



U.S. Fish & Wildlife Service



Mass Marking Program Lake Trout

The Great Lakes Mass Marking Program is a collaboration between federal, state and tribal fisheries agencies, coordinated by the U.S. Fish and Wildlife Service, to answer questions critical for Great Lakes fisheries management. It is funded by the U.S. EPA's Great Lakes Restoration Initiative.



Lake trout were once the main predator throughout the Great Lakes, but by the early 1950s they were nearly eliminated by overfishing and sea lamprey predation. Lake trout stocking began in the 1950s to restore populations of this native fish to self-sustainability. The U.S. Fish and Wildlife Service annually stocks millions of lake trout each year. Since stocking began, all hatchery lake trout have received a fin clip to distinguish them from any wild fish. However, little else was known about how well these fish survived, contributed to the fisheries, moved, and reproduced in the lakes. To meet these informational needs, the Service began in 1985 to insert a coded wire tag (CWT) and clip the adipose fin of fish stocked at selected sites in lakes Michigan and Huron. In 2010, the Great Lakes Mass Marking Program was established to CWT and adipose fin clip all lake trout (“mass mark”) and to increase the recovery effort for tagged fish.

The science behind the management of the fishery



Sampling of hatchery and wild lake trout from fisheries and assessments helps measure progress toward restoration and inform management decisions. Objectives include:

- Determine the amount of natural reproduction of lake trout in lakes Michigan and Huron.
- Evaluate lake trout movement within and among the lakes, and the relative contribution of fish stocked at different locations to the fishery.
- Compare survival, movement, and reproduction of different lake trout strains and measure the effectiveness of various stocking strategies.
- Determine the age and year class of hatchery fish using the CWT, and using ear bones for wild fish.
- Determine growth rates using size and age information.
- Collaborate with all state and tribal natural resources agencies to collect biological data on lake trout.



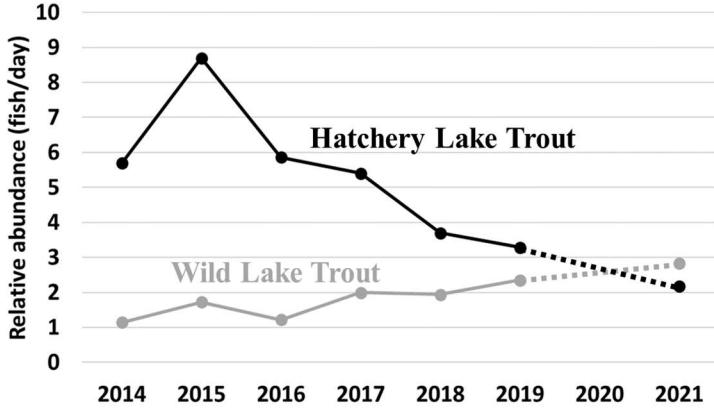
Three U.S. Fish and Wildlife Service hatcheries raise lake trout that are stocked into lakes Michigan and Huron. All fish are tagged and adipose fin-clipped each year in fall prior to stocking the following spring.



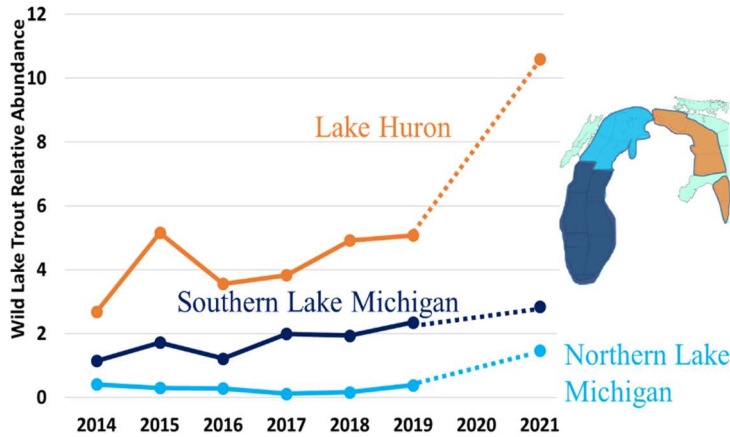
We collect biological data from sport-caught fish landed at over 40 ports (red dots) on lakes Michigan and Huron. The black stars depict the home station of the technicians.

Lake trout are now naturally reproducing!

- 69% of sport-caught lake trout in Lake Huron in 2021 had no fin clip and were presumed to be wild
- 47% of sport-caught lake trout in Lake Michigan in 2021 had no fin clip and were presumed to be wild.
- Percentage of wild lake trout has risen due to large declines in hatchery fish from stocking reductions, combined with modest increases in wild fish.

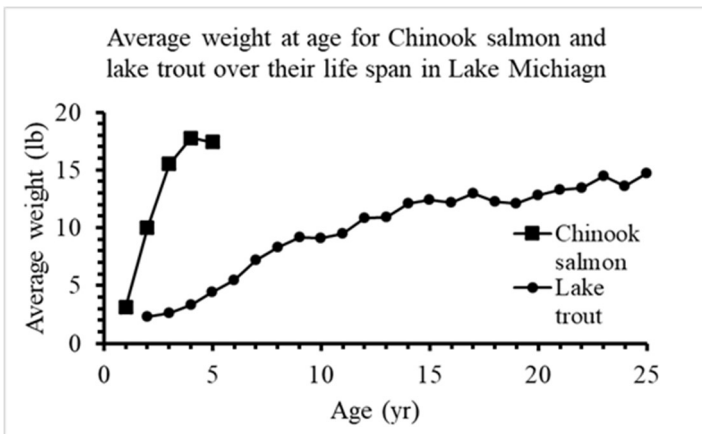


Estimated relative abundance of hatchery and wild lake trout in sport fisheries in Southern Lake Michigan.



Relative abundance of wild lake trout by year. Wild recruitment is currently higher in southern Lake Michigan than northern Lake Michigan

Lake trout live longer, grow slower than Chinook salmon!



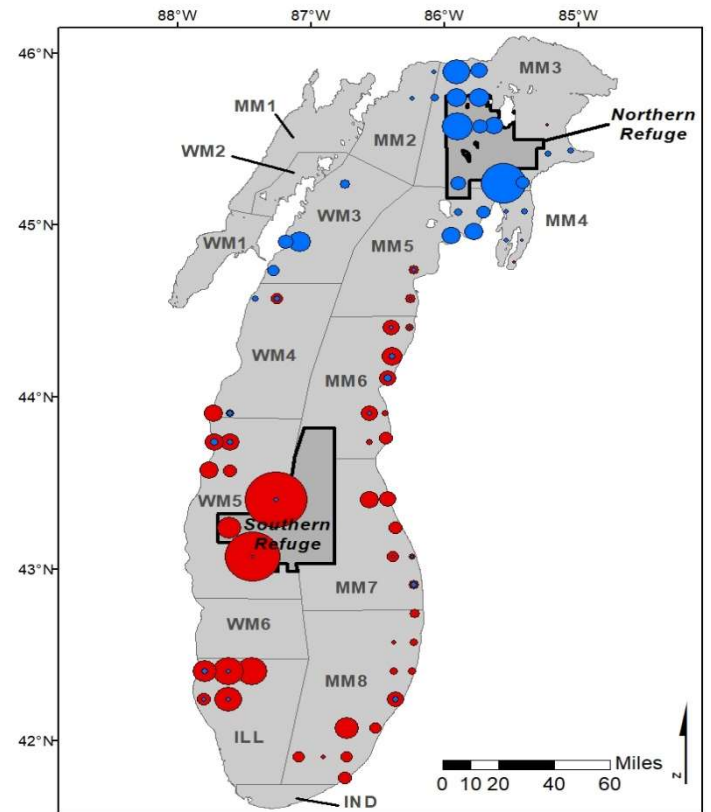
The average weight (lbs) of lake trout and Chinook salmon vs. age (years). It takes a lake trout about 25 years to reach 15 pounds; Chinook salmon reach the same weight in just 3 years.

Comparison of lake trout and Chinook salmon life history

- Lake trout are slow growing, mature around 8 years old and can live over 20 years. Chinook salmon typically spawn by age 3, with very few surviving to age 4.
- Lake trout eat alewives, round gobies, and other foods while Chinook salmon eat mostly alewives.
- Chinook salmon consume more food per individual to support their faster growth rate: an average lake trout will consume about 143 pounds of prey fish over 12 years, while an average Chinook salmon will consume the same amount of prey fish in only 3 years.

Fish stocked at offshore reefs support nearshore fisheries!

- Lake trout stocked at the two offshore refuges are important for nearshore fisheries, with 50% and 65% of lake trout stocked on the Southern and Northern Refuges, respectively, recovered in nearshore areas.
- Lake trout stocked at offshore locations account for about two-thirds of all hatchery lake trout caught by the sport fishery.
- Most lake trout are caught within 65 miles of where they were stocked.



Recovery locations of lake trout stocked in the Southern Refuge (red circles) and Northern Refuge (blue circles). Circle size is proportional to number of fish recaptured.

The Great Lakes Fish Tag and Recovery Laboratory is located at the Green Bay Fish and Wildlife Conservation Office, our office website is:

<https://www.fws.gov/midwest/greenbayfisheries/programs.html>

Our Facebook page is <https://www.facebook.com/GreenBayFWCO/>