STATUS OF SEA LAMPREY CONTROL IN LAKE ERIE

Adult Sea Lamprey:

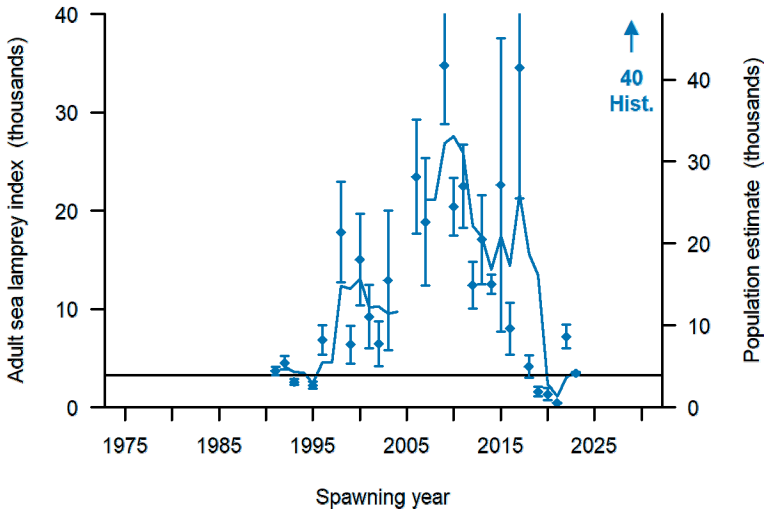

Figure 1. Index estimates with 95% confidence intervals (vertical bars) of adult sea lampreys, including historic pre-control abundance (as a population estimate) and the three-year moving average (line). The population estimate scale (right vertical axis) is based on the index-to-PE conversion factor of 1.2. The adult index in 2023 was 3,500 with 95% confidence interval (3,300-3,600). The three-year (2021-2023) average of 3,700 was above the target of 3,300. The index target was estimated as the mean of indices during a period with acceptable marking rates (1991-1995).

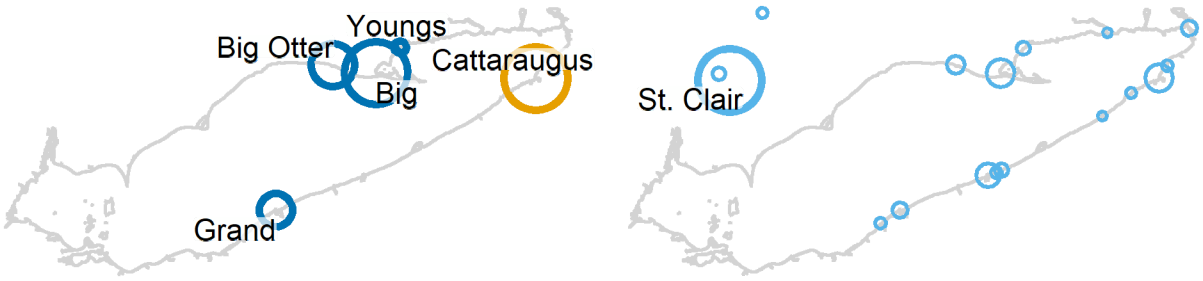

Figure 2. LEFT: Estimated index of adult sea lampreys during the spring spawning migration, 2023. Circle size corresponds to estimated number of adults from mark-recapture studies (blue) and model predictions (orange). All index streams are labelled. RIGHT: Maximum estimated number of larval sea lampreys in each stream surveyed during 1995-2012. Tributaries composing over half of the estimated maximum lake-wide larval population are identified (St. Clair 920,000).

- Population estimates were generated for 4 of the 5 index streams using mark-recapture data. The population estimate for Cattaraugus Creek was modeled due to insufficient recaptures of marked sea lamprey.
- Stream specific estimates from Big and Cattaraugus Creeks contributed most to the lake-wide index estimate in 2023 (37% and 38% respectively).

Lake Trout Marking and Relative Abundance:

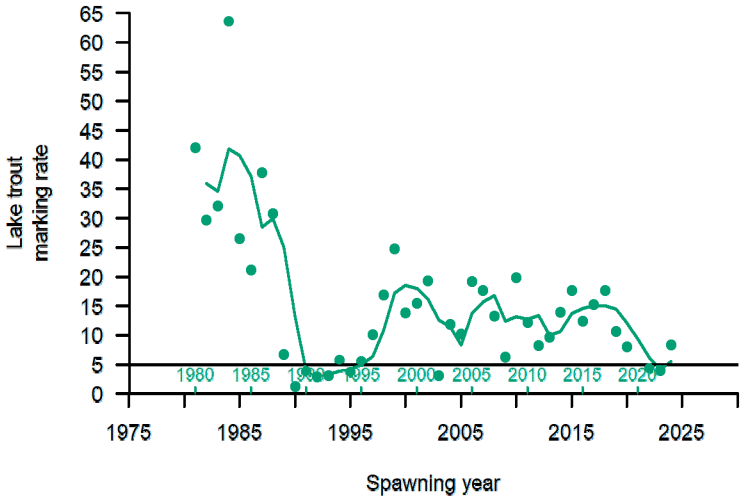

Figure 3. Number of A1-A3 marks per 100 lake trout > 532 mm from standardized assessments plotted against the sea lamprey spawning year, including the three-year moving average (line). The three-year (spawning years 2022-2024) average marking rate of 5.5 was above the target of 5 A1-A3 marks per 100 lake trout > 532 mm (horizontal line). A second x-axis shows the year the lake trout were surveyed.

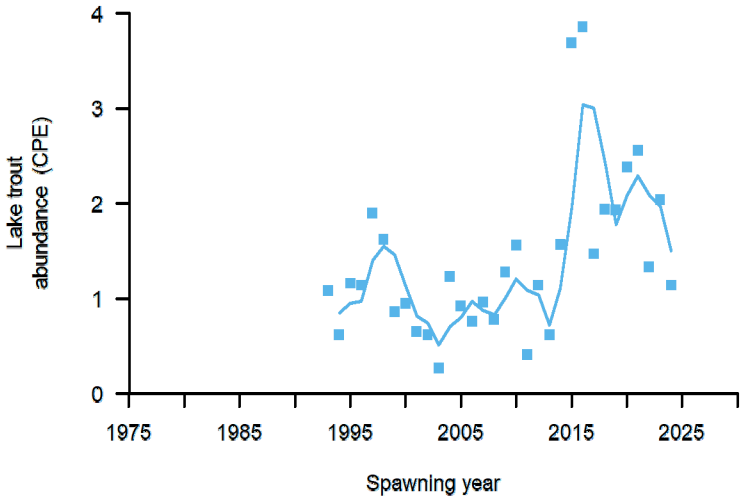

Figure 4. Lake trout relative abundance from standardized spring surveys plotted against sea lamprey spawning year, including the three-year moving average (line). CPE = number per lift of lean lake trout age-5 and older.

- Erie lake trout CPE has been highly variable over the last decade.

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

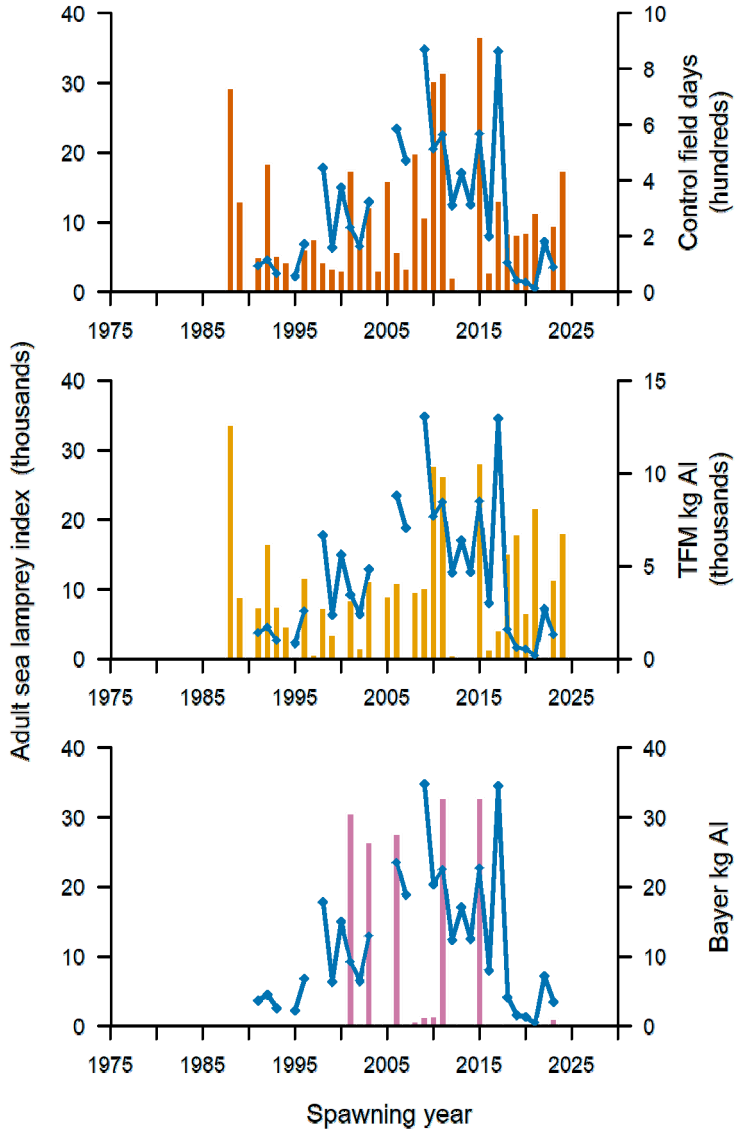

Figure 5. Index of adult sea lampreys (blue lines) and number of control field days (orange bars), TFM used (kg active ingredient; yellow bars), and Bayluscide used (kg active ingredient; purple bars). Field days, TFM, and Bayluscide are offset by 2 years (e.g., field days, TFM, and Bayluscide applied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

- No Lake Erie tributaries or lentic areas were treated with lampricides during 2023.