



Susquehanna/Wappasening Creek Watershed (0205010307)

Water Index Number

SR (portion 1)
 SR- 1
 SR- 2 thru 7 (selected)
 SR- 4 thru 9 (selected)
 SR- 10
 SR- 11

Waterbody Segment

Susquehanna River, Lower, Main Stem (0603-0016)
 Ellis Creek and tribs (0603-0023)
 Minor Tribs to Lower Susquehanna (south) (0603-0047)
 Minor Tribs to Lower Susquehanna (north) (0603-0024)
 Sackett Creek and tribs (0603-0025)
 Wappasening Creek and tribs (0603-0026)

Category

Impaired Seg
 NoKnownImpct
 UnAssessed
 NoKnownImpct
 UnAssessed
 NoKnownImpct

Susquehanna River, Lower, Main Stem (0603-0016)

Impaired

Waterbody Location Information

Revised: 05/01/2015

Water Index No: SR (portion 1) **Drain Basin:** Susquehanna River
Unit Code: 0205010307 **Class:** B **Reg/County:** Lower Susquehanna River
Water Type/Size: River 15.4 Miles **Reg/County:** 7/Tioga Co. (54)
Description: from NY-Pa line to near Lounsberry

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	N/A	-
Public Bathing	Threatened	Unconfirmed
Recreation	Threatened	Suspected
Aquatic Life	Threatened	Suspected
Fish Consumption	Impaired	Known
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s)

Known: METALS (Mercury), Nutrients (Phosphorus)
Suspected: Low D.O./Oxygen Demand
Unconfirmed: Silt/Sediment

Source(s) of Pollutant(s)

Known: Municipal, Agriculture
Suspected: ATMOSPHERIC DEPOSITION, Urban/Storm Runoff
Unconfirmed: - - -

Management Information

Management Status: Strategy Implementation Scheduled or Underway
Lead Agency/Office: DOW/Reg7
IR/305(b) Code: Impaired Water, TMDL Completed (IR Category 4a)

Further Details

Overview

This portion of the Susquehanna River is assessed as an impaired waterbody due to fish consumption that is known to be impaired by a health advisory that recommends restricting the consumption of fish from the river because of elevated mercury levels. Atmospheric deposition is the likely source of the mercury contamination. Public bathing and general recreational uses and aquatic life are considered to be supported with minimal impacts. However these uses are listed as threatened in order to reflect the nutrient reduction efforts deemed necessary and currently underway to restore water quality in Chesapeake Bay. These load reduction efforts are aimed at municipal wastewater discharges and agricultural and other nonpoint sources in the watershed. These wastewater sources include the discharge of inadequate wastewater treatment at the Binghamton-Johnson City (B-JC) WWTP during the plant reconstruction, however the impacts of this discharge are more severe in upstream reaches of the river.

Use Assessment

This waterbody segment is a Class B waterbody, suitable for public bathing and general recreation use, as well as for the support of aquatic life, but not as a water supply.

Aquatic life is considered to be fully supported with minimal impacts. Biological sampling of the stream show conditions to range from slightly to non-impacted. This sampling can also be used to infer that there are no significant impacts to recreational (fishing) uses, although more specific sampling is necessary to confirm this is the case. Additional bacteriological sampling is also needed to more fully evaluate other recreational and swimming use. These uses are evaluated as threatened in order to reflect nutrient concerns that are thought to contribute to impacts and impairments in the Chesapeake Bay and other Susquehanna Basin waters outside of New York State. (DEC/DOW, BWAM, May 2015)

The Lower Susquehanna supports a very productive and diverse fishery that includes muskellunge, tiger muskellunge and channel catfish along with a variety of other warmwater species. (DEC/DFWMR, Region 7, May 2015)

Fish consumption in the Susquehanna River is impaired due to a NYS DOH health advisory that recommends eating no more than one meal per month of larger (greater than 22 inch) walleye because of elevated mercury levels. The source of this contamination is considered to be atmospheric deposition; no other sources have been identified. The advisory for this waterbody was first issued in 2000-01. (NYS DOH Health Advisories and DEC/FWMR, Habitat, January 2014)

Water Quality Sampling

NYSDEC Rotating Integrated Basin Studies (RIBS) Routine Network monitoring (water chemistry) of the Susquehanna River in Smithboro, Tioga County, is conducted annually at Route 282. 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. Intensive Network monitoring was conducted during 2003 and 2004. Biological (macroinvertebrate) sampling revealed non-impacted conditions, indicating very good water quality. Water column chemistry indicates iron to be present in concentrations that constitute parameters of concern. However iron is considered to be naturally occurring and not a source of water quality impacts. Toxicity testing using water from this location detected no significant mortality or reproductive effects on the test organism. Screening for acute toxicity indicated no sediment or porewater toxicity to be present, and while sediments were found to contain several contaminants, none was present in concentration above the threshold effects concentration. Based on sediment quality guidelines developed for freshwater ecosystems, overall sediment quality is not likely to cause chronic toxicity to sediment-dwelling organisms. No organisms were collected at this location for tissue analysis. Based on the consensus of these established assessment methods, overall water quality at this site fully supports its aquatic life, and primary and secondary contact recreation uses. (DEC/DOW, BWAM/SWMS, August 2009).

A biological (macroinvertebrate) survey of the Susquehanna River at multiple sites along its entire length was conducted in 2003 (prior to current problems at the B-JC WWTP). Sampling results indicated non-impacted to slightly impacted water quality conditions, with most of the river displaying very good water quality. Results at a number of sites showed better water quality than previous sampling. However this may be at least in part the result of high flows at the time of the survey. High flow conditions tend to de-emphasize point source contribution due to increased dilution and increase nonpoint source contributions due to increase runoff. This survey included no sampling sites on the Susquehanna River within this reach, but samples were collected just below the reach in Apalachin (at above Apalachin Creek confluence). Sampling results at that site indicated slightly impacted conditions, but near the range of non-impacted. In such samples the community is only slightly altered from natural conditions. Some sensitive species are not present and the overall abundance of macroinvertebrates is lower. However, the effects on the fauna appear to be relatively insignificant and water quality is considered to be good. The nutrient biotic index and impact source

determination indicate low enrichment in the stream and fauna that is most similar to natural communities, but with evidence of nonpoint source influences. Sites downstream of this reach reflect non-impacted conditions. Although higher flows may explain some of the improvement, significant wastewater treatment upgrades at municipal plants along this reach were completed between the two sampling events, and may also have contributed to the improved water quality in this reach. Aquatic life community is fully supported. (Susquehanna River Biological Assessment Report, DEC/DOW, BWAM/SBU, January 2004)

Source Assessment

With regard to the fish consumption impairment and mercury contamination, atmospheric deposition is thought to be the most likely source. There is some industrial activity in the area that could represent possible source of mercury, but no specific facility has been identified or is currently suspected. (DEC/DOW, BWAM, May 2015)

The primary source of the nutrient impacts to this reach of the river are agricultural activities, the overall municipal wastewater discharge load in the watershed, and urban storm runoff and other nonpoint sources. In particular, in 2011 the Binghamton-Johnson City Joint STP experienced two catastrophic events that affected the plants wastewater treatment capabilities. In May, 2011, a portion of the secondary treatment system tanks collapsed. Though the plant was able to maintain secondary treatment thru the remaining treatment tanks, it was unable to remove nitrogen. Then in September, 2011, floodwaters from Tropical Storm Lee inundated the plant, rendering the remainder of the secondary treatment process tanks inoperable. Since then, the plant has been operating in a chemically enhanced primary treatment (CEPT) mode. In addition, the final effluent is disinfected year-round. Construction to rebuild the treatment plant is scheduled to begin in the fall of 2015 and continue through at least the spring of 2018. After construction is completed, the plant design will allow the plant to treat to tertiary (i.e. nitrification) levels and meet the 6 mg/l nitrogen limit specified for the plant in the Chesapeake Bay Nitrogen TMDL. (DEC/DOW, Region 7, May 2015)

Management Action

The Northeast Regional Mercury TMDL was established in 2007 to address mercury deposition and impairment in waters of the Northeast. This TMDL includes waters of the Susquehanna River in New York. (DEC/DOW, BWRM, May 2015)

Other specific management actions to address nutrient loading from wastewater include the rebuilding of the BJC WWTP; this work is outlined in a consent order with the city. (DEC/DOW, Region 7, May 2015)

The Chesapeake Bay – the largest estuary in the United States – lies at the mouth of the Susquehanna River in Maryland. The Bay watershed covers 64,000 square miles in six states (Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia) and the District of Columbia. Within New York, the Bay watershed includes upper portions of the Chemung and Susquehanna River watersheds equal to about 10 percent of the total Chesapeake Bay Watershed.

While monitoring data show generally good water quality in the Susquehanna River in New York, water quality in the Chesapeake Bay - 200 miles to the south - is impaired due to excess sediment and nutrients (nitrogen and phosphorus) loads. The primary sources of these pollutants are agriculture, municipal wastewater treatment plants, stormwater runoff, and atmospheric deposition. In 2010, the U.S. Environmental Protection Agency established a Total Maximum Daily Load (TMDL) to address water quality problems in the Bay. The Chesapeake Bay TMDL sets limits on the amount of nutrients and sediment necessary to meet water quality goals in the Bay. To meet these limits each state developed, and is now implementing, Watershed Implementation Plans (WIPs) that describe the long-term reductions to be made toward improving water quality in the Chesapeake Bay. New York's WIP outline a cost-effective balance of reductions, primarily in the agriculture and wastewater source categories. NYSDEC works with the Upper Susquehanna Coalition (USC), New York State Department of Agriculture and Markets (NYSDAM), the Natural Resources Conservation Service (NRCS) and Cornell University to develop and implement the activities outlined in the WIP. Additionally, twenty-nine of the largest wastewater treatment plants in the watershed are undergoing

upgrades to meet more stringent phosphorus and nitrogen discharge limits. These plants will also need to meet more stringent nitrogen discharge limits in three phases, starting in January 2016.

Section 303(d) Listing

This portion of the Susquehanna River is not included on the current (2014) NYS Section 303(d) List of Impaired/TMDL Waters. Although it is assessed as an impaired water, it is categorized as an IR Category 4a water for mercury; it is not listed for this pollutant due to the completion of a TMDL in 2007. There appear to be no other impacts that would justify additional listings for this waterbody. (DEC/DOW, BWAM and BWRM, May 2015)

Segment Description

This segment includes the main stem portion of the river from the NY-PA state line to a point 3 miles below the western boundary of the Village of Owego near Lounsberry. This reach of the river is Class B; this Class B reach extends for about 3 miles into the Susquehanna/Pipe Creek Watershed (0205010305).

Ellis Creek and tribs (0603-0023)

NoKnownImpct

Waterbody Location Information

Revised: 06/25/2009

Water Index No:	SR- 1	Drain Basin:	Susquehanna River
Hydro Unit Code:	02050102/200	Str Class:	C
Waterbody Type:	River (Low Flow)	Reg/County:	7/Tioga Co. (54)
Waterbody Size:	29.4 Miles	Quad Map:	OWEGO (M-15-3) ...
Seg Description:	entire stream and tribs		

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

Water Quality Sampling

A biological (macroinvertebrate) assessment of Ellis Creek in Ellistown (at Route 17C) was conducted as part of the RIBS biological screening effort in 2003. Sampling results indicated non-impacted conditions. Such samples are dominated by clean-water species and are most similar to a natural community with minimal human impacts. Some additional species, including sensitive non-native species, and additional biomass may be present; the samples reveal no, or only incidental, anomalies. Aquatic life community is fully supported. (DEC/DOW, BWAM/SBU, January 2009)

Previous Assessment

Concerns were raised by local agencies in previous (1998) assessments regarding impacts from silt/sedimentation from stream and roadbank erosion. Possible agricultural impacts were also noted at the time. However this more recent sampling indicates there are not significant impacts to the stream from these or other sources. Segment Description This segment includes the entire stream and all tribs. The waters of the stream are Class C. Tribs to this reach/segment, including Miami Creek (-4) and Reed Brook (-5), are also Class C.

Minor Tribs to Lower Susquehanna (north) (0603-0024)NoKnownImpct

Waterbody Location Information

Revised: 06/26/2009

Water Index No: SR- 4 thru 9 (selected) **Drain Basin:** Susquehanna River
Hydro Unit Code: 02050103/200 **Str Class:** C **LowSusquehanna-Owego**
Waterbody Type: River (Low Flow) **Reg/County:** 7/Tioga Co. (54)
Waterbody Size: 29.7 Miles **Quad Map:** OWEGO (M-15-3)
Seg Description: total length of select tribs fr Barton to Tioga Center

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

Water Quality Sampling

A biological (macroinvertebrate) assessment of Butson Creek in Barton (at Route 17C) was conducted as part of the RIBS biological screening effort in 2003. Sampling results indicated slightly impacted conditions. In such samples the community is slightly altered from natural conditions. Some sensitive species are not present and the overall abundance of macroinvertebrates is lower. However, the effects on the fauna appear to be relatively insignificant and water quality is considered to be good. The nutrient biotic index and impact source determination indicate low enrichment in the stream and fauna that is most similar to natural. Aquatic life support is considered to be fully supported in the stream, and there are no other apparent water quality impacts to designated uses. Butson Creek is just one of several streams that make up this waterbody segment, but it is considered representative of water quality in the segment as a whole. This segment is listed as being evaluated rather than monitored. (DEC/DOW, BWAM/SBU, January 2009)

Segment Description

This segment includes the total length of selected/smaller tribs to the north of the Lower Susquehanna River (from Barton to Tioga Center). Tribs within this segment, including Butson Creek (-5), are Class C. Ellis Brook (-1) and Pipe Creek (-12) is listed separately.

Wappasening Creek and tribs (0603-0026)

NoKnownImpct

Waterbody Location Information

Revised: 06/26/2009

Water Index No: SR- 11
Hydro Unit Code: 02050103/190 **Str Class:** C
Waterbody Type: River (Low Flow)
Waterbody Size: 2.7 Miles
Seg Description: entire stream and tribs (within NYS)

Drain Basin: Susquehanna River
Reg/County: 7/Tioga Co. (54)
Quad Map: OWEGO (M-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

Water Quality Sampling

A biological (macroinvertebrate) assessment of Wappasening Creek in Nichols (at River Road/Route 502) was conducted as part of the RIBS biological screening effort in 2003. Sampling results indicated slightly impacted conditions. In such samples the community is slightly altered from natural conditions. Some sensitive species are not present and the overall abundance of macroinvertebrates is lower. However, the effects on the fauna appear to be relatively insignificant and water quality is considered to be good. The nutrient biotic index and impact source determination indicate low enrichment in the stream and fauna that is most similar to natural communities. 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, January 2009)

Assessment of Wappasening Creek in 1998 by Susquehanna River Basin Commission found comparable conditions in 2003 (slight impacts) and 2004 (non-impacted). No sampling was conducted in 2004. In 2006 sampling revealed a decline in biological community but these results might have been influenced by considerable bed movement from previous high flow events. (Assessment of Interstate Streams, SRBC, May 2007)

Segment Descriptions

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