

Waterbody Inventory for Seneca River (Lower) Watershed

Water Index Number	Waterbody Segment	Category
Lower Seneca River Watershed, Three Rivers to Onondaga Outlet		
Ont 66-12 (portion 1)	Seneca River, Lower, Main Stem (0701-0001)	Impaired Seg
Ont 66-12- 2 thru 11	Minor Tribs to Lower Seneca River (0701-0030)	UnAssessed
Ont 66-12-12	Onondaga Lake Outlet (0702-0020)	Impaired Seg
Onondaga Lake Watershed		
Ont 66-12-12-P154 (portion 1)	Onondaga Lake, northern end (0702-0003)	Impaired Seg
Ont 66-12-12-P154 (portion 2)	Onondaga Lake, southern end (0702-0021)	Impaired Seg
Ont 66-12-12-P154-	Minor Tribs to Onondaga Lake (0702-0022)	Impaired Seg
Ont 66-12-12-P154- 2	Bloody Brook and tribs (0702-0006)	Impaired Seg
Ont 66-12-12-P154- 3	Ley Creek and tribs (0702-0001)	Impaired Seg
Ont 66-12-12-P154- 4	Onondaga Creek, Lower (0702-0023)	Impaired Seg
Ont 66-12-12-P154- 4	Onondaga Creek, Middle, and tribs (0702-0004)	Impaired Seg
Ont 66-12-12-P154- 4	Onondaga Creek, Upper, and minor tribs (0702-0024)	MinorImpacts
Ont 66-12-12-P154- 4-11	West Branch Onondaga Creek and tribs (0702-0025)	Need Verific
Ont 66-12-12-P154- 4-P156,P158	Hiawatha Lake, Woodland Reservoir (0702-0026)	UnAssessed
Ont 66-12-12-P154- 5	Harbor Brook, Lower, and tribs (0702-0002)	Impaired Seg
Ont 66-12-12-P154- 5	Harbor Brook, Upper, and tribs (0702-0012)	UnAssessed
Ont 66-12-12-P154- 5-P158a	Westcott Reservoir (0702-0027)	UnAssessed
Ont 66-12-12-P154- 6	Ninemile Creek, Lower, and tribs (0702-0005)	Impaired Seg
Ont 66-12-12-P154- 6	Ninemile Creek, Upper, and tribs (0702-0028)	UnAssessed
Ont 66-12-12-P154- 6- 2	Geddes Brook and tribs (0702-0007)	Impaired Seg
Ont 66-12-12-P154- 6- 5-P165	Mud Pond (0702-0029)	UnAssessed
Ont 66-12-12-P154- 6-P175	Otisco Lake (0702-0011)	MinorImpacts
Ont 66-12-12-P154- 6-P175-	Minor Tribs to Otisco Lake (0702-0030)	UnAssessed
Ont 66-12-12-P154- 6-P175- 3-P176	Smith Hollow Pond (0702-0031)	UnAssessed
Ont 66-12-12-P154- 6-P175-16	Spafford Creek and tribs (0702-0032)	UnAssessed
Lower Seneca River Watershed, Onondaga Outlet to Owasco Outlet		
Ont 66-12 (portion 2)	Seneca River, Lower, Main Stem (0701-0008)	Impaired Seg
Ont 66-12 (portion 3)/P185	Cross Lake (0701-0002)	MinorImpacts
Ont 66-12 (portion 4)	Seneca River, Lower, Main Stem (0701-0003)	UnAssessed
Ont 66-12-13 thru 28	Minor Tribs to Lower Seneca River (0701-0031)	UnAssessed
Ont 66-12-19	Dead Creek and tribs (0701-0032)	MinorImpacts
Ont 66-12-28	Carpenters Brook and tribs (0701-0033)	MinorImpacts
Ont 66-12 ..P185-	Tribs to Cross Lake (0701-0029)	UnAssessed
Ont 66-12-29	Skaneateles Creek and tribs (0707-0003)	Impaired Seg
Ont 66-12-29-P193	Skaneateles Lake (0707-0004)	Threat(Poss)
Ont 66-12-29-P193-	Minor Tribs to Skaneateles Lake (0707-0005)	UnAssessed
Ont 66-12-29-P193-55	Grout Brook and tribs (0707-0001)	NoKnownImpact

...Seneca River (Lower) Watershed

Water Index Number	Waterbody Segment	Category
Lower Seneca River Watershed, Onondaga Outlet to Owasco Outlet (con't)		
Ont 66-12-30 thru 42 (selected)	Minor Tribs to Lower Seneca River (0701-0034)	UnAssessed
Ont 66-12-35	Muskrat Creek and tribs (0701-0035)	UnAssessed
Ont 66-12-35-P197	Parker Pond (0701-0036)	Need Verific
Ont 66-12-35-P197-	Tribs to Parker Pond (0701-0037)	UnAssessed
Ont 66-12-35-P197- 3-P198	Otter Lake (0701-0004)	MinorImpacts
Ont 66-12-36	Cold Spring/North Brook and minor tribs (0701-0038)	MinorImpacts
Ont 66-12-36- 1	Putnam Brook and tribs (0701-0039)	NoKnownImpct
Ont 66-12-36-10- 1	Trib to North Brook, Upper (0701-0040)	UnAssessed
Ont 66-12-37-P206	Stark Pond (0701-0041)	UnAssessed
Ont 66-12-40- 3-P207	Slayton Pond (0701-0042)	UnAssessed
Ont 66-12-43	Owasco Outlet, Lower, and tribs (0706-0008)	MinorImpacts
Ont 66-12-43	Owasco Outlet, Upper, and tribs (0706-0001)	MinorImpacts
Owasco Lake Watershed		
Ont 66-12-43-P212	Owasco Lake (0706-0009)	Impaired Seg
Ont 66-12-43-P212-	Minor Tribs to Owasco Lake (0706-0010)	MinorImpacts
Ont 66-12-43-P212- 3	Dutch Hollow Brook and tribs (0706-0003)	MinorImpacts
Ont 66-12-43-P212-28	Owasco Inlet, Lower, and minor tribs (0706-0002)	MinorImpacts
Ont 66-12-43-P212-28	Owasco Inlet, Upper, and tribs (0706-0014)	Impaired Seg
Ont 66-12-43-P212-28-17	Mill/Dresserville Creek and minor tribs (0706-0015)	NoKnownImpct
Ont 66-12-43-P212-28-17- 1	Decker Creek, Upper, and tribs (0706-0016)	NoKnownImpct
Ont 66-12-43-P212-28-28	Unnamed Trib, Upper, and tribs (0706-0017)	UnAssessed
Ont 66-12-43-P212-28-29	Hemlock Creek and tribs (0706-0018)	UnAssessed
Lower Seneca River Watershed, Owasco Outlet to Montezuma Refuge		
Ont 66-12 (portion 5)	Seneca River, Lower, Main Stem (0701-0051)	UnAssessed
Ont 66-12 (portion 5a)/P293	Montezuma National Wildlife Refuge (0705-0045)	UnAssessed
Ont 66-12-44 thru 57 (selected)	Minor Tribs to Lower Senca River (0701-0043)	UnAssessed
Ont 66-12-44-P221	Mud Pond (0701-0044)	Need Verific
Ont 66-12-45-P222a thru i	Howland Island Game Refuge Ponds (0701-0045)	UnAssessed
Ont 66-12-46-P222	Duck Lake (0704-0025)	MinorImpacts
Ont 66-12-46-P222-	Tribs to Duck Lake (0701-0046)	UnAssessed
Ont 66-12-50	Crusoe Creek and tribs (0705-0028)	UnAssessed
Ont 66-12-50- 8	Black Creek and tribs (0701-0047)	UnAssessed
Ont 66-12-50-P225	Crusoe Lake (0701-0048)	UnAssessed
Ont 66-12-50-P225-	Tribs to Crusoe Lake/Butler Creek (0701-0049)	UnAssessed
Ont 66-12-51	Crane Brook and tribs (0704-0024)	Impaired Seg

Seneca River, Lower, Main Stem (0701-0001)

Impaired Seg

Waterbody Location Information

Revised: 11/01/2007

Water Index No: Ont 66-12 (portion 1) **Drain Basin:** Owsego-Seneca-Oneida
Hydro Unit Code: 04140201/350 **Str Class:** C Seneca/Clyde Rivers
Waterbody Type: River **Reg/County:** 7/Onondaga Co. (34)
Waterbody Size: 6.9 Miles **Quad Map:** BALDWINSVILLE (I-15-2)
Seg Description: portion from Three Rivers to Onondaga Lake Outlet

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
AQUATIC LIFE	Impaired	Known
RECREATION	Impaired	Known

Type of Pollutant(s)

Known: D.O./OXYGEN DEMAND, Nutrients
Suspected: Ammonia, Priority Organics (phenol)
Possible: Pathogens

Source(s) of Pollutant(s)

Known: HABITAT MODIFICATION (zebra mussels), HYDRO MODIFICATION, Agriculture, Other Source (Onondaga Lake inflow)
Suspected: Municipal, Urban/Storm Runoff
Possible: - - -

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 4 (Source Identified, Strategy Needed)
Lead Agency/Office: DOW/Reg7 **Resolution Potential:** Medium
TMDL/303d Status: 1->3b

Further Details

Aquatic life support and recreational uses in this portion of the Seneca River are impaired due to low dissolved oxygen. Extensive zebra mussel infestation of the river is the primary cause of the dissolved oxygen depletion. Hydrology influences (stratification) caused by Onondaga Lake exacerbate these problems.

The Seneca River is a large river that drains much of central New York. The Seneca River joins with the Oneida River to form the Oswego River, creating what is referred to as the Three Rivers System. These rivers have multiple uses including navigation, hydroelectric power generation, fishing, contact recreation, and waste disposal. The natural flow and other characteristics of the river system have been greatly altered by dams and locks to support navigation and hydroelectric power generation. This has reduced the river's capacity to compensate for oxygen depletion through natural aeration with the atmosphere and has contributed to the unusual bi-directional stratified flow that occurs between the Seneca River and Onondaga Lake. The lake both receives inflow from the river as well as discharges to the river. Due to the lack of hydrologic gradient, during periods of low flow, more dense higher salinity lake water exits along the bottom of the outlet while less dense river water flows into the lake in the top of the outlet. The salinity stratification also exacerbates dissolved oxygen depletion that occurs at lower depths of the river by preventing mixing and natural aeration.

The extension of other water quality issues common to the lake, such as ammonia toxicity, into the lower river layer has also been documented. (DEC/DOW, BWAM, June 2007)

In addition to the hydrologic conditions, the establishment of dense zebra mussel populations in the river has also profoundly changed and complicated water quality concerns. The population density of zebra mussels in The Cut, a rock channel located just downstream of Cross Lake, is perhaps the highest sustained in any river in North America. Conditions are ideal at this location, as large amounts of appropriate food (phytoplankton) are supplied by the lake, and the rock bottom represents suitable substrate for the zebra mussel colonization. As a result of the zebra mussel infestation, the Seneca River downstream of Cross Lake has experienced significant increases in water clarity and decreases in dissolved oxygen. (DEC/DOW, BWAM, June 2007)

The water quality of the Seneca river upstream of Onondaga Lake is also an important concern because a leading remediation alternative for the domestic waste problems of the lake - diversion of an upgraded (Metro) effluent now received by the lake to the river - depends critically on the water quality and assimilative capacity of the river. The loss of assimilative capacity for oxygen demanding waste in the river from the zebra mussel infestation, exacerbated by river stratification, compromises the management alternative of diversion of the Metro effluent to the river to rehabilitate Onondaga Lake. (DEC/DOW, Region 7, June 2007)

Seneca River is currently included on the NYS 2006 Section 303(d) List of Impaired Waters. The lake is included on Part 1 of the List as a waterbody segment requiring the development of a TMDL or other strategy to attain water quality standards for dissolved oxygen. As noted above, the dissolved oxygen depletion in the river is largely due to zebra mussel infestation which may require non-treatment options in addition to a TMDL in order to meet water quality targets. Because this impairment may not be appropriate to be addressed by a TMDL, it is recommended that this listing be moved to Part 3b (Waterbodies for which TMDL Development May be Deferred) of the 2008 Section 303(d) List, pending determination of the appropriateness of a TMDL. (DEC/DOW, BWAM, June 2007)

This segment includes the portion of the river from the confluence of the Oneida and Seneca Rivers at Three Rivers to the confluence of the Onondaga Lake Outlet in Cold Springs. The waters of this portion of the river are Class C. Tribs to this reach/segment are listed separately.

Onondaga Lake Outlet (0702-0020)

Impaired Seg

Waterbody Location Information

Revised: 08/13/2007

Water Index No: Ont 66-12-12
Hydro Unit Code: 04140201/380 **Str Class:** B
Waterbody Type: River
Waterbody Size: 0.7 Miles
Seg Description: entire stream from mouth to Onondaga Lake

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Onondaga Co. (34)
Quad Map: BALDWINSVILLE (I-15-2)

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
PUBLIC BATHING	Impaired	Suspected
Fish Consumption	Stressed	Known
AQUATIC LIFE	Impaired	Suspected
RECREATION	Impaired	Suspected

Type of Pollutant(s)

Known: Metals (mercury), Priority Organics (PCBs, dioxin)
Suspected: D.O./OXYGEN DEMAND, AMMONIA, NUTRIENTS (phosphorus), Unknown Toxicity
Possible: ---

Source(s) of Pollutant(s)

Known: LANDFILL/LAND DISP., OTHER SOURCE (Onondaga Lake outflow), Industrial, Municipal
Suspected: ---
Possible: ---

Resolution/Management Information

Issue Resolvability: 3 (Strategy Being Implemented)
Verification Status: 5 (Management Strategy has been Developed)
Lead Agency/Office: ext/OLP **Resolution Potential:** Medium
TMDL/303d Status: 3c*

Further Details

Public bathing, recreational uses, aquatic life support and fish consumption in Onondaga Lake Outlet are thought to be impaired by impacts from Onondaga Lake. These impacts include a variety of pollutants from municipal wastewater discharges, CSOs, urban runoff, and past industrial operations and uses. Though water quality in the lake is improving, considerable additional actions - many of which are underway - are necessary to restore these uses of the lake. This range of efforts are being addressed through the activities of the Onondaga Lake Partnership.

NYSDEC Rotating Intensive Basin Studies (RIBS) Intensive Network monitoring of Onondaga Lake Outlet in Lakeland, Onondaga County, (at Long Branch Road) was last conducted in 1989-90. During this sampling the biological (macroinvertebrate) sampling results indicated moderately to severely impacted water quality conditions. Although these results are heavily influenced by lake habitat conditions. Water column sampling revealed ammonia, dissolved solids, and organics (methylene chloride) to be parameters of concern. Elevated levels of various other organics and metals were also noted. Toxicity testing of the water column showed significant reproductive impacts in one sample. (DEC/DOW, BWAM/RIBS, January 2001)

Fish consumption advisories for Onondaga Lake also applies to this connected water. The NYSDOH health advisory for the lake recommends eating no walleye, and no more than one meal per month of carp, channel catfish, white perch or other species because of elevated levels of mercury, PCBs and dioxin. The source of these contaminants is past industrial operations and discharges to the lake. The advisory for this lake was first issued prior to 1997-98. (2006-07 NYSDOH Health Advisories and DEC/DFWMR, Habitat, December 2006).

Onondaga Lake Outlet not is currently included on the NYS 2006 Section 303(d) List of Impaired Waters. However this updated assessment suggests it is appropriate to include this waterbody on the 2008 List. Due to the multiple and ongoing CSO remediation efforts, it is recommended that the waterbody be added to Part 3c of the List as a waterbody for which TDML development is deferred pending the implementation and evaluation of other restoration measures.

This segment includes the entire stream. The waters of the stream are Class B. Onondaga Lake is listed separately.

Onondaga Lake, northern end (0702-0003)

Impaired Seg

Waterbody Location Information

Revised: 07/13/2007

Water Index No: Ont 66-12-12-P154 (portion 1) **Drain Basin:** Oswego-Seneca-Oneida
Hydro Unit Code: 04140201/380 **Str Class:** B Seneca/Clyde Rivers
Waterbody Type: Lake **Reg/County:** 7/Onondaga Co. (34)
Waterbody Size: 2000.0 Acres **Quad Map:** SYRACUSE WEST (I-16-4)
Seg Description: portion of lake, as described below

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
PUBLIC BATHING	Impaired	Known
FISH CONSUMPTION	Impaired	Known
AQUATIC LIFE	Impaired	Suspected
RECREATION	Impaired	Known
Aesthetics	Stressed	Known

Type of Pollutant(s)

Known: METALS (mercury), AMMONIA, NUTRIENTS (phosphorus), PRIORITY ORGANICS (PCBs), PRIORITY ORGANICS (dioxin), PATHOGENS, Aesthetics (floatables), Algal/Weed Growth, D.O./Oxygen Demand
Suspected: Salts, Silt/Sediment
Possible: ---

Source(s) of Pollutant(s)

Known: COMB. SEWER OVERFLOW, INDUSTRIAL, LANDFILL/LAND DISP. (Allied-Signal, other), MUNICIPAL (Syracuse Metro WWTP), TOX/CONTAM. SEDIMENT, URBAN/STORM RUNOFF
Suspected: ---
Possible: ---

Resolution/Management Information

Issue Resolvability: 3 (Strategy Being Implemented)
Verification Status: 5 (Management Strategy has been Developed)
Lead Agency/Office: ext/OLP **Resolution Potential:** Medium
TMDL/303d Status: 2b,3c*,4a (Multiple Segment/Categorical Water, Fish Consumption, more)

Further Details

Public bathing, recreational use, aquatic life support and fish consumption in Onondaga Lake are impaired by a variety of pollutants from municipal wastewater discharges, CSOs, urban runoff, and past industrial operations and uses. Though water quality in the lake is improving, considerable additional actions - many of which are underway - are necessary to restore these uses of the lake. Efforts to address the water quality impacts include enforceable control requirements of Amended Consent Judgement (ACJ), other consent orders with Onondaga County and other municipalities to address sanitary sewer overflows, active remediation of identified hazardous waste sites and other rehabilitation activities and projects.

Pollutants of concern in Onondaga Lake are generally the result of two broad categories of sources: those related to

wastewater collection, treatment and discharge, and those related to past industrial operations and uses. Impacts related to wastewater include high levels of phosphorus, ammonia and nitrite and bacterial contamination following rain storm events. Phosphorus loadings promote algal blooms that occur throughout most of the summer and reduce water clarity. The die-off of algae also reduces dissolved oxygen in the lake, limiting the fishery and other aquatic life. Ammonia and nitrite are toxic forms of nitrogen that also impact aquatic life in the lake. Though various point and nonpoint sources throughout the watershed contribute nutrients to the lake, the primary source of nutrients is the Syracuse Metro WWTP. The primary source of bacterial contamination is also wastewater-related. During heavy storm events combined sewer collection systems discharge untreated wastewater directly into Onondaga Lake tributaries which prevents swimming use of the lake. (Onondaga Lake Partnership and DEC/DOW, Region 7, January 2007)

Agreement to address these water quality issues was reached in 1998 with the signing of the Onondaga Lake Amended Consent Judgment (ACJ) which specifies projects to be undertaken to improve the water quality of Onondaga Lake and achieve full compliance with state and federal water quality regulations. The ACJ outlines a list of more than thirty specific projects to be undertaken over a 15-year timeframe. The ACJ projects include improvements and upgrades to the Onondaga County Metro sewage treatment plant, the elimination and/or reduction of the impacts of the CSOs on the lake and its tributaries, and lake and tributary monitoring program designed to evaluate the impacts of the improvement projects on the water quality of the lake and tributary streams. Currently at the midpoint of this effort, progress in many areas has been significant: ammonia reduction goals have been met, and construction of CSO facilities to reduce overflows by 90 percent are underway. The discharge of phosphorus from the Metro facility has also been significantly reduced. However, additional reductions - likely from the other nonpoint sources within the watershed that contribute half the lake loading - will be necessary to meet goals. (Onondaga Lake Partnership and DEC/DOW, Region 7, January 2007)

Past industrial uses activities and discharges have also resulted in a number of impairments to the lake. The most significant of these is mercury contamination. Approximately 7 million cubic yards of Onondaga Lake sediments are contaminated with mercury, resulting in mercury levels in the flesh of lake fish that exceed federal food standards. Other toxic substances such as PCBs and chlorinated benzenes have also been detected in the lake ecosystem. Mercury, however, remains the contaminant of most concern because of its persistence in the fish found in the lake. Between 1946 and 1970, about 165,000 pounds of mercury were discharged to the lake from the Allied-Signal facility. The Onondaga Lake federal Superfund National Priorities List (NPL) includes a number of hazardous waste sites owned by Allied-Signal (now Honeywell International) and other potentially responsible parties (PRP). Studies are underway to identify other possible sources of mercury and other contaminants and additional sites are being evaluated to determine if they should be included in the overall Onondaga Lake Superfund site.

In 2006 an agreement was reached with Honeywell International that requires the company to conduct an extensive cleanup of contaminated sediments in Onondaga Lake. Under this consent decree, Honeywell is legally required to implement an estimated \$451 million remedial plan to address hazardous-waste contamination in the lake. This cleanup effort builds on an extensive investigation of the lake's contamination and options to address it. The final plan to clean up hazardous waste found in sediment on the lake's bottom was announced in July 2005. Within the next five years, design for all aspects of the cleanup will be completed, and construction of the sediment consolidation area (SCA) on the former Allied-Signal site and related wastewater treatment plant will be completed as well. Following these projects, in-lake dredging and capping will take place over four years. Various other industrial remediation projects are also underway throughout the lake watershed. (DEC/DOW, Region 7, January 2006)

Fish consumption in Onondaga Lake is impaired due to a NYS DOH health advisory that recommends eating no walleye, and no more than one meal per month of carp, channel catfish, white perch or other species because of elevated levels of mercury, PCBs and dioxin. The source of these contaminants is past industrial operations and discharges to the lake. The advisory for this lake was first issued prior to 1997-98. (2006-07 NYS DOH Health Advisories and DEC/FWMR, Habitat, December 2006).

The Onondaga County Department of Water Environment Protection (OCDWEP) Ambient Monitoring Program (AMP) was implemented in 1998 in accordance with the ACJ to measure the progress and effectiveness of the County's fifteen-year plan for collection system and treatment plant improvements. The AMP measures chemical, physical and

biological data for Onondaga Lake, the lake tributaries, Onondaga Outlet and the Seneca River. The OCDWEP publishes and Annual Onondaga Lake Report that evaluates and summarizes the findings of the AMP. (Onondaga County DWEP, 2006)

Onondaga Lake is included on the NYS 2006 Section 303(d) List of Impaired Waters. The lake is included on Part 2b of the List as a Fish Consumption Water. The lake is not currently listed due to elevated pathogen levels, however this updated assessment indicates that uses are impaired by pathogens and inclusion of the lake on the 2008 list for this pollutant is recommended. Due to the ongoing CSO remediation and other efforts, it is recommended that the lake be included of Part 3c of the list as a waterbody segment for which TMDL Development may be Deferred Due to Other Restoration Measures. The lake is also impaired by phosphorus and ammonia, but a TMDL for these pollutants has been developed and is being implemented so the lake is not listed for these substances. (DEC/DOW, BWAM, July 2007)

Additional information regarding Onondaga Lake and activities to address pollution and restore uses can be found at the Onondaga Lake Partnership website (<http://www.onlakepartners.org>).

This segment includes the area of the lake northwest of a line from a point on the west shore 0.25 mile northwest of unnamed trib (5a) to a point on the east shore 0.6 miles southeast of Bloody Brook (-2).

Onondaga Lake, southern end (0702-0021)

Impaired Seg

Waterbody Location Information

Revised: 07/13/2007

Water Index No: Ont 66-12-12-P154 (portion 2) **Drain Basin:** Oswego-Seneca-Oneida
Hydro Unit Code: 04140201/380 **Str Class:** C Seneca/Clyde Rivers
Waterbody Type: Lake **Reg/County:** 7/Onondaga Co. (34)
Waterbody Size: 1000.0 Acres **Quad Map:** SYRACUSE WEST (I-16-4)
Seg Description: portion of lake, as described below

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
FISH CONSUMPTION	Impaired	Known
AQUATIC LIFE	Impaired	Suspected
RECREATION	Impaired	Known
Aesthetics	Stressed	Known

Type of Pollutant(s)

Known: METALS (mercury), AMMONIA, NUTRIENTS (phosphorus), PRIORITY ORGANICS (PCBs), PRIORITY ORGANICS (dioxin), PATHOGENS, Aesthetics (floatables), Algal/Weed Growth, D.O./Oxygen Demand
Suspected: Salts, Silt/Sediment
Possible: ---

Source(s) of Pollutant(s)

Known: COMB. SEWER OVERFLOW, INDUSTRIAL, LANDFILL/LAND DISP. (Allied-Signal, other), MUNICIPAL (Syracuse Metro WWTP), TOX/CONTAM. SEDIMENT, URBAN/STORM RUNOFF
Suspected: ---
Possible: ---

Resolution/Management Information

Issue Resolvability: 3 (Strategy Being Implemented)
Verification Status: 5 (Management Strategy has been Developed)
Lead Agency/Office: ext/OLP **Resolution Potential:** Medium
TMDL/303d Status: 2b,3c*,4a (Multiple Segment/Categorical Water, Fish Consumption, more)

Further Details

Recreational uses, aquatic life support and fish consumption in Onondaga Lake are impaired by a variety of pollutants from municipal wastewater discharges, CSOs, urban runoff, and past industrial operations and uses. Though water quality in the lake is improving, considerable additional actions - many of which are underway - are necessary to restore these uses of the lake. Efforts to address the water quality impacts include enforceable control requirements of Amended Consent Judgement (ACJ), other consent orders with Onondaga County and other municipalities to address sanitary sewer overflows, active remediation of identified hazardous waste sites and other rehabilitation activities and projects.

Pollutants of concern in Onondaga Lake are generally the result of two broad categories of sources: those related to wastewater collection, treatment and discharge, and those related to past industrial operations and uses. Impacts related to wastewater include high levels of phosphorus, ammonia and nitrite and bacterial contamination following rain storm

events. Phosphorus loadings promote algal blooms that occur throughout most of the summer and reduce water clarity. The die-off of algae also reduces dissolved oxygen in the lake, limiting the fishery and other aquatic life. Ammonia and nitrite are toxic forms of nitrogen that also impact aquatic life in the lake. Though various point and nonpoint sources throughout the watershed contribute nutrients to the lake, the primary source of nutrients is the Syracuse Metro WWTP. The primary source of bacterial contamination is also wastewater-related. During heavy storm events combined sewer collection systems discharge untreated wastewater directly into Onondaga Lake tributaries which prevents swimming use of the lake. (Onondaga Lake Partnership and DEC/DOW, Region 7, January 2007)

Agreement to address these water quality issues was reached in 1998 with the signing of the Onondaga Lake Amended Consent Judgment (ACJ) which specifies projects to be undertaken to improve the water quality of Onondaga Lake and achieve full compliance with state and federal water quality regulations. The ACJ outlines a list of more than thirty specific projects to be undertaken over a 15-year timeframe. The ACJ projects include improvements and upgrades to the Onondaga County Metro sewage treatment plant, the elimination and/or reduction of the impacts of the CSOs on the lake and its tributaries, and lake and tributary monitoring program designed to evaluate the impacts of the improvement projects on the water quality of the lake and tributary streams. Currently at the midpoint of this effort, progress in many areas has been significant: ammonia reduction goals have been met, and construction of CSO facilities to reduce overflows by 90 percent are underway. The discharge of phosphorus from the Metro facility has also been significantly reduced. However, additional reductions - likely from the other nonpoint sources within the watershed that contribute half the lake loading - will be necessary to meet goals. (Onondaga Lake Partnership and DEC/DOW, Region 7, January 2007)

Past industrial uses activities and discharges have also resulted in a number of impairments to the lake. The most significant of these is mercury contamination. Approximately 7 million cubic yards of Onondaga Lake sediments are contaminated with mercury, resulting in mercury levels in the flesh of lake fish that exceed federal food standards. Other toxic substances such as PCBs and chlorinated benzenes have also been detected in the lake ecosystem. Mercury, however, remains the contaminant of most concern because of its persistence in the fish found in the lake. Between 1946 and 1970, about 165,000 pounds of mercury were discharged to the lake from the Allied-Signal facility. The Onondaga Lake federal Superfund National Priorities List (NPL) includes a number of hazardous waste sites owned by Allied-Signal (now Honeywell International) and other potentially responsible parties (PRP). Studies are underway to identify other possible sources of mercury and other contaminants and additional sites are being evaluated to determine if they should be included in the overall Onondaga Lake Superfund site.

In 2006 an agreement was reached with Honeywell International that requires the company to conduct an extensive cleanup of contaminated sediments in Onondaga Lake. Under this consent decree, Honeywell is legally required to implement an estimated \$451 million remedial plan to address hazardous-waste contamination in the lake. This cleanup effort builds on an extensive investigation of the lake's contamination and options to address it. The final plan to clean up hazardous waste found in sediment on the lake's bottom was announced in July 2005. Within the next five years, design for all aspects of the cleanup will be completed, and construction of the sediment consolidation area (SCA) on the former Allied-Signal site and related wastewater treatment plant will be completed as well. Following these projects, in-lake dredging and capping will take place over four years. Various other industrial remediation projects are also underway throughout the lake watershed. (DEC/DOW, Region 7, January 2006)

Fish consumption in Onondaga Lake is impaired due to a NYS DOH health advisory that recommends eating no walleye, and no more than one meal per month of carp, channel catfish, white perch or other species because of elevated levels of mercury, PCBs and dioxin. The source of these contaminants is past industrial operations and discharges to the lake. The advisory for this lake was first issued prior to 1997-98. (2006-07 NYS DOH Health Advisories and DEC/FWMR, Habitat, December 2006).

The Onondaga County Department of Water Environment Protection (OCDWEP) Ambient Monitoring Program (AMP) was implemented in 1998 in accordance with the ACJ to measure the progress and effectiveness of the County's fifteen-year plan for collection system and treatment plant improvements. The AMP measures chemical, physical and biological data for Onondaga Lake, the lake tributaries, Onondaga Outlet and the Seneca River. The OCDWEP publishes and Annual Onondaga Lake Report that evaluates and summarizes the findings of the AMP. (Onondaga County DWEP,

2006)

Onondaga Lake is included on the NYS 2006 Section 303(d) List of Impaired Waters. The lake is included on Part 2b of the List as a Fish Consumption Water. The lake is not currently listed due to elevated pathogen levels, however this updated assessment indicates that uses are impaired by pathogens and inclusion of the lake on the 2008 list for this pollutant is recommended. Due to the ongoing CSO remediation and other efforts, it is recommended that the lake be included of Part 3c of the list as a waterbody segment for which TMDL Development may be Deferred Due to Other Restoration Measures. The lake is also impaired by phosphorus and ammonia, but a TMDL for these pollutants has been developed and is being implemented so the lake is not listed for these substances. (DEC/DOW, BWAM, July 2007)

Additional information regarding Onondaga Lake and activities to address pollution and restore uses can be found at the Onondaga Lake Partnership website (<http://www.onlakepartners.org>).

This segment includes the area of the lake southeast of a line from a point on the west shore 0.25 mile northwest of unnamed trib (5a) to a point on the east shore 0.6 miles southeast of Bloody Brook (-2).

Minor Tribs to Onondaga Lake (0702-0022)

Impaired Seg

Waterbody Location Information

Revised: 07/13/2007

Water Index No: Ont 66-12-12-P154-
Hydro Unit Code: 04140201/380 **Str Class:** C
Waterbody Type: River
Waterbody Size: 8.9 Miles
Seg Description: total length of selected tribs to Onondaga Lake

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Onondaga Co. (34)
Quad Map: SYRACUSE WEST (I-16-4)

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Fish Consumption	Stressed	Known
AQUATIC LIFE	Impaired	Known
RECREATION	Impaired	Known
Aesthetics	Stressed	Known

Type of Pollutant(s)

Known: D.O./OXYGEN DEMAND, OTHER INORGANICS (cyanide), AMMONIA, NUTRIENTS (nitrite), PATHOGENS, Aesthetics (floatables), Metals, Priority Organics (PCBs, other)
Suspected: ---
Possible: ---

Source(s) of Pollutant(s)

Known: COMB. SEWER OVERFLOW, LANDFILL/LAND DISP. (multiple), OTHER SANITARY DISCH, URBAN/STORM RUNOFF, Industrial
Suspected: ---
Possible: ---

Resolution/Management Information

Issue Resolvability: 3 (Strategy Being Implemented)
Verification Status: 5 (Management Strategy has been Developed)
Lead Agency/Office: DEC/Reg7 **Resolution Potential:** Medium
TMDL/303d Status: 3c*

Further Details

Recreational uses and aquatic life support in these minor tribs to Onondaga Lake are impaired by pathogens, low dissolved oxygen, nutrients (ammonia, nitrite) and a variety of other pollutants from CSOs and other sewer collection system discharge, urban runoff, and past industrial operations and uses. Fish consumption is also restricted as a result of a health advisory for Onondaga Lake that extends to tribs up to the first impassable barrier.

Sawmill Creek, East Flume and Trib -5a are impacted by a number of pollutant sources including CSO discharges, other sewer system discharges, urban runoff and industrial activities. Efforts to address the water quality impacts to the stream are ongoing. These include enforceable control requirements of Amended Consent Judgement (ACJ), other consent orders with Onondaga County and other municipalities to address sanitary sewer overflows, active remediation of identified hazardous waste sites and other rehabilitation activities and projects. (DEC/DOW, Region 7, January 2007)

A biological (macroinvertebrate) assessment of Sawmill Creek in Liverpool (at Route 370) was conducted in 2001. Sampling results indicated moderately impacted water quality conditions. Toxic discharges were indicated as the primary cause of the impacts. These results are consistent with sampling results from 1995 and 1989. (DEC/DOW, BWAM/SBU, June 2005)

Fish consumption advisories for Onondaga Lake (and all tribs to the first barrier) also applies to these tributary waters. A NYS DOH health advisory that recommends eating no walleye, and no more than one meal per month of carp, channel catfish, white perch or other species because of elevated levels of mercury, PCBs and dioxin. The source of these contaminants is past industrial operations and discharges to the lake. The advisory for this lake was first issued prior to 1997-98. (2006-07 NYS DOH Health Advisories and DEC/FWMR, Habitat, December 2006).

The Onondaga County Department of Water Environment Protection (OCDWEP) Ambient Monitoring Program (AMP) was implemented in 1998 in accordance with the ACJ to measure the progress and effectiveness of the County's fifteen-year plan for collection system and treatment plant improvements. The AMP measures chemical, physical and biological data for Onondaga Lake, the lake tributaries, Onondaga Outlet and the Seneca River. The OCDWEP publishes an Annual Onondaga Lake Report that evaluates and summarizes the findings of the AMP. (Onondaga County DWEP, 2006)

These tribs are not currently included on the NYS 2006 Section 303(d) List of Impaired Waters. However this updated assessment indicates that uses are impaired by pathogens, nutrients (ammonia, nitrite), cyanide and low dissolved oxygen and inclusion of the lake on the 2008 list for these pollutants is recommended. Due to the ongoing sewer system upgrades, site remediation and other efforts, it is recommended that the lake be included on Part 3c of the list as a waterbody segment for which TMDL Development may be Deferred Due to Other Restoration Measures. (DEC/DOW, BWAM, July 2007)

Additional information regarding activities to address pollution and restore uses in the waters and tributaries of Onondaga Lake can be found at the Onondaga Lake Partnership website (<http://www.onlakepartners.org>)

This segment includes the total length of selected/smaller tribs to Otisco Lake. Tribs within this segment, including Sawmill Creek (-1), East Flume, and unnamed trib (-5a), are Class C. Bloody Brook (-2), Ley Creek (-3), Onondaga Creek (-4), Harbor Brook (-5) and Ninemile Creek (-6) are listed separately.

Bloody Brook and tribs (0702-0006)

Impaired Seg

Waterbody Location Information

Revised: 07/13/2007

Water Index No: Ont 66-12-12-P154- 2
Hydro Unit Code: 04140201/380 **Str Class:** C*
Waterbody Type: River
Waterbody Size: 1.0 Miles
Seg Description: entire stream and tribs

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Onondaga Co. (34)
Quad Map: SYRACUSE WEST (I-16-4)

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
PUBLIC BATHING	Impaired	Known
Fish Consumption	Stressed	Known
AQUATIC LIFE	Impaired	Known
RECREATION	Impaired	Known
Aesthetics	Stressed	Known

Type of Pollutant(s)

Known: PATHOGENS, Aesthetics (floatables), Metals, Priority Organics
Suspected: D.O./Oxygen Demand
Possible: - - -

Source(s) of Pollutant(s)

Known: LANDFILL/LAND DISP. (Martin Marietta), OTHER SANITARY DISCH, URBAN/STORM RUNOFF, Industrial (Martin Marietta)
Suspected: - - -
Possible: - - -

Resolution/Management Information

Issue Resolvability: 3 (Strategy Being Implemented)
Verification Status: 5 (Management Strategy has been Developed)
Lead Agency/Office: DEC/Reg7 **Resolution Potential:** Medium
TMDL/303d Status: 4a->3c*

Further Details

Public bathing, recreational uses and aquatic life support in Bloody Brook are impaired by pathogens and a variety of other pollutants from municipal collection system bypasses, urban runoff, and past industrial operations and uses. Fish consumption is also restricted as a result of a health advisory for Onondaga Lake that extends to tribs up to the first impassable barrier.

Efforts to address the water quality impacts to the stream are ongoing. These include enforceable control requirements of Amended Consent Judgement (ACJ), other consent orders with Onondaga County and other municipalities to address sanitary sewer overflows, active remediation of identified hazardous waste sites and other rehabilitation activities and projects. Since the most recent sampling raw sewage bypasses at the Liverpool pump station have been minimized and now occur only during the most severe or extensive wet-weather events. (DEC/DOW, Region 7, January 2006)

The Lockheed Martin (formerly, Martin Marietta) facility is a significant source of impacts to the stream. A CERCLA investigation of the Bloody Brook site is being conducted. NYS-DEC is monitoring the project and evaluating the investigative documents. The project is currently in the Remedial Investigation/Feasibility Study (RI/FS) phase. (DEC/DER, January 2007)

A biological (macroinvertebrate) assessment of Bloody Brook in Liverpool (at Route 370) was conducted in 2001. Sampling results indicated moderately impacted water quality conditions. The fauna was dominated by tolerant worms, midges, and scuds, with no EPT species present. A previous biological survey at multiple sites along the stream and its tribs was conducted in 1994. That survey found moderately or severely impacted conditions at all sites. The goal of the survey was to characterize impacts from the Martin Marietta facility but because the upstream sites were impacted (by sewage and/or urban runoff) the impacts below the facility could not be attributed to this specific discharge. Poor habitat limited the assessment at most sites. Higher than expected heavy metals and PCB concentrations were found in crayfish tissue at some sites. (DEC/DOW, BWAM/SBU, June 2005)

Fish consumption advisories for Onondaga Lake (and all tribs to the first barrier) also applies to this tributary water. A NYS DOH health advisory that recommends eating no walleye, and no more than one meal per month of carp, channel catfish, white perch or other species because of elevated levels of mercury, PCBs and dioxin. The source of these contaminants is past industrial operations and discharges to the lake. The advisory for this lake was first issued prior to 1997-98. (2006-07 NYS DOH Health Advisories and DEC/FWMR, Habitat, December 2006).

The Onondaga County Department of Water Environment Protection (OCDWEP) Ambient Monitoring Program (AMP) was implemented in 1998 in accordance with the ACJ to measure the progress and effectiveness of the County's fifteen-year plan for collection system and treatment plant improvements. The AMP measures chemical, physical and biological data for Onondaga Lake, the lake tributaries, Onondaga Outlet and the Seneca River. The OCDWEP publishes an Annual Onondaga Lake Report that evaluates and summarizes the findings of the AMP. (Onondaga County DWEP, 2006)

Bloody Brook is not currently included on the NYS 2006 Section 303(d) List of Impaired Waters. However this updated assessment indicates that uses are impaired by pathogens and inclusion of the lake on the 2008 list for this pollutant is recommended. Due to the ongoing sewer system upgrades, site remediation and other efforts, it is recommended that the lake be included of Part 3c of the list as a waterbody segment for which TMDL Development may be Deferred Due to Other Restoration Measures. (DEC/DOW, BWAM, July 2007)

Additional information regarding activities to address pollution and restore uses in the waters and tributaries of Onondaga Lake can be found at the Onondaga Lake Partnership website (<http://www.onlakepartners.org>).

This segment includes the entire stream and all tribs. The waters of the stream are Class B from the mouth to unnamed trib (-1) and Class C for the remainder of the reach. Tribs to this reach/segment are Class C. Although the lower portion of this stream is designated a Class B water, the present character of the waterway may support of this use unlikely.

Ley Creek and tribs (0702-0001)

Impaired Seg

Waterbody Location Information

Revised: 07/13/2007

Water Index No:	Ont 66-12-12-P154- 3	Drain Basin:	Oswego-Seneca-Oneida
Hydro Unit Code:	04140201/380	Str Class:	C*
Waterbody Type:	River	Reg/County:	7/Onondaga Co. (34)
Waterbody Size:	26.1 Miles	Quad Map:	SYRACUSE WEST (I-16-4)
Seg Description:	entire stream and tribs		

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
PUBLIC BATHING	Impaired	Known
Fish Consumption	Stressed	Known
AQUATIC LIFE	Impaired	Known
RECREATION	Impaired	Known
Aesthetics	Stressed	Known

Type of Pollutant(s)

Known: OTHER INORGANICS (cyanide), AMMONIA, Aesthetics (floatables), Priority Organics
 Suspected: D.O./Oxygen Demand, Nutrients (phosphorus), Unknown Toxicity
 Possible: - - -

Source(s) of Pollutant(s)

Known: COMB. SEWER OVERFLOW, LANDFILL/LAND DISP. (Salina Landfill, other), URBAN/STORM RUNOFF, Industrial
 Suspected: - - -
 Possible: - - -

Resolution/Management Information

Issue Resolvability: 3 (Strategy Being Implemented)
Verification Status: 5 (Management Strategy has been Developed)
Lead Agency/Office: DEC/Reg7 **Resolution Potential:** Medium
TMDL/303d Status: 3c,3c* (Waterbody Being Addressed by Other Means, more)

Further Details

Public bathing, recreational uses and aquatic life support in Ley Creek are impaired by pathogens and a variety of other pollutants from urban runoff, and past industrial operations and uses. Cyanide has been found in samples collected by Onondaga County and is impacting water quality. This and other tribs to Onondaga Lake are also sources of nutrient loading to Onondaga Lake; these loadings are being addressed through implementation of TMDL plans for Onondaga Lake. Fish consumption is also restricted as a result of a health advisory for Onondaga Lake that extends to tribs up to the first impassable barrier.

Ley Creek is impacted by a number of pollutant sources including CSO discharges urban runoff, industrial activities, airport runoff and a municipal landfill. Efforts to address the water quality impacts to the stream are ongoing. These include enforceable control requirements of Amended Consent Judgement (ACJ), other consent orders with Onondaga County and other municipalities to address sanitary sewer overflows, active remediation of identified hazardous waste

sites and other rehabilitation activities and projects. The completion of the Hiawata Blvd Regional Treatment Facility (RTF) has addressed much of the impact from previously identified raw sewage discharges and has reduced CSOs discharges in the watershed. The (RTF) provides overflow storage, removes solids, and disinfects combined sewer overflow (CSO) discharge for the Syracuse North Side area and serves as a demonstration project for other effort being undertaken by Onondaga County. (DEC/DOW, Region 7, January 2006)

Impacts from the Salina Town Landfill site (7-34-036) have also been documented. The site was a municipally operated landfill which during the time it was in operation received domestic, commercial and industrial wastes, including hazardous waste from the General Motors Fisher Guide Division. A Remedial Investigation/Feasibility Study (RI/FS) identified VOCs and PCBs in the soil at the site which contribute to the known groundwater contamination as well as leachate outbreaks to Ley Creek, documenting that the existing cover was not adequate. A full 6NYCRR Part 360 closure is required. The Department and EPA issued a Proposed Remedial Action Plan calling for on-site treatment of the leachate and a Record of Decision was signed in March 2007. An RI/FS is also underway at the former General Motors Fisher Guide site (7-34-057) located at the upstream portion of the creek. (DEC/DER, Region 7, Jul 2007)

A biological (macroinvertebrate) assessment of Bloody Brook in Mattydale (at LeMoyné Avenue) was conducted in 2001. Sampling results indicated moderately impacted water quality conditions. No mayflies were present in the sample and aquatic toxicity was apparent. The assessment is similar to results from 1995, and represents an improvement from 1989-90 when the site was identified as severely impacted. (DEC/DOW, BWAM/SBU, June 2005)

Fish consumption advisories for Onondaga Lake (and all tribs to the first barrier) also applies to this tributary water. A NYS DOH health advisory that recommends eating no walleye, and no more than one meal per month of carp, channel catfish, white perch or other species because of elevated levels of mercury, PCBs and dioxin. The source of these contaminants is past industrial operations and discharges to the lake. The advisory for this lake was first issued prior to 1997-98. (2006-07 NYS DOH Health Advisories and DEC/FWMR, Habitat, December 2006).

The Onondaga County Department of Water Environment Protection (OCDWEP) Ambient Monitoring Program (AMP) was implemented in 1998 in accordance with the ACJ to measure the progress and effectiveness of the County's fifteen-year plan for collection system and treatment plant improvements. The AMP measures chemical, physical and biological data for Onondaga Lake, the lake tributaries, Onondaga Outlet and the Seneca River. The OCDWEP publishes an Annual Onondaga Lake Report that evaluates and summarizes the findings of the AMP. (Onondaga County DWEP, 2006)

Ley Creek is currently included on the NYS 2006 Section 303(d) List of Impaired Waters. The creek is listed for the pollutants phosphorus, ammonia and unknown toxicity and is included on Part 3c of the list as a waterbody segment for which TMDL Development may be Deferred Due to Other Restoration Measures. This updated assessment indicates that uses are impaired by pathogens and cyanide as well and the inclusion of the lake on the 2008 list for these pollutants is recommended. Due to the multiple and ongoing remediation efforts, it is recommended that the listings for pathogens and cyanide also be added to Part 3c. (DEC/DOW, BWAM, July 2007)

Additional information regarding activities to address pollution and restore uses in the waters and tributaries of Onondaga Lake can be found at the Onondaga Lake Partnership website (<http://www.onlakepartners.org>)

This segment includes the entire stream and all tribs. The waters of the stream are Class C from the mouth to the sewage treatment plant outfall near Beartrap Creek (-1), Class B from there to the confluence of North and South Branches, and Class C for the remainder of the reach, which is considered to be North Branch. Tribs to this reach/segment, including Beartrap Creek (-1), South Branch (-2) and Sanders Creek (-3), are primarily Class C,C(T), with a portion designated Class B.

Onondaga Creek, Lower (0702-0023)

Impaired Seg

Waterbody Location Information

Revised: 07/16/2007

Water Index No:	Ont 66-12-12-P154- 4	Drain Basin:	Oswego-Seneca-Oneida
Hydro Unit Code:	04140201/380	Str Class:	C
Waterbody Type:	River	Reg/County:	7/Onondaga Co. (34)
Waterbody Size:	2.8 Miles	Quad Map:	SYRACUSE WEST (I-16-4)
Seg Description:	stream and tribs, from mouth to Syracuse		

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Fish Consumption	Stressed	Known
AQUATIC LIFE	Impaired	Known
RECREATION	Impaired	Known
Aesthetics	Stressed	Known

Type of Pollutant(s)

Known: AESTHETICS (floatables), PATHOGENS, Metals (mercury), Nutrients, Priority Organics, Silt/Sediment
 Suspected: ---
 Possible: ---

Source(s) of Pollutant(s)

Known: COMB. SEWER OVERFLOW, LANDFILL/LAND DISP., URBAN/STORM RUNOFF, Industrial, Streambank Erosion
 Suspected: Other Sanitary Disch
 Possible: ---

Resolution/Management Information

Issue Resolvability:	3 (Strategy Being Implemented)	
Verification Status:	5 (Management Strategy has been Developed)	
Lead Agency/Office:	DEC/Reg7	Resolution Potential: Medium
TMDL/303d Status:	3c (Waterbody Being Addressed by Other Means)	

Further Details

Recreational uses and aquatic life support in this portion of Onondaga Creek are impaired by pathogens and a variety of other pollutants from CSOs, urban runoff, and past industrial operations and uses. This and other tribs to Onondaga Lake are also sources of nutrient loading to Onondaga Lake; these loadings are being addressed though implementation of TMDL plans for Onondaga Lake. Other sewer collection system discharges are also possible sources of impact. Fish consumption is also restricted as a result of a health advisory for Onondaga Lake that extends to tribs up to the first impassable barrier. Silt and sediment from upstream sources are also a concern.

Onondaga Creek is impacted by a number of pollutant sources including CSO discharges, urban runoff and industrial activities. Efforts to address the water quality impacts to the stream are ongoing. These include enforceable control requirements of Amended Consent Judgement (ACJ), other consent orders with Onondaga County and other municipalities to address sanitary sewer overflows, active remediation of identified hazardous waste sites and other rehabilitation activities and projects. There are currently 13 combined sewer basins along Onondaga Creek that are scheduled to be

separated into independent stormwater and sanitary conveyance systems as part of the CSO Abatement Program. The U.S. Army Corps of Engineers is supervising the design of most these sewer separation projects. Construction will proceed over the period of the Court Order based on coordination with the County and the City of Syracuse. An exact schedule for this program detailing which areas would be separated first has yet to be determined. The projects will most probably involve the construction of new sanitary sewers and the relining of existing combined sewers to convey stormwater only. (DEC/DOW, Region 7, January 2007)

A biological (macroinvertebrate) assessment of Onondaga Creek in Syracuse (at Spencer Street) was conducted in 2001. Sampling results indicated severely impacted water quality conditions. The fauna consisted almost entirely of tolerant worms and midges. The previous sampling in 1995 revealed condition to be in the moderately impacted range, but 1989-90 sampling showed severe impacts as well. Municipal/industrial discharges and decomposable organic wastes were identified as the primary cause of the impacts. CSOs are considered the likely cause of the impairment. (DEC/DOW, BWAM/SBU, June 2005)

There are various present and former industrial sources that impact the creek in Syracuse. Former Niagara Mohawk manufactured gas plants (7-34-059, 7-34-060) have been identified as possible contributors of pollutants to the creek. The contaminants of concern include volatile organic compounds, PAHs, heavy metals.

Fish consumption advisories for Onondaga Lake (and all tribs to the first barrier) also applies to this tributary water. A NYS DOH health advisory that recommends eating no walleye, and no more than one meal per month of carp, channel catfish, white perch or other species because of elevated levels of mercury, PCBs and dioxin. The source of these contaminants is past industrial operations and discharges to the lake. The advisory for this lake was first issued prior to 1997-98. (2006-07 NYS DOH Health Advisories and DEC/FWMR, Habitat, December 2006).

The Onondaga County Department of Water Environment Protection (OCDWEP) Ambient Monitoring Program (AMP) was implemented in 1998 in accordance with the ACJ to measure the progress and effectiveness of the County's fifteen-year plan for collection system and treatment plant improvements. The AMP measures chemical, physical and biological data for Onondaga Lake, the lake tributaries, Onondaga Outlet and the Seneca River. The OCDWEP publishes an Annual Onondaga Lake Report that evaluates and summarizes the findings of the AMP. (Onondaga County DWEP, 2006)

Onondaga Creek is currently included on the NYS 2006 Section 303(d) List of Impaired Waters. The creek is listed for the pollutants phosphorus, ammonia and unknown toxicity and is included on Part 3c of the list as a waterbody segment for which TMDL Development may be Deferred Due to Other Restoration Measures. This updated assessment indicates that uses are impaired by pathogens and the inclusion of the lake on the 2008 list for this pollutant is recommended. Due to the multiple and ongoing CSO remediation efforts, it is recommended that the listing for pathogens also be added to Part 3c. (DEC/DOW, BWAM, July 2007)

Additional information regarding activities to address pollution and restore uses in the waters and tributaries of Onondaga Lake can be found at the Onondaga Lake Partnership website (<http://www.onlakepartners.org>)

This segment includes the portion of the stream and all tribs from the mouth to Temple Street in Syracuse. The waters of this portion of the stream are Class C. Middle/Upper Onondaga Creek is listed separately.

Onondaga Creek, Middle, and tribs (0702-0004)

Impaired Seg

Waterbody Location Information

Revised: 07/16/2007

Water Index No: Ont 66-12-12-P154- 4
Hydro Unit Code: 04140201/380 **Str Class:** B
Waterbody Type: River
Waterbody Size: 17.5 Miles
Seg Description: stream and tribs, from Syracuse to Nedrow

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Onondaga Co. (34)
Quad Map: SYRACUSE WEST (I-16-4)

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
PUBLIC BATHING	Impaired	Known
Fish Consumption	Stressed	Known
AQUATIC LIFE	Impaired	Known
RECREATION	Impaired	Known
Aesthetics	Stressed	Known

Type of Pollutant(s)

Known: AESTHETICS (floatables), PATHOGENS, Nutrients, Silt/Sediment
Suspected: Salts
Possible: - - -

Source(s) of Pollutant(s)

Known: COMB. SEWER OVERFLOW, LANDFILL/LAND DISP., OTHER SOURCE (Tully mudboils), URBAN/STORM RUNOFF, Agriculture
Suspected: Other Sanitary Disch
Possible: - - -

Resolution/Management Information

Issue Resolvability: 3 (Strategy Being Implemented)
Verification Status: 5 (Management Strategy has been Developed)
Lead Agency/Office: DEC/Reg7 **Resolution Potential:** Medium
TMDL/303d Status: 4a->3c*

Further Details

Public bathing, recreational uses and aquatic life support in this portion of Onondaga Creek are impaired by pathogens and a variety of other pollutants from CSOs, urban runoff, and past industrial operations and uses. Other sewer collection system discharges are also possible sources of impact. Silt and sediment from upstream mudboils and stream erosion also impact uses.

Onondaga Creek is impacted by a number of pollutant sources including CSO discharges, urban runoff and industrial activities. Efforts to address the water quality impacts to the stream are ongoing. These include enforceable control requirements of Amended Consent Judgement (ACJ), other consent orders with Onondaga County and other municipalities to address sanitary sewer overflows, active remediation of identified hazardous waste sites and other rehabilitation activities and projects. There are currently 13 combined sewer basins along Onondaga Creek that are scheduled to be separated into independent stormwater and sanitary conveyance systems as part of the CSO Abatement Program. The U.S.

Army Corps of Engineers is supervising the design of most these sewer separation projects. Construction will proceed over the period of the Court Order based on coordination with the County and the City of Syracuse. An exact schedule for this program detailing which areas would be separated first has yet to be determined. The projects will most probably involve the construction of new sanitary sewers and the relining of existing combined sewers to convey stormwater only. (DEC/DOW, Region 7, January 2007)

A biological (macroinvertebrate) assessment of Onondaga Creek downstream of this segment in Syracuse (at Spencer Street) was conducted in 2001. Sampling results indicated severely impacted water quality conditions. The fauna consisted almost entirely of tolerant worms and midges. The previous sampling in 1995 revealed condition to be in the moderately impacted range, but 1989-90 sampling showed severe impacts as well. Municipal/industrial discharges and decomposable organic wastes were identified as the primary cause of the impacts. CSOs are considered the likely cause of the impairment. Though this sampling point is just below the described segment, it is considered representative of water quality in the upper reach. (DEC/DOW, BWAM/SBU, June 2005)

[Allied Chemical (mud boils and brine wells)... impacts due to LCP Chemical brine discharge, line leakage and mud boils related to LCP mining operations. The Attorney General is negotiating a closure action for the brine wells. Federal Court action under CERCLA is being considered against Allied Chemical (former owner) for the mud boils and brine wells.

Onondaga Creek has a murky, muddy-brown appearance especially during periods of high water flow. This is a result of high concentrations of clay and silt in the creek. Most of these materials come from the Tully Valley mudboils. Much of the Onondaga Creek stream bed downstream from the mudboil area is covered with sediments discharged from the mudboils. The muddy sediments reduce habitat suitable for aquatic insects and other life, reduce fish spawning and plant growth and significantly contribute to the sediment loading to Onondaga Lake. Onondaga Creek contributes more than 50% of the annual tributary sediment load to the lake due in large part to the mudboils.

Since 1992, the Onondaga Lake Partnership has supported, through the efforts of the United States Geologic Survey (USGS), a number of remedial activities to address impacts from the mudboils, including the diversion of surface water away from the mud boils, installation of a dam on the stream that flows from the mud boil area and drilling of wells to reduce pressure around the mud-boils. These efforts have been successful in reducing the amount of sediment flowing into the Onondaga Creek from 30 tons per day to less than 1 ton per day. See also Onondaga Creek, Upper, and tribs (segment 0702-0024). (Onondaga Lake Partnership, 2006)

Onondaga Creek is currently included on the NYS 2006 Section 303(d) List of Impaired Waters. The creek is listed for the pollutants phosphorus, ammonia and unknown toxicity and is included on Part 3c of the list as a waterbody segment for which TMDL Development may be Deferred Due to Other Restoration Measures. This updated assessment indicates that uses are impaired by pathogens and the inclusion of the lake on the 2008 list for this pollutant is recommended. Due to the multiple and ongoing CSO remediation efforts, it is recommended that the listing for pathogens also be added to Part 3c. (DEC/DOW, BWAM, July 2007)

Additional information regarding activities to address pollution and restore uses in the waters and tributaries of Onondaga Lake can be found at the Onondaga Lake Partnership website (<http://www.onlakepartners.org>)

This segment includes the portion of the stream and all tribs from Temple Street in Syracuse to unnamed trib (-5b) in Nedrow. The waters of this portion of the stream are Class B. Tribs to this reach/segment, including Furnace Brook (-1), Kimber Brook (-5) and Cold Brook (-5a), are Class B and C,C(T),C(TS). Lower/Upper Onondaga Creek is listed separately.

Onondaga Creek, Upper, and minor tribs (0702-0024)

MinorImpacts

Waterbody Location Information

Revised: 07/16/2007

Water Index No: Ont 66-12-12-P154- 4
Hydro Unit Code: 04140201/370 **Str Class:** C
Waterbody Type: River
Waterbody Size: 110.4 Miles
Seg Description: stream and selected tribs, above Nedrow

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Onondaga Co. (34)
Quad Map: SOUTH ONONDAGA (J-16-1)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Aquatic Life	Stressed	Known
Recreation	Stressed	Known
Habitat/Hydrology	Stressed	Known

Type of Pollutant(s)

Known: SALTS, SILT/SEDIMENT
Suspected: ---
Possible: ---

Source(s) of Pollutant(s)

Known: OTHER SOURCE (Tully mudboils), STREAMBANK EROSION, Agriculture
Suspected: ---
Possible: ---

Resolution/Management Information

Issue Resolvability: 3 (Strategy Being Implemented)
Verification Status: 5 (Management Strategy has been Developed)
Lead Agency/Office: DEC/Reg7
TMDL/303d Status: n/a

Resolution Potential: Medium

Further Details

Aquatic life support and recreational uses in this portion of Onondaga Creek are known to experience impacts due to silt/sediment loads and high conductivity from mud boils and salt brine mining in the Tully Valley.

Onondaga Creek has a murky, muddy-brown appearance especially during periods of high water flow. This is a result of high concentrations of clay and silt in the creek. Most of these materials come from the Tully Valley mudboils. Much of the Onondaga Creek stream bed downstream from the mudboil area is covered with sediments discharged from the mudboils. The muddy sediments reduce habitat suitable for aquatic insects and other life, reduce fish spawning and plant growth and significantly contribute to the sediment loading to Onondaga Lake. Onondaga Creek contributes more than 50% of the annual tributary sediment load to the lake due in large part to the mudboils.

Although impacts from the mud boils go back to 1900, anecdotal information suggests the amount of sediments discharged to Onondaga Creek from the mudboils has increased over the years. It has been suggested that solution brine mining activities by Allied-Signal in the past exacerbated the problem, although there is some disagreement over this contention. The brine mining activities was discontinued in the 1980s. Since 1992, the Onondaga Lake Partnership has supported,

through the efforts of the United States Geologic Survey (USGS), a number of remedial activities to address impacts from the mudboils, including the diversion of surface water away from the mud boils, installation of a dam on the stream that flows from the mud boil area and drilling of wells to reduce pressure around the mud-boils. These efforts have been successful in reducing the amount of sediment flowing into the Onondaga Creek from 30 tons per day to less than 1 ton per day. (Onondaga Lake Partnership, 2006)

A biological (macroinvertebrate) assessment of Onondaga Creek in Cardiff (at Webster Road) was conducted in 2001. Sampling results indicated moderately impacted water quality conditions. This represents a change from previously consistent results indicating slightly impacted conditions in 1989, 1990 and 1995. High turbidity and high conductivity from the mudboils continue to be the dominant influence on the fauna. Continued monitoring of this site to verify the apparent water quality change. (DEC/DOW, BWAM/SBU, June 2005)

This segment includes the portion of the stream and selected/smaller tribs above unnamed trib (-5b) in Nedrow. The waters of this portion of the stream are Class C,C(T). Tribs to this reach/segment, including Commissary Creek (-8), Kennedy Creek (-9), Fall Creek (-19) and Rainbow Creek (-20), are Class C,C(T),C(TS). Lower/Middle Onondaga Creek and West Branch Onondaga Creek (-11) are listed separately.

West Branch Onondaga Creek and tribs (0702-0025)

Need Verific

Waterbody Location Information

Revised: 07/16/2007

Water Index No: Ont 66-12-12-P154- 4-11
Hydro Unit Code: 04140201/370 **Str Class:** C(T)
Waterbody Type: River
Waterbody Size: 48.2 Miles
Seg Description: entire stream and tribs

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Onondaga Co. (34)
Quad Map: SOUTH ONONDAGA (J-16-1)

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Aquatic Life	Threatened	Suspected

Type of Pollutant(s)

Known: ---
Suspected: NUTRIENTS (sdf)
Possible: ---

Source(s) of Pollutant(s)

Known: ---
Suspected: AGRICULTURE
Possible: ---

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 3 (Cause Identified, Source Unknown)
Lead Agency/Office: DOW/BWAM
TMDL/303d Status: n/a

Resolution Potential: Medium

Further Details

Aquatic life support in West Branch Onondaga Creek is thought to experience minor threats due to nutrient loadings from nonpoint sources.

A biological (macroinvertebrate) assessment of West Branch Onondaga Creek in South Onondaga (at Route 80) was conducted in 2001. Sampling results indicated slightly impacted water quality conditions. Mayflies and stoneflies were present in the fauna, but filter-feeding caddisflies were overwhelmingly dominant. Nonpoint source nutrient enrichment was identified as the primary influence on the fauna. Although aquatic life is supported in the stream, nutrient biotic evaluation suggests the level of eutrophication is sufficient to threaten aquatic life support. (DEC/DOW, BWAM/SBU, June 2005)

This segment includes the entire stream and all tribs. The waters of the stream are Class C(T). Tribs to this reach/segment are Class C,C(T),C(TS).

Harbor Brook, Lower, and tribs (0702-0002)

Impaired Seg

Waterbody Location Information

Revised: 07/13/2007

Water Index No: Ont 66-12-12-P154- 5
Hydro Unit Code: 04140201/380 **Str Class:** B
Waterbody Type: River
Waterbody Size: 4.9 Miles
Seg Description: stream and tribs, from mouth to Taunton

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Onondaga Co. (34)
Quad Map: SYRACUSE WEST (I-16-4)

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
PUBLIC BATHING	Impaired	Known
Fish Consumption	Stressed	Known
AQUATIC LIFE	Impaired	Known
RECREATION	Impaired	Known
Aesthetics	Stressed	Known

Type of Pollutant(s)

Known: AESTHETICS (floatables), AMMONIA, NUTRIENTS (phosphorus), PATHOGENS, Priority Organics (PCBs, other)
Suspected: - - -
Possible: D.O./Oxygen Demand

Source(s) of Pollutant(s)

Known: COMB. SEWER OVERFLOW, LANDFILL/LAND DISP. (Waste Bed B), URBAN/STORM RUNOFF, Industrial
Suspected: Other Sanitary Disch
Possible: - - -

Resolution/Management Information

Issue Resolvability: 3 (Strategy Being Implemented)
Verification Status: 5 (Management Strategy has been Developed)
Lead Agency/Office: DEC/Reg7 **Resolution Potential:** Medium
TMDL/303d Status: 3c,3c* (Waterbody Being Addressed by Other Means, more)

Further Details

Public bathing, recreational uses and aquatic life support in Harbor Brook are impaired by pathogens and a variety of other pollutants from CSOs, urban runoff, and past industrial operations and uses. This and other tribs to Onondaga Lake are also sources of nutrient loading to Onondaga Lake; these loadings are being addressed through implementation of TMDL plans for Onondaga Lake. Other sewer collection system discharges are also possible sources of impact. Fish consumption is also restricted as a result of a health advisory for Onondaga Lake that extends to tribs up to the first impassable barrier.

Harbor Brook is impacted by a number of pollutant sources including CSO discharges, urban runoff and industrial activities. Efforts to address the water quality impacts to the stream are ongoing. These include enforceable control requirements of Amended Consent Judgement (ACJ), other consent orders with Onondaga County and other municipalities

to address sanitary sewer overflows, active remediation of identified hazardous waste sites and other rehabilitation activities and projects. There are currently 14 active CSO discharge points to the stream. Measures to address these include the completed Harbor Brook Floatables Control Facility which uses an instream netting device to collect floatables in Harbor Brook prior to its discharge into Onondaga Lake. This project complements the proposed Harbor Brook In-Water System which is intended to reduce combined sewer overflows, urban stormwater, and non-point source pollutants from Harbor Brook entering Onondaga Lake by capturing, storing, and treating these loads. (DEC/DOW, Region 7, January 2007)

Impacts from the Harbor Brook/Waste Bed B site (7-34-075) have also been documented. The primary contaminants of concern at the site known at this time include benzene, toluene, xylene (BTX), naphthalene, and mercury. Harbor Brook sediments within the site are also contaminated and contaminants in these sediments may be accumulating in fish. The Preliminary Site Assessment has been completed and an RI/FS is underway. In addition, the design of two IRMs, for the East Flume and a barrier wall along Onondaga Lake and Harbor Brook, are also underway. (DEC/DER, Region 7, July 2007)

A biological (macroinvertebrate) assessment of Harbor Brook in Syracuse (at Hiawatha Blvd) was conducted in 2001. Sampling results indicated severely impacted water quality conditions. The fauna consisted almost entirely of tolerant worms and midges. The previous sampling in 1995 revealed condition to be in the moderately impacted range, but the actual difference between the two samples is small. Municipal/industrial discharges and decomposable organic wastes were identified as the primary cause of the impacts. (DEC/DOW, BWAM/SBU, June 2005)

Fish consumption advisories for Onondaga Lake (and all tribs to the first barrier) also applies to this tributary water. A NYS DOH health advisory that recommends eating no walleye, and no more than one meal per month of carp, channel catfish, white perch or other species because of elevated levels of mercury, PCBs and dioxin. The source of these contaminants is past industrial operations and discharges to the lake. The advisory for this lake was first issued prior to 1997-98. (2006-07 NYS DOH Health Advisories and DEC/FWMR, Habitat, December 2006).

The Onondaga County Department of Water Environment Protection (OCDWEP) Ambient Monitoring Program (AMP) was implemented in 1998 in accordance with the ACJ to measure the progress and effectiveness of the County's fifteen-year plan for collection system and treatment plant improvements. The AMP measures chemical, physical and biological data for Onondaga Lake, the lake tributaries, Onondaga Outlet and the Seneca River. The OCDWEP publishes an Annual Onondaga Lake Report that evaluates and summarizes the findings of the AMP. (Onondaga County DWEP, 2006)

Harbor Brook is currently included on the NYS 2006 Section 303(d) List of Impaired Waters. The creek is listed for the pollutants phosphorus and ammonia and is included on Part 3c of the list as a waterbody segment for which TMDL Development may be Deferred Due to Other Restoration Measures. This updated assessment indicates that uses are impaired by pathogens and the inclusion of the lake on the 2008 list for this pollutant is recommended. Due to the multiple and ongoing CSO remediation efforts, it is recommended that the listing for pathogens also be added to Part 3c. (DEC/DOW, BWAM, July 2007)

Additional information regarding activities to address pollution and restore uses in the waters and tributaries of Onondaga Lake can be found at the Onondaga Lake Partnership website (<http://www.onlakepartners.org>)

This segment includes the portion of the stream and all tribs from the mouth to the Syracuse City line near Taunton. The waters of this portion of the stream are Class C from the mouth to the upper end of the underground reach at Gifford Street and Class B for the remainder of the reach. Tribs to this reach/segment are Class C,C(T). Upper Harbor Brook is listed separately.

Ninemile Creek, Lower, and tribs (0702-0005)

Impaired Seg

Waterbody Location Information

Revised: 07/18/2007

Water Index No: Ont 66-12-12-P154- 6
Hydro Unit Code: 04140201/360 **Str Class:** C
Waterbody Type: River
Waterbody Size: 32.3 Miles
Seg Description: stream and selected tribs, from mouth to Camillus

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Onondaga Co. (34)
Quad Map: SYRACUSE WEST (I-16-4)

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Fish Consumption	Stressed	Known
AQUATIC LIFE	Impaired	Known
RECREATION	Impaired	Known
Aesthetics	Stressed	Known

Type of Pollutant(s)

Known: NUTRIENTS (phosphorus), PATHOGENS, Aesthetics (floatables), Metals (mercury), Priority Organics (PCBs, dioxin)
Suspected: Ammonia
Possible: - - -

Source(s) of Pollutant(s)

Known: COMB. SEWER OVERFLOW, LANDFILL/LAND DISP., URBAN/STORM RUNOFF, Industrial, Tox/Contam. Sediment
Suspected: OTHER SANITARY DISCH
Possible: - - -

Resolution/Management Information

Issue Resolvability: 3 (Strategy Being Implemented)
Verification Status: 5 (Management Strategy has been Developed)
Lead Agency/Office: DEC/Reg7 **Resolution Potential:** Medium
TMDL/303d Status: 3c (Waterbody Being Addressed by Other Means)

Further Details

Recreational uses and aquatic life support in this portion of Ninemile Creek are impaired by pathogens and a variety of other pollutants from CSOs, urban runoff, and past industrial operations and uses. This and other tribs to Onondaga Lake are also sources of nutrient loading to Onondaga Lake; these loadings are being addressed through implementation of TMDL plans for Onondaga Lake. Other sewer collection system discharges are also possible sources of impact. Fish consumption is also restricted as a result of a health advisory for Onondaga Lake that extends to tribs up to the first impassable barrier.

Ninemile Creek is impacted by a number of pollutant sources including CSO discharges, urban runoff and industrial activities. Efforts to address the water quality impacts to the stream are ongoing. These include enforceable control requirements of Amended Consent Judgement (ACJ), other consent orders with Onondaga County and other municipalities to address sanitary sewer overflows, active remediation of identified hazardous waste sites and other rehabilitation

activities and projects. (DEC/DOW, Region 7, January 2007)

Impacts from industrial hazardous waste sites along the lower portion of the creek have been documented in the Geddes Brook/Ninemile Creek Baseline Ecological Risk Assessment prepared for the Onondaga Lake Project in 2003. These sites include the Solvay Landfill site which is currently undergoing a Part 360 grant closure, the Pass and Seymour site which is undergoing Remedial Investigation through the Brownfields Cleanup Program, the Matthews Avenue Landfill (Honeywell) site which is being considered for inclusion in the Brownfields Cleanup Program, and a number of other sites (State Fair Landfill, Frazer and Jones Foundry, Stanton Foundry) where remediation activities are not currently underway. (DEC/DER, Region 7, July 2007)

A biological (macroinvertebrate) assessment of Ninemile Creek in Lakeland (at State Fair Blvd) was conducted in 2001. Sampling results indicated severely impacted water quality conditions. The fauna was heavily dominated by tolerant worms and midges. Sewage wastes were identified as the primary contributor to the impacts. The previous sampling in 1995 revealed conditions to be in the moderately impacted range, but 1989-90 sampling also reflected severely impacted conditions. Poor habitat influences the sampling results to some degree. (DEC/DOW, BWAM/SBU, June 2005)

Fish consumption advisories for Onondaga Lake (and all tribs to the first barrier) also apply to this tributary water. A NYS DOH health advisory that recommends eating no walleye, and no more than one meal per month of carp, channel catfish, white perch or other species because of elevated levels of mercury, PCBs and dioxin. The source of these contaminants is past industrial operations and discharges to the lake. The advisory for this lake was first issued prior to 1997-98. (2006-07 NYS DOH Health Advisories and DEC/FWMR, Habitat, December 2006).

The Onondaga County Department of Water Environment Protection (OCDWEP) Ambient Monitoring Program (AMP) was implemented in 1998 in accordance with the ACJ to measure the progress and effectiveness of the County's fifteen-year plan for collection system and treatment plant improvements. The AMP measures chemical, physical and biological data for Onondaga Lake, the lake tributaries, Onondaga Outlet and the Seneca River. The OCDWEP publishes an Annual Onondaga Lake Report that evaluates and summarizes the findings of the AMP. (Onondaga County DWEP, 2006)

Ninemile Creek is currently included on the NYS 2006 Section 303(d) List of Impaired Waters. The creek is listed for the pollutant phosphorus and is included on Part 3c of the list as a waterbody segment for which TMDL Development may be Deferred Due to Other Restoration Measures. This updated assessment indicates that uses are impaired by pathogens and the inclusion of the lake on the 2008 list for this pollutant is recommended. Due to the multiple and ongoing CSO remediation efforts, it is recommended that the listing for pathogens also be added to Part 3c. (DEC/DOW, BWAM, July 2007)

Additional information regarding activities to address pollution and restore uses in the waters and tributaries of Onondaga Lake can be found at the Onondaga Lake Partnership website (<http://www.onlakepartners.org>)

This segment includes the portion of the stream and selected/smaller tribs from the mouth to/including unnamed tribs (-5) in Camillus. The waters of this portion of the stream are Class C,C(T). Tribs to this reach/segment, including Beaver Meadow Brook (-4), are Class C. Upper Ninemile Creek and Geddes Brook (-2) are listed separately.

Geddes Brook and tribs (0702-0007)

Impaired Seg

Waterbody Location Information

Revised: 07/18/2007

Water Index No: Ont 66-12-12-P154- 6- 2
Hydro Unit Code: 04140201/360 **Str Class:** C
Waterbody Type: River
Waterbody Size: 12.4 Miles
Seg Description: entire stream and tribs

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Onondaga Co. (34)
Quad Map: SYRACUSE WEST (I-16-4)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Fish Consumption	Stressed	Known
AQUATIC LIFE	Impaired	Known
RECREATION	Impaired	Known
Aesthetics	Stressed	Known

Type of Pollutant(s)

Known: AMMONIA, PATHOGENS, Aesthetics (floatables), Metals (mercury), Priority Organics (PCBs, dioxin)
Suspected: Nutrients
Possible: - - -

Source(s) of Pollutant(s)

Known: COMB. SEWER OVERFLOW, LANDFILL/LAND DISP., URBAN/STORM RUNOFF, Industrial, Tox/Contam. Sediment
Suspected: OTHER SANITARY DISCH
Possible: - - -

Resolution/Management Information

Issue Resolvability: 3 (Strategy Being Implemented)
Verification Status: 5 (Management Strategy has been Developed)
Lead Agency/Office: DEC/Reg7
TMDL/303d Status: 3c (Waterbody Being Addressed by Other Means)

Resolution Potential: Medium

Further Details

Aquatic life support and recreational uses in Geddes Brook are thought to be impaired due to ammonia and other pollutants from CSOs, urban runoff, and past industrial operations and uses.

Geddes Brook is impacted by a number of pollutant sources including CSO discharges, urban runoff and industrial activities. Efforts to address the water quality impacts to the stream are ongoing. These include enforceable control requirements of Amended Consent Judgement (ACJ), other consent orders with Onondaga County and other municipalities to address sanitary sewer overflows, active remediation of identified hazardous waste sites and other rehabilitation activities and projects. (DEC/DOW, Region 7, January 2007)

Impacts from industrial hazardous waste sites along the lower portion of the creek have been documented in the Geddes Brook/Ninemile Creek Baseline Ecological Risk Assessment prepared for the Onondaga Lake Project in 2003. These sites include the Solvay Landfill site which is currently undergoing a Part 360 grant closure, the Pass and Seymour site which

is undergoing Remedial Investigation through the Brownfields Cleanup Program, the Matthews Avenue Landfill (Honeywell) site which is being considered for inclusion in the Brownfields Cleanup Program, and a number of other sites (State Fair Landfill, Frazer and Jones Foundry, Stanton Foundry) where remediation activities are not currently underway. (DEC/DER, Region 7, July 2007)

A biological (macroinvertebrate) assessment of Geddes Brook in Camillus (at Horan Road) was conducted in 2001. Sampling results indicated slightly impacted water quality conditions. Municipal/industrial sources were identified as the primary source of the impact. This assessment represents an improvement over sampling in 1989 which found moderately impacted conditions. No explanation for the apparent improvement has been noted. This site is above the portion of the creek more significantly impacted by industrial activities and may not be fully representative of the entire stream. (DEC/DOW, BWAM/SBU, June 2005)

The Onondaga County Department of Water Environment Protection (OCDWEP) Ambient Monitoring Program (AMP) was implemented in 1998 in accordance with the ACJ to measure the progress and effectiveness of the County's fifteen-year plan for collection system and treatment plant improvements. The AMP measures chemical, physical and biological data for Onondaga Lake, the lake tributaries, Onondaga Outlet and the Seneca River. The OCDWEP publishes an Annual Onondaga Lake Report that evaluates and summarizes the findings of the AMP. (Onondaga County DWEP, 2006)

Geddes Brook is currently included on the NYS 2006 Section 303(d) List of Impaired Waters. The creek is listed for the pollutant ammonia and is included on Part 3c of the list as a waterbody segment for which TMDL Development may be Deferred Due to Other Restoration Measures. This updated assessment indicates that uses are impaired by pathogens and the inclusion of the lake on the 2008 list for this pollutant is recommended. Due to the multiple and ongoing CSO remediation efforts, it is recommended that the listing for pathogens also be added to Part 3c. (DEC/DOW, BWAM, July 2007)

This segment includes the entire stream and all tribs. The waters of this portion of the stream are Class C,C(T). Tribs to this reach/segment are also Class C,C(T).

Otisco Lake (0702-0011)

MinorImpacts

Waterbody Location Information

Revised: 07/10/2007

Water Index No: Ont 66-12-12-P154- 6-P175
Hydro Unit Code: 04140201/360 **Str Class:** AA
Waterbody Type: Lake
Waterbody Size: 2214.3 Acres
Seg Description: entire lake

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Onondaga Co. (34)
Quad Map: MARCELLUS (J-15-2)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Water Supply	Threatened	Possible
Aquatic Life	Stressed	Known
Recreation	Stressed	Known

Type of Pollutant(s)

Known: D.O./OXYGEN DEMAND, Silt/Sediment
Suspected: Algal/Weed Growth, Nutrients
Possible: ---

Source(s) of Pollutant(s)

Known: ---
Suspected: AGRICULTURE, STREAMBANK EROSION
Possible: On-Site/Septic Syst

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 3 (Cause Identified, Source Unknown)
Lead Agency/Office: ext/WQCC
TMDL/303d Status: n/a

Resolution Potential: Medium

Further Details

Aquatic life support and recreational uses in Otisco Lake are thought to experience minor impacts due to periodic low dissolved oxygen levels. Suspended sediment and other loads from various nonpoint sources also contribute to these impacts. Water supply uses in Otisco Lake may experience minor threats due to various activities in the watershed. The designation of this waterbody as a threatened water is reflective of a need to protect its particular resource value, rather than specifically identified threats.

Otisco Lake is best characterized as eutrophic due to its chlorophyll a, water clarity and hypolimnetic dissolved oxygen levels. Findings also suggest that trophic conditions within the lake have increased over the past several decades. Total phosphorus and chlorophyll a levels have increased since the 1970s. The hypolimnion of the lake become anoxic during the summer and early fall. Though it is unclear whether the anoxic conditions have human causes or are natural in origin. (Water Quality Study of the Finger Lakes, DEC/DOW, July 2001)

Otisco Lake is segmented by a causeway that stretches across the southern end of the lake. The two portions of the lake are connected by a narrow break in the causeway. The southern end of the lake is quite shallow and receives a large

percentage of the flow into the lake. Due to the limited mixing between the two portions of the lake, water quality in the two segments are significantly different with the southern end having higher concentrations of phosphorus and chlorophyll a and lower water clarity. The southern end of Otisco Lake is characterized by high turbidity and occasional algal blooms. (Water Quality Study of the Finger Lakes, DEC/DOW, July 2001)

In addition to the use impacts outlined above, the segment is considered a highly valued water resource due to its drinking water supply classification. Class A/AA surface waters of the state that serve as the source of potable water for significant populations are typically categorized as potentially threatened. The inclusion of this waterbody on the DEC/DOW Priority Waterbodies List as a Threatened water is a reflection of the particular resource value reflected in this designation and the need to provide additional protection, rather than any specifically identified threats. (DEC/DOW, BWAM, January 2006)

Seneca River, Lower, Main Stem (0701-0008)

Impaired Seg

Waterbody Location Information

Revised: 11/01/2007

Water Index No: Ont 66-12 (portion 2) **Drain Basin:** Owsego-Seneca-Oneida
Hydro Unit Code: 04140201/350 **Str Class:** C Seneca/Clyde Rivers
Waterbody Type: River **Reg/County:** 7/Onondaga Co. (34)
Waterbody Size: 23.0 Miles **Quad Map:** BALDWINSVILLE (I-15-2)
Seg Description: portion from Onondaga Lake Outlet to Cross Lake

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
AQUATIC LIFE	Impaired	Known
RECREATION	Impaired	Known

Type of Pollutant(s)

Known: D.O./OXYGEN DEMAND, Nutrients
Suspected: PATHOGENS, Ammonia, Priority Organics (phenol), Silt/Sediment
Possible: ---

Source(s) of Pollutant(s)

Known: HABITAT MODIFICATION (zebra mussels), HYDRO MODIFICATION, Agriculture, Other Source (Onondaga Lake inflow)
Suspected: Municipal, Urban/Storm Runoff
Possible: ---

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 4 (Source Identified, Strategy Needed)
Lead Agency/Office: DOW/Reg7 **Resolution Potential:** Medium
TMDL/303d Status: 3a,3b* (Waterbody Requiring Verification of Impairment, more)

Further Details

Aquatic life support and recreational uses in this portion of the Seneca River are impaired due to low dissolved oxygen. Extensive zebra mussel infestation of the river is the primary cause of the dissolved oxygen depletion. Hydrology influences (stratification) caused by Onondaga Lake exacerbate these problems.

The Seneca River is a large river that drains much of central New York. The Seneca River joins with the Oneida River to form the Oswego River, creating what is referred to as the Three Rivers System. These rivers have multiple uses including navigation, hydroelectric power generation, fishing, contact recreation, and waste disposal. The natural flow and other characteristics of the river system have been greatly altered by dams and locks to support navigation and hydroelectric power generation. This has reduced the river's capacity to compensate for oxygen depletion through natural aeration with the atmosphere and has contributed to the unusual bi-directional stratified flow that occurs between the Seneca River and Onondaga Lake. The lake both receives inflow from the river as well as discharges to the river. Due to the lack of hydrologic gradient, during periods of low flow, more dense higher salinity lake water exits along the bottom of the outlet while less dense river water flows into the lake in the top of the outlet. The salinity stratification also exacerbates dissolved oxygen depletion that occurs at lower depths of the river by preventing mixing and natural aeration.

The extension of other water quality issues common to the lake, such as ammonia toxicity, into the lower river layer has also been documented. (DEC/DOW, BWAM, June 2007)

In addition to the hydrologic conditions, the establishment of dense zebra mussel populations in the river has also profoundly changed and complicated water quality concerns. The population density of zebra mussels in The Cut, a rock channel located just downstream of Cross Lake, is perhaps the highest sustained in any river in North America. Conditions are ideal at this location, as large amounts of appropriate food (phytoplankton) are supplied by the lake, and the rock bottom represents suitable substrate for the zebra mussel colonization. As a result of the zebra mussel infestation, the Seneca River downstream of Cross Lake has experienced significant increases in water clarity and decreases in dissolved oxygen. (DEC/DOW, BWAM, June 2007)

The water quality of the Seneca river upstream of Onondaga Lake is also an important concern because a leading remediation alternative for the domestic waste problems of the lake - diversion of an upgraded (Metro) effluent now received by the lake to the river - depends critically on the water quality and assimilative capacity of the river. The loss of assimilative capacity for oxygen demanding waste in the river from the zebra mussel infestation, exacerbated by river stratification, compromises the management alternative of diversion of the Metro effluent to the river to rehabilitate Onondaga Lake. (DEC/DOW, Region 7, June 2007)

NYSDEC Rotating Intensive Basin Studies (RIBS) Routine Network monitoring (water chemistry) of the Seneca River in Jack Reef, Onondaga County, is conducted annually at the Route 32 bridge. In addition, when RIBS Intensive Network monitoring is conducted in a targeted basin every five years, additional sampling methods are employed to gain an overall assessment of water quality. This Intensive Network sampling typically includes macroinvertebrate community analysis, sediment assessment, macroinvertebrate tissue analysis and toxicity testing, in addition to water chemistry. The most recent Intensive Network monitoring was conducted during 2001 (multiplates) and 2002. Biological (macroinvertebrate) sampling revealed moderately impacted water quality. Species richness was low and mayflies and caddisflies were rare. These results are similar to 1995 sampling and represent a decline from conditions in 1989-90 and are thought to be a result of heavy zebra mussel infestation. Water column chemistry indicates phenol to be present in concentrations that constitute a parameter of concern. Toxicity testing using water from this location detected no significant mortality or reproductive effects on the test organism.

This portion of the Seneca River is currently included on the NYS 2006 Section 303(d) List of Impaired Waters due to pathogens. This segment is included on Part 3a as a waterbody for which TMDL development may be deferred pending verification of impairment. A reach of the Seneca River downstream of this segment is also included on the 2006 Section 303(d) List due to low dissolved oxygen, thought to be largely the result of zebra mussel infestation. This updated assessment indicates the same impairments occur in this segment and the inclusion of this segment as well on the 2008 Section 303(d) List due to low dissolved oxygen is recommended. As noted above, the dissolved oxygen depletion in the river is largely due to zebra mussel infestation which may require non-treatment options in addition to a TMDL in order to meet water quality targets. Because this impairment may not be appropriate to be addressed by a TMDL, it is recommended that this segment of the Seneca River be included on Part 3b (Waterbodies for which TMDL Development May be Deferred) of the 2008 Section 303(d) List for low dissolved oxygen, pending determination of the appropriateness of a TMDL. (DEC/DOW, BWAM, February 2008)

This segment includes the portion of the river from the confluence of the Onondaga Lake Outlet in Cold Springs to Cross Lake at Jones Point. The waters of this portion of the river are Class C. Tribs to this reach/segment are listed separately.

Cross Lake (0701-0002)

MinorImpacts

Waterbody Location Information

Revised: 11/01/2007

Water Index No:	Ont 66-12 (portion 3)/P185	Drain Basin:	Owsego-Seneca-Oneida
Hydro Unit Code:	04140201/390	Str Class:	B
Waterbody Type:	Lake	Reg/County:	7/Onondaga Co. (34)
Waterbody Size:	2086.3 Acres	Quad Map:	JORDAN (I-15-4)
Seg Description:	entire lake		

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Public Bathing	Stressed	Known
Aquatic Life	Stressed	Possible
Recreation	Stressed	Suspected

Type of Pollutant(s)

Known: SILT/SEDIMENT
 Suspected: NUTRIENTS, PATHOGENS
 Possible: D.O./Oxygen Demand

Source(s) of Pollutant(s)

Known: ---
 Suspected: AGRICULTURE, ON-SITE/SEPTIC SYST, OTHER SOURCE (waterfowl), Hydro Modification (periodic flooding), Streambank Erosion
 Possible: ---

Resolution/Management Information

Issue Resolvability:	1 (Needs Verification/Study (see STATUS))	
Verification Status:	4 (Source Identified, Strategy Needed)	
Lead Agency/Office:	ext/WQCC	Resolution Potential: Medium
TMDL/303d Status:	n/a	

Further Details

Public bathing and recreational uses in Cross Lake may experience impacts due to nutrient and sediment loads from various nonpoint sources in the watershed. On-site septic systems around the lake have also been identified as a source of nutrients. Pathogen levels are also a concern.

The lake is reported to be eutrophic during the summer. Algal blooms and suspended sediment reduce water clarity, which also impacts recreational uses. The primary source of nutrient and sediment loads to the lake are the Seneca River. A recreational beach on the lake has on occasion been closed by Cayuga County due to elevated coliform levels. Migratory waterfowl are one source of the pathogens. Inadequate and/or failing on-site septic systems serving residences around the lake are also contributing to the coliform as well as the nutrient loads to the lake. The impact of on-site septic systems is exacerbated by periodic flooding along the lake. (Cayuga County WQMA, January 2004)

The lake functions as a sink and settling basin for upstream loads that enter the lake via the Seneca River. Other natural characteristics of the lake, including stratification, the short-circuiting of the river flow through the southern end of the

lake and the resulting limited circulation, and the recycling of nutrients from bottom sediment deposits, are thought to contribute to water quality impacts. Because of the significant loadings from the Seneca River, a multi-county watershed plan is needed to address these problems. (Cayuga County WQMA, January 2004)

Dead Creek and tribs (0701-0032)

MinorImpacts

Waterbody Location Information

Revised: 07/03/2007

Water Index No: Ont 66-12-19
Hydro Unit Code: 04140201/350 **Str Class:** C
Waterbody Type: River
Waterbody Size: 19.7 Miles
Seg Description: entire stream and tribs

Drain Basin: Owsego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Onondaga Co. (34)
Quad Map: LYSANDER (I-15-1)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Aquatic Life	Stressed	Known
Recreation	Stressed	Known

Type of Pollutant(s)

Known: NUTRIENTS (phosphorus)
Suspected: ---
Possible: ---

Source(s) of Pollutant(s)

Known: ---
Suspected: AGRICULTURE
Possible: ---

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 4 (Source Identified, Strategy Needed)
Lead Agency/Office: DOW/Reg7
TMDL/303d Status: n/a

Resolution Potential: Medium

Further Details

Aquatic life support and recreational uses in Dead Creek are known to experience impacts due to nutrients from agricultural and other nonpoint sources.

A biological (macroinvertebrate) assessment of Dead Creek near Baldwinsville (at Hoag Road) was conducted in 2001. Sampling results indicated moderately impacted water quality conditions, however this assessment is thought to be influenced by habitat factors. The stream is small and sluggish and there are many ponded areas above the sampling location. Particularly high conductivity was noted in the stream and Impact Source Determination found nonpoint source nutrient enrichment to be the likely cause of the impacts. Additional sampling is recommended in order to determine the extent and magnitude of the impacts to this stream. (DEC/DOW, BWAM/SBU, June 2005)

This segment includes the entire stream and all tribs. The waters of the stream are Class C. Tribs to this reach/segment, including White Bottom Creek (-5) and Gilly Brook (-6), are Class C,C(T).

Carpenters Brook and tribs (0701-0033)

MinorImpacts

Waterbody Location Information

Revised: 07/02/2007

Water Index No: Ont 66-12-28
Hydro Unit Code: 04140201/350 **Str Class:** C(T)
Waterbody Type: River
Waterbody Size: 30.5 Miles
Seg Description: entire stream and tribs

Drain Basin: Owsego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Onondaga Co. (34)
Quad Map: JORDAN (I-15-4)

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Aquatic Life	Stressed	Known

Type of Pollutant(s)

Known: ---
Suspected: NUTRIENTS
Possible: ---

Source(s) of Pollutant(s)

Known: ---
Suspected: AGRICULTURE
Possible: ---

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 4 (Source Identified, Strategy Needed)
Lead Agency/Office: ext/WQCC
TMDL/303d Status: n/a

Resolution Potential: Medium

Further Details

Aquatic life support in Carpenters Brook is known to experience minor impacts due to nutrient enrichment from various nonpoint sources. .

A biological (macroinvertebrate) assessment of Carpenters Brook in Peru (at Peru Road) was conducted in 2001. Sampling results indicated slightly impacted water quality conditions. Nonpoint source nutrient enrichment was identified as the primary source of the impacts. Although aquatic life is supported in the stream, nutrient biotic evaluation suggests the level of eutrophication is sufficient to stress aquatic life support. (DEC/DOW, BWAM/SBU, June 2005)

This segment includes the entire stream and all tribs. The waters of the stream are Class C(T). Tribs to this reach/segment are Class C,C(T).

Skaneateles Creek and tribs (0707-0003)

Impaired Seg

Waterbody Location Information

Revised: 08/13/2007

Water Index No: Ont 66-12-29
Hydro Unit Code: 04140201/340 **Str Class:** C
Waterbody Type: River
Waterbody Size: 36.5 Miles
Seg Description: entire stream and tribs

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Onondaga Co. (34)
Quad Map: JORDAN (I-15-4)

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
FISH CONSUMPTION	Impaired	Known
Aquatic Life	Stressed	Known

Type of Pollutant(s)

Known: PRIORITY ORGANICS (PCBs), Nutrients
Suspected: ---
Possible: ---

Source(s) of Pollutant(s)

Known: LANDFILL/LAND DISP. (Stauffer Mgmt)
Suspected: Agriculture, Industrial, Urban/Storm Runoff
Possible: ---

Resolution/Management Information

Issue Resolvability: 3 (Strategy Being Implemented)
Verification Status: 5 (Management Strategy has been Developed)
Lead Agency/Office: DEC/DER **Resolution Potential:** Medium
TMDL/303d Status: 2b (Multiple Segment/Categorical Water, Fish Consumption)

Further Details

Fish consumption in Skaneateles Creek is impaired due to a health advisory due to PCBs. Aquatic life support in the stream is also known to experience minor impacts due to nutrient enrichment from nonpoint sources.

Fish consumption in Skaneateles Creek below the dam in Skaneateles is impaired due to a NYSDOH health advisory that recommends eating no more than one meal per month of larger brown trout (over 10 inches) because of elevated PCB levels. The source of PCBs is a hazardous waste site (Stauffer Management) that is currently being remediated. The advisory for this lake was first issued prior to 1998-99. The stream supports a significant brown and rainbow trout fishery and catch-and-release fishing is practiced. (2006-07 NYSDOH Health Advisories and DEC/DFWMR, Habitat, December 2006).

A biological (macroinvertebrate) assessment of Skaneateles Creek in Jordan (at Route 31) was conducted in 2001. Sampling results indicated slightly impacted water quality conditions. Nonpoint source nutrient enrichment was indicated as the primary source of impacts. Although aquatic life is supported in the stream, nutrient biotic evaluation suggests the level of eutrophication is sufficient to stress aquatic life support. A biological survey of crayfish tissue in 2000 was used to identify the apparent source of the PCB contamination in the stream. (DEC/DOW, BWAM/SBU, June 2005)

Remediation of the Stauffer Management site (7-34-010) is currently underway. The remediation includes the removal on contaminated sediments on the site and the sampling and excavation of contaminated sediments in Skaneateles Creek. In addition to the selective dredging in the creek, the remediation effort includes the permanent relocation of about 400 feet of the stream. (DEC/DOW, Region 7, September 2005)

Skaneateles Creek is included on the NYS 2006 Section 303(d) List of Impaired Waters. The lake is included on Part 2b of the List as a Fish Consumption Water due to PCB contamination.

This segment includes the entire stream and all tribs from the mouth to Skaneateles Lake. The waters of the stream are Class C,C(T). Tribs to this reach/segment are also Class C,C(T).

Skaneateles Lake (0707-0004)

Threat(Poss)

Waterbody Location Information

Revised: 07/11/2007

Water Index No: Ont 66-12-29-P193
Hydro Unit Code: 04140201/340 **Str Class:** AA
Waterbody Type: Lake
Waterbody Size: 8703.9 Acres
Seg Description: entire lake
Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Onondaga Co. (34)
Quad Map: SKANEATELES (J-15-1)

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Water Supply	Threatened	Possible

Type of Pollutant(s)

Known: ---
Suspected: ---
Possible: OTHER POLLUTANTS

Source(s) of Pollutant(s)

Known: ---
Suspected: ---
Possible: OTHER SOURCE (various)

Resolution/Management Information

Issue Resolvability: 3 (Strategy Being Implemented)
Verification Status: 5 (Management Strategy has been Developed)
Lead Agency/Office: ext/Muni
TMDL/303d Status: n/a
Resolution Potential: High

Further Details

Water supply uses in Skaneateles Lake may experience minor threats due to various activities in the watershed. The designation of this waterbody as a threatened water is reflective of a need to protect its particular resource value, rather than specifically identified threats.

Although there are no known water quality impacts in Skaneateles Lake, the segment is considered a highly valued water resource due to its drinking water supply classification. The lake is a multi-use waterbody, but is also the primary source of water for the City of Syracuse. There are significant watershed protection measures in place to protect this water supply. The inclusion of this waterbody on the DEC/DOW Priority Waterbodies List as a Threatened water is a reflection of the particular resource value reflected in this designation and the need to provide additional protection, rather than any specifically identified threats.

Skaneateles Lake has been sampled as part of the NYSDEC Citizen Statewide Lake Assessment Program (CSLAP) beginning in 1997 and continuing through 2001. An Interpretive Summary report of the findings of this sampling was published in 2002. These data indicate that the lake continues to be best characterized as oligotrophic, or highly unproductive. The very high water clarity of the lake are the result of very low nutrient and algae levels. Phosphorus levels in the lake are consistently below the state guidance values indicating impacted/stressed recreational uses.

Corresponding transparency measurements easily exceed what is recommended for swimming beaches. In fact a September 2001 clarity readings of 15 meters was among the highest ever recorded in a NYS lake. Measurements of pH typically fall within the state water quality range of 6.5 to 8.5. The lake water is weakly colored, which is as expected given the character of the watershed. Oxygen levels do not appear to be significantly reduced at lower lake depths and internal nutrient cycling is not significant. (DEC/DOW, BWAM/CSLAP, October 2002)

Public perception of the lake and its uses is also evaluated as part of the CSLAP program. This assessment indicates recreational suitability of the lake to be highly favorable since the lake was first evaluated and continuing through the most recent assessment. The recreational suitability of the lake is described most frequently as "could not be nicer." The lake itself is most often described as "crystal clear," an assessment that is consistent with the perceived water quality conditions in the lake and its measured water quality characteristics. Assessments have noted that aquatic plants rarely grows to the lake surface. Aquatic plants are dominated by a mix of native and non-native species and have not been cited as impacting recreational uses. (DEC/DOW, BWAM/CSLAP, October 2002)

This lake waterbody is designated class AA, suitable for use as a water supply, public bathing beach, general recreation and aquatic life support. Water quality monitoring by NYSDEC focuses primarily on support of general recreation and aquatic life. Samples to evaluate the bacteriological condition and bathing use of the lake or to evaluate contamination from organic compounds, metals or other inorganic pollutants have not been collected as part of the CSLAP monitoring program. Monitoring to assess potable water supply and public bathing use is generally the responsibility of state and/or local health departments.

Grout Brook and tribs (0707-0001)

NoKnownImpct

Waterbody Location Information

Revised: 07/02/2007

Water Index No: Ont 66-12-29-P193-55
Hydro Unit Code: 04140201/340 **Str Class:** AA(T)
Waterbody Type: River
Waterbody Size: 17.2 Miles
Seg Description: entire stream and tribs

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Cortland Co. (12)
Quad Map: SPAFFORD (J-15-3)

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
NO USE IMPAIRMNT		

Type of Pollutant(s)

Known: ---
Suspected: ---
Possible: ---

Source(s) of Pollutant(s)

Known: ---
Suspected: ---
Possible: ---

Resolution/Management Information

Issue Resolvability: 8 (No Known Use Impairment)
Verification Status: (Not Applicable for Selected RESOLVABILITY)
Lead Agency/Office: n/a **Resolution Potential:** n/a
TMDL/303d Status: n/a

Further Details

A biological (macroinvertebrate) assessment of Grout Brook in Grout Mill (at Route 101) was conducted in 2001. Sampling results indicated slightly impacted water quality conditions. Nonpoint source nutrient enrichment was identified as the primary contributor to the conditions resulting in this assessment. However, nutrient biotic evaluation determined these effects on the fauna to be minor. Aquatic life support is considered to be fully supported in the stream. (DEC/DOW, BWAM/SBU, June 2005)

Previous assessments (1996) suggested CSO discharges caused some impacts to water quality, however more recent sampling found no evidence of such problems. (DEC/DOW, BWAM, January 2005)

This segment includes the entire stream and all tribs. The waters of the stream are Class AA(T). Tribs to this reach/segment are Class AA.

Parker Pond (0701-0036)

Need Verific

Waterbody Location Information

Revised: 08/13/2007

Water Index No:	Ont 66-12-35-P197	Drain Basin:	Owsego-Seneca-Oneida
Hydro Unit Code:	04140201/390	Str Class:	C
Waterbody Type:	Lake	Reg/County:	7/Cayuga Co. (6)
Waterbody Size:	185.6 Acres	Quad Map:	CATO (I-14-2)
Seg Description:	entire pond		

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Recreation	Stressed	Possible

Type of Pollutant(s)

Known: ALGAL/WEED GROWTH
Suspected: Nutrients
Possible: - - -

Source(s) of Pollutant(s)

Known: HABITAT MODIFICATION
Suspected: Agriculture
Possible: On-Site/Septic Syst

Resolution/Management Information

Issue Resolvability:	1 (Needs Verification/Study (see STATUS))	
Verification Status:	1 (Waterbody Nominated, Problem Not Verified)	
Lead Agency/Office:	ext/WQCC	Resolution Potential: n/a
TMDL/303d Status:	n/a	

Further Details

Recreational uses in Parker Pond may experience minor impacts due to aquatic weed growth.

Local agencies have expressed concerns regarding the impact of aquatic weeds that restrict recreational uses. The lake is reported to be eutrophic and nutrient loadings from the surrounding watershed are thought to contribute to these impacts. Agricultural activities and possibly impacts from on-site septic systems are suspected sources. (Cayuga County WQMA, 2003)

Otter Lake (0701-0004)

MinorImpacts

Waterbody Location Information

Revised: 07/11/2007

Water Index No: Ont 66-12-35-P197- 3-P198
Hydro Unit Code: 04140201/390 **Str Class:** C
Waterbody Type: Lake
Waterbody Size: 281.7 Acres
Seg Description: entire pond

Drain Basin: Owsego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Cayuga Co. (6)
Quad Map: CATO (I-14-2)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Recreation	Stressed	Known

Type of Pollutant(s)

Known: ALGAL/WEED GROWTH
Suspected: Nutrients, Silt/Sediment
Possible: - - -

Source(s) of Pollutant(s)

Known: OTHER SOURCE (naturally eutrophic)
Suspected: Agriculture
Possible: On-Site/Septic Syst, Streambank Erosion

Resolution/Management Information

Issue Resolvability: 5 (Not Resolvable, natural/conflicting use)
Verification Status: (Not Applicable for Selected RESOLVABILITY)
Lead Agency/Office: ext/WQCC
TMDL/303d Status: n/a

Resolution Potential: Low

Further Details

Recreational uses of Otter Lake are known to experience minor impacts due to algal and aquatic weed growth. The shallow lake is situated in a low-lying, marshy area and is largely considered to be naturally eutrophic. However, elevated nutrient loadings from various nonpoint sources likely contribute to these impacts.

Rooted aquatic vegetation is reported to be heavy and a mechanical harvesting program is in place. While agriculture and on-site systems are suspected of contributing sediment and nutrients to the lake, it is unlikely that even significant reductions would alter the trophic state of the lake. NYSDEC stocks the lake with walleye. (DEC/DFWMR, Region 7, 2000)

Cold Spring/North Brook and minor tribs (0701-0038)

MinorImpacts

Waterbody Location Information

Revised: 08/13/2007

Water Index No: Ont 66-12-36
Hydro Unit Code: 04140201/330 **Str Class:** C
Waterbody Type: River
Waterbody Size: 41.2 Miles
Seg Description: entire stream and selected tribs

Drain Basin: Owsego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Cayuga Co. (6)
Quad Map: WEEDSPORT (I-14-3)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Aquatic Life	Stressed	Known
Recreation	Stressed	Known

Type of Pollutant(s)

Known: NUTRIENTS (phosphorus)
Suspected: D.O./Oxygen Demand
Possible: ---

Source(s) of Pollutant(s)

Known: ---
Suspected: AGRICULTURE
Possible: ---

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 4 (Source Identified, Strategy Needed)
Lead Agency/Office: ext/WQCC
TMDL/303d Status: n/a

Resolution Potential: Medium

Further Details

Aquatic life support and recreational uses in Cold Spring/North Brook are known to experience minor impacts due to nutrient enrichment from nonpoint sources.

NYSDEC Rotating Intensive Basin Studies (RIBS) Intensive Network monitoring of Cold Spring/North Brook in Weedsport, Cayuga County, (at Route 13B) was conducted in 2006. Intensive Network sampling typically includes macroinvertebrate community analysis, water column chemistry, sediment and invertebrate tissues analysis and toxicity evaluation. During this sampling the biological (macroinvertebrate) sampling results indicated slightly impacted water quality conditions. Nonpoint sources of nutrient enrichment were indicated as the primary contributor to the impacts. Although aquatic life is supported in the stream, nutrient biotic evaluation indicates/suggests the level of eutrophication is sufficient to stress/threaten aquatic life support. Pervious sampling in 2001 suggested municipal/industrial impacts, but these influences were not present in the 2006 sample. Poor habitat conditions also may have affected the sample. Water column sampling revealed dissolved solids to be a parameters of concern. However, these results likely reflect high stream conductivities that are characteristic on the entire basin. Some occasional high coliform values were also noted. Toxicity testing of the water column showed no significant mortality or reproductive impacts. (DEC/DOW, BWAM/RIBS, January 2005)

Local agencies have expressed concerns regarding impacts from golf course runoff, cattle access to the stream and streambank erosion. (Cayuga County WQMA, 2003)

This segment includes the entire stream and selected/smaller tribs. The waters of the stream are Class C,C(T). Tribs to this reach/segment, including Upper Cold Spring Brook (-5a), are also Class C,C(T). Putnam Brook (-1) and upper unnamed trib (-10-1) are listed separately. The portion of the stream from the Seneca River to Cold Spring Brook is referred to as both Cold Spring and North Brook.

Putnam Brook and tribs (0701-0039)

NoKnownImpct

Waterbody Location Information

Revised: 07/02/2007

Water Index No: Ont 66-12-36- 1
Hydro Unit Code: 04140201/330 **Str Class:** C
Waterbody Type: River
Waterbody Size: 42.1 Miles
Seg Description: entire stream and tribs

Drain Basin: Owsego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Cayuga Co. (6)
Quad Map: WEEDSPORT (I-14-3)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
NO USE IMPAIRMNT		

Type of Pollutant(s)

Known: ---
Suspected: ---
Possible: ---

Source(s) of Pollutant(s)

Known: ---
Suspected: ---
Possible: ---

Resolution/Management Information

Issue Resolvability: 8 (No Known Use Impairment)
Verification Status: (Not Applicable for Selected RESOLVABILITY)
Lead Agency/Office: n/a **Resolution Potential:** n/a
TMDL/303d Status: n/a

Further Details

A biological (macroinvertebrate) assessment of Putnam Brook in North Weedsport (at Route 31) was conducted in 2001. Sampling results indicated slightly impacted water quality conditions. Nonpoint source nutrient enrichment was identified as the primary contributor to the conditions resulting in this assessment. However, nutrient biotic evaluation determined these effects on the fauna to be minor. Aquatic life support is considered to be fully supported in the stream, and there are no other indications of impacts to uses. (DEC/DOW, BWAM/SBU, June 2005)

Local agencies have expressed concerns regarding impacts from agricultural activities and streambank erosion, as well as discharges from a mobile home park and a county residential center. (Cayuga County WQMA, 2003)

This segment includes the entire stream and all tribs. The waters of the stream are Class C. Tribs to this reach/segment are Class C,C(T).

Owasco Outlet, Lower, and tribs (0706-0008)

MinorImpacts

Waterbody Location Information

Revised: 07/12/2007

Water Index No: Ont 66-12-43
Hydro Unit Code: 04140201/330 **Str Class:** C
Waterbody Type: River
Waterbody Size: 18.2 Miles
Seg Description: stream and tribs, from mouth to Throopsville

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Cayuga Co. (6)
Quad Map: MONTEZUMA (I-14-4)

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Aquatic Life	Stressed	Known
Recreation	Stressed	Known

Type of Pollutant(s)

Known: NUTRIENTS (phosphorus)
Suspected: - - -
Possible: D.O./Oxygen Demand, Water Level/Flow

Source(s) of Pollutant(s)

Known: AGRICULTURE
Suspected: MUNICIPAL (Port Byron WWTP), URBAN/STORM RUNOFF
Possible: Hydro Modification

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 4 (Source Identified, Strategy Needed)
Lead Agency/Office: ext/WQCC
TMDL/303d Status: n/a

Resolution Potential: Medium

Further Details

Aquatic life support and recreational uses in this portion of Owasco Outlet are known to experience minor impacts due to nutrient enrichment and other pollutants from agricultural and other nonpoint sources and urban/municipal and industrial sources.

NYSDEC Rotating Intensive Basin Studies (RIBS) Intensive Network monitoring of Owasco Outlet in North Port Byron, Cayuga County, (at Central Road) was conducted in 2002. Intensive Network sampling typically includes macroinvertebrate community analysis, water column chemistry, sediment and invertebrate tissues analysis and toxicity evaluation. During this sampling the biological (macroinvertebrate) sampling results indicated slightly impacted water quality conditions. Nutrient enrichment from nonpoint sources is the most likely contributor to these impacts. Water column sampling revealed quantifiable level of mercury in one of five samples collected; there were no other parameters of concern noted. Toxicity testing of the water column showed no significant mortality or reproductive impacts. (DEC/DOW, BWAM/RIBS, January 2005)

A biological (macroinvertebrate) survey of Owasco Outlet at multiple sites along its entire length from the mouth to Owasco Lake was conducted in 2002. Sampling results indicated slightly impacted quality conditions at all six sites,

including the three sites within this reach. Results of Impact Source Determination analysis identified the most likely primary sources influencing the fauna as being nutrients and urban municipal or industrial runoff. Water quality at two of the three sites in this reach improved from moderately impacted in 1990 to slightly impacted. Although improved from 1990 conditions, the most downstream site revealed impacts that could be attributed to the Port Byron WWTP. Completion of an upgrade to the City of Auburn WWTP in 1995 has resulted in dramatic improvements to the Outlet above this reach and likely contributes to the improvement in this segment as well. Although aquatic life is supported in the stream, nutrient biotic evaluation indicates the level of eutrophication is sufficient to stress aquatic life support. (DEC/DOW, BWAM/SBU, June 2005)

Concerns have also been raised regarding the impact of water level and flow fluctuations in the outlet due to operation of hydroelectric dam at outlet of the lake. There is a conflict over how dam should be operated - lake residents want water level high in lake, but flow maintenance is needed downstream.

This segment includes the portion of the stream and all tribs from the mouth to/including unnamed trib (-7) in Throopville. The waters of this portion of the stream are Class C. Tribs to this reach/segment are Class C,C(T). Upper Owasco Outlet is listed separately.

Owasco Outlet, Upper, and tribs (0706-0001)

MinorImpacts

Waterbody Location Information

Revised: 07/12/2007

Water Index No: Ont 66-12-43
Hydro Unit Code: 04140201/330 **Str Class:** C
Waterbody Type: River
Waterbody Size: 12.6 Miles
Seg Description: stream and tribs, from Throopsville to Owasco Lake

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Cayuga Co. (6)
Quad Map: AUBURN (J-14-2)

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Aquatic Life	Stressed	Known
Recreation	Stressed	Known

Type of Pollutant(s)

Known: NUTRIENTS (phosphorus)
Suspected: D.O./Oxygen Demand
Possible: Water Level/Flow

Source(s) of Pollutant(s)

Known: - - -
Suspected: COMB. SEWER OVERFLOW (Auburn), MUNICIPAL (Auburn WWTP), URBAN/STORM RUNOFF, Agriculture
Possible: - - -

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 4 (Source Identified, Strategy Needed)
Lead Agency/Office: ext/WQCC
TMDL/303d Status: n/a

Resolution Potential: Medium

Further Details

Aquatic life support and recreational uses in this portion of Owasco Outlet are known to experience minor impacts due to nutrient enrichment and other pollutants from various nonpoint and urban/municipal and industrial sources.

A biological (macroinvertebrate) survey of Owasco Outlet at multiple sites along its entire length from the mouth to Owasco Lake was conducted in 2002. Sampling results indicated slightly impacted quality conditions at all six sites, including the three sites within this reach. Results of Impact Source Determination analysis identified the most likely primary sources influencing the fauna as being nutrients and urban municipal or industrial runoff. Water quality at the two sites below the Auburn WWTP improved from moderately impacted in 1990 to slightly impacted. This improvement can be attributed to the 1995 upgrade of the WWTP to include activated sludge treatment, phosphorus removal, post-aeration and UV disinfection. Impacts at the site above the treatment plant also improved. Previous impacts attributed to CSOs and urban sources in Auburn were not as pronounced in the 2002 sample, although it is not certain if this is the result of changes to the sewer system. Although aquatic life is supported in the stream, nutrient biotic evaluation indicates the level of eutrophication is sufficient to stress aquatic life support. (DEC/DOW, BWAM/SBU, June 2005)

Concerns have also been raised regarding the impact of water level and flow fluctuations in the outlet due to operation of hydroelectric dam at outlet of the lake. There is a conflict over how dam should be operated - lake residents want water level high in lake, but flow maintenance is needed downstream.

This segment includes the portion of the stream and all tribs from unnamed trib (-7) in Throopsville to Owasco Lake. The waters of this portion of the stream are Class C. Tribs to this reach/segment are Class C,C(T). Lower Owasco Outlet and Owasco Lake are listed separately.

Owasco Lake (0706-0009)

Impaired Seg

Waterbody Location Information

Revised: 03/25/2008

Water Index No: Ont 66-12-43-P212
Hydro Unit Code: 04140201/320 **Str Class:** AA(T)
Waterbody Type: Lake
Waterbody Size: 6796.9 Acres
Seg Description: entire lake

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Cayuga Co. (6)
Quad Map: AUBURN (J-14-2)

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Water Supply	Threatened	Known
PUBLIC BATHING	Impaired	Known
RECREATION	Impaired	Known

Type of Pollutant(s)

Known: ALGAL/WEED GROWTH, PATHOGENS, Nutrients (phosphorus), Silt/Sediment
Suspected: ---
Possible: ---

Source(s) of Pollutant(s)

Known: HABITAT MODIFICATION, OTHER SOURCE (wildlife), Agriculture, Municipal (Groton WWTP), Streambank Erosion
Suspected: Hydro Modification, On-Site/Septic Syst
Possible: Construction

Resolution/Management Information

Issue Resolvability: 3 (Strategy Being Implemented)
Verification Status: 5 (Management Strategy has been Developed)
Lead Agency/Office: DOW/Reg7
TMDL/303d Status: 3a->1,4c

Resolution Potential: Medium

Further Details

Public bathing and recreational uses in Owasco Lake are considered to be periodically impaired by pathogen contamination along the north shore and by excessive growth of aquatic vegetation and algae in other parts of the lake, particularly its southern end. The sources of pathogens include wildlife and waterfowl, agricultural runoff and to a lesser extent on-site wastewater treatment systems. Though nutrient (phosphorus) levels are generally low in much of the lake, elevated levels in the southern end of the lake may exacerbate the growth of aquatic vegetation. Water supply uses of the lake are also considered to be threatened due to the potential for the formation of disinfection by-products when the water is treated with chlorine for public water use.

Owasco Lake has been sampled by a number of agencies and investigators over recent years. NYSDEC issued a report on a synoptic study of the Finger Lakes, including Owasco Lake, in June 2001. More recently, researchers from the Finger Lakes Institute of Hobart and William Smith College issued A Preliminary Water Quality Study of Owasco Lake and its Watershed (Halfman, et.al., January 2006). These studies indicate that the lake continues to be best characterized as mesoligotrophic, or somewhat productive. Phosphorus levels in the lake are typically below the state guidance values that

would indicate impacted/stressed recreational uses. Chlorophyll and clarity measurements also indicate no significant impacts to uses in the main lake. However, although water quality in Owasco Lake is generally found to be favorable and supportive of most recreational uses and aquatic life, there are a few specific water quality concerns. Public bathing in the northern end of the lake is restricted by pathogen levels that result in periodic beach closures. Along the lake shore and most notably at the southern end of the lake excessive rooted aquatic plant and algal growth restrict recreational uses such as bathing, boating and fishing. Elevated phosphorus loads and silt/sediment deposition from lake tributaries are thought to be contributing to and exacerbating this growth. The potential for formation of disinfection by-products that threatened water supply uses of the lake is also a concern.

The most specific impairment to uses of the lake are related to periodic elevated fecal coliform levels in the north end of the lake have resulted in closures of the public beach at Emerson Park. Of the 772 samples taken at Emerson Park beaches by the Cayuga County Environmental Health Division between 1993 and 1998, 36% (281) were above the NYSDOH fecal coliform density standard of 200 colonies/100 mL. In the fall 1998, a study used DNA ribotyping techniques to determine the sources of fecal contamination. This study determined that the major source of contamination at the Emerson Park beaches was from wildlife, while agriculture was an intermediate source, and humans and pets were minor sources. The study also showed that agriculture and wildlife were the major sources of contamination in the tributaries, while humans and pets were minor sources. (Cayuga County WQMA, January 2000)

Other recreational impairments in the lake are the result of excessive aquatic weed and algal growth, particularly in the southern end of the lake. A number of factors contribute to the weed and algal growth. Nutrient and sediment loads from Owasco Inlet and other tributaries are thought to promote this growth and efforts to reduce these loadings to the lake are encouraged. The sources of these loads include municipal wastewater treatment facility discharges, agricultural activities and associated runoff, on-site wastewater treatment systems, soil/streambank erosion, and various other nonpoint sources. Maintaining the quality of Owasco Lake into the future will require efforts to identify, quantify, address and reduce these sources of nutrient and sediment loads. (Finger Lakes Institute, January 2006)

Habitat and hydrologic impacts are also thought to contribute to the weed and algal growth and the impact on recreational uses. Zebra mussel infestation of the lake has increased lake clarity. The increased clarity allows for greater penetration of light which supports plant growth into the lake. Hydrologic modification of the inlet to bypass the Owasco Flats wetland complex at the southern end of the lake is also likely contributing to the water quality impacts on the lake. The value of wetlands in providing a buffer to reduce the runoff of pollutants into waters is well established. Conversely the loss of these wetlands results in increased loads, particularly during wet-weather high flow events. (Finger Lakes Institute, January 2006)

Water supply use of the lake is also threatened by the potential formation of disinfection by-products (DBPs) as well as taste and odor concerns. DBPs are formed when disinfectants such as chlorine used in water treatment plants react with natural organic matter (i.e., decaying vegetation) present in the source water. Different disinfectants produce different types and amounts of disinfection byproducts. Disinfection byproducts occurring in drinking water can include trihalomethanes, haloacetic acids, bromate, and chlorite. The study of DBPs on the lake to date has focused on the potential to form DBPs, rather than the actual levels in the finished water supply. However some municipalities that purchase water from the City of Auburn and Town of Owasco have found elevated DBP levels in their finished water. Cayuga County Health and Human Service also reports increased taste and odor complaints related to algal and weed growth have resulted in the addition of activated carbon at the treatment plants. (DEC/DOW, BWAM, June 2007)

Owasco Inlet has been identified as a significant source of nutrients (phosphorus) to the south end of the Owasco Lake. Sampling and biological assessment of the Inlet in 2006 revealed elevated nutrient impacts in the stream. Municipal discharges to the stream were identified as primary sources, while nonpoint source nutrient enrichment were also identified as contributing sources. Subsequent to these findings, municipal discharges of phosphorus have been reduced. Water quality studies currently underway will evaluate whether additional municipal discharge reductions need to be evaluated. But it is important to note that to fully address concerns regarding Owasco Lake water quality, other communities in this watershed basin must contribute towards implementing a comprehensive approach to reduce contaminants from various other point and nonpoint contributors. (DEC/DOW, Region 7, June 2007)

In addition to the use impairments and threats outlined above, the lake is considered a highly valued water resource due to its AA(T) drinking water supply classification. This classification means the quality of the water is to be maintained to allow its use as a drinking water source with minimal filtration. Water from Owasco Lake is used for both human consumption and irrigation. The City of Auburn, the Town of Owasco, and lakefront property owners all draw water from the lake. In fact, more than 70% of Cayuga County's population obtain their drinking water from the lake. In 1996, the combined users drew more than three billion gallons of water from the lake, serving more than 58,000 residents of Cayuga County. Homeowners along the lake may also use the lake as a water source for a variety of uses. The volume of water used for irrigation is unknown. (Cayuga County WQMA, January 2000)

Although there are no known water quality impacts to the drinking water use of Owasco Lake, a Source Water Assessment by the NYSDOH found a moderate susceptibility to contamination from pesticides and other contaminants due to the level of row crop agriculture and the number of point sources (permitted municipal wastewater discharges) in the watershed. (NYSDOH, Source Water Assessment Program, 2005)

Owasco Lake is included on the NYS 2006 Section 303(d) List of Impaired/TMDL Waters due to pathogens. The lake is included on Part 3a of the List as a Water Requiring Verification of Impairment, however this updated assessment indicates that the suspected impairments are confirmed and that the lake be moved to Part 1 of the List as Waterbody Requiring TMDL Development (or other strategy to attain water quality standards). As noted above, the lake is also impaired by excessive aquatic weed/algal growth. Waters impaired by weeds/algae are not included on the Section 303(d) List because weeds/algae are not easily addressed by a TMDL. However a watershed analysis and/or TMDL to evaluate sources and appropriate reductions of contributing pollutants, such as phosphorus, would be useful toward developing a whole-watershed strategy and protecting water quality in the lake. (DEC/DOW, BWAM, July 2007)

Minor Tribs to Owasco Lake (0706-0010)

MinorImpacts

Waterbody Location Information

Revised: 07/02/2007

Water Index No: Ont 66-12-43-P212-
Hydro Unit Code: 04140201/320 **Str Class:** C
Waterbody Type: River
Waterbody Size: 89.4 Miles
Seg Description: total length of selected tribs to Owasco Lake

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Cayuga Co. (6)
Quad Map: AUBURN (J-14-2)

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Aquatic Life	Stressed	Known
Recreation	Stressed	Suspected
Habitat/Hydrology	Stressed	Known

Type of Pollutant(s)

Known: NUTRIENTS (10), SILT/SEDIMENT
Suspected: ---
Possible: ---

Source(s) of Pollutant(s)

Known: STREAMBANK EROSION
Suspected: Agriculture, Urban/Storm Runoff
Possible: Construction, Roadbank Erosion

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 4 (Source Identified, Strategy Needed)
Lead Agency/Office: ext/WQCC
TMDL/303d Status: n/a

Resolution Potential: Medium

Further Details

Aquatic life support, recreational uses and habitat/hydrologic conditions in these tribs to Owasco Lake are known to experience minor impacts/threats due to silt/sediment and nutrients from streambank erosion and other nonpoint sources. The Impacts of increasing residential development in the watershed around the lake are a significant concern.

Stream banks in the lower reaches have lost significant amounts of soil. Visible sediment plumes and sediment deltas at the mouth of these tribs combined with increased runoff from development in its watershed result in flooding. The stream channel in Sucker Brook is inadequate. Flooding further compounds the stream's problems with increased scouring and erosion of streambanks and increased nonpoint source pollution as flood waters wash over the ground surface. Since most of the land through which Sucker Brook passes is active cropland or a golf course, this increases the nutrient loading. Similar conditions are noted in Veness Brook. Streambank erosion from rapid residential development and agricultural activity and the primary sources of impact. When the lake level is lowered through the fall and winter, exposed stream banks are weakened, and undercutting and bank wasting are severe, especially during Spring flush. (Cayuga County SWCD, 2001)

A biological (macroinvertebrate) assessment of Sucker Brook in Auburn (at Route 72) was conducted in 2001. Sampling results indicated slightly impacted water quality conditions. Algal-feeding riffle beetles dominated the fauna. Nonpoint source nutrient enrichment was identified as the primary contributing source of impacts to the fauna. Although aquatic life is supported in the stream, nutrient biotic evaluation indicates the level of eutrophication is sufficient to stress aquatic life support. (DEC/DOW, BWAM/SBU, June 2005)

This segment includes the total length of selected/smaller tribs to Owasco Lake. Tribs within this segment, including Sucker Brook (-1), Long Point Stream (-5) and Veness Brook (-51) are primarily Class C,C(T),C(TS), with a small portion of unnamed trib (-4) designated Class AA. Dutch Hollow Brook (-3) and Owasco Inlet (-28) are listed separately.

Dutch Hollow Brook and tribs (0706-0003)

MinorImpacts

Waterbody Location Information

Revised: 07/02/2007

Water Index No: Ont 66-12-43-P212- 3
Hydro Unit Code: 04140201/310 **Str Class:** C(TS)
Waterbody Type: River
Waterbody Size: 68.5 Miles
Seg Description: entire stream and tribs

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Cayuga Co. (6)
Quad Map: AUBURN (J-14-2)

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Habitat/Hydrology	Stressed	Known

Type of Pollutant(s)

Known: SILT/SEDIMENT
Suspected: Thermal Changes
Possible: - - -

Source(s) of Pollutant(s)

Known: - - -
Suspected: HABITAT MODIFICATION, STREAMBANK EROSION, Hydro Modification
Possible: Agriculture

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 4 (Source Identified, Strategy Needed)
Lead Agency/Office: ext/WQCC **Resolution Potential:** Medium
TMDL/303d Status: n/a

Further Details

Habitat/hydrologic condition of Dutch Hollow Brook is thought to experience minor impacts due to silt/sedimentation from streambank erosion and stream disturbances related to flood control efforts.

Previously it was noted that significant bedload deposited in the lower end of the brook contributes to flooding and people use bulldozers to clean out the area for flood control. This has impact on the warm water fish spawning area. The removal of riparian vegetation and channel widening farther upstream impact trout spawning. However, the fishery of the stream includes a good rainbow and brown trout population. The sediment loading to and impact on Owasco Lake from this tributary are also a concern. (DEC/DFWMR, Region 7, 2001)

Biological (macroinvertebrate) assessments of Dutch Hollow Brook in Niles (at Old State Road) and in Owasco (at Route 38A) were conducted in 2000 and 2001, respectively. Sampling results indicated non-impacted water quality conditions. Other sampling at these and other sites along the stream since 1993 revealed generally non-impacted condition, though some slight impacts occurred in 1994 and 1998. The fauna is diverse and criteria for waters having no known impacts are typically met. (DEC/DOW, BWAM/SBU, June 2005)

Source of Information: Regional Fisheries and Water This segment includes the entire stream and all tribs. The waters

of the stream are Class C(TS). Tribs to this reach/segment are Class C.

Owasco Inlet, Lower, and minor tribs (0706-0002)

MinorImpacts

Waterbody Location Information

Revised: 07/03/2007

Water Index No: Ont 66-12-43-P212-28
Hydro Unit Code: 04140201/300 **Str Class:** C(T)
Waterbody Type: River
Waterbody Size: 59.1 Miles
Seg Description: stream and selected tribs, from mouth to Locke

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Cayuga Co. (6)
Quad Map: MORAVIA (K-15-1)

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Aquatic Life	Stressed	Known

Type of Pollutant(s)

Known: NUTRIENTS (phosphorus)
Suspected: Silt/Sediment
Possible: - - -

Source(s) of Pollutant(s)

Known: AGRICULTURE, MUNICIPAL (Groton WWTP), Streambank Erosion
Suspected: - - -
Possible: - - -

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 4 (Source Identified, Strategy Needed)
Lead Agency/Office: ext/WQCC
TMDL/303d Status: n/a

Resolution Potential: Medium

Further Details

Aquatic life support in this portion of Owasco Inlet is known to experience minor impacts due to nutrients from municipal wastewater and agricultural and various nonpoint sources.

A biological (macroinvertebrate) survey of Owasco Inlet at multiple sites from the mouth at Owasco Lake to above Groton was conducted in 2006. Sampling results for all three sites within this segment indicated slightly impacted water quality conditions. Impact Source Determination identified nonpoint source nutrient enrichment as the primary cause of the impacts in this reach. However municipal discharges from the Village of Moravia at the downstream end of this reach and from the Village of Groton WWTP upstream of this segment also contribute nutrient loading to the stream. The impact of nutrient loading on uses is greater in the upstream segment than in this reach. In the lower Owasco Inlet, nutrient biotic evaluation determined the effects on the fauna to be minor and aquatic life support is considered to be fully supported in the stream. (DEC/DOW, BWAM/SBU, January 2007)

Previous assessments of this segment included concerns about the constant natural turbidity of the stream that impacts the cold water fishery. The natural erosion of exposed clay layers along the shore may not be easily resolvable. (Cayuga County WQCC, 2001)

This segment includes the portion of the stream and all tribs from the mouth to Hemlock Creek (-29) in Locke. The waters of this portion of the stream are Class C(T). Tribs to this reach/segment are primarily Class C, with a small portion of trib (-20) designated Class B. Upper Owasco Inlet, Mill/Dresserville Creek (-17), upper unnamed trib (-28) and Hemlock Creek (-29) are listed separately.

Owasco Inlet, Upper, and tribs (0706-0014)

Impaired Seg

Waterbody Location Information

Revised: 07/03/2007

Water Index No: Ont 66-12-43-P212-28
Hydro Unit Code: 04140201/300 **Str Class:** C(T)
Waterbody Type: River
Waterbody Size: 81.4 Miles
Seg Description: stream and tribs, above Locke

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Tompkins Co. (55)
Quad Map: GROTON (K-15-3)

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
AQUATIC LIFE	Impaired	Known
Recreation	Stressed	Known

Type of Pollutant(s)

Known: NUTRIENTS (phosphorus)
Suspected: ---
Possible: ---

Source(s) of Pollutant(s)

Known: MUNICIPAL (Groton WWTP)
Suspected: Agriculture
Possible: ---

Resolution/Management Information

Issue Resolvability: 3 (Strategy Being Implemented)
Verification Status: 5 (Management Strategy has been Developed)
Lead Agency/Office: DOW/Reg7
TMDL/303d Status: 4b (Other Control(s) More Suitable than TMDL, Not Listed)

Resolution Potential: High

Further Details

Aquatic life support in this portion of Owasco Inlet is impaired due to nutrients from municipal wastewater discharges. Agricultural and various nonpoint sources also contribute.

A biological (macroinvertebrate) survey of Owasco Inlet at multiple sites from the mouth at Owasco Lake to above Groton was conducted in 2006. Sampling results for the 4 sites within this segment revealed waters quality that ranged from non-impacted to moderately impacted. The upstream site was found to be non-impacted, however a substantial decline in water quality occurred downstream of the Village of Groton WWTP discharge. The macroinvertebrate community at this site was dominated by tolerant aquatic worms and black fly larvae, and had high similarity to communities expected downstream of sewage treatment plant discharges. At sites farther downstream, water quality was assessed as slightly impacted. Based on the Biological Assessment Profile, the Nutrient Biotic Index, and phosphorus monitoring data collected by the Cornell Cooperative Extension of Cayuga County, the Village of Groton WWTP had been identified as the major source of phosphorus in Owasco Inlet. (DEC/DOW, BWAM/SBU, January 2007)

Since these studies were conducted, NYSDEC has working with local partners toward reducing the amount of nutrient phosphorus discharged into Owasco Lake, both from the Groton WWTP as well as other significant sources. Since

entering into a Consent Order with the DEC last year, the Village of Groton has reduced the amount of phosphorous discharge from the WWTP by two-thirds. In addition to requiring the implementation of new treatment technology to reduce phosphorus, the DEC has already set a more protective interim phosphorus discharge limit at the sewage treatment plant. DEC is currently working with Groton on a revised SPDES permit that will include even more stringent limits on phosphorus discharges to Lake Owasco. The limit now proposed to be included in a final permit will further reduce the total amount of phosphorus discharged from this plant. The proposed permit will also be available for public comment and review before DEC makes any final determination on its content. (DEC/DOW. BWC and Discharge Monitoring Reports, September 2007)

Excess phosphorus causes algae blooms that can, in turn, result in low levels of dissolved oxygen that harm fish and impact water odor and color restricting recreational uses. In drinking water supplies, phosphorus induced algae blooms raise a range of additional, serious concerns. It is important to note that to fully address concerns over Lake Owasco water quality, other communities in this watershed basin must contribute towards implementing a comprehensive approach to reduce phosphorus from various contributors. Runoff from developed areas, among other sources, continue to transport phosphorus into the lake, and have negative impacts on the quality of the this important water body.

This segment includes the portion of the stream and all tribs above Hemlock Creek (-29) in Locke. The waters of this portion of the stream are Class C(T). Tribs to this reach/segment are primarily Class C,C(T), with a small portion of unnamed tribs (-51) designated Class AA. Lower Owasco Inlet and Hemlock Creek (-29) are listed separately.

Mill/Dresserville Creek and minor tribs (0706-0015)

NoKnownImpct

Waterbody Location Information

Revised: 07/02/2007

Water Index No: Ont 66-12-43-P212-28-17
Hydro Unit Code: 04140201/290 **Str Class:** C(T)
Waterbody Type: River
Waterbody Size: 33.2 Miles
Seg Description: entire stream and selected tribs

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Cayuga Co. (6)
Quad Map: MORAVIA (K-15-1)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
NO USE IMPAIRMNT		

Type of Pollutant(s)

Known: ---
Suspected: ---
Possible: ---

Source(s) of Pollutant(s)

Known: ---
Suspected: ---
Possible: ---

Resolution/Management Information

Issue Resolvability: 8 (No Known Use Impairment)
Verification Status: (Not Applicable for Selected RESOLVABILITY)
Lead Agency/Office: n/a **Resolution Potential:** n/a
TMDL/303d Status: n/a

Further Details

A biological (macroinvertebrate) assessment of Dresserville Creek in Moravia (at Route 38A) was conducted in 2001. Sampling results indicated non-impacted water quality conditions. The fauna was dominated by clean-water mayflies. (DEC/DOW, BWAM/SBU, June 2005)

This segment includes the entire stream and selected/smaller tribs. The waters of the stream are Class C(T),C(TS). Tribs to this reach/segment, including Lower Decker Creek, are Class C,C(T),C(TS). Upper Decker Creek (-1) is listed separately.

Decker Creek, Upper, and tribs (0706-0016)

NoKnownImpct

Waterbody Location Information

Revised: 07/02/2007

Water Index No: Ont 66-12-43-P212-28-17- 1 **Drain Basin:** Oswego-Seneca-Oneida
Hydro Unit Code: 04140201/290 **Str Class:** AA Seneca/Clyde Rivers
Waterbody Type: River **Reg/County:** 7/Cayuga Co. (6)
Waterbody Size: 30.5 Miles **Quad Map:** MORAVIA (K-15-1)
Seg Description: stream and tribs, above Wilson Corners

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
NO USE IMPAIRMNT		

Type of Pollutant(s)

Known: ---
Suspected: ---
Possible: ---

Source(s) of Pollutant(s)

Known: ---
Suspected: ---
Possible: ---

Resolution/Management Information

Issue Resolvability: 8 (No Known Use Impairment)
Verification Status: (Not Applicable for Selected RESOLVABILITY)
Lead Agency/Office: n/a **Resolution Potential:** n/a
TMDL/303d Status: n/a

Further Details

A biological (macroinvertebrate) assessment of Decker Creek in Moravia (at Jugg Road) was conducted in 2001. Sampling results indicated slightly impacted water quality conditions, but results were very near the range of non-impacted. Nonpoint source nutrient enrichment was identified as the likely stressor to the stream. However, nutrient biotic evaluation determined these effects on the fauna to be minor. Aquatic life support is considered to be fully supported in the stream, and there are no other apparent water quality impacts to designated uses. (DEC/DOW, BWAM/SBU, June 2005)

Local agencies have expressed concerns regarding the impact of erosion and agricultural nonpoint sources. (Cayuga County WQMA, 2003)

This segment includes the portion of the stream and all tribs above the diversion dam near Wilson Corners. The waters of this portion of the stream are Class AA,AA(T). Tribs to this reach/segment are Class AA(T) and C,C(T).

Mud Pond (0701-0044)

Need Verific

Waterbody Location Information

Revised: 08/13/2007

Water Index No: Ont 66-12-44-P221
Hydro Unit Code: 04140201/280 **Str Class:** C
Waterbody Type: Lake
Waterbody Size: 19.3 Acres
Seg Description: entire pond
Drain Basin: Owsego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Cayuga Co. (6)
Quad Map: VICTORY (I-14-1)

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Habitat/Hydrology	Stressed	Possible

Type of Pollutant(s)

Known: ---
Suspected: WATER LEVEL/FLOW
Possible: ---

Source(s) of Pollutant(s)

Known: ---
Suspected: AGRICULTURE
Possible: ---

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 1 (Waterbody Nominated, Problem Not Verified)
Lead Agency/Office: ext/WQCC
TMDL/303d Status: n/a
Resolution Potential: n/a

Further Details

Habitat and hydrology of Mud Pond may experience impacts as a result of modifications related to agricultural activities.

Local agencies have expressed concerns regarding the impact of agricultural activities in the mucklands around the pond. Hydrologic changes may be affecting uses of the waterbody. (Cayuga County WQMA, 2003)

Duck Lake (0704-0025)

MinorImpacts

Waterbody Location Information

Revised: 07/11/2007

Water Index No: Ont 66-12-46-P222
Hydro Unit Code: 04140201/280 **Str Class:** C
Waterbody Type: Lake
Waterbody Size: 198.4 Acres
Seg Description: entire lake
Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Cayuga Co. (6)
Quad Map: VICTORY (I-14-1)

Water Quality Problem/Issue Information (CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Recreation	Stressed	Known

Type of Pollutant(s)

Known: ALGAL/WEED GROWTH, NUTRIENTS (phosphorus)
Suspected: - - -
Possible: Silt/Sediment

Source(s) of Pollutant(s)

Known: OTHER SOURCE (naturally eutrophic)
Suspected: Agriculture
Possible: On-Site/Septic Syst, Streambank Erosion

Resolution/Management Information

Issue Resolvability: 5 (Not Resolvable, natural/conflicting use)
Verification Status: (Not Applicable for Selected RESOLVABILITY)
Lead Agency/Office: ext/WQCC **Resolution Potential:** Low
TMDL/303d Status: n/a

Further Details

Recreational uses of Duck Lake are known to experience minor impacts due to algal and aquatic weed growth. The shallow lake is situated in a low-lying, marshy area and is largely considered to be naturally eutrophic. However, elevated nutrient loadings from various nonpoint sources contribute to these impacts.

Duck Lake has been sampled as part of the NYSDEC Citizen Statewide Lake Assessment Program (CSLAP) beginning in 1988 and continuing off and on through the present. An Interpretive Summary report of the findings of this sampling was published in 2006. These data indicate that the lake continues to be best characterized as eutrophic, or highly productive. However, the lake was much less productive in the last two years than in most previous sampling seasons. While these changes were probably within the normal variability for this lake, variable due to impacts from weather, long-term changes in the lake should continue to be evaluated. Phosphorus levels in the lake regularly exceed the state guidance values indicating impacted/stressed recreational uses. Corresponding transparency measurements typically fail to meet what is recommended for swimming beaches. Measurements of pH are somewhat high but typically fall within the state water quality range of 6.5 to 8.5. The lake water is moderately colored but lake color does not appear to impact transparency. Oxygen levels do not appear to be significantly reduced at lower lake depths and internal nutrient cycling is not significant. Nitrate and ammonia levels do not appear to warrant a threat to the lake, and the primary component of nitrogen appears to be organic (within algae cells). Calcium levels are high enough to support zebra mussels, but they

are not found at the lake, although the threat of introduction from nearby lakes is significant. (DEC/DOW, BWAM/CSLAP, March 2006)

Public perception of the lake and its uses is also evaluated as part of the CSLAP program. This assessment indicates recreational suitability of the lake to vary from "excellent" to "slightly impaired for most uses." The lake itself is most often described as having "definite algal greenness." This assessment is more favorable than expected given the water clarity. However the assessments appear to reflect limited impact from aquatic weed growth which only rarely grow to the lake surface. Aquatic plant survey to determine the presence of invasive plants have not been conducted on the lake. (DEC/DOW, BWAM/CSLAP, March 2006)

This lake waterbody is designated class C, suitable for general recreation use and aquatic life support, but not as a water supply or public bathing beach. Water quality monitoring by NYSDEC focuses primarily on support of general recreation and aquatic life. Samples to evaluate the bacteriological condition and bathing use of the lake or to evaluate contamination from organic compounds, metals or other inorganic pollutants have not been collected as part of the CSLAP monitoring program. Monitoring to assess potable water supply and public bathing use is generally the responsibility of state and/or local health departments.

Crane Brook and tribs (0704-0024)

Impaired Seg

Waterbody Location Information

Revised: 07/11/2007

Water Index No: Ont 66-12-51
Hydro Unit Code: 04140201/150 **Str Class:** C
Waterbody Type: River
Waterbody Size: 79.9 Miles
Seg Description: entire stream and tribs

Drain Basin: Oswego-Seneca-Oneida
Seneca/Clyde Rivers
Reg/County: 7/Cayuga Co. (6)
Quad Map: MONTEZUMA (I-14-4)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
AQUATIC LIFE	Impaired	Suspected
Recreation	Stressed	Known
Aesthetics	Stressed	Known

Type of Pollutant(s)

Known: SALTS, Nutrients (phosphorus)
Suspected: Silt/Sediment
Possible: - - -

Source(s) of Pollutant(s)

Known: Agriculture, Urban/Storm Runoff
Suspected: OTHER SOURCE (salt spring)
Possible: - - -

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 3 (Cause Identified, Source Unknown)
Lead Agency/Office: DEC/Reg7
TMDL/303d Status: 3b*

Resolution Potential: Medium

Further Details

Aquatic life support and recreational use in Crane Brook are thought to be impaired due to impacts due to high conductance from a salt spring, which might be natural. Nonpoint source nutrient enrichment from agricultural activities in the watershed and urban runoff in and around Auburn also contribute to water quality impacts in the stream. Previous severe impacts appear to have been addressed with the elimination of an unpermitted food processing plant discharge to the stream.

This stream has been sampled numerous times since an unpermitted discharge to the creek was identified in July 2002. Most recently, a biological (macroinvertebrate) survey of Crane Brook at multiple sites above and below the discharge near Auburn was conducted in 2006. Sampling results indicated that the elimination of the discharge has resulted in improved water quality conditions. Sampling of the upstream site indicated slightly impacted conditions with nonpoint source nutrient enrichment being the primary influence on the assessment. Below the discharge water quality improved from severely impacted in 2002, to moderately impacted in 2003 and 2004 after the cessation of the discharge. Assessments in 2005 and 2006 were also determined to be moderately impacted. During the 2005 sampling an effort was made to identify the source of continued high conductance in the stream. This effort revealed a tributary spring/pool of

orange color and very high specific conductance (>100,000 microsiemen/cm). Natural salt springs are not uncommon in central New York, but it was not determined whether this seep is a natural occurrence or is related to human disturbance. The conclusions drawn from the multiple surveys is that the impacts from the previous discharge have been remediated, that impacts from agricultural activities and urban runoff in the watershed are likely to result in slight impacts to the stream and that implementation of practices to reduce these nonpoint sources would have benefits to water quality. However until and unless the impacts from the salt spring are addressed, the downstream reaches of the stream cannot be expected to improve to reflect conditions upstream. (DEC/DOW, BWAM/SBU, March 2007)

Local agencies have expressed concerns regarding other possible sources of impact including streambank erosion and agricultural nonpoint sources. (Cayuga County WQMA, 2003)

This segment includes the entire stream and all tribs. The waters of the stream are Class C. Tribs to this reach/segment are also Class C.

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