

# Elinor Lake FIN Summary

## 2020

### Background

“How are the fish in my lake doing?” We need this answer to set appropriate fishing regulations, to understand and correct any problems with fish habitat, and to guard against invasive species. A healthy fish population and fish community means we can all enjoy the benefits of sustainable fisheries and healthy ecosystems. A standard method of assessing the status of fish populations is necessary to allow comparisons of fish sustainability across the years at a lake, and to compare to other lakes. In Alberta, we use an accepted standard of index netting for lake fisheries assessment. This method provides the necessary data on fish abundance, biological data (such as age and sex), and species diversity to assess sustainability.

### Fall Index Netting (FIN)

Alberta Environment and Parks monitor Walleye and Northern Pike populations using standardized index netting (Morgan, 2002). Fall index netting occurs during late summer and fall when water temperatures are 10-15 °C. Standardized multi-mesh gill nets are set at random locations between 2 and 15 metres deep, set for 21-27 hours (i.e., a net-night), and then reset in new random locations. At Elinor Lake in 2020, a half-length variation of the standard index net was used, balancing precision of the catch rates with reduced sampling effort. Information from Yellow Perch, Lake Whitefish, Burbot, minnow, and sucker species are also collected. The information collected from each fish includes length, weight, age, gender, and maturity. After sampling, if fish are appropriate for human consumption, Alberta biologists provide the fish to local Indigenous peoples or to persons on approved subsistence lists. Typically, a tiny proportion of the lake’s fish population (usually less than 1 or 2%) are killed in this sampling.

### How is this information used?

Catch rates (i.e., number of fish captured per net-night) of Walleye and Northern Pike are an index of the populations’ abundance, with higher catch rates meaning there are more fish in the lake. The abundance of adult fish is compared to the standardized thresholds for 5 broad categories of risk to the long-term sustainability of the fish population, with higher densities of fish having lower risk (Table 1). The sizes and age of fish also tell us if problems

with overharvest (e.g. too few fish living to old age) or habitat (e.g., poor spawning success) are a concern. Biologists use this information, as well as a variety of data on water quality, access, development, and habitat threats as part of Alberta’s Fish Sustainability Index (FSI).

The management goal for most Alberta fisheries is long-term sustainability, shown by the red lines on the graphs below. Achieving this goal uses the netting data and the FSI to determine the most appropriate sport fishing regulations for a lake. This landscape-level assessment allows for consistent, broad temporal comparisons of fish sustainability and status.

For more information, please see Alberta’s FIN and FSI websites,

- <https://www.alberta.ca/fall-index-netting.aspx>
- <https://www.alberta.ca/fish-sustainability-index-overview.aspx>

**Table 1** – Alberta’s Fish Sustainability Index risk thresholds for Walleye and Northern Pike using the standardized Fall Index Net (FIN) method. Note: Thresholds align with species management frameworks.

Mature Walleyes/ ½ net	Mature Pike/ ½ net	Risk to Sustainability
>14.5	>10.9	Very Low
10.2-14.5	7.7-10.9	Low
7.3-10.1	5.5-7.6	Moderate
2.9-7.2	2.2-5.4	High
<2.9	<2.2	Very High

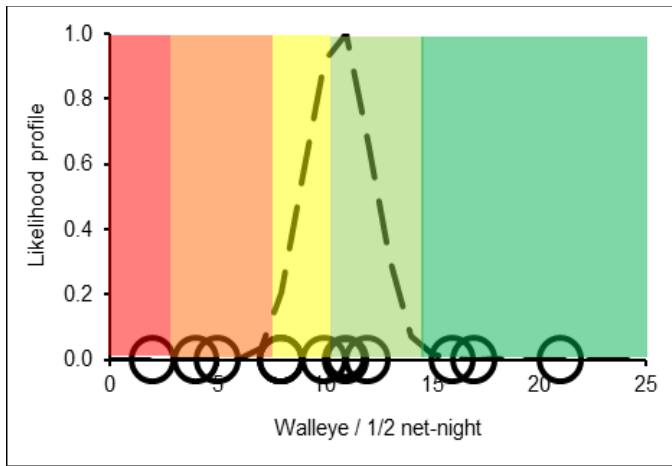
### Results of the 2020 FIN at Elinor Lake

Elinor Lake (971 ha) is located 25 km southeast from the town of Lac La Biche. From September 8 to 11, 2020, 13 ½-length nets captured 44 Northern Pike, 155 Walleyes, 7 Lake Whitefish and 68 Yellow Perch.

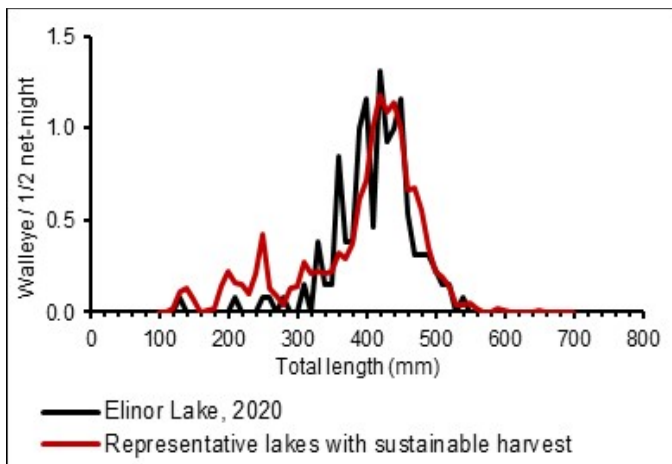
### Walleye

The mean catch rate of Walleyes was 11.9/ ½ net-night. The catch rates of mature (Figure 1) and immature Walleyes were 10.2/ ½ net-night and 1.7/ ½ net-night, respectively. The corresponding FSI score for the current mature density of Walleyes was assessed at **low** risk.

The length distribution shows weak and intermittent recruitment with strong abundances of mature 310 to 540 mm Walleye (Figure 2).



**Figure 1** - The FIN catch rate of mature Walleyes from Elinor Lake, 2020. Dashed line is the mean catch rate (10.2 fish/ ½ net-night), with individual net data as hollow circles (n=13 nets).



**Figure 2** – FIN sample of showing size of Walleyes from Elinor Lake, 2020. The red line indicates the average length distribution of Walleye from 5 Alberta lakes supporting long-term sustainable harvests of Walleye.

The 2020 FIN sample represented approximately 1% of the estimated mature Walleye population size.

## Northern Pike

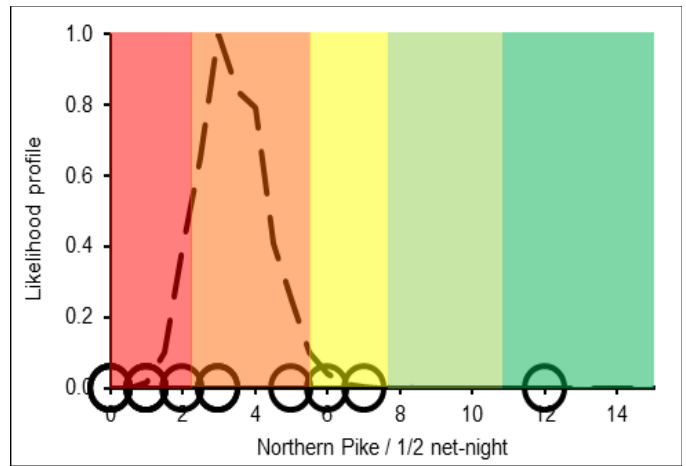
The mean catch rate of mature Northern Pike was 3.2/ ½ net-night (Figure 3). The corresponding FSI score for the current mature density of Northern Pike was assessed at **high** risk.

The length distribution shows moderate recruitment of pike, moderate abundances of 460 to 660 mm fish, and low abundances of pike larger than 660 mm (Figure 4).

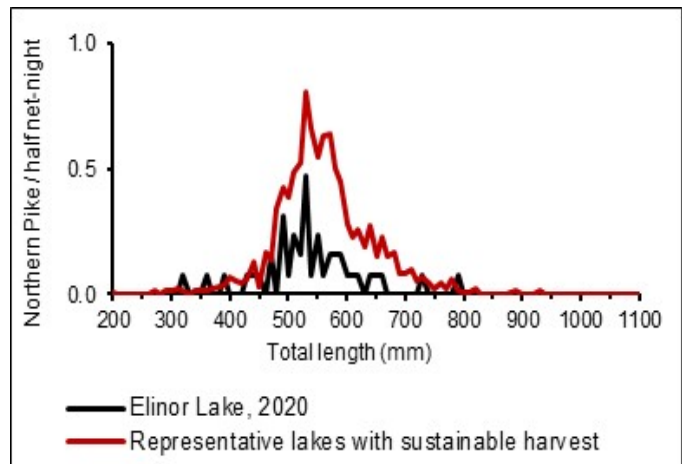
The 2020 FIN sample represented approximately 0.3% of the estimated mature Northern Pike population size.

## Summary

Elinor Lake was assessed in 2003, 2008, 2012, 2015 and 2019. Since 2015, the status of mature Walleyes



**Figure 3** - The FIN catch rate of mature Northern Pike from Elinor Lake, 2020. Dashed line is the mean catch rate (3.2 fish/ ½ net-night), with individual net data as hollow circles (n=13 nets).



**Figure 4** – FIN sample showing size of Northern Pike from Elinor Lake, 2020. The red line indicates the average length distribution of pike from 6 Alberta lakes supporting long-term sustainable harvests of pike.

has improved from **high** to **low** risk. Given the Walleye's current risk to sustainability including intermittent spawning success, conservation-based management is required to manage the sustainability of this population and fishery.

Since the 2015 FIN assessment, the status of mature Northern Pike has remained at **high** risk. Strict conservation-based management will remain the focus for this pike population.

A slot harvest regulation is being evaluated for Walleyes and Northern Pike at Elinor Lake. Alberta Fish and Wildlife will report on its performance as survey results are available.

## Literature

Morgan, G.E. 2002. Manual of Instructions-Fall Walleye Index Netting. Percid Community Synthesis, Diagnostics and Sampling Standards Working Group. Laurentian University, Sudbury Ontario.