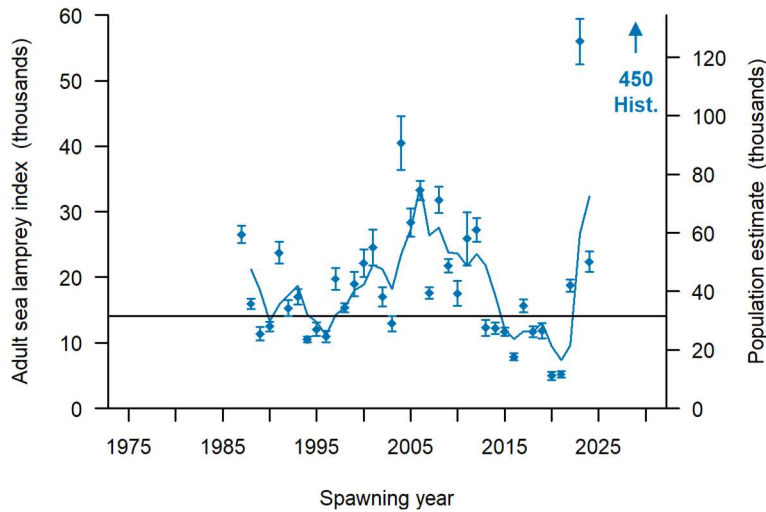
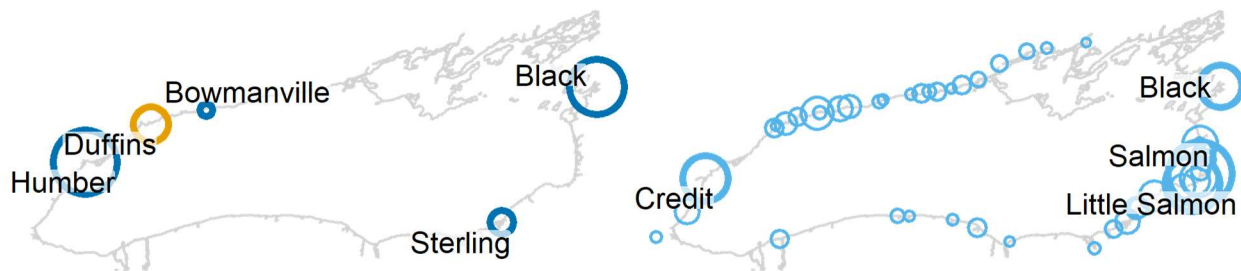


# STATUS OF SEA LAMPREY CONTROL IN LAKE ONTARIO

## Adult Sea Lamprey:



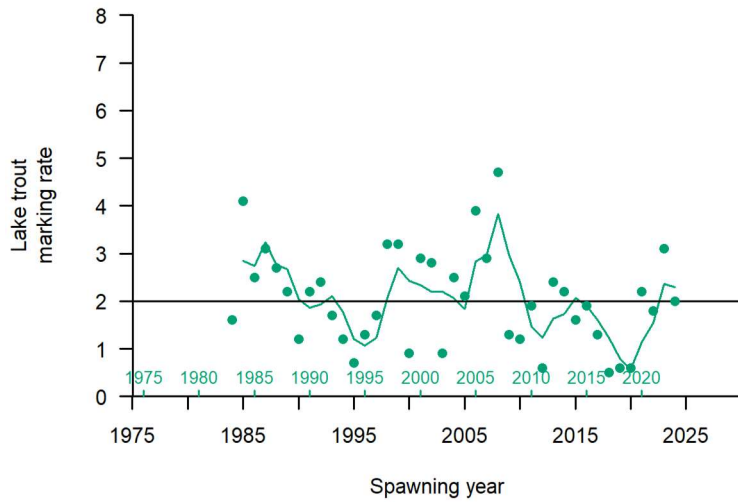
**Figure 1.** Index estimates with 95% confidence intervals (vertical bars) of adult sea lampreys, including historic pre-control abundance (as a population estimate) and the three-year moving average (line). The population estimate scale (right vertical axis) is based on the index-to-PE conversion factor of 2.24. The adult index in 2024 was 22,000 with 95% confidence interval (21,000-24,000). The three-year (2022-2024) average of 32,000 was above the target of 14,000. The index target was estimated as the mean of indices during a period with acceptable marking rates (1993-1997).



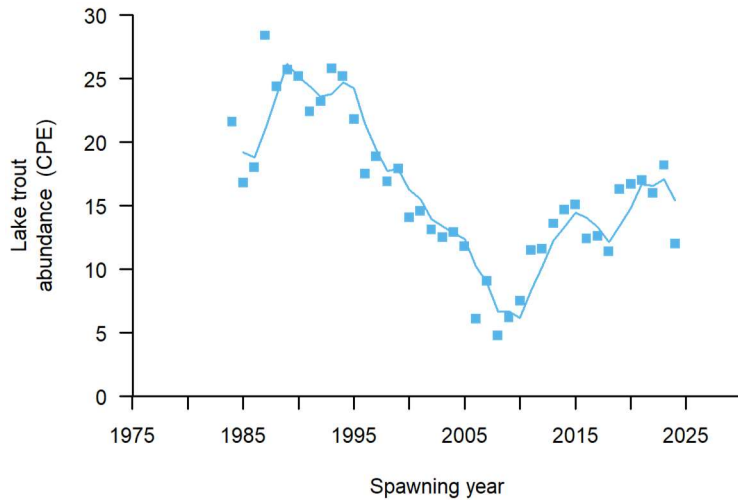
**Figure 2.** LEFT: Estimated index of adult sea lampreys during the spring spawning migration, 2024. Circle size corresponds to estimated number of adults from mark-recapture studies (blue) and model predictions (orange). All index streams are labelled. RIGHT: Maximum estimated number of larval sea lampreys in each stream surveyed during 1995-2012. Tributaries composing over half of the estimated maximum lake-wide larval population are identified (Salmon 1,400,000; Little Salmon 970,000; Credit 590,000; Black 470,000).

- Stream specific estimates from the Humber and Black Rivers contributed most to the lake-wide index estimate in 2024 (47% and 33% respectively).
- The population estimate for Duffins Creek was modeled due to insufficient recaptures of marked sea lampreys.
- A new producer was discovered near Port Hope, ON (Ganaraska River). This is a large river with a barrier near the mouth. The overall impact to the lake seems to be minimal given the low abundance of larval sea lamprey observed in assessment surveys.
- Sea lampreys were documented upstream of the sea lamprey barrier on Shelter Valley Creek.

**Lake Trout Marking and Relative Abundance:**



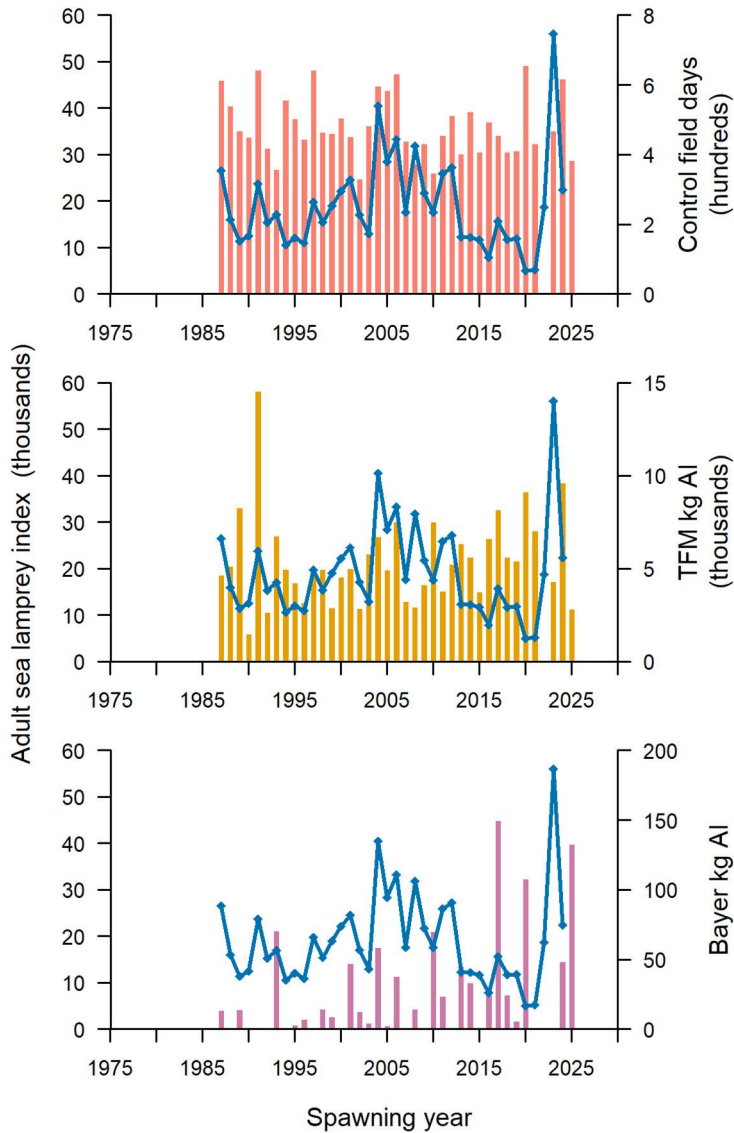
**Figure 3.** Number of A1 marks per 100 lake trout > 431 mm from standardized assessments plotted against the sea lamprey spawning year, including the three-year moving average (line). The three-year (spawning years 2022-2024) average marking rate of 2.3 was above the target of 2 A1 marks per 100 lake trout > 431 mm (horizontal line). A second x-axis shows the year the lake trout were surveyed.



**Figure 4.** Lake trout relative abundance plotted against sea lamprey spawning year, including the three-year moving average (line). CPE = fish/km/net night of lean lake trout > 431 mm (17") total length.

- Marking in Ontario returned to recent levels in 2023, and likely will lead to a decreased index in spring of 2024.
- Lake trout CPE has been relatively consistent 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 (salmon colored bars), TFM used (kg active ingredient; orange 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).