



Department of Environmental Conservation

Lake Ontario Salmon and Trout Stocking Strategy 2022 - 2026

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Lake Ontario Salmon and Trout Stocking Strategy 2022 - 2026

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Goal

Maximize the survival of stocked salmon and trout to provide optimal benefits to the open lake and tributary fisheries.

Need

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.

Scope

This plan provides a strategy for allocating stocked salmon and trout in Lake Ontario and its tributaries. Stocking allocations established in this plan are based on the 2022 total stocking cap for Lake Ontario. The total stocking cap is agreed upon by New York and Ontario annually, based on predator prey dynamics in Lake Ontario.

Guiding Principles

- Desired outcomes and the best available information will guide the development of stocking strategies.
- Decisions about how to allocate stocked fish will be blind to all administrative boundaries (e.g. DEC, county).
- Whenever possible, stocking policies should be modified to provide the greatest benefit to the overall fishery (i.e. considering the entire portfolio of species).
- Stocking allocations will not exceed the carrying capacity of the available forage based or the capacity of the hatchery system.
- Stocking strategies will be adaptive and will be updated based on new information.

Maintaining predator prey balance in Lake Ontario

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 withing a given year.

Lake Ontario stocking allocations

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 (Figure 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 (Figure 2.). 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

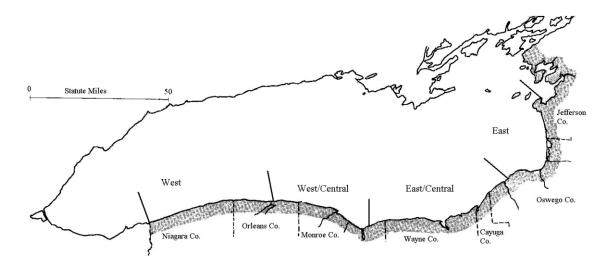
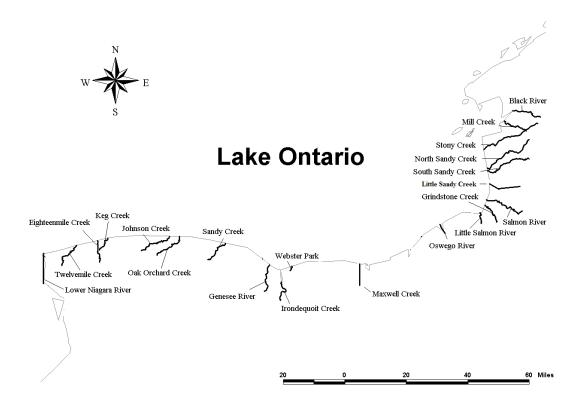
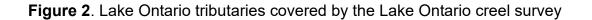


Figure 1. Lake Ontario fisheries management areas





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

Fisheries management philosophy

Chinook salmon provide the primary fishery in Lake Ontario and are an important component of the fall tributary fishery.

Desired outcomes for Chinook salmon stocking

- 1. Provide sufficient adult returns to Salmon River Hatchery so that Chinook salmon egg take targets can be met for all Lake Ontario stocking sites.
- 2. Provide a minimum of one staging and tributary fishery within each of the four Lake Ontario fisheries management areas.
 - a. West: Eighteenmile Creek (Olcott)
 - b. West Central: Genesee River
 - c. East Central: Oswego River
 - d. East: Salmon River
- 3. Provide additional staging and tributary fisheries at Niagara River, Oak Orchard Creek, and Black River.

General approach to Chinook salmon stocking

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

<u>Rationale</u>

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 brown trout 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 (Kodak)	West central	23,300
Irondequoit	West central	23,300
Webster	West central	23,200
Pultneyville	East central	20,600
Sodus Point	East central	27,600
Fair Haven	East central	31,000
Oswego	East central	35,000
Mexico Point	East	45,900
South Sandy Creek	East	10,000
Stony Point	East	68,800
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

Fisheries management philosophy

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 1 for 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
South Sandy Creek	11	7	7	8	10	43	2
North 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	Number
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 East Branch	West	6,375
Stony Creek	East	4,250
Twelvemile Creek West 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

Location	Management area	Number
Eighteenmile Creek	West	22,500
Oak Orchard Creek	West	22,500
Salmon River	East	90,000
Total		135,000

<u>Rationale</u>

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

Location	Management area	2022	2023	2024	2025	2026
Olcott	West	80,000	80,000	80,000	80,000	80,000
Oak Orchard	West	80,000	80,000	0	80,000	80,000
Sodus	East central	80,000	0	80,000	80,000	0
Oswego	East central	0	80,000	80,000	0	80,000
Stony Point	East	80,000	80,000	80,000	80,000	80,000
Total		320,000	320,000	320,000	320,000	320,000

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.

Atlantic salmon stocking strategy

Note: The strategy for Atlantic salmon is based on a draft fisheries management plan for Lake Ontario. This section of the stocking strategy will be revised if there are significant deviations between the draft plan and final plan.

Fisheries management philosophy

Atlantic salmon will be managed to provide for enhanced species diversity in Lake Ontario and the expansion of year-round tributary fishing in select Lake Ontario tributaries; where possible, taking advantage of opportunities for increasing natural reproduction to reestablish wild populations of this native species.

General approach to Atlantic salmon stocking

Atlantic salmon stocking is being done in an experimental fashion to determine the best methods and locations for providing adult returns to Lake Ontario tributaries. Atlantic salmon stocking will focus on spring yearlings, stocking fish close to the stream mouth, stocking fish at temperatures near 46-50 degrees F, experimenting with pen-rearing, and evaluating a new low thiamine tolerant strain of Atlantic salmon. More information about Atlantic salmon stocking evaluations can be found in the Lake Ontario Atlantic Salmon Fisheries Management Plan (NYSDEC in press).

Desired outcomes for Atlantic salmon stocking

- 1. Enhance the summer salmonine fishery in the Salmon River
- 2. Enhance the fall/winter tributary fishery in Oak Orchard Creek
- 3. Develop fall/winter tributary fisheries in Sandy Creek (Monroe County), and South Sandy Creek (Jefferson County)
- 4. Increase natural reproduction of Atlantic salmon in Lake Ontario tributaries, with emphasis on the Salmon River

Atlantic salmon stocking allocations

Location	Management area	Number
Oak Orchard Creek	West	30,000
Sandy Creek	West central	30,000
Salmon River	East	60,000
South Sandy Creek	East	30,000
Total		150,000

<u>Rationale</u>

Atlantic salmon are native to Lake Ontario and are not widely available in North America. Anglers have expressed a desire for enhanced opportunities to catch Atlantic Salmon, especially in Lake Ontario tributaries. The Salmon River is the premier Lake Ontario tributary fishery in New York and further development of the summer Atlantic Salmon fishery provides the potential for a destination fishery that is unique in the northeastern United States. The Salmon River system also has sufficient coolwater habitat during the summer months to support natural reproduction of Atlantic salmon.

Fall tributary fisheries for Atlantic salmon can be developed in streams that do not have sufficient cool water to support large summer returns (e.g. Oak Orchard Creek). DEC has stocked 20,000 Atlantic salmon smolts in Oak Orchard Creek for many years, and this tributary provides an increasingly popular fall Atlantic salmon fishery with increased catch rates in recent years (Prindle and Bishop 2021). Sandy Creek and South Sandy Creek are desirable waters for developing fall Atlantic Salmon fisheries. Both streams have good public fishing access and a history of supporting strong tributary fisheries for other salmonines. Chinook salmon stocking was also recently halted in both streams. This is likely to result in smaller runs of Chinook salmon and tributary fisheries that are more dependent on steelhead and brown trout. Adding Atlantic salmon to these tributaries should provide additional angling opportunities and the lower returns of Chinook salmon may result in higher fishing quality for Atlantic salmon due to less competition with Chinook salmon for available in stream habitat.

Summary of total salmon and trout stocking

The following table and figures, and Appendix A, summarize the combined stocking of all species of salmon and trout in Lake Ontario.

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

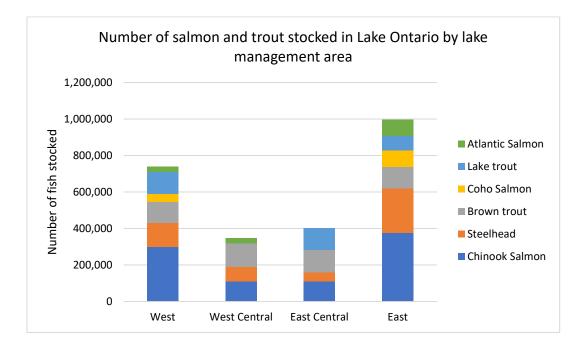


Figure 3. Number of salmon and trout stocked in Lake Ontario by lake management area

Literature Cited

Connerton, M.J., S.P Prindle, R. Moore, C. Lake and M. Yuille. 2022. The Relative Survival of Stocked Fall Fingerling vs Spring Yearling Coho Salmon, and Proportions of Wild Coho Salmon in Lake Ontario. Section 3 *in* NYSDEC 2021 Annual Report, Bureau of Fisheries, Lake Ontario Unit and St. Lawrence River Unit to the Great Lake Fishery Commission's Lake Ontario Committee.

Connerton, M.J., C.J. Balk, S.E. Prindle, J.R. Lantry, J.N. Bowlby, M. Yuille, C.R. Bronte and M.E. Holey. 2017. Relative Survival and Imprinting of Pen and Direct-stocked Chinook Salmon in Lake Ontario. Section 3 *In* 2017 Annual Report, Bureau of Fisheries Lake Ontario Unit and St Lawrence River Unit to the Great Lakes Fisheries Commission's Lake Ontario Committee. March 2017. NYSDEC, Albany, NY.

Connerton, M.J., S.E. Prindle, J.R. Lantry,, and C.R. Bronte. 2018. Relative Straying of Penreared and Direct-stocked Chinook Salmon in Lake Ontario. Section 3 *In* 2018 Annual Report, Bureau of Fisheries Lake Ontario Unit and St Lawrence River Unit to the Great Lakes Fisheries Commission's Lake Ontario Committee. March 2018. NYSDEC, Albany, NY.

Lantry, B.F., B. C. Weidel, S. Minihkeim, M. J. Connerton, J. A. Goretzke, D. Gorsky, and C. Osborne. Lake Trout (*Salvelinus namaycush*) Rehabilitation in Lake Ontario, 2021. Section 4 *In* 2020 Annual Report, Bureau of Fisheries Lake Ontario Unit and St Lawrence River Unit to

the Great Lakes Fisheries Commission's Lake Ontario Committee. March 2020. NYSDEC, Albany, NY

NYSDEC. 2019. New York Angler Effort and Expenditures in 2017. https://www.dec.ny.gov/docs/fish_marine_pdf/nyas17rpt1.pdf

Prindle, S.E. and D. Bishop. 2021. Lake Ontario Tributary Creel Survey Fall 2019 – Spring 2020. Section 11 *In* 2020 Annual Report, Bureau of Fisheries Lake Ontario Unit and St Lawrence River Unit to the Great Lakes Fisheries Commission's Lake Ontario Committee. March 2020. NYSDEC, Albany, NY

Stewart, T.J., Todd, A., and LaPan, S. 2017. Fish community objectives for Lake Ontario. Available from: www.glfc.org/pubs/FisheryMgmtDocs/Fmd17-01.pdf

Tsehaye, I., M. L. Jones, T. O. Brenden, J. R. Bence, and R. M. Claramunt. 2014. Changes in the Salmonine Community of Lake Michigan and Their Implications for Predator–Prey Balance. Transactions of the American Fisheries Society. 143:2, 420-437. DOI: 10.1080/00028487.2013.862176

Appendix A

Location	Chinook salmon	Brown trout	Steelhead	Lake trout	Coho salmon	Atlantic salmon	Total
Niagara River	75,000	35,000	65,375	0	0	0	175,375
Wilson	0	21,500	6,375	0	0	0	27,875
Twelvemile Creek West Branch	0	0	4,250	0	0	0	4,250
Olcott	111,400	21,500	17,000	80,000	22,500	0	252,400
Johnson Creek	0	0	6,375	0	0	0	6,375
Oak Orchard Creek	111,400	35,000	35,000	80,000*	22,500	30,000	313,900
Hamlin Beach	0	35,000	0	0	0	0	35,000
Sandy Creek	0	0	17,000	0	0	30,000	47,000
Braddocks Bay	0	23,300	0	0	0	0	23,300
Genesee River	111,400	0	35,000	0	0	0	146,400
Rochester	0	23,300	0	0	0	0	23,300
Irondequoit	0	23,300	0	0	0	0	23,300
Irondequoit Creek	0	0	25,500	0	0	0	25,500
Webster	0	23,200	0	0	0	0	23,200
Pultneyville	0	20,600	0	0	0	0	20,600
Maxwell Creek	0	0	12,750	0	0	0	12,750
Sodus Point	0	27,600	0	80,000*	0	0	107,600
Fairhaven	0	31,000	0	0	0	0	31,000
Oswego	111,400	35,000	35,000	80,000*	0	0	261,400
Mexico Point	0	45,900	0	0	0	0	45,900
Grindstone Creek	0	0	6,375	0	0	0	6,375
Salmon River	300,000	0	157,450	0	90,000	60,000	607,450
South Sandy Creek	0	10,000	21,250	0	0	30,000	61,250
North Sandy Creek	0	0	21,250	0	0	0	21,250
Stony Creek	0	0	4,250	0	0	0	4,250
Stony Point	0	68,800	0	80,000	0	0	148,800
Sacket's Harbor	75,000	0	35,000	0	0	0	110,000

* Lake trout stocking occurs in 2 out of every 3 years at Oak Orchard Creek, Sodus Point, and Oswego