



Onondaga Lake Fishery: 2006 Fact Sheet

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Onondaga County Ambient Monitoring Program

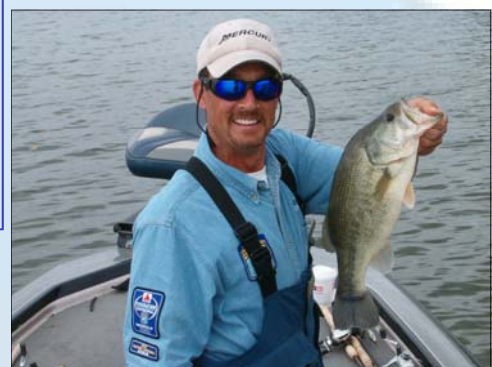
Each year, Onondaga County Department of Water Environment Protection (OCDWEP) monitors Onondaga Lake to measure how the lake is changing as pollution levels decline. The 2006 OCDWEP Ambient Monitoring Program (AMP) represents the 37th consecutive year of Onondaga County's lake monitoring effort. The County monitoring program measures physical, chemical, and biological conditions and compares the results to state and federal standards. By law, all waters are to support recreational use and a balanced biological community. This national requirement is often referred to as ensuring that all waters are "fishable and swimmable".

In 1998, the County's historical water quality monitoring program was modified and expanded to include biological components. Results of the monitoring program are used to evaluate how the lake is changing in response to clean-up efforts.

Onondaga County's monitoring program is designed to help answer two important questions:

- *Does Onondaga Lake support recreational uses?*
- *Does Onondaga Lake support a balanced community of plants and animals?*

This progress report describes recent findings of the County's comprehensive fish community monitoring program. A detailed report of the entire annual monitoring program is available on the County's web site <http://www.ongov.net/WEP/we1510.html>.



Measures of Progress

The County biological monitoring program tracks a number of plant and animal communities in the lake ecosystem. The monitoring program measures the number and types of fish, aquatic plants, macroinvertebrates, phytoplankton (algae), zooplankton, and zebra mussels. Results of the biological monitoring program are very encouraging; the lake now supports a diverse and productive biological community. Fish are quite abundant, and angling is becoming increasingly popular. Onondaga Lake is beginning to resemble other lakes of its size in the area with respect to the number of fish species, plant abundance, and summertime water clarity.

How many and what kinds of fish are in Onondaga Lake?

Popular belief is that Onondaga Lake’s legacy of pollution has left the lake a biological wasteland. This couldn’t be farther from the truth. In fact, the County’s monitoring program has captured 44 different fish species since 2000. When combining the County species list with that of other recent studies, there have been 64 fish species identified in the lake in recent years. Fish species and their relative abundance are summarized in [Table 1](#).

Table 1. Fish species documented present in Onondaga Lake, grouped by relative abundance (2000—2006). Source: OCDWEP files.

Abundant Species			Common Species			Uncommon Species		
Alewife	Banded Killifish	Bluegill	Black Crappie	Bluntnose Minnow	Bowfin	Black Bullhead	Brown Trout	Goldfish
Brown Bullhead	Carp	Channel Catfish	Brook Silverside	Brook Stickleback	Emerald Shiner	Greater Redhorse	Johnny Darter	Lake Sturgeon
Gizzard Shad	Golden Shiner	Largemouth Bass	Fathead Minnow	Freshwater Drum	Longnose Gar	Longnose Dace	Northern Hogsucker	Quillback
Pumpkinseed	Shorthead Redhorse	Smallmouth Bass	Logperch	Northern Pike	Rock Bass	Rainbow Trout	Rudd	Trout Perch
White Perch	White Sucker	Yellow Perch	Tessellated Darter	Tiger Musky	Walleye	White Bass	Yellow Bullhead	



Lake sturgeon caught in Onondaga Lake as part of the OCDWEP fish monitoring program.

One reason for this abundance of fish is the interconnections between Onondaga Lake and other regional waterways. Onondaga Lake is an open system, meaning that it is connected to other streams, rivers and lakes with no barriers to fish passage. Ninemile Creek connects Otisco Lake to Onondaga Lake. The lake outlet flows north into the Seneca River. Many fish likely enter the lake from the river and tributaries. For example, lake sturgeon stocked in Oneida Lake have made their way to Onondaga Lake through the river system. Tiger musky stocked in Otisco Lake and brown trout stocked in streams connected to Onondaga Lake have swum downstream and been caught in Onondaga Lake.

Are the fish safe to eat?

Due to a long history of mercury pollution, fish in Onondaga Lake have had elevated levels of mercury for many years. There is currently a health advisory issued by the NYS Department of Health to eat no more than one meal per month of any species caught in Onondaga Lake, to eat no largemouth or smallmouth bass over 15 inches, and to eat no walleye of any size.

What kind of fishery does the Lake currently support?

Onondaga Lake currently supports a very productive warm water fishery. Anglers, both recreational and professional, from across the region enjoy the lake’s excellent largemouth and smallmouth bass fishing. Numerous bass tournaments are held on the lake every year. In July 2007, Onondaga Lake was host to a major Bass Anglers Sportsman's Society (BASS) bass fishing tournament that received national coverage on ESPN. Shore anglers catch combinations of bass, sunfish, white perch, carp, bullhead, and catfish.

The lake also supports some popular cool water species, such as walleye and yellow perch, but they tend not to be as abundant as the warm water species.

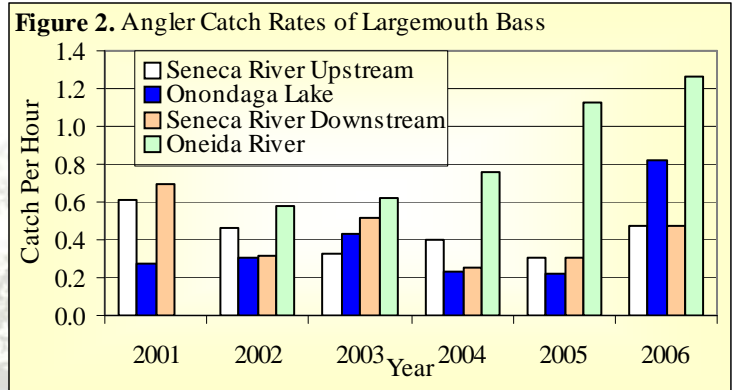
Some coldwater species, such as brown trout, are also caught during the colder periods of the year.



Largemouth bass, like these, are common in Onondaga Lake.

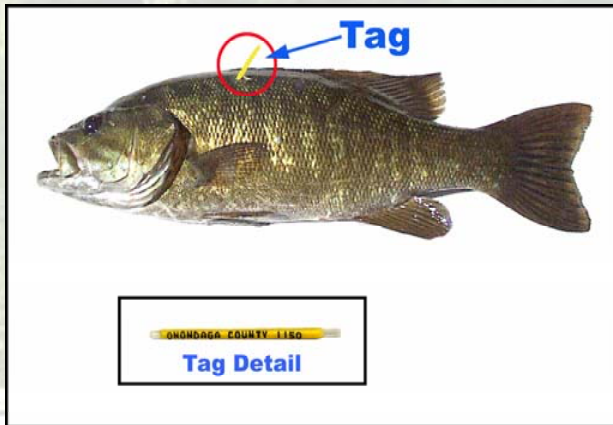
Has fishing success improved?

OCDWEP surveys anglers fishing on Onondaga Lake, the Seneca River, and Oneida River through the use of an Angler Diary Program. The diaries monitor angler catch rates for all species, but focus on the popular bass fishery. The catch rates in Onondaga Lake and the River System have been variable (Figure 2). Fishing success in Onondaga Lake is typically comparable to, or slightly better than, fishing success in other regional waters, including Oneida Lake. The summer of 2006 was particularly good for Onondaga Lake anglers, with a catch rate of about one bass per hour, almost double the rate reported by Seneca River anglers.



The most notable change evident from the diary program has been the dramatic increase in angler catch rates in the Oneida River. This increase probably reflects natural variability in fish populations and angler catch rates, not impacts of the lake clean-up program. To participate in the angler diary program, please contact OCDWEP (315-435-2260 ext. 360), or visit <http://www.ongov.net/WEP/we1506.html> for more information.

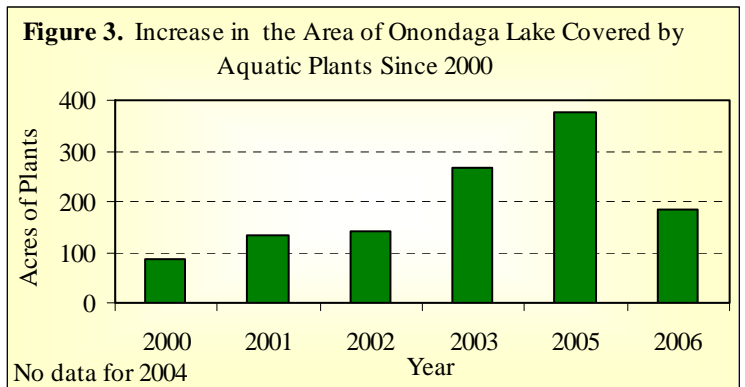
If I catch a fish with a tag, what should I do?



As part of its ongoing monitoring, OCDWEP tags fish in Onondaga Lake with a yellow “spaghetti tag” below the dorsal fin (fin on the fish’s back). The information gathered from these tags, such as how far the fish moved and how much it has grown since it was tagged, is important in helping managers understand the fish community. So far, it is clear that growth rates of the Onondaga Lake fish community are comparable to, or even higher than, growth rates seen in other NY lakes. Also, few fish migrate far from the lake. Anyone catching a tagged fish should record the tag number, the length, weight, and location caught, and report this information to OCDWEP (315-435-2260 ext. 360).

I’ve noticed a lot of aquatic plant growth in the Lake lately. Is this good for the Lake?

You’re right, the amount of aquatic plants in the lake has increased dramatically in recent years. Aquatic plants are greatly expanding as water quality improves, although there is natural variability from year to year as is common in regional lakes (Figure 3). As long as plant growth doesn’t get out of control, this is a very good thing for the lake. Aquatic plants act as essential

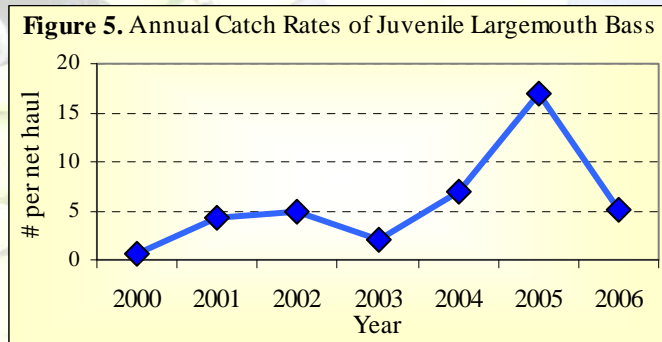
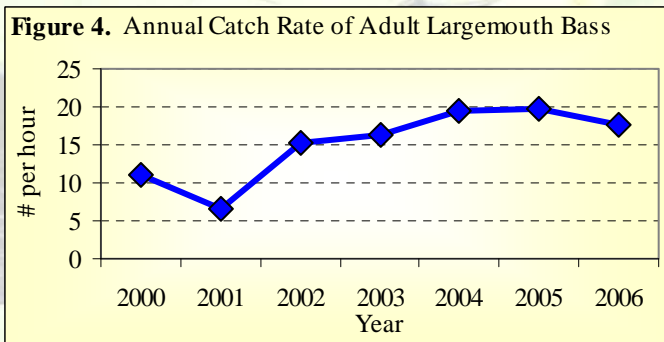


Bed of aquatic vegetation in Onondaga Lake. In the recent past, this area of the lake was barren with little vegetation to support the fish population.

rearing and nursery habitat for fish, they help stabilize the bottom, and also help clear the water. If the wrong kinds of plants get into the lake, and they become abundant enough, they can pose problems for lake users. Of particular concern are invasive species such as water chestnut, and Eurasian watermilfoil. For this reason, OCDWEP is closely monitoring the plant community.

With all the recent upgrades to the Metro Wastewater Treatment Plant (located on the southern shore of the lake) has the fish community shown an improvement?

Yes, the fish community is improving, and more quickly than anticipated. The overall number of fish species caught in the lake has increased since comprehensive monitoring began in 2000. The abundance of many types of fish is increasing, including important gamefish species such as largemouth bass (Figure 4). Reproduction, although naturally variable, has also seen some significant improvements (Figure 5). The increase in bass reproduction appears to be correlated with the increased abundance of aquatic plants, which provide cover and nursery areas. These positive trends are expected to continue.



What can we expect in the future?

Water and habitat quality will continue to improve in Onondaga Lake as the lake clean-up project moves forward. In response, the biological community and fishery should also improve. There are, however, many uncertainties. Biological communities can be affected by factors other than simply the quality of the water. Several fish diseases, including largemouth bass virus (LMBV), and viral hemorrhagic septicemia (VHS), have been recently discovered in nearby fish populations (these diseases are not transmittable to humans). Invasive species also continue to be a serious problem in regional waterways. For example, the round goby, which is already present in Lake Ontario, has the potential to dramatically alter the lake’s food web. Natural population variability, unrelated to remediation efforts, can cause unpredictable changes. These issues are not limited to Onondaga Lake; all regional lakes face these challenges. Despite these issues, it appears that Onondaga Lake and its fish community will continue to improve.

Where can I find additional information?

Onondaga County maintains a web site dedicated to keeping the public up to date on remediation progress, and improvements to the water quality and aquatic community in the lake. It can be found at <http://www.ongov.net/WEP>.

Visit our Web site:
www.ongov.net/WEP

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Summary and a Look Ahead

Real progress is being made in Onondaga Lake. The water is clearer, there is less algae, and water quality conditions support a thriving warm water aquatic community.

The Ambient Monitoring Program will continue to track key indicators in response to reductions in wastewater inputs, urban runoff, agricultural runoff, and industrial pollution.