

Library Reference 2.7.6

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

AMENDED CONSENT JUDGMENT GOAL

Achieve compliance with the applicable ambient water quality standard in the upper waters, 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.

Hypotheses to be tested:	Status:
Improvements at Metro enables the County to meet Stage III effluent limits for ammonia N	<ul style="list-style-type: none"> Stage III effluent limits have been met for ammonia-N since 2004, after the BAF upgrade was implemented for year-round ammonia treatment.
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"> Since 2004, Onondaga Lake has been in full compliance with NYS AWQS in upper waters.

Current Conditions with Historical Comparison

Major Sources – Percent Contribution <i>(Annual Average (standard deviation))</i>	<table border="1"> <thead> <tr> <th>Time Period</th> <th>Metro Effluent and Bypass</th> <th>Tributaries</th> </tr> </thead> <tbody> <tr> <td>1985-2003:</td> <td>89% (6%)</td> <td>11% (6%)</td> </tr> <tr> <td>2004-2008:</td> <td>52% (14%)</td> <td>48% (14%)</td> </tr> <tr> <td>2009:</td> <td>39%</td> <td>61%</td> </tr> </tbody> </table>	Time Period	Metro Effluent and Bypass	Tributaries	1985-2003:	89% (6%)	11% (6%)	2004-2008:	52% (14%)	48% (14%)	2009:	39%	61%
Time Period	Metro Effluent and Bypass	Tributaries											
1985-2003:	89% (6%)	11% (6%)											
2004-2008:	52% (14%)	48% (14%)											
2009:	39%	61%											
Upper Waters Concentration <i>(Annual Average (standard deviation))</i>	<table border="1"> <thead> <tr> <th>Time Period</th> <th>South Deep, 0-6 meters, Jan-Dec (mg/l)</th> </tr> </thead> <tbody> <tr> <td>1985-2003:</td> <td>1.56 (0.63)</td> </tr> <tr> <td>2004-2008:</td> <td>0.20 (0.08)</td> </tr> <tr> <td>2009:</td> <td>0.15</td> </tr> </tbody> </table>	Time Period	South Deep, 0-6 meters, Jan-Dec (mg/l)	1985-2003:	1.56 (0.63)	2004-2008:	0.20 (0.08)	2009:	0.15				
Time Period	South Deep, 0-6 meters, Jan-Dec (mg/l)												
1985-2003:	1.56 (0.63)												
2004-2008:	0.20 (0.08)												
2009:	0.15												
Compliance with NYS AWQS in Upper Waters	Full compliance in 2009 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"> effective Jan 1998 - April 30, 2004 (completed) Stage II Limit: effective May 1, 2004 – Dec. 2012 <ul style="list-style-type: none"> June 1 – Oct. 31: 2.0 mg/l (as NH₃) Nov. 1 – May 31: 4.0 mg/l (as NH₃) Stage III Limit: effective Dec. 2012 <ul style="list-style-type: none"> June 1 – Oct. 31: 1.2 mg/l (as NH₃) Nov. 1 – May 31: 2.4 mg/l (as NH₃)
---	--

Monitoring and Assessment Program

Loading Estimates <i>Annual County monitoring program</i>	<ul style="list-style-type: none"> Biweekly tributary monitoring, supplemented with samples collected during high flow conditions Daily measurements of Metro effluent
Lake Monitoring <i>Annual County monitoring program</i>	<ul style="list-style-type: none"> Biweekly profiles in Lake, April –Nov, 3-meter intervals Winter sampling as weather allows
Related Biological Monitoring	<ul style="list-style-type: none"> Assessment of fish community began in 2000 Annual zooplankton monitoring

Tools for Decision Making

Model	Onondaga Lake Water Quality Model (under development by 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.