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# State of resources reporting

October 2010

## Fish Culture and Stocking in Ontario

*The Ontario Ministry of Natural Resources operates nine provincial fish culture stations which produce approximately eight million fish each year for stocking into public waters.*



Photo: Heather Bickle

### What is fish culture and stocking?

Fish culture is the breeding and rearing of fish in an artificial environment. The Ministry of Natural Resources' Fish Culture Program incorporates fish nutrition, genetics, fish health, fish production planning, water quality management and engineering into the design and operation of its state-of-the-art fish culture stations, also known as hatcheries.

Fish stocking is vital to the success of both the fish culture and fisheries management programs. Fish stocking involves taking the fish from the tanks in the fish culture station, transporting them to the stocking site, and placing them into a lake or river.

### Why are fish culture and stocking important?

Fish culture and stocking have been key components of the province's Fish and Wildlife Program for over 100 years. Ontario's wetlands, lakes and rivers are home to diverse fish populations that

provide important benefits to Ontarians. This biodiversity enriches our lives and provides a healthy environment for us and future generations. Recreational fishing, wildlife hunting and wildlife viewing contribute over \$6.2 billion annually to our economy. Of Ontario's 12.3 million residents, 6.7 million participate in fishing, hunting, wildlife viewing and other fish- and wildlife-related recreational activities each year. More than one million licensed anglers fish Ontario's waters each year, contributing \$2.4 billion to the economy. Together, these activities support more than 77,800 jobs.

Many fish populations have been reduced or lost due to over-fishing, habitat degradation, pollution, the introduction of invasive species and other factors. In the past, stocking was thought to be the best and only solution to restore fish populations. Today, fish stocking is used in combination with harvest controls, habitat protection and restoration, public education, research and assessment, enforcement, and invasive species control.

Ontario’s fish culture and stocking program has two primary purposes:

- to rehabilitate native fish populations and enhance natural reproduction
- to provide better and more diverse recreational angling opportunities

**Rehabilitation**

Rehabilitation stocking helps to re-establish naturally reproducing fish populations in areas where they have been suppressed or become locally extinct. Rehabilitation, reintroduction, and maintenance of native stocks support Ontario’s Species at Risk and biodiversity conservation programs, and restore ecological, social, and economic benefits.

One example of such a program is a collaborative effort to restore Atlantic salmon to Lake Ontario. This species was completely eliminated from the lake by the late 1800s due to the combined effects of over-harvest, dam construction and habitat loss. Since 2006, the Ministry of Natural Resources, with the help of over 50 dedicated partners, has stocked more than two million young Atlantic salmon into Lake Ontario. Large stretches of stream habitat have been rehabilitated. Field crews continue to monitor Atlantic salmon to track their progress.

**Recreational angling**

Fish culture and stocking can also be used to create hatchery-dependent fishing opportunities (i.e., put-grow-and-take fisheries) that are popular with anglers. In addition to providing recreational opportunities, put-grow-and-take stocking can also provide important biodiversity conservation benefits by diverting angling pressure away from lakes with naturally reproducing fish stocks that are sensitive to over-harvest.

The Ministry of Natural Resources stocks about 1200 water bodies annually province-wide. In most years, about half of the ministry’s cultured fish are stocked

into Great Lakes waters. Annual water body stocking lists are available through the ministry’s district offices.

The Ministry of Natural Resources also supports stocking projects led by local community groups. Under the Community Fish and Wildlife Involvement Program, funding is provided to volunteer-operated, community hatcheries that rear fish for stocking into public waters.

**What is the status of fish culture and stocking in Ontario?**

The Ministry of Natural Resources currently operates nine fish culture stations (Figure 1). A tenth facility, Ringwood, is being operated under an arrangement with the Ontario Federation of Anglers and Hunters until fall 2011. Fish species reared at these 10 stations include Atlantic salmon, aurora trout, brook trout, brown trout, splake, lake trout, lake whitefish, rainbow trout, walleye, Chinook salmon and coho salmon.

Approximately half of fish that are cultured are used to provide angling opportunities; the other half are used to rehabilitate degraded fish populations and restore biodiversity.



Figure 1: Ministry of Natural Resources Fish Culture Stations in Ontario.



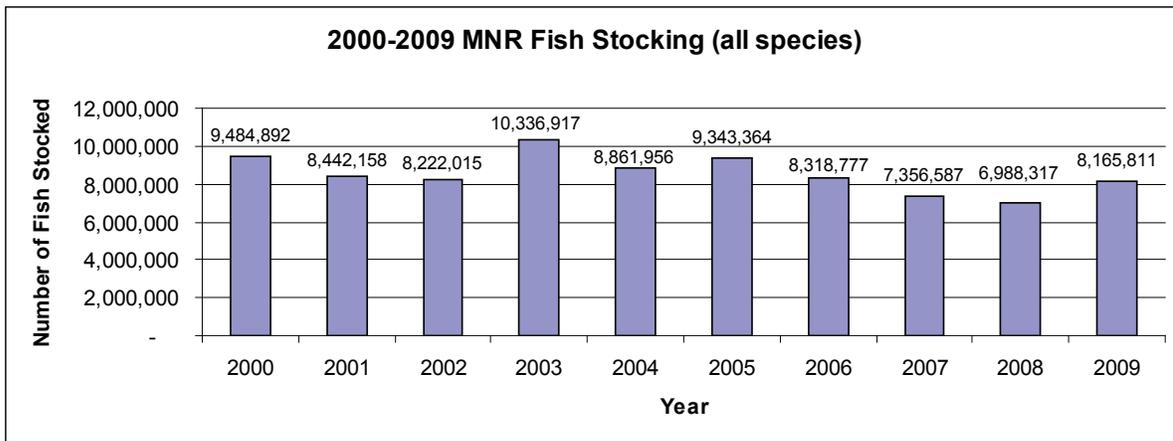


Figure 2: Number of fish stocked from Ministry of Natural Resources’ Fish Culture Stations from 2000 to 2009. The numbers for 2007-2009 include fish produced at Ringwood FCS under agreement with the Ontario Federation of Anglers and Hunters. Species include Atlantic salmon, aurora trout, brook trout, brown trout, splake, lake trout, lake whitefish, rainbow trout, walleye, Chinook and Coho salmon.

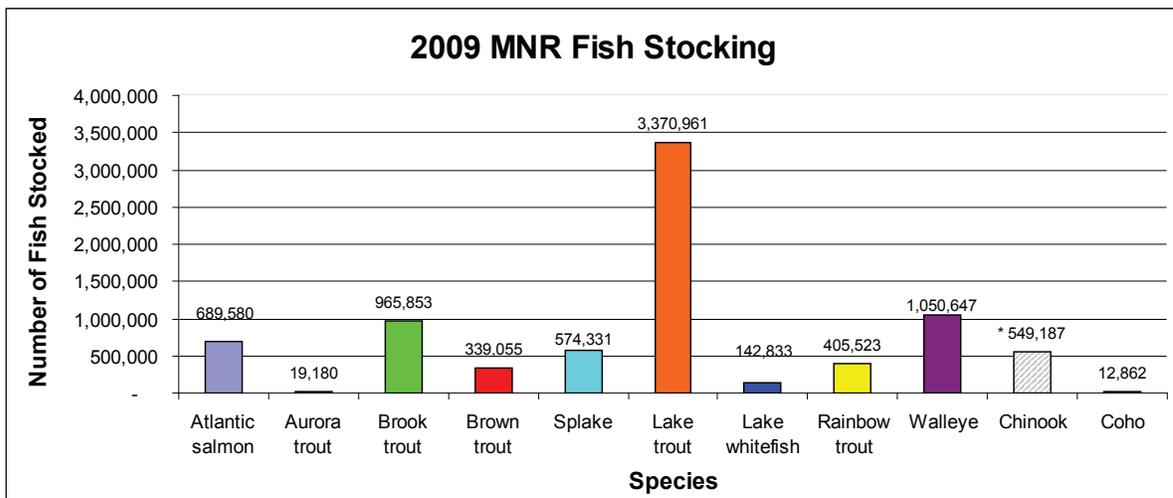


Figure 3: Number of fish stocked, by species, from Ministry of Natural Resources’ Fish Culture Stations in 2009.

The Ministry of Natural Resources’ Fish Culture Program is an important part of Ontario’s fisheries management program. There are many examples where stocking has been successful in helping to manage fish populations sustainably:

- Five unique strains of lake trout are being restored in the Great Lakes. Assessment surveys indicate that this stocking effort has been effective in re-establishing naturally reproducing populations of lake trout in the eastern basin of Lake Superior.
- Lake trout and lake whitefish populations in Lake Simcoe are being preserved through annual wild spawn collections and stocking activities. Populations of both species have grown dramatically in Lake Simcoe as a result of stocking, and there is evidence of successful natural reproduction.
- Fish populations in a number of acid rain–stressed lakes in northeastern Ontario have been successfully rehabilitated.
- Stocking the Mishibishu strain of lake trout in the Montreal River and the Dog River has helped to re-establish spawning runs of the fish. Since the Mishibishu strain was collected largely from river-spawning populations in Lake Superior before their disappearance, this is a significant achievement for lake trout rehabilitation in Lake Superior.
- Rainbow trout, brook trout, and splake stocked in inland lakes and the Great Lakes to support hatchery-dependent fishing opportunities are providing good returns to anglers.
- Summer and fall walleye fingerlings (young fish the size of an adult finger) stocked by the Ministry of Natural Resources have shown exceptionally good survival rates.

- The program has also been successful in preventing the extinction of aurora trout, an endangered species unique to northern Ontario.
- The lake trout population in Red Lake has shown a decline over the past decade. The Fish Culture Program is rearing and stocking lake trout yearlings while the cause of the decline is investigated and resolved.
- In the late 1980s and 1990s, the Fish Culture Program helped to rehabilitate Big Rideau Lake and Charleston Lake by assisting with wild egg collections, rearing, and stocking of lake trout. Natural reproduction is now occurring in these lakes, and they no longer require the support of the Fish Culture Program.

## What is the outlook for fish culture and stocking?

Many factors will influence the future of fish culture and stocking in Ontario. Climate change may increase water temperatures and change water levels, which may lead to changes in fish populations and the presence of species in some water bodies. Urban expansion, agricultural and industrial development, and invasive species will continue to put pressures on aquatic ecosystems in the form of pollution and habitat change. These pressures will challenge our ability to manage Ontario's fisheries resources sustainably, and fish culture and stocking are likely to remain important fisheries management tools well into the future.

The Ministry of Natural Resources' Fish Culture Program will continue to play a role in the effort to support aquatic species at risk and other species of conservation concern, and to provide the best genetic stocks for local and regional rehabilitation projects. The Fish Culture Program provides a renewable and sustainable resource that will aid in meeting the needs of ever-changing and complex ecosystems.

### How can I learn more?

Community Fish and Wildlife Involvement Projects (CFWIP)  
Fish Culture and Stocking in Ontario

### Information Sources:

Kerr, S.J. 2006. An Historical Review of Fish Culture, Stocking and Fish Transfers in Ontario, 1865-2004. Ontario Ministry of Natural Resources.

### Related Information:

Ontario Ministry of Natural Resources/ Great Lakes Fisheries  
Ontario Ministry of Natural Resources/ Biodiversity  
Ontario Ministry of Natural Resources/ Climate Change  
Health Canada/ Canada's Food Guide  
Ontario Federation of Anglers and Hunters

### For more information

For more information on the status of Fish Culture and Stocking in Ontario, please contact:

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ISBN 978-1-4435-5689-7 HTML  
ISBN 978-1-4435-5690-3 PDF