Inland Seas Angler

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Highlights of the Annual Lake Committee Meetings

Great Lakes Fishery Commission proceedings, Saulte Saint Marie, Ontario

This is the third report in a series of special reports is an extensive summary of Lake Ontario. These lake committee reports are from the annual Lake Committee meetings hosted by the Great Lakes Fishery Commission. We encourage reproduction with appropriate credit to the GLSFC and the agencies involved. Our thanks to the staffs of the GLFC, OMNR, USFWS, USGS, ILDNR, INDNR, MDNR, MNDNR, NYSDEC, PAFBC, ODNR, and WDNR for their contributions to these science documents.

Lake Ontario

Index of Reports

Abbreviation	Expansion
AC	Acoustic Survey
BT	Bottom Trawl
CPH	Catch per hectare
CWT	Coded Wire Tag
DEC	NY Dept. of Environment Conservation
DFO	Dept. of Fisheries and Oceans
NYSDEC	NY State DEC
OMNRF	ON Ministry Natural Resources, Forestry
SLCP	Sea Lamprey Control Program
USFWS	U.S. Fish and Wildlife Service
WTG	Walleye Task Group
YAO	Age 1 and older
YOY	Young of the year (age 0)

Lake Ontario April prey fish/Alewife assessment, 2024

The Lake Ontario April bottom trawl survey assesses pelagic prey fish populations, in particular Alewife, which are the primary prey supporting the lake's sport fish populations. The 2024 survey included 234 trawls in the main lake and embayments and sampled depths from 3.9 to 245 m (13 – 809 ft). The survey captured 441,942 fish from 28 species with a total weight of 10,519 kg (23,142 lbs.). Alewife were 89% of the total catch by number while Deepwater Sculpin, Round Goby, and Rainbow Smelt, comprised 4%, 3%, and 2% of the catch respectively.

The estimated Alewife biomass increases slightly from 2023 to 2024 (83.9 to 84.2 kg·ha) and was the largest biomass value since whole lake sampling began in 2016. Adult Alewife abundance increased in 2024 as predicted in 2023, and most of the total Alewife biomass was comprised of adult fish (97%), predominantly from the 2020 and 2022 year classes. In contrast, Age-1 Alewife biomass (2.2 kg·ha) was the lowest estimated since whole lake sampling began in 2016 (previous range: 2.7 – 26.7 kg·ha), indicating reproductive success was poor in 2023. Adult Alewife biomass is predicted to remain relatively high but decline slightly in 2025 and 2026, due to the smaller year classes produced in 2021 and 2023. Alewife condition as measured

by the weight of a standard length fish (165 mm; ~6.5 inches), was 32.8 g, which was within of the range of previously observed values (28.0 – 35.9 g, 1997 – 2023). Acoustic-based prey fish densities, in the water above the bottom trawl, were similar to observations from 2021 – 2023 and were orders of magnitude lower than bottom trawl densities. These acoustic results support the seasonal timing of the April survey, when the majority of Alewife and other pelagic prey fishes are near the lake bottom and susceptible to capture with bottom trawls.

The trawl survey also provides information on the status of other pelagic prey fishes and native fish restorations. In 2024, biomass indices for Rainbow Smelt, Emerald Shiner, and Threespine Stickleback, were similar to 2023 values while the index for Cisco declined.

The density index for naturally reproduced, juvenile Lake Trout declined relative to 2023. Density estimates of Lake Whitefish continue to be orders of magnitude lower in U.S. waters relative to Canadian waters. A single purported Bloater (total length = 148 mm, sampling depth = 105 m) was captured near Rochester, NY during the 2024 survey. This is the eighth Bloater recaptured during this survey since restoration stocking began in 2012.

The 2024 April bottom trawl survey included 234 trawls in main lake and embayment sites **(Fig.1),** at depths from 3.9 to 245.2 m (13 – 809 ft).

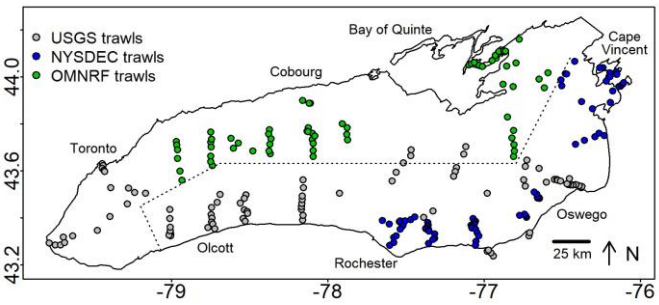


Fig 1. Lake Ontario bottom trawl sites from the 2024 multiagency April prey fish survey. The dotted line represents the U.S. – Canada border.

Alewife biomass, density, condition, and spatial distribution

From 2023 to 2024, Lake Ontario Alewife biomass increased slightly from 83.9 to 84.2 kg per hectare, however the density declined from 6795 to 3727 fish per hectare **(Fig. 3**). This density decline was due to a below average catch of Age-1 Alewife in 2024 **(Fig. 4**). The total Alewife biomass was primarily comprised of adult fish (97%), predominantly from the 2020 and 2022 year classes.

The total Alewife biomass estimate for 2024 is similar to previously observed high values in the modern time series (since 1997), however, it is important to recognize Lake Ontario Alewife biomass estimates were greater in the late 1970s through the early 1990s. In those years different studies reported Alewife biomass estimates as high as 182 kg·ha in 1989 or 280 kg·ha between 1987 – 1991. Estimating past Lake Ontario Alewife biomass values is complicated because the 1978 – 1996 surveys used a bottom trawl that underestimated biomass relative to the current trawl and in those years the survey only sampled U.S. waters. Biomass estimates vary based on analytical assumptions about trawl to trawl conversion factors and how estimates of Alewife biomass in U.S. waters represents Canadian waters. While Lake Ontario Alewife biomass has declined since the early 1990s, survey data from other Great Lakes indicates Lake Ontario supports the greatest Alewife biomass. In Lake Michigan, fall bottom trawl and summer hydroacoustic surveys estimated Alewife biomass ranged from near zero to 14 kg per hectare, from 1997 – 2023. During that same period similar surveys on Lake Huron estimated Alewife biomass from zero to 12 kg per hectare.

The biomass of adult Alewife, (Age-2 and older) increased from 2023 to 2024 as predicted in last year's report. Interestingly, the 2024 estimate for Age-1 Alewife (2.2 kg·ha) was the lowest value observed since whole lake sampling began in 2016 **(Fig. 4,** right panel, red points). Lower than average reproductive success is common in the Alewife time series. A recent analysis of Alewife populations in Lakes Ontario, Michigan, and Huron found the size of a year class was synchronized through time across the three lake populations suggesting climate is an important driver of Alewife reproductive success in the Great Lakes. That analysis found the annual differences in spring and summer water temperatures best explained annual variability in reproductive success across the three lakes (warmer spring water temperatures ~ better reproductive success).

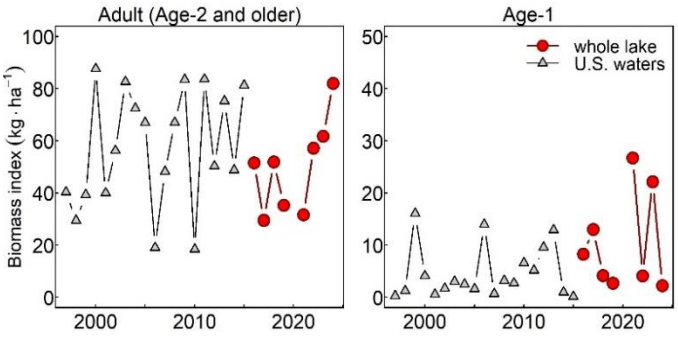


Fig 4. Alewife biomass indices for adults Age-2 and older (left) and Age-1 (right) from the April bottom trawl survey in Lake Ontario, 1997 – 2024. The Age-1 biomass value indexes the reproductive success of the Alewife population one year prior (i.e., high Age-1

Adult Alewife condition increased slightly in 2024 relative to 2023 and was near the middle of the range of values previously observed **(Fig. 5).** The condition of individual Alewife can be influenced by a suite of interacting factors including the previous year's condition, Alewife density, water temperature, and food availability. In general condition

increases when Alewife densities are lower, and condition decreases when Alewife density is higher. For instance, the abrupt decline in the index value at the beginning of the time series (1978 to the early 1980s) occurred while the population abundance increased.

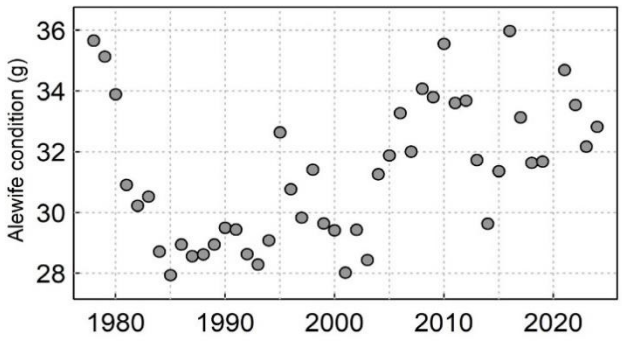


Fig 5 Alewife condition values as indexed by the predicted weight of a standard length (165 mm; ~6.5") Alewife in Lake Ontario from the April bottom trawl, 1978 – 2024. No survey was conducted in 2020. dramatically following a mass mortality event in 1976 – 1977.

How many prey fish were above the bottom trawls?

Acoustic estimates of prey fish densities in open water were hundreds to thousands of times lower than bottom trawl estimates (**Fig. 6**). The low acoustic densities, relative to trawl densities, indicate prey fishes in waters above the bottom trawl would have a minimal effect on whole lake biomass or density estimates. Incorporating acoustic sampling with bottom trawling helps characterize how prey fish habitat use varies and corroborates that most prey fishes are susceptible to the bottom trawl during the survey.

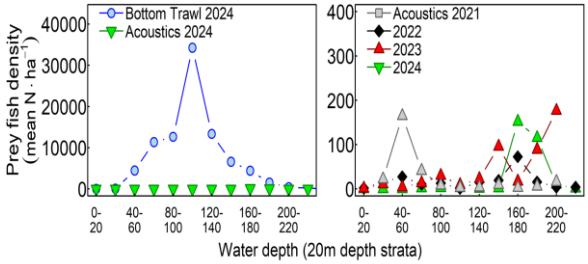


Fig 6. Mean prey fish density from bottom trawl and acoustics by depth in Lake Ontario, April 2024 (left panel) and acoustic densities relative to depth over differing years (right panel)29. Trawl densities represent the sum of Alewife and Rainbow Smelt. Note the vertical scales differ between the plots.

Pelagic fish biomass indices (non-Alewife)

The 2024 Rainbow Smelt, Emerald Shiner and Threespine Stickleback, biomass indices were similar to 2023, while the 2024 Cisco biomass index was lower than 2023 **(Fig. 7**).

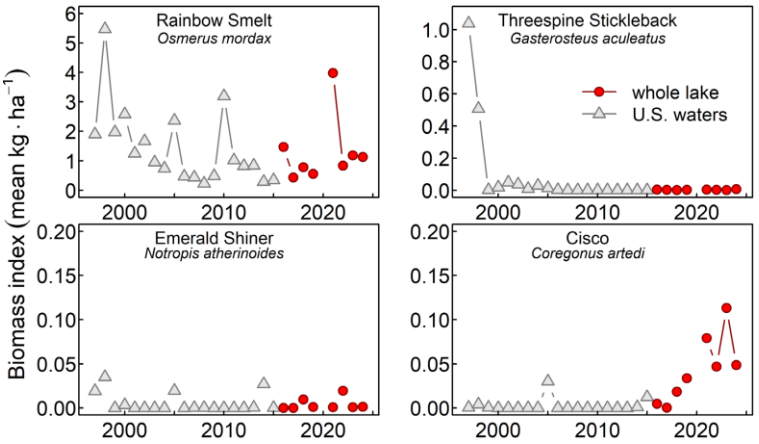


Fig 7. Biomass indices for Lake Ontario pelagic prey fishes from the April bottom trawl survey, 1997 – 202429. No survey was conducted in 2020. Note differing vertical scales on each of the panels.

Native species of interest – Bloater, Lake Whitefish, Lake Trout

Bloater – Bloater are a native pelagic prey fish that was historically abundant in Lake Ontario, was thought to be extirpated by the mid-1900s, and is currently being reintroduced. This species closely resembles Cisco, therefore identification is confirmed using genetic analyses of fin tissue. From 2015 – 2023 eight Bloater were captured during the April trawl survey. In 2024, a single purported Bloater (total length =148 mm; ~6 inches) was captured in a trawl near Rochester NY in approximately 105 m of water. Subsequent genetic analyses will confirm this identification.

Lake Whitefish –

Lake Whitefish are native to Lake Ontario and once supported important commercial fisheries, however, those catches have declined spatial coverage of the April survey provides a unique perspective for understanding Lake

Whitefish distribution and population status. Lake Whitefish are more regularly captured in Canadian waters near the Bay of Quinte, which accounts for the greater density estimates in the whole lake index relative to the index for the U.S. waters (**Fig. 8).**

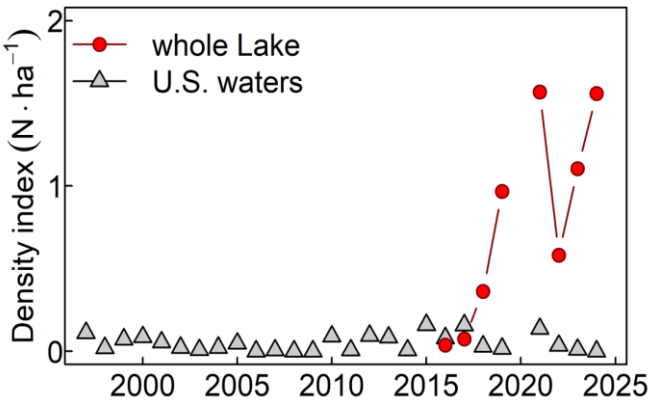


Fig 8. Density estimates for Lake Whitefish in Lake Ontario from the April bottom trawl survey, 1997 – 2024. No survey was conducted in 2020.

Lake Trout –
Lake Ontario Lake Trout restoration began in the 1970s and the lakewide sampling of the April trawl survey can help inform the restoration status, especially of juvenile Lake Trout. Catches of naturally reproduced or wild, juvenile Lake Trout (total length < 500 mm) were generally rare, but over the past 10 years these naturally reproduced fish have been encountered more frequently in trawls, especially in the Niagara River area (**Fig. 9**). The April survey results suggest wild juvenile Lake Trout are more frequently captured in U.S. waters relative to Canadian waters. Since 2016, 1.7% of trawls in Canadian waters (n =578) captured wild juvenile Lake Trout while in 6.4% of trawls in U.S. waters (n = 1214) captured wild juvenile Lake Trout**.**

One possible explanation is that in Canadian waters, rocky substrate in depths from 30 – 80 m prevent bottom trawling in some regions of the north shore, which may limit the trawl survey's ability to capture naturally reproduced Lake Trout in that region of Canada. Analyses on Lake Trout are included to support the Lake Ontario Lake Trout Working Group's research priorities related to naturally reproduced and stocked juvenile lake trout.

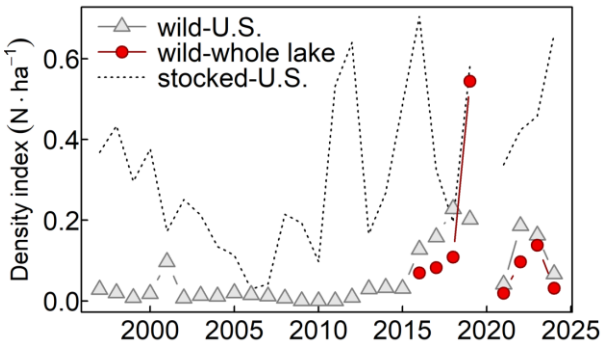


Fig 9. Density estimates for naturally reproduced (wild) and stocked juvenile Lake Trout (total length < 500 mm) in Lake Ontario from the April bottom trawl survey 1997 – 202331. No survey was conducted in 2020.

Lake Ontario Fishing Boat Survey Summary 2024

This report summarizes Lake Ontario fishing quality during 2024 and presents results in four lake management areas compared with averages from the previous ten years. According to anglers surveyed, highlights include:

• Chinook Salmon fishing was outstanding in 2024 with mean catch rates ranking the 2nd highest on record in 39 years of conducting the survey. From April-July, Chinook catch rates were nearly double the 10-year average in all four lake management areas. Although Chinook fishing cooled off in August and September due to unstable temperature and windy lake conditions, this fishing season will be recorded as one of the all-time best.

Chinook Salmon size has been trending lower recently, likely due to the high numbers of salmon and trout in the lake, however, mean weight of age-3 Chinook in August was still 19.2 lbs. with some fish weighing over 30 lbs. A trophy 37 lb. Chinook was caught in June.

• Brown Trout catch rates were 32% above the 10-year average for the whole season. In spring when browns are targeted most, catch rates in 2024 ranked the 8th highest in the series, with rates at- or above average in three of the four lake management areas.

• Coho Salmon are especially present in the west lake management area during spring and in the east lake management area during August and September. Catch rates for this species ranked 33% above the 10-year average in 2024.

• Atlantic Salmon are caught less frequently than other species; however, this native species adds to the amazing diversity of trophy salmon and trout available in Lake Ontario and provides a unique catch of a lifetime for lucky anglers. Catch rates for Atlantic salmon have increased in recent years and were 16% above average in 2024.

• Rainbow Trout and Lake Trout catch rates for were down in 2024; however, catch rates for these species can be affected by good Chinook fishing since they are targeted less when Kings are available. Steelhead catch rates were about average in the west lake management area where they are especially targeted by some anglers.

• Sea Lamprey are an invasive parasite that attaches to fish and can kill them or affect their growth. The number of sea lamprey observed by anglers increased slightly compared with 2023 but was well below the record levels seen in 2022.

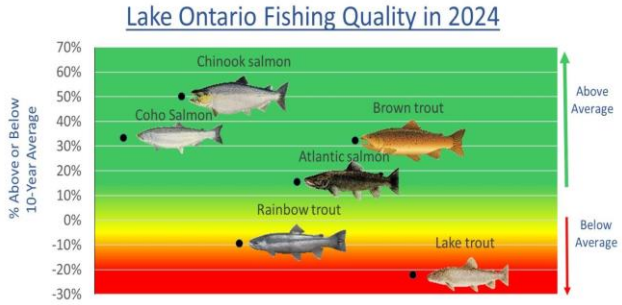


Fig 1. Summary of sportfishing quality for salmon and trout in New York waters of Lake Ontario in 2024.

Introduction

Lake Ontario provides anglers a diverse world-class trout and salmon fishery. The six salmonine species monitored in DEC's fishing boat survey are the most sought-after fish in Lake Ontario and provide anglers with exceptional fishing opportunities throughout the open lake season and in tributaries all year, bringing an estimated $564 million dollars annually to local economies.

The NYSDEC Lake Ontario Fishing Boat Survey has been conducted annually since 1985 to track angler effort, harvest, catch rate, fish size, lamprey abundance, and to collect other important information for management of the Lake Ontario fishery **(Fig 1**). In 2024, the Lake Ontario fishing boat survey was conducted at 20 channels from Niagara River to Henderson Harbor. From April 15-September 15, two survey teams conducted 226 site visits and interviewed 1,615 trout and salmon boats and 5,789 anglers; 40% were fishing on charter boats.

Chinook Growth and Condition

Chinook salmon is the top predator in Lake Ontario and their growth is sustained by sufficient prey fish in balance with predator fish populations. The weight of Age-3 Chinook in August is tracked as an indicator of predator/prey balance. Currently, populations of alewife, the main prey fish in Lake Ontario, are relatively high compared with recent years of monitoring (Weidel et al. 2024). Chinook populations are also relatively high as indicated by angler catch rates and river returns. As a result, the average size of age-3 Chinook in August 2024 was 19.2 lbs., which was 2.3 lbs. below the long-term average **(Fig 2**). Chinook weight increased by about ½ pound compared with 2023 and is currently 0.8 lbs. above the fisheries management objective of maintaining Chinook salmon weight at or above the level observed in 2007.

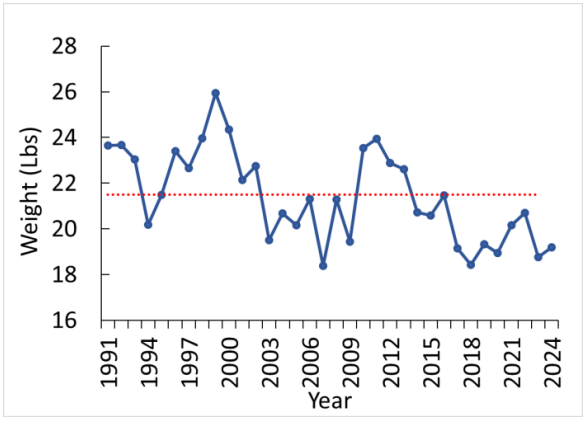


Fig 2. Average weight of age-3 Chinook in August from 1991-2024

Sea Lamprey Abundance

Sea lamprey is an invasive species of parasitic fish that attaches to fish and can kill them or affect their growth. During the boat survey, anglers are asked whether they observed any lamprey attached to fish during their fishing trip, and to which species the lampreys were attached. Fisheries managers track the number of lampreys observed per trout and salmon caught to inform sea lamprey control programs **(Fig 3).** In 2024, the number of sea lamprey per trout and salmon caught increased slightly compared to 2023 and was above the longterm average, however still well below the record high number of lampreys observed in 2022 associated with an interruption of the sea lamprey control program in 2020 due to COVID.

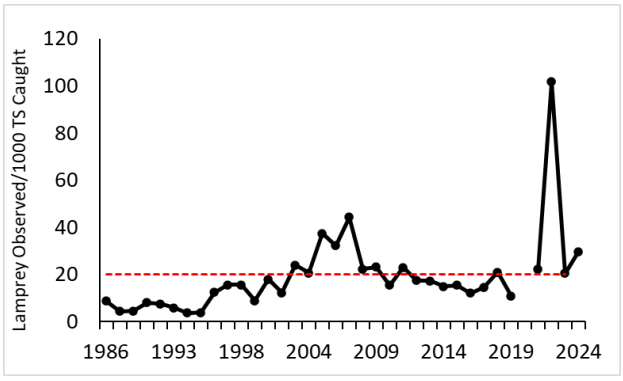


Fig 3. Number of sea lamprey observed per 1,000 salmon and trout caught.

Fishing Quality in 2024

Chinook salmon mean catch rates in 2024 were 50% above the recent 10-year average and ranked the 2nd highest on record in the 39-year survey. Lake-wide seasonal catch rates have been among the highest observed in six of the last seven years and are more than double the long-term average.

Brown trout are especially targeted by anglers in the spring and at other times in the season when Chinook salmon are not available. In spring 2024, mean catch rates for brown trout were 15% above the recent 10year average despite excellent Chinook fishing. In August, anglers targeted browns more due to windy conditions and lower Chinook catch rates, resulting in mean catch rates for browns that were almost double the recent 10-year average in that month. For the whole season, brown trout fishing quality ranked 7th overall and 32% above the 10-year average.

Lake trout provide reliable catches throughout the season and are often targeted by anglers when other preferred species are not available. In 2024 catch rates for lake trout were 23% below average, likely due to excellent Chinook fishing throughout most of the season.

Steelhead are typically caught offshore and are especially targeted by anglers in the west in summer but add to the diversity of species available at other times and areas throughout the lake. In 2024, steelhead catch rates in the west in June and July were equal to the 10-year average and 9% below average lake-wide.

Coho salmon are a smaller component of the NY Lake Ontario fishery, especially caught in the west in the spring and in the east in fall. In 2024, catch rates were below average in the west, but higher in summer and fall in other areas. Overall, coho catches were 33% above the 10-year average.

Atlantic Salmon are caught less frequently than other species; however, this native species adds to the amazing diversity of trophy salmon and trout available in Lake Ontario and provides a unique catch of a lifetime for lucky anglers. Catch rates for Atlantic salmon have increased in recent years and were 16% above average in 2024.

April/May Fishing Report

Chinook salmon fishing quality was outstanding in April-May 2024 with average or above average Chinook salmon catch rates in all lake management areas (**Fig 5).** In spring, Chinook salmon are usually concentrated in the west area, but in 2024, Chinook salmon were available in all lake management areas, with catch rates averaging 2-4 times higher than normal depending on the area, and some boats reporting catches as high as 30 Chinook salmon per trip. Although the spring started off hot for Chinook in the west area too, anglers reported that the annual transition period came early, and fishing quality cooled off in late May ultimately leading to average catch rates of 2.7 fish per boat trip for the spring period which is near the 10-year average there.

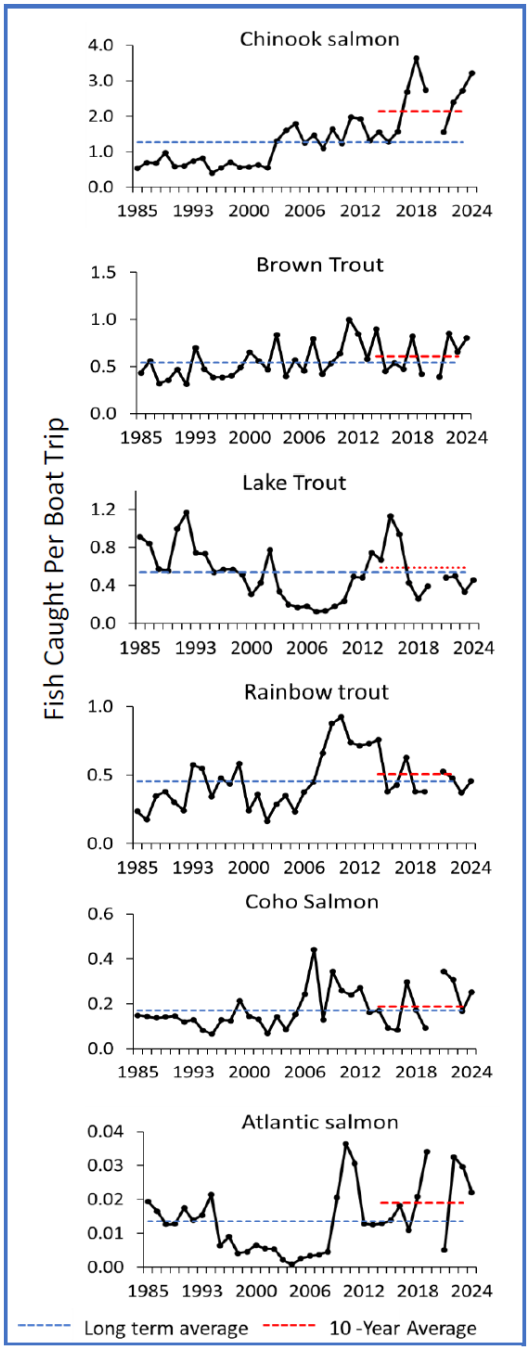


Fig 4. Fish caught per boat trip from 1985-2024 for six species of trout and salmon in NY waters of Lake Ontario.

Brown trout are typically targeted by anglers during spring in the nearshore in Lake Ontario, especially when Chinook are not available (Figure 4). In 2024, anglers got out early due to warm winter conditions and reported excellent brown fishing before the fishing boat survey began in April, and then may have targeted brown trout less in April and May due to excellent early Chinook fishing. Nonetheless, spring brown trout fishing quality in 2024 ranked 8th in the 39-year

survey overall. Some boats reported as many as 20 browns caught per trip with mean catch rates of about 2 fish per trip over all lake management areas and near or above the ten-year average in three of four lake management areas (Figure 5). Brown trout catch rates were down slightly in the west central area (by 16%) where Chinook fishing was exceptional.

Lake trout were the 3rd most frequently caught species in spring 2024. Catch rates were near the ten-year average in east central and east areas and below average in west and west central areas, roughly adding 1 fish per boat trip lake wide. For other species,

Coho salmon and Steelhead also contributed to catches in the spring, mostly in the west where Steelhead catch rates were slightly above average and Coho catch rates were slightly below average (**Fig 5**). Atlantic salmon catch rates in the spring were at- or above the ten-year average in all lake management areas and 32% above average lake-wide.

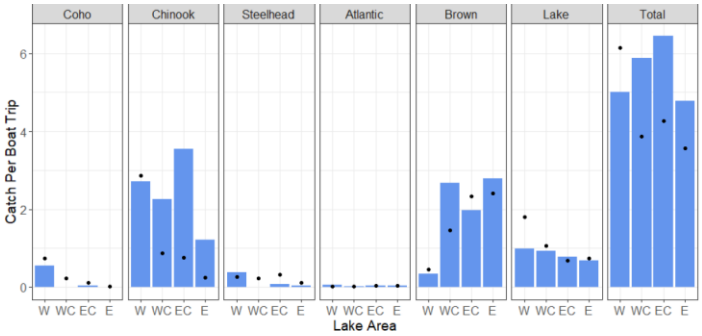


Fig 5. Average catch rate per boat trip for anglers targeting trout and salmon, April 15-May 31, 2024 (blue bars) compared with previous 10-year average catch rates (black dots) in four lake management areas of Lake Ontario including west (W), west central (WC), east central (EC) and east (E).

Lake management area	Number of Interviews	Percent of Trips with at least one fish	Catch Per Boat Trip						
			Coho Salmon	Chinook Salmon	Steelhead Trout	Atlantic Salmon	Brown Trout	Lake Trout	Total
West	159	77%	0.55	2.71	0.38	0.05	0.35	0.98	5.0
West Central	39	82%	0.00	2.26	0.00	0.03	2.67	0.92	5.9
East Central	100	81%	0.04	3.54	0.08	0.04	1.97	0.77	6.4
East	106	79%	0.00	1.22	0.03	0.05	2.79	0.69	4.8

West Lake Management Area (Niagara-Point Breeze): Although the spring started off hot for Chinook, some anglers reported that the annual transition period came early and fishing quality cooled off in late May, ultimately leading to average catch rates of 2.7 fish per boat trip for the whole period. For other species, catch rates for rainbow trout (up 43%) and especially Atlantic salmon (up 112%) were above the ten-year average. Brown trout and lake trout average catch rates were down in this lake area, but good fishing for Chinook came early in April which may have affected catch rates for these species (i.e., more anglers targeted and caught kings, rather than lakers and browns). Anglers caught at least one trout and salmon per trip in 77% of the boats interviewed.

West Central Management Area (Bald Eagle-Irondequoit): Catch rates for most species were above average in this area in April-May with a total trout and salmon catch rate of 5.9 fish per boat trip, about 52% above the 10 year-average. Catch rates were especially up for Chinook (by 161%), Atlantic salmon (by 68%) and brown trout (by 82%). Lake trout and steelhead catches were down slightly but these species are targeted less when fishing for other species is good. Anglers caught at least one trout or salmon in 82% of the boats interviewed.

East Central Management Area (Bear Creek-Oswego): Fishing quality for Chinook in this area was on fire, 368% above average! Typically, Chinook are concentrated in the west areas in spring and brown trout are heavily targeted in east lake areas, however in 2024, Chinook were all over the south shore, and anglers targeted browns less. Brown trout catch rates were down slightly in this lake management area (by 16%) compared to the ten-year average, along with Coho (down by 63%), and Atlantic salmon (by only 1%) but these two species are usually minor components of the fishery in this area in spring. Overall, 81% of boats interviewed caught at least one fish, and averaged 6.4 trout and salmon per trip which is 51% higher than the 10-year average.

East Management Area (Catfish Creek-Association Island, Henderson): Fishing quality for Chinook was also exceptional, with catch rates 410% above average! Catch rates for brown trout (up 16%) and Atlantic salmon (up 46%) were also relatively good. Overall, boats averaged 4.8 trout and salmon per trip, 8% better than the 10-year average. Anglers caught at least one trout or salmon in 79% of boats interviewed.

August/September Fishing Report

Windy conditions kept anglers off the water in August and September as fishing effort in these months dropped by about 38% compared to the recent 10-year average. Fishing quality for Chinook and other species also cooled off due to the windy conditions and unstable temperature profiles that scattered fish. Chinook salmon catch rates were below average by 11-56% depending on the lake management area (**Fig 7).** Chinook reportedly moved offshore when warm water piled up along the south shore and unfortunately, windy conditions and high waves prevented access at times.

Anglers kept close to shore and targeted lake trout and brown trout or other species instead. Brown trout catch rates were double the ten-year average in all lake management areas, and lake trout catch rates were 32100% above average in three areas. In the east area, anglers caught less lake trout per trip (down by 71%) but filled the box with more Coho (up by 61%) and in the west area, anglers caught more Steelhead (up 37%), Coho (up 41%), and Atlantic salmon (up by 120%) per trip.

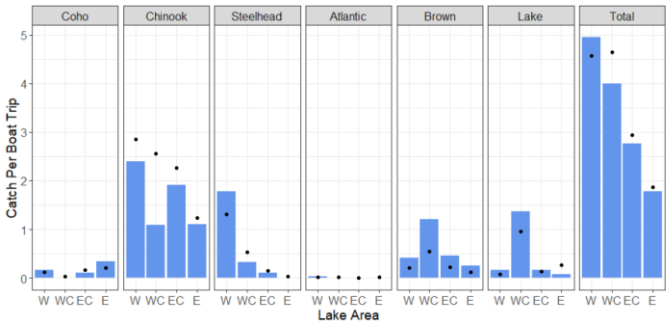


Fig 7. Average catch rate per boat trip for anglers targeting trout and salmon, August 1-September 15, 2024 (blue bars) compared with previous 10-year average catch rates (black dots) in four lake management areas of Lake Ontario including west (W), west central (WC), east central (EC) and east (E).

Lake management area	Number of Interviews	Percent of Trips with at least one fish	Catch Per Boat Trip						
			Coho Salmon	Chinook Salmon	Steelhead Trout	Atlantic Salmon	Brown Trout	Lake trout	Total
West	191	87%	0.16	2.40	1.79	0.03	0.41	0.16	4.9
West Central	43	60%	0.00	1.09	0.33	0.00	1.21	1.37	4.0
East Central	153	72%	0.10	1.92	0.10	0.01	0.46	0.17	2.8
East	232	55%	0.34	1.10	0.00	0.00	0.26	0.08	1.8

Cells highlighted in green are above average, yellow are near average, and red are below average.

West Lake management area (Niagara-Point Breeze): Chinook catch rates in this area were 16% below average, however, catch rates for other species were above average including Coho (by 41%), Steelhead (by 37%), brown trout (by 99%), and lake trout (by 100%) leading to catches of 4.9 trout and salmon per boat trip which was slightly above the 10-year average for this area in August/September . Anglers caught at least one trout and salmon per trip in 85% of the boats interviewed and reported a maximum of 28 total fish landed in a trip.

West Central Area (Bald Eagle-Irondequoit): Chinook catch rates in this area were 57% below average, however, anglers targeted brown trout and lake trout instead and catch rates for these species were 120% and 44% above average respectively. Anglers in the west central typically target these species more heavily than other lake management areas in these months . Steelhead apparently were either not available or not targeted offshore and catch rates for this species dropped 39% below the 10year average in this area. Overall, anglers managed to catch an average of 4.0 trout and salmon combined, which was slightly (14%) below the 10- year average. Anglers caught at least one trout and salmon in only 60% of the boats interviewed, (down from 74%) and interviewed boats reported as many as 14 total trout and salmon landed per trip.

East Central Area (Bear Creek-Oswego): Chinook reportedly moved way offshore in August in this area and were not accessible at times due to windy conditions. Chinook catch rates dropped by about 15% and like in other areas, some anglers made up for it with brown trout and lake trout. Catch rates for these species were 100% and 32% higher than average. Catch rates were lower than average for Coho (by 34%), Steelhead (by 27%), and Atlantic (by 24%). Anglers still managed to land an average of 2.8 salmon and trout per trip which is slightly below normal for this area. Anglers caught at least one trout and salmon in 74% of the boats interviewed with some boats reporting as many as 15 total fish landed in a trip.

East Area (Catfish Creek-Association Island, Henderson): Chinook catch rates were slowed by windy conditions and unstable temperature profiles in August scattering fish, and anglers focused mostly on brown trout and eventually Coho instead. In September, catch rates for both Chinook and Coho salmon picked up as fish began staging off the Salmon River and elsewhere. In total, Chinook catch rates were slightly below average (by 11%) for August/September but catch rates for Coho salmon (up by 61%) and brown trout (up by 123%) were above the ten-year averages. Anglers caught at least one trout and salmon in 55% of the boats interviewed with boats reporting a maximum of 40 total fish landed.

Crews begin removal of Invasive Sea Lampreys to Protect the $5.1 Billion Fishery

Ann Arbor, MI–The Sea Lamprey Control Program released its 2025 treatment schedule earlier this month. Field crews will begin conducting treatment activities at the end of April, starting on Lake Erie and Lake Ontario tributaries. Highly trained control crews from the U.S. Fish and Wildlife Service and Fisheries and Oceans Canada will remove invasive, predatory sea lampreys from tributaries of the Great Lakes throughout the United States and Canada. Depending on various environmental factors, crews are scheduled to conduct treatments through October of 2025. Landowners and the general public may encounter control agents along rivers and streams during treatment periods.

Sea lampreys—native to the Atlantic Ocean and invasive to the Great Lakes—are a highly destructive species that can decimate populations of native and desirable fish species in the Great Lakes, significantly harming both the ecosystem and economy of the region. Adult sea lampreys use rivers and creeks to spawn once and die. The offspring—larval sea lampreys—live in river bottoms as harmless larvae for several years before transforming into parasitic juveniles and migrating to the open lake to feed on the blood and bodily fluids of fish. Sea lampreys use their suction-cup mouth filled with sharp teeth and a rasping tongue to feed on a variety of Great Lakes fishes such as lake trout, walleye, salmon, yellow perch, whitefish, sturgeon, etc. Sea lampreys only feed for approximately 18 months of their life cycle, but each one is capable of killing up to 40 pounds (18kg) of fish during that time. Within a few decades of their invasion, sea lampreys had colonized all areas of the Great Lakes basin and caused major economic losses. They also contributed to significant ecosystem disruption.

The Sea Lamprey Control Program is a highly coordinated effort between the United States and Canada, after both countries signed the Convention on Great Lakes Fisheries, a treaty between the two nations, in 1955. TFM, the primary control tactic, was discovered in 1957 by scientists working at the U.S. Geological Survey's Hammond Bay Biological Station in northern Michigan. In addition to lampricides, the program uses traps and barriers to evaluate and control sea lamprey populations in the Great Lakes.

"Staffing challenges at the U.S. Fish and Wildlife Service have impacted our ability to launch the 2025 field season as planned," said Marc Gaden, the Commission's executive secretary. "Many concerned people in the region reached out to their representatives in Congress and expressed their strong support for sea lamprey control, and the response from the members was overwhelmingly positive. We are extremely grateful for the support, and we are cautiously optimistic that, because of that, the field season can commence."

"The U.S. Fish and Wildlife Service staff that comprise the U.S. side of the Sea Lamprey Control Program is a small but mighty force with approximately 85 full-time and 25 seasonal employees," said Ethan Baker, chair of the Commission. "Although we got a later-than-usual start preparing for the field season on the U.S. side of the border, I am confident those that have dedicated their career to protecting the $5.1 billion Great Lakes fishery are doing everything they can to make up for the lost time and are eager to get out in the field and get the job done."

While TFM is fully registered with the U.S. Environmental Protection Agency and Health Canada, and is considered safe, the public is advised to minimize unnecessary exposure, as they would with any pesticide. Lampricides are selectively toxic to lampreys, though some fish, plants, and insects may be sensitive. If baitfish or other organisms are confined in stream water, it is advised to use an alternate water source because lampricide may induce mortality of aquatic organisms that are crowded or handled. Agricultural irrigation must be suspended for 24 hours, during and following a treatment. Learn more about the application of lampricides here: https://www.glfc.org/pubs/factsheets/FACT%204A_HR.pdf.

Gaden concluded: "Sea lampreys destroyed the Great Lakes fishery after they invaded through shipping canals in the early part of the twentieth century. Over the course of the nearly 70 years that field crews have been applying lampricides, we have seen time and time again that if control is reduced, sea lamprey populations will rebound, fish will die, and the economy of the region will suffer. Sea lamprey control in the Great Lakes is essential, proven effective, and a clear example of the efficiency possible through effective partnerships."

Study finds Noxious Sea Lampreys Took Advantage of Covid-19 Pandemic

ANN ARBOR, MI—Travel restrictions associated with the COVID-19 pandemic caused a major pause in critical work to control destructive, invasive sea lampreys in the Great Lakes, resulting in two years of reduced control in 2020 and 2021. Scientists have analyzed this unprecedented situation to determine whether the pause had a meaningful effect on sea lamprey abundances and fish wounding. Their study, published in March in the journal Fisheries, concluded that sea lamprey numbers—and fish wounding— skyrocketed during the pause, demonstrating that ongoing control of this invasive species is critical to protecting Great Lakes fish and the valuable fisheries they support. Great Lakes fisheries generate $5.1 billion in economic output each year and directly support 35,000 jobs in addition to hundreds of thousands of jobs related to tourism, navigation, and more.

Sea lampreys are parasitic fish native to the Atlantic Ocean. Their populations spread into the Great Lakes in the mid-1800s and early 1900s, where they caused considerable harm to native fish, such as lake trout, whitefish, ciscoes, and walleye. Sea lampreys feed by suctioning onto fish, using their tongues to rasp a hole through the skin, and consuming the blood and juices that flow out. Each sea lamprey is capable of killing up to 40 pounds of fish during its parasitic stage. When populations peaked at nearly 2.5 million animals in the mid-1900s, sea lampreys were killing a staggering 100 million pounds of fish each year.

Science-based efforts to control Great Lakes sea lampreys began in the 1950s, eventually causing populations to plummet to only about 10% of their historic highs. Sea lamprey control is coordinated by the Great Lakes Fishery Commission in partnership with the U.S. Fish and Wildlife Service and Fisheries and Oceans Canada, with science support from the U.S. Geological Survey (USGS). The sea lamprey control program is considered one of the most cost-effective and successful invasive species suppression programs in the world and an essential component of protecting economically valuable Great Lakes fisheries.

But the COVID-19 pandemic threatened that success for two years.

With limitations on travel due to safety concerns in place during 2020-2021 for the primarily Michigan and Ontario-based control crews, control efforts were greatly reduced, particularly at the geographic extremes of Lake Ontario and Lake Superior. What followed was a unique situation that allowed scientists to answer key questions about Great Lakes sea lamprey control. Are invasive sea lampreys still a threat to Great Lakes fisheries? Is sea lamprey control still necessary to suppress their populations?

A team of fifteen scientists from six agencies found that the answer to both questions is a resounding "yes." The research team found that reductions in lampricide applications—a pesticide highly selective to lampreys—during 2020-2021 corresponded to a rapid increase in sea lamprey abundance. In Lake Ontario, sea lamprey population sizes increased over an order of magnitude (10x).

"Like a coiled spring, sea lamprey populations bounced back quickly when control was relaxed," said Dr. Ben Marcy-Quay, fish biologist with the U.S. Geological Survey, and lead author of the study.

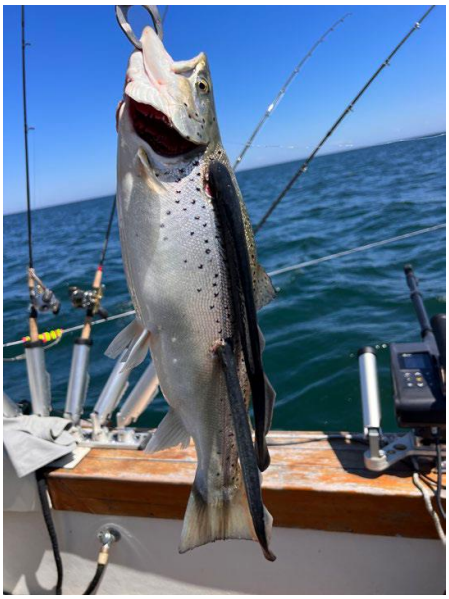
"We also looked at multiple fish species in Lake Ontario, including lake trout, Chinook salmon, coho salmon, and steelhead/rainbow trout, and found a substantially greater rate of sea lamprey wounds on fish following reduced treatment effort," continued Marcy-Quay. "Wounding on Chinook and coho salmon, specifically, increased over 10-fold. Our findings support observations by the fishing public and fishery managers of fish riddled with sea lamprey wounds, some containing three or more wounds per fish."

"When life gives you lemons, make lemonade," quipped Dr. Nick Johnson, research ecologist with the U.S. Geological Survey, and co-author on the study. "When the COVID-19 pandemic significantly reduced sea lamprey control for two years, our research team made the most of the situation by using it as an unplanned experiment to learn valuable information—nearly impossible to obtain otherwise—about the current impact of control on sea lamprey populations."
"Ongoing, consistent sea lamprey control is critically important for preventing damage to Great Lakes fish by invasive sea lampreys," explained the Hon. Ethan Baker, chair of the Great Lakes Fishery Commission and Mayor of the City of Troy, Michigan. "This research shows that sea lamprey control must continue each year to keep populations of this harmful invasive species in check. If we take our foot off the gas, even for a short while, sea lamprey populations will increase rapidly and cause considerable damage to fish."

Baker concluded, "Fishing is a way of life in the Great Lakes region. The health and happiness of millions of people are tied to the lakes. Sea lamprey control is critical to safeguard the prosperity of the region."

This research was conducted in collaboration by the U.S. Geological Survey, Fisheries and Oceans Canada, New York State Department of Environmental Conservation, U.S. Fish and Wildlife Service, Ontario Ministry of Natural Resources, and Great Lakes Fishery Commission.

Read the full study, "Sea lamprey control reduction during the COVID-19 pandemic corresponds to rapid increase in sea lamprey abundance," published in the journal Fisheries: https://doi.org/10.1093/fshmag/vuaf020.



The photo on the left shows a brown trout hanging from a pliers that has two parasitic sea lampreys attached to its side. The background shows the side of a boat, fishing poles, and a large body of water. The photo on the right shows a fish lying on the bottom of a boat with three parasitic sea lampreys attached and a fourth parasitic sea lamprey nearby.

Lake Ontario Salmon/Trout Stocking Strategy 2022 - 2026

The salmon and trout fishery in New York waters of Lake Ontario has been supported by stocking for over 40 years. Previous to this plan, the stocking allocations were prorated based on the amount of lake shoreline distance within each DEC Region. Allocating stocked fish based on shoreline length is problematic as it does not consider other factors that impact the success of the stocking program including angler preferences, fishing effort, and geographic and seasonal differences in fish distribution.

The number of salmon and trout that can be supported in Lake Ontario is driven by lake productivity and the abundance of available prey. Stocking more predators (salmon and trout) than the prey base can support can lead to reduced prey availability, smaller sized predators, and instability in the food web (Stewart et al. 2017, Tsehaye et al. 2014). The number of salmon and trout that are stocked into Lake Ontario each year must maintain effective balance between predator fish and prey fish. Salmon and trout stocking numbers in Lake Ontario are agreed upon each year by New York State and the Province of Ontario through the Great Lakes Fishery Commission's Lake Ontario Committee. The Lake Ontario Fish Community Objectives (Stewart et al. 2017) also state that each agency may not stock more that 5% over the agreed upon stocking target within a given year.

The stocking strategies provided herein are based on New York's Lake Ontario stocking allocations for each species as of 2022 (Table 1).

Table 1. New York's Lake Ontario stocking allocations in 2022.

Chinook salmon	895,600
Steelhead	505,200
Brown trout	480,000
Lake trout	320,000
Coho salmon	135,000
Atlantic salmon	150,000
Total	2,485,800

Description of the Lake Ontario fishery

The New York waters of Lake Ontario support one of the most popular recreational fisheries in the world, generating over 1.5 million angler days of fishing effort per year (NYSDEC 2019). The open lake fishery has been monitored annually since 1985 through the Lake Ontario fishing boat survey. Data from the open lake fishery are reported using four management areas **(Fig 1**; West, West Central, East

Central, and East). The tributary fishery has been monitored periodically (2005, 2006, 2011, 2015, and 2019) through the Lake Ontario tributary creel survey with data reported by individual tributary**).** Beginning in 2022 DEC plans to conduct an annual Lake Ontario creel survey that will cover both the open lake and tributary fisheries every year.

Lake Ontario fisheries management areas

West - Niagara River to Oak Orchard Creek
West Central - Bald Eagle Creek to Irondequoit Bay
East Central - Bear Creek to Oswego
East - Sunset Bay to Association Island Cut

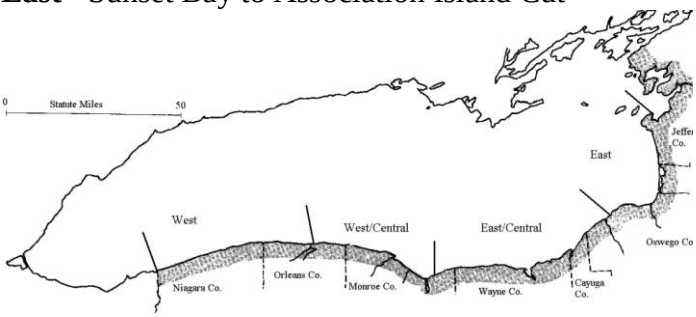


Fig 1. Lake Ontario fisheries management areas

Open lake fishery

Spring

In the early spring anglers tend to target brown trout in the nearshore waters of the lake in all management areas. As the season transitions from spring to summer the fishery begins to move offshore with anglers targeting Chinook salmon, coho salmon, steelhead, and lake trout. This transition is variable annually and geographically, with anglers in the western part of the lake typically transitioning to the offshore salmon and trout fishery earlier in the year and anglers in the eastern part of the lake tending to fish the nearshore areas for brown trout for an extended period.

Summer

By mid-summer the salmon and trout fishery has transitioned to the offshore in most of the lake. The distribution of the offshore fishery is heavily influenced by water temperature, wind, and current patterns and the locations of fish (and anglers) can vary substantially from one day to the next. As a result, anglers fishing out of all ports in Lake Ontario may target salmon and trout anywhere from the nearshore all the way out to the Canadian border in the middle of the lake.

Fall

Beginning in mid-August through September Chinook salmon and coho salmon begin moving toward, staging near, and eventually running up tributaries to spawn. The salmon fishery follows the congregation of fish and concentrates near major tributaries. The eastern half of the lake can experience large amounts of fishing effort during this time as many of the wild Chinook salmon in Lake Ontario are produced in the Salmon River and other tributaries in the eastern part of the lake. Many anglers also continue to fish the offshore areas of the lake during the fall targeting steelhead and immature salmon.

Tributary fishery

Fall

The fall tributary fishery primarily focuses on Chinook salmon and coho salmon. These fish begin to trickle into the tributaries by early September. The runs increase through September with a peak typically occurring in October. Chinook and coho salmon die after spawning and the salmon fishery is typically over by November. Steelhead and brown trout follow the salmon into the tributaries with catches of these species increasing through October and having a peak in November. The Salmon River and Oak Orchard Creek also provide a small Atlantic salmon fishery during the fall tributary season.

Winter

The number of brown trout caught in the tributaries typically declines beginning in late
December and stays lower through the winter compared to the numbers caught in October and November. Steelhead that return to tributaries in the fall typically remain in the stream throughout the winter and offer tributary angling opportunities all winter long.

Spring

Another group of steelhead typically move into the tributaries during March and April.
Steelhead spawn in late March through April and drop back out to the lake after spawning. The spring steelhead fishery winds down in most tributaries by the end of April but can continue well into May in the Salmon River and Niagara River.

Summer

Most Lake Ontario tributaries are too warm to support a summer salmon and trout fishery. However, the Salmon River provides a minor Atlantic salmon fishery during the summer months and has the potential to provide a larger fishery with improved returns of Atlantic salmon.

Chinook salmon stocking strategy

Chinook salmon stocking is concentrated at a small number of locations using higher numbers of stocked fish to maximize survival and provide improved staging fisheries.

Chinook salmon stocking allocations

Location	Management area	Number
Lower Niagara River	West	75,000
Eighteenmile Creek	West	111,400
Oak Orchard Creek	West	111,400
Genesee River	West central	111,400
Oswego River	East central	111,400
Salmon River	East	300,000

Black River	East	75,000
Total		895,600

Rationale

The Chinook salmon fishery has three distinct phases: the open lake mixed fishery, the staging fishery, and the tributary fishery. The open lake mixed fishery occurs from April – July when fish from all stocking and wild production sites are mixed in the lake. The staging fishery occurs during August and September as mature fish move toward/stage near, and ultimately return to their stocking or natal stream. The tributary fishery occurs when Chinook salmon run into Lake Ontario tributaries during September and October.

Coded wire tagging studies of stocked Chinook salmon indicate that stocking location does not influence where Chinook salmon are caught in the open lake mixed fishery and Chinook salmon from all stocking locations are mixed in the lake during April – July (Connerton et al. 2017). These studies also indicate that the staging and tributary fisheries are greatly influenced by stocking location. Chinook salmon return to tributaries to spawn and most Chinook salmon stocked in Lake Ontario return to the tributary where they were stocked, or to nearby tributaries. Straying to tributaries greater than 20 miles from the stocking location and straying back to the Salmon River Hatchery is generally low (Connerton et al. 2018).

Concentrating Chinook salmon stocking to a few locations with higher numbers of fish should provide improved staging and tributary fisheries at major fishing ports. Additionally, all stocked Chinook salmon will be pen-reared or Salmon River broodstock (which perform similarly to pen-reared fish). Maximizing pen-rearing should provide improved survival of stocked fish and improved fishing quality during all phases of the fishery.

Brown trout stocking strategy

Fisheries management philosophy

Brown trout provide the primary nearshore salmonine fishery in Lake Ontario, particularly during the spring, and are important in select tributaries.

Desired outcomes for brown trout stocking

1. Provide an early season, nearshore fishery, in all management areas.
2. Improve the catch rate of in the east lake area, while maintaining current catch rates in all other lake areas.
3. Maintain a reliable brown trout fishery in the open lake throughout the fishing season.
4. Enhance the fall/winter fishery on the Niagara Bar.
5. Provide a world class, destination, brown trout fishery in the lower Niagara River, Oak Orchard Creek, Sandy Creek (Monroe County), and Oswego River.
6. Provide opportunities to catch brown trout in other Lake Ontario tributaries.

General approach to brown trout stocking

Brown trout stocking allocations are designed to spread fish out along the lakeshore so they are available to anglers in all management areas, while providing higher numbers in the east management area, and near select tributaries.

Brown trout stocking allocations

Location	Management area	Number
Niagara River	West	35,000
Wilson	West	21,500
Olcott	West	21,500
Pt. Breeze	West	35,000
Hamlin Beach	West central	35,000
Braddocks Bay	West central	23,300
Rochester	West central	23,300
(Kodak)	West central	23,300
Irondequoit	West central	23,200
Webster	East central	20,600
Pultneyville	East central	27,600
Sodus Point	East central	31,000
Fair Haven	East central	35,000
Oswego	East	45,900
Mexico Point	East	10,000
South Sandy Creek	East	68,800
Stony Point		
Total		480,000

Rationale

Brown trout are an important component of the Lake Ontario fishery, throughout the fishing season, and in all management areas. They are often the primary species targeted during the spring fishing season (April/May), and the spring brown trout fishery is especially important to anglers with smaller boats who can take advantage of the nearshore fishery. Brown trout remain the primary species targeted in the east management area for a larger portion of the fishing season compared to other lake areas, primarily due to lower catch rates for Chinook salmon during spring and early summer. Brown trout are also a staple in the Lake Ontario tributary fishery. The brown trout tributary fishery provides anglers with a unique opportunity to catch trophy brown trout and anglers are drawn from around the world to Lake Ontario tributaries specifically to catch brown trout.

Stocking brown trout at ports spread out along the lakeshore, with higher numbers in the east lake area should provide anglers with a nearshore spring brown trout fishery in all management areas and an extended brown trout fishing season in the eastern part of the lake. Stocking higher numbers near the Niagara River, Oak Orchard Creek, Sandy

Creek, and the Oswego River should provide increased returns to these tributaries that will continue to support a world-class destination brown trout tributary fishery.

Steelhead stocking strategy

Steelhead provide the primary fishery in Lake Ontario tributaries and add to the diversity of species that can be caught in the Lake.

Desired outcomes for steelhead stocking

1. Provide sufficient adult returns to Salmon River Hatchery so that steelhead egg take targets can be met for all Lake Ontario and Lake Erie stocking sites.
2. Provide for season-long fisheries in large rivers that support steelhead fishing throughout the winter to maximize angling opportunity.
   a. Lower Niagara River
   b. Oak Orchard Creek
   c. Genesee River
   d. Oswego River
   e. Salmon River
   f. Black River
3. Maintain or improve steelhead fisheries in other Lake Ontario tributaries that have good public fishing access and significant fishing effort.

General approach to steelhead stocking

Steelhead stocking allocations were determined using a "Big Rivers" approach. This approach directs stocking toward developing major steelhead fisheries in large Lake Ontario tributaries, while continuing to provide steelhead fisheries in smaller streams. Lake Ontario tributaries within the two groups of streams (i.e., big rivers and smaller streams) were ranked according to public fishing access, fishing effort, steelhead catch rate, winter fishing opportunity, and increased use potential (**Tables 2 and 3**).

Rankings assigned for each category are a relative rank, 6 through 1for the big rivers with 6 being the highest and 11 through 1 for the smaller streams with 11 being the highest. Relative rankings compare each tributary to the other tributaries within the group, and a low rank does not necessarily mean that a specific tributary is 'poor' for that category, it only means that it ranks lower compared to the other tributaries. For example, the Black River was ranked as a 1 for shore fishing access (lowest rank). This does not mean that the Black River has poor shore access, the low ranking only indicates that the Black River has less public shore fishing access than the other tributaries within the big rivers group.

The rankings for each tributary were added together to come up with a total score for each tributary. For example, the Salmon River had rankings of 6, 5, 6, 2, 5, and 5. These rankings are added together for a total score of 29. Each tributary was then given a final ranking based on the total score and stocking allocations were set based on the final rankings.

Table 2. Lake Ontario tributaries in the "Big Rivers" group ranked according to steelhead fishing attributes.

Tributary	Shore access	Boat access	Fishing effort	Catch rate	Increased use potential	Winter fishing opportunity	Total score	Final rank
Niagara River	4	6	4	5	6	6	31	1
Salmon River	6	5	6	2	5	5	29	2
Oak Orchard Creek	3	1	5	4	2	3	18	3
Genesee River	5	2	2	6	1	2	18	4
Oswego River	2	4	3	1	4	4	18	5
Black River	1	3	1	3	3	1	12	6

Table 3. Lake Ontario tributaries in the "other streams" group ranked according to steelhead fishing attributes

Tributary	Shore access	Fishing effort	Catch rate	Winter fishing opportunity	Increased use potential	Score	Rank
Irondequoit creek	10	8	5	10	11	44	1
S Sandy Creek	11	7	7	8	10	43	2
N Sandy Creek	9	5	10	7	8	39	3
Eighteenmile Creek	1	11	9	11	7	39	4
Sandy Creek	5	9	6	9	9	38	5
Maxwell Creek	2	10	8	6	5	31	6
Johnson Creek	3	6	11	4	4	28	7
Grindstone Creek	8	1	3	5	6	23	8

Twelvemile Creek East Branch	7	4	2	3	2	18	9
Stony Creek	5	2	4	1	3	15	10
Twelvemile Creek West Branch	6	3	1	2	1	13	11

Steelhead stocking allocations

Big Rivers:

Location	Management area	Number
Salmon River	East	157,450
Niagara River	West	65,375
Oswego River	East central	35,000
Genesee River	West central	35,000
Oak Orchard Creek	West	35,000
Black River	East	35,000
Total		362,825

Other Lake Ontario tributaries:

Location	**Management area**	**#**
Irondequoit Creek	West central	25,500
South Sandy Creek	East	21,250
North Sandy Creek	East	21,250
Eighteenmile Creek	West	17,000
Sandy Creek	West central	17,000
Maxwell Creek	West central	12,750
Johnson Creek	West	6,375
Grindstone Creek	East	6,375
Twelvemile Creek E Branch	West	6,375
Stony Creek	East	4,250
Twelvemile Creek W Branch	West	4,250
Total		*142,375*

Rationale

Steelhead are primarily being managed to support a fishery in Lake Ontario tributaries. This allows for a more quantitative approach compared to other species that are primarily being managed for the open lake fishery, where fish often move from one area of the lake to another. The ranking system used for steelhead fishing streams allows for steelhead stocking allocations to be prioritized based on the ability of each tributary to support a steelhead fishery.

The big rivers approach was used because large Lake Ontario tributaries are more likely to stay ice free during winter and provide anglers the opportunity to fish for steelhead throughout the entire tributary fishing season. Large tributaries can also hold more adult fish and concentrating adult returns to large tributaries should provide more fish returning to the stream and sustain a high catch fishery for a longer period of time.

Coho salmon stocking strategy

Fisheries management philosophy

Coho salmon add to the diversity of species that can be caught in Lake Ontario and the tributaries.

General approach to coho salmon stocking

Coho salmon stocking will be done to improve the coho fishery, in both Lake Ontario and tributaries, to the maximum extent possible within the constraints of the hatchery system.

Desired outcomes for coho salmon stocking

1. Provide for sufficient adult returns to Salmon River Hatchery so egg take targets can be met for all stocking locations.
2. Provide anglers with the opportunity to catch a unique/different fish species in Lake Ontario.
3. Provide a tributary fishery for Coho salmon in select Lake Ontario tributaries, with special emphasis on tributaries with impassable barriers associated with public fishing access.

Coho salmon stocking allocations

Eighteenmile Creek	45,000
Salmon River	135,000

Rationale

Coho salmon have previously been stocked as spring yearlings at the Salmon River and as fall fingerlings at other locations. Results from a coho salmon coded wire tagging study indicate that spring yearling stocking provides improved returns compared to fall fingerlings (Connerton et al. 2022). Beginning in 2021 all coho salmon stocking will use spring yearlings. The maximum number of spring yearling coho that can currently be raised in the NYSDEC Hatchery System is 135,000. Coho salmon stocking allocations maintain 90,000 fish at Salmon River to support egg collections at Salmon River Hatchery. The remaining 45,000 are split evenly between Eighteenmile Creek and Oak Orchard Creek to determine if staging and tributary fisheries for coho salmon can be developed using spring yearling stocking. These streams were chosen because they have high fishing effort and impassable barriers relatively close to the stream mouth. Coho salmon run to the headwaters of tributaries very quickly and can move past public fishing locations before anglers have an opportunity to catch them. Placing emphasis on tributaries with impassable barriers will block coho salmon from upstream reaches and allow anglers to fish for them for an extended period.

Lake trout stocking strategy

Fisheries management philosophy

Lake trout will be managed to restore self-sustaining populations of an endemic deepwater predator for the purpose of ecological function and with the long-term goal of creating a sustainable fishery based on wild fish.

General approach to lake trout stocking

Lake trout stocking will be geared toward achieving restoration goals and objectives. Stocking will continue to focus on stocking spring yearling lake trout offshore using a landing craft. Stocking allocations will be set at 80,000 fish at each site to facilitate evaluation of survival to the adult stage. Coded wire tag lots are held in batches of 40,000 fish at Allegheny National Fish Hatchery and stocking 80,000 fish per site allows for two strains to be stocked at each site.

Lake trout stocking will use a rotational approach. Lake trout will be stocked at five locations in Lake Ontario but only four locations will be stocked each year. Stocking locations were set based on ports that are accessible by landing craft, areas where successful natural reproduction has been documented, and a desire to maintain an adult stock in all management areas.

Desired outcomes for lake trout stocking

1. Restore self-sustaining populations of lake trout in Lake Ontario
2. Provide for the primary coldwater fishery in Lake Ontario's eastern basin
3. Provide anglers with the opportunity to catch lake trout in all management areas 4. Provide a unique tributary fishery in the lower Niagara River

Lake trout stocking allocations

Lake trout will be stocked at Olcott, Oak Orchard, Sodus Point, Oswego, and Stony Point. Four locations will be stocked each year. Olcott and Stony point will be stocked every year. The other locations stocked in a given year are rotated through Oak Orchard, Sodus, Oswego and each of these locations are stocked in 2 out of every 3 years. For example:

- Year 1 = Olcott, Oak Orchard, Sodus, and Stony Point
- Year 2 = Olcott, Oak Orchard, Oswego, and Stony Point
- Year 3 = Olcott, Sodus, Oswego, and Stony Point

Rationale

The Niagara Bar is the most consistent producer of wild juvenile lake trout (Lantry et al. 2021). Stocking lake trout at Olcott every year should continue to provide an adult spawning population in this area. The Eastern Basin has several historic lake trout spawning areas and produced higher numbers of wild juvenile lake trout in the 1990s (Lantry et al. 2021). Continuing to stock lake trout at Stony Point every year should provide an adult spawning population near these historic spawning areas. Spreading the remaining stocked lake trout evenly across the other stocking locations should continue to provide an adult lake trout population in all management areas.

Summary of total salmon and trout stocking

Species	West	West Central	East Central	East	Total
Chinook Salmon	297,800	111,400	111,400	375,000	895,600
Steelhead	134,375	77,500	47,750	245,575	505,200
Brown trout	113,050	127,980	123,220	115,750	480,000
Coho Salmon	45,000	0	0	90,000	135,000
Lake trout	120,000	0	120,000	80,000	320,000
Atlantic Salmon	30,000	30,000	0	90,000	150,000
Total	740,225	346,880	402,370	996,325	2,485,800

Table 4. Number of salmon and trout stocked in Lake Ontario by lake management area

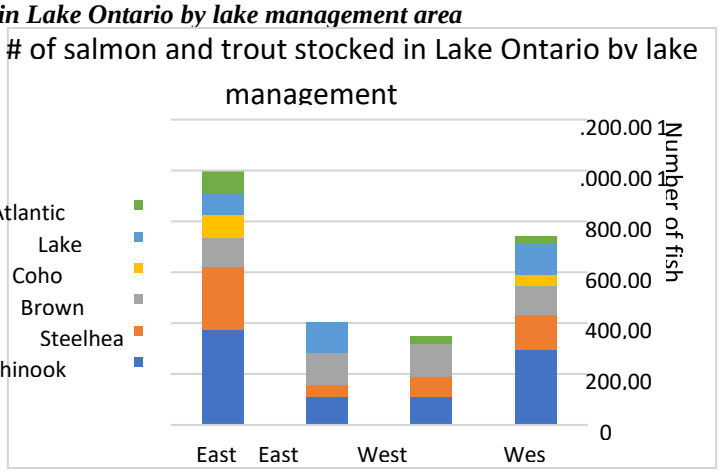


Fig 3. Number of salmon and trout stocked in Lake Ontario by lake management area

End