



# ONONDAGA LAKE AMBIENT MONITORING PROGRAM

**Project Description:** Projects to reduce the Combined Sewer Overflows (CSOs) and provide a higher level of treatment at the Syracuse Metropolitan Wastewater Treatment Plant (Metro) began in 1998 with the signing of the Amended Consent Judgment (ACJ). The ACJ outlines a 15-year program with three major elements: CSO abatement projects, Metro treatment improvements, and the Ambient Monitoring Program (AMP) to track improvements in water quality.

The AMP is designed to provide data and information needed to assess the effectiveness of improvements to the wastewater collection and treatment infrastructure. The monitoring program includes field and laboratory components to identify sources of materials (nutrients, sediment, microorganisms, and chemicals) to the lake, evaluate in-lake water quality conditions, and examine the interactions between Onondaga Lake and the Seneca River. Biological sampling programs are also part of the AMP and encompass much of the food web of the lake and its watershed, including zebra mussels, macroinvertebrates, aquatic plants, phytoplankton, zooplankton, and fish. AMP objectives include monitoring compliance with Water Quality Standards, monitoring responses and effectiveness of abatement efforts within the watershed, estimating future conditions through water quality modeling and incorporating data collected by other organizations.

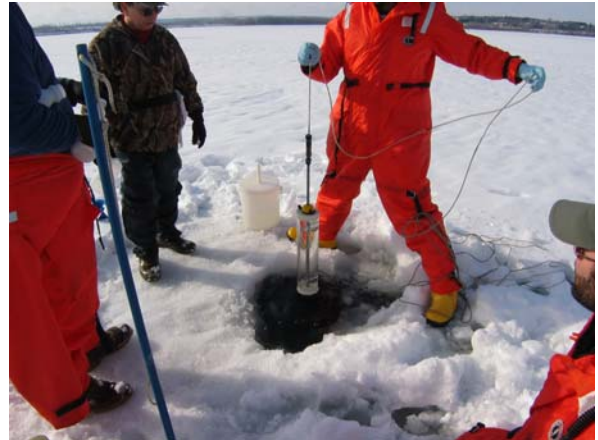


**Buoy Release for Data Collection**

Onondaga County's trained certified field and analytical technicians collect and analyze water quality and biological samples at a number of key locations in the watershed. Streams flowing into Onondaga Lake are monitored to estimate the annual input of water and materials including nutrients, sediment, salts, and bacteria. Samples are collected upstream of the lake to help pinpoint sources of pollution. Accurate estimates of inflows are a critical component of the AMP, since they underlie many of the management decisions facing Onondaga County and the OLP. Monitoring of Onondaga Lake and the Seneca River is conducted during the ice-free period and, when conditions allow, winter sampling is conducted as well.

**Location:** Onondaga Lake, Syracuse, New York.

**Project Sponsor:** Onondaga County.



**Winter Water Quality Sampling**

**Current Status:** The AMP is in its 38th consecutive year of Onondaga County's lake monitoring effort. Following the signing of the ACJ in 1998, the program was expanded to include additional parameters that are now part of the program.

Ammonia concentrations in the lake have declined as a direct result of the Metro treatment plant improvements. In 2006, the annual average phosphorus input from Metro was the lowest ever measured. The phosphorus concentrations in the lake water, which respond to inputs from the entire watershed, are also in decline. Several projects are underway within the lake watershed that are designed to reduce phosphorus inputs from other sources such as agriculture and urban storm water.

Oxygen is the most important factor affecting the type and distribution of animals living in the lake. Until recently, oxygen levels in the fall were quite low and potentially harmful to aquatic life. Oxygen levels in the fall have been higher in recent years. This means better habitat for aquatic life.

The County monitoring program tracks the number and types of fish, aquatic plants, zebra mussels, and other life forms in the lake. The 2006 results are very encouraging. The lake supports an abundant fish community; the number of fish species in the lake has increased since comprehensive monitoring began in 2000. Since the program began, the County has identified 43 different fish species in the lake. When combining the County's species list with that of other recent studies, there have been 64 fish species identified in the lake. Aquatic plants are also expanding as water quality improves, although there is substantial variability from year to year, as is common in many Central New York lakes. Onondaga Lake is beginning to resemble other lakes of its size with respect to plant abundance, number of fish species, and summertime water clarity.