INTERSTATE ENVIRONMENTAL COMMISSION

A TRI-STATE WATER AND AIR POLLUTION CONTROL AGENCY

2007

ANNUAL REPORT

OF THE

INTERSTATE ENVIRONMENTAL COMMISSION

Formerly the
INTERSTATE SANITATION COMMISSION

INTERSTATE ENVIRONMENTAL COMMISSION

A TRI-STATE WATER AND AIR POLLUTION CONTROL AGENCY
311 WEST 43rd STREET, SUITE 201 • NEW YORK, NY 10036
PHONE: 212-582-0380 FAX: (212) 581-5719 WEB SITE: www.iec-nynjct.org

January 24, 2008

The Honorable M. Jodi Rell
The Honorable Jon S. Corzine
The Honorable Eliot Spitzer
and the Legislatures of the States of
Connecticut, New Jersey and New York

Dear Governors:

The Interstate Environmental Commission respectfully submits its report for the year 2007.

The members of the Commission are confident that with the continued support of the Governors and the members of the Legislatures, the Commission will maintain active and effective water and air pollution abatement programs.

Respectfully submitted,

For the State of Connecticut — Chairman

For the State of New Jersey — Vice Chair

For the State of New York — Vice Chair

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STATEMENT OF THE CHAIRMAN OF THE INTERSTATE ENVIRONMENTAL COMMISSION

As I approach the end of my first term as Chairman of the Interstate Environmental Commission (IEC), I am proud to report on the performance and accomplishments of our Commission over the past year. The IEC is continuing to move forward with a broad-based agenda that is focused on interstate coordination, water testing and monitoring, response to emergencies, regulation and enforcement, research, and a full slate of activities to address public education and public outreach. The Commission is an integral part of a network of regional and multi-agency partnerships addressing environmental matters throughout the tri-state area.

The Commission has continued our commitment and involvement with the Long Island Sound Study and the New York-New Jersey Harbor Estuary Program, including special intensive surveys in support of these programs. We just completed our 17th year of monitoring in Long Island Sound to document dissolved oxygen conditions, our 7th year of monitoring for pathogens in the New York-New Jersey Harbor Complex, our 12th year of sampling shellfish harvesting waters in the New Jersey portion of western Raritan Bay, and our 5th year of ambient and point source sampling to determine the causes of bacterial contamination in the Byram River. Along with these programs, we are continually striving to build and reinforce lines of communication with our three member States' environmental and health departments and the US Environmental Protection Agency.

Additionally, the Commission participated in the fifth World Water Monitoring Day which grew out of 2002's first National Water Monitoring Day in which we also participated. In fact, IEC has participated in every annual event since 2002. The Commission joined with thousands of people around the world to collect water quality data and input our data to a world data bank. It is essential that we have participation at all levels — starting at the grassroots — to care for the natural resources that benefit us locally. The responsibility for the environment is not merely a governmental function . . . it extends all the way down the line from independent agencies to support on the grassroots level. That has been the Commission's policy and that is one of the reasons that I find my 15 years of service to the IEC so gratifying.

As Chairman of the sole environmental agency in the tri-state area with both regulatory and enforcement powers, I felt it incumbent upon us to make clear that it is the IEC's responsibility to encourage and promote interstate cooperation. To that end, we have established a position of respect among interstate commissions whose jurisdictions extend north to Canada and west to the Mississippi River. Exchanging ideas and cooperating with our fellow interstate commissions facilitates our ability to stay fully informed on all matters affecting the quality of our interstate waters and, consequently, to quickly react to potential

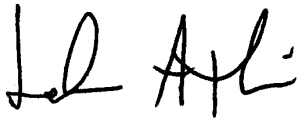
sources of pollution within our region.

We continue to be active in seeking grants to supplement our traditional state and federal funding. I am pleased to report that in addition to being awarded a research grant of $200,000 last year, we were successful in obtaining another research grant of $25,000 this year. The staff is to be commended for their perseverance for successfully obtaining these grants in a highly competitive atmosphere for limited research funds.

I am also pleased to note that our annual boat inspection trip covering areas of environmental concern attracted a large number of participants including legislators, environmental officials, members of the press and concerned citizens. This year's trip covered Raritan Bay, the Arthur Kill and Fresh Kills Landfill, the lower portion of the Hudson and East Rivers, and New York Harbor including Lower Manhattan and the Hudson County and Brooklyn shorelines. The trip enables us to point out both environmental successes and some of the problems that still confront us within our District. This is only one example of the wide range of the Commission's outreach programs. Some of these programs are conducted solely by IEC, and others in conjunction with interstate commissions and professional pollution control organizations. These activities include meetings with key legislators as well as appearances before citizen groups, student internship programs, and public education campaigns. In this connection, I am fully supportive of IEC's strong public education programs and campaigns to further communication and intensify public awareness of water quality and environmental issues.

This Annual Report offers a full review of the wide scope of the Commission's programs and activities, including an update of our legal activities in the areas of regulation and litigation. I invite you to visit our website, www.iec-nynjct.org, for continuing reports and back issues of Annual Reports. This year's Report will soon be available on our website.

On a personal note, I want to sincerely thank my fellow Commissioners for affording me the opportunity to once again chair this vital agency that is so important to our region's environment. I also want to express my gratitude to the Commission's staff for their support and for carrying out our mission and responsibilities in a most professional manner.



John Atkin
Chairman

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I L L U S T R A T I O N S

I. EXECUTIVE SUMMARY

From the beginning, the 21st century has been marked by trying times. Issues of national security, global warming and sea level rise, fuel costs and home mortgage industry collapse are just a few of the front page realities. Many of the stresses of population and industrialization can be generally assessed in terms of use impairments which have measurable social and economic effects. Although often pushed to the back page because it is considered less than sensational news, water quality improvements, especially in this tri-state region, have been a success story.

Fortunately, returning to the water is a national focus. The Clean Water Act, established in 1972, set a national goal to restore and maintain the physical, chemical, and biological integrity of the waters of the United States. This year is the 71st anniversary of the Interstate Environmental Commission (IEC) — an agency with a mandate to protect this Tri-state Region's waters long before the creation of state and national environmental entities, and before national standards were established. The Commission is both delighted and gratified to report the great improvements in water quality throughout the Region where the majority of the waters are fishable and swimmable. However, the region still faces problems — some of which are local, and some global in nature. Hypoxia, sediment contamination, pathogens, habitat loss, combined sewer overflows (CSOs), municipal separate storm sewer systems (MS4s), atmospheric deposition, invasive species, global warming, impacts on living marine resources, land use issues and public education have all been identified as priority areas of concern. All of these issues have socio-economic impacts throughout the Region.

Following the recommendation of the Tri-State Treaty Commission, the Tri-State Compact establishing the District and the Commission was enacted in 1936, with the Consent of Congress. The Commission has an overall responsibility of protecting the environment by viewing the District from a regional, impartial and unbiased perspective. Whereas each state deals with issues within its own borders, the Commission can and does cross state lines. The Commission strives for interstate cooperation and coordination and to harmonize water quality standards, regulations and requirements throughout its District.

The mandates of the Commission are governed by the Tri-State Compact, Statutes, and the IEC's Water Quality Regulations. In addition to its mandates in water pollution, the capabilities and benefits of the Commission as a regional agency were also recognized when the IEC's interstate air pollution program began in 1962, and were further reinforced in 1970 when the Commission was designated as the coordinating and planning agency for the New Jersey-New York-Connecticut Air Quality Control Region. As the Commission plans to meet its mandates and goals for the future, IEC must adapt to a variety of conditions, but must also rely on good science and sound engineering as an integral part of the decision-making process. The Metropolitan Area contains a world class harbor that is able to support a wide spectrum of commercial and recreational industries and activities.

In October 2000, the name of this agency was officially changed from the Interstate Sanitation Commission to the ***Interstate Environmental Commission (IEC)***. The name change not only brought the Commission into the 21st Century, it more accurately reflects the nature of the Commission's mandates, mission and responsibilities that embrace a broad range of programs and activities that include air pollution, public involvement and education, and regulatory compliance. Nonetheless, the IEC's continuing emphasis is on water quality — an area in which the Commission is a regulatory and enforcement agency. The Commission's website — **www.iec-nynjct.org** — contains information on the IEC, including recent annual reports and other reports, and useful links to other appropriate websites. This Annual Report will also soon be available on the Commission's website.

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. As an interstate agency, the Commission views the Region as an environmental entity and is in a unique position to take the lead on regional issues. IEC can and does cross state boundaries in an impartial and unbiased manner. By interacting with other agencies and interstate commissions, challenges and successes are being shared to better address specific mandates. The staff continues to fulfill IEC's technical and administrative responsibilities within the limitations of the current resources. For the second consecutive year, the Commission was successful in being awarded research grants — one related to blending of wet weather effluents at sewage treatment plants and one addressing pathogens impacts. The expertise of the engineering-field-laboratory staff to execute and complete its ongoing water quality programs, as well as additional research projects, will ensure continued funding for the Commission.

The Commission's programs are geared to address specific environmental deficiencies and/or to assure compliance with the Tri-State Compact and the Commission's Water Quality Regulations. The programs are designed for gathering the information necessary for enforcement actions, opening waters for commercial and recreational shellfishing, opening waters for swimming, developing water quality and/or effluent criteria, determine immediate environmental conditions, responding to environmental emergencies, and other needs that may arise.

The Commission has contributed to the many significant improvements in the Region's waters. IEC's adoption of its year-round disinfection requirements was instrumental in opening thousands of acres of shellfish beds year-round since 1989. There have been fewer beach closings during the summer bathing seasons due to elevated levels of coliform bacteria, and no closures due to floatables for the past seven years. In 1997, the Commission amended its regulations to require mandatory notification to the IEC of planned sewage bypasses. This was done as an effort to eliminate or, at a minimum, lessen the impacts from planned sewage bypasses. Additionally, in conjunction with its three member states' environmental and health departments, US EPA and NYC DEP, the Commission coordinated and spearheaded the effort to have a computer model developed to predict the impacts of unplanned sewage bypasses on the area's beaches and shellfish beds. As part of this effort, regional notification protocols were developed and have been in place since the 1998 bathing season. This program has proved to be extremely effective and is an excellent example

of regional cooperation and coordination among many agencies. During late November, the Commission completed assembling the funding mechanism for a model update to address limitations of spatial assessment and recently promulgated federal regulations. To address the need for comprehensive monitoring throughout the New York-New Jersey Harbor Complex and its tributaries, IEC has taken a leadership role in the development of harbor-wide monitoring programs in an effort to address data gaps and share water quality data.

The Commission continues to put great emphasis and a high priority on public involvement, education and outreach activities. This includes testifying at public hearings and meetings on various issues of concern; lecturing at local schools, colleges and to community groups on subjects of environmental concern and Commission activities; participating in seminars and forums involving environmental professionals and the general public; and contributing to various outreach documents for congressional and public awareness. For many years, Commission staff has had hands on interactions with volunteer citizen water quality monitoring groups.

This report provides a record of the water and air pollution activities of the Interstate Environmental Commission for the period December 2006 through November 2007. To address the environmental problems within its area of jurisdiction, the Commission has focused on technical assistance, enforcement, engineering, planning, laboratory analysis, ambient and effluent water quality monitoring, statistical analysis, coordination, oversight and legislative/public outreach and education.

WATER POLLUTION

The Commission's water pollution abatement programs continue to focus on the effective coordination of approaches to regional problems. Opening additional areas for swimming and shellfishing remains a high Commission priority. The IEC's programs include enforcement; minimization of the effects of combined sewers, storm sewers, and municipal separate storm sewer systems; participation in the National Estuary Program; public involvement, education and outreach; control of floatables; compliance monitoring; pretreatment of industrial wastes; toxics contamination; sludge disposal; dredged material disposal; and monitoring the ambient waters — especially with regard to opening new areas for swimming and shellfishing.

Planning and construction is under way to provide water pollution control and abatement from municipal and industrial wastewaters discharging into the IEC's District waters. It is estimated that over $9.8 billion has been allocated by municipalities and bond act dispersements in the District for 296 projects recently completed, in progress, and planned for the future.

The Commission remains actively involved with the Long Island Sound Study and the New York-New Jersey Harbor Estuary Program — both part of the National Estuary Program. IEC participates on the Management Committees, implementation and planning teams, and on various workgroups for these studies. With the Comprehensive Conservation and Management Plans for the LISS and the HEP in place, IEC remains involved with the workgroups that are dealing with

total maximum daily loads for pathogens, nutrients and toxics. The Commission remains an active participant in the process for public involvement events and products, such as volunteer monitoring workshops, newsletters, tracking reports and fact sheets. The Commission has been involved with research proposal committees, science and technical advisory committees and interactions with citizen advisory committees throughout the District. In this regard, IEC is a member of the New Jersey Water Monitoring Coordination Council.

IEC's research vessel, the R/V Natale Colosi, is available year-round. Commissioned 19 years ago, 2007 proved to be a very full year of water quality monitoring. This was IEC's 17th consecutive year as a participant in the multi-agency intensive survey in Long Island Sound to continue to document dissolved oxygen conditions. For the 12th year in a row, at the request of NJ DEP, the Commission collected water quality samples needed by NJ DEP to check the sanitary conditions of the shellfish waters of western Raritan Bay. In support of NYS DEC's Hudson River Estuary Management Program, IEC completed its first year of a new pathogens monitoring program on the Hudson River. Since 2003, IEC has conducted pathogens trackdown investigations on the Byram River, a NY-CT interstate waterway. IEC coordinates its compliance monitoring program with its three member states' environmental departments, as well as with US EPA. This program consists of the Commission regularly sampling waste discharges from municipal and industrial permittees throughout the District. These and other sampling programs are detailed in this report.

For the 10th consecutive year, the Commission took the lead and coordinated the efforts of the Regional Bypass Workgroup which is comprised of 16 federal, interstate, state, county and local agencies. The Workgroup maintained notification protocols to inform each other of unplanned bypasses and, based upon modeling software especially developed to predict the effects of those bypasses, determined if area beaches and shellfish beds should be closed to protect the health of the public. During the 11-month period ending November 30th, a combination of 237 raw sewage bypasses, illegal connections, and treatment reductions occurred.

The Commission's involvement in several legal actions continued this past year. Those actions are detailed in the Legal Activities section of this report and are highlighted as follows:

- continued participation as a party in an administrative hearing requested by New York City regarding nitrogen and combined sewer overflows in the reissued permits for New York City's water pollution control plants; and

- continued involvement and oversight of the Consent Orders designed to prevent debris from escaping from the Fresh Kills Landfill located on Staten Island.

The Commission again took an active role in the annual World Water Monitoring Day. Water quality monitoring took place in a coordinated effort around the globe between September 18th and October 18th. The Commission joined thousands of volunteers, agencies and countries around the world to sample area waterways and report their findings. Aboard the IEC research vessel, nine sampling stations were monitored for a variety of parameters in the East River and Long

Island Sound; the results were input to an international data base.

The IEC laboratory has been located on the campus of the College of Staten Island (CSI) since late 1993. In addition to its day-to-day operations, IEC's laboratory personnel continue to collaborate with CSI on environmental projects of mutual concern. The IEC laboratory is certified by NJ DEP, NYS DOH and CT DPH and also follows US FDA procedures for sampling in shellfish waters. The Commission's laboratory is also certified under the National Environmental Laboratory Accreditation Program.

IEC's library holdings and archives continue to be updated and provide an accessible regional depository of water and air quality related subjects. The Commission's current and historical holdings have been sought and made available to the academic community, consulting engineering firms, attorneys, environmental and public awareness groups, government agencies across the nation, and international entities.

AIR POLLUTION

The Commission's air pollution monitoring and response programs remain in place. 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.

During the 12-month period from October 2006 through September 2007, the Commission received a minimal number of air pollution complaints. As it has been in the past, all of the calls originated from Staten Island, New York. Citizen complaints have proven to be an invaluable source of firsthand information about poor air quality; accurate odor descriptions could lead to the discovery of the emissions sources.

IEC continued its role as coordinator of the High Air Pollution Alert and Warning System for the New Jersey-New York-Connecticut Air Quality Control Region; conditions during the past year did not warrant activation of the system.

The Commission again participated in the Ozone Health Message System to alert the public of unhealthy ambient air conditions. Based on information received from its member states, the Commission disseminated the majority of 45 health messages — 27 for ozone and 18 for fine particulates — between May 25 and August 24, 2007, to the appropriate government environmental and health agencies throughout the region.

II. WATER POLLUTION

GENERAL

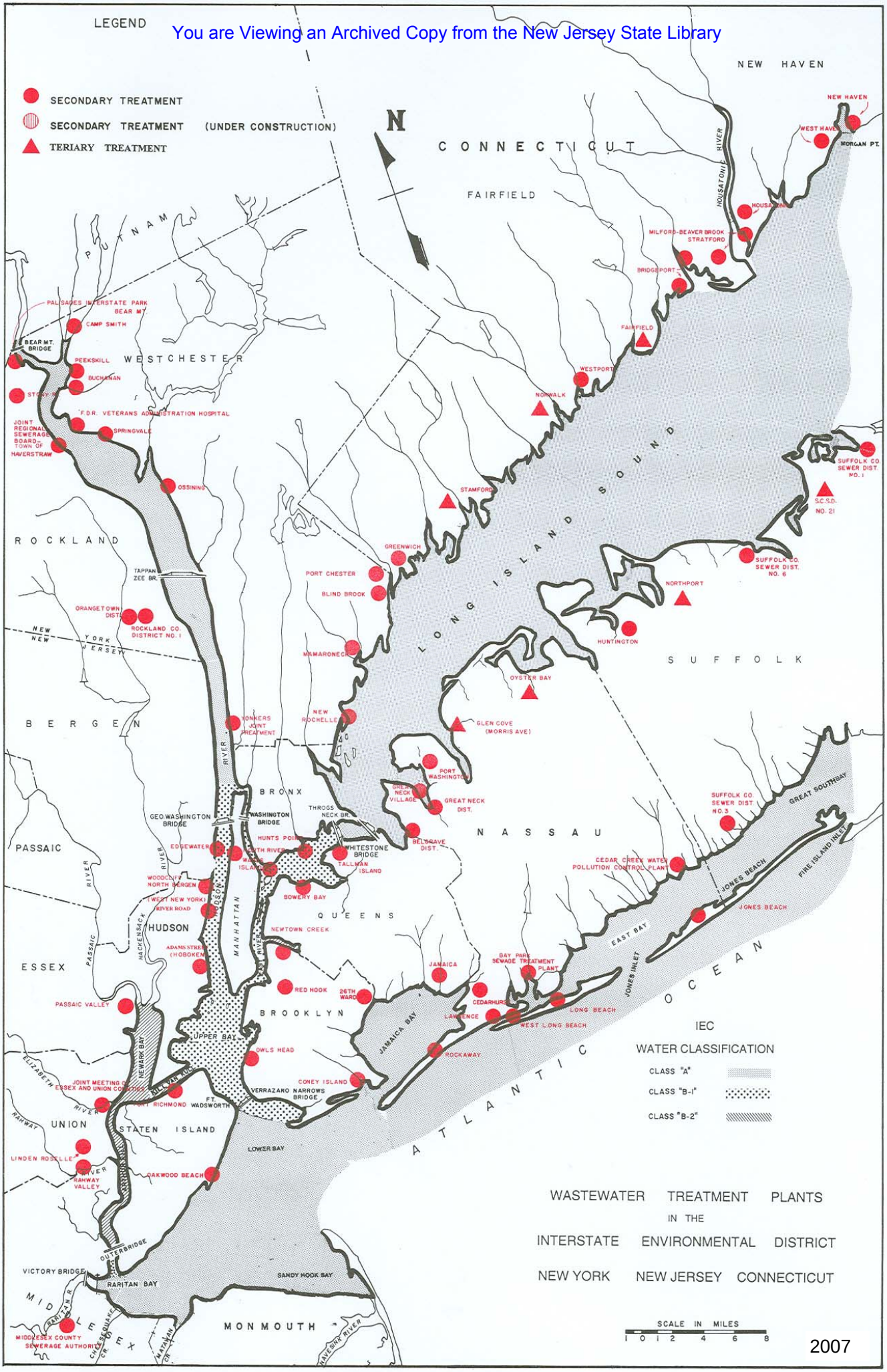
Within the Interstate Environmental District in 2007, over $9.87 billion was allocated for 296 water pollution control projects which were either completed, in progress, or planned for the future. These monies were allocated in the following manner: over $359 million for 66 completed projects, more than $6.4 billion for 160 projects in progress, and more than $3.11 billion for 70 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 the infrastructure have resulted in significant water quality improvements throughout the District over these past years. This a true 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 National Estuary Programs in the District have identified major problems affecting water quality which are exacerbated by anthropogenic impacts, namely, global warming, nutrient enrichment, historic sediment contamination, pathogens, habitat loss and floatables. These issues must be addressed in order to maintain and improve commercial and recreational maritime activities, living marine resources, land use, and habitat protection and remediation.

The Commission obtained the information on water pollution control projects presented in this section 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. The format used in this Report is designed to provide background, as well as the current status of construction, engineering studies and experiments, pilot projects, and related environmental conditions within the associated drainage basins. The information in this section is that which was available and accurate through November 2007.

A map of the Interstate Environmental District on the following page shows the locations of wastewater treatment plants which discharge into District waterways, the type of treatment and upgrade status of each plant, and the Commission's water quality classifications. Additional information on each plant is listed in Appendix A.



CONNECTICUT WATER POLLUTION CONTROL PLANTS

On July 26, 2007, at a ceremony at the Maritime Aquarium located in Norwalk, Connecticut, Governor M. Jodi Rell announced that all of Connecticut's waters in Long Island Sound are now part of a No Discharge Area. In an effort to preserve and improve the quality of the coastal waters of Long Island Sound, the Connecticut Department of Environmental Protection has completed and implemented the final No Discharge Area — the area from Branford west to Greenwich. This designation now requires all marine vessels to use pumpout facilities or pumpout boats for all sewage discharges — whether treated or untreated — anywhere in Connecticut's portion of the Sound. She acknowledged and thanked US EPA - Region 1 and CT DEP for the hard work and cooperation it took to designate the entire Sound as a No Discharge Area.

This represents the fourth and final No Discharge Area designation for the Connecticut portion of Long Island Sound. The majority of this designated coastal area is within the Interstate Environmental District. In 2003, the first No Discharge Area was designated in the Stonington area. This was followed by the Mystic/Groton area in 2004, and the Groton to Guilford area in 2006. The first three designated areas are outside the Interstate Environmental District. The established No Discharge Areas in the New York portion of the District include Huntington Harbor, Port Jefferson Harbor, Mamaroneck Harbor and parts of the Hudson River.

Bridgeport - East Side and West Side Plants, Connecticut (Fairfield County)

Project in Progress

A multi-year phased construction CSO improvement program has been ongoing since 1991 in the 3,880 acres that comprise the Bridgeport drainage basins. This is a dual-phase improvement program. Phase I has been considered 99% complete since 2003 at an estimated final cost of $32 million. Phase II design and subsequent construction is estimated at $80 million. All work is to commence during the 2008 summer season and be complete 2018; Phase II is in the design phase. CSOs which discharge into Black Rock and Bridgeport Harbors will be eliminated and the remaining CSOs will be monitored by a remote telemetering system.

Fairfield Water Pollution Control Facility, Connecticut (Fairfield County)

Completed Project

The compost building was replaced with a new stainless steel structure, including all necessary supporting equipment. The project was estimated to cost $3 million; the facility came on-line during June 2007.

Project in Progress

A sewer system I/I evaluation survey, the first of four phases, is 80% complete and will incur costs of approximately $200,000. Necessary construction identified by the survey will commence during the 2008 spring season.

Grass Island Waste Water Treatment Plant, Greenwich, Connecticut (Fairfield County)

Completed Projects

The associated force main replacements for pump stations A and D were completed during January 2007. The cast iron pipe was replaced with1,216 LF of 6-inch diameter (6"Ø) HDPE and 781 LF of 8-inch diameter (8"Ø) HDPE, respectively. The final cost incurred was $420,000. The UV disinfection design is complete; construction is planned to begin during late 2007. The main facility headworks design is complete; the bidding process began during the 2007 fall season. The remote supervisory control and data acquisition system (SCADA) upgrade was completed this past summer. The pump station alarm system design was finished this year; installations began during the 2007 fall season.

Projects in Progress

This 12.5 MGD secondary activated sludge plant is operating under federal and State Orders to evaluate force mains, implement a collection system maintenance program, upgrade the disinfection process with UV, perform an I/I study, and implement the findings of the ongoing SSES. The facility is in compliance with all Order dates.

Asset management planning began this past summer and is 25% complete. Installation of a new UV disinfection system was under way during October 2007 (2% complete). This $3.323 million project is anticipated to be operational during late 2008.

Phase II of the Sewer System Rehabilitation program is a Greenwich-wide continuation of Phase I which was completed during 2005. Under way since September 2006, components of Phase II include pointing repairs/manhole raising ($598,300) and sewer lining/manhole sealing ($929,945) which are trenchless repairs. These repairs are 95% complete. Five additional collection system projects are in design and/or are ongoing. Upgrade designs were completed for pump stations A, D, Eugene Street and Willowmere. Construction began on July 13, 2007, and upgrades are planned to be operational by early 2008. These upgrades are expected to cost about $1.449 million. The South Water pump station relief sewer is in design. The designs for the force mains associated with the South Water and Den Lane pump stations are ongoing. The Ivy Street and Ballwood pump stations' force main replacements began on May 8, 2007, and are 95% complete. The cast iron pipe was replaced with 958 LF of 6-inch diameter (6"Ø) C-900 and 802 LF of 8-inch diameter (8"Ø) C-900, respectively. Operational during this past July, estimated costs were

$390,000.

The Bruce Park force main is in the design and permitting phase. This project is an engineering challenge because the pipe path goes under both the Metro North Railroad tracks and I-95. The pipe path also runs parallel with an existing 24-inch diameter force main, as well as with other utility conflicts.

Future Projects

The South Water Street and Den Lane pump stations' force main installations are planned for the spring 2008 season. The six-month project is estimated to cost $1.2 million. The main facility headworks will be upgraded. Planned to begin during the 2007 winter, costs are estimated at $1.6 million.

Greater New Haven Water Pollution Control Authority - East Shore Water Pollution Abatement Facility (formerly the New Haven Water Pollution Control Authority), Connecticut (New Haven County)

Completed Projects

Engineering studies completed during 2007 include a biosolids report ($100,000) and an information technology master plan ($50,000).

Several components of the GNHWPCA and the City of New Haven Long-Term CSO Control Plan were finalized during 2007. The work included the Lombard Street sewer separation ($4.5 million) and improvements to two pump stations: Barnes Avenue ($1.8 million) and Quinnipiac ($2.1 million).

Projects in Progress

The Greater New Haven Water Pollution Control Authority was formed during 2005. This regional wastewater authority encompasses the towns of East Haven, Hamden, New Haven and Woodbridge. Presently, a wet weather capacity study is under way ($130,000).

Sewer separation construction will continue until combined sewers discharging to New Haven Harbor are eliminated. This work will not be completed until approximately 2019 at an estimated cost of $350 million. As of November 2007, this work is approximately 20% complete.

Future Projects

The Long-Term CSO Control Plan, which was completed and approved in 2003, is an ongoing 15-year program. There are several components planned to be completed during

2008. The State Street I/I improvements in the town of Hamden will incur costs of $2.3 million. The East Shore WPAF with its associated pump stations — East Street, East Shore and Boulevard — will be upgraded to maximize wet weather flows. The re-estimated cost for this phase is $70 million. The Lombard East/James Street sewer separation ($9.2 million) is presently being planned with a start date in 2008. A harbor crossing relocation of twin forty-two inch diameter (42" Ø) force mains ($10 million) is anticipated to begin during 2008. The beneficial reuse of waste heat from the sewage sludge incinerator to produce steam to turn a turbine generator which will produce 4.4 million KWH per year ($5.5 million) is also planned. The State Street and Union Avenue pump station improvements are scheduled for 2011 ($20 million). Planned to be under way during 2012, low level BNR capabilities will incur costs of $25 million.

Milford - Beaverbrook, Connecticut (New Haven County)

Project in Progress

This facility is being upgraded to meet LISS III nitrogen reduction targets. The additional removal will be accomplished by adding more tankage and implementing waste thickening. Construction began during November 2006 and is planned to be operational during April 2009. At a present cost estimate is $11.074 million, this project is 28% complete. This facility is operating under federal and State Consent Orders to reduce nitrogen loadings and attain permitted effluent limitations and requirements. The combined estimated costs for updating both Milford plants is $46 million. Refer to the Milford-Housatonic facility write-up for additional information.

Milford - Housatonic, Connecticut (New Haven County)

Projects in Progress

This facility is operating under federal and State Consent Orders to reduce nitrogen loadings and attain permitted effluent limitations and requirements. Facility and design plans are complete for this secondary 8.0 MGD plant which discharges to the Housatonic River. Both the Housatonic and Beaverbrook facilities will be upgraded; construction began during November 2006 and is now 34% complete. This upgrading and expansion includes new tankage to enable the facility to increase flow capacity to 12 MGD. It is anticipated that operations will begin during April 2009. Total costs for both Milford facilities are estimated at $46 million.

Two pump stations — West Avenue and Gulf Pond — will be upgraded with associated gravity sewers and force mains. The collection system designs are complete; construction and installations began during December 2006 and will coincide with the timetables for the main facility. Refer to the Milford-Beaverbrook facility write-up for additional information.

MILFORD-HOUSATONIC WATER POLLUTION CONTROL FACILITY
NEW HAVEN COUNTY, CONNECTICUT

PRIMARY TREATMENT BUILDING UNDER CONSTRUCTION
Photo Courtesy of Milford-Housatonic WPCF

Norwalk Waste Water Treatment Plant, Connecticut (Fairfield County)

Projects in Progress

This is a 20 MGD secondary activated sludge plant that is located on the Norwalk River which has a confluence with Long Island Sound. An engineering study is under way to address low level nitrogen reductions ($200,000). Another evaluation will address CSO and wet weather treatment, as well as capacity issues ($700,000). A third study is addressing SCADA instrumentation needs and remote control logistics for plant-wide operations ($122,500).

Stamford Water Pollution Control Authority, Connecticut (Fairfield County)

Completed Project

Under way since 2006, a solids drying and beneficial reuse facility is now 99% complete. The $17 million installation has an approximate operational start-up during December 2007. The Stamford wastewater facility, the fifth largest municipal plant in Connecticut, discharges to the east branch of Stamford Harbor in western Long Island Sound and provides treatment to the greater Stamford area.

Stratford, Connecticut (Fairfield County)

Project in Progress

Capacity expansion of this 11.5 MGD secondary treatment plant in conjunction with

a facility-wide upgrade, was approved by the Town of Stratford and CT DEP during 2005. The total costs to complete all construction phases are estimated at $52 million. This project has been under way since late 2006.

West Haven, Connecticut (New Haven County)

Future Projects

This facility is operating under a 1990 Stipulated Judgement that was amended in 1992. The Stipulated Judgement requires collection system, pump station and main facility upgrades. This facility is in compliance with Consent Order compliance dates. The Consent Order schedule requires substantial construction completion during 2009, with operational levels attained during 2010.

Facility plans for the 12.5 MGD secondary treatment plant and the collection system upgrades have determined that construction costs are estimated at $35 million. This modernization will incorporate BNR capabilities. A construction start-up date is planned for 2009 and has a 2-year scope of work.

Westport, Connecticut (Fairfield County)

Projects in Progress

A complete facility upgrade with nitrogen reduction capabilities is under way. The new facility will incorporate a four-stage oxidation ditch reactor system with an anoxic reactor, clarifiers and UV disinfection. Construction is estimated to cost $28 million. A phased in start-up of completed treatment units is being accomplished with final construction anticipated for 2008. During 2006, two new clarifiers and the UV disinfection facilities were on-line.

Under way since October 2006, a residential gravity sewer extension is being installed in the Hale Court neighborhood of Westport which includes Drumlin Road, Lilac Lane, Inwood Lane and Hales Road. Located south of the I-95 corridor, the project is estimated to cost $500,000.

NEW JERSEY WATER POLLUTION CONTROL PLANTS

Bayonne Municipal Utilities Authority, New Jersey (Hudson County)

Project in Progress

The treatment plant at the former Military Ocean Terminal (renamed the Peninsula at Bayonne Harbor) is now under the auspices of the Bayonne MUA. During 2003, the Bayonne MUA began a sewer integration project to link the Peninsula's sewer mains with those in the rest of the City. The sewage from this site will be treated at the PVSC treatment plant. Refer to the Peninsula at Bayonne Harbor write-up for additional information.

In 1990, the primary treatment facility in Bayonne, with its discharge to the Kill Van Kull, was converted to a pump station and diverted flows for treatment at the Passaic Valley Sewerage Commissioners' secondary treatment plant. The Bayonne Municipal Utilities Authority received a $3.6 million (eligible project cost) low interest loan in 2002 from the New Jersey Environmental Infrastructure Trust for the installation of an additional two miles of gravity sewer, as well as for surveying and relining of applicable existing sewers. The Authority is receiving a grant under the Wastewater Treatment Fund in the amount of $53,211 for the combined sewer system (partial) sewer separation work.

Edgewater, New Jersey (Bergen County)

Project in Progress

This facility is operating under a State Consent Order to complete an outfall extension ($1.3 million) into the Hudson River. Construction began during 2006, with substantial completion anticipated during 2007.

Future Project

Additional collection system upgrades in this drainage basin involve sewer separation at an estimated cost of $1.25 million. The Edgewater Municipal Utilities Authority is receiving a grant under the Wastewater Treatment Fund in the amount of $299,312 for the combined sewer system separation work. Construction schedule details were not available.

Joint Meeting of Essex and Union Counties (Edward P. Decher Wastewater Treatment Facility), New Jersey (Union County)

Completed Projects

All construction projects at this facility are in various stages of completion. A main

sewage pump rehabilitation includes new VFDs, impellers, motors, and a programmable logic controller system. This work is estimated to cost $3.5 million. The new analytical laboratory and office building will cost approximately $7 million. A new 3.2 MW cogeneration facility will utilize anaerobic digester gas and is re-estimated to cost $15.5 million. An addition to the SCADA network will be the installation of a plant-wide video surveillance system. A cost estimate was made in the amount of $350,000.

JOINT MEETING OF ESSEX AND UNION COUNTIES
UNION COUNTY, NEW JERSEY

NEW LABORATORY AND OFFICE BUILDING
Photo Courtesy of Joint Meeting

Future Project

Planned for the main plant site is a primary service tunnel electrical wiring and conduit upgrade. Construction start-up dates and costs were not available.

Linden Roselle Sewerage Authority, New Jersey (Union County)

Completed Project

The Authority conducted restoration and preventive maintenance on all facility buildings. Where needed, roofs, coping and sealing were performed. This $400,000 undertaking was operational on December 1, 2007.

Future Project

Planned for 2008, restoration and preventive maintenance will be performed on the clarifiers and sluice gates. Combined, costs are estimated at $300,000.

Middlesex County Utilities Authority (Edward J. Patton Water Reclamation Facility), New Jersey (Middlesex County)

Projects in Progress

The Authority is presently in the start-up mode for putting on-line the five newly installed (99% complete) indirect dryers with lime mixers. These units will reduce the volume and operating costs of the sludge end product. This project is estimated to cost $40.4 million.

Recently under way during September 2007, two new force mains to convey flows from the Edison pump station are estimated to cost $62 million. The 60-inch diameter (60"Ø) force mains are 4,160 linear feet each and will be encased in an 170-inch (outside diameter) tunnel. An operational start-up date is planned for November 2009.

Middletown Sewerage Authority, Township of, New Jersey (Monmouth County)

Completed Projects

Replacement of the grit classifier and cyclone equipment was accomplished during June 2007 and incurred costs of $50,000. Replacement of VFD units at the Fairview pump station was completed and on-line during July 2007; the final cost was $150,000. Collection system work was completed this past summer which addresses I/I in the Belford area of the Township. Beginning during July 2006, sanitary gravity sewers were cleaned, televised and grouted, as needed; manhole rehabilitation was performed concurrently. Estimated final costs were $150,000.

Projects in Progress

Subsequent to the engineering study to determine upgrade logistics and needs of this 10.8 MGD facility, designs are being prepared for upgrading the secondary treatment aeration system ($250,000).

Future Project

A main facility upgrade will include the installation of fine bubble aeration diffusers. This aeration system will increase the estimated costs to as much as $15 million. The 12-month construction schedule is planned to begin during 2009.

North Bergen Municipal Utilities Authority - Woodcliff Plant, New Jersey (Hudson County)

Projects in Progress

Since 1995, negotiations have been ongoing between this Authority and the NJ DEP to upgrade the plant design from a flow of 2.9 MGD to 3.4 MGD. During 2006, this secondary facility, which utilizes packed tower trickling filters, discharged an average of 3.11 MGD to the Hudson River.

The Authority is receiving a grant under the Wastewater Treatment Fund in the amount of $2,122,458 for sewage conveyance and reduction of combined sewer overflow discharges.

North Hudson Sewerage Authority - Adams Street Wastewater Treatment Plant (formerly Hoboken), New Jersey (Hudson County)

Completed Projects

Since October 2002, CSO abatement facilities have been installed along the Hudson River in Weehawken, New Jersey. A collection system consisting of a total of 19 regulators and 14 outfalls were enhanced with screening modules in order to eliminate solids and floatables greater than one inch in diameter (1"Ø). Two contracts to address this issue involve a conduit consolidation (completed during 2006) and a solids and floatables collection structure which was completed during 2007 at a final cost of $1.8 million.

Projects in Progress

This facility is operating under a State Administrative Consent Order to complete the installation of solids and floatables facilities; the Order dates are presently being met.

Collection system upgrades are under way. The contracts include repair of catch basins, manholes, and sewer lines. The 18th Street pump station upgrade is estimated to cost $3.5 million. The Authority is receiving a grant under the Wastewater Treatment Fund in the amount of $181,982 for pump station rehabilitation and replacement of force mains.

Pump controls are being replaced in the effluent and trickling filter pump stations ($579,000). An alternative energy project using solar panels will be incorporated into the main treatment plant. This undertaking includes new roofs and building HVAC and will incur costs of $2.737 million.

NORTH HUDSON SEWERAGE AUTHORITY
ADAMS STREET WASTEWATER TREATMENT PLANT
HUDSON COUNTY, NEW JERSEY

SOLIDS AND FLOATABLES CAPTURE UNIT WITH RETAINING WALL
Photo Courtesy of OMI, Inc.

Future Projects

Main facility improvements include the replacement of the primary sludge pumps, new sludge transfer pumps and various controls ($600,000). These installations have a 5-month agenda and are anticipated to be on-line during May 2008. Old wooden sewers in the Hoboken, New Jersey, collection system will be replaced ($2 million). CSO regulator improvements are planned for 2008 ($860,000). The 11th Street pump station will be upgraded at an estimated cost of $450,000. Bids will be requested during January for the construction of a new wet weather pump station. Estimates are expected to be approximately $7 million. Another collection system project involves the installation of another floatables module ($9.792 million).

North Hudson Sewerage Authority - River Road Wastewater Treatment Plant (formerly West New York), New Jersey (Hudson County)

Completed Project

A preliminary toxicity investigation was completed during August 2007. A comprehensive investigation will be under taken during 2008.

Projects in Progress

This facility is operating under a State Administrative Consent Order to have solids and floatables modules installed in the CSOs discharging to the Hudson River. Three solids and floatables screening modules are being constructed. The first was completed (~$7

million) and is in operation. Another module — located at Hillside Avenue in West New York, NJ — is 88% complete and is re-estimated to cost $11.641 million. A planned operational date is December 28, 2007.

Recently under way, $660,000 has been allocated to make improvements on the secondary clarifier (April 2008), install a new influent bar rack(May 2008), and perform a fire system upgrade (December 2008).

NORTH HUDSON SEWERAGE AUTHORITY
RIVER ROAD WASTEWATER TREATMENT PLANT
HUDSON COUNTY, NEW JERSEY

SOLIDS AND FLOATABLES CAPTURE STRUCTURE
Photo Courtesy of OMI, Inc.

Passaic Valley Sewerage Commissioners, New Jersey (Essex County)

Completed Project

The sludge degritting and screening system modernization is essentially complete at an estimated cost of $7.682 million. This project was closed out during the late 2007 fall season.

Projects in Progress

Twelve (12) final clarifier drive mechanisms are being replaced (66% complete) at an estimated cost of $2.629 million. A total of five (5) headworks screens are being installed (60% complete) at a estimated cost of $1.341 million. Approximate dates for operational startups are November 2007 and January 2008, respectively.

The New Jersey Harbor Dischargers Group, which is chaired by PVSC, is funding

a Nutrients Reduction Cost Estimation Study in support of the HEP Nutrients Workgroup which is developing a TMDL. This study is estimated to cost $409,000. The NJHDG is comprised of ten sewerage authorities representing 12 treatment plants (10 plants discharge to the Interstate Environmental District) which discharge to the New Jersey portion of the NY-NJ Harbor Estuary.

An additional phase of an ongoing sewer rehabilitation project is estimated to cost $8 million; this phase is awaiting final designs.

Peninsula at Bayonne Harbor (formerly Military Ocean Terminal), New Jersey (Hudson County)

Future Project

This site was formerly the Military Ocean Terminal (MOT). MOT was decommissioned during the fall of 1998 and has now reverted to the City of Bayonne. The Bayonne Local Redevelopment Authority (BLRA) has proposed a $32 billion plan to develop 18 million square feet of commercial and residential space. In December 2002, the complete and total transfer to the BLRA was finalized and the property was renamed The Peninsula at Bayonne Harbor. The 437-acre site is located in Upper New York Harbor. The proposed plan includes a port facility, townhouses, office space, movie production facilities, a marina, recreational facilities, and a retail complex. Part of this complex is Cruise Port - Bayonne (Cape Liberty Cruise Port - Bayonne, NJ), which is the first new cruise port in New Jersey since 1960.

During the Spring of 2003, the Bayonne MUA began the sewer integration project to link the Peninsula's sewer mains with those in the rest of the City of Bayonne. As is the case with the rest of Bayonne, the sewage from this site will be treated at the PVSC treatment plant.

Rahway Valley Sewerage Authority, New Jersey (Union County)

Completed Projects

Complete and on-line, two new dewatering centrifuges were installed. Collection system modifications included the installation of approximately 7,100 linear feet of 42-inch diameter (42"Ø) relief sewer beneath Routes1/9, as well as a subaqueous drilling beneath the Rahway River which has a confluence with the Arthur Kill. The final connection to the combined sewer pipe will be during 2008. This phase had a final cost of $8.96 million.

Projects in Progress

Since 2001, this facility has been operating under a State Consent Order to expand the capacity of the existing plant in order to accommodate additional wet weather flows from

CSOs; this plant is in compliance with Order dates. The milestone for substantial construction completion is between 2006 and 2008.

Under way since 2004, a cogeneration and sludge drying facility (97.7% complete) is being built. This facility will house three engine generator sets totaling 4.6 megawatts. Eventually, prime electrical power will be provided to all treatment plant expansions. It is anticipated that this facility will be on-line during the 2008 spring season. The preparation of a comprehensive strategic plan which will address the major plant upgrade is now 80% complete.

Expected to be operational during the 2008 fall season, expansion of this existing 40 MGD plant will be needed to accommodate wet weather flows due to the elimination of CSOs discharging to the Rahway River. The estimated $137 million project will include new headworks, new aerated grit chambers, a new primary settling tank, two new final clarifiers, filtration, UV disinfection and effluent pumping. Influent and effluent piping modifications, as well as site facility construction, are planned. Not included in this plant-wide upgrade is the rehabilitation of the digester building facade. Re-scheduled to start during December 2007, the facade work is estimated to cost $364,000.

ARTHUR KILL LIFT BRIDGE, AUGUST 2007
Photo by R. Collier

NEW YORK WATER POLLUTION CONTROL PLANTS

The Pews Oceans Commission, the US Commission on Ocean Policy and the Joint Ocean Commission Initiative have endorsed ecosystem-based management to improve the protection and restoration of coastal ecosystems. Many states and regions have begun considering how to integrate existing management into an ecosystem approach. New York State took a leadership role in 2007 with the New York Ocean and Great Lakes Ecosystem Conservation Act. This statute requires ecosystem-based management of New York's coastal ecosystems, and establishes the New York Ocean and Great Lakes Ecosystem Conservation Council to coordinate coastal management in New York.

The Council is required to deliver a report to the Governor and Legislature by November 1, 2008. The report will consist of the (1) demonstration of improvements that can be accomplished in eastern Lake Ontario and the Great South Bay through ecosystem-based management in cooperation with resource managers, local governments, industry, conservation and community-based organizations, and academic and research institutions; (2) defining of executive and legislative actions necessary to integrate ecosystem-based management with existing programs needed to advance the coastal ecosystem principles; (3) inclusion of a plan, schedule, and funding opportunities for implementation of executive actions; (4) creation of an ocean and coastal resources atlas to make information available to the public and decision makers; (5) establishment of a research agenda that identifies priority issues in need of further research to enhance ecosystem-based management; (6) recommended actions to preserve, restore, and protect submerged aquatic vegetation populations and meadows; and (7) identification of opportunities for regional ecosystem-based management with neighboring states and the federal government.

Bay Park Sewage Treatment Plant - Disposal District No. 2, New York (Nassau County)

Completed Projects

Design plans for several features of the plant were completed or nearly completed. The designs include influent pumping upgrades, plant-wide permanent lighting and miscellaneous plant-wide improvements (75% complete). A master plan was completed for sewage treatment county-wide. A portion of the study is addressing the feasibility of the consolidation of various sewage collection and treatment entities under the auspices of Nassau County. These entities have concurred in principle and are negotiating with the County to develop agreements whereby the County would assume control and operation of the collection systems and treatment plants. See the various plant write-ups located in Nassau County for more information.

This facility — under a 2004 State Consent Order to upgrade the chemical bulk storage facilities — has met its compliance Order dates. Modifications were completed on the main facility's chemical bulk storage tanks to ensure compliance with applicable

New York State regulations.

Project in Progress

Over $6.42 million will be incurred to modify the chilled and hot water piping in the main facility. The construction is 20% complete and is scheduled to be in operation by 2008.

Future Projects

Improvements to the site lighting and raw sewage pump system recently went to bid. Cost and construction schedules have yet to be determined.

Belgrave, New York (Nassau County)

Projects in Progress

More than 50% complete, denitrification and UV disinfection facilities are being installed at this 2 MGD trickling filter plant which discharges to Little Neck Bay, an embayment in western Long Island Sound. Construction and installations are planned to be operational during April 2009. The BNR upgrade will use a denitrification filter. Concurrently, additional upgrades include a new screenings building and a new secondary clarifier. This upgrade is re-estimated to cost $6.2 million. During 2003, the District was selected to receive a $2.9 million grant for the BNR upgrade from the 1996 Clean Water/Clean Air Bond Act. In addition to that grant, in January 2006, the District was selected to receive an additional $1,237,295 from the 1996 CW/CA Bond Act to help with the costs of the BNR and UV upgrade.

Blind Brook, New York (Westchester County)

Projects in Progress

This facility is operating under a 2004 State Order to meet SPDES permit limitations for total nitrogen and total residual chlorine reductions. The plant is in compliance with Order dates and is required to obtain operational levels by August 1, 2014. Installations at one pump station include alarm systems and remote monitoring of various facility functions. These installations are 50% complete and will incur costs of $30,000.

Future Project

Planned for 2008, performance maintenance to upgrade plant process equipment will incur costs of about $9 million. All work is planned for completion during 2009.

Bowery Bay, New York (Queens County)

Completed Project

The engineering evaluation of polymer addition for sludge thickening enhancement was completed during October 2006.

Projects in Progress

The Bowery Bay WPCP upgrade is a multi-phase modernization intended to improve process efficiency, reduce manpower requirements, and improve reliability. Subsequent to the project's initiation, the City entered into the NYS SPDES Administrative Consent Order - Nitrogen Reduction Agreement. Required under this Agreement, the Bowery Bay WPCP will be retrofitted to reduce nitrogen loadings into the East River and Long Island Sound. This facility is located on the upper East River south of Rikers Island.

Phase I includes replacement of most of the process equipment, as well as a complete replacement of the electrical distribution and HVAC systems throughout the plant. Process upgrades include new raw sewage pumps and drives, new preliminary scum collection and pumping equipment, replacement of return sludge and mixed sludge pumping systems, and replacement of the disinfection system. A centralized residuals handling building will be constructed to provide for collection and concentration of screenings and grit. A new plant instrumentation and control system is also being installed. The electrical distribution system improvements involve replacement of all distribution switchgear and construction of new unit substations and motor control centers. The substations and motor control centers will be sized for the eventual conversion of all plant equipment from 208V to 480V power supply. All new equipment will be 480V; all existing equipment to remain will be powered from the existing 208V motor control centers. A complete new boiler plant will be installed in a new addition to the main building. Heating hot water distribution piping and air handling equipment throughout the plant will be replaced. Upgraded personnel, laboratory and storage facilities are also being constructed.

The scope of work for this phase has been greatly reduced in order to expedite the contractors vacating the site. Items that were deleted include the residuals handling building, main sewage pumps #3 through #8 and associated headworks, return activated sludge distribution boxes and main building modifications. The main sewage pump replacement will be completed under another contract. Work on main sewage pump #1 is almost complete, and work on main sewage pump #2 is expected to start shortly. Phase I construction has been under way since December 2000. Currently, the anticipated completion date is re-scheduled for mid-2008. The bid price for Phase I was $213 million.

Phase II of the Bowery Bay WPCP upgrade addresses immediate necessary

improvements to the Solids Handling Facilities. The work includes the replacement of the existing gravity thickener mechanisms. The existing plunger type sludge pumps are obsolete and will be replaced with progressive cavity type units. Grinders will be provided to minimize the possibility of clogging the new sludge heaters that will be installed downstream. Deteriorated concrete walls and walkways will be repaired and existing hand railings replaced with railings conforming to current codes. The cost of Phase II is estimated at $37 million with an anticipated completion date of November 2008.

Phase III of the Bowery Bay WPCP upgrade details the BNR improvements required to bring the plant into compliance with the nitrogen loading reduction Consent Order. The scope of work included in this phase will relate to additional stabilization needs. The cost for this work is estimated at $228 million; the work commenced in November 2006 and is scheduled for completion in November 2011.

The New York City Department of Environmental Protection (NYC DEP) maintains a vast infrastructure comprised of 14 drainage basins. The 14 treatment facilities are sited throughout the City's five boroughs and range in capacity from 40 MGD to 310 MGD. The sludge management program consists of dewatering facilities sited at eight of the existing 14 treatment plants. The sludge is transferred from the other six plants by sea.

The 14 New York City drainage basins are serviced by a combined sewer system which has approximately 4,800 miles of sewers, 500 outfalls and 382 regulators with tide gates. Completed in 1985, the New York City Regulator Improvement Program was a study to inventory, assess and determine required improvements to the regulators, interceptors and tide gates. These elements control the amount of combined sewer flow captured for treatment, convey it to the treatment plants and prevent tidal inflow from entering the system.

A City-wide CSO abatement program has been under way since the 1980s. The objective is to eliminate or ameliorate the effects of untreated sewage which is bypassed during storm events. The first phase identified the extent to which CSOs result in the contravention of water quality standards. The second phase consists of facility plans involving the entire area of New York City, which has been divided into four major geographical areas of concern. The ultimate goals of the program are the removal of floatable and settleable materials, and the achievement of New York State standards for dissolved oxygen and coliform bacteria. These programs are being conducted in accordance with SPDES permit and/or Consent Order requirements.

Budgetary constraints necessitate the prioritizing of wastewater pollution control projects and watershed supply and enhancement projects. A new 10-year capital budget was proposed during 2003. The New York City CSO capital improvement program, which is currently in its eighteenth year, is being renegotiated with NYS DEC. Many projects previously reported here throughout the 14 drainage basins are being eliminated,

postponed or scaled down. Structural and nonstructural solutions are being evaluated and prioritized. Projects under way in the upper East River drainage basins are moving ahead. The East River proposals include floatables capture, holding tanks, disinfection, in-line storage and swirl concentrators. Tributaries of the East River will also have holding tanks and in-line storage. Refer to the Hunts Point and Tallman Island WPCP write-ups for additional information.

For the Jamaica Bay geographical area, holding tanks and in-line storage are the selected CSO abatement alternatives. The Spring Creek Auxiliary Water Pollution Control Plant (AWPCP) is an existing CSO detention facility with a storage volume of approximately 20.2 MG — 14.6 MG basin storage and 5.6 MG influent barrel storage. The Spring Creek AWPCP is located on Spring Creek, a tributary of Jamaica Bay. Refer to the Jamaica and 26th Ward write-ups for information on additional CSO projects.

The other areas that are being addressed are the Inner New York Harbor and Outer New York Harbor. The plan for the Inner Harbor includes maximizing flow to the WPCPs and activation of the flushing tunnel in the Gowanus Canal which was completed during May 1999. Planned to begin during July 2008, the tunnel will be widened and three pumps installed to replace the propeller which has been found to be inefficient and prone to corrosion. A cost estimate of $125 million was made with a completion date of 2012. In-line storage is planned for Newtown Creek at an estimated cost of $100 million; facility planning is under way.

Outer Harbor proposals include maximizing flow to the WPCPs and reducing CSOs and dry weather flows in Coney Island Creek. Preliminary design is under way for regulator improvements. Additional fees of $10 million are estimated to determine designated use and the attainment of New York State standards in the receiving marine waters.

The NYC DEP conducted 26 studies on waterbodies throughout the New York Harbor Complex to address compliance with water quality standards and designated uses. The Use and Standards Attainment (USA) Project began in March 2000. The Waterbody/Watershed Stakeholder Teams, a Government Committee of which IEC is a member, and the NYC Citizens Advisory Committee are active participants in this undertaking. The goals of the project were to (1) define specific and long-term beneficial uses for each waterbody, as well as water quality goals; (2) develop technical, economic, public and regulatory support for prioritizing and expediting implementation of projects and actions needed to attain goals; and (3) provide the technical, scientific and economic bases to support the regulatory process needed to define water quality standards for the highest reasonably attainable use, and to allow water quality standards to be attained upon implementation of recommended projects. Data collection and analyses are continuing in Jamaica Bay and its tributaries, New York Harbor, Gowanus Canal and the East River and its tributaries.

During 2004, the CSO Long-Term Control Plan Project was negotiated with NYS DEC. The hearing record closed during November 2004. This Consent Order incorporates the USA project. Key components of the revised Order include the construction of six retention tanks located in Alley Creek, Flushing Creek, Hutchinson River, Newtown Creek, Paerdegat Basin and Westchester Creek; installation of floatables controls in the Bronx River and Gowanus Canal; wet weather capacity upgrades to capture 2.5 times design capacity; and sewer system improvements. The Waterbody/Watershed Facility Plans were due June 30, 2007 and the Long Term Control Plan is due by 2017.

Refer to the Legal Activities section of this report for additional information.

Future Project

The Corona Avenue Vortex Facility (CAVF), which was completed in 2000, was conceived and designed as a pilot facility to evaluate the use of swirl concentrators or vortex-type technology to remove floatables from CSOs that discharge to Flushing Bay and the East River. The initial period of operation of the CAVF indicated that several design enhancements were required in order to reduce maintenance, prevent flooding, eliminate odors, and improve operator safety. The use of this facility is being modified. A wrap-up contract was designed to correct problems at the CAVF and 108th Street pump station which is a combined sewage pump station with a 40 MGD capacity. The wrap-up contract work at the CAVF includes the replacement of four slide gates with sluice gates and the installation of a tide gate to help isolate the facility during high tides. The current estimate is $6 million and is currently scheduled to begin during Fiscal Year 2008.

Camp Smith, New York (Westchester County)

Completed Projects

A new scum pump was installed on the primary settling tank in late March 2007, and is fully operational. A comprehensive rehabilitation of trickling filter #2, including the entire assembly with new media and distributor, was accomplished. This treatment unit was on-line during May 2007; no cost estimates were available.

Cedar Creek Water Pollution Control Plant - Disposal District No. 3, New York (Nassau County)

Completed Projects

A master plan was completed for sewage treatment Nassau County-wide. A portion of the study is addressing the feasibility of the consolidation of various sewage collection and treatment entities under the auspices of Nassau County. The Villages of Cedarhurst and Lawrence, and the Cities of Glen Cove and Long Beach have concurred in principle and are negotiating with the County to develop agreements whereby the County would assume control and operation of the collection systems and treatment plants.

See the aforementioned plant write-ups, as well as Bay Park, for more information.

The County negotiated a Consent Order (June 29, 2004) with NYS DEC regarding the upgrading of the plant's chemical bulk storage tanks to current standards. The work was completed and all Consent Order requirements have been met.

Projects in Progress

An engineering study dealing with improvements to the sludge thickening facilities is 90% complete. Improvements to the sludge dewatering facility is 25% complete. The project includes the installation of new belt filter dewatering equipment and ancillary systems.

Future Project

Construction is planned to begin shortly on a sludge dewatering facility with a new belt filter press and ancillary systems. The estimated cost is $32.344 million and the approximate operational start-up date is anticipated during 2009.

See the Great Neck Water Pollution Control District write-up for more information.

Cedarhurst, New York (Nassau County)

Completed Project

Operational during February 2007, replacement of two (2) existing trickling filter pumps was completed. Final cost estimates were $99,000.

CEDARHURST
NASSAU COUNTY, NEW YORK

TRICKLING FILTER PUMP REPLACEMENTS - BEFORE AND AFTER
Photo Courtesy of Cameron Engineering & Associates

Projects in Progress

An engineering report was recently completed for a dechlorination upgrade. However, this facility may join the Nassau County sewer/stormwater system. The antiquated facility, originally built in 1934, will probably need extensive upgrades to meet any new effluent requirements, such as ammonia reductions. The Village of Cedarhurst has concurred in principle and is negotiating with the County to develop agreements whereby the County would assume control and operation of the collection system and treatment plant. See the Bay Park and Cedar Creek write-ups for more information.

Presently, this facility's SPDES permit is under review. A permit modification for a reduction in the final effluent limit of total residual chlorine is being negotiated.

Future Project

Planned to begin during November 2007, facilities will be constructed to address total chlorine residual reduction. Estimated costs for this endeavor are $300,000.

Coachlight Square on the Hudson Association, Inc., New York (Westchester County)

Completed Projects

Beginning in March 2007, the south side of the treatment system was shut down for refurbishing. All tankage were cleaned out, pressure washed and resealed with an epoxy-fiberglass coating. All air lines, diffusers, anchors and bolts, and debris collection boxes were replaced. All tankage were operational in September and incurred costs of $110,000.

Coney Island, New York (Kings County)

Projects in Progress

The objective of the Paerdegat Basin CSO facility, located in Brooklyn at the intersection of Ralph and Bergen Avenues, is to improve the water quality of Paerdegat Basin by substantially reducing combined sewer overflows (CSOs) during rainstorms. The facility plan includes the reduction of CSO impacts through the maximized use of existing facilities (sewers, interceptors and treatment plant) amounting to 20 MG of in-line storage, and a 30 MG retention tank, all of which capture and store a large portion of combined sewage during a rain event that normally would have been discharged to the basin. The diverted flow is screened prior to entering the tank. After storms, stored combined sewage empties into the Paerdegat Basin Interceptor connected to the Coney Island Water Pollution Control Plant, partly by gravity and mostly by pumps, for complete treatment. Re-estimated costs were $310 million for all phases; Phases I and II were completed during 2002 and 2005, respectively.

Phase III of the Paerdegat Basin CSO facility is the construction of above-grade structures consisting of a screenings building, odor control and HVAC building, CSO pump back building, and a collections facilities south building with adjacent Community Board No. 18 meeting room. Construction is anticipated to be complete during 2008.

An engineering study dealing with the use of a catalyst for primary influent channel grease removal is continuing.

Glen Cove, New York (Nassau County)

Completed Project

The City of Glen Cove's wastewater treatment plant is one of 12 point sources in Nassau and Suffolk Counties that are required to reduce nitrogen loadings into Long Island Sound. It is also the largest nitrogen contributor of those point sources on the north shore of Long Island. This facility discharges to Glen Cove Creek which is a tributary of Hempstead Harbor, an embayment of western Long Island Sound.

A Clean Water/Clean Air Bond Act award was announced in 2003 for $1.02 million to help the City in reducing the discharge of chlorine by converting the current chlorine disinfection system to one that utilizes ultraviolet (UV), and to upgrade the chemical bulk storage system to meet regulatory standards. The UV installation is essentially complete and was in operation during February 2007. Final tank demolition is under way.

Project in Progress

A master plan was completed by Nassau County which includes the feasibility of the consolidation of various sewage collection and treatment entities under the auspices of Nassau County. The City of Glen Cove has concurred in principle and is negotiating with the County to develop agreements whereby the County would assume control and operation of the collection system and treatment plant. See the Bay Park, Cedarhurst, Cedar Creek, Lawrence and Long Beach plant write-ups for more information.

Future Project

Re-estimated at $3.5 million, the facility's bulk chemical and bulk petroleum storage tanks will be modified or replaced in order to meet State and federal regulations. This cost estimate also includes upgrades to the final tanks and sludge drying facilities. A construction and compliance schedule has yet to be determined.

Greater Atlantic Beach Water Reclamation District (formerly West Long Beach Sewer District), New York (Nassau County)

Completed Project

Recently completed, an effluent survey was conducted to determine the feasibility of converting the disinfection system from the use of sodium hypochlorite to UV.

Future Project

Planned upgrades will modernize all three substations in the collection system. The estimate for these improvements range from $300,000 to $500,000, but no construction schedule has been released.

Great Neck, Village of, New York (Nassau County)

Projects in Progress

This facility is operating under a 2005 State Consent Order to update the facility or divert flows. Completion of substantial construction is required by August 9, 2011. An engineering study is ongoing which addresses upgrading the treatment plant by adding four new pump stations and BNR retrofits. Other feasible alternatives involve combining flows with the Great Neck Water Pollution Control District and/or converting both plants to pump stations and diverting all flows for treatment at a regional facility located on the south shore of Nassau County. Another ongoing study will determine the ability of the District's 2.8 MGD plant to process the Village flow while the Village constructs the treatment plant improvements to meet the LISS III nitrogen reduction targets. Refer to the Cedar Creek and Great Neck Water Pollution Control District write-ups for additional information.

Future Projects

Planned by in-house staff, the grit chamber will be rehabilitated with new chains, sprockets, rails, shafts and wear shoes. Actual costs and final time schedule are pending. The installation of nitrogen removal facilities and UV disinfection is also pending.

Bids will be accepted during November 2007 for collection system rehabilitation which involves lining of 1,200 LF of 12-inch diameter (12"Ø) and 300 LF of 8-inch diameter (8"Ø) gravity sewers.

Great Neck Water Pollution Control District, New York (Nassau County)

Completed Project

An I/I study in certain areas of the collection system to evaluate hydraulic capacity and eliminate extraneous flows was completed during 2007. This involved manhole inspections and televising of sewer lines. Installation of water barrier manhole inserts was completed during May. The District-wide installations incurred costs of about $60,000.

Projects in Progress

The Feasibility Diversion Study, funded with $36,000 of CW/CA Bond Act grants, was completed approximately six years ago and concluded that the diversion of the entire effluent from this plant and the Village of Great Neck plant to a regional plant on the south shore is technically feasible. However, the study indicated that the diversion would be more costly and not as environmentally responsible as compared to other onsite upgrades. An engineering design is currently under way for a facility upgrade to achieve nitrogen removal. The plant design will utilize oxidation ditch technology.

Another I/I study is ongoing (30% complete) in certain areas of the collection system to evaluate hydraulic capacity and eliminate extraneous flows. This involves manhole inspections and televising of sewer lines.

This facility is operating under a 2006 State Consent Order to further the goals of the Environmental Conservation Law and the federal Clean Water Act. The plant is in compliance with all Order dates and is required to have substantial construction completed by December 31, 2011.

Future Projects

The nutrient reduction retrofit for this facility mandated by the LISS Phase III nitrogen reduction plan is estimated at over $32 million. An approximate construction start is December 31, 2008, with an anticipated operational start date of June 30, 2012.

Huntington Sewer District, New York (Suffolk County)

Completed Projects

Under way since April 2005, 1,400 linear feet of 12-inch diameter (12"Ø) gravity sewer lines were installed with a liner at a re-estimated cost of $132,400. Also completed during 2007, 14,263 linear feet of various sized gravity sewers were cleaned and televised at an estimated cost of $44,640. Another collection system completed task involved a District-wide base map ($27,500).

Projects in Progress

The Town of Huntington was awarded more than $8.8 million for the nitrogen reduction upgrade under the Clean Water/Clean Air Bond Act. The Town completed the final design in 2003; issued RFPs for professional services in 2004; and construction is now under way (70% complete). The biological nitrogen removal system selected by the Town will incorporate sequencing batch reactors (SBRs). The existing trickling filters will be converted to sludge holding tanks. The belt thickener and polymer storage/feed equipment will be installed in an existing building. An operational start-up is rescheduled for December 2007. A total project re-estimate is $17 million.

Two projects dealing with nonpoint source pollution are the Fleets Cove/ Knollwood Beach Stormwater Mitigation ($300,000) and the Centerport Harbor Stormwater Runoff Mitigation ($250,000). The Fleets Cove project design is complete with construction to start in 2006. The project includes installation of new drainage pipes, leaching basins and catch basins to treat stormwater runoff. The design for the Centerport Harbor Stormwater Runoff Mitigation Project is being finalized; this project entails improvements to the existing stormwater drainage system.

Future Projects

In addition to the biological nitrogen removal upgrade, the Town was awarded a CW/CA Bond Act grant of $366,000 in 2003 to convert the existing chlorine disinfection system to one that utilizes UV. The UV system design phase was completed during August 2005 at a cost of $36,900. Rescheduled to begin during February 2008, the re-estimated $674,100 installation will be operational during the 2008 early summer season.

Planned for April 2008, is design preparation and a bidding process with subsequent installation of the Hill Place siphon. A siphon is a section of sewer constructed below the hydraulic gradient due to an obstruction and operates under pressure.

Hunts Point, New York (Bronx County)

Projects in Progress

The Hunts Point WPCP upgrade is a multi-phase project intended to improve process efficiency, reduce manpower requirements, improve reliability and maintain compliance with all applicable permit requirements and Consent Orders. Subsequent to the project's initiation, the City entered into the NYS SPDES Administrative Consent Order-Nitrogen Reduction Agreement. Required under this Order, retrofitting of existing treatment units will reduce nitrogen loadings into the East River and Long Island Sound. This facility is located on the north shore of the upper reach of the East River.

Phase I, estimated to cost $203 million, is a 3½-year construction phase (90% complete) which includes Consent Order mandates for hydraulic improvements to allow treatment of twice dry weather design flow (200 MGD) by October 13, 2004, as well as upgrades to most of the wet stream processes. The major items to address include forebay gate chamber improvements, screen chamber modifications, main pump station upgrade, raw sewage conduit modifications, personnel facility additions, aeration tank froth and foam control, a RAS system upgrade, and chlorine building and contact tank modifications. A new central residuals handling facility will be built on site to handle grit, screenings, and scum under one roof.

Phase II construction has been under way since June 2003, and has been estimated to cost $192 million. This 3½-year construction phase (60% complete) involves BNR enhancement. To comply with nitrogen reduction requirements, this phase will also include new process and channel air blowers, polymer and alkalinity addition facilities, new centrate distribution facilities and a new main electrical substation. Upgrades will be made on the air headers, diffusers and aeration tanks. The BNR work in this phase is also under the Consent Order and must be constructed and operational by June 30, 2008.

See the Bowery Bay write-up for information on the City-wide projects.

Future Projects

Phase III, the upgrade of the plant's solids handling facilities, is currently under design and has been divided into four construction stages. The first stage will be the environmental remediation of the Barretto Point site, which will be the location of future sludge digestion facilities. Barretto Point is located on the East River south of the Bronx River confluence. The second stage will be a contract to renovate the existing digesters and to install facilities to add polymer to the main wastewater flow in order to enhance nitrogen removal. The third stage will be the upgrade of the existing sludge thickening facilities and the installation of new waste gas burners and a gas holding tank, which will replace existing facilities. The final stage will be the construction of two new egg-shaped digesters on the Barretto Point site. The scheduled completion date for the upgrade of the solids handling facilities is July 2014.

Phase IV is the installation of carbon addition facilities required to achieve future total maximum daily nitrogen limits. The carbon addition facilities are required under the Nitrogen Consent Order, and must be constructed and operational by July 2014.

The objectives of the East River CSO Facilities Planning Project are CSO abatement and improving the water quality of several rivers and creeks tributary to and including the East River. The primary goal is to increase, to an extent reasonably feasible and practical, compliance with NYS DEC water quality criteria for the East River and its tributaries through the identification, evaluation and selection of CSO abatement

alternatives that would achieve cost-effective improvement in water quality. The tributaries of concern are the Hutchinson River, the Bronx River, and Westchester Creek which are all located in the Borough of the Bronx. Alley Creek, which has a confluence with Little Neck Bay, is located in the Tallman Island drainage basin in Queens County.

The NYC DEP began its CSO abatement program in the 1980s, and expanded the program in response to permits issued by the State. The NYS DEC issued an Order on Consent (June 24, 1996) and a Modification (August 6, 1996) that required the NYC DEP to implement a CSO abatement plan to achieve, to a practicable level, compliance with water quality standards. On January 14, 2005, the parties entered into a new Order of Consent. This new Order supersedes all previous Orders.

The Hutchinson River CSO Storage Tanks Project has been developed by the NYC DEP to reduce CSO discharge from two outfalls into the Hutchinson River. The goals of the project are to improve the water quality and achieve, to the extent practical, compliance with New York State Class SB water quality criteria. These outfalls currently contribute, on an annual basis, about 95% of the CSO discharges to the Hutchinson River, contribute significantly to water quality degradation, and are the primary sources of violations of water quality standards in the river. The river has a confluence with Eastchester Bay in western Long Island Sound.

The project has gone through a number of design concepts, and the latest proposed plan, as submitted to the NYS DEC on June 30, 2003, provides for the design and construction of one underground storage conduit (4 MG) and an underground storage tank (3 MG) for a total capacity of 7 MG. Additional facility planning completed during 2007 has identified a better alternative and subsequently changed the design to a second storage tank. The proposed facilities would be constructed in two phases: June 2011 through June 2015 for the 4 MG southern storage tank, and December 2016 through 2023 for the 3 MG tank. The CSO storage units would be comprised of mechanical bar screens, an air treatment system, an overflow discharge conduit to the river, a pumping station to pump stored combined sewage back to the existing combined sewer system after rainstorms, and a force main to discharge pumped combined sewage into the existing combined sewer system. Provisions would be made for the future installation of disinfection facilities, if such facilities are later found to be necessary for compliance with NYS DEC regulations.

A September 2003 submittal to the NYS DEC provided for the Bronx River CSO Storage Facility Project that will include construction of a 4 MG off-line CSO storage conduit. Subsequently, in March 2004, a modified facilities plan identified minimal improvements to the river with the proposed plan. In lieu of the storage conduit, floatables control facilities will be installed at three outfalls discharging into the Bronx River. The in-line netting and screens alternative will be designed with hydraulic capacity to ensure no surcharging conditions in the upstream sewer system. As presently planned, the proposed facilities will be constructed under a single contract from June 2009 through June

2012.

As indicated in a June 2003 submittal to the NYS DEC, the Westchester Creek CSO Storage Tank Project will include the construction of an underground CSO storage tank with a capacity of 12 MG which includes the storage capacity within the supply/storage conduit. Other principal facilities to be constructed as part of the project include an operations building to house operational units including air treatment facilities, a single-barrel supply/storage conduit, and a pumping station with a rated capacity of approximately 10,000 gpm. In addition to the facilities required for CSO abatement, amenities for use by neighborhood baseball Little Leagues will be provided adjacent to the site of the underground storage tank. Provisions would be made for the future installation of disinfection facilities, if such facilities are later found to be necessary for compliance with NYS DEC regulations.

The preliminary phase of the Westchester Creek CSO storage tank will be for site preparation and construction of the Little League restroom facilities which will take place from June 2008 through February 2009. Phase I, scheduled for June 2011 through June 2015, includes the construction of the diversion chamber, supply/storage conduit and the tide gate chamber. Phase II includes the construction of the storage tank, Little League clubhouse facility and parking lot, and fencing. This phase will be conducted from December 2015 through 2022.

Jamaica, New York (Queens County)

Projects in Progress

Plant-wide interim expansions are ongoing in order to comply with SPDES limitations and requirements. The estimated cost for this work is over $260 million plus over $48 million in engineering and design construction management fees. There will be two construction phases. Phase I will entail new installations of treatment units such as a primary tank splitter box, a primary tank, a primary force main, the main sewage pumps driven by VFDs, return activated sludge pump stations, waste activated sludge pump stations, a chlorine contact tank, odor controls, and an electrical substation. Phase II includes a 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 process air piping and new fine bubble diffusers in the aeration tanks, odor controls, emergency lighting and a boiler plant. Final design for Phase II is complete. Phase II construction started in April 2005 and is anticipated to be complete by April 2010.

Under way in 2005, an engineering experiment dealing with a sludge thickener blanket probe is ongoing. Beginning in September 2006, a biofilter pilot is continuing. New for 2007, an experimental hypochlorite feed system is being tested.

CSO abatement projects in this drainage basin include the placement of a retention tank in Fresh Creek which is a tributary of Jamaica Bay. The preliminary design is under way. For additional information on other CSO control projects in the Jamaica Bay tributaries, see the Coney Island and 26th Ward write-ups.

See the Bowery Bay write-up for information on City-wide projects.

Joint Regional Sewerage Board-Town of Haverstraw, New York (Rockland County)

Completed Projects

An operational target date for the upgrading of the aeration system was scheduled and met during December 2004. The upgrade entailed the conversion from mechanical aerators to diffused air. The scope of work is now complete at a final cost of $2.4 million. The actual completion date was during the 2006-2007 winter season. Rehabilitation of the secondary clarifiers was completed during October 2007. Final costs incurred were $750,000.

Project in Progress

Under way since August 2007 (40% complete), a collection system upgrade involves the replacement of the Girling Drive pump station and associated force main. An estimated cost for this modernization is $1.1 million.

Future Project

A four-month agenda has been scheduled for the replacement of the existing bar screen. The $275,000 project is planned to be complete during August 2008.

Jones Beach State Park, New York (Nassau County)

Future Project

Planned for the 2008 spring season, the existing in-line grinder located at the head of the plant will be replaced. The contract was awarded and final approval from Albany is pending. Cost estimates were not available.

Lawrence, New York (Nassau County)

Project in Progress

This facility is operating under a State Consent Order to correct collection system Infiltration and Inflow. The Lawrence drainage basin discharges to Bannister Creek in

eastern Jamaica Bay.

A master plan was completed by Nassau County which includes the feasibility of the consolidation of various sewage collection and treatment entities under the auspices of Nassau County. The Village of Lawrence has concurred in principle and is negotiating with the County to develop agreements whereby the County would assume control and operation of the collection system and treatment plant. See the Bay Park, Cedarhurst, Cedar Creek, Glen Cove and Long Beach plant write-ups for more information.

Future Projects

Planning stages for Phase II facility improvements are complete. Various plant-wide equipment upgrades and replacements will be done as needed. The major focus will be BNR capabilities and UV disinfection. During November 2005, the Village of Lawrence was awarded $1.16 million by NYS under the 1996 CW/CA Bond Act. The grant is to help the Village upgrade the main plant to have the capability to remove ammonia and total residual chlorine, and provide denitrification from the final effluent. Estimates for these upgrades are $6 million. Final Village approval is pending, as well as construction start-up dates.

Long Beach, New York (Nassau County)

Projects in Progress

This facility is finalizing an engineering report dealing with remodifications to three existing lift stations. Bid specifications and construction agendas are dependent upon the City of Long Beach's review process and acceptance.

A master plan was completed by Nassau County which includes the feasibility of the consolidation of various sewage collection and treatment entities under the auspices of Nassau County. The City of Long Beach has concurred in principle and is negotiating with the County to develop agreements whereby the County would assume control and operation of the collection system and treatment plant. See the Bay Park, Cedarhurst, Cedar Creek, Glen Cove and Lawrence plant write-ups for more information.

Mamaroneck, New York (Westchester County)

Completed Project

Installation of emergency generators at three (3) pump stations was completed during December 2006. This work incurred costs of about $700,000.

Projects in Progress

This facility is operating under a 2004 State Order to meet SPDES permit limitations for total nitrogen reductions. The plant is in compliance with Order dates and is required to obtain operational levels by August 1, 2014.

Installations at eight pump stations include alarm systems and remote monitoring of various facility functions. These installations are 50% complete and will incur costs of $350,000. It is anticipated that this work will be complete by June 2008.

Future Projects

Planned for 2009 with a 12-month agenda, the screening and grit facilities will be repaired and rehabilitated. Costs are estimated at $3.75 million. During the same year, steel sheet piles that encase one of the Long Island Sound outfalls will be replaced at an estimated cost of $5 million.

New Rochelle, New York (Westchester County)

Completed Projects

Architectural, electrical and mechanical upgrades were installed at two pump stations; final costs amounted to $1.54 million. Both pump stations were operational during August 2007.

Projects in Progress

A December 12, 1986, NYS DEC sewer extension moratorium on the New Rochelle Sewer District remains in effect. This plant is operating at or above its permitted flow capacity. With anticipated and ongoing development, there is concern of insufficient plant capacity, as well as the ability to meet effluent requirements. This 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. The plant is in compliance with Order dates and is required to obtain operational levels by August 1, 2014.

Architectural, electrical and mechanical upgrades are being installed at two pump stations with costs estimated to be $5.9 million. These installations are 30% complete and are planned to be operational during April 2008. Installations at nine pump stations include alarm systems and remote monitoring of various facility functions. These installations are 50% complete and will incur costs of $300,000.

Newtown Creek, New York (Kings County)

Projects in Progress

The Newtown Creek WPCP upgrade project is a multi-phase project designed to improve process efficiency and treatment facility reliability. The project is mandated by the NYS DEC Second Modified Judgment on Consent. The Order requires an effluent enhancement program to achieve City-wide effluent limits; secondary treatment and step denitrification treatment levels by December 31, 2007; and complete construction by July 4, 2013.

Phase 1A is a 9-year construction phase with a re-estimated cost of $916 million. Under this phase, the existing main building will be remodeled with the inclusion of new boilers, new emergency turbine generators, and preparations for the installation of the process air blowers. Other items include a new electrical substation, locker facilities, and a visitor's center. Construction of these aforementioned items is currently 82% complete, is re-estimated to cost $260 million, and is anticipated to be complete during December 2008. The construction of the new solids handling facility consists of the new centrifuge thickening building, 24 thickening centrifuges, eight 3-MG egg-shaped sludge digestion tanks, a sludge transfer station, sludge storage tanks and gas holding tanks. These items are currently 90% complete, are estimated to cost $405 million, and are anticipated to be complete during April 2008. The construction of a new support building to house personnel facilities and laboratories, the disinfection facility, and chlorine contact tanks are progressing. Collectively, these items are currently 88% complete, are re-estimated to cost $251 million. These items were planned to be complete during April 2007.

Phase 1B, re-estimated to cost $1.43 billion, is a 10-year construction phase consisting of the construction of the north and central batteries of aeration and final tanks, aeration tank influent splitter box, and north control building. The installation of the process air system blowers in the main building and process air mains across all three batteries is nearly complete. Collectively, this phase is currently 75% complete, is re-estimated to cost $901 million, and is planned to be operational during December 2008. Modifications to the north side of the existing main building include the additions of maintenance shops, training facilities, and offices, as well as the replacement of the influent screening equipment and raw sewage pumps. The Manhattan pump station upgrade includes the replacement of raw sewage pumps, structural and architectural modifications to the building, addition of a new electrical substation, and emergency turbine generators. This work is 40% complete, is re-estimated to cost $225 million, and has a planned completion date of October 2010.

See the Bowery Bay write-up for information on City-wide projects.

Future Projects

Phase 2, re-estimated at $470 million, is a six-year construction phase consisting of the construction of a new central residuals building with new secondary screens for screening the combined flow from the service areas in Brooklyn, Queens and Manhattan prior to the treatment batteries. This phase also includes the installation of skimmings concentrators, grit cyclones and grit classifiers. Screenings containers, truck loading facilities and an odor control system will also be part of this phase and the design is complete. This phase was repackaged into two distinct contracts. One is to perform the demolition of the digesters, and a second is to construct the central residuals building. Construction is planned to begin during April 2007. Kingsland Avenue will be reconstructed to reflect the final queuing and travel lane configuration. The Nature Walk Extension will be constructed along Kingsland Avenue. The preliminary design was complete during 2005.

Phase 3, re-estimated to cost $1.25 billion, is a seven-year construction phase which involves rebuilding of the existing south battery of grit, aeration and sedimentation tanks. The existing control building will be demolished and a new building will be constructed. The design is 90% complete. The construction schedule is based on the central and south battery reconstruction. Tentatively, the construction will start during October 2008. The final site work would occur at the end of the upgrade and would include landscaping, construction of new on-site roads, parking areas, and site lighting. The preliminary design was complete during 2006. With the suspension of the rehabilitation of the existing East River sludge dock and sludge force mains, final design has started on the construction of a new sludge loading facility on Newtown Creek, which is a tributary of the East River. The preliminary design was complete during 2006 with anticipated construction to begin during March 2008.

Northport, New York (Suffolk County)

Project in Progress

The Stormwater Runoff Control Project for Northport Harbor includes the installation of a network of catch basins and leaching pools to mitigate stormwater runoff and improve shellfishing and primary contact recreation in the Harbor. This project received $178,000 of CW/CA Bond Act funds. The Bond Act grant contract was executed in July 2002. The design was complete in 2005 and the construction started in the spring of 2006.

North River, New York (New York County)

Completed Project

Inspections and cleaning of the eight digester tanks revealed that one tank had damage to the mechanical piping and support systems. The work needed to repair the digester tank includes the internal inspection of six digester tanks; and developing the required repairs to the digester piping, pipe support systems, steel liner, and concrete surfaces subsequent to the inspection. Final testing of each digester tank for leaks after the repairs has been completed. The repairs included furnishing and installing new piping, couplings and pipe sleeves, reinforced pipe support systems, and pipe gaskets; welding of the liner and attachments; grouting behind the liner and at the edges; and concrete spall repairs. Costs for all repairs and inspections are re-estimated at over $7.7 million. These repairs have been under way since December 27, 2004, and scheduled to be complete on December 29, 2007.

Projects in Progress

Engineering studies are continuing dealing with diffusers, air headers and other odor control improvements, centrifuge thickening, primary sludge pumping, degritter replacement, boiler and heat exchange improvements and chlorine disinfection.

This facility, located on the east shore of the Hudson River south of the George Washington Bridge, is operating under a 1992 State Consent Order to address issues of capacity, odor, and air emissions. Odor emissions are a particularly sensitive issue for the North River WPCP, since it is located in a heavily populated section of Manhattan with Riverbank State Park constructed on its rooftop. The Post Construction Odor Survey, which was mandated by Consent Order, was to identify and recommend solutions to odor control. The findings of this study were published in the Post Construction Odor Study, which also includes the results of an independent study as part of a settlement with the Natural Resources Defense Council (NRDC), West Harlem Environmental Action (WHEACT) and the City. Both studies focus on identifying odors and recommend remedial measures to further control odor emissions, as necessary.

The work has been under way since February 2002. The major components included in this contract are (1) odor control system rehabilitation of the scrubbers, absorbers, fans and associated appurtenances, a chemical system and controls; (2) replacement of the aeration tanks' diffusers; (3) a process air upgrade; (4) dissolved oxygen probe installations with automatic controls; and (5) increasing the waste sludge capacity. Expenditures are re-estimated at $45.5 million and it is estimated to be complete during mid-2008.

Under way since June 2005, another contract includes the (1) installation of

additional odor control equipment (scrubbers, adsorbers and fans); (2) replacement of headworks' ventilation ductwork; (3) installation of additional electric motor driven process air blowers; (4) modification of the digester overflow box control; (5) odor control of the final settling tanks' effluent launderers and chlorine tankage; (6) modification of the secondary bypass control system; (7) upgrading the plant-wide chemical storage and conveyance system; (8) replacement of the City water pumps and pre-packaged booster pumps; and (9) modification of the electrical substation. Expenditures are estimated at over $71.72 million.

Under a previous contract, repair work was performed on three digester tanks. Under way since December 2004, another contract includes the reconstruction and repair of the remaining digester tanks. This work includes (1) emptying, cleaning and internal inspection of six digester tanks; (2) furnishing and installing new pipes, couplings, gaskets and pipe sleeves; (3) installation of reinforced pipe support systems with associated pipe stands, cantilever supports and guy wires; (4) weld repairs of liner and attachments; (5) grouting behind the liner and at the liner edges; (6) concrete spall repairs; and (7) application of a protective coating on the liner. This contract is estimated to cost $13.2 million and is anticipated to be complete by late 2009.

See the Bowery Bay write-up for information on City-wide projects.

Orangetown, New York (Rockland County)

Projects in Progress

During the period from August 2003 until September 2004, there were 18 sanitary sewer overflow events reported to NYS DEC - Region 3 at several pump stations and sanitary sewer manholes. On March 28, 2005, the Town Board voted to enter into a State Order on Consent which included a $15,000 penalty (½ of which was suspended), as well as a schedule to upgrade pump stations, repair leaking sewers, and eliminate illegal sewer connections. The Order also requires odor controls at the main facility. The District is in compliance with Order dates and plans start-up operations for odor controls during April 2008.

In order to share costs and services for providing sewage collection and treatment, the Orangetown District was established in April 2005. The District includes about 200 miles of sewers, 43 pumping stations, a 12.75 MGD secondary treatment plant, and a common outfall with the Rockland County Sewer District which discharges to the Hudson River. The District encompasses the Town of Orangetown — the unincorporated areas as well as the incorporated Villages of Piermont, Grandview-on-Hudson, South Nyack and Nyack. The District can now provide long-term management with a dedicated funding mechanism for sewage treatment and infrastructure maintenance.

Phase I of a capital improvement plan is under way (10% complete) and includes extensive upgrades and expansions for the main facility and collection system. Five pump stations — Better Brands, Hunt Road, Nyack, Pearl Street and Upper Nyack — will be upgraded and/or be rehabilitated, as needed. The Better Brands, Hunt Road and Pearl Street force mains will be replaced. The force main installations include 3,400 linear feet (LF) of 8-inch diameter (8"Ø); 2,300LF of 10-inch diameter (10"Ø); and 7,300LF of 24-inch diameter (24"Ø), respectively. The sanitary sewer installations include 1,100LF of 12-inch diameter (12"Ø); 4,500LF of 15-inch diameter (15"Ø); and 600LF of 8-inch diameter (8"Ø). Associated siphon installations include 3,100LF of 16-inch diameter (16"Ø) and 3,100LF of 18-inch diameter (18"Ø). Additionally, the Pearl Street influent sewer will be replaced. Operational levels will be reached on a phased basis between 2008 and 2009. The collection system improvements are estimated to cost $26 million.

The main facility is being modernized (10% complete) with new influent screens, a grit system, primary and secondary clarifiers, a gaseous chlorine system and miscellaneous piping, and electrical and drainage improvements. All installations are re-estimated to cost $20 million. These phases are planned to be operational during April 2008.

Future Project

Additional capital improvements that are proposed for the District include rebuilding 12 pump stations during 2007 and 2008. Cost estimates were not available.

Ossining, New York (Westchester County)

Projects in Progress

Under way since March 2007, installations at five pump stations include alarm systems and remote monitoring of various facility functions. These installations are 50% complete and will incur costs of $145,000. Architectural, electrical and mechanical upgrades are being performed on one pump station. Anticipated to be operational during April 2008, this work is presently 30% complete and has estimated costs of $2.29 million.

Future Project

The furnaces and ash building will be destroyed and will be replaced with two sludge holding tanks and a new sludge loading building with odor control capabilities. Construction is planned for March 2008 and the estimated costs are approximately $9.5 million.

Owls Head, New York (Kings County)

Projects in Progress

Since the closing of the Fresh Kills Landfill, it has been mandated that the grit and scum building at this facility be expanded to accommodate the storage of grit and scum collected over a three-day to four-day period. The project includes extending the central residual building, designing an odor control system that can accommodate the expansion of the building and the added odorous load of stored grit and scum, improving the bays to accommodate large containers (20-30 cubic yards), and upgrading the electrical service. The bid documents are currently in law review. A Notice to Proceed schedule will depend on the law review outcome. Design costs are about $5.1 million. All construction phases are to be completed by December 15, 2008, at a re-estimated cost of $41 million.

Stabilization of the forebay includes reconstruction of the forebay conduit, sampling of sediments, sediment removal, crack repair, rehabilitation or replacement of the steel liner (north forebay conduit only), and installation of a cathodic protection system for the new liner. After completing the crack repair, several items will be undertaken: installation of a microfine cement grout around the soil envelope of both conduits, designing of a pump-around system to facilitate wet weather flow during storms; stabilizing the soil around the forebay; and providing power to support the construction. A contract was awarded during March 2006. All phases are to be completed by February 2008 at a re-estimated cost of $12.1 million.

The objectives in reconstructing the 30 MGD Avenue V pumping station and force mains are to: reduce the potential for sanitary sewer surcharge conditions upstream of the station; improve the Coney Island Creek water quality by increasing the wet weather (CSO) pumping capacity; and upgrade and automate the station for unmanned operation. The station's wet weather flow capacity will be increased to a nominal 80 MGD to pump the sum of peak sewage flow of 34.6 MGD and necessary CSO flow of 42 MGD.

The pumping station upgrade includes construction of a wet well extension for temporary pumping, sequential demolition and construction of the wet well lowered by 3.5 feet, demolition of unneeded structures, replacement of tide gates, force mains, removal of old equipment, installation of six wet pit submersible pumps with VFDs, and new electrical and HVAC equipment. Having historic and architectural significance, the main building's restoration will be done with the approval of the New York City Landmarks Preservation Commission and the New York State Office of Parks, Recreation and Historic Preservation.

This project will be bid as two contracts. The total cost has been re-estimated at $117.1 million — $42 million for the station and $75.1 million for the force mains. First is the reconstruction and upgrading of the station for automated operation and expanding

the pumping capacity for wet weather flow. Construction actually began during December 2005. Second is construction of two new force mains: a 42-inch diameter (42"Ø) pipe (18,500 linear feet) dedicated to dry weather flow and a 48-inch diameter (48"Ø) pipe (13,100 linear feet) dedicated to wet weather flow. Construction was scheduled to begin April 2007. These projects are anticipated to be complete during April 2011 and April 2012, respectively.

See the Bowery Bay write-up for information on City-wide projects.

Oyster Bay Sewer District, New York (Nassau County)

Future Projects

Planned for March 2008, the exterior of the secondary digester cover will be painted and the digesters will be cleaned at re-estimated costs of $470,000. An autodialer alarm system will be installed during June 2008 at the Highwood pump station at a re-estimated cost of $22,000.

Palisades Interstate Park Commission- Bear Mountain, New York (Rockland County)

Completed Project

During a five-month construction period, the collection system was upgraded with two pump stations and associated force mains to accept flows from the trailside zoo and museums. The $450,000 project also includes backup generators and was on-line during May 2007.

Peekskill, New York (Westchester County)

Projects in Progress

Under way since March 2007, two pump stations are being upgraded with alarm systems and remote monitoring capabilities for various operating functions. This work is 50% complete and is estimated to cost $70,000.

Future Projects

Electrical upgrades at one pump station and at the main facility ($5.8 million) are planned to begin during March 2008. Re-estimated to cost $4.5 million, odor controls will be installed for the headworks which will be housed in a dedicated building. Construction is scheduled to begin during June 2008. Both projects have a 12-month installation schedule.

Port Chester, New York (Westchester County)

Projects in Progress

The Commission is coordinating and addressing oversight for a multi-agency pathogen track down investigation of the Byram River. Since 2003, IEC field staff have conducted ambient and end-of-pipe inspections and discovered dry weather discharges to the river. Continued surveillance, laboratory analysis and data sharing have been maintained throughout the past four years. Since 2004, inland tracking for dry weather flow and illegal hook-ups were jointly conducted by IEC and the Westchester County Department of Health. Refer to the Ambient Water Quality Cooperative Studies section for a detailed report.

This facility is operating under a 2004 State Consent Order to achieve SPDES effluent limitations for total nitrogen and total residual chlorine. The facility is in compliance with Order dates and is required to complete substantial construction by December 31, 2013.

The facility-wide performance maintenance project is 30% complete and is anticipated to be operational during June 2008. The modernization is re-estimated to cost $7.1 million.

Future Project

A HVAC upgrade is planned. A study will be initiated during 2008 at a cost of $200,000.

Port Washington, New York (Nassau County)

Project in Progress

Scheduled to begin during the fall season of 2007, the nitrogen removal capabilities will be expanded to provide full scale BNR for the facility's design flow of 4 MGD. Costs were estimated at $18 million during 2006. The District has completed the Facility Plan and the Plan was subsequently approved by the NYS DEC in January 2006. The District's engineer is presently in the design phase. The BNR facilities are planned to be on-line during 2010. An oxidation ditch which typically operates in an extended aeration mode with long detention and solids retention times is the technology selected by the District to provide denitrification.

Red Hook, New York (Kings County)

Project in Progress

A continuing experiment under way since July 2003, involves fuel cell efficiency.

See the Bowery Bay write-up for information on City-wide projects.

Rockaway, New York (Queens County)

Projects in Progress

The preliminary design for the stabilization project began during April 2006 and is anticipated to be complete during March 2008. Subsequently, a 3-year construction agenda is planned to begin during March 2009.

Ongoing engineering studies are addressing total residual chlorine management, chlorine disinfection system improvements, and implementation of a third aeration tank to eliminate premature secondary bypass.

See the Bowery Bay write-up for information on City-wide projects.

Rockland County Sewer District No. 1, New York (Rockland County)

Completed Project

An engineering study was recently completed which will determine the feasibility of cleaning digester gas for various uses ($60,000).

Projects in Progress

The District is operating under a State Consent Order to eliminate overflows during wet weather events.

Under way since 2006, construction of a new 1.5 MGD advanced treatment facility to serve western Ramapo will incur costs of $44 million and is now 50% complete. The plant process will incorporate sand filters, microfilters, and post-aeration. An approximate operational start-up will be during December 2008. The new plant which is sited in Hillburn, New York, will discharge to the Ramapo River; this waterway is outside of the Interstate Environmental District. The modernization of the existing Rockland County 28.9 MGD secondary facility includes replacement of debilitated treatment units and pump station improvements. Presently 25% complete, this work will incur costs of $5.1 million and is anticipated to have an operational start-up during December 2008.

The first construction contract began in 2004 for 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. Total construction is estimated to cost $50 million. The sanitary sewers and force mains along Route 17 were completed ($20 million); this infrastructure will be operational by December 2008. Another collection system phase (35% complete/$2.5 million), will include the Ridge Road sanitary sewer extension and the Congers Road pump station.

Future Projects

Additional existing treatment plant and pump station improvements will incur costs of $10 million. Planned to begin in conjunction with the collection system work, this phase will be completed during March 2009. Additional collection system construction for Western Ramapo, New York, will commence during the 2008 winter season. This $10 million phase has an anticipated operational start-up date of December 2008. Planned to begin during March 2008, the Cooper Morris Drive-Buena Vista Road-Dogwood Lane sewer extension and pump station will incur costs of $6 million.

Springvale Apartments, New York (Westchester County)

Completed Project

This complex has a service population of 1,700 and was originally built in 1957. At a final cost of $25,600, a major refurbishing was completed to this secondary 0.13 MGD facility. The modernization included new sludge pumps and drive motors, piping, flooring in the pump pit, bracing of pumps in the equalization tank, railings around the secondary clarifier and generator room entrance and a ladder in the equalization tank. In addition, the gas chlorination system was upgraded to use liquid.

Suffolk County Sewer District #1, Port Jefferson, New York (Suffolk County)

Completed Project

On-line during August 2007, sequencing batch reactors (SBRs) were constructed in conjunction with the existing rotating biological contactors (RBCs). These treatment units will enable the facility to meet LISS Phase III nitrogen reduction targets. These units also enable the facility to accommodate any additional flow requests from commercial and residential developments. During August 2007, this facility was re-rated with a design flow of 1.15 MGD.

Projects in Progress

This facility is operating under a State Consent Order to update its chemical bulk

storage facilities. The Order requires the completion of substantial construction by September 2005. A revision of this date is being negotiated; construction delays affected the milestone. This facility is also operating under a federal Consent Order dealing with the existing pretreatment program. The facility is in compliance with all Order dates.

An in-house water quality assessment of Port Jefferson Harbor and an engineering study for collection system upgrades are ongoing. Beginning in 2006 (30% complete), the in-house staff is rehabilitating manholes and sewers to minimize I/I impacts. Additional pump station improvements, if needed, will be initiated. Costs to be incurred for this work are estimated at $300,000. A pump station evaluation ($50,000) to assess hydraulics is under way.

An engineering report for reconstruction of the plant was approved by NYS DEC during 2005. All financial and technical approvals have also been obtained. This expansion will address the LISS Phase III nitrogen reduction targets. NYS CW/CA Bond Act grants now total $12.2 million.

In order to meet an existing SPDES effluent requirement for chlorine residual, UV disinfection capabilities are being installed (45% complete). The estimated $23 million project is anticipated to be operational during April 2008. A grant of 85% of the eligible construction cost from the NYS CW/CA Bond Act has been awarded. In January 2006, the District was awarded an additional $1,298,500 from the 1996 NYS CW/CA Bond Act for the nitrogen removal and UV upgrade.

Suffolk County Sewer District #3, Southwest, New York (Suffolk County)

Completed Project

A recreational boat pump-out facility ($250,000) located on West Babylon Creek, a tributary of the Great South Bay, was on-line during June 2007.

Projects in Progress

This facility is operating under a State Consent Order to update its chemical bulk storage facilities. The Order required the completion of substantial construction by June 2007. This facility is also under a federal Consent Order to address the pretreatment program. The facility is in compliance with all Order dates.

Several engineering studies, design projects and RFP preparations are under way to address a variety of treatment unit and collection system improvements. Consulting engineers are currently designing grit handling improvements and a sludge dewatering and disposal system. An evaluation of the outfall pipe which discharges into the Atlantic Ocean is under way. A design for an odor control system for the influent is also under way.

RECREATIONAL BOAT PUMP-OUT FACILITY
Photos by G. Spencer

A project has been awarded to evaluate I/I and develop the Capacity Management/ Operations and Maintenance program ($200,000). Recently under way, methods to reduce extraneous flows-Phase I are under design ($1.9 million). A study and design have begun to determine the feasibility of a capacity expansion of 5 MGD.

Sludge dewatering facility upgrades are 80% complete ($25 million). The addition of a second influent force main is 90% complete ($1.7 million). Facility-wide improvements including grit handling, plant security and control are ongoing. Additionally, outfall and miscellaneous infrastructure improvements are being addressed. These items are re-estimated to cost $60 million.

Suffolk County Sewer District #6, Kings Park, New York (Suffolk County)

Completed Projects

Suffolk County has been awarded $7.8 million from the Clean Water/Clean Air Bond Act of 1996 in order to build a 1.2 MGD facility by modifying existing treatment units. The primary settling, aeration, and final settling tankage, as well as the anaerobic digesters, will be converted into equalization tanks, sludge and disinfection facilities, respectively. Phase I construction of the SBR tanks had a final cost $2.3 million. Phase II upgrade plans were completed and approved by NYS DEC.

Projects in Progress

This facility is operating under a State Consent Order to update its chemical bulk

storage facilities. The Order required the completion of substantial construction by September 2005. Due to construction delays, a revised date is being negotiated. The facility is in compliance with all Order dates.

A feasability study of installations of gravity sewers in portions of Kings Park and Smithtown is under way. These towns are located on the north shore of Long Island, west of the Nissequogue River.

Future Projects

A re-estimated $10 million SBR and equipment renovation is anticipated to begin during 2008. Phase II will include the installation and construction of the UV disinfection and sludge thickening systems. Future construction of the outfall will include a clean-out chamber on the barrier beach and a terminal fitting.

Suffolk County Sewer District #21, SUNY, New York (Suffolk County)

Completed Project

An electrical upgrade was completed and operational during 2007.

Projects in Progress

This facility is operating under a State Consent Order to update its chemical bulk storage facilities. The Order required the completion of substantial construction by March 2006. The facility is in compliance with all Order dates.

Preliminary engineering work has been under way since 1997 to assess BNR alternatives for the LISS Phase III nitrogen reduction requirements. A contract was awarded for an engineering report and design documents for BNR, capacity expansion, and effluent reuse alternatives. Construction estimates are $18 million; the facility plan has been submitted. The final report, contingent on the completion of the recharge design, will be submitted in 2008.

Future Project

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. This expansion will enable this facility to comply with the LISS nitrogen loading requirements. An approximate construction start-up date has been rescheduled for early 2009 and operational during mid-2014; estimates for the work are $15.6 million.

Tallman Island, New York (Queens County)

Completed Project

The objective of the Flushing Bay CSO facility is to improve the water quality of Flushing Creek and Bay by substantially reducing combined sewer overflows during rainstorms; these waters have a confluence with the upper East River. This will be achieved by a 28 MG underground reinforced concrete storage tank capturing and storing combined sewage during rain events. The captured flow will be screened before entering the tank. After storms, the combined sewage will be pumped out of the tank into a nearby interceptor for treatment at the Tallman Island WPCP. The location of the storage tank and its associated facilities is within Flushing Meadow-Corona Park. The tank will be completely underground. At the north end of the site, there will be an above-ground New York City Department of Parks and Recreation (NYC DPR) and NYC DEP building. Pumps, air treatment equipment and other auxiliary equipment required for the operation of the storage facility will be located in the basement of this building. The total cost for this project is $250 million. This CSO facility will be constructed in five phases.

As of 2006, four of the five construction phases were complete. Phase IV construction started in March 2002. This phase included the construction of the diversion chambers and conduits, the above-ground building at the north end of the site, and the construction of mechanical support facilities (pump stations, air treatment systems, screening facilities, etc.). This phase was substantially completed on May 17, 2007, and is planned to be fully operational during August 2008.

Projects in Progress

The Tallman Island upgrading is a multi-phase project intended to improve process efficiency, reduce manpower requirements, improve reliability, and maintain compliance with all applicable permit requirements and Consent Orders. Subsequent to the start of this project, the City entered into the NYS DEC SPDES Administrative Consent Order-Nitrogen Reduction Agreement. This Order requires this facility to be retrofitted to reduce nitrogen loadings into the East River and Long Island Sound. This 80 MGD secondary treatment plant is located on the south side of the upper reach of the East River.

Phase I will consist of high priority repairs and implementation of low-level BNR. The major stabilization improvements in this phase include the replacement of the main sewage pumps and process air blowers. BNR improvements — such as increased blower capacity, mixers, baffles, and increased RAS capacity — will also be implemented. The re-estimated cost of this phase is $280 million and is budgeted for FY 2007.

Phase II of the Tallman Island upgrade includes BNR enhancement work including methanol, alkalinity and polymer addition, and centrate treatment. Other major items

include new main sewage pumps and engines, digester improvements, and plant-wide instrumentation. In order to avoid a bypass event while replacing the main sewage pumps and suction piping, a $6 million pump-around-system will be constructed. This three-year construction phase started in 2005 and, as mandated by Consent Order, must be constructed and operational by December 31, 2009. This phase is estimated to cost $233 million and is 85% complete.

Several engineering experiments are under way to investigate automated chlorine control using total chlorine residual analyzers, automatic sampling based on plant effluent and flow pace and the evaluation of new hypochlorite pumping system for disinfection.

Phase III of the Tallman Island upgrade includes BNR enhancement work including methanol addition and centrate treatment. This three-year construction phase is under way and is estimated to cost $23 million.

The Alley Creek Drainage Area Improvements/CSO Abatement Facilities Project, which has been designated as Phase I of the comprehensive Alley Creek Project, will be constructed in three stages: the Alley Creek Drainage Area Improvements (Stage 1), the Alley Creek CSO Abatement Facilities (Stage 2), and the Alley Park Environmental Restoration (Stage 3). The Oakland Ravine Stormwater Treatment System (ORSTS), a stormwater treatment system in the form of settling basins and natural emergent wetlands which is not a part of the CSO abatement project, has been designated as Phase II of the comprehensive Alley Creek Project. Alley Creek is located at the head of Little Neck Bay, an embayment of western Long Island Sound.

The principal elements of the project include additional stormwater and combined sewers, a new outfall sewer, and a new combined sewer outfall to substantially eliminate street flooding and sewer surcharging, and construction of a new 5 MG CSO storage facility to abate CSO discharges into Alley Creek (Stage 1). This stage is estimated to cost $93 million and is essentially complete. Stage 2 is the activation of the 5 MG CSO storage facility, upgrading the Old Douglaston pumping station to enhance the station's reliability to pump the captured combined sewage to the Tallman Island WPCP for treatment, a fixed weir constructed within the new outfall sewer at its downstream end near the outfall to induce storage of the combined sewage, and a baffle constructed within the outfall sewer immediately upstream of the fixed weir for floatables control. This stage began during December 2006 and is anticipated to be operational in June 2009 ($9.1 million). Finally, a permanent ecological restoration of approximately 23.5 acres within Alley Park including the restoration and/or creation of 8.2 acres of wetlands and 15.3 acres of upland/parkland community comprised of trees, shrubs, herbaceous plants and grasses. This final stage began during August 2007 and is planned to be complete during August 2009 ($8 million).

See the Bowery Bay write-up for information on City-wide projects.

26th Ward, New York (Kings County)

Completed Projects

Engineering experiments completed last year include the evaluation of DO meters, automated chlorine control systems and automated grease skimmers for primary tank grease removal.

Projects in Progress

The 26th Ward WPCP upgrade is a multi-phase project to improve process efficiency, reduce manpower requirements, and improve reliability. This modernization will ensure compliance with all applicable SPDES permit requirements and Consent Orders. Phase II of the facility-wide upgrade involves the replacement of the main sewage pumping station force main. Other collection system installations include a new force main and flow meter on the plant site, installation of a new header within the existing pump station, connection of each pump to the new force main, and temporary pumping while the connections are made. Construction of the new force main will require relocation of the existing fuel oil storage tanks. The existing tanks are aging and will be replaced with temporary, above-ground tanks. The project bid price was $16,926,750. Construction for this project began during May 2005.

Phase III will concentrate on BNR installations and other improvements at the plant. The scope of work for this phase includes replacement of the preliminary settling tank mechanical equipment (sludge pumps and piping), blower motors and control systems, aeration tank diffusers, return sludge pumps, thickener mechanisms, and various electrical and HVAC elements. Refurbishment of the existing process air blowers, miscellaneous improvements to the final settling tanks, and construction of a new chlorine storage building are the final agenda items for this phase. Work began during October 2005 with associated costs re-estimated at over $91.05 million.

Engineering designs are nearly complete for the replacement of the existing two 4.0 MW gas turbine generators with three 2.5 MW diesel engine generators. Construction costs are re-estimated at $45 million. Subsequent construction is expected to commence during FY 2008.

Several engineering studies have been ongoing since 1991 which address biological nutrient removal, centrate nitrogen removal, polymer addition for sludge thickening enhancement, and determining the feasibility of remote probes to monitor a variety of parameters including chlorine residual and the sludge thickener blankets.

The Spring Creek AWPCP was originally constructed and placed into service in the early 1970s. Its function is to capture CSO flows from tributary drainage areas in

Brooklyn and Queens. The plant, with a capacity of 20 MG, provides for stormwater detention, solids settling, and disinfection contact time. A stabilization study was performed in the early 1990s and a design was completed by the end of 1999. The facility upgrade will consist of replacement of the pumps and controls, rehabilitation of personnel facilities and basins, installation of a new spray water system and a new emergency generator. Also, construction of a new odor control building and a new scavenger waste manhole are necessary. Construction started in February 2003, and was anticipated to be complete during May 2007 at a re-estimated total construction cost of $85 million.

See the Bowery Bay write-up for information on City-wide projects.

Future Project

A comprehensive upgrading at 26th Ward, including expansion of the plant to accept 50 MGD of additional flow during storm events, is being planned. Engineering services for this work are being procured. Design for the comprehensive upgrading began during June 2006. It is anticipated that substantial construction will be complete during December 2015. The multi-phase construction will include two additional preliminary settling tanks and a new raw sewage pumping station with additional chlorine contact tanks. The preliminary construction for the two phases is re-estimated to cost $896 million.

VA Hudson Valley Health Care System (Montrose), New York (Westchester County)

Completed Project

This facility is located along the banks of the Hudson River. The Veteran's Administration Hudson Valley Health Care System includes this campus, another in Duchess County, several community-based clinics and a mobile health clinic. The Montrose facility is the largest community care home program for veterans within the entire 172 VA hospital system. During April, 2006, this 0.4 MGD secondary plant undertook the cleaning of the digester and is operational. Subsequently, additional rehabilitation of the digester included replacing the heat exchanger, recirculating pumps and associated gas piping. The installation was completed during the end of October 2007, and incurred costs of $330,000.

Wards Island, New York (New York County)

Projects in Progress

Engineering studies and experiments under way since 2004 focus on polymer additions and enhancements, several froth control alternatives, evaluation of final settling tank performance (completed during May 2007), evaluation of various remote monitoring

probes for process control and automation of the chlorination system.

The Wards Island WPCP upgrading is a multi-phase project to improve process efficiency, reduce manpower requirements, and improve reliability. These necessary steps will ensure compliance with all applicable permit SPDES requirements and Consent Orders. The upgrades will address the digester gas system, secondary treatment equipment and implement BNR in the existing secondary treatment facilities. The plant's remote facilities are currently under construction to upgrade the mechanical treatment equipment and architectural attributes of the Bronx grit chamber which is considered a New York City landmark.

The physical facilities of the Bronx and Manhattan grit chambers ($91 million) are currently under construction. The structures will be in compliance with current building codes. The Manhattan grit chamber will be renovated based on concepts approved by the Art Commission of NYC. The Bronx grit chamber will be renovated based on concepts approved by the NYC Landmarks Preservation Commission. The construction is scheduled to be complete by July 2009.

Plant stabilization I ($43 million) will address the solids handling facilities, reconstruction of the digester gas system, gravity thickeners and miscellaneous sludge systems. The Notice to Proceed was issued on June 23, 2005. Plant stabilization II ($174 million) will address existing facilities, as well as provide improvements for the implementation of basic step-feed BNR treatment. The scope of work includes the replacement of the return sludge pumps, waste sludge pumps, seal water system, final sedimentation tanks' sludge collection equipment and sludge transfer pumps. BNR implementation will consist of improvements to the secondary treatment facilities including two new process air blowers, modifications to four existing air blowers, installation of submersible mixers, baffles, froth hoods, a surface wasting system, process air piping, diffusers in the aeration tanks and modifications for the separate treatment and distribution of centrate. Additional provisions for support facilities will include a hypochlorination system, new process air blower support systems and electrical substations. The Notice to Proceed was issued on April 24, 2006. Existing Consent Order requirements mandate BNR completion and operational by December 31, 2010.

See the Bowery Bay write-up for information on City-wide projects.

Yonkers Joint Wastewater Treatment Plant, New York (Westchester County)

Completed Projects

A new maintenance and storage building with a fire suppression system was operational during November 2006. The final cost estimate for this work was $5 million. Main facility treatment unit rehabilitation was completed on the secondary digesters ($6.5

million) and the cellular bulkhead ($5.5 million). In addition, the primary digester system was upgraded ($2.75 million). These improvements were operational between April and October 2007.

Projects in Progress

The North Yonkers pump station is operating under a State Consent Order (June 25, 2007) for exceeding the existing SPDES permit effluent limitation for oil and grease. Westchester County DEF submitted another plan to track petroleum-based oil and grease in the North Yonkers pump station effluent (July 25, 2007). WC DEF submitted a plan to develop BMPs that address food grease (August 1, 2007).

Collection system improvements include pump station mechanical upgrades, pump replacements at two pump stations and installation of one emergency generator. Under way since February 2007, this work is 90% complete and will incur costs of $700,000.

Future Projects

Estimated to cost $6.3 million, a skimming system for the final tanks will start to be installed during March 2008. A cover replacement for the primary digester will incur costs of about $4.75 million; installations will start during June 2008. Both installations have a 12-month agenda.

THE PALISADES, FACING WEST FROM YONKERS, NY
Photo by G. Spencer

AMBIENT AND EFFLUENT WATER QUALITY MONITORING

During 2007, the Commission continued to conduct extensive compliance monitoring programs of municipal and industrial wastewater discharges. Ambient water quality surveys were conducted year-round to document hypoxia, to measure pathogens affecting shellfish beds and bathing beaches, to perform pathogens track down in IEC's tri-state District, as well as to collect data to support pathogens TMDL development. The Commission's laboratory and field staff perform analyses on samples collected at wastewater treatment plants and industrial facilities, as well as on samples collected from the ambient waters. IEC conducted scheduled and reactive sample collection programs in response to regulatory compliance, wet weather conditions, and the need for information on dissolved oxygen and pathogens. Field inspections of CSOs, SSOs and MS4s were conducted during dry weather to discover illegal discharges and to take steps to have them remediated.

The Commission continued its weekly summer sampling to document hypoxic (low dissolved oxygen) conditions in western Long Island Sound and the upper East River. This year, 2007, was the 17th consecutive summer season that the Commission conducted this sampling. This survey was performed utilizing the IEC's research vessel, the R/V Natale Colosi. The monitoring is performed in support of the National Estuary Program's Long Island Sound Study and was conducted from late June through mid-September in cooperation with several other agencies. Through agreements with CT DEP, IEC collected and delivered surface water samples to the Center for Environmental Sciences and Engineering at the University of Connecticut (UCONN) for chlorophyll a analysis.

The Commission received a grant under the auspices of the Connecticut Long Island Sound License Plate Program. IEC field staff deployed temperature probes at the Silver Sands State Park Beach in Milford, CT. This project was conducted under dry weather conditions to determine the impacts of summer temperatures on the growth and persistence of enterococcus bacteria.

The 2006-2007 winter season was the 12th consecutive winter-spring season that IEC participated in a cooperative effort with the NJ DEP and US EPA. The Commission's field staff collected surface water quality samples for the assessment of the sanitary conditions of shellfish beds in western Raritan Bay. This project is conducted using the US FDA's sampling protocols. The Commission plans to continue reactive sampling in western Raritan Bay during the 2007-2008 winter and spring seasons.

In support of the NY-NJ HEP and the New York State Hudson River Estuary Program, IEC staff conducted an ambient water quality monitoring program for pathogens under dry and wet conditions from March through June 2007. The project covered the area from just south of the Tappan Zee Bridge north to Bear Mountain. Fortunately, since IEC's vessel was berthed in Tarrytown, NY, the Commission was able to respond to document pathogen impacts on the Hudson River from a sewer main break in North Yonkers, NY, during May. The R/V Natale Colosi returned to Tarrytown in October to continue the

TAPPAN ZEE BRIDGE
Photo by G. Spencer

water quality survey which was enhanced with an additional sampling station and additional survey runs. All water quality samples were delivered to the IEC laboratory for analysis of fecal and total coliforms, fecal streptococcus, enterococcus and E. coli. The vessel will return during the 2008 spring season to complete the sampling survey program. This unique data set will be used for state and interstate water quality assessments, bathing beach water quality, model calibrations, and TMDL development.

R/V NATALE COLOSI
Photo by P. Sattler, IEC

The Commission participated in the fifth World Water Monitoring Day which grew out of the 2002 National Water Monitoring Day; IEC has participated in this event since its inception. In situ measurements of dissolved oxygen, salinity, temperature, and water clarity were made at nine established water quality stations in the upper East River and Long Island Sound during September. These waterways are within the IED, as well as the core areas of two National Estuary Programs. All of the data were submitted to an international data bank which can be accessed at www.worldwatermonitoringday.org.

All analyses performed by the Commission's laboratory are in accordance with IEC's Laboratory Quality Control Manual, Quality Assurance Project Plans, and Quality Management Plan, all of which are approved by US EPA. IEC's laboratory is certified by NJ DEP, NYS DOH and CT DPH. The Commission's laboratory also has certification under the National Environmental Laboratory Accreditation Program (NELAP) from the NJ DEP, the NYS DOH and the CT DPH. NELAP, under the auspices of the National Environmental Laboratory Accreditation Conference (NELAC), is sponsored by the US EPA. The purpose of NELAC is to foster the generation of environmental laboratory data of known and documented quality through the development of national performance standards. In October 2007, the Commission's laboratory received NELAP certification for the analysis of E. coli in non-potable water using MPN technology. This approval was sought to enable the Commission's laboratory to perform E. coli analysis on samples IEC collected on the Hudson River in support of the New York State Hudson River Estuary Program, as described above. With the addition of E. coli certification, the Commission's laboratory now has NELAP approval to perform analyses on 43 parameters using a total of 47 different methods.

Investigations of private and municipal facilities involve a six-hour sampling period and an inspection of processes, equipment, and plant records. Investigations of industrial facilities generally involve a 24-hour period or a full day's production. Analyses are performed for the parameters specified in the facilities' National Pollutant Discharge Elimination System (NPDES) permits which contain the Commission's requirements. The data generated from these investigations are used to determine compliance with IEC's Water Quality Regulations and with each facility's NPDES permit effluent limitations. The Commission coordinates the industrial compliance monitoring of major dischargers, as well as its monitoring of municipal facilities, with the environmental departments of its member states and US EPA.

In 2007, in addition to conducting unannounced effluent surveys, the IEC continued, for the fourth consecutive year, a cooperative program with NYS DEC - Region 2 whose jurisdiction

encompasses the five boroughs of New York City. This effort consists of the Commission conducting what NYS DEC defines as reconnaissance inspections and comprehensive inspections at NYC DEP's 14 wastewater treatment plants. Under an US EPA ORD grant, this year the Commission is documenting the effectiveness of blending at treatment plants. Blending is the practice at a WPCP of diverting a part of the peak wet weather flow around biological treatment units and combining effluent from all processes prior to disinfection and discharge to the receiving waterway.

The Commission's laboratory has been located on the campus of the College of Staten Island (CSI) since December 1993. In addition to the day-to-day analyses performed at the laboratory, the Commission, both on its own and in collaboration with the Center for Environmental Science (CES) at CSI, submits proposals for research projects whose results would benefit the environment and the citizens throughout the Tri-State Region. The laboratory director and staff continually have research papers and articles published, as well as making presentations at prestigious environmental forums and have been involved with mentoring students enrolled in the CES Masters Degree program.

9/11MEMORIAL, HARBOR VIEW PARK, BAYONNE, NJ
Photo by R. Collier

SPECIAL INTENSIVE SURVEYS

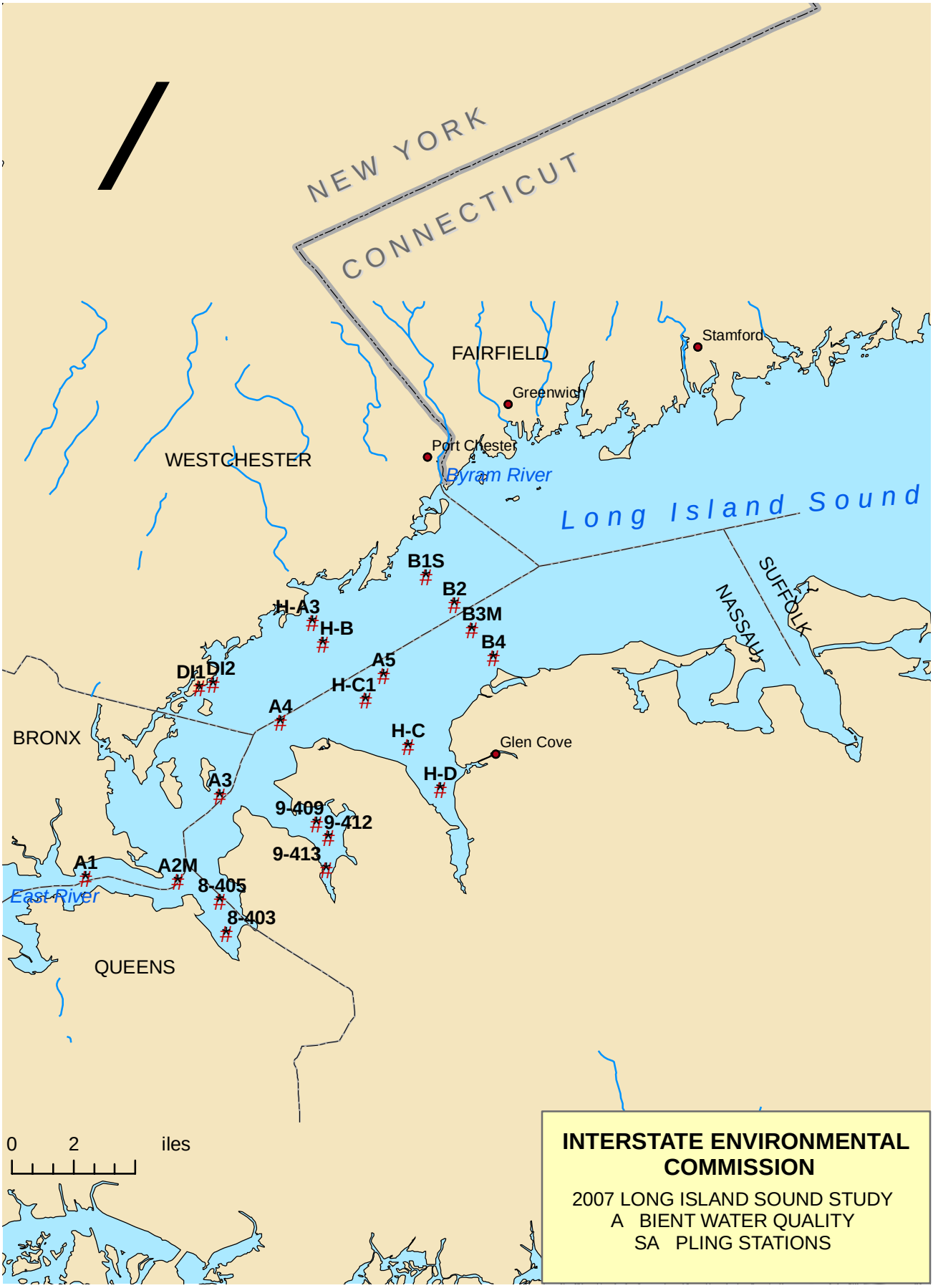
2007 Ambient Water Quality Monitoring in Long Island Sound to Document Dissolved Oxygen Conditions

With an ongoing need to document the hypoxic conditions in Long Island Sound and its embayments where the majority of primary recreational activities take place, US EPA - Region 2 again requested that the Commission continue to conduct an intensive ambient water quality survey in support of the Long Island Sound Study during 2007. For the 17th consecutive year, the IEC participated in a cooperative sampling effort with other government agencies during the critical summer season. The existing data sets have been significantly enhanced by the weekly data collected by IEC for western Long Island Sound and its embayments and the upper East River. The information will also be used to measure the effectiveness of management activities and programs implemented under the Comprehensive Conservation and Management Plan. The Commission disseminates its data on a weekly basis to give cooperating agencies and volunteer monitoring groups an immediate picture of environmental conditions, as well as a basis for comparison with historic and ongoing monitoring programs.

IEC is an active participant on the Long Island Sound Study Monitoring Workgroup. This is the Workgroup that determined and agreed to station locations, parameters, methodologies, QA/QC, data sharing, etc. A map and a listing of the 2007 station locations are on the following pages. A subset of these ambient water quality stations (those marked with an asterisk on the station listing) were monitored on September 18th for the World Water Monitoring Day data set.

CT DEP again volunteered to have all chlorophyll a analyses performed and to bear the cost for these analyses. The samples collected by the IEC — as well as those collected by NYC DEP and CT DEP — were filtered, archived, and frozen until shipped to the Center for Environmental Sciences and Engineering (formerly named the Environmental Research Institute) at the University of Connecticut. Under agreements between CT DEP and US EPA's Long Island Sound Office (LISO), the analyses for chlorophyll a were conducted by the University of Connecticut (UCONN).

Low levels of oxygen can be fatal to aquatic life if levels remain persistent and drop below the organisms' threshold to survive. Fish kills can also occur due to predation and toxic phytoplankton. During its weekly sampling runs, the Commission has always communicated from the field with local environmental and health agencies to pass on current information about unique events. Additional monitoring in response to fish kills and beach closures has taken place in past years. Because the Commission's research vessel is available and accessible to typical western Long Island Sound trouble spots, the NYS DEC's Division of Marine Resources requested the IEC to assist and respond to fish kills. During 2007, there were no fish kills observed in Long Island Sound waters. This type of information would be reported directly from the field to the NYS DEC, Division of Marine Resources, and to the IEC office which would then disseminate the information to the members of the Regional Bypass Workgroup.



INTERSTATE ENVIRONMENTAL COMMISSION

2007 LONG ISLAND SOUND STUDY SAMPLING STATIONS

STATION	WATER COLUMN DEPTH (meters)	LOCATION		DESCRIPTION
		LATITUDE NORTH D M S	LONGITUDE WEST D M S	
A1 *	26	40-48-12	73-49-36	East of Whitestone Bridge
A2M *	35	40-48-06	73-47-00	East of Throgs Neck Bridge
8-403	3	40-46-38	73-45-38	Little Neck Bay - ~0.2 nm W of yellow nun “B”
8-405	3	40-47-33	73-45-49	Little Neck Bay - ~0.15 nm North of LNB mid- channel buoy
A3 *	25	40-50-30	73-45-18	Hewlett Point South of Fl G 4 Sec "29"
9-409	4	40-49-44	73-43-05	Manhasset Bay
9-412	4	40-49-20	73-42-45	Manhasset Bay
9-413	3	40-48-26	73-42-49	Manhasset Bay
A4 *	35	40-52-35	73-44-06	East of Sands Point, mid-channel
A5 *	13	40-53-54	73-41-12	~2.6 nm East of Execution Lighthouse
B1S	15	40-56-42	73-40-00	Porgy Shoal South of Fl G 4 Sec R "40"
B2	20	40-56-06	73-39-12	Matinecock Point 1.6 nm North of Gong "21"
B3M *	19	40-55-12	73-38-42	Matinecock Point 0.7 nm North of Gong "21"
B4	15	40-54-24	73-38-06	Matinecock Point South of Gong "21"
DI1	10	40-53-33	73-46-24	Davids Island North of Nun "10A"
DI2	6	40-53-40	73-46-00	Davids Island East of Nun "4"
H-A3 *	3	40-55-24	73-43-12	Delancy Point South of Can "1"
H-B *	12	40-54-48	73-42-54	0.7 nm Southeast of Daymarker Fl R 4 Sec
H-C	8	40-51-54	73-40-30	Hempstead Harbor East of R Bell "6"
H-C1 *	11	40-53-12	73-41-42	Hempstead Harbor~ 2.0 nm East of Sands Point
H-D	7	40-50-42	73-39-36	Hempstead Harbor East of Can "9"

* In situ measurements of dissolved oxygen, salinity, temperature and water clarity conducted for World Water Monitoring Day, September 18, 2007.

The 2007 survey consisted of 12 weekly sampling runs conducted from the end of June through mid-September. The ambient network of 21 stations was sampled weekly and in situ measurements were made for pH, temperature, salinity and dissolved oxygen (DO). 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 five depths — the two additional depths being one equidistant between the surface and mid-depth samples, and one equidistant between the mid-depth and bottom samples. For the sixth consecutive year, the measurement of water clarity or Secchi depth was collected. A Secchi disc is lowered into the water until it disappears and raised until it appears; this equates to the vertical transparency or distance below the water surface that light penetrates. Secchi depth measurements ranged from 0.5 to 2.7 meters. This range is nearly the same as in the past five years. In general, measurements in the embayments are less than 1 meter while open water stations had better clarity with values greater than 2.0 meters. During 2007, observations below 1.0 meter were recorded 29% of the time and, except for one reading, always in the north shore embayments. This correlates with the high chlorophyll a concentrations observed in the embayments, as well as with low concentrations in the open waters of the Sound. Clarity on the surface does not necessarily equate to good vertical or horizontal visibility on the bottom.

Photo by P. Sattler, IEC

Samples for chlorophyll a, a pigment found in aquatic plants and used as an indicator of algal production, were collected one meter below the surface on alternate runs at all stations. These were filtered, archived, frozen, and subsequently shipped by overnight mail to the Center for Environmental Sciences and Engineering at UCONN. To ensure consistency amongst the agencies, this lab also analyzed the samples collected by NYC DEP and CT DEP. Chlorophyll a values ranged from 1.8 to 125.7 ug/l which are nearly consistent with all observations for the current century. The lowest values were observed in the open waters, specifically the East River (1.8 to 6.1 ug/l) and the highest values in the embayments (3.6 to 125.7 ug/l). All sampling, sample preservation and analyses were done according to procedures accepted by the US EPA. All field measurements were summarized and forwarded weekly to US EPA - Region 2's Long Island Sound Office, the CT DEP's Bureau of Water Management, the Nassau County Health Department, the NYS DEC Division of Marine Resources, the NYC DEP Marine Sciences Section, Westchester County Department of Health, US EPA's modeling contractor, and to several volunteer monitoring groups. The data are available from the Commission's office. The Long Island Sound data, as well as all Commission ambient water quality data, can be retrieved from STORET, the US EPA's national data base.

Dissolved oxygen is a measure of the ecological health of a waterbody. A dissolved oxygen concentration of 5 mg/l is considered to be protective of most marine aquatic life. According to IEC's Water Quality Regulations, a waterbody classified as "Class A" — as are all the stations included in this IEC survey — has a minimum dissolved oxygen requirement of 5 mg/l at all times. Waters of this type are suitable for primary contact recreation, fish propagation and, in designated areas, shellfish harvesting. During 2001, CT DEP adopted revised DO criteria in some of the Long

Island Sound waters in Connecticut. NYS DEC is also addressing this issue in Long Island Sound and other New York waters. The NYS DEC proposed criteria was Public Noticed in the New York State Register and the Environmental News Bulletin on December 13, 2006. A Public Hearing was held on February 5, 2007, and the deadline for a final ruling is February 5, 2008. To date, NJ DEP has not proposed any revisions to their DO criteria in the New Jersey waters of the NY-NJ Harbor Complex, which also encompasses the IED. Since the interstate waters in Connecticut, New York and New Jersey are also IEC waters, whatever is done by IEC's member states in those waters is going to affect IEC and the course of action the Commission might have to take regarding its DO regulations.

A presentation of the dissolved oxygen data acquired during the 2007 ambient water quality monitoring in Long Island Sound is shown on the pie chart entitled "2007 Dissolved Oxygen Monitoring". Measurements of dissolved oxygen concentration in both surface and bottom waters are separated and grouped into the following three categories. Dissolved oxygen 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 fishes will avoid or leave the area, and those organisms not free to move (sessile) will die. For dissolved oxygen concentrations which are greater than or equal to three mg/l (≥3.0 mg/l) and less than five mg/l (<5.0 mg/l), marine resources surviving in this range are at threshold levels for reduced growth and abundance. The impact to marine organisms is 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. Dissolved oxygen concentrations of at least five mg/l (≥5.0 mg/l) are considered to be protective of most marine aquatic life. The summer of 2007 marks the seventh consecutive year that hypoxic conditions were measured in the surface waters of the Sound; the extent was the least during 2007. For all stations, the surface water range of dissolved oxygen was 2.2 to 13.7 mg/l. The waters of western Long Island Sound, which tend to be stratified, were well mixed, but hypoxic. The lowest value at the surface was recorded on August 20th. Bottom waters ranged from 1.1 to 11.8 mg/l with the low values representing extreme hypoxia and, in some areas, anoxic conditions. These extremely low values were recorded from late July to the end of August. These ranges of surface and bottom dissolved oxygen concentrations were an improvement over those of the 2006 survey.

As shown on the pie charts depicting 2006 and 2007 monitoring data, the condition of the surface waters was somewhat better during 2007 than in 2006. The 2007 surface water in situ measurements for the categories of *Greater Than 5 mg/l*, *Between 3 and 5 mg/l*, and *Less Than 3 mg/l* are 79.5%, 18.3% and 2.2%, respectively. In the same category order, the results of the 2006 survey were 65.1%, 30.3% and 4.6%, respectively. The weather patterns for 2007 were wet (over 10" of rain above the yearly average) and hot; relatively similar to the previous year.

Based on the percentage of hypoxic readings, the bottom waters of the Sound were considerably better in 2007 as compared to 2006. As displayed in the bottom half of the pie chart entitled "2006 - 2007 Dissolved Oxygen Monitoring," the 2007 bottom water in situ measurements for the categories of *Greater Than 5 mg/l*, *Between 3 and 5 mg/l* and *Less Than 3 mg/l* are 26.8%, 54.1% and 19.1%, respectively. In the same category order, the bottom water results of the 2006

INTERSTATE ENVIRONMENTAL COMMISSION

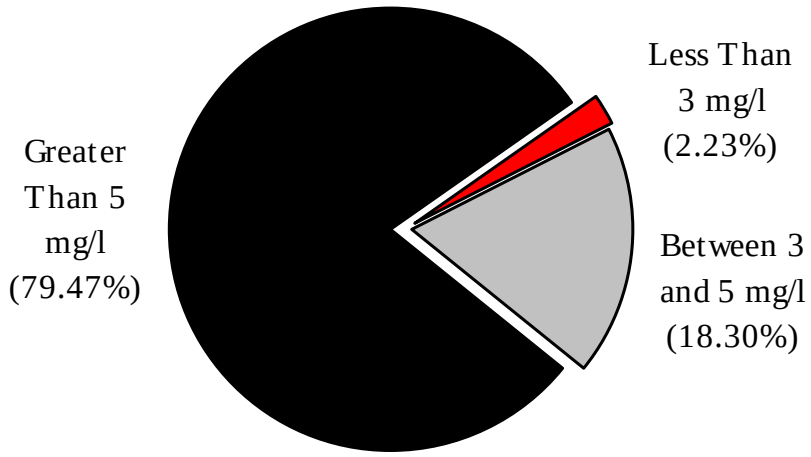
LONG ISLAND SOUND STUDY

2007 DISSOLVED OXYGEN MONITORING

SURFACE AND BOTTOM WATERS

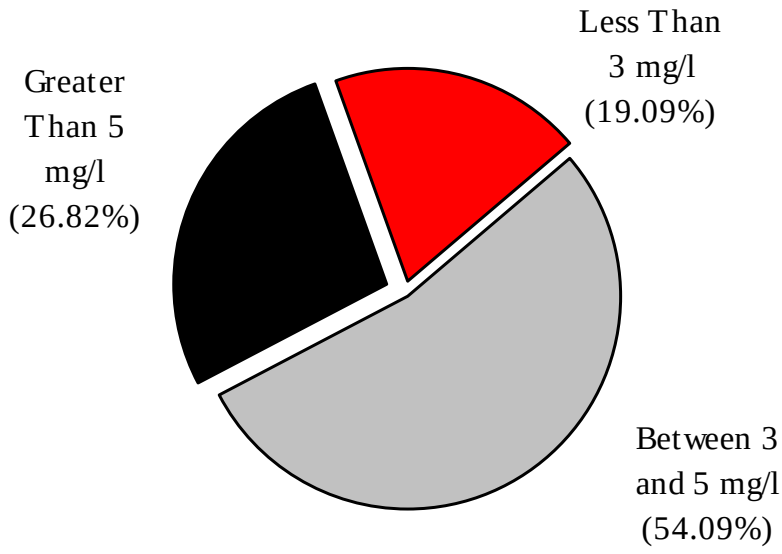
SURFACE WATERS

Range of Dissolved Oxygen Values: 2.2 to 13.7 mg/l



BOTTOM WATERS

Range of Dissolved Oxygen Values: 1.1 to 11.8 mg/l



INTERSTATE ENVIRONMENTAL COMMISSION

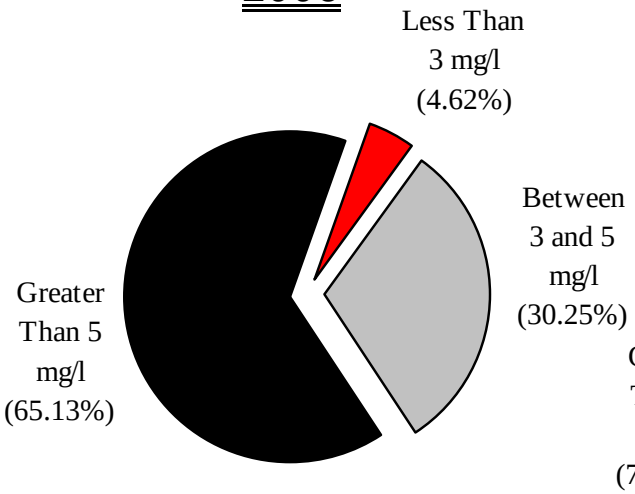
LONG ISLAND SOUND STUDY

2006-2007 DISSOLVED OXYGEN MONITORING

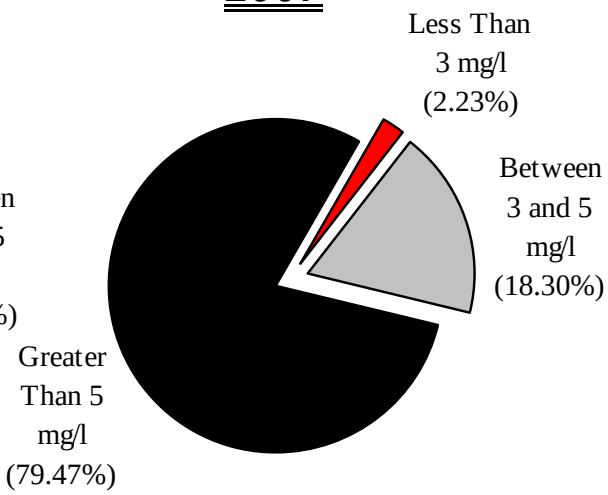
SURFACE AND BOTTOM WATERS

SURFACE WATERS

2006

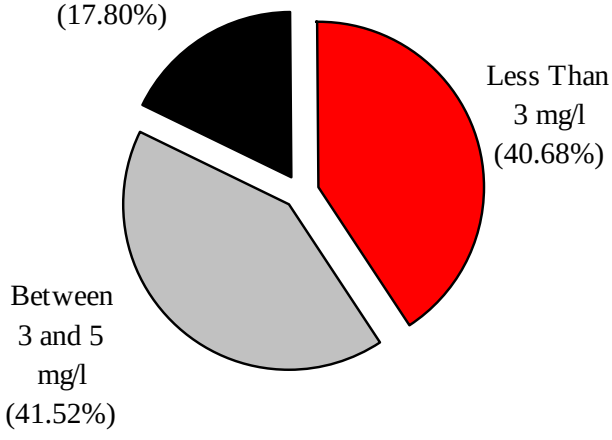


2007

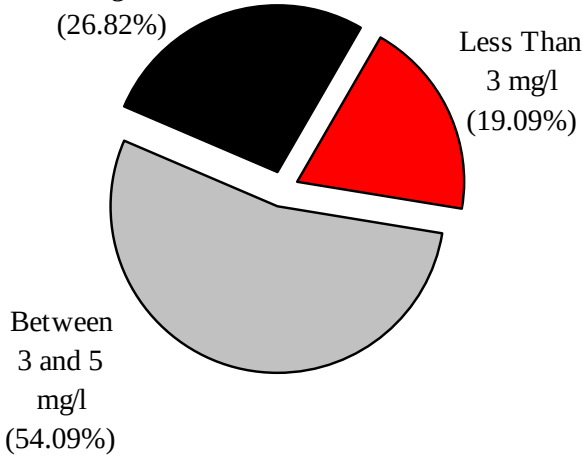


BOTTOM WATERS

2006



2007



survey were 17.8, 41.5% and 40.7%. A variety of natural and anthropogenic factors (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.

It is important to know the time period in which hypoxic conditions occur in surface and bottom waters. A display of the variation of the average dissolved oxygen concentration at all 21 stations between weekly sampling dates is shown on the graph entitled "Surface and Bottom Waters: Average and Range of All Stations Sampled". The averages, maximum and minimum values of surface and bottom waters for each run are displayed and represented separately. The graph indicates that hypoxic conditions were observed in surface waters during the 2007 sampling; this is the seventh year in a row that these conditions were observed in surface waters. Prior to 2001, the last observation by IEC of hypoxic conditions in the surface waters was in 1997.

During 2007, hypoxic, as well as anoxic conditions (DO < 2 mg/l), were observed in bottom waters from early July until late August. However, only three stations recorded values less than 3 mg/l through July 23rd. For the two-week period from July 30th to August 6th, as many as 15 stations recorded values of less than 3mg/l; the following weeks showed a dramatic recovery of well oxygenated waters due to the intense localized storms. The lowest bottom water dissolved oxygen concentration of 1.1 mg/l was observed on August 6th, which was the same as the 2006 low point.

A gradual and positive recovery of lobster catches in western Long Island Sound has been observed in past years. Lobster had been a major cash crop for this area; prior to 1999, it was the third largest producer behind Maine and Massachusetts. Dead lobsters were reported in traps in late November 1998 and by late August 1999, catches in western Long Island Sound were nearly zero. The 2007 commercial and recreational harvest in the western and central portions of the Sound was better than 2003 when the harvest started to recover — especially compared to 2000 when the dockside landings were almost nonexistent. Minimum size regulations for lobster in Long Island Sound were increased from 3 1/4" to 3 9/32" in 2005. Additional protective measures were enacted on July 5, 2006, when the minimum size was increased to 3 5/16".

CATCH OF THE DAY
AUGUST 2007
Photo by P.Sattler, IEC

Research dealing with disease and responses to stress in lobsters showed a threshold temperature of 20.5^{0}C; bacterial infections increase due to higher temperatures and hypoxia. Mortality increases with low DO, high temperatures, high sulfide and ammonia concentrations resulting from organic matter decomposition. The profiles on the following page entitled, "2007 Monthly Bottom Water Temperature Distribution in Long Island Sound" illustrates the temporal extent for temperature at all 21 monitoring stations from west to east. In situ measurements of bottom temperatures recorded during 2007 were 13.5^{0}C to 24.6^{0}C in July; 18.9^0 C to 23.6^{0}C in August, and 21.5^0 C to 23.2^{0}C in September. Bottom temperature ranges were nearly identical to the 2005 and 2006 measurements.

INTERSTATE ENVIRONMENTAL COMMISSION

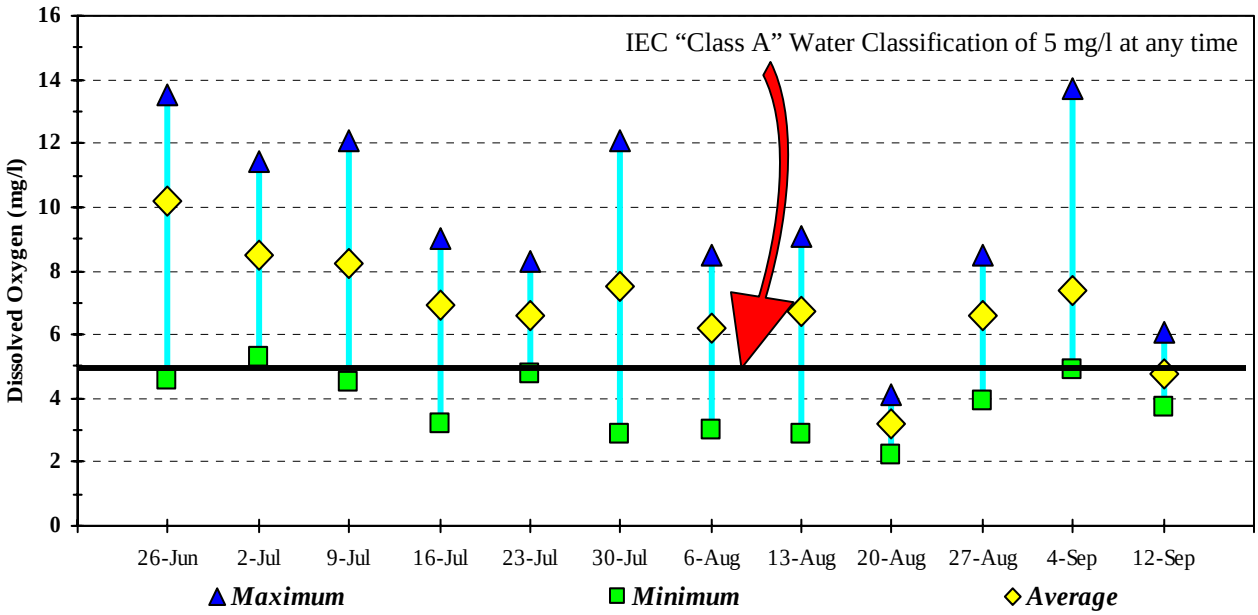
LONG ISLAND SOUND STUDY

2007 DISSOLVED OXYGEN MONITORING

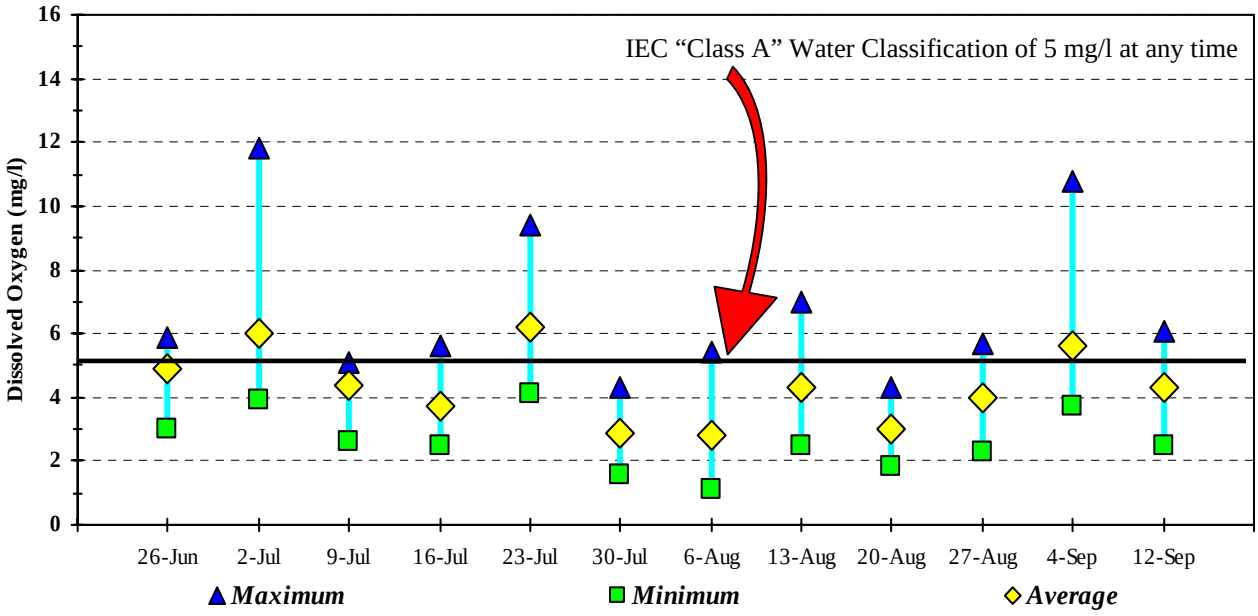
SURFACE AND BOTTOM WATERS:

AVERAGE AND RANGE OF ALL STATIONS SAMPLED

SURFACE WATERS

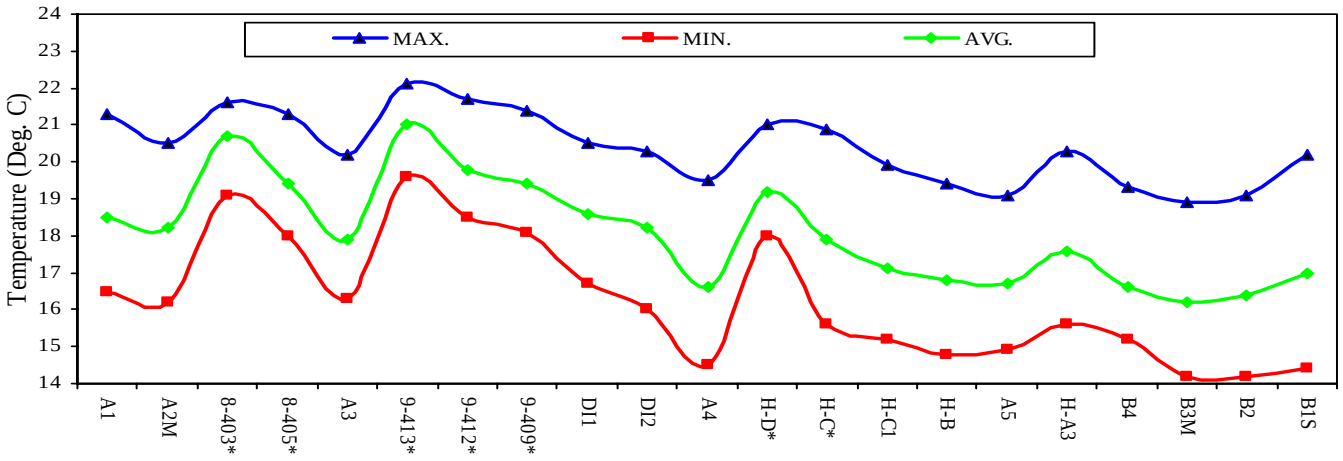


BOTTOM WATERS

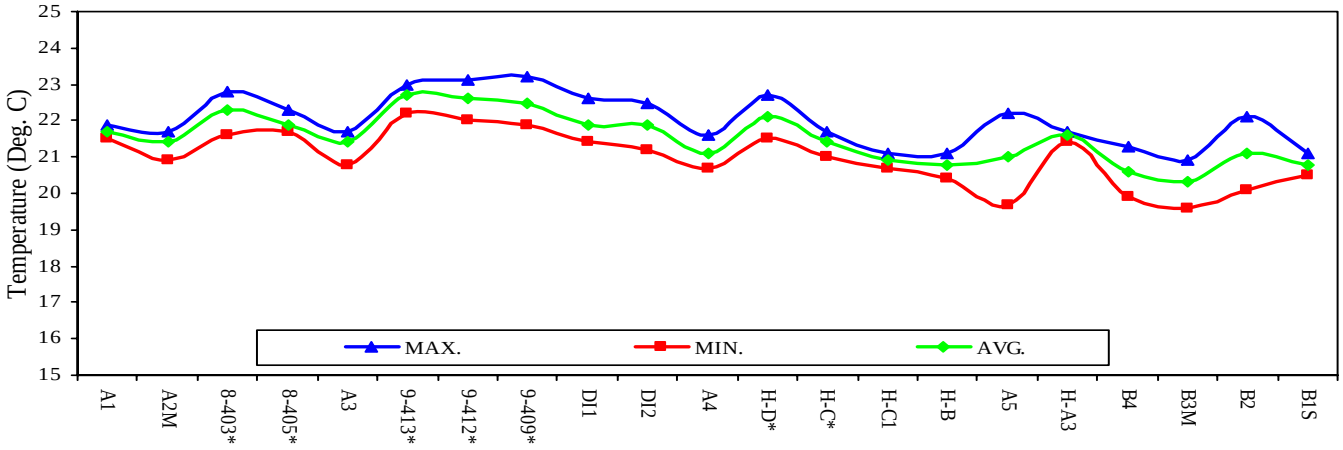


2007 MONTHLY BOTTOM WATER TEMPERATURE PROFILES IN LONG ISLAND SOUND

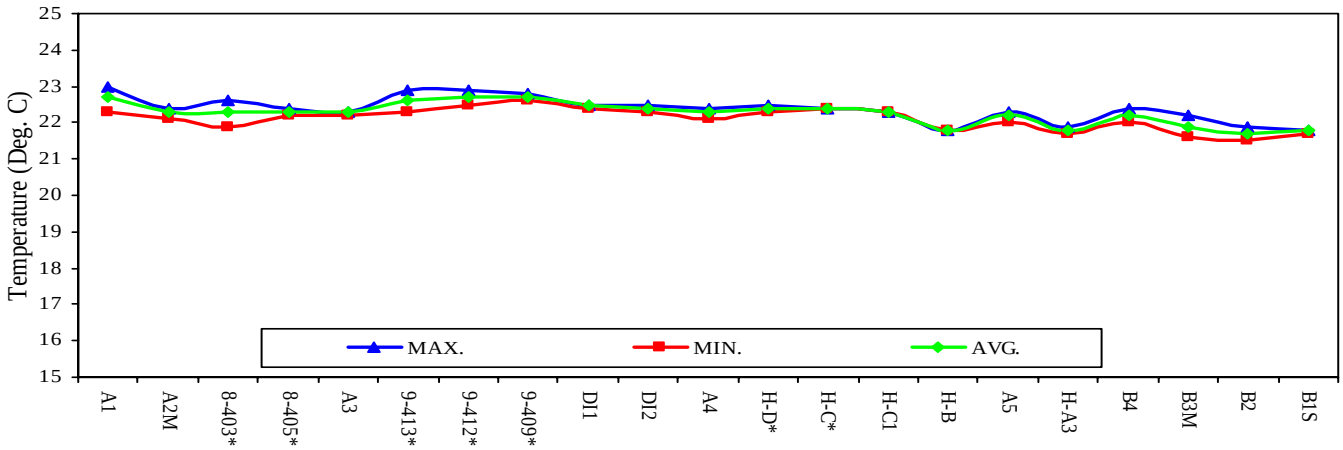
JULY



AUGUST



SEPTEMBER



* Stations inside embayments

IEC STATIONS (WEST TO EAST)

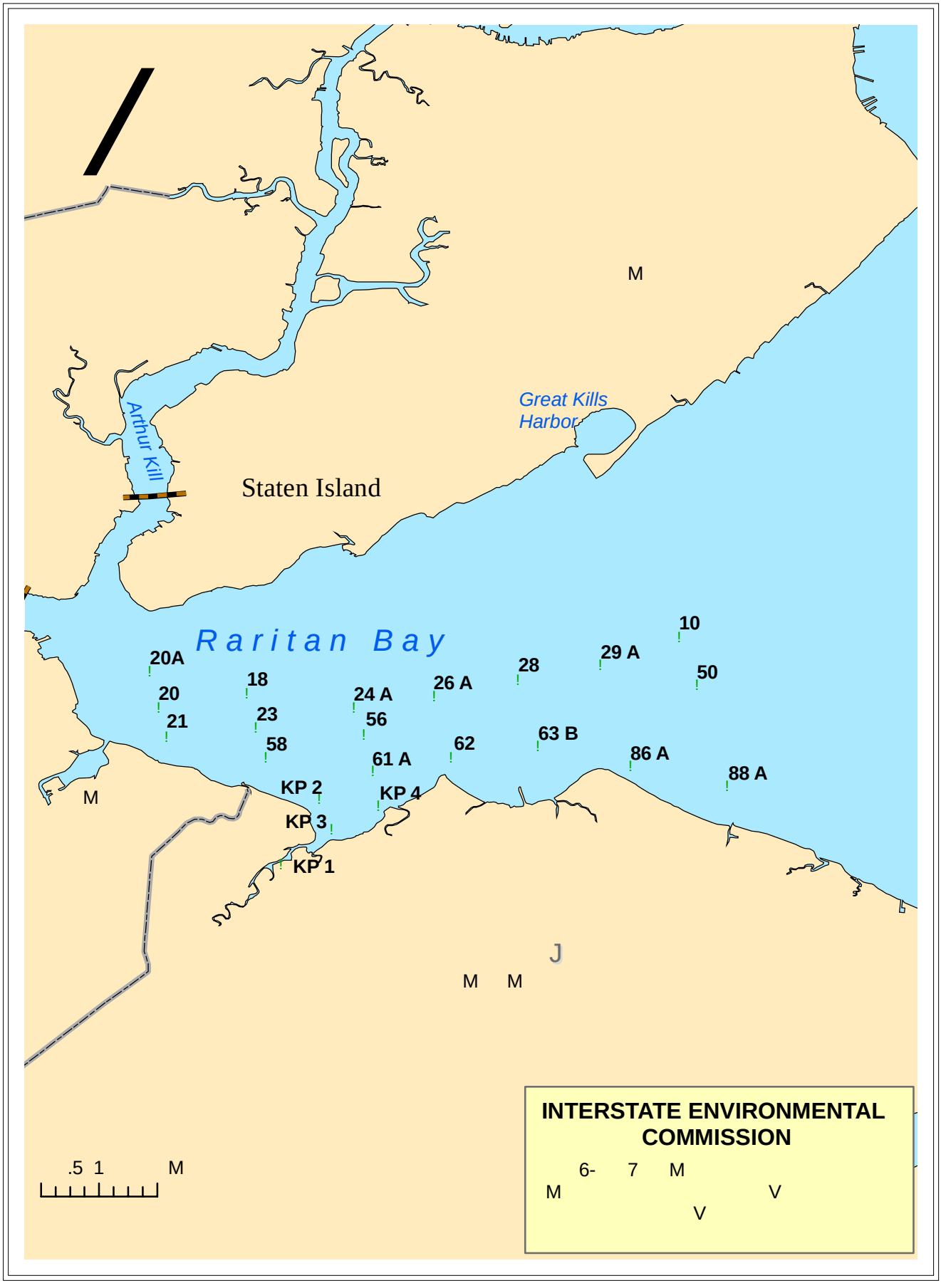
2006-2007 Microbiological Surveys in the Shellfish Harvesting Waters of Western Raritan Bay

The New Jersey Department of Environmental Protection, Bureau of Marine Water Classification and Analysis (BMWCA), regularly conducts ambient water quality monitoring of the State's shellfish harvesting beds. In order to meet the increasing demands for sampling that the shellfish industry has requested, accompanied by a shortfall in staffing, the BMWCA requested the IEC, for the 12th consecutive year, to assist in sample collection in western Raritan Bay during the 2006-2007 winter and spring seasons.

Sampling runs were planned to collect the data needed to assess the microbiological quality of the shellfish waters; protocols used followed the criteria established by the US Food and Drug Administration's National Shellfish Sanitation Program. The surveys were triggered by storm events with an intensity of at least 0.2 inches of rain. A window of 48 hours subsequent to the rain gives ample time to document the effects of the runoff. During 2005, the sampling route was expanded by four stations to include Keyport Harbor. All samples were collected from surface waters at 22 sampling stations. A map and a listing of the sampling stations are on the following pages. In conjunction with the NJ DEP/US EPA Performance Partnership Agreement, all samples were transported by IEC to the US EPA's Edison, New Jersey, laboratory for analysis of fecal and total coliform bacteria.

During November 2006, the R/V Natale Colosi was moved to Raritan Bay and berthed at the Leonardo State Marina which is operated by the NJ DEP. From December 15, 2006, until April 30, 2007, two survey runs were completed. All sample collection, storage and delivery to the US EPA Edison laboratory adhered to chain of custody procedures and followed standard operating methods as outlined in the NJ DEP Field Sampling Procedures Manual. The Commission, at the request of BMWCA, will again conduct this survey over the 2007-2008 winter and spring seasons.

The 10,400 acres of Raritan Bay waters off the eastern shore of Staten Island, NY, represent nearly 45% of New York State's hard clam industry. During 2002, a shortened shellfish season limited the harvest to 48,102 bushels from these waters. The economic hardship of the shortened season was compounded on March 13, 2003, when the NYS DEC Division of Marine Resources 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. This parasite is not harmful to humans and does not represent a public health threat, but is fatal to hard clams. In order to eliminate the spread of the parasite, the transfer program to cleaner, eastern waters of the District was stopped as a precautionary measure. There is no known treatment or cure for QPX. The closure remained in effect throughout 2004. On May 2, 2005, about 2,600 acres were reopened for transplant harvest. The areas approved for harvest are located west of a line extending southerly from the mouth of Lemon Creek (~2,000 acres) and to the east in the area of Great Kills Harbor (~650 acres). The program is restricted to a maximum of 40 diggers. The shellfish harvest waters remained open in 2007.



INTERSTATE ENVIRONMENTAL COMMISSION

2006-2007 SAMPLING STATION LOCATIONS FOR MICROBIOLOGICAL SURVEYS IN THE SHELLFISH HARVESTING WATERS OF WESTERN RARITAN BAY

SAMPLE No.	STATION	LOCATION		DESCRIPTION
		LATITUDE NORTH D M S	LONGITUDE WEST D M S	
1	50	40-28-40	74-06-42	~0.7 nm south of Can “9"
2	10	40-29-23	74-06-58	~0.5 nm west of Can “9"
3	29A	40-28-58	74-08-09	~0.5 nm west of Buoy “I”
4	28	40-28-45	74-09-23	~1.8 nm north of Union Beach
5	26A	40-28-30	74-10-38	~1.1 nm north of Conaskonk Point
6	24A	40-28-20	74-11-50	~1.25 nm north of Buoy “7"
7	18	40-28-33	74-13-26	~1.0 nm east of Ward Point Daymarker
8	20A	40-28-53	74-14-53	~0.4 nm south of Ward Point Daymarker
9	20	40-28-20	74-14-45	Cheesequake Creek
10	21	40-27-54	74-14-38	Cheesequake Creek
11	23	40-28-02	74-13-18	Seidler Beach
12	58	40-27-35	74-13-09	Seidler Beach
13	56	40-27-56	74-11-41	Keyport Harbor
14	KP 2	40-26-58	74-12-21	Keyport Harbor
15	KP 1	40-26-31	74-12-10	Keyport Harbor
16	KP 3	40-26-52	74-11-55	Keyport Harbor
17	KP 4	40-26-52	74-11-28	Keyport Harbor
18	61A	40-27-23	74-11-33	Keyport Harbor
19	62	40-27-35	74-10-23	Conaskonk Point
20	63B	40-27-46	74-09-05	Keansburg
21	86A	40-27-28	74-07-42	Point Comfort
22	88A	40-27-10	74-06-15	Ideal Beach

QPX was also confirmed in low prevalence in parts of the New Jersey waters of Raritan Bay and Sandy Hook Bay. NJ DEP closed these areas to relay harvest, but allowed depuration harvest to continue in Raritan Bay. NJ DEP reopened Sandy Hook Bay to relay in 2004 based on the 2003 sampling results of null prevalence of QPX. Pathologists from New York and New Jersey have reported an overall decrease in QPX prevalence in Raritan Bay in 2004 in both States.

2007 Ambient Water Quality Monitoring for Pathogens in the Hudson River from Yonkers to Bear Mountain

Within urban areas, pathogens levels are influenced by combined sewer overflows and stormwater runoff, both of which are widely recognized as major contributors to water pollution. Several recreational beaches, as well as many productive shellfish beds within the Interstate Environmental District have been frequently closed (some areas closed since the 1920s), primarily due to pathogens contamination. Priority attention has therefore been placed on site-specific surveys leading to a better understanding of the association between pathogens levels and point and non-point source runoff, especially discharges from storm sewers and combined sewer outfalls, as well as the pathogens distribution in receiving waterbodies. IEC has previously conducted a number of pathogens sampling projects at the request of the US EPA - Region 2, in support of the New York-New Jersey Harbor Estuary Program.

While most of the waters in the Interstate Environmental District have been recently sampled by IEC or other agencies for the bacterial parameters, there is limited monitoring of pathogens for the portion of the Hudson River between Yonkers and Bear Mountain. Recognizing this data gap, IEC, in cooperation with the NYS DEC's Hudson River Estuary Management Program, and local county health departments, developed a pathogens monitoring program for the aforementioned portion of the river. The results of this plan will be used to create a database for fecal coliform, total coliform, enterococcus and E. coli.

IEC performed six sampling runs: three during dry weather (planned) and three wet weather events (reactive). A run was considered wet weather when there was at least 0.25 inches of rain as

TAPPAN ZEE BRIDGE AS SEEN FROM THE TARRYTOWN MARINA
Photo by P. Sattler, IEC

recorded at Lake DeForest, West Nyack, NY, during the previous 24-hour period. Mid–river samples were taken at eight pre-determined locations that span from Iona Island (just south of the Bear Mountain Bridge) to a mid-river location by the Rockland County Joint Outfall. A map and listing of the sampling stations are on the following pages. All samples were transferred to the IEC laboratory and analyzed for enterococcus, and fecal and total coliform. In addition, prior to IEC receiving certification for E. coli, the samples were split and sent to a contractual lab to analyze for the presence of E. coli.

Temperature, salinity, conductivity, pH and water clarity (Secchi depth) were measured at each site. Bacterial growth is impacted by temperature. Favorable temperatures create conditions in which bacterial population growth rates are significantly higher than rates associated with adverse temperatures. Salinity, on the other hand, if compared amongst sample locations, could provide an indication of the extent of mixing of fresh water with salt water. It could also potentially describe, taking into account a variety of other parameters, the impact of discharged water in the vicinity of the sample location from sources including, but not limited to, CSOs.

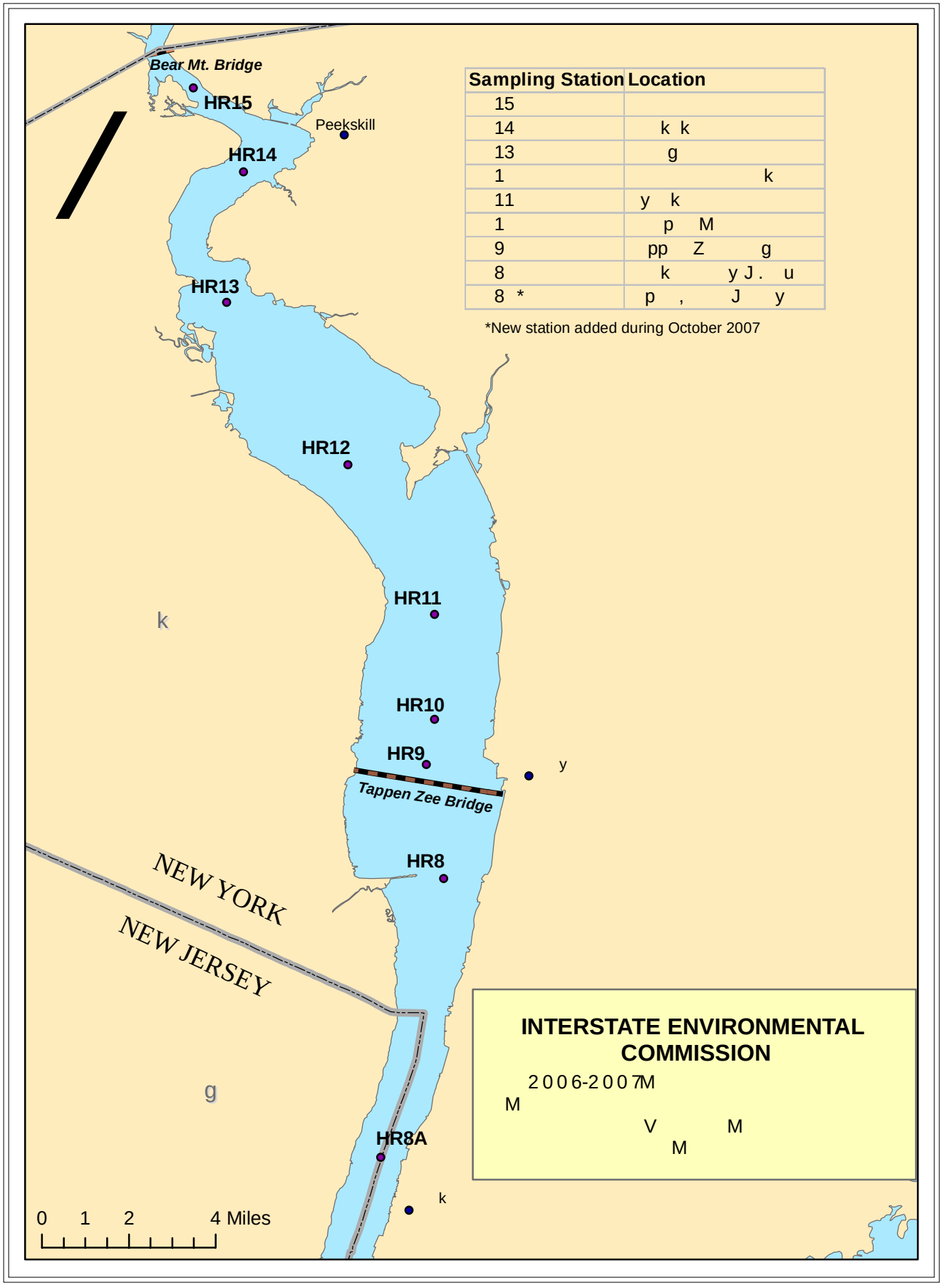
US EPA approved the QAPP during late March 2007, and sampling commenced with a rain event in mid-April. Due to scheduling conflicts which made the IEC vessel unavailable at times, the Hudson Riverkeeper volunteered to assist IEC with field sampling and provided the R/V Ian Fletcher for three surveys between mid-April and May. IEC staff conducted all field measurements on board, collected surface water quality samples and delivered all samples to the IEC laboratory and a contract lab for E. coli analysis. The IEC vessel, R/V Natale Colosi was moved to the Hudson River at Tarrytown, NY, on April 30, 2007, to complete the sampling commitment. The remaining dry and wet weather water quality runs were completed by the end of June 2007.

In the fall of 2007, an amended QAPP was approved by US EPA to support a continuation of this Hudson River water quality survey that IEC began in early 2007. The project was expanded to include additional sampling runs and one additional sampling location that is mid-river in near Alpine, NJ, making it the southernmost station.

The R/V Natale Colosi returned to Tarrytown, NY, on October 1, 2007, to resume sampling in the Hudson River. As of the end of October, IEC completed a total of five additional sampling runs. Following the completion of the first run, IEC's laboratory obtained certification to analyze for E. coli, and began to perform all analyses outlined in the project. The R/V Natale Colosi will return to Tarrytown, NY, to resume during the 2008 spring season.

2007 North Yonkers Sewer Main Break - Emergency Response Water Quality Survey

On Friday, May 4, 2007, at 1:45 PM, a sewage spill was discovered in Yonkers, NY, at the end of Harriman Avenue, adjacent to the Metro-North railroad tracks along the east shore of the Hudson River. A section of 48-inch diameter (48"Ø) reinforced concrete sewer main was damaged by an uprooted tree that was a result of an embankment landslide caused by heavy rain. The sewer line conveys approximately 4 MGD of sewage south to the Yonkers Joint Wastewater Treatment



Sampling Station	Location
15	
14	k k
13	g
1	k
11	y k
1	p M
9	pp Z g
8	k y J . u
8 *	p , J y

*New station added during October 2007

INTERSTATE ENVIRONMENTAL COMMISSION

2007 SAMPLING STATION LOCATIONS FOR AMBIENT WATER QUALITY MONITORING FOR PATHOGENS IN THE HUDSON RIVER FROM YONKERS TO BEAR MOUNTAIN

SAMPLE #	STATION #	LOCATION		DESCRIPTION
		LATITUDE NORTH D M S	LONGITUDE WEST D M S	
1	15	41˚-18'-21"	73˚-58'-15"	Iona Island- mid-river
2	14	41˚-16'-40"	73˚-57'-15"	Peekskill - mid-river
3	13	41˚-14'-03"	73˚-57'-35"	Georges Island - mid-river
4	12	41˚-10'-48"	73˚-55'-09"	Croton Point Park - mid-river
5	11	41˚-07'-48"	73˚-53'-25"	Nyack Beach - mid-river
6	10	41˚-05'-42"	73˚-53'-35"	Philipse Manor Beach - mid-river
7	9	41˚-04'-48"	73˚-53'-35	Tappan Zee Bridge - mid-river
8	8	41˚-02'-31"	73˚-53'-14"	Rockland County Joint Outfall - mid-river
9	8A*	40˚-59'-06"	73˚-54'-30"	Alpine, New Jersey - mid-river

* Station added in October 2007.

Plant. All communications with the Commission and participating agencies were maintained as established by the Regional Bypass Workgroup notification protocols.

Originally, the sewage was pooling in a wetland area situated between the embankment and the tracks. It did not flow freely into the Hudson River because the Metro-North effluent culvert was plugged. Fearing the sewage would reach the third rail and disrupt service north and south on the Metro-North Hudson River commuter rail line, trash pumps were set up to discharge the ponded sewage into the Hudson River. These pumps were set up by Saturday, May 5, 2007. On Sunday May 6th at 10:00 AM, the bypass ended when a pumping operation was set up to stop the discharge to the Hudson River and pump the ponded sewage up to a sewer south of the break.

METRO-NORTH RAILROAD-GREYSTONE STATION, NORTH YONKERS, NY
Photo by P. Sattler, IEC

On Monday, May 7th, and Friday, May 11, 2007, IEC staff sampled the Hudson River in the immediate area of Greystone Station and down stream to The Battery aboard the Hudson Riverkeeper's vessel, R/V Ian Fletcher, and the R/V Natale Colosi, respectively. IEC conducted in situ measurements at 13 locations for temperature, salinity, and DO. Additional water quality samples were collected and delivered to the IEC laboratory for the analysis of fecal coliform, total coliform and enterococcus. A map and list of station descriptions are on the following pages. The results of the samplings were forwarded to the NYS DEC, Shellfish Bureau, and the Westchester County Department of Health.

<u>2007 Monitoring for the Impact of Summer Ambient Temperatures on Elevated Levels, Persistence and Regrowth of the Enterococcus Indicator Bacteria at the Silver Sands State Park Beach in the Long Island Sound Coastal Area.</u>

During the summer of 2007, IEC conducted a study funded by the CT DEP Long Island Sound License Plate Program to analyze localized conditions contributing to high concentrations of indicator bacteria that may result in beach closures in the Long Island Sound coastal area. An examination of the relationship between sediment and overlying water temperatures in summer months and concentrations of enterococci was necessary in order to determine if elevated water

INTERSTATE ENVIRONMENTAL COMMISSION

2007 NORTH YONKERS SEWER MAIN BREAK-WQ SURVEY SAMPLING STATIONS

SAMPLE #	STATION #	LOCATION		DESCRIPTION
		LATITUDE NORTH D M S	LONGITUDE WEST D M S	
1	8	41-02-46	73-53-01	Rockland County Sewer District Outfall
2	GROUND ZERO	40-58-37	73-53-26	Metro-North Commuter Rail-Greystone station
3	N 1 E-NS	40-54-52	73-54-47	MT. ST VINCENT: Transect station New York near shore
4	N 1	40-54-52	73-54-58	MT. ST VINCENT: Mid river on a line from New York shore at Mt. St. Vincent Academy to the New Jersey shore.
5	N 1 W-NS	40-54-52	73-55-41	MT. ST VINCENT: Transect station New Jersey near shore
6	N 2	40-52-46	73-56-08	SPUYTEN DUYVIL: Mid river on a line from the center pier of the Conrail Bridge over Spuyten Duyvil Creek to the New Jersey shore.
7	N 2 E-NS	40-52-46	73-55-35	SPUYTEN DUYVIL: Transect station New York near shore
8	N-3B	40-48-56	73-58-17	125th STREET: Mid river on a line from the Manhattan shore at West 125th Street to the New Jersey shore.
9	N 3B E-NS	40-48-56	73-57-54	125th STREET: Transect station New York near shore
10	N 4	40-45-22	74-00-30	42nd STREET: Mid river on a line from the Manhattan shore at West 42nd Street to the New Jersey shore.
11	N 4E-NS	40-45-22	74-00-19	42nd STREET: Transect station New York near shore
12	N 5	40-21-16	74-01-36	PIER A-THE BATTERY: Mid river on a line from the Manhattan shore to the Conrail Terminal.
13	N 5 E-NS	40-21-16	74-01-10	PIER A-THE BATTERY- Transect station New York near shore

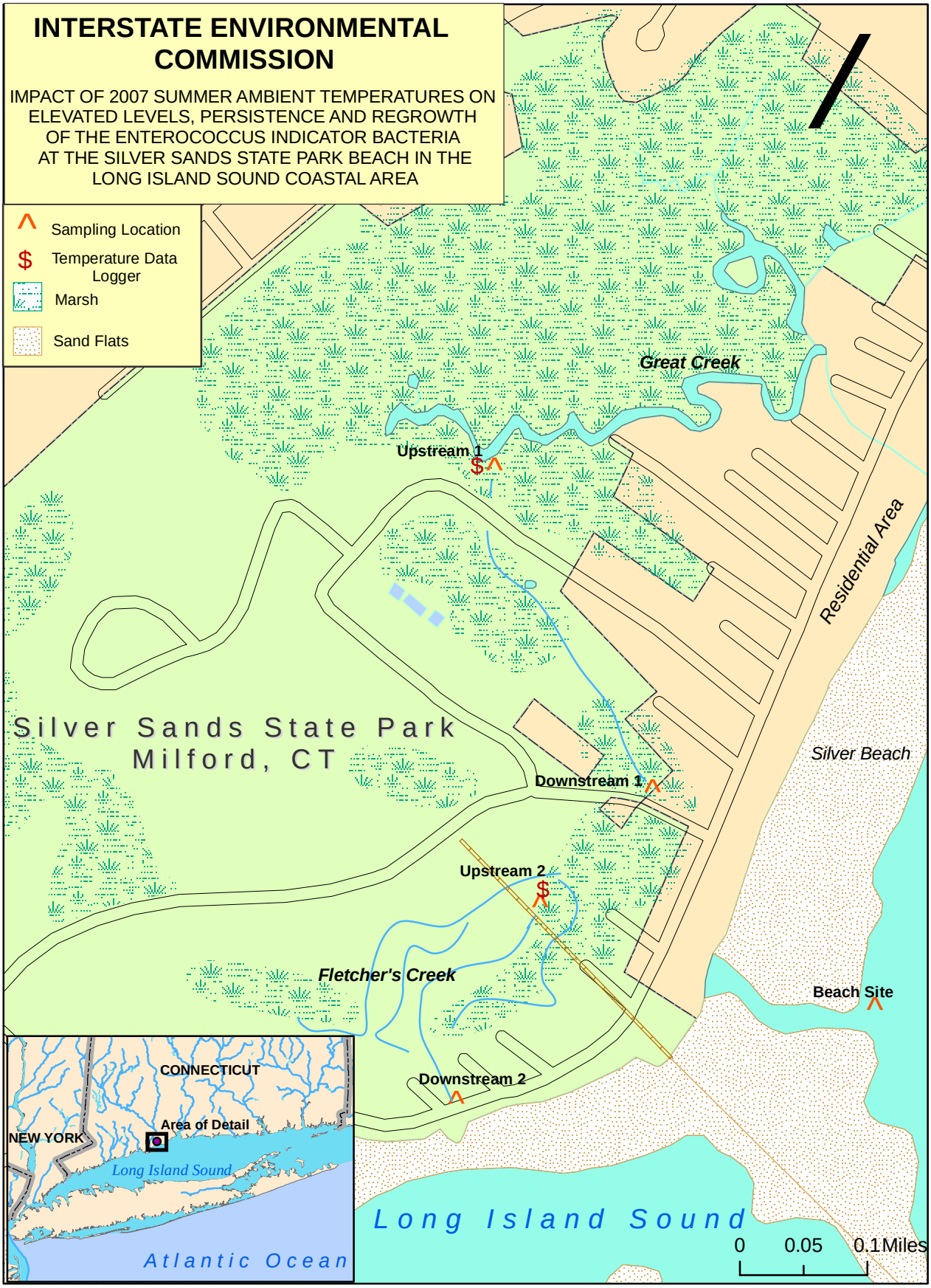
temperatures enhance persistence or support regrowth of such bacteria. The study area was Silver Sands State Park, located in Milford, CT, and included two creeks — Great Creek and Fletcher Creek — that empty into the Long Island Sound (see the map on the following page). This project was needed to better predict and understand elevated bacteria levels in the study area and similar Long Island Sound coastal regions in order to improve overall water quality and promote safe recreational use of Long Island Sound's bathing beaches.

Previous CT DEP samplings of indicator bacteria in the tidal creeks which drain into Silver Sands State Park Beach, performed on a weekly basis, revealed that enterococci concentrations at the beach repeatedly exceeded bathing criteria. Since CT DEP's surveys indicated that significant sources of human sewage might not be present, additional data was needed in order to enhance the understanding of estuarine processes and localized conditions that may contribute to elevated levels of indicator bacteria that are detrimental to the sanitary quality of bathing beaches and overall water quality of the Long Island Sound.

The focus of this study was to determine the specific impact of summer temperatures — as well as pH, total suspended solids (TSS), turbidity and salinity — on the concentration, persistence and potential regrowth of indicator bacteria in sediments and the water column at the Silver Sands State Park Beach. In addition, this study also considered creek sediments and their ability to serve as a source of enterococci to overlying waters through resuspension and remobilization. IEC collaborated with a contract lab to perform molecular characterization of enterococci. Samples were sent to the Florida laboratory where water and sediment samples were probed for source-specific sequences using polymerase chain reaction in order to differentiate sources of enterococci as being from human, avian, bovine, deer, or other wildlife origin. Additionally, bacteria were isolated from sediments and analyzed by DNA fingerprinting.

IEC successfully conducted five sampling events between June and August 2007. Three sampling events had no rain in the 48 hours prior to the sampling, and the other two events had less

SAMPLING AT DOWNSTREAM STATION #1 ON GREAT CREEK, MILFORD CT
Photo by G. Spencer, IEC



than 0.08 inches of rain in the prior 48 hours. Rain data was retrieved from the rain gauge at the Igor Sikorsky Memorial Airport in Bridgeport, CT. Events included the field collection and laboratory analysis of 28 samples per event. This consisted of four grab samples collected at each of the seven sampling sites: four creek surface waters (two upstream and two downstream), two creek sediments and one beach surf zone.

Physical factors, including temperature, affect the survival, persistence and regrowth of indicator bacteria in the environment. As enterococcus is used as the primary indicator to determine sanitary quality of bathing waters, this presents the need to determine specific sources of enterococci, as well as a need to establish how environmental factors specifically affect persistence and regrowth of *Enterococcus spp.*

Field measurements were taken for temperature, salinity, turbidity, and pH and laboratory analyses were performed in the IEC laboratory for enterococci, fecal coliform, TSS and turbidity. Temperature data were supplemented with the use of in situ continuous temperature data loggers (hourly intervals). During each event, depth measurements were taken at both downstream creek locations in conjunction with sample collection in order to assess tidal variability. The flow direction was also determined.

DATA LOGGER
Photo by G. Spencer, IEC

Enumeration and molecular characterization of enterococci in the creek sediments proved to be useful in determining how overlying waters compare with respect to enterococci concentrations in the sediment. This helps to ascertain if the sediment is contributing to augmented levels of enterococci within the water column of the creeks and, ultimately, the downstream bathing beach. The contract lab analyzed samples for DNA markers in order to indicate sources of fecal pollution within the watershed, and used DNA fingerprinting to determine if indicator bacteria are re-growing or concentrating in the environment.

The final report has been submitted for approval.

Pathogen Track Down on the Byram River

The Byram River is an interstate waterway about 13 miles long. It runs 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 mouth empties into Port Chester Harbor and has a confluence with Long Island Sound. While a bacterial contamination problem in the Byram River has existed for some time, there's great interest in eliminating this pollution source because there are negative impacts on the shellfish beds that are used for recreational purposes in adjacent Greenwich Harbor, as well as the New York-Connecticut area beaches. The areas around this portion of the river are highly developed with numerous potential industrial and residential sources of bacteria.

Due to its interstate nature, in 2002 the CT DEP requested the Interstate Environmental

Commission to coordinate and address oversight for a multi-agency pathogens track down investigation. The entities involved in the project are IEC, CT DEP, NYS DEC - Region 3, Westchester County Department of Health (WC DOH), Greenwich Health Department, and the Village of Port Chester. In 2002 and 2003, the investigation began by assessing historic data and examining potential industrial and municipal sources by reviewing NPDES permits and Consent Orders of record. IEC field staff conducted shoreline surveys, as well as inspected one pump station on the Westchester County side of the river. The Commission developed a QA/QC monitoring plan that was submitted and approved by US EPA - Region 1. The first priority was to identify the outfalls to be monitored for dry weather discharges (no rain within the previous 48-hours). Any discharge observed was then sampled and, where accessible, an ambient sample of the river was also taken. The samples were analyzed at the IEC laboratory for fecal coliform, total coliform, fecal streptococcus and enterococcus. A map on the following page shows the area of concern and the outfalls under investigation. During 2003, six ambient surveys were performed.

In early 2004, IEC met with the WC DOH to discuss locating contaminated discharges to the Byram River from the Village of Port Chester. The investigation involved following the discharges into the river upstream through the sewers. IEC and WC DOH jointly conducted investigations of storm sewers in Port Chester. Subsequently, inland tracking for dry weather flow and illegal hook-ups were jointly conducted by IEC and WC DOH. These inspections involved visually inspecting the interceptors during dry weather to locate illegal flows. Upon the discovery of illegal connections in the storm sewers, IEC and WC DOH notified the Village of Port Chester and in several cases, the WC DOH issued Official Notices of Non-Compliance. Subsequently, the Village took the necessary steps to eliminate the illegal connections.

Since 2004, these investigations have led to numerous sources of contamination, usually coming from illegal connections to the storm sewer line and cross connections between storm sewer and sanitary lines. Upon the discovery of illegal connections in the storm sewers, IEC and WC DOH notified the Village of Port Chester and WC DOH has issued Official Notices of Non-Compliance. IEC and WC DOH continue to perform these joint inspections.

Once notified, the Village has taken the necessary steps to remediate all of the sources that were identified by the joint IEC-WC DOH investigations. Port Chester has been more proactive in the investigation of locating potential sources. They have hired a contractor to investigate the system and have videotaped storm sewers to locate potential sources. Results of these investigations have led them to repair and/or reline sewer lines. They are continuing their investigation.

As part of this investigation, IEC has been sampling discharges into the Byram River and areas adjacent to those discharges. The IEC sampled in March and November 2007. For the November sampling, in addition to the discharges and ambient samples taken, IEC also sampled inland sites that were recommended by the Village's contractor. The results still show the presence of bacterial contamination. IEC will continue to meet with and work with the other regulatory agencies in 2008.

World Water Monitoring Day

On July 28, 2006, the Water Environment Federation announced its adoption of World Water Monitoring Day. Founded by the America's Clean Water Foundation in 2002 with a national focus, the first National Water Monitoring Day in the United States was a great success. To continue to promote water quality awareness around the globe, the fifth annual World Water Monitoring Day was held on October 18, 2007, with sampling taking place between September 18th and October 18th. October 18th is the anniversary of the enactment of the federal Clean Water Act. IEC has participated in this monitoring effort since its inception.

The IEC joined thousands of volunteers to sample water quality and report their results. It is estimated that nearly 10,000 sites in 48 states and 80 nations are part of the sampling network. While comprehensive monitoring goes on throughout the year, IEC conducted in situ testing of water quality parameters on September 18th at nine sites in the upper East River and western Long Island Sound, covering a distance of about 29 nautical miles. These are the same sites monitored by IEC since 2002. The ambient water quality stations represent a subset of the LISS sampling network (see the 2007 LISS Sampling Stations for specific locations). In addition to meteorological and tidal conditions, parameters collected include dissolved oxygen, salinity, temperature, and water clarity. All IEC data has been submitted to the World Water Monitoring Day website, www.worldwatermonitoringday.org for inclusion into an international data bank.

Harbor-wide Water Quality Monitoring Activities in the New York-New Jersey Harbor Complex

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

To assess the data gaps necessary to have harbor-wide monitoring, the Committee looked at all aspects of the current and future sampling/data collection programs, including the parameters of concern, waterways, monitoring scenarios, methodologies, laboratory capabilities and capacities, QA/QC 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, 16 parameters of concern including DO, nutrients and pathogens (except enterococcus) were collected weekly between May and September, and bimonthly between October and April. The analyses are conducted at three laboratories located at the Bergen County Utilities Authority, MCUA and PVSC. This program was maintained in 2007.

The final products of the sampling efforts will be to create a comprehensive report or establish a website or link fashioned after the NYC DEP Harbor Survey document which would, at the very least, discuss results, status and trends, and immediate environmental conditions. Discussions are ongoing to resolve consistent data formatting, analysis and data interpretation, as well as publication issues.

2007 BOAT INSPECTION TRIP

The Commission's annual Boat Inspection Trip provides an excellent opportunity for public officials and other parties interested in protecting the environment to view and discuss water quality issues affecting the Region.

The 2007 Boat Inspection Trip was held on August 1st. The District waterways visited were the Lower and Upper New York Harbor, New York and New Jersey waters of Raritan Bay and the Kills, and the Hudson River north to 42nd Street in Manahttan. The following map shows the six-hour route which was traversed, covering over 50 nautical miles. The waters inspected during the trip provide for recreational powerboating and sailing; the use of canoes, kayaks and sculls; and a major sea-lane for the eastern seaboard. Other primary contact activities supported by these waters include commercial and recreational fishing, shellfishing, crabbing and lobstering; scuba diving; swimming; jet skiing; parasailing; waterskiing; and windsurfing. On a grand scale, the New York Harbor Complex supports a vast maritime industry including shipping, dry docks, transportation (ferries, water taxis, and ocean liners), container ports, tank farms and commercial harvest of crustaceans, finfish and shellfish. In addition, services are available for the recreational fishing and cruising enthusiasts.

TUG & TANKER ON THE KILLS
Photo by R. Collier

IEC Commissioners, officials from all levels of government, interstate agencies and citizen groups viewed bathing beaches and seaside parks (Coney Island and Staten Island, NY and Keansburg, NJ), commercial hard clam operations, numerous party boats and small recreational vessels, tug and barge transports, urban and maritime industries, and historical landmarks. A running dialogue of water quality issues, sights and points of interest, recommended fishing and scuba diving sites, as well as local lore dealing with lighthouses, bridges, embattlements, national and memorial monuments were provided throughout the trip.

The attendees viewed ongoing waterfront development, sewage treatment plants, sludge dewatering facilities, electrical/steam generating stations, and closed landfills. Several waterways

on the route included those being monitored by the Commission to determine the sanitary conditions for shellfish harvesting and bathing, as well as a network of sampling stations that were used for data collection in support for the NY-NJ Harbor Estuary Program. The tour visited the shellfish beds off Staten Island which had been closed in previous years due to a naturally occurring parasite. Other waterfront views included major oil storage facilities, the Fresh Kills Landfill, restoration efforts due to oil spills and erosion, and wooden bulkheads under repair due to marine borers. Special viewing was provided for the 9/11 Memorial in Harbor View Park (in Bayonne, NJ), the Statue of liberty and the USS Intrepid Sea, Air and Space Museum which was being refurbished in Stapleton, Staten Island.

Attendees had the opportunity to see unobstructed views of the New York City and Hudson County, NJ, skylines; the historical embattlements that have protected New York Harbor; over 20 national monuments, nine world-famous bridges; and fragile bird sanctuaries on the Isle of Meadows, and on Pralls and Shooters Islands in the Kills, as well as on Hoffman and Swineburne Islands in the Lower Harbor. The inspection trip gave the attendees a firsthand view of the progress that has been made and some of the problems that must still be addressed in the Region.

REGIONAL BYPASS WORKGROUP

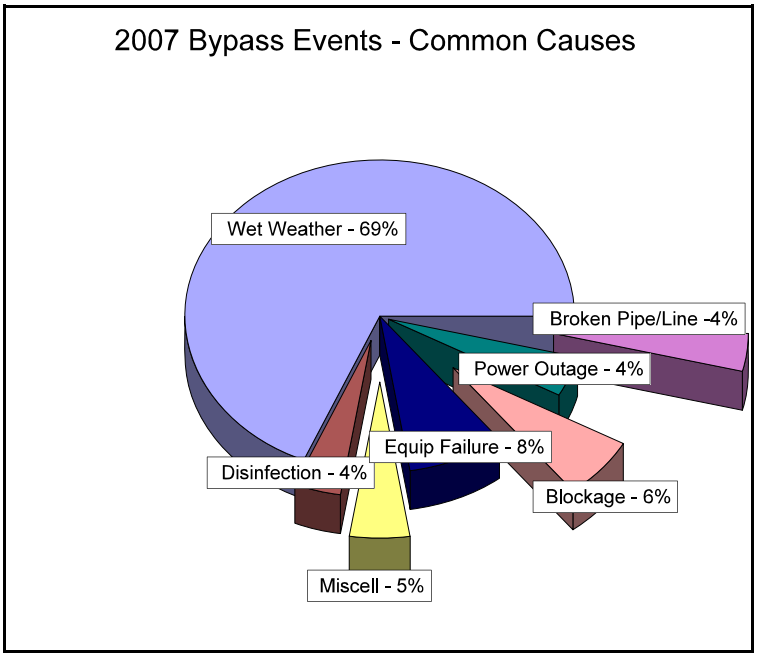
The Regional Bypass Workgroup (RBWG) was formed in 1997 to address the issue of unplanned bypasses of raw and partially treated sewage, i.e., treatment plant upsets, broken pipes due to age, or construction mishaps. The RBWG has members from the IEC's three states' environmental and health departments, IEC, US EPA, US FDA, NYC DEP, US Coast Guard, National Park Service and county health officials. The Workgroup has been using the Regional Bypass model to predict which areas may be affected by a particular bypass. Specifically, the 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. Also, regional notification protocols have been put in place and are updated annually.

For the first 10 full calendar years (1998 to 2007) that the model and notification protocols have been in place, the Commission has received between 93 and 269 bypass event notifications annually. Originally, the focus of identifying bypass events was raw sewage. The focus has since been expanded to address any type of spill, i.e., chemical, oil, fuel, sludge and treatment reductions. The 237 bypass events reported to the Commission for the period January 1 to November 30, 2007, are shown below, delineated by state. The 2006 totals are included as a basis of comparison, as well as to report all bypass events for the past full calendar year.

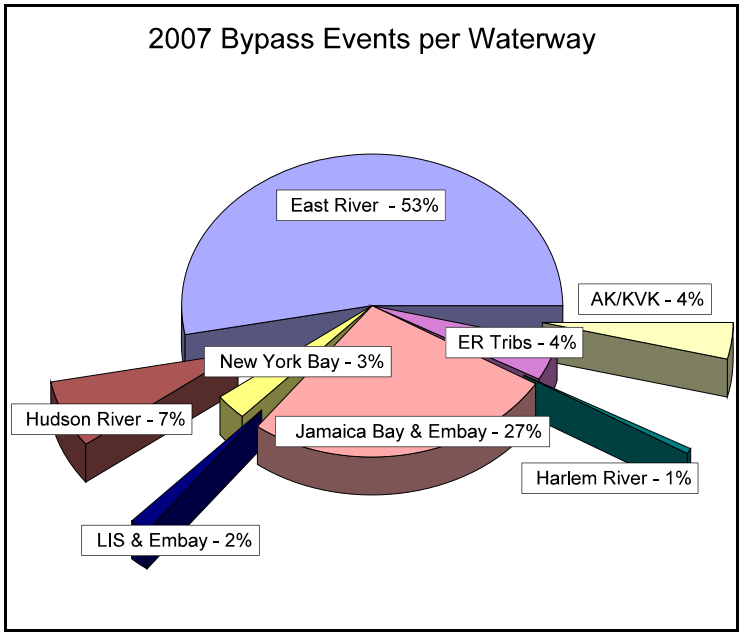
	Total Events in 2006	% of Total	Total Events in 2007	% of Total
Connecticut	0	1.0 %	0	0.0 %
New Jersey	2	0.7 %	2	0.8 %
New York	267	99.3 %	235	99.2 %

The number of reported bypasses from 2004 through 2007 have been substantially higher than previous years. This may be primarily due to rainfall. In 2004 and 2005, the hurricane seasons were extremely active and 2006 and 2007 were considered "wet years" — with the rainfall total over 10 inches above the yearly average. Also, 2007 had more "storms" or high intensity rain events, which lead to more bypasses. Additionally, the hydraulic capacity of several plants was diminished due to construction upgrades. The majority of the New York City and northern New Jersey collection systems are comprised of combined sewers and, when there is rain, the flows to the WPCPs increase. If the flow is greater than the plant design, part of the flow is "throttled". This throttled flow is considered to be a bypass. For the 2007 reporting period, there were 163 wet weather bypass events reported to the RBWG. For 2007, wet weather bypasses account for 69% of the reported events. For 2003, less than 10% of the reported bypasses were caused by wet weather. This year, all of the New York events occurred in NYS DEC - Region 2 which encompasses the five boroughs of New York City. It should be noted that the majority of the treatment facilities, pump stations, regulators and gravity sewers and force mains that exist in this region are in New York City.

During the reporting period, all bypass event details were disseminated in a timely fashion by e-mail. For the most part, any missing data from the event was reported by conventional mail subsequent to repairs. Minor events or ongoing investigations of illegal discharges were reported by mail. Volumes bypassed ranged from as little as under 1,000 gallons of sewage to wet weather bypasses that were over a 100 MG. During 2007, the common causes for bypass events were rain (163), equipment failures (19), disinfection problems (9), blockages (15), power outages (10), broken pipes/lines (9) and 12 events were caused by miscellaneous reasons including foaming issues and human errors. The breakdown is displayed on the pie chart. The majority of the 237 bypass events were comprised of raw sewage (215). Other types of bypasses included disinfected wastewater with primary treatment, secondary treatment with no disinfection, low chlorine residual, and sludge spills. Bypass events that had the potential to impact primary recreational waters occurred during the period May 25th through September 3, 2007, which represents the "official" bathing season (Memorial Day weekend to Labor Day). There were 85 releases, or 35.9 % of the total, during this period. During 2007, the waterways impacted by bypass events are shown on the pie chart on the next page.



Since its inception, the Workgroup has been using the current version of the Regional Bypass Model. While the bypass model has been a valuable tool in predicting the extent of bypasses over the years, it has its limitations. The group now is working with a contractor to update the model for the 2008 beach season. Some of the proposed upgrades to the new model include the (1) use of calibrated enterococcus and total/fecal coliform kinetics; (2) a spatial domain encompassing NY/NJ Harbor, LIS, the New Jersey coastline south to Cape May and the Passaic/Hackensack/ Raritan Rivers; (3) discharges into any segment; (4) multiple discharges; (5) time of discharge with proper position in tidal cycle and temperature conditions; (6) temperature assignment; (7) specific duration and quantity; (8) conservative substance, i.e., heavy metal release or first assumption for oil spill; (9) background conditions such as wet weather; and (10) viewing options such as temporal profiles in any segment, global snapshots or animation.



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 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. The IEC has made submissions since the inception of this reporting format which began in 1984. Each State and Tribe aggregates these assessments and extensive programmatic information in a 305(b) report which is a comprehensive document, usually involving information from multiple agencies. US EPA then uses these individual 305(b) reports to prepare a biennial National Water Quality Inventory Report to Congress.

The goals for 305(b) reporting include comprehensive coverage characterizing all waters in the Interstate Environmental District which adds to the extensive national coverage; reducing paperwork while increasing the amount of assessed waters; annual electronic updates of key information for all assessed waters during the previous year; geo-referencing 305(b) information to identify and map specific waterbodies, including whether they meet water quality standards and to enable long-term tracking of trends; and more rapid, real-time public availability of water quality information.

Since 1998, the IEC has been providing 305(b) reports both as an annual electronic report and an abbreviated narrative report. The abbreviated narrative report contains only the information that has changed from the last report, and a simple reference to that report. IEC reporting format conforms to the US EPA guidelines. The following table summarizes the individual supporting uses of the IEC's nearly 797 square miles of estuarine waters. The Commission is presently preparing the 2007 electronic 305(b) report. The assessment is based on the Commission's data collected from its ambient and effluent monitoring programs. It is supplemented with data from the Commission's member states' environmental and health departments dealing with information on water quality, health advisories, fish kills, shellfish closure areas, and beach closings.

STORET

Since its beginnings, the Commission has amassed a huge data base of ambient and effluent water quality data. These data have been collected for a variety of reasons which have been highlighted throughout this report, previous Annual Reports, and in special reports. The Commission has always been a water quality data depository and an advocate of water quality data collection, analyses and dissemination for the Tri-State Region.

Originally under the auspices of the Public Health Service, the US EPA now has the responsibility of maintaining the National Water STOrage and RETrieval (STORET) data base. STORET is a national database that contains biological, chemical, and physical data on surface and ground water collected by federal, state and local agencies, Indian tribes, volunteer groups, academia, and others. The original data base underwent a complete modernization and overhaul between 1991 and 1998. Since then, the system has been subjected to continuous updates and improvements resulting in the present operating system, STORET, Version 2.0.

The Commission's first input to this repository dates back to 1970. Since then, the Commission has been a steady contributor. Currently, IEC is represented by well over 100,000 entries of parametric data as well as metadata. Parameters recorded include dissolved oxygen, temperature, salinity, Secchi depth, chlorophyll a, fecal and total coliform, fecal streptococcus and enterococcus bacteria. The modernized version of STORET has been enhanced to contain ancillary information such as climatological and tidal data, type of monitoring instrumentation, personnel expertise and visual observations. All the data sets generated by the Commission that are suitable for input have been entered into STORET.

STORET data are available on the Internet. The data can be retrieved from two separate databases, the STORET Legacy Data Center (LDC) and the more current, Modernized STORET system. 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.

2006 INDIVIDUAL USE SUPPORT IN THE INTERSTATE ENVIRONMENTAL DISTRICT

Designated Use	Total Square Miles Surveyed	Percent Good (Fully Supporting)	Good (Threatened)	Fair (Partially Supporting)	Poor (Not Supporting)	Poor (Not Attainable)
ESTUARIES (Total Square Miles = 797.55)						
AQUATIC LIFE	**387.04***	38.37	29.30	20.23	12.10	0.00
FISH CONSUMPTION	**797.55**	16.93	0.00	80.35	2.72	0.00
SHELLFISH CONSUMPTION	**797.55**	38.30	0.00	18.44	43.26	0.00
PRIMARY CONTACT	**797.55**	80.05	0.00	9.52	2.16	8.27
SECONDARY CONTACT	**797.55**	100.00	0.00	0.00	0.00	0.00

* Long Island Sound and upper East River waters of the Interstate Environmental District.

Under way in 2006, US EPA is making significant changes to the STORET model of data sharing. At the end of a transition period of about three years, STORET, as presently implemented, will no longer be supported. US EPA plans to adopt a new approach, tentatively called the Water Quality Exchange (WQX). WQX uses Extensible Markup Language (XML), a relatively new technology for transferring data. The evolution of STORET to WQX will bring the system in line with US EPA's Enterprise Architecture approach; Central Data Exchange(CDX); and Environmental Sampling, Analysis, and Results (ESAR) standard; which gives consistent names and definitions to common data elements. US EPA has completed a successful pilot program to test the draft XML schema for chemical/physical data and the transfer of data through the system. US EPA is now working towards finalizing the WQX scheme for chemical and physical data.. A second pilot for biological and habitat data is planned for late 2007 through early 2008.

PROPOSED REVISIONS TO DISSOLVED OXYGEN SURFACE WATER QUALITY STANDARDS FOR MARINE WATERS

In November 2000, US EPA issued the final guidance document *Ambient Aquatic Life Water Quality Criteria for Dissolved Oxygen (Saltwater): Cape Cod to Cape Hatteras.* This document recommended guidelines for revising water quality criteria for dissolved oxygen (DO). As a result of the release of this document, the Commission's member states, as well as the Commission, have or are considering revisions to current DO standards. Subsequent to public hearings, US EPA - Region 1 approved Connecticut's proposed revisions during May 2001. Connecticut adopted the revised dissolved oxygen ambient water standards in certain portions of Long Island Sound.

The NYS DEC Commissioner signed off on a Standards Rule Package which includes the revision to the Marine DO standard. The Standards Rule Package has been filed with the New York Department of State. The Package was Public Noticed in the New York State Register and the Environmental News Bulletin on December 13, 2006. A public hearing was held in Albany, New York, on February 5, 2007. The rule change deadline is February 5, 2008. The Commission is closely monitoring these activities to determine a course of action for the Interstate Environmental District.

NATIONAL ESTUARY PROGRAM

The National Estuary Program was established in 1984 and provides assistance to estuaries of national significance which are threatened by pollution, development or overuse. The NEP provides federal assistance to develop a Comprehensive Conservation and Management Plan for designated estuaries. There are 28 estuaries located along the Atlantic, Pacific and Gulf of Mexico coastlines, as well as in Puerto Rico and the US Virgin Islands, that are developing or implementing CCMPs. Within the Interstate Environmental District, Long Island Sound and the New York-New Jersey Harbor Estuary have been receiving funding under this program since 1985 and 1988, respectively. The overall coordination for the Long Island Sound Study (LISS) is being done by the US EPA - Regions 1 and 2. The New York-New Jersey Harbor Estuary Program (HEP)

is being coordinated by the US EPA - Region 2.

During 2007, the Commission continued its active participation as a member of the Management Committees, implementation and planning teams, as well as various workgroups for the LISS and the HEP. Commission staff members have taken active roles in the preparation and dissemination of outreach materials intended for legislators and the public. IEC staff also attends the spring and fall meetings of the Association of National Estuary Programs (ANEP). The spring meetings in Washington, DC, give the NEPs access to the appropriate legislators. The fall meetings, which are hosted by different NEPs, give the opportunity to share successes and failures, as well as program management, and education/outreach. The Commission has been involved with these national programs since their inception.

The Governors of New York and Connecticut and the Administrator of the US EPA signed the final CCMP for the LISS in September 1994. The Long Island Sound is bounded by Connecticut and Bronx and Westchester Counties, New York, on the north and by Long Island on the south. It is about 110 miles long ranging from the East River to the Race. In October 1996, the Governors of New York and Connecticut met to re-affirm their commitment to the actions set forth in the CCMP. The LISS 2003 Agreement more clearly defines desired outcomes of the CCMP actions in measurable, trackable terms, proposes a better link between monitoring/research and environmental indicators to established goals and results, promotes implementation, and addresses new issues. It affirms targets for nitrogen reduction and habitat restoration. The "vision" is to restore the health of the Sound by 2014, the 400th anniversary of Adrian Block's first exploration of the region. The Agreement focuses on hypoxia, pathogens, toxic substances, living resources and their habitats, open space and public access, watershed management, public education and community involvement and partnerships.

For the past several years, the Management Committee's quarterly meetings have been enhanced with a summer or fall two-day meeting. This allows for a full agenda where all participants can interact in a professional and social atmosphere. During the October 2007 meeting, members and/or their representatives, with the help of a facilitator, discussed in detail a variety of topics including the potential implications of climate change on current and future management programs for Long Island Sound; the progress in implementing the LIS 2003 Agreement actions; refined the list of 2008 funding and implementation priorities; and the draft action agenda for potential inclusion in the LIS 2008 Agreement. Currently, of the 37 action items identified in the LIS 2003 Agreement, 23 have been initiated, 12 are complete and 2 have yet to be started. The action items address the CCMP areas of concern: hypoxia, pathogens, toxics, living marine resources/habitat, space/access, watersheds, public involvement and education and partnerships.

The Governors of New York and New Jersey and the US EPA Administrator signed the final CCMP for the HEP in August 1997. The estuary includes the waters of New York-New Jersey Harbor Complex and the tidally influenced portions of all rivers and streams that empty into the Harbor Complex. The plan addresses habitat and living resources, toxic contamination, dredged material, pathogens contamination, floatable debris, nutrients and organic enrichment, rainfall-induced discharges, and public involvement and education. Simultaneous with the 1997 closure of the Mud Dump Site (MDS) in the Atlantic Ocean, the site and surrounding areas that had been used historically as disposal sites for dredged materials was designated as the Historic Area Remediation Site (HARS). The Commission took an active role by serving on the MDS/HARS Workgroup. The final CCMP was amended to reflect the accelerated implementation schedule.

The TMDL efforts for nutrients, pathogens and toxics for the New York-New Jersey Harbor Estuary have been making advances in both management strategy refinement and modeling during 2007. These efforts are expected to accelerate as the current schedule calls for TMDL plans to be completed by December 2007, and the regulatory portion of the TMDL by December 2008. IEC has been involved with these workgroups and will assist in the process, especially for the interstate waters within IEC's jurisdiction. Both the Pathogens and Nutrients Workgroups have evaluated model outputs related to current conditions and, in a general way, what it would take to meet water quality standards. These groups are now taking the next steps which include refining modeling run scenarios and working with partners to develop cost analyses for pollution reduction options. Refer to the water quality surveys in this report for details of IEC's pathogens study being conducted in cooperation with the HEP.

COMBINED SEWER OVERFLOWS AND MUNICIPAL SEPARATE STORM SEWER SYSTEMS

With the passage of the Clean Water Act in 1972 and the implementation of secondary treatment, the quality of the Region's waters has improved dramatically. However, waterbodies are still negatively impacted by urban and suburban stormwater runoff. Combined sewer overflows (CSOs) and municipal separate storm sewer systems (MS4s) are major sources of pollution that are allowed to discharge only during wet weather.

The Commission's continuing activities with combined sewer overflows include in-house programs, as well as IEC's participation in the National Estuary Programs in the Region. The Commission has maintained an active dialogue with its member states, US EPA and POTW owners/operators to keep abreast of the status of CSO abatement activities in the District.

During the past five years, interest in the operation and control of municipal separate storm sewer systems has intensified. Phase I of the US EPA's stormwater program (1990), administered as NPDES permit requirements, addresses medium and large municipal separate storm sewer

systems, construction activities, and industrial activities. Phase II is an effort to preserve, protect, and improve the nation's water resources by implementing programs and practices to control polluted stormwater runoff in small communities.

Long Island communities were informed of the requirements of the new Phase II Stormwater Program announced by NYS DEC in September 2002. Among the documents released by NYS DEC were two draft Phase II general SPDES permits — one for Small Municipal Separate Storm Sewer Systems and one for construction activities. According to the draft permits, all New York regulated entities (communities with stormwater discharges from MS4s and construction activities) were required to apply for coverage by SPDES permits by March 10, 2003. Communities with MS4s were then required to proceed with preventing pollution using appropriate technologies and management practices outlined in the permit. The permittees are expected to report annual progress to the NYS DEC and fully implement the proposed program by March 2008.

In Connecticut, 113 municipalities are required to comply with Phase II Stormwater Management plans. The federal government created the Clean Water State Revolving Fund to provide low-cost financing for water quality remediation efforts, to be matched by state funds. Primarily intended to fund modernizing wastewater treatment facilities, this fund has expanded through state bonding to assist with CWA compliance. Due to the limit on grants imposed by required state allocation levels, this fund is grossly inadequate for meeting current water quality needs.

The State of New Jersey's CSO abatement mandates are regulated by the CWA's National CSO Control Policy, the New Jersey Sewerage Infrastructure Improvement Act-Solids/Floatables Control and the HEP's CCMP. The CWA's Nine Minimal Controls require the States to meet existing technology-based criteria and implement immediate corrective actions. The Long-term Control Plan sets forth requirements to meet water quality-based criteria; conduct intensive CSO monitoring and modeling studies; and implement significant infrastructure activity.

Phase II CSO Control Program objectives are to develop and evaluate alternatives, as well as formulate cost and performance relationships. A state-wide General Permit for Combined Sewer Systems was issued on January 27, 1995, reissued on February 28, 2000; revoked and reissued on June 30, 2004, effective August 1, 2004, with a five-year expiration date. The Long-term Control Plan requirements include a public participation process and a report of the public's activities, matters of concern, a summary of public views and comments, and the permittee's specific responses in terms of modifications or basis for rejections of the public input and suggestions. The General Permit also has a re-opener clause which allows for the legal, if necessary, adjustment or amendment.

In addition, Cost and Performance Analysis Reports were required to document the process of identifying and evaluating alternatives; a basis for sizing alternatives; a list of alternatives considered, but rejected; preliminary construction and implementation costs; and a basis for performance assumptions. These reports were due on February 1, 2007. Several permittees

requested, and were granted, a two-month extension. The General Permit was subsequently modified with a due date of April 1, 2007.

US EPA - Region 2 will address state water quality standards inequity between New Jersey and New York, determine an equitable pathogen reduction between New Jersey and NYC, and determine a pathogen reduction in terms of a TMDL based upon feasibility studies and cost information. NJ DEP and NYC DEP will make cost performance available by June 2007. US EPA - Region 2 will provide load allocation under the TMDL by December 2007.

The goal of any stormwater program should be to achieve significant and measurable improvements in water quality, and this may require actions beyond those required by Phase II. Stormwater utilities are a promising option for providing a dedicated funding stream and professional staff to manage stormwater at the local level. Enabling legislation at the state level is the first requirement for creating a stormwater utility. Once that is established, the municipality must determine whether to create a real or paper entity. Challenges facing small municipality administrators include a disconnect from the decision-making process for funding and new housing construction with its accompanied increase in impervious surfaces. Stormwater is not a visible problem and tends to receive a lower priority from elected officials who set budget priorities. There is no clear vision, goals or expectations from the program. Thus, public education, where elected officials are the ultimate target, is important.

The draft general MS4 permits require six minimum controls including: 1) public education/outreach on stormwater issues, 2) public involvement/participation in decisions involving stormwater, 3) illicit discharge detection and elimination, 4) construction and stormwater site runoff control, 5) post-construction management of stormwater facilities, and 6) pollution prevention at facilities operated by municipalities.

Initiated in 2002, the Commission was asked by US EPA - Region 2 to investigate the feasibility of conducting dry weather investigations of MS4s in the District, somewhat like the IEC's ongoing CSO program. IEC received some information from US EPA on MS4s (locations, sizes, and discharge waterways) in Nassau County, NY, and started conducting outfall inspections. Because of the importance of the track down of this pollution source, the Commission has continued this program. During 2007, the MS4 investigations focused on Kings County (Brooklyn), Queens County (Queens) and Richmond County (Staten Island), New York. In addition, inspections were made in Bergen and Union Counties, New Jersey. When field inspections reveal outfalls flowing under dry weather conditions, NYS DEC, Region 2, and NJ DEP, respectively, were contacted for appropriate action. The table on the following pages show the 2007 summary of MS4 inspections. This program will continue during 2008.

PUBLIC EDUCATION AND OUTREACH

The Commission continues its commitment to participating in an active public involvement, education and outreach program. IEC continues to lecture at local schools and colleges, community

INTERSTATE ENVIRONMENTAL COMMISSION
2007 MS4 DRY WEATHER INSPECTIONS
BERGEN and UNION COUNTIES, NEW JERSEY (1)
KINGS, RICHMOND and QUEENS COUNTIES, NEW YORK (2)

LOCATION	DATE INSPECTED	NUMBER OF OUTFALLS INSPECTED	NUMBER OF OUTFALLS FLOWING
Price Street and Linden Avenue (Wheatena Park), Rahway, NJ (Union County)	5/16/07	3	0
Kenilworth Avenue, Cranford, NJ (Union County)	5/16/07	1	1
North and Centennial Avenues, Cranford, NJ (Union County)	5/16/07	1	0
West Lake and Jensen Avenues, Rahway, NJ (Union County)	5/16/07	1	1 (3)
Behind Crystal Terrace, Hillside, NJ (Union County)	5/16/07	2	1
(East) Anderson Street, Hackensack, NJ (Bergen County)	5/16/07	1	0
2 Claiborne Ave., North Bergen, NJ (Bergen County)	5/16/07	1	0
Richmond Avenue (off Hylan Blvd.), NYCDEP Outfall # 669, Richmond County, NY	5/16/07	1	0
Sprague Avenue (off Hylan Blvd.), NYCDEP Outfall # 674, Richmond County, NY	5/16/07	1	1
Loretto Avenue (off Hylan Blvd.), NYCDEP Outfall # 675, Richmond County, NY	5/16/07	1	1
Joline Avenue (off Hylan Blvd.), NYCDEP Outfall #673, Richmond County, NY	5/16/07	1	0
Cleveland Avenue, NYCDEP Outfall # 656, Richmond County, NY	2/1/07	1	1
Mill Pond, NYCDEP Outfall #691, Richmond County, NY	2/1/07	1	0
St. Andrews Road, NYCDEP Outfall # 692, Richmond County, NY	2/1/07	1	1
Lighthouse Avenue, NYCDEP #693, Richmond County, NY	2/1/07	1	0
Mace Street, NYCDEP Outfall # 693, Richmond County, NY	2/1/07	1	0
St. Georges Road, NYCDEP Outfall # 695, Richmond County, NY	2/1/07	1	0
Philip Avenue, NYCDEP Outfall # 706, Richmond County, NY	2/1/07	1	0
Sala Court, NYCDEP Outfall # 710, Richmond County, NY	2/1/07	1	0 (3)
Huguenot Ponds, NYC DEP Outfall # 707, Richmond County, NY	2/1/07	1	0
Dover Street, NYCDEP Outfall # 603, Kings County, NY	2/9/07	1	0

INTERSTATE ENVIRONMENTAL COMMISSION
2007 MS4 DRY WEATHER INSPECTIONS
BERGEN and UNION COUNTIES, NEW JERSEY (1)
KINGS, RICHMOND and QUEENS COUNTIES, NEW YORK (2)

(East of), Beaumont Street, NYCDEP Outfall # 604, Kings County, NY	2/9/07	1	0
(North of) West End Avenue, NYCDEP Outfall # 605, Kings County, NY	2/9/07	1	0
East 21st Street, NYCDEP Outfall #607, Kings County, NY	2/9/07	1	0
East 22nd Street, NYCDEP Outfall # 608, Kings County, NY	2/9/07	1	0
Strickland Avenue and East 66th Street, NYCDEP Outfall # 623, Kings County, NY	2/9/07	1	0
Springfield Park, NYCDEP Outfall # 640, Queens County, NY	2/9/07	1	0
Huxley Street, NYCDEP Outfall # 649, Queens County, NY	2/9/07	1	0
163rd Avenue, NYCDEP Outfall # 657, Queens County, NY	2/9/07	1	0
162nd Avenue, NYCDEP Outfall # 637, Queens County, NY	2/9/07	1	0
161st Avenue, NYCDEP Outfall # 636, Queens County, NY	2/9/07	`1	0
100th Street, NYCDEP Outfall # 635, Queens County, NY	2/9/07	1	0
101st Street, NYCDEP Outfall # 656, Queens County, NY	2/9/07	1	0
165th Avenue, NYCDEP Outfall # 601, Queens County, NY	2/9/07	1	0
163rd Avenue, NYCDEP Outfall # 603, Queens County, NY	2/9/07	1	0
161st Avenue, NYCDEP Outfall # 605, Queens County, NY	2/9/07	1	0
160th Avenue, NYCDEP Outfall # 606, Queens County, NY	2/9/07	1	0
158th Avenue, NYCDEP Outfall # 607, Queens County, NY	2/9/07	1	0
158th Avenue, NYCDEP Outfall # 609, Queens County, NY	2/9/07	1	0

(1) All observed flowing outfalls in New Jersey are referred to NJDEP for remediation.
(2) All observed flowing outfalls in New York are referred to NYS DEC, Region 2 for remediation.
(3) Evidence of Oil and Grease present.

boards, scuba and fishing clubs and related forums on a variety of environmental topics and Commission activities. Many of the Commission's staff members participate in this effort.

In past years, the Commission's public education and outreach program has encompassed a variety of topics and venues. IEC personnel have been called upon to participate in various seminars and forums in various 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 those organization's committees, boards, etc. The technical staff is involved with ASIWPCA, ICWP, WEF, NY WEA, NWQMC and other professional organizations and activities. Commission personnel have published articles on a variety of environmental topics, including interstate compacts, laboratory research and water pollution control. Activities such as these enhance the Commission's visibility and make IEC and its functions known to a broad audience.

BAYONNE, NJ, HIGH SCHOOL MARINE SCIENCE STUDENTS VISIT IEC LABORATORY
NOVEMBER 2007
Photo by T. Tokar, Bayonne High School

III. AIR POLLUTION

GENERAL

The Commission's air program was initiated in 1962 after passage of supplemental statutes in New York and New Jersey. In 1969, Connecticut passed legislation mirroring that of New York and New Jersey, extending the IEC's air investigation and study authority. To aid the primary control agencies in the solution of air quality problems of an interstate nature, the Commission maintained two mobile vans capable of measuring airborne pollutants. The vans were used to trace air contaminants across state lines and locate sources. The Commission also maintained fixed-site monitoring stations.

In 1964, the first Air Pollution Warning System was put into operation and, through coordination by the Commission with its member states, has been periodically updated and strengthened as new information regarding air pollution abatement practices became available. In April 1970, the Commission was designated as the coordinating agency for the New Jersey-New York-Connecticut Air Quality Control Region under the federal Air Quality Act. Pollutant values and meteorological conditions did not warrant activation of the High Air Pollution Alert and Warning System during 2007.

The Commission has maintained round-the-clock response for air pollution complaints since the late 1960s. To better serve the needs of the public by faster response to complainants, a field office was established on Staten Island in 1982. This presence 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. The number of complaints received by the IEC has significantly declined over the years and, although it had been a significant odor reported, no garbage odors were reported to the Commission for the eighth consecutive year.

AIR POLLUTION COMPLAINTS

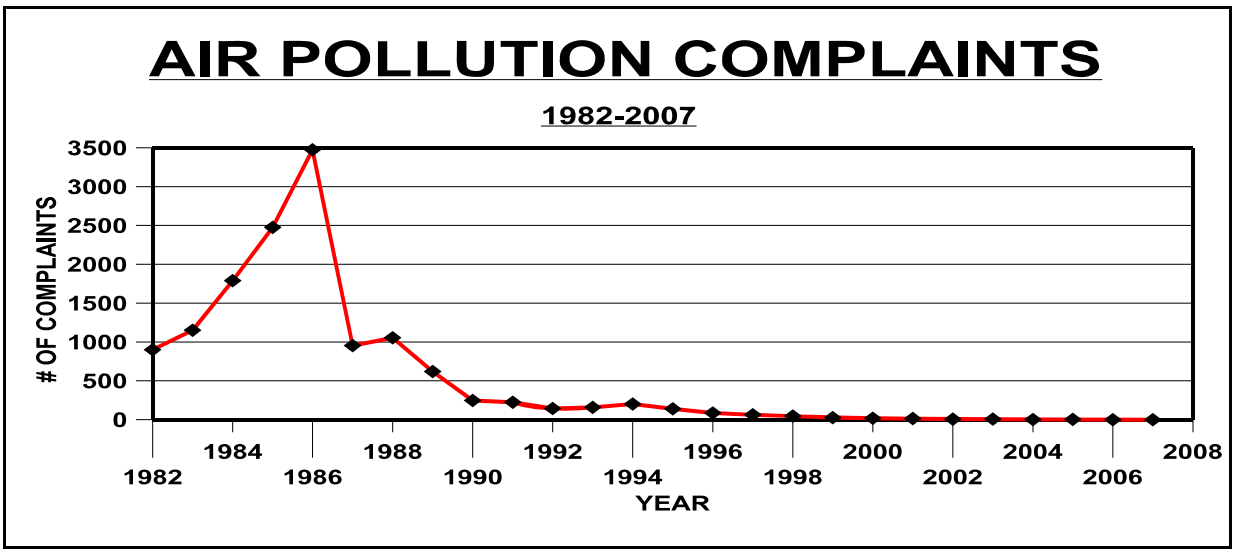
Over the last 20 years, Staten Island was the source of more citizens' complaints than any other area in the Commission's jurisdiction. Historically, many of the complaints came from the western portion of Staten Island in the vicinity of the New York-New Jersey border and from the neighborhoods closest to the Fresh Kills Landfill. However, since the landfill's closure in 2001, complaints have been minimal.

IEC's Staten Island field office was closed in 1989 due to budgetary restraints. Since then, the Commission still maintains a 24-hour-a-day, 7-day-a-week answering service (**718-761-5677**) to receive complaints. Complainants are contacted during regular office hours by IEC staff and, when available, IEC personnel are dispatched to investigate ongoing complaints. When warranted, Commission personnel are contacted during non-office hours. The IEC also contacts and works closely with the appropriate enforcement agencies and health departments in New York and New

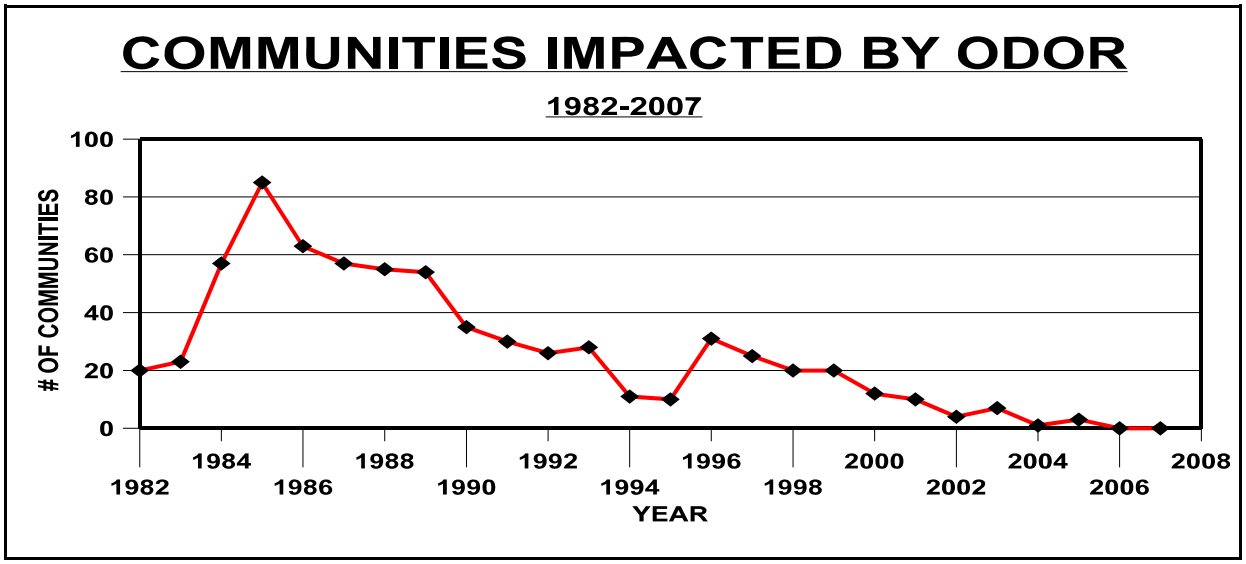
Jersey to perform follow-up.

For the 12-month period ending September 30, 2007, the Commission did not receive any odor complaints. This continues the pattern of a decreasing number of complaints since the 1986 peak of nearly 3,500 complaints and from a peak of 63 different Staten Island neighborhoods.

Over the years, the majority of the complaints received by the IEC tend to come from the



same group of neighborhoods. In past years, a category reflecting "nonspecific" descriptions, i.e., bad or awful or nauseating, were received regularly. However, that was not the case for 2006 or 2007. Citizen complaints are the most frequent source of firsthand information about poor air quality. The odors are usually detected by persons who do not have special knowledge or training



in identifying problem emissions; it is their accurate odor descriptions that could lead to the sources of odors. This is the eighth consecutive year that the nuisance odor category of "garbage" was not registered.

OZONE HEALTH MESSAGE SYSTEM

For the 20th 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 Commission and environmental and health representatives from the States of New Jersey, New York and Connecticut; New York City; and the US EPA. It serves as a central source of precautionary advice on ozone to the Region during the warm weather months (May to October) when higher concentrations of ozone occur. The Metropolitan area ranks as the fourth worst in the nation for dangerous levels of particulate pollution, and the seventh worst for ground-level ozone. Ozone irritates the respiratory system and may cause decreased lung function. Adverse effects may include shortness of breath, chest pain, throat and eye irritation, and wheezing. It especially affects the elderly and those with pre-existing lung disease. Healthy adults and children may feel these effects during high ozone days. Whenever ozone reaches unhealthy levels, the public is advised against strenuous outdoor activities and physical exertion such as jogging, ball playing, and running.

In 2007, the Commission continued its participation in this program. The IEC took an active role in alerting the public to unhealthful conditions. During the warm weather months, when elevated levels of ozone existed in parts of the Metropolitan Area, the IEC relayed "health advisory" messages to the appropriate government environmental and health agencies. The IEC received 27 ozone and 18 fine particulate (soot and dust) advisories from the New Jersey Department of Environmental Protection. Ozone health advisories were received between May 25th and August 24th. The majority of fine particulate advisories were received between May 25th and August 8th. Individual states issue their own health messages which identify specific counties where ozone levels are a special health threat. During 2007, 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 New Jersey-New York-Connecticut 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.

IV. LEGAL ACTIVITIES

An effective Office of Legal Counsel must appreciate the mission and strategy of an environmental agency dedicated to serving a region encompassing portions of three states — New York, New Jersey and Connecticut. The Office of Legal Counsel is attuned to legislative and regulatory challenges affecting a regulatory agency, proactively counsels the Commission on effective compliance and, when required, represents the Commission in administrative and judicial proceedings. In navigating the complex system of state and federal regulations, the Office of Legal Counsel must adequately assess the environmental risks of a given situation with a particular emphasis on water quality, and maximize the benefits of recovery to the Commission. The recovery can take the form of a legal victory against a polluter or a penalty. At the same time, Counsel must minimize any legal exposure to the Commission in all venues — environmental or otherwise. The Office of Legal Counsel represents the Commission in all aspects of environmental issues: permitting, litigation, compliance actions, enforcement matters, and investigations of any wrongdoing. In addition, the Office of Legal Counsel advises the staff and Commissioners on issues dealing with labor, personnel, insurance, ethics and contractual matters.

As is the case with many of Commission's roles, legal activities provide other benefits, especially in the area of public education and public outreach. Refer to the Public Education and Outreach section of this report for more details.

The summary of legal activities that follows is by no means meant to be all-inclusive, but rather highlights significant legal activities.

MITIGATING NEGATIVE EFFECTS OF NEW YORK CITY'S OPERATION AT THE FRESH KILLS LANDFILL

Four years after closing the Fresh Kills Landfill in Staten Island, the City drew up a 20-year Solid Waste Management Plan (SWMP) to handle waste by shipping the bulk of it out of state. It relies almost exclusively on the use of four marine transfer stations (MTSs) from which garbage would be barged to states west and south of New York for landfilling.

In July 2006, New York City finally approved the SWMP. The Plan included several modifications requested by the City Council, such as the establishment of an independent office of reduction and reuse in the Mayor's Office; a commitment to increase recycling; and reducing the capacity of MTSs in overburdened communities. In October 2006, the SWMP was approved by the NYS DEC.

Among the benefits of the Plan is a shift from truck traffic through the City and through tunnels into New Jersey, to a system that relies more on barges and trains. The Plan proposes reopening four City-run marine transfer stations for residential waste — one at 91st Street on the east side of Manhattan, one at Hamilton Avenue in Brooklyn at the Gowanus Canal, a second one

in Brooklyn on Shore Parkway at Bay 41st Street, and one in Queens at 31st Avenue and 122nd Street. Most environmental groups approve of the Plan. Among those who disapprove are residents living near 91st Street in Manhattan, and Hudson River Park advocates who contend that State Legislative approval is required for expanding the footprint of MTSs at Gansevoort near West 14th Street proposed for recycling, and at West 59th Street which is to be used for additional commercial waste.

Fresh Kills Landfill was closed pursuant to City and State Law in March 2001. In October 2001, a Federal District Court ordered the reopening of the landfill for all purposes *in view of the September 11, 2001, disaster*. In 2003, debris disposal at the landfill ceased and in June 2004, while the IEC and the other parties of the law suit concerning operation of the Fresh Kills Landfill were discussing terms of a settlement to dismiss the case, the City released a new 20-year plan to manage solid waste. As of this writing, the aforementioned federal case remains on federal docket.

The genesis of this landfill case was a 1979 lawsuit relating to the waterborne debris that enters the District's waters as a result of the garbage unloading operations at the Fresh Kills Landfill (Township of Woodbridge v. City of New York, Civil No. 79-1060). Located on the Arthur Kill shoreline in the western portion of Staten Island, NY, the majority of New York City's municipal solid waste was transported to the Fresh Kills Landfill by barge.

In 1986, the IEC intervened in the action in New Jersey federal District Court, which was initiated in 1979 by the Township of Woodbridge, NJ. Approximately 13 Court Orders were issued in the intervening years prior to IEC's cross-motion for contempt in September 1987. After investigations were conducted by the Commission's field inspectors, it was determined that, in spite of the Orders issued and the steps taken by the City, the problem of debris from the landfill's operations entering adjacent waterways persisted in contravention of the IEC's Water Quality Regulations. IEC sought and succeeded in obtaining a Contempt Citation.

In order to find a solution to the Region's waterborne garbage problems, the parties to the suit entered into a Consent Order. That Consent Order required the City of New York to implement water cleanliness procedures; the installation of interim remedial equipment, including the superboom; and the hiring of an independent monitor. The Order also provided for an Independent Consultant to evaluate the effectiveness of the interim equipment and procedures, and to recommend alternative long-term measures by January 1, 1990. Reports issued by the Independent Consultant in 1990 recommended containerization and a single-barge enclosed unloading system as alternatives. The City concluded that of the final alternatives reviewed, the single-barge enclosed unloading facility presented the most effective and practical method to comply with the Consent Decree and proposed to implement it. The Commission submitted a revised Consent Decree to the parties in January 1991. During 1992, the Commission's request for assurances that there are monies set aside and dedicated solely to the design and construction of the single-barge enclosed unloading system were met. With only a minor

adjustment in compliance dates, a draft Consent Decree was accepted by the parties in the spring of 1993. A final Consent Decree was filed in the United States District Court on June 15, 1993, and a fully executed copy was received by the Commission on June 28, 1993. Although the City was seemingly compliant after the 1993 revised Consent Decree was entered, 1995 saw the disbursement of technical assistance funds held by the Court. Litigation resumed during 1996 when Woodbridge initiated an action seeking relief from medical waste washing up on its shores. Ultimately, a monitor determined that while debris, including medical waste, escaped from the landfill, evidence was insufficient to establish the landfill as the sole source. During 1996, the City let it be known that following the passage of laws mandating closure of the landfill by the year 2001, they were considering filing a motion to be relieved of their obligation to build an enclosed barge unloader.

The enclosed barge unloader had been selected by the City and agreed upon among all the parties as the permanent solution for keeping floatable debris from entering the waterways in and around the landfill. When the City sought relief from building the enclosed unloader subsequent to the 1996 passage of laws mandating that no garbage be brought to the landfill for disposal after the end of 2001, the Commission was willing to consider appropriate alternative solutions that offer the same safeguards as those of the enclosed barge unloader. The Commission was committed in 1996, and remains committed today, to ensuring that floatable debris is prevented from entering the waterways around the landfill.

On October 9, 2007, IEC staff attended a legislative hearing conducted by a NYS DEC Administrative Law Judge regarding a reopening of the marine transfer station (MTS) at East 91st Street in Manhattan — one of the four transfer stations proposed to be reopened for New York City's residential solid waste according to the City's 20-year Solid Waste Management Plan. Based on the review of the Environmental Impact Statement documents and the testimonies presented at the hearing, the IEC staff made a determination that at that point there were no issues raised that could have a potentially detrimental impact on the water quality in the Interstate Environmental District.

On October 23, 2007, the New York State Assembly indicated the unwillingness to take a vote on the proposed marine transfer station near Gansevoort Peninsula, in the proximity to West 14th Street, a cornerstone of the Solid Waste Management Plan. The construction of the Gansevoort facility — proposed to recycle metal, paper, and glass — requires an amendment to the Hudson River Park Act, which was passed by New York State Senate in June 2007, but not by the Assembly. If the Gansevoort facility is approved, the existing Manhattan MTS located at West 59th Street and currently receiving recyclable paper, would be converted to solely handle Manhattan's construction and demolition debris. The Assembly's concern was that the proposed Plan has not given serious considerations to other siting alternatives for the marine transfer station, such as Pier 76 behind the Javits Center, despite the City's earlier contention that the Pier 76 alternative is too expensive.

The Commission continues to monitor the situation and the New York City's progress toward the implementation of the SWMP to ensure that no opportunity for debris to enter into the Interstate Environmental District or New Jersey, remains an issue.

ADDRESSING NITROGEN AND COMBINED SEWER OVERFLOW IMPACTS OF SOME NEW YORK CITY SEWAGE TREATMENT PLANTS

In April 2006, NYS DEC issued revised draft SPDES permits, primarily revising provisions to address potential combined sewer overflow issues, but also revising some nitrogen provisions. Pending before the NYS DEC Deputy Commissioner were prospective appeals in an administrative proceeding from a November 2005 ruling on CSOs, and an April 2004 nitrogen issues ruling. The Interstate Environmental Commission is an amicus party to this administrative proceeding.

Earlier in 2006, a Judicial Consent Order (JCO) concerning nitrogen was entered into between the City and NYS DEC. The JCO was an outgrowth of a 2005 court case. The JCO is essentially a Court Order governing the City and State's agreement to attain certain nitrogen discharge limits from City treatment plants. This JCO only applies to the nitrogen issue (not CSOs) and binds only the City and NYS DEC, not the intervening parties to the administrative proceeding concerning the SPDES permits for WPCPs owned and operated by the City. This JCO supplants a 2002 Administrative Order on Consent (ACO) and NYS DEC's proposed nitrogen TMDL requirements for the SPDES permits. NYS DEC's initial position was that the nitrogen TMDL limits should be a requirement of the SPDES permits.

During January and February 2007, the Commission, along with the Consolidated Intervenors (Natural Resource Defense Council; the Keepers [Riverkeeper, Inc.; Soundkeeper, Inc.; and New York/New Jersey Baykeeper]), NYS DEC and NYC DEP — through the filing of statements — participated in the administrative proceeding concerning how the SPDES permits address CSOs and nitrogen discharges.

On March 16, 2007, the ALJ issued a Ruling on Proposed Adjudicable Nitrogen Issues and Party Status. The Ruling set a schedule for those who wished to appeal to the NYS DEC Commissioner from a November 2005 Ruling on CSO issues, and any party who wished to appeal from rulings on nitrogen issues. As an amicus party, according to administrative law, the IEC has no appeal rights, nonetheless, in the March 2007 Ruling, the ALJ specifically noted that to the extent that other participants appeal CSO or nitrogen issues, IEC could file a reply brief on those issues appealed.

During April and May 2007, the Commission and Consolidated Intervenors filed appeals addressing issues about the incorporation of the CSO ACO into the SPDES permit; whether narrative water quality based effluent limitations for CSO discharges should be included; and whether and to what extent changes to the CSO ACO should be subject to a full adjudicatory hearing. Consolidated intervenors touched on many other issues which were not available to the Commission, as the IEC is participating as an amicus party.

The Commission has consistently maintained that with regard to CSOs, which are more complex and less straightforward than nitrogen controls, using both a SPDES permit and an Administrative Consent Order is appropriate. With regard to whether or not a full adjudicatory

hearing is required whenever the permittee misses a milestone date, the IEC proposed a reasonable compromise. Given that well over 200 milestone dates exist in the ACO for CSOs, the Commission identified 31 critical milestones dates to be incorporated into the permit which, if missed, would trigger the requirement for a full adjudicatory hearing. The IEC-selected critical milestone dates include approvable drainage basin specific long-term control plans and dates for the completion of final construction.

This portion of the administrative proceeding concerning CSO control had its genesis in the administrative proceeding on the City's SPDES permits. The City's main issue of contention was nitrogen control, but since both CSOs and nitrogen were part of the modified permit, the City also raised the CSO issue in requesting a hearing. It was during the consideration of nitrogen control issues that some intersection of CSO control with nitrogen control surfaced. Thereafter, interested parties sought a fuller exploration of many CSO control issues. The initial stage of this SPDES administrative hearing on both issues is set forth below.

It was in January 2004 that five parties (including the Interstate Environmental Commission, the Natural Resource Defense Council, the Keepers, Save the Sound, and the State of Connecticut) intervened in an administrative hearing where the City of New York and the NYS DEC were the mandatory parties. The intervening parties were granted amicus (friend of court) status on the nitrogen control issue, and the Natural Resource Defense Council and the Riverkeeper full party status on the CSO issue (IEC was granted amicus party status on this issue). The ALJ stayed the CSO issue pending the outcome of an enforcement proceeding that followed NYS DEC's issuance of a Notice of Violation against the City, and the City's expressed intention to negotiate a settlement on CSOs.

A CSO abatement order modifying two earlier Orders of 1992 and 1996 was noticed for comment in September 2004, and a public meeting held in October. By November 2004, all intervening parties had submitted written comments on the Order, along with approximately 600 others; NYS DEC issued responses to comments in January 2005.

A revised CSO Abatement Order was necessitated by the City's failure to meet goals and objectives of previous Orders — in particular, water quality goals and concerns about facility plans. Among the CSO concerns raised by the Commission were the incorporation of long-term controls into the permit, which would follow the June 1993 NYS DEC decision; complying with US EPA's CSO Policy to attain water quality standards; and ensuring the timely implementation of the long-term control provisions of the CSO Abatement Order.

The impetus for the City's hearing request on nitrogen issues came from their concern that certain provisions in newly issued modified SPDES permits conflicted with other enforceable Orders on Consent regarding the nitrogen related provisions. The City's argument for a hearing on the nitrogen issue, in essence, was that since April 2002, when both the City and State signed an Administrative Order on Consent, they had been required to meet certain nitrogen control limits, and that the modified SPDES permit conditions required that NYC DEP meet more stringent nitrogen

limits. An ACO of April 2002 had settled two separate court actions against the City for exceeding the limits for nitrogen discharges that affected the quality of Long Island Sound. The ACO was the culmination of two matters — one commenced with a citizen suit against the City in federal court, and the other with the State of New York suing the City in State court. The April 2002 ACO preceded the 2006 Nitrogen JCO which is now subject to comment in supplemental briefings that will be filed in the next phase of the administrative proceeding.

The Commission had not participated as a full party in either court case, but did file an *amicus curiae,* friend of court, brief in the state case in 1999, and participated in the oral argument. Immediately following the filing in federal court, the Commission was asked to provide guidance to the State of Connecticut when they intervened in the lawsuit filed by the Hudson Riverkeeper and others. Throughout, the Commission has maintained a presence in both matters, aiding with providing historical data, data on the Long Island Sound Study's "no net increase policy," making available the comprehensive records kept by the Commission, and comparing Connecticut's permits to New York's permits.

The SPDES permits require that NYC DEP's WPCPs meet the limits established by the Long Island Sound Study. IEC has long been a key player on the LISS's Management Committee responsible for the nitrogen control limits, and has participated in the discussions that led to finalizing the TMDL limits set by the LISS and adopted by the US EPA as minimal requirements for the states.

The Clean Water Act (CWA), from which the New York State SPDES system is derived, requires the states to promulgate, and US EPA to approve, TMDLs for wasteload allocations (WLAs) for water bodies for which the effluent limits promulgated pursuant to CWA are not stringent enough for a water body to comply with applicable water quality standards (WQS). States were required to identify those water bodies that do not meet water quality standards after applying the technology-based effluent limitations that are required by the CWA. The CWA also established lists of impaired water bodies identified by the states.

New York and Connecticut identified Long Island Sound as "water quality limited" due to hypoxia, mainly caused by nitrogen discharges, and made it a priority for the development of TMDLs. TMDLs establish wasteload allocations for individual pollutants, applicable to all discharges to a waterbody to ensure that the combined effect of the discharges does not result in violations of the applicable WQS. By definition, a TMDL specifies the allowable pollutant load from all contributing sources (e.g. point sources, non-point sources and natural background) that will attain a water quality standard that applies to that waterbody, taking into account seasonal variations and including a margin of safety. The margin of safety takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality. In essence, a TMDL defines the capacity of the waterbody to absorb and digest a pollutant and still meet water quality standards. In April 2001, US EPA approved TMDLs for Long Island Sound that were developed jointly by NYS DEC and the CT DEP. When the discussions and approvals for the adoption of final TMDLs were taking place, NYS DEC, NYC DEP, CT DEP and IEC were prominent among the

participants on the LISS Management Committee.

By February 1998, the LISS Management Conference adopted a 3-phase plan for hypoxia management by nitrogen reduction. Phase III Action Limits set an overall 58.5% reduction target for any discharge to Long Island Sound (not just those discharges from NYC DEP WPCPs), from the 1990 baseline for Long Island Sound nitrogen loads. Data on nitrogen loads were fully quantified for 1990, which is why that year was established as the baseline. An additional phase is to involve the upstream states to implement additional nitrogen reductions.

The 2002 Nitrogen ACO provided for limits which are clearly superceded by the TMDLs established by the February 2005 SPDES permits issued by NYS DEC that were the subject of the administrative proceeding. NYC DEP made a request for an administrative hearing arguing for the primacy of the ACO governing nitrogen limits over the SPDES permit limits. All five interveners, including IEC, argued along with NYS DEC that the permit has primacy over any Administrative Consent Order. Especially critical to the success of achieving the TMDL limits is the cooperation and coordination of all parties involved and, specifically, the willingness of nitrogen dischargers from New York and Connecticut to abide by the LISS TMDL limits. IEC, as an interstate body with regulatory authority over the waters of both New York and Connecticut which lie within the Interstate Environmental District, has a particular interest in ensuring adherence to the LISS TMDL limits. Critical to achieving nitrogen reduction is having all those who contribute to the nitrogen load achieve TMDL limits established by the LISS. Based upon recent estimates, the WPCPs owned and operated by NYC DEP are responsible for at least 50% of the nitrogen load to Long Island Sound.

IEC's position on the nitrogen Administrative Order is that an ACO, as a stand-alone document, is not a permit and my not be used in lieu of a permit. In addition, NYS DEC has jurisdiction to administer a program permitting discharges under certain prescribed conditions. A discharger's ability to discharge flows from a permit rather than from an administrative order. The effluent limits in the newly issued permits for the 14 NYC DEP WPCPs in contention can be amended, modified or changed by the NYS DEC to add more stringent limits than those required in the previously issued ACO. In addition to the updated water quality standards, this can be driven by a number of other processes such as updated regulatory requirements, latest watershed-based modeling analysis, and realization of harmful impact of the particular pollutant on the water quality. In the case of the newly developed TMDLs put into effect by US EPA, NYS DEC has the full right to amend the effluent limitations to include more stringent TMDL-based nitrogen limits into the permits.

The permit conditions set aggregate effluent limits for nitrogen discharges for two groups of four plants discharging into the upper reach of the East River and into Jamaica Bay, respectively. Before these limits were to take effect in 1996 and 1997, the City was required to make operational and process changes to maximize nitrogen removal in the existing plant units, and also conduct extensive pilot work to test new processes and technologies. The City and NYS DEC were then to jointly determine the most appropriate new systems to implement in order to meet specified nitrogen

reduction goals. In the long-term, a Nitrogen Control Feasibility Plan would have comprehensively analyzed additional methods to meet much greater levels of nitrogen reduction for future discharges. It was because neither the limits nor the Nitrogen Control Feasibility Plan were implemented that the litigation ensued which ended with the 2002 ACO.

This ongoing proceeding is of concern to many because violations of the nitrogen loading limits contribute to the severe hypoxic conditions in Long Island Sound and Jamaica Bay, and cause damage to those ecosystems. The proximate location of these plants that had discharged pollutants into the East River and Jamaica Bay in violation of the permitted effluent limit of the SPDES permits, and the likely impact on Long Island Sound, accounts for the concern on the part of the State of Connecticut. On CSO issues, IEC has argued that long-term controls for combined sewer overflows should be finalized and, if the final plan is incorporated into the CSO Abatement Order and then, in turn, incorporated into the permit, that would suffice. The Commission, as an interstate agency, is uniquely situated as a participant in this matter.

Every phase of the ongoing administrative proceeding requires the Commission to reexamine the issues and to comment where appropriate. The Commission will continue its efforts to both rigorously defend its regulations and to protect Interstate Environmental District waters.

STEPPING STONES LIGHTHOUSE, WESTERN LONG ISLAND SOUND
Photo by P. Sattler, IEC

WASTEWATER TREATMENT PLANTS DISCHARGING INTO INTERSTATE ENVIRONMENTAL DISTRICT WATERS

2007

PLANT	IEC RECEIVING WATER CLASSIFICATION	DATE OF CONSTR.	FLOW AVG. (MGD)	FLOW DESIGN (MGD)	TYPE OF TREATMENT	SLUDGE (1) GENERATED (TONS/YEAR)		SLUDGE (PERCENT SOLIDS)	SLUDGE DISPOSAL METHOD	ESTIMATED POPULATION SERVED
CONNECTICUT										
Fairfield County										
Bridgeport - East Side	B-1	2002+	8.5	10.0	Secondary (AS)	1,900.0	(4)	4.25	Incineration (2)	44,750
- West Side	B-1	2002+	27.9	30.0	Secondary (AS)	3,400.0	(4)	5.2	Incineration (2)	112,500
Fairfield	A	2002+	9.1	9.0	Secondary (AS)	5,000.0		20.0	Compost	43,000
Greenwich (Grass Island)	A	2003+	8.3	12.5	Secondary (AS)	6,822.0		25.0	Incineration (2)	38,000
Norwalk	B-1	2002+	14.6	20.0	Secondary (AS)	2,288.0		25.0	Compost	80,000
Stamford	B-1	2005+	18.3	24.0	Secondary (AS)	15,600.0		25.0	Landfill/Incineration	100,000
Stratford	A	1992+	7.9	11.5	Secondary (AS)	36,877.0		5.3	Incineration	49,400
Westport	A	1975+	-	2.9	Secondary (AS)	-		-	Incineration (2)	14,800
New Haven County										
Greater New Haven - East Shore	B-1	2000+	30.3	40.0	Secondary (AS)	28,704.0		24.3	Incineration	200,000
Milford - Beaver Brook	A	1996+	2.0	3.1	Secondary (AS)	1,280.0		13.8	Incineration (2)	20,000
- Housatonic	A	1996+	8.4	8.0	Secondary (AS)	3,669.0		16.0	Incineration (2)	43,300
West Haven	B-1	2000+	8.2	12.5	Secondary (AS)	8,700.0		27.0	Incineration	53,000
NEW JERSEY										
Bergen County										
Edgewater	B-1	1989+	-	6.0	Secondary (PO)	-		-	Beneficial Reuse (2)	16,000
Essex County										
Passaic Valley Sewerage Commissioners	B-1	1988+	264.6	330.0	Secondary (AS)	78,974.0		53.1	Landfill Daily Cover	1,400,000
Hudson County										
North Bergen M.U.A. - Woodcliff	B-1	1991+	3.1	2.9	Secondary (TF)	8,753.0		9.95	Incineration (2)	22,500
North Hudson Sewerage Authority										
- Adams Street (Hoboken)	B-1	1993+	13.4	24.0	Secondary (TF)	29,298.0		7.46	Incineration	119,200
- River Road (West New York)	B-1	1993+	10.5	10.0	Secondary (TF)	19,530.0		8.16	Incineration	45,800
Middlesex County										
Middlesex County Utilities Authority	A	2001+	127.0	147.0	Secondary (AS)	190,820.0		22.5	Beneficial Reuse	750,000
Union County										
Joint Meeting of Essex & Union Counties	B-2	2001+	69.6	85.0	Secondary (AS)	38,561.07		27.96	Land Application	500,000
Linden Roselle Sewerage Authority	B-2	1989+	11.2	17.0	Secondary (AS)	48,000.0		4.9	Beneficial Reuse	65,000
Rahway Valley Sewerage Authority	B-2	1991+	31.5	40.0	Secondary (AS)	14,117.0		23.5	Trucked Out	300,000

WASTEWATER TREATMENT PLANTS DISCHARGING INTO INTERSTATE ENVIRONMENTAL DISTRICT WATERS

2007

PLANT NEW YORK	IEC RECEIVING WATER CLASSIFICATION	DATE OF CONSTR.	FLOW AVG. (MGD)	FLOW DESIGN (MGD)	TYPE OF TREATMENT	SLUDGE (1) GENERATED (TONS/YEAR)		SLUDGE (PERCENT SOLIDS)	SLUDGE DISPOSAL METHOD	ESTIMATED POPULATION SERVED
Nassau County										
Bay Park	A	2003+	60.4	70.0	Secondary (AS)	36,680.58		21.34	Beneficial Reuse	535,500
Belgrave Sewer District	A	1995+	1.8	2.0	Secondary (TF)	2,254.0		3.75	Trucked out to Bay Park & PVSC	12,000
Cedar Creek	A	1997+	56.9	72.0	Secondary (AS)	57,807.67		15.34	Beneficial Reuse	560,000
Cedarhurst	A	2003+	0.8	1.0	Secondary (TF)	25.0	(4)	4.0	Trucked Out	6,000
Glen Cove	A	2007+	3.5	5.5	Secondary (AS)	3,806.84		24.51	Landfill	28,000
Greater Atlantic Beach Water Reclamation District (Formerly - West Long Beach Sewer District)	A	2001+	0.5	1.5	Secondary (TF)	44.0		4.2	Trucked to Bay Park	5,000
Great Neck Water Pollution Control District	A	1990+	2.7	2.8	Secondary (AS)	560.0		22.0 to 30.0	Landfill	15,000
Great Neck Village	A	1996+	0.9	1.5	Secondary (TF)	81.1	(5)	7.2	Trucked Out	9,000
Jones Beach	A	1990+	0.1	2.5	Secondary (TF)	-		-	Trucked Out	Seasonal
Lawrence	A	2002+	1.3	1.5	Secondary (TF)	555.0		6.7	Trucked Out	5,500
Long Beach	A	2003+	5.0	7.5	Secondary (TF)	670.97	(4)	26.0	Landfill	37,000
Oyster Bay Sewer District	A	1992+	1.3	1.8	Secondary (TF)	156.2	(5)	4.0	Trucked Out	8,500
Port Washington Sewer District	A	1991+	2.8	4.0	Secondary (TF)	550.0	(4)	30.0	Incineration	35,000
New York City										
Bronx County										
Hunts Point (7)	B-1	1977+	132.0	200.0	Secondary (AS)	113,664.6		27.2 (8)	Land Application/Beneficial Reuse	630,000
Kings County (Brooklyn)										
Coney Island (7)	A	1995+	86.0	110.0	Secondary (AS)	(3)		-	Land Application/Beneficial Reuse	602,100
Newtown Creek (7)	B-1	1967	244.0	310.0	Secondary (AS)	(3)		-	Land Application/Beneficial Reuse	1,039,300
Owls Head (7)	B-1	1996+	101.0	120.0	Secondary (AS)	(3)		-	Land Application/Beneficial Reuse	761,500
Red Hook (7)	B-1	1987	34.0	60.0	Secondary (AS)	10,933.0		21.4 (8)	-	192,200
26th Ward (7)	A	1975+	54.0	85.0	Secondary (AS)	74,683.9		26.5 (8)	Land Application/Beneficial Reuse	271,240
New York County (Manhattan)										
North River (7)	B-1	1986	127.0	170.0	Secondary (AS)	(3)		-	Land Application/Beneficial Reuse	584,190
Wards Island (7)	B-1	1979+	222.0	275.0	Secondary (AS)	120,690.4		27.5 (8)	Land Application/Beneficial Reuse	1,004,200
Queens County										
Bowery Bay (7)	B-1	1978+	106.0	150.0	Secondary (AS)	47,371.0		24.5 (8)	-	727,100
Jamaica (7)	A	1978+	88.0	100.0	Secondary (AS)	9,304.6		25.3 (8)	Land Application/Beneficial Reuse	632,150
Rockaway (7)	A	1978+	24.0	45.0	Secondary (AS)	(3)		-	Land Application/Beneficial Reuse	94,500
Tallman Island (7)	B-1	1979+	56.0	80.0	Secondary (AS)	25,338.4		25.0 (8)	-	388,200

WASTEWATER TREATMENT PLANTS DISCHARGING INTO INTERSTATE ENVIRONMENTAL DISTRICT WATERS

2007

PLANT NEW YORK (con't)	IEC RECEIVING WATER CLASSIFICATION	DATE OF CONSTR.	FLOW AVG. (MGD)	FLOW DESIGN (MGD)	TYPE OF TREATMENT	SLUDGE (1) GENERATED (TONS/YEAR)		SLUDGE (PERCENT SOLIDS)	SLUDGE DISPOSAL METHOD	ESTIMATED POPULATION SERVED
Richmond County (Staten Island)										
Oakwood Beach (7)	A	1979+	31.6	40.0	Secondary (AS)	23,284.1		24.7 (8)	-	151,600
Port Richmond (7)	B-2	1978+	31.0	60.0	Secondary (AS)	(3)		-	-	172,300
Rockland County										
Joint Regional Sewerage Board - Town of Haverstraw	A	2002+	4.2	8.0	Secondary (AS)	3,016.66	(2)	22.1	Composting	58,500
Orangetown Sewer District	A	1996+	9.6	12.75	Secondary (TF)	4,962.0		25.0	Compost (2)	50,300
Palisades Interstate Park Commission - Bear Mountain Plant	A	1967+	0.1	0.3	Secondary (TF)	20.0		-	-	20,000
Rockland County Sewer District # 1	A	1995+	20.3	28.9	Secondary (RBC)	3,752.0	(6)	26.0	Composting	200,000
Stony Point	A	1985+	0.9	1.0	Secondary (AS)	961.0		16.0	Composting	12,000
Suffolk County										
Huntington Sewer District	A	1988+	1.9	2.5	Secondary (TF/RBC)	3,004.0		21.9	Landfill	25,000
Northport	A	1972+	0.4	0.45	Secondary (AS)	31.3	(5)	2.5 to 3.0	Incineration (2)	3,500
Suffolk County Sewer District # 1	A	1988+	0.8	1.15	Secondary (RBC)	220.4	(5)	2.21	Landfill	12,000
Suffolk County Sewer District # 3	A	1989+	26.0	30.0	Secondary (AS)	73,420.0		21.7	Landfill	280,000
Suffolk County Sewer District # 6	A	1973+	0.3	20.0	Secondary (AS)	93.9	(5)	1.5	Landfill	6,000
Suffolk County Sewer District # 21	A	1989	1.7	2.5	Tertiary	373.9	(5)	1.4	Landfill	20,000

WASTEWATER TREATMENT PLANTS DISCHARGING INTO INTERSTATE ENVIRONMENTAL DISTRICT WATERS

2007

PLANT NEW YORK (con't)	IEC RECEIVING WATER CLASSIFICATION	DATE OF CONSTR.	FLOW AVG. (MGD)	FLOW DESIGN (MGD)	TYPE OF TREATMENT	SLUDGE (1) GENERATED (TONS/YEAR)		SLUDGE (PERCENT SOLIDS)	SLUDGE DISPOSAL METHOD	ESTIMATED POPULATION SERVED
Westchester County										
Blind Brook (Rye)	A	2000+	3.9	5.0	Secondary (AS)	-	(9)	-	Pumped to Port Chester	25,000
Buchanan	A	1999+	0.3	0.5	Secondary (AS)	3,200.0		30.0	Trucked Out	2,100
Coachlight Sq. on the Hudson Association, Inc.*	A	1992+	0.1	0.05	Secondary (AS)	-		25.0	Trucked Out	210
Mamaroneck	A	1993+	16.9	20.6	Secondary (AS)	-	(10)	-	Pumped to New Rochelle	80,000
New Rochelle	A	1997+	15.7	13.6	Secondary (AS)	24,666.0		21.2	Landfill	80,000
Ossining	A	1981	5.3	7.0	Secondary (AS)	37,237.0		2.8	Trucked Out	36,000
Peekskill	A	1980	7.0	10.0	Secondary (AS)	31,671.0		2.2	Trucked to Landfill	32,500
Port Chester	A	1990+	5.1	6.0	Secondary (RBC)	1,563.0		4.1	Trucked Out	25,000
Springvale Sewerage Corporation*	A	1992+	0.1	0.13	Secondary (RBC)	35.6	(5)	3.0	Trucked Out	1,700
Yonkers Joint Treatment	A	2002+	95.5	120.0	Secondary (AS)	34,741.0		25.7	Compost	525,000
Federal and Military										
Camp Smith (Westchester County)	A	1997+	-	0.24	Secondary (TF)	-		-	Trucked Out	200 to 2,400
Veterans Administration Hudson Valley Healthcare System (Westchester County)	A	1982+	0.1	0.4	Secondary (TF)	1,530.0		97.0	Trucked Out	Patient Count

NOTE: Except for the IEC Receiving Water Classification, all information and data are supplied by the operating entities and are published as supplied.

(+) Year of major additions or reconstruction.
(*) Private or institutional sewage treatment plant.
(-) Denotes no information.
(1) Except where indicated, all volumes represent wet tons per year.
(2) Disposal method occurs off-site.
(3) Transferred by sea to dewatering facility for processing.
(4) Reported as dry tons per year.
(5) Estimated volume.
(6) Metric dry tons.
(7) Starting April 1, 2003, plants are permitted on a 12-month rolling average of daily flows instead of dry weather flows.
(8) All volumes are flow weighted.
(9) Includes sludge generated at Blind Brook which pumps about 264,248 gallons per day to Port Chester.
(10) Includes sludge generated at Mamaroneck which pumps about one million gallons per day to New Rochelle.

(AS) Activated Sludge (BO) Biochemical Oxidation (OD) Oxidation Ditch
(RBC) Rotating Biological Contractor (PO) Pure Oxygen (RD) Rotating Disc (TF) Trickling Filter

INTERSTATE ENVIRONMENTAL COMMISSION
DISCONTINUANCE OF SANITARY FLOW

NAME	SPDES #	COUNTY	DATE (1)	CEASE FLOW (2)	DRAINAGE BASIN	DIVERT TO MUNICIPAL SYSTEM
Battery Park Parcel 18B	NY0267619	New York	07-01-06	X	Newtown Creek	
BP Service Station	NY0267562	Richmond	01-25-07	X	Port Richmond	
Ikea Red Hook	NY0200735	Kings	06-20-07	X	Owls Head	
Jet Blue OPS Support Campus	NY0267627	Queens	01-25-07	X	Jamaica	
Lefferts Oil Terminal, Inc.	NY0032794	Queens	09-04-07	X	Jamaica	

(1) Official notice of action and notification by NYS DEC, Region 2.

(2) Operation of the facility has ceased permanently. A discharge is no longer occurring from this site.

INTERSTATE ENVIRONMENTAL COMMISSION
FINANCIAL STATEMENT FY 2007

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, 2006 to June 30, 2007:

CASH BOOK BALANCE AS OF JUNE 30, 2006			$ 865,764.09
RECEIPTS			
Connecticut - FY'07	$ 84,956.00		
New York - FY'07	411,280.00		
New Jersey - FY'07	383,000.00		
EPA - FY'06	663,200.00		
EPA - FY'07	495,444.00		
Blending Project	145,700.00		
Byram River	9,000.00		
LIS Fund Grant	12,350.00		
Interest	44,955.33		
Miscellaneous Receipts	3,115.25		
TOTAL RECEIPTS			2,253,000.58
		Sub-Total	$3,118,764.67
DISBURSEMENTS			
TOTAL DISBURSEMENTS			1,868,027.11
CASH BOOK BALANCE ON JUNE 30, 2007			$1,250,737.56

U.S. Treasury Bills	$1,115,850.00
Insured Money Market Accounts	124,953.79
Checking Accounts	9,933.77
	$1,250,737.56

GLOSSARY

ACO	administrative consent order
ALJ	administrative law judge
ASIWPCA	Association of State and Interstate Water Pollution Control Administrators
AWPCP	auxiliary water pollution control plant
BLRA	Bayonne Local Redevelopment Authority
BMWCA	Bureau of Marine Water Classification and Analysis
BNR	biological nutrient removal
BOD	biochemical oxygen demand
CAVF	Corona Avenue vortex facility
CCMP	Comprehensive Conservation and Management Plan
CDX	central data exchange
CES	Center for Environmental Science
CESE	Center of Environmental Science and Engineering
CI	cast iron
CSI	College of Staten Island
CSO	combined sewer overflow
CT	Connecticut
CWA	Clean Water Act
CW/CA	Clean Water/Clean Air Bond Act
DEC	Department of Environmental Conservation
DEP	Department of Environmental Protection
DESA	Division of Environmental Science and Assessment
DO	dissolved oxygen
DOH	Department of Health
DOS	Department of Sanitation
DPH	Department of Public Health
DPR	Department of Parks and Recreation
EPA	Environmental Protection Agency
EPF	Environmental Protection Fund
ESAR	environmental, sampling, analysis and results
FDA	Food and Drug Administration
FEIS	final environmental impact statement
FY	fiscal year
GNHWPCA	Greater New Haven Water Pollution Control Authority
GPM	gallons per minute
GPS	global positioning satellite
HARS	Historic Area Remediation Site
HDPE	high density polyethylene
HEP	Harbor Estuary Program
HVAC	heating, ventilating and air conditioning
ICWP	Interstate Council on Water Policy
IE	Independent Expert
IEC	Interstate Environmental Commission
IED	Interstate Environmental District
IMT	interim monitoring team
I/I	infiltration/inflow
ISC	Interstate Sanitation Commission
LDC	legacy data center
LIS	Long Island Sound
LISO	Long Island Sound Office
LISS	Long Island Sound Study
LTCP	long-term control plan
LWRP	local waterfront revitalization program
MC	management committee
MCUA	Middlesex County Utilities Authority
MF	membrane filter
MG	million gallons
MGD	million gallons per day
MPN	most probable number
MS4	municipal separate storm sewer system
MUA	Municipal Utilities Authority
NCHD	Nassau County Health Department

GLOSSARY
(continued)

NELAC	National Environmental Laboratory Accreditation Conference
NELAP	National Environmental Laboratory Accreditation Program
NEMO	Nonpoint Education for Municipal Officials
NEP	National Estuary Program
NHSA	North Hudson Sewerage Authority
NJHDG	New Jersey Harbor Dischargers Group
NJPDES	New Jersey Pollutant Discharge Elimination System
NPDES	National Pollutant Discharge Elimination System
NOV	notice of violation
NPS	National Park Service
NRDC	Natural Resources Defense Council
N/SPDES	National/State Pollutant Discharge Elimination System
NSSP	National Shellfish Sanitation Program
NWQMC	National Water Quality Monitoring Council
NYC	New York City
NYS	New York State
O & M	operation and maintenance
ORD	Office of Research and Development
OPRHP	Office of Parks, Recreation and Historic Preservation
ORSTS	Oakland Ravine Stormwater Treatment System
POTW	publicly owned treatment works
PVSC	Passaic Valley Sewerage Commissioners
QAPP	quality assurance project plan
QA/QC	quality assurance/quality control
RAS	return activated sludge
RBC	rotating biological contactor
RBWG	Regional Bypass Workgroup
RFP	request for proposals
R/V	research vessel
SBR	sequencing batch reactors
SCADA	supervisory control and data acquisition system
SCSD	Suffolk County Sewer District
SOP	standard operating procedure
SPDES	State Pollutant Discharge Elimination System
SSES	sewer system evaluation survey
SSO	storm sewer overflows
STORET	STOrage and RETrieval, EPA's national water quality data base
STP	sewage treatment plant
SUNY	State University of New York
SWMP	solid waste management plan
TMDL	total maximum daily load
TRC	total residual chlorine
TSS	total suspended solids
UCONN	University of Connecticut
USA	Use and Standards Attainment Project
USCG	United States Coast Guard
UV	ultraviolet
VCP	vitrified clay pipe
VFD	variable frequency drive
VOC	volatile organic carbon
WCDEF	Westchester County Department of Environmental Facilities
WEA	Water Environment Association
WEF	Water Environment Federation
WLA	waste load allocation
WPAF	water pollution abatement facility
WPCA	Water Pollution Control Authority
WPCP	water pollution control plant
WQS	water quality standard
WQX	water quality exchange
XML	extensive markup language