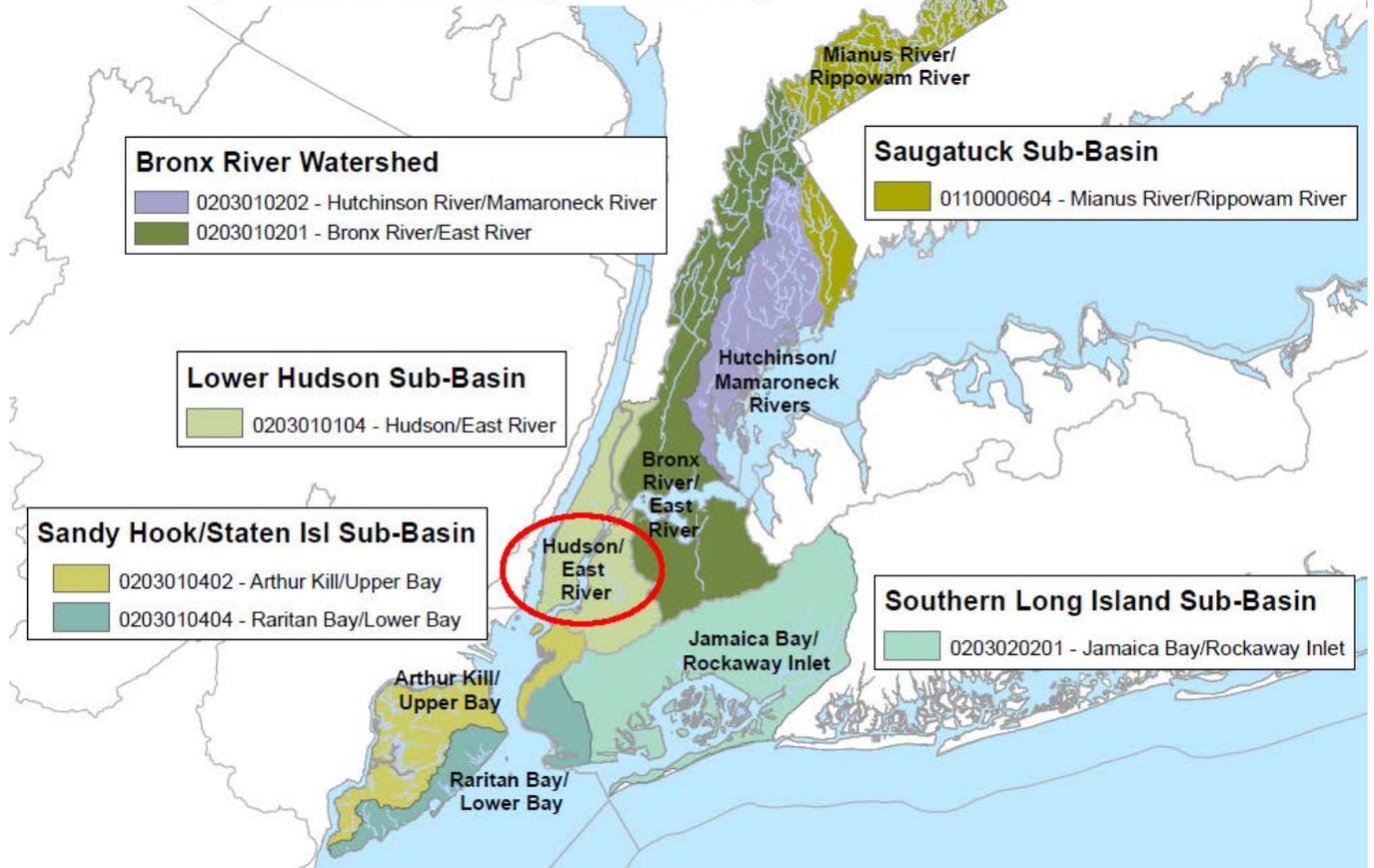


Atlantic Ocean/Long Island Sound (New York City Waters)



Saw Mill River/Hudson River Watershed (portion) (0203010104)

Water Index Number	Waterbody Segment	Assessment Category
(MW2.1) ER (portion 1)	East River, Lower (1702-0011)	Impaired Seg
(MW2.1) ER-LI- 4	Newtown Creek and tidal tribs (1702-0002)	Impaired Seg
(MW2.2) ER..P1029	The Lake in Central Park (1702-0105)	MinorImpacts
(MW2.2) ER..P1033	Central Park Reservoir (1702-0104)	MinorImpacts
(MW2.2) ER..P1036	Harlem Meer (1702-0103)	MinorImpacts
(MW2.3) ER-1	Harlem River (1702-0004)	Impaired Seg
(MW2.3) ER-1-5	Tibbetts Brook and tribs (1702-0061)	MinorImpacts
(MW2.3) ER-1-5-P1042	Jerome Park Reservoir (1702-0102)	UnAssessed
(MW2.3) ER-1-5-P1043	Van Cortlandt Lake (1702-0008)	Impaired Seg

East River, Lower (1702-0011)

Impaired Seg

Waterbody Location Information

Revised: 06/21/2011

Water Index No: (MW2.1) ER (portion 1) **Drain Basin:** Atlantic-Long Island Sound
Hydro Unit Code: 02030201/010 **Str Class:** I Northern Long Island
Waterbody Type: Estuary **Reg/County:** 2/New York Co. (31) ...
Waterbody Size: 2273.3 Acres **Quad Map:** CENTRAL PARK (R-25-4) ...
Seg Description: river from Battery to Hells Gate

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
FISH CONSUMPTION	Impaired	Known
AQUATIC LIFE	Impaired	Known
RECREATION	Impaired	Known
Aesthetics	Stressed	Known

Type of Pollutant(s)

Known: AESTHETICS (floatables), D.O./OXYGEN DEMAND, PRIORITY ORGANICS (PCBs), Nutrients (nitrogen)
Suspected: Pathogens
Possible: - - -

Source(s) of Pollutant(s)

Known: COMB. SEWER OVERFLOW, MUNICIPAL (Newtown Creek WWTP), OTHER SANITARY DISCH, TOX/CONTAM. SEDIMENT, URBAN/STORM RUNOFF, Industrial
Suspected: - - -
Possible: - - -

Resolution/Management Information

Issue Resolvability: 3 (Strategy Being Implemented)
Verification Status: 5 (Management Strategy has been Developed)
Lead Agency/Office: ext/NYC **Resolution Potential:** High
TMDL/303d Status: 2b,4a,4b (Multiple Segment/Categorical Water, Fish Consumption, more)

Further Details

Overview

Aquatic life, fish consumption and recreational uses in this portion of the East River are known to be impaired due to low dissolved oxygen, PCBs and other toxics, floatables, and other pollutants from CSOs, municipal discharges of nutrients, urban stormwater runoff, contaminated sediment and illegal sanitary connections to storm sewers. Low dissolved oxygen levels periodically fail to meet applicable water quality standards along this reach. Fish consumption is restricted by health advisories in place for the waterway.

Water Quality Sampling

New York City Department of Environmental Protection (NYCDEP) has operated a water quality monitoring program since 1909. The NYCDEP Harbor Survey Program uses primarily four indicators of water quality - fecal

coliform bacteria, dissolved oxygen, chlorophyll a and water clarity. Significant improvements have been noted in all of these parameters since the 1970s and 80s. These improvements have coincided with considerable upgrades to the City's wastewater treatment facilities. Sites along the Lower East River are currently sampled as part of the Inner Harbor area of the network. (NYCDEP, Harbor Survey, 2009)

Water quality evaluations have also been conducted through the NYCDEP City-Wide Long-Term CSO Control Planning Project, including the East River. The results of this sampling conducted indicate that the impact of CSOs, wastewater discharges, urban stormwater runoff and dry weather sanitary flows cause periodic low dissolved oxygen levels that do not meet water quality standards. Pathogen levels in East River typically meet applicable criteria. (NYCDEP, City-Wide Long-Term CSO Control Planning Program, June 2011)

An extensive effort to monitoring toxic substances in New York Harbor waters was undertaken in the late 1990s. The Contaminant Assessment and Reduction Program (CARP) effort was a response to the implementation of more restrictive guidelines for the disposal of dredged materials from New York Harbor. These guidelines eliminated ocean disposal as a viable option for much of the dredged material related to port maintenance. As a result, the assessment and reduction of contaminated sediments became a critical priority for the Harbor. Strong regional multi-agency support and a \$30 million commitment - primarily from the NYNJ Port Authority - led to the formation of CARP in 1997. The objectives of the effort were to identify sources of contaminants to the harbor/estuary, establish baseline levels of contaminants in waters, fish tissue and sediments, and evaluate future conditions under various contaminant reduction scenarios. The monitoring component which began in 1999 and continued through 2001 provided input to contaminant fate and transport models and guided trackdown and remediation and restoration efforts. (DEC/DOW, BWAM/Sediment Assessment, February 2010)

Fish Consumption Advisories

NYS DOH has issued health advisories recommending limiting consumption of no American eel, gizzard shad or crab hepatopancreas and no more than one meal per month of Atlantic needlefish, bluefish or rainbow smelt, striped bass or white perch from these waters due to possible elevated levels of PCBs. The source of this contamination is considered to be contaminated sediment, the result of past industrial discharges. The advisory for this waterbody was first issued prior to 1998-99. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009-10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Shellfishing Use

Shellfish harvesting for consumption purposes in this portion of the East River (Shellfish Growing Area #72) is designated as uncertified for the taking of shellfish for use as food. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. This designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. Certified/uncertified shellfish area designations are revised regularly; for detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Although this waterbody is monitored through the shellfish program, its class I designation does not include shellfishing as an appropriate use so these waters are not assessed for support of shellfishing use. However, based on the shellfishing restrictions, other recreational uses are considered to be impacts/impaired. (DEC/DFWMR, BMR and DEC/DOW, BWAM/WQAS, July 2010)

Water Quality Management (NYC CSO Order)

Combined sewer overflows (CSOs) represent a significant source of pollutants to New York Harbor waters and tributaries. In 2005 NYSDEC issued a Consent Order requiring New York City to address the over 400 CSOs of the NYCDEP municipal wastewater system. The Order follows the two-phased approach identified in the USEPA CSO

Control Policy which calls for Nine Minimum Control Measures to minimize overflows and CSO pollution and the development of Long Term Control Plans to address water quality issues not fully addressed by the nine minimum controls. As a result NYCDEP is undertaking projects totaling of \$2 billion to capture about 75% of wet-weather overflows. The Order also requires NYCDEP to develop 11 Waterbody/Watershed Facility Plans (WWFPs) to identify remaining water quality issues, evaluate CSOs contributions to these problems and form the basis of subsequent Long Term Control Plans (LTCPs) to bring these waters into compliance with water quality standards. The East River is included among East River and Open Waters WWFPs. The Order requires post-construction monitoring to verify modeling projections and actual water quality compliance, inform decisions regarding SPDES permit renewal at five-year intervals, and evaluate future management actions, including additional CSOs controls if necessary. (DEC/DOW, BWC, August 2010)

Water Quality Management (East River/Open Waters WWFP)

The current proposed East River/Open Waters Waterbody/Watershed Facility Plan (WWFP) to address water quality pollution looks at a wide range of CSO control alternatives. The plan includes alternatives projected to cost \$140 million and include 1) regulator improvements 2) continuation of ongoing upgrades and a number of NYC WPCP, and 3) an enhanced Floatable Skimming Program. Construction to implement these components of the plan - which are in addition to other adjoining watershed and city-wide initiatives - would be conducted concurrently with projects in other WWFPs throughout the New York Harbor area. A final WWFP for the East River/Open Waters has not yet been approved by NYSDEC. (NYCDEP, August 2011)

Water Quality Management (NYC Nitrogen Consent Judgment and Newtown Creek Consent Judgment)

There are six wastewater treatment plants that discharge treated effluent to the East River. The nutrient or organic loads from the effluent contribute to eutrophic conditions in the waterbody, resulting in low dissolved oxygen levels. The six plants are: Newtown Creek, Redhook, Wards Island, Bowery Bay, Tallman Island, and Hunts Point. Upgrades to reduce nutrient or organic loads are being performed at five of the six plants under two consent judgments.

Under the Newtown Creek Consent Judgment, the City is required to upgrade the treatment plant to secondary treatment levels. Under the Nitrogen Consent Judgment, the City is required to install new nitrogen control technologies at the four upper East River plants: Wards Island, Bowery Bay, Tallman Island, and Hunts Point. Upgrades will become operational starting in 2010 and all improvements will be completed by 2017, per the Long Island Sound TMDL. (DEC/DOW, BWC/NYCPCS, August 2011)

NY/NJ Harbor Estuary Program

These waters are included within the core area of the New York/New Jersey Harbor Estuary Program (HEP). The HEP is a National Estuary Program authorized in 1987 by the U.S. Environmental Protection Agency. The program is a continuing multi-agency effort to develop and implement a plan to protect, conserve, and restore the estuary. Participants in the program include representatives from local, state, and federal environmental agencies, scientists, citizens, business interests, environmentalists, and others. (DEC/DOW, BWAM, December 2010)

Section 303(d) Listing

This portion of the East River is included on the NYS 2010 Section 303(d) List of Impaired Waters due to PCBs other toxics. The waterbody is included on Part 2b of the List as a fish consumption water. Impairments due to low dissolved oxygen and floatables are being addressed through NYC CSO and floatables control measures and the Long Island Sound Nitrogen TMDL, respectively, and as a result are not listed. This waterbody was first listed on the 2002 Section 303(d) List. (DEC/DOW, BWAM/WQAS, December 2010)

Segment Description

This segment includes the river from the Battery to Hells Gate.

Newtown Creek and tidal tribs (1702-0002)

Impaired Seg

Waterbody Location Information

Revised: 06/20/2011

Water Index No: (MW2.1) ER-LI- 4
Hydro Unit Code: 02030201/010 **Str Class:** SD
Waterbody Type: Estuary
Waterbody Size: 162.2 Acres
Seg Description: entire tidal reach and tribs

Drain Basin: Atlantic-Long Island Sound
Reg/County: 2/Queens Co. (41) ...
Quad Map: BROOKLYN (S-25-1)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Fish Consumption	Stressed	Suspected
AQUATIC LIFE	Precluded	Known
RECREATION	Impaired	Known
Aesthetics	Stressed	Known

Type of Pollutant(s)

Known: AESTHETICS (floatables), D.O./OXYGEN DEMAND, Nutrients, Oil and Grease, Silt/Sediment
Suspected: Metals, Priority Organics, Pathogens
Possible: - - -

Source(s) of Pollutant(s)

Known: COMB. SEWER OVERFLOW, OTHER SANITARY DISCH, TOX/CONTAM. SEDIMENT, URBAN/STORM RUNOFF, Industrial
Suspected: Other Source (boat pollution)
Possible: - - -

Resolution/Management Information

Issue Resolvability: 3 (Strategy Being Implemented)
Verification Status: 5 (Management Strategy has been Developed)
Lead Agency/Office: ext/NYC
TMDL/303d Status: 3c,4b (Waterbody Being Addressed by Other Means, more)

Resolution Potential: High

Further Details

Overview

Aquatic life support and recreational uses in Newtown Creek are known to be impaired due to low dissolved oxygen, floatables and other pollutants from CSOs, municipal wastewater treatment plant (Newtown WPCF) discharges, urban stormwater discharges, illegal sanitary connections to storm sewers. Pathogens levels are also high and would impact any recreational uses as well, although there are not specific pathogen standards the apply to Class SD waters. Dissolved oxygen levels near zero have been reported during the summer; the anoxic condition producing hydrogen sulfide and causing odor problems. Heavy metals and other toxics have accumulated in the sediments. The canal is also affected by the New York Harbor area fish consumption advisories. Fish consumption is considered to be stressed, due to advisories listed in the waters of Lower New York Bay, to which the canal is tributary.

Water Quality Sampling

New York City Department of Environmental Protection (NYCDEP) has operated a water quality monitoring program since 1909. The NYCDEP Harbor Survey Program uses primarily four indicators of water quality - fecal coliform bacteria, dissolved oxygen, chlorophyll a and water clarity. Significant improvements have been noted in all of these parameters since the 1970s and 80s. These improvements have coincided with considerable upgrades to the City's wastewater treatment facilities. Sites along Newtown Creek are currently sampled as part of the network. (NYCDEP, Harbor Survey, 2009)

Water quality evaluations have also been conducted through the NYCDEP City-Wide Long-Term CSO Control Planning Project, including the Gowanus Canal Waterbody/Watershed Facility Plan Report. Existing water quality monitoring data in conjunction with modeling results indicate that the impact of CSOs, municipal discharges, stormwater discharges and dry weather sanitary flows cause low dissolved oxygen that routinely fail to meet applicable standards and often reach anoxic levels near the head of the waterway. The percent attainment of dissolved oxygen standards in Newtown Creek ranges from 75% near the mouth, down to about only 20% of the time near the head end. Pathogen levels in the creek are also typically high, particularly during wet weather. (NYCDEP, City-Wide Long-Term CSO Control Planning Program, June 2011)

Fish Consumption Advisories

Fish consumption in this segment is also restricted as a result of a health advisory for East River that extends to all tribs up to the first impassable barrier. This NYS DOH health advisory recommends eating no gizzard shad, American eel or crab hepatopancreas and no more than one meal per month of white perch, Atlantic needlefish, bluefish, rainbow smelt or striped bass from the East River due to elevated levels of PCBs, dioxins, cadmium. The source of this contamination is considered to be contaminated sediment, the result of past industrial discharges. The advisory for this waterbody was first issued prior to 1998-99. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009-10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Greenpoint Oil Spill

Additional contamination to Newtown Creek is a result of a large oil spill along the creek in the Greenpoint area of Brooklyn. A large oil slick was observed in Newtown Creek in 1978. Subsequent investigation determined the source of the oil was several distinct underground oil plumes. These plumes originated from leaks at a number of oil refineries in the area over a period of several decades. The actual size of the spill continues to be debated, however in a 2007 report the EPA estimated size of the contaminated area to 100 acres (0.40 km²) and the estimated spillage volume to 30 million gallons, three times larger than the Exxon Valdez spill. Cleanup efforts, including a series of recovery wells and groundwater treatment systems, continue. Enforcement actions and litigation under the federal Resource Conservation and Recovery Act (RCRA), the federal Clean Water Act and various state statutes against current and former owners of the site are also on-going. (DEC/DER, March 2011)

Water Quality Management (NYC CSO Order)

Combined sewer overflows (CSOs) represent a significant source of pollutants to New York Harbor waters and tributaries. In 2005 NYSDEC issued a Consent Order requiring New York City to address the over 400 CSOs of the NYCDEP municipal wastewater system. The Order follows the two-phased approach identified in the USEPA CSO Control Policy which calls for Nine Minimum Control Measures to minimize overflows and CSO pollution and the development of Long Term Control Plans to address water quality issues not fully addressed by the nine minimum controls. As a result NYCDEP is undertaking projects totaling of \$2 billion to capture about 75% of wet-weather overflows. The Order also requires NYCDEP to develop 11 Waterbody/Watershed Facility Plans (WWFPs) to identify remaining water quality issues, evaluate CSOs contributions to these problems and form the basis of subsequent Long Term Control Plans (LTCPs) to bring these waters into compliance with water quality standards. Newtown Creek is included among the eleven WWFPs. The Order requires post-construction monitoring to verify modeling projections and actual water quality compliance, inform decisions regarding SPDES permit renewal at five-

year intervals, and evaluate future management actions, including additional CSOs controls if necessary. (DEC/DOW, BWC, August 2010)

Water Quality Management (NYC Nitrogen Consent Judgment and Newtown Creek Consent Judgment)

There are six wastewater treatment plants that discharge treated effluent to the East River. The nutrient or organic loads from the effluent contribute to eutrophic conditions in the waterbody, resulting in low dissolved oxygen levels. The six plants are: Newtown Creek, Redhook, Wards Island, Bowery Bay, Tallman Island, and Hunts Point. Upgrades to reduce nutrient or organic loads are being performed at five of the six plants under two consent judgments.

Under the Newtown Creek Consent Judgment, the City is required to upgrade the treatment plant to secondary treatment levels. Under the Nitrogen Consent Judgment, the City is required to install new nitrogen control technologies at the four upper East River plants: Wards Island, Bowery Bay, Tallman Island, and Hunts Point. Upgrades will become operational starting in 2010 and all improvements will be completed by 2017, per the Long Island Sound TMDL. (DEC/DOW, BWC/NYCPCS, August 2011)

Water Quality Management (Newtown Creek WWFP)

The proposed Waterbody/Watershed Facility Plan (WWFP) to address water quality pollution in Newtown Creek looks at a wide range of CSO control alternatives. The plan also recognizes the need for an adaptive management strategy that monitors benefits of various alternatives after they are in place and allows for additional actions may be required to fully attain water quality standards. The current plan alternatives are projected to cost \$231 million and include 1) continued operation of the Brooklyn Pumping Station to increase wet weather flow to WWTPs, 2) installation of bending weirs and regulator modifications to reduce CSO discharge volume, 3) floatables controls at the 4 largest CSOs (Dutch Kills, Maspeth Creek, East Branch and English Kills), 4) additional in-stream aeration to increase minimum dissolved oxygen in the upper creek and tribs. Construction to implement these components of the plan - which are in addition to other adjoining watershed and city-wide initiatives - is scheduled to be continue through 2019. The proposed plan is under review but has not yet been approved by NYSDEC. (NYCDEP, August March 2011)

NY/NJ Harbor Estuary Program

These waters are included within the core area of the New York/New Jersey Harbor Estuary Program (HEP). The HEP is a National Estuary Program authorized in 1987 by the U.S. Environmental Protection Agency. The program is a continuing multi-agency effort to develop and implement a plan to protect, conserve, and restore the estuary. Participants in the program include representatives from local, state, and federal environmental agencies, scientists, citizens, business interests, environmentalists, and others. (DEC/DOW, BWAM, December 2010)

Section 303(d) Listing

Newtown Creek is included on the NYS 2010 Section 303(d) List of Impaired Waters due to low dissolved oxygen. The waterbody is included on Part 3c of the List as an impaired water for which TMDL development may be deferred pending the implementation/evaluation of other restoration measures. These measures are outlined in CSO plans and other strategies contained within the NYC CSO Order on Consent. The creek is also assessed as impaired by floatables and odors; however these impairments do not resulting in Section 303(d) Listings because development of the TMDL is not necessary. This waterbody was first listed on the 1998 Section 303(d) List. (DEC/DOW, BWAM/WQAS, December 2010)

Segment Description

This segment includes the entire Newtown Creek and tribs, including Whale Creek (-2), Dutch Kills (-3), Maspeth Creek (-7), East Branch (-8) and English Kills (Upper Newtown Creek).

The Lake in Central Park (1702-0105)

MinorImpacts

Waterbody Location Information

Revised: 12/30/2010

Water Index No: (MW2.2) ER..P1029
Hydro Unit Code: 02030102/180 **Str Class:** B
Waterbody Type: Lake
Waterbody Size: 14.7 Acres
Seg Description: entire lake

Drain Basin: Atlantic-Long Island Sound
Long Isl Sound/Bronx
Reg/County: 2/New York Co. (31)
Quad Map: CENTRAL PARK (R-25-4)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Recreation	Stressed	Known
Aesthetics	Stressed	Known

Type of Pollutant(s)

Known: ALGAL/WEED GROWTH (vegetation, algal blooms)
Suspected: NUTRIENTS
Possible: Pathogens

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF
Suspected: ---
Possible: ---

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 4 (Source Identified, Strategy Needed)
Lead Agency/Office: ext/NYC
TMDL/303d Status: n/a

Resolution Potential: Medium

Further Details

Overview

Recreational uses and aesthetics of The Lake in Central Park are limited by excessive aquatic weed growth and algal blooms. Stormwater and urban runoff carry nutrients to the lake which support the weed/algal growth. Eventual die-off results in odors and other aesthetic impacts, typically in late summer.

Segment Description

This segment includes the total area of The Lake (P1029), as well as The Pond (P1027), Conservatory Water (P1028), and Turtle Pond (P1031). These waters are within the Lower East River and Hudson River water/sewersheds. These lakes are designated Class B. The Pond is assumed to be Class B.

Central Park Reservoir (1702-0104)

MinorImpacts

Waterbody Location Information

Revised: 12/30/2010

Water Index No: (MW2.2) ER..P1033
Hydro Unit Code: 02030102/180 **Str Class:** AA
Waterbody Type: Lake(R)
Waterbody Size: 95.5 Acres
Seg Description: entire lake

Drain Basin: Atlantic-Long Island Sound
Long Isl Sound/Bronx
Reg/County: 2/New York Co. (31)
Quad Map: ()

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Water Supply	Threatened	Known
Recreation	Stressed	Known

Type of Pollutant(s)

Known: ---
Suspected: ALGAL/WEED GROWTH, NUTRIENTS
Possible: ---

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF
Suspected: ---
Possible: ---

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 2 (Problem Verified, Cause Unknown)
Lead Agency/Office: ext/NYC
TMDL/303d Status: n/a

Resolution Potential: Medium

Further Details

Overview

Drinking water supply, recreational uses in The Reservoir in Central Park are thought to be stressed/threatened by excessive aquatic weed growth and algal blooms. Stormwater and urban runoff carry nutrients to the lake which support the weed/algal growth. Eventual die-off results in odors and other aesthetic impacts, typically in late summer.

Segment Description

This segment includes the total area of The Reservoir in Central Park (P1033). The waters of this lake is designated Class AA.

Harlem Meer (1702-0103)

MinorImpacts

Waterbody Location Information

Revised: 12/30/2010

Water Index No: (MW2.2) ER..P1036
Hydro Unit Code: 02030102/180 **Str Class:** B
Waterbody Type: Lake
Waterbody Size: 9.7 Acres
Seg Description: entire lake

Drain Basin: Atlantic-Long Island Sound
Long Isl Sound/Bronx
Reg/County: 2/New York Co. (31)
Quad Map: CENTRAL PARK (R-25-4)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
Recreation	Stressed	Known
Aesthetics	Stressed	Known

Type of Pollutant(s)

Known: ALGAL/WEED GROWTH (vegetation, algal blooms)
Suspected: NUTRIENTS
Possible: Pathogens

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF
Suspected: ---
Possible: ---

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 4 (Source Identified, Strategy Needed)
Lead Agency/Office: ext/NYC
TMDL/303d Status: n/a

Resolution Potential: Medium

Further Details

Overview

Recreational uses and aesthetics of Harlem Meer are limited by excessive aquatic weed growth and algal blooms. Stormwater and urban runoff carry nutrients to the reservoir which support the weed/algal growth. Eventual die-off results in odors and other aesthetic impacts, typically in late summer. (DEC/DOW and DFWMR, Region 2, 2008)

Segment Description

This segment includes the total area of Harlem Meer (P1036), as well as The Loch (P1035) and The Pool (P1034). These waters are within the Harlem River water/sewershed. These lakes are designated Class B.

Harlem River (1702-0004)

Impaired Seg

Waterbody Location Information

Revised: 06/21/2011

Water Index No: (MW2.3) ER-1
Hydro Unit Code: 02030102/150 **Str Class:** I
Waterbody Type: Estuary
Waterbody Size: 511.6 Acres
Seg Description: entire river, from East River to Hudson River

Drain Basin: Atlantic-Long Island Sound
Long Isl Sound/Bronx
Reg/County: 2/New York Co. (31) ...
Quad Map: CENTRAL PARK (R-25-4) ...

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
FISH CONSUMPTION	Precluded	Known
AQUATIC LIFE	Impaired	Known
RECREATION	Impaired	Known
Aesthetics	Stressed	Known

Type of Pollutant(s)

Known: AESTHETICS (floatables), D.O./OXYGEN DEMAND, PRIORITY ORGANICS (PCBs), Nutrients (nitrogen)
Suspected: Pathogens
Possible: - - -

Source(s) of Pollutant(s)

Known: COMB. SEWER OVERFLOW, OTHER SANITARY DISCH, TOX/CONTAM. SEDIMENT, URBAN/STORM RUNOFF
Suspected: Industrial, Municipal (Wards Island WPCF)
Possible: - - -

Resolution/Management Information

Issue Resolvability: 3 (Strategy Being Implemented)
Verification Status: 5 (Management Strategy has been Developed)
Lead Agency/Office: ext/NYC **Resolution Potential:** High
TMDL/303d Status: 2b,4b (Multiple Segment/Categorical Water, Fish Consumption, more)

Further Details

Overview

Aquatic life, fish consumption and recreational uses in the Harlem River are known to be impaired due to low dissolved oxygen, PCBs and other toxics, floatables, and other pollutants from CSOs, municipal discharges of nutrients, urban stormwater runoff, contaminated sediment and illegal sanitary connections to storm sewers. Low dissolved oxygen levels periodically fail to meet applicable water quality standards along this reach. Pathogens results are occasionally high, but most recent NYC Harbor Survey data show that the geometric mean standards are being met. Fish consumption is restricted by health advisories in place for the waterway.

Water Quality Sampling

New York City Department of Environmental Protection (NYCDEP) has operated a water quality monitoring program since 1909. The NYCDEP Harbor Survey Program uses primarily four indicators of water quality - fecal coliform bacteria, dissolved oxygen, chlorophyll a and water clarity. Significant improvements have been noted in all of these parameters since the 1970s and 80s. These improvements have coincided with considerable upgrades to the City's wastewater treatment facilities. A sites along the Harlem River is currently sampled as part of the Upper East River-Western Long Island Sound area of the network. (NYCDEP, Harbor Survey, 2009)

Water quality evaluations have also been conducted through the NYCDEP City-Wide Long-Term CSO Control Planning Project, including the Harlem River. The results of this sampling conducted indicate that the impact of CSOs, wastewater discharges, urban stormwater runoff and dry weather sanitary flows cause periodic low dissolved oxygen levels that do not meet water quality standards. Pathogen levels in Harlem River typically meet applicable criteria. (NYCDEP, City-Wide Long-Term CSO Control Planning Program, June 2011)

An extensive effort to monitoring toxic substances in New York Harbor waters was undertaken in the late 1990s. The Contaminant Assessment and Reduction Program (CARP) effort was a response to the implementation of more restrictive guidelines for the disposal of dredged materials from New York Harbor. These guidelines eliminated ocean disposal as a viable option for much of the dredged material related to port maintenance. As a result, the assessment and reduction of contaminated sediments became a critical priority for the Harbor. Strong regional multi-agency support and a \$30 million commitment - primarily from the NYNJ Port Authority - led to the formation of CARP in 1997. The objectives of the effort were to identify sources of contaminants to the harbor/estuary, establish baseline levels of contaminants in waters, fish tissue and sediments, and evaluate future conditions under various contaminant reduction scenarios. The monitoring component which began in 1999 and continued through 2001 provided input to contaminant fate and transport models and guided trackdown and remediation and restoration efforts. (DEC/DOW, BWAM/Sediment Assessment, February 2010)

Fish Consumption Advisories

NYS DOH has issued health advisories recommending limiting consumption of no American eel, gizzard shad or crab hepatopancreas and no more than one meal per month of Atlantic needlefish, bluefish or rainbow smelt, striped bass or white perch from these waters due to possible elevated levels of PCBs. The source of this contamination is considered to be contaminated sediment, the result of past industrial discharges. The advisory for this waterbody was first issued prior to 1998-99. Health advisories regarding the consumption of fish are revised regularly; for the most current advisories, go to www.nyhealth.gov/environmental/outdoors/fish/fish.htm. (2009-10 NYS DOH Health Advisories and DEC/DFWMR, Habitat, January 2010)

Shellfishing Use

Shellfish harvesting for consumption purposes in this portion of the Sound (Shellfish Growing Area #72) is designated as uncertified for the taking of shellfish for use as food. Shellfish that grow in contaminated waters can accumulate disease-causing microorganisms (bacteria, viruses) that can be eaten with the shellfish. This designation is based on results of water quality monitoring and evaluation of data against New York State and National Shellfish Sanitation Program monitoring criteria for pathogens. Certified/uncertified shellfish area designations are revised regularly; for detailed descriptions of current designations, go to www.dec.ny.gov/regs/4014.html. (DEC/DFWMR, Region 1, July 2010)

Although this waterbody is monitored through the shellfish program, its class I designation does not include shellfishing as an appropriate use so these waters are not assessed for support of shellfishing use. However, based on the shellfishing restrictions, other recreational uses are considered to be impacts/impaired. (DEC/DFWMR, BMR and DEC/DOW, BWAM/WQAS, July 2010)

Water Quality Management (NYC CSO Order)

Combined sewer overflows (CSOs) represent a significant source of pollutants to New York Harbor waters and tributaries. In 2005 NYSDEC issued a Consent Order requiring New York City to address the over 400 CSOs of the NYCDEP municipal wastewater system. The Order follows the two-phased approach identified in the USEPA CSO Control Policy which calls for Nine Minimum Control Measures to minimize overflows and CSO pollution and the development of Long Term Control Plans to address water quality issues not fully addressed by the nine minimum controls. As a result NYCDEP is undertaking projects totaling of \$2 billion to capture about 75% of wet-weather overflows. The Order also requires NYCDEP to develop 11 Waterbody/Watershed Facility Plans (WWFPs) to identify remaining water quality issues, evaluate CSOs contributions to these problems and form the basis of subsequent Long Term Control Plans (LTCPs) to bring these waters into compliance with water quality standards. The Harlem River is included among East River and Open Waters WWFPs. The Order requires post-construction monitoring to verify modeling projections and actual water quality compliance, inform decisions regarding SPDES permit renewal at five-year intervals, and evaluate future management actions, including additional CSOs controls if necessary. (DEC/DOW, BWC, August 2010)

Water Quality Management (East River/Open Waters WWFP)

The current proposed East River/Open Waters Waterbody/Watershed Facility Plan (WWFP) to address water quality pollution looks at a wide range of CSO control alternatives. The plan oncludes alternatives projected to cost \$140 million and include 1) regulator improvements 2) continuation of ongoing upgrades and a number of NYC WPCP, and 3) an enhanced Floatable Skimming Program. Construction to implement these components of the plan - which are in addition to other adjoining watershed and city-wide initiatives - would be conducted concurrently with projects in other WWFPs throughout the New York Harbor area. A final WWFP for the East River/Open Waters has not yet been approved by NYSDEC. (NYCDEP, August 2011)

Water Quality Management (NYC Nitrogen Consent Judgment)

Since 2006, New York City has been under a Nitrogen Consent Judgment to reduce nitrogen loads associated with the discharge of treated effluent to the Long Island Sound and Upper East River. Under the current Consent Judgment, which was amended in 2011, the City must install new nitrogen control technologies at four wastewater treatment plants that discharge effluent to these waterbodies in order to reduce nitrogen loads in accordance with the Long Island Sound nitrogen TMDL. The treatment plants being upgraded are: Wards Island, Bowery Bay, Tallman Island, and Hunts Point. The first upgrades under the Consent Judgment will become operational starting in 2010 and all improvements required under the Consent Judgment will be completed by 2020. The requirements added to the amended Consent Judgment in 2011 are valued at \$115 million, of which \$15 million be used for marshland restoration. The \$115 million represents only a portion of the value of all the upgrades and related environmental benefit projects being executed under the Nitrogen Consent Judgment.

NY/NJ Harbor Estuary Program

These waters are included within the core area of the New York/New Jersey Harbor Estuary Program (HEP). The HEP is a National Estuary Program authorized in 1987 by the U.S. Environmental Protection Agency. The program is a continuing multi-agency effort to develop and implement a plan to protect, conserve, and restore the estuary. Participants in the program include representatives from local, state, and federal environmental agencies, scientists, citizens, business interests, environmentalists, and others. (DEC/DOW, BWAM, December 2010)

Section 303(d) Listing

The Harlem River is included on the NYS 2010 Section 303(d) List of Impaired Waters due to PCBs other toxics. The waterbody is included on Part 2b of the List as a fish consumption water. Impairments due to low dissolved oxygen and floatables are being addressed through NYC CSO and floatables control measures and the Long Island Sound Nitrogen TMDL, respectively, and as a result are not listed. This waterbody was first listed on the 2002 Section 303(d) List. (DEC/DOW, BWAM/WQAS, December 2010)

Segment Description

This segment includes the river between the East River and the Hudson River between Manhattan and The Bronx, and includes Little Hell Gate and Bronx Kill.

Tibbetts Brook and tribs (1702-0061)

MinorImpacts

Waterbody Location Information

Revised: 12/30/2010

Water Index No: (MW2.3) ER-1-5
Hydro Unit Code: 02030102/150 **Str Class:** B
Waterbody Type: River (Low Flow)
Waterbody Size: 0.9 Miles
Seg Description: entire stream and tribs

Drain Basin: Atlantic-Long Island Sound
Long Isl Sound/Bronx
Reg/County: 2/Bronx Co. (3) ...
Quad Map: YONKERS (R-25-1)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

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

Type of Pollutant(s)

Known: SILT/SEDIMENT, Aesthetics (floatables, odors)
Suspected: D.O./Oxygen Demand, Nutrients, Pathogens
Possible: - - -

Source(s) of Pollutant(s)

Known: URBAN/STORM RUNOFF
Suspected: Habitat Modification
Possible: On-Site/Septic Syst (illegal connections)

Resolution/Management Information

Issue Resolvability: 1 (Needs Verification/Study (see STATUS))
Verification Status: 4 (Source Identified, Strategy Needed)
Lead Agency/Office: ext/NYC
TMDL/303d Status: n/a

Resolution Potential: Medium

Further Details

Overview

Aquatic life support, recreational uses, and aesthetics in Tibbetts Brook are known to experience minor impacts due to various pollutants from urban stormwater runoff and habitat modification. Sewage inputs from unpermitted sources may also contribute to the impacts.

Water Quality Sampling

A biological (macroinvertebrate) assessment of Tibbetts Brook at 2 sites (Bronx and Yonkers) was conducted in 1998. The current speed at the downstream Bronx site was very slow, and the habitat was more that of a wetland than a stream. Sampling consisted of using the net to skim through the top layer of sediment. The benthic invertebrate fauna consisted mostly of midges, worms, fingernail clams, and sow bugs. Overall water quality was assessed as moderately impacted, although this assessment is considered tentative because stream criteria are applied to a wetland situation. The Yonkers site had adequate current speed, but the stream bottom was predominately sand gravel. The water had a slight grey tint, possibly reflecting sewage inputs. The benthic invertebrate fauna consisted

mostly of tolerant midges and worms, and had greatest similarity to streams affected by sewage or animal wastes. (DEC/DOW, BWAR/SBU, January 2000)

Source Assessment

Sewage inputs from the improper/illegal connections of household sanitary lines to storm sewers were previously identified as a problem, however Westchester County Health Department reports that known connections have been eliminated. Due to the tentative assessment and the subsequent elimination of illegal connections, aquatic life support is listed as stressed. (DEC/DOW, Region 2, January 2001)

Van Cortlandt Lake (1702-0008)

Impaired Seg

Waterbody Location Information

Revised: 04/11/2011

Water Index No: (MW2.3) ER-1-5-P1043
Hydro Unit Code: 02030102/150 **Str Class:** B
Waterbody Type: Lake
Waterbody Size: 15.8 Acres
Seg Description: entire lake

Drain Basin: Atlantic-Long Island Sound
Long Isl Sound/Bronx
Reg/County: 2/Bronx Co. (3)
Quad Map: YONKERS (R-25-1)

Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

Use(s) Impacted	Severity	Problem Documentation
PUBLIC BATHING	Impaired	Known
Fish Consumption	Stressed	Known
Aquatic Life	Stressed	Known
RECREATION	Impaired	Known
Aesthetics	Stressed	Known

Type of Pollutant(s)

Known: NUTRIENTS (phosphorus), Algal/Weed Growth (vegetation, algal blooms), Salts, Silt/Sediment
Suspected: Metals, Priority Organics
Possible: - - -

Source(s) of Pollutant(s)

Known: ROADBANK EROSION, URBAN/STORM RUNOFF
Suspected: Habitat Modification,
Possible: - - -

Resolution/Management Information

Issue Resolvability: 2 (Strategy Exists, Needs Funding/Resources)
Verification Status: 5 (Management Strategy has been Developed)
Lead Agency/Office: ext/NYC
TMDL/303d Status: 1 (Individual Waterbody Impairment Requiring a TMDL)

Resolution Potential: Medium

Further Details

Overview

Public bathing, other recreational uses and aesthetics of Van Cortlandt Lake are impaired by dense rooted aquatic vegetation and algal blooms related to high nutrient levels, silt/sedimentation, and other pollutants typical of urban runoff. Urban/stormwater runoff and highway drainage are sources of the problem. Recreational fishing in the lake is restricted to catch-and-release fishing. Aquatic life in the lake may be impaired by high levels of lead, mercury, DDD, total chlordane, and several polycyclic aromatic hydrocarbons (PAHs) in the sediments and stressed by high levels of sodium, chloride, and iron in the water column and elevated levels of arsenic, cadmium, chromium, nickel and total PCBs in the sediments. The aesthetics of the lake are stressed by high algal greenness and low water clarity.

Water Quality Sampling

Van Cortlandt Lake was sampled through the intensive (monthly sampling June to September) Lake Classification and Inventory Survey (LCI) program in 2009. During these sampling visits water quality conditions were evaluated through standard limnological indicators. In addition, a sediment sample was analyzed for contaminants. The lake was selected for inclusion for 2009 due to historic water quality issues at the lake. Van Cortlandt Lake can be characterized as eutrophic, or highly productive. The average phosphorus reading (TSI = 70, typical of eutrophic lakes) was higher than expected given the water clarity readings (TSI = 59, typical of eutrophic lakes) and the chlorophyll a readings (TSI= 56, typical of eutrophic lakes). These data suggest that phosphorus readings would have to be significantly reduced before seeing a discernible effect on water clarity and chlorophyll a (algae). This also indicates that phosphorus might not be limiting algae growth in the lake. The lake appeared to be typical of shallow, hardwater lakes in urbanized watersheds. Like most shallow lakes, Van Cortlandt Lake does not exhibit thermal stratification. Nitrogen and phosphorus levels were highly elevated, making it difficult to determine which nutrient is limiting. It is likely that phosphorus limits algae growth when phosphorus readings are below 50 parts per billion, but other factors, including nitrogen, may limit algae growth at higher nutrient levels. Chloride, sodium, and iron were also highly elevated, indicating significant impacts from stormwater runoff through developed areas. The composition of the aquatic plant community was found to be typical of other lakes in the region and no invasive plants species were found.

High levels of sodium, chloride and iron were found during all LCI sampling events; these levels may stress some aquatic life. A sediment sample analyzed for contaminants and toxicity revealed arsenic, cadmium, chromium, nickel and total PCBs levels to be above the Threshold Effect Concentration (the level below which are not expected to occur) and copper, lead, mercury, DDD, total chlordane, and several polycyclic aromatic hydrocarbons (PAHs) were detected above the Probable Effect Concentration (the level above which adverse effects are expected to occur). Sediment toxicity testing using Microtox® indicated moderate toxicity. This indicates that aquatic life is stressed. (DEC/DOW, BWAM/Toxicity Testing Unit and Sediment Assessment Unit, September 2009).

A fisheries survey was conducted in mid-April of 2009 that showed the lake does support a large number of yellow perch, bluegill, pumpkinseed and several large brown bullheads; however, the catch rate for largemouth bass was low compared to the five other New York City waterbodies surveyed. Possible reasons for this could be bioaccumulation of contaminants and/or high fishing pressure, although fishing is restricted in the lake to catch and release only. Seventy fish caught during the fisheries survey were sent to the US Fish and Wildlife Service's Lamar Fish Health Center for disease testing. All of the fish tested came back negative for fish pathogens. (DEC/DFWMR, Region 2 Bureau of Fisheries, 2009).

Water Quality Management

NYC Department of Parks and Recreation requested NYSDOT for funding to carry out the recommendations of the 1987 Section 314 Clean Lakes project diagnostic report. (The request was endorsed by the DEC Region 2.) The plan calls for dredging and rehabilitation of the Henry Hudson Lagoons (designed to capture sediment and other pollutants from upstream), the diversion of stormwater from the Major Deegan Expressway, and the use of existing wetlands to filter stormwater runoff. Starting in the fall of 2001, a restoration project was initiated at the lake to remove sediment from the lake bottom as well limiting sediment flowing into the lake via storm water inlets. (DEC/DOW, Region 2, 2001)

Previous discharges of raw sewage to Tibbetts Brook at McLean Avenue via illegal connections to storm sewers and other connection between sanitary and storm sewers were abated in the 1980s. However, some evidence of sewage inputs to the stream remain. (See Tibbetts Brook, Segment 1702-0061)

Section 303(d) Listing

Van Cortland Lake is included on the NYS 2010 Section 303(d) List of Impaired Waters. The lake is included on Part 1 of the List as an impaired waterbody requiring development of a TMDL to attain water quality standards for

phosphorus. This updated assessment suggests other pollutants may also be contributing to water quality problems. However additional monitoring and assessment is suggested to verify whether these pollutants are responsible for impairments to uses. (DEC/DOW, BWAM/WQAS, April 2010)

Segment Description

Van Cortlandt Lake is the largest freshwater lake in the Bronx. It is situated in Van Cortlandt Park near the golf course's club house. The lake is classified as a B water, supportive of contact recreation; however, shoreline catch and release fishing is the only permitted active use of the lake. Van Cortlandt Park includes a public golf course, hiking trails, and athletic fields, along with Van Cortlandt Lake. The lake is at the northern edge of the Bronx; the area around the Park is highly urbanized, although portions of the park itself are forested. More background information on the lake is available at <http://www.dec.ny.gov/outdoor/61807.html>.