Inland Seas Angler

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Scientists warn of invasive pinks rapid spread in U.S. waters and ability to adapt

Pink salmon were accidentally introduced to the Great Lakes in the 1950s and have since spread to all five lakes. Researchers are studying their adaptability to predict how they might impact Arctic and North Atlantic ecosystems.

A species of salmon accidentally introduced into the Great Lakes nearly 70 years ago could offer scientists an important preview of what's ahead as the fish rapidly spreads across the Arctic and North Atlantic oceans.

According to a press release from the [National Oceanic and Atmospheric Administration] (NOAA), a study published in the journal *[Fish and Fisheries]* on Sunday, April 26, shows how scientists are studying the rise of invasive pink salmon (*Oncorhynchus gorbuscha*) in the Great Lakes to better understand how the species may affect marine ecosystems and fishing communities worldwide.

Pink salmon are native to the Pacific Ocean, but were accidentally introduced into Lake Superior in 1956 after excess juvenile fish tied to a Hudson Bay stocking project were unintentionally released into nearby waterways. Over the following decades, the species spread throughout all five Great Lakes: Erie, Huron, Michigan, Ontario, and Superior.

Now, researchers say the fish is showing up in growing numbers in the Arctic and North Atlantic, where communities are increasingly concerned about its impact on native species and fisheries.

“We are only beginning to understand the impacts of pink salmon on Arctic and North Atlantic ecosystems," Joseph Langan, lead author of the study and a fish biologist with NOAA's Great Lakes Environmental Research Laboratory, said in the release. "We know that they could have significant effects on those who fish for other species, fishery managers, and coastal communities.”

Langan said the Great Lakes effectively serve as a smaller-scale "natural laboratory" that could help scientists predict what may happen in much larger ecosystems. One reason researchers are paying close attention

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DNR monitoring apparent natural die-off of silver carp on the Illinois River

The Illinois DNR is monitoring an extensive silver carp fish die-off in the Peoria pool of the Illinois River between roughly Henry and Peoria.

IDNR fisheries biologists believe the incident is naturally occurring, caused by spawning stress and rapid water chemistry changes from recent rain. No evidence of chemical contamination or pollution was observed, and no native fish species or other aquatic organisms were affected. It's unknown how many silver carp died as a result.

Silver carp are a species of invasive carp found in Illinois waterways. Invasive carp, including silver and bighead, typically spawn during periods of rising river levels and increasing water temperatures—both of which central Illinois has experienced recently.

"These environmental cues trigger spawning activity, often resulting in large numbers of fish moving and spawning at the same time," said IDNR fisheries chief Michael McClelland. "Spawning requires a significant amount of energy and can place considerable physiological stress on fish."

Deceased fish continue to flow downstream to other areas of the river. People who live near the river or recreate on it may notice unpleasant odors near affected areas as deceased fish decompose. These odors are expected following a fish mortality event and do not necessarily indicate an ongoing water quality problem. The smell should gradually diminish as river conditions improve and natural decomposetion processes run their course.

Agency staff continue to monitor river conditions and collect information from affected areas. Anyone who notices numerous dead fish of the same species in the same Illinois waterway can report a possible fish die-off to IDNR at dnr.fisheries@illinois.gov. ✧

Wisconsinites invited to participate in WCC resolution process

Submit Proposed Resolutions Starting Aug. 1

MADISON, Wis. – The Wisconsin Conservation Congress (WCC) invites Wisconsinites to submit proposed resolutions for the 2027 Spring Hearings.

The WCC is an independent organization of residents that advises the Wisconsin Natural Resources Board and the Wisconsin DNR on how to responsibly manage Wisconsin's natural resources.

Each year, Wisconsin residents have an opportunity to submit ideas as resolutions to the WCC.

Wisconsinites can submit proposed resolutions via the online process starting on **Saturday, Aug. 1, 2026**. Resolutions must meet the following criteria:

1. The concern must be of statewide impact.
2. The concern must be practical, achievable and reasonable.
3. The concern must be within the mission and vision of the WCC.

An individual resident may submit no more than two resolutions per year. Those interested in submitting a resolution are encouraged to reach out to the resolution review committee or their WCC County Chair for guidance in drafting a resolution.

The review committee contact information and additional tips on preparing a resolution are available on the WCC and DNR's Spring Hearings webpage.

Resolutions will be accepted until midnight February. 8, 2027. Once the submission period closes, the resolutions will be reviewed by a committee of WCC delegates to ensure they meet the criteria for inclusion and prepared for online input, starting at 6 p.m. April 12 and will close at midnight on April 14.

For more info/questions contact Paul Reith, Chair of the Wisconsin Conservation Congress, at 608-616-0808. ✧

Position Statement

Representing a major interest in the aquatic resources of the Great Lakes states and the province of Ontario, the Great Lakes Sport Fishing Council is a confederation of organizations and individuals with a concern for the present and future of sport fishing, our natural resources and the ecosystem in which we live. We encourage the wise use of our resources and a search for the truth about the issues confronting us.

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New round goby emergency rule in effect on the Winnebago System

MADISON, Wis. – The Wisconsin Natural Resources Board (NRB) recently approved an emergency Wisconsin DNR rule regarding the capture and take of the invasive round goby in the Winnebago System.

A round goby from Lake Winnebago was first reported by an angler and confirmed by Oshkosh DNR staff on June 2, 2025, and additional gobies have been caught and reported by anglers since this initial capture.

The new emergency rule will allow anglers in the Winnebago System waters to keep in their possession any harvested round gobies provided that the fish are eviscerated, decapitated or had their gills removed. Since a round goby population has not been established in these waters, angler harvest and reporting of all gobies taken will serve as a critical tool for tracking the presence of round gobies in the Winnebago System. The rule will be in effect June 19 – November 16, 2026.

The DNR asks anglers to be on the lookout for any round gobies in the Winnebago System and to report their catch. There are also several annual monitoring surveys on Lake Winnebago, as well as additional projects that allow for further detection of round gobies in the Winnebago System.

Round gobies are an aggressive invasive fish that reproduces quickly and can survive in poor water quality, leading to the displacement of native fish populations. They have been present in the Great Lakes since the early 1990s, including associated tributaries (such as the Lower Fox River) up to the first impassable dam or barrier.

Round gobies were discovered in Little Lake Butte des Morts along the Lower Fox River above the impassible barrier at Rapide Croche in 2015. In response, the Fox River Navigational System Authority (FRNSA) closed the Menash Lock located between Lake Winnebago and Little Lake Butted des Morts to prevent the round goby from entering Lake Winnebago and the upper watershed.

Targeted monitoring and public outreach/reporting programs are ongoing, with no confirmed reports of round gobies upstream of the Menasha and Neenah dams until the angler report on June 2, 2025. The DNR continues to consider the Menasha dam, Neenah dam and the closed Menasha lock essential barriers to preventing the spread of round goby to Lake Winnebago.

What to do if you catch a round goby on the Winnebago System:
Anglers that capture a suspected round goby in Winnebago System waters should decapitate or eviscerate the fish or remove the gills and report it to the DNR. The best way to report the goby is to use the DNR's Online Goby Reporting Tool, which includes an illustration of a round goby and will prompt the angler to include a photo to facilitate ID verification. DNR staff will then contact the angler.

Alternatively, anglers may also bring suspected goby specimens to the DNR's Oshkosh office to facilitate ID verification by freezing or putting the deceased specimen on ice in a plastic bag. The office is open 8:30 a.m. – 4 p.m., Monday through Friday
Any round gobies captured downstream of the Neenah or Menasha dams or in Little Lake Butte des Morts do not need to be reported, as it is not a part of the Winnebago System and these areas are known to have a verified and established population of round goby. Gobies captured in Green Bay or Lake Michigan also do not need to be reported.

Help Prevent the Spread
Prevention remains the best way to help protect Wisconsin's waters as round gobies are nearly impossible to eradicate once they have been established. However, steps can be taken to limit the spread. Under chapter NR 40, Wis. Admin. Code, round goby are a restricted species in Wisconsin, meaning they cannot be transported (unless they have been decapitated, eviscerated or had their gills removed), transferred or introduced. A deceased goby can be legally transported to a DNR office for identification.

Anglers are reminded to never use round gobies as bait, release fish from one lake into another or throw unwanted bait into the water. ✧

How to catch crappie during summer – 4 proven strategies

Many anglers enjoy great crappie fishing during spring, when the fish move shallow to spawn and to feed and congregate around cover that's visible and easy to locate and target. When those fish abandon the obvious spots toward the end of spring, many anglers view crappie season as over and turn to other species.

Crappie provide good fishing opportunities year 'round, though, and summer conditions create predictable opportunities for anglers who employ the right strategies. Four great ways to tap into the best crappie-catching action through the summer are to focus on deeper brush piles; troll jigs or crankbaits; target spots that get shade throughout the day; and fish illuminated waters at night.

If the crappie are acting fussy during summer, an excellent way to coax strikes is to downsize crappie baits. Bobby Garland makes that easy for almost any jig fishing technique with the Itty Bit Series because this series includes Itty Bit versions of four top crappie baits, each different in character.

If you're not quite sold on replacing your regular sized crappie bait, try a tandem rig, with one traditional crappie bait and one Itty Bit, and see which size the crappie prefer that day. ✧

Walleye Ideas

It's the time of year when almost everyone who fishes is looking for their favorite fish to catch. For many, that favorite fish is the walleye. When you hit the water in search of walleyes, there are some things to keep in mind that will help you be more successful at catching them.

Cold weather hung on longer than usual across walleye country this spring, so in some bodies of water, the fish are a little late in setting up their summer rituals. The spawn should be complete now wherever walleyes swim. After the spawn and throughout the summer, walleyes are often thought of as fish that like to be in or near deeper structure. While it's true that these glassy-eyed fish often can be found near rock piles, points, sunken islands and deep reefs, there are also times when they'll be in the shallows. Walleyes, like any other fish, go where the food is. If their food is shallow, the walleyes will be shallow. If their food is deep, they'll be deep. And there are times when some will be deep and others will be shallow.

Sonar is a valuable tool for catching walleyes, especially when they're deep. For most of us, traditional sonar will do the job very well. Traditional down-looking sonar has helped lots of us be consistent walleye catchers and it will still help us put plenty of walleyes in the boat. The newer technology certainly has expanded our knowledge of what fish do and at times will help anglers get more bites. However, we can still catch lots of walleyes, crappies, bass, and whatever by employing traditional sonar. Don't convince yourself that you may as well stay home if you don't have the newest tech toy when it comes to fishing.

It works well to cruise deep areas with a close eye on the sonar. If you see what you think are walleyes on the sonar, fish the area. If there are no signs of life, keep looking. Make sure that your sonar is properly tuned. If the sensitivity is set too low, you won't see all that's below the boat. Modern sonar performs very well in automatic mode for those of us who are tech challenged, but fine-tuning will help you read the water better, and once you get onto it, it isn't difficult to fine-tune your depth finder.

If the food is shallow, that's where the walleyes will be. We've caught walleyes often on windblown points in just two or three feet of water. If the wind blows from the same direction for a couple of days, find a shallow, windblown rocky point and cast jigs or crankbaits. You'll probably get bit.

A jig/live bait combo is a proven walleye bait and will catch shallow walleyes as good as anything. More and more though, experienced walleye-catchers are putting plastic on their jig. Plastic is much more durable than live bait, and it gives us the chance to experiment with color and action. Rage Swimmers or Slim Swimmers on a jig have accounted for lots of walleyes in recent years. Try different color combinations. An orange head/chartreuse body is a favorite of many. Sometimes a leech wiggling under a slip-bobber can be very productive, and on other days shallow walleyes can't resist a Hornet crankbait.

Right now is a favored time to be fishing, and many of us choose to target walleyes. If you keep these ideas in mind, you'll be able to have a successful walleye-catching season. ✧

Invasive pinks rapid spread

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to pink salmon is the fish's ability to adapt.

According to the study, the fish evolved in the Great Lakes from a migratory species into one capable of spending its life in fresh waters. Researchers also found the salmon began deviating from their traditional 2-year life cycle, at times taking up to four years to mature before spawning.

Wes Larson, who was not involved in the study but researches salmon genetics at NOAA's Auke Bay Laboratories, said pink salmon have proven unusually flexible in changing environments. "That makes them excellent adapters—and invaders," Larson said in a statement.

The expansion of pink salmon has already sparked concern in countries like Norway, where officials have begun installing river barriers to trap the fish before they can disrupt native populations, including Atlantic salmon, Arctic char, and brown trout. Researchers say warming oceans and shifting environmental conditions could potentially accelerate the species' spread and reach, making international cooperation increasingly important.

"Our research shows that cross-system knowledge and collaboration will be critical to developing timely insights to support adaptable and successful management systems. Things are changing so fast, we can't do studies in a silo," Langan said. ✧

2nd Amendment issues

The Second Amendment does not allow states and local governments to ban commonly-owned firearms simply because gun control advocates dislike them.

The Supreme Court justices on June 30 said they will take up a pair of cases challenging local and state laws outlawing AR-15s and other semiautomatic rifles as violations of the Second Amendment. The court will hear a case challenging Connecticut's ban on AR-15s, and will also hear a challenge to Cook County's 1996 ordinance which bans the sale, possession and transfer of all assault weapons and large-capacity magazines, defined as magazines that hold more than 10 rounds, in the county.

The cases are the first in which the high court will weigh the legality of laws restricting access to certain types of firearms. In a landmark 2022 decision, the Supreme Court recognized for the first time that the Second Amendment guarantees the right to carry a gun in public for self defense. But the justices had—until now—declined to take up challenges involving bans on AR-15s and similar semiautomatic rifles in Illinois and Maryland, leaving the laws in place. ✧

Lake Ontario Report

Prey Species in Lake Ontario

Lake Ontario's prey fish community supports predator species such as walleye, lake trout, and salmonids, and is monitored annually through spring and fall bottom trawl surveys.

Key prey species by abundance

- **Alewife**– 85% of total catch by number; biomass index 78 kg·ha^{-1} (down from 2024), but density index up to 9,182 fish due to a strong 2024 year class.
- **Yellow Perch** – 5% of catch.
- **Round Goby** – 4% of catch.
- **Deepwater Sculpin** – 3% of catch.
- **Rainbow Smelt** – 1% of catch.
- **Emerald Shiner** – similar biomass to 2024.
- **Cisco** – higher biomass than 2024.
- **Threespine Stickleback** – similar biomass to 2024.
- **Lake Whitefish** – increased whole-lake density in 2025.
- **Bloater**– rare; 24 caught in bottom trawl surveys since 2012 stocking.

Lake Ontario salmonids population 2026 season

Over 2.8 million salmon and trout, including 1.2 million salmon, are stocked in Lake Ontario for the 2026 season, with improved survival strategies and favorable forage conditions supporting a strong fishing outlook. This represents a significant stocking effort aimed at enhancing recreational fishing opportunities and supporting native species restoration.

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. 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 also state that each agency may not stock more that 5% over the agreed upon stocking target within a given year.

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

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. 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.

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

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

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.

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.

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

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. 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.

Summary of total salmon and trout stocking

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

Species	West	W Central	E 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

End ✧

Bottom trawl assessment of Lake Ontario’s benthic prey fish community, 2025

Survey scope

Annual spring (April) and fall bottom trawls sample depths from ~5.5–245 m, covering U.S. and Canadian waters. Data track relative abundance, size structure, and biomass of 30–33 species, informing predator fish stocking and conservation status.

Summary

The Lake Ontario prey fish community is dominated by alewife, with yellow perch, round goby, deepwater sculpin, and rainbow smelt as other major contributors. Cisco, lake whitefish, and stickleback are important but less abundant. Bloater remains rare but is being restored. Alewife abundance and distribution are central to predator fish management, with recent years showing high biomass from strong year classes despite declines in adult abundance.

Since 1978, bottom trawl surveys in Lake Ontario have provided information on the status and trends of the benthic prey fish community related to Fish Community Objectives that include understanding prey fish population dynamics and community diversity. Beginning in 2015, the benthic prey fish survey expanded from only U.S. sites to incorporate Canadian sites, increasing the survey’s spatial coverage to a lake-wide scale.

Additionally, sampling in the eastern U.S. embayments (Black River, Chaumont, Guffin, and Henderson Bays), that were historically sampled during a September bottom trawl survey to index yellow perch, resumed in 2015. The current survey provides abundance indices for sculpins, round goby and bloater using techniques, gear, and timing comparable to surveys on Lake Michigan. This alignment provides a necessary biological reference point for evaluating Lake Ontario bloater reintroduction. In 2025, the benthic prey fish survey completed 100 bottom trawl sites across main lake and embayment habitats at depths from 6 to 168 m. Sampling in US waters was limited in 2025 compared to previous years.

In total, the 2025 survey sampled 59,870 fish from 23 species. No bloater were detected in the 2025 survey. Round goby was the most common species comprising 46% of the total catch by number, followed by deepwater sculpin, white perch, and alewife at 23%, 9%, and 9% respectively. Slimy sculpin lake-wide biomass density continues to be lower than when lakewide sampling began in 2015; zero slimy sculpin were detected in US waters, however sampling in the main lake within US waters was limited to the southeastern area of Lake Ontario. Deepwater sculpin biomass has remained high since population recovery began in 2010. Embayment sampling in 2025 was limited to only Chaumont Bay.

Benthic prey fish survey

From 1978 to 2011, the benthic prey fish survey sampled six to ten transects along the southern shore of Lake Ontario from Olcott to Oswego, NY. Daytime trawls were typically 10 minutes and sampled depths from 8–150 m (26–495 ft). The original survey gear was a Yankee bottom trawl with a 39 ft. headrope and was spread with flat, rectangular, wooden trawl doors. The survey typically occurred during October but also included sampling from September to November. Abundant dreissenid mussel catches in the early 2000s led to the survey abandoning the standard trawl and experimenting with a variety of alternate polypropylene bottom trawls and metal trawl doors.

Since 2011, the survey has used the historically standard Yankee trawl and doors but has reduced tow times to reduce mussel catches. Typical trawl tows in recent years have been 5 minutes, and in nearshore areas or those where mussel catches are high, as indicated by the preceding trawl site, tow times have been reduced to 2.5-4 minutes. Experimental sampling at new transects and in deeper habitats began in 2012. In 2015, the spatial extent of the survey was doubled to include Canadian waters and embayment sites in the eastern basin. At that time, the NYSDEC and OMNR research vessels joined the survey, which greatly expanded the spatial extent and diversity of habitats assessed. We used results from the benthic prey fish survey from 1978 to develop time series plots for trend inference. No adjustments are available for data when the alternative trawls were used.

In 2025, the benthic prey fish survey consisted of 100 trawl sites completed between three research vessels from September 11 to October 10. The 2025 survey had limited spatial coverage along the southern shore in U.S. waters, where approximately 18% of the typical sites were covered (23 of 130 sites). No sampling occurred in deep areas of the lake > 170 m. Trawl catches were sorted by species, counted, and weighed. Subsamples of species in each trawl catch were measured for individual length and weight. Additional samples for growth, diet, reproduction, and genetic analysis were collected for some species. Dreissenid mussels were weighed but not counted or identified to species.

Perch Survey

From 1978 to 2007, fish communities in northeastern embayments of Lake Ontario were sampled during late September through early October to assess yellow perch and white perch populations and document long-term trends in the fish communities of these habitats. We refer to this dataset as the perch survey for convenience. In our analysis, we pooled observations from Guffin and Chaumont Bays, and simply refer to these as Chaumont Bay given their proximity to each other in Lake Ontario. Catch protocols were similar to those described above where species were sorted, counted, weighed, and subsamples were measured for length frequencies. From 1978 to 1997, sampling was conducted by the USGS R/V Kaho with a 7.9 m headrope bottom trawl, with a 13 mm stretch nylon mesh cod end. Trawling occurred during the day and typically lasted for 5 minutes at each location. Site depths were between 6 to 20 m, and approximately fifteen sites were sampled each year. In 1996, problems with fouling from large catches of dreissenid mussels led to the adoption of mud rollers in 1997 to reduce fouling. From 1998-2007, the NYSDEC R/V Seth Green continued the sampling using an 18 m, 3N1 bottom trawl at the same locations. In 2015, the R/V Seth Green resumed sampling these sites annually in 3 early October as part of the benthic prey fish survey using a Yankee bottom trawl. The recent expansion of our annual benthic prey fish survey into these historically sampled habitats has created an opportunity to assess long-term trends for benthic prey fish communities from these embayments.

In addition to the benthic prey fish survey data, we used data from the perch survey to illustrate long-term trends in the benthic fish populations of embayments by combining both datasets. In contrast to lake-wide trends which use an area weighted mean, we report mean biomass density for yellow perch and white perch for the embayments without weighting by depth strata. We calculated the biomass proportion of benthic prey fish species for each year using the total weight across all trawl sites per embayment. Bay of Quinte was added to the survey in 2021, however, Upper Bay sites that are most comparable to other perch survey sites were not sampled in 2022-2025. Sodus and Little Sodus Bay were added to the benthic prey fish survey in 2021. These additional embayment sites have generally been sampled in the spring prey fish bottom trawl survey that uses a 3N1 trawl. Because of survey logistic constraints, Chaumont Bay was the only embayment sampled in 2025 during the benthic prey fish survey.

The 2025 benthic prey fish survey completed 100 trawls in main lake and embayment sites at depths from 6.5 to 168 m. The survey captured 59,870 fish from 23 species with a total weight of 892 kg, and 4,495 kg of dreissenid mussels. Numerically, round goby was the most common species comprising 46% of the total catch by number, followed by deepwater sculpin, white perch, and alewife at 23%, 9% and 9%, respectively.

Slimy Sculpin – Slimy sculpin biomass density (lake-wide = 0.04 kg/ha) in 2025 continued to be lower than when lake-wide sampling began in 2015 (0.15 kg/ha; **Fig 1**). Slimy sculpin were more common at trawl sites in Canadian waters and were absent from US trawl sites 2025. The highest biomass density from individual trawl tows occurred along the northern shore of Lake Ontario between Pickering and Cobourg. Once the dominant demersal prey fish in Lake Ontario when formalized surveys began in 1978, Slimy Sculpin declines in the 1980s were attributed to Lake Trout predation.

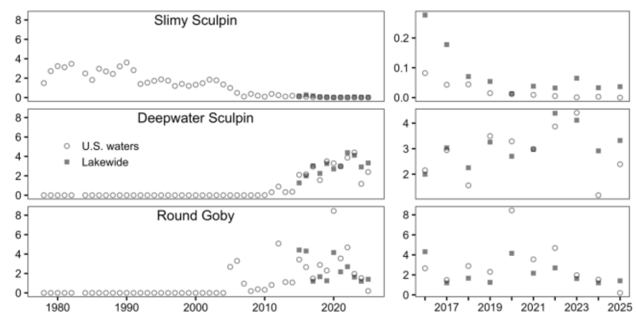

Fig 1. (Left) Area-stratified biomass density for Slimy Sculpin, Deepwater Sculpin and Round Goby in the Lake Ontario benthic prey fish survey, 1978–2025.

Subsequent declines in their population in the 1990s were attributed to collapse of their preferred prey, the amphipod Diporeia. Further declines of slimy sculpin that occurred in the mid-2000s appear to be related to negative interactions associated with round goby expansion; however, the continued declines experienced from 2015 to present remain largely unexplained. The absence of slimy sculpin in US waters during 2025 may in part be explained by the limited number of trawl tows completed, which may have limited the likelihood of detecting rare species.

Deepwater Sculpin – Deepwater sculpin was the second most abundant fish in trawl catches during the 2025 benthic prey fish survey. Deepwater sculpin biomass has increased since 2010. In 2025, lake-wide biomass (3.3 kg/ha) was lower compared to all-time highs and suggests the rate of increase observed during the recovery period may be slowing down as the population approaches its carrying capacity (**Fig 1**). Deepwater sculpin were present in more trawl tows than slimy sculpin in 2025.

Round Goby – Round goby was the most abundant fish in trawl catches during the 2025 survey. Round goby biomass in 2025 (1.4 kg/ha) was slightly higher than the lake-wide average in 2024. Round goby biomass density has been trendless, and highly variable, since lake-wide sampling began in 2015. Estimating round goby abundance using bottom trawls can be complicated by the species preference for rocky substrate and seasonal changes in depth distribution. Higher round goby catches are typically associated with shallower depths during the survey compared to native sculpin species.

Coregonines – Lake Ontario historically had several coregonine species within the Coregonus genus, two of which, cisco and lake whitefish still have self-sustaining populations. Bloater is a benthopelagic species native to Lake Ontario that historically inhabited deeper, offshore habitats. While records are sparse, commercial fishery catches suggest bloater was historically abundant in Lake Ontario but rare by the 1970s. Catches have been sporadically low since restoration stocking began in 2012 but are reasonable based on our power to detect species at low abundance. In 2025, no bloater were captured in the survey. Cisco is rarely encountered in the benthic prey survey. In 2025, cisco was caught in trawls from the Adolphus Reach and Kingston Basin. Since 2015, catches of cisco in the survey have been limited to the eastern half of Lake Ontario including sites along the southern shore between Rochester and Oswego.

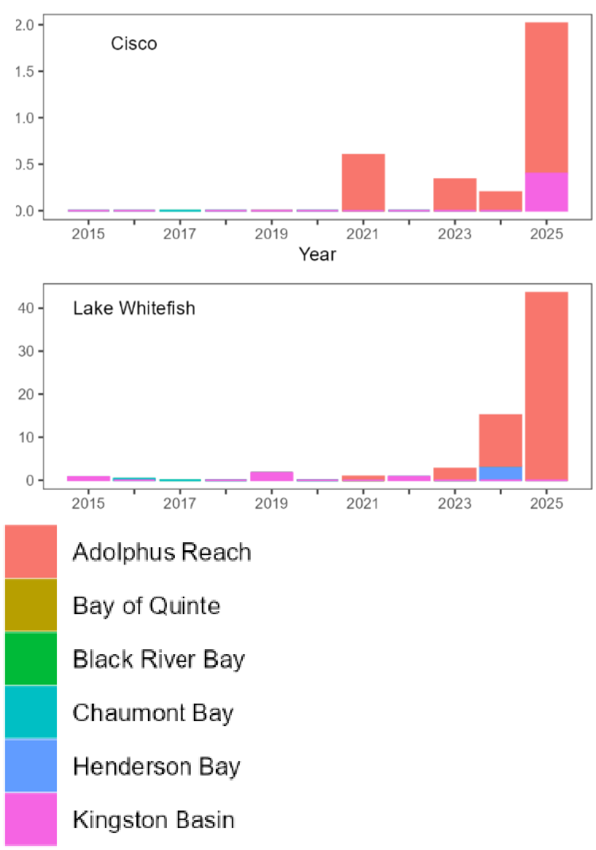

Fig 2. Average density by location and year of Cisco and Lake Whitefish in the eastern basin of Lake Ontario during the benthic prey fish survey 2015-2025.

Lake whitefish are considered a benthic species and have been historically rare in the benthic prey fish survey. In 2025, Lake whitefish was caught in trawls from the Adolphus Reach and Hamilton. Since 2015, catches of lake whitefish have mainly occurred in the western part (Toronto and Hamilton) and eastern parts of Lake Ontario (Adolphus Reach south to Oswego). Average density of lake whitefish was notably high in 2025 from the eastern basin, driven by high density observed at Adolphus Reach **(Fig 2).** Length frequency data suggest catches at Adolphus Reach are represented by multiple age classes including juveniles and adults.

Lake Trout – Lake trout rehabilitation has been ongoing for decades and the goal is to achieve a self-sustaining population. Bottom trawl surveys can be used to inform production of wild-produced juvenile lake trout. Wild-produced lake trout have occasionally been detected in the benthic prey fish survey. In 2025, catches of presumably wild age-0 lake trout (< 100 mm TL) were detected at Adolphus Reach.

Embayments – Trawl catches at embayment sites sampled in recent years represent species that are not common at main lake sites. Since 2015, these habitats, especially Black River Bay, are the only sites where trawls routinely capture trout-perch, darters, and spottail shiner, native species that were once common in the main lake portion of Lake Ontario in the 1970-1990s. Since 2015, benthic prey fish biomass in embayments sampled has been primarily dominated by yellow perch, white perch, and bullheads. In 2025, Chaumont Bay was the only embayment site sampled during the benthic prey fish survey and prey fish composition was dominated by yellow perch, bullheads, and white perch. During 2015-2025, yellow perch biomass was generally higher in Chaumont, Henderson, Little Sodus, and Sodus bays compared to Black River Bay and Upper Bay of Quinte. Biomass estimates for white perch are typically higher in Black River Bay compared to other embayments.

End ✧

Lake Ontario spring prey fish bottom trawl survey and Alewife assessment, 2025

The multi-agency Lake Ontario spring prey fish survey quantifies changes in pelagic prey fish populations, in particular alewife, which are the primary prey supporting the lake's sport fishes. The 2025 survey included 230 trawls in the main lake and embayments and sampled depths from 5.5 to 245 m (15 – 810 ft). The survey captured 504,541 fish from 33 species with a total weight of 7,301 kg (16,095 lbs). Alewife were 85% of the total catch numerically, while yellow perch, round goby, deepwater sculpin, and rainbow smelt, comprised 5%, 4%, 3%, and 1% of the catch, respectively.

The alewife biomass index decreased from 2024 to 2025 (83 to 78 kg·ha^{-1}) however due to an abundant 2024 alewife year class the density index increased from 3,727 to 9,182 fish per ha^{-1}. The Age-1 biomass (2024 year class) was 27.5 kg·ha^{-1}, which was the greatest value estimated in the modern time series (since 1997). The abundance estimate for the 2024 alewife year class (13.8 billion) was more than three times the number of all other alewife combined (3.6 billion). Adult alewife abundance decreased in 2025 which was consistent with predictions from 2024. Those predictive models suggested that adult alewife biomass is likely to increase in 2026 and 2027, as the 2024 year class matures. Alewife condition declined in 2025, which was expected given the relatively high alewife density. Acoustic-based prey fish densities were greater than previous years acoustic estimates especially at depths from 180 ─ 220 m (591 ─ 722 ft), however acoustic based densities continue to be substantially lower than trawl-based densities.

The 2025 biomass index was similar to 2024 for emerald shiner and threespine stickleback, but was lower for rainbow smelt, and higher for cisco. Three purported bloater were caught in the 2025 survey. Analysis of archived tissue identified five bloater captured in previous surveys which increased the total number caught in Lake Ontario bottom trawl surveys to n = 24, since restoration stocking began in 2012. Whole lake density estimates of lake whitefish increased in 2025 relative to 2024. Those density increases were due to increased catches in Canadian waters, as density in U.S. waters has remained low. The density index for wild or naturally reproduced juvenile lake trout increased in 2025 relative to 2024, with the most frequent catches occurring in waters around the Niagara River. ✧

Lake Ontario August gillnet survey and Lake Trout assessment, 2025

Lake Ontario Lake Trout rehabilitation has been assessed with fishery dependent and independent surveys to evaluate program benchmarks and compare observations with management objectives since 1983. These surveys provide information on the abundance, strain composition, and performance of stocked lake trout, as well as information on levels of natural recruitment, and sea lamprey wounding rates. Lake trout catch per unit effort (CPUE) in the August gillnet survey was notably lower in 2025. Percentage of naturally produced lake trout in US waters continued to be relatively low for mature and immature fish. Sea lamprey wounding rates on lake trout > 432 mm in 2025 were below management target in US waters with zero A1 wounds observed. Overall, the 2025 survey results suggest that lake trout indicators continue to meet some of the management objectives but are not showing signs of meaningful recruitment to the adult stock.

Total catch, abundance, and strain composition in 2025 Overall, a total of 511 lake trout were caught across all 43 gillnets, including those fished for > 1 night out in 2025 (Appendix 1). One putative bloater was caught at Youngstown and is pending genetic confirmation which could represent the first bloater caught in the survey. After filtering out gillnets fished for > 1 night out, this resulted in a total of 418 lake trout across 39 gillnets used for analysis.

Total lake trout abundance (stratified CPUE) in 2025 was 10.5 fish/net **(Fig 1)** which was lower than the amount observed in US waters in 2024 (13.1 fish/net), and significantly lower than the mean during the past 10 years (2015–2024 mean = 15.0 fish/net ± 2.6 SD; one-sample t-test: $t_9 = 5.55$, $P < 0.01$). Abundance of mature male lake trout in 2025 was 5.66 fish/net, which was significantly lower than the mean during the past 10 years (2015–2024 mean = 8.0 fish/net ± 1.4 SD; one-sample t-test: $t_9 = 5.09$, $P < 0.01$). Abundance of mature female lake trout in 2025 was 3.78 fish/net, which was similar to the mean during the past 10 years (2015–2024 mean = 4.2 fish/net ± 0.7 SD; one-sample t-test: $t_9 = 1.72$, $P = 0.12$). Total immature lake trout abundance in 2025 was 1.10 fish/net, which is the lowest abundance of immatures observed during 1983–2025.

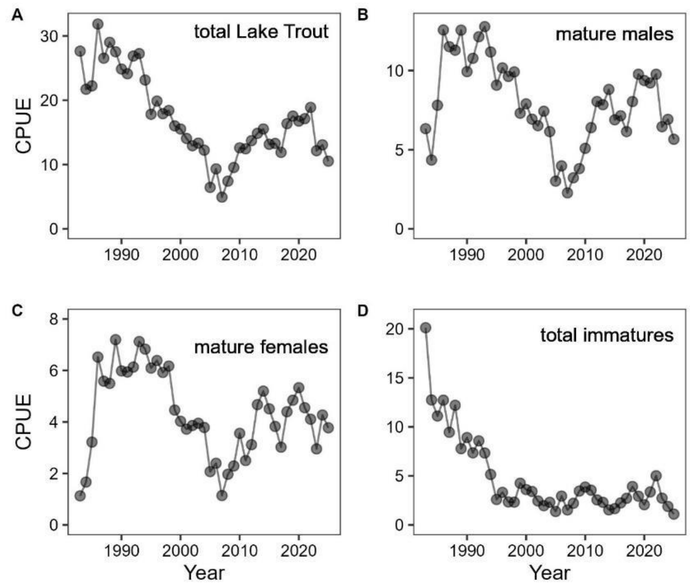

Fig 1. Abundance of (A) total Lake Trout, (B) mature male Lake Trout, (C) mature female Lake Trout, and (D) total immature Lake Trout captured in the Lake Ontario August gillnet survey and Lake Trout assessment 1983–2025.

In total, 349 hatchery-origin lake trout with CWTs were recaptured in the 2025 survey. Lake trout with CWTs recaptured in 2025 in US waters ranged from 2 to 30 years in age and were represented by four different strains: SKW (32.1%), Seneca Lake (SEN, 26.9%), Lake Champlain (LC, 27.2%), and Huron Parry Sound (HPW, 13.8%). Of the remaining 69 fish without CWTs, 55 had adipose-only fin clips, five had adipose plus another fin clipped, and nine had no fin clips present.

In 2025, CPUE of mature female lake trout ≥ 4,000 g in US waters was 1.97 fish/net (Fig 2) which, after rounding, is equal to the minimum desired abundance of mature females established in the management strategy. Since 2010 the CPUE of mature females ≥ 4,000 g has appeared to recover from a below-target period during 2005–2009 (average CPUE = 1.4 fish/net ± 0.4 SD), to a period of mostly above-target values (average CPUE = 2.4 fish/net ± 0.4 SD). The abundance was at or below target for only three out of the last 16 years (2012, 2023, and 2025).

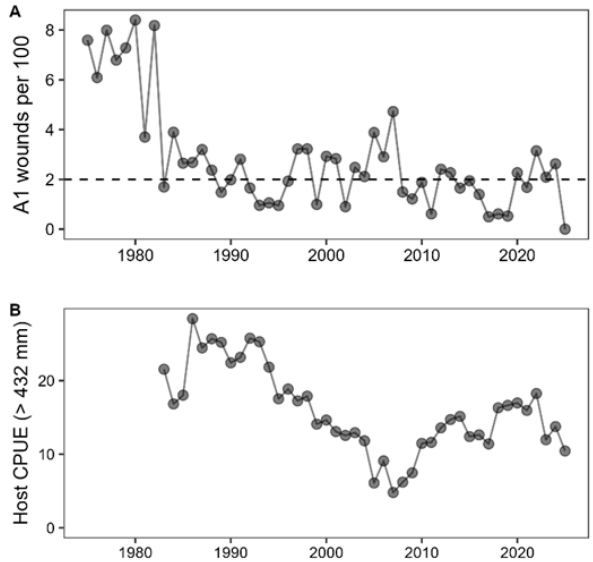

Fig 2. *Abundance (catch per unit effort (CPUE) unstratified) of mature female Lake Trout ≥ 4,000 g calculated from gillnet catches in the Lake Ontario August gillnet survey and Lake Trout assessment 1983–2025. The dashed line represents the target CPUEs for the Management Objective 1 Measure: CPUE of mature females ≥ 4,000 g greater than 2.0 fish per standard assessment gill net set in US waters.*

While gillnet and bottom trawl surveys have detected young wild lake trout in Lake Ontario, these numbers haven't translated to the adult population. The percentage of wild mature fish remains low and shows no significant upward. In 2025, nine of the 418 lake trout (2.2%) were identified as wild in our standard gillnets (CPUE = 0.23 fish/lift). Of the nine wild fish, three were immature and six were mature fish. The mean CPUE of immature wilds during 2020–2025 (0.22 fish/lift) was significantly greater than the 1994–2011 mean (0.07 fish/lift; t-test: t = 6 2.87, df = 5.40, P = 0.03). CPUE of wild immature fish has shown a declining trend over the past 4 years from a record high in 2022.

Conversely, mean CPUEs of mature wilds were similar between 1994–2011 (0.16 fish/lift) and 2020–2025 (0.20 fish/lift; t-test = 0.78, df = 10.50, P = 0.45). Since 2011, both immature and mature wild lake trout CPUEs have not shown an increasing or decreasing trend between 2012–2025. April bottom trawling has generally detected few wild juvenile (< 500 mm) and adult (> 500 mm) lake trout since trawling began in US waters in 1978 and in Canadian waters in 2015. However, since 2015, wild juvenile fish have become more frequent in trawl catches especially in the vicinity where the Niagara River empties into Lake Ontario.

Sea Lamprey Wounding

Rates of A1 sea lamprey wounds on lake trout were low in most years since the mid-1980s in US waters compared to high rates during 1975–1980, **Fig 3**). In 2025, zero A1 wounds were observed in US waters among 407 lake trout > 432 mm TL for a wounding rate of 0 A1 wounds per 100 fish, which is below the management target level. Host CPUE, expressed as the CPUE of lake trout > 432 mm TL, was lower in US waters during 2025 (10.4 fish/net) compared to the previous seven years of survey results.

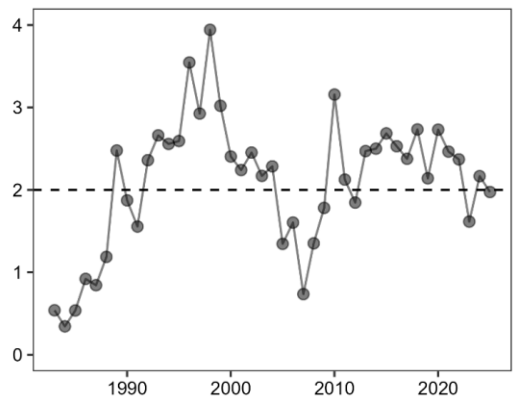

Fig 3. (A) Wounding rates (A1 wounds per 100 Lake Trout) inflicted by Sea Lamprey on fish > 432 mm total length (TL) and (B) the gillnet CPUE of Lake Trout hosts > 432 mm TL during 1983–2025. Dashed line denotes the recommended target level (≤ 2 wounds per 100 Lake Trout > 432 mm TL). Data from 1975–1982 are from.

Harvest

Fishing regulations, lake trout population size, and availability of other trout and salmon species influenced angler harvest through time. During 1988–1992, managers implemented a slot size limit to decrease harvest of mature lake trout and increase the number and ages of spawning adults in the population. The slot limit from 1992 persisted through 2006, permitting a limit of three lake trout harvested outside of the protected length interval of (25 to 30 inches. Effective October 1, 2006, the Lake Trout creel limit was reduced to two fish per day per angler, one of which could be within the 635 to 762 mm slot. Estimated catch and harvest of lake trout in US waters of Lake Ontario from April 15 to September 30, 2025, was 12,940 and 8,731, respectively (Fig 4). Harvest in 2025 was below the 10,000 fish target level for US waters established by the Lake Trout Management Strategy.

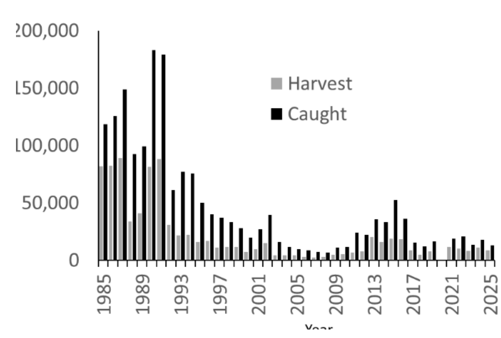

Fig 4. Estimated number of Lake Trout catch and harvest by fishing boat anglers in US waters of Lake Ontario, during April 15 – September 30, 1985–2025. Beginning in 2012, all values have been reported reflecting a 5.5-month sampling interval. Prior reports were based on a 6-month sampling interval.

End ✧

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