



## Lake Information

<b>WATERSHED</b>	<b>LAKE CLASS</b>
Upper Liard	E
<b>SURFACE AREA</b>	<b>ELEVATION</b>
9,941 ha	734 m
<b>MAXIMUM DEPTH</b>	<b>AVERAGE DEPTH</b>
93 m	31 m
<b>SURFACE TEMP</b>	<b>REGULATIONS</b>
17.4°C	Conservation waters
<b>SAMPLING DATES</b>	<b>NET SETS</b>
Aug 11 – 15	149

### Location

Frances Lake is located in the 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

### 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. This should focus on collecting age structures to provide a more accurate growth rate, and determining if the cohorts missing in this survey were a factor of chance or suggest multiple years of recruitment failure.

## Lake Trout

During the 2017 survey of Frances Lake, a total of 106 lake trout were captured.

### Population Estimate and 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.

### Length and Weight

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.

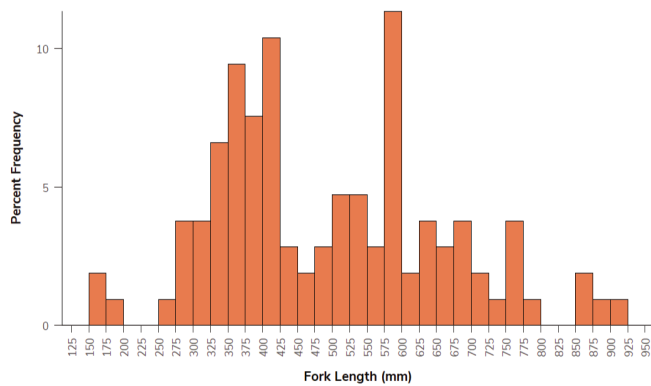


Figure 1. Length frequency distribution of sampled lake trout in Frances Lake (2017), n = 106.

### Age and Growth

Age structures obtained from 46 lake trout showed an age variation from 4 to 40 years. The growth curve illustrates a near-linear relation; however, it is skewed due to missing age cohorts captured from 17-23.

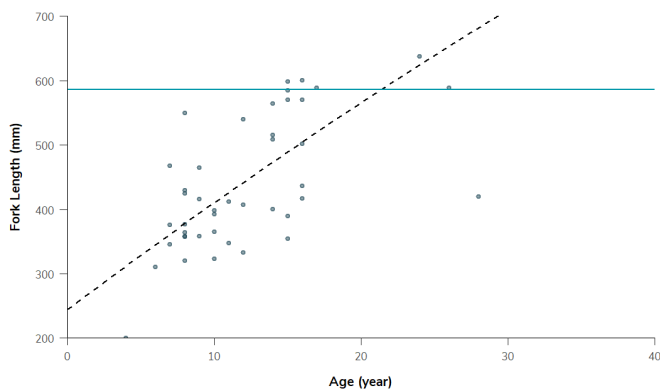


Figure 2. Von Bertalanffy growth curve of age-analyzed sampled lake trout in Frances Lake (2017), n = 46.

### Suggested citation:

Government of Yukon. 2024. Lake Trout and Lake Whitefish Monitoring Program: Frances Lake 2017. Government of Yukon, Whitehorse, Yukon, Canada.

## Lake Whitefish

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.

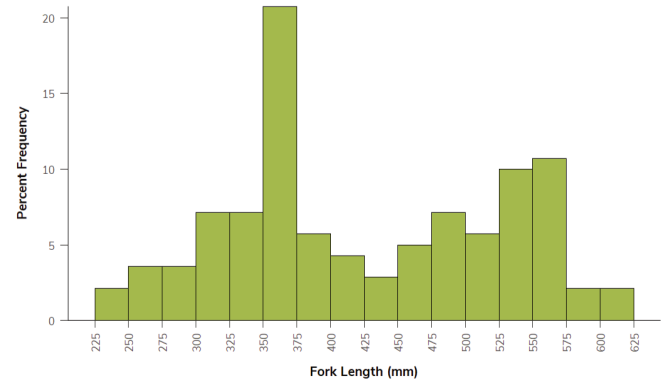


Figure 3. Length frequency distribution of sampled lake whitefish in Frances Lake (2017), n = 140.

## Temperature and Dissolved 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.

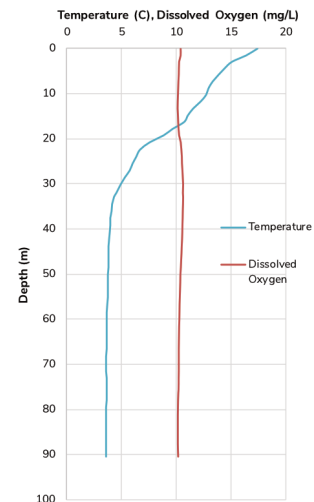


Figure 4. Temperature (C) and dissolved oxygen (mg/L) as measured in Frances Lake, August 15, 2018.