

Progress toward water quality improvement: Bacteria. AMP 2013 Annual Report.
(Water Quality Standard)

AMENDED CONSENT JUDGMENT GOAL

Achieve compliance with the ambient water quality standard for fecal coliform bacteria, Class B segment, during the period of Metro disinfection (April 1- October 15). Track bacteria concentrations in nearshore areas following storm events.

Hypotheses to be tested:	Status:
CSO remedial measures and improved storm water management reduce the loading of fecal coliform bacteria entering the lake.	<ul style="list-style-type: none"> The annual load of fecal coliform bacteria in 2013 was 571,593 (10^{10} CFU), a 73% decrease from the 1994-2013 annual average of 2,027,168 (10^{10} CFU).
Implementation of improvements to the wastewater collection and treatment system (including CSO projects) and progress with storm water management will reduce concentration of indicator organisms in Onondaga Lake.	<ul style="list-style-type: none"> In 2013, bacteria levels were generally low throughout the lake during the summer.

Sources and Contributing Factors

Major Sources	Combined sewer overflows (major); sanitary sewer overflows (rare) Storm water from urban and agricultural land use Metro effluent (disinfection period April 1– Oct 15) and by-pass Other sources (wildlife, birds, etc.)
Factors Affecting Compliance	Metro disinfection, extent of CSO and Sanitary Sewer Overflow (SSO) Meteorological conditions (rainfall, temperature, sunlight, winds) Lake water quality (turbidity); Abundance of waterfowl

Compliance Assessment, 2007-2013

Percentage of months (April-September) that nearshore sampling locations in the Class B segment were in compliance with the NYS AWQS for fecal coliform bacteria.

Class B Locations	2007	2008	2009	2010	2011	2012	2013
Bloody Brook	100	100	100	100	100	100	100
Lake Park	100	100	100	100	100	100	100
Maple Bay	100	100	100	100	100	100	100
Wastebeds	100	100	100	100	100	100	100
Willow Bay	100	100	100	100	100	100	100

Percentage of months (April-September) that nearshore sampling locations in the Class C segment were in compliance with the NYS AWQS for fecal coliform bacteria.

Class C Locations	2007	2008	2009	2010	2011	2012	2013
Harbor Brook	100	100	100	100	100	100	100
Ley Creek	100	100	100	100	100	100	100
Metro	100	86	100	86	100	86	86
Ninemile Creek	100	100	100	100	100	100	100
Onondaga Creek	-	-	67	43	71	100	71

CSO Compliance Schedule

Project Phase	Goal	Effective Date
Stage I	Capture for treatment or eliminate 89.5% of combined sewage* during precipitation, within the meaning of EPA's National CSO Control Policy	Dec 31, 2013
Stage II	Capture for treatment or eliminate 91.4% of combined sewage during precipitation, within the meaning of EPA's National CSO Control Policy	Dec 31, 2015
Stage III	Capture for treatment or eliminate 93% of combined sewage during precipitation within the meaning of EPA's National CSO Control Policy	Dec 31, 2016
Stage IV	Capture for treatment or eliminate 95% of combined sewage during precipitation within the meaning of EPA's National CSO Control Policy	Dec 31, 2018
* on a system-wide annual average basis (per Fourth Stipulation to ACJ, Nov. 2009)		

Monitoring and Assessment Program

Loading Estimates <i>(Annual County monitoring program)</i>	<ul style="list-style-type: none"> • Biweekly tributary monitoring for fecal coliform bacteria supplemented with samples collected during high flow conditions. • Daily measurements of Metro (001 and 002 if active) for fecal coliform bacteria • Storm event monitoring in tributaries for fecal coliform bacteria
Lake Monitoring <i>(Annual County monitoring program)</i>	<ul style="list-style-type: none"> • Weekly monitoring for Fecal coliform bacteria at South Deep, Class C segment (May – Sept) • Quarterly monitoring for Fecal coliform bacteria at North Deep, Class B segment (Apr – Nov) • 10 nearshore stations weekly (summer) and following storms, both Class B and Class C segments, for Fecal coliform bacteria

Tools for Decision Making

Model	Storm Water Management Model (simulates bacteria loads in tributaries from collection system given rainfall conditions)
TMDL Allocations	Based on presumptive approach for CSO control: percent capture of combined storm and wastewater. Must account for urban storm water.
NYS AWQS	The monthly geometric mean of fecal coliforms, from a minimum of five examinations, shall not exceed 200 cfu/100ml during disinfection period Apr 1 to Oct 15.
Federal Criteria	NYS indicator bacteria standards include total and fecal coliform. EPA criteria now use <i>E. coli</i> (freshwater) and <i>Enterococcus</i> (marine water) as indicators; states are encouraged to adopt <i>E. coli</i> .