

Progress toward water quality improvement: Bacteria. AMP 2011 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 2011 was 499,213 (10¹⁰ CFU), a 79% decrease from the 1991-2011 annual average of 2,399,469 (10¹⁰ CFU).
Implementation of Stage I and II 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 2010, bacteria levels were generally low throughout the lake during the summer, coincident with above average summer precipitation.

Current Conditions with Historical Comparison

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.)										
Compliance with NYS AWQS in Class B Segment	<table border="0"> <tr> <td><u>Percent in compliance Class B</u></td> <td><u>Class B Locations:</u></td> </tr> <tr> <td>1999-2003: 99%</td> <td>Bloody Brook Willow Bay</td> </tr> <tr> <td>2004-2009: 100%</td> <td>Maple Bay Wastebeds</td> </tr> <tr> <td>2010: 100%</td> <td>Onondaga Lake Park</td> </tr> <tr> <td>2011: 100%</td> <td>North Basin</td> </tr> </table>	<u>Percent in compliance Class B</u>	<u>Class B Locations:</u>	1999-2003: 99%	Bloody Brook Willow Bay	2004-2009: 100%	Maple Bay Wastebeds	2010: 100%	Onondaga Lake Park	2011: 100%	North Basin
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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 storm water: <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 2.2.8

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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 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> .
