Inland Lakes Monitoring

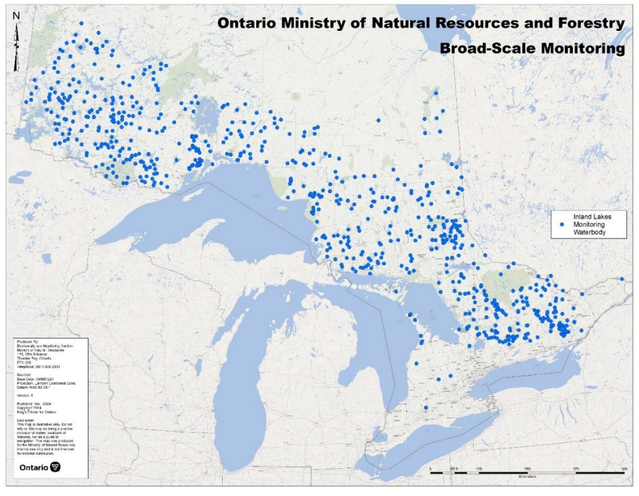
Science and Research Branch

Monitoring the health of Ontario's inland lakes

Ontario is home to more than 250,000 inland lakes, containing about one-fifth of the world's fresh water and representing one of the largest and densest jurisdictions of fisheries resources to monitor and manage on this planet.

Along with rivers, streams, and the Great Lakes, Ontario's inland lakes support important recreational, commercial, and tourist fisheries worth nearly $2.5 billion annually. Each year more than one million Ontario anglers enjoy both economic and social benefits and the greatest fish diversity in Canada, with 145 species.

To help sustain these world-class angling opportunities and commercial fisheries, we lead long-term monitoring on select inland lakes called Broad-scale monitoring (BSM) and Provincially Significant Inland Fisheries (PSIFs) – high value fisheries which require more intensive monitoring and management.



Broad-scale monitoring lakes (dots) Cycle 3

Ministry of Natural Resources

Our focus

We collect data to report on the state of aquatic resources and determine stressors affecting fisheries in Ontario, including:

- trends in fish populations, such as species abundance (number of each species), species richness (number of different species in an area), and size
- habitat features, lake characteristics, and indicators of aquatic resource conditions, such as temperature, dissolved oxygen levels, water clarity and water chemistry
- links between natural and human-caused stresses, such as climate change, angling effort, and invasive species

The collected information supports landscape scale management in Fisheries Management Zones across Ontario.

Science development

MNR annually tests and develops the monitoring techniques used in Inland Lakes Monitoring. Science development includes gear calibration, mark/recapture studies, and calibrating survey effort.

Monitoring highlights

We monitor inland lakes and PSIFs on a 5-year cycle using internationally recognized methods that allow us to compare data among lakes and FMZs.

Each cycle, we sample about 650 inland lakes that are selected using a randomized approach and conduct monitoring activities on the 12 PSIFs. We classify selected lakes as fixed lakes – lakes that contain brook trout, lake trout, or walleye – or variable lakes – lakes larger than 50 hectares, regardless of fish species present. Fixed lakes are monitored once per cycle while variable may or may not be monitored in future cycles.

Fish netting results for individual lakes are summarized as lake bulletins and are available at Fish ON-Line (www.ontario.ca/page/fishing).

Contaminant sampling results are included in the Guide to Eating Ontario Fish (www.ontario.ca/fishguide) published by the Ministry of the Environment, Conservation and Parks.

In addition to collecting information on common fish species, Inland Lakes Monitoring increases our knowledge about the distribution of rare native species in Ontario including pygmy whitefish, northern sunfish, and deepwater sculpin by netting lakes that may have never been sampled before. It also allows us to track the distribution of non-native species such as rusty crayfish and spiny waterflea.

Ministry staff record length, weight, and other measures that are used to evaluate the health of Ontario's inland lakes.

For more information, or to request an alternate format, contact info.mnrscience@ontario.ca .

Ontario