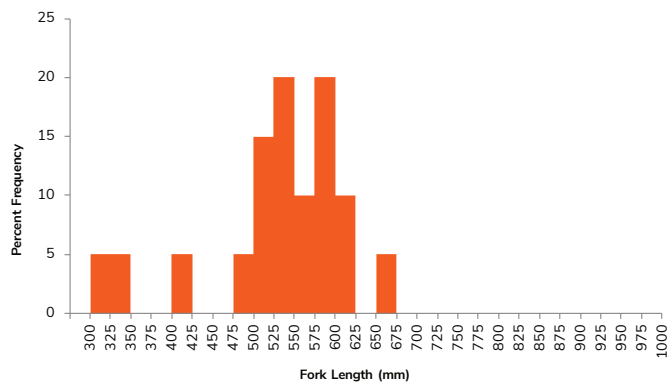
## Lake Trout

### Overview

During the 2013 Twin Lake (east) survey, a total of 20 lake trout were sampled. The sampled lake trout ranged in fork length size from 325 mm to 672 mm. They had an average length of 529 mm and an average weight of 2,017 g. Age structures were only obtained from two individuals, both of which were 15 years of age.

### Population Estimate / Density

The population estimate of lake trout in Twin Lake (east) was **193** (estimate range: 94 – 296). This equates to a density of 3.2 lake trout per hectare. This density was slightly lower than expected.



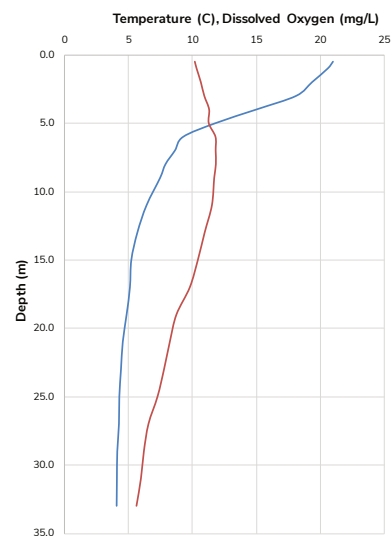
## Lake Whitefish

### Overview

During this survey, no lake whitefish were captured in Twin Lake (east).

## Temperature and Oxygen

Temperature and dissolved oxygen profiles were taken on June 25, 2013, near the deepest section of Twin Lake (east). The lake was stratified with a thermocline between 4 m and 7 m. The dissolved oxygen was within suitable limits between the surface and 32 m. Overall habitat was suitable for lake trout between 4 m and 32 m.



### For more information, please contact

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867-667-5652

SR-20-02 Table of Contents





## Lake Information

<b>WATERSHED</b>	<b>LAKE CLASS</b>
Yukon Headwaters	B
<b>SURFACE AREA</b>	<b>ELEVATION</b>
153 ha	630 m
<b>MAXIMUM DEPTH</b>	<b>AVERAGE DEPTH</b>
43 m	16.1 m
<b>SURFACE TEMPS.</b>	<b>REGULATIONS</b>
20.7°C	Special Management
<b>SAMPLING DATES</b>	<b>NET SETS</b>
June 25-26, 2013	26

### Location

Twin Lake (west) lies along the North Klondike Highway, in central Yukon. This lake is within the Traditional Territories of the Kwanlin Dün, Champagne/Aishihik and Little Salmon/Carmacks First Nations.

### Access and Use

Twin Lake (west) is accessed from the Klondike Highway, with a popular government campground at the lake. There is an accessible boat ramp at this campground.

## Twin Lake (west) 2013 Lake Trout Monitoring Program

### Overall Status

#### Lake Trout

The lake trout population in Twin Lake (west) appears to be in a depleted state, when compared to lake trout populations in other similarly sized Yukon lakes. Low catch numbers create a situation where it is difficult to estimate population numbers with precision. However the low catch rate may also indicate that the population is at risk of collapse.

#### Lake Whitefish

The lake whitefish population in Twin Lake (west) appears small and lower than predicted, when compared to other Yukon lakes of similar size.

#### Recommendation

Twin Lake (west) receives a high level of angling pressure and due to habitat limitations, appears to have a small lake trout population. In combination, this makes the population vulnerable to collapse. It is recommended that a regulation is established that eliminates the catch and possession of lake trout. This will aid in allowing this population to naturally recover.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

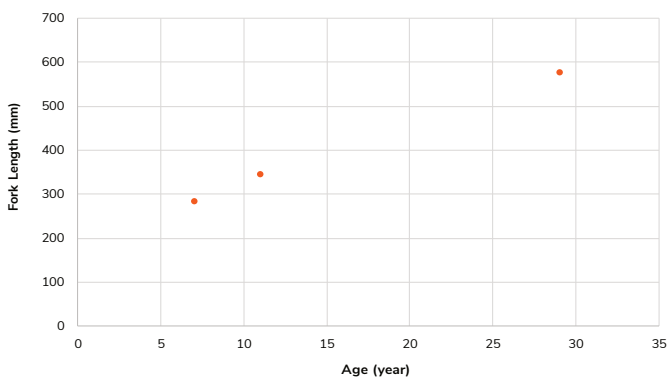
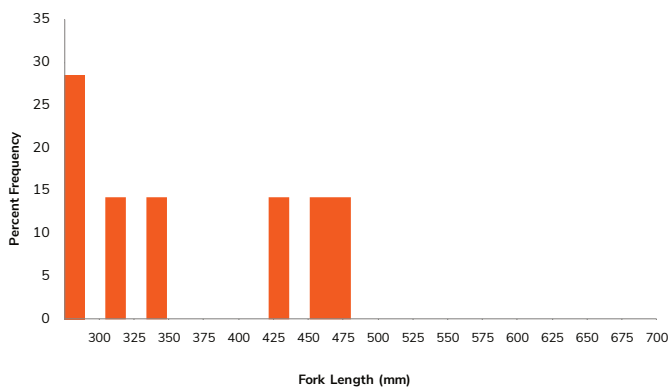
## Lake Trout

### Overview

During the 2013 Twin Lake (west) survey, only seven lake trout were sampled. Lake trout ranged in fork length size from 230 mm to 618 mm. They had an average length of 432 mm and an average weight of 1,125 g. Age structures were obtained from three individuals. The ages of these sampled fish were 7, 11 and 29.

### Population Estimate / Density

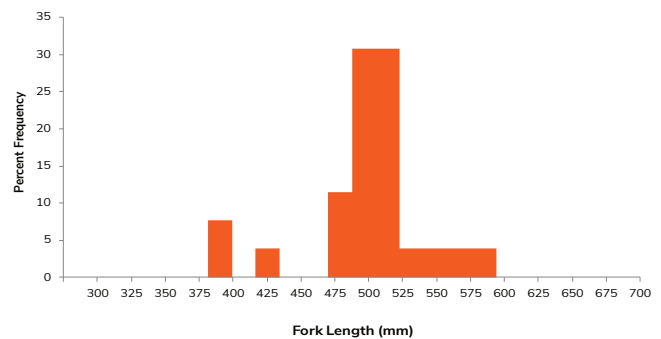
The population estimate of lake trout in Twin Lake (west) was **234** (estimate range: 0 – 474). This equates to a density of 1.5 lake trout per hectare. Given the lack of precision associated with this estimate and the potential for collapse, a cautionary approach to management regulations is warranted.



## Lake Whitefish

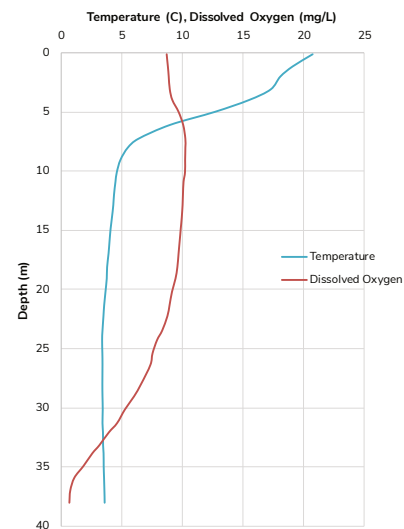
### Overview

During this survey, 26 lake whitefish were sampled. The sampled lake whitefish ranged from 252 mm to 530 mm in fork length, with an average length of 432 mm and average weight 1,021 g. Age structures were obtained 13 lake whitefish. Ages ranged from 5 to 25 years. The low catch numbers create difficulty in making definitive conclusions about this population.



## Temperature and Oxygen

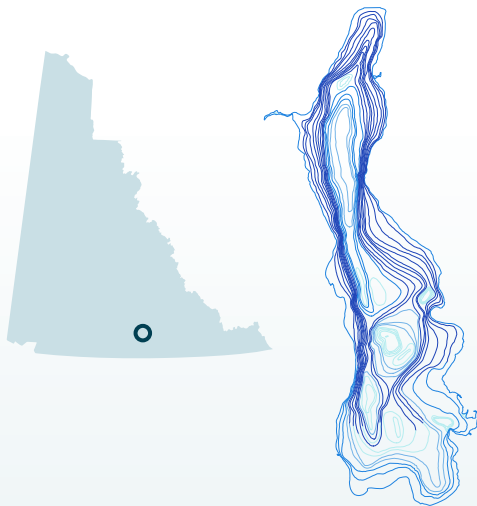
Temperature and dissolved oxygen profiles were taken on June 25, near the deepest section of Twin Lake (west). The lake was stratified with an observed thermocline between 4 and 7 m. The dissolved oxygen was within suitable limits between the surface to 32 m. Overall, suitable lake trout habitat could be found between 4 m and 32 m.



### For more information, please contact

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SR-20-02 Table of Contents



# Wolf Lake 2018

## Lake Trout Monitoring Program

### Lake Information

<b>WATERSHED</b> Yukon Headwaters	<b>LAKE CLASS</b> E
<b>SURFACE AREA</b> 7,312 ha	<b>ELEVATION</b> 986 m
<b>MAXIMUM DEPTH</b> 72 m	<b>AVERAGE DEPTH</b> 26.6 m
<b>SURFACE TEMPS.</b> 16°C	<b>REGULATIONS</b> Conservation waters
<b>SAMPLING DATES</b> Aug 02-05, 2018	<b>NET SETS</b> 98

#### Location

Wolf Lake is located in the Southern Lakes region, approximately 70km northeast of Teslin, and is within the Traditional Territory of the Teslin Tlingit Council.

#### Access and Use

Wolf Lake is only accessible by plane and receives minimal fishing pressure. A fishing lodge has been established on the lake since 1978, and operates on a catch and release policy.

### Overall Status

#### Lake Trout

In accordance with the 2018 survey results, the lake trout population in Wolf Lake appears healthy. This population is of the large-bodied form. The population estimate indicates a moderate density of lake trout when compared to similar sized Yukon lakes.

#### Lake Whitefish

The population of lake whitefish in Wolf Lake is low in density, as evidenced by the low catch-numbers.

#### Recommendation

The recommendation for future surveys of Wolf Lake is to slightly increase net sets and age structures, to improve our precision in the population estimate.

### Program Overview

The Lake Trout Monitoring Program uses the Summer Profundal Index Netting (SPIN) method to provide information on lake trout and lake whitefish abundance, growth, age and density.

This program surveys the two species by placing gill nets throughout the lake, taking into account both location and depth. Over time, this type of sampling allows us to track population changes and evaluate the health of these species.

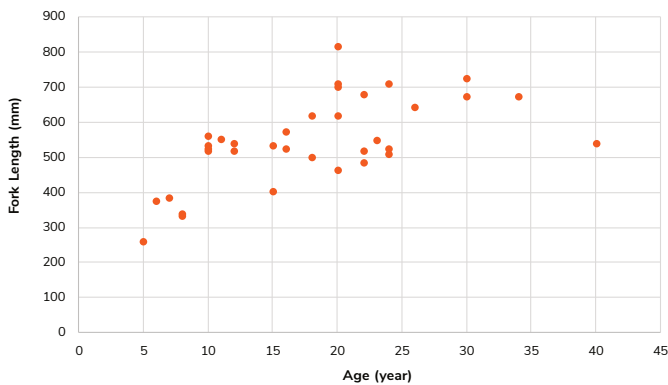
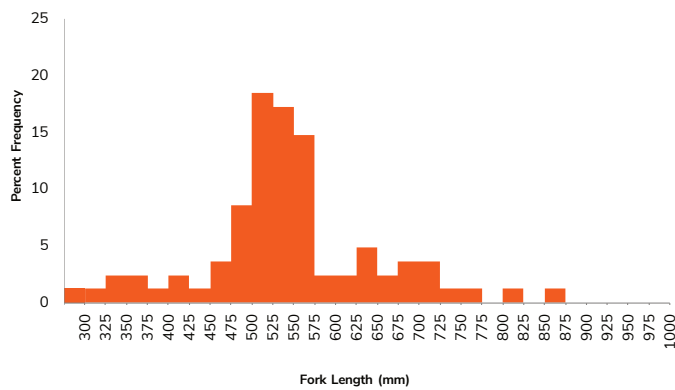
## Lake Trout

### Overview

A total of 81 lake trout were sampled during the survey. These large-bodied lake trout ranged in fork length from 262 mm to 860 mm. They had an average length of 547 mm with an average weight of 2,091g. Age structures were obtained from 35 lake trout. Ages ranged from 5 to 40 years.

### Population Estimate / Density

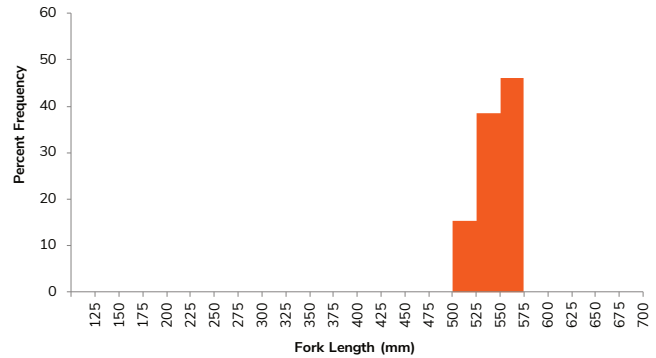
The population estimate for lake trout in Wolf Lake was **28,411** (estimate range: 16,103 - 41,243). This equates to a density of 3.9 lake trout per hectare.



## Lake Whitefish

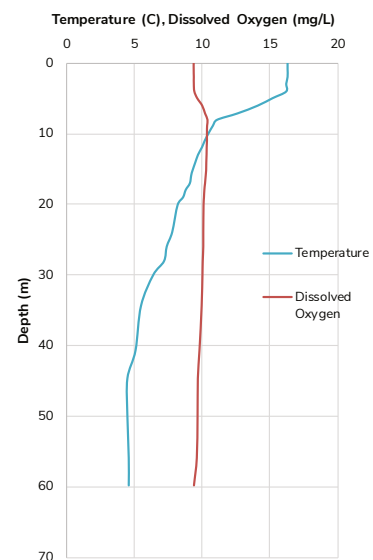
### Overview

During the 2018 survey, a total of 13 lake whitefish were sampled. The fork length of these fish ranged from 515 mm to 575 mm. They had an average length of 548 mm and an average weight of 2,505 g. Age structures were taken from nine lake whitefish. Ages ranged from 12 to 40 years.



## Temperature and Oxygen

Temperature and dissolved oxygen profiles display a sharp thermocline between 5 m and 9 m, below the thermocline which had a gradual temperature decline occurred. Dissolved oxygen remained relatively constant throughout the water column. Overall, optimum lake trout habitat existed from 6 m to lake bottom.



### For more information, please contact

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SR-20-02 Table of Contents

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