



Susquehanna/Choconut Creek Watershed (0205010302)

Water Index Number

SR (portion 4)
 SR- 26
 SR- 29
 SR- 29
 SR- 30 thru 43 (selected)
 SR- 31 thru 37 (selected)
 SR- 39

Waterbody Segment

Susquehanna River, Lower, Main Stem (0603-0002)
 Tracey Creek and tribs (0603-0039)
 See Nanticoke Crrek Watershed
 Choconut Creek and tribs (0603-0019)
 Minor Tribs to Lower Susquehanna (south) (0603-0073)
 Minor Tribs to Lower Susquehanna (north) (0603-0044)
 Little Choconut Creek and tribs (0603-0017)

Category

Impaired Seg
 NoKnownImpct
 Need Verific
 UnAssessed
 Impaired Seg
 Need Verific

Susquehanna River, Lower, Main Stem (0603-0002)

Impaired

Waterbody Location Information

Revised: 05/01/2015

Water Index No: SR (portion 4) **Drain Basin:** Susquehanna River
Unit Code: 0205010302 **Class:** A **Reg/County:** Lower Susquehanna River
Water Type/Size: River 15.8 Miles **Reg/County:** 7/Broome Co. (4)
Description: from Ross Corners to Binghamton

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	Threatened	Suspected
Public Bathing	Impaired	Suspected
Recreation	Impaired	Known
Aquatic Life	Impaired	Known
Fish Consumption	Impaired	Known

Conditions Evaluated

Habitat/Hydrology	Good
Aesthetics	Poor

Type of Pollutant(s)

Known: NUTRIENTS (Phosphorus), METALS (Mercury), LOW D.O./OXYGEN DEMAND
Suspected: Pathogens
Unconfirmed: Silt/Sediment

Source(s) of Pollutant(s)

Known: MUNICIPAL (B-JC WWTP)
Suspected: ATMOSPHERIC DEPOSITION, Agriculture, Urban/Storm Runoff
Unconfirmed: - - -

Management Information

Management Status: Strategy Implementation Scheduled or Underway
Lead Agency/Office: DOW/Reg7
IR/305(b) Code: Impaired Water, Other Strategies in Place (IR Category 4b)

Further Details

Overview

This portion of the Susquehanna River is assessed as an impaired waterbody due to water supply, public bathing and general recreational uses that are considered to be impaired by pollutants from municipal wastewater discharges. These impairments are the result of inadequate wastewater treatment at the Binghamton-Johnson City (B-JC) WWTP during the plant reconstruction. Fish consumption is also considered to be impaired due to 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.

Use Assessment

This waterbody segment is a Class A waterbody, suitable for water supply, public bathing, and general recreation use,

as well as for the support of aquatic life.

Regarding water supply use, note that the evaluation of this use focuses on the source water prior to treatment, and does not necessarily reflect the quality of water distributed for use after treatment. Monitoring and assurance of appropriate water quality at the tap is the responsibility of local water suppliers and public health agencies. That being said water supply use of this reach of the Susquehanna is thought to be threatened due to elevated susceptibility to pathogens from considerable agricultural activity in the large watershed. Wastewater discharges are not thought to represent a significant threat to water supply use (the situation at the BJC WWTP notwithstanding).

The Susquehanna is used as a public supply for the City of Binghamton and serves a population of about 45,000. The most recent annual water quality report indicates no contaminants in finished (treated) water exceed regulatory limits. A Source Water Assessment by the NYSDOH conducted in the early 2000s found “moderate to high” susceptibility (on scale of “very high,” “high,” “moderate,” and “low) due to agricultural use in the large upstream watershed. However it is important to note that SWAP reports estimate the potential for untreated drinking water sources to be impacted by contamination and do not address the quality of treated finished potable tap water. This elevated level of susceptibility is also typical of many water supplies that experience no impacts to water supply use and reflects the need to protect the resource. (NYSDOH, Source Water Assessment Program, 2005)

Recreation use and public bathing are thought to be impaired by elevated nutrients (phosphorus) and organic load and enrichment from inadequately treated wastewater discharges. Additional bacteriological sampling is needed to more fully evaluate the impact of pathogen levels on public bathing (swimming) use, however wastewater is disinfected. Though designated Class A with best uses that include public bathing, there are currently no known permitted public bathing beaches on the Susquehanna River in the Binghamton-Johnson City, Endicott area. Non-contact recreation (boating, fishing) is also affected by excessive nutrient and organic load and excessive aquatic vegetation. Aesthetic conditions of the river are considered to be poor due to the wastewater discharge. (DEC/DOW, BWAM and Region 7, May 2015)

Aquatic life is evaluated as impaired based on biological sampling that shows significant impacts and sampling data showing low dissolved oxygen. These conditions, along with poor aesthetics in the river are attributed to the inadequately treated WWTP discharge. Despite these minor impacts, 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/DOW, BWAM and DEC/FWMR, 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

Historically, NYSDEC Rotating Integrated Basin Studies (RIBS) sampling along the Lower Susquehanna River has shown slight or minimal water quality concerns. However subsequent to the problems at the B-JC WWTP, conditions have, not surprisingly, degraded. Biological (macroinvertebrate) assessment of multiple sites along the Lower Susquehanna in 2014 found moderately impacted conditions below the WWTP discharge. Additional impacts to the river include low dissolved oxygen, with water quality modeling showing a DO sag occurring near Apalachin. In 2012, SRBC documented infrequent water quality standards violations for DO during summer low flow conditions at the Apalachin. DEC staff have also documented algal growth downstream of the plant, including thick mats of algal growth related to sewage. Lower D.O. has also been documented at a routine monitoring site farther downstream in Smithboro. DEC staff have received complaints from fisherman with respects to algal growth in the river. (DEC/DOW, BWAM/RIBS and Region 7, May 2015)

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, below this reach. 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. Though this site is downstream of this waterbody segment, these results are considered representative of water quality in the upstream reach. (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

The primary source of the current impacts/impairment are municipal wastewater discharges. 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)

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)

Management Action

Specific management actions to address current impairments include the rebuilding of the BJC WWTP; this work is outlined in a consent order with the City of Binghamton, Village of Johnson City and the B-JC Joint Sewage Board. (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.

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)

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. This updated assessment also reflects impairments due to nutrients and oxygen demand load from the WWTP, however these impairments are not proposed for Section 303(d) Listing; they are more appropriately characterized as IR Category 4b waters, where other enforceable regulatory controls are more appropriate means (than a TMDL) to address the impairments. (DEC/DOW, BWAM and BWRM, May 2015)

Segment Description

This segment includes the main stem portion of the river from the Tioga-Broome County line near Ross Corners to the Rock Bottom Dam in Binghamton. This reach of the river is Class A.

Tracey Creek and tribs (0603-0039)

NoKnownImpct

Waterbody Location Information

Revised: 06/26/2009

Water Index No: SR- 26
Hydro Unit Code: 02050103/070 **Str Class:** C
Waterbody Type: River (Low Flow) **Drain Basin:** Susquehanna River
Waterbody Size: 14.1 Miles **Reg/County:** LowSusquehanna-Owego
Seg Description: entire stream and tribs **Quad Map:** 7/Broome Co. (4)
ENDICOTT (M-16-3)

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 Tracey Creek in Vestal (at Owego Road) 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)

Segment Description

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.

Choconut Creek and tribs (0603-0019)

Need Verific

Waterbody Location Information

Revised: 07/09/2009

Water Index No:	SR- 29	Drain Basin:	Susquehanna River
Hydro Unit Code:	02050103/050	Str Class:	C
Waterbody Type:	River (Low Flow)	Reg/County:	7/Broome Co. (4)
Waterbody Size:	46.9 Miles	Quad Map:	ENDICOTT (M-16-3) ...
Seg Description:	entire stream and tribs (within NYS)		

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

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

Type of Pollutant(s)

Known: - - -
Suspected: NUTRIENTS, SILT/SEDIMENT, Thermal Changes
Possible: Pesticides

Source(s) of Pollutant(s)

Known: - - -
Suspected: STREAMBANK EROSION, Construction (resident.develop.), Other Sanitary Disch
Possible: URBAN/STORM RUNOFF, Roadbank Erosion

Resolution/Management Information

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

Further Details

Overview

Aquatic life support in Choconut Creek and its tributaries may experience minor impacts due to silt/sedimentation and nutrient inputs from streambank erosion, urban runoff and various other nonpoint sources.

Water Quality Sampling

Biological (macroinvertebrate) sampling results have ranged from slightly to non-impacted. The most recent RIBS Screening conducted in 1997 near the mouth in Vestal revealed slightly impacted conditions. However, a more recent assessment of Choconut Creek in Vestal Center by the Susquehanna River Basin Commission found non-impacted conditions in 2002, 2003 and 2004 and slightly impacted conditions in 2005 and 2006. The 2006 results were improved over 2005, but still reflected slight impacts. (DEC/DOW, BWAM/SBU and Assessment of Interstate Streams, SRBC, 2007)

Previous Assessment

Concerns were raised by local agencies in previous (1996) assessments regarding the rapid urbanization of the watershed has greatly increased storm water runoff which has resulted in increased streambank and roadbank erosion. The Town

of Vestal has required stormwater detention ponds in all new subdivisions to help address the problem. The loss of riparian vegetation and tree cover due to development has also been noted. Additional sampling at the Vestal site to verify conditions is recommended. (DEC/DOW, BWAM/SBU, June 2009)

Segment Description

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, including Sugar Creek (-8), are also Class C.

Minor Tribs to Lower Susquehanna (north) (0603-0044) Impaired Seg

Waterbody Location Information

Revised: 07/16/2009

Water Index No: SR- 31 thru 37 (selected) **Drain Basin:** Susquehanna River
Hydro Unit Code: 02050103/030 **Str Class:** C **LowSusquehanna-Owego**
Waterbody Type: River (Low Flow) **Reg/County:** 7/Broome Co. (4)
Waterbody Size: 22.5 Miles **Quad Map:** MAINE (M-16-2) ...
Seg Description: total length of select tribs fr Endicott to Johnson Cty

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: - - -
Suspected: D.O./OXYGEN DEMAND, NUTRIENTS (phosphorus)
Possible: Pathogens

Source(s) of Pollutant(s)

Known: - - -
Suspected: AGRICULTURE, Urban/Storm Runoff
Possible: Chemical Leak/Spill

Resolution/Management Information

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

Further Details

Overview

Aquatic life support and recreational uses in these tributaries are considered to be impaired due to organic wastes identified in the sampling of one of the tribs, Patterson Creek. The exact source of the impairment is not certain and need to be investigated.

Water Quality Sampling

A biological (macroinvertebrate) assessment of Patterson Creek in Endwell (at Argonne Street) was conducted as part of the RIBS biological screening effort in 2003. Sampling results indicated moderately impacted conditions. In such samples sensitive species are markedly reduced or missing and the distribution of major groups is significantly unbalanced relative to what would be expected. Samples are dominated by more tolerant species. The nutrient biotic index indicates elevated/highly elevated enrichment and impact source determination reveals a community that is influenced by animal sewage wastes. Water quality is considered to be poor and aquatic life is not fully supported in the stream. This segment is considered to be impaired. (DEC/DOW, BWAM/SBU, January 2009)

Sources Assessment

The exact source of the impairment to the stream has not been identified. In the 1990s a significant manure spill into Upper Patterson Creek resulted in a fishkill in Patterson Pond, however it is not likely that effects from that spill are responsible for the impairment. The nature of the impact suggests agricultural sources, but there are no farming operations that are considered obvious sources. Additional investigation to determine the actual source of the water quality problem is needed. (DEC/DOW, Region 7 and Broome County WQCC, June 2009)

Section 303(d) Listing

This segment including Patterson Creek is not currently included on the NYS 2008 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 uncertainty regarding the exact pollutants and source of the impairment, it is recommended that the segment be added to Part 3b, as a waterbody for which TMDL development is deferred pending the verification of the pollutant/cause on impairment. (DEC/DOW, BWAM/WQAS, June 2009)

Segment Description

This segment includes the total length of selected/smaller tribs to the north of the Lower Susquehanna River (from Endicott to Johnson City). Tribs within this segment, including Patterson Creek (-36), are Class C. Nanticoke Creek (-28) and Little Choconut Creek (-39) are listed separately.

Little Choconut Creek and tribs (0603-0017)

Need Verific

Waterbody Location Information

Revised: 07/09/2009

Water Index No: SR- 39
Hydro Unit Code: 02050103/010 **Str Class:** C
Waterbody Type: River (Low Flow)
Waterbody Size: 43.3 Miles
Seg Description: entire stream and tribs

Drain Basin: Susquehanna River
Reg/County: 7/Broome Co. (4)
Quad Map: CASTLE CREEK (M-17-1) ...

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

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

Type of Pollutant(s)

Known: ---
Suspected: SILT/SEDIMENT, THERMAL CHANGES, Water Level/Flow
Possible: ---

Source(s) of Pollutant(s)

Known: ---
Suspected: HYDRO MODIFICATION, POWER GENERATION (NYSE&G), STREAMBANK EROSION
Possible: ---

Resolution/Management Information

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

Resolution Potential: Medium

Further Details

Overview

Aquatic life support and stream habitat/hydrology may experience minor impacts from silt/sedimentation and thermal effects. Various nonpoint sources and a NYSE&G power plant cooling water discharge are the suspected sources of these impacts. Further sampling to verify any impacts is recommended.

Previous Assessment

Concerns have been raised during previous (1998) assessments due to excessive silt and sedimentation and hydrologic and habitat modification. Streambank erosion has been cited as a source. Residential development in the watershed is also thought to be contributing to the problem. The sediment load is also affecting the flood control in the watershed. Flood control reservoirs along the creek are filling up with silt much faster than was anticipated during design. (DEC/DOW, Region 7, 1996)

Segment Description

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.