



New York's 2019 Lake Ontario Fisheries Program Highlights

The following information summary is preliminary and selective. Comprehensive, final results will be reported in the “2019 Annual Report of the Bureau of Fisheries Lake Ontario Unit and St. Lawrence River Unit to the Great Lakes Fishery Commission’s Lake Ontario Committee,” which will be posted at www.dec.ny.gov/outdoor/27068.html in spring 2020. Results reported below were generated through collaborative fisheries and ecosystem monitoring and research programs conducted by the NYS Department of Environmental Conservation (DEC), US Geological Survey (USGS), Ontario Ministry of Natural Resources and Forestry (OMNRF), US Fish and Wildlife Service (USFWS), and academic partners. For more information, contact:

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Sport Fishery Assessments

Lake Ontario Fishing Boat Survey

- Salmon and trout fishing on Lake Ontario was excellent again in 2019. After a record setting year in 2018, great fishing continued in 2019 with anglers catching an average of 4.0 salmon and trout per boat trip, the 5th highest catch rate recorded in the 35-year history of the survey (Figure 1).
- Much of the quality fishing in 2019 can be attributed to near-record Chinook salmon catches throughout the season and across all ports. Anglers caught an average of 2.8 Chinook salmon per boat trip, 76% above the previous ten-year average and ranked only second to the previous record high of 3.6 fish per boat trip set in 2018.
- Brown trout fishing success had its ups and downs in 2019, with total seasonal catch rates about 37% below the previous ten-year average. In April when anglers frequently target brown trout, catch rates were relatively good averaging 4.2 brown trout per boat trip, 25% above the previous 10-year average. From there, brown trout fishing declined and reached a record low for the month of June (96% below average). Although good Chinook salmon fishing may have diverted some anglers from targeting browns, anglers specifically targeting brown trout in June noted an unusual absence of fish. Brown trout catches recovered somewhat during the rest of the year with September catch rates about 28% above average.
- Good Chinook salmon fishing can also affect catch rates for other species like rainbow trout and lake trout because many Lake Ontario anglers prefer catching Chinook salmon, and catching these other species often requires different tackle and techniques. Although angler catch rates for rainbow trout and lake trout in 2019 were 42% and 30% below previous ten-year averages, respectively, the Salmon River creel survey indicated the 2nd highest catches on record for rainbow trout in 2018/19, and gillnetting index surveys for lake trout indicated relatively high abundance in 2019, suggesting that low catch rates in the lake are partly attributable to excellent Chinook salmon fishing.
- Atlantic salmon are a relatively minor component of the Lake Ontario fishery but add to the diversity of trophy salmon and trout available to anglers. Atlantic salmon fishing success in 2019 was excellent with the 2nd highest catch rate observed.
- Due in part to the cold and windy conditions in April and the extremely high-water levels experienced on

Lake Ontario in June and July, total fishing boat effort (46,309 trips) on Lake Ontario in 2019 was down about 18% relative to the previous 10-year average.

- Chinook salmon growth and condition are tracked each year to assess predator prey balance in Lake Ontario. In 2019, age-3 Chinook salmon dominated the harvest, making up about 60% of the total and leading to overall larger average size. However, the age-specific sizes of both age-2 and age-3 Chinook salmon were below average in 2019. Weight of age-3 Chinook salmon in August averaged 19.3 lbs, the third lowest in the time series, but increased 0.9 lbs above the near-record low observed in 2018. Average weight of age-2 Chinook salmon decreased to a record low of 9.4 lbs in 2019.

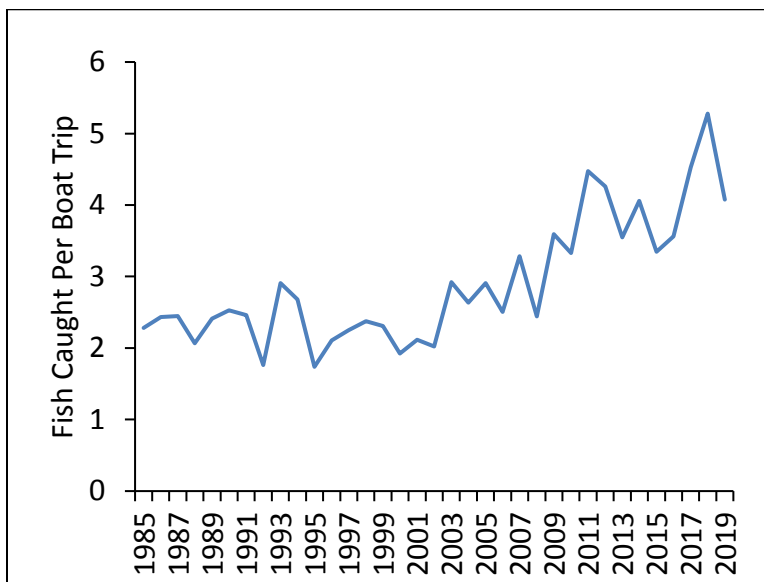


Figure 1. Average catch of salmon and trout per boat trip among fishing boats targeting trout and salmon, 1985-2019. The catch rate in 2019 was the 5th highest observed since 1985.

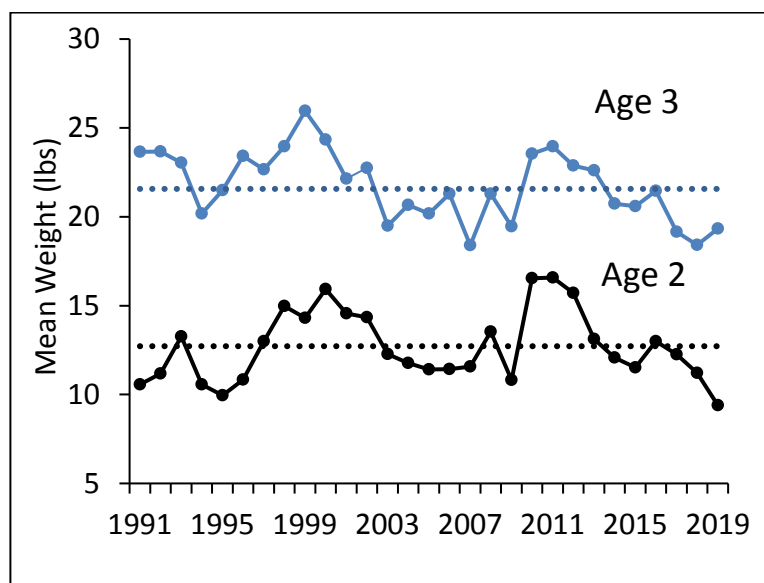


Figure 2. Average weight of age 2 and age-3 Chinook salmon in Lake Ontario 1991-2019. Dashed lines represent long-term averages. Both age-2 and age-3 Chinook salmon were either the lowest or among the lowest values observed since 1991.

Salmon River Angler Survey 2018-2019

- DEC conducted a survey of Salmon River anglers from September 2018 through mid-May 2019.
- Total estimated fishing effort during the survey was 135,788 angler trips totaling 840,258 angler hours, the second highest effort estimate on record (2011-12 survey had 1,077,316 angler hours).
- Chinook salmon were the most abundant species caught, with an estimated 83,481 fish caught and 34,123 harvested.
- Steelhead were the second most caught species with an estimated 41,582 fish caught and 5,043 harvested. The steelhead catch in 2018-2019 was the second highest on record (2011-2012 had 96,398).
- Estimated catch and harvest of coho salmon were relatively low at 6,171 and 3,366 fish, respectively.
- Relatively few brown trout and Atlantic salmon were caught in 2018-2019 (1,577 and 160 fish, respectively).

2019 Lake Ontario Stocking and 2020 Stocking Levels

- Fish stocking in the New York waters of Lake Ontario in 2019 included approximately 1,006,970 Chinook salmon, 254,416 coho salmon, 598,710 rainbow trout, 527,270 brown trout, 119,631 Atlantic salmon, 401,027 lake trout, and 112,155 walleye.
- A multi-agency, international effort to rehabilitate native coregonines (members of the whitefish family) in Lake Ontario continued in 2019 with the stocking of approximately 22,070 yearling and older bloater by the USGS and USFWS. Bloater are one of four extirpated species of deep water coregonines that once dominated Lake Ontario's forage base. USGS and USFWS are also conducting research on cisco, a shallow water coregonine, to determine the feasibility of stocking to experimentally re-establish cisco spawning in Sodus and Irondequoit Bays. In 2019, a total of 248,276 fall fingerling cisco were stocked in Sodus Bay.
- In response to concerns over ongoing declines in Lake Ontario's adult alewife population, DEC and OMNRF reduced Chinook salmon and lake trout stocking by an additional 20% to provide adult alewife additional relief from predation. More information is available in the 2019 alewife bottom trawl survey section below and here <http://www.dec.ny.gov/outdoor/111196.html>
- This is the third successive stocking reduction in Lake Ontario since 2017
 - 2017 – Chinook salmon and lake trout stocking was reduced by 20%
 - 2018 - Chinook salmon and lake trout stocking were maintained at 2017 levels
 - 2019 – Chinook salmon stocking was reduced by an additional 20%, while lake trout stocking was maintained at the 2017 level
 - 2020 – Chinook salmon stocking was reduced by 20% from the 2019 level, while lake trout stocking was reduced an additional 20% from the 2017 level
 - The 2020 DEC stocking target for Chinook salmon is 845,368 and the stocking target for lake trout is 320,000
 - Chinook salmon stocking will be concentrated at seven locations in 2020 and all Chinook salmon stocked by DEC will be pen-reared or held as Salmon River broodstock. More information on the 2020 Chinook salmon stocking strategy can be found at http://www.dec.ny.gov/docs/fish_marine_pdf/2020lakeontariochinookstock.pdf
- Lakewide salmon and trout stocking by DEC and OMNRF in Lake Ontario in 2020 will still exceed 3.6 million fish. These numbers do not consider wild Chinook salmon production and increased survival of pen-reared Chinook salmon. Given favorable wind and water temperature patterns, anglers should expect continued excellent fishing in 2020.

2019 Alewife Bottom Trawl Survey

- The Lake Ontario alewife population is assessed by the USGS, DEC, and OMNRF using a collaborative survey design that provides a whole lake estimate of alewife abundance and population structure. See [Weidel et al. 2019](#) for a more detailed report.
- The 2019 survey was the most extensive fish survey ever conducted on Lake Ontario with 252 bottom trawls

collecting 214,569 fish from 39 species, in main-lake and embayment habitats, at depths ranging from 5 to 225 meters (16.5 – 742.5 feet).

- Alewife distribution was similar in U.S. and Canadian portions of the lake, which differs from the previous three years of whole-lake surveys when alewife, in April, were more abundant in either U.S. (2017) or Canadian (2016, 2018) waters.
- The lake-wide average biomass index for adult alewife (age- 2+) in 2019 (27.7 kg/ha) declined 29% relative to 2018 (39.1 kg/ha). The lake-wide biomass index for age-1 alewife in 2019 (2.2 kg/ha) also declined relative to 2018 (2.6 kg/ha) and was the lowest age-1 biomass observed since whole-lake sampling began in 2016 (Figure 3).
- The current biomass, size structure, and age structure of the adult alewife population reflect the lower-than-average alewife reproductive success observed in the 2013- and 2014-year classes.
- Reproductive success was also lower than average in 2017 and 2018, suggesting the adult alewife biomass may continue to decline.

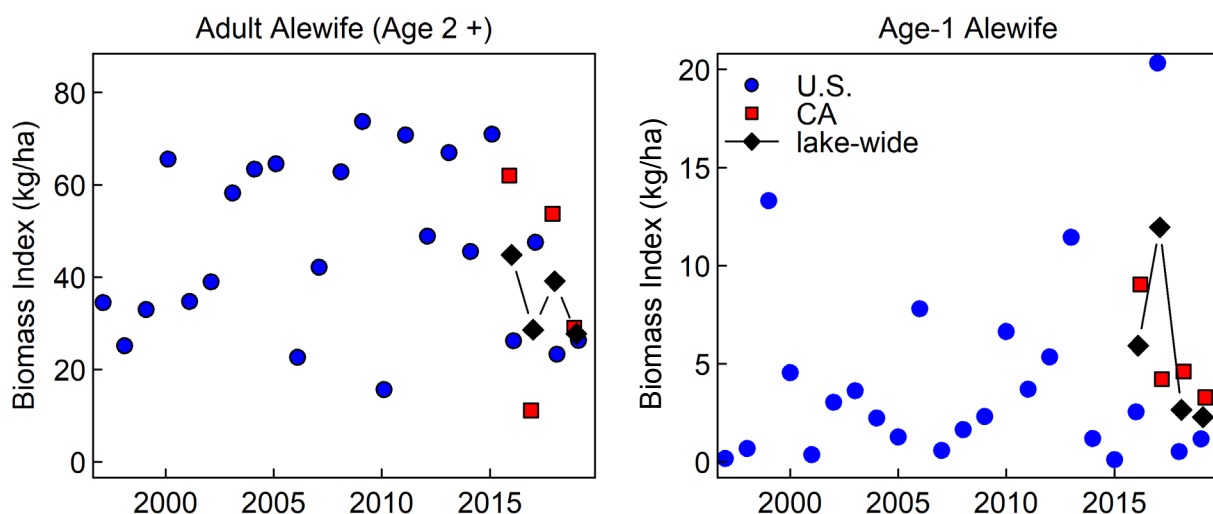


Figure 3. Lake Ontario average adult alewife (age-2+) biomass index (above left) and the average age-1 alewife biomass index (above right), 1997-2019. The blue dots represent estimates from U.S. waters, the red squares represent estimates from Canadian waters, and the black diamonds represent a lake-wide estimate. The term ‘index’ is used because trawl catchability is not accounted for in the estimates.

Growth of Trout and Salmon Measured at the Salmon River Hatchery

- The average weight of age-1 Chinook salmon males (jacks) sampled in 2019 was 2.9 pounds, the lowest value in the 1986-2019 time series.
- Average weights of age-2 and age-3 Chinook salmon measured at Salmon River Hatchery were all among the lowest values observed
 - Age-2 males were 10.9 pounds, 2.3 pounds below the long-term average
 - Age-2 females were 11.9 pounds, 2.5 pounds below the long-term average
 - Age-3 males were 13.4 pounds, over 5.2 pounds below average and the lowest value in the time series
 - Age-3 females were 15.7 pounds, 3.0 pounds below the long-term average, and the third lowest value in the time series
- The average weight of age-2 female coho salmon in 2019 was 5.5 pounds, approximately 2.7 pounds less than the long-term average and the lowest value observed in the time series. Age-2 males weighed 5.4 pounds, 2.6 pounds less than the long-term average and the second lowest value on record.

- The mean weight of age-3 steelhead males was 5.6 pounds (similar to the long-term average), while age-3 females averaged 7.5 pounds (1.2 pounds above average).
- The mean weight of age-4 steelhead males was 8.5 pounds (similar to the long-term average), while females averaged 8.6 pounds (0.4 pounds below average).

Chinook Salmon and Steelhead Pen-Rearing Projects

- 2019 was the 22nd year of volunteer-based pen-rearing projects for Chinook salmon and steelhead. Pen-rearing projects were initiated with the intent of improving survival and homing of pen-reared fish when compared to traditionally shore-stocked fish.
- DEC studies documented that Chinook salmon raised by sportsmen in net pens survive 2X better than traditional, direct-stocked fish, on average.
- Approximately 558,570 Chinook salmon fingerlings were reared at nine pen sites, comprising 55% of DEC's 2019 Chinook salmon stocking allotment.
- Approximately 52,500 Washington strain steelhead yearlings were reared at six sites, representing 10 % of DEC's 2019 steelhead stocking allotment.
- DEC provided premium fish food for all Chinook salmon and steelhead pen projects in 2019. Premium fish food should improve growth and condition of pen-reared fish thereby increasing post stocking survival. Beginning in 2020, the entire DEC hatchery system will use premium fish food.
- The pen-rearing program continues to be an extremely successful partnership between the DEC and volunteer angling groups and has significantly benefited the Lake Ontario fishery.

Salmon River Wild Young-of-Year (YOY) Chinook Salmon Seining Program

- Seining has been conducted annually since 2001 to track wild YOY Chinook salmon production in the Salmon River, the largest source of wild Chinook salmon in New York.
- The mean peak catch in 2019 was 850 YOY Chinook per seine haul, the third highest catch recorded in the survey.

Eastern Basin Warmwater Fish Assessment

- Since 1976, DEC has conducted an annual index gill net survey to evaluate the status of warmwater fish populations in Lake Ontario's Eastern Basin.
- Consistent with previous years, yellow perch (45% of total catch), smallmouth bass (19%), white perch (10%) and walleye (8%) dominated the total catch in 2019.
- Catches of smallmouth bass in 2019 were lower (-17%) than the previous 10-year average, but higher (26%) than the record low catches observed between 2000-2004, with 18% of smallmouth bass caught in 2019 weighing more than 4 pounds.
- Yellow perch catches in 2019 were above (28%) the previous 10-year average, with 40% of yellow perch caught ≥ 9 inches in total length.
- Walleye catches in 2019 were higher (36%) than the previous 10-year average, with an average weight of 5.9 pounds. We anticipate that the population will remain at current levels given strong reproduction in recent years (production of strong year classes).
- Lake sturgeon catches were extremely rare in this assessment prior to 1995; however, at least one lake sturgeon was collected in 19 of the last 25 years, suggesting improved population status. Three lake sturgeon were captured during the 2019 survey.

Sea Lamprey Control

- The index of spawning adult sea lamprey abundance in 2019 was 11,844 fish. The 2019 estimate and the 3-year average are both below the target of 15,502 spawning adults.
- Sea lamprey control agents from Fisheries and Oceans Canada, contractors for the Great Lakes Fishery

Commission, conducted sea lamprey control treatments in four tributaries in New York during 2019.

- An additional 22 NY tributaries were surveyed for the presence of larval sea lamprey, and post-treatment assessments were conducted in two NY tributaries.
- NY streams scheduled for sea lamprey treatments in 2020 include: South Sandy Creek, Little Sandy Creek, Salmon River, Snake Creek, Little Salmon River, and Ninemile Creek.