



# Hudson River (Class A) (1301-0276)

Impaired Seg

## Waterbody Location Information

Revised: 06/30/2008

**Water Index No:** H (portion 4b)      **Drain Basin:** Lower Hudson River  
**Hydro Unit Code:** 02020006/      **Str Class:** A      Middle Hudson River  
**Waterbody Type:** Estuary      **Reg/County:** 3/Ulster Co. (56)  
**Waterbody Size:** 15599.0 Acres      **Quad Map:** KINGSTON EAST (N-25-1)  
**Seg Description:** from Kingston to south end of Houghtaling Island

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

Use(s) Impacted	Severity	Problem Documentation
Public Bathing	Stressed	Suspected
FISH CONSUMPTION	Impaired	Known
Recreation	Stressed	Known
Habitat/Hydrology	Stressed	Suspected

### Type of Pollutant(s)

Known: METALS (Cadmium), PRIORITY ORGANICS (PCBs)  
Suspected: Pathogens, Thermal Changes  
Possible: - - -

### Source(s) of Pollutant(s)

Known: TOX/CONTAM. SEDIMENT, Comb. Sewer Overflow, Urban/Storm Runoff  
Suspected: Habitat Modification, Power Generation  
Possible: - - -

## Resolution/Management Information

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

## Further Details

### Overview

Fish consumption use in this portion of the Lower Hudson is impaired by elevated levels of priority organics (PCBs, dioxin), heavy metals (cadmium) and other toxics primarily the result of past industrial discharges. A significant decline in the Hudson River fisheries, most notably American shad, in recent years has resulted in concerted efforts to assess the possible causes of the decline the determine strategies to restore the fish stocks. The suspected causes of the decline include over-fishing, habitat loss and increased populations of predatory species. At the same time, increased recreational use of the Hudson River has spurred efforts to further improve water quality to support public bathing in the river.

### Fish Consumption Advisories

Fish consumption in the Lower Hudson is impaired due to a NYSDOH health advisory for waters north of the Catskill Bridge that recommends eating no fish of any species, EXCEPT alewife, American shad, blueback herring, rock bass and yellow perch; consumption of these species should be limited to no more than one meal per month. American shad should be limited to no more than one meal per week. South of the Catskill bridge the advisory is to eat no gizzard shad, channel catfish or white catfish, and no more than one meal per month of American eel, Atlantic needlefish,

bluefish, carp, goldfish, largemouth bass, smallmouth bass, rainbow smelt, striped bass, walleye, white catfish and white perch because of elevated levels of PCBs. Advisories along this lower reach are also in place for blue crab that recommend eating no more than six crabs per week, and discarding hepatopancreas (mustard, liver, or tomalley), and cooking liquid. In addition to PCBs, the blue crab advisory also reflects concern about contamination by dioxin and cadmium. The contamination is considered to be the result past industrial discharges, particularly PCB discharges in the Upper Hudson River. (For more information, see the Upper Hudson River WI/PWL Report.) These restrictions have severely affected what had been at one time thriving commercial fishing industries. The advisory for this lake was first issued prior to 1998-99. (2007-08 NYSDOH Health Advisories and DEC/DFWMR, Habitat, December 2007).

#### Toxics/CARP

Ongoing efforts to address the widespread contamination by PCBs, dioxin and other toxic chemicals in New York Harbor and the Hudson River include the Contamination Assessment and Reduction Project (CARP), a landmark monitoring effort bringing together federal, state and non-government partners in a determined effort to reduce contamination within the NY/NJ Harbor Estuary, particularly as it relates to dredged material management. CARP has identified and quantified major sources of contaminants of concern to the NY/NJ Harbor and Hudson Estuary. A series of numerical models have also been developed and calibrated to simulate movement of contaminants through the estuary and to predict the concentrations of these contaminants in water, sediment, and biota in future years under a variety of scenarios. The CARP data and modeling products are being used to identify which contaminants require load reductions (through Total Maximum Daily Loads) to meet appropriate water quality criteria and to develop sediment remediation strategies in connection with the U.S. Army Corps of Engineers' Hudson-Raritan Comprehensive Restoration Program and the Harbor Estuary Program's Regional Sediment Management strategy. (USEPA/HEP and Hudson River Foundation and DEC/DOW, BWAM/Priority Waters Research, May 2008)

#### Hudson River Fisheries

New York fisheries biologists have documented that American shad spawning stock have become smaller and younger and mortality has increased to excessive and unacceptable levels. Throughout the Atlantic Coast waters, shad stocks are at historic lows and, along with several other important marine species, are in need of dedicated restoration efforts. The suspected causes of this decline include over-fishing, habitat loss, entrainment/impingement at power generating plants on the river, increased populations of predatory species and increased competition for food sources. NYSDEC recently announced a new set of initiatives aimed at developing a better understanding of the Hudson estuary ecosystem and restoring the threatened fisheries. This effort will focus on continuation of American shad monitoring programs, reduction of shad mortality at water intakes, control of bycatch of shad during commercial fishing for other species, identification and restoration of critical spawning and nursery habitats, and continued ecosystem studies to understand the effects of predators and invasive species. (NYSDEC/DFWMR, Hudson River Fisheries, May 2008)

#### Water Quality Sampling

NYSDEC is participating with a number of other agencies and organizations in a new private/public partnership called the Hudson River Environmental Conditions Observing System (HRECOS). This collaborative monitoring network will use stations located throughout the Hudson to provide data and other information essential to the management of the estuary. Seven scientific monitoring stations have been established throughout the Hudson River at Schodack Island, Tivoli Bays North, Tivoli Bays South, Norrie Point, Piermont Pier, George Washington Bridge (NJ) and Castle Point (NJ). The network provides continuous information about the estuary's conditions including temperature, oxygen levels, salinity, weather, tides, and some types of pollution that have the potential to affect the health and well-being of the Hudson's ecosystem. (DEC/HREP, May 2008)

#### Source (Drinking) Water Assessment

The Hudson River 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. The Hudson River watershed is exceptionally large and too big for a detailed evaluation in the SWAP. General drinking water concerns for public water supplies which use these sources include: storm generated turbidity, eutrophication (excessive nutrients

and algae) wastewater, toxic sediments. In addition, salt water can enter the lower Hudson and impact drinking water quality during periods of low flow. This more general assessment suggests an elevated susceptibility to contamination for this source of drinking water. This assessment is typical of many water supplies and reflects the need to protect the resource. This water supply reservoir provides water to the City of Poughkeepsie, Portions of Dutchess County and the Village of Millbrook. (NYSDOH, Source Water Assessment Program, 2005)

#### Swimmable Hudson

In response to the improvement in Hudson River water quality since the 1970s, there has been a rise in recreational use and a public call for increased swimming opportunities. Currently swimming occurs in popular anchoring spots along the shore, including areas not designated for swimming. However, in spite of growing use publicly available swimming areas in the Hudson remain limited. To reach the goal of a swimmable Hudson River, the NYSDEC Hudson River Estuary Program: and Division of Water are focusing on four primary areas of water quality impact

1) the need for seasonal disinfection of municipal and other wastewater discharges, 2) the reduction of CSO impacts through appropriate control strategies, 3) implementation and compliance with Phase II Stormwater permit program, and 4) continued support of a vessel No Discharge Zone in the Hudson. (DEC/HREP and DEC/DOW, BWAM, May 2008)

#### Hudson River Estuary Program

To further restore and protect the waters of the Hudson River, NYS DEC established in 1987 The Hudson River Estuary Program: to provide a holistic (watershed) approach to management of the ecosystem. The Hudson River Estuary Program: leads a unique regional partnership of agencies, organizations and the public to restore the Hudson in ways that support the quality of life so valued by Hudson Valley residents. The program focuses on conservation of natural resources, promotion of full public use and enjoyment of the river and reducing pollution that affects the ability to use and enjoy the river. The Estuary Program implements the Hudson River Estuary Action Agenda through numerous partners in government, the non-profit and business sectors, and concerned citizens. The program is built on sound science and principles of ecosystem-based management. It is guided by the Hudson River Estuary Advisory Committee, which includes representatives of the commercial fishing industry, recreational anglers, utility companies, local government, educators, researchers, conservationists and other river users. This facilitates working with many representatives of the public toward common goals. (DEC/HREP, May 2008)

#### Segment Description

This segment includes the waters of the Hudson from the mouth of the Rondout River in Kingston, to light no. 72 off the south end of Houghtaling Island. The size of the estuary area is taken from NYSDEC GIS and includes river and tidal flats, and tidal tribs.

# Hudson River (Class C) (1301-0002)

Impaired Seg

## Waterbody Location Information

Revised: 06/30/2008

**Water Index No:** H (portion 5)      **Drain Basin:** Lower Hudson River  
**Hydro Unit Code:** 02020006/      **Str Class:** C      Middle Hudson River  
**Waterbody Type:** Estuary      **Reg/County:** 4/Albany Co. ( 1)  
**Waterbody Size:** 3501.0 Acres      **Quad Map:** TROY SOUTH (K-26-1)  
**Seg Description:** from south end of Houghtaling Island to Troy Dam

## 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
Recreation	Stressed	Known
Habitat/Hydrology	Stressed	Suspected
Aesthetics	Stressed	Known

### Type of Pollutant(s)

Known: PRIORITY ORGANICS (PCBs), Aesthetics (floatables), Pathogens  
Suspected: Problem Species, Thermal Changes  
Possible: - - -

### Source(s) of Pollutant(s)

Known: TOX/CONTAM. SEDIMENT, Comb. Sewer Overflow, Urban/Storm Runoff  
Suspected: Habitat Modification, Power Generation  
Possible: - - -

## Resolution/Management Information

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

## Further Details

### Overview

Fish consumption use in this portion of the Lower Hudson is impaired by elevated levels of priority organics (PCBs, dioxin), heavy metals (cadmium) and other toxics primarily the result of past industrial discharges. A significant decline in the Hudson River fisheries, most notably American shad, in recent years has resulted in concerted efforts to assess the possible causes of the decline the determine strategies to restore the fish stocks. The suspected causes of the decline include over-fishing, habitat loss and increased populations of predatory species. At the same time, increased recreational use of the Hudson River has spurred efforts to further improve water quality to support public bathing in the river.

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blue crab that recommend eating no more than six crabs per week, and discarding hepatopancreas (mustard, liver, or tomalley), and cooking liquid. In addition to PCBs, the blue crab advisory also reflects concern about contamination by dioxin and cadmium. The contamination is considered to be the result past industrial discharges, particularly PCB discharges in the Upper Hudson River. (For more information, see the Upper Hudson River WI/PWL Report.) These restrictions have severely affected what had been at one time thriving commercial fishing industries. The advisory for this lake was first issued prior to 1998-99. (2007-08 NYSDOH Health Advisories and DEC/DFWMR, Habitat, December 2007).

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#### Hudson River Fisheries

New York fisheries biologists have documented that American shad spawning stock have become smaller and younger and mortality has increased to excessive and unacceptable levels. Throughout the Atlantic Coast waters, shad stocks are at historic lows and, along with several other important marine species, are in need of dedicated restoration efforts. The suspected causes of this decline include over-fishing, habitat loss, entrainment/impingement at power generating plants on the river, increased populations of predatory species and increased competition for food sources. NYSDEC recently announced a new set of initiatives aimed at developing a better understanding of the Hudson estuary ecosystem and restoring the threatened fisheries. This effort will focus on continuation of American shad monitoring programs, reduction of shad mortality at water intakes, control of bycatch of shad during commercial fishing for other species, identification and restoration of critical spawning and nursery habitats, and continued ecosystem studies to understand the effects of predators and invasive species. (NYSDEC/DFWMR, Hudson River Fisheries, May 2008)

#### Water Quality Sampling

NYSDEC Rotating Intensive Basin Studies (RIBS) Routine Network monitoring (water chemistry) of the Hudson River in Glenmont, Albany County, is conducted annually at the PSEG raw water intake. 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. The most recent Intensive Network monitoring was conducted during 2003. Water column sampling revealed water temperature to be the only parameter of concern. Biological (macroinvertebrate) sampling was assessed as moderately impacted using multiplate samplers, however higher flow conditions might have influenced these results. Toxicity testing of the water column showed no significant mortality or reproductive impacts. (DEC/DOW, BWAM/RIBS, January 2005)

Biological (macroinvertebrate) sampling reveals an apparent decline in water quality from Albany to Hudson/Catskill during the 1990s. Sites in this reach were assessed as slightly impacted in 1991 and moderately impacted in 1998 and 2002. At this point the trend remains unexplained. One suspected cause for the apparent decline is the recent increase in wet-weather flows and the impact of urban runoff and CSO-related impacts from the Albany Pool municipal communities. The sampling results may also reflect habitat impacts and other influences affecting the fishery in the Hudson. Further monitoring to assess the level and source of impacts is recommended. (DEC/DOW, BWAM/SBU, June 2008)

NYSDEC is participating with a number of other agencies and organizations in a new private/public partnership called

the Hudson River Environmental Conditions Observing System (HRECOS). This collaborative monitoring network will use stations located throughout the Hudson to provide data and other information essential to the management of the estuary. Seven scientific monitoring stations have been established throughout the Hudson River at Schodack Island, Tivoli Bays North, Tivoli Bays South, Norrie Point, Piermont Pier, George Washington Bridge (NJ) and Castle Point (NJ). The network provides continuous information about the estuary's conditions including temperature, oxygen levels, salinity, weather, tides, and some types of pollution that have the potential to affect the health and well-being of the Hudson's ecosystem. (DEC/HREP, May 2008)

#### Swimmable Hudson

In response to the improvement in Hudson River water quality since the 1970s, there has been a rise in recreational use and a public call for increased swimming opportunities. Currently swimming occurs in popular anchoring spots along the shore, including areas not designated for swimming. However, in spite of growing use publicly available swimming areas in the Hudson remain limited. To reach the goal of a swimmable Hudson River, the NYSDEC Hudson River Estuary Program: and Division of Water are focusing on four primary areas of water quality impact

1) the need for seasonal disinfection of municipal and other wastewater discharges, 2) the reduction of CSO impacts through appropriate control strategies, 3) implementation and compliance with Phase II Stormwater permit program, and 4) continued support of a vessel No Discharge Zone in the Hudson. (DEC/HREP and DEC/DOW, BWAM, May 2008)

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#### Segment Description

This segment includes the waters of the Hudson from light no. 72 off the south end of Houghtaling Island, to the Troy Dam. The size of the estuary area is taken from NYSDEC GIS and includes river and tidal flats, and tidal tribs. (equal to 5% of total area).

# Saw Kill and tribs ( 1301-0085)

NoKnownImpct

## Waterbody Location Information

Revised: 12/12/2007

**Water Index No:** H-158  
**Hydro Unit Code:** 02020006/220      **Str Class:** B(T)  
**Waterbody Type:** River  
**Waterbody Size:** 54.8 Miles  
**Seg Description:** entire stream and tribs

**Drain Basin:** Lower Hudson River  
Middle Hudson River  
**Reg/County:** 3/Dutchess Co. (14)  
**Quad Map:** SAUGERTIES (M-25-4)

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

## Further Details

### Water Quality Sampling

A biological (macroinvertebrate) assessment of Saw Kill Creek in Annandale-on-Hudson (below falls) was conducted in 1998. Sampling results indicated slightly impacted water quality conditions. The fauna was dominated by facultative filter-feeding caddisflies and Impact Source Determination indicated nonpoint source nutrient enrichment and/or pesticides as probable sources of impact. 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)

### Segment Description

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





recreational suitability of the lake to be less favorable in recent years. The recreational suitability of the lake had been described most frequently as "excellent" to "slightly" impacted, but in 2005 and 2006 the assessments have reflected "slightly" to "substantially" impacts to recreational use. The lake itself is most often described as having "definite algal greenness," an assessment that is somewhat less favorable than suggested by measured water quality characteristics. Assessments have noted that aquatic plants regularly grow to the lake surface, and are at time quite dense. Aquatic plants growth is thought to be a primary reason for the reported impacts to recreational uses. (DEC/DOW, BWAM/CSLAP, February 2007)

#### Lake Uses

This lake waterbody is designated class B, suitable for use as a public bathing beach, general recreation and aquatic life support, but not as a water supply. 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 public bathing use is generally the responsibility of state and/or local health departments.



# Sleepy Hollow Lake ( 1301-0059)

# Impaired Seg

## Waterbody Location Information

Revised: 07/15/2008

<b>Water Index No:</b>	H-202-P8f	<b>Drain Basin:</b>	Lower Hudson River
<b>Hydro Unit Code:</b>	02020006/130	<b>Str Class:</b>	A
<b>Waterbody Type:</b>	Lake	<b>Reg/County:</b>	Middle Hudson River 4/Greene Co. (20)
<b>Waterbody Size:</b>	257.9 Acres	<b>Quad Map:</b>	HUDSON NORTH (L-25-3)
<b>Seg Description:</b>	entire lake		

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

Use(s) Impacted	Severity	Problem Documentation
Water Supply	Threatened	Suspected
PUBLIC BATHING	Impaired	Known
Recreation	Stressed	Suspected
Aesthetics	Stressed	Suspected

### Type of Pollutant(s)

Known: ALGAL/WEED GROWTH, SILT/SEDIMENT  
Suspected: Nutrients  
Possible: Pesticides

### Source(s) of Pollutant(s)

Known: - - -  
Suspected: STREAMBANK EROSION, URBAN/STORM RUNOFF, Agriculture  
Possible: - - -

## Resolution/Management Information

<b>Issue Resolvability:</b>	1 (Needs Verification/Study (see STATUS))	
<b>Verification Status:</b>	4 (Source Identified, Strategy Needed)	
<b>Lead Agency/Office:</b>	DOW/WQMS	<b>Resolution Potential:</b> Medium
<b>TMDL/303d Status:</b>	1 (Individual Waterbody Impairment Requiring a TMDL)	

## Further Details

### Overview

Public bathing use in Sleepy Hollow Lake is impaired and other recreational uses impacted by excessive aquatic weeds and algal growth, elevated turbidity and silt/sediment loadings from various nonpoint sources. Water supply use of the reservoir is also considered to be threatened due to the elevated turbidity. Moderate nutrient levels in the lake also result in a potential for the formation of disinfection by-products when water is treated with chlorine for public water use.

### Water Quality Sampling

Sleepy Hollow Lake was sampled as part of the NYSDEC Lake Classification and Inventory (LCI) Program in 2004. The results of this sampling indicate that the lake is best characterized as mesoeutrophic, or moderately highly productive. Phosphorus levels in the lake occasionally exceed the state guidance values indicating impacted/stressed recreational uses. Corresponding transparency measurements typically fail to meet what is the recommended minimum for swimming beaches. Chlorophyll measurements in the lake were found to be in a range indicative of mesotrophic conditions. (DEC/DOW, BWAM/CSLAP, October 2005)

### Lake Uses

This lake waterbody is designated class A, 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.

#### NYSDOH Source Waters Assessment

##### The NYSDOH Source Waters Assessment

Program (SWAP) 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. These reports do not address the safety or quality of treated finished potable tap water. This water supply reservoir provides water to the Sleepy Hollow Water Company and is an alternate supply for the Village of Athens. This assessment found an elevated susceptibility to contamination for this source of drinking water. The amount of pasture in the assessment area results in a high potential for contamination. There is also a moderate density of sanitary wastewater discharges which results in elevated susceptibility for all contaminate categories. However, the total amount of wastewater discharged to surface water in this assessment area is not high enough to further raise the potential for contamination. There are also noteworthy contamination potential associated with other discrete contaminant sources, such as chemical storage, hazardous waste sites and other sources. Finally, it should be noted that hydrologic characteristics (e.g. basin shape and flushing rates) generally make reservoirs highly sensitive to existing and new sources of phosphorus and microbial contamination. (NYSDOH, Source Water Assessment Program, 2005)

##### Source Assessment

Various nonpoint sources are the most significant contributor of pollutant loadings the lake. Storm runoff from increasing areas of residential development and streambank erosion contribute to siltation and increased sediment loads. Agricultural activity (dairy, cropland) in the watershed is another source of sediment and nutrient loads to the lake. There is also some concern about pesticides from former orchard lands in the watershed. Water and sewer districts serve the Sleepy Hollow community. (DEC/DOW, Region 4, 1999)

##### Water Quality Management

The Sleepy Hollow Lake Association directs lake watershed management activities in cooperation with the Greene County SWCD.

##### Section 303(d) Listing

Sleepy Hollow Lake is included on the NYS 2008 Section 303(d) List of Impaired Waters. The lake is included on Part 1 of the List as a Waterbody Requiring TMDL Development (or other strategy to attain water quality standards). The lake is currently listed as being impaired by silt/sediment. This waterbody was first listed on the 2002 Section 303(d) List. (DEC/DOW, BWAM/WQAS, June 2008)