

Fish Netting on Ontario Lakes

When cottagers witness or hear about netting activity on their lake, they are often surprised and sometimes concerned to find out that fish sampling is taking place. They may wonder: *Who* are these people? *What* are they doing? and *Why* are they doing this? *When* and *Where* are not asked because the answers are obvious – “It’s right now and it’s on our lake!” Let me try to answer the *Who*, *What* and *Why* for you.

Who are these people?

In most cases, the Ontario Ministry of Natural Resources (MNR) conducts the netting, or assigns the work to private contractors. Other netting projects are undertaken by university researchers conducting scientific studies or consultants collecting data for permit approvals. Non-governmental sampling crews require pre-authorization from MNR in the form of a Scientific Collector’s Permit.

Why are they out there?

There are several possibilities:

- The netting project may be addressing an issue such as a development proposal, or may be in response to angler concerns about negative trends in fish numbers. Netting enables the MNR to collect information on the fish community in your lake.
- On some lakes netting is done routinely on an annual basis of part of long-running data series. The few lakes with this type of ongoing program tend to be very large, such as Lake of the Woods, Nipigon, Nipissing and Simcoe.
- A third reason for netting might be that your lake is being studied by university researchers to investigate a scientific question about fish ecology.
- Finally, and the most likely reason that netters are sampling your lake, is the possibility that your lake has been selected by MNR as part of their Broad Scale Monitoring program.

Broad Scale Monitoring (BSM) is part of MNR’s Ecological Framework for Fisheries Management (EFFM), adopted in 2004 as the new direction on managing fisheries in Ontario. There are three facets to the overall management framework:



- 1) The first component comprises a simplification of previously very complicated fishing regulations that were unique to each of the 37 fishing divisions across the province. Even individual lakes within one division often had different standards. In 2008, the fishing divisions were reduced, almost by half, to 20 Fisheries Management Zones (FMZs). Boundaries of FMZs are defined by distinct patterns of climate, watersheds and other considerations. Fishing regulations (length of season, catch limits) are applied uniformly within an FMZ. “Tool kits” provide managers with guidelines for managing sports fish species, greatly reducing exceptions from the standard.
- 2) The second component of EFFM is fisheries advisory councils established in each FMZ to enable public input into the development of management directions and regulations. FMZ councils improve two-way communication between MNR and all stakeholders. Advisory councils are now in place in most FMZs.
- 3) Broad Scale Monitoring is the third component of EFFM. Small amounts of information are collected on a large number of lakes. This less-detailed but more-extensive research can be applied to guide fisheries management decisions across the province.

How does BSM work?

The BSM sampling design is based upon five-year cycles, calling for sampling of more than 1500 lakes in each cycle. Half of the selected lakes are "fixed" lakes and half are "variable."

Fixed lakes are sampled once during each cycle. Each of the fixed lakes supports populations of walleye, brook trout or lake trout; these top predator populations provide good indicators of the health of cool and coldwater lakes across the province. Information from fixed lakes suggests trends in the state of the fisheries resource, and the effectiveness of management and regulatory decisions over time.

Variable lakes are randomly selected at the beginning of each five-year cycle. Information gathered from the variable lakes provides a broad picture of the state of the province's fisheries resource during each five year cycle.

What are they doing out there?

Broad Scale Monitoring includes the collection of information on several indicators about the lake and its fish community:

- **Fishing pressure** - Quantifying the amount of fishing taking place is important because angling can have a significant impact on fish populations. Seasonal aircraft surveys and boat/ice hut counts provide basic estimates of fishing patterns.
- **Water quality** – Water chemistry is an important indicator of fish habitat quality as well as the potential productivity of the lake. Water samples are collected by MNR staff in the spring, when the water in most lakes mixes completely. Samples are analyzed by the Ontario Ministry of the Environment (MOE) for a wide range of chemical parameters. FOCA plays a role in this work by providing a staff member to liaise with the MNR samplers and the MOE analysts, facilitating communication, equipment and sample transfers between the two ministries.
- **Fish habitat measurements** - Dissolved oxygen and water temperature are very important in describing fish

habitat, particularly for the survival of some species restricted to cool/cold water temperatures, such as lake trout, whitefish and cisco. During the summer, MNR sampling crews visit each lake and create a bathymetric (depth contour) map if an accurate map does not already exist. Water is filtered to sample zooplankton. Samples measure dissolved oxygen and temperature profiles from the surface to the bottom at the deepest lake point.

- **Fish Community Sampling** - This is the part of BSM which cottagers are most likely to witness and wonder about. Gillnets are set overnight to sample species at a range of sizes that make up your lake's fish community. These nets are stretched along the lake bottom to capture very small to quite large fish. In most cases, fish caught in an overnight gillnet set do not survive; however, MNR estimates that a typical BSM netting effort over 2 to 4 nights might kill only 2% of any fish population in the lake. (Whereas natural mortality from starvation, predation and disease ranges annually

from 10% to as high as 50% for different fish populations.) The net catches yield an index of abundance for each species that can be compared with all other sampled lakes. Fish are examined to provide biologists with information on size, age, growth, sex, maturity, number of eggs and stomach contents—most of which cannot be achieved from live fish. In addition, some flesh samples are collected from sport fish to be analyzed by MOE for contaminants like mercury. Results are published in the *Guide to Eating Ontario Sport Fish*.

Next time you see netting taking place on your lake, consider that qualified and conscientious staff are working to collect information that informs our understanding of water quality and fish population health across our province.



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The Guide to Eating Ontario Sport Fish is distributed by the Ministry of the Environment. Download a free copy at www.ene.gov.on.ca/environment (search: Ontario fish guide).