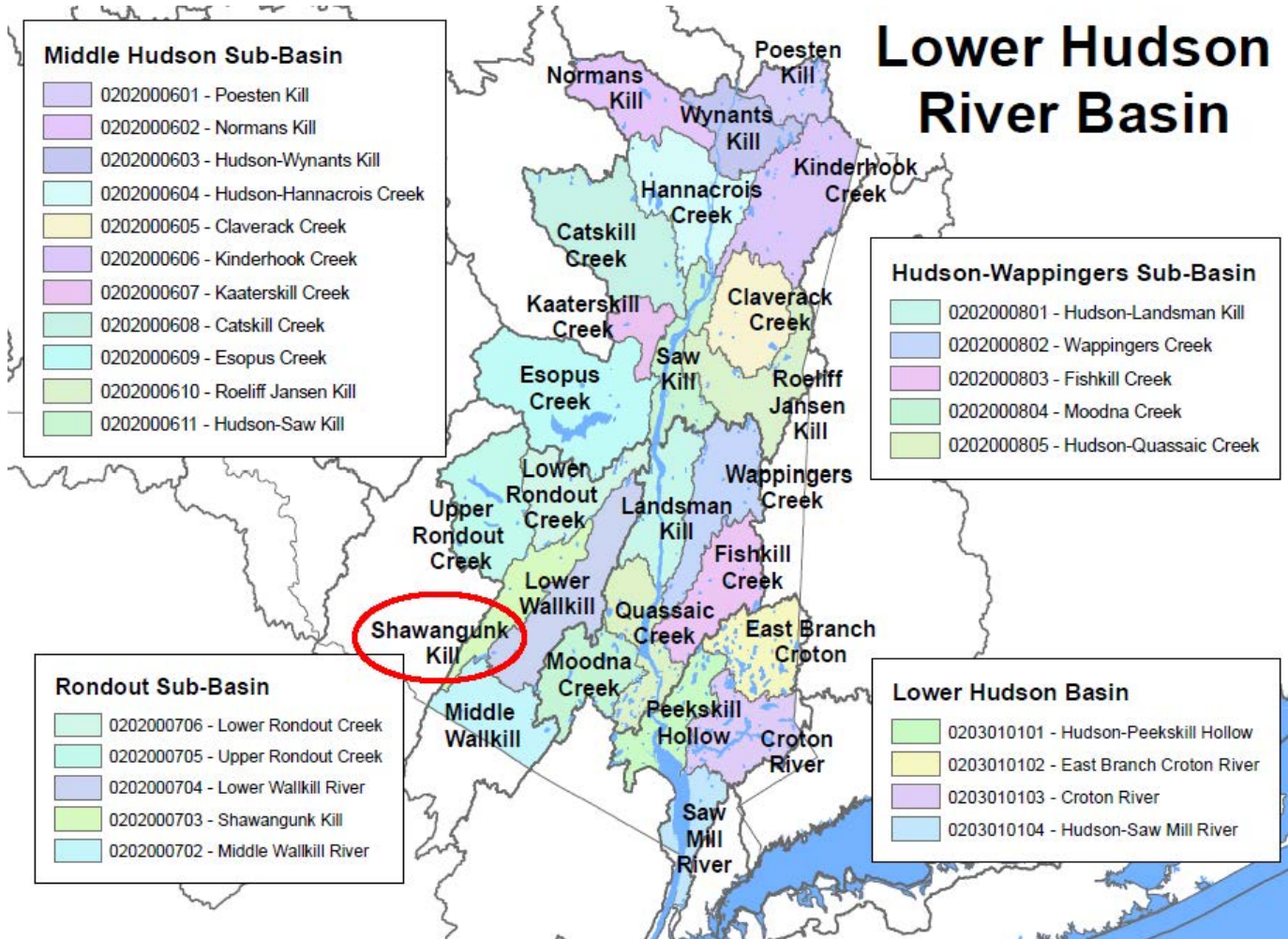


Lower Hudson River Basin



Shawanagunk Kill (0202000703)

Water Index Number

H-139-13-19
H-139-13-19
H-139-13-19
H-139-13-19
H-139-13-19- 1-P463a
H-139-13-19- 5
H-139-13-19- 5-P464a
H-139-13-19- 7
H-139-13-19- 9
H-139-13-19-10
H-139-13-19-10- 5-P471
H-139-13-19-13-P471a
H-139-13-19-15
H-139-13-19-17-P473
H-139-13-19-28
H-139-13-19-28-P491,P492

Waterbody Name

Shawangunk Kill, Lower, and minor tribs (1306-0045)
Shawangunk Kill, Middle, and minor tribs(1306-0046)
Shawangunk Kill, Middle, and tribs (1306-0047)
Shawangunk Kill, Upper, and tribs (1306-0048)
Heddens Lake (1306-0049)
Palmaghatt Kill, Upper, and tribs (1306-0050)
Tillson Lake (1306-0051)
Dwaar Kill and tribs (1306-0052)
Pakanasink Creek, Upper, and tribs (1306-0053)
Verkeerder Kill Creek and tribs (1306-0054)
Lake Maratanza (1306-0055)
Pinebush Lake (1306-0056)
Platte Kill/Halliday Brook and tribs (1306-0057)
Echo Lake (1306-0058)
Little Shawangunk Kill and tribs (1306-0059)
Shawangunk Lake/Highland Lake (1306-0060)

Category

NoKnownImpct
NoKnownImpct
NoKnownImpct
UnAssessed
UnAssessed
UnAssessed
UnAssessed
MinorImpacts
UnAssessed
NoKnownImpct
UnAssessed
UnAssessed
UnAssessed
UnAssessed
NoKnownImpct
Threatened

Shawangunk Kill, Lower, and minor tribs (1306-0045) No Known Impacts

Waterbody Location Information

Revised: 07/01/2018

Water Index No: H-139-13-19
Hydro Unit Code: Shawangunk Kill (0202000703)
Water Type/Size: River/Stream 39.5 Miles
Description: stream and select tribs, from mouth to Pinebush

Water Class: B
Drainage Basin: Lower Hudson River
Reg/County: 3/Ulster (56)

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Drinking Water Supply	N/A	-
Primary Contact Recreation	Unassessed	-
Secondary Contact Recreation	Fully Supported	Suspected
Fishing (<i>Aquatic Life</i>)	Fully Supported	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: ---

Source(s) of Pollutant(s)
Known: Agriculture
Suspected: Urban/Storm Runoff
Unconfirmed: ---

Management Information

Management Status: No Action Needed
Lead Agency/Office: DOW/BWAM
IR/305(b) Code: Water Attaining All Standards (IR Category 1)

Further Details

Overview

This portion of Shawangunk Kill is assessed as having no known impacts, based on the evaluation that secondary contact recreation use and fishing use are fully supported.

Use Assessment

This segment is a Class B waterbody required to support and protect the best uses of primary and secondary contact recreation and fishing.

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 considered to be fully supported based on biological sampling that shows non-impacted conditions. This sampling can also be used to infer that there are no known impacts to secondary contact recreation use, although more specific sampling is necessary to confirm this is the case. Currently, there is inadequate data/information to evaluate primary contact recreation (public bathing) use in this waterbody. Fish consumption use 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 Information

A biological (macroinvertebrate) assessment of this portion of the Shawangunk Kill was conducted as part of enhanced monitoring for clean water planning in 2017. Sampling results reflect good water quality. Conditions were in the

slightly impacted range but approaching non-impacted and communities were most similar to natural conditions. The macroinvertebrate community shows some beginning sign of alteration, some expected sensitive species are not present and overall macroinvertebrate species richness is somewhat lower than expected, but overall there is still balanced distribution of all expected taxa.

Source Assessment

Based on NYSDEC's Loading Estimator of Nutrient Sources (LENS)¹, agriculture activities are a major contributing source of pollutants to this waterbody.

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.

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 continue in 2018. The purpose of this special study is to better understand the cause/pollutant/source of impairment of the Wallkill River.

Section 303(d) Listing

This waterbody is not included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. There are no impairments that would justify the listing of this waterbody.

Segment Description

This segment includes the portion of the stream and selected/smaller tributes from the mouth to near Pakanasink Creek (-9) near Pinebush. The waters of this portion of the stream are Class B. Tributes to this reach/segment, including Mara Kill (-1), are Class B, B(T), BT(S), C. Palmaghatt Kill (-5), Dwaar Kill (-7), Pakanasink Creek and Middle/Upper Shawangunk Creek are listed separately.

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.

Shawangunk Kill, Middle, and minor tribs (1306-0046) NoKnownImpct

Waterbody Location Information

Revised: 12/20/2007

Water Index No: H-139-13-19 **Drain Basin:** Lower Hudson River
Hydro Unit Code: **Str Class:** B(T)*
Waterbody Type: River **Reg/County:** 3/Orange Co. (36)
Waterbody Size: 76.2 Miles **Quad Map:** PINE BUSH (O-23-3)
Seg Description: stream and select tribs, from Pinebush to New Vernon

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

Biological (macroinvertebrate) assessments of Shawangunk Kill were conducted at three sites including Pine Bush (at Hardenburg Road) and Maple Glen (at Meyer Road) in 2002. Sampling results at these sites 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 selected/smaller tribs just below Pakanasink Creek (-9) near Pinebush to unnamed trib (-30) near New Vernon. The waters of this portion of the stream are Class A for the lower half mile and Class B(T) for the remainder of the reach. Tribs to this reach/segment, including Lower Pakanasink Kill (-9), Tomy Kill (-13), Todds/Macy Brook (-16), Smith Brook (-17) and Norris Brook (-21), are Class B,B(T) and C. Upper Pakanasink Creek (-9), Verkeerder Kill (-10), Platte Kill Brook (-15), Little Shawangunk Kill (-28) and Upper/Lower Shawangunk Kill are listed separately.

Shawangunk Kill, Middle, and tribs (1306-0047)

NoKnownImpct

Waterbody Location Information

Revised: 12/20/2007

Water Index No: H-139-13-19 **Drain Basin:** Lower Hudson River
Hydro Unit Code: **Str Class:** B
Waterbody Type: River **Reg/County:** 3/Orange Co. (36)
Waterbody Size: 18.5 Miles **Quad Map:** OTISVILLE (P-22-2)
Seg Description: stream and tribs, from New Vernon to New Hope

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

Biological (macroinvertebrate) assessments of Shawangunk Kill were conducted at three sites including one site in just below the reach in Maple Glen (at Meyer Road) in 2002. Sampling results at these sites 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. Although this site is not in the reach, it is considered to be representative of the upstream reach. (DEC/DOW, BWAM/SBU, December 2004)

Segment Description: This segment includes the portion of the stream and all tribs from unnamed trib (-30) near New Vernon to Mill Pond (P517) near Mount Hope. The waters of this portion of the stream are Class B. Tribs to this reach/segment are Class B,C,C(T). Lower/Upper Shawangunk Kill are listed separately.

Dwaar Kill and tribs (1306-0052)

MinorImpacts

Waterbody Location Information

Revised: 12/20/2007

Water Index No: H-139-13-19- 7
Hydro Unit Code: **Str Class:** B(T)
Waterbody Type: River
Waterbody Size: 18.1 Miles
Seg Description: entire stream and tribs
Drain Basin: Lower Hudson River
Reg/County: 3/Ulster Co. (56)
Quad Map: NAPANOCH (O-23-2)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

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

Type of Pollutant(s)

Known: - - -
Suspected: D.O./OXYGEN DEMAND, 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

Overview

Aquatic life support and recreational uses in Dwaar Kill are thought to experience minor impacts due to nutrient and organic impacts from agricultural nonpoint sources.

Water Quality Sampling

A biological (macroinvertebrate) assessment of Dwaar Kill in Dwaarkill (at Red Mills Road) was conducted in 2002. Sampling results indicated slightly impacted water quality conditions. The fauna contained many sewage-tolerant worms, but also contained many mayflies. The sample suggested organic wastes as the source of impacts. Cattle upstream of the site and agricultural nonpoint sources in general were assumed to be the source of the impacts. 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)

Segment Description

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

Verkeerder Kill Creek and tribs (1306-0054)

NoKnownImpct

Waterbody Location Information

Revised: 12/20/2007

Water Index No: H-139-13-19-10
Hydro Unit Code: **Str Class:** A(T)
Waterbody Type: River
Waterbody Size: 23.3 Miles
Seg Description: entire stream and tribs
Drain Basin: Lower Hudson River
Reg/County: 3/Ulster Co. (56)
Quad Map: PINE BUSH (O-23-3)

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

Further Details

Water Quality Sampling

A biological (macroinvertebrate) assessment of Verkeerder Kill in Ulsterville (at Ulsterville 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 all tribs. The waters of the stream are Class A(T),A(TS). Tribs to this reach/segment, including Berger Brook (-2), are Class A(TS).

Little Shawangunk Kill and tribs (1306-0059)

NoKnownImpct

Waterbody Location Information

Revised: 12/20/2007

Water Index No: H-139-13-19-28 **Drain Basin:** Lower Hudson River
Hydro Unit Code: **Str Class:** B
Waterbody Type: River **Reg/County:** 3/Orange Co. (36)
Waterbody Size: 16.6 Miles **Quad Map:** MIDDLETOWN (P-23-1)
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 Little Shawangunk Kill in Maple Glen (at Timothy Collard 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 entire stream and all tribs. The waters of the stream are Class B. Tribs to this reach/segment are also/primarily Class B.

Shawangunk Lake/Highland Lake (1306-0060)

Threatened

Waterbody Location Information

Revised: 05/01/2018

Water Index No: H-139-13-19-28-P491,P492
Hydro Unit Code: Shawangunk Kill (0202000703)
Water Type/Size: Lake/Reservoir 218.1 Acres
Description: total area of both lakes

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

Water Quality Problem/Issue Information

Uses Evaluated	Severity	Confidence
Water Supply	Threatened	Known
Public Bathing	Stressed	Unconfirmed
Recreation	Stressed	Unconfirmed
Aquatic Life	Fully Supported	Unconfirmed
Fish Consumption	Unassessed	-
Conditions Evaluated		
Habitat/Hydrology	Unknown	
Aesthetics	Unknown	

Type of Pollutant(s) (CAPS indicate Major Pollutants/Sources that contribute to an Impaired/Precluded Uses)

Known: ---
Suspected: Nutrients (Phosphorus), Algal/Weed Growth
Unconfirmed: ---

Source(s) of Pollutant(s)

Known: ---
Suspected: ---
Unconfirmed: Other Source

Management Information

Management Status: Verification of Problem Severity Needed
Lead Agency/Office: DEC/Reg3
IR/305(b) Code: Water with Insufficient Data (IR Category 3)

Further Details

Overview

Shawangunk and Highland Lakes are assessed as needing verification of threatened drinking water uses

Use Assessment

Shawangunk and Highland Lakes are Class AA waterbodies, required to support and protect the best uses as a water supply source for drinking, culinary or food processing purposes, primary and secondary contact recreation, and fishing.

Evaluation of the use of these lakes for public water supply includes conditions of the lake water prior to treatment, not the quality of water distributed for use after treatment. Monitoring of water quality at the tap is conducted by local water suppliers and public health agencies. Water supply use in Shawangunk and Highland Lakes are considered to be threatened by elevated nutrients and chlorophyll levels in the lakes that result in increased risk of disinfection by-products (DBPs) formation in finished potable water and make treatment to meet drinking water standards more difficult. 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. Prolonged exposure to DBPs may increase the risk of certain health effects. The lake also requires routine use of algicides to reduce filtration and other water treatment

costs. However, water quality data sources are old and it is not known if conditions measured in the early 2000s are still present today (DEC/DOW, BWAM, April 2018)

Primary and secondary contact recreational uses may be stressed by elevated nutrients (phosphorus), excessive algae, and poor water clarity however, recreational uses are not presently allowed in Shawangunk Lake or Highland Lake due to the lack of public access. (DEC/DOW, BWAM/CSLAP, April 2018)

Fishing use is suspected to be fully supported in Shawangunk Lake and Highland Lake but additional sampling is needed to confirm conditions. (DEC/DOW, BWAM, April 2018)

Fish Consumption use is considered to be unassessed. There are no health advisories limiting the consumption of fish from this waterbody (beyond the general advice for all waters). However due to the uncertainty as to whether the lack of a waterbody-specific health advisory is based on actual sampling, fish consumption use is noted as unassessed. (NYS DOH Health Advisories and DEC/DOW, BWAM, April 2018)

Water Quality Information

Water quality sampling of Shawangunk and Highland Lakes was conducted through the NYSDEC Citizens Statewide Lake Assessment Program (CSLAP) from 2003 through 2009. Results of this sampling indicate the lake is best characterized as mesoeutrophic, or moderately to highly productive. Chlorophyll a levels in this study exceeded the DEC criteria indicating impacted conditions for potable water supplies in Shawangunk Lake and Highland Lake, due to a high likelihood of producing potential carcinogens (based on chlorophyll a levels greatly exceeding 4 ug/l) during chlorination of raw water. However, it is not known if this older data is representative of present conditions in these lakes. (DEC/DOW, BWAM/LMAS, April 2018)

Shawangunk Lake was assessed through the NYSDOH Source Waters Assessment Program (SWAP) which compiles, organizes, and evaluates information regarding possible and actual threats to the quality of public water supply (PWS) sources. The information contained in SWAP assessment reports assists in the oversight and protection of public water systems. 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 assessment found no noteworthy risks to source water quality. Although there are no specific water quality impacts, the segment is considered a highly valued water resource due to its drinking water supply classification as a AA(T) water. This water supply reservoir provides water to the City of Middletown. (NYSDOH, Source Water Assessment Program, 2005).

Source Assessment

Specific sources of pollutants to the waterbody have not been identified.

Management Actions

These waterbodies are considered highly-valued water resources due to their drinking water supply classification. On December 21, 2017, New York State Governor Andrew Cuomo announced a \$65 million initiative to combat harmful algal blooms in Upstate New York. Shawangunk and Highland Lakes were identified for inclusion in this initiative as they are vulnerable to HABs and critical drinking water sources.

Section 303(d) Listing

Shawangunk and Highland Lakes are not included on the current (2016) NYS Section 303(d) List of Impaired/TMDL Waters. (DEC/DOW, BWAM/WQAS, April 2018)

Segment Description

This segment includes the entire area of Shawangunk Lake (P491) and Highland Lake (P492).