

Library Reference 2.2.6

Progress toward water quality improvement: Ammonia-N. AMP 2010 Annual Report.  
(Water Quality Standard)

**AMENDED CONSENT JUDGMENT GOAL**

Achieve compliance with the ambient water quality standards, and removal of ammonia toxicity as impairment to designated best use for survival and propagation of a warmwater fish community. Achieve desired use of aquatic life protection.

<b>Hypotheses to be tested:</b>	<b>Status:</b>
Improvements at Metro enables the County to meet Stage III effluent limits for ammonia N	<ul style="list-style-type: none"> <li>Stage III effluent limits have been met for ammonia-N since 2004, after the BAF upgrade was implemented for year-round ammonia treatment.</li> </ul>
Reduced ammonia load results in compliance with ambient water quality standards and federal criteria for ammonia in Onondaga Lake	<ul style="list-style-type: none"> <li>Since 2004, Onondaga Lake has been in full compliance with NYS AWQS in upper waters.</li> <li>Onondaga Lake de-listed as impaired by ammonia N in 2008</li> </ul>

**Current Conditions with Historical Comparison**

Major Sources – Percent Contribution <i>(Annual Average (standard deviation))</i>	<table border="1"> <thead> <tr> <th><u>Time Period</u></th> <th><u>Metro Effluent and Bypass</u></th> <th><u>Tributaries</u></th> </tr> </thead> <tbody> <tr> <td>1985-2003:</td> <td>89% (6%)</td> <td>11% (6%)</td> </tr> <tr> <td>2004-2009:</td> <td>50% (14%)</td> <td>50% (14%)</td> </tr> <tr> <td>2010:</td> <td>44%</td> <td>56%</td> </tr> </tbody> </table>	<u>Time Period</u>	<u>Metro Effluent and Bypass</u>	<u>Tributaries</u>	1985-2003:	89% (6%)	11% (6%)	2004-2009:	50% (14%)	50% (14%)	2010:	44%	56%
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Upper Waters Concentration <i>(Annual Average (standard deviation))</i>	<table border="1"> <thead> <tr> <th><u>Time Period</u></th> <th><u>South Deep, 0-6 meters, Jan-Dec (mg/l)</u></th> </tr> </thead> <tbody> <tr> <td>1985-2003:</td> <td>1.56 (0.63)</td> </tr> <tr> <td>2004-2009:</td> <td>0.19 (0.07)</td> </tr> <tr> <td>2010:</td> <td>0.14</td> </tr> </tbody> </table>	<u>Time Period</u>	<u>South Deep, 0-6 meters, Jan-Dec (mg/l)</u>	1985-2003:	1.56 (0.63)	2004-2009:	0.19 (0.07)	2010:	0.14				
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Compliance with NYS AWQS in Upper Waters	Full compliance in 2010 Full compliance in upper waters since 2004.												
Factors Affecting Compliance	Metro performance, hydrology, pH, and water temperature												

**Planned Load Reductions (1998 – 2012)**

Metro SPDES Permit Requirement  <i>(Stage III Limit has been met since 2004, eight years ahead of schedule)</i>	Stage I Limit: Cap on Loading <ul style="list-style-type: none"> <li>effective Jan 1998 - April 30, 2004 (completed)</li> </ul> Stage II Limit: effective May 1, 2004 – Dec. 2012 <ul style="list-style-type: none"> <li>June 1 – Oct. 31: 2.0 mg/l (as NH<sub>3</sub>)</li> <li>Nov. 1 – May 31: 4.0 mg/l (as NH<sub>3</sub>)</li> </ul> Stage III Limit: effective Dec. 2012 <ul style="list-style-type: none"> <li>June 1 – Oct. 31: 1.2 mg/l (as NH<sub>3</sub>)</li> <li>Nov. 1 – May 31: 2.4 mg/l (as NH<sub>3</sub>)</li> </ul>
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**Monitoring and Assessment Program**

Loading Estimates <i>Annual County monitoring program</i>	<ul style="list-style-type: none"> <li>Biweekly tributary monitoring, supplemented with samples collected during high flow conditions</li> <li>Daily measurements of Metro effluent</li> </ul>
Lake Monitoring <i>Annual County monitoring program</i>	<ul style="list-style-type: none"> <li>Biweekly profiles in Lake, April –Nov, 3-meter intervals</li> <li>Winter sampling as weather allows</li> </ul>
Related Biological Monitoring	<ul style="list-style-type: none"> <li>Assessment of fish, dreissenid and invertebrate communities</li> </ul>

**Tools for Decision Making**

Model	Onondaga Lake Water Quality Model (Anchor QEA, LLC)
TMDL Allocations	NYSDEC Phase I TMDL 8/27/97; Onondaga Lake was delisted from Section 303d in 2008 for ammonia since applicable water quality standards are being met. No additional TMDL is needed.