Inland Seas Angler
GREAT LAKES BASIN REPORT©

A Publication of the Great Lakes Sport Fishing Council
http://www.great-lakes.org

Aug 2026
Vol. 37, No. 8

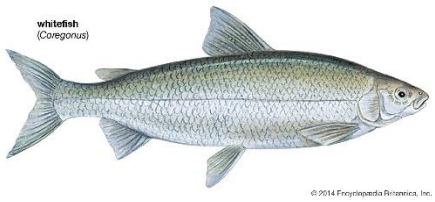
Michigan tribe released over 1 million fish into the Great Lakes to save culturally sacred species

The Sault Ste. Marie Tribe of Chippewa Indians has completed its spring fish stocking season, releasing more than 1 million fish into Upper Great Lakes waters to strengthen regional fisheries and support culturally significant species.

The tribe's Natural Resources Division Fisheries Program distributed 901,995 walleye fingerlings and 278,819 lake whitefish across the Upper Peninsula and Northern Lower Michigan. Staff collected the walleye from the tribe's Barbeau Hatchery, while the whitefish came from rearing facilities at Barbeau and Odenaang.

The Barbeau Hatchery has been central to the tribe's fisheries management work since 1999, when the program began stocking walleye throughout the region. Over 25 years, the program has released more than 22 million walleye. The facility's rearing process helps young fish navigate a vulnerable stage of development before they enter open waters.

The fisheries program has pioneered pond-based rearing techniques for lake whitefish, a method rarely used in North America. The tribe launched this initiative in 2020 and has continued to develop the approach to address declining whitefish populations in the Great Lakes.



The annual stocking efforts aim to maintain healthy fisheries while preserving species that hold cultural, ecological and economic value for the Sault Tribe and surrounding communities. ✧

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Monitoring buoys on Green Bay give boaters real-time wave info and more

New wave-monitoring buoys are coming online in the lower bay of Green Bay, giving boaters a look at real-time conditions. Out on the bay, conditions can change in minutes.

NEW Water, the brand of the Green Bay Metropolitan Sewage District, is adding wave-monitoring buoys so people can check real-time conditions before they head out on the water.

Bartlett says this is important because the closest wind readings are often inland, while waves and wind on open water look completely different. "If you're not comfortable with being on the water, it's having this information, especially in real time, available to the public is so valuable. So, safety is number one," says Bartlett.

The buoys transmit by cellular connection to a public platform called Seagull, hosted by the Great Lakes Observing System. Anyone can pull up the map or app and see the current conditions.

The buoys aren't just for boaters; they're part of a long-term monitoring program that tracks what's happening in the bay near the areas where treated wastewater is released. The goal is to help researchers understand how wind and waves can move nutrients and affect water quality.

"Our mission at New Water is to protect our most valuable resource, which is the water here," says Bartlett. ✧

Ohio State Parks welcome Girl Scouts for a Weekend of Outdoor Adventure

Annual Girl Scouts Love State Parks weekend returns September 11-13

COLUMBUS, Ohio – The Ohio DNR invites Girl Scouts, along with their troops, families, and friends, to take part in the eighth annual Girl Scouts Love State Parks weekend starting Friday, September 11 through Sunday, September 13. This statewide celebration offers a mix of outdoor exploration, hands-on experiences, and memorable time in nature.

In collaboration with Girl Scouts of the USA, ODNR will host special programs at 14 state parks throughout Ohio. Guided by ODNR naturalists, participants will have the chance to try new outdoor activities while deepening their connection to Ohio's natural landscapes and conservation efforts.

"It's inspiring to watch young people connect with nature in meaningful ways," ODNR Director Mary Mertz said. "Whether they're paddling a kayak, exploring a trail, or discovering wildlife for the first time, these experiences spark curiosity and create lifelong appreciation for Ohio's natural spaces."

This year's lineup features lakeside birding at Tar Hollow State Park, fishing and a fish fry at Jesse Owens State Park, a "passport to the past" program at Great Council State Park, and fossil hunting at both Caesar Creek and Hueston Woods state parks. Self-guided activities are also available at all 76 Ohio State Parks for those who prefer to create their own adventure.

ODNR is proud to support the Girl Scouts' mission to help girls build courage, confidence, and character. Each program is designed to offer a welcoming, inspiring outdoor experience for participants of all ages.

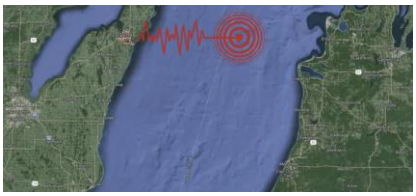
Ohio State Parks are free and open to the public. All Girl Scouts, their families, and friends are invited to join. For activity registration and details on purchasing the Girl Scouts Love State Parks patch, visit your local Girl Scout council's official website.

To find the full list of Girl Scouts Love State Parks events happening across Ohio and to connect with regional Girl Scout councils, click here. ✧

Small earthquake shakes up Lake Michigan

A small earthquake, with a 2.9 magnitude on the Richter scale, struck below Lake Michigan, off the coast of a Chicago suburb, on Wednesday, July 8, according to the United States Geological Survey. The USGS said the earthquake was recorded 12 miles northeast off the shoreline of Chicago, near Kenilworth, at approximately 2:38 p.m. The federal agency said it struck at a depth of 3.1 miles.

No damage had been reported as of Thursday morning and no additional information was immediately available.



In May 2026, the southeast Michigan region was rattled by an earthquake that, according to the U.S. Geological Survey, measured a magnitude 2.7 on the Richter scale. People reported feeling the quake about 50 miles from its epicenter near Carleton, into northern Ohio. According to the USGS, since 2010 there have been more than a dozen temblors of magnitude 2.0 or larger in the Great Lakes region. The largest was a 4.2-magnitude tremor that struck near Galesburg in 2015. ✧

Continued from column 1

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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.

Inland Seas Angler
GREAT LAKES BASIN REPORT

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August land auctions help DNR meet mission to boost public recreation, protect natural resources

Nearly 100 parcels available; sale proceeds will be used to acquire land that better fits the department's outdoor recreation, conservation goals

The Michigan DNR is busy preparing 97 properties for sale via online auctions later this summer. River frontage, lake frontage and forested acreage surrounded by private ownership; these characteristics describe some of the parcels that will be available August 4-28.

Kerry Heckman, DNR forest lands and special projects administrator, said though it might seem counter-intuitive for the DNR to make any land available for sale, it's important to note that the public benefit of some properties is severely limited. That's due to factors such as lack of legal public access, size limitations that prevent appropriate public use, and development on adjacent privately owned land that negatively affects public use such as hunting.

"More importantly, the proceeds from our surplus-land sales are deposited into the Land Exchange Facilitation Fund," Heckman said. "Those dollars are specifically used to acquire other properties that are more usable by residents and visitors, protect important natural resources and provide accessible, quality recreation opportunities throughout the state."

For all of those reasons, the DNR determines some properties to be more suitable for private ownership. These surplus land sales are a regular part of the DNR's public land strategy (one supported and further defined by the Michigan Legislature with the passage of Public Act 240 in 2018. And since such parcels were determined to be better suited for private ownership, they could prove to be the perfect fit for the right owners.

This year's auctions include land parcels in more than two dozen counties throughout Lower Michigan and UP. Twelve online auctions will be offered in August, featuring available land parcels by county:

- **Aug. 4** – Lapeer County
- **Aug. 6** – Allegan and Berrien counties
- **Aug. 7** – Livingston County
- **Aug. 14** – Alger, Chippewa, Delta and Luce counties
- **Aug. 18** – Baraga, Dickinson, Houghton and Menominee counties
- **Aug. 19** – Crawford, Kalkaska, Ogemaw, Oscoda, Otsego and Roscommon counties
- **Aug. 20** – Antrim and Charlevoix counties
- **Aug. 21** – Alpena, Cheboygan, Iosco and Presque Isle counties
- **Aug. 25** – Oakland County
- **Aug. 26** – Oceana County
- **Aug. 27** – Lake County
- **Aug. 28** – Jackson County

Twelve online auctions will be offered between August 4 and August 28. Interested bidders may preregister and get more information about the online auction schedule at https://www.tax-sale.info/.

Anyone interested in bidding on a property must register before the property's auction date. Absentee bids can be made up to 30 days before an auction. The "interactive" bidding portion of an auction will open at 10 a.m. on that auction date. At that time, bidders will be able to see current high bids for each property. Bidders can continue to place bids on a property until 7 p.m. when bidding closes and the winning bidder is determined.

A detailed list of offered properties, including minimum bid, acreage, maps and location information, is available at Michigan.gov/LandForSale. Interested bidders are encouraged to review DNR Land Sales: Terms and Conditions. More info: Michael Michalek at 517-331-8387

Properties for sale range in size from under an acre to 120 acres. Many of the surplus properties highlighted in the auction are in Allegan, Baraga, Delta, Jackson, Kalkaska and Livingston counties. There are over 20 properties available that are 40 acres or larger, mostly throughout the U.P. and the northern Lower Peninsula.

Notable waterfront properties that are accessible in the Lower Peninsula include two properties in Lapeer County on Lake Nepessing (Lot #s 10075 and 10076), a Jackson County property with frontage on Little Pleasant Lake (Lot #10059) and three properties in Oakland County on Walled Lake (Lot #10089) and Buckhorn Lake (Lot #s 10092 and 10093).

Lot #10026 in Charlevoix County is accessible and offers views of Lake Michigan on Beaver Island. A notable waterfront property in the Upper Peninsula is in Delta County near Lake Michigan (Lot #10042).

In addition, notable large-acreage properties that are accessible include a 40-acre property in Antrim County along Fairmont Court (Lot #10014), a 40-acre Cheboygan County property along N. Old Mackinaw Road (Lot #10028), a 40-acre parcel in Delta County on Brampton 27.5 Road (Lot #10037), three 80-acre properties in Lake County on S. Forman Road (Lot #10073) and W. 32nd Street (Lot #s 10074 and 10075), and a 40-acre Otsego County property along Hayes Tower Road (Lot #10098).

Many of the sale parcels are forested and/or have road or river frontage but are better suited for private ownership. ✧

Words to the wise;
"Worry when the government says there is nothing to worry about. Remain calm when the government promotes panic" "Fools ignore history, but history always revisits fools!"

Waterways Safety Council virtual meeting on August 19 open to public

The Waterways Safety Council (WSC) invites the public to attend its next quarterly virtual meeting on August 19 at 9 a.m. online. The WSC, a citizen advisory council, provides crucial input on boating issues to the Ohio DNR.
WHEN: Wed, Aug 19, 9 to 11:30 a.m.
WHERE: Virtually via Microsoft Teams Live at: https://rebrand.ly/wscouncil
The ODNR Division of Parks and Watercraft will brief council members on ongoing projects and current issues affecting recreational boating in Ohio. For more info: Pat Brown, ODNR Parks/Watercraft, at (614) 265-6352. ✧

Fall 2026 and Spring 2027 hunting regulations released

The Wisconsin DNR has released both the hunting regulations (fall 2026-spring 2027) and the 2026 fall forecast series. Together, these resources contain most of the information that hunters will need to participate in hunting game species. The fall forecasts also include hunting and trapping outlooks for a variety of popular game species.

New this year, the DNR published an online version of the hunting regulations, including a drop-down filter that can help people navigate to the info they need faster. The online version is mirrored after the print regulations, so hunters familiar with the print regulations should find the online regulations easy to transition to. The print version will also be available at DNR Service Centers.

The fall forecasts outline what hunters and trappers can expect. In addition to information about specific game species, they also include helpful reminders about public land access opportunities, game registration requirements and season dates.

For more visit the DNR's Hunting webpage. ✧

Big summer largemouth bass: Head to the Jungle!

When water temperatures soar during summer, many largemouth bass migrate to deeper weeds, often along mid-depth flats and their adjacent edges. While the edges might be hotspots during lowlight, some of the biggest largies "gang up" in schools in the heaviest weeds during mid-day.

To find and catch these oversized bass, tie on a big, skirted bass jig and tip with a soft plastic. Fish this pairing on heavy line and use a stout baitcasting rod and reel combo. A ½-ounce Hack Attack Jig tipped with a Rattlin' Rage Craw is my lure choice, often in Bama Craw or Okeechobee Craw color patterns. 20-pound fluorocarbon line offers the strength and abrasion resistance needed. A Hackney Signature Series pitching stick paired with a Custom Pro reel in 8:3:1 gear ratio is an outstanding rod/reel combo for fishing this technique. This pairing is light, yet strong and fast allowing me to quickly power bass hooked on a short line up before they can bury in heavy weeds.

Moving along a weedy flat and making short "drops" or pitches to any holes or irregularities in the weeds is a great way to cover water and find bass. Once one is caught, subsequent drops to the same spot can lead to more bass. Dropping on big bass in heavy cover is hand-to-hand combat fishing that can lead to lots of summer fun! ✧

More 2nd Amendment stuff

ISRA Files Federal Lawsuit Challenging Illinois' 72-hr Firearm Waiting Period

CHATSWORTH, IL – The Illinois State Rifle Association has joined a federal lawsuit challenging Illinois' mandatory 72-hour waiting period for firearm purchases, arguing that the law unlawfully delays the Second Amendment rights of law-abiding Illinois gun owners.

The case, Pearlstein v. Raoul, was filed in the U.S. District Court for the Northern District of Illinois. ISRA is joined by individual plaintiffs, federally licensed firearm dealers, and the National Rifle Association in challenging the waiting period. The lawsuit was filed by ISRA counsel

DOJ Abandons Appeal of Post Office Gun Ban Victory

The Trump Department of Justice moved to voluntarily dismiss its appeal in FPC v. Blanche, allowing the Firearms Policy Coalition and Second Amendment Foundation's victory against the federal post office gun ban to stand. The permanent injunction protects all present and future members' right to carry firearms for self-defense in post offices. ✧

ISRA Federal Lawsuit - *continued*

David G. Sigale, who will work with the legal team as the case moves forward. ✧

NSSF Statement on 7th Circuit Barnett Ruling

NSSF, The Firearm Industry Trade Association, expressed disappointment with the U.S. Court of Appeals for the Seventh Circuit's decision in Barnett v. Raoul, which reversed a lower court ruling that Illinois' law restricting Modern Sporting Rifles and standard-capacity magazines is unconstitutional. NSSF plans to file a cert petition with the U.S. Supreme Court, citing over 32 million MSRs in circulation and disagreeing with the court's characterization of these firearms as "dangerous and unusual." ✧

2026 ICAST Best of Category Winners

Best of Show 2026: Best Rod/Reel Combo - Rhino Spinning Combos

Rods, Reels, and Combos

- **Rods and Reel Combo:** Rhino 30 6-foot 6-inch 2-Piece Medium Spinning Combo
- **Freshwater Rod:** St. Croix of Park Falls Triumph Freshwater
- **Freshwater Reel:** Shimano Curado DC
- **Saltwater Reel:** Daiwa 2026 BQ SW Spinning Reels
- **Saltwater Rod:** Bull Bay Tackle Company BANSHEE-BG
- **Kid's Tackle:** Zebco Bottomland Spincast Combo

Electronics

- **Motorized Boating Accessory:** Garmin USA Spy Pole Mount
- **Electronics:** Garmin USA LiveScope 2 HD
- **Energy:** ePropulsion Technology Limited ePropulsion kMax Battery

Lures and Terminal Tackle

- **Wired And Skirted Lure:** Z-Man Fishing Products Chatterbait Elite EVO HD
- **Freshwater Hard Lure:** American Baitworks Co. Synch Fishing Artisan Wake & Crank 130
- **Freshwater Soft Lure:** Rapala CrushCity "The CEO" 21
- **Saltwater Soft Lure:** Rapala CrushCity IMPOSTER
- **Saltwater Hard Lure:** Shimano LEDGERUNNER
- **Terminal Tackle:** G-Ratt Baits Urchin Rig
- **Braided Fishing Line:** Daiwa J-Braid Grand X8 Ocean Splash
- **Non-Braided Fishing Line:** Seaguar BRWLR Monofilament

Boats and Watercraft

- **Boats and Watercraft:** VoyaX MOSSA Series Motorized Kayak

Apparel and Eyewear

- **Women's Lifestyle Apparel:** AFTCO Women's Overcast Sweatshirt
- **Men's Lifestyle Apparel:** HUK Performance Fishing Tide Point KC Printed Shirt
- **Extreme Weather Technical Apparel:** AFTCO Hydronaut Insulated Jacket and Bib
- **Women's Technical Apparel:** Fishewear Brookie ¼ Zip Thermal
- **Men's Technical Apparel:** Simms Fishing Products Challenger Suit
- **Eyewear:** Bajio Sunglasses Cocho Dark Blue Camo Matte Blue Mirror Glass
- **Footwear:** Hey Dude HEY20 Flip

Accessories

- **Cutlery, Hand Pliers, or Tools:** BUBBA Pro Series Gen 2 Electric Filet Knife
- **Fishing Accessory:** Rapala High Capacity Line Remover
- **Custom Tackle Components:** BUZBE Magnetic Launch Pad
- **Tackle Management:** BUZBE Basic Deep Urchin Bait Box
- **Non-Motorized Boating Accessory:** Turtlebox Audio Turtlebox Cub
- **Ice Fishing:** Evolution Fishing Ice Rod Locker
- **First Time Exhibitor Product:** ArcPro Fishing Floating Aerator
- **Novelties and Wellness:** Rapala Giant Lure Bald Eagle

Fly Fishing

- **Fly Fishing Reel:** Loopp Classic X Multiplier
- **Fly Fishing Rod:** St. Croix of Park Falls Imperial Fly Rods
- **Fly Fishing Technical Apparel:** Simms Men's G37 Pro Stockingfoot Waders
- **Fly Fishing Tools And Materials:** Asghar Export Kampus Premium Quality Fly Tying Kit
- **Fly Fishing Accessory:** Simms Fishing Products Scout SlingBack ✧

Status/Trends of Pelagic and Benthic Prey Fish in Lake Michigan, 2025

(This report was presented to the Great Lakes Fishery Commission earlier this year)

Executive Summary

Fall bottom trawl (fall BT) and lakewide acoustic (AC) surveys are conducted annually to generate indices of pelagic and benthic prey fish densities in Lake Michigan. The fall BT survey has been conducted each fall since 1973 using 12-m trawls at depths ranging from 9 to 110 m at fixed locations distributed across seven transects; this survey estimates densities of seven prey fish species: i.e., Alewife, Bloater, Rainbow Smelt, Deepwater Sculpin, Slimy Sculpin, Round Goby, Ninespine Stickleback. The AC survey has been conducted each late summer/early fall since 2004 (except 2020). The 2025 AC survey consisted of 26 transects [470 km total (292 miles)] covering bottom depths ranging from 5 to 259 m and 44 midwater trawl tows at 1.4 to 82.4 m fishing depth; this survey estimates densities of three prey fish species (Alewife, Bloater, and Rainbow Smelt). The data generated from these surveys are used to estimate various population parameters that are, in turn, used by state and tribal agencies in managing Lake Michigan fish stocks.

For the AC survey, total biomass density of prey fish equaled 9.3 kg/ha, continuing a recent trend of index values above the long-term average of 5.4 kg/ha. For the fall BT, total biomass density of prey fish equaled 3.4 kg/ha, close to values observed since 2014 and well below historic numbers and those observed earlier in the 2000s. Over the period both surveys have been conducted (2004-2025), the total biomass density index had trended downward in the fall BT through the mid-2010s and appears to have stabilized at low values, while the AC survey biomass density index has remained relatively stable over the time series.

Mean biomass of yearling and older (YAO) Alewife was 4.3 kg/ha in the AC survey and 0.45 kg/ha in the fall BT. Since 2014, annual survey results suggest that the catchability of YAO Alewife for the fall BT is substantially lower than the AC survey. The 2025 AC survey YAO Alewife biomass density estimate was 57% higher than the average from 2004-2024. The Alewife population of Lake Michigan appears to be composed mostly of young fish and the proportion of age-4 and older Alewife was ~5% in both surveys. Age-0 Alewife numeric density from the AC survey was 259 fish/ha in 2025, lower than the long-term mean (487 fish/ha). Biomass density of large (≥120 mm) Bloater was 3.5 kg/ha in the AC survey and 1.9 kg/ha in the fall BT.

The density of small (<120 mm) Bloater was 540 fish/ha in the AC survey, the second highest value in the time series. Meanwhile, small Bloater density estimated in the fall BT was only 6.1 fish/ha. Biomass density of large Rainbow Smelt (≥90 mm) was 0.69 kg/ha in the AC survey and 0.04 kg/ha in the fall BT survey. Numeric density of small (<90 mm) Rainbow Smelt was 541 fish/ha in the AC survey, the highest value in the time series, and 41 fish/ha in the fall BT. All four prey fish species indexed only by the fall BT had below-average biomass densities. Deepwater Sculpin biomass density was 0.21 kg/ha, which makes 15 of the past 16 years with biomass <1 kg/ha. Slimy Sculpin was estimated to be 0.03 kg/ha, an order of magnitude lower than the long-term average from the fall BT. Round Goby biomass density was 0.44 kg/ha and Ninespine Stickleback density was 0.20 kg/ha, the highest value since 2007.

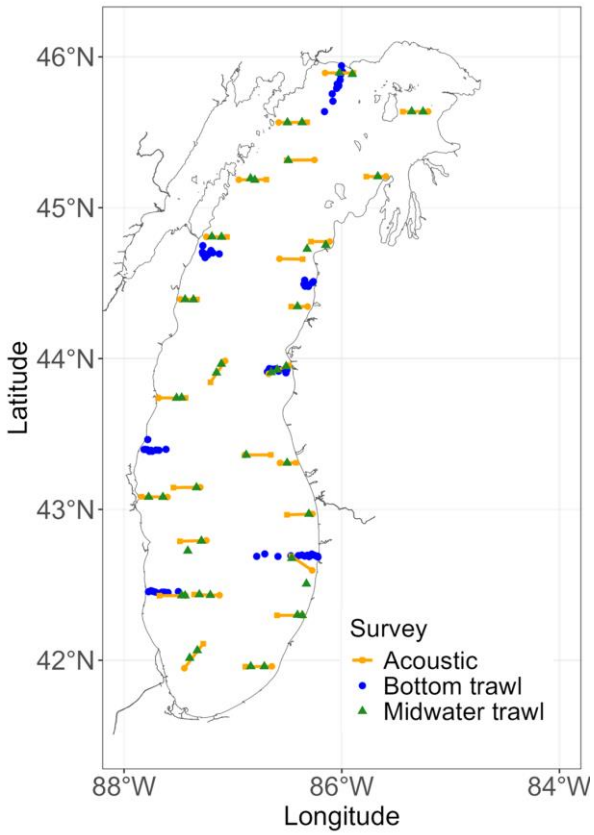


Fig 1. Map of sampling locations for the Lake Michigan bottom trawl and acoustic surveys in 2025. Yellow squares represent acoustic transects and green triangles represent midwater trawl locations. Fall bottom trawl sites are represented by blue circles.

We estimate both numeric (fish per hectare [fish/ha]) and biomass (kg/ha) density with lakewide means and variances calculated using a stratified design (fall BT) and a stratified cluster design (AC). For the BT survey, the mean densities presented in this report are based on the standard trawl tows only (supplemental tows not included in the averaging). For the AC survey, split beam transducers with a nominal

frequency of 120 kHz (range 120-129) were used to estimate numeric fish density along each of the 26 transects sampled in 2025 **(Fig. 1**). While sampling those transects, midwater trawls are deployed to sample fish, enabling estimation of species and size composition of fish for the numeric fish density data.

Trawl deployment is generally driven by the presence or absence of fish. Acoustic fish density estimates were generated with consideration of the six geographic strata and vertical depth layer. Numeric fish density estimates for the upper part of the water column (<40 m) were derived using the NearD method whereby catch from the nearest midwater trawl (Euclidean distance) in the same depth layer was used to apportion acoustic data to fish categories. Fish density in the >40 m layer was apportioned to fish categories (age or size groups within species) using acoustic target strength (TS) and prior information about the composition of midwater trawl catch in this layer. Lakewide average numeric and biomass density are estimated by calculating the population mean for a stratified cluster with known areas.

Given the importance of Alewife age distribution for the stock assessment model, sagittal otoliths were removed from a subset of Alewife in all surveys. Otoliths were mounted and the number of annual rings was read independently up to three times by two readers. If consensus on the number of annual rings could not be reached, the otolith age was deemed unknown. In 2025, ages from 385 and 374 otoliths were successfully obtained from Alewife sampled in the fall BT survey and the AC survey, respectively. Aging was unsuccessful for 26 Alewife across the surveys. Independent age-length keys were developed for the AC survey and fall BT.

By convention, we classified Alewife, Bloater, Rainbow Smelt, and Yellow Perch caught in the fall BT and AC based on total length (TL) cutoffs: Alewife = 100 mm, Bloater = 120 mm, Smelt = 90 mm, Yellow Perch = 100 mm. For Alewife, this cutoff can reliably be used to estimate YAO densities for the fall BT in a given sample year. However, recent examination of Bloater age-length frequencies from 2016-2018 from both surveys indicates that annual variability in growth results in a proportion of age-1 and age-2 fish being <120 mm. Further, recent age data are not available for Rainbow Smelt and Yellow Perch. Therefore, we restrict the term age-0 to Alewife and instead refer to “small” Bloater, Rainbow Smelt, and Yellow Perch as indices of relative recruitment strength. Estimated age-0 Alewife biomass density from the AC survey was derived from aged fish, and the lakewide age-0 Alewife index is reported only from the AC survey. Proportion-at-age and catch distributions are reported for <100 mm Alewife from the fall BT for completeness only.

Alewife

Yearling and older Alewife biomass density estimates in 2025 were 4.3 kg/ha in the AC survey, and 0.45 kg/ha in the fall BT **(Fig. 2**). The AC survey YAO Alewife biomass density estimate was the third highest in the time series and marks the third consecutive year this estimate has been above average. YAO Alewife catch was relatively well distributed across the lake in each survey but was approximately an order of magnitude lower in the fall bottom trawl **(Fig. 3).** In the acoustic survey, catches were highest in the northwest and southeast, with the highest catch at 94 kg/ha at a 65 m depth site near the mouth of Green Bay **(Fig. 3a).** In the bottom trawl, catches were highest along the Manistique transect in the north and Port Washington in the west, with a high catch of 9.4 kg/ha at 37 m depth outside Manistique **(Fig. 3b).**

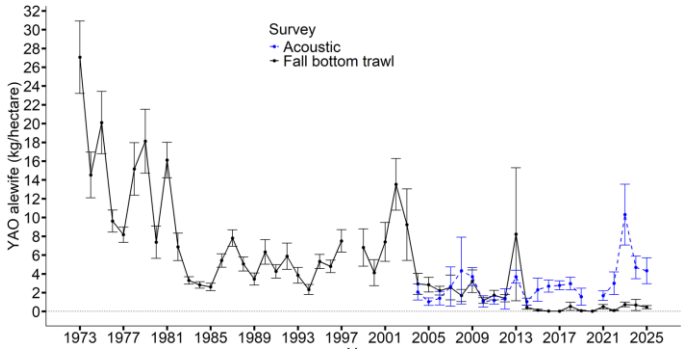


Fig 2. Yearling and older (YAO) Alewife; ≥100 mm) biomass density for the fall bottom trawl and acoustic survey.

Fall BT and AC survey YAO Alewife biomass densities did not have overlapping standard error (SE) bars for the tenth consecutive year in which both surveys were completed, a departure from general agreement through the first ten years of the AC survey (2004-2013). Results of the annual surveys over the past decade indicate that fall BT catchability has declined resulting in a notable reduction in annual index values that have remained below 0.75 kg/ha since 2014. However, assuming the AC survey more accurately indexes YAO Alewife biomass, estimates from the AC survey during the last five years sampled (averaging 4.8 kg/ha) are lower than acoustic estimates in 1987 [9.6 kg/ha, 1995 and 1996], which were calculated by dividing the number of kg reported by 5,396,683 ha, the area covered by the acoustic survey. Similarly, except for 2023, recent AC estimates are still below the mean biomass estimated by the fall BT in the 1970s (16.1 kg/ha), 1980s (6.1 kg/ha), and 1990s (6.0 kg/ha).

Similar to recent surveys, young Alewife dominated catches in both annual surveys, with age-4+ fish representing only ~5% of the total catch in each survey. Age-0 and age-2 Alewife accounted for the highest proportions of the catch in

both surveys, comprising 57% and 16% of the AC survey catch and 76% and 11% of the fall BT catch, respectively. The strong representation of Age-2 fish is consistent with results from the 2023 AC survey, which indicated that 2023 was a higher-than-average recruitment year for Alewife. Age-1 fish were underrepresented in both surveys. Low age-1 catch is common in the bottom trawl survey because catchability for this age group is relatively low, but similarly low proportions in the AC survey may indicate a relatively weak 2024 year-class. The low proportion of age-4+ fish observed in both surveys suggests that the Alewife population remains dominated by younger age-classes, consistent with a truncated age structure potentially associated with elevated mortality on older fish.

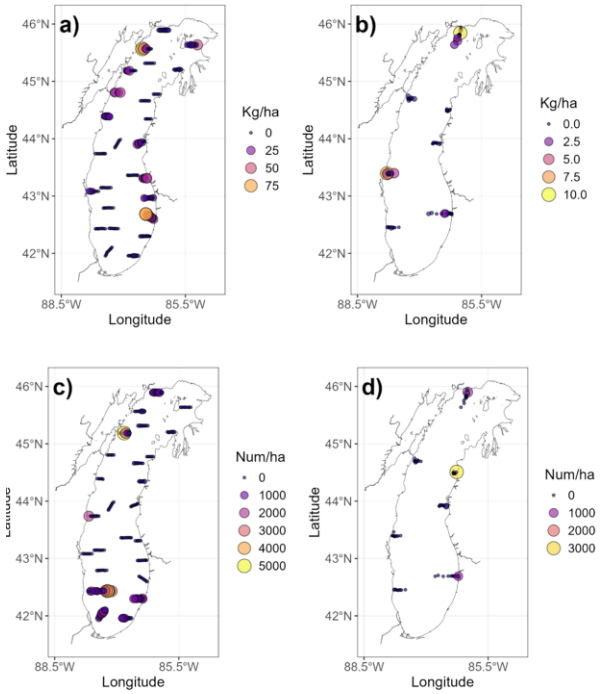


Fig 3. Yearling and older (YAO) Alewife ≥ 100 mm - biomass density as indexed by the acoustic survey (a) and the fall bottom trawl survey (b) as well as the numeric density of age-0 Alewife from the acoustic survey (c) and the fall bottom trawl survey (d) in 2025.

Age-0 Alewife sampled in the AC survey were at the highest densities in northwest and southcentral Lake Michigan **(Fig. 3c).** Catches were low along the eastern shoreline. Numeric density of age-0 Alewife estimated from the AC survey was 259 fish/ha in 2025, below the mean over the entire time series (487 fish/ha; **(Fig. 4**). Catches of age-0 Alewife in the BT survey were greatest at the Frankfort and Manistique transects in 2025 **(Fig. 3d).**

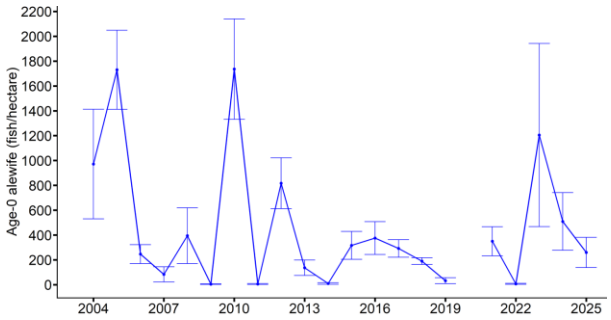


Fig 4. Age-0 Alewife numeric density as indexed by the acoustic survey from 2004-2025. Error bars are +/- standard error.

Bloater

Large Bloater (≥120 mm) biomass density in 2025 was 3.5 kg/ha in the AC survey and 1.9 kg/ha in the fall BT survey (Fig. 6). Large Bloater were well-distributed across fall BT tows, but biomass indices remain an order of magnitude below the maximum measured during 1981–1997. Although the AC survey has shown a generally increasing trend since 2011, the 2025 biomass density index was lower than in 2024 (5.2 kg/ha).

The 2025 AC survey estimated small Bloater (<120 mm) numeric density at 540 fish/ha, the second highest value in the time series and similar to the 2024 estimate (**Fig. 5**). However, only 6.1 fish/ha were recorded in the fall bottom trawl (BT) in 2025, well below the long-term mean. In the AC survey, small Bloater densities were highest at depths of approximately 75–125 m in central Lake Michigan and the southern basin. In contrast, small Bloater densities in the fall BT were highest at intermediate depths (46–64 m).

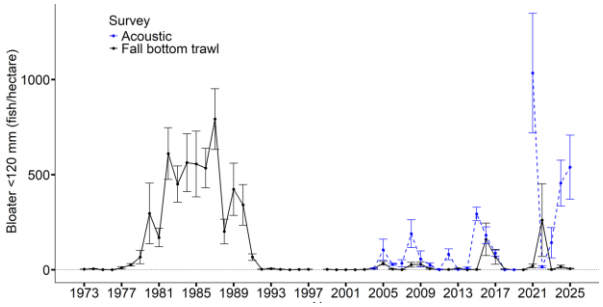


Fig 5. Numeric density of small Bloater; < 120 mm) as indexed by the fall bottom trawl and acoustic surveys.

Rainbow Smelt

The 2025 index of large Rainbow Smelt was 0.04 kg/ha in the fall BT survey and 0.69 kg/ha in the AC survey, the highest since 2006 **(Fig. 6).** Numeric density of small Rainbow Smelt

estimated by the 2025 AC survey was 541 fish/ha, compared with 41 fish/ha in the fall BT survey. The AC index of small Rainbow Smelt is the highest value on record, exceeding the previous peak of 167 fish/ha in 2008. Large Rainbow Smelt catches in the AC survey were highest in the northern basin as well as along a transect offshore from Saugatuck, MI on the eastern shoreline. Large Rainbow Smelt were much less common in the bottom trawl survey, with catches all below 2 kg/ha and largely collected in the central portion of the lake. Small Rainbow Smelt were collected in their highest densities in the central portion of Lake Michigan in both surveys.

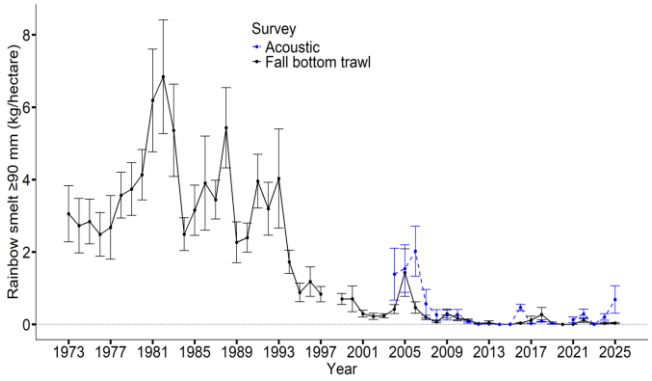


Fig 6. Biomass density of large Rainbow Smelt; ≥ 90 mm) as indexed by the fall bottom trawl and acoustic surveys.

In recent years, elevated age-0 indices of Rainbow Smelt have not translated into increases in adult biomass in Lake Michigan, so the significance of the high AC survey estimate in 2025 remains uncertain. A time-series analysis through 2012 indicated that production of age-0 fish relative to spawning stock increased after 2000, yet those cohorts did not appear to survive to adulthood. The causes of the long-term decline in Rainbow Smelt biomass since 1993 remain unclear. Although consumption by salmonines was higher during the mid-1980s than in the 1990s, Rainbow Smelt abundance remained high during that period, and subsequent analyses suggest that salmonine predation has not been the primary driver of long-term trends in Lake Michigan Rainbow Smelt abundance.

Slimy Sculpin

Slimy Sculpin biomass was 0.03 kg/ha in the fall BT survey in 2025. Biomass density estimates from the fall BT have remained below 1 kg/ha for 16 consecutive years **(Fig. 7**). While declines in total biomass have been observed in recent years across multiple prey fish species, Slimy Sculpin abundance is at least partially regulated by juvenile Lake Trout predation. In fact, Slimy Sculpin biomass began declining in 2010, which coincides with a substantial increase in juvenile Lake Trout stocking and natural recruitment (FWS/GLFC 2017; Lake Michigan LTWG 2019). The decline in Slimy Sculpin biomass does not appear to be an artifact of only sampling to 110 m during our standard survey. Comparisons of mean depth at capture and changes in biomass density with and without 128 m sites do not support the hypothesis that shifts of Slimy Sculpin distributions to depths outside our standard coverage have impacted density estimates.

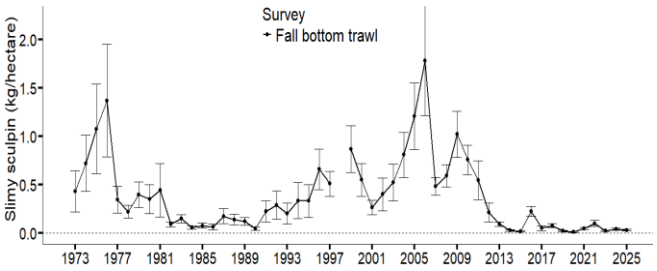


Fig 7. Biomass density of Slimy Sculpin as measured by the fall bottom trawl survey.

Deepwater Sculpin

The biomass density of Deepwater Sculpin in 2025 was 0.21 kg/ha in the fall bottom trawl survey. Previous analysis of the fall BT time series indicated Deepwater Sculpin density is negatively influenced by Alewife (predation on sculpin larvae) and Burbot; because neither of these species increased at the start of the decline in 2007, these mechanisms likely do not underlie the long-term downward trend in the fall BT dataset. A likely explanation is that some portion of the Deepwater Sculpin population has shifted to waters deeper than 110 m (the deepest depth for the standard trawling sites). In support of this, Madenjian and Bunnell found that Deepwater Sculpin have been captured at increasingly greater depths since the 1980s. Mean depth at capture and biomass density estimates are substantially higher when 128 m sites are included. Further, 95% of Deepwater Sculpin biomass was collected at depths greater than 110 m in a spring bottom trawl survey of Lake Michigan in 2024, with the highest average tow density in the 237 m depth strata, highlighting the contemporary importance of habitats outside the historical range of the fall BT.

Ninespine and Threespine Stickleback

Two stickleback species are caught in the Lake Michigan fall BT. Ninespine Stickleback is native, whereas Threespine Stickleback is non-native and was first collected in the fall BT survey during 1984 but has been rare in recent years. While Ninespine Stickleback biomass density has been low since 2010, the 2025 biomass density index was 0.20 kg/ha, the highest since 2007. Similarly, Threespine Stickleback were recorded at the highest numeric density of the time series in 2025, largely due to a single high tow at the 27 m depth site along the Manistique transect.

The mechanism driving higher catches of both stickleback species in 2025 is unclear. Above-average catches were also reported in Lake Superior, and Brook Stickleback reached record highs in a long-term trawl dataset from Grand Traverse Bay, Lake Michigan. One possible explanation is a predation buffer associated with increases in preferred prey, such as Alewife in Lake Michigan and strong 2022 coregonine year-classes in Lake Superior. It has been speculated that

Ninespine Stickleback declines since 2009 may have resulted from piscivores incorporating them into their diets as Alewife became scarce, an idea supported in part by diet comparisons between periods of high and low Alewife densities. Alternatively, these patterns may reflect responses to broader climate forcing, or elevated catches observed in 2025 may simply reflect natural variation in abundance.

Round Goby

Invasive Round Goby were first detected in bays and harbors of Lake Michigan in 1993 but were not widespread enough to be sampled by the fall BT until 2003. By 2008, Round Goby were well established in the fall BT. However, as our survey samples only soft substrates ≥ 9 m in depth, our index is biased low because we are not sampling their preferred habitat in September. Round Goby biomass density was 0.44 kg/ha in the 2025 survey **(Fig. 8**). Densities in the fall BT were highest in shallow habitats, especially in the southern main basin. Round Goby are consumed by a diverse array of fishes including Smallmouth Bass, Yellow Perch, Burbot, Lake Trout, Lake Whitefish, and Cisco, as well as Brown Trout, Steelhead, Coho Salmon, and Chinook Salmon. We hypothesize that Round Goby abundance in Lake Michigan is controlled by predation, given that annual mortality rate estimates range from 79 to 84%, comparable to adult Alewife.

Prey fish community trends

The prey fish community biomass density index as reported by the annual fall BT survey was 3.44 kg/ha and includes Alewife, Bloater, Rainbow Smelt, Deepwater Sculpin, Slimy Sculpin, Ninespine Stickleback, and Round Goby. Total fall BT biomass remains well below the long-term average of 32.5 kg/ha **(Fig. 8**). Biomass first dropped below 10 kg/ha in 2007 and has remained low since, with the exception of 2013, when biomass estimates for Alewife and Round Goby were uncertain due to unusually high catches in single tows. The prey fish community sampled by the AC survey includes Alewife, Bloater, Rainbow Smelt, and Cisco (which are rare and have not been collected since 2021). In 2025, this survey estimated a total biomass density of 9.3 kg/ha, the third highest since the modern AC survey began in 2004, trailing only 2024 and 2023, but only 13% of the mean of the 1987, 1995, and 1996 surveys.

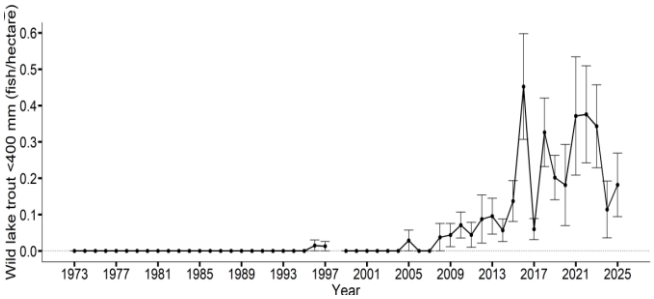


Fig 8. Estimated biomass density of prey fish sampled in the fall bottom trawl survey, 1973-2025.

Other species of interest

Burbot and Lake Trout – Lake Trout and Burbot represent the native top predators in Lake Michigan. Burbot biomass density in the fall BT survey was 0.08 kg/ha, consistent with the relatively low estimates observed since 2012. The cause of continued low Burbot catches remains unclear. Madenjian hypothesized that part of the Burbot population may have shifted into deeper waters of Lake Michigan, potentially following Deepwater Sculpin. In contrast, wild juvenile Lake Trout (<400 mm) have been collected in the bottom trawl survey each year since 2008. In 2025, wild juvenile Lake Trout abundance was 0.18 fish/ha, higher than any value observed prior to 2015 **(Fig. 9).** Although catches remain sporadic, the fall BT survey appears to have tracked the substantial increase in natural recruitment of Lake Trout in Lake Michigan during the past 20 years.

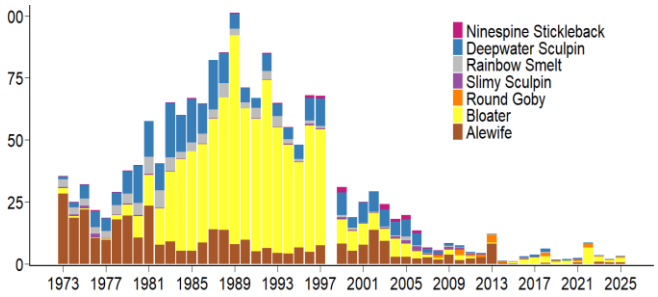


Fig 9. Biomass density of wild juvenile Lake Trout as indexed by the fall bottom trawl survey.

Yellow Perch

Yellow Perch in Lake Michigan have historically supported valuable recreational and commercial fisheries. The fall BT survey provides an index of small (<100 mm) Yellow Perch numeric density and recruitment success. The 2005 age-class was the largest recorded, and the 2009 and 2010 age-classes were also above average. In 2025, small Yellow Perch density at the standard tow locations was 1.17 fish/ha. However, three additional shallow-water tows conducted annually off Saugatuck provide supplemental recruitment indices. Including these tows, small Yellow Perch were captured in the highest number of tows (n = 4) since 2012 and produced the highest density (135 fish/ha) for a single tow since 2011.

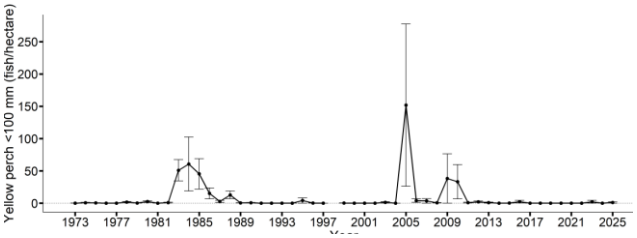


Fig 10. Numeric density of small Yellow Perch as indexed by the fall bottom trawl survey.

Lake Whitefish

Lake Whitefish) are occasionally collected during the fall bottom trawl (BT) survey. This species is of considerable importance to tribal and state commercial fisheries, managers,

and recreational anglers; however, yields have declined sharply throughout the 21st century following a peak in the mid- to late-1990s. Although the fall BT survey was not designed to index Lake Whitefish abundance, observed trends are consistent with broader population declines in Lake Michigan. No Lake Whitefish were collected during the 2025 fall BT survey, and only nine individuals ≥170 mm (the threshold used to approximate YAO fish) have been collected since 2006 **(Fig. 11)**. Small Lake Whitefish (<170 mm; likely age-0 fish) have historically been encountered only sporadically in the bottom trawl, with a single anomalously high value of 31 fish/ha observed in 2005. No small Lake Whitefish were collected in 2025, and only one individual has been collected in the past seven years.

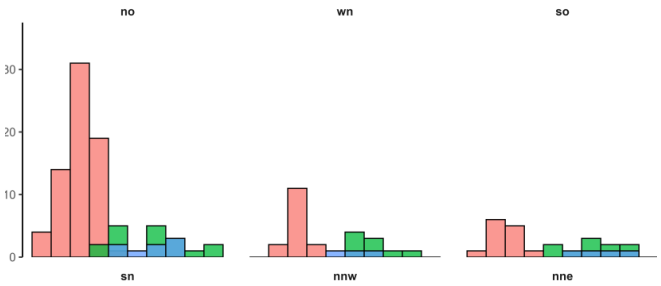


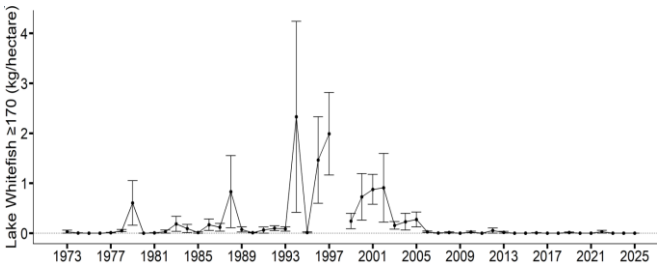
Fig 11. Biomass density of large Lake Whitefish in Lake Michigan collected during the fall bottom trawl survey.

Mysis

Mysids are an important component of the Lake Michigan food web and serve as a key prey resource for many pelagic fishes, including Alewife and Bloater. Although *Mysis* are not a primary focus of prey fish assessments, *Mysis* samples have been collected regularly during AC surveys. In 2025, *Mysis* samples were collected with a 1-m diameter, 1000 or 500-µm mesh net and 250-µm cod end towed vertically from 1-m off bottom to the surface. Samples were preserved in ethanol and later processed by enumerating all individuals, measuring total length from the apex of the rostrum to the cleft of the telson, and assigning sex based on diagnostic morphological characteristics. Males were identified by the modified fourth pleopod, females by the presence of a marsupium or embryos, and individuals lacking clear sex-specific characteristics were classified as unknown.

Mean *Mysis* density and standard deviation across all tows was 22.5 ± 31.3 ind/m2, with the highest mean densities observed in the north offshore while the western nearshore had the lowest observed mean density. Overall mean body length was 10.3 ± 4.7 mm. Length-frequency distributions were broadly similar among AC survey sample strata and exhibited a bimodal pattern. Sex of most measured individuals was classified as unknown (59.9%), while 27.7% were female and 12.5% were male. *Mysis* density increased with water column depth. In contrast, mean body size was not related to depth.

Conclusions



Our results suggest that Alewife year-class strength in 2025 is below average and provide additional evidence of a relatively weak year class in 2024. Older Alewife (age-4+) are uncommon across the surveys which suggests high predation on Alewife and an age-truncated population. While Rainbow Smelt indices continue to be low from the fall BT survey, evidence from the AC survey suggests increased recruitment for Rainbow Smelt in 2025. Estimates of small Bloater from the AC survey indicate a strong recruitment event for Bloater in 2025, similar to what was observed in 2024 and broadly reflective of generally increasing Bloater biomass in the lake, which is supported by estimates from both surveys in the last 10 years. The AC estimate of YAO Alewife biomass remains above the 2004-2022 mean, but Alewife and prey fish biomass overall remains low relative to previous decades.
End ✧

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Michigan fisheries get one-time funding for whitefish restoration

Michigan's Department of Natural Resources Fisheries Division received one-time funding of $350,000 for whitefish recovery. The species has undergone a rapid population decline in recent years, and for the first time, recovery efforts have a specific line in the state budget.

Black bass in Great Lakes can live more than 10 years, study finds

A new study based on data from competitive angling events in the Great Lakes found that more than 20% of black bass weighed at these events are over 10 years old, with at least one individual reaching its early 20s

Smallmouth bass bites light up Lake Erie
Smallmouth bass fishing is strong along Ohio's Lake Erie coast, with anglers reporting high catch rates and healthy fish populations.

Sault Tribe stocks over 1 million fish in Great Lakes to boost populations
Michigan's Sault Ste. Marie Tribe of Chippewa Indians Natural Resources Division Fisheries Program finished its spring stocking season after releasing more than 1 million fish into the Upper Great Lakes, including more than 900,000 walleye and nearly 300,000 lake whitefish

A 'forbidden experiment,' two moonshots and the invasive species ravaging the Great Lakes
Seven decades after a 1957 moonshot project to control the population of invasive sea lamprey, legislation is now before Congress that would task the Great Lakes Fishery Commission with finding a control. The bipartisan bill, dubbed the "Save Great Lakes Fish Act of 2025," proposes a $500 million budget spread across 10 years to find a solution

Great Lakes water levels now higher than normal, except one lake
Heavy rain this spring, combined with ample snowmelt runoff into some Great Lakes, have boosted the water levels from below normal to above normal. Only Lake Superior is still below the long-term average for July

That green carpet covering local ponds isn't grass — it's an invasive plant that's taking over the water
Water chestnut, an invasive plant species, is choking waterways along Lake Ontario, spreading faster than officials and boaters can remove it

One-time funding won't fix financial strain for Michigan's Fisheries division
Michigan fisheries officials say that rising costs and stagnant fishing license fees could lead to further staffing and fish-stocking cuts, with only limited one-time funding provided in the latest state budget. Some lawmakers oppose fee increases, saying the Department of Natural Resources is mismanaged and shouldn't get more public funding.

Detroit River tour highlights restoration successes, $1-billion cleanup hurdle: 'We all have a role to play'
An estimated 3.6 million cubic yards of contaminated sediment remains on the U.S. side of the Detroit River and the price tag for the cleanup is about $1 billion
End