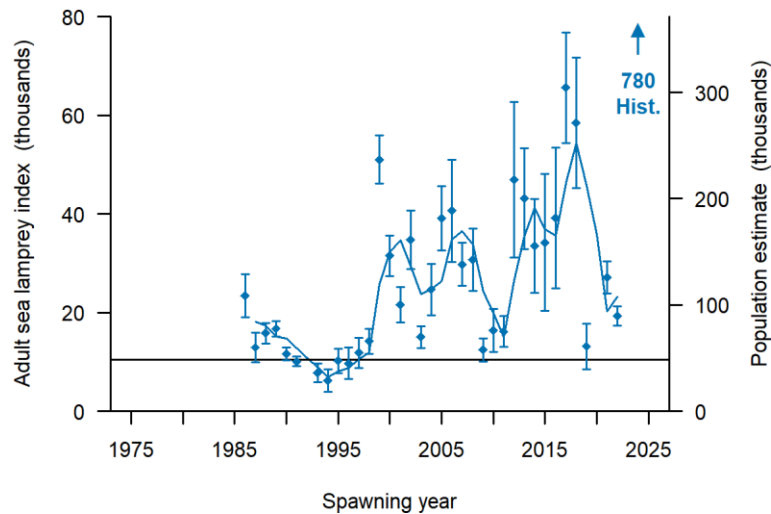
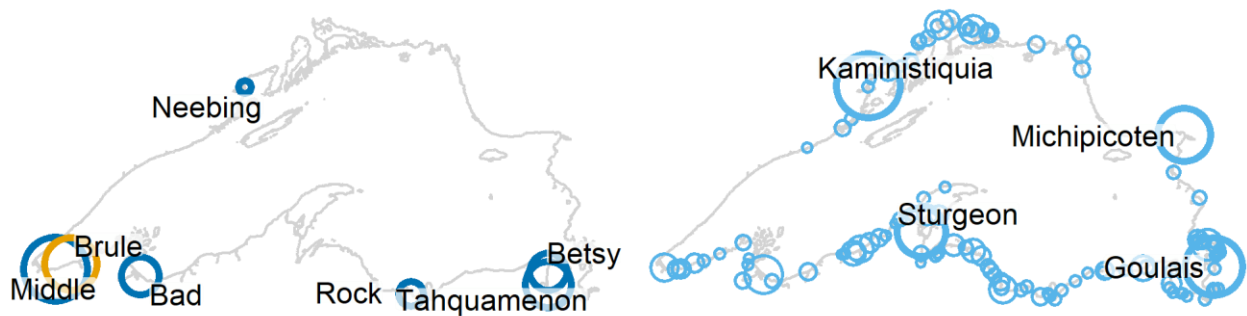


# STATUS OF SEA LAMPREY CONTROL IN LAKE SUPERIOR

## Adult Sea Lamprey:



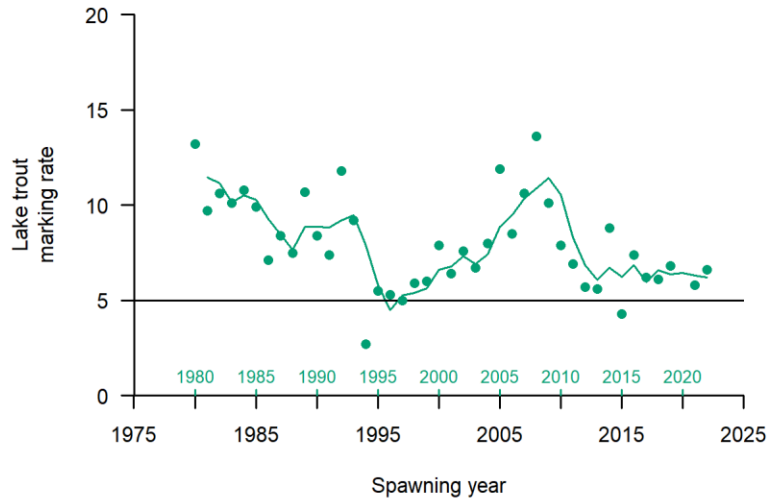
**Figure 1.** Index estimates with 95% confidence intervals (vertical bars) of adult sea lampreys, including historic pre-control abundance (as a population estimate) and the three-year moving average (line). The population estimate scale (right vertical axis) is based on the index-to-PE conversion factor of 4.64. The adult index in 2022 was 19,000 with 95% confidence interval (17,000-21,000). The three-year (2020-2022) average of 23,000 was above the target of 10,000. The index target was estimated as the mean of indices during a period with acceptable marking rates (1994-1998).



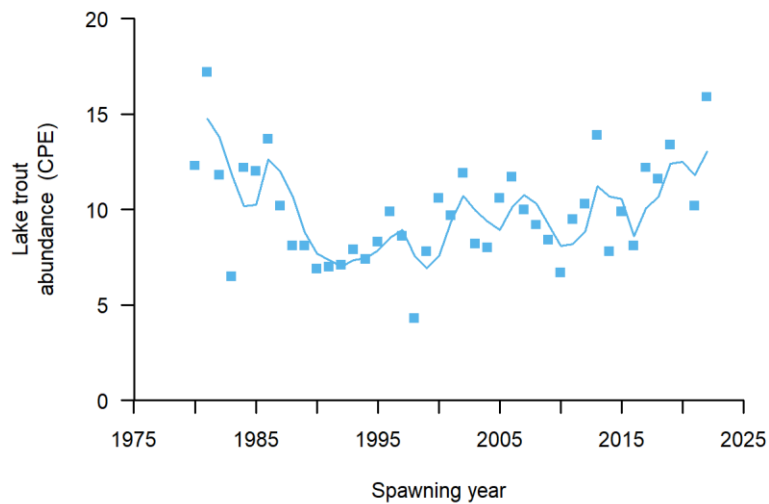
**Figure 2.** LEFT: Estimated index of adult sea lampreys during the spring spawning migration, 2022. Circle size corresponds to estimated number of adults from mark-recapture studies (blue) and model predictions (orange). All index streams are labelled. RIGHT: Maximum estimated number of larval sea lampreys in each stream surveyed during 1995-2012. Tributaries composing over half of the estimated maximum lake-wide larval population are identified (Kaministiquia 6,600,000; Goulais 5,000,000; Michipicoten 4,100,000; Sturgeon 3,300,000).

- Sucker River – A collaborative project on the Sucker River near Grand Marais, MI will replace perched culverts on the H-58 road crossing with a free span bridge while a new seasonal sea lamprey barrier will be constructed upstream to block sea lamprey from accessing 95 stream miles of critical spawning and rearing habitat.

### Lake Trout Marking and Relative Abundance:

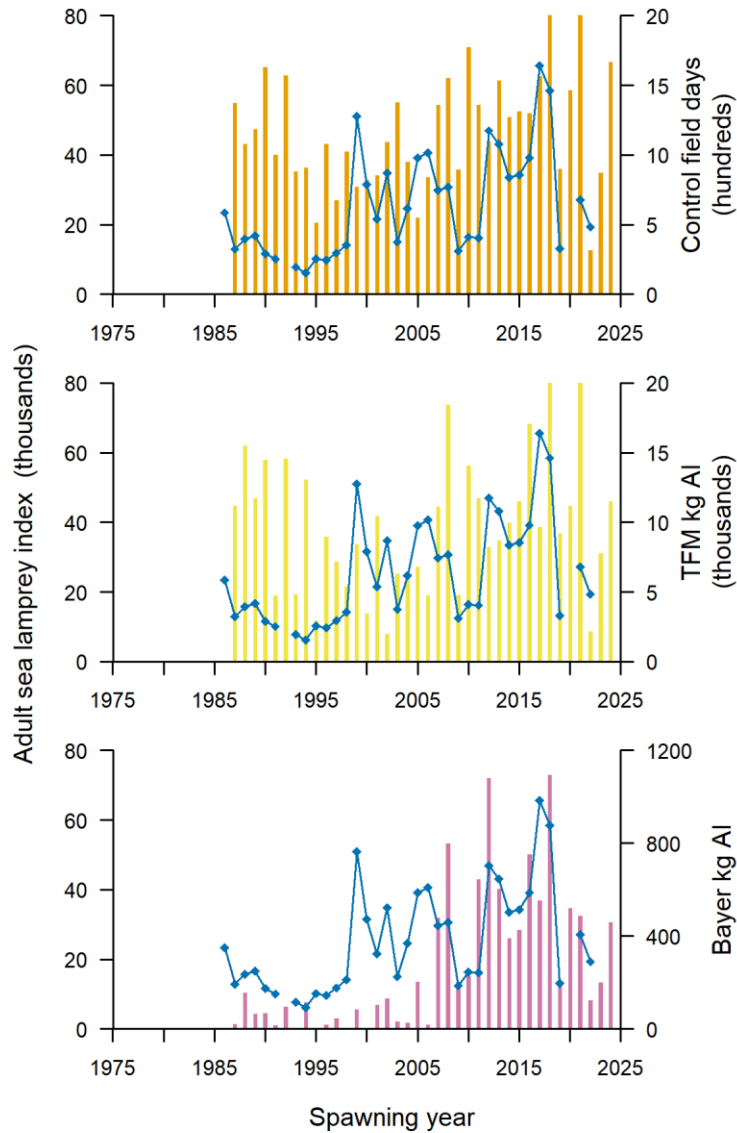


**Figure 3.** Number of A1-A3 marks per 100 lake trout > 532 mm from standardized assessments plotted against the sea lamprey spawning year, including the three-year moving average (line). The three-year (spawning years 2020-2022) average marking rate of 6.2 was above the target of 5 A1-A3 marks per 100 lake trout > 532 mm (horizontal line). A second x-axis shows the year the lake trout were surveyed.



**Figure 4.** Lake trout relative abundance (May assessments using 4.5 inch gillnets) plotted against sea lamprey spawning year, including the three-year moving average (line). CPE = fish/km/net night of lean lake trout > 532 mm (21") total length.

**Lampricide Control - Adults vs. Field Days, TFM, and Bayluscide:**



**Figure 5.** Index of adult sea lampreys (blue lines) and number of control field days (orange bars), TFM used (kg active ingredient; yellow bars), and Bayluscide used (kg active ingredient; purple bars). Field days, TFM, and Bayluscide are offset by 2 years (e.g., field days, TFM, and Bayluscide applied during 1985 is plotted on the 1987 spawning year, when the treatment effect would first be observed in adult sea lamprey populations).

- Lampricide treatments were completed in 34 tributaries (12 Canada, 22 U.S.) and in 11 lentic areas (5 Canada, 6 U.S.).
- Cloud, Jarvis, Gargantua, and Goulais rivers, Blende Creek, and lentic areas associated with the Kaministiquia, Nipigon, Gravel, and Knife rivers were not treated during 2022 due to timing and problematic environmental conditions and have been scheduled for treatment during 2023.
- Pays Plat, Little Pays Plat, Jackfish, and McIntyre rivers were treated after being deferred since 2019.
- High numbers of sea lamprey juveniles and large larvae were eliminated in several streams including South Fork Fish and Hungarian creeks, Mineral, East Sleeping, Little Iron, Hungarian, Cranberry, and Flintsteel rivers.