

Progress towards water quality improvement: Bacteria. AMP 2009 Annual Report.
(Water Quality Standard)

AMENDED CONSENT JUDGMENT GOAL

Achieve compliance with the applicable ambient water quality standard for fecal coliform bacteria, Class B segment, applicable during the period of Metro disinfection (April 1- October 15). Include bacteria concentrations in nearshore areas following storm events. Reduce fecal coliform bacteria levels in the lake to achieve desired use for water contact recreation.

Hypotheses to be tested:	Status:
CSO remedial measures and improved stormwater 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 2009 was 1,368,226 10^{10} CFU, a 44% decrease from the 1990-2009 annual average of 2,570,984 10^{10} CFU
Implementation of Stage I and II improvements to the wastewater collection and treatment system (including CSO projects) and progress with stormwater management will reduce concentration of indicator organisms in Onondaga Lake	<ul style="list-style-type: none"> In 2009, bacteria levels were generally low throughout the lake during the summer, coincident with normal to slightly above average summer precipitation.

Current Conditions with Historical Comparison

Major Sources	Combined sewer overflows (major); sanitary sewer overflows (rare) Stormwater from urban and agricultural land use Metro effluent (disinfection period April 1– Oct 15) and by-pass Other sources (wildlife, birds, etc.)	
Compliance with NYS AWQS in Class B Segment	<u>Percent in compliance Class B</u> 1999-2003: 99% 2004-2008: 100% 2009: 100%	<u>Class B Locations:</u> Bloody Brook Willow Bay Maple Bay Wastebeds Onondaga Lake Park North Basin
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	

Planned Load Reductions (1998 – 2012)

Metro SPDES Permit Requirement	Seasonal disinfection (4/1 – 10/15) of Metro effluent required
Staged CSO Remediation	CSO phased plan to capture combined sewage and stormwater: <ul style="list-style-type: none"> Stage I captures 62% of volume through best management practices Stage II eliminates and/or captures 85% of volume and provides equivalent of primary treatment.

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 and E. coli bacteria at South Deep, Class C segment (May – Sept) Quarterly monitoring for Fecal coliform and E. coli bacteria at North Deep, Class B segment (Apr – Nov) Nine nearshore stations weekly (summer) and following storms, both Class B and Class C segments, for Fecal coliform and E. coli bacteria

Library Reference 2.7.8

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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 stormwater.
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> .
