STATUS OF SEA LAMPREY CONTROL IN LAKE HURON

Adult Sea Lamprey:

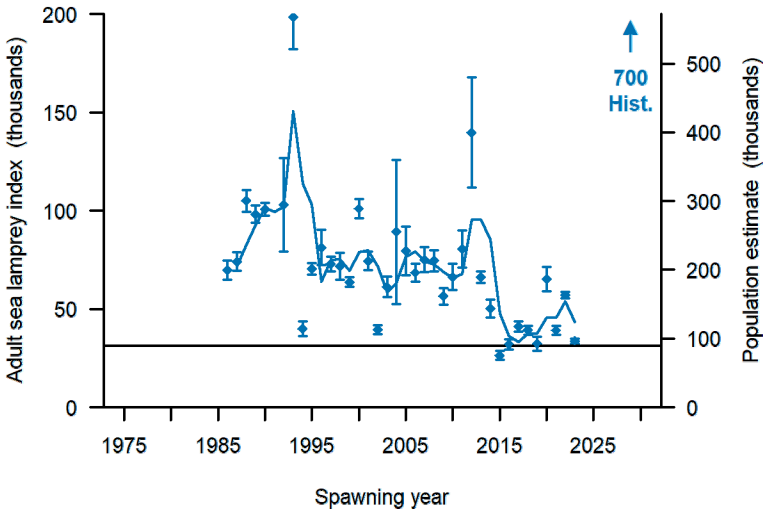

Figure 1. Index estimates with 95% confidence intervals (vertical bars) of adult sea lampreys, including historic pre-control abundance (as a population estimate) and the three-year moving average (line). The population estimate scale (right vertical axis) is based on the index-to-PE conversion factor of 2.86. The adult index in 2023 was 34,000 with 95% confidence interval (32,000-35,000). The three-year (2021-2023) average of 43,000 was above the target of 31,000. The index target was estimated as 0.25 times the mean of indices (1989-1993).

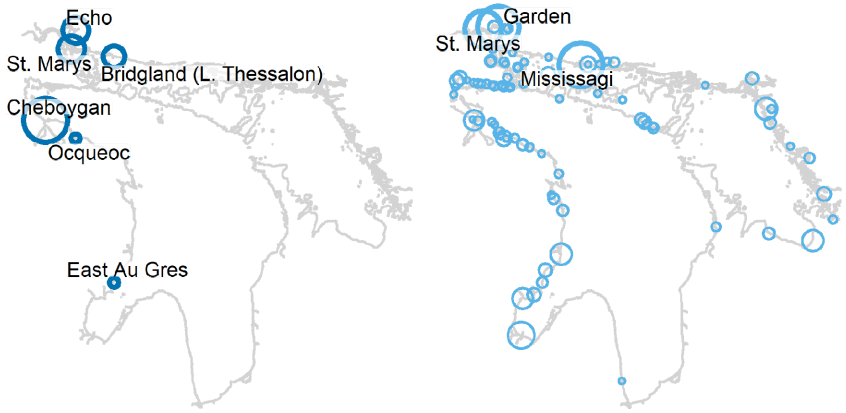

Figure 2. LEFT: Estimated index of adult sea lampreys during the spring spawning migration, 2023. Circle size corresponds to estimated number of adults from mark-recapture studies (blue) and model predictions (orange). All index streams are labelled. RIGHT: Maximum estimated number of larval sea lampreys in each stream surveyed during 1995-2012. Tributaries composing over half of the estimated maximum lake-wide larval population are identified (Mississagi 8,100,000; Garden 7,000,000; St. Marys 5,200,000).

- Population estimates were generated for all 6 Lake Huron index streams using mark-recapture data.
- The stream specific estimate from the Cheboygan River contributed most to the lake-wide index estimate in 2023 (52%).
- The newly constructed East Au Gres River permanent sea lamprey trap was operated for the first time this year. Trapping efficiencies increased from an average of 11% (2000-2022) to 36% in 2023.

Lake Trout Marking and Relative Abundance:

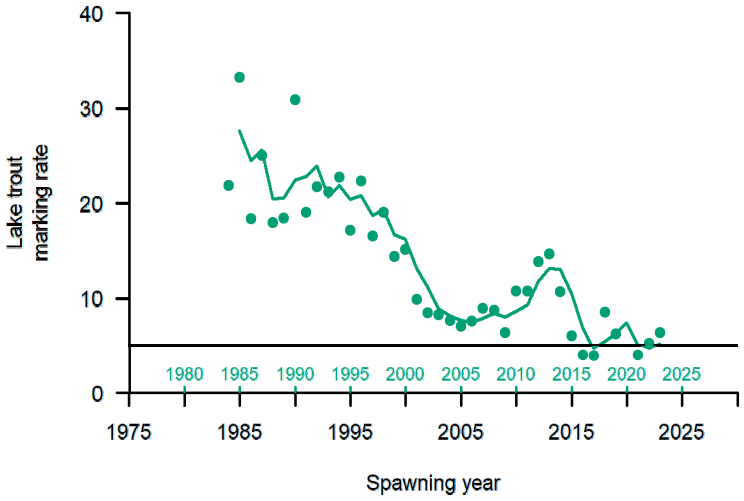

Figure 3. Number of A1-A3 marks per 100 lake trout > 532 mm from standardized assessments plotted against the sea lamprey spawning year, including the three-year moving average (line). The three-year (spawning years 2021-2023) average marking rate of 5.2 was above the target of 5 A1-A3 marks per 100 lake trout > 532 mm (horizontal line). A second x-axis shows the year the lake trout were surveyed.

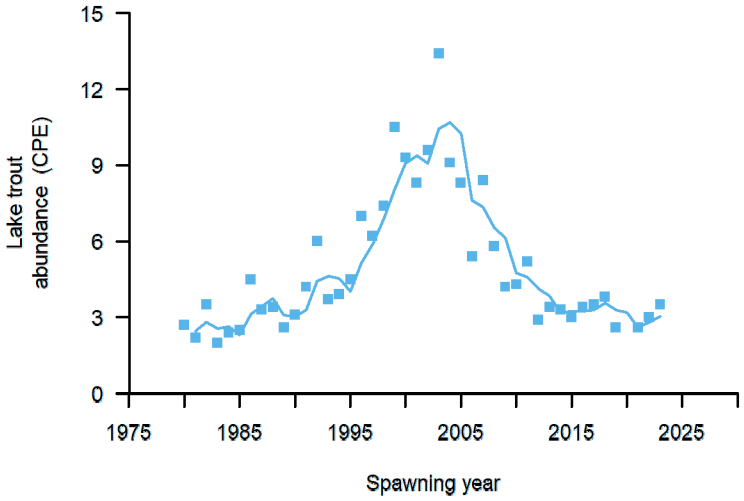

Figure 4. Lake trout relative abundance from standardized surveys (spring 2-6 inch mesh) in U.S. waters of the main basin plotted against sea lamprey spawning year, including the three-year moving average (line). CPE = geometric mean of fish/km/net night of lean lake trout > 532 mm (21") total length.

- Marking rates in Huron are fairly consistent since 2015.
- Lake trout trends are also consistent.

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

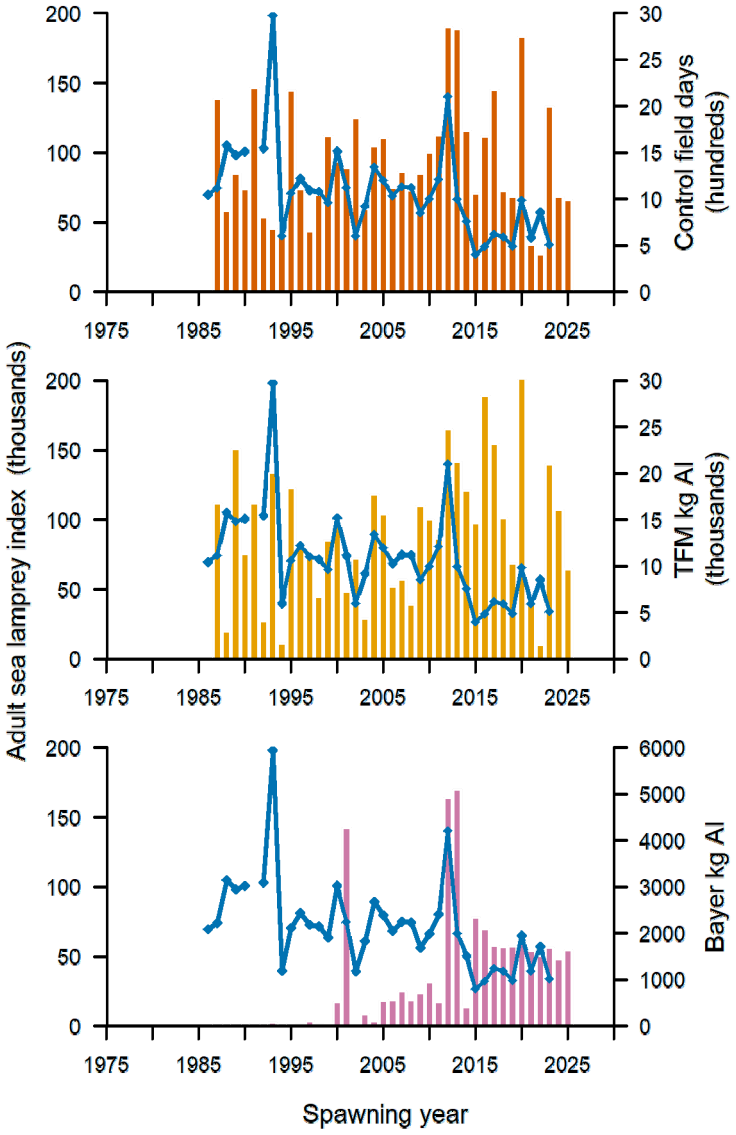

Figure 5. Index of adult sea lampreys (blue lines) and number of control field days (orange bars), TFM used (kg active ingredient; yellow bars), and Bayluscide used (kg active ingredient; purple bars). Field days, TFM, and Bayluscide are offset by 2 years (e.g., field days, TFM, and Bayluscide applied 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 conducted in 20 tributaries (9 Canada, 11 U.S.) and in 3 lentic areas (1 Canada, 2 U.S.)
- A total of 293.3 hectares of larval habitat in the St. Marys River was treated with granular Bayluscide (Table 4).
- Three tributaries were treated for the first time: Austin Creek (Echo River), Black Creek (Saginaw River) and Little Molasses River (Saginaw River).
- Lampricide treatments were deferred in 8 streams and 1 lentic area and are rescheduled for treatment in 2024.