



Middle Walkkill River (0202000702)

Water Index Number

H-139-13-59
 H-139-13-59-P668
 H-139-13-61
 H-139-13-61- 9
 H-139-13-61- 9
 H-139-13-61- 9-15
 H-139-13-61- 9-20
 H-139-13-61- 9-25
 H-139-13-61- 9-P698
 H-139-13-62
 H-139-13-62- 2
 H-139-13-62- 3
 H-139-13-62- 3
 H-139-13-62-10-P743

Waterbody Inventory

Quaker Creek and tribs (1306-0025)
 Glenmere Lake (1306-0077)
 Pochuck Creek and minor tribs (1306-0078)
 Wawayanda Creek, Lower, and tribs (1306-0079)
 Wawayanda Creek, Upper, and minor tribs (1306-0015)
 Unnamed Trib to Wawayanda Cr, and tribs (1306-0080)
 Warwick Reservoir Outlet, Upp, and tribs (1306-0081)
 Long House Creek, Upper, and tribs (1306-0082)
 Wickham Lake (1306-0083)
 Rutgers Creek and minor tribs (1306-0006)
 Catlin Creek and tribs (1306-0084)
 Indigot Creek, Lower, and tribs (1306-0085)
 Indigot Creek, Upper, and tribs (1306-0086)
 Lochenhurst Pond (1306-0087)

Category

Impaired Seg
 UnAssessed
NoKnownImpct
MinorImpacts
MinorImpacts
 UnAssessed
 UnAssessed
 UnAssessed
 UnAssessed
NoKnownImpct
 UnAssessed
NoKnownImpct
 UnAssessed
 UnAssessed

Quaker Creek and tribs (1306-0025)

Impaired

Waterbody Location Information

Revised: 07/01/2018

Water Index No: H-139-13-59
Hydro Unit Code: Middle Wallkill River (0202000702)
Water Type/Size: River/Stream 41.5 Miles
Description: entire stream and tribs

Water Class: C
Drainage Basin: Lower Hudson River
Reg/County: 3/Orange (36)

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Drinking Water Supply	N/A	-
Primary Contact Recreation	N/A	-
Secondary Contact Recreation	Impaired	Suspected
Fishing (<i>Aquatic Life</i>)	Impaired	Known
Fishing (<i>Fish Consumption</i>)	Unassessed	-

Type of Pollutant(s) (CAPS indicate Major Pollutants/Sources that contribute to an Impaired/Precluded Uses)
Known: NUTRIENTS (PHOSPHORUS)
Suspected: ---
Unconfirmed: Pathogens

Source(s) of Pollutant(s)
Known: AGRICULTURE, POINT SOURCE DISCHARGES, Urban/Storm Runoff
Suspected: ---
Unconfirmed: ---

Management Information

Management Status: Restoration/Protection Strategy Needed
Lead Agency/Office: DOW/BWAM
IR/305(b) Code: Impaired Water Requiring a TMDL (IR Category 5)
Impaired Water, Pollution not a Pollutant (IR Category 4c)

Further Details

Overview

Quaker Creek is assessed as an impaired waterbody due to fishing use that is known to be impaired by excessive nutrients from agricultural runoff and point source discharges.

Use Assessment

Quaker Creek is a Class C waterbody required to support and protect secondary contact recreation use and fishing use.

Fishing use is evaluated based on standards and guidance values for the protection of aquatic life and the human consumers of fish. Aquatic life is impaired based on biological sampling that shows moderate impacts from nutrients. This sampling can also be used to infer that secondary contact recreation use may be impaired, although more specific sampling is necessary to confirm this is the case. Fish consumption is unassessed. There are no health advisories limiting the consumption of fish from this waterbody, beyond the general advice for all waters (NYS DOH Health Advisories 2018).

Water Quality Sampling

A biological (macroinvertebrate) survey was conducted on Quaker Creek as part of enhanced monitoring for clean water planning in 2017. Sampling results reflect moderately impacted water quality with sensitive taxa reduced, and the distribution of major taxonomic groups significantly different from what is naturally expected. Samples are dominated by more tolerant species. The nutrient biotic index indicates highly elevated enrichment.

Water quality chemistry samples were collected in parallel with the macroinvertebrates. The water chemistry samples showed phosphorus above concentrations typically associated with impacts to aquatic life.

Source Assessment

Based on NYSDEC's Loading Estimator of Nutrient Sources (LENS)¹, agricultural activities and point source discharges are a major contributing source of pollution to this waterbody.

Elevated nutrients are a result of the extensive agricultural activities in the watershed. Stream channelization and other channel modifications to support agricultural operations also effect water quality and use support. This area of the Wallkill watershed consists of a former lake bottom that was drained by canals and ditches to form the truck-farming region (primarily onions) generally referred to as the "black dirt" area. Within New York State, the region extends from the NY/NJ state border to the Pellets Island area, just southeast of Middletown. The area has historically contributed considerable turbidity and sediment to the river. During periods of flooding/high flow, plant nutrients, fertilizers, and pesticides also likely enter the river.

Management Actions

NYSDEC Division of Water, Stream Monitoring and Assessment Section conducted enhanced monitoring for clean water planning at multiple sites on the Wallkill River in 2017 and will continued in 2018. The purpose of this study is to better understand the impairment of the Wallkill.

Section 303(d)

Quaker Creek is included on the current (2016) Section 303(d) List of Impaired Waters. The lake is currently included on Part 3b of the List as a Water Requiring Verification of Cause/Pollutant because the specific cause of the low dissolved oxygen had not been identified. Based on the 2017 sampling, cause/pollutant has been verified and results indicated that it is more appropriate to include this waterbody segment on the list as impaired due to nutrients instead of low dissolved oxygen. In addition, this waterbody will be moved to Part 3c of the list as an impaired waterbody for which TMDLs are deferred pending development/implementation/evaluation of other restoration measures.

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 Stony Creek (-3), are also Class C.

¹ It should be noted that NYSDEC's LENS screening tool is intended to be used to assess land use and relative load contributions by source to help determine the most appropriate watershed management approach and support prioritization of projects. The LENS tool does not include all the data requirements for detailed watershed load analysis that would be completed for a TMDL or Nine Element Plan and does not take into consideration existing best management practices and other nutrient reduction measures.

Pochuck Creek and minor tribs (1306-0078)

NoKnownImpct

Waterbody Location Information

Revised: 12/17/2007

Water Index No: H-139-13-61
Hydro Unit Code: Str Class: C
Waterbody Type: River
Waterbody Size: 16.4 Miles
Seg Description: stream and select tribs, from mouth to NY-NJ state line
Drain Basin: Lower Hudson River
Reg/County: 3/Orange Co. (36)
Quad Map: PINE ISLAND (P-23-4)

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
TMDL/303d Status: n/a
Resolution Potential: n/a

Further Details

Water Quality Sampling

A biological (macroinvertebrate) assessment of Pochuck Creek in Newport (at Newport Bridge Road) was conducted in 2002. Sampling results indicated non-impacted water quality conditions. The fauna was diverse and all screening criteria for waters having no known impacts were met. (DEC/DOW, BWAM/SBU, December 2004)

Segment Description

This segment includes the portion of the stream and all tribs from the mouth to the NY-NJ state line. The waters of this portion of the stream are Class C. Tribs to this reach/segment are also Class C. Wawayanda Creek (-9) is listed separately.

Wawayanda Creek, Lower, and tribs (1306-0079)

MinorImpacts

Waterbody Location Information

Revised: 12/17/2007

Water Index No: H-139-13-61- 9 **Drain Basin:** Lower Hudson River
Hydro Unit Code: **Str Class:** C(T)
Waterbody Type: River **Reg/County:** 3/Orange Co. (36)
Waterbody Size: 36.2 Miles **Quad Map:** WAWAYANDA, NJ (Q-23-1)
Seg Description: stream and tribs, from NY-NJ state line to Warwick

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 (phosphorus)
Possible: - - -

Source(s) of Pollutant(s)

Known: AGRICULTURE, URBAN/STORM RUNOFF
Suspected: MUNICIPAL (Warwick WWTP)
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

Overview

Aquatic life support in this portion of Wawayanda Creek are known to experience minor impacts due to nutrients and other effects of nonpoint sources and municipal discharges. Water quality in the stream has significantly improved following the 1994 upgrade of the Warwick WWTP.

Water Quality Sampling

Biological (macroinvertebrate) assessments of Wawayanda Creek in New Milford (at Covered Bridge Road and Ryerson Road) were conducted in 2002. Sampling results indicated slightly impacted water quality conditions. Sampling at the upstream site nearer the Warwick WWTP revealed greatly improved water quality over sampling results in 1989 that showed severe impacts. Following the WWTP upgrade in 1994 water quality showed steady improvement in sampling from 1994, 1995 and 2002. (DEC/DOW, BWAM/SBU, December 2004)

Segment Description

This segment includes the portion of the stream and selected/smaller tribs from the NY-NJ state line to/including unnamed trib (-21) above Warwick. The waters of this portion of the stream are Class C(T). Tribs to this reach/segment, including Double Kill (-9), are Class C,C(T),C(TS). Unnamed trib (-15), upper unnamed trib (-20) and Upper Wawayanda Creek are listed separately.

Wawayanda Creek, Upper, and minor tribs (1306-0015) MinorImpacts

Waterbody Location Information

Revised: 12/17/2007

Water Index No: H-139-13-61- 9
Hydro Unit Code: 02020007/050 **Str Class:** B(T)*
Waterbody Type: River
Waterbody Size: 21.2 Miles
Seg Description: stream and select tribs, above Warwick

Drain Basin: Lower Hudson River
Rondout River
Reg/County: 3/Orange Co. (36)
Quad Map: WARWICK (P-23-3)

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: - - -
Suspected: AGRICULTURE, URBAN/STORM RUNOFF
Possible: Construction (resident.develop.), Municipal (Warwick WWTP), On-Site/Septic Syst

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

Overview

Aquatic life support in this portion of Wawayanda Creek are known to experience minor impacts due to nutrients from nonpoint sources.

Water Quality Sampling

A biological (macroinvertebrate) assessment of Wawayanda Creek in Warwick (at River Street) was conducted last conducted in 1995. Sampling results indicated slightly impacted water quality conditions. This assessment is consistent with sampling conducted at the site in 1994 and 1989. Impact Source Determination indicated that nonpoint sources of nutrients were the likely factors influencing the sample. Sampling of the stream below this reach have shown a steady improvement in water quality attributed to the 1994 upgrade of the Warwick WWTP. In spite of some/these minor impacts, aquatic life is considered to be fully supported in the stream. (DEC/DOW, BWAM/SBU, December 2004)

Previous Assessment

Previously agricultural (livestock) runoff, urban inputs, golf course runoff, and failing/inadequate on-site septic systems were identified as possible nonpoint sources. Runoff from residential construction and other land development projects in the Warwick Valley may also contribute to water quality impairment. One additional point source discharge, Town of Warwick SD#1, is also located upstream. Poor natural habitat is another factor limiting the biological community

in portions of the creek. The sand and gravel substrate and lower current velocity in the stream are not ideal for macroinvertebrates. (Wawayanda Creek Biological Assessment Report, Novak et al, DEC/DOW, BWAM, March 1996)

Local school-based volunteer monitors are currently studying the creek as well. (Orange County SWCD, December 1999)

Segment description

This segment includes the portion of the stream and selected/smaller tribs above unnamed trib (-21) above Warwick. The waters of this portion of the stream are Class B(T) to just below unnamed trib (-25), Class A(T) to Long House Creek (-25), and Class B(T) for the remainder of the reach. Tribs to this reach/segment, including Lower Long House Creek (-25), are primarily Class B,B(T),B(TS); with a short portion of Lower Long House Creek designated Class A(T). Upper Long House Creek and Lower Wawayanda Creek are listed separately.

Rutgers Creek and minor tribs (1306-0006)

NoKnownImpct

Waterbody Location Information

Revised: 12/13/2007

Water Index No: H-139-13-62
Hydro Unit Code: 02020007/060 **Str Class:** C*
Waterbody Type: River
Waterbody Size: 80.1 Miles
Seg Description: entire stream and select tribs

Drain Basin: Lower Hudson River
Rondout River
Reg/County: 3/Orange Co. (36)
Quad Map: UNIONVILLE (P-22-3)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted
NO USE IMPAIRMNT

Severity

Problem Documentation

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 Rutgers Creek in Johnson (at Ridgebury Road) was conducted in 2002. Sampling results indicated non-impacted water quality conditions. The fauna was diverse and all screening criteria for waters having no known impacts were met. The sample was sorted in the lab to family level and results were found to support the field assessment. (DEC/DOW, BWAM/SBU, December 2004)

Segment Description

This segment includes the entire stream and selected/smaller tribs. The waters of the stream are Class C. Tribs to this reach/segment are primarily Class C; with one unnamed tribs (-20) designated Class B. Catlin Creek (-2) and Indigot Creek (-3) are listed separately.

Indigot Creek, Lower, and tribs (1306-0085)

NoKnownImpct

Waterbody Location Information

Revised: 12/13/2007

Water Index No: H-139-13-62- 3 **Drain Basin:** Lower Hudson River
Hydro Unit Code: **Str Class:** C
Waterbody Type: River **Reg/County:** 3/Orange Co. (36)
Waterbody Size: 30.7 Miles **Quad Map:** UNIONVILLE (P-22-3)
Seg Description: stream and tribs, from mouth to near Mount Orange Road

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 Indigot Creek in Millsburg (at Millsburg Road) was conducted in 2002. Sampling results indicated non-impacted water quality conditions. The fauna was diverse and all screening criteria for waters having no known impacts were met. The sample was sorted in the lab to family level and results were found to support the field assessment. (DEC/DOW, BWAM/SBU, December 2004)

Segment Description

This segment includes the portion of the stream and all tribs from the mouth to unnamed trib (-11) near Mount Orange Road. The waters of this portion of the stream are Class C. Tribs to this reach/segment are also Class C. Upper Indigot Creek is listed separately.