

# INTERSTATE ENVIRONMENTAL COMMISSION

New York – New Jersey - Connecticut



**ANNUAL REPORT** *In Brief*

**2010**

# THE INTERSTATE ENVIRONMENTAL DISTRICT

## Classification of Waters

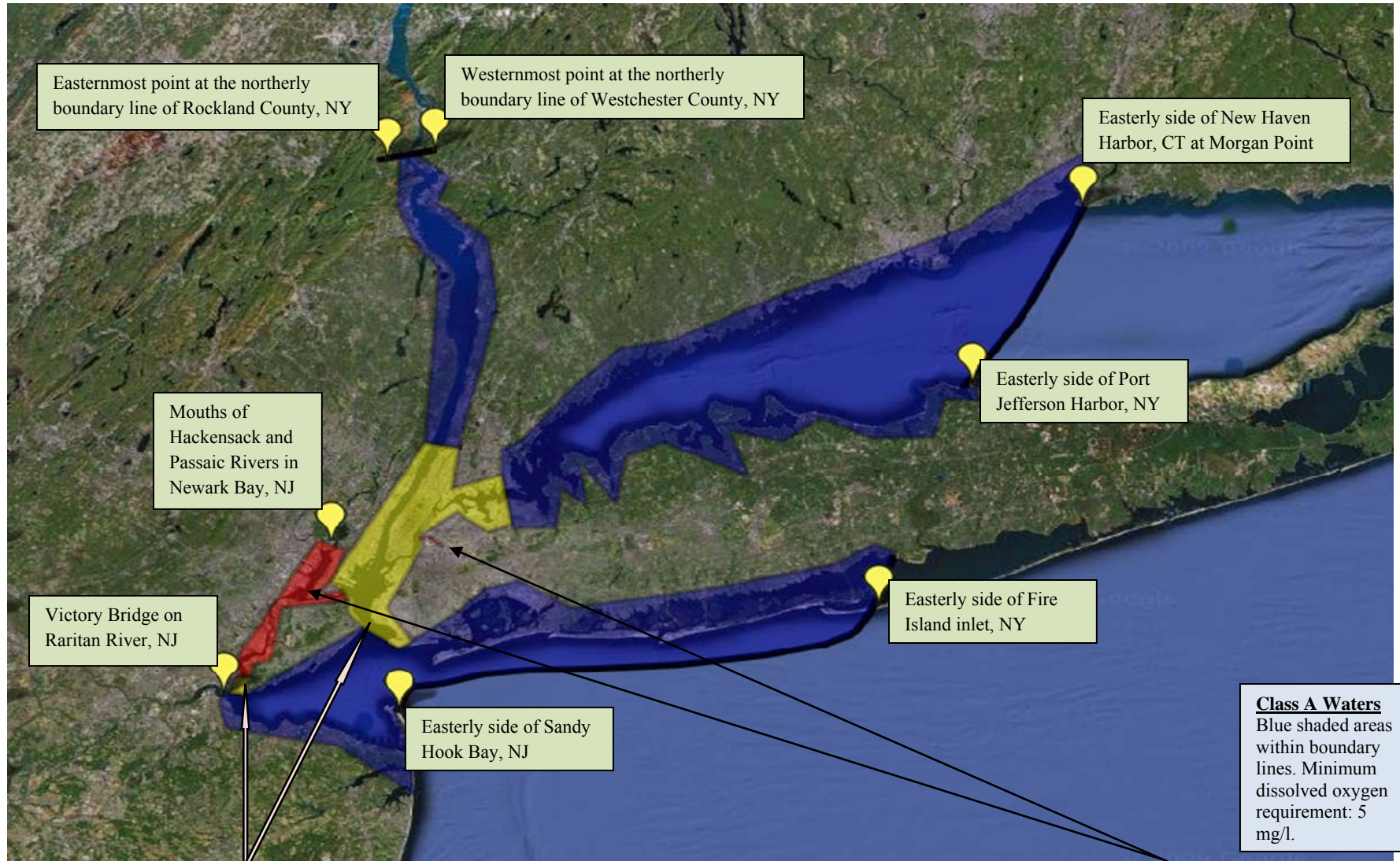
Yellow Watermarks: Boundary Points

Solid Black Lines: Boundary Lines

Blue Areas: Class A Waters

Yellow Areas: Class B-1 Waters

Red Areas: Class B-2 Waters



### Class B-1 Waters

West from the Whitestone Br. and south from the confluence of Hudson River with the Harlem River, including the upper New York Harbor, a portion of the Lower Bay and terminating at the mouth of the Kill Van Kull. Also, the lower portion of the Arthur Kill south of Outerbridge Crossing. Minimum dissolved oxygen requirement: 4 mg/l.

### Class B-2 Waters

The waters of the Arthur Kill north of Outerbridge Crossing and those of the Newark Bay, Kill Van Kull and Newtown Creek. Minimum dissolved oxygen requirement: 3 mg/l.

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# INTERSTATE ENVIRONMENTAL COMMISSION

## A Tri-State Water and Air Pollution Control Agency

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# STATEMENT FROM THE CHAIRMAN



*During the year 2010, the Interstate Environment Commission continued with its re-examination of Commission programs, staffing, goals and objectives to better fulfill its mission under the Tri-State Compact to address environmental issues within the Interstate Environmental District.*

*The Commission continued with the reinvigoration and reemphasis of the role of IEC's laboratory which has been located on the campus of the College of Staten Island since December 1993. The laboratory is recognized by the Commission's member states of New York, New Jersey and Connecticut as a nationally accredited environmental facility and is certified by the National Environmental Laboratory Accreditation Program (NELAP) through the New York State Department of Health (NYS DOH) and the New Jersey Department of Environmental Protection (NJ DEP). IEC's laboratory is involved in a wide range of sampling and research projects, all of which are described in detail in IEC's comprehensive Annual Report. A number of projects are conducted in collaboration with CSI's Center for Environmental Science and other organizations. IEC's laboratory expanded its certification for the analysis of additional parameters, including chlorophyll a and will continue to seek certification for additional parameters as necessary.*

*On behalf of the Commission, I wish to emphasize that IEC's laboratory is available to conduct sampling and analysis for the environmental agencies of our member states and other organizations. In addition to the Annual Report, additional descriptive material describing IEC's laboratory and its activities is available for review.*

*During the past year, the Commission continued to strengthen and enhance its collaborative relationship with the environmental agencies of our member states of New York, New Jersey and Connecticut. In these difficult fiscal and budgetary times, IEC's objective is to support the needs of the environmental agencies of our member states wherever possible and coordinate IEC's activities with the activities of those agencies on a cost effective and value added basis. As can be seen from this Annual Report In Brief, the IEC has undertaken projects when requested to do so by the member states. Examples include ambient water quality monitoring of New Jersey Raritan Bay shellfish harvesting beds and pathogen track down conducted on the Byram River, an interstate waterway shared by New York and Connecticut.*



# STATEMENT FROM THE CHAIRMAN, Cont'd

*IEC is also re-emphasizing the important role it has played in the Tri-State Area as a focal point for scientific sampling, monitoring and the study of contaminant conditions which affect the quality of waters in the Tri-State District. The Commission's laboratory, its research vessel, the R/V Natale Colosi and its extensive scientific sampling database are resources for those activities. The Commission is continuing to place its extensive scientific sampling data in a computerized format accessible by scientists, researchers and members of the public.*

*The Commission continues to actively seek grants to supplement its traditional state and federal funding, and those grant projects are described in this Annual Report. The Commission is involved in a number of cutting edge studies, including green technology and wastewater treatment. The Commission continued its involvement with the Long Island Sound Study and the New York-New Jersey Harbor Estuary Program, and conducted surveys in support of those programs. We just completed our twentieth year of monitoring Long Island Sound to document dissolved oxygen conditions, our tenth year of monitoring for pathogens in the New York-New Jersey Harbor Complex, our fifteenth year of sampling shellfish harvesting waters in the New Jersey portion of western Raritan Bay, and our eighth year of ambient and point source sampling to determine the causes of bacterial contamination in the Byram River.*

*In addition to participating in these programs, IEC works on a daily basis with the scientists and professionals of the US Environmental Protection Agency and the environmental agencies of our member states. IEC continues to be a presence in the environmental community and conducts education and outreach.*

*This Annual Report offers a brief review of the wide ranging scope of IEC's programs and activities. The Commission this year adopted a new logo which reflects its refocused mission. I invite you to visit IEC's website, [www.iec-nynjct.org](http://www.iec-nynjct.org) for continuing reports, back issues of the Annual Report, and news and information relating to IEC and its activities.*

*Finally, I want to express my gratitude to my fellow Commissioners and IEC staff for their hard work, dedication and commitment during the past year. I also want to acknowledge Frank Pecci, one of our New Jersey Commissioners, who retired this year after 26 years of service to the Commission. Frank was a past Chairman of the Commission, and was steadfast in his support of the Commission and its mission over the years.*

*We look forward to your continued support and to the Commission's continued fulfillment of its mission under the Tri-State Compact in the coming year.*

*John M. Scagnelli -s-  
Chairman*





## *From the Desk of Ross Brady, Esq. Acting Administrator*

IEC celebrates its 75th anniversary this year and the Commission is as committed as ever to its mandate and mission as a tri-state water and air pollution control agency. IEC is unique in taking a regional approach to pollution abatement serving our member States of New York, New Jersey and Connecticut, as well as the nation. The IEC is proud to work collaboratively with member State agencies and the US EPA at cost-effective, resource driven environmental protection. Now, more than ever, the IEC is needed to fulfill the needs of the States and the citizens and is a nimble and professional force continuing that mission. The IEC predates the environmental agencies of the States, as well as the US EPA. IEC predates the Clean Water and Clean Air Acts. IEC regulations, and more importantly our monitoring, information gathering and analyses, are heavily relied upon.

The IEC's mission is to protect and enhance environmental quality through cooperation, regulation, coordination, and mutual dialogue between government and citizens in the Tri-State Region. The Commission strives for interstate cooperation and coordination and to harmonize water quality standards, regulations and requirements throughout its District. The IEC has also embarked on important monitoring projects and research vital to the environment, always maintaining strict quality control measures.

The IEC's laboratory, located on the campus of the College of Staten Island (CSI), is a nationally accredited environmental facility, certified by the NJ DEP and NYS DOH under the National Environmental Laboratory Accreditation Program. In addition, IEC follows US FDA procedures for sampling in shellfish waters. IEC monitors vital shellfish beds, particularly in New Jersey and actively monitors the Long Island Sound. IEC carries out important monitoring operations and analysis of effluent from wastewater treatment plants, as well as ambient water samples. Directors and staff are hard at work researching emerging pollutants and reactions that affect the waters.

The Commission continues its air pollution monitoring and response program. IEC's 24-hour-a-day, 7-day-a-week answering service (718-761-5677) remains active and IEC personnel investigate as many complaints as its resources will allow. IEC also forwards complaints to the appropriate enforcement and health agencies.

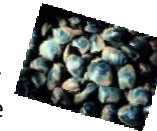
The Commission plays an active role within environmental organizations and workgroups including, but not limited to the Long Island Sound Study and the NY-NJ Harbor Estuary Program, NYWEA and WEF. The IEC performs public outreach and participates in educational programs such as World Water Monitoring Day. IEC also seeks opportunities to offer students life and educational experiences by developing programs and internships.

IEC's archives are moving to the New York State archives under the auspices of the Commissioner of Education. IEC archives will increasingly be available through our website, which will continue to advance.

IEC legal activities are focused on protecting the waters of the Commission's District, fostering cooperation among member-states and environmental stakeholders, but enforcing IEC regulations within the meaning of the Compact.

The Interstate Environmental Commission remains the guardian of the waters of our environmental District and we continue to do more with less. IEC Commissioners and professional staff are dedicated to upholding the highest quality research, monitoring and analyses, providing valuable resources for our member States, our region and the nation. Water and air quality monitoring and pollution abatement are our priorities and hypoxia in our waters, combined sewer overflows and emerging contaminants continue to need attention and solutions. IEC has been and will be a beacon for research, analysis and solutions that ensure precious water quality.

The IEC stands as an independent authority. It is more important than ever for the IEC to continue its mission. To that end, the IEC has prepared work plans to ensure that resources are used efficiently. IEC is able to fill gaps where member State agencies need assistance. IEC is an integral partner and resource for environmental protection as much now as anytime during our proud 75-year history. IEC looks forward to providing quality service with the support of our member-States for years to come.



# The Commission's Laboratory

The Interstate Environmental Commission's laboratory has been located on the campus of the College of Staten Island (CSI) since December 1993. Its role is to provide data of the highest quality to be used in decision making by environmental managers and researchers.

*The Commission's laboratory is dedicated to producing technically and legally defensible data through sound science and nationally accepted quality assurance practices*



The IEC's laboratory is recognized by the Commission's member states as a nationally accredited environmental facility. The laboratory is certified by the National Environmental Laboratory Accreditation Program (NELAP) through the New York State Department of Health (NYS DOH) and the New Jersey Department of Environmental Protection (NJ DEP).

NELAP, sponsored by the US EPA, focuses on the technical competence of the entity monitoring the environment.

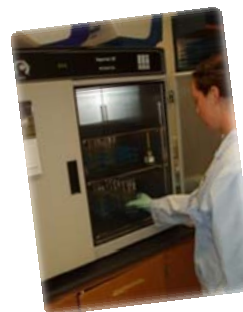
Having its permanent facility in New York, the IEC's laboratory sought and received primary NELAP accreditation from the NYS DOH (Lab ID: 10437, [www.health.state.ny.us](http://www.health.state.ny.us)). To ensure confidence and quality in the entire spectrum of its environmental testing, the laboratory also received primary NELAP accreditation from the NJ DEP for those parameters that the NYS DOH does not provide primary accreditation (Lab ID: NY240, [www.nj.gov/dep/oqa](http://www.nj.gov/dep/oqa)). Furthermore, the laboratory received secondary NELAP accreditation from the NJ DEP and CT DPH (Lab ID: PH 0320, [www.ct.gov/dph](http://www.ct.gov/dph)) for those parameters already certified by the NYS DOH.

The laboratory successfully participates every year, as required by NELAP, in two rounds of proficiency testing administered by the NYS DOH and also, in two voluntary proficiency rounds administered internally. The laboratory is subject to spontaneous state auditing, as well as annual lab and field internal auditing.

A group of experienced and highly qualified professionals makes up the Commission's laboratory. The staff is involved in a wide range of activities that include, but are not limited to:

- conducting ambient water quality sampling and analyses to: document hypoxic conditions; assess the sanitary conditions of state and interstate shellfish beds; track down pathogens; and calibrate models used in TMDL development
- investigating industrial and municipal facilities year-round and
- conducting field inspections of CSOs, SSOs and MS4s during dry weather to discover illegal discharges and take steps to have them remediated.

In addition to the day-to-day analyses performed at the laboratory, the Commission, both on its own and in conjunction with the Center for Environmental Science (CSE) at CSI, submits proposals for research projects whose results will benefit the environment and the citizens throughout the tri-state region. An ongoing collaborative research study pertains to chlorine reactions with phenolic residues in treated effluents. The study has successfully established the mechanisms of toxic chlorophenol formation resulting from treatment plant disinfection (chlorination). The laboratory director and staff continually have research papers and articles published, make presentations at prestigious environmental forums and advise students enrolled in the CES Masters Degree program.





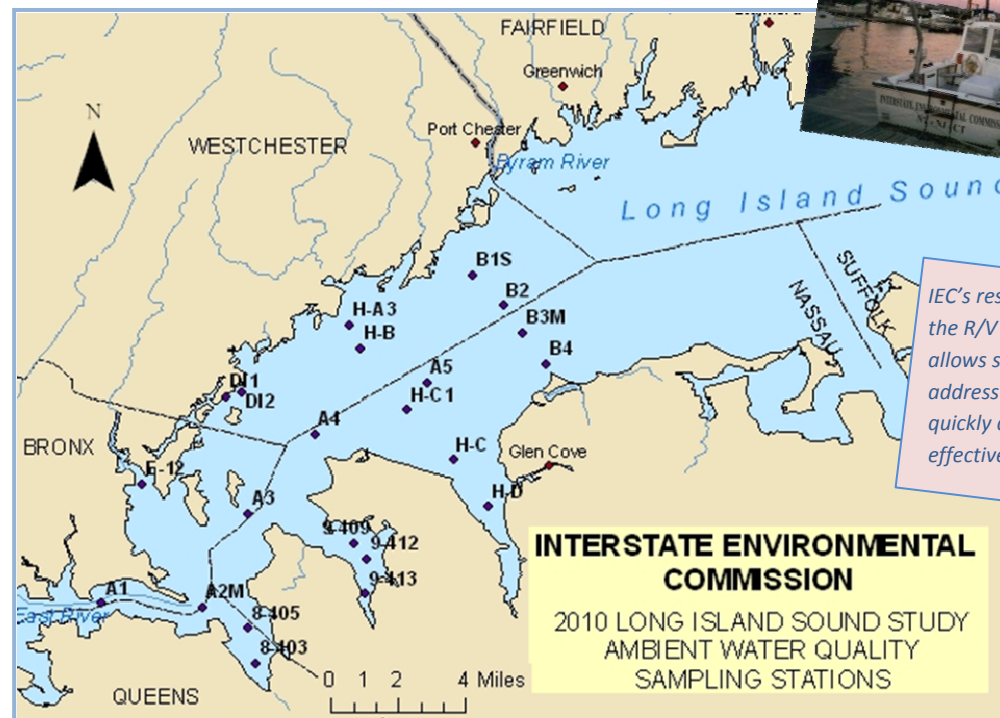
# 2010 Hypoxia Monitoring In Western Long Island Sound

With an ongoing need to document the hypoxic conditions in Long Island Sound (LIS) and its embayments, where the majority of recreational activities in the tri-state region take place, the US EPA - Region 2 requested once more that the Commission continue to conduct intensive ambient water quality surveys in support of the Long Island Sound Study (LISS). For the 20th consecutive year, the IEC participated in a cooperative sampling effort with other government agencies during the critical 2010 summer season. The Commission, using its own research vessel—which is available throughout the year—measured dissolved oxygen (DO) and other relevant parameters in the LIS. The information enhances existing data sets and measures the effectiveness of management activities and programs implemented under the Comprehensive Conservation and Management Plan.

All field measurements were summarized and forwarded weekly to the US EPA's Long Island Sound Office, CT DEP's Bureau of Water Management, Nassau County Health Department, NYS DEC Division of Marine Resources, NYC DEP Marine Sciences Section, Westchester County Department of Health, US EPA's modeling contractor, and to several volunteer monitoring groups. Long Island Sound data, as well as all ambient water quality data generated by IEC, can be retrieved from the Commission's office and STORET, the US EPA's national database.

Due to the constrained 2010 hypoxia event, 12 weekly sampling runs were conducted from late June through September 13th. Hypoxia occurs when DO readings fall below 3 mg/l and on September 13, hypoxia appeared to end since all DO readings, with the exception of only one, were above 5 mg/l. The ambient network of 22 stations was sampled weekly and in situ measurements were made for pH, temperature, salinity, DO and Secchi depth. Measurements were taken one meter below the surface, at mid-depth, and one meter above the bottom.

For stations deeper than 15 meters, measurements were taken at 5 depths — the two additional depths being: one equidistant between the surface and mid-depth, and one equidistant between mid-depth and bottom. Samples for chlorophyll a, a pigment found in aquatic plants and used as an indicator of algal production, were collected at all stations one meter below the surface on alternate runs.



IEC's research vessel, the R/V Natale Colosi, allows staff to address deficiencies quickly and effectively.

# 2010 Hypoxia Monitoring In Western Long Island Sound, Cont'd

Dissolved oxygen is a measure of the ecological health of a waterbody. Low levels of oxygen, especially when they remain persistently below an organism's survival threshold, can be fatal to aquatic life. A dissolved oxygen concentration of 5 mg/l (the minimum DO requirement at all times for IEC's "Class A" waters) is considered to be protective of most marine aquatic life.

Measurements of DO concentrations acquired in 2010 in both surface and bottom waters are separated and grouped into the following three categories:

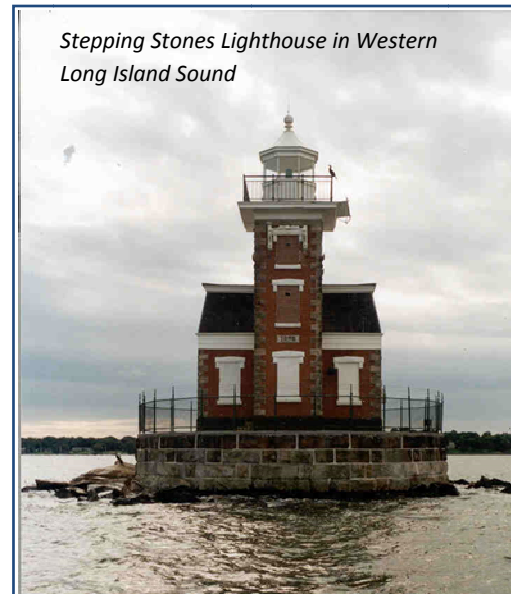
- DO concentrations that are less than three mg/l (<3.0 mg/l) reflect hypoxic conditions; under these conditions, very few types of juvenile fish can survive, many adult types of fish will avoid or leave the area, and those organisms not free to move (sessile) will die.
- DO concentrations which are greater than or equal to three mg/l ( $\geq 3.0$  mg/l) and less than five mg/l (<5.0 mg/l); marine organisms surviving in this range are at threshold levels for reduced growth and abundance.
- DO concentrations of at least five mg/l ( $\geq 5.0$  mg/l) are considered to be protective of most marine aquatic life. Five mg/l is IEC's DO criterion for "Class A" waters.

The impact to marine organisms is also dependent on the duration and spatial extent of hypoxia, as well as the water temperature,

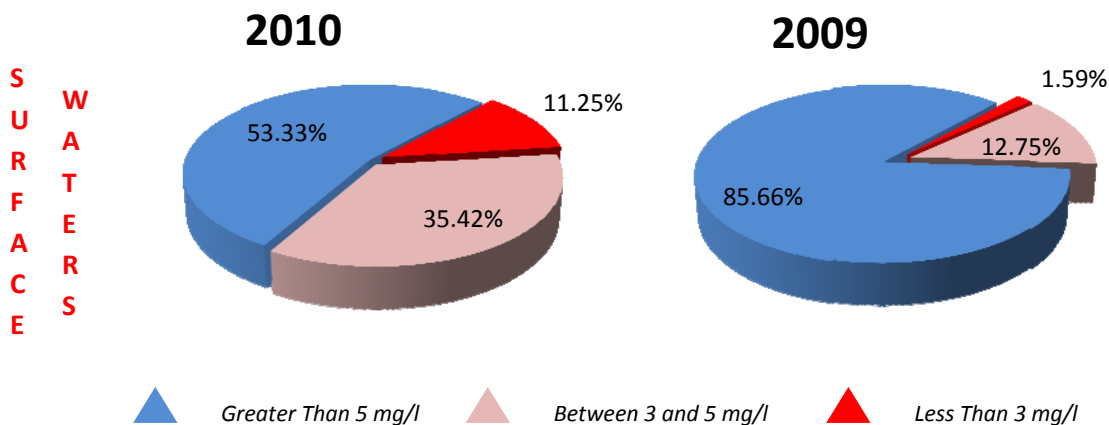
salinity and the distribution and behavioral patterns of resident species.

As shown on the pie charts below depicting 2010 and 2009 monitoring data, the condition of surface waters was significantly better in 2009 than 2010. The percentages of 2009 surface water DO measurements in the categories of Greater Than 5 mg/l, Between 3 and 5 mg/l, and Less Than 3 mg/l were 85.66%, 12.75% and 1.59%, respectively. In the same category order, the results of the 2010 survey were 53.33%, 35.42% and 11.25%, respectively. In 2010, DO measurements in surface waters at all stations ranged from a minimum of 1.2 mg/l to a maximum of 19.6 mg/l.

*Stepping Stones Lighthouse in Western Long Island Sound*



## DO Monitoring in Western LIS



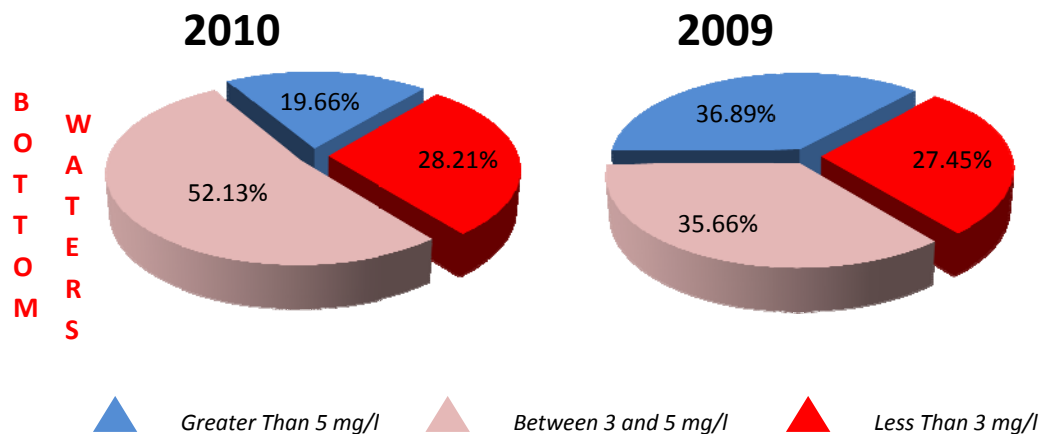
# 2010 Hypoxia Monitoring In Western Long Island Sound, Cont'd

Based on the percentage of hypoxic readings, the bottom waters of the Sound were again better in 2009 as compared to 2010. As depicted in the pie charts on the right, the percentage of DO measurements in 2009 in the categories of Greater Than 5 mg/l, Between 3 and 5 mg/l and Less Than 3 mg/l were 36.89%, 35.66% and 27.45%, respectively. In the same category order, the bottom DO results of the 2010 survey were 19.66%, 52.13% and 28.21%, respectively. The DO in bottom waters ranged from 0.8 (August 9th) to 9.2 mg/l, with the low values representing extreme hypoxia and, in some areas, anoxic conditions. A variety of natural and anthropogenic factors, including water pollution, municipal water pollution control programs, weather, circulation pattern changes, proliferation or lack of algal blooms, etc., contribute to hypoxia and year-to-year variability.

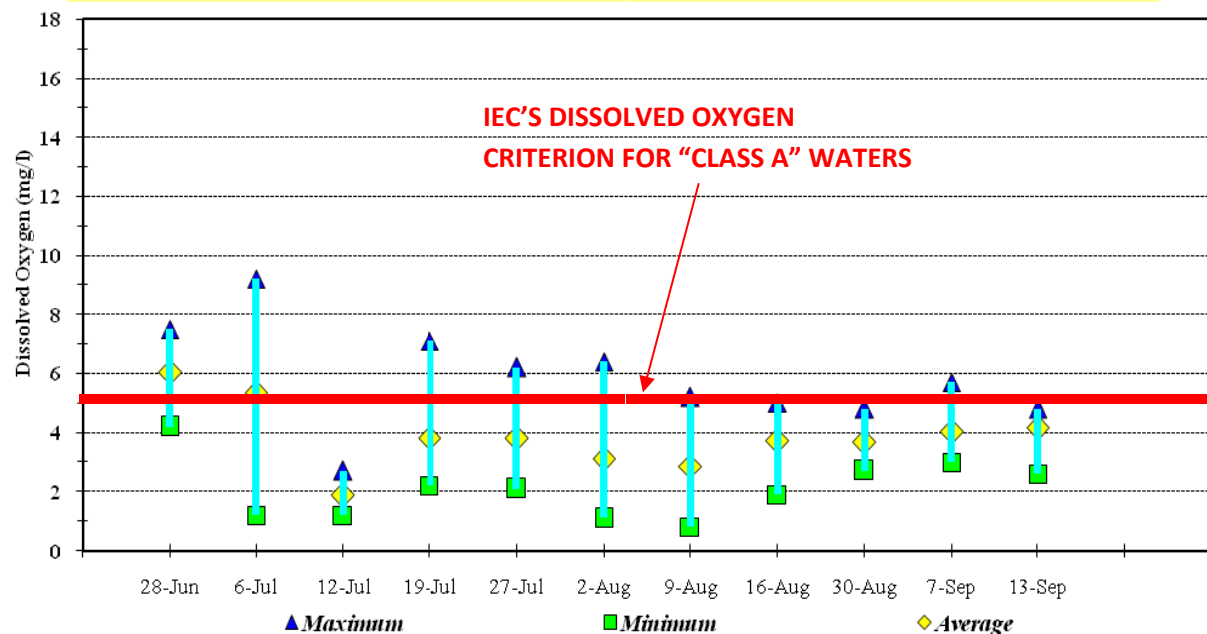
During 2010, hypoxic conditions were observed in bottom waters from July 6th to September 14th. As early as July 6th, two stations recorded values less than 3 mg/l. On July 12th, the DO recorded in 20 of the 22 stations was below 2 mg/l. An extremely strong rain storm on July 13 to 14 was followed by variable winds for three days. DO rebounded: on July 19th, only six stations had DO < 3.0 mg/l. Although DO concentrations steadily rose for the remaining summer weeks, one station in Manhasset Bay recorded bottom DO of 2.8 mg/l on September 13th. The station was revisited on September 20th and the DO concentration recorded was 4.1 mg/l.

Secchi depth measurements ranged from 0.8 to 3.0 meters. This range is nearly the same as in the past seven years.

## DO Monitoring in Western LIS



## BOTTOM WATERS – 2010 DO Monitoring in Western LIS





# 2009-2010 Microbiological Surveys in the Shellfish Harvesting Waters of Western Raritan Bay

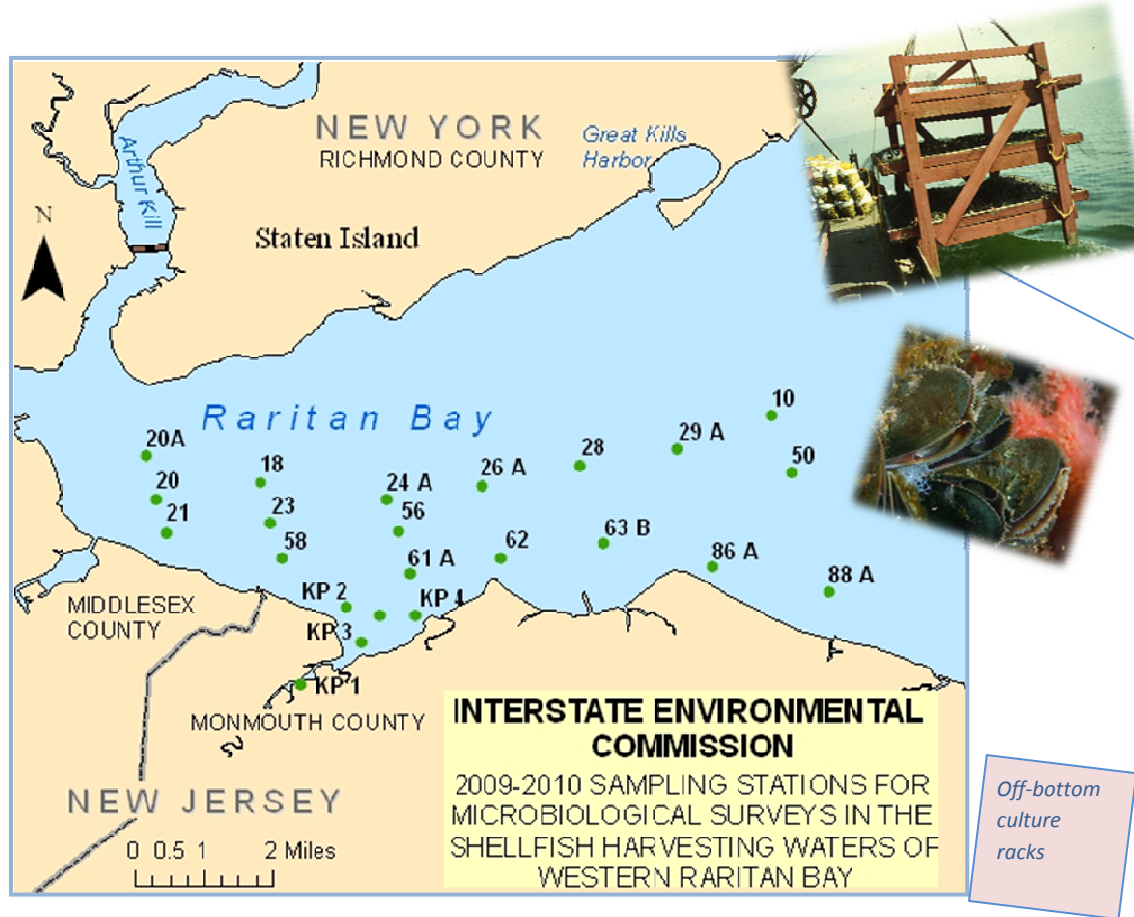
The New Jersey Department of Environmental Protection (NJ DEP), Bureau of Marine Water Classification and Analysis (BMWCA), regularly conducts ambient water quality monitoring of the State's shellfish harvesting beds. For the 15th consecutive year, the BMWCA asked IEC to assist with sample collection in western Raritan Bay during the 2009-2010 winter and spring seasons.

Sampling runs were performed to collect data and assess the sanitary quality of shellfish waters. Sample collection, storage and delivery adhered to protocols established by the US FDA's National Shellfish Sanitation Program and the NJ DEP Field Sampling Procedures Manual. The surveys were triggered by storm events with an intensity of at least 0.2" of rain.

During October 2009, the Commission's R/V Natale Colosi was moved to Raritan Bay and from January 26 to April 30, 2010, two survey runs were completed. All samples were collected within 48 hours subsequent to rain to provide ample time to document the effects of runoff. Samples were collected from surface waters at 22 sampling stations. In conjunction with the NJ DEP/US EPA Performance Partnership Agreement, all samples were transported by IEC to the US EPA's Edison, NJ, laboratory to be analyzed for fecal and total coliform bacteria. The Commission, at the request of BMWCA, will again conduct this survey over the 2010-2011 winter and spring seasons.

A nor'easter impacted the region on March 13 to 15, 2010. From March 17 to 27, 2010, a public notice was issued by NJ DEP, Water and Monitoring Standards, for the closure of all shellfish harvest beds in the waters of Raritan and Sandy Hook Bays, and the Navesink and Shrewsbury Rivers, a roughly 27,800-acre area.

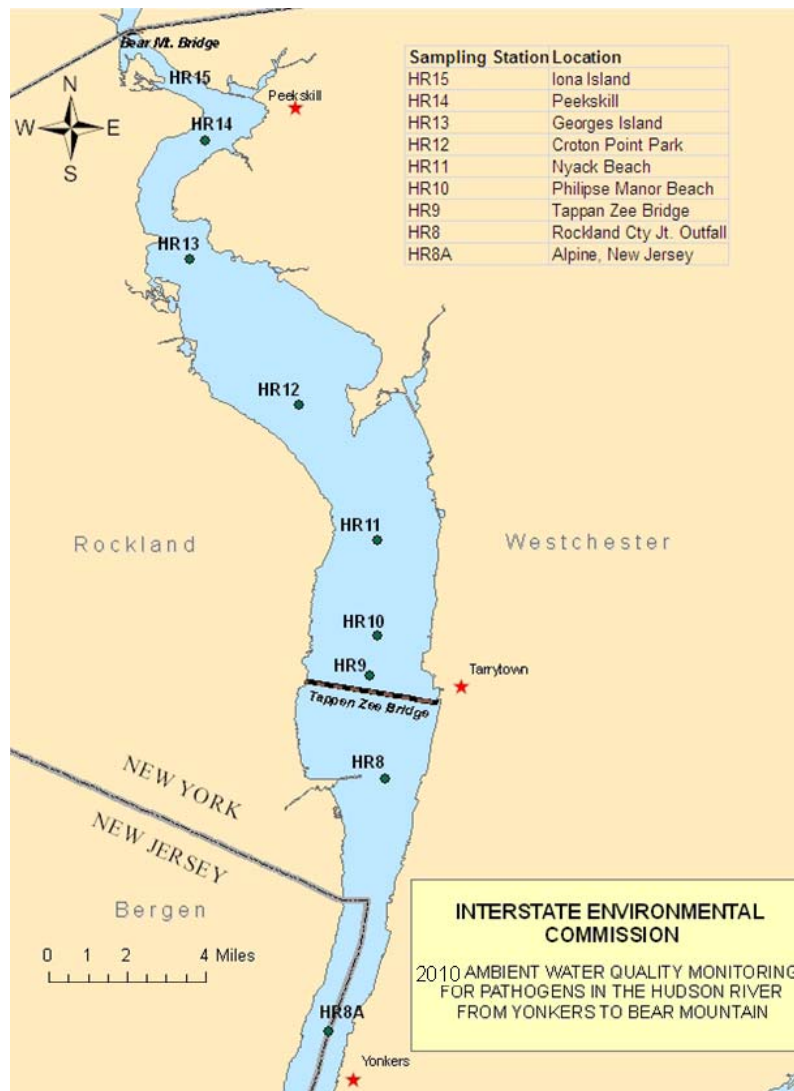
In 2002, a shortened shellfish season limited the harvest to 48,102 bushels from the NY beds in Raritan Bay. The economic hardship was compounded on March 13, 2003, when the NYS DEC closed the harvest for 2003 due to quahog parasite unknown (QPX). QPX is a protozoan parasite (slime mold) that infects the soft tissue of the clam. On May 2, 2005, about 2,600 acres were reopened for transplant harvest. NJ DEP closed areas of Raritan Bay and Sandy Hook Bay to relay harvest, but allowed depuration harvest to continue in Raritan Bay.



# 2010 Ambient Water Quality Monitoring for Pathogens in the Hudson River from Yonkers to Bear Mountain

Several recreational beaches, as well as many productive shellfish beds within the Interstate Environmental District (IED) have been frequently closed (some areas closed since the 1920s), primarily due to pathogens contamination from combined sewer overflows and stormwater runoff. As a result, surveys leading to a better understanding of the association between pathogens levels and point and non-point source runoff, as well as pathogens distribution in receiving waterbodies have gained priority.

While most of the waters in the IED have been recently sampled by IEC or other agencies for bacterial analyses, there is still limited monitoring of pathogens for the portion of the Hudson River between Yonkers and Bear Mountain. Recognizing this data gap, the Interstate Environmental Commission, in cooperation with the NYS Dept. of Environmental Conservation's Hudson River Estuary Management Program, and local county health departments, developed a pathogens monitoring program for the aforementioned portion of the river. Results will create a database for fecal coliform, total coliform, enterococcus and *E. coli*.



Sampling began in 2006. The number of stations visited during a trip and the number of trips increased by one in late 2007. Funding logistics for the continuation of the project and QAPP approvals were completed late in 2009. In 2010, due to frequent rain events and minimal mechanical setbacks, IEC successfully completed a fourth year of ambient sampling on the Hudson River—4 dry and 4 wet weather events. This survey will continue in 2011.

Mid-river samples were taken at nine pre-determined locations that span from Iona Island (just south of the Bear Mountain Bridge) to a mid-river location by Alpine, NJ, and Yonkers, NY. All samples were transferred to the IEC laboratory and analyzed for pathogens, including enterococcus, fecal and total coliform and *E. coli*. Temperature, salinity, dissolved oxygen, conductivity, pH and water clarity (Secchi depth) were also measured at each site. IEC compiled its observations and analytical results into an interim report expected to be issued in early 2011.



# American Recovery and Reinvestment Act and Clean Water Act Section 604(b) Projects

The IEC received three grant awards from the New York State Department of Environmental Conservation (NYS DEC) to support three water quality planning projects, as part of the Clean Water Act (CWA) Section 604(b) funds made available when President Obama signed the American Recovery and Reinvestment Act (ARRA) into law. The ARRA provides \$17.025 billion nationwide (\$1.7 million to NY State) to protect infrastructure, create new jobs through green infrastructure developments, remediate hazardous waste sites, protect air and water quality through comprehensive management activities and ensure safety against natural disasters.

## Water Quality Monitoring and Modeling of the Byram River

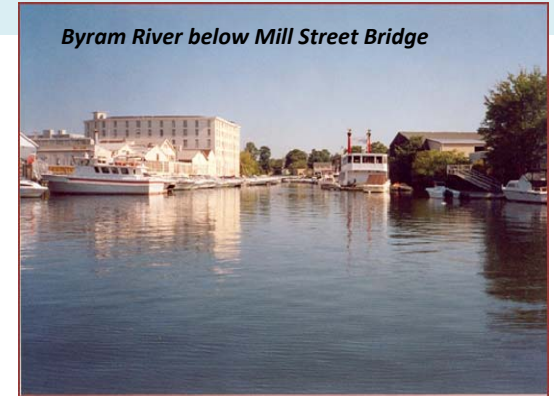
This study commenced in December 2009 and will last for about 25 months with an award of \$87,171. The Byram River is an approximately 13-mile interstate waterway running between New York and Connecticut, with Port Chester, Westchester County, New York, on the west bank and Greenwich, Fairfield County, Connecticut, on the east. The river empties into Port Chester Harbor and has a confluence with the Long Island Sound.

From 2002 to 2009, IEC, in conjunction with a multi-agency workgroup, conducted pathogen track down on the navigable portion of the lower Byram River.

A study on another portion of the Byram River was initiated by IEC to assess the water quality of the river and its watershed. The Commission performed four ambient water quality monitoring trips. In each of those trips, 10 mid-stream stations were visited. Two of the four trips were conducted during dry weather (July 6 and August 3, 2010) and the other two during wet weather (July 19 and August 16, 2010). An event was considered wet weather when greater than 0.25" of rain were recorded in the previous 24 hours.



*Byram River below Mill Street Bridge*



At each of the 10 mid-stream locations, IEC staff collected samples that were delivered to the Commission's laboratory and subsequently analyzed for pathogens (bacteria and viruses that cause infection or disease), metals, settleable solids, turbidity and chlorides. While in the field, IEC staff measured the water's temperature, pH, salinity, conductivity, as well as its dissolved oxygen content.

Data generated by the study will be used by a subcontractor in 2011 to develop and calibrate a water quality model for the Byram River watershed. At the completion of the model, IEC will sample twice more, once during dry weather and once during wet weather. The second round of data will be used for the validation of the model, which will be run as a geographic information system (GIS)-based watershed planning tool. Its implementation will help design specific flow and water quality monitoring programs; prioritize sub-basins that contribute significant nutrient and pathogen loads; and identify green infrastructure projects for funding recommendations.



# ***American Recovery and Reinvestment Act and Clean Water Act Section 604(b) Projects, Cont'd***

## **MS4 Survey of the Croton-Kensico Watershed, Westchester County, New York**

Under the auspices of the NYS DEC, another ARRA project involves IEC's collaboration with the Croton-Kensico Watershed Intermunicipal Coalition (CKWIC). The goal of the project is to develop a regional GIS-based map that will display the features of municipal separate storm sewer systems (MS4s) in a sub-watershed of the Croton/Kensico watersheds.

MS4 discharges are subject to State Pollutant Discharge Elimination System (SPDES) permit compliance requirements. SPDES permits require the development of a Stormwater Management Program; an important aspect of which is identifying and mapping storm sewer features within a MS4.

The regional map is also intended to assist with maintaining stormwater conveyance systems and identifying projects related to the CKWIC's retrofit program. Such usage of the map will, in turn, help reduce water quality impacts from sediment, phosphorus and other pollutants that tend to accumulate within the conveyance system components. Furthermore, this work will enable track-down and elimination of suspected illicit connections within the MS4 system, ultimately ameliorating the environmental quality of receiving waterways.

The project has two phases. The first phase entails the selection of a CKWIC sub-watershed and identification of known and suspected outfalls, catch basins, stormwater manholes, stormwater swales and other components of the MS4. The second phase requires verification of each storm sewer feature in the field and collection of data. This includes identifying locations of outfalls; type of conveyance system; pipe material, shape and size for closed pipe systems; channel/ditch lining material, shape and dimensions for open drainage systems; location and dimensions of culvert crossings; drop inlet, catch basin and manhole locations; number and size of connections (inlets/outlets) to catch basins and manholes and direction of stormwater flow.

In cooperation with the NYS DEC and Westchester County, the IEC developed a MS4 Component Inventory protocol that establishes consistent mapping standards and field data collection procedures. The primary objective of the collaborative approach was to standardize identification and classification of stormwater conveyances used to inventory and map stormwater infrastructure features.

The Purdy Lake MS4 sub-watershed in the northern Westchester County town of Somers, New York, was selected as the project study area. The Commission has begun verifying storm sewer features and creating a map of the Purdy Lake community that includes geographic information and existing MS4 data. The IEC identified missing and conflicting MS4 data and is addressing these discrepancies. The Commission will use the map to help CKWIC/Somers meet MS4 permit requirements for a complete illicit discharge detection and elimination (IDDE) program.



# ***American Recovery and Reinvestment Act and Clean Water Act Section 604(b) Projects, Cont'd***

## **Long Island MS4 Phase II Planning Program**

In 2009, IEC received a \$232,785 American Recovery and Reinvestment Act (ARRA) grant from the NYS DEC to support stormwater management planning in over 100 communities in Nassau and Suffolk Counties. The focus would be on MS4s that discharge to Long Island shellfish harvest areas covered by a TMDL.

Through this grant, IEC funded a coordinator for the New York State Sea Grant (NYSG) Long Island MS4 Planning Program. Planning support enabled the coordinator to conduct site visits, consultations, presentations, chair workgroups, maintain the Long Island MS4 e-mail listserv, and provide feedback on annual municipal stormwater program reports. Supporting further inter-municipal stormwater programs is a program priority. The project will help Long Island MS4 communities meet federal Clean Water Act requirements to manage stormwater runoff, and protect and restore Long Island's coastal resources from pollutants such as pathogens, excess nitrogen, sediment and trash that make their way into the storm sewer system.

To date, the NYSG Long Island MS4 Planning Program coordinator has compiled a list of MS4s to focus on and conducted in-depth consultations with groups representing more than twenty-five municipalities. Fifteen MS4 annual reports have been reviewed. Feedback has been provided during these consultations. Additional activities include participation in the US EPA review of MS4 stormwater management programs, as well as in numerous education and outreach efforts. Education and outreach efforts include meeting with communities about managing pathogens and MS4 watershed strategy planning; Long Island MS4 e-mail listserv management; and distribution of stormwater reference materials.





## Other Projects and Grants

The IEC continues to pursue funding opportunities that support and further its vital role in water quality monitoring and planning. The Commission collaborates with other interstate agencies, member state and federal entities and other environmental stakeholders in the region, through solicited and unsolicited grants from a variety of sources, with the primary objective to fund applied water quality research and projects that will bring benefits to waterways throughout its District.

### Implementation and Assessment of the Effectiveness of Green Infrastructure Technologies in Reducing Combined Sewer Overflows in Newark, NJ

The Commission, in collaboration with eDesign Dynamics (EDD), the NY-NJ Harbor Estuary Program (HEP), the New England Interstate Water Pollution Control Commission (NEIWPCC), the NY/NJ Baykeeper, the Greater Newark Conservancy (GNC), and the City of Newark, worked on a project entitled, “Assessing the Effectiveness of the Green Infrastructure Technology.” The study involves installation and successive field monitoring of multiple green infrastructure (GI) technologies or, alternatively, low impact development (LID) technologies. The objective is to assess the effectiveness and the economic practicality of green infrastructure measures in reducing flows to CSOs during wet weather. GI strategies maximize infiltration, retention and detention of stormwater. Ultimately, field studies and sample collection from multiple catchment areas will demonstrate their functionality. Results will be put in terms of dollars per volume of CSO abated.

The GI demonstration project is situated on an approximately 2,200 square foot formerly vacant city-owned lot in the West Ward neighborhood of Newark, New Jersey. Overflows from this area drain into the NY Harbor Complex via the Passaic River. The study site was identified by the project team after discussions with the City of Newark and their Sustainability Officer in the spring of 2009. The formerly abandoned property is “The West Ward Pride Garden” and serves as a community garden. The project site was fully setup in July 2010, with the following GI measures in place: a subsurface retention water tank, above ground cisterns, rain barrels, subsurface detention tanks, permeable pavement, raised planting beds and rain gardens. Stormwater is captured for reuse and detained in order to be slowly released to minimize overloading the system.

In addition to project management and oversight, IEC was responsible for conducting the water quality monitoring portion of the study. During three wet weather monitoring events in August and September 2010, IEC staff collected samples at up to six sampling locations. Samples were analyzed in-house for the following water quality parameters: settleable solids, turbidity, chlorides, metals and pathogens (fecal coliform and enterococcus). In addition, field measurements were taken for temperature, specific conductance, pH and dissolved oxygen. EDD set up in situ rain gauges and data loggers to continuously record water quantity parameters.

Ultimately, the garden will be managed and cared for by the West Ward community. The garden uses all sustainable features that include recycled brick for pathways and drought tolerant plant species. The water reuse system has been designed to collect water from the site and adjacent properties to provide 100% irrigation for all plantings since there is no City water supply at the project site. The project team has worked together to design and construct the community garden to study strategies that reduce CSOs. Additional goals of the project are to create a vibrant space for the community, build a “Living Lab” for students, and use the site as a demonstration for other vacant lots in Newark, as well as in other cities.





# ***Harbor-Wide Water Quality Monitoring Activities In the New York-New Jersey Harbor Complex***

As part of and in cooperation with the NY-NJ Harbor Estuary Program (HEP), the Interstate Environmental Commission has been chairing an Ad Hoc Committee to develop a harbor-wide water quality monitoring survey consistent with the NYC DEP Harbor Survey. The conceptual monitoring survey is in place and addresses the entire NY-NJ Harbor Complex, which includes state and interstate waters, as well as tributaries. The Committee includes the IEC, US EPA - Region 2, NYS DEC, NJ DEP, NYC DEP, and the New Jersey Harbor Dischargers Group (NJHDG), which is chaired by Passaic Valley Sewerage Commissioners (PVSC). All of the aforementioned agencies have existing water quality monitoring programs within the HEP's core study area.

To assess the data gaps necessary to have harbor-wide monitoring, the Committee looked at all aspects of the current and future sample/data collection programs, including the parameters of concern, waterways, monitoring scenarios, methodologies, laboratory capabilities and capacities, quality assurance and control and final products. This Committee sought input from all HEP workgroups to identify needs.

Under way in late 2003, the NJHDG, with an initial grant from the HEP, established an ambient water quality monitoring program consisting of 33 stations. Subsequently, all funds were allocated from internal resources.

During 2004, monitoring and sampling for 16 parameters, including dissolved oxygen, nutrients and pathogens (except enterococcus) were conducted weekly between May and September, and bimonthly between October and April. Three laboratories located at the Bergen County Utilities Authority, Middlesex County Utilities Authority and PVSC performed all analyses. This program was maintained in 2010.

During the 2008 fall season, the report entitled, "Harbor-Wide Water Quality Monitoring Report for the New York-New Jersey Harbor Estuary" was issued. The report can be accessed electronically at [www.harborestuary.org](http://www.harborestuary.org). The next published report is planned for 2011.

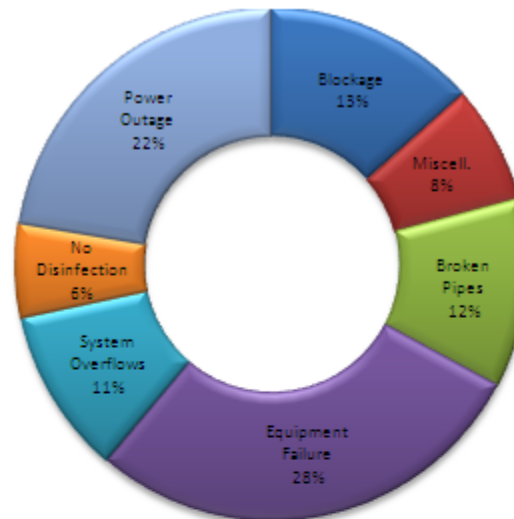


# Regional Bypass Workgroup

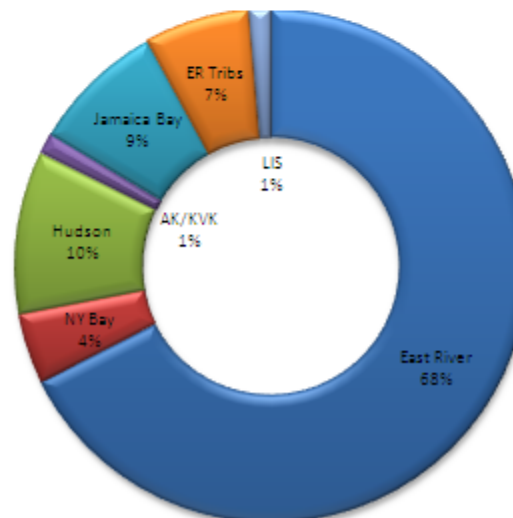
The Regional Bypass Workgroup (RBWG) was formed in 1997 to address the issue of unplanned bypasses of raw and partially treated sewage. The Interstate Environmental Commission has chaired the RBWG since its inception. The RBWG has members from the environmental and health departments of the Commission's three member states, the IEC, National Park Service, NJHDG, NYC DEP, US EPA, US FDA, US Coast Guard, and county health officials.

The Workgroup has been using the Regional Bypass Model (RBM); upgraded in 2008, the RBM v2.0 is a mathematical tool developed to predict which areas may be affected by a particular bypass. Specifically, the model's quick predictions can determine whether a discharge occurring at a certain point will affect another area, and if there should be concern as to whether a beach or a shellfish area should be closed. The RBM takes into account times of discharge, tidal cycles and temperatures and it is useful throughout IEC's environmental District. Some of the upgrades to the new model include but are not limited to: use of calibrated enterococci and total/fecal coliform kinetics; a spatial domain encompassing NY Harbor, LIS, the NJ coastline south to Cape May and the Passaic/Hackensack/Raritan Rivers; multiple discharges; and specific duration and quantity. In addition, regional notification protocols were put in place and are updated annually.

2010 Bypass Events – Common Causes Non-wetweather



2010 Bypass Events per Waterway



The majority of NYC and northern NJ collection systems are comprised of combined sewers. When there is rain, the flows to wastewater treatment plants increase. If the flow is greater than the plant's design flow, part of the flow bypasses all or certain treatment steps. The most notable bypass events of 2010 included discharges of raw sewage, wastewater with primary treatment and secondary effluent with no disinfection.

For the first 12 years (1998 to 2009), the IEC received between 93 and 275 bypass event notifications. Originally, the focus was on raw sewage, but it was expanded to address any type of spill, i.e., chemical, oil, fuel, sludge and treatment reductions. From January 1 to November 30, 2010, 225 bypass events were reported to the IEC.

Although most of the bypass events occurred in NYS DEC Region 2 (5 NYC boroughs), it should be noted that the majority of the treatment facilities, pump stations, regulators and gravity sewers and force mains exist in this region.

In 2010, during the critical time of the year when the majority of the public is recreating on local waters and beaches (Memorial Day weekend to Labor Day), there were 68 releases, or 30% of the total (down from 2009's 90 releases and 45% of the total).

# 305(b) Assessments - STORET

## Clean Water Act Section 305(B) Water Quality Assessment

Under Section 305(b) of the federal Clean Water Act, States, Territories, the District of Columbia, Interstate Water Commissions, and participating American Indian Tribes must assess and report on the quality of their waters. The results of a 305(b) assessment are not raw data, but rather, statements of the degree to which each waterbody supports the uses designated by water quality standards. While Section 305(b) of the federal Clean Water Act requires assessments of water quality, Section 303(d) of the same Act requires that those waterbodies deemed impaired in 305 (b) assessments be prioritized in terms of their degree of impairment and how necessary it is to implement pollution controls. Whereas two separate reports were required prior to 2010, each participating organization now aggregates these assessments and priority listings, as well as other extensive programmatic information to form an Integrated Report.

Integrated Reports are submitted to the US EPA on April 1st of every even year. The IEC has made submissions since the inception of this requirement (1984). The US EPA combines all this information to create the biennial National Water Quality Inventory Report (NWQIR). The NWQIR is transmitted to Congress to describe the condition of the nation's waters and to help its members allocate certain Clean Water Act funds among states. EPA's NWQIR is also used as a tool to inform the general public about the condition of the nation's waters.

As per US EPA Guidance, the Commission's report includes its assessment methodology and a great deal of other important information. The assessment of the Commission's nearly 797 square miles of estuarine waters is based on data collected from the Commission's ambient and effluent monitoring programs. It is supplemented with water quality data and information on health advisories, fish kills, shellfish closures, and beach closings from the Commission's member states' environmental and health departments. The Commission's latest report can be retrieved from its website, [www.iec-nynjct.org](http://www.iec-nynjct.org).

## STORET

Since its beginning, the IEC has amassed a huge database of ambient and effluent water quality data and has always been an advocate of water quality data collection, analyses and dissemination for the Tri-State Region.

STORET is a national database that contains biological, chemical, and physical data collected by federal, state and local agencies, Indian tribes, volunteer groups, academia, and others ([www.epa.gov/storet](http://www.epa.gov/storet)). The IEC's first input to this data depository dates back to 1970. Since then, the Commission has been a steady contributor. All data sets generated by the Commission that are suitable for input have been entered into STORET. Parameters recorded include dissolved oxygen, temperature, salinity, Secchi depth, chlorophyll a, fecal and total coliform, fecal streptococcus and enterococcus bacteria. Ancillary information such as climatological and tidal data, type of monitoring instrumentation and visual observations, has also been submitted.

The IEC's data can be retrieved on the Internet from two separate databases, the STORET Legacy Data Center (LDC) and the more current, Modernized STORET system. In both systems, the IEC's organization code is 31ISC2RS. In contrast to the LDC, which is a static, archived database, the Modernized STORET is an operational system, actively being populated with water quality data. The Commission's data sets supplied to US EPA prior to 1999 were all placed in the Legacy Data Center, whereas those supplied to US EPA since January 1, 1999, reside in the Modernized STORET System.





# Public Education, Outreach and Conferences

The Interstate Environmental Commission's public education and outreach programs encompass a variety of topics and venues. IEC personnel have been called upon to participate in numerous seminars and forums, in roles such as a moderator, speaker, panelist, chairperson and/or a faculty member. The Commission is a member of various engineering, legal and professional organizations, and takes an active role on committees and workgroups of those organizations.



## 2010 Legislative and Regulatory Dialogue

The IEC assisted in organizing the NYWEA legislative dialogue and conference in Albany, New York, in February 2010 and participated on a panel on SPDES enforcement issues.

This venue was held for the third consecutive year with agenda topics that included Challenges of Infrastructure Funding-Stimulus/Recovery Plan, Water Quality and Regulatory Issues, as well as enforcement priorities and methodologies. The agenda also included visits from the House Chairs of the Environmental Conservation Committees.

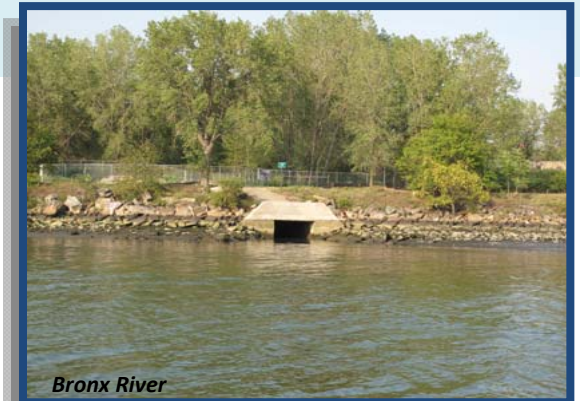
## 20th Annual Long Island Sound Citizens Summit

On May 7, 2010, the Annual Long Island Sound Citizens Summit was held in Bridgeport, Connecticut. Sponsored by Save the Sound and the Long Island Sound Study, this year's summit was titled, "Green Cities/Blue Waters: Connecting Urban Communities to Ecosystems."

The agenda had keynote speakers focusing on several success stories dealing with revitalizing urban rivers. Panel discussions addressed innovative controls to curb polluted runoff, green infrastructure and community involvement. Attended annually by Commission staff, the Commission maintained an information booth at the summit.



This year, the Commission staff continued its spring and fall programs with the marine science students from Bayonne High School. On June 15, the R/V Natale Colosi sailed to Newark Bay to conduct hands-on water quality monitoring and data recording.



Bronx River

## World Water Monitoring Day

To continue to promote water quality awareness around the globe, the 8th annual World Water Monitoring Day (WWMD) was held from Sept. 18 to Oct. 18, 2010. The IEC joined thousands of volunteers to sample water quality and report results. While comprehensive monitoring goes on throughout the year, IEC conducted in situ testing of water quality parameters on September 20th at nine sites in the upper East River and western Long Island Sound, covering a distance of about 29 nautical miles. All IEC data was submitted to the World Water Monitoring Day website for inclusion into an international data bank.



On September 22nd, IEC and Rocking the Boat, a non-profit organization in the Bronx, gave students hands on experience collecting water quality data. The data collected was also submitted to the WWMD website ([www.worldwatermonitoringday.org](http://www.worldwatermonitoringday.org)).

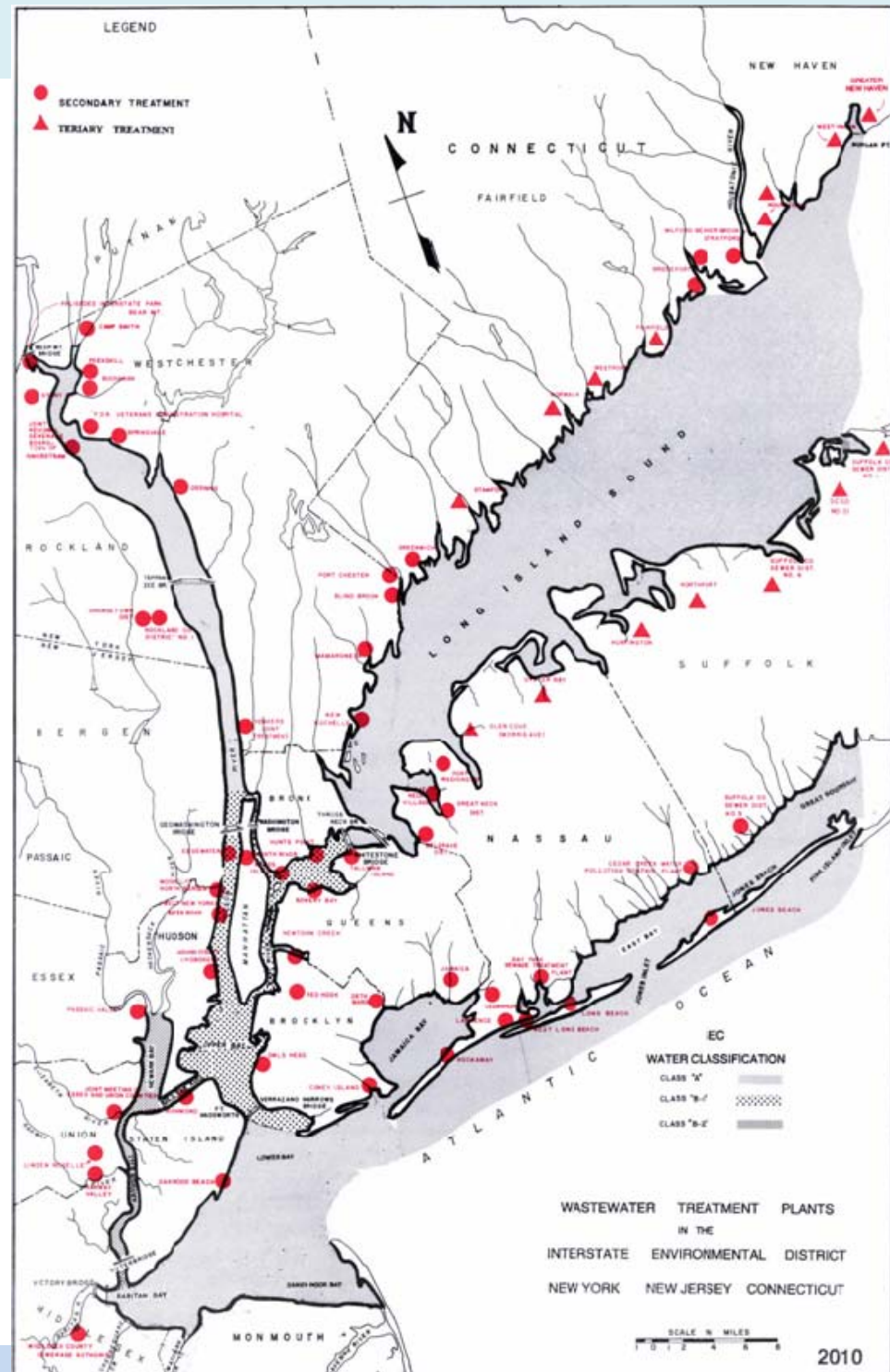
# Water Pollution

Within the Interstate Environmental District, over \$11.88 billion was allocated for over 297 water pollution control projects which, in 2010, were either completed, in progress, or planned for the future. These monies were allocated in the following manner: over \$387.2 million for 63 completed projects, more than \$10.3 billion for 166 projects in progress, and more than \$1.2 billion for 68 future projects. These expenditures are being used for engineering studies, pilot projects and experiments; CSO abatement projects; stormwater remediation; land-based alternatives for sewage sludge disposal; construction of new facilities; and upgrading and/or expanding existing facilities in order to provide adequately treated wastewater for discharge into District waterways. These figures do not include the monies spent by and committed to pollution control by industries.

Adequate infrastructure is a necessity for maintaining and improving receiving water quality, as well as for minimizing use impairments. These tremendous expenditures on infrastructure have resulted in significant water quality improvements throughout the District over these past years. This is truly a success story for the Region.

With secondary treatment virtually in place throughout the Interstate Environmental District since 1994, control of the Region's combined sewer overflows, stormwater runoff, and municipal separate storm sewer systems is necessary in order to achieve further significant water quality improvements. Communities throughout the District have ongoing CSO control programs and projects that include sewer separation, swirl concentrators, booming and skimming, in-line storage and off-line storage.

The Commission obtained information on water pollution control projects, presented in Appendix A, from officials in the representative State and local governmental agencies, sewerage authorities, consulting engineering firms, and national depositories of water quality data and industrial/municipal effluent data.

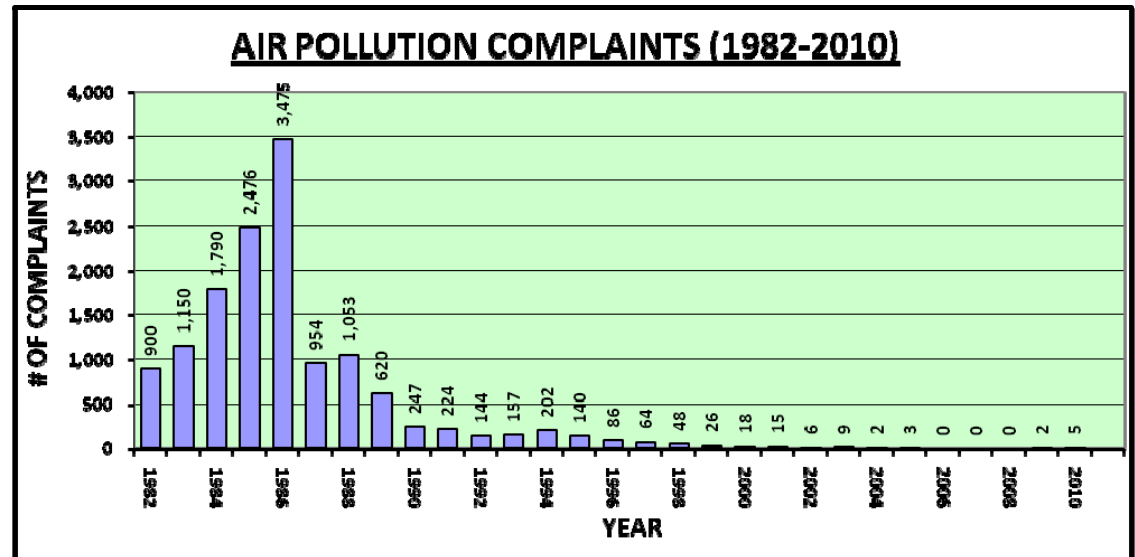


# Air Pollution

The Commission's air program was initiated in 1962. To aid the primary control agencies in the solution of air quality problems of interstate nature, the Commission maintained two mobile vans and fixed-site monitoring stations capable of tracing airborne pollutants. In 1964, the first Air Pollution Warning System was put into operation and, through coordination by the Commission with its member states, it has been periodically updated and strengthened as new information became available. In April 1970, the Commission was designated as the coordinating agency for the NJ-NY-CT Air Quality Control Region under the federal Air Quality Act. Pollutant values and meteorological conditions did not warrant activation of the system during 2010.

The Commission has maintained round-the-clock response for air pollution complaints since the late 1960s. A field office, established on Staten Island in 1982, was especially important during 1986 when odor complaints reported to the Commission peaked at nearly 3,500 complaints affecting 63 different neighborhoods throughout Staten Island. Over the last 20 years, Staten Island was the source of more citizens' complaints than any other area in the Commission's jurisdiction; mainly due to the Fresh Kills Landfill. However, since the landfill's closure in 2001, complaints have been minimal. For the 12-month period ending September 30, 2010, the Commission received five odor complaints from five different neighborhoods. No garbage odors were reported to the Commission for the tenth consecutive year.

IEC's Staten Island field office was closed in 1989 due to budgetary restraints, but the Commission still maintains a 24-hour-a-day, 7-day-a-week answering service (718-761-5677) to receive complaints. The IEC contacts and works closely with the appropriate enforcement agencies and health departments in NY and NJ to perform follow-up.



## Ozone Health Message System

For the 23rd consecutive year, the Ozone Health Message System was activated to alert the public of unhealthy levels of ozone in the atmosphere of the Metropolitan Region. The system was developed as a cooperative effort by the IEC and environmental and health representatives from the States of NJ, NY and CT; New York City; and the US EPA. It serves as a central source of precautionary advice on ozone during the warm weather months (May to October) when higher concentrations of ozone occur.

The IEC received one ozone and three fine particulate (soot & dust) advisories from the NJ Department of Environmental Protection. The number of advisories and temporal span were considerably less than past years. During 2010, it was not necessary for IEC to issue a region-wide Ozone Health Message.

## Regional Air Pollution Warning System

The IEC is the coordinator of the NJ-NY-CT Air Quality Control Region's High Air Pollution Alert and Warning System. Based on high pollutant concentrations or stagnation advisory reports, the Commission may activate this system. The pollutant levels and stagnation advisory reports did not warrant activation of the system during this past year.





# LEGAL ACTIVITIES

Legal Counsel advances the mission of the Commission in regulation and enforcement, as well as outreach and examination of factors affecting the tri-state environmental District.

Legal Counsel:

- *proactively seeks to assure compliance with IEC regulations, to recover damages from polluters and ensure accountability and remediation*
- *counsels the Commission about state and federal regulatory changes*
- *counsels the staff and Commissioners on related matters including without limitation, matters relating to insurance, ethics, contracts, personnel, labor and management issues.*

In addition to litigation, Legal Counsel must synthesize and analyze proposed legislation, regulatory changes and local issues in the member states, which may affect the IEC's environmental district. This may include:

- *assisting with or delivering testimony upon the request of the Commission*
- *updating legislators seeking information*
- *reviewing agency and interagency policies and memoranda*
- *insisting that IEC regulations be incorporated into permits.*

Litigation, negotiation, and dispute resolutions are all options to ensuring compliance and fostering cooperation, which was the starting point for the Commission in 1936.

The Interstate Environmental Commission is a tri-state commission whose Compact is part of the laws of each member state. Its regulations are enforceable and action may be brought in the courts of all of the states. The IEC received Congressional consent and therefore its actions and regulations have a federal imprimatur. As such, the IEC is in a unique position to work on behalf of the interest of the Commission's environmental District. Where IEC regulations are more stringent than State regulations, the IEC Water Quality Regulations must be enforced. Article XI of the Compact provide that member states may pass stricter water quality regulations.

Some current IEC legal activities include testimony before legislative committees, SPDES permit litigation and ensuring sound environmental practices at landfills.



An administrative decision was issued by the NYS DEC Commissioner on June 10, 2010, concerning nitrogen remediation and problems by combined sewer overflows (CSOs), as well as permit language for New York City's 14 municipal wastewater treatment plants. The Commission was an amicus party in the nitrogen remediation litigation, for which the Commissioner held that a 2005 Consent Order must be attached to SPDES permit renewals. While the decision holds that narrative water quality regulations are not necessary given reference to applicable law and attachment of the Consent Order, NYS DEC retained mention of the Water Quality Regulations of the IEC on the first page and footnotes concerning IEC Water Quality Regulations in the reissued permits. NYS DEC issued the SPDES permits valid through 2015.

IEC continues to monitor development plans for the Fresh Kills Landfill, which closed in 2001. IEC had intervened in an ongoing proceeding in 1986 to protect the environment from debris released and leachate from the landfill, eventually evolving into an agreement for a barge system. The case remains dormant and intermittent discussion has occurred during the past year among elected officials and stakeholders concerning development at the site. Once parties agree upon a plan and resolve any remaining issues, New York State would have to approve the plan.

# APPENDIX A: Projects & Expenditures

## NEW YORK – Wastewater Treatment Plant Projects & Expenditures

Nassau County, New York	Current Expenditures, Million \$	Current Projects	Future Expenditures, Million \$	Future Projects
Bay Park	17.358	Facility improvements: permanent lighting upgrade to enhance safety and security; new dechlorination system construction in progress.	2.557	Improvements to the raw sewage pump system; miscellaneous improvements to address operational problems throughout facility.
Belgrave	6.000	Installation of denitrification and UV disinfection facilities; additional upgrades include a new screenings building and a new secondary clarifier.	—	None Reported
Cedar Creek	53.448	Improvements to the sludge thickening and dewatering facilities.	—	None Reported
Cedarhurst	11.700	Facility will divert final non-treated effluent to Bay Park. Installation of a force main at Inwood pump station to Bay Park.	—	None Reported
Glen Cove	—	None Reported	4.5	Facility's bulk chemical and bulk petroleum storage tanks will be modified or replaced in order to meet state and federal regulations. Upgrades to the final tanks and sludge drying facilities.
Greater Atlantic Beach	—	None Reported	2.4	Due to modification of the district SPDES permit plant is required to reduce effluent ammonia concentrations and the total chlorine residual.
Great Neck Village	—	Per State Consent Order a plan involving diverting flow to Great Neck WPCP for treatment and nitrogen removal is in progress.	0.0147	Grit chamber rehabilitation: new chains, sprockets, rails, shafts and wear shoes. Installation of nitrogen removal facilities and UV disinfection is pending. A letter report was prepared to evaluate construction of the treatment plant using an MBR or an oxidation ditch in order to meet nitrogen limits.
Great Neck District	55.000	Green projects: producing biofuel utilizing waste vegetable oil from local restaurants. If feasible, digester gas will be used to generate electricity and heat for anaerobic digester systems with micro turbines. A rain garden will address stormwater runoff and act as a bio-filter that will pre-treat the site's stormwater runoff.	0.385	Planned upgrade and expansion to specific treatment units: primary tanks, primary sludge pumping system, new oxidation ditch system, four new final settling tanks, new effluent flow meter, new UV disinfection system and upgrades at the existing effluent pumping station. Improvements to solids handling system and installation of a new plant generator for back-up power are planned. In house manhole restoration is planned.
Jones Beach	2.500	Per 2005 State Consent Order, facility will divert treated effluent from the NY State Sloop Channel to the Cedar Creek facility.	—	Project to reduce concentration of total nitrogen using a SBR process. The design phase of this project is complete.
Lawrence	—	Per Nassau County Master Plan to consolidate flow, facility will divert to Bay Park.	6.000	Various plant-wide equipment upgrades and replacements with a major focus on BNR capabilities and UV disinfection. Upgrades include: removal of ammonia, total residual chlorine, and provide denitrification from the final effluent.

## NEW YORK – Wastewater Treatment Plant Projects & Expenditures, Cont'd

Nassau County, New York	Current Expenditures, Million \$	Current Projects	Future Expenditures, Million \$	Future Projects
Long Beach	2.000	Facility is operating under a State Consent Order (September 2008) to address dechlorination and ammonia removal effluent limitations. Work is in progress to modify one lift station on New York Avenue.	—	In negotiation with Nassau County to develop agreements where the County would assume control and operation of the collection system and treatment plant.
Port Washington	—	None Reported	None Reported	Force main from Pump Station "C" on Smull Place to main treatment plant will be replaced.
Oyster Bay	—	None Reported	None Reported	None Reported
Rockland County, New York	Current Expenditures, Million \$	Current Projects	Future Expenditures, Million \$	Future Projects
Jt. Regional Sewerage Board-Haverstraw	—	None Reported	—	Replacement of the existing bar screen and grit removal systems.
Orangetown Sewer District	2.300	NYSDEC Consent Order to upgrade disinfection capabilities and odor controls. Tier II/ Phase II of the Pumping Station Improvement Plan is in progress, includes rehab of sludge holding tanks Nos. 1 and 2.	0.500	Future phases of the Pumping Station Improvement Plan will include rehabilitation to 3 more pump station.
Rockland County Sewer District #1	146.825	Engineering studies addressing flow monitoring, I/I and hydraulic modeling of the collection system. Construction of a new 1.5 MGD advanced treatment facility to serve western Ramapo, the modernization of the existing Rockland County 28.9 MGD secondary facility is underway. The installation of principal trunk sewers, pump stations, force mains, and laterals in the Villages of Hillburn and Sloatsburg and the unincorporated portion of western Ramapo are in progress.	26.0	Additional existing treatment plant and pump station improvements, collection system construction for Western Ramapo, New York and the Cooper Morris Drive-Buena Vista Road-Dogwood Lane sewer extension and pump station are scheduled..
Suffolk County, New York	Current Expenditures, Million \$	Current Projects	Future Expenditures, Million \$	Future Projects
Huntington	—	None Reported	—	Collection system maintenance, i.e., cleaning and televising sanitary sewers. Preliminary plans have been prepared for the installation of the Hill Place siphon.
Northport	—	None Reported	8.130	Phase II of facility upgrades is currently under review. Phase II upgrades include denitrification filters, pH control system, dissolved oxygen control system, and influent screening system, collection system improvements which include sewer and manhole lining and repairs (I/I remediation) and shoreline sewer and pump station replacement.
Suffolk County Sewer District 1-Port Jefferson	0.150	Design work is underway for residential sewer replacements and new lift station in lower Port Jefferson. A pump station evaluation to assess hydraulics was completed and recommendations are being considered.	1.500	Sewer rehabilitation and pump station upgrades are planned for lower Port Jefferson.



## NEW YORK – Wastewater Treatment Plant Projects & Expenditures, Cont'd

Suffolk County, New York, Cont'd	Current Expenditures, Million \$	Current Projects	Future Expenditures, Million \$	Future Projects
Suffolk County Sewer District 3- Bergen Point	150.6	Engineering studies: grit handling improvements, UV disinfection facilities, a sludge dewatering and disposal system, designs for a 10MGD treatment plant expansion, an odor control system for the influent. Funding was awarded for Phase III of the collection system improvements. Phase I improvements for the I/I project and reduction of extraneous flows are under construction.	—	None Reported
Suffolk County Sewer District 6- Kings Park	—	None Reported	60.000	Installation of sewer systems in both downtown Smithtown and Kings Park along with pump stations, groundwater discharge, and a plant expansion of 1.2 MGD are anticipated for 2013.
Suffolk County Sewer District 21- SUNY Stony Brook	—	This facility is operating under a State Consent Order to update its chemical bulk storage facilities.	38.300	Construction of sequencing batch reactors is planned in order to increase the plant capacity by 0.15 MGD to a total design flow of 2.65 MGD. To enable compliance with LISS Phase III nitrogen reduction targets, a portion of the treated effluent will be diverted to groundwater.
Westchester County, New York	Current Expenditures, Million \$	Current Projects	Future Expenditures, Million \$	Future Projects
Blind Brook	9.000	Facility is operating under a 2008 State Order to meet SPDES permit limitations for total nitrogen and total residual chlorine reductions. Performance maintenance to upgrade plant process equipment underway, Jan. 2010.	—	None Reported
Buchanan	—	Sludge collection equipment currently being replaced.	—	None Reported
Camp Smith	—	None Reported	—	Additional plant upgrades including covers for trickling filters and new clarifier and contact tank buildings.
Mamaroneck	58.750	Facility is operating under a 2008 State Order to meet SPDES permit limitations for total nitrogen reductions, which includes a BNR upgrade. Repair and rehabilitation of screening and grit facilities; Rehab of Magnolia and Woodbine pump stations.	7.930	Steel sheet piles that encase one of the Long Island Sound outfalls will be replaced, designs for the replacement of the administration building roof and tower, design is planned for primary and secondary heating systems.
New Rochelle	323.000	Facility is operating under a 2004 State Order to meet SPDES permit limitations for total nitrogen, flow, CBOD and TSS percent removal, and total residual chlorine. Demolition of obsolete equipment is 85% complete.	7.900	Increased flow capacity, TRC construction and Composite Performance Implementation Project; BNR upgrade.

## NEW YORK – Wastewater Treatment Plant Projects & Expenditures, Cont'd

Westchester County, New York, Cont'd	Current Expenditures, Million \$	Current Projects	Future Expenditures Million \$	Future Projects
Ossining	4.900	Designs for the replacement of twin feeder aerial cables awarded; Design for new TRC limits, includes new Sodium Bisulfate tanks, piping, induction mixers, instrumentation and controls.	1.500	Design for structural rehabilitation of the chlorine contact tank.
Peekskill	11.270	Two pump stations are being upgraded with alarm systems and remote monitoring capabilities for various operating functions; rehabilitation of the Mill Street pump station. Electrical upgrades at one pump station and at the main facility; upgrade to the influent pumping stations	8.850	Design complete for new UV disinfection system.
Port Chester	—	Facility is operating under a 2008 State Consent Order to achieve SPDES effluent limitations for total nitrogen and total residual chlorine. Design phase of an HVAC upgrade.	0.105	None Reported
Yonkers Joint Treatment	—	Currently upgrading digester system, dewatering building; Installation of automatic skimmers on final clarifiers, contact tank and piping upgrades. Designs completed for HVAC rehab in screenings/grit building. Three projects currently underway at North Yonkers Pump Station.	—	Phase II construction of bulkhead rehabilitation, replacement of emergency generators, upgrades to engine generators. Alexander Street influent structure and tower upgrades; Construction of surge chambers to protect the North Yonkers Pump Station force main.
Springvale Sewerage Corporation	—	None Reported	—	None Reported
Yonkers Joint Treatment	—	None Reported	—	None Reported
New York City, New York	Current Expenditures Million \$	Current Projects	Future Expenditures, Million \$	Future Projects
Bowery Bay (Queens)	510.5	Multi-phase facility upgrade including: replacement of process equipment, electrical distribution and HVAC; Phase II addresses improvements to the solids handling facilities; Phase III addresses BNR improvements.	55.0	Phase IV of the upgrades includes an upgrade to the emergency generator facilities.
Coney Island (Kings)	49.250	Code compliant fire alarm system; modifications and improvements to the chemical bulk storage and petroleum bulk storage facilities. Installation for new truck unloading containment pads, drainage piping and associated equipment. New chemical system will be linked to the existing SCADA system over a fiber optic link.	33.0	New diffuser ; the failed pipe and outfall structure will be demolished.
Hunts Point (Bronx)	508.5	Multi-phase facility upgrade: Phase I includes Consent Order mandates for hydraulic improvements to allow treatment of twice dry weather design flow (200 MGD); Phase II -BNR enhancement. Phase III (solids handling facilities) is under design; Phase IV is the installation of carbon addition facilities.	—	None Reported

## NEW YORK – Wastewater Treatment Plant Projects & Expenditures, Cont'd

New York City, NY, Cont'd	Current Expenditures, Million \$	Current Projects	Future Expenditures, Million \$	Future Projects
Jamaica (Queens)	308.0	Plant-wide expansions: Phase I includes: new installations of treatment units such as a primary tank splitter box, a primary tank, and a primary force main. Phase II includes: new secondary screenings building, main building alterations, a residuals handling building, an administrative and maintenance building, new covers for existing sludge storage tanks, rehabilitation of the existing air blowers, new fine bubble diffusers in the aeration tanks, odor controls, emergency lighting and a boiler plant.	—	None Reported
Newtown Creek (Kings)	4,145.0	Multi-phase facility upgrade project. Phase IA includes: main building remodel, a visitor's center, new solids handling facility, new support and laboratory building. Phase IB includes: construction of north and central batteries and the Manhattan pump station upgrade. Phase II includes: new central residuals building and demolition of existing digesters. Phase III includes: rebuilding of existing south battery (grit, aeration and sedimentation tanks).	60.0	Facility upgrade Phase III includes: three new sludge vessels and a nature walk and various process enhancements including digesters, aeration tanks, disinfection building and north control building. Final site work including landscaping, on site roads, parking areas and site lighting.
North River (New York)	142.1	Facility is operating under a 1992 State Consent Order to address issues of capacity, odor, and air emissions. Major projects to address Consent Order include: rehabilitation of odor control system, process air upgrade, dissolved oxygen probe, increasing waste sludge capacity, reconstruction of 6 of 8 remaining digester tanks.	11.4	New thickening centrifuge installation; address lead contaminated paint; improvements to engine room.
Owls Head (Kings)	181.55	Reconstruction of Avenue V Pumping Station: wet well extension, generator building, force main expansions.	—	None Reported
Red Hook (Kings)	—	A continuing experiment, under way since July 2003, involves fuel cell efficiency.	—	None Reported
Rockaway (Queens)	—	Ongoing engineering studies are addressing total residual chlorine management, chlorine disinfection system improvements, and the first planning phase of plant-wide improvements (No cost provided).	—	None Reported
Tallman Island (Queens)	2,818.0	Multi-phase facility upgrade. Phase I includes replacing main sewage pumps and process air blowers. Phase II involves BNR enhancement and plant-wide instrumentation. Phase III continues BNR enhancement. In progress is the Alley Creek Drainage Area Improvements/CSO Abatement Facilities Project. Flushing Bay CSO facility additional elements: 25 MG retention tunnel, sewer upgrades and dredging.	—	None Reported
Wards Island (New York)	359.9	Multi-phase facility upgrade including rehabilitation of the Bronx and Manhattan grit chambers. Upgrades to chemical and petroleum bulk storage systems, digester gas system, secondary treatment systems.	18.7	Plant Stabilization 4: Primary sludge pumping, dewatering systems, BNR improvements.
26 Ward (Kings)	140.41	Multi-phase facility upgrade. Phase II includes replacement of the main sewage pumping station force main and other various collection system installations. Phase III includes BNR installations, refurbishing of existing air blowers, and construction of new chlorine storage building and the installation of three new diesel engine generators.	622.0	Expansion of plant to accept 50 MGD of additional flow during storm events; multi-phase construction will include two additional preliminary settling tanks, a new raw sewage pumping station with additional chlorine contact tanks, an odor control, and scum removal system. Regulator reconstruction, upgrades to sludge digesters/thickeners.



## NEW JERSEY— Wastewater Treatment Plant Projects & Expenditures

New Jersey	Current Expenditures, Million \$	Current Projects	Future Expenditures, Million \$	Future Projects
Bergen County Utilities Authority-Edgewater (Bergen)	2.8	Updating BCUA Wastewater Management Plan.	16.3	Treatment unit upgrades and facility improvements; Planned extension of existing outfall pipe; Phase I SCADA and security improvements and Phase II equipment improvements.
Joint Meeting of Essex/Union (Union)	8.5	Pump and valve replacement; Source water system upgrades	2.0	Facility improvements: plant access and parking.
Linden-Roselle Sewerage Authority (Union)	N/A	Planned designs for the Liquid End Facility Improvements.	12.0	Plant upgrade including improvements to aeration tanks, clarifiers, and microgeneration.
Middlesex County Utilities Authority (Middlesex)	93	Main facility upgrades include an alternate electric power source consisting of two (2) 2.75 MW diesel generators; upgrades to the electrical distribution system; a new primary influent line with a new flowmeter; and a second RTO in the biosolids processing facility.	22.5	Upgrades will be implemented at the original Sayreville pump station. A rehabilitation of 200 LF of CMP interceptor is planned for 2012.
Middletown Sewerage Authority (Monmouth)	16.877	Facility upgrades: installation of fine bubble aeration diffusers, one aeration tank and one clarifier. An infiltration/inflow study for drainage basin 2: repair and rehabilitation of sewers. Ongoing energy audit study.	—	None Reported
North Hudson Sewerage Authority-Adams Street (Hudson)	65.529	Collection system upgrades: repair of catch basins, manholes, sewer lines, and the 18th and 11th Street pump station upgrade. Pump controls are being replaced in the effluent and trickling filter pump stations. Alternative energy project using solar panels at the main treatment plant includes new roofs and building HVAC. Main facility improvements.	3.460	Main facility improvements include the replacement of the primary sludge pumps, new sludge transfer pumps and various controls. Old wooden sewers in the Hoboken collection system will be replaced. CSO regulator improvements were planned for 2008. Bids were requested during January 2008 for the construction of a new wet weather pump station. An operational start date is during mid 2011. Another collection system project involves the installation of another floatables module.
North Bergen UA-Woodcliff (Bergen)	0.525	Upgrades to primary treatment units; Bar screen/ comminutor replacement; SCADA upgrades.	—	None Reported
North Hudson Sewerage Authority-River Road (Hudson)	11.641	Three solids and floatables screening modules are being constructed. Facility improvements: secondary clarifier, installing a new influent bar rack, and performing a fire system upgrade.	—	None Reported
Passaic Valley Sewerage Commissioners (Essex)	48.703	Engineering studies: filter press/decant facilities; operation optimization; computer monitoring of final clarifiers during wet weather; Phase 2A of oxygenation tank improvement; upgrades to effluent pumps; Phase II of heat treatment plant supernatant return.	22.1	Final clarifiers scum removal system replacement.

## **CONNECTICUT– Wastewater Treatment Plant Projects & Expenditures**

Connecticut	Current Expenditures, Million \$	Current Projects	Future Expenditures, Million \$	Future Projects
Bridgeport-East/West Side (Fairfield)	5.118	CSO improvement program. Engineering studies: evaluation of sludge processing, low level nitrogen, and River St. pump station and Island Brook Interconnect Sewer Design.	11.0	River St. pump station and Island Brook interconnect sewer out to bid; CSO H1 Phase A Lining; additional pump station construction at Lake Forest and Sequioa went to bid.
Fairfield (Fairfield)	0.180	5-Phase Infiltration/Inflow Plan-system evaluation and rehabilitation.	0.220	Rehabilitation of sewer lines in Section II.
Grass Island WWTP-Greenwich (Fairfield)	3.117	Engineering studies: collection system, grit and BNR. Phase II of sewer system rehabilitation program and aeration tank upgrades.	14.450	Proposed plant improvements: RAS pumps, WAS pumps, aerations systems upgrades, final effluent pumps and controls. Design for pump station rehabilitation. Riverside Railroad Force Main Crossing project design.
Greater New Haven (New Haven)	—	Low level nitrogen removal, sewer separation construction, and tide gate improvements.	0.220	Long-Term CSO Control Plan, upgrade East Shore wet weather capacity, comprehensive collection system upgrades, low level nitrogen removal.
Milford-Beaverbrook (New Haven)	—	None Reported	—	None Reported
Milford-Housatonic (New Haven)	37.0	West Ave and Gulf Pond pump stations upgrades.	—	None Reported
Norwalk (Fairfield)	36.585	Engineering study to address fats-oils-grease disposal. Facility-wide upgrades 30% complete.	85.0	CSO remediation on Norwalk River, main facility aeration system updates, stormwater treatment system and SCADA updates.
Stamford (Fairfield)	—	None Reported	0.220	Proposal for a project to convert wastewater biosolids to energy using gasification process.
Stratford (Fairfield)	—	None Reported	—	None Reported
West Haven (New Haven)	30.8	Facility upgrade: two new secondary clarifiers, improvements to the existing secondary clarifiers, primary clarifiers, existing aeration tanks including new blowers, new return pumps, new screening equipment, new lab and technical support building, new SCADA system, improvements to the administration building and landscaping.	—	BNR upgrades slated to start May 2012.
Westport (Fairfield)	0.650	Residential gravity sewer extensions are being installed for the Imperial Avenue/Keyser Road vicinity.	—	None Reported
Milford-Beaverbrook	—	None Reported	—	None Reported
Stratford	—	None Reported	—	None Reported

## APPENDIX B

### Financial Statement FY 2010

The Commission's accounting records are maintained on a cash basis and are audited annually. The following is a statement of cash receipts and disbursements for fiscal year July 1, 2009 to June 30, 2010:

<b>CASH BOOK BALANCE AS OF JUNE 30, 2009</b>	\$	912,140.11
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#### RECEIPTS

Connecticut - FY'10	\$ 73,173.15	
New York - FY'10	15,000.00	
New Jersey - FY'10	383,000.00	
EPA - FY'09	171,849.00	
EPA - FY'10	340,000.00	
Section 604(b) ARRA Funds:		
Water QM & Modeling of the Byram River	21,792.75	
MS4 Survey of the Croton-Kensico Watershed, Westchester, NY	7,125.00	
Long Island MS4 Phase II Planning Program	58,223.25	
 Interest	 2,064.08	
Miscellaneous Receipts	<u>4,010.00</u>	
TOTAL RECEIPTS		<u>1,076,237.83</u>
Sub-Total	\$	1,988,377.94

#### DISBURSEMENTS

TOTAL DISBURSEMENTS		<u>1,566,466.33</u>
<b>CASH BOOK BALANCE ON JUNE 30, 2010</b>	<b>\$</b>	<b>421,911.61</b>
		=====

U.S. Treasury Bills	\$0.0	
Insured Money Market Accounts	381,679.52	
Checking Accounts	<u>40,232.09</u>	
	\$421,911.61	
		=====



# INTERSTATE ENVIRONMENTAL COMMISSION

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