INTERSTATE ENVIRONMENTAL COMMISSION

A TRI-STATE WATER AND AIR POLLUTION CONTROL AGENCY

2004
ANNUAL REPORT

NEW YORK NEW JERSEY CONNECTICUT

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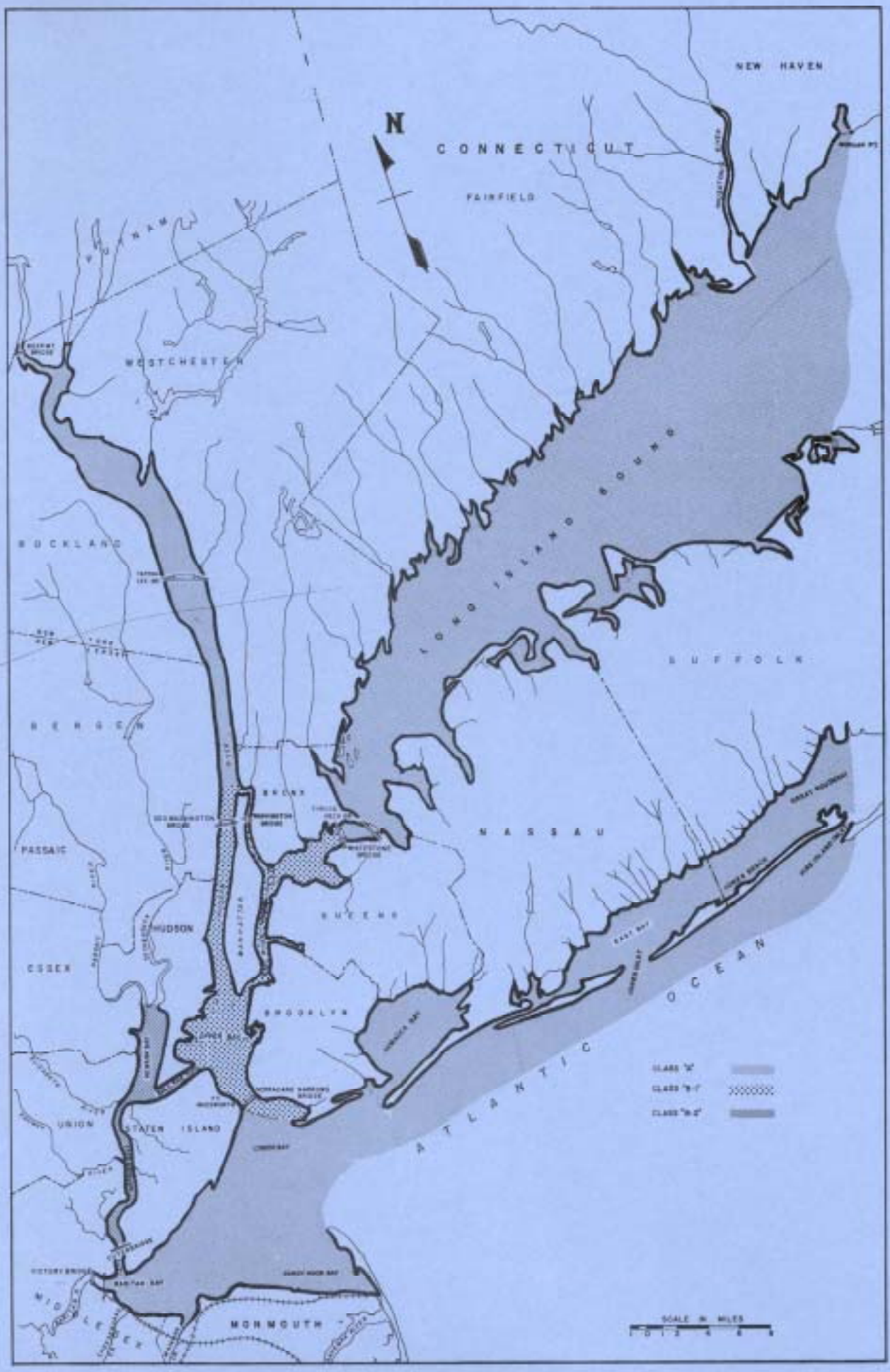
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NASSAU
PASSAIC
QUEENS
HUDSON
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BROOKLYN
ATLANTIC OCEAN
UNION
STATEN ISLAND
MONMOUTH
CLASS "A"
CLASS "B-1"
CLASS "B-2"
SCALE IN MILES

INTERSTATE ENVIRONMENTAL COMMISSION

A TRI-STATE WATER AND AIR POLLUTION CONTROL AGENCY

2004

ANNUAL REPORT

OF THE

INTERSTATE ENVIRONMENTAL COMMISSION

Formerly the
INTERSTATE SANITATION COMMISSION

INTERSTATE ENVIRONMENTAL COMMISSION

A TRI-STATE WATER AND AIR POLLUTION CONTROL AGENCY

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Chief Engineer
Howard Golub

January 24, 2005

The Honorable Richard J. Codey
The Honorable George E. Pataki
The Honorable M. Jodi Rell
and the Legislatures of the States of
New Jersey, New York, and Connecticut

Dear Governors:

The Interstate Environmental Commission respectfully submits its report for the year 2004.

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 New Jersey — Chairman

For the State of New York — Vice Chair

For the State of Connecticut — Vice Chair

INTERSTATE ENVIRONMENTAL COMMISSION

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Regina McCarthy

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Howard Golub
Executive Secretary

Boris Rukovets
Assistant Secretary

Eileen D. Millett
Counsel

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Elizabeth M. Morgan
Fay L. Lau

STATEMENT OF THE CHAIRMAN
OF THE
INTERSTATE ENVIRONMENTAL COMMISSION

What a rewarding year this has been. As I complete my second term as Chairman of the Interstate Environmental Commission, I can look back and see environmental progress in virtually every area of our agenda — progress that, frankly, I never thought we could achieve.

This Commission's water testing and monitoring programs are at full throttle. Our protocols for responding to pollution emergencies are firmly in place, while we have broadened our spheres of influence in the areas of public education and public outreach.

As I noted last year, 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 clearly 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.

I am gratified that the Commission again participated in World Water Monitoring Day which takes place annually in October. This was the second annual World Water Monitoring Day, an event that IEC has participated in since it was started in 2002 as National Water Monitoring Day. The Commission joined with thousands of people around the world to collect water quality data that we input to an international data bank. As part of this event, I had the opportunity to reiterate my long held belief that "government efforts alone are not enough to protect out natural resources." I noted that "our daily routines affect water quality and each of us must take part and be a part of the solution. This is why the national and international monitoring partnership of the public; state, interstate and local governments; federal agencies and countries throughout the world is so important." I am proud that we have been a part of this effort since its inception.

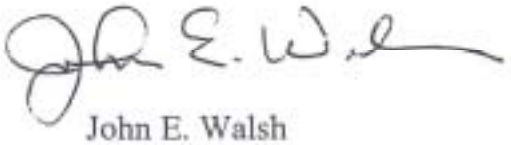
Highlights of the Commission's active and extensive involvement in water monitoring surveys include special intensive surveys to support both the Long Island Sound Study and the New York-New Jersey Harbor Estuary Program. I am pleased to report the completion of our 14th year of monitoring in Long Island Sound to document dissolved oxygen conditions. It's our fourth year of monitoring for pathogens in the New York - New Jersey Harbor complex, our ninth year of sampling shellfish harvesting waters in the New Jersey portion of western Raritan Bay and, for a second year, ambient and point source sampling to determine the causes of bacterial contamination in the Byram River. In addition, as part

of our commitment to forge strong lines of communication and cooperation among agencies, we continue to work with our three member states' environmental departments and the US Environmental Protection Agency to assist in their development in assessing of total maximum daily loads, particularly for interstate waters.

I'd be remiss if I did not also mention the broad scope of the Commission's outreach programs, some of which 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. As a part of this effort, our annual boat inspection trip was a most gratifying success. It's become "a must" in environmental circles and among many legislators. This year we covered the upper East River and the New York and Connecticut waters of western Long Island Sound; the trip afforded me the opportunity to meet and exchange ideas and points of view with so many of you.

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. You are also invited 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 wanted to thank my fellow Commissioners for their dedication and support, and the Commission's staff for carrying out our mission and responsibilities in a most professional manner.



John E. Walsh
Chairman

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I. EXECUTIVE SUMMARY

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 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 adverse conditions, but rely on good science and sound engineering as an integral part of the decision-making process. The Metropolitan Area is truly a water world containing a world class harbor that is able to support a wide spectrum of commercial and recreational industries and activities.

On October 27, 2000, federal legislation was signed changing the name of the Interstate Sanitation Commission to the ***Interstate Environmental Commission (IEC)***. The new name not only brings the Commission into the 21st Century, it more accurately reflects 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. The IEC is in a unique position to take the lead on regional issues because, as an interstate agency, the Commission views the Region as an environmental entity. 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.

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, determining immediate environmental conditions, responding to environmental emergencies, and other needs that may arise.

The Commission's environmental programs and actions have greatly contributed to the many significant improvements in the region's waters. IEC's adoption of its year-round disinfection requirements, which went into effect in 1986, was instrumental in opening thousands of acres of shellfish beds year-round rather than only in the summer months, and has led to previously closed shellfish beds now being available for harvesting. There have been fewer beach closings during the summer bathing seasons due to elevated levels of coliform bacteria. During the five-year period, 2000-2004, there were no beach closure days caused by floatables or medical debris in the District. 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 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. 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; and participating in seminars and forums involving environmental professionals and the general public. For several 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 2003 through November 2004. 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.

Throughout the District, 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 $9.167 billion has been allocated by municipalities and bond act dispersements in the District for 255 projects recently completed, in progress, and planned for the future.

The Commission remains very 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 nutrients, toxics and pathogens. 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 and New Jersey's Watershed Watch Network Advisory Committee.

Using the IEC research vessel, the R/V Natale Colosi, the Commission again participated in a multi-agency intensive survey in Long Island Sound to continue to document dissolved oxygen conditions. This was IEC's 14th consecutive year as a participant in this important project. For the ninth year in a row, at the request of NJ DEP, during the winter and spring of 2003-2004, 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 the HEP Pathogens Workgroup, IEC completed a multi-phase monitoring program involving ambient, influent, effluent and stormwater surveys of the entire New York-New Jersey Harbor Complex. 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.

ENTRANCE TO NEW JERSEY STATE MARINA AT LEONARDO
SHOWING A FROZEN RARITAN BAY, FEBRUARY 2004
Photo by P. Sattler, IEC

For the seventh 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 180 raw sewage bypasses, illegal connections, treatment reductions, and fuel spills 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:

- granted party status 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.

As an outgrowth of the successful first National Water Monitoring Day in 2002, the Commission again took an active role in World Water Monitoring Day. For this annual event, 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, R/V Natale Colosi, 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 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 2003 through September 2004, the Commission received a minimal number of air pollution complaints. As has been the pattern, 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 sources of emissions.

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 31 health messages — 13 for ozone and 18 for fine particulates — between October 9, 2003 and August 20, 2004, to the appropriate government environmental and health agencies throughout the region.

II. WATER POLLUTION

GENERAL

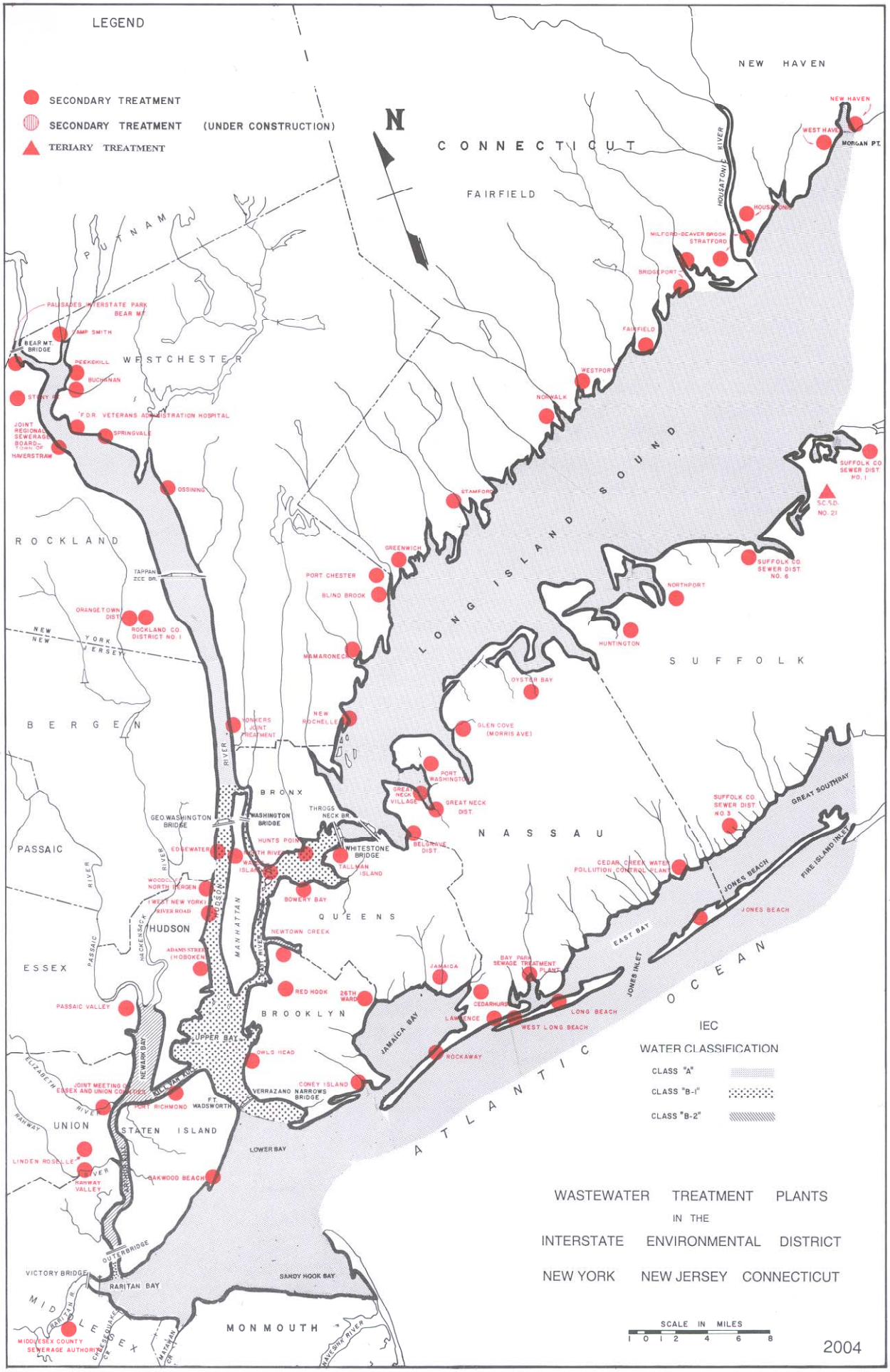
During 2004, in the Interstate Environmental District, approximately $9.167 billion was allocated for 255 water pollution control projects which were either completed, in progress, or planned for the future. These monies were allocated in the following manner: over $110.5 million for 48 completed projects, more than $6.163 billion for 132 projects in progress, and more than $2.8935 billion for 75 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.

The Commission has long advocated adequate infrastructure as 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; however, much remains to be done.

With secondary treatment virtually in place since 1994 throughout the Interstate Environmental District, 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 range from sewer separation to swirl concentrators to booming and skimming to in-line 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 wetland creation/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 experiments, and related environmental conditions within the associated drainage basins. The information in this section is that which was available and accurate through November 2004.

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.


LEGEND
SECONDARY TREATMENT
SECONDARY TREATMENT (UNDER CONSTRUCTION)
TERIARY TREATMENT
N
NEW HAVEN
CONNECTICUT
FAIRFIELD
HOUSATONIC RIVER
NEW HAVEN
WEST HAVEN
MORGAN PT.
HOUSATONIC
MILFORD-BEAVER BROOK
STRATFORD
BRIDGEPORT
FAIRFIELD
WESTPORT
NORWALK
STAMFORD
SUFFOLK CO. SEWER DIST. NO. 1
S.C.S.D. NO. 2
SUFFOLK CO. SEWER DIST. NO. 6
NORTHPORT
HUNTINGTON
LONG ISLAND SOUND
SUFFOLK
OYSTER BAY
GLEN COVE (MORRIS AVE)
PORT WASHINGTON
GREAT NECK VILLAGE
GREAT NECK DIST.
BELLMORE DIST.
NASSAU
SUFFOLK CO. SEWER DIST. NO. 3
GREAT SOUTH BAY
FIRE ISLAND INLET
CEDAR CREEK WATER POLLUTION CONTROL PLANT
JONES BEACH
JONES BEACH
EAST BAY
JONES INLET
BAY PARK SEWAGE TREATMENT PLANT
JAMAICA
CEDARHURST
LAWRENCE
LONG BEACH
WEST LONG BEACH
ROCKAWAY
ATLANTIC OCEAN
PUTNAM
PALISADES INTERSTATE PARK
BEAR MT.
AMP SMITH
BEAR MT. BRIDGE
PEEKSKILL
BUCHANAN
STONY PT.
F.D.R. VETERANS ADMINISTRATION HOSPITAL
JOINT REGIONAL SEWERAGE BOARD - TOWN OF HAVERSTRAW
SPRINGVALE
OSSINING
WESTCHESTER
ROCKLAND
TAPPAN ZEE BR.
ORANGETOWN DIST.
ROCKLAND CO. DISTRICT NO. 1
NEW YORK
NEW JERSEY
MAMARONECK
NEW ROCHELLE
BERGEN
YONKERS JOINT TREATMENT
HUDSON RIVER
BRONX
GEO. WASHINGTON BRIDGE
WASHINGTON BRIDGE
THROGS NECK BR.
PORT CHESTER
BLIND BROOK
GREENWICH
PASSAIC
PASSAIC RIVER
EDGEWATER
HUNTS POINT
SOUTH RIVER
WARDS ISLAND
WHITESTONE BRIDGE
TALLMAN ISLAND
WOODCLIFF NORTH BERGEN (WEST NEW YORK)
RIVER ROAD
BOWERY BAY
QUEENS
HUDSON
HACKENSACK RIVER
PASSAIC RIVER
MANHATTAN
NEWTOWN CREEK
ADAMS STREET (HOBOKEN)
ESSEX
RED HOOK
26TH WARD
PASSAIC VALLEY
BROOKLYN
UPPER BAY
OWLS HEAD
NEWARK BAY
ELIZABETH RIVER
JOINT MEETING OF ESSEX AND UNION COUNTIES
KILL VAN KULL
FORT RICHMOND
FT. WADSWORTH
VERRAZANO NARROWS BRIDGE
CONEY ISLAND
UNION
STATEN ISLAND
LOWER BAY
RAILWAY
LINDEN ROSELLE
RAHWAY RIVER
RAHWAY VALLEY
OAKWOOD BEACH
GUTTENBERG
VICTORY BRIDGE
RARITAN BAY
SANDY HOOK BAY
MIDDLESEX
MIDDLESEX COUNTY SEWERAGE AUTHORITY
MONMOUTH
RARITAN R.
CHEESEQUAKE CR.
MATAWAN CR.
NAVESINK RIVER
IEC
WATER CLASSIFICATION
CLASS "A"
CLASS "B-1"
CLASS "B-2"
WASTEWATER TREATMENT PLANTS
IN THE
INTERSTATE ENVIRONMENTAL DISTRICT
NEW YORK NEW JERSEY CONNECTICUT
SCALE IN MILES
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2004

CONNECTICUT WATER POLLUTION CONTROL PLANTS

To help meet the goals of the Phase III Actions for Hypoxia Management for the Long Island Sound Study, which includes a nitrogen reduction target of 58.5% by 2014, the states have developed plans to gradually upgrade treatment facilities with BNR technology. In Connecticut, the 74 coastal and inland communities with sewage treatment plants — including 12 facilities that discharge to the IED — began trading nitrogen pollution credits in 2003. Communities that exceed their annual nitrogen reduction targets earn pollution credits and sell them in a Nitrogen Credit Exchange. Communities that have yet to upgrade and do not meet their nitrogen reduction target goals must buy credits. The program takes into account that some plants can more cost-effectively remove nitrogen because of size, design, or proximity to western Long Island Sound where the nutrient impact is greatest. In the first year, 39 Connecticut plants reduced nitrogen output below their permit limits, making them eligible to sell credits valued at $2.76 million.

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

Projects in Progress

Since 1991, the 3,880 acres that comprise the Bridgeport drainage basins have been undergoing a multi-year phased construction CSO improvement program. This is a dual-phase improvement program. Phase I is nearly complete (99%) with estimated costs of $32 million. Phase II design and subsequent construction is estimated to cost $80 million with a completion date for all construction by 2016. Phase II construction is planned to begin during the 2006 summer season. CSOs which discharge into Black Rock and Bridgeport Harbors will be eliminated and the remaining CSOs will be monitored by a remote telemetering system. In addition, the Water Pollution Control Authority has also allocated about $1.5 million per year for sewer system rehabilitation for ongoing work in both drainage basins.

Recently under way, an effluent chemical dechlorination facility is being installed at the West Side plant. Costs associated with this project are estimated at $630,000.

Future Project

The alternative to construct common sludge facilities and incinerators at both plants is no longer being contemplated.

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

Completed Projects

An ultraviolet disinfection study was completed at a final cost of $55,000. The solids

handling facility upgrade was completed and on-line during June 2004; final costs were not available. At a final cost of $7.7 million, collection system upgrades included force main installation and pump station rehabilitations (Cos Cob and Chapel Lane) were completed.

Projects in Progress

This 12.5 MGD secondary activated sludge plant is operating under federal and State Orders to eliminate overflowing manholes in the Byram and Old Greenwich neighborhoods, evaluate force mains, implement a collection system maintenance program, and implement the findings of the ongoing SSES. The facility is in compliance with all Order dates.

Pump station rehabilitations are under way at the Old Greenwich and South Water Street locations; cost estimates are $5.5 million. The Old Greenwich pump station is being converted to a wet well with submersible pumps; completion schedules were not available.

Future Project

Scheduled to begin during 2005, a new disinfection system will be installed. Estimated costs are $1.8 million for the 12-month scope of work.

Milford- Beaverbrook, Connecticut (New Haven County)

Future Project

Refer to the Milford-Housatonic facility write-up for additional information.

Milford- Housatonic, Connecticut (New Haven County)

Future Projects

This facility is operating under federal and State Consent Orders to reduce nitrogen loadings and attain permitted effluent limitations and requirements. Both the Housatonic and Beaverbrook facilities will be upgraded; construction is anticipated to begin during late 2004. Total costs are estimated at $61 million; an approximate operational start-up date is anticipated for 2007. Pump station upgrades with associated gravity sewers and force mains will cost an additional $3 million.

New Haven Water Pollution Control Authority (East Shore Water Pollution Abatement Facility), Connecticut (New Haven County)

Completed Projects

A preliminary SSES was completed at a final estimated cost of $500,000. During

mid-2004, a low level nitrogen removal assessment study was finalized at an estimated cost of $159,000.

Collection system improvements include installation of a temporary subaqueous 42-inch diameter (42"Ø) force main below the Quinnipiac River and the Interstate 91/Interstate 95 interchange and the West River Bridge sewer relocation. Total design costs for all of these projects are $800,000.

Pump station improvements include main sewage pump replacements. The pumps were operational during May 2003, totally complete during February 2004, and accrued construction costs of $1.1 million. The Boulevard and East pump stations' instrumentation and controls improvements were completed during June 2004 ($300,000). Automation of the facility's chlorination system was operational during August 2004 ($350,000).

Projects in Progress

Sewer separation construction will continue until combined sewers discharging to New Haven Harbor are eliminated. This work will not be completed until approximately 2015 at a re-estimated cost of $353 million; overall, this project is 20% complete. Construction of the Truman School CSO storage tank (5 MG) is 50% complete. Anticipated to be complete during February 2005, this work is re-estimated to cost over $18 million.

The Barnes Avenue and Quinnipiac Avenue pump stations replacements are 70% complete and are planned to be operational during December 2004. Costs are re-estimated at $3.2 million. The Morris Cove pump station replacement is 5% complete with anticipated construction costs of $5.5 million. The pump station operational date is planned for the summer of 2005.

Stamford Water Pollution Control Authority, Connecticut (Fairfield County)

Projects in Progress

This facility is operating under a State Consent Order to upgrade, expand and implement nitrogen removal capabilities. Consent Order compliance dates require substantial completion by mid-2005. Under way since 2002, the $105 million construction program at this 20 MGD secondary facility will improve the capability of this plant to remove nitrogen in compliance with LISS Phase III limitations, as well as eliminate chlorine toxicity by using ultraviolet disinfection. This facility is the fifth largest municipal plant in Connecticut, discharges to Stamford Harbor in western Long Island Sound, and provides treatment to the greater Stamford area.

STAMFORD WATER POLLUTION CONTROL AUTHORITY

AERIAL VIEW OF STAMFORD WASTEWATER TREATMENT PLANT WITH LONG ISLAND SOUND IN BACKGROUND

Photo Courtesy of Carlin Contracting

Stratford, Connecticut (Fairfield County)

Future Project

A proposal for capacity expansion in conjunction with a facility-wide upgrade was approved by the Town of Stratford and CT DEP during 2002. Total costs to complete all construction phases are estimated to be $52 million. Start-up dates have yet to be determined.

West Haven, Connecticut (New Haven County)

Completed Projects

The West Haven Water Pollution Control Commission entered into a 15-year contract to have an independent contractor operate the City's 12.5 MGD secondary facility and a collection system with 13 pump stations. Now in its fourth year, the contractor has implemented training and certification programs for plant staff.

Future Projects

This facility is operating under a 1990 (amended in 1992) Stipulated Judgement which requires collection system, pump station and main facility upgrades. This facility is in compliance with Consent Order compliance dates.

Final plans for facility and collection system upgrades are being negotiated. An estimated $35 million will be incurred to modernize with BNR capabilities. An approximate construction start-up date is between 2005 and 2006 for this 3-year agenda project.

Westport, Connecticut (Fairfield County)

Project in Progress

A complete facility upgrade with nitrogen reduction capabilities is under design and is estimated to cost as much as $35 million.

Future Projects

At an estimated cost of $250,000, the Church Street sewer replacement is now scheduled for the summer of 2005.

Estimated to cost as much as $35 million, a complete facility upgrade is planned to start during the 2004-2005 winter season.

NEW JERSEY WATER POLLUTION CONTROL PLANTS

Forty projects state-wide have met the requirements to receive low interest loans from the New Jersey Environmental Infrastructure Financing Program. The New Jersey Environmental Infrastructure Trust works in partnership with the NJ DEP to provide low interest loans for the construction of a wide variety of clean water and drinking water projects. Commitments for $148 million will improve drinking water, wastewater and stormwater infrastructure throughout New Jersey. Twenty-two of the projects target wastewater, stormwater and nonpoint source pollution by improving sewage treatment facilities, maintaining wastewater collection and conveyance systems, and reducing pollution caused by stormwater. Projects that received funding qualified under the categories of clean water and drinking water infrastructure serving an approved urban center or approved urban complex, eliminating or lessening the impacts of CSOs, and the acquisition of open space.

Within the Interstate Environmental District, clean water grants amounted to over $48.08 million. These monies were awarded to the Linden Roselle Sewerage Authority (upgrade sludge handling facilities), Monmouth County Bayshore Outfall Authority (rehabilitation of a retention basin liner), Old Bridge Municipal Utilities Authority (collection system upgrade to replace failing septic systems and upgrade pump stations), the City of Perth Amboy (relining of sewers and catch basin replacements), and Rahway Valley Sewerage Authority (upgrade sludge facilities).

Bayonne Municipal Utilities Authority, New Jersey (Hudson County)

Project in Progress

The Bayonne primary facility, which discharged to the Kill Van Kull, was converted to a pump station and diverted flows for treatment at the Passaic Valley Sewerage Commissioners' (PVSC) secondary plant on March 31, 1990. This authority received a $3.6 million (eligible project cost) low interest loan in 2002 for the installation of an additional two miles of gravity sewer, as well as surveying and relining of applicable existing sewers from the New Jersey Environmental Infrastructure Trust.

The treatment plant at the closed Military Ocean Terminal (renamed the Peninsula at Bayonne Harbor) is now under the auspices of the Bayonne MUA. As of May 2004, a port for cruise ships opened here, New Jersey's first cruise port in over 40 years. The port had berthed Liberty Ships during World War II, as well as transports headed for the Persian Gulf in 1991. Refer to the Peninsula at Bayonne Harbor write-up for additional information.

Edgewater, New Jersey (Bergen County)

Project in Progress

Recently under way, a pump station upgrade is estimated to cost $250,000.

Future Projects

Planned to begin during the 2005 winter season, the effluent screening system will be replaced. An estimated cost of $250,000 will include all installations. A facility-wide expansion is anticipated to begin during 2006. This extensive upgrade is estimated to cost $1.3 million.

Jersey City Municipal Utilities Authority, New Jersey (Hudson County)

Project in Progress

The Jersey City primary facilities were converted to pump stations and diverted flows for treatment at PVSC during late September 1989. This authority received over a $3.7 million (eligible project cost) low interest loan for CSO abatement from the New Jersey Environmental Infrastructure Trust. During 2001, the Environmental Infrastructure Financing Program sold Trust bonds in the amount of $15.82 million for combined sewer overflow abatement consisting of construction of in-line and end-of-pipe netting facilities and tide gates to capture solids and floatables, and rehabilitate one CSO regulator.

Six floatables capture devices have been installed. The technology incorporated into this capture program includes in-line netting and end-of-pipe netting. The Jersey City drainage basin, located on the southern Hudson County peninsula, discharges to New York Harbor, the Hudson River, Newark Bay, and the Hackensack River and its tributaries.

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

Completed Project

The disinfection system conversion from liquid chlorine to sodium hypochlorite was operational and complete during February 2004. The final cost of $750,000 included the removal of 90-ton railcar facilities, installation of hypochlorite storage tanks, pumps, piping and controls.

Projects in Progress

Several major upgrades are under way and are anticipated to be operational between

the spring and summer seasons of 2005. The scope of this undertaking includes the installation of a new mixing system in a digester, as well as rehabilitation of the gas holder cover; replacement of thickening centrifuges with gravity belt thickeners; replacement of coarse and fine influent bar screens; installation of new magnetic flow meters and electric operated valves for the waste activated sludge pumps; and rehabilitation of the primary clarifier traveling bridges. Collectively, these WWTP upgrades are 30% complete and are estimated to cost $8.5 million.

Future Projects

Anticipated to begin during January, a plant-wide fiber optic network will be installed ($500,000). The network will support the new SCADA telemetry control system, as well as the security and process camera monitoring system. These remote systems will be operational during January 2006 and will incur costs of $1 million.

Kearny Municipal Utilities Authority, New Jersey (Hudson County)

Future Projects

During November 1990, this primary facility was converted to a pump station and diverted all flows to the PVSC regional facility for treatment. The Harrison Avenue pump station was completed during November 1998 and went on-line to convey flows to the existing South Kearny pump station and then to the PVSC facility. Proposed for a March 2005 construction start-up, two new pump stations with approximately 8,000 linear feet of force main will convey Meadowlands leachate and municipal wastewater to PVSC for treatment. This one-year project is estimated to cost $2.5 million. Refer to the PVSC write-up for additional information.

Additional expansions to the Kearny MUA collection system will involve a new stormwater system to eliminate discharges from the existing CSO system. Planned to be under way during late 2004, the six-month agenda is estimated to cost $1 million.

Linden Roselle Sewerage Authority, New Jersey (Union County)

Projects in Progress

The Authority is rehabilitating and upgrading its entire sludge handling area (50% complete) consisting of sludge thickening, digesters, gas system, sludge storage tanks, and sludge pumping equipment. This $13.65 million project is being funded by the New Jersey Environmental Infrastructure Trust Program and has a two-year construction schedule.

This facility received a New York-New Jersey Harbor Estuary Program grant for PCB track down. The Authority recently began Phase IV of the effort after receiving US EPA

approval of its QA Project Plan.

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

Projects in Progress

The Authority is building (60% complete) five indirect dryers and installing lime mixers with ancillary equipment to reduce the volume and operating costs of the sludge end product. Anticipated to be operational during February 2005, this project is estimated to cost $40.4 million.

A preliminary engineering evaluation and design is under way for the installation of a secondary force main to service the Edison pump station. This study will also address related collection system upgrades. The project has an anticipated completion date of March 2005.

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

Completed Project

Two dissolved air floatation sludge thickeners were replaced with gravity belt thickeners at a final cost of $500,000.

TOWNSHIP OF MIDDLETOWN SEWERAGE AUTHORITY

NEW GRAVITY BELT THICKENER
Photo Courtesy of TOMSA

Projects in Progress

An engineering study to assess a fine bubble aeration system is 30% complete ($30,000). The existing bar screens are being replaced with fine screens with automated screenings removal equipment. The estimated cost is $1.1 million and the installation is 60% complete. Collection system rehabilitation involves television inspection of gravity sewers with subsequent repairs in North Middletown. This work is 60% complete and is estimated to cost $250,000.

Future Project

Planned for 2006, a main facility upgrade will include the installation of fine bubble aeration diffusers and expansion of the aeration tanks. A cost estimate for this project is $2.5 million.

Monmouth County Bayshore Outfall Authority, New Jersey (Monmouth County)

Future Projects

This Authority maintains the infrastructure for two customer authorities. The Authority received a low interest loan from the New Jersey Environmental Infrastructure Trust's Environmental Infrastructure Financing Program in the amount of $970,000. The monies will be used for upgrading an existing effluent retention basin located at the Union Beach pump station. Replacement of the liner was to commence during the 2004 spring season.

Repairs will be made on the Atlantic Ocean outfall pipe ($77,600) and are planned to begin during the 2004 winter season.

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

Project in Progress

Since 1995, there have been ongoing negotiations between this Authority and the NJ DEP to upgrade the plant design flow from 2.9 MGD to 3.4 MGD. During 2004, this secondary facility, which utilizes packed tower trickling filters, discharged an average of 3.1 MGD to the Hudson River.

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

Projects in Progress

Ongoing since October 2002, CSO abatement facilities are being installed along the Hudson River in Weehawken, New Jersey. A collection system consisting of a total of 19 regulators and 14 outfalls will be enhanced with screening modules in order to eliminate solids and floatables greater than one inch in diameter (1"Ø).

Collection system upgrades are under way. The contracts include repair of catch basins, manholes, and sewer lines. Operational during mid-2004, 1,600 linear feet of brick and VCP were replaced with new 36-inch diameter (36"Ø) and 42-inch diameter (42"Ø) pipe. At the 5th Street pump station, retrofits of the pumps and piping are progressing. Collectively, these improvements are 40% complete.

During 2004, two solids and floatables screening modules were installed at CSO outfalls which discharge to the Hudson River. A cost estimate for this work was $7 million. This facility is operating under a State Consent Order to have additional modules in place.

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

Project in Progress

Repairs of catch basins, manholes and sewer lines are ongoing through late 2004. One solids and floatables screening module is being installed on Hillside Avenue in West New York. Total estimated costs for these collection system upgrades are $5.8 million.

Future Project

At an estimated cost of $10 million, additional collection system repairs will be performed. These expenditures will provide for another CSO collection module. This facility is operating under a State Consent Order to have additional modules in place.

Passaic Valley Sewerage Commissioners, New Jersey (Essex County)

Projects in Progress

Recently under way (14% complete), sludge degritting and screening system improvements are estimated to incur costs of $7.682 million.

This facility received a NY-NJ HEP grant in 2003 to develop a PCB mass balance in two collection systems that are in the service area. The award was for $50,000 and work is expected to be completed in 2005.

An ongoing sewer rehabilitation project is estimated to cost $3.9471.

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

Future Project

This property was decommissioned as a military base 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 proposal includes a port facility which opened in May 2004, townhouses, office space, movie production facilities, a marina, and a retail complex.

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 Project

Rehabilitation of a digester with new mixing and pumping systems is complete. The cleaning and removal of antiquated systems, the lime silo and contents, piping, associated electrical and instrumentation installations were operational and complete on May 25, 2004. Estimated costs were over $2 million.

Projects in Progress

As of October 12, 2001, this facility is operating under a State Consent Order to expand the capacity of the existing plant in order to accommodate additional wet weather flows from diverted CSOs.

Under way during 2004 (30% complete), a cogeneration and sludge drying facility 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. Also 30% complete, another digester rehabilitation project is ongoing. Combined, these improvements are estimated to cost $30 million.

Future Projects

Expected to begin during the 2005 spring season, expansion of the existing 40 MGD plant will be needed to accommodate wet weather flows due to the elimination of CSOs. The re-estimated $80 to $90 million undertaking 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, is planned. Additional collection system modifications include the installation of about 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.

This eight-year plan, currently out to bid, involves the design and the construction of plant upgrades and enhancements to close the outfall, eliminate effluent violations, and allow the plant to treat significantly greater wet weather flows of up to 105 MGD. This facility treats daily flows from 14 member municipalities in central New Jersey, which includes about 300,000 residents and 3,500 industrial and commercial customers.

NEW YORK WATER POLLUTION CONTROL PLANTS

During April, various grant programs were announced and applications were being accepted and funded under New York State's Environmental Protection Fund, the 1996 Clean Water/Clean Air Bond Act, and the federal Land and Water Conservation Fund. For several years, NYS DEC; the Office of Parks, Recreation and Historic Preservation (OPRHP); and the Department of State have administered workshops, reviewed applications, and awarded grant funds. Two additional funding programs for 2004 include the Environmental Restoration Program and the Brownfield Opportunity Areas Program. Collectively, the environmental improvements that are made from these programs are creating economic renewal, protecting marine and terrestrial resources, and enhancing the quality of life.

The Brownfield Opportunity Areas Program was established in 2003 under the Superfund/Brownfield law. Municipalities and community-based organizations are eligible to apply in order to implement activities such as an area-wide brownfield redevelopment plan that addresses problems caused by a concentration of brownfield sites or site assessments to determine the nature and extent of contamination. The Environmental Restoration Program provides funds for the investigation and remediation of municipally owned brownfield sites. The Hudson River Estuary grant program, funded under the State's Environmental Protection Fund (EPF), is receiving applications for community interpretive center and education projects, open space issues, watershed planning and implementation, and river access for boating, swimming and fishing. The Local Waterfront Revitalization Program (LWRP) provides grants under the EPF for planning, design, feasibility studies, and construction projects that advance the preparation or implementation of a LWRP.

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

Projects in Progress

Several engineering studies are under way which address improvements to the chemical bulk storage facilities (50% complete) and plant-wide site permanent lighting (25% complete). This facility, operating under a state Consent Order to upgrade the chemical bulk storage facilities, is in compliance with Order dates. Design plans for the influent pumping upgrades have yet to begin.

Belgrave, New York (Nassau County)

Future Projects

Re-estimated to cost $6 million, denitrification and UV disinfection facilities will be installed at this 2 MGD trickling filter plant. Construction and installations will take about 18 months and are planned to begin during June 2005. Currently under design, the

BNR upgrade will use a denitrification filter. 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.

Blind Brook, New York (Westchester County)

Project in Progress

New influent headworks and clarifier improvements have been under way since 2003. This upgrade, estimated to cost $1.2 million, will include replacement of the influent/effluent pumps with modifications to the VFDs, a new grit removal system, a submersible pumping system in the primary clarifier scum transfer, full radius scum skimmers, and troughs for the secondary clarifiers. Additionally, structural building improvements will involve roof and wall updates, as necessary.

Bowery Bay, New York (Queens County)

Completed Projects

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. Corrective measures include the replacement of four slide gates with sluice gates, the replacement of four manual bar racks with mechanical bar screens in the influent channel, and the supply and installation of a new SCADA system. Corrective measures at the 108th Street pump station include improving the alignment of the suction and discharge pipes to reduce vibration of the pumps, the supply and installation of a sluice gate and mechanical bar screen, and the supply and installation of a new SCADA system.

The sampling program has been completed and it has been determined that the technology tested at this facility would not serve any benefit to Flushing Bay and the East River. The use of this facility is being modified. The aforementioned corrective measures contract has been cancelled and currently a scope of work to utilize the existing structure and equipment is being developed.

On-line since February, eight 200-kilowatt fuel cells were installed at four plants. This system provides a significant portion of each facility's electrical needs by converting waste gas to energy. Fuel cells generate electricity while releasing minimal emissions to the atmosphere. The fuel cells were installed at Hunts Point (3), Oakwood Beach (1), Red Hook (2) and 26th Ward (2). The cost of the program was $13 million and was co-funded

by the New York Power Authority, the NYS Energy Research and Development Authority, and the US Department of Energy.

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 much of the process equipment as well as 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.

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 shall be repaired and existing hand railing replaced with railings conforming to current codes. The cost of Phase II is re-estimated at $34 million and is scheduled for Fiscal Year 2005.

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 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 sixteenth 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 13 MG — 10 MG basin storage and 3 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 (completed May 1999). Facility planning is under way for regulator improvements ($20 million). 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 is conducting 26 studies over a four-year period 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 are 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. As mentioned above, the technical work of the USA project is continuing; field studies of Coney Island Creek have recently begun.

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

Future Project

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 re-estimated at $112 million and is scheduled for Fiscal Year 2006.

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

Completed Projects

A compressor facility was operational during April and 100% complete during June 2004. This facility was an upgrade of the existing equipment and now allows digester gas to be used for the plant's boilers. The final cost was estimated at $7 million.

Operational since February 2001, main plant upgrades included aluminum covers for the aeration tanks and new effluent channels. Concurrently, a counter-current scrubber odor control system was installed to treat the exhaust air drawn from the aeration tanks. Due to contractual delays, these projects were finalized during late 2003 and incurred final estimated costs of $14.5 million.

Project in Progress

The County has negotiated a Consent Order (June 29, 2004) with NYS DEC regarding the upgrading of the plant's chemical bulk storage tanks to current standards. An engineering study that is addressing this issue is 50% complete.

Future Project

Construction is planned to begin during 2005 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 2007.

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

Cedarhurst, New York (Nassau County)

Project in Progress

Recently under way, a new secondary digester cover is being installed at this 1.0 MGD plant. Anticipated to be in place during June 2005, this work is estimated to cost $230,000.

Coney Island, New York (Kings County)

Projects in Progress

On August 5, 2003, a fire caused damage to a portion of the plant's odor control system which treats air from the primary settling tanks. Initial clean up, damage assessment, and short-term repairs enabled two wet scrubbers to be placed into service at a reduced flow rate by early September 2003. The project scope included implementing an emergency contract to restore the odor control facility to its full operational capacity; and designing a staged approach to provide improved odor control treatment levels by the beginning of June 2004. Additional goals were to maintain improved odor control treatment levels for the remainder of the reconstruction duration; improve the odor control system technology; and complete the building reconstruction in 12 months. The cost for design was $1.9 million. The construction cost is $16.7 million and all phases are planned to be complete during January 2005.

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 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 construction of a 30 MG off-line facility comprised of underground influent channels and a 21 MG retention tank, all of which capture and store a large portion of combined sewage during rain that normally would have been discharged to the basin. The diverted flow is screened prior to entering the tank. After storms, stored combined sewage will empty into the Paerdegat Basin Interceptor connected to the Coney Island Water Pollution Control Plant, partly by gravity and mostly by pumps, for complete treatment.

Above-ground facilities required for the operation of the storage facility include a screenings building, an odor control/HVAC building, pump back building, a collections facility and a personnel and maintenance building. Community enhancements include development of a Natural Area Park operated by the New York City Department of Parks and Recreation, redevelopment of Bergen Avenue, inclusion of a Percent-for-Art project, and the construction of meeting space for Community Board No. 18. Wetlands mitigation to offset the loss of wetlands due to construction activities will be performed according to the requirements of the NYS DEC. A completion target date is December 2005; cost estimates are $120 million.

Phase III 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 recently began and costs are estimated at over $140.3 million.

Future Projects

The Coney Island WPCP upgrade is a multi-phase project intended to improve process efficiency and improve reliability. These measures will ensure compliance with all applicable permit SPDES requirements and Consent Orders. All phases of construction, including Consent Order mandated items, have been completed except for Phase 5b - Knapp Street laboratory and visitors' center, Phase 5c - reconstruction of the 72-inch diameter (72"Ø) ocean outfall, and Phase 5d - miscellaneous punch list items. Phase 5c includes abandoning an existing ocean outfall structure in Rockaway Inlet, constructing a new section of outfall with diffusers adjacent to the existing diffusers to be abandoned, and repairing the outfall pipes that remain. These phases are being postponed due to budgetary constraints.

Another part of the Paerdegat Basin CSO facility, Phase III, is the construction of Bergen Avenue from Avenue K to Ralph Avenue, consisting of roadway pavement, concrete sidewalks and curbs, underground utilities, street lighting and trees. The contract

also includes modifications to an existing storm sewer on Avenue K which would redirect the sewer discharge to a new stormwater outfall to Paerdegat Basin. Cost estimates are $4.65 million and the scheduled start is during July 2006.

Phase IV is the construction and restoration of lands surrounding Paerdegat Basin including decorative fences, lighting and development of an Ecology Park (4.5 acres) adjoining the 28-acre Natural Area Park. Construction is scheduled to begin during September 2006; cost estimates are $12.8 million.

The Neptune Avenue pumping station is a new construction project to be located at the intersection of West 23rd Street and Neptune Avenue. The pumping station will be designed to convey 45 MGD through two 30-inch diameter (30"Ø) force mains and connect to the Coney Island Interceptor at Stillwell and Neptune Avenues. This project is in a conceptual design phase. Construction of this unmanned pumping station and installation of mechanical equipment includes six submersible pumps, four grinders, a bridge crane, monorail, pipes, sluice gates, valves, and appurtenances; electrical room and switchgear, standby engine generators; HVAC system; plumbing; and landscaping. Work is anticipated to begin during January 2005 with cost estimates of $20 million.

Glen Cove, New York (Nassau County)

Completed Project

Construction of the biological nitrogen removal project, which began in March 2001, is now 100% complete. On-line during January 2004, the upgrade allows the plant to meet the final SPDES effluent limitations.

Projects in Progress

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. This facility discharges to Glen Cove Creek which is a tributary of Hempstead Harbor.

Since 1998, New York State awarded four separate grants totaling $4,598,750 to the City. Under the 1996 Clean Water/Clean Air Bond Act, two awards (1998 and 1999) totaling $3,378,750 for construction were awarded to the City for nitrogen removal upgrade and facility improvements. The third award, a $200,000 Environmental Protection Fund grant, was awarded in 1999 to the City for the costs associated with the design, bidding and construction observation and oversights of the upgrade. The fourth award was announced in 2003 and is a $1.02 million Bond Act grant 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.

Future Project

The cost to put the facility's chemical and fuel storage tanks in compliance with State and federal regulations was re-estimated at $500,000. A construction and compliance schedule is under negotiation.

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

Completed Project

The West Long Beach Sewer District changed its name to the Greater Atlantic Beach Water Reclamation District during March 2002. Upgrades at this facility were completed and on-line during October 2004. The work included the replacement of both secondary clarifier drives, walkways and railings; the final cost was $150,000.

Future Projects

Possible additional upgrades will include isolation gates on the new primary clarifiers, motorized valve operators, and a redundant primary sludge station. The estimate for these improvements ranges from $300,000 to $500,000.

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

Completed Projects

Completed during August 2004, collection system upgrades involved installing 1,480 linear feet of liner in the Steamboat Road force main, as well as 216 linear feet of liner in gravity sewers. Final expenditures were $353,000. Main facility rehabilitation work involved cleaning and repairs of two digesters. These treatment units were on-line on December 27, 2003.

Project in Progress

Recently under way, additional collection system maintenance involves lining 315 linear feet of gravity sewer; root treatment and control in 3,922 linear feet of sanitary sewer; and conducting televised inspections and cleaning, as necessary, of 7,318 linear feet of sanitary sewer. Estimated expenditures are $97,300.

Future Projects

Planned for early 2005, the grit chamber will be rehabilitated ($55,000) and the sanitary sewer system will be mapped using GPS or other conventional methods ($67,000).

An engineering study is being proposed with a five-year plan for upgrading the treatment plant by adding four new pump stations and BNR retrofits at a cost of about $100,000 per year. 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. Refer to the Cedar Creek and Great Neck Water Pollution Control District write-ups for additional information.

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

Projects in Progress

An I/I study is ongoing in certain areas of the collection system to evaluate hydraulic capacity, devise grease control procedures and eliminate extraneous flows.

At an estimated cost of $338,500, cleaning, repairs and mechanical upgrades are being performed (80% complete) on a digester. Operations are planned to commence during late 2004.

Future Projects

It is estimated that over $16 million will be spent to address nitrogen reductions at this facility. The nutrient reduction requirement is mandated by the LISS Phase III nitrogen reduction plan. To this end, an engineering study is under way and has identified three feasibility plans for upgrading this plant.

The Feasibility Diversion Study, funded with $36,000 of CW/CA Bond Act grants, was completed about two years ago and concluded that the diversion of the entire effluent from this plant and the Village of Great Neck to a regional plant on the south shore is technically feasible. Early this past year, the District and the Village of Great Neck were selected to receive an $18.7 CW/CA Bond Act Grant for the diversion project. Both parties are currently working together to confirm that the diversionary concept is cost-effective.

Huntington Sewer District, New York (Suffolk County)

Completed Projects

Suffolk County has approved funds of $320,000 for the remediation of highway stormwater discharge to Huntington Harbor. The County has completed the design for the project and construction is tentatively scheduled to start during the 2004/2005 winter season.

The Village of Huntington Bay has received three CW/CA Bond Act grants since 1999 to install structures to collect and dispose of stormwater runoff. Those projects will reduce pollutant loading to the wetlands, Huntington Bay and Huntington Harbor. The Wincoma Drainage Area "C" project was awarded $241,391 and the project is substantially completed. The Bay Crest Willow Pond Drainage Basin "G" project was awarded $321,751. The Bay Hills Drainage Basin Area "L" was awarded $237,038. Both projects are in final design stage and construction is slated to start in 2005.

Projects in Progress

Awarded more than $8.8 million under the auspices of the Clean Water/Clean Air Bond Act for the nitrogen reduction upgrade, the Town of Huntington completed the final design in 2003; issued RFPs for professional services in 2004; and has recently advertised for construction. The biological nitrogen removal system selected by the Town will incorporate sequencing batch reactors (SBRs). An operational start-up is anticipated in late 2006. A total project estimate is $10.5 million.

Under way during late 2004, improvements to the wastewater collection system include cleaning and televised inspection of 6,000 linear feet of gravity sewer lines. An additional 1,400 linear feet of 12-inch diameter (12"Ø) gravity sewer lines will be installed with a liner. Additional upgrades under way include the installation of a chemical containment structure ($33,700) at the transfer station, and a new digester gas flow meter ($14,000).

In addition to the biological nitrogen removal upgrade, the Town was awarded a CW/CA Bond Act grant of $366,000 in early 2003 to convert the existing chlorine disinfection system to one that utilizes UV. The UV system is currently being designed.

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 2005. The project entails 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 and the project entails

improvements to the existing stormwater drainage system.

Future Projects

Planned for the 2004 summer season, improvements to the wastewater collection system for the Cobblestone Estates development include the installation of 6,400 linear feet of eight-inch diameter (8"Ø) gravity sewer lines. An additional 1,300 linear feet of eight-inch diameter (8"Ø) gravity sewer lines will be installed for the Huntington Glen subdivision. Improvements to the Huntington Farms pump station have been postponed for several years in anticipation of this residential sewer expansion. Capacity upgrades will be assessed as necessary.

Hunts Point, New York (Bronx County)

Projects in Progress

HUNTS POINT WPCP

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.

AERIAL VIEW OF ONGOING CONSTRUCTION
Photo Courtesy of NYC DEP

Phase I — a $203 million, 3½-year construction phase — was bid in July 2001. This phase 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. This modernization includes forebay gate chamber improvements, screen chamber modifications, 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, currently under construction, has been estimated to cost $192 million. This 3½-year construction phase involves BNR enhancement. In order 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, 2007.

Phase III is currently under design and has been estimated to cost $146 million. This 3½-year construction phase includes work associated with solids handling. This includes mechanical, structural, instrumentation and controls and electrical work related to the replacement of digesters, thickeners and sludge storage tanks. This phase also involves the remediation of Barretto Point located at the confluence of the Bronx and East Rivers.

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

Future Projects

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.

The NYC DEP began its CSO abatement program in the 1980s, and expanded it in response to permits issued by the State. The NYS DEC issued an Order on Consent, June 24, 1996, and an August 6, 1996, Modification that required the NYC DEP to implement a CSO abatement plan to achieve, to a practicable level, compliance with water quality standards. The Order on Consent is currently being renegotiated to revise the milestone dates for the completion of construction for the CSO abatement facilities.

The Hutchinson River CSO Project has been planned by the NYC DEP to reduce CSOs 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 percent 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 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 two underground storage conduits with a total capacity of 7 MG. The

proposed facilities would be constructed in two phases: June 2011 through June 2015 for the 3 MG tank, and December 2016 through 2023 for the 4 MG tank. The CSO storage tanks 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 rain storms, 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.

As provided for in a September 29, 2003, submittal to the NYS DEC, the Bronx River CSO Storage Facility Project will include construction of a 4 MG off-line CSO storage conduit. The storage facility will be located along the east shore of the Bronx River in an area immediately south of the intersection of East 177th Street, DeVoe Avenue and the Sheridan Expressway. Other principal facilities to be constructed as part of this project include a 2,800 gpm pumping station with an accompanying 16-inch diameter (16"Ø) force main for pumpback, air treatment facilities, and mechanical screening facilities. At present, the NYC DEP has deferred the construction of the Bronx River CSO Storage Facility beyond the current Ten-Year Capital Plan. However, under the auspices of the Use and Standards Attainment Project, floatables control facilities will be installed at three outfalls discharging into the Bronx River. To date, a conceptual plan has been developed for floatables control at one outfall.

As indicated in a June 26, 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. 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 with two accompanying 10-inch (10"Ø) and 24-inch (24"Ø) diameter force mains. 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.

Phase I of the Westchester Creek CSO will be for site preparation and construction of the restroom facilities. Phase II includes the CSO tank, sewers, and all required mechanical equipment. The current project schedule indicates that construction of the storage tank and clubhouse facility will be deferred beyond the current Ten-Year Capital Plan. The current schedule for the site preparation contract shows construction beginning in May 2005, and extending through February 2006.

A BNR alternative will receive Clean Water/Clean Air Bond Act funding and is consistent with the CCMP priorities of the LISS. A froth control facility ($328,461 approved) will be installed.

Jamaica, New York (Queens County)

Projects in Progress

In order to comply with SPDES limitations and requirements, plant-wide interim expansions are ongoing. This work has been estimated to cost over $260 million plus over $48 million in engineering and design construction management fees. To be performed in 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 will include 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 90% complete.

CSO abatement projects in this drainage basin include the placement of a retention tank in Fresh Creek; 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)

Project in Progress

An operational target date for the upgrading of the aeration system is scheduled during December 2004. This modernization is re-estimated at $2.2 million.

Jones Beach State Park, New York (Nassau County)

Completed Project

The replacement of heating coils in the secondary digester was accomplished during the early 2004 spring season.

Future Project

A design for the incorporation of a SBR process was recently completed. Planned to begin during April 2005, BNR facilities will be installed. The cost estimates associated with this two-month construction agenda 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.

Future Project

Phase II plant improvements are in the planning stage with no definite construction start-up date as yet. Various plant-wide equipment upgrades and replacements will be done as needed. Remediation costs are estimated at $700,000.

Long Beach, New York (Nassau County)

Completed Projects

Rehabilitation of several treatment units were complete on November 1, 2003. All punch items were finally completed and on-line on July 4, 2004. All improvements incurred a final cost of $2 million. The work included the replacement of the trickling filters and the hypochlorite system, repairs and cleaning of the digesters, and screenings collection.

Future Projects

Estimated at $4 million, several additional facility-wide improvements are planned. Upgrades to several treatment units will address sludge dewatering, plant water and electrical systems, as well as automation of other operational processes. In addition, lift station upgrades are estimated at $2 million. The City is not committed to any start-up schedule, although design plans are complete and have been submitted for approvals.

Mamaroneck, New York (Westchester County)

Completed Project

Phase II Automation installation was completed during July 2004. The estimated $850,000 modernization will increase operator control via a Supervisory Control and Data Acquisition (SCADA) telemetry control system.

Projects in Progress

Construction of a BNR demonstration pilot project was completed during 2002. The Clean Water/Clean Air Bond Act award of over $3.83 million required monitoring of

the system until 2004. The nitrogen reduction technology of choice proved ineffective; WCDEF stopped all operations and monitoring in June 2003. Planned for late November 2004, two pilot projects will begin to address alternative BNR technologies. Additionally, VFD replacements for five main effluent pumps will be installed by in-house staff during the winter season.

New Rochelle, New York (Westchester County)

Completed Project

A belt filter press rehabilitation was completed during March 2004.

Projects in Progress

Automation Phase II installations, which will enable remote monitoring of plant processes, are 90% complete. This phase increases operator control via a Supervisory Control and Data Acquisition telemetry control system. Final costs are estimated at $750,000.

Two pilot projects are under way. The first addresses BNR (August 2004) and the second deals with dechlorination (September 2004).

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 development, there is concern of insufficient plant capacity, as well as the ability to meet effluent requirements. Completed SSES and I/I reduction studies with associated construction is 90% complete.

This facility is operating under a State Consent Order to accomplish collection system rehabilitation (I/I) and eliminate two storm sewer overflows (SSOs). The New Rochelle Sewer District — which is comprised of Larchmont, a small section of Mamaroneck, New Rochelle, and Pelham Manor — anticipates a cost of $35 million for all construction phases; construction is under way. Awarded during October 1998 under the Clean Water/Clean Air Bond Act, Westchester County will receive over $3.3 million to build overflow retention basins in the New Rochelle drainage basin to capture and treat stormwater runoff in order to reduce negative impacts on Long Island Sound. The scope of construction necessary to eliminate the SSOs has increased so greatly that the CW/CA Bond Act award has increased to about $8 million; construction began during mid-November 2002 and is 25% complete. Other collection system work includes the Sutton Manor pump station rehabilitation (design phase - 60% complete) and a sludge force main assessment.

Newtown Creek, New York (Kings County)

Projects in Progress

NEWTOWN CREEK WPCP

ONGOING UPGRADE CONSTRUCTION
Photo Courtesy of NYC DEP

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, which 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 $925 million, 8-year construction phase. During the period November 1999 through January 2001, demolition, on-site soil and groundwater remediation, as well as a new construction management building were completed. 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 is currently 63% complete, is estimated to cost $236 million, and is anticipated to be complete during December 2006. 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. Construction is currently 50% complete, is estimated to cost $417 million, and is anticipated to be complete during December 2006. The construction of a new support building to house personnel facilities and laboratories, the disinfection facility, and chlorine contact tanks are progressing. The construction of a new contact tank influent channel, new East River and Whale Creek Canal effluent conduits, the Whale Creek Canal outfall and the Whale Creek Canal bulkhead are also progressing. Construction is currently 60% complete, is estimated to cost $247 million, and is planned to be complete during June 2006.

Phase 1B is a $975 million, 10-year construction phase consisting of the construction of the north battery of aeration and final tanks, aeration tank influent splitter box, north control building, and modification of the north half of the central battery of grit, aeration and sedimentation tanks. This work is under way. The installation of the process air system blowers in the main building and process air mains across all three batteries, and the rehabilitation of the existing central and south batteries is also progressing. Collectively, this construction is currently 22% complete, is estimated to cost $661 million, and is planned to be operational during December 2009.

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

Future Projects

Phase 1B of the Newtown Creek upgrade includes modifications to the north side of the existing main building: maintenance shops, training facilities, and offices. The modifications also include the replacement of the influent screening equipment and raw sewage pumps. The design is 99% complete. This portion of Phase 1B is estimated to cost $120 million and is planned to be complete during December 2012. 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 contract is pending award, is estimated to cost $194 million, and has a planned completion date of October 2010.

Phase 2 is a $203 million, five-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; and 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. The design is currently 99% complete. The construction is planned for September 2005 through August 2010 at an estimated cost of $202 million. 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 is complete. This portion of the phase is estimated to cost $1 million and is planned to begin during October 2005.

Phase 3 is a $375 million, seven-year construction phase which involves rebuilding of the existing south half of the central battery and 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 50% complete. The construction is planned to begin 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 is complete. 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 two 12-inch diameter (12"Ø) sludge force mains to convey digested sludge from Newtown Creek to the Wards Island dewatering facility. The design is 38% complete.

Northport, New York (Suffolk County)

Projects in Progress

Under way since the 2003 fall season, this facility is upgrading and expanding its

design capacity. The Northport plant also provides treatment for the Centerport Sewer District. As of February 13, 2004, the Northport SPDES permit was modified to increase the flow limitation to 0.45 MGD.

The modernization project, which is 80% complete, is slated to be complete by early 2005. The upgrade includes the construction of an equalization tank, baffling, fine bubble diffusers, increased generator capacity and UV disinfection. The final estimated cost is $1.8 million and includes CW/CA Bond Act funds of $977,500 for the nitrogen and facility expansion, and $155,000 for the UV disinfection system.

Future Project

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

North River, New York (New York County)

Projects in Progress

Engineering studies dealing with interim plant upgrades, odor control improvements and miscellaneous process control experiments are continuing.

Subsequent to inspections and cleaning of the digester tanks, one tank had damage to the mechanical piping and support systems. The scope of work 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 as scheduled. Costs for all repairs and inspections are estimated at $5 million.

Future Projects

This facility is located on the Hudson River south of the George Washington Bridge. It is operating under a State Consent Order (July 1, 1992) 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.

This facility currently has three odor control systems in operation. These include the systems dedicated to the north and south portions of the plant, and a third system dedicated to the covered primary tanks. All three systems control odors by using a two-stage treatment system. The first stage pulls odorous air through packed bed wet chemical scrubbers. The second, polishing stage, pushes the wet scrubber effluent through activated carbon absorbers. The final settling tanks are the only major plant operational process that are not odor controlled.

The work required to meet the odor minimization goal includes digester gas holder odor control modifications, digester overflow box odor control, thickener room ventilation modifications, cover and odor control openings in chlorine contact tanks, and remove restrictions in the secondary bypass and modulate based upon plant flow. Additional odor controls include improvements to the laboratory odor control system, the addition of six carbon adsorbers and two wet scrubbers in the south sector, cover final settling tank effluent launders, addition of two carbon adsorbers in the north sector, replacement of headwork ventilation ductwork, a new process air blower and parallel discharge header, a remote alarm system, and mixed liquor channel ventilation. Expenditures are estimated at $60 million. This project has no anticipated start-up date.

The work required to address the miscellaneous process and odor control improvements includes rehabilitation of existing scrubbers and absorbers along with the removal of the carbon absorbers bypass; modifying existing carbon bed supports and replacing carbon; replacing chemical metering pumps, pH and orthophosphate controls; replacing and motorizing dampers; and relocating of the scrubbers' fans outside of a partially treated air plenum. Hypochlorite will be added to the skimming system and aeration tanks. Baffle wall height additions in the aeration tanks will be installed to prevent back mixing between the passes. The addition of observation points on the aeration tanks will allow visual monitoring of the process. Other replacements and upgrades include the aeration tank dump valves, modification of the dissolved oxygen control system, new operators on the final settling tanks' sluice gate weirs, and a new diffuser system in the aeration tanks. Other goals are to provide additional capacity to the plant's waste sludge system, reduce the amount of odors which are released into the air as the water falls over the weirs, and modify the primary settling tank adsorbed fans to reduce vibration signature. Expenditures are estimated at over $42.96 million. This project has no anticipated start-up date.

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

Oakwood Beach, New York (Richmond County)

Completed Project

A joint facility planning effort for the Oakwood Beach and Port Richmond plants was completed during February as part of the Staten Island Wastewater Facilities Improvement Project that was initiated in 2001. Area-wide facility planning addresses the future needs of both Richmond County treatment plants, as well as pumping station and collection system issues. Although no major upgrade is definitely planned, there will be replacements of worn out equipment, as needed. Refer to the Port Richmond write-up for additional information.

See the Bowery Bay and Port Richmond write-ups for information on City-wide and borough-wide projects.

Orangetown, New York (Rockland County)

Project in Progress

A NYS Energy Research and Development Authority study is 25% complete. A final report is anticipated for June 2005.

Future Projects

Extensive upgrades and expansions are planned for the main facility and collection system. Scheduled to begin during the 2005 fall season, three pump stations will be upgraded with associated force mains, as well as the installation of a 16-inch diameter (16"Ø) siphon between two additional pump stations. The main facility will be modernized with new mechanical screens, a grit system and a gaseous chlorine system. All installations are estimated to cost $12 million.

Ossining, New York (Westchester County)

Completed Projects

Estimated at a final cost of $8 million, a new final clarifier was constructed and operational during March 2004. Additionally, a feasibility study was completed to address aeration tank upgrades.

Projects in Progress

Facility-wide performance maintenance Phase I ($3.5 million), an O & M procedure to maintain and extend the life of existing treatment units, is ongoing. Phase II ($2.2

million) Automation has been under way since 2003.

In order to increase remote monitoring of plant processes, Automation Phase II design is complete. Construction and installation began during 2002. This phase will increase operator control via a Supervisory Control and Data Acquisition (SCADA) telemetry control system at an estimated cost of $1.05 million.

Future Project

Planned to begin during April 2005, the aeration system will be upgraded; cost estimates were not available.

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 scope includes extending the central residual building, design 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. All construction phases ($17 million) are to be completed by December 2008.

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, an installation of a microfine cement grout around the soil envelope of both conduits, design a pump around system to facilitate wet weather flow during storms, stabilize the soil around the forebay, and provide power to support the construction. All phases ($10.3 million) are to be completed by October 2008.

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

Future Projects

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 the station and automate 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.

The total cost for this project is estimated at $100.6 million ($33 million for the station and $67.6 million for the force mains) and will be bid as two contracts. First, the reconstruction and upgrading of the station for automated operation and expanding the pumping capacity for wet weather flow. Construction is scheduled to begin during August 2005. Secondly, 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 is scheduled to begin July 2007.

Oyster Bay Sewer District, New York (Nassau County)

Completed Project

Collection system maintenance was completed during 2004. Approximately 3,100 linear feet of sanitary sewer was inspected, televised and cleaned during October.

Projects in Progress

The installation of nitrogen removal facilities is 10% complete. A two-basin SBR is being constructed with a dedicated building to house the motor control centers, blowers and sludge thickener. A chemical dechlorination system is being installed concurrently. Anticipated to be operational during May 2005, the cost estimate is $8.7 million. The District has been awarded about $6.7 million of funding from the 1996 Clean Water/Clean Air Bond Act for the BNR upgrade.

Future Project

A re-estimate of $200,000 has been made to relocate digester gas piping and install automatic dial alarms at the Highwood pump station; a start-up date has not been set.

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

Completed Project

Operational this past June and complete during September, repairs to the existing chlorine detention tank, construction of baffle walls and replacement of the chemical feed system were completed at this 0.25 MGD secondary facility. Final costs amounted to over $74,000.

Project in Progress

This facility is operating under a State Consent Order (October 7, 2002) to upgrade and attain SPDES effluent limitations. A facility-wide evaluation report was completed in December 2002. Estimated to cost $1.5 million, a two-year phased construction schedule is 8% complete. The modernization will address headworks and equalization tank upgrades with associated piping.

Peekskill, New York (Westchester County)

Projects in Progress

The installation of Automation Phase II has been under way since early 2002 and is now 90% complete. This phase will increase operator control via a SCADA telemetry control system. Ongoing construction and installations are estimated to cost $1.25 million. Performance maintenance ($1.8 million), an O & M procedure to maintain and extend the life of existing treatment units, is continuing.

Future Project

Estimated to cost $40 million, odor controls will be installed for the headworks which will be housed in a dedicated building. Construction is planned to begin during 2005.

In order to address wastewater flows that impact potable water supplies in the Croton watershed in upstate New York, preliminary studies have determined that this facility could be expanded to 15 MGD. The facility expansion would require extensive tankage to properly treat additional flows; facility grounds are available for these additional units. The diversion of waste flows (~2 MGD) would originate from the towns of New Castle and Yorktown. Final plans and alternatives, i.e., upgrading the existing antiquated facilities, have yet to be determined.

Port Chester, New York (Westchester County)

Projects in Progress

Facility-wide performance maintenance to maintain and extend the life of existing treatment units, as well as to replace outdated equipment, is under way. Phase I addresses headworks, primary settling tanks, secondary clarifiers, and odor controls. Concurrently, the variable frequency drives for the influent and effluent pumps are being installed. Phase II ($4.5 million) construction is 95% complete.

The Commission is coordinating and addressing oversight for a multi-agency pathogens track down investigation in the Byram River. IEC field staff discovered dry weather discharges to the river during 2003. Continued surveillance, laboratory analysis and data sharing were maintained throughout 2004. During the winter/spring season, inland tracking for dry weather flow and illegal hook-ups was jointly conducted by IEC and Westchester County Department of Health.

The Village of Port Chester's consulting engineer has recommended alternatives to correct sanitary sewer crossover to the storm drainage system: cleaning, televising with subsequent point repairs and sewer main lining, where necessary; and continued surveillance for the removal of illegal sewer connections. Refer to the Ambient Water Quality Cooperative Studies section for a detailed report.

Future Project

The facility-wide performance maintenance project will enter Phase III during January 2006. The 15-month modernization is estimated to cost $6.5 million.

Port Richmond, New York (Richmond County)

Future Project

The Port Richmond and Oakwood Beach WPCPs are the subject of a joint facility planning effort initiated in 2001. As part of this effort, approximately $6 million in priority rehabilitation needs have been identified in advance of completion of the long-term facility plan. Priority improvements will include plans for the upgrade of the two Richmond County facilities and their pump stations within the context of system-wide planning, while addressing excessive infiltration and inflow in the sewer drainage areas, personnel facilities, structures, storage requirements, communication and personnel safety issues. Although no major upgrade is definitely planned, worn out equipment will be replaced, as needed.

See the Bowery Bay and Oakwood Beach write-ups for information on City-wide

and borough-wide projects.

Port Washington, New York (Nassau County)

Completed Project

Completed during August 2004, collection system upgrades included the installation of 4,000 linear feet of six-inch diameter (6"Ø) force main. This work had a final estimated cost of $500,000.

The Port Washington Water Pollution Control District is undertaking a nitrogen removal demonstration project by utilizing existing tankage to create separate nitrification/denitrification zones to demonstrate nitrogen removal. The construction of the pilot project was completed and has been denitrifying about 1 MGD of the plant's wastewater since 2002. In early 2003, the District was selected to receive an $11 million grant from the 1996 Clean Water/Clean Air Bond Act for the BNR upgrade. Based on the results of effluent quality, the plant is currently meeting the August 2004 nitrogen loading limit.

Projects in Progress

During 2004, the District received a $291,125 grant, under the auspices of the 1996 Clean Water/Clean Air Bond Act, to provide additional upgrade to the pilot BNR project with a goal of improving process control. Work has started recently and is expected to be completed in early 2005**.**

Future Projects

Rescheduled to begin during the fall season of 2004, refurbishing of two pump stations and plant-wide repairs and preventive maintenance, such as roofing and various architectural replacements, are being addressed. Costs are re-estimated at $1.5 million.

Red Hook, New York (Kings County)

Projects in Progress

Continuing experiments include the incorporation of a degritting machine in the solids handling facility, the utility of portable generators, and fuel cell efficiency.

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

Rockaway, New York (Queens County)

Completed Projects

Reconstruction of the heating and ventilation system, at a final cost of $1.548 million, is 100% complete. A stabilization facility plan for interim upgrades is anticipated to be complete during December 2004.

Future Project

A dual-phase digestion pilot project which began during 2001, will restart after odor control systems are in place.

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

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

Completed Projects

Thirty RBCs were replaced with new units and 60 RBCs were rehabilited and were on-line during October 2004 at an approximate final cost of over $3.55 million. At an estimated final cost of $676,600, an old motor control center was replaced and upgraded with electrical tie feeders.

Projects in Progress

The first construction contract began during the 2004 fall season 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. Construction is re-estimated to cost $50 million.

Under way since November 2002 (40% complete), sanitary sewer extensions and repairs are being performed in the towns of Clarkstown and Ramapo, as well as the Villages of New Square and Spring Valley. An estimate of $12.5 million was made for all infrastructure improvements. Additional sewer rehabilitation involving cleaning, televising, sealing and grouting will cost over $499,000.

Under way since April 2004, the modernization of this 28.9 MGD secondary facility includes replacement of debilitated treatment units and a new SCADA system. Estimated costs are $5 million.

Future Project

Planned to begin during June 2005, construction of a new advanced treatment facility to serve western Ramapo will incur costs of $47.7 million.

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

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. The facility is in compliance with all Order dates.

An in-house water quality assessment of Port Jefferson Harbor is ongoing. An engineering report for reconstruction of the plant was approved by NYS DEC. All financial and technical approvals have been obtained. This expansion will address the LISS Phase III nitrogen reduction targets. NYS CW/CA Bond Act grants now total $12.2 million.

The replacement of various gravity sewer lines throughout the collection system is ongoing. Installations of these new sewers will eliminate I/I problems. The scope of this project will also expand and rehabilitate the existing infrastructure.

Future Projects

Already approved by NYS DEC, additional treatment units will be added to accommodate any additional flow requests from commercial and residential developments. Preliminary treatment designs propose the use of a tertiary process with a flow capacity of 1.0 MGD.

Rescheduled to begin during 2005 with a two-year schedule, sequencing batch reactors (SBRs) will be 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. The re-estimated $20 million project will incorporate UV disinfection and a grant of 85% of the eligible construction cost from the NYS CW/CA Bond Act has been awarded.

Collection system improvements will include the rehabilitation of manholes and sewers to minimize I/I impacts. This work is planned for 2005 and will be accomplished with in-house staff; estimated expenditures are $300,000.

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

Projects in Progress

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 a sludge dewatering and disposal system, evaluating the outfall pipe, and assessing grit handling improvements. Once funding is in place, RFPs will be posted for the design of an influent odor control system and a fire suppression system. The evaluation of process modifications is 50% complete ($900,000). Once construction starts, a phased agenda was re-estimated to cost $125 million.

The laboratory expansion and rehabilitation is 80% complete and will accrue costs of about $2.5 million.

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 May 2005. The facility is in compliance with all Order dates.

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

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. The facility is in compliance with all Order dates.

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. Phase I construction of the SBR tanks is estimated to cost $2.3 million and was recently completed. Electrical contracts will be let in 2005 and operations are anticipated to be on-line by the end of 2005.

Future Project

Additional construction is anticipated to begin during 2005 on an $8 million equipment renovation. Phase II will include the installation and construction of the UV disinfection and sludge thickening systems. Bids are being reviewed for the outfall pipe stabilization. Safety equipment upgrades will be addressed on a priority basis.

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

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 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 is being awarded for an engineering report and design documents for BNR, capacity expansion, and effluent reuse alternatives, including discharging a portion of the treated effluent to groundwater. A CW/CA Bond Act grant was awarded for $12 million.

Future Project

Construction of sequencing batch reactors is planned for increasing the plant capacity by 0.5 MGD to a total design of 3 MGD. This expansion will enable this facility to comply with the LISS nitrogen loading requirements. Although no construction start-up date has been set, estimates for the work are $15.6 million.

Tallman Island, New York (Queens County)

Completed Projects

Four engineering studies were completed during mid-year. Among the experiments were chemical addition to the digesters for struvite (a mineral deposit) prevention, in situ ammonia metering, evaluation of various DO probes, and in situ nitrox meters.

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 project's initiation, 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.

Phase I is the only phase with a defined scope of work. This phase 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 $147 million and is budgeted for FY 2005.

Several engineering experiments are under way to investigate the benefits of polymer addition for sludge thickening enhancement, surface washing of aeration tanks to eliminate froth buildup, automated chlorine control, and the evaluation of the effects of nitrification on chlorine demand.

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 East River. A 28-million gallon underground reinforced concrete storage tank will achieve this objective by 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.

At the present time, four of the five construction phases are complete. Phase IV construction started on March 11, 2002, and is scheduled to be complete in December 2005. This phase includes 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.).

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

Future Projects

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 will commence 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.

Phase III includes BNR enhancement work including methanol addition and

centrate treatment. This phase is estimated to cost $23 million and will take three years to construct. At the present time, construction is scheduled to commence in 2006.

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 to be complete in June 2006. 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 will begin during August 2005 and is estimated to cost $9.1 million. Finally, a permanent ecological restoration of approximately 14 acres within Alley Park includes planting of trees and other vegetation, as well as the creation and restoration of wetlands (Stage 3). The restoration will include the planting of approximately 850 trees; 3,100 bushes and groundcover plants; and 109,000 wetland planting plugs. This final stage will begin during December 2005 and is estimated to cost $8 million.

The ORSTS will consist of a wetlands treatment system to be constructed in Oakland Ravine to provide primary and secondary treatment of stormwater. The treated effluent will be discharged into Oakland Lake, and ultimately into Alley Creek through the existing outfall sewer. Construction has been deferred beyond the current Ten-Year Capital Plan. However, NYC DEP is in discussions with the New York City Department of Parks and Recreation regarding the development of a scaled-down alternative with an accelerated implementation plan.

26th Ward, New York (Kings County)

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. The Hendrix Street Canal bulkhead will be reconstructed to provide a stable grade and prevent loss of fill from the areas of the plant adjacent to Hendrix Creek, a tributary of Jamaica Bay. The bid price for this phase is $6.23 million. This phase includes installation of new steel sheeting directly in front of the existing sheeting for the entire 1,800 linear feet of existing bulkhead, and construction of a new concrete cap. In addition, replacement of the existing floatables collection boom is necessary, as well as a new floating barge for floatables removal and a new hoisting system to load the container onto disposal trucks.

Several engineering studies are ongoing 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, the nitrogen series and the sludge thickener blanket.

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 13 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 new emergency generator. In addition, construction of a new odor control building and a new scavenger waste manhole are necessary. Construction started in February 2003, and is anticipated to be complete during June 2006. The total construction cost is $82 million.

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

Future Projects

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. In addition, 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 was bid in September 2004 and the low bid was $16,926,750. Construction work for this project will commence sometime in early 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 rotating assemblies

of the main pumps, 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. The estimate is approximately $80 million and is expected to be advertised in late 2004 for registration in FY 2005.

Wards Island, New York (New York County)

Projects in Progress

Engineering studies and experiments under way since 1998 focus on aeration tankage evaluations, sludge age, polymer additions and enhancements, several froth control alternatives and biological centrate treatment.

The Wards Island 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 SPDES permit requirements and Consent Orders. The construction work included in Phase II commenced during September 2002. This phase includes the rehabilitation of the Manhattan and Bronx Grit Chambers. In addition to providing an architectural renovation for each facility, the grit handling process will be automated. At each location, the electrical system, including the emergency generators, will be upgraded and equipment replaced as needed. Lastly, this phase will include odor control systems to treat the odorous off-gasses from the channel surfaces. The bid price for this work was $91 million.

Future Projects

Phase III previously included all work necessary to provide reliable service for the solids handling facility for 20 years. Due to budget constraints, this work has been deferred until 2010. As an interim measure, a re-estimated $41.5 million phase was designed to stabilize the solids handling facility. Improvements to the thickeners, gas handling system, and gas holder were included. It is anticipated that construction on these improvements will commence in 2005 and require four years to complete.

BNR related improvements, as well as other stabilization improvements, will be implemented under Phase IV. BNR improvements — such as new process air blowers, separate centrate treatment, chemical addition systems, aeration tank improvements, and new RAS pumps — are included. Under the upgrade program, process improvements such as skimmings collection, gate replacement, settling tank mechanical equipment, and concrete repair will be performed. This phase is re-estimated at $210 million and is expected to start in FY 2005. Existing Consent Order requirements mandate BNR

completion and operation by December 31, 2009.

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

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

Projects in Progress

Facility-wide, construction upgrades and equipment installations are under way. Modernization improvements include dewatering facilities, primary boiler system additions, primary gravity thickeners, grit removal facilities and odor controls for sludge storage, and replacement of sludge collection and process equipment. Phase II Automation will finalize the remote plant-wide data gathering capabilities and plant process monitoring. Collectively, these projects have been re-estimated to cost $23 million and are 90% complete.

A collection system rehabilitation program has been ongoing since 2000. This $40 million renovation is 85% complete.

Future Projects

Anticipated to begin construction during 2004, a new maintenance and storage building with a fire suppression system will be installed. Re-estimated to cost $17.5 million, main facility upgrades include a skimming system for the final tanks, HVAC rehabilitation in the screen and grit building, and improvements to the primary digester system. In addition, the Hudson River bulkhead will be repaired. A construction start-up date has not been determined.

AMBIENT AND EFFLUENT WATER QUALITY MONITORING

Throughout 2004, the Commission conducted extensive compliance monitoring programs of municipal and industrial wastewater discharges. Ambient water quality surveys were conducted to document hypoxia, to measure pathogens in stormwater runoff, and to perform pathogens track down in IEC's tri-state District. The Commission's laboratory performs analyses on samples collected at wastewater treatment facilities, industrial complexes, stormwater outfalls, and 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 any illegal discharges and take steps to have them remediated.

The Commission again conducted weekly sampling to document hypoxic (low dissolved oxygen) conditions in western Long Island Sound and the upper East River, with 2004 being the 14th 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 Long Island Sound Study and was conducted from July through mid-September in cooperation with several other agencies. Through agreements with CT DEP, IEC collected and delivered surface water samples to the University of Connecticut (UCONN) for chlorophyll a analysis.

The Commission participated in the second World Water Monitoring Day which grew out of the 2002 National Water Monitoring Day; IEC has participated in this undertaking since 2002. Aboard the R/V Natale Colosi, 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. 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 by connecting to www.worldwatermonitoringday.org.

During the 2003-2004 winter season, IEC participated, for the ninth consecutive winter-spring season, in a cooperative effort with the NJ DEP and US EPA; the Commission's field staff collected surface water samples for the assessment of the sanitary conditions of shellfish beds in western Raritan Bay. The Commission plans to continue reactive sampling in western Raritan Bay during the 2004-2005 winter and spring seasons. When necessary, IEC will continue to respond to emergencies within its District.

The Commission continued to support a data need of the HEP's Pathogens Workgroup. IEC completed a three-phase ambient and effluent water quality monitoring program between July and November. The project plan included (1) comparing two EPA-approved methods for laboratory analysis of pathogens; (2) monitoring for pathogens at stormwater outfalls; and (3) monitoring treatment facilities for pathogens. All ambient and effluent samples were collected for analysis by

the IEC laboratory for fecal coliforms, total coliforms, fecal streptococcus and enterococcus. This unique data set represents information on intrastate and interstate waterways. It will be used for state and interstate water quality assessments, model calibrations, and TMDL development.

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.

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 discharge permit. 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 with US EPA.

In 2004, in addition to conducting unannounced effluent surveys, the IEC began a cooperative program with NYS DEC - Region 2, whose area is 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.

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 conjunction 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 in prestigious environmental forums and have been involved with students enrolled in the CES Masters Degree program.

SPECIAL INTENSIVE SURVEYS

2004 Ambient Water Quality Monitoring in Long Island Sound to Document Dissolved Oxygen Conditions

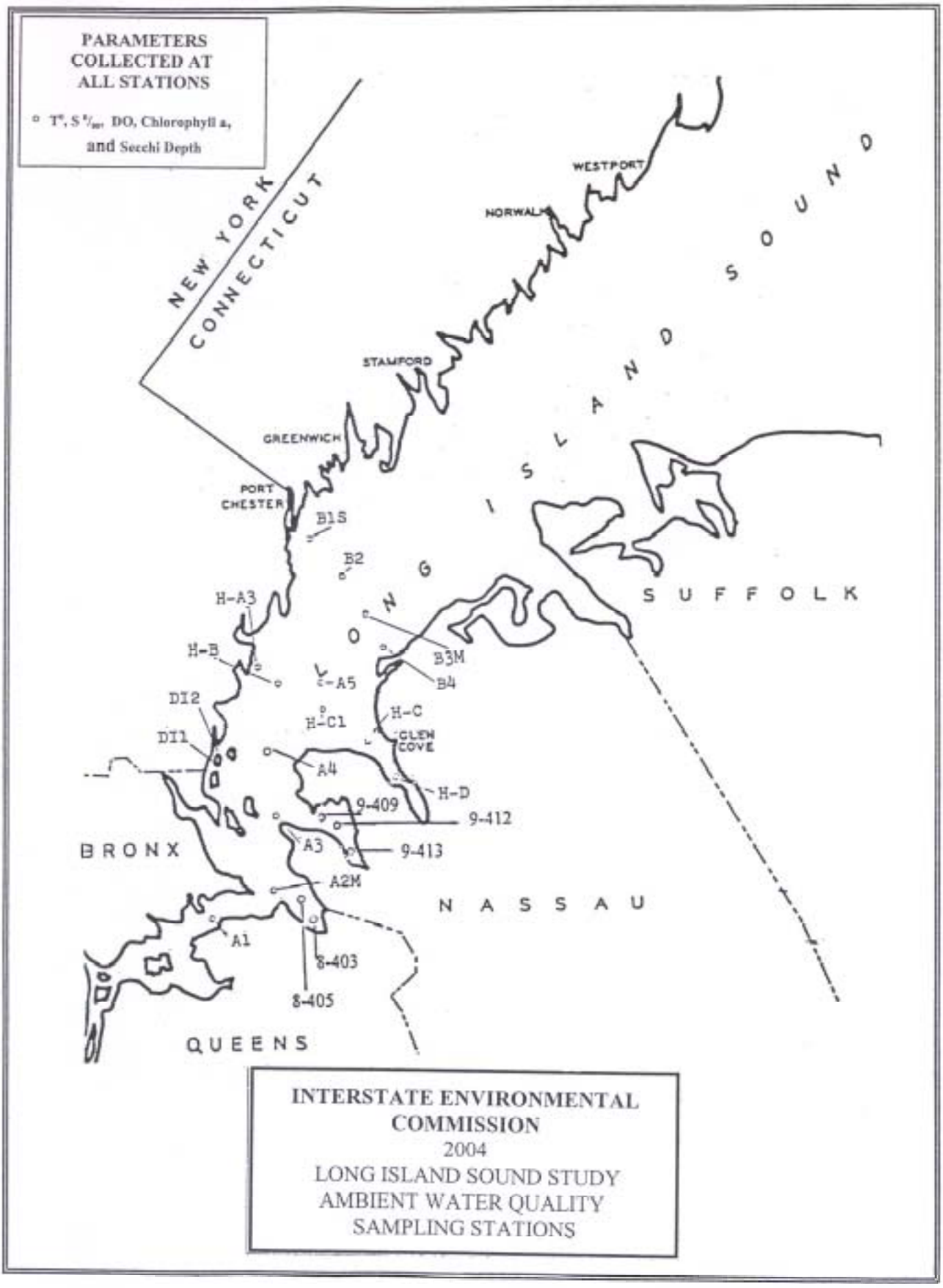
With an ongoing need to document the hypoxic conditions in Long Island Sound and its embayments where the majority of primary recreational activities take place, US EPA - Region 2 again requested that the Commission conduct an intensive ambient water quality survey in support of the Long Island Sound Study during 2004. For the 14th 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.

The Commission is an active participant on the Long Island Sound Study Monitoring Workgroup. It is this Workgroup that determined and agreed to station locations, parameters, methodologies, QA/QC, data sharing, etc. A map and a listing of the 2004 station locations are on the following pages. A subset of these ambient water quality stations (those marked with an asterisk) were monitored on September 27th for the World Water Monitoring Day data set.

As part of the LISS cooperative effort, CT DEP 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 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).

A lack 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 cruises, 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, Division of Marine Resources, requested the Commission to assist and respond to fish kills. During the 2004 summer season, there were no reported fish kills in Long Island Sound.

The 2004 survey consisted of 12 weekly sampling runs conducted from June 28th through September 13th. The ambient network of 21 stations was sampled weekly and in situ measurements


PARAMETERS COLLECTED AT ALL STATIONS
° T°, S ‰, DO, Chlorophyll a, and Secchi Depth
NEW YORK
CONNECTICUT
WESTPORT
NORWALK
STAMFORD
GREENWICH
PORT CHESTER
B1S
B2
H-A3
H-B
B3M
B4
A5
DI2
DI1
H-C1
H-C
GLEN COVE
A4
H-D
9-409
9-412
A3
9-413
A2M
BRONX
NASSAU
SUFFOLK
A1
8-403
8-405
QUEENS
LONG ISLAND SOUND
INTERSTATE ENVIRONMENTAL COMMISSION
2004
LONG ISLAND SOUND STUDY
AMBIENT WATER QUALITY
SAMPLING STATIONS

INTERSTATE ENVIRONMENTAL COMMISSION

2004 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 27, 2004.

were made for 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 third consecutive year, the measurement of water clarity or Secchi depth was collected. A Secchi disk is lowered overboard until it disappears, raised until it appears which equates to the vertical transparency or distance below the water surface that light penetrates. Secchi depth measurements ranged from 0.3 to 3.0 meters. In general, measurements in the embayments were less than 1 meter while open water stations had better clarity with values greater than 2 meters. Clarity on the surface does not necessarily equate to good vertical or horizontal visibility on the bottom.

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 Environmental Research Institute at UCONN. To ensure consistency amongst the agencies, the Environmental Research Institute at UCONN also analyzed the samples collected by NYC DEP and CT DEP. Chlorophyll a values ranged from 2.1 to 86.7 ug/l. The lowest values were observed in the open waters, specifically the East River (2.1 to 20.3 ug/l) and the highest values in the embayments. 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 LISO, 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, 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 aquatic life. According to IEC Water Quality Regulations, a waterbody classified as "Class A" (as are all the stations included in this IEC survey) must have a minimum dissolved oxygen content 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, but has not yet issued its proposed revisions to its ambient water quality standards. 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 statistical representation of the dissolved oxygen data acquired during the 2004 ambient water quality monitoring in Long Island Sound is shown on the pie chart entitled "2004 Dissolved

Oxygen Monitoring". Measurements of dissolved oxygen concentration in both surface and bottom waters are separated and grouped in three categories. Dissolved oxygen concentration values 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 concentration values 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 aquatic life. While there were hypoxic conditions in the surface waters of the Sound in 1997, there were none in 1998, 1999 or 2000. This summer, 2004, marks the fourth consecutive year since the 1997 summer season that hypoxic conditions were measured in the surface waters of the Sound; the extent was the least during 2003. For all stations, the surface water range of dissolved oxygen was 1.0 to 11.1 mg/l. The waters of western LIS, which tend to be stratified, were well mixed, but hypoxic. This surface low was recorded on September 7th, seven weeks later than the recorded surface low during 2003, and recovered slowly through the rest of September. Bottom waters ranged from 0.1 to 7.1 mg/l. These extremely low values were recorded all summer long; very similar conditions were observed during 2003. Interestingly, there were no fish kills — possibly a total avoidance of the hypoxic waters. Nonetheless, recreational fishing in western Long Island Sound was excellent for fluke, black seabass, bluefish, porgy, striped bass, and weakfish.

The 2004 monitoring season proved to be similar to 2003. The 2003-2004 winter season was extreme. Sustained freezing temperatures from January through early February and nearly 30" of snow in the Metropolitan Area made for challenging ambient monitoring. Heavy ice floes kept fishing fleets in port along the entire eastern seaboard of the United States. Ferry service in the New York-New Jersey Harbor Complex was hampered and/or suspended by ice. Heavy isolated rain storms were the norm each month. July and September were very wet with rains totaling nearly 20" for these two months.

As shown on the pie charts depicting 2003 and 2004 monitoring data, the condition of the surface waters were worse during 2004 than in 2003. The 2004 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 55.6%, 35.3% and 9.1%, respectively. In the same category order, the results of the 2003 survey were 78.4%, 18.7% and 2.9%, respectively. The weather patterns for 2004 were more harsh than typical, but similar to the previous year — a very cold, wet winter followed by a wet, cool spring season and continued with a wet, humid summer. Interestingly, only 2 days with ambient temperatures at or above 90^0F were recorded.

Based on the percentage of hypoxic readings, the bottom waters of the Sound were considerably worse in 2004 as compared to 2003. As displayed in the bottom half of the pie chart entitled "2003 and 2004 Dissolved Oxygen Monitoring," the 2004 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*

INTERSTATE ENVIRONMENTAL COMMISSION

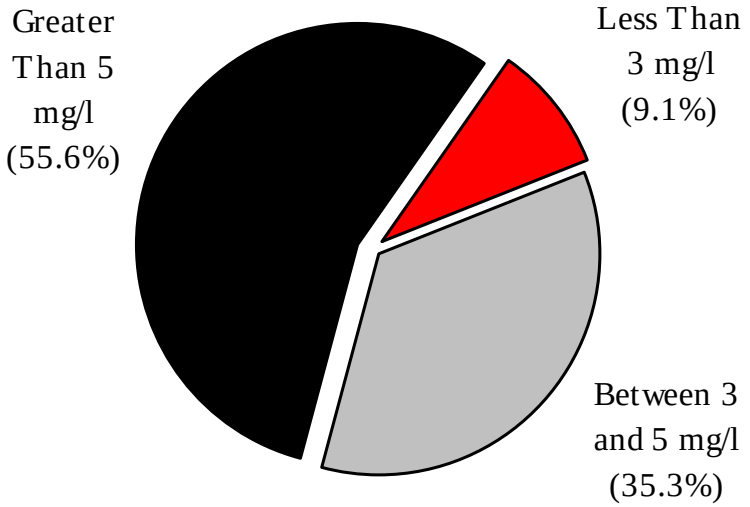
LONG ISLAND SOUND STUDY

2004 DISSOLVED OXYGEN MONITORING

SURFACE AND BOTTOM WATERS

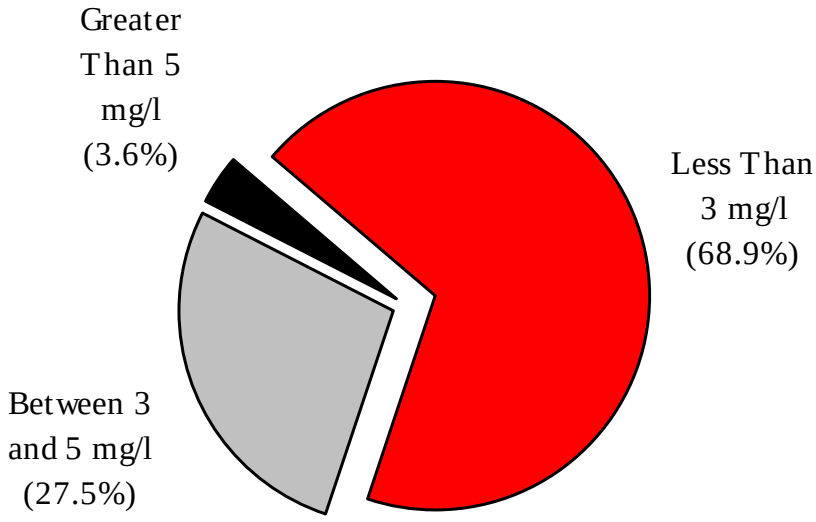
SURFACE WATERS

Range of Dissolved Oxygen Values: 1.0 to 11.1 mg/l



BOTTOM WATERS

Range of Dissolved Oxygen Values: 0.1 to 7.1 mg/l



INTERSTATE ENVIRONMENTAL COMMISSION

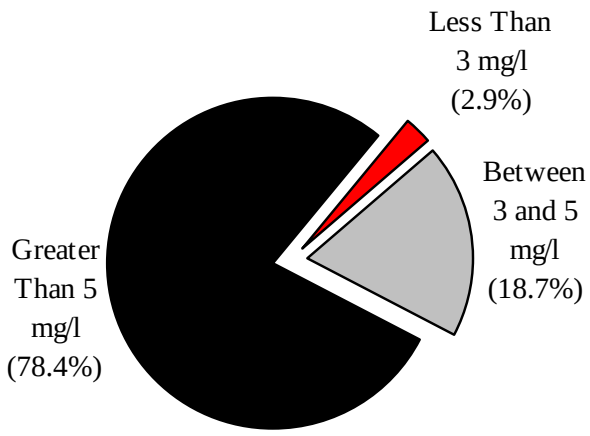
LONG ISLAND SOUND STUDY

2003-2004 DISSOLVED OXYGEN MONITORING

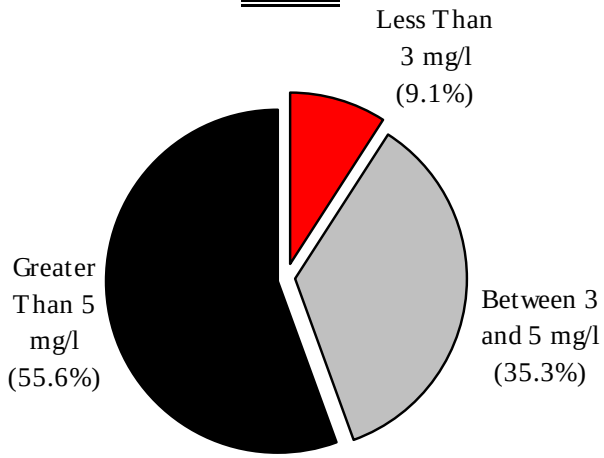
SURFACE AND BOTTOM WATERS

SURFACE WATERS

2003

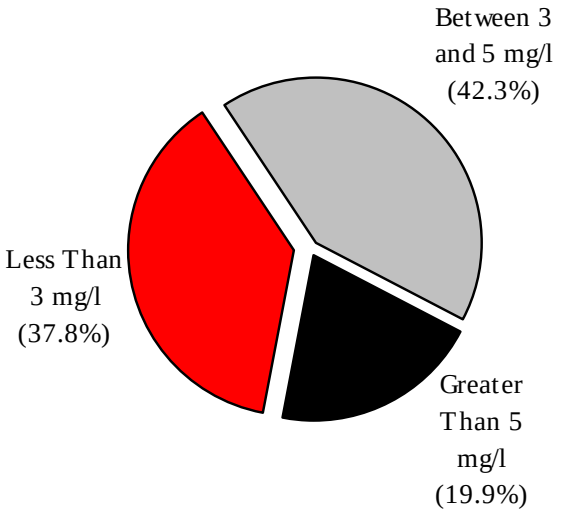


2004

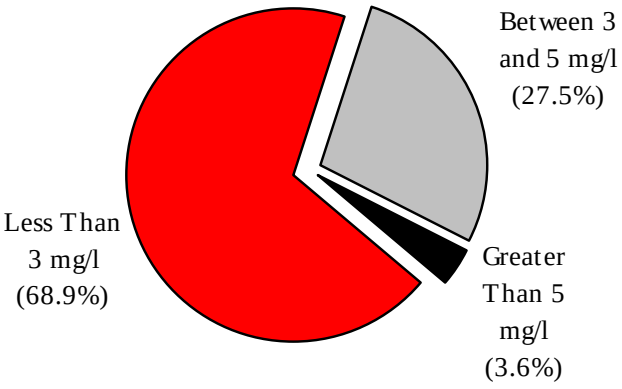


BOTTOM WATERS

2003



2004

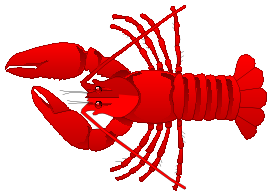


are 3.6%, 27.5% and 68.9%, respectively. In the same category order, the bottom water results of the 2003 survey were 19.9%, 37.8% and 42.3%. Many different natural and anthropogenic factors (water pollution, municipal water pollution control programs, weather, circulation pattern changes, proliferation 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 stations between weekly sampling dates is shown on the graph entitled "Surface and Bottom Waters: Average and Range of All Stations Sampled". The average, 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 2004 sampling; this is the fourth 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 2004, hypoxic conditions were also observed in bottom waters throughout the summer season.

The bottom water dissolved oxygen concentrations remained low from June 28th to its lowest value of 0.1 mg/l on August 23rd. These values reflect extreme hypoxic conditions. Bottom water DO concentrations slowly recovered with the high winds associated with the active hurricane season. Throughout the summer, depressed conditions were observed in Little Neck Bay, Manhasset Bay and Hempstead Harbor. Very light winds were the norm; very little surface mixing and aeration occurred until mid-September with the arrival of a succession of hurricanes.

A slow recovery of lobster in western Long Island Sound was observed this year. 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 2004 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. Although a parameoba may be one cause of lobster mortality, there are other contributing stress factors including, but not limited to, climate, water temperature, hypoxia, fishery management, predation and commercial fishing impacts. In recent years, LIS lobsters have been afflicted by disease outbreaks and deaths.



In July 2000, Congress approved an emergency appropriation of $13.9 million for economic assistance. Of this amount, $7.3 million was authorized for financial assistance to fishers, and $6.6 million was authorized for the National Oceanic and Atmospheric Administration, to be administered by the National Marine Fisheries Service, New York and Connecticut Sea Grant, for research. During the October 2004 annual Lobster Health Symposium, 17 research teams from seven states presented three years of results that points to above average water temperatures, hypoxic conditions and hurricane induced heavy rains leading to stress factors causing lobster mortality. Investigations of pesticides sprayed for West Nile virus found that the concentrations in the ambient waters would need to be much higher to directly cause mortality, but can be considered additional

INTERSTATE ENVIRONMENTAL COMMISSION

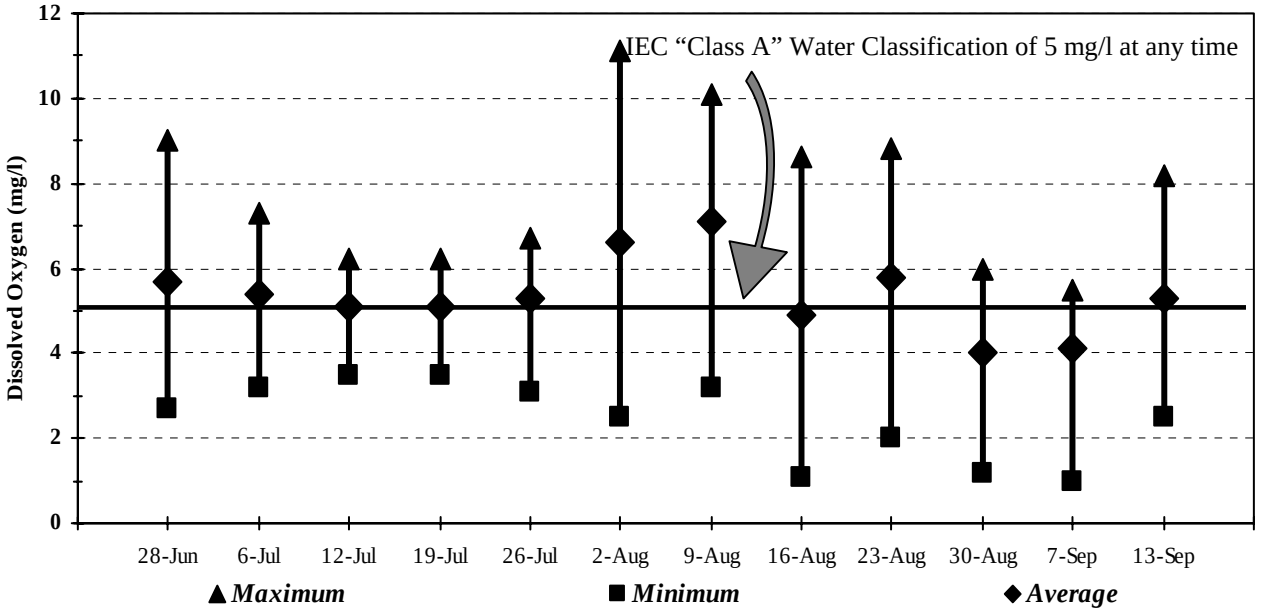
LONG ISLAND SOUND STUDY

2004 DISSOLVED OXYGEN MONITORING

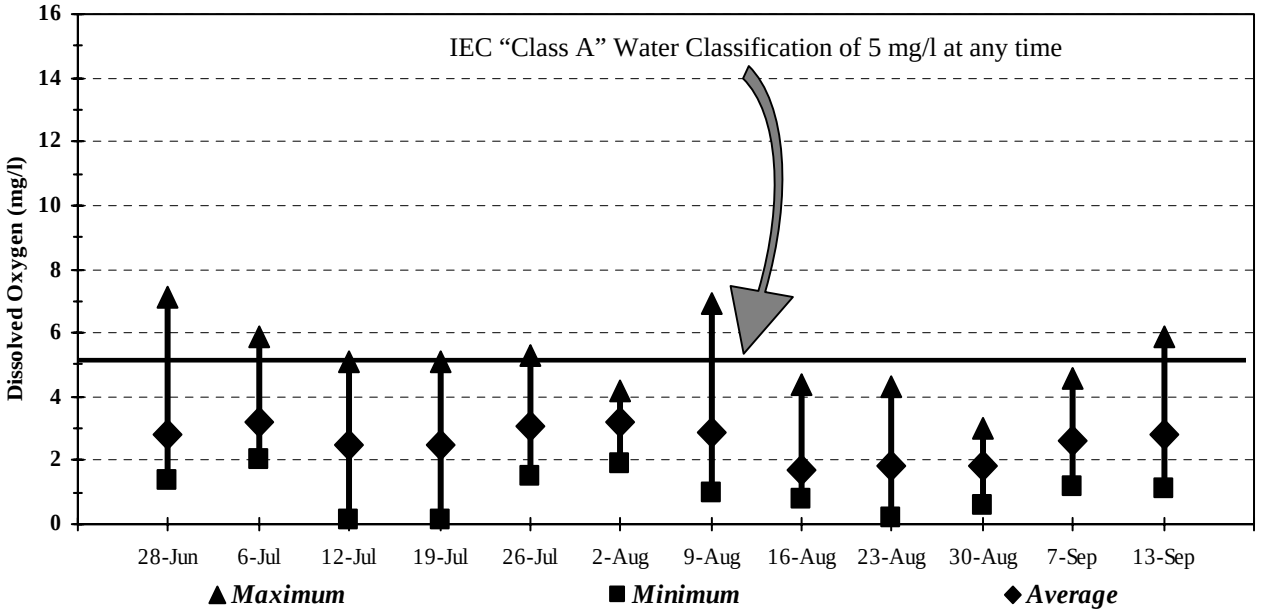
SURFACE AND BOTTOM WATERS:

AVERAGE AND RANGE OF ALL STATIONS SAMPLED

SURFACE WATERS



BOTTOM WATERS



stress factors. Research dealing with disease and responses to stress in lobsters showed a threshold temperature of 20.5^0C; 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, "2004 Monthly Bottom Water Temperature Distribution in Long Island Sound" illustrates the temporal extent for temperature at all monitoring stations from west to east. In situ measurements of bottom temperature recorded during 2004 were 15.4^0C to 21.2^0C in July; 19.8^0 C to 23.7^0C in August and 19.9^0 C to 23.0^0C in September.

2003-2004 Microbiological Surveys in the Shellfish Harvesting Waters of Western Raritan Bay

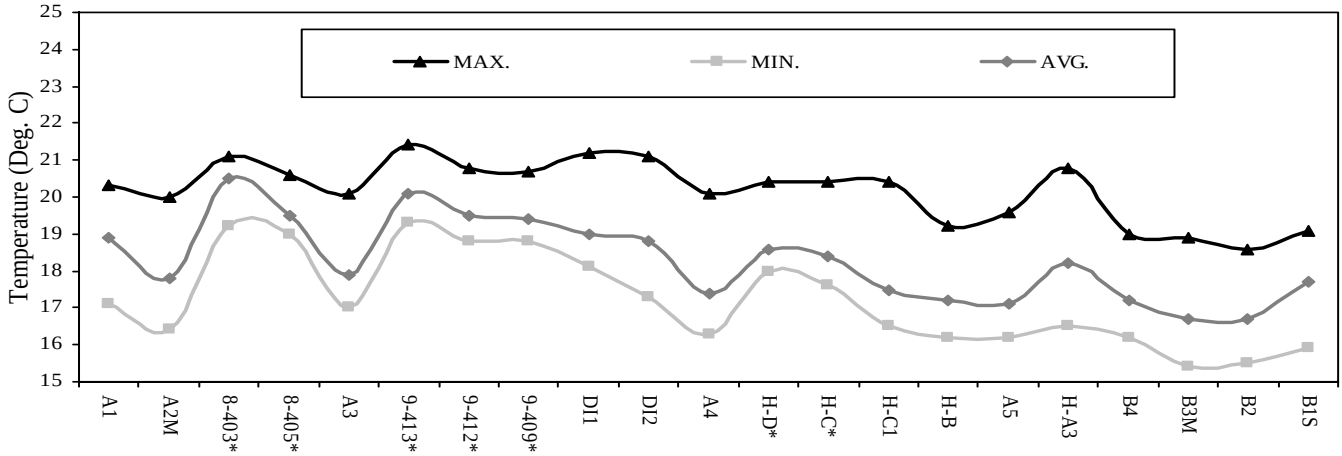
The New Jersey Department of Environmental Protection, Bureau of Marine Water Classification and Analysis (BMWCA), regularly conducts ambient water quality monitoring of the State's shellfish harvesting beds. In order to meet the increasing demands for sampling that the shellfish industry has requested, accompanied by a shortfall in staffing, the BMWCA requested the IEC, for the ninth consecutive year, to assist in sample collection in western Raritan Bay during the 2003-2004 winter and spring seasons.

Sampling runs were planned for the purpose of collecting 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. All samples were collected from surface waters at 18 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.

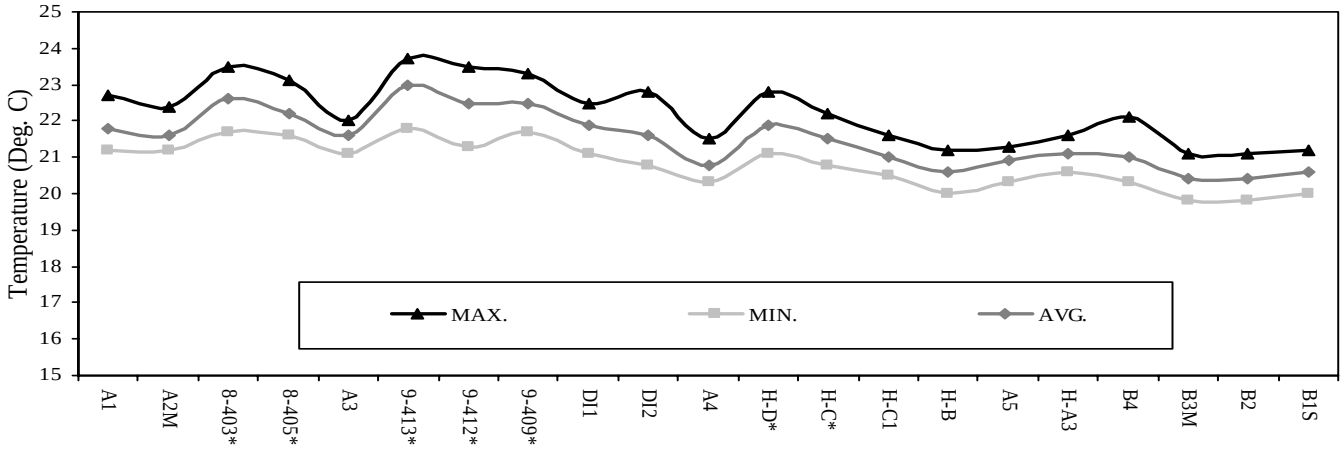
On October 31, 2003, the R/V Natale Colosi was moved to Raritan Bay and berthed at the Leonardo State Marina which is operated by the NJ DEP. From November 21, 2003, until May 4, 2004, all five requested survey runs were completed. Due to the extreme winter conditions, the R/V Natale Colosi was frozen in port during January and February, as was the entire eastern seaboard of the United States. All sample collection, storage and delivery to the US EPA's 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 2004-2005 winter and spring seasons.

2004 MONTHLY BOTTOM WATER TEMPERATURE PROFILES IN LONG ISLAND SOUND

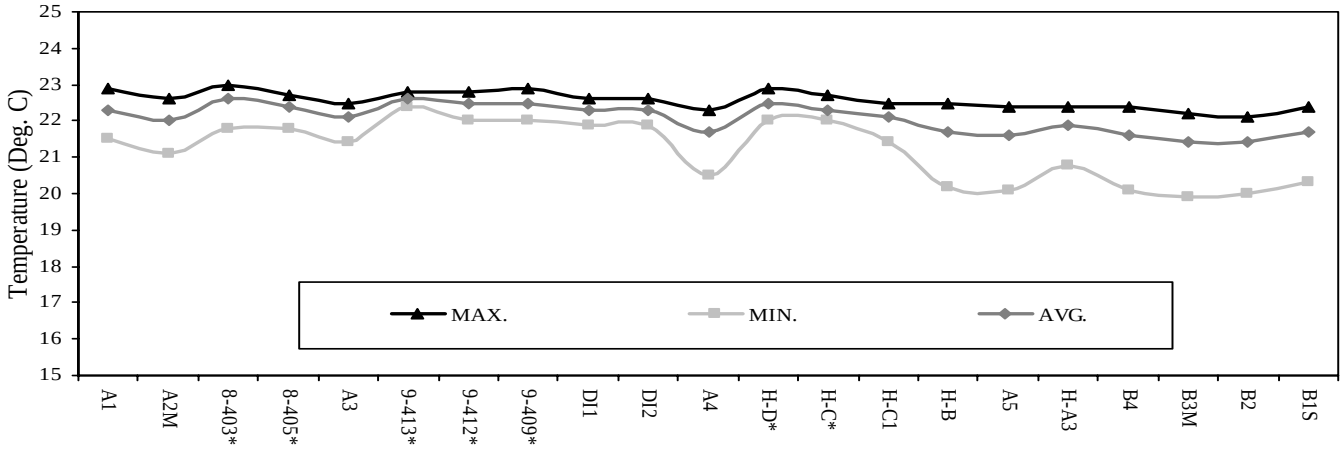
JULY



AUGUST

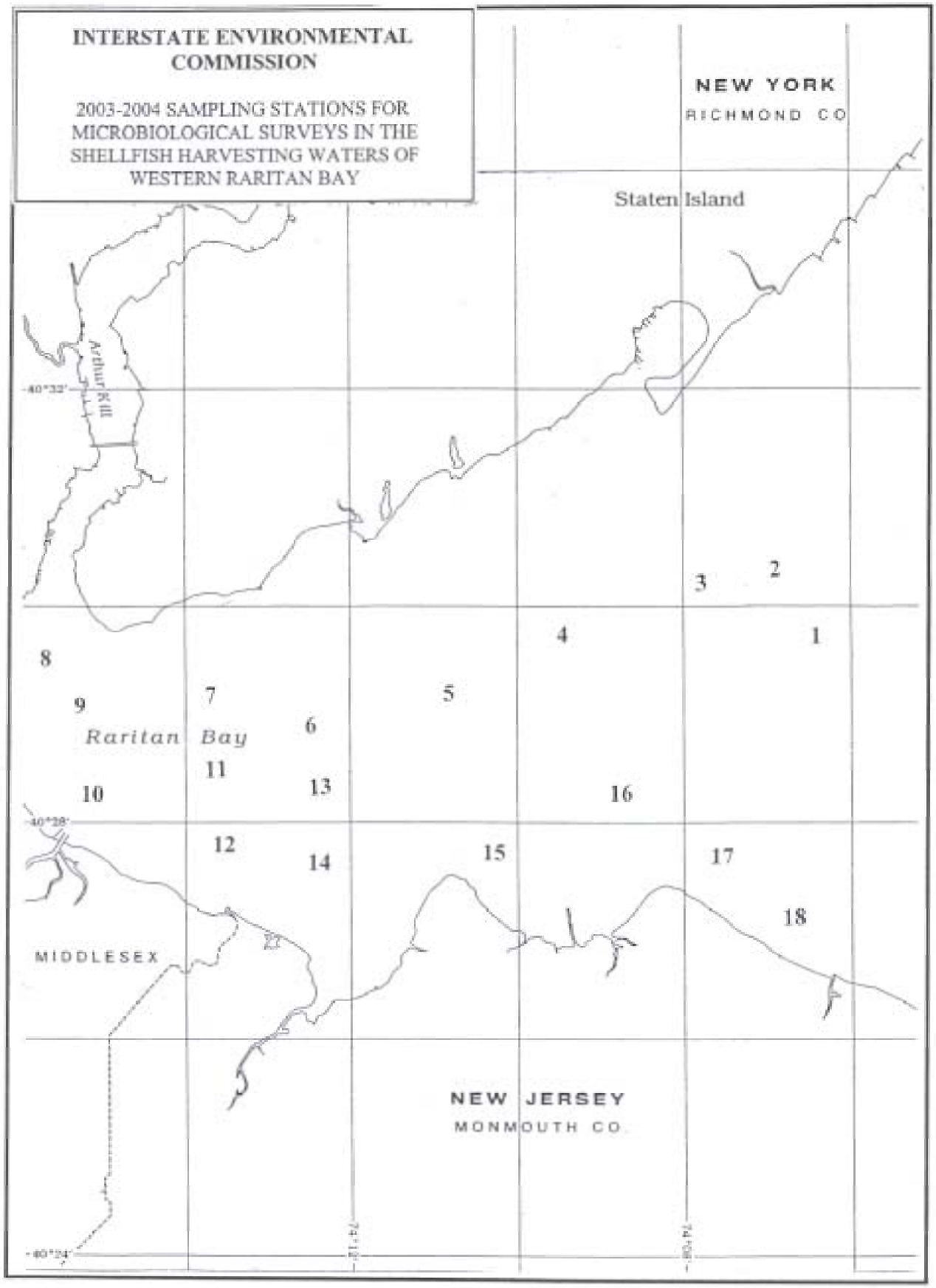


SEPTEMBER



* Stations inside embayments

IEC STATIONS (WEST TO EAST)


INTERSTATE ENVIRONMENTAL COMMISSION
2003-2004 SAMPLING STATIONS FOR MICROBIOLOGICAL SURVEYS IN THE SHELLFISH HARVESTING WATERS OF WESTERN RARITAN BAY
NEW YORK
RICHMOND CO
Staten Island
Arthur Kill
40°32'
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
Raritan Bay
40°28'
MIDDLESEX
NEW JERSEY
MONMOUTH CO
74°12'
74°08'
40°24'

INTERSTATE ENVIRONMENTAL COMMISSION

2003-2004 SAMPLING STATION LOCATIONS FOR MICROBIOLOGICAL SURVEYS IN THE SHELLFISH HARVESTING WATERS OF WESTERN RARITAN BAY

SAMPLE No./ IEC WP	STATION	LOCATION		DESCRIPTION
		LATITUDE NORTH D M S	LONGITUDE WEST D M S	
1/67	50	40-28-40	74-06-42	~0.7 nm south of Can “9"
2/68	10	40-29-23	74-06-58	~0.5 nm west of Can “9"
3/69	29A	40-28-58	74-08-09	~0.5 nm west of Buoy “I”
4/70	28	40-28-45	74-09-23	~1.8 nm north of Union Beach
5/71	26A	40-28-30	74-10-38	~1.1 nm north of Conaskonk Point
6/72	24A	40-28-20	74-11-50	~1.25 nm north of Buoy “7"
7/73	18	40-28-33	74-13-26	~1.0 nm east of Ward Point Daymarker
8/74	20A	40-28-53	74-14-53	~0.4 nm south of Ward Point Daymarker
9/75	20	40-28-20	74-14-45	Cheesequake Creek
10/76	21	40-27-54	74-14-38	Cheesequake Creek
11/77	23	40-28-02	74-13-18	Seidler Beach
12/78	58	40-27-35	74-13-09	Seidler Beach
13/79	56	40-27-56	74-11-41	Keyport Harbor
14/27	61A	40-27-23	74-11-33	Keyport Harbor
15/28	62	40-27-35	74-10-23	Conaskonk Point
16/29	63B	40-27-46	74-09-05	Keansburg
17/30	86A	40-27-28	74-07-42	Point Comfort
18/31	88A	40-27-10	74-06-15	Ideal Beach

2004 Ambient Water Quality Monitoring for Pathogens in the New York-New Jersey Harbor Complex

The NY-NJ Harbor Estuary Program's Pathogens Workgroup (PWG), reactivated in 2000, was charged with determining the data needs to develop, if necessary, a total maximum daily load (TMDL) for fecal coliforms in the NY-NJ Harbor Complex by 2006. With passage of the BEACH Act of 2000, the Act required another indicator organism of bathing beach quality to be used. In the tri-state region, little or no information existed as to the ambient concentrations of this organism, enterococcus.

As a member of the PWG, IEC has performed and completed field data collection surveys from land and sea between 2001 and 2003. Ambient water quality data was collected at over 60 ambient stations during dry and wet weather to establish a database for enterococcus. Effluent samples were collected from over 30 treatment facilities throughout the IED and analyzed for enterococcus at the IEC laboratory. The effluent monitoring was conducted during the Commission's routine unannounced compliance monitoring. The need for the characterization of New Jersey runoff loads for the pathogens impact on the Harbor Complex was a major missing data element.

Much discussion transpired at several PWG meetings as to data needs and methodology. Through consensus and input from modelers, these issues were resolved. The first issue addressed was the microbiological analytical method to use. The PWG performed a literature search and found three US EPA approved methods: Membrane Filtration, Multiple Tube Fermentation and Enterolert. There are currently two approved methods used by agencies in this region for microbiological analyses: Multiple Tube Fermentation (MPN) and Membrane Filtration (MF). NYC DEP, New York City Department of Health (NYC DOH) and New Jersey Harbor Dischargers Group (NJHDG) use the MF method; the MPN method is used by IEC. Since HEP is using information that has been generated by both methods, HEP requested that the results for both methods be compared.

With IEC taking the lead, a multi-agency, multi-phase plan was devised. Phase I, *Split Sampling Study for Microbial Analyses (MPN vs. MF techniques) for the New York-New Jersey Harbor Estuary Program (NY-NJ HEP)* was conducted between May and July, 2004. To assess and compare relatively clean and polluted waters, marine ambient waters and wastewater samples were collected at Midland Beach, Staten Island, New York, and at the Port Richmond WPCP, respectively. A map on the following page shows the general locations of these monitoring points. These sites were chosen for their proximity to the IEC laboratory, which is also located on Staten Island. The approved plan called for four rounds of sampling and each round would consist of four samples to be to be analyzed for fecal coliform, total coliform and enterococcus. NYC DEP collected the samples, split them and delivered each set to the IEC laboratory and its own laboratory located on Wards Island. IEC analyzed its samples by the MPN method and NYC DEP analyzed its samples by the MF method. After completion of the work, the results of the two methods were compared and are considered to be within acceptable ranges of each other.


MONITORING SITES
AMBIENT
STORMWATER
WPCP
NEW YORK
NEW JERSEY
ROCKLAND CO.
Tappan Zee Bridge
WESTCHESTER CO.
PASSAIC CO.
BERGEN CO.
Oradell Dam
MORRIS CO.
Dundee Dam
BRONX
Long Island Sound
ESSEX CO.
Passaic River
Hackensack River
HUDSON CO.
MANHATTAN
QUEENS
UNION CO.
Newark Bay
Upper New York Bay
BROOKLYN
Rahway River
STATEN ISLAND
Jamaica Bay
MIDDLESEX CO.
Lower New York Bay
Raritan River
Sandy Hook-Rockaway Transect
Raritan Bay
NEW YORK BIGHT
Sandy Hook Bay
MONMOUTH CO.
Navesink River
Swimming River Dam
INTERSTATE ENVIRONMENTAL COMMISSION
STORMWATER AND WPCP MONITORING FOR PATHOGENS IN THE NEW YORK-NEW JERSEY HARBOR COMPLEX
2004

Phase II and Phase III were contained in the approved QAPP, *Microbiological Content of Stormwater and POTW Influent and Effluent for the New York-New Jersey Harbor Estuary Program (NY-NJ HEP).* The objective of these phases was to gather data on pathogenic indicators from wastewater treatment plants and stormwater outfalls. The modeler had requested that this additional sampling be performed to better refine and calibrate the model and to supply information on New Jersey stormwater concentrations of pathogens.

During Phase II, the stormwater sampling, IEC conducted field investigations to locate and finally choose eight outfalls in northern New Jersey that met the following criteria: accessible from land, not tidally affected, and discharged only stormwater. The outfall locations are described in the table below, as well as shown on the aforementioned map. During four wet weather events between September 28th and November 12, 2004, IEC sampled each site four times at 20 minute intervals. Due to the nature of stormwater outfalls, very little intensity was needed to stimulate discharge. The samples were all analyzed for fecal coliform, total coliform and enterococcus at the IEC laboratory. NYC DEP did similar stormwater sampling in New York City. All results generated by these field surveys were transmitted to the PWG, HEP MC, and the modeler.

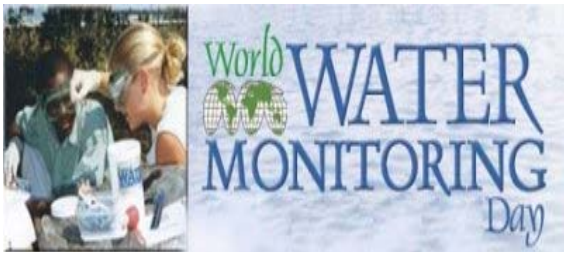
2004 STORMWATER OUTFALL LOCATIONS

GROUP	LOCATION	DESCRIPTION	WATERBODY
Hillside	**Hillside 1**	**North Avenue-Rte 439**	**Elizabeth River**
	Hillside 2	**Behind Crystal Terrace**	**Elizabeth River**
Rahway	**Rahway 1**	**West Lake Avenue & Jenson Avenue**	**Rahway River-Robinsons Branch**
	Rahway 2	**End of Price Street**	**Rahway River-North Branch**
Bergen	**Hackensack**	**Anderson Street, next to CSO**	**Hackensack River**
	North Bergen	**Pipe by entrance to Liz Clairborne**	**Cromakill Creek**
Cranford	**Cranford 1**	**Kenilworth Blvd in park by bridge**	**Rahway River**
	Cranford 2	**North and Centennial Avenues by Riverside Inn**	**Rahway River**

For Phase III, the WPCP sampling, IEC collected four hourly influent and effluent samples at six New Jersey WPCPs: Bergen County Utilities Authority, Joint Meeting of Essex and Union Counties, Linden Roselle Sewerage Authority, Middlesex County Utilities Authority, Passaic Valley Sewerage Commissioners, and Rahway Valley Sewerage Authority. IEC also sampled the Yonkers Joint Treatment plant which is located on the east shore of the Hudson River on the Westchester/Bronx County line. All seven facilities are located on the aforementioned map. This process was repeated four times between September 27th and November 15, 2004. The samples were analyzed for fecal coliform, total coliform and enterococcus at the IEC laboratory. NYC DEP did similar influent/effluent sampling at all 14 New York City WPCPs. The New Jersey Harbor Discharger's Group did similar work at the same six New Jersey WPCPs. All results generated by these influent/effluent surveys were transmitted to the PWG, HEP MC and the modeler.

World Water Monitoring Day

Inspired by the success of the first National Water Monitoring Day in the United States in 2002, America's Clean Water Foundation and the International Water Association — together with the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA), the United States Environmental Protection Agency (US EPA) and a host of global partners — coordinated the second annual World Water Monitoring Day. To promote water quality awareness around the globe, World Water Monitoring Day was held on October 18, 2004, with sampling taking place between September 18th and October 18th. IEC has participated in this monitoring effort since its inception.



The IEC joined thousands of volunteers to sample water quality and report their results. While comprehensive monitoring goes on throughout the year, IEC conducted in situ testing of water quality parameters on September 27th at nine sites in the upper East River and western Long Island Sound, covering a distance of about 29 nautical miles, aboard the R/V Natale Colosi. These are the same sites monitored by IEC in 2002 during National Water Monitoring Day, and in 2003 for the first World Water Monitoring Day. The ambient water quality stations represent a subset of the LISS sampling network (see the 2004 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.

Pathogen Track Down on the Byram River

The Byram River, an interstate waterway about 13 miles long, runs south between New York and Connecticut, with Port Chester, Westchester County, on the west bank and Greenwich, Fairfield County, 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 renewed 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. Elevated levels of coliform bacteria prevent the safe use of the river and harbor for primary recreational activities, i.e., bathing and, where approved, shellfish harvesting. 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, the Commission was requested to take the lead in 2002, and has continued to coordinate and address oversight for a multi-agency pathogens track down investigation.

Along with IEC, those involved in the project are CT DEP, NYS DEC - Region 3, Westchester County Department of Health, Greenwich Health Department, and the Town 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. 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 monitoring plan's first priority was to identify the outfalls to be monitored for dry weather discharges (no rain within the previous 48-hours). A map on the following page shows the area of concern and the outfalls under investigation. Any discharge observed was then sampled and, where accessible, an ambient sample was also taken. The samples were analyzed at the IEC laboratory for fecal coliform, total coliform, fecal streptococcus and enterococcus. The first ambient survey was performed in May 2003. At that time, there were five dry weather discharges found: four were observed on the New York side and one on the Connecticut side. Five additional surveys were performed in 2003.

In early 2004, IEC met with the Westchester County Department of Health to discuss locating contaminated discharges to the Byram River from the Village of Port Chester. Since Port Chester does not have any stormwater sewer maps, the investigation was performed by 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 was jointly conducted by IEC and WC DOH; the aforementioned map shows a demarcation dotted line which encompasses the area of upstream investigations. The search located numerous sources of contamination of varying pipe sizes and flows. The smaller remediation projects that consisted of simply disconnecting and reconnecting a single plumbing line were performed quickly. The remediation of some of the sources involved a large-scale design and reconstruction of the municipality's sewer system. IEC has been monitoring the work that is being performed through regular updates from the County. The WC DOH has issued several notices of violation (NOVs) and they've bid a contract to correct a discharge that was found in Port Chester. Continued surveillance, laboratory analysis and data sharing will be maintained throughout 2005.

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

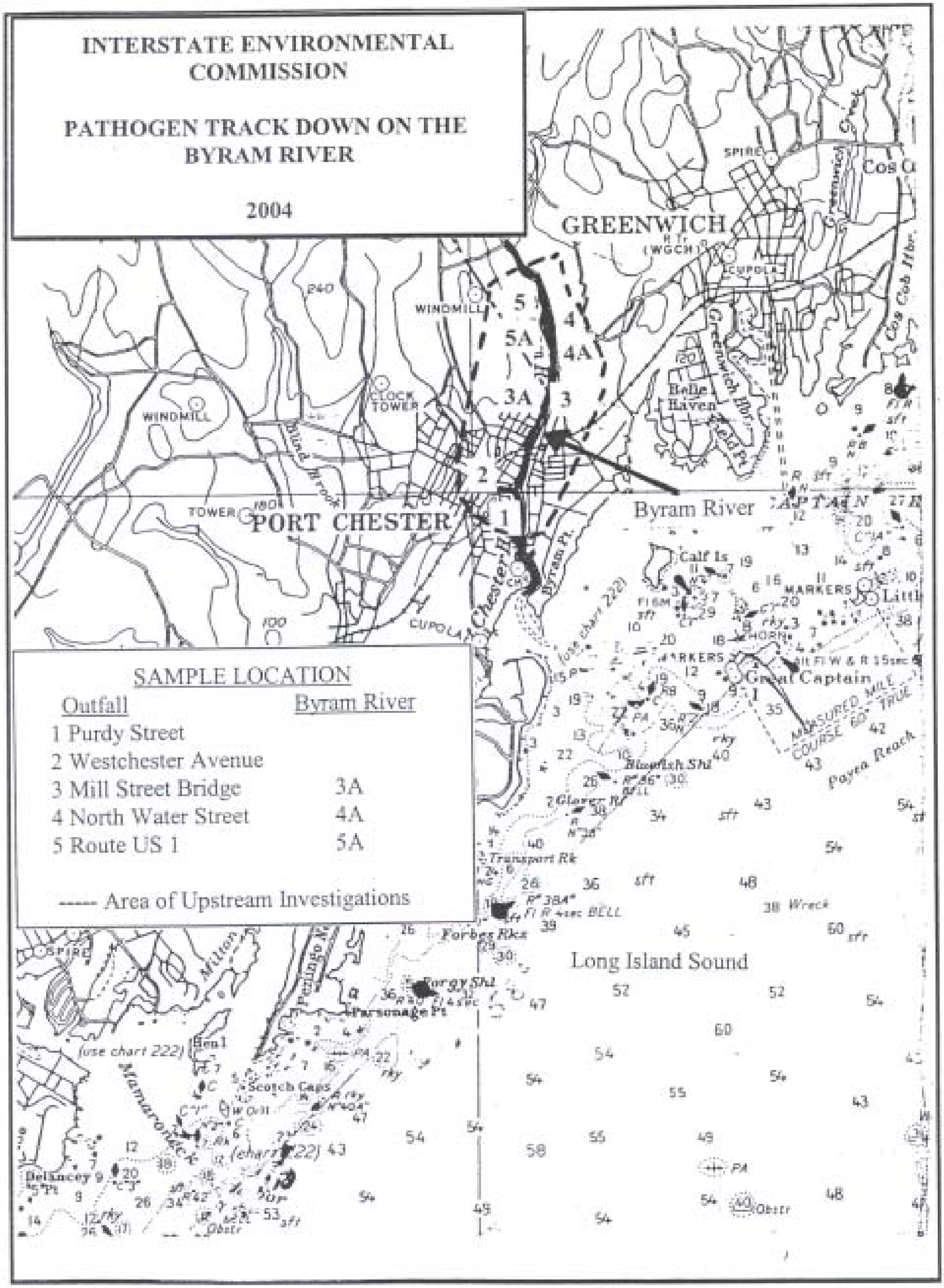
As part of and in cooperation with the NY-NJ HEP, the Interstate Environmental Commission has been chairing an Ad Hoc Committee to develop a harbor-wide water quality monitoring survey to be fashioned after the NYC DEP Harbor Survey. This conceptual monitoring survey would address the entire New York-New 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 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.

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.

INTERSTATE ENVIRONMENTAL COMMISSION

PATHOGEN TRACK DOWN ON THE BYRAM RIVER

2004



SAMPLE LOCATION

Outfall	Byram River
1 Purdy Street	
2 Westchester Avenue	
3 Mill Street Bridge	3A
4 North Water Street	4A
5 Route US 1	5A

----- Area of Upstream Investigations

Under way in late 2003, the New Jersey Harbor Dischargers Group, 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 were collected weekly between May and September and bimonthly between October and April. The analyses were conducted at three laboratories located at the Bergen County Utilities Authority, MCUA and PVSC. Adding this network to the already established monitoring programs is bringing the capability of a true harbor-wide assessment to fruition.

The final products of the sampling efforts will be to create a comprehensive report fashioned after the NYC DEP Harbor Survey document which would, at the very least, discuss results, status and trends, and immediate environmental conditions.

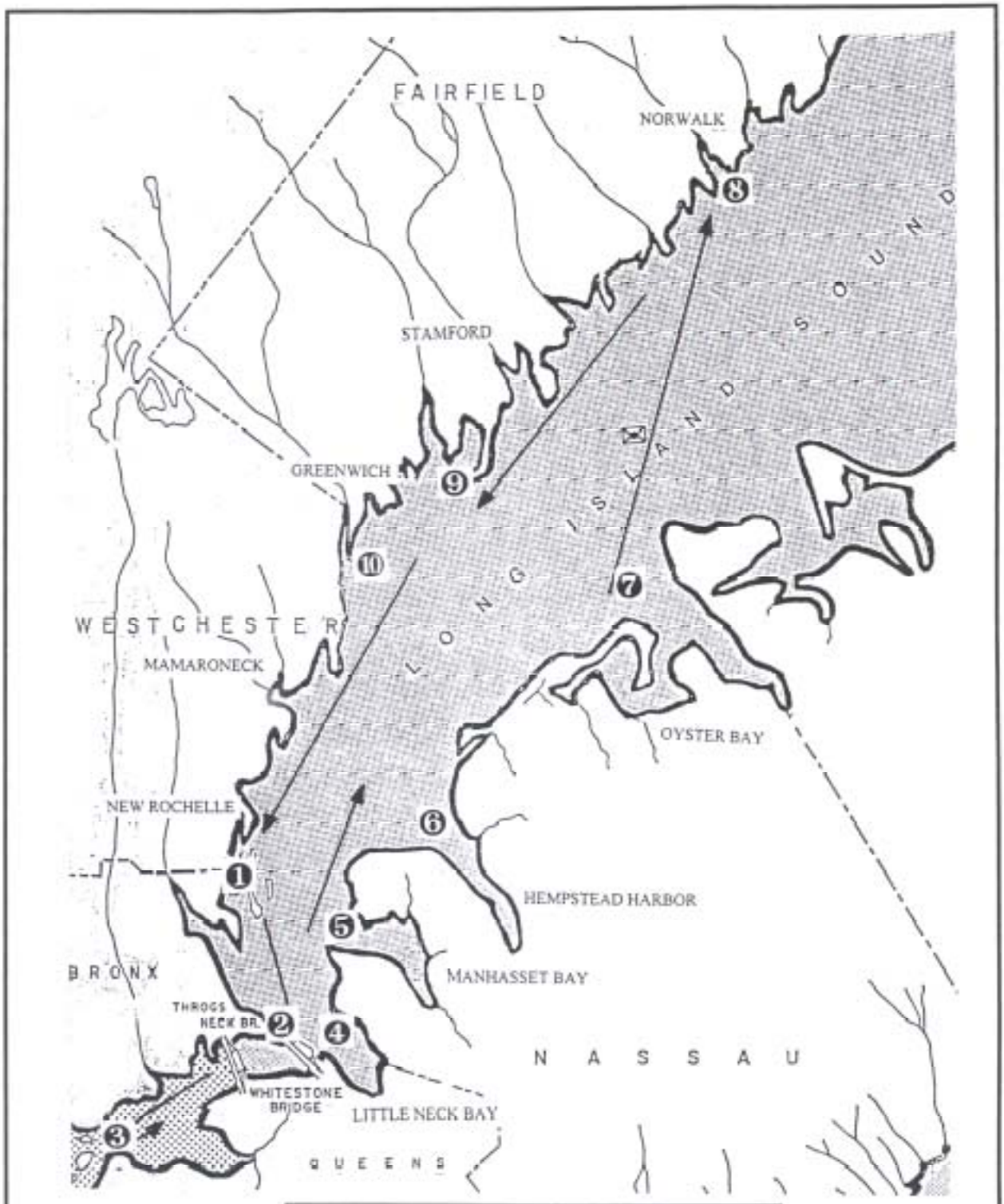
2004 BOAT INSPECTION TRIP

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 2004 Boat Inspection Trip was held on August 4th and covered the upper East River and western Long Island Sound. On the southern side of the Sound, the trip included Little Neck Bay, Manhasset Bay, Hempstead Harbor, Oyster Bay and Huntington Harbor. Crossing the Sound to its northern shoreline, the vessel visited Norwalk, Stamford and Greenwich, Connecticut, and New York's shorelines of Westchester and Bronx Counties. The following map shows the six-hour route which was traversed, covering over 70 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.

IEC Commissioners, officials from all levels of government, and citizen groups viewed bathing beaches and seaside parks, commercial oyster operations, numerous party boats and small recreational vessels, sailing clubs comprised of dozens of vessels, tug and barge transports, urban and maritime industries, historical landmarks and shipwreck sites. The lobster die-off that began in the fall of 1999 and literally devastated the 2000 and 2001 harvest seasons in western Long Island Sound, showed signs of recovery by the presence of lobster pot markers and a few lobster boats working in mid-Sound waters. 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, embattlements and shipwrecks were provided throughout the trip.

The attendees viewed ongoing waterfront development, sewage treatment plants, sludge dewatering facilities, prison facilities, electrical/steam generating stations, closed landfills (one of which is being converted to a public golf course), a dredged material disposal site and CSO outfalls



INTERSTATE ENVIRONMENTAL COMMISSION
BOAT INSPECTION TRIP
2004

in the upper East River.

Attendees enjoyed skyline views; the magnificent homes of Connecticut and New York shore communities; and fragile bird sanctuaries on North and South Brother Islands in the East River, on Huckleberry Island off the Westchester County shore, and on Tavern Island in Sheffield Island 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 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. In addition, regional notification protocols were put in place and are updated annually.

For the first six full calendar years that the model and notification protocols have been in place, 1998 through 2003, the Commission received 94, 97, 99, 115, 93 and 101 e-mail messages, respectively, with regard to unplanned spills within the Interstate Environmental District. Originally, the focus of identifying bypass events was raw sewage; the focus has expanded to address any type of spill, i.e., chemical, oil, fuel, sludge and treatment reductions. The 180 bypass events reported to the Commission for the period January 1 to November 30, 2004, are shown below delineated by state. The 2003 totals are included for a basis of comparison, as well as to report all bypass events for the past full calendar year.

	Total Events in 2003	% of Total	Total Events in 2004	% of Total
Connecticut	3	3.0 %	4	2.2 %
New Jersey	7	6.9 %	2	1.1 %
New York	91	90.1 %	174	96.7 %

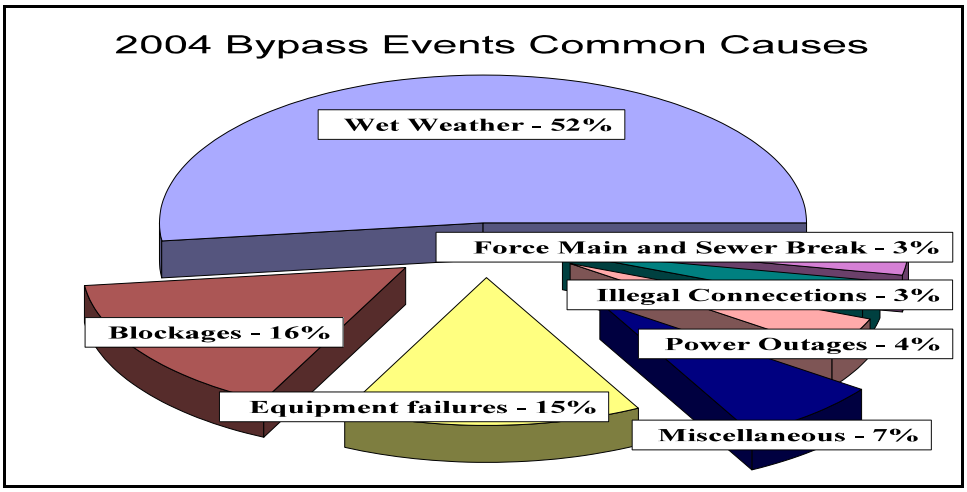
Due primarily to rainfall, the number of bypass events during 2004 was nearly double that of any of the past six years; the 2004 hurricane season was extremely active. In addition, the hydraulic capacity of several plants was diminished due to construction upgrades. The majority of the New York City and northern New Jersey collection systems are comprised of combined sewers; when there is rain, the flows to the WPCPs increase. If the flow is greater than the plant can handle, part of the flow is "throttled". This throttled flow is considered to be a bypass. For the reporting period, there were 93 wet weather bypass events reported to the RBWG. This is over 50% of the reported bypasses. For 2003, less than 10% of the reported bypasses were caused by wet weather.

Although the majority of the bypass events occur 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. A more detailed breakdown of the bypass events in New York were:

	Total NY Events in 2003	Total NY Events in 2004
Region 1 (Nassau/Suffolk)	3	2
Region 2 (5 NYC Boroughs)	67	169
Private Plants (Richmond)	0	1
Region 3 (Westchester/Rockland)	19	2

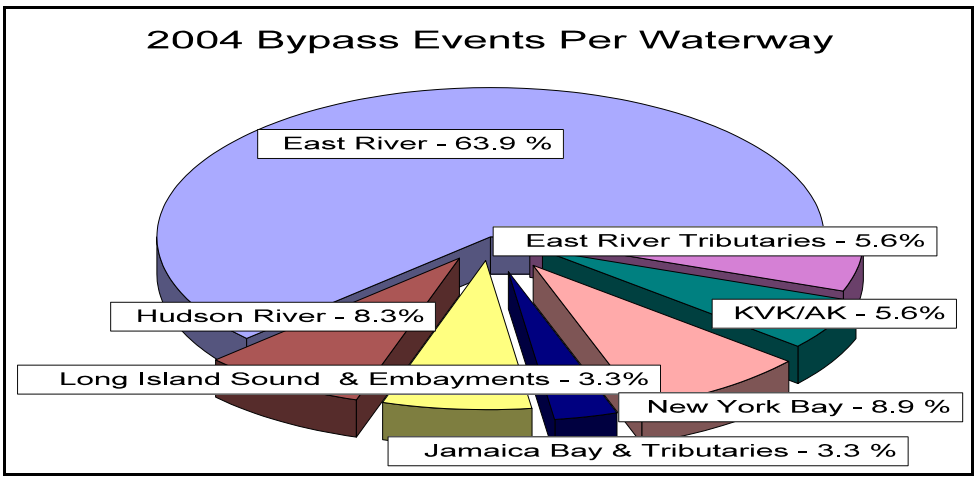
(Region 3 also includes the counties of Putnam, Dutchess, Orange, Ulster and Sullivan)

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 subsequent to repairs by conventional mail. Minor events or ongoing investigations of illegal discharges were reported by mail. Volumes bypassed ranged from as little as 50 gallons of sewage lasting a few minutes to 586 MG and lasting four days. During 2004, the common causes for bypass events were rain (93), blockages (28), equipment failures (27), power outages (8), illegal connections (6), force main and sewer pipe breaks (5), and 13 events caused by miscellaneous events including high tide surcharge; this breakdown is displayed on the pie chart below. The majority of the 180 bypass events were



comprised of raw sewage (175). The five other bypass types were: disinfected with primary treatment, secondary treatment with no disinfection, gasoline, chemical, and hydrant water.

Other bypass events that had the potential to impact primary recreational waters occurred during the period May 29th through September 6, 2003, which represents the "official" bathing season (Memorial Day weekend to Labor Day). There were 60 releases or 33.3 % of the total during this period; this is comparable to previous bathing seasons. During 2004, the waterways impacted by bypass events are shown below.



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 2004 electronic 305(b) report and its companion abbreviated report. The assessment is based on the Commission's data collected from its ambient and effluent monitoring programs. It is supplemented with information from the Commission's member states' environmental and health departments dealing with information on water quality, health advisories, fish kills, shellfish closure

2003 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*	44.69	25.28	19.80	10.23	0.00
FISH CONSUMPTION	797.55	16.93	0.00	80.35	2.72	0.00
SHELLFISH CONSUMPTION	797.55	40.98	0.00	18.09	40.93	0.00
PRIMARY CONTACT	797.55	71.02	0.00	9.93	10.78	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.

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 been a depository and advocate of water quality data collection, analysis and dissemination for the tri-state region. Originally under the auspices of the Public Health Service, the US EPA has the responsibility for the computerized National Water STOrage and RETrieval (STORET) data base for housing and managing data and metadata on air, sediment, soils and water. The water matrix contains information on end-of-pipe water quality from municipalities and industrial complexes, groundwater, saline and freshwater. The system promotes data sharing among federal, state, interstate, and local agencies, as well as the private sector. The Commission has data in this repository dating back to1970.

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. The Commission is currently preparing its most recent water quality data for input into STORET, Version 2.0. The Commission's input to the modernized STORET is represented by over 45,000 parametric recordings which include dissolved oxygen, temperature, salinity, chlorophyll a, and fecal and total coliform 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. To keep abreast with the modernization of the system, IEC personnel attended a two-day regional training session in Philadelphia, Pennsylvania, and a three-day national STORET users conference in New Orleans, Louisiana, during 2004.

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.

As of December 2003, New York State is developing proposed revisions of the current marine DO standards. These revisions are currently being reviewed internally by NYS DEC. 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 2004, 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. In addition, staff 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 Westchester County, 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. In September 2000, the LISS Policy Committee convened to make a commitment to develop a Long Island Sound Agreement which would update the previous agreement. 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 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 in the Atlantic Ocean, the site and surrounding areas that have 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 nutrients, pathogens and toxics workgroups are addressing the modeling and water quality issues with the intent of ultimately developing total maximum daily loads. Schedules for developing and implementing TMDLs are in place. IEC has been involved with these meetings and will assist in the process, especially for the interstate waters within IEC's jurisdiction. Refer to the water quality surveys in this report for details of IEC's pathogens study being conducted in cooperation with the HEP.

Following the example of the Chesapeake Bay Program, the HEP Policy Committee has charged each of the workgroups with developing targets and goals that can be incorporated into a multi-year work plan. The purpose of the targets and goals is to better focus the future efforts of the HEP by establishing implementation dates and levels of reduction, i.e., debris on beaches or levels of increase, the number of waterfront access points. IEC is a member of the committees that developed these targets and goals which address the CCMP implementation issues of fishing and swimming, toxics, nutrients and oxygen levels, debris, habitat and ecological health, public access, sediment quantity and quality, navigation, dredging, and stewardship.

COMBINED SEWER OVERFLOWS AND MUNICIPAL SEPARATE STORM SEWER SYSTEMS

Since the passage of the CWA 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. In 2004, the Commission 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.

The Commission has an ongoing program of inspecting CSOs to determine whether they are discharging during dry weather. When dry weather discharges are discovered, the incident is reported to the appropriate state environmental department for remediation. The Commission then works with that department to determine the most expeditious manner to alleviate the violation. During the 12-month period ending September 30, 2004, a total of 26 outfalls were inspected in Westchester County, New York, during dry weather; none had any discharge during the IEC's

inspections. NYS DEC - Region 3 was kept informed of the results of these field investigations.

During the past two 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 late September 2002, the Commission took part in the Phase II Stormwater Regulatory Workshop in Farmingdale, NY. The workshop was to prepare Long Island communities to meet requirements of the new Phase II Stormwater Program announced by NYS DEC on September 18, 2002.

Among the documents released by NYS DEC on September 18, 2002, were two draft Phase II general SPDES permits — one for Small Municipal Separate Storm Sewer Systems (MS4s) 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 annually the progress to the NYS DEC and fully implement the proposed program by March 2008.

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.

The workshop was well attended by public officials as well as environmental and construction managers from local communities. The event spearheaded a valuable exchange of ideas and promoted intermunicipal cooperation required to implement the new stormwater program.

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 ongoing CSO program described above. IEC received some information from EPA on MS4s (locations, sizes, and waterways) in Nassau County, New York, and started conducting outfall inspections. Due to the importance of the track down of this pollution source, the Commission has continued this program. For the period October 1, 2003, through September 30, 2004, 84 inspections were completed. The field inspections revealed some of the Nassau County outfalls flowing under dry weather conditions. That information was referred to NYS DEC - Region 1 for appropriate action. This program will continue during 2005.

CONFERENCES

New York Water Environment Association's Legislative/Regulatory Forum

For the fourth consecutive year, the Commission and its interstate counterparts with New York membership co-sponsored the New York Water Environment Association's Legislative/Regulatory Forum in Albany, New York. Meeting in New York's capitol in April gave the six interstate commissions the opportunity to emphasize to the New York Legislature the scope of the agencies' individual and combined efforts being undertaken to promote water pollution control and carry out water pollution abatement activities.

Collectively, the Delaware River Basin Commission, the Great Lakes Commission, the Interstate Environmental Commission, the New England Interstate Water Pollution Control Commission, the Ohio River Valley Water Sanitation Commission, and the Susquehanna River Basin Commission represent 20 states, the federal government and the Canadian provinces of Ontario and Quebec. "Preventing and Resolving Water Resource Conflicts Between States - The Role of the Interstate Commissions" was moderated by the Commission. The panel was comprised of the executive directors of the six aforementioned commissions. Other Forum topics of interest included potable water and wastewater infrastructure, litigation affecting municipal wastewater collection and treatment, and the business decision-making process in and out of the work environment. An evening program hosted by the interstate agencies was very well attended by the forum participants, NYS DEC staff from their Albany office, as well as by many members of the State Legislature and their staffs.

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 on a variety of environmental topics and Commission activities. Many of the Commission's staff members participate in this effort.

This year, the Commission's public education and outreach program 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. Counsel is actively involved with the New York City Bar Association and its Committee on Environmental Law. 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. An abbreviated list of some of the Commission's involvement in this area include:

- the Long Island Sound Water Monitoring Workgroup which is a networking

partnership of citizen organizations and government agencies working to increase coordination between water quality monitoring programs in Long Island Sound on the local, state and regional levels;

! the Environmental Studies Academy which is an educational program for high school juniors and seniors interested in pursuing careers in natural or environmental studies, an activity of the Board of Cooperative Educational Services (BOCES);

! the Pro Bono Students America/New York and New Jersey (PBSA/NY & NJ) data base which is a program that the Commission has been involved with since 1992; and

! Our World Underwater which is a non-profit corporation focusing on educational opportunities for young people going into various fields of marine science.

CALIBRATING INSTRUMENTS ABOARD THE R/V NATALE COLOSI PRIOR TO SAMPLING ON WORLD WATER MONITORING DAY
Photo by P. Sattler, IEC

III. AIR POLLUTION

GENERAL

Originally dealing only with matters concerning water pollution, in the late 1950s the Commission published a report called *Smoke and Air Pollution*, and a supplement that identified the problems of the region regarding interstate air pollution. As a result, in 1962, after passage of supplemental statutes in New York and New Jersey, the Commission's air program was initiated. In 1969, Connecticut passed legislation mirroring that of New York and New Jersey, extending the IEC's air investigation and study authority.

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 2004.

The Commission has maintained round-the-clock response for air pollution complaints since the late 1960s. New York City's Borough of Staten Island remains the source of more citizens' complaints than any other area in the Interstate Environmental District. To better serve the needs of the public by faster response to complainants, a field office was established on Staten Island in 1982 and remained in operation until 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 no garbage odors were reported to the Commission for the fifth consecutive year.

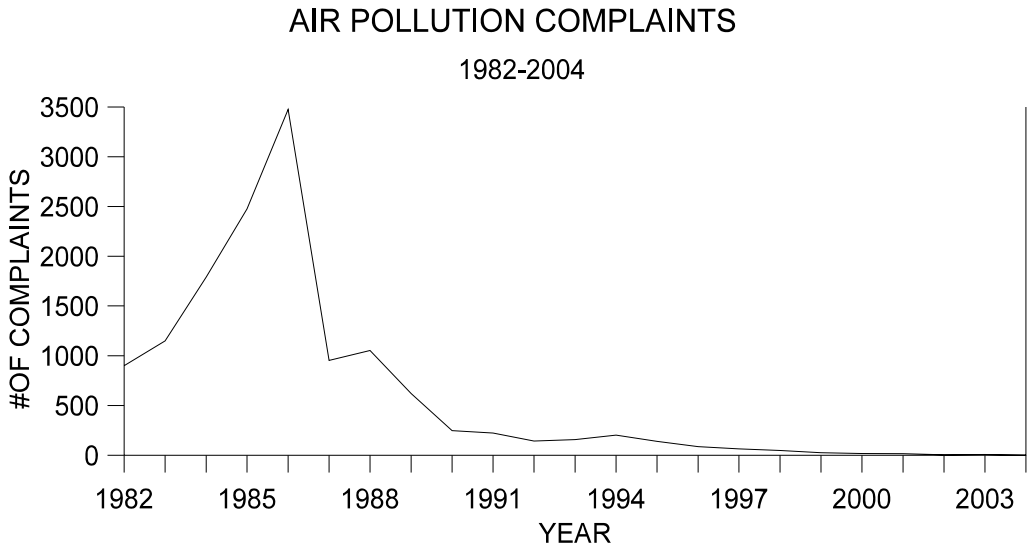
AIR POLLUTION COMPLAINTS

Staten Island remains as the source of more citizens' complaints than any other area in the Commission's jurisdiction. Historically, many of the complaints come 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, during the 2004 reporting period, complaints were minimal and were received from only one neighborhood.

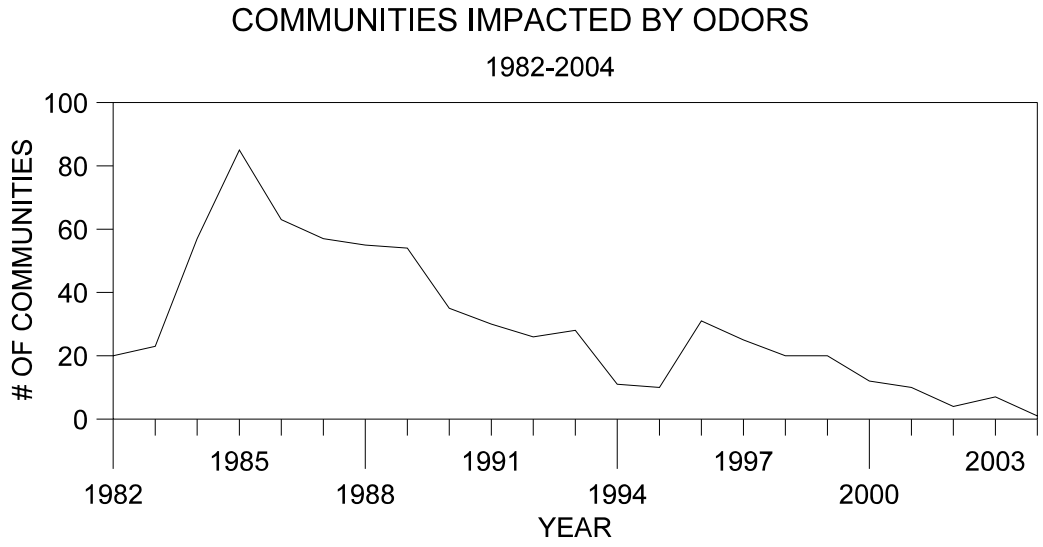
IEC's Staten Island field office was closed in 1989 due to budgetary restraints. Since then, the Commission still maintains a 24-hour-a-day, 7-day-a-week answering service (**718-761-5677**) to receive complaints. Complainants are contacted during regular office hours by IEC staff and, when available, 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, 2004, the Commission received one complaint from the Staten Island neighborhood of Mariner's Harbor. This continues the pattern of a decreasing number of complaints since the 1986 peak of nearly 3,500 complaints from a peak of 63 different Staten Island neighborhoods. It should be noted that this is the least amount of neighborhoods reporting odor complaints since detailed records have been kept.



O v e r
the years, the majority of the complaints received by the IEC tend to come from the same group of neighborhoods. This year, the only odor complaint was identified as diesel. 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 2004. 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 fifth consecutive year that the nuisance odor category of "garbage" was not registered.

OZONE HEALTH MESSAGE SYSTEM

For the 17th 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.

IEC continued to participate in this program during 2004. The Commission 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 13 ozone and 18 fine particulate (soot and dust) advisories from the New Jersey Department of Environmental Protection. Ozone health advisories were received between May and July. The majority of fine particulate advisories were received between May and August. This period of poor air quality was considerably shorter than previous years; there were 6 fewer alert days than occurred during 2003. Individual states issue their own health messages which identify specific counties where ozone levels are a special health threat. During 2004, 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 Environmental Legal Counsel must appreciate the mission and strategy of an agency dedicated to serving a region encompassing three states — New York, New Jersey and Connecticut. The Office of Legal Counsel is attuned to legislative and regulatory changes 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 any benefit or 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 take care to minimize any legal exposure to the Commission in all venues, environmental or otherwise. The Office of Legal Counsel represents the Commission in all water quality aspects of environmental issues: permitting, litigation, compliance actions, enforcement matters, and investigations of any wrongdoing. In addition, the Office of Legal Counsel advises the Commission and Commissioners on issues dealing with labor, personnel, insurance, ethics and contractual matters. The Office of Legal Counsel uses its expertise to solve Commission problems, and federal and state governmental problems arising from various types of environmental regulations. From time-to-time, Counsel is also called upon to advise on issues involving the Commission's laboratory and its operations.

As is the case with many of the Commission's roles, Legal's 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.

The cessation of debris for disposal at the Fresh Kill Landfill has not spelled the demise of any useful life at the landfill. A final environmental impact statement (FEIS) on a solid waste management plan (SWMP) for New York City to dispose of garbage for the next 20 years was released in October 2004. The SWMP relies heavily and almost exclusively on four transfer stations from which garbage would be barged west and south outside of New York. One of the four proposed transfer stations is located on Staten Island at the Fresh Kills Landfill. Comments on the FEIS are due in January 2005. The City is desirous of a final sign-off to settle the federal lawsuit over the escape of debris from Fresh Kills Landfill. The Commission is duty bound to examine the FEIS from every aspect, to be satisfied that no part of the plan will result in the escape of debris or waste from the landfill.

The Commission, along with four other parties — Save the Sound, the Natural Resources Defense Council, the Riverkeeper and the State of Connecticut — were granted party status in an administrative hearing requested by New York City. The hearing commenced in the fall of 2003 and has continued throughout 2004. The two issues certified for adjudication are New York City's

ability to meet nitrogen limits established by SPDES permits and the City's ability to enhance capture from combined sewer overflows.

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

There is an expressed desire on the part of New York City to dismiss the Fresh Kills Landfill case from the federal court docket. Assuming no issues of concern regarding debris or waste escaping from the landfill remained, the Commission could have no objection to a dismissal. The Independent Expert released a final report during the spring of 2004. The parties met during the summer, and among the issues that are yet to be resolved are the following: although the containment boom was ordered to be closed by a federal court order to prevent debris from escaping, whether the containment boom should remain open, as is the City's current practice; observations made by plaintiffs of floating refuse during ebb tide visible in the Fresh Kills and in the Arthur Kill; some substantial debris on the shorelines of Carteret, New Jersey, evidencing a New York origin; observations of refuse visible on the perimeter of the landfill and on the landfill itself; the lack of any fence on one side of the landfill; no netting of the containment boom; and the difference of opinion on allowing a skimmer boat and the outer boom to remain in place.

An announcement during the summer and fall of 2004 cast the landfill closure in a new light and required further review prior to any settlement. In October 2004, the City announced, and then released, a final environmental impact statement on a solid waste management plan to dispose of New York City garbage for the next 20 years. This SWMP purports to be a comprehensive plan for disposing of garbage throughout the five boroughs of New York City. It relies almost exclusively on the use of four transfer stations from which garbage would be barged to states west and south of New York for landfilling. Some portion of the City's garbage would be incinerated at a facility in New Jersey. The plan is undoubtedly an improvement over the continued renewal of short-term contracts for debris disposal that relied exclusively on truck transport with its attendant negative traffic and air quality implications.

Much detail is buried in the footnotes of this comprehensive plan, among which are questions related to whether and how the City contemplates approaching any problems that might arise from leachate that could accumulate in containers. Since barging is a remedy necessarily dependent upon weather conditions, and barges may not travel in severely inclement weather, a plan for stacking and maintaining containers is required. No such provision is made in the SWMP. If a problem with leachate leaking from containers occurred, there is no stated remedy to address such an occurrence. This is one area where the Commission must be fully satisfied that no danger or harm to the Region's water quality is evident from barging containers across Interstate Environmental District waters.

Significant among the omissions in the SWMP is its failure to address the legal underpinnings for the disposal of commercial garbage, thus clouding the issue of responsibility for managing private transfer stations. The plan, while sweeping in its reach and comprehensive on the

surface, fails to examine its broader regional impacts. It fails both the State Environmental Quality Review Act and the City Environmental Quality Review Act requirements for analysis of alternatives to the long-term export of waste to landfills. Thus, the sustainability of the overall plan could be called into question, since the state hierarchy of disposal options ranks landfilling last. While none of the enumerated items by themselves should prevent the parties from settling, each requires careful review and evaluation. Comments on the FEIS are due in January 2005.

NYC DOS MARINE TRANSFER STATION ON THE EAST RIVER IN THE BRONX, NY
Photo by A. Lochner, IEC

The Commission continues to have concerns regarding debris control measures, in part due to the current construction of a transfer station at the landfill that it is understood will handle debris generated from the Borough of Staten Island. The Independent Expert has represented to the parties that it is believed that once completed, entirely containerized garbage will be transported by a fully enclosed barge unloader prior to its departure to points in New Jersey, and then to Pennsylvania and Virginia. The Commission has some concern about the continued use of the landfill, albeit for debris whose final destination is elsewhere, since the process has similarities to the one previously used. Some potential remains for debris to escape in the similar fashion to when debris was being deposited upon the landfill as a final destination. The landfill will continue to be used in a process that is not without complications and has the potential for debris escaping into water, the initial impetus for IEC's entry into the litigation. The City continues to rely on short-term plans and will do so until the FEIS for the SWMP is fully adopted and implemented.

All parties must agree upon several remaining debris control measures that will continue in

some fashion or be severely cut back. Among those items are: the skimmer boats, the booms, marine fencing, and a composting operation. The Commission's position on each issue is noted below.

There is currently one skimmer boat operating at the Fresh Kills Landfill on a daily basis with a 12-hour schedule four days a week, and a limited schedule one day per week. There continue to be two booms in operation, a range boom that is open only on an incoming tide as much as is deemed necessary, and the Outer Boom — the last line of defense before leaving the landfill — which is also open on an incoming tide. It is the Commission's position that the Outer Boom remain in place permanently. Without the Outer Boom, floatable debris will enter the Fresh Kills waterway and be deposited along the shoreline. The IE concurs with that position. With regard to the marine fence, the IE's draft final report recommends that if the marine fence is removed, a skimmer boat or some other means of controlling floatable debris should be present at all times during fence removal and that care be taken to minimize disturbing the bottom sediment. The IE has recommended that the land based fence, having served its purpose, should be moved or removed as necessary to allow for completion of final grading and capping of the landfill. The land based fence should be moved back following final capping as both a protection from debris escaping and as a deterrent. The continued operation of a composting facility under private contract should not pose any significant potential for debris to escape unless current budget constraint change and allow for renewed collection of residential grass clippings and leaves typically collected in plastic bags. It is the plastic bags that present a potential for concern, as it was the plastic bags that tended to become loosened and to escape from Fresh Kills.

The earlier references herein to the IE are found in a September 1997 Court Order mandating the hire. While the IE presumably works for the parties, there is an interim monitoring team (IMT) composed of one member from New York City Department of Sanitation, one member from the original independent monitoring consultant, and one member hired by the plaintiffs, but compensated by the City. Both were fully operational in 1999, however, in accordance with Court Orders, the IE was charged with making a determination as to what debris control measures were required and whether and what monitoring functions should continue. In 2002, the IE concluded that there was no longer a need for the IMT. At the end of 1997, when the Court had relieved the City of its obligation to build a single-barge enclosed unloader contingent upon the City's implementing certain measures, among the requirements were establishing the IMT and the IE. The failure on the part of the City to implement certain measures could have resulted in an immediate return to court and the rendering of a judgement that the City begin construction on the single-barge enclosed unloader immediately. In any event, the long-term solution could be revisited on an annual basis.

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, New York, 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 an action in New Jersey federal District Court which was initiated in 1979 by the Township of Woodbridge, New Jersey. 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 Commission 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 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 IEC 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.

What remains is for all parties to agree upon a negotiated settlement taking into account the remaining issues cited at the last party meeting. Moreover, in light of the issuance of a FEIS for a SWMP, all parties should be satisfied that no opportunity for debris to enter into the water or land in the Interstate Environmental District or New Jersey, remain as issues.

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

An administrative hearing requested by New York City in October 2003, with nitrogen control issues as the primary component, continued in 2004 with a fresh emphasis on combined sewer overflows; the year ended without final decisions on either issue. A decision is expected early in 2005.

In January 2004, five parties (the Interstate Environmental Commission, the Natural Resource Defense Council, the Riverkeeper, Save the Sound, and the State of Connecticut) who had intervened in an administrative hearing where the City of New York and the New York State Department of Environmental Conservation were mandatory 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 combined sewer overflow issue. The administrative law judge (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 was held in October. By November, all intervening parties had submitted written comments on the Order, along with approximately 600 others. NYS DEC promised responses early in 2005.

A revised CSO Abatement Order is 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 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 came from their concern that certain provisions in newly issued modified State Pollutant Discharge Elimination System permits conflicted with other enforceable Orders on Consent regarding the nitrogen related provisions. In April 2004, the ALJ found that an issue could be adjudicated as to whether *new law, information, guidance, regulation or other relevant fact has occurred since an April 2002 consent order on nitrogen necessitated the modification proposed in the SPDES permits*. The ALJ requested written submittals from only the two mandatory parties — New York City and NYS DEC. NYS DEC appealed the ALJ's decision

arguing, as had all of the intervening parties, that the law was clear — a permit trumped an Administrative Consent Order— and no factual hearing was required. When the Commission learned that the City was not content to reply to a decision favorable to them, but they had also filed an action in state court as was their right under the 2002 Consent Order, the Commission sought and was granted permission, over the City's objection, to file a sur-reply. The Commission's August 2004 filing was supportive of the NYS DEC's position that no hearing was necessary. A decision on this nitrogen portion of the proceeding is anticipated early in 2005.

The City's argument for a hearing on the nitrogen issue, in essence, is 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 require that NYC DEP meet more stringent nitrogen limits. An Administrative Consent Order (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 Commission had not participated as a party in either 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," and the making available the comprehensive records kept by the Commission, comparing Connecticut's permits to those in New York.

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 Management Committee responsible for the nitrogen control limits and has participated in the discussions that led to finalizing the Total Maximum Daily Load limits set by the LISS and adopted by the United States Environmental Protection Agency as minimal requirements for the states.

The Clean Water Act, from which the New York State SPDES system is derived, requires the states to promulgate, and EPA to approve, TMDLs for wasteload allocations (WLAs) for waterbodies for which the effluent limits promulgated pursuant to CWA are not stringent enough for a waterbody to comply with applicable water quality standards (WQS). States were required to identify those waterbodies 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 waterbodies 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 water to absorb and digest a pollutant and still meet water quality standards. In April 2001, EPA approved TMDLs for Long Island Sound 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.

In February 1998, the LISS Management Conference adopted a three-phase plan for hypoxia management by nitrogen reduction. Phase III Action Limits set an overall 58.5% reduction target for any discharges to Long Island Sound (not just those discharges from NYC DEP's 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.

The ACO provided for limits which are clearly superceded by the TMDLs established by the SPDES permits issued by NYS DEC that are 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 permits 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 particularized 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 takes the position that an administrative order, as a stand-alone document, is not a permit and may 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 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 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 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 which 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. Three of the five parties — the IEC, Pace Environmental Litigation Clinic (representing the Riverkeeper, Inc.; Long Island Soundkeeper Fund, Inc.; and NY/NJ Baykeeper) and NRDC — sought party status on another issue which gained renewed focus, combined sewer overflows. 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 in turn incorporated into the permit, that would suffice. The Commission, as an interstate agency, is uniquely situated as a participant in this matter. All parties are currently awaiting a written decision from the administrative law judge assigned to this matter.

NYC DEP SLUDGE SHIP AT WARDS ISLAND WPCP
Photo by A. Lochner, IEC

WASTEWATER TREATMENT PLANTS DISCHARGING INTO INTERSTATE ENVIRONMENTAL DISTRICT WATERS

2004

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+	7.9	10.0	Secondary (AS)	1,000.0 (4)	-	Incineration (2)	44,750
- West Side	B-1	2002+	25.6	30.0	Secondary (AS)	3,000.0 (4)	-	Incineration (2)	112,500
Fairfield	A	2002+	8.3	9.0	Secondary (AS)	5,000.0	20	Compost	43,000
Greenwich (Grass Island)	A	2003+	9.2	12.5	Secondary (AS)	6,000.0	25	Landfill	38,000
Norwalk	B-1	2002+	13.4	20.0	Secondary (AS)	2,280.0	25	Compost	80,000
Stamford	B-1	1991+	15.5	20.0	Secondary (AS)	-	-	Landfill	100,000
Stratford	A	1992+	7.1	11.5	Secondary (AS)	38,864.0	5.9	Incinration	49,390
Westport	A	1975+	1.8	2.9	Secondary (AS)	9.5 (5)	3 to 6	Incineration (2)	14,800
New Haven County									
Milford - Beaver Brook	A	1996+	2.8	3.1	Secondary (AS)	-	-	Incineration (2)	18,000
- Housatonic	A	1996+	6.2	8.0	Secondary (AS)	4,345.0	15	Incineration (2)	56,000
New Haven - East Shore	B-1	2000+	31.0	40.0	Secondary (AS)	35,218.6	22	Incineration	200,000
West Haven	B-1	2000+	7.1	12.5	Secondary (AS)	8,700.0	27	Incineration	53,000
NEW JERSEY									
Bergen County									
Edgewater	B-1	1989+	3.4	6.0	Secondary (PO)	11,613.5	6.43	Beneficial Reuse (2)	16,000
Essex County									
Passaic Valley Sewerage Commissioners	B-1	1988+	271.3	330.0	Secondary (AS)	77,884.0	53.6	Landfill Daily Cover	1,400,000
Hudson County									
North Bergen M.U.A. - Woodcliff	B-1	1991+	2.6	2.9	Secondary (TF)	8,807.0	8.44	Incineration (2)	22,500
North Hudson Sewerage Authority									
- Adams Street (Hoboken)	B-1	1993+	12.6	24.0	Secondary (TF)	32,000.0 (5)	8.8	Incineration	119,200
- River Road (West New York)	B-1	1993+	9.3	10.0	Secondary (TF)	15,000.0 (5)	7.9	Incineration (2)	45,800
Middlesex County									
Middlesex County Utilities Authority	A	2001+	131.8	147.0	Secondary (AS)	220,527.0	22.7	Beneficial Reuse	750,000
Union County									
Joint Meeting of Essex & Union Counties	B-2	2001+	70.2	85.0	Secondary (AS)	32,751.2	32.98	Land Application	500,000
Linden Roselle Sewerage Authority	B-2	1989+	12.3	17.0	Secondary (AS)	45,000.0	4.9	Beneficial Reuse	65,000
Rahway Valley Sewerage Authority	B-2	1991+	31.8	40.0	Secondary (AS)	16,710.0	20.1	Trucked Out	300,000

WASTEWATER TREATMENT PLANTS DISCHARGING INTO INTERSTATE ENVIRONMENTAL DISTRICT WATERS

2004

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
NEW YORK									
Nassau County									
Bay Park	A	2003+	54.1	70.0	Secondary (AS)	39323.0	21.75	Beneficial Reuse	542,600
Belgrave Sewer District	A	1995+	1.6	2.0	Secondary (TF)	1788.0	3.85	Trucked out to Bay Park	12,000
Cedar Creek	A	1997+	57.3	72.0	Secondary (AS)	49730.3	17.3	Beneficial Reuse	550,000
Cedarhurst	A	2003+	0.8	1.0	Secondary (TF)	25.0 (4)	4.0	Trucked Out	6,000
Glen Cove	A	2003+	3.7	5.5	Secondary (AS)	4,243.4	24.56	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 (6)	4.2	Trucked to Bay Park	5,000
Great Neck Sewer District	A	1990+	2.6	3.8	Secondary (AS)	560.0	22 to 30	Landfill	15,000
Great Neck Village	A	1996+	0.9	1.5	Secondary (TF)	92.9 (5)	6.4	Trucked Out	9,000
Jones Beach	A	1990+	0.0	2.5	Secondary (TF)	-	-	Trucked Out	Seasonal
Lawrence	A	2002+	1.3	1.5	Secondary (TF)	574.0	6	Trucked Out	5,500
Long Beach	A	2003+	5.3	7.5	Secondary (TF)	881.9 (4)	26	Landfill	37,000
Oyster Bay Sewer District	A	1992+	1.2	1.8	Secondary (TF)	35.0 (5)	4	Trucked Out	8,500
Port Washington Sewer District	A	1991+	2.8	4.0	Secondary (TF)	550.0 (4)	30	Incineration	35,000
New York City									
Bronx County									
Hunts Point (7)	B-1	1977+	111.0	200.0	Secondary (AS)	100,697.1	27.6	Land Application/Landfill Cover	630,000
Kings County (Brooklyn)									
Coney Island (7)	A	1995+	89.0	110.0	Secondary (AS)	(3)	-	Land Application/Landfill Cover	602,100
Newtown Creek (7)	B-1	1967	229.0	310.0	Secondary (AS)	(3)	-	Land Application/Landfill Cover	1,039,300
Owls Head (7)	B-1	1996+	101.0	120.0	Secondary (AS)	(3)	-	Land Application	761,500
Red Hook (7)	B-1	1987	30.0	60.0	Secondary (AS)	12,187.8	21.6	Landfill	192,200
26th Ward (7)	A	1975+	59.0	85.0	Secondary (AS)	91,065.7	26.1	Land Application/Landfill Cover	271,240
New York County (Manhattan)									
North River (7)	B-1	1986	127.0	170.0	Secondary (AS)	(3)	-	Land Application/Landfill Cover	584,190
Wards Island (7)	B-1	1979+	198.0	275.0	Secondary (AS)	136,168.1	27	Land Application	1,604,200
Queens County									
Bowery Bay (7)	B-1	1978+	114.0	150.0	Secondary (AS)	46,186.8	25.2	Landfill	727,100
Jamaica (7)	A	1978+	76.0	100.0	Secondary (AS)	13,253.3	26.2	Land Application/Landfill Cover	632,150
Rockaway (7)	A	1978+	19.0	45.0	Secondary (AS)	(3)	-	Land Application	94,500
Tallman Island (7)	B-1	1979+	57.0	80.0	Secondary (AS)	24,894.8	24.5	Landfill	388,200

WASTEWATER TREATMENT PLANTS DISCHARGING INTO INTERSTATE ENVIRONMENTAL DISTRICT WATERS

2004

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)									
IS-7	A	1964	0.01	0.021	Secondary (AS)	-	-	-	1,000
Mount Loretto Home-Plants #1 & #2*	A	1962	0.04	0.041	Septic Tank	-	-	-	1,000
Oakwood Beach (7)	A	1979+	30.9	40.0	Secondary (AS)	13,233.8	26.1	Landfill	151,600
Point East Condominiums*	A	1986	-	0.16	Extended Aeration w/ Sand Filtration	-	-	-	300
Port Richmond (7)	B-2	1978+	35.0	60.0	Secondary (AS)	(3)	-	Landfill	172,300
PS-3	A	1969	-	0.004	Extended Aeration w/ Sand Filtration	-	-	-	1,000
Rockland County									
Joint Regional Sewerage Board - Town of Haverstraw	A	2002+	5.3	8.0	Secondary (AS)	4,111.3	20.9	Landfill/Incineration (2)	55,700
Orangetown Sewer District	A	1996+	9.7	12.75	Secondary (TF)	4,962.0	25	Compost	50,300
Palisades Interstate Park - Bear Mountain Plant	A	1967+	1.3	0.3	Secondary (TF)	-	-	-	20,000
Rockland County Sewer District # 1	A	1995+	22.9	28.9	Secondary (RBC)	2,846.0 (4)	26	Composting	200,000
Stony Point	A	1985+	1.1	1.0	Secondary (AS)	922.9	15	Composting	12,000
Suffolk County									
Huntington Sewer District	A	1988+	1.9	2.5	Secondary (TF)	2,808.0	18	Landfill	25,000
Northport	A	1972+	0.3	0.45	Secondary (AS)	31.3 (5)	2.5 to 3	Incineration (2)	3,500
Suffolk County Sewer District # 1	A	1988+	0.8	0.85	Secondary (RBC)	210.3 (5)	2.1	Landfill	12,000
Suffolk County Sewer District # 3	A	1989+	22.5	30.0	Secondary (AS)	69,684.0	22.5	Landfill	280,000
Suffolk County Sewer District # 6	A	1973+	0.3	0.6	Secondary (AS)	80.1 (5)	1.2	Landfill	6,000
Suffolk County Sewer District # 21	A	1989	1.9	2.5	Tertiary	411.4 (5)	1.7	Landfill	20,000

WASTEWATER TREATMENT PLANTS DISCHARGING INTO INTERSTATE ENVIRONMENTAL DISTRICT WATERS

2004

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
NEW YORK (con't)									
Westchester County									
Blind Brook (Rye)	A	2000+	3.5	5.0	Secondary (AS)	538.9 (6)	0.12	Pumped to Port Chester	25,000
Buchanan	A	1999+	0.3	0.5	Secondary (AS)	3,200.0	30	Trucked Out	2,100
Coachlight Sq. Condo. Asso. Inc.*	A	1992+	0.03	0.05	Secondary (AS)	-	25	Trucked Out	210
Mamaroneck	A	1993+	18.3	20.6	Secondary (AS)	7,641.8 (5)	0.5	Pumped to New Rochelle	80,000
New Rochelle	A	1997+	15.8	13.6	Secondary (AS)	12,500.0	21.2	Landfill	80,000
Ossining	A	1981	5.4	7.0	Secondary (AS)	27,317.0	3.9	Trucked Out	36,000
Peekskill	A	1980	7.0	10.0	Secondary (AS)	30,912.0	2.1	Trucked to Landfill	22,500
Port Chester	A	1990+	5.0	6.0	Secondary (RBC)	1,670.0	4.25	Trucked Out	25,000
Springvale Sewerage Corporation*	B-1	1992+	0.1	0.13	Secondary (RBC)	35.6 (5)	3	Trucked Out	1,700
Yonkers Joint Treatment	A	2002+	104.5	120.0	Secondary (AS)	33,588.3	26.6	Landfill	500,000
Federal and Military									
Camp Smith (Westchester County)	A	1997+	0.06	0.24	Secondary (TF)	7,000.0	3	Trucked Out	200 to 2,400
Veterans Administration Hudson Valley Healthcare System (Westchester County)	A	1982+	0.14	0.4	Secondary (TF)	-	-	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, 2005, plants are permitted on a 12-month rolling average of daily flows instead of dry flows.

(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	CEASE FLOW	DRAINAGE BASIN	DIVERT TO MUNICIPAL SYSTEM
A.R. Fuels	NY0036595	Kings	06-28-04	X	Coney Island	
Ditmas Oil Associate, Inc.	NY0005789	Kings	06-28-04	X	Newtown Creek	
Mission of the Immaculate Virgin	NY0140732	Richmond	08-02-04		Oakwood Beach	X
Domino Sugar	NY0008443	Kings	01-31-04	X	Newtown Creek	
NYC DOS Plant #2	NY0200433	Richmond	2004		Oakwood Beach	X
Port Authority of NY-Holland Tunnel	NY0200581	New York	2004		North River	X
Port Authority of NY-Lincoln Tunnel	NY0200590	New York	2004		North River	X
Platinum Sewer Corp. Inc.	NY0030333	Richmond	2004		Oakwood Beach	X
Burger King	NY0200620	Richmond	2004		Oakwood Beach	X
Anthony W. Lee	NY0200638	Richmond	2004		Oakwood Beach	X
Staten Island Ferry Terminal Building	NY0200751	New York	2004		Newtown Creek	X

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

INTERSTATE ENVIRONMENTAL COMMISSION
FINANCIAL STATEMENT FY 2004

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, 2003 to June 30, 2004:

CASH BOOK BALANCE AS OF JUNE 30, 2003		$1,360,488.68
RECEIPTS		
Connecticut - FY'04	$ 84,956.00	
New York - FY'04	388,000.00	
New Jersey - FY'04	383,000.00	
EPA - FY'03	147,200.00	
EPA - FY'04	407,023.00	
319 Byram River - CT	10,000.00	
Interest	10,225.70	
Miscellaneous Receipts	9,453.43	
TOTAL RECEIPTS		1,439,858.13
	Sub-Total	$2,800,346.81
DISBURSEMENTS		
TOTAL DISBURSEMENTS		1,520,975.16
CASH BOOK BALANCE ON JUNE 30, 2004		$1,279,371.65

U.S. Treasury Bills	$ 1,055,724.87
Insured Money Market Accounts	216,479.84
Checking Accounts	7,166.94
	$ 1,279,371.65

G L O S S A R Y

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
CAVF	Corona Avenue vortex facility
CCMP	Comprehensive Conservation and Management Plan
CES	Center for Environmental Science
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
DO	dissolved oxygen
DOH	Department of Health
DPH	Department of Public Health
DPR	Department of Parks and Recreation
EPA	Environmental Protection Agency
EPF	Environmental Protection Fund
FDA	Food and Drug Administration
FEIS	final environmental impact statement
FY	fiscal year
GPM	gallons per minute
GPS	global positioning satellite
HARS	Historic Area Remediation Site
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
KMUA	Kearny Municipal Utilities Authority
LIS	Long Island Sound
LISO	Long Island Sound Office
LISS	Long Island Sound Study
LWRP	local waterfront revitalization program
MC	management committee
MCUA	Middlesex County Utilities Authority
MF	membrane filter
MG	million gallons
MGD	million gallons per day
MG/L	milligram per liter
MPN	most probable number
MUA	Municipal Utilities Authority
NCHD	Nassau County Health Department
NELAC	National Environmental Laboratory Accreditation Conference

G L O S S A R Y
(continued)

NELAP	National Environmental Laboratory Accreditation Program
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 Parks Service
N/PDES	National/State Pollutant Discharge Elimination System
NRDC	Natural Resources Defense Council
NWQMC	National Water Quality Monitoring Council
NYC	New York City
NYS	New York State
O & M	operation and maintenance
OPRHP	Office of Parks, Recreation and Historic Preservation
ORSTS	Oakland Ravine Stormwater Treatment System
PCB	polychlorinated biphenyl
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 reactor
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
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
WHEACT	West Harlem Environmental Action
WLA	waste load allocation
WPCA	Water Pollution Control Authority
WPCP	water pollution control plant
WQS	water quality standard
WWTP	wastewater treatment plant