

# INTERSTATE ENVIRONMENTAL COMMISSION

*A TRI-STATE WATER AND AIR POLLUTION CONTROL AGENCY*



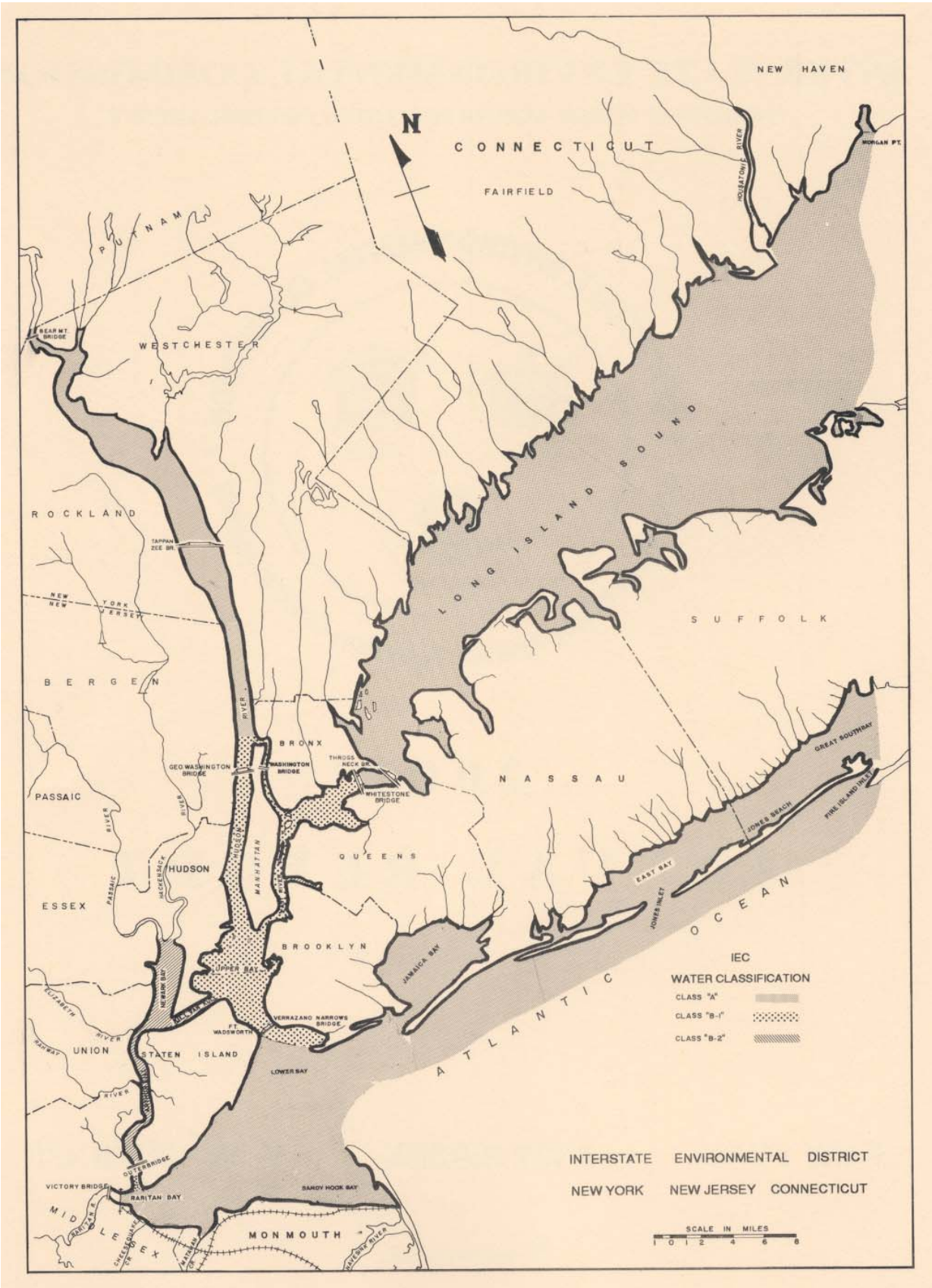
2001

## ANNUAL REPORT

NEW YORK

NEW JERSEY

CONNECTICUT



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*A TRI-STATE WATER AND AIR POLLUTION CONTROL AGENCY*



2001

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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January 24, 2002

The Honorable John G. Rowland

The Honorable James E. McGreevey

The Honorable George E. Pataki

and the Legislatures of the States of  
Connecticut, New Jersey, and New York

Dear Governors:

The Interstate Environmental Commission respectfully submits its report for  
the year 2001

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

Respectfully submitted,



For the State of Connecticut

Chairman

For the State of New Jersey

  
Vice Chair

For the State of New York

  
Vice Chair

formerly the  
INTERSTATE SANITATION COMMISSION

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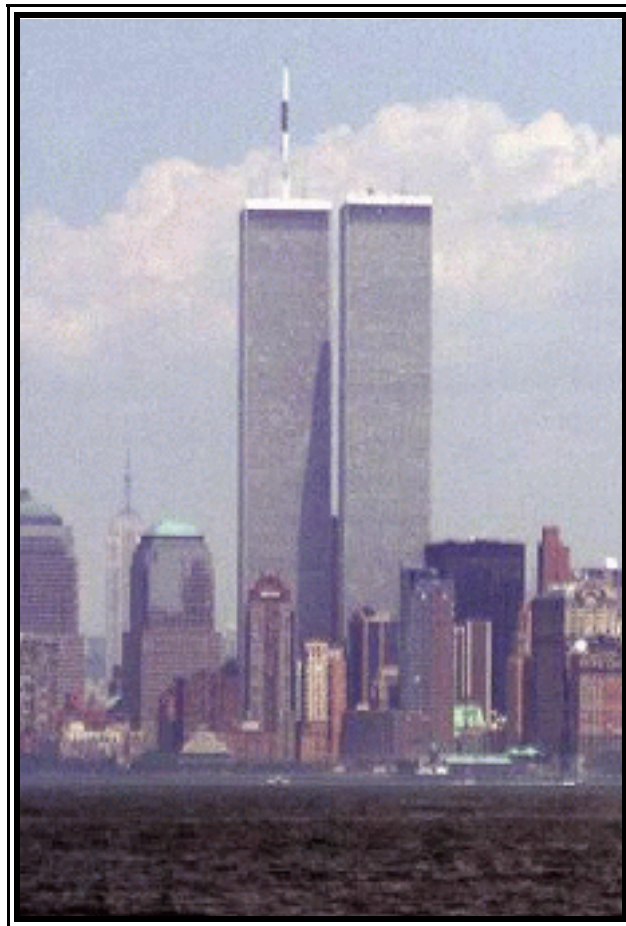
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**DEDICATION  
OF THE  
2001 ANNUAL REPORT  
OF THE  
INTERSTATE ENVIRONMENTAL COMMISSION**

This 2001 Annual Report of the Interstate Environmental Commission is dedicated to the memory of those who lost their lives in the September 11th terrorist attacks on the World Trade Center, the Pentagon and in southwestern Pennsylvania, and to their families, friends and colleagues.

The Commission offers its most profound appreciation and respect for the heroic efforts of the police, firefighters, EMTs, health care workers, government officials and all others involved in the unprecedented response to the tragic events of September 11th.



*PHOTO COURTESY OF KATHY VICORY  
TAKEN ON IEC'S BOAT INSPECTION TRIP ON AUGUST 1, 2001*

**STATEMENT OF THE CHAIRMAN  
OF THE  
INTERSTATE ENVIRONMENTAL COMMISSION**

As I complete my first year as Chairman of the IEC, I want to proudly report on the performance and accomplishments of our Commission during what has clearly been one of the most tumultuous and significant periods in the Commission's 65-year history.

During those hectic days following the terrorist attacks, I am, frankly, filled with pride to report that the Commission, superbly led by Executive Director Howard Golub and his excellent staff, was able to meet the challenge by swiftly and professionally making its services available, and by immediately supplying information on the locations of sewer outfalls in the affected area to aid in the monitoring of the runoff from lower Manhattan.

Although the tragedy of September 11th remains on all of our minds, the year was also marked by several events of particular importance to the environment. As part of our program to combat what is perhaps the single greatest remaining source of water pollution in the region, combined sewer overflows, we were one of the co-sponsors of a successful CSO/SSO Conference hosted by the New York and New England Water Environment Associations — a meeting of minds which helped bring the continuing problem into sharper focus.

In mid-June, just prior to the start of the 2001 bathing season, the Commission sponsored a timely and much needed regional conference on Bathing Beach Criteria in the tri-state Metropolitan Area, with the Center for Environmental Science of the College of Staten Island as a co-sponsor. The Commission was also a co-sponsor — along with New York's other interstate agencies — of the New York Water Environmental Association's Annual Legislative Forum which was held in Albany.

I am also pleased to note that our annual boat inspection trip covering areas of environmental concern — including the lower East River up to Roosevelt Island — attracted a record number of participants including legislators, environmental officials, members of the press and concerned citizens.

As Chairman of the sole interstate environmental agency in the tri-state area with both regulatory and enforcement powers, it is important to reaffirm the Commission's awareness of its responsibility to encourage and promote interstate environmental cooperation, and to remain fully informed on all matters and issues concerning the quality of interstate waters.



In that connection, for the 11th consecutive year, the Commission conducted its intensive sampling program in Long Island Sound, as well as played a major role as a member of the Management Committees and related work groups for both the Long Island Sound Study and the New York-New Jersey Harbor Estuary Program.

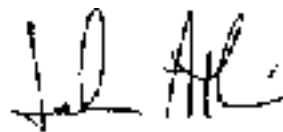
Additionally, it is noteworthy to report that on October 15, 2001, the New Jersey Department of Environmental Protection announced that an additional 5,425 acres in Raritan Bay — in the areas being sampled by the IEC — will soon be open for shellfish harvesting. This, I am proud to say, will add still more jobs and dollars to the region's economy.

In addition, the IEC's wide-ranging educational and outreach programs include the expanding relationships with our fellow interstate agencies to track issues of mutual interest on the administrative, policy and technical levels.

I also take particular pleasure in noting that as an expression of my home state's confidence in the Commission's work, the State of Connecticut has substantially increased its contribution to the funding of the IEC.

Space does not allow me to review the full scope of our water sampling, testing, regulatory and enforcement actions, but I am pleased that I can now refer you to the Commission's new website — **[www.iec-nynjct.org](http://www.iec-nynjct.org)**. It is still under construction, but it already offers a broad overview of the IEC's far-ranging programs and activities. In fact, this year's IEC Annual Report will be the first of many to appear on our website on a real time basis.

Looking back on this year marked by unspeakable tragedy, on behalf of the IEC Commissioners and staff, I want to make it clear that our resolve remains strong. We approach the future with a renewed sense of commitment to our overall mission — that of protecting the integrity of our environment.

A handwritten signature in black ink, appearing to read "John Atkin". The signature is stylized with a large "J" and "A".

John Atkin  
Chairman

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## I. EXECUTIVE SUMMARY

Like all Americans, we share in America's sorrow resulting from the terrorist attacks in New York City, Washington, D.C. and Pennsylvania. The Commission is proud to be a part of a nation that is demonstrating tremendous unity and determination as we return to work, resume our travels and carry on with our day-to-day lives. As always, we must adapt to adverse conditions, but rely on good science and sound engineering to maintain and rebuild. The Metropolitan Area is truly a water world containing a world class harbor that is able to support commercial and recreational industries.

With positive changes in the ecosystem, it makes sense to make appropriate changes in the day-to-day focus of water pollution control. Over the years, many of the area's environmental and health departments changed their names to better reflect their missions. Due to its interstate nature and jurisdiction, to change the name of the Commission takes the adoption of appropriate legislation in the three member states, followed by the Consent of Congress. On October 27, 2000, the President of the United States signed the Bill containing the language that changed the name of this agency from the Interstate Sanitation Commission to the ***Interstate Environmental Commission (IEC)***. The new name 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 toxics. However, the IEC's continuing emphasis is on water quality — an area in which the Commission is a regulatory and enforcement agency. This annual report, along with other information, will soon be available on the Commission's recently launched website — **[www.iec-nynjct.org](http://www.iec-nynjct.org)**.

In the 1920s, the Tri-State Treaty Commission recommended the establishment of a body to control and abate water pollution. Following their recommendation, the Tri-State Compact establishing the District and the Commission was enacted in 1936, with the Consent of Congress. The Commission initially consisted of the States of New York and New Jersey; the State of Connecticut joined the Commission in 1941. As its structure suggests, 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 political borders, the Commission can and does cross state lines. The Commission strives to harmonize water quality standards, regulations and requirements throughout its District. The IEC's work over the last 65 years has resulted in much of the compatibility that exists throughout the Region.

Over the years, the Commission's environmental programs and actions have greatly contributed to the improvements in the region's waterways. Milestones reached during the last two decades include the denial of applications for waivers from secondary treatment and the adoption of the year-round disinfection requirements which was instrumental in opening thousands of acres of shellfish beds year-round rather than only in the summer months. For the past several summer seasons, tri-state residents and tourists have suffered far fewer beach closings due to elevated levels of coliform bacteria. During 2000 and 2001, there were no beach closure days caused by floatables or medical debris. In an effort to eliminate or, at a minimum, lessen the impacts from planned



sewage bypasses, in 1997, the Commission amended its regulations to require mandatory notification to the IEC of 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 area beaches and shellfish beds. As part of this effort, regional notification protocols were developed and have been in place since the 1998 bathing season and have proved to be extremely effective. This is truly a regional success story.

In 2000, the Commission issued its Strategic Plan which contains a series of goals and strategies that will address the issues facing the Region in the 21st Century. 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 and IEC can cross state boundaries in an impartial and unbiased manner. The mission of the IEC is to protect and enhance environmental quality through cooperation, regulation, coordination, and mutual dialogue between government and citizens in the tri-state Region. The Commission is unique to the Region, but the environmental problems faced each day are not. By interacting with other 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 imposed by the current resources. It is encouraging that the ambient and effluent water quality sampling programs were somewhat increased this year, however, more needs to be done. Also, except for the Staten Island odor complaint answering service and limited investigations, the air pollution programs remain at a minimum level.

The objectives of the Commission's programs are 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, and other needs that may arise.

Public involvement, education and outreach programs remain a high Commission priority. In addition to its day-to-day activities, the Commission regularly testifies at public hearings and meetings on various issues of concern, and lectures at local schools, colleges and to community groups on subjects dealing with coastal pollution, oceanography, habitat, living marine resources, monitoring and data collection and analysis, and related Commission activities. During the past twelve years, the Commission has been a sponsor for Our World Underwater which gives young scholars the opportunity to get nationwide exposure to diverse organizations involved with the marine environment. Over the past nine years, law student internships have been awarded in conjunction with Pro Bono Students America/New York and New Jersey. For the third year, Commission staff have served as mentors for The River Project's Marine Biology Internship Program. The Commission regularly meets with and discusses issues of mutual concern with five similar interstate agencies concerned with water issues. During 2001, the Commission co-sponsored legislative and technical forums in Albany and Tarrytown, New York.

This report provides a record of the water and air pollution activities of the Interstate Environmental Commission for the period December 2000 through November 2001. 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 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 and storm sewers, participation in the National Estuary Program, 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 \$8.408 billion has been allocated by municipalities and bond act dispersements in the District for projects recently completed, in progress, and planned for the future.

For the fourth consecutive year, the Commission took the lead and coordinated the efforts of the Regional Bypass Work Group which is comprised of 16 federal, interstate, state, county and local agencies. The Work Group 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 calendar year ending November 16th, a combination of 102 raw sewage, illegal connections, treatment reductions, fuel oil, and sludge bypasses occurred, some of which resulted in closures.

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

- continued participation as an amicus curiae (friend of court) in a New York State case alleging that the City of New York violated several treatment facility permits when it exceeded limitations of nitrogen discharges,
- continued involvement and oversight of the Consent Orders designed to prevent debris from escaping from the Fresh Kills Landfill located on Staten Island, and
- filing necessary papers and currently awaiting a court scheduling of a permittee's appeal of a determination favorable to the Commission that the IEC's Regulations must be included in a NJPDES permit.

The Commission continues its commitment and active involvement with the Long Island Sound Study (LISS) and the New York-New Jersey Harbor Estuary Program (HEP). IEC continued to actively participate on the Management Committees for both of these National Estuary Programs and on various work groups for these studies. With the Comprehensive Conservation and Management Plans (CCMPs) for the LISS and the HEP in place, IEC is actively involved with the work groups that are dealing with total maximum daily loads (TMDLs) for nutrients, toxics and pathogens. The Commission attended, as well as assisted in the decision making process for public involvement events and products such as newsletters and fact sheets. The implementation processes under way are due, in part, to both the New York and New Jersey environmental bond acts which have earmarked significant resources to the HEP and LISS for a variety of pollution control and abatement projects, habitat restoration and research. In addition, the Commission has been involved with implementation teams, research proposal committees and interactions with citizen advisory committees.

IEC is continually updating its region-wide inventory of development projects within the District; this effort is presently in its fourteenth year. Among other things, this inventory contains estimates of the amount of sewage that will be generated by proposed projects. This information has been invaluable in determining whether the infrastructure — the sewage treatment plants and the sewer systems — has the capacity to accept additional wastewater from the construction of residential and mixed-use buildings, as well as hotels, marinas and recreational facilities.

IEC coordinates its compliance monitoring program with the three 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. 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 eleventh consecutive year as a participant in this important project. The Long Island Sound surveys were enhanced in 1998 with additional collection of water quality samples that allowed the Nassau County Health Department to identify phytoplankton species. Concurrently, water quality samples were collected at the request of NYS DEC, Marine Resources, to determine the presence of a toxic dinoflagellate, *Pfiesteria piscicida*. For the sixth year in a row, at the request of NJ DEP, during the winter and spring of 2000-2001, 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 Pathogen Work Group, IEC completed a series of 44 ambient water quality surveys of the entire New York-New Jersey Harbor Complex. These and other sampling programs are detailed in this report.

The IEC laboratory has been located on the campus of the College of Staten Island (CSI) since late 1993. In addition to its day-to-day operations, IEC's laboratory personnel continue to collaborate with CSI on environmental projects of mutual concern. The IEC laboratory is certified by New York State and New Jersey, and has continued to participate in the US EPA's Water Pollution Laboratory Evaluation Program and Water Supply Microbiology Performance Evaluation Study. The laboratory has also been accepted into 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 at a reduced level, including IEC's Staten Island field office remaining closed as has been the case since mid-1989. The Commission'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 2000 through September 2001, the Commission received 15 air pollution complaints — a decrease of 16.7% over the previous 12 months. As has been the pattern, all of the calls originated from Staten Island. This year, the Commission received more than three complaints from two neighborhoods, New Brighton and Sunset Hills, during the reporting period. Citizen complaints have proven to be an invaluable source of firsthand information about poor air quality. Accurate odor descriptions could lead to the discovery of the emissions sources. The majority of the odors reported were undescrivable.

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 38 health messages — 26 for ozone and 12 for fine particulates — between May 3rd and September 24th to the appropriate government environmental and health agencies throughout the region.



*PHOTO COURTESY OF KATHY VICORY  
TAKEN ON IEC'S BOAT INSPECTION TRIP ON AUGUST 1, 2001*



## II. WATER POLLUTION

### GENERAL

During 2001, in the Interstate Environmental District, approximately \$8.408 billion was allocated for 277 water pollution control projects which were either completed, in progress, or planned for the future. These monies were allocated in the following manner: over \$125.1 million for 55 completed projects, more than \$5.3628 billion for 134 projects in progress, and more than \$2.92 billion for 88 future projects. These expenditures are being used for engineering studies, pilot projects and experiments; CSO abatement projects; 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.

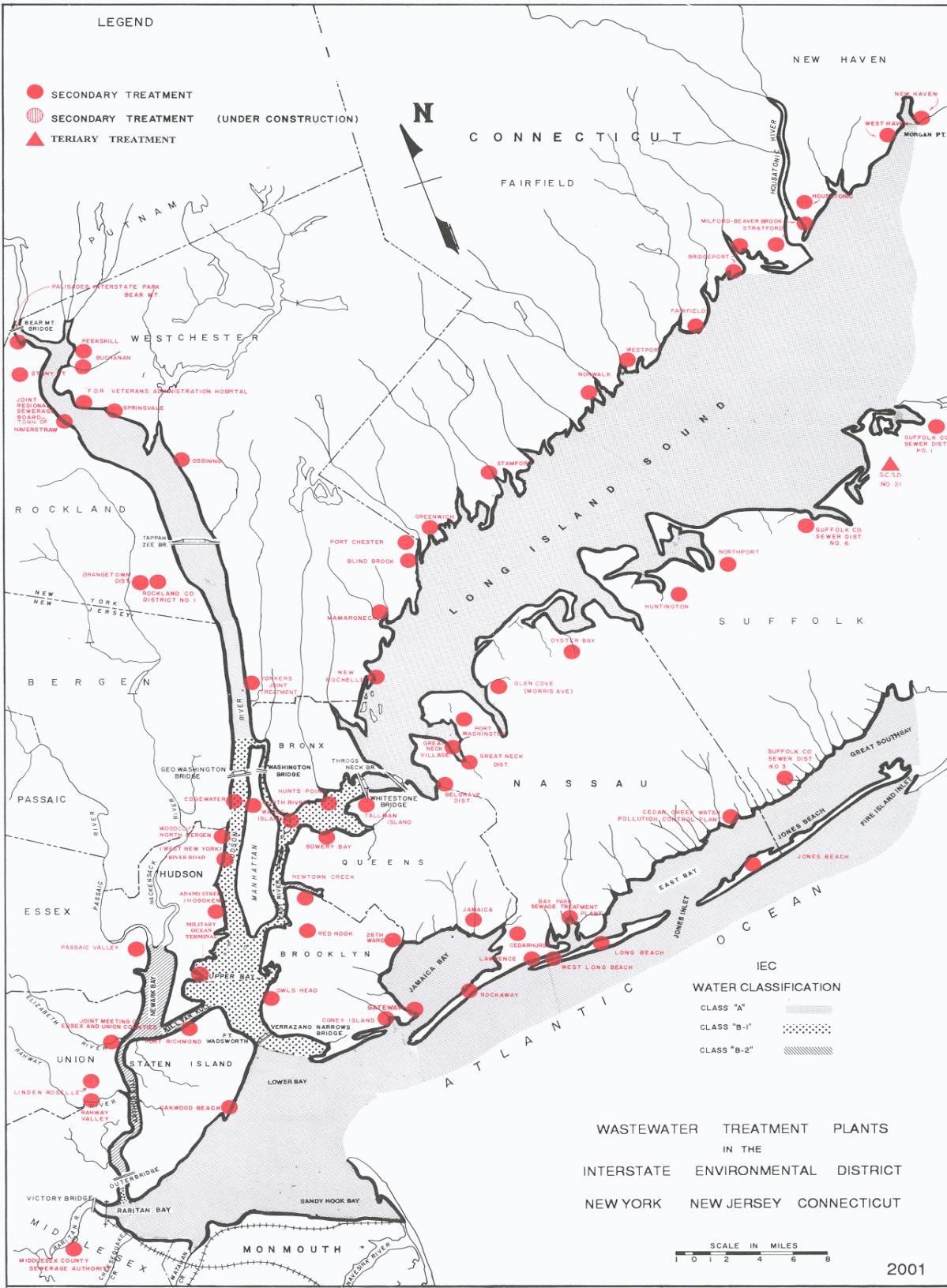
The Commission has long advocated adequate infrastructure as a necessity for maintaining and improving receiving water quality, as well as for minimizing use impairments. These tremendous expenditures on the infrastructure have resulted in significant water quality improvements throughout the District 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 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, nutrient enrichment, 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 2001.

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





## CONNECTICUT WATER POLLUTION CONTROL PLANTS

The Long Island Sound Study — part of the National Estuary Program — is a partnership of federal, state, interstate, and local agencies, universities, environmental groups, industry and the public in a program to protect and restore the health of Long Island Sound. The main focus has been controlling hypoxia, or low dissolved oxygen concentrations, that are typical during summer seasons. Southwest coastal Connecticut is entirely within the study area and represents the Connecticut portion of the Interstate Environmental District. The Long Island Sound Study launched a three phase program for nitrogen reduction.



In December 1990, the LISS Policy Committee adopted a “no net increase” policy for nitrogen discharges from wastewater treatment plants. As part of Phase II, Connecticut allocated approximately \$18.1 million to reduce its aggregate, annual nitrogen load by 900 tons from the 1990 baseline. All 12 Connecticut facilities discharging to the Interstate Environmental District are incorporating interim and long-term denitrification processes. In 1998, Phase III Actions for Hypoxia Management established a 58.5% reduction in nitrogen loadings over the next 15 years (2014) for 11 management zones that comprise the Connecticut and New York portions of the Long Island Sound watershed.

On April 5, 2001, the US EPA approved a Total Maximum Daily Load (TMDL) on the amount of nitrogen that the Sound can assimilate. The TMDL allocates portions of the allowable level of nitrogen to pipe-in-the-water point sources and nonpoint sources. TMDLs are required by the Clean Water Act for all impaired waters in order to reverse the impairment. It has been determined that the controls identified in this TMDL will allow the Sound to meet dissolved oxygen standards.

Refer to the individual plant write-ups and the National Estuary Program section for additional information.

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

#### Completed Projects

The complete rehabilitation and capacity expansion of all unit processes at the East Side plant was completed on September 1, 2001. The final cost was re-estimated at \$40 million. This secondary activated sludge plant was expanded from 10 to 12 MGD. The total facility upgrade included the overhaul of the preliminary, primary, and secondary treatment

units, and modernization of the electrical/mechanical equipment, as well as pumps and associated instrumentation.

An engineering study was completed which assessed the process modifications required for nutrient removal at both facilities. This assessment is estimated to cost \$350,000.

#### Projects in Progress

A phased construction multi-year CSO improvement program has been ongoing since 1991 in the Bridgeport drainage basins which consist of 3,880 acres. This ongoing improvement program is estimated to cost \$27 million. During the extent of this program, which is planned for completion in 2002, 40 CSOs which discharge into Black Rock and Bridgeport Harbors will be eliminated and the 19 remaining CSOs will be monitored by a remote telemetering system. The Water Pollution Control Authority has also allocated about \$1.5 million per year for sewer system rehabilitation in both drainage basins; this agenda is ongoing.

#### Future Projects

Both treatment facilities are operating under State Consent Orders to improve plant performance and attain secondary treatment capabilities. The Authority negotiated new compliance dates with the City of Bridgeport during 1994 which was modified December 12, 1996.

It is proposed that both plants share sludge disposal facilities which are estimated to cost \$27.3 million. A sludge incinerator will be sited at the East Side plant. Force mains, which are to be installed on land and subaqueously beneath Bridgeport Harbor, will convey sludge from the West Side plant to the East Side plant. A construction schedule has yet to be released.

A biological nutrient reduction retrofit is planned to be under way during March 2002. Cost estimates were not available; the bidding process began during the 2001-2002 winter season.

### Fairfield, Connecticut (Fairfield County)

#### Project in Progress

This facility is operating under a State Consent Order that requires plant upgrades. The Order requires operational levels of secondary treatment by November 2002. Plant modifications, which are 72% complete, include rebuilding the existing facilities, installation of UV disinfection, converting one digester to a waste sludge holding tank, three new

clarifiers, additional aeration tankage and an expanded biofilter for odor control. The cost is estimated at \$32 million. An operational start-up is planned for June 2002. Additional nitrogen removal retrofits will be implemented as needed.

#### Greenwich (Grass Island), Connecticut (Fairfield County)

##### Future Project

This 12.5 MGD secondary activated sludge plant is operating under a 1995 State Order to eliminate overflowing manholes in the Byram and Old Greenwich neighborhoods, as well as complete the Phase II biosolids improvements. The Order requires substantial completion by March 2003.

Under way during this past September, a biosolids handling facility is being installed at a re-estimated cost of \$11.4 million. This construction schedule includes a new belt press, odor controls, truck bay, thickener retrofits and the elimination of two digesters.

#### Milford- Housatonic, Connecticut (New Haven County)

##### Project in Progress

A facilities study is 40% complete and is estimated to cost \$500,000.

#### New Haven - East Shore, Connecticut (New Haven County)

##### Completed Projects

Three engineering studies were completed during this reporting period. The long-term CSO control plan incurred costs of \$2 million. At a final cost of \$85,000, the East Shore gravity thickener and Phase III odor control improvements were completed last April. Finally, a regional septage study was completed at a final cost of \$200,000.

##### Projects in Progress

A preliminary SSES is 75% complete. The \$400,000 study is anticipated to be complete during April 2002.

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, the work is approximately 20% complete and will commence based on the recommendations of the SSES.

The Boulevard and East Street pump stations are being modified with new control

systems in order to improve operating efficiency. Overall, the pump stations are 70% complete; will accrue costs of \$800,000; and will be operational during the 2001-2002 winter season.

### Future Projects

An engineering design study has determined the capacity needs for the Barnes Avenue and Quinnipiac Avenue pump stations. Re-estimated to cost \$4.1 million, the existing Quinnipiac Avenue pump station will be rehabilitated and the antiquated Barnes Avenue facility and force main will be replaced. This work will have an approximate operational start-up of March 2004. The out-dated Morris Cove pump station will be replaced at an estimated \$4.5 million. Construction is anticipated to begin during March 2003.

Two engineering studies are proposed in which alternative standby power for the main sewage pumps and a low level nitrogen removal assessment (~\$200,000) will be made. These projects are anticipated to start January 2002.

Re-estimated to cost \$1.5 million, the East Shore main sewage pumps will be replaced with smaller, more efficient pumps to better match flow conditions and reduce energy costs. Construction is planned for January 2002.

Anticipated to begin during June 2003, a regional septage receiving and handling facility will be built. A cost estimate of \$3.5 million was quoted to complete this project.

## Norwalk, Connecticut (Fairfield County)

### Future Project

Isolated portions of the Norwalk drainage basin are served by combined sewers. No construction agenda is scheduled, but sewer separation work (~\$100,000) is proposed for fiscal year 2002.

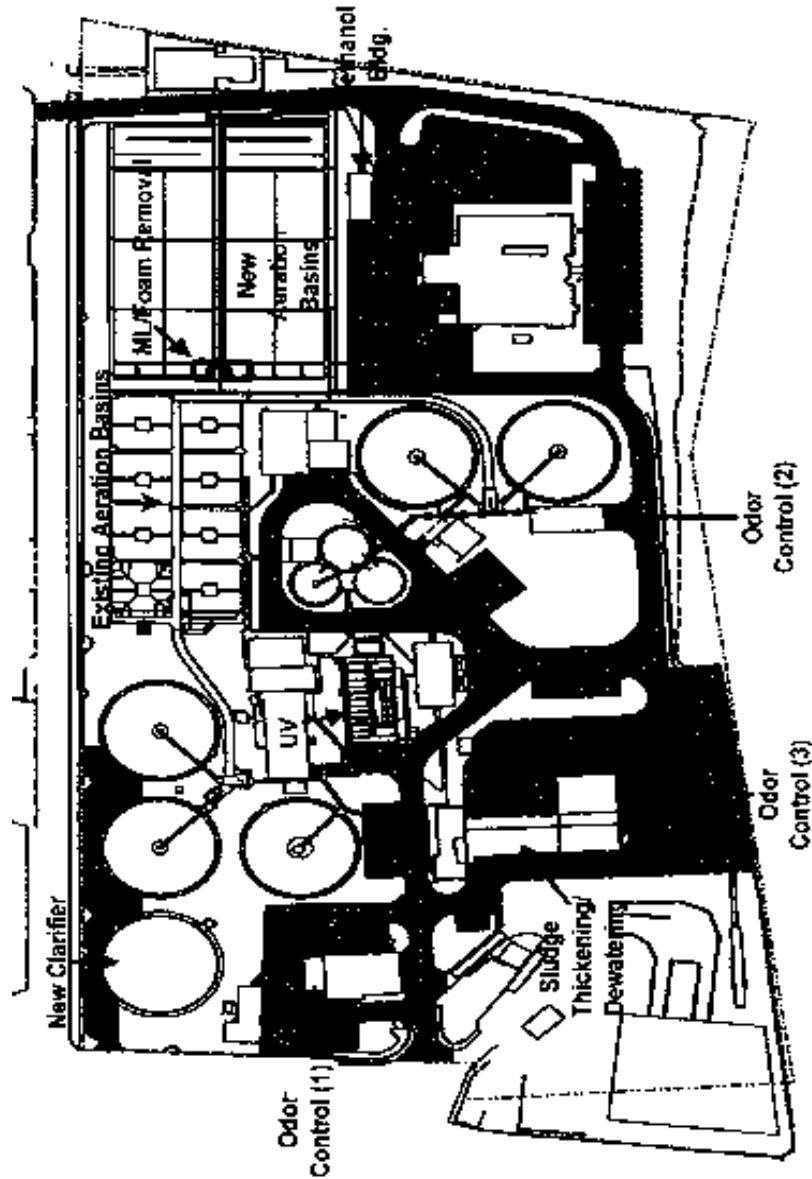
## Stamford Water Pollution Control Authority, Connecticut (Fairfield County)

### Projects in Progress

This facility is operating under a State Consent Order to upgrade, expand and implement nitrogen removal capabilities. Consent Order compliance dates are requiring substantial completion by 2005. Upgrading and expansion of this 20 MGD secondary facility has been rescheduled to begin during October 2001. This four-year construction program was also re-estimated to cost \$104 million. The plant renovation and upgrade will include high efficiency BNR technology and sludge processing equipment.



STAMFORD WATER POLLUTION CONTROL AUTHORITY  
FAIRFIELD COUNTY, CONNECTICUT



PROPOSED SITE PLAN FOR FACILITY  
UPGRADE AND EXPANSION  
COURTESY OF SWPCA



Under way since this past September, new sewers are being installed to connect 140 properties which are currently using septic tanks. The one-year project is estimated to cost \$2.5 million.

#### Stratford, Connecticut (Fairfield County)

##### Future Project

A proposal for capacity expansion in conjunction with a facility-wide upgrade, has recently been approved by the Town of Stratford and is now awaiting a Consent Order by CT DEP. Total cost estimates range from \$52 to \$60 million to complete all construction phases.

#### West Haven, Connecticut (New Haven County)

##### Completed Projects

An odor control system was installed and operational during February 2001. The \$4.1 million project included a three-stage air scrubber through which the odor source buildings will be ventilated, treated and released through a biofilter with scrubbers for the purpose of eliminating or lessening impacts on the surrounding neighborhoods.

I/I lining and pointing repairs to the brickwork were completed during January 2001 at a final cost of \$1.2 million.

##### Projects in Progress

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

Three major facility and collection system projects are going out to bid during the 2001-2002 winter season. Collectively, the projects are estimated to incur costs of \$1.6 million. The projects include 8,000 linear feet of new 12-inch diameter (12"Ø) force main to service the Oyster River pump station, a new septage receiving area for the Town of Orange and a new plant-wide pump system to deliver effluent water to the belt filter press, gravity belt filter and incinerator.

#### Westport, Connecticut (Fairfield County)

##### Completed Project

Finished during early 2001, the replacement of a secondary digester cover was installed at a final cost of \$285,000.

### Projects in Progress

This facility was operating under a State Infiltration/Inflow Abatement Order. In addition, a State Consent Order was issued on April 3, 1998, to address and implement odor abatement corrective measures. A facility plan, which is 90% complete, will address all Order stipulations. The State has accepted the I/I evaluation and a program of implementation will be included in the aforementioned facility plan.

### Future Projects

At an estimated cost of \$250,000, the Church Street sewer replacement was postponed one year until the summer of 2002.

Estimated to cost as much as \$35 million, a complete facility upgrade with nitrogen reduction capabilities is planned to begin during 2004.



## NEW JERSEY WATER POLLUTION CONTROL PLANTS

The New Jersey Department of Environmental Protection developed a CSO Strategy in 1990 which was approved by US EPA on July 9, 1996. To address the "Nine Minimum Controls", NJ DEP issued a CSO General Permit in 1995 to 19 NJPDES permittees state-wide with 244 CSO outfalls. Individual permits were also issued to 10 permittees with 36 CSO outfalls. Specifically, the General Permit prohibits dry weather overflows and requires planning, design and construction of facilities that will capture and remove solids and floatables which cannot pass through a bar screen having a spacing of 0.5 inches. All communities have completed the planning of these projects; 82% are now in the design phase or have completed the design, and 14% are now in the construction phase. The projected cost of these control facilities totals \$306 million of which approximately \$122 million has been awarded. The General Permit also began the process by requiring all permittees to develop and submit a CSO discharge characterization study. This study is to consist of a calibrated and verified CSO model which represents the system's response to wet weather events. The studies are either completed or being completed by the CSO communities.

### Bayonne Municipal Utilities Authority, New Jersey (Hudson County)

#### Project in Progress

The Bayonne primary facility 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 \$4.99 million (eligible project cost) low interest loan in 1999 for CSO abatement and sewer system upgrades from the New Jersey Environmental Infrastructure Trust. The Trust works in partnership with NJ DEP to provide low interest loans for the construction of a wide variety of clean water and drinking water projects. During 2000, the Bayonne MUA received an additional award of \$8.9 million for CSO abatement projects.

The treatment plant at the closed Military Ocean Terminal is now under the auspices of the Bayonne MUA. Refer to the Military Ocean Terminal write-up for additional information.

### Edgewater, New Jersey (Bergen County)

#### Completed Project

The Edgewater drainage basin began to implement a combined sewer overflow abatement and sewer separation project during mid-1998. The first contract, estimated to cost \$565,000, involved the elimination of three regulators and associated outfalls discharging to the Hudson River. The second phase was completed during 2000 and involved the installation of floatables controls (in-line netting) at the Washington Lane

regulator chamber. The third phase was completed during 2001 which involved sewer separation to eliminate three regulators.

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. The Trust works in partnership with NJ DEP to provide low interest loans for the construction of a wide variety of clean water and drinking water projects. 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 11 in-line and 4 end-of-pipe netting facilities and tide gates to capture solids and floatables, and rehabilitate one CSO regulator.

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

Completed Projects

Completed and operational during 2001 were four modernization projects. First, an anaerobic sludge digester was rehabilitated and upgraded at a final cost of \$3.2 million. Secondly, the dechlorination system was upgraded and incurred costs of about \$1.8 million. Two main sewage pumps were put back on line at a final cost of \$1.6 million and finally, the grit and screenings facility improvements incurred costs of \$0.9 million.

Trunk sewer rehabilitation throughout the service area began during May 1997 and will continue on an as needed basis. A 42-inch diameter (42"Ø) trunk sewer under went rehabilitation in Millburn, New Jersey, a customer municipality serviced by this facility, during 2001 with final costs of \$142,000.

Projects in Progress

Various building rehabilitations plant-wide are ongoing and are anticipated to cost \$900,000. Final clarifier upgrades are 45% complete and will cost about \$1.0 million.

The City of Elizabeth, a customer municipality serviced by this facility, received low interest loans from the New Jersey Environmental Infrastructure Trust's Environmental Infrastructure Financing Program in the amount of \$7.621 million. The sale of these bonds will provide for combined sewer overflow abatement consisting of the construction of solids/floatables control facilities and/or sewer separation in the vicinity of the City's 19



CSOs. The CSO outfalls are located on the Arthur Kill and Elizabeth River. The Trust works in partnership with NJ DEP to provide low interest loans for the construction of a wide variety of clean water and drinking water projects.

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

*PHOTO COURTESY OF JOINT MEETING*



NEW DIGESTER COVERS

Future Project

Sludge thickener upgrades are planned to begin during the 2002 spring season. The one-year construction schedule is estimated to incur costs of \$3.1 million.

Kearny Municipal Utilities Authority, New Jersey (Hudson County)

Projects in Progress

An evaluation of the Hackensack Avenue sewer began during September 2000. Under way since 2000, new mechanical bar screens are being installed at the South Kearny

pump station. Sewer lining of about 1,200 linear feet of existing sewer and stormwater separation was also started under this contract. These collection system projects are estimated to cost \$650,000 and were scheduled to be complete during 2001.

#### Future Project

During November 1990, this primary facility was converted to a pump station and diverted all flows to the PVSC regional facility for treatment. Completed during November 1998, the Harrison Avenue pump station went on-line to convey flows to the existing South Kearny pump station and then to the PVSC facility. The Authority has identified several process modifications that would improve operations and/or decrease costs. A phased construction schedule costing about \$5.0 million will address necessary immediate upgrades and be followed by a long-term planning and financing program. The first phase will address equipment upgrades, repairs and installations. The second phase will involve sanitary and stormwater sewer separation and sewer extensions. Refer to the PVSC write-up for additional information.

#### Linden Roselle Sewerage Authority, New Jersey (Union County)

##### Completed Project

Operational during January 2001, a variable speed controller for the influent wastewater pumps was installed. Costs incurred for the 4-month project was over \$299,700.

##### Projects in Progress

Recently under way during this past October, the main building is being rehabilitated. Specifically, \$430,000 will be spent to replace all electrical boxes. Additional upgrades are being assessed for this building, as well as the sludge storage facilities.

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

##### Completed Projects

A 20 megawatt power generation facility, fueled by methane gas recovered from a landfill, was complete and operational during September 2001. This energy source will be used to fuel the new 250 ton per day cryogenic oxygen plant. Collectively, these facilities incurred costs of \$30 million. This new complex is located across the Raritan River in New Brunswick, New Jersey, and will supply electricity and steam via subaqueous piping for various treatment processes.

A new maintenance department building was constructed at a final cost estimate of



\$1.4 million. Occupancy during the 2002 winter season is expected after punch list items are addressed.

Completed during the 2001 spring season, 3 MGD of secondary effluent is being filtered and reused for pump seal water, odor control systems and other process needs. The final cost estimate was \$1.5 million.

MIDDLESEX COUNTY UTILITIES AUTHORITY  
MIDDLESEX COUNTY, NEW JERSEY



PHOTO COURTESY OF MCUA

DISTILLATION COLUMN BEING PLACED ON COLD BOX  
OF NEW OXYGEN PLANT

### Projects in Progress

This facility is operating under a State Consent Order (last modified May 1998) to identify I/I and develop alternatives to correct the extraneous flows. Engineering studies that are in progress address water quality impacts on the Raritan River (75% complete and estimated at \$86,000) and land-based sludge management improvements (design phase).

Recently under way (10% complete), new disinfection facilities (building, tanks and associated piping) utilizing sodium hypochlorite are being installed. The re-estimated \$1.3 million project is expected to be operational during March 2002.

The borough of Keansburg, which is served by this facility, received \$292,000 in the form of a low interest loan from the New Jersey Environmental Infrastructure Trust's Environmental Infrastructure Financing Program for a stormwater management project consisting of underground piping, roadway grading, and installation of curbing and gutters in order to reduce nonpoint source pollution to the Waackaack Creek, a tributary of Raritan Bay.

### Future Project

Planned for 2002, MCUA will build dryers and install mixers with ancillary equipment to reduce the volume and operating costs of the sludge end product. This one-year project is expected to cost \$30 million.

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

### Completed Project

In place lining of 12,270 linear feet of gravity sewer lines was completed during the late 2001 summer season at a final cost of \$988,900.

### Projects in Progress

Expansion and upgrade construction to this 10.8 MGD secondary activated plant was completed in 1986. At that time, the Boroughs of Atlantic Highlands and Highlands which are located on Sandy Hook Bay, diverted flows to this facility for treatment and began discharging treated effluent outside of the Interstate Environmental District. During 2001, this facility treated a monthly average of 7.47 MGD, producing 7,500 wet tons of sludge for a service area of 75,000 people.

An I/I study for North Middletown is just under way during the 2002 winter season and is estimated to cost \$100,000.

Anaerobic digester cleaning and improvements are over 75% complete and are planned to be operational during December. Rehabilitation includes painting and repairing of structures, as well as the installation of new mixing equipment. Cost estimates for all work is about \$1.053 million.

#### Future Project

Planned to begin on May 1, 2002, a five-month agenda will include the replacement of two dissolved air flotation sludge thickeners with gravity belt thickeners. The estimated cost is \$500,000.

### Military Ocean Terminal, New Jersey (Hudson County)

#### Future Project

This property was decommissioned as a military base during the fall of 1998 and is now reverting to the City of Bayonne. The Local Redevelopment Authority has proposed a \$32 billion plan to develop 18 million square feet of commercial and residential space. The 437 acre site is located in Upper New York Harbor. The proposal includes a port facility, townhouses, office space, movie production facilities, a marina and retail complex.

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

#### Completed Project

Diesel engine rehabilitation was completed during March 2001 and incurred a final cost of nearly \$455,000.

#### Projects in Progress

An engineering study which began during July 1998 includes a dynamic mixing zone analysis and a biological survey to determine the effects of chlorinated municipal wastewater on the marine environment. The three-year study will cost \$26,250.

#### Future Project

The Authority has a 10-year capital program to address infrastructure maintenance, improvements, monitoring equipment upgrades and sludge disposal. The program has a budget of over \$1.5 million.

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

Project in Progress

There are ongoing negotiations between this facility and the NJ DEP to upgrade the plant design flow from 2.9 MGD to 3.4 MGD.

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

Completed Project

This facility has met the requirements of a State Administrative Consent Order (issued May 22, 1995) to eliminate the effects of CSOs. During 2001, the facility met all Order dates and completed an engineering study dealing with CSO abatement at a cost of \$1 million.

Project in Progress

The aforementioned engineering study involves modeling of the interceptor system and will identify alternatives, both structural and nonstructural, for the ultimate control of solids and floatables discharged to the Hudson River. Construction to consolidate two outfalls and implement in-line capture devices is 90% complete and is estimated to incur costs of \$2.6 million.

Future Project

Anticipated to begin during 2002, additional CSO abatement facilities will be installed along the Hudson River in Weehawken, New Jersey. Estimated expenditures will amount to \$18.4 million.

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

Completed Projects

This facility has met the requirements of two State Administrative Consent Orders to eliminate the effects of CSOs and toxicity and plant performance during 2001.

Future Project

Re-estimated to begin during 2002, CSO abatement facilities will be installed along the Hudson River. Estimated expenditures will amount to \$5 million and will be operational

during 2003.

#### Passaic Valley Sewerage Commissioners, New Jersey (Essex County)

##### Projects in Progress

This facility is operating under federal and State Consent Orders to address alternatives for beneficial reuse of biosolids (September 1989) and to comply with secondary effluent limitations (August 1995). This facility was the subject of an Adjudicatory Hearing requested by IEC regarding the omission of the Commission's Water Quality Regulations in the NJPDES permit issued to PVSC. Refer to the Legal Activities section of this report for additional details.

An engineering study is under way to evaluate necessary modifications to the secondary processes.

A construction upgrade is well under way. This upgrade includes the replacement of existing mixers and gas recirculation compressors with new surface aerators, a new electric distribution system for the oxygenation tanks, and the installation of the oxygenation tankage instrumentation and controls. The latest cost estimate for this work is over \$20.8 million.

A sewer rehabilitation project is re-estimated to cost \$3.9471 million and is ongoing.

PVSC received a \$23.2 million (eligible project cost) low interest loan for improvements to the sludge handling facilities from the New Jersey Environmental Infrastructure Trust. The Trust works in partnership with NJ DEP to provide low interest loans for the construction of a wide variety of clean water and drinking water projects.

#### Rahway Valley Sewerage Authority, New Jersey (Union County)

##### Completed Projects

Treatment plant upgrades completed recently involved the rebuilding of the main influent pumps (December 2000) and intermediate pumps (August 2001) at final costs of \$50,000 and \$133,000, respectively. Additionally, a diesel engine overhaul was completed; no costs were available for this work item.

##### Projects in Progress

A new liquid waste receiving facility is 95% complete. The unit was operational during October 2001 and is estimated to cost \$103,000. Additional rehabilitation is addressing a grit chamber (20% complete), installation of new railings and gratings at the



primary settling tanks (10% complete) and replacement of DC motor drives with new AC motor drives at the sludge dewatering pumping facilities (20% complete). Collectively, these upgrades are expected to cost \$649,000 and be operational during the 2002 winter season.

Construction of a new laboratory is 40% complete (\$1.6 million) and is anticipated to be operational during early 2002.

### Future Projects

Four major upgrades are planned to begin during June 2002. First, a new centrifuge will be installed at the sludge dewatering facility (\$2.7 million). Secondly, two air handling units will be replaced with new energy recovery equipment (\$850,000). Rehabilitation of a digester with new mixing and pumping systems (\$4 million) and the removal and replacement of service water and foam spray pumps (\$400,000) are the final items.

Planned to begin during January 2003, a cogeneration sludge drying facility will incur estimated costs of \$16.7 million.

A three-year construction schedule will be needed to expand the existing plant (40 MGD) to accommodate wet weather flows due to the elimination of CSOs. The \$64 million expansion will include filtration, disinfection and clarification, as well as force mains and onsite/offsite pump stations to convey flows. This major undertaking is anticipated to be operational during January 2007.



The IEC research vessel, R/V Natale Colosi



## NEW YORK WATER POLLUTION CONTROL PLANTS

The Clean Water/Clean Air Bond Act was passed by voter referendum in 1996. Statewide, the \$1.75 billion bond act provides \$790 million for water quality projects, \$355 million to protect potable water supplies, \$175 million for recycling and landfill closures, \$200 million for brownfields reclamation, and \$230 million for clean air projects. The types of water quality improvement projects considered for funding include wastewater treatment, agricultural and nonagricultural nonpoint source abatement and control, aquatic habitat restoration, and pollution prevention. Within the New York-New Jersey Harbor Estuary, which is encompassed by the Interstate Environmental District, \$2 million was made available to fund water quality improvement projects for New York State FY'2001. This funding is being used for projects to implement management plans and other activities that will protect and enhance water quality and aquatic habitat.



The Clean Water/Clean Air Bond Act's Clean Water Programs are administered by the New York State Department of Environmental Conservation; the Office of Parks and Recreation, and Historical Preservation; the Environmental Facilities Corporation; the Department of State and the Department of Agriculture and Markets. These agencies represent the interagency Bond Act implementation group which integrates administrative responsibilities under the Bond Act and coordinates related projects.

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

#### Completed Project

Operational during November 2000, modifications are complete on a fifth aeration tank which replaces a fluid bed reactor system. Final costs incurred were over \$10.65 million.

#### Projects in Progress

Aluminum covers are being installed atop the facility's five aeration tanks. A counter-current wet scrubber odor control system is also being built concurrently. The system will treat the exhaust air drawn from the newly covered tankage. Construction is under way (18% complete) with costs estimated at over \$16.9 million.

### Belgrave, New York (Nassau County)

#### Completed Project

A denitrification pilot study was finalized recently at a cost of \$130,000. The results of this BNR application will require this facility to seek other alternatives.

#### Project in Progress

Recently under way (5% complete), the secondary digesters are being overhauled with new valves, piping and covers. Final costs are re-estimated at about \$960,000. This cost also includes the replacement of safety rails and gratings throughout the facility. An operational start-up is anticipated for February, 2002.

### Blind Brook, New York (Westchester County)

#### Future Projects

Phase II Automation design work was completed and went to bid during the 2001 fall season. This phase will increase operator control via a Supervisory Control and Data Acquisition (SCADA) telemetry control system. Construction and installations are estimated to cost \$700,000 and be complete during 2002.

Two projects planned at this facility include refurbishing of the influent headworks and replacement of the sludge collection equipment. No costs or start-up date were available.

### Bowery Bay, New York (Queens County)

#### Projects in Progress

The Bowery Bay WPCP upgrade is a multi-phase modernization intended to improve process efficiency, reduce manpower requirements and improve reliability. These measures will ensure compliance with all applicable SPDES permit requirements and Consent Orders. Bowery Bay is located on the upper East River south of Rikers Island.

Phase I is a \$213 million, 3½-year construction phase which is currently under way. This phase includes most of the wet stream processes. The major items include the replacement of the above ground air header, upgrading of the return sludge system, replacement of the main sewage pumps, replacement of the mechanical components of the disinfection system, and the installation of a distributed control system. Essential structures to be built are a combined residuals handling facility to handle grit, screenings, and scum under one roof, as well as an expansion of the main building to provide for additional

electrical and boiler equipment.

Phase II is currently under design. This 3-year construction phase will include all aspects associated with the solids handling facilities. These include mechanical, structural and architectural work on the gravity thickeners, digesters and conversion of sludge storage tanks to digesters.

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. Under way since July 2001, all 14 plants are being evaluated in regards to meeting proposed total chlorine residual permit limits.

The fourteen NYC drainage basins are serviced by a combined sewer system which has approximately 500 outfalls. 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. City-wide, there are 382 regulators with tide gates. 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.

A City-wide CSO abatement program is under way. 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.

A total of \$1.5 billion has been committed by New York City for a CSO program which is currently in its fourteenth year. Structural and nonstructural solutions are being evaluated and prioritized. Final implementation is scheduled between 2001 and 2006. 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.

The second geographical area addresses the needs of Jamaica Bay. 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. These projects are anticipated to accrue \$96.205 million in construction management fees. Preliminary design is under way for regulator improvements. Additional fees of \$10 million are estimated to determine designated use and the attainment of state standards in the receiving marine waters.

The NYC DEP is conducting 23 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 under way in Jamaica Bay and its tributaries, Bronx River, Hutchinson River, New York Harbor and East River.

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

### Future Projects

Phase III of the Bowery Bay upgrade will include work related to BNR and odor control. In order to comply with nitrogen reduction requirements, this phase will include new blowers, air headers and diffusers, methanol and alkalinity addition. At the present time, air modeling is being performed to determine the necessity for covering process units and the treating of the off-gasses. It is anticipated that it will be necessary to completely cover the primary influent channels, partially cover the primary tanks, and completely cover the thickeners. This phase is under Consent Order and must be constructed and operational by December 31, 2010.

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

Completed Projects

Since February 2001, a new aeration tank odor control facility was operational.

The collection system, which involved the rehabilitation of seven pump stations, was operational during August 2001. The stations were updated with new pumps, controls and superstructure repairs. Beginning in August 1998, the final costs incurred were \$8.749 million.

Projects in Progress

Under way since 1999, main plant installations include aluminum covers for the aeration tanks and new effluent channels. Concurrently, a counter-current scrubber odor control system is being installed to treat the exhaust air drawn from the aeration tanks. These items are estimated to cost \$14.5 million; collectively they are 92% complete and are scheduled to be on-line during December 2001.

Recently under way, a compressor facility is being constructed so as to upgrade the existing conditions and allow digester gas to be used for the plant's boilers. A cost estimate for this work is \$7 million.

Future Project

An engineering study has evaluated long-term alternatives for sludge dewatering. Subsequently, a sludge dewatering facility with new belt filter dewatering equipment and ancillary systems, estimated to cost \$32.344 million, will have a three-year construction schedule ending in 2005.

Cedarhurst, New York (Nassau County)

Future Projects

Estimated to cost \$1.0 million, several plant improvements will be installed during the spring 2002 season. The new treatment units will include an influent screening station, influent pumps and controls, and primary digester tank covers. This work agenda will also address pump station upgrades, as well as miscellaneous improvements as needed.

## Coney Island, New York (Kings County)

### Projects in Progress

The Coney Island WPCP upgrading 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 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 miscellaneous punch list items. All Consent Order construction work has also been completed.

Phase 5b is approaching design completion and being readied for bid. The scope of work includes building a plant laboratory and visitors' center and miscellaneous work. The construction cost estimate is \$36.8 million and will take 30 months.

Ongoing in-house engineering studies dealing with plant processes are addressing the efficiency of the chlorine mixing pump(completed May 2001), polymer addition to the thickeners and a computerized information access system.

Paerdegat Basin, a tributary of Jamaica Bay, was a fresh water-fed creek that has been channelized and bulkheaded. This waterway is bounded by a dense residential community. The objective of the Paerdegat Basin CSO facility is to improve the water quality by substantially reducing CSOs during rainstorms. The facility plan includes the maximized use of existing facilities (sewers, interceptors and Coney Island WPCP) amounting to 20 MG of in-line storage. It also includes construction of a 30 MG off-line facility that would be comprised of underground influent channels and a 21 MG retention tank. The diverted flow would be screened prior to entering the tank. After storms, stored combined sewage would empty into the Paerdegat Basin Interceptor connected to the Coney Island WPCP. The flow will be conveyed by gravity sewers, but mostly by pumps and force mains.

Above ground facilities will include four (4) buildings with ancillary equipment to support the operation of the storage facility. Community enhancements will include park spaces, meeting rooms and wetlands mitigation. The total cost of this project is \$300 million and is being constructed in four phases. Phase I is the construction of influent channels and sewers at the head end of Paerdegat Basin including a new outfall structure and dredging for the new outfall. This phase is nearing completion.

### Future Projects

The Coney Island upgrade Phase 5c is in the planning stage. Design is expected to begin in FY'2003. The scope of work 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 to remain. The estimated construction cost is \$2.5 million and the construction period will be 12 months.

Phase 5d is in the planning stage. Design is expected to begin in FY'2003. The scope of work includes miscellaneous wrap-up work to conclude the upgrading project. The estimated construction cost is \$18.5 million and the construction period will be 27 months.

The Paerdegat Basin CSO facility Phase II involves the construction of foundations for above-grade structures and 4 below-grade retention tanks. These tanks will interface with the new influent channels constructed under Phase I. Construction includes additional dredging at the mouth of the basin, as well as the area along the CSO tank interface. This phase is scheduled to begin March 2002. Phase III is the construction of above-grade structures consisting of a screenings building, odor control and HVAC building, a CSO pump back building, and a collections building with adjacent Community Board No. 18 meeting room. 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.

Through a commitment of \$100,000 of CW/CA Bond Act funds, one acre of upland will be restored to dune grassland and maritime shrubland. This will complete the Gerritsen Creek Maritime Ecosystem restoration which is being carried out by the NYC Department of Parks and Recreation.

#### Glen Cove, New York (Nassau County)

##### Completed Project

Completed on April 24, 2001, BNR emergency work was accomplished at a final cost of over \$425,700.

##### Projects in Progress

This facility is operating under a State Consent Order, effective February 4, 1999, to address whole effluent toxicity and heavy metals limitations.

BNR retrofits began August 30, 2001, at this facility in order to comply with the Long Island Sound Study nitrogen reduction targets. Modifications at this facility will be accomplished during a phased construction schedule. Phase I engineering plans were completed during August 1998. It is hoped that Phase I work achieves nearly 50% nitrogen removal and improves operations at the existing plant. Total costs are estimated at \$3.5 million. This phased work is anticipated to be operational during June 2002. Awarded under the auspices of the Clean Water/Clean Air Bond Act in 1999, \$500,000 will be used for this

nitrogen reduction project. In addition, the CW/CA Bond Act will fund \$100,000 for the installation of retention basins and plantings to reduce stormwater runoff impacts to Hempstead Harbor; this work is ongoing.

#### Future Projects

A cost estimate of \$300,000 was made in order to put the facility's chemical and fuel storage tanks in compliance with State and federal regulations. A construction and compliance schedule are under negotiation.

Sea Cliff, a community located on the eastern shore of Hempstead Harbor, was awarded \$587,350 under the auspices of the CW/CA Bond Act to construct a sanitary sewer along Shore Road. This line will convey domestic sewage to the City of Glen Cove wastewater treatment plant. The project design is complete and construction is tentatively scheduled for the Spring of 2002.

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

##### Completed Project

Completed during November 2001, the Spring Lane lift station was upgraded and incurred costs of \$280,000. This final cost included the replacement of the onsite generator.

##### Future Project

An engineering study is being proposed with a five-year plan for upgrading the treatment plant by adding four new pump stations, as well as BNR retrofits, at a cost of about \$100,000 per year. Another feasible alternative to the upgrade would be to divert all flows for treatment at a regional facility.

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

##### Projects in Progress

A flow diversion study has been under way since 1999. This engineering study is an information gathering project to determine the long-term needs for expansion and upgrading of the plant. Additional evaluations are proposed for expansion versus regionalization to Nassau County's south shore treatment facilities. In addition, an I/I study is under way (60% complete) in certain areas of the collection system to evaluate hydraulic capacity and eliminate extraneous flows.

### Future Project

In order to comply with the LISS Phase III Nitrogen Reduction Plan, this facility will incorporate BNR technology. Estimates of over \$16 million will be spent to retrofit or build new tankage for nitrogen reduction. Final action will be based on the aforementioned flow study and proposed alternative for regionalization.

### Huntington Sewer District, New York (Suffolk County)

#### Projects in Progress

Re-estimated at \$225,000, improvements are under way at the 5th Avenue pump station. The modernization (80% complete) includes replacement of pumps, valves, a standby engine generator, controls, an emergency force main connection, site fencing and wet well ventilation. The station is scheduled to be operational during October 2001.

Modifications to the sludge piping in the primary digester building are 30% complete. The \$18,000 project is anticipated to be on-line during October 2001.

BNR retrofits have been recommended by the Long Island Sound Study. Recently finalized, facility plans for phased nitrogen reductions retrofits are awaiting state approval. An operational start-up is anticipated for January 2003. Construction was rescheduled to begin during July 2002 with costs estimated at \$10.5 million.

The Town of Huntington has approved funding for three projects to address pollutants from stormwater runoff. One project was approved for funding of \$40,000 to address the West Shore Road shoreline stabilization and stormwater management plan. Under this plan, stormwater control devices, such as catch basins and outfall pipes, will be installed to reduce pathogens prior to discharge to Huntington Bay. However, because of litigation concerning land ownership, the project is on hold indefinitely and the Town has released its award. The other two projects are the Fleets Cove/Knollwood Beach Stormwater Mitigation (\$300,000) and the Centerport Harbor Stormwater Runoff Mitigation. The Fleets Cove project will entail installation of new drainage pipes, leaching basins and catch basins. The Centerport Harbor Stormwater Runoff Mitigation Project received CW/CA Bond Act funds of \$250,000 for improvements to the existing stormwater drainage system.

Suffolk County has approved funds of \$320,000 for the remediation of highway stormwater discharge to Huntington Harbor. The County is presently drafting a project work plan and construction is tentatively scheduled to start in the 2001 fall season. During 2000, \$241,391 was awarded for the installation of stormwater leaching basins in order to remediate Swan Cove and Huntington Harbor. Funding is being provided by the Clean Water/Clean Air Bond Act. All objectives are consistent with the priorities identified in the CCMP for the LISS.

## Future Projects

In order to improve the hydraulic capacity to the treatment plant, 700 linear feet of 18-inch diameter (18"Ø) influent sewer will be installed. Anticipated to begin March 2002, the installation is estimated to cost \$290,000. The design phase is 60% complete.

Planned for the 2002 summer season, improvements to the wastewater collection system for the Cobblestone Estates development includes 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

The Hunts Point WPCP upgrade is a two-phase project intended to improve process efficiency, reduce manpower requirements, and improve reliability. These steps are being taken in order to ensure compliance with all applicable SPDES permit requirements and Consent Orders.

Phase I is a \$203 million, 3½-year construction phase which was bid in July 2001. This phase includes Consent Order hydraulic improvements to allow treatment of twice design dry weather flow (200 MGD) by October 29, 2004, as well as upgrades to most of the wet stream processes. The modernization includes forebay gate chamber improvements, screen chamber modifications, raw sewage conduit modifications, personnel facility additions, aeration tank froth and foam control, and an RAS system upgrade. The chlorine building and contact tank also need modifications. A new combined residuals handling facility to handle grit, screenings, and scum under one roof will be built on site.

Phase II is currently under design. This \$460 million, 3½-year construction phase involves the solids handling facilities and BNR enhancement. Specifically, mechanical, structural, and architectural work on the gravity thickeners, new egg-shaped digesters, and sludge storage tanks. In order to comply with nitrogen reduction requirements, this phase will also include a new blower building, air headers and diffusers, methanol, alkalinity and polymer addition. At the present time, air modeling is being performed to determine the necessity for covering the process units and the treating of the off-gasses. The BNR work in this phase is also under Consent Order and must be constructed and operational by June 30, 2007.

The objective of the East River CSO facilities is to improve the water quality of

several rivers and creeks tributary to and including the East River by substantially reducing combined sewer overflows during rainstorms. The upper East River is bounded by the NYC boroughs of the Bronx on the north shore and Queens on the south. The combined sewer outfalls are located along the river and its tributaries: Bronx River, Westchester Creek, and Hutchinson River.

The Hutchinson River CSO Project will consist of an in-line storage conduit constructed along Loop Road, Tillotson Avenue, Conner Street and Co-op City Blvd. This seven million gallon storage conduit is designed to capture 90% of the historical storm volume and then store this stormwater until it can be treated at the Hunts Point WPCP. This three-year construction project is estimated at \$120 million and will be bid during the 2001-2002 winter season.

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

#### Future Projects

The Bronx River CSO Facility will consist of a storage conduit, pumping station and outfall. It is scheduled to be advertised in June 2003.

The Westchester Creek CSO Facility will be constructed in two phases. Phase I will involve site preparation and the construction of restrooms for local parks. It will be advertised in October 2002. Phase II is the CSO retention tank. Estimated at \$200 million, it will take 4 years to construct and will be advertised in July 2004.

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 is re-estimated to cost over \$260 million plus over \$48 million in engineering and design construction management fees. Performed in two construction phases, the first phase will entail new installations of treatment units such as a primary tank splitter box, a primary tank, a primary force main, return activated sludge and waste activated sludge pump stations, a chlorine contact tank, odor controls, and an electrical substation.

The second phase will include the new installations of various units including a thickener building with centrifuge thickeners, a residuals handling building, an

administrative and maintenance building, odor controls, emergency lighting and a boiler plant. Final design for this phase is 80% 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 26<sup>th</sup> Ward write-ups.

Under the IEC's regulation for notification of planned bypasses or reductions in treatment, the Commission called a meeting with the City and the other interested agencies to get a full understanding of the work anticipated and to discuss whether the planned bypass or treatment reduction could be avoided or, at a minimum, reduced. At that meeting, the City fully explained the work anticipated and the alternatives explored. IEC and the City also discussed the issue of timeliness of notification to the Commission. As a result of these meetings and explanations, IEC's notification regulation was satisfied.

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

#### Joint Regional Sewerage Board-Town of Haverstraw (Rockland County)

##### Completed Project

Originally planned to begin during February 1999, a sewer trunk line was relocated and operational on July 1, 2001. The six-day project incurred costs of \$881,000.

##### Project in Progress

A main pump station upgrade is under way. The \$0.55 million improvement is planned to be on-line during the early winter 2001-2002 season.

##### Future Project

Anticipated to begin during April 2002, \$0.5 million will be spent in order to upgrade an aeration tank.

#### Jones Beach State Park, New York (Nassau County)

##### Project in Progress

Emergency repairs were initiated during early November 2001, on the primary clarifiers. This treatment unit will receive a new drive unit. After further inspection, it was determined that the secondary clarifier needs a new drive also. Estimates of over \$55,000 will be incurred for all installations. IEC was notified beforehand by Jones Beach State Park



that a bypass might be needed; to date, no bypass has been necessary.

Lawrence, New York (Nassau County)

Completed Project

Collection system repairs to correct I/I were completed during 2001. Final costs were \$160,000. The repairs included brick pointing, grouting, root control and cleaning.

Project in Progress

Postponed during 2000, facility improvements are under way since September. This agenda includes upgrades to the screening and grit facilities, clarifiers, trickling filter media and digester mixing equipment. Remediation costs are estimated at \$600,000.

Long Beach, New York (Nassau County)

Project in Progress

This facility is operating under a State Consent Order (August 1, 2001) requiring compliance with SPDES discharge limitations.

Rehabilitation of several treatment units are planned at a re-estimated cost of \$3.5 million. The work will include the replacement of the trickling filters and the hypochlorite systems. The project also includes necessary repairs to the digesters. A construction schedule has a start date during November 2001.

Mamaroneck, New York (Westchester County)

Projects in Progress

Work is under way for this facility to be retrofitted for a two-year BNR pilot project. The estimated \$3.8 million undertaking will be partially funded by the Clean Water/Clean Air Bond Act of 1996.

Phase II Automation is under design. This phase will increase operator control via a Supervisory Control and Data Acquisition (SCADA) telemetry control system. The \$850,000 modernization is expected to be on-line during 2002.

The Glen Oaks pump station rehabilitation is at the design phase (\$300,000).

## New Rochelle, New York (Westchester County)

### Completed Project

Installations of new effluent pumps and new mixing equipment for the secondary process units were operational during May 2001. Final costs incurred were \$800,000.

### Projects in Progress

On December 12, 1986, NYS DEC imposed a sewer extension moratorium on the New Rochelle Sewer District; this ban is still 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. An SSES and an I/I reduction study are ongoing at a cost of \$500,000.

This facility is operating under a State Consent Order to accomplish collection system rehabilitation (I/I) and eliminate two sanitary sewer overflows (SSO). 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 (50% complete) for all construction phases. The larger scope of work has grossly increased the construction expenditures.

Construction began on April 30, 2001 (5% complete) for sludge collection equipment replacements and is scheduled to be operational during 2002. Cost estimates are about \$3.5 million.

Automation Phase II will cost \$750,000 for increasing remote monitoring of plant processes. This phase will increase operator control via a Supervisory Control and Data Acquisition (SCADA) telemetry control system. This project went to bid during the 2001 fall season.

Additional plant-wide modernizations include replacement of the administration building roof and ceiling and upgrading the photovoltaic roof system (\$125,000).

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. The design work is under way.

## Newtown Creek, New York (Kings County)

### Projects in Progress

The Interim Upgrade Project is to modify and/or renovate existing facilities to ensure the reliable functioning of the plant throughout the construction period of the major Plant Upgrade Project. The Interim Upgrade involves disinfection improvements, demolition, remediation, a biofilter demonstration plant, building and equipment upgrades, tankage covers, digester cleaning and piping modifications, tank reconstruction, and water/drainage improvements. The 10-year construction schedule will be completed in October of 2002, with an estimated total design and construction cost of \$222 million. Overall, the interim Upgrade Project is 87% completed.

During the Interim Upgrade, a modification of the step-feed aeration process was discovered which produced favorable effluent treatment without the deeper aeration tanks or the primary settling tanks envisioned for the Major Plant Upgrade. This new process, termed "Track 3", has been informally accepted by NYS DEC, thus altering the design of the completion and will yield a significant savings in construction cost.

The Consent Decree goal of the upgrade is to achieve effluent quality standards at a prescribed influent flow dictated by SPDES permit limitations. The existing Newtown Creek facilities require expansion and modifications to provide full secondary treatment. The Plant Upgrade Project's first construction contract began in July of 1998 with a demolition/site remediation contract. Construction contracts for a new Construction Management Building and Reconstruction of Kingsland Avenue began in 1999, followed by contracts for solids handling facilities, disinfection facilities with a support building, and the south addition to the main building, which started in 2000. The total design and construction cost of the active Plant Upgrade Project is \$1.058 billion and is approximately 12% complete.

Two engineering studies are being conducted. A second biofilter demonstration plant program is presently underway. A "Long Outfall Alternatives" contract began in November of 2000 to assess the aquatic environment in close proximity to existing and potential WPCP outfalls and to evaluate potential outfall locations.

CSO abatement measures include in-line storage in Newtown Creek (facility planning) and regulator improvements (final design).

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

### Future Projects

Future construction contracts under Track 3 includes a sludge force main and East River loading dock modifications (\$38 million), north battery of aeration and final tanks

(\$456 million), modifications to main building-north (\$100 million), modifications to the Manhattan pump station (\$190 million), central screenings and residuals facilities (\$209 million), reconstruction of Kingsland Avenue-Stage 2 (\$1 million), central and south batteries of aeration and final tanks (\$20 million), and final site work (\$20 million). The estimated total design and construction cost of the future Plant Upgrade Project under Track 3 is \$1.543 billion.

#### Northport, New York (Suffolk County)

##### Completed Project

Completed during 2001, problem sewer lines were relined to eliminate I/I. Final costs incurred were \$27,000.

##### Future Projects

This facility, which also provides treatment for the Centerport Sewer District, received \$977,500 in CW/CA Bond Act funds during 1999 for nitrogen removal and capacity expansion to a design flow of 0.45 MGD. Facility plans have been received by the State with subsequent plant upgrades and expansion work to begin during late 2001.

The Stormwater Runoff Control Project for Northport Harbor received CW/CA Bond Act funds of \$178,000 to install a network of catch basins and leaching pools.

#### North River, New York (New York County)

##### Future Projects

This facility located on the Hudson River south of the George Washington Bridge 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 Odor Construction Survey, which was mandated by Consent Order, was to identify and recommend solutions to odor control. The findings of this study were published in the Post Construction Odor Study, which also includes the results of an independent study as part of a settlement with the Natural Resources Defense Council (NRDC), West Harlem Environmental Action (WHEACT) and the City. Both studies focus on identifying odors and recommend remedial measures to further control odor emissions, as necessary.

The scope of work required to meet the odor minimization goal include digester gas holder odor control modifications, digester overflow box odor control, thickener room ventilation modifications, cover and odor control openings in chlorine contact tanks, remove

restrictions in the secondary bypass and modulate based upon plant flow. Improvements to the laboratory odor control system includes 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, new process air blower and parallel discharge header, remote alarm system, and mixed liquor channel ventilation. Expenditures are estimated at \$60 million. Schedules for design work with subsequent construction have not been determined as yet.

The scope of work required under the contract dealing with miscellaneous process and odor control improvements includes rehabilitation of existing scrubbers and absorbers, including 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 prevent back mixing between the passes; addition of observation points on the aeration tanks to allow visual monitoring of the process; replacement of the aeration tank dump valves; modification of the dissolved oxygen (DO) control system to provide more flexibility in controlling the DO in various passes of the aeration tanks and to prevent the blowers from surging; provide additional capacity to the plant's waste sludge system; replacement of diffuser system in the aeration tanks to improve the efficiency of the system and to allow the plant to meet its peak air demand; replacement of operators on the final settling tanks' sluice gate weirs to allow operators to continuously adjust the water level in the effluent channel; reduce the amount of odors which are released into the air as the water falls over the weirs; and modification of the primary settling tank adsorbed fans to reduce vibration signature. Expenditures are estimated at over \$42.96 million. Schedules for design work with subsequent construction have not been determined as yet.

Under the IEC's regulation for notification of planned bypasses or reductions in treatment, the Commission called a meeting with the City and the other interested agencies to get a full understanding of the work anticipated and to discuss whether the planned bypass or treatment reduction could be avoided or, at a minimum, reduced. At that meeting, the City fully explained the work anticipated and the alternatives explored. IEC and the City also discussed the issue of timeliness of notification to the Commission. As a result of these meetings and explanations, IEC's notification regulation was satisfied.

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

#### Oakwood Beach, New York (Richmond County)

##### Projects in Progress

Engineering studies under way this past year involve thickener blankets and dissolved

oxygen metering.

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

#### Future Projects

A joint facility planning effort for the Oakwood Beach and Port Richmond plants is under way as part of the Staten Island Wastewater Facilities Improvement Project that was initiated in 2001. Area-wide facility planning will address the needs of both Richmond County treatment plants as well as pumping station and collection system issues. Refer to the Port Richmond write-up for additional information.

Long-term facility planning includes the identification and design of priority rehabilitation needs. Approximately \$7 million of priority rehabilitation work at the Oakwood Beach WPCP has been identified to date, and design of these improvements is under way. Priority improvement contracts will be bid in mid-2002. Included among these priorities are disinfection system improvements, skimmings removal improvements, rehabilitation of gas piping, and upgraded personnel facilities. Design of priority rehabilitation items is currently under way. Projected changes in influent flows, loads and potential future treatment requirements, as well as full upgrade and modernization needs will be addressed as part of facility plan development. Facility plan completion is scheduled for 2003.

#### Orangetown, New York (Rockland County)

##### Completed Projects

Repairs were completed on the Nyack trunk sewer during the past year. Estimated final costs of \$750,000 were incurred. CW/CA Bond Act funds were used to upgrade pump station telemetry and emergency generators. Completed on October 1, 2001, the CW/CA Bond Act awards of over \$264,000 and \$574,000, respectively, had surplus funds and will be applied to other work.

##### Project in Progress

Repairs are just under way on the Pearl River trunk sewer. Estimated costs of \$750,000 will provide for labor and materials for 2,200 linear feet of 21-inch (21"Ø) diameter asbestos-concrete pipe.



## Ossining, New York (Westchester County)

### 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, will commence during the 2002 winter season. Phase II (\$2.2 million) aspects are under design and are 30% complete.

In order to increase remote monitoring of plant processes, Automation Phase II design is complete. Construction and installation is anticipated to begin during 2002. This phase will increase operator control via a Supervisory Control and Data Acquisition (SCADA) telemetry control system. Costs for this phase were re-estimated at \$1.05 million.

Estimated to cost \$8 million, a new final clarifier will be built. Designs are 60% complete.

Collection system upgrades include the rehabilitation of the Croton pump station. The Country Club pump station modernization is 75% complete.

## Owls Head, New York (Kings County)

### Projects in Progress

The Owls Head upgrading is a multi-phase project intended to improve process efficiency and reliability. These actions will ensure compliance with all applicable SPDES permit requirements and Consent Orders. All phases of construction have been completed except for contract OH-33 — modifications to the grit and scum building; and OH-37 — plant-wide improvements. All Consent Order construction work has also been completed. This facility is located in Brooklyn on the west shore of Upper New York Bay.

CSO abatement strategies for this drainage basin include regulator improvements which are at the preliminary design stage. Engineering studies under way include testing of the recycle flow pump station, oxidation reduction potential instrument testing for improvements to engine generators, and polymer addition to the waste activated sludge stream.

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

### Future Projects

Contract OH-33 — modifications to the grit and scum building — is approaching design completion. Construction is scheduled to begin in FY'2003. The scope of work includes the extension of the building to the north to accommodate the improvements to the

current grit handling operations. New cyclone degritters and classifiers will be installed, and the existing primary sludge and grit pumps will be upgraded. A container handling system will be installed to accommodate the 25-cubic yard containers which will be used to load grit for transportation for disposal. The odor control system will be enhanced to better encompass and control odors from the grit and scum operation. The estimated construction cost is \$10 million and the construction period will be 36 months.

Contract OH-37 — plant-wide improvements — is in the design stage. Design is about 70% complete and construction is expected to begin in FY'2003. The scope of work includes miscellaneous wrap-up work to conclude the upgrading project. It includes safety and process control improvements, equipment upgrades, reconstruction of the influent conduits, and the expansion of the administration building. The estimated construction cost is \$13.8 million and the construction period will be 36 months.

The Avenue V pumping station has a 30 MGD capacity. The objectives in reconstructing the pumping station and force mains are to 1) reduce the potential for sanitary sewer surcharge conditions upstream of the station; 2) improve the Coney Island Creek water quality by increasing the wet weather (CSO) pumping capacity; and 3) 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 (34.6 MGD) and necessary CSO flow (42 MGD).

The pumping station upgrade includes construction of a wet well extension for temporary pumping, lowering the wet well slab by 3 feet, demolition of un-needed structures, replacement of tide gates and 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 \$ 92.7 million (\$ 31.1 million for the station and \$61.6 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 March 2003. 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 March 2003.

#### Oyster Bay Sewer District, New York (Nassau County)

##### Future Projects

Planned for the 2002 spring season, 1,200 linear feet of new sewer main will be

installed on West End Avenue.

The Town of Oyster Bay will receive funding from the NYS Clean Water/Clean Air Bond Act for several projects: over \$3.75 million for biological nutrient removal retrofits for the Oyster Bay treatment facility(contract executed and an alternate evaluation report submitted); and \$850,000 for wetland creation and restoration at the western Oyster Bay waterfront (conceptual design under way). In addition, \$106,000 has been awarded for the Stehli Beach Stormwater Runoff Mitigation. For this project, the Town will install a stormwater drainage system for the parking lot at Stehli Beach to channel contaminated runoff away from the Frost Creek wetland. The wetland is part of the Oyster Bay National Wildlife Refuge, located on Long Island Sound, and home to a diverse group of aquatic plants and animals.

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

##### Future Project

This 0.3 MGD secondary facility was originally built in 1944 and plans to replace the antiquated trickling filter. Bids will be awarded during the winter 2002 season.

#### Peekskill, New York (Westchester County)

##### Projects in Progress

In order to increase remote monitoring of plant processes, Automation Phase II design plans are complete. This phase will increase operator control via a SCADA telemetry control system. Construction and installations are scheduled to be complete during 2002 and incur costs of \$1.25 million. Performance maintenance (\$1.5 million), an O & M procedure to maintain and extend the life of existing treatment units, will commence during the 2002 winter season. The facility's entrance road reconstruction (\$0.21 million) is under design.

##### Future Project

In order to address wastewater flows that impact potable water supplies in the Croton watershed in upstate New York, recent preliminary studies have determined that this facility would be expanded to 15 MGD. The facility expansion would require extensive tankage to properly treat additional flows. Final plans and alternatives have yet to be determined.

#### Port Chester, New York (Westchester County)

##### Completed Project

Completed on April 20, 2001, disinfection facilities were upgraded to utilize

hypochlorite at a final cost of \$700,000. During June, the RBC bearings were replaced. Ductwork and controls for odor control in the primary settling tank were repaired during the reporting period. Costs were not available for these in-house improvements.

### Projects in Progress

In order to increase remote monitoring of plant processes, Automation Phase II work is in the bidding process (\$1.4 million). This phase will increase operator control via a SCADA telemetry control system; construction is planned for the 2002 winter season.

Facility-wide performance maintenance to maintain and extend the life of existing treatment units, as well as to replace outdated equipment, will accrue costs of \$2.6 million. Phase I which began July 2, 2001, addresses headworks, primary settling tanks, secondary clarifiers and odor controls. Phase II (\$4.5 million) aspects are under design (30% complete). During the same time, replacement of the variable frequency drives (VFD) for the influent and effluent pumps commenced.

## Port Richmond, New York (Richmond County)

### Future Projects

The Port Richmond WPCP, together with the Oakwood Beach WPCP, is 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 address the disinfection system, replacement of gas piping and compressors, rehabilitation of primary sludge systems, aeration tank structural repairs, and rehabilitation of the treatment building ventilation system. Priority improvement contracts will be bid in mid-2002. Refer to the Oakwood Beach write-up for more information.

Within the Port Richmond drainage basin, NYS DEC will restore and enhance portions of a 50 acre degraded salt marsh system contiguous to Old Place Creek, a tributary of the Arthur Kill. The project will increase the quantity and quality of aquatic habitat for numerous species that use this wetland complex as a nursery, forage and migration stopovers. This project will be funded by a \$610,000 award from the CW/CA Bond Act. This project addresses priorities as established by the HEP CCMP.

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

### Port Washington, New York (Nassau County)

#### Completed Project

At a final cost of \$250,000, electrical and control upgrades were completed during July 2001. This work was performed at two pump stations in order to maintain optimum performance.

#### Project in Progress

Nearly 95% complete, a pilot plant is being installed to determine the feasibility of nitrogen control by utilizing a side-stream activated sludge process which is actually a tertiary treatment step. The project was on-line during the late fall 2001 season and is estimated to cost \$500,000.

#### Future Projects

Planned to begin in the fall of 2002, refurbishing of two pump stations and plant-wide repairs and preventive maintenance, such as roofing and various architectural replacements, will be addressed. Costs are re-estimated at \$400,000.

### Red Hook, New York (Kings County)

#### Projects in Progress

An engineering study dealing with a thickener blanket analyzer is ongoing. Biological nutrient removal is the subject of another in-house experiment. Two additional studies under way include a SCADA upgrade/energy use optimization and accidental recycle minimization. A full scale evaluation of the primary tankage and characterization of toxic chemical loading from various sources to New York Harbor began this past summer.

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

### Rockaway, New York (Queens County)

#### Project in Progress

Reconstruction of the heating and ventilation system, estimated at \$1.548 million, is 98% complete. A stabilization facility plan for interim upgrades is in progress and is scheduled to be finished by mid-2002. A dual phase digestion experiment is under way.

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

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

Completed Project

At a final cost of over \$1.8 million the sewer system expansion in the western section of Rockland County, New York, was completed on March 23, 2001. Phased construction of force mains, gravity sewers and one pump station is now providing service to the neighborhoods on Routes 306 and 202, as well as Cottage Lane in the Town of Ramapo.

Future Projects

Design work is under way for additional expansion and subsequent construction 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. A new treatment plant will service these villages. Construction is planned to begin in 2002 at an estimated cost of \$72 million.

Planned to begin in 2002, sanitary sewer extensions and repairs will be performed in the towns of Clarkstown and Ramapo. An estimate of \$12.5 million was made for all infrastructure improvements.

Springvale Sewerage Corporation, New York (Westchester County)

Completed Project

At a final cost of \$5,000, exterior lighting was installed on the perimeter of the facility. The 2-month agenda was complete during October 2001.

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

Projects in Progress

An in-house water quality assessment of Port Jefferson Harbor is ongoing. Preliminary engineering work is under way in anticipation of a plant upgrade and expansion in order to address the LISS Phase III nitrogen reduction targets.

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

A plant evaluation was conducted to determine the possibility of increasing the present 0.85 MGD flow capacity while maintaining all permit limitations and requirements. This work is under review by NYS DEC.



### Future Projects

If approved by NYS DEC, additional treatment units will be added to accommodate any additional flow requests from commercial and residential developments. The re-estimated \$9.9 million phased construction costs will be borne by those applying for hookups. Preliminary treatment designs propose the use of a tertiary process with a flow capacity of 1.0 MGD.

Planned to begin during 2002 and be complete by August 2004, sequencing batch reactors (SBR) will be constructed in conjunction with the existing rotating biological contactors (RBC). These treatment units will enable the facility to meet LISS Phase III nitrogen reduction targets. The \$6 million project has been awarded an 85% grant from the NYS CW/CA Bond Act.

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

#### Completed Projects

Reconstruction of the incinerator building was completed during August 2001. Damage caused by storm and fire was repaired at a final cost of \$2.6 million. Concurrent with the repairs, a continuous emission monitoring system for the incinerators was installed at a cost of \$500,000.

Two engineering studies were completed during 2001 which involve ultraviolet disinfection and sludge centrifuge dewatering. The sludge process evaluation was finalized with field verifications to be performed prior to initiating design work. A pilot project to determine the efficiency of using natural gas to fuel boilers and sludge incinerators was recently completed by a local power utility.

#### Projects in Progress

Several engineering studies are under way. A report indicating the future needs for scavenger waste disposal in Suffolk County was previously completed at a cost of \$100,000. Subsequent studies on groundwater impacts and traffic are being completed for environmental review. An extraneous flow reduction study is slated for completion in 2002. In-house interceptor flow studies are continuing in order to assess I/I. This study may indicate construction needs to eliminate and/or control extraneous flows. A study to evaluate grit handling is being performed at a cost of \$20,000. Alternatives are being explored to rehabilitate the laboratory facilities (\$150,000/50% complete).

Equipment replacements, a laboratory expansion, new influent screens, and infrastructure repairs are being addressed under a phased agenda at re-estimated costs of \$8.6 million. In addition, the blowers are being assessed for replacement. The facility's roof is

being replaced at a cost of \$1 million (90% complete).

A building is being built to house scavenger waste pretreatment facilities. Well under way (75% complete), a conversion to a dual fuel (diesel/natural gas) system is estimated to incur costs of about \$300,000.

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

##### Project in Progress

Suffolk County was awarded \$3.1 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. An amended engineering report is being submitted to NYS DEC. Final State approval and construction plans are imminent; Phase I will go to bid during the 2001-2002 winter season. A construction schedule has not been finalized.

##### Future Projects

Construction is anticipated to begin during 2002 on a planned re-estimated \$9.9 million equipment renovation. Safety equipment upgrades will be addressed on a priority basis. SBRs will be built in order to meet the LISS Phase III nitrogen reduction targets. In addition, ultraviolet disinfection and sludge thickening facilities will be built.

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

##### Projects in Progress

Preliminary engineering work has been under way since 1997 to assess BNR alternatives for the LISS Phase III nitrogen reduction requirements. A CW/CA Bond Act grant application was resubmitted for \$15.6 million. A flow study was completed in order to determine future capacity needs.

##### Future Project

Construction of sequencing batch reactors will increase the plant capacity by 0.5 MGD. The capacity expansion will enable this facility to comply with the LISS nitrogen loading requirements; cost estimates are re-estimated at \$15.6 million.

## Tallman Island, New York (Queens County)

### Projects in Progress

The Tallman Island WPCP upgrade is a two-phase project intended to improve process efficiency, reduce manpower requirements, and improve reliability of existing treatment units. This modernization will ensure compliance with all applicable permit SPDES requirements and Consent Orders.

Phase I includes an upgrade to the aeration system including new blowers and blower engines, new air piping and diffusers, aeration tank modifications and baffles, a new RAS pump station, utility tunnels, and final settling tank improvements. New site buildings will include a new combined residuals handling facility, administration and storage building and a gas compressor building to compress digester gas for use in the new blower engines and pump engines (Phase II). This phase is estimated to cost \$248.1 million, and will take 4 years to construct. It is scheduled to be advertised this year with construction commencing in July 2002.

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 (CSOs) during rainstorms. Flushing Bay is located on the Queens' side of the upper East River, west of Rikers Island. 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 & 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. Four additional construction phases will follow.

This site originally had three ballfields and a parking lot, and were replaced (Phase I) at a location remote from the facility to serve the community during construction. The effluent channel (Phase II) will be used as a replacement sewer until the completion of the entire project. The effluent channel has been constructed and, after the completion of the facility, the effluent channel will serve as the overflow channel for the storage facility. Construction of the underground CSO storage facility is Phase III. An existing combined sewer located in the middle of the site must be demolished as part of the work. The storage tank will include 15 storage cells, mechanical equipment areas and a wet well. At the present

time, these three construction phases are complete or substantially complete. Phase IV of the Flushing Bay CSO includes construction of the diversion chambers and conduits; the above ground building at the north end of the site; the construction of mechanical support facilities (pump stations, air treatment systems, screening facilities, etc.); and the construction of three tide gates at the outfall. Phase IV was bid during October 2001. The total cost of the four phases is more than \$160 million.

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

### Future Projects

Phase II of the Tallman Island WPCP upgrade includes BNR enhancement work including methanol, alkalinity and polymer addition, and centrate treatment. Other major items include new main sewage pumps and engine, 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 3-year construction phase will commence in 2005 and, under a Consent Order, must be constructed and operational by December 31, 2009.

The Alley Creek CSO Project has combined the CSO issue with control of a flooding problem in the local community. Alley Creek is located at the head of Little Neck Bay, an embayment of western Long Island Sound. Phase I-Stage I will include most of the major work, including construction of new sewers parallel to existing sewers, a retention tank, minor restoration of the existing outfall, and construction of an outfall on Alley Creek. This phase will be bid in early 2002. Phase I-Stage II will include the activation of the CSO facility including the SCADA system. Upgrading the New Douglaston pumping station will ensure the pumping capacity to convey the stormwater to the Tallman Island WPCP. The Alley Creek Ecological Restoration will be bid separately, as will the Oakland Ravine Stormwater Treatment Project. These sub-projects will be bid in 2004.

A BNR alternative will receive Clean Water/Clean Air Bond Act funding and is consistent with the CCMP priorities of the LISS. A ferric chloride feed system (\$115,600 approved) will be installed.

### 26th Ward, New York (Kings County)

#### Projects in Progress

The 26th Ward WPCP upgrade is a multi-phase project intended 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 project is being designed and construction is expected to commence in July 2002.

Phase I is a \$200 million, 2½-year construction phase which is currently in design. Construction is expected to commence in June 2003. The major items include construction of a new raw sewage pumping station, construction of a new process air blower building, replacement of the air header, construction of a new centrate treatment tank, construction of new electrical distribution facilities, conversion of the sludge cake storage building to a new administration building, construction of new sludge storage tanks and installation of a distributed control system.

Phase II is also in design and will be complete in June of 2003. Construction is expected to commence in January 2004. This 3½-year construction phase includes all modifications necessary for the BNR upgrades in compliance with the nitrogen reduction Consent Order. The scope of work includes mechanical, structural and architectural work for replacement of the existing four preliminary settling tanks with six new ones, replacement of the aeration tank diffusers, alkalinity control system and mixers, construction of a new return and waste sludge pumping station, replacement of the plant disinfection equipment, and construction of a new chemical storage facility.

Three engineering studies are ongoing and are addressing biological nutrient removal, centrate nitrogen removal and high rate treatment.

Prior to a planned shutdown for emergency repairs and replacements, the Commission was notified as per IEC's regulation for notification of planned bypasses or reductions in treatment. At a meeting of the interested agencies, the City fully explained the work anticipated and the alternatives explored. As a result, IEC's notification regulation was satisfied.

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

### Future Projects

Phase III of the 26th Ward upgrade is expected to begin design in 2004 and construction is expected to commence in May 2006. This 2½-year construction phase includes all work associated with the solids handling facilities, replacement of the sludge digestion process equipment, conversion of two sludge storage tanks to digesters and replacement of the gas flare systems and construction of a new gas holder. In addition, miscellaneous site work is also included for improvements of the roadways and landscaping within the plant.

Spring Creek AWPCP was originally constructed and placed into service in the early 1970s. Its function is to capture CSO from tributary drainage areas in Brooklyn and Queens. The plant has six retention basins whose volume provides for storm water detention, solids

settling and disinfection contact time. A stabilization study was performed in the early 1990s and design was completed by end of 1999. Spring Creek AWPCP will be upgraded and will consist of demolishing the existing facilities, rehabilitation of various areas and equipment, and construction of new facilities. The areas to be upgraded include the overall site, pump building, basin building and construction of a new odor control building. A 37-month construction schedule is anticipated; estimates are \$82 million for all construction phases. Through a commitment of \$200,000 of CW/CA Bond Act funds, one acre of upland will be restored to dune grassland and maritime shrubland.

Under the auspices of the CW/CA Bond Act, \$206,775 will be spent to restore 5,000 square feet of salt marsh and 24,000 square feet of upland habitat on Hendrix Creek, a tributary of Jamaica Bay. The restored marsh will create a functioning wetland which will improve water quality and habitat value. This project addresses priorities identified in the the HEP CCMP.

#### V.A. Hudson Valley Health Care System, Montrose Campus (Westchester County)

##### Completed Project

During 1998, the FDR V.A. Medical Center formed an alliance with the Castle Point V.A. Medical Center in Cortland, New York. This merger was to address budget and staff shortfalls. The V.A. Hudson Valley Health Care System is now comprised of 18 buildings. Completed during the summer 2001 season was a 250-bed facility called the State of New York Veterans Nursing Home. This facility incurred a final estimated cost of \$65 million. The existing 0.4 MGD treatment facility has excess capacity to address additional flows.

#### Wards Island, New York (New York County)

##### Completed Project

The Wards Island upgrading is a multi-phase project intended to improve process efficiency, reduce manpower requirements, and improve reliability. These necessary steps will ensure compliance with all applicable permit SPDES requirements and Consent Orders. Phase I began construction in 1996 and is in the close-out phase. Under these contracts, the existing disinfection system was demolished and replaced with a new system. The new system improves the control of the sodium hypochlorite feed with automated chlorine residual monitoring and control system. The cost of this phase was \$35 million.

##### Projects in Progress

Engineering studies to reduce nitrogen loadings will focus on sludge age, polymer additions, froth control and biological centrate treatment. These pilot programs are estimated to cost \$3.66 million.



The Wards Island upgrading - Phase II is currently being designed and is anticipated to be advertised this year. This phase includes the rehabilitation of the Manhattan and Bronx grit chambers. In addition to providing an architectural renovation for each facility, the process of grit handling will be automated. Pumps will be placed in each grit channel and will pump the grit slurry to the operating level where the grit will be removed and cleaned by cyclone degritters and grit classifiers. 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 cost of this phase is estimated to be \$86.4 million.

### Future Projects

Phase III includes all work necessary to provide 20 years of reliable service for the solids handling facility. All mechanical and electrical equipment will be replaced as needed. The automation will be improved, allowing reduced manpower to operate the solids handling facility. New domes will replace the leaking domes and the unstable architectural terrazzo panels will be replaced with insulated pre-cast concrete panels. This 4½-year construction phase is scheduled to be advertised in May 2002 and is estimated to cost \$119 million.

Phase IV includes an upgrade to the blowers, so that there is sufficient air for BNR. At present it also includes an upgrade to the personnel facilities. The current estimate is \$118.8 million. This 4½-year construction phase is scheduled to be advertised in September 2002 with construction commencing in March 2003.

Phase V is the major BNR related upgrade phase as it addresses the secondary treatment facilities. It includes both mechanical and structural modifications to the aeration tanks, final settling tanks, and the RAS system. It also includes BNR enhancement improvements including methanol, alkalinity, and polymer addition, centrate treatment and froth control systems. It may also include additional digester work. This phase is currently estimated to cost \$298.3 million and is scheduled to be advertised in February 2003 with a 5-year construction agenda commencing in September 2003. The Consent Order requires this work to be complete and operational by December 31, 2008.

Phase VI will include the primary tank skimmings collection system and primary sludge pumping system. In addition, it will include the construction of a central residuals handling facility. This 4-year construction phase is scheduled for 2005 at an estimated cost of \$72 million.

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

## West Long Beach Sewer District, New York (Nassau County)

### Completed Project

Construction of a totally redundant trickling filter plant is complete and was operational during April 2001. The work included the installation of three new primary clarifiers, a new trickling filter, a distribution box, a new distributor arm for the existing trickling filter, conversion of the existing primary clarifier to a secondary clarifier, modification to the final lift pump station, a new recirculation station for the converted primary clarifier, and sludge return systems for both secondary clarifiers. Final costs were \$2.1 million.

### WEST LONG BEACH SEWER DISTRICT NASSAU COUNTY, NEW YORK



*PHOTO COURTESY OF CAMERON ENGINEERING & ASSOCIATES, LLP*  
NEW TRICKLING FILTER UNDER CONSTRUCTION

### Future Project

Proposed for a construction start-up during April 2002, additional upgrades at this facility will include replacement of both secondary clarifier drives, walkways and railings, isolation gates on the new primary clarifiers, motorized valve operators and a redundant primary sludge station. Estimates of \$500,000 will be incurred for this work.

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

### Completed Projects

Completed and operational during November 2000, several treatment units were enhanced with new equipment: new baffles and launders (box conduits conveying particulate matter) were installed to increase the performance in the final clarifiers; waste gas burners were replaced with automatic igniters and supporting instrumentation, and backup

disinfection facilities. Collectively, these improvements incurred costs of \$2.3 million.

The Hudson River bulkhead was damaged by a barge when docking at the plant; inspection and repairs were finalized at a cost of \$500,000.

### Projects in Progress

This facility is operating under a State Consent Order to implement the findings of an SSES and the final settling tank dye study, as well as to upgrade treatment units throughout the facility. The Order required a study of the plant's effluent mixing zone in the Hudson River; this study was completed in August 1997.

Three major designs were completed and subsequent construction and installations are 20% complete. These capital improvements, estimated to cost \$13 million, include engine blower rehabilitation and pump replacement, bulk storage silo for potassium permanganate (oxidizing agent for odor control) and chlorination/dechlorination facilities.

A new maintenance and storage building (\$3.1 million) is under design.

### Future Projects

Facility-wide, eight construction and equipment upgrade projects are scheduled to get under way during February 2002 and be operational during 2004. Modernization improvements include dewatering facilities, fire suppression alarm and security system, primary boiler system additions and replacement of sludge collection and process equipment. Phase II Automation will finalize the remote plant-wide data gathering capabilities and plant process monitoring. Improvements will be made to the primary gravity thickeners, grit removal facilities and odor controls for sludge storage. Collectively, these projects will incur costs ranging as high as \$30 million.

Westchester County will receive \$3.4 million from the New York State Clean Water/Clean Air Bond Act to improve water quality in the Hudson River, redevelop the Yonkers waterfront, improve public access to the Hudson River, and expand municipal recycling programs.

## EFFLUENT AND AMBIENT WATER QUALITY MONITORING

The Commission continued its monitoring programs of the District's effluent wastewater discharges and ambient waters throughout the year. IEC's laboratory performs analyses on samples collected at municipal, private and industrial wastewater treatment facilities, as well as on samples from ambient water quality surveys. In addition to IEC's other monitoring projects, a special ambient monitoring program for pathogens was conducted this year in support of the NY-NJ HEP.



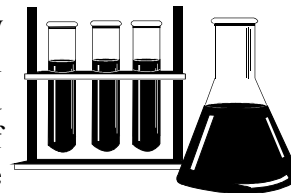
The summer of 2001 was the eleventh consecutive year that the Commission conducted weekly sampling to document hypoxic (low dissolved oxygen) conditions in western Long Island Sound and the upper East River; this survey was performed aboard the IEC's research vessel, the R/V Natale Colosi. This monitoring is performed in support of the Long Island Sound Study and was conducted from July through mid-September in cooperation with several other agencies. Although security zones were established by the US Coast Guard on September 11th, access to the upper East River was granted during the ensuing weeks. For the second summer, area high school students sailed aboard the R/V Natale Colosi to observe and interact with Commission scientists. During this sampling, additional samples were collected and analyses were performed to support two cooperative studies. The first study involved collection and delivery of surface water quality samples to the Nassau County Health Department for phytoplankton identification. Concurrently, during the eleventh survey run, additional water quality samples were collected for NYS DEC, Division of Marine Resources, in order to detect the presence of a toxic dinoflagellate, *Pfiesteria piscicida*.

During November 2000, the R/V Natale Colosi was moved to the New Jersey State Marina at Leonardo so IEC could again participate in a cooperative effort with the New Jersey Department of Environmental Protection and US EPA. This survey was comprised of the collection of surface water quality samples in order to assess the sanitary condition of shellfish beds in western Raritan Bay. All samples were collected subsequent to storm events between November 2000 and April 2001. The Commission plans to conduct sampling in western Raritan Bay throughout the 2001-2002 winter and spring seasons.

In support of the HEP's Pathogens Work Group, IEC completed a series of 44 ambient water quality monitoring surveys between August and November, 2001. An ambient network of 42 stations, based on established stations throughout the New York-New Jersey Harbor Complex, was visited ten times each. In situ measurements of temperature and salinity were taken and samples were collected for analysis by the IEC laboratory for fecal coliforms, total coliforms, fecal streptococcus and enterococcus. This very important data set represents information on interstate waterways, applications for state and interstate water quality assessments, model calibrations and TMDL development.

IEC's laboratory is certified by New York State and New Jersey and continued to participate in the US EPA Water Pollution Laboratory Evaluation Program and Water Supply Microbiology

Performance Evaluation Study, as well as the New York State Department of Health Non-Potable Water Bacteriology Proficiency Test. On January 24, 2001, the laboratory was recognized as NELAP (National Environmental Laboratory Accreditation Program) — accredited under the auspices of the National Environmental Laboratory Accreditation Conference (NELAC). 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.



During 2001, the laboratory took part in the Northeast Laboratory Evaluation Officers and Managers (NELEOM) pilot project for a new proficiency testing program for shellfish sanitation laboratories. The IEC laboratory was one of 12 facilities in five states providing results to evaluate the effectiveness of this new system.

Investigations of private and municipal facilities involve a six-hour period of sampling 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' State Pollutant Discharge Elimination System (SPDES) permits which contain the Commission's effluent limitations. The data generated from these investigations are used to determine compliance with IEC's Water Quality Regulations and with each facility's SPDES discharge permit. The Commission coordinates the industrial compliance monitoring of major dischargers with the NYS DEC, Regions 2 (all New York City boroughs) and 3 (Rockland and Westchester Counties), and with NJ DEP, Central Bureau of Water Compliance and Enforcement.

The Commission's laboratory has been located on the campus of the College of Staten Island since late 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, has been submitting proposals for research projects whose results would benefit the environment and the citizens throughout the tri-state region. Laboratory staff have submitted research papers for publication in several environmental forums and have been involved with students enrolled in the CES Masters Degree program.

For the third consecutive summer, the laboratory hosted high school students who were involved in the River Project's Marine Biology Internship Program. River Project, an environmental non-profit organization, is dedicated to the protection and restoration of the Hudson River ecosystem through scientific research and hands-on educational programs.

## SPECIAL INTENSIVE SURVEYS

### 2001 Ambient Water Quality Monitoring in Long Island Sound to Document Dissolved Oxygen Conditions

To address an ongoing need to document the hypoxic conditions in Long Island Sound, the US EPA - Region 2 again requested that the Commission conduct an intensive ambient water quality survey in support of the Long Island Sound Study. For the eleventh 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 weekly dissemination of data gives cooperating agencies and volunteer monitoring groups immediate 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 Work Group. It is this Group that determined and agreed to station locations, parameters, methodologies, QA/QC, data sharing, etc. A map and a listing of the 2001 station locations are on the following pages.

During this year's Long Island Sound sampling, IEC again worked cooperatively with the Nassau County Health Department and the NYS DEC, Division of Marine Resources. Because of a lack of resources, Nassau County had to discontinue the ambient water quality monitoring program many years ago. For the fourth consecutive year, IEC collected samples for the Nassau County Health Department at three water quality stations. Nassau County Health Department personnel met the IEC research vessel in Hempstead Harbor for sample transfer and they performed phytoplankton identification on the samples; this is data that they hadn't been able to obtain since 1991.

Too little oxygen can be fatal to marine life if levels remain persistent and drop below the organisms' threshold to survive. Fish kills can also occur due to predation and toxic phytoplankton. The Commission has always communicated from the field with local environmental and health agencies to pass on current information about unique events during the weekly cruises. 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, has asked the Commission to assist and respond to fish kills. During the 2001 summer season, there were no reported fish kills. In early September, the Commission took part in a multi-agency water quality collection effort to determine the presence of the toxic dinoflagellate, *Pfiesteria piscicida*.

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





## INTERSTATE ENVIRONMENTAL COMMISSION

### 2001 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"

collected by NYC DEP and CT DEP, were filtered, archived and frozen until shipped to an independent contract laboratory.

The 2001 survey consisted of 12 weekly sampling runs conducted from July through mid-September. The ambient network of 21 stations were sampled weekly for temperature, salinity and dissolved oxygen (DO); these parameters were measured in situ. 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.

Samples for chlorophyll a, 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 a contract lab that also analyzed the samples collected by NYC DEP and CT DEP; this was done to ensure consistency amongst the agencies. All sampling, sample preservation and analyses were done according to procedures accepted by the US EPA. All field measurements were summarized and forwarded weekly to US EPA - Region 2's Long Island Sound Office; the CT DEP's Bureau of Water Management; the Nassau County Health Department; the NYS DEC Division of Marine Resources; the NYC DEP Marine Science Section; and to the volunteer monitoring groups — Coalition To Save Hempstead Harbor and Save The Sound. The data are available from the Commission 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. CT DEP recently 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 criteria. 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 includes the IEC District. 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.

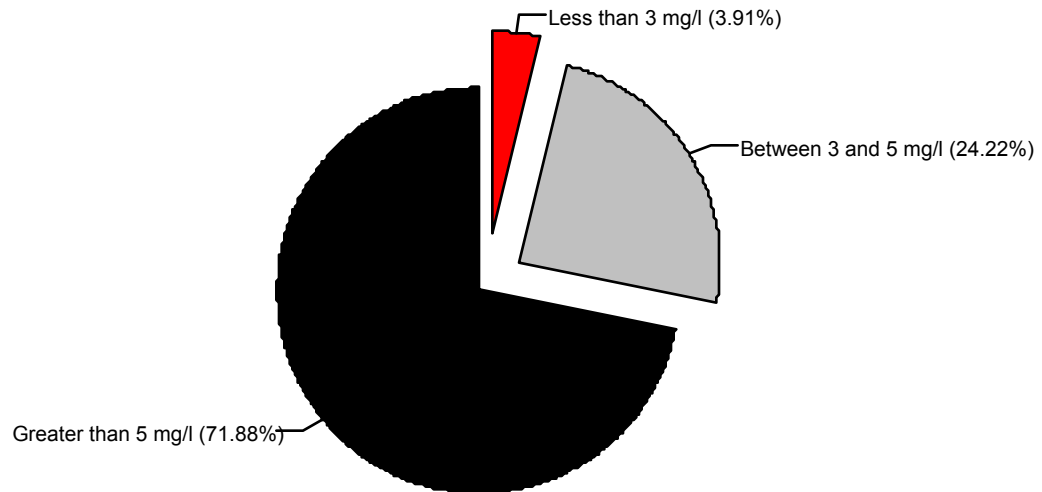
A statistical representation of the dissolved oxygen data acquired during the 2001 ambient water quality monitoring in Long Island Sound is shown on the pie chart entitled "2001 Dissolved Oxygen Monitoring". Measurements of dissolved oxygen concentration in both surface and bottom waters are separated and grouped in three categories. The first category contains dissolved oxygen concentration values that are less than three mg/l ( $<3.0$  mg/l); it reflects hypoxic conditions. Under such conditions, very few types of juvenile fish can survive, many adult fishes will avoid or leave

**INTERSTATE ENVIRONMENTAL COMMISSION**  
**LONG ISLAND SOUND STUDY**

**2001 DISSOLVED OXYGEN MONITORING**  
**SURFACE AND BOTTOM WATERS**

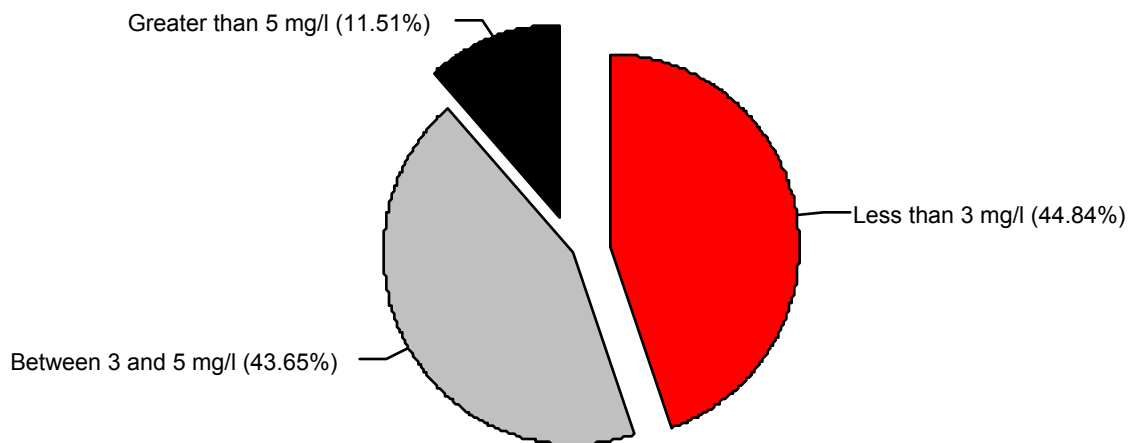
**SURFACE WATERS**

Range of Dissolved Oxygen Values: 1.3 to 16.6 mg/l



**BOTTOM WATERS**

Range of Dissolved Oxygen Values: 0.1 to 8.5



NOTE: Surface and bottom waters are shown as a percentage of 256 and 252 readings, respectively. Twenty-one stations were sampled.

the area and those organisms not free to move (sessile) will die. The second category includes 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. The third category consists of dissolved oxygen concentrations of at least five mg/l (5.0 mg/l). For the first time since 1997, hypoxic conditions were measured in the surface waters of the Sound; for all stations, the range of dissolved oxygen was 1.3 to 16.6 mg/l. The waters of western LIS which tend to be stratified, were well mixed, but hypoxic. This surface low was recorded on August 13th and gradually increased during the remainder of the summer. Bottom waters ranged from 0.1 to 8.5 mg/l. These extremely low values were recorded all summer long. Interestingly, there were no fish kills; recreational fishing in western Long Island was excellent for fluke, porgy, striped bass, bluefish and black seabass.

This monitoring season again proved to be another unique year. An extreme cold snap started in November and was persistent through February 2001 with a snow accumulation of nearly 37 inches. A cool, early spring was followed by a blast of premature summer. During the first week of May, three days of over 90°F broke records in Central Park, New York. This sudden surge of hot, humid weather helped create ground level ozone smog across the region, as well as to stimulate tree pollen production at record levels. Only one water quality survey was partially aborted due to rough seas during the first week of July. Another small craft advisory (winds up to 33 knots) would not be posted until September 24th. The remainder of the summer was calm, no major storms of any kind — tropical, hurricane or nor'easter — and dry. Any rain was intense and localized; average rainfall for 2001 was about 10" below the yearly norm.

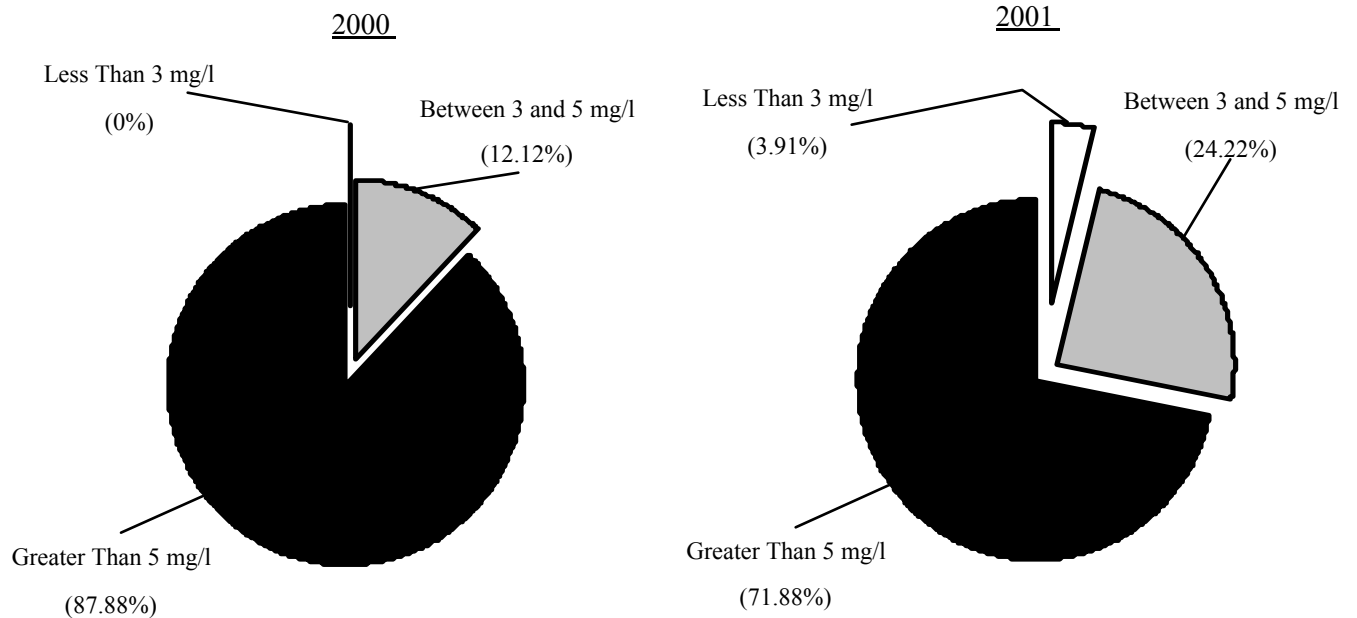
As shown on the pie charts depicting 2000 and 2001 monitoring data, the condition of the surface waters was somewhat worse in 2001 versus 2000. The 2001 surface water results for the categories of *Greater Than 5 mg/l*, *Between 3 and 5 mg/l*, and *Less Than 3 mg/l* are 71.9%, 24.2% and 3.9%, respectively. In the same category order, the results of the 2000 survey were 87.9%, 12.1% and 0.0%, respectively. According to the measurements of the 2001 survey, 96.1% of the values measured in the surface waters met the IEC requirement for a "Class A" waterbody, versus 88% in 2001. The weather patterns for 2001 were atypical of past years: a very cold winter followed by a wet spring season followed by a dry, calm, hot summer with localized rainstorms. The heavy localized rains in July and August caused presumptive beach closures in Nassau and Westchester Counties. Private beach closures in the Eastchester Bay (Bronx County) were caused by the same heavy rains, as well as an illegal sanitary connection to a storm sewer.

There was also more oxygen depleted conditions in the bottom waters of the Sound in 2001 as compared to 2000. As displayed in the bottom half of the pie chart entitled "2000 and 2001 Dissolved Oxygen Monitoring", the 2001 bottom water results for the categories of *Greater Than 5 mg/l*, *Between 3 and 5 mg/l* and *Less Than 3 mg/l* are 11.5%, 43.65% and 44.84%, respectively. In the same category order, the bottom water results of the 2000 survey were 35.9%, 48.5% and 15.6%. Many different natural and anthropogenic factors (water pollution, municipal water pollution

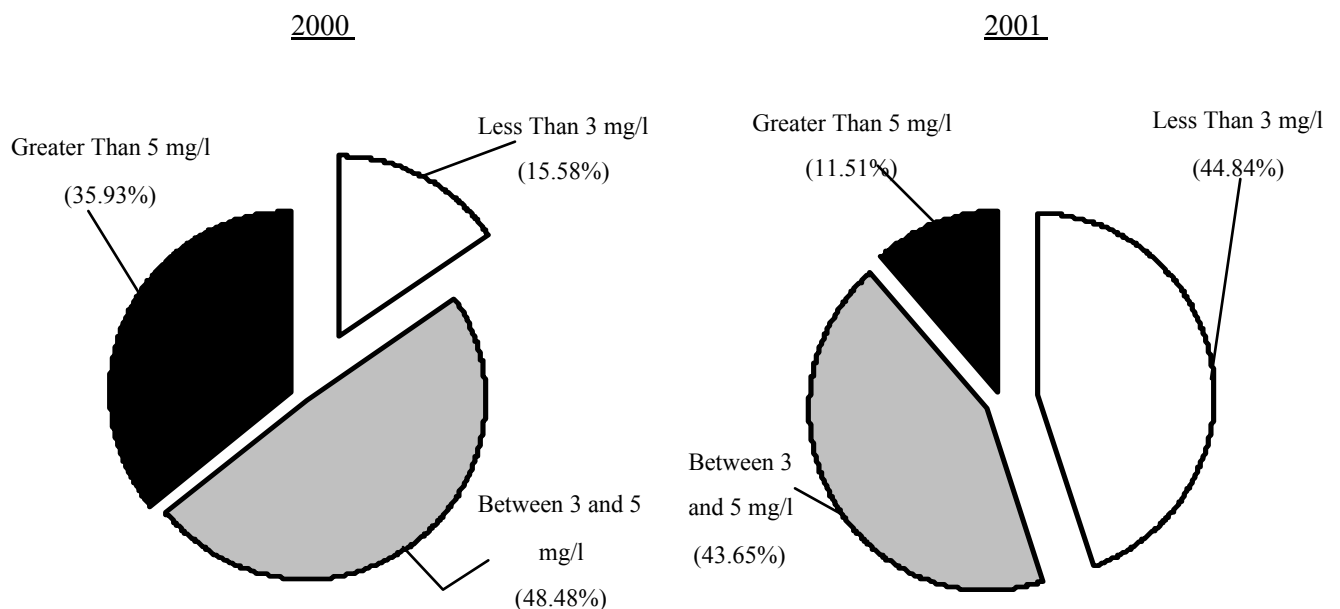
**INTERSTATE ENVIRONMENTAL COMMISSION**  
**LONG ISLAND SOUND STUDY**

**2000-2001 DISSOLVED OXYGEN MONITORING**  
**SURFACE AND BOTTOM WATERS**

**SURFACE WATERS**



**BOTTOM WATERS**



Note: Twenty-one (21) stations were sampled in both years.



control programs, weather, circulation pattern changes, proliferation or lack of algal blooms, etc.) contribute to hypoxia and year-to-year variability. For 2001, 55% of the values measured in the bottom waters throughout the study area (including the turbulent East River and the open waters of the Sound and its embayments) met the IEC requirement of 5 mg/l for a "Class A" waterbody.

It is important to be able to approximate 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 averages, maximum and minimum values of surface and bottom waters for each run are displayed and represented separately. The graph indicates that hypoxic conditions were observed in surface waters during the 2001 sampling; the first time since 1997 and in bottom waters throughout the summer season.

The bottom water dissolved oxygen concentration plummeted from July 2nd to its lowest value of 0.1 mg/l on August 28th. These values reflect hypoxic conditions. Bottom water DO concentrations gradually rebounded until the last week of September when the first area-wide storm brought ambient conditions of high winds, 100% cloud cover and rain. Interestingly, the low DO concentrations were observed in the open waters of the Sound as opposed to the embayments during 2000. During 2001, depressed conditions were observed in Little Neck Bay, Manhasset Bay and Hempstead Harbor. The worst conditions were observed in Hempstead Harbor. Even though ambient temperatures were relatively cool, the bottom DO was poor, but no fish kills were observed.

Another unique condition in western Long Island Sound is the near absence of lobster, a major cash crop for this area; prior to 1999, 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 2001 recreational harvest in the western and central portions of the Sound started to recover, however, the commercial industry is 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, predation and commercial fishing impacts. 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. Additional funds were made available, including \$1 million from the Connecticut Bond Commission, New York State Legislature provided funds to establish a Long Island Marine Disease and Pathology Research Consortium, \$250,000 to the Atlantic States Marine Fisheries Commission, \$125,000 EPA Regional Applied Research Effort grant, EPA Coastal 2000 grants of \$300,000 each to New York and Connecticut for chemical, physical and biological monitoring and \$100,000 to the University of Connecticut from LISS to assess the health of lobsters.

#### Ambient Water Quality Cooperative Studies

The Commission entered into a cooperative arrangement with Nassau County Health

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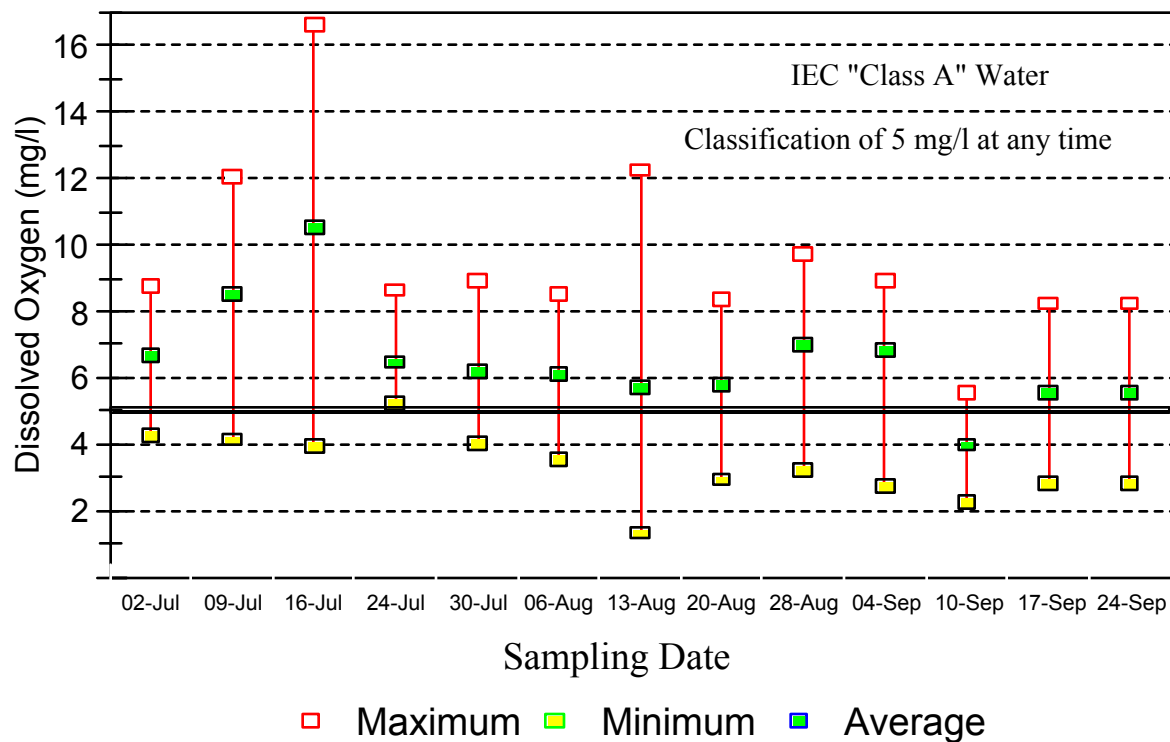
# LONG ISLAND SOUND STUDY

## 2001 DISSOLVED OXYGEN MONITORING

### SURFACE AND BOTTOM WATERS: AVERAGE AND RANGE OF ALL STATIONS SAMPLED

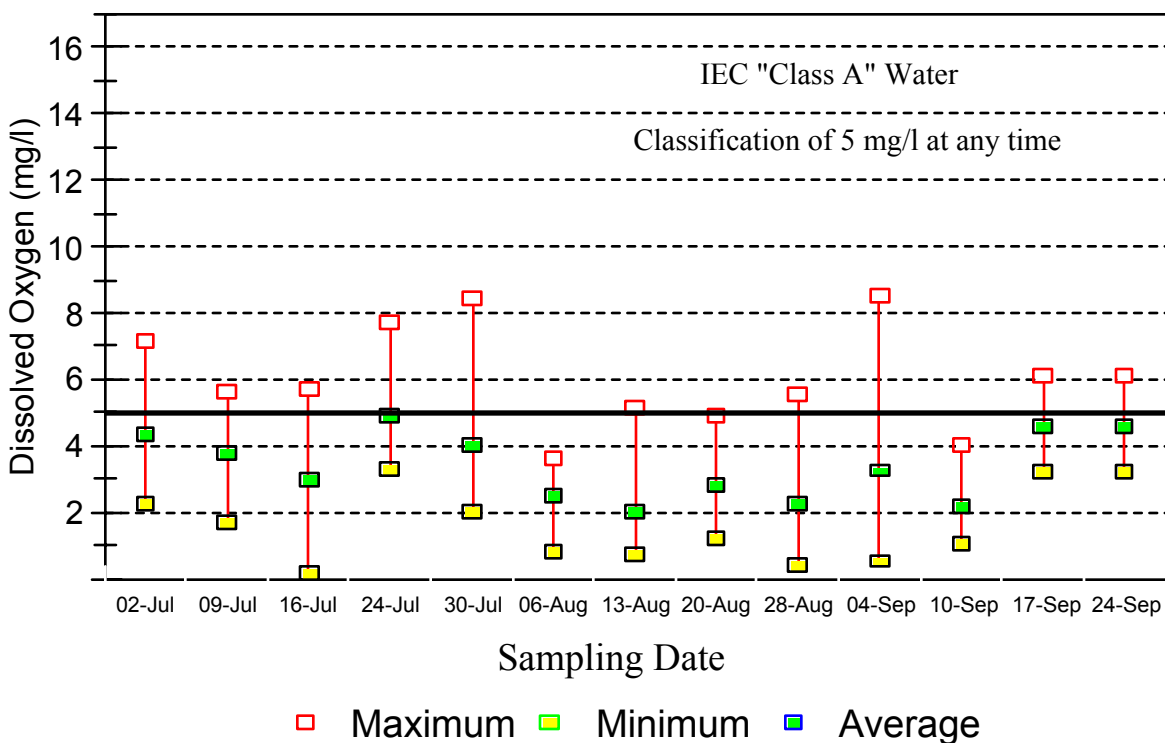
## Surface

Interstate Environmental Commission



## Bottom

Interstate Environmental Commission



Department in 1998. The objective was to characterize normal and excessive phytoplankton conditions in three embayments of western Long Island Sound. Excessive phytoplankton caused by nutrient enrichment in Long Island Sound can contribute to the Sound's hypoxic conditions. Due to additional staff and County budget shortfalls, as well as West Nile Virus assessments, all samples since 1998 have been archived, awaiting analysis.

For the fourth consecutive year, during each of IEC's 12 weekly Long Island Sound sampling surveys, additional water quality samples were collected, preserved and kept on ice until delivery by sea to NCHD. The NCHD archived the samples and subsequently carried out phytoplankton species identification — dominant, most prevalent and nuisance species — on a subset of each year's samples. The water quality samples were collected at one established station in each of the three western Long Island Sound embayments: Little Neck Bay, Manhasset Bay and Hempstead Harbor.

*Pfiesteria piscicida* is a toxic dinoflagellate that has been associated with fish lesions and fish kills in coastal waters from Delaware to North Carolina. Dinoflagellates are a natural part of the marine environment; they are microscopic, free swimming, single-celled organisms, usually classified as a type of alga. The most abundant organisms included in the phytoplankton are diatoms, dinoflagellates and coccolithophores. The vast majority of dinoflagellates are not toxic. Although many dinoflagellates are plant-like, others are more animal-like and acquire some or all of their energy by eating other organisms.

Discovered in 1988 by researchers at the University of North Carolina, *Pfiesteria* has a highly complex life cycle with 24 reported forms, a few of which can produce toxins. During 1998, a new DNA-probe technique for the detection of *Pfiesteria* was performed on water quality samples from coastal waters in a number of Atlantic states; *Pfiesteria* was identified in Suffolk County. Current advice from scientists suggest that conditions in the Metropolitan Area are not favorable to toxic outbreaks in which water temperatures are rarely above 80°F with salinity below 15 ‰.

The Commission is involved with the NYS DEC, Division of Marine Resources, and area health departments — Nassau, Suffolk, Rockland and Westchester Counties and New York City — to collect samples to verify the presence of *Pfiesteria* in New York marine surface waters, systematically characterize its distribution, and develop a contingency plan for responding to possible toxic *Pfiesteria* outbreaks. During 2000, the presence of *Pfiesteria* was detected in eastern Suffolk County samples. It was not determined if the toxic life phase was present.

During the Commission's September 10th Long Island Sound water quality monitoring survey, additional grab samples were collected for the special DNA-probe analysis. Samples were filtered and archived at room temperature until mailed to the NYS DEC contractor. The funding for this specialized analysis is being provided by US EPA. Additional water quality data — dissolved oxygen, temperature and salinity — were recorded, as well as other general observations at the time of collection.

## 2000-2001 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 sixth consecutive year, to assist in sample collection in western Raritan Bay during the 2000-2001 winter and spring seasons.

Following the criteria established by the US Food and Drug Administration's National Shellfish Sanitation Program, sampling runs were planned for the purpose of collecting the data needed to assess the microbiological quality of the shellfish waters. The surveys were triggered by storm events with an intensity of at least 0.2 inch of rain. A window of 48 hours subsequent to the rain gave 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 New Jersey Department of Environmental Protection/US EPA Performance Partnership Agreement, all samples were transported by IEC field personnel to the US EPA's Edison, NJ, laboratory for analysis of fecal and total coliform bacteria.

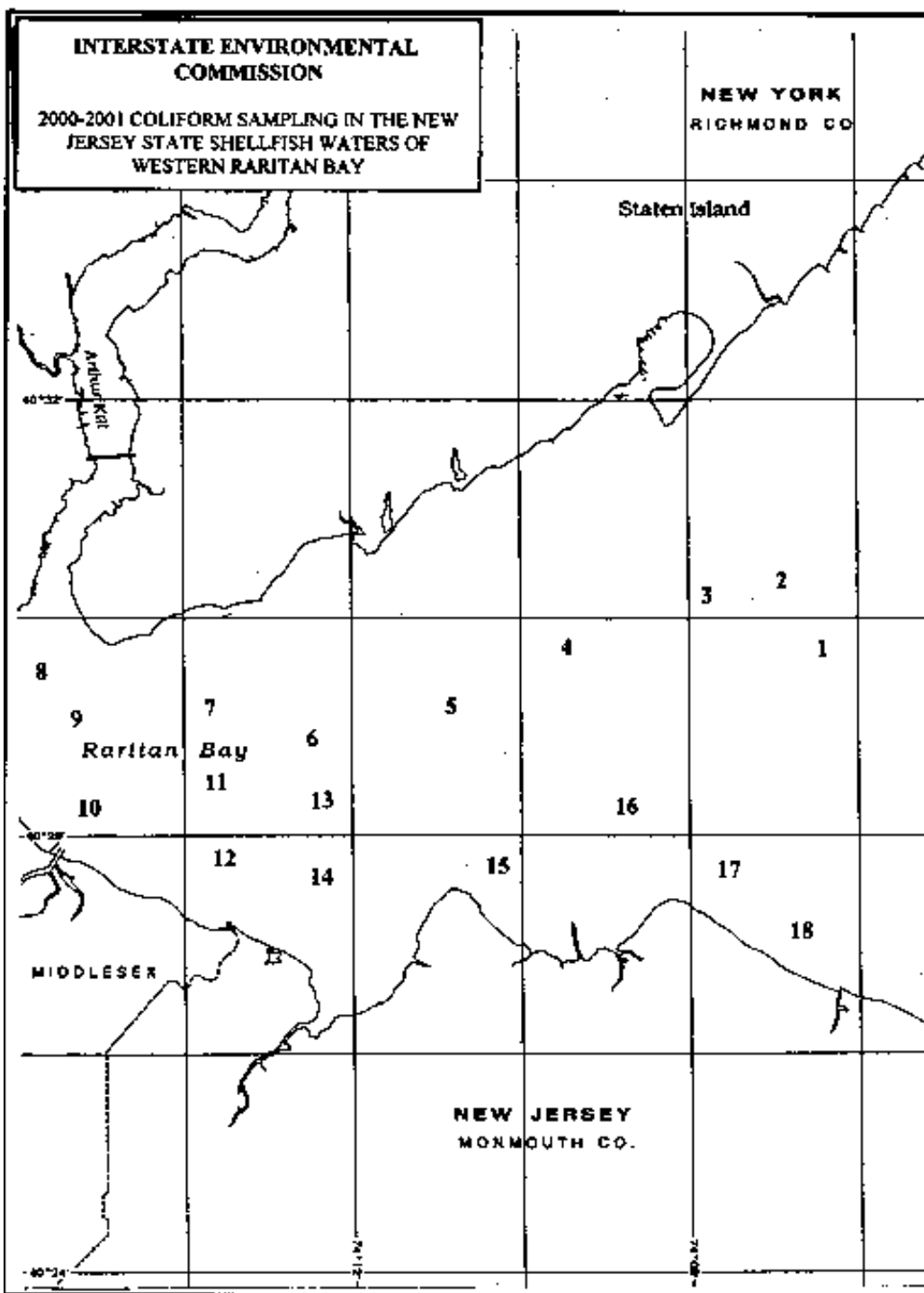


During early November 2000 after a prolonged period of rough seas and high winds, the R/V Natale Colosi was moved to and berthed at the Leonardo State Marina which is operated by the NJ DEP. From November 16, 2000 until mid-April 2001, four survey runs were completed. All sample collection, storage and delivery to the US EPA Edison laboratory adhered to chain of custody procedures and followed standard operating methods as outlined in the NJ DEP Field Sampling Procedures Manual. The Commission, at the request of BMWCA, will again conduct this survey over the 2001-2002 winter and spring seasons.

At a press conference held at the Leonardo State Marina during October, NJ DEP announced the opening of additional acreage for shellfish harvest subsequent to public comment. The proposed reclassification will bring the total to 599,505 acres or 89% of New Jersey's coastal waters available for shellfish harvest. The areas to be upgraded include 5,425 acres from prohibited to special restricted in Raritan Bay including 4,441 acres in the Flynn's Knoll section off Sandy Hook and 984 acres near Union Beach. The special restricted classification denotes shellfish harvest with depuration. These areas are the waters that the IEC has been monitoring for the past years.

### Great Kills Park Multi-Agency Microbiological Work Group

Great Kills Park, part of the Gateway National Recreation Area, is located on the eastern shore of Staten Island, New York, on Raritan Bay. The 1,455-acre park is maintained under the auspices of the National Park Service (NPS). In late August 1998, the NPS measured high levels of coliform bacteria and subsequently closed the bathing beach for a total of 12 days. This triggered



**INTERSTATE ENVIRONMENTAL COMMISSION**  
**2000-2001 AMBIENT WATER QUALITY MONITORING**  
**STATION LOCATIONS**  
**IN THE NEW JERSEY STATE**  
**SHELLFISH 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



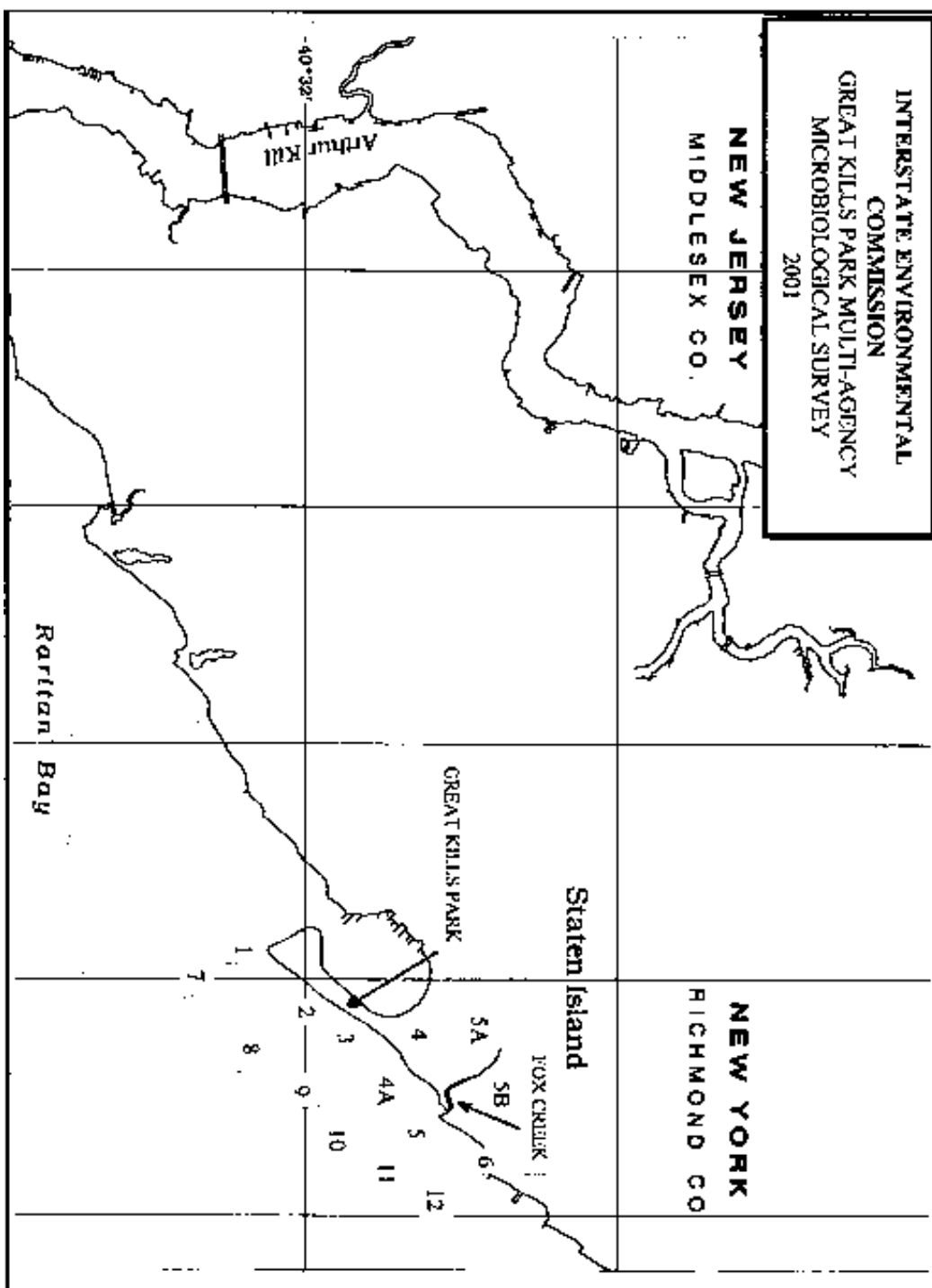
an extensive investigation of the area by NYC DEP; however, the source of the bacteria could not be determined. The suspected sources include the avian population; other local fauna and domestic pets; nonpoint sources; Fox Creek, which is a tributary of Raritan Bay; and local septic systems not connected to the Oakwood Beach WPCP collection system. In subsequent years, vast amounts of manpower on behalf of NYS DEC and NYC DEP were expended for field observations to hopefully identify a source or combination of the following: raw discharge, dry weather flow, SSOs, illegal sanitary hookups from residential or commercial buildings, avian sources, or small recreational/commercial boats and oceangoing vessel discharges.

Meetings were conducted prior to the 1999 bathing beach season in order to create a sampling program to locate the source of the bacteria. With staff restrictions/commitments and laboratory capacity limitations, a cooperative water quality sampling and analysis program was devised. Those entities participating in the project are IEC, NYS DEC - Region 2, NYC DEP, NYC DOH, NPS, and the College of Staten Island (CSI). A sampling network of 12 stations — six near the shoreline and six 100 feet offshore — was established. A three phase sampling program was conducted from May through October 1999 which represented the pre-bathing season, during the bathing season, and post-bathing season. Results were inconclusive and the investigation necessitated the continued efforts for two more years. The map on the following page shows the network of sampling stations. The adjoining table lists the station locations, year(s) sampled and National Park Service beach closure criteria.

During 1999, the three phase pathogen sampling program included full tidal cycle and single grab sampling. NYS DEC personnel collected samples at the near shore stations by wading into the surf; the offshore stations were sampled simultaneously by NYC DEP using a shallow draft boat. NYS DEC personnel rendezvoused with NYC DEP inside Great Kills Harbor for sample transfer. In order to meet holding time limitations for microbacterial analyses, NYS DEC delivered samples to the IEC laboratory every four hours during full tidal cycle surveys which were conducted prior to and during the bathing season. The final phase was conducted during the post season; grab samples were collected at only the onshore stations every week for four weeks. The sampling program required extensive manpower — field, laboratory, data processing and analysis — from 7 agencies, and equipment acquisitions/loans to enhance IEC's laboratory capacity. The official 1999 bathing season — May 29th, Memorial Day weekend, through September 6th, Labor Day — was shortened by 16 beach closure days including the entire Labor Day weekend.

The IEC microbiological lab analyzed the samples for fecal and total coliforms, fecal streptococcus and enterococcus. The IEC was designated the lead agency to coordinate sampling and to disseminate all IEC laboratory results as well as the NYS weekly beach sampling results. Throughout the three year investigation, IEC hosted meetings, organized conference calls and addressed oversight amongst the Work Group members.

During 1999, sampling teams collected additional samples for a NYC DEP contract lab to perform coliphage determinations. Prior to the first sample in Phase I, NYC DEP established an instantaneous dye concentration release in Fox Creek prior to its confluence with Raritan Bay, and



## INTERSTATE ENVIRONMENTAL COMMISSION

### GREAT KILLS PARK MULTI-AGENCY MICROBIOLOGICAL SAMPLING STATIONS

STATION	DESCRIPTION	YEAR SAMPLED
1	CROOKES POINT - ON SHORE	1999-2000
2	GREAT KILLS BEACH - ON SHORE	1999-2000
3	GREAT KILLS BEACH - ON SHORE	1999-2000
4	GREAT KILLS BEACH - ON SHORE	1999-2000
4A	THE BOG - ON SHORE	2000
5	FOX CREEK	1999-2000
5A	FOX CREEK- NORTH BRANCH ABOVE STORM GATE	2000
5B	FOX CREEK - SOUTH BRANCH	2000
6	NORTH OF FOX CREEK - ON SHORE	1999-2000
7	CROOKES POINT - OFF SHORE	1999
8	GREAT KILLS BEACH - OFF SHORE	1999
9	GREAT KILLS BEACH - OFF SHORE	1999
10	GREAT KILLS BEACH - OFF SHORE	1999
11	GREAT KILLS BEACH - OFF SHORE	1999
12	NORTH OF FOX CREEK - OFF SHORE	1999

National Park Service Bathing Beach Criteria  
Single Values That Trigger Additional Sampling  
Fecal Coliform: 200/100 ml  
Total Coliform: 2,400/100 ml

Daily Values on Three Consecutive Days That Would Cause a Beach Closure Trigger  
Fecal Coliform: 200/100 ml  
OR  
Total Coliform: 2,400/100 ml

subsequently collected dye samples along with the bacteriological samples. The dye samples were analyzed at the NYC DEP laboratory at Wards Island in order to determine a concentration gradient. Observations of the bird population (number, species, roosting, in-water and near-water presence) was conducted by the NPS staff. The avian observations were enhanced by NYC DEP's collection of beach sand along the high tide mark to determine the fecal input from roosting birds. Efforts to characterize the avian population and its impacts, as well as the dye study were repeated in 2000. The coliphage — a DNA analysis to determine a specific avian or mammalian source — and sand analyses were inconclusive.

The results of the pathogen analyses were inconclusive, although the Fox Creek Station #5 showed consistently high bacteria concentrations. A detailed data analysis was initiated by CSI. The data was correlated with tidal phase, climatic conditions, i.e., wind direction and rainfall, and near shore current patterns. Additional data sets from NYC DOH's 1999 beach monitoring program on Staten Island, as well as NPS's Water Quality Sampling Program, 1980 to 1999, inclusive, were reviewed. The data analysis could not conclusively identify the source of the bacterial contamination as Fox Creek nor the reason for the beach closures, but did reveal a pattern for high coliform densities during late August.

Several meetings were conducted prior to the 2000 bathing beach season in order to discuss findings, reassess the sampling program, and institute a contingency response plan to additional beach closures and ultimately, locate the source of the bacteria. An IEC field survey of Fox Creek found the following: no odors, no residual sewage, no CSOs or SSOs, the surrounding area is wetlands, private residential homes abutted the creek, and a large saltmarsh was located south of Fox Creek. In addition, it was surmised that the saltmarsh, locally known as "the bog", south of Fox Creek, could act as a retention basin and release contamination during high tide and/or storm events.

The contingency plan for the 2000 bathing season included pre-Memorial Day beach sampling, an early June reconnaissance of Great Kills Beach, "the bog", and Fox Creek by the Work Group, and a July ambient water quality survey during a full tidal cycle. NYC DEP conducted dye tests in Fox Creek and on the beach at the high tide line, as well as collect sand and water quality samples at station #2 to determine fecal contamination that might be caused by the avian population. Additional sampling would be undertaken if the weekly NPS threshold of fecal or total coliform was exceeded. If the additional sampling was necessary, samples would be collected in the north and south forks of the Fox Creek.

On August 23, 2000, IEC was notified by NPS that elevated values of coliform were detected at Great Kills Beach, triggering the need for additional sampling by NPS to determine the sanitary condition of the beach. As per the contingency response plan, a sampling was conducted by NYS DEC with analysis by IEC on the next day, August 24th. Retesting by NPS on August 24th showed compliance with federal bathing beach criteria, as confirmed by the Work Group's reactive sampling. The beach officially closed on September 4, 2000, without any beach closure days. Although the source of the bacterial contamination at Great Kills was not identified, the additional sampling efforts indicated that Fox Creek and the immediate neighborhood surrounding the creek were contributing to the poor water quality.

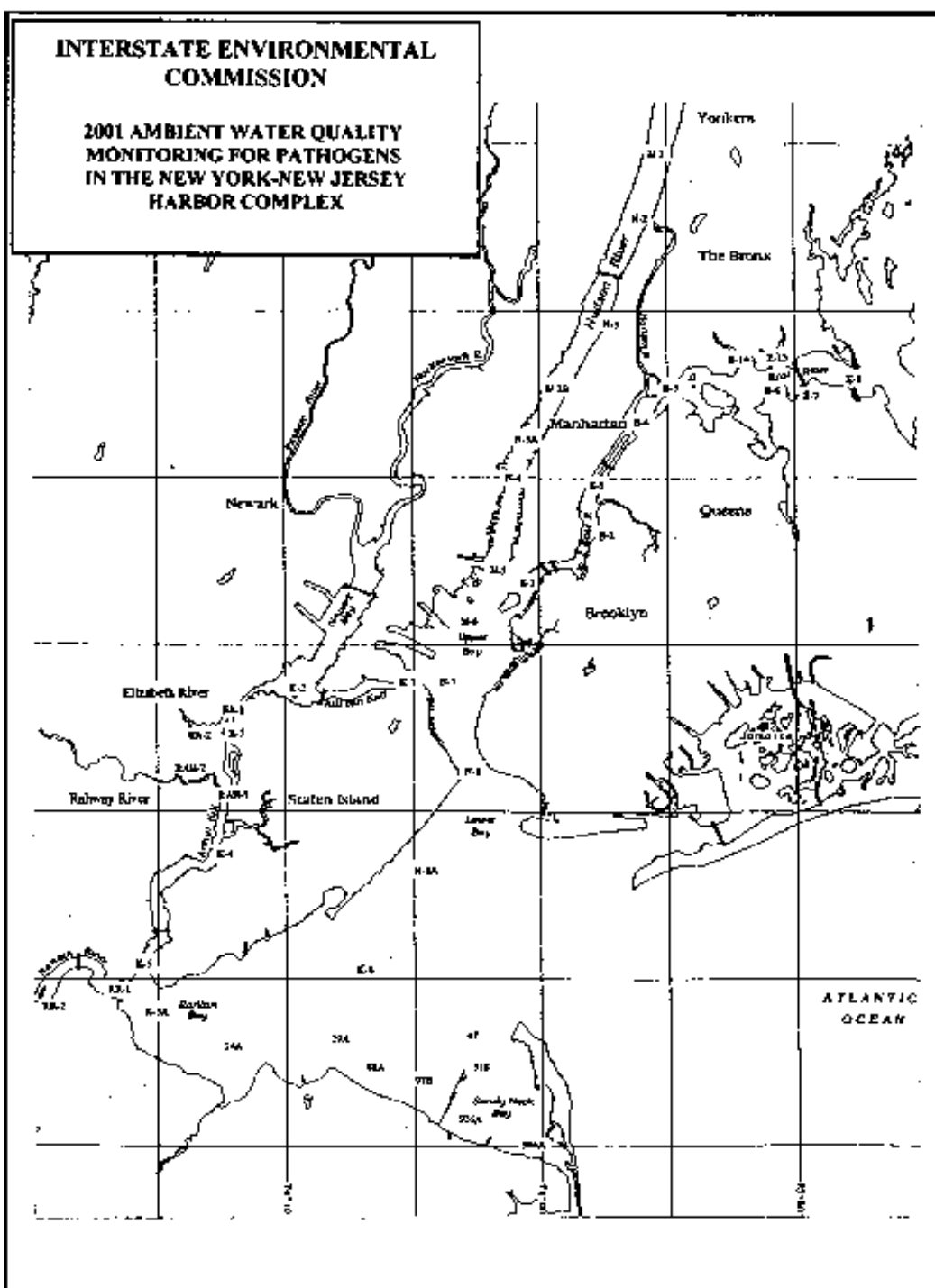
The contingency plan for 2001 included pre-bathing season monitoring by NYC DOH, reactive monitoring to elevated coliform density triggers as determined by NPS, lab support by IEC, and IEC doing coordination, weekly dissemination of NYC DOH and NPS beach water quality data and oversight for the Work Group. The beach officially closed on September 3, 2001, without any beach closure days.

While the source(s) of the bacterial contamination causing the beach closures at Great Kills Park remains undetermined, the participants are committed to continuing their investigation. This project can be used as a model of multi-agency — federal, state, interstate, city and academia — cooperation bringing together various disciplines for a common purpose.

### 2001 Ambient Water Quality Monitoring for Pathogens in the New York-New Jersey Harbor Complex

This sampling was conducted at the request of the US Environmental Protection Agency (EPA), Region 2, under the auspices of the New York-New Jersey Harbor Estuary Program (HEP), to collect fecal coliform, total coliform and enterococcus data. The scope of work was determined by the HEP's Pathogens Work Group which is comprised of IEC, NYS DEC, NJ DEP, NYC DEP, US Army Corps of Engineers, and EPA. The results were supplied to contract modelers for refinement of a water quality model for pathogens based on the New York City Combined Sewer Overflow (CSO) model and System-wide Eutrophication model. The map on the following page shows the sampling network, consisting of 42 stations throughout the New York-New Jersey Harbor Complex. The Complex has been divided into four areas of concern: East River, Hudson River and Upper New York Harbor, Arthur Kill/Kill Van Kull and tributaries (Elizabeth River, Rahway River and Raritan River), and Raritan and Sandy Hook Bays. The four accompanying tables detail the station locations and descriptions. The station locations were supplied to the Commission by NYC DEP and NJ DEP's Bureau of Marine Water Classification and Analysis (BMWCA). The sampling stations are those recommended by the HEP modeling contractor. There is an historic data base at these established stations and, to better represent the interstate characteristics of the waterways, a subset of the NYC DEP Harbor Survey stations on the Hudson River from Yonkers south to the Battery were moved to mid-river.

Samples for fecal and total coliforms, fecal streptococcus and enterococcus were taken at all stations. In addition, temperature and salinity measurements were made in situ. IEC contracted two boats to conduct simultaneous sampling two (2) days per week; IEC field personnel conducted all sample collection and performed all in situ measurements aboard the contract vessels. A sampling regime of two (2) survey runs per week per boat in each area of concern was planned over a five (5) week period. That is, over the course of ten (10) weeks, all four (4) sampling areas would yield ten (10) data sets per station. The events of September 11th, as well as other commitments resulted in the data not being collected over ten consecutive weeks, but sampled ten times over a 17-week period (August through November). As recommended by the HEP modeling contractor, the water





**INTERSTATE ENVIRONMENTAL COMMISSION**

**2001 SAMPLING STATION LOCATIONS**

**AMBIENT WATER QUALITY MONITORING FOR PATHOGENS**

**IN THE**

**NEW YORK-NEW JERSEY HARBOR COMPLEX**

**EAST RIVER**

SAMPLE No.	STATION	LOCATION		DESCRIPTION
		LATITUDE NORTH D M S	LONGITUDE WEST D M S	
1	E-1	40-42-01	74-00-11	PIER 10: Mid river on a line between Pier 10, Manhattan and Pier 3, Brooklyn
2	E-2	40-44-03	73-58-04	EAST 23 <sup>RD</sup> STREET: Mid river off E. 23 <sup>rd</sup> Street, Manhattan
3	E-3	40-44-51	73-57-58	EAST 42 <sup>ND</sup> STREET: Mid river off E. 42 <sup>nd</sup> Street, Manhattan
4	E-4	40-46-57	73-55-19	HELL GATE: Mid river under Conrail Railroad Bridge
5	E-5	40-48-03	73-51-10	BARRETTO POINT: Mid river on a line between Barretto Point to the dock on Rikers Island
6	E-6	40-47-08	73-51-39	FLUSHING BAY: Mid river west of the College Point ferry slip
7	E-14	40-48-03	73-51-52	BRONX RIVER: Main channel near buoy "N2"
8	E-13	40-48-22	73-50-28	Westchester Creek: Main channel near buoy "N2"
9	E-7	40-48-18	73-49-14	WHITESTONE: Mid river on a line from Whitestone Point and the Bronx shore
10	E-8	40-47-58	73-47-13	THROGS NECK: Midway between the two forts

# INTERSTATE ENVIRONMENTAL COMMISSION

## 2001 SAMPLING STATION LOCATIONS AMBIENT WATER QUALITY MONITORING FOR PATHOGENS IN THENEW YORK-NEW JERSEY HARBOR COMPLEX

### RARITAN BAY

SAMPLE No.	STATION	LOCATION		DESCRIPTION
		LATITUDE NORTH D M S	LONGITUDE WEST D M S	
1	N-8A	40-35-06	74-03-18	South Beach: ~1200 yards offshore
2	K-6	40-30-37	74-06-03	~200 yards from Old Orchard Light in line with Old Orchard shoal
3	24A	40-28-20	74-11-52	Keyport Harbor
4	29A	40-28-58	74-08-11	~1.2nm n of Point Comfort
5	97B	40-26-53	74-04-51	~0.9 nm N of Port Monmouth
6	88A	40-27-10	74-06-17	Ideal Beach
7	47	40-29-05	74-04-31	~2.7 nm NW of Sandy Hook Point
8	918	40-27-41	74-02-38	~0.6nm NNE EARLE NWS (east pier head)
9	906A	40-25-15	74-00-18	~0.8 nm E of Atlantic Highlands Day marker
10	916A	40-25-49	74-03-21	Leonardo State Marina breakwater

## **INTERSTATE ENVIRONMENTAL COMMISSION**

### **2001 SAMPLING STATION LOCATIONS** **AMBIENT WATER QUALITY MONITORING FOR PATHOGENS** **IN THE NEW YORK-NEW JERSEY HARBOR COMPLEX**

#### **HUDSON RIVER**

SAMPLE No.	STATION	LOCATION		DESCRIPTION
		LATITUDE NORTH D M S	LONGITUDE WEST D M S	
1	N-1	40-54-52	73-54-58	MT. ST VINCENT: Mid river on a line from New York shore at Mt. St. Vincent Academy to the New Jersey shore.
2	N-2	40-52-46	73-55-49	SPUYTEN DUYVIL: Mid river on a line from the center pier of the Conrail Bridge over Spuyten Duyvil Creek to the New Jersey shore.
3	N-3	40-50-11	73-57-31	155 <sup>th</sup> Street: Mid river on a line from the Manhattan shore at West 155 <sup>th</sup> Street to the New Jersey shore.
4	N-3B	40-49-15	73-58-17	125 <sup>th</sup> STREET: Mid river on a line from the Manhattan shore at West 125 <sup>th</sup> Street to the New Jersey shore.
5	N-3A	40-47-00	73-59-40	72 <sup>nd</sup> STREET: Mid river on a line from the Manhattan shore at West 72 <sup>nd</sup> Street to the New Jersey shore.
6	N-4	40-45-22	74-00-30	42 <sup>nd</sup> STREET: Mid river on a line from the Manhattan shore at West 42 <sup>nd</sup> Street to the New Jersey shore.
7	N-5	40-42-16	74-01-36	PEIR A-THE BATTERY: Mid river on a line from the Manhattan shore to the Conrail Terminal on the New Jersey shore.
8	N-6	40-39-54	74-03-10	BELL BUOY "1G"- Gong buoy "27"
9	N-7	40-38-38	74-03-14	ROBBINS REEF: Channel buoy "24"; ~1900 yards SE of Robbins Reef
10	N-8	40-36-22	74-02-44	VERRAZANO NARROWS: Midspan under the Verrazano Narrows Bridge

## **INTERSTATE ENVIRONMENTAL COMMISSION**

### **2001 SAMPLING STATION LOCATIONS** **AMBIENT WATER QUALITY MONITORING FOR PATHOGENS** **IN THE NEW YORK-NEW JERSEY HARBOR COMPLEX**

#### **THE KILLS**

SAMPLE No.	STATION	LOCATION		DESCRIPTION
		LATITUDE NORTH D M S	LONGITUDE WEST D M S	
1	K-5A	40-29-04	74-14-45	RARITAN RIVER: Fl Buoy "5"; ~800 yards NE of Middlesex County outfall.
2	RR-1	40-29-30	74-16-00	Mouth of the Raritan River.
3	RR-2	40-29-30	74-16-30	~1.0 nm upstream from mouth of Raritan River.
4	K-5	40-30-22	74-15-32	TOTTENVILLE: Midstream at the former Tottenville ferry slip at Perth Amboy.
5	RAH-1	40-35-36	74-12-30	Mouth of the Rahway River.
6	RAH-2	40-36-19	74-13-09	~1.0 nm upstream from mouth of the Rahway River.
7	K-4	40-34-01	74-12-42	FRESH KILLS: Midstream at the US Metals Refining dock in New Jersey to the middle of the southerly mouth of Fresh Kills.
8	K-3	40-38-15	74-11-45	B&O RAILROAD BRIDGE: Midstream under the B&O Railroad Bridge.
9	ER-1	40-38-36	74-11-30	Mouth of the Elizabeth River.
10	ER-2	40-38-36	74-12-03	~1.0 nm upstream from mouth of the Elizabeth River.
11	K-2	40-38-26	74-09-30	SHOOTERS ISLAND: Midstream at the former ferry slip pilings on Shooters Island to the Staten Island shore.
12	K-1	40-39-04	74-04-55	B&O COAL DOCK: Midstream at the former B&O coal dock pilings, New Brighton to the New Jersey shore.

samples were collected from a depth of three (3) feet, or one (1) meter, below the surface of the water. This sample depth is comparable with previously collected data. Appropriate metadata was collected during each survey run, including meteorological and tidal datum, sea surface conditions, percent cloud cover and total rainfall amounts as recorded at Central Park, New York.

All samples were collected by IEC personnel and were preserved on ice and delivered to the IEC laboratory. The subsequent bacteriological analyses of the collected water samples were conducted by the IEC at the Commission's laboratory located on the campus of the College of Staten Island. All pathogen analyses were performed according to the multiple tube fermentation technique and the bacteria density was determined in terms of the Most Probable Number (MPN). In order to attain the range of values requested by the HEP modeling contractor, analyses was performed using a 3-tube, 4-dilution test, which yielded the range of values required (MPN values from <30 to >240,000).

The surveys were conducted on Mondays and Tuesdays to be able to reschedule any surveys during that week if severe weather conditions created an unsafe boating/sampling environment. Historically, within the New York-New Jersey Metropolitan Area, rain events occur every three (3) days. Therefore it is probable that the sampling schedule will produce both wet weather and dry weather samples. It is, however, conceivable that during the extent of the survey, there will be a limited number of samples taken under wet weather conditions — minimum 0.25 inches of rain as recorded at Central Park, New York, and sampled within a 48-hour period. Starting on August 6th and ending on November 26th, 44 survey runs were completed of which 10 runs were conducted under wet weather conditions. Due to the abnormally dry conditions — over 10" of rain below the yearly average — as well as to characterize seasonal conditions, IEC anticipates to conduct additional surveys during the winter and spring of 2002.

The primary use of the final pathogen data is for the development of total maximum daily loads (TMDLs) for the aforementioned parameters. A TMDL is a tool for implementing state water quality standards. The TMDL establishes the maximum amount of a pollutant that may be discharged into a waterbody while ensuring attainment of water quality standards. The TMDL is based on the relationship between pollution sources and in-stream water quality conditions. The final TMDL for these pathogens will be enforceable National Pollutant Discharge Elimination System (NPDES) limitations. Since the recent passage of the federal BEACH Bill mandating the use of enterococcus as the indicator for bathing beach waters, the data will be used for that purpose. The data are available from the Commission office or it can be retrieved from STORET, USEPA's national data base.

### 2001 BOAT INSPECTION TRIP

This past summer, the Commission's boat inspection trip focused on the New York Harbor Complex and the lower East River. The 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 2001 Boat Inspection Trip was held on August 1st and covered the Lower and Upper New York Harbor, New York and New Jersey waters of Raritan Bay, the Kills and the

East River from the Battery to Roosevelt Island. The map on the following page shows the six-hour route which was traversed, covering nearly 100 nautical miles. The waters inspected during the trip provide for a variety of recreational activities such as powerboating and sailing; the use of canoes, kayaks and sculls; fishing and scuba diving, shellfishing, lobstering and crabbing, swimming, jet skiing, parasailing, water skiing, and wind surfing. On a grand scale, the New York Harbor Complex supports a vast maritime industry including shipping, dry docks, transportation (ferries, water taxis and ocean liners), container ports, tank farms and commercial harvest of crustaceans, finfish and shellfish.

IEC Commissioners, officials from all levels of government, interstate agencies, and citizen groups viewed bathing beaches and seaside parks, commercial shellfish operations, numerous party boats and small recreational vessels, sailing clubs comprised of dozens of vessels, tug and barge transports, dry docks, urban and maritime industries, historical landmarks, and waterfront development projects. A running dialogue of water quality issues, sights and points of interest, recommended fishing and scuba diving sites, as well as local lore dealing with lighthouses, bridges, embattlements and shipwrecks were provided throughout the trip.

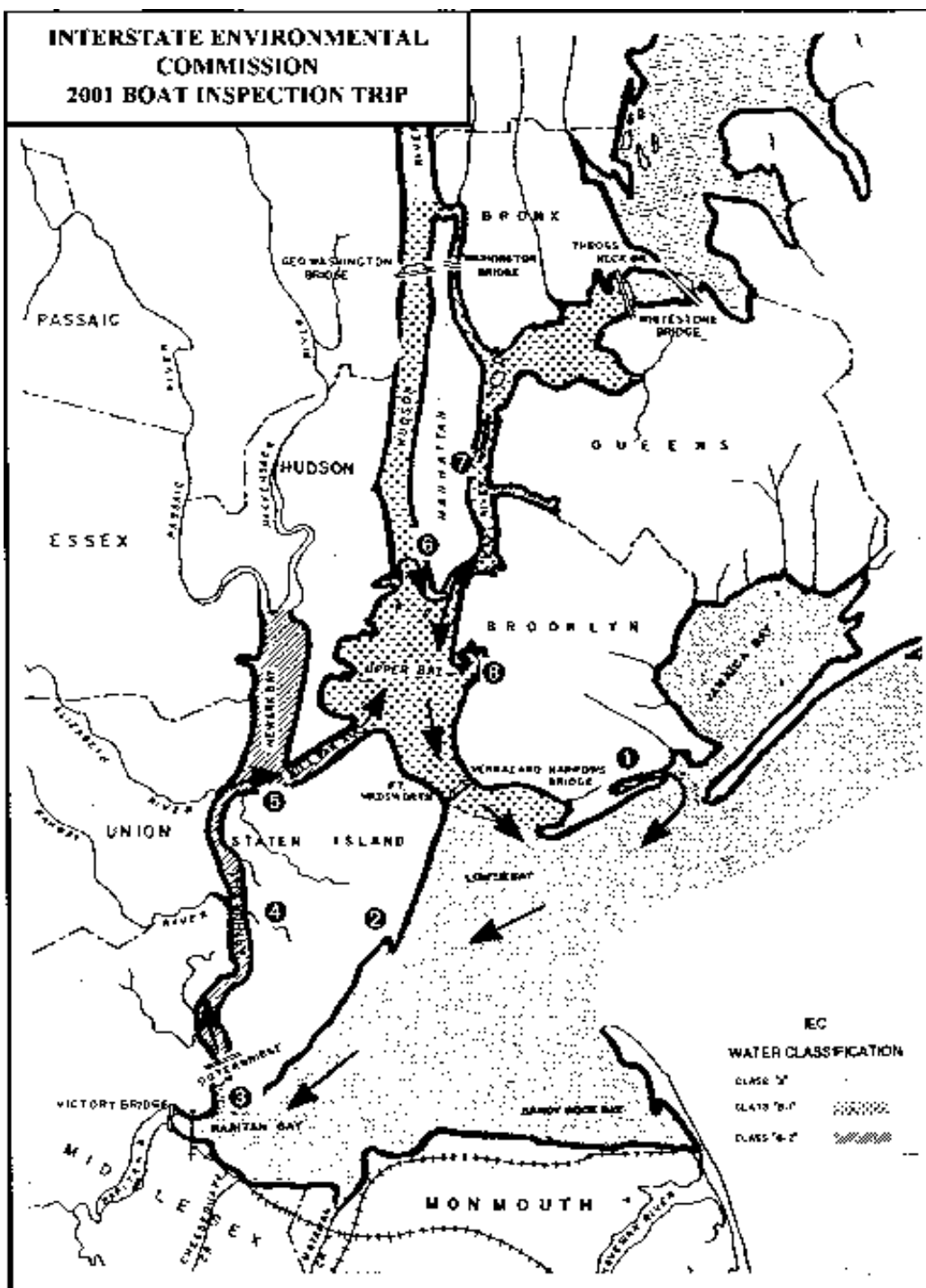
The attendees viewed ongoing waterfront development, sewage treatment plants, areas that the Commission has been monitoring to determine the sanitary conditions for shellfish harvest and bathing, electrical/steam generating stations, the Freshkills Landfill, restoration efforts due to oil spills and erosion, wooden bulkheads under repair due to marine borers and CSO outfalls in the Kills and East River. Unbeknownst to the ship's passengers and crew, the view of lower Manhattan's skyline would drastically change in less than six weeks after the boat trip.

Attendees had the opportunity to see unobstructed views of the New York City and Hudson County, New Jersey, skylines; the historical embattlements that have protected New York Harbor; over 20 national monuments; nine world famous bridges; and fragile bird sanctuaries on the Isle of Meadows, Pralls and Shooters Islands in the Kills. 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 WORK GROUP

The Regional Bypass Work Group 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 three states' environmental and health departments, IEC, USEPA, USFDA, NYC DEP, US Coast Guard, National Park Service and county health officials. The Work Group 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 updated annually.





For the first three full calendar years that the model and notification protocols have been in place, 1998 through 2000, the Commission received 94, 97 and 99 phone calls and/or E-mail messages, respectively, with regards 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, fuel, sludge and treatment reductions. The 102 bypass events for the period January to November 16, 2001, is as follows:

	<u>Total Calls in 2000</u>	<u>% of Total</u>	<u>Total Calls in 2001</u>	<u>% of Total</u>
Connecticut	5	5.1%	7	6.9%
New Jersey	10	10.1%	9	8.8%
New York	84	84.8%	86	84.3%

The 2000 totals are included for a basis of comparison, as well as to report all bypass events for the past full calendar year.

Although the majority of the bypass events occur in NYS DEC, Region 2, which encompasses the five NYC boroughs, 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:

	<u>Total NY Calls in 2000</u>	<u>Total NY Calls in 2001</u>
Region 1 (Nassau/Suffolk)	4	4
Region 2 (5 NYC Boroughs)	65	56
Private Plants (Richmond)	3	5
Region 3 (Westchester/Rockland)	12	21
(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 either by phone or E-mail. For the most part, any missing data from the event was reported subsequent to repairs. Minor events or ongoing investigations of illegal discharges were reported by mail. Volumes bypassed ranged from as little as 35 gallons of sewage lasting minutes to 104 MG lasting days. During 2001, the common causes for bypass events were pipe breaks and regulator blockages (40), power outages (9) and mechanical failures at pump stations(6), and disinfection and other treatment unit failures (15). Intensive, localized storm events caused 11 bypasses. The 102 bypass events were comprised of raw sewage (64), raw with disinfection (18), illegal connections (8), treatment reduction (6), fuel oil (3), and sludge (3).

Most significantly, during the period May 26th through September 3, 2001, which represents the “official” bathing season (Memorial Day to Labor Day) 30 releases or 29% of the total occurred. Compared to the bathing seasons for the prior two years, 30 events or 32% of the total occurred in

1999 and 37 events or 42% of the total in occurred in 2000. During 2001, the waterways impacted with the majority of the bypasses were Long Island Sound including its embayments (26), East River and its tributaries (18), Hudson River (18), Arthur Kill/Kill Van Kull (13) and Jamaica Bay and its tributaries (10).

As the lead agency for the RBWG, the Commission was contacted by NYS DEC, Region 3, regarding solvent contamination to the east branch of the Sparkill Creek, a tributary of the Hudson River, which flows from Bergen County, New Jersey into Rockland County, New York. The Rockland County Health Department is monitoring surface water quality in the creek. NJ DEP's Northern Bureau of Water Compliance and Enforcement is investigating unauthorized discharges from active industrial facilities. IEC was and will continue its function in the oversight of exchange of information between New York and New Jersey. Planned for the pre-2002 bathing season, a general meeting will be hosted by the Commission to update protocols.

#### 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 as an annual electronic report accompanied, in even years, by an abbreviated narrative report. The abbreviated narrative report, as required, contains only the information that has changed from the last report, and a simple reference to that report. 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 2001 electronic 305(b) report. The assessment is based on the Commission's data collected from its ambient and effluent monitoring programs and supplemented with information from member States' environmental and health departments dealing with, but not limited to, water quality data, health advisories, fish kills, shellfish closure areas and beach closings.

## 2000 INDIVIDUAL USE SUPPORT IN THE INTERSTATE ENVIRONMENTAL DISTRICT

Designated Use		Percent				
		Good		Fair	Poor	Poor
		(Fully	Good	(Partially	(Not	(Not
Supporting) (Threatened) Supporting) Supporting) Attainable)						
ESTUARIES (Total Square Miles = 797.55)						
	Total Square Miles Surveyed	63.32				
AQUATIC LIFE	387.04*	<div><div></div></div>	21.06	9.33	6.29	0.00
				79.21		
FISH CONSUMPTION	797.55	<div><div></div></div>	16.93	0.00	3.86	0.00
SHELLFISH CONSUMPTION	797.55	<div><div></div></div>	37.45	20.83	41.72	0.00
			0.00			
PRIMARY CONTACT	797.55	<div><div></div></div>	75.70	1.16	14.87	8.27
			0.00			
SECONDARY CONTACT	797.55	<div><div></div></div>	100.00	0.00	0.00	0.00

\*

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

## STORET

Since the creation of the Commission over six decades ago, a huge data base of ambient and effluent water quality data has been collected for a variety of reasons which have been highlighted throughout this report. 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, since the 1960s the US EPA took responsibility of the computerized National Water STOrage and RETrieval (STORET) database for housing and managing saline and freshwater quality data. The system promotes data sharing among federal, state, interstate, and local agencies, as well as the private sector. Commission data as far back as 1974 and as recent as 2001 exists in the STORET system.

The original database underwent a modernization overhaul between 1991 and 1998. The Commission is currently up-to-date in supplying its water quality data in the reformatted version. The Commission's input is represented by nearly 39,000 parametric recordings, which include, but are not limited to, dissolved oxygen, temperature, heavy metals, 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.

### 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 recommends guidelines for revising water quality criteria for dissolved oxygen(DO). These criteria represent EPA's recent scientific evaluation for DO concentrations necessary to protect aquatic life. Low DO is recognized as a pertinent national problem in states that receive coastal runoff. EPA's goal is for the States to adopt new DO standards based on these scientific findings. These standards would in turn help with the development of TMDLs and permit limits.

As a result of the release of this document, all three of the member States of the Commission, as well as the Commission, have or are considering revisions to current DO standards. IEC last revised its regulations concerning water quality classifications and DO in 1984. IEC is interested as to how the States are reacting to this issue before it proposes revisions. IEC and the member States have been in communication as to the specific state potential revisions.

Based on the draft guidance, CT DEP developed a proposal to revise the DO standard in Long Island Sound waters and held a public hearing in 2000. The Commission reviewed Connecticut's DO proposal and submitted comments for the record. In 2001, US EPA - Region 1 approved Connecticut's proposal and Connecticut adopted revised dissolved oxygen requirements in certain portions of Long Island Sound. At the time of the preparation of this plan, New York State has not yet issued a proposal for revising their marine dissolved oxygen requirements in certain portions of Long Island Sound and other marine waters; their proposed revisions are scheduled for

release in 2002. As of this writing, New Jersey has not indicated whether they will propose revising their marine DO criteria. The Commission is closely monitoring the activities in its member states to determine a course of action for the IEC.

### 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 (CCMP) for designated estuaries. Presently, more than 28 estuaries located along the Atlantic, Pacific and Gulf of Mexico coastlines, as well as in Puerto Rico, 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 2001, the Commission continued its active participation as a member of the Management Committees and various work groups for the Long Island Sound Study and New York-New Jersey Harbor Estuary Program. The New York Bight Restoration Plan, which was required by Congress in 1987, was incorporated into the HEP because the two systems are linked within the larger ecosystem. The Dredged Material Management Plan has also been incorporated into the HEP. The Commission has been involved with these plans since their inception.

The Governors of the States of New York and Connecticut and the Administrator of the US EPA signed the final CCMP for the LISS in September 1994, and in October 1996, the Governors of New York and Connecticut met to re-affirm their commitment to the actions set forth in the CCMP. During 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 2001 Agreement will more clearly define desired outcomes of the CCMP actions in measurable, trackable terms, better link monitoring/research and environmental indicators to established goals and results, promote implementation and address new issues. It will affirm targets for nitrogen reduction and habitat restoration. In addition, schedules will be set for other major CCMP actions such as a reserve system, watershed protection, living marine resources, research and monitoring. Unfortunately, the Agreement has not been finalized due to scheduling since the events of September 11th.

The Governors of New York and New Jersey and the US EPA Administrator signed the final CCMP for the HEP in August 1997. The plan addresses habitat and living resources, toxic contamination, dredged material, pathogen 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 Work Group. The final CCMP was amended to reflect the accelerated implementation schedule.

During 1999, IEC became a member of the newly established HEP Management Committee Work Group (MCWG). The primary purpose of the Work Group is to facilitate the actions of the Management and Policy Committees with the charge of developing agendas, work plans, and budgets, as well as to interact with other estuary programs. Through a series of public meetings, conferences, workshops and program meetings, the HEP has gathered input from the public and scientific community on harbor related issues of utmost concern. The program is now incorporating those issues into a series of goals and targets to focus future efforts.

The Nutrients, Pathogens and Toxics Work Groups are addressing the modeling and water quality issues with the intent of ultimately developing total maximum daily loads (TMDLs). Schedules for developing and implementing TMDLs are currently being developed. 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 for pathogens that is detailed in this section.

### COMBINED SEWER OVERFLOWS

The Commission continues to take an active role in CSO control with in-house programs, as well as through its participation in the National Estuary Programs in the region. In 2001, the Commission maintained an active dialogue with its member states, US EPA and POTWs 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 their action. 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, 2001, a total of 36 outfalls were inspected during dry weather. These outfalls were located in three different drainage basins in New Jersey and New York; none had any discharge during the IEC's inspections.

IEC has been deeply involved for many years in the issue of CSOs. Because they remain a major source of water pollution that must be controlled in order to achieve significant improvements in water quality, IEC is committed to an active involvement with the elimination and/or amelioration of the adverse effects of CSOs. During the past year, CSO projects in Connecticut municipalities that discharge to the IED include Bridgeport, New Haven and Norwalk. During the past year, CSO projects in New Jersey municipalities that discharge to the IED include Bayonne, Edgewater, Elizabeth, Hoboken, Jersey City, Rahway and West New York. Since 1987, New York City has been addressing CSOs and their impacts in 14 drainage basins. Refer to the specific State plant write-ups in the Water Pollution Control section of this Report.

## CONFERENCES AND TECHNICAL EXCHANGES

### Regional Beach Conference

On June 15, 2001, a conference was held on the campus of the College of Staten Island (CSI) in order to bring together environmental and health officials from all levels of government, environmentalists, and beach users to focus on issues and concerns regarding bathing beach criteria. The criteria to determine the sanitary conditions of bathing beaches varies from state to state in the tri-state region, and it is necessary to raise public awareness to a health issue that affects everybody. Cosponsored by IEC and CSI's Center of Environmental Science, the *Regional Conference on Bathing Beach Criteria in the New York-New Jersey-Connecticut Metropolitan Area ... Yesterday, Today, Tomorrow* was well attended. The conference was stimulated by the October 2000, signing of the Beaches Environmental Assessment and Coastal Health (BEACH) Act.

The BEACH Act amends the Federal Water Pollution Control Act (Clean Water Act) to (1) require states to adopt water quality criteria and standards for coastal recreational waters; (2) conduct a national assessment of potential health risks resulting from exposure to pathogens; (3) improve detection of pathogens harmful to human health; (4) improve public notice including signage that coastal waters are not meeting or are not expected to meet water quality standards; and (5) make publicly available database of discrete coastal recreational waters that lists whether such waters are part of a monitoring plan. EPA has also issued guidance regarding how the states are going to implement EPA's bacterial criteria. This conference was a follow-up to the November 1993, regional meeting on bathing beach criteria that was hosted by the Commission.

Representatives of EPA spoke about the implementation of the BEACH Act and the problems involved. The main portion of the conference was the discussion among the three panels on what effect the BEACH Act had on them. Two panels were comprised of metropolitan area environmental and health departments that gave their perspectives on the BEACH Act, while users of the beaches made up the third panel. Regulators from the federal, state, county and local levels, as well as members of environmental groups and academia, made up the various panels. Over the course of the day, attendees were invited to ask questions and interact with the panelists. The day closed with a roundtable discussion between all the panelists on "Where do we go from here?" Issues related to the BEACH Act were discussed among all panelists in greater detail.

With the passage of the BEACH Act and the great effect it will have on bathing beach criteria in the tri-state region, this conference was both essential and timely. The conference provided an avenue for meaningful exchange of ideas and concerns among legislators, regulators, environmentalists and concerned citizens. Previously published in the Commission's 1994 Annual Report, the bathing beach criteria and protocols in each state is presented on the following pages.

### New York Water Environment Association Legislative Forum

During May 2001, the Commission and its interstate counterparts with New York

## BEACH MONITORING AND CLOSURE CRITERIA WITHIN THE INTERSTATE ENVIRONMENTAL DISTRICT

STATE	CONNECTICUT	NEW JERSEY	NEW YORK
TESTING FREQUENCY	Weekly	Weekly	At discretion of local permitting official
INDICATOR ORGANISM	Enterococcus	Fecal coliform	Total coliform -or- fecal coliform
TEST METHOD	Membrane filtration	Membrane filtration -or- multiple tube fermentation	Membrane filtration -or- multiple tube fermentation
STANDARD(S) [organisms per 100 ml]	<p>a. A single sample shall not exceed 61</p> <p>b. The running geometric mean of 5 samples in a 30-day period shall not exceed 33</p>	<p>a. A single sample shall not exceed 200</p>	<p>a. Total coliform - log mean for 5 or more samples in a 30-day period shall not exceed 2400 -and- 20% of samples in a 30-day period shall not exceed 5000 -or-</p> <p>b. Fecal coliform - log mean of 5 or more samples in a 30-day period shall not exceed 200 -and- a single sample shall not exceed 1000</p>
OTHER CRITERIA	<p>a. Sanitary survey</p> <p>b. Rainfall</p> <p>c. Floatable debris</p> <p>d. Known contamination</p>	<p>a. Sanitary survey</p> <p>b. Known contamination</p> <p>c. Aerial surveillance</p> <p>d. Epidemiological evidence</p>	<p>a. Sanitary survey</p> <p>b. Rainfall/WQ model</p> <p>c. Floatable debris</p> <p>d. Medical debris</p> <p>e. Known contamination</p> <p>f. Epidemiological evidence</p>

## BEACH MONITORING AND CLOSURE CRITERIA WITHIN THE INTERSTATE ENVIRONMENTAL DISTRICT

STATE	CONNECTICUT	NEW JERSEY	NEW YORK
REQUIRED ACTION	<p>a. Resample and conduct survey for a single sample exceedence. Close beach if the survey reveals a sewage discharge condition. If the resample exceeds the standard but the survey is negative, consult with DOHS.</p> <p>b. If several exceedence of the geometric mean standard occur, consult with DOHS.</p>	<p>Resample and conduct sanitary survey. Close beach if the resample exceeds the standard or if the survey reveals a hazardous condition</p>	<p>Resample and conduct sanitary survey. If the resample exceeds the standard or if the survey reveals a hazardous condition, consideration should be given to close the beach.</p>

### NOTES:

Connecticut. The Connecticut Department of Health Services (DOHS) and the Connecticut Department of Environmental Protection instituted this recommended monitoring protocol in 1989. It has been adopted by most municipalities.

New Jersey. The New Jersey Department of Health and the New Jersey Department of Environmental Protection jointly administer this statewide mandatory beach monitoring program.

New York. The New York State Department of Health's State Sanitary Code states that no bathing beach shall be operated if it constitutes a potential hazard to health. Monitoring is at the discretion of the local health department. Nassau, Suffolk, and Westchester counties close beaches when standards are exceeded. New York City designates approval of beaches at the beginning of the season, based on previous years' water quality data and computer modeling. New York City also has a 12-hour rainfall advisory in effect for certain beaches.

National Park Service. Gateway National Recreation Areas (Great Kills Park and Riis Park) are monitored weekly by the National Park Service for fecal and total coliforms (membrane filter). Single values that trigger additional sampling are fecal-200/100ml and total-2400/100ml. Daily values on three consecutive days that would cause a beach closure are fecal-200/100ml or total-2400/100ml.

membership co-sponsored the New York Water Environment Association's Legislative Forum in Albany, New York. Meeting in New York's capitol gave the six interstate commissions the opportunity to emphasize to New York Legislature the scope of the combined agencies' 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. The agencies conduct programs to meet their respective Compacts including, but not limited to, ambient and effluent water quality monitoring, laboratory analysis, dredging, toxics, enforcement, coordination, public outreach and education, and NEP involvement. The interstate commissions have programs to promote environmental education, encourage water conservation, and improve the quality of life for this and future generations. These programs are effective because of the unique interstate structure of these commissions.

#### New York Water Environment Association and New England Water Environment Association CSO/SSO Conference

In September, the New York Water Environment Association and New England Water Environment Association co-sponsored a two-day CSO/SSO Conference in Tarrytown, New York. The Commission, along with the NYS DEC, NEIWPCC and US EPA - Region 2, also co-sponsored this important conference on a most significant pollution source. Since the IEC has a long history of involvement with CSOs and their impacts, the Commission also made a presentation on the importance of the interstate aspects of CSO control.

#### 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. In addition to the Commission's day-to-day activities, the remainder of this section outlines some of the IEC's involvement in this area.

#### Long Island Sound Water Monitoring Work Group

The Long Island Sound Water Monitoring Work Group is a networking partnership of 14 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. To date, the WMWG has created a unified data sheet, combining the parameters tested by the member organizations, and a computerized map of the Sound depicting all sampling sites. The Group has issued an annual report — State of the Sound, Dissolved Oxygen Summary — which summarizes all member groups' water quality monitoring data for the previous year. Future projects include the development of a fish kill response network, an index of water quality based on work group member

findings and to continue to promote communication with the public regarding water quality.

### Board of Cooperative Educational Services (BOCES)

The Environmental Studies Academy is an educational program for high school juniors and seniors interested in pursuing careers in natural or environmental studies. Students participate in learning activities to develop an understanding and appreciation of natural systems. A large facility on the BOCES campus in Valhalla, NY, provides hands-on opportunities for high school seniors to work in a greenhouse and operate farm machinery for landscaping and agricultural career motivation. The Commission is involved with the BOCES of Southern Westchester and stresses IEC's regional focus on water quality issues affecting the Hudson River and Long Island Sound. The Commission serves on the advisory committee.

### The River Project

The River Project operates a marine biology monitoring station on Pier 26 which is located on the lower Hudson River in New York City. This non-profit environmental organization is dedicated to the protection and restoration of the Hudson River ecosystem through scientific research and hands-on educational programs. The Marine Biology Internship Program offers opportunities for high school and college level students to become involved in the study of urban wildlife and marine habitats. For the second consecutive summer, IEC hosted three high school students who collected water quality samples for subsequent analysis at the IEC laboratory. The research project goals were to determine the sanitary condition of the river for shellfish harvest and primary contact recreation. IEC provided field supplies and hands-on instructions for laboratory analysis of several water quality parameters including dissolved oxygen, pH, and fecal and total coliforms. Several IEC staff members served as science mentors for this program.

### Law Student Internships

IEC remains a part of the Pro Bono Students America/New York and New Jersey (PBSA/NY & NJ) database which is a program that the Commission has been involved with since 1992. The database includes a network of more than 300 organizations including not-for-profits, government, courts and private firms. PBSA is one of the primary groups organizing the development of pro bono programs. The IEC is also listed with area law school career placement offices through which students seek paid part-time employment. The opportunity to work with PBSA has proven mutually beneficial to both the IEC and the student participants. This year, recent graduates and placements from law firms sought positions with the Commission. Over the years, the Commission has attracted approximately a dozen students from area law schools. The student participants appreciate the opportunity to apply the skills which they were learning in the classroom, and the experience provides them with a perspective which greatly enhances their understanding of the legal concepts being taught.

### Our World Underwater

Our World Underwater is a non-profit corporation focusing on educational opportunities for young people going into various fields of marine science, such as marine biology and oceanography. The Commission has a long involvement with this group, including its Scholarship Society program to support a gifted student for a year to study, experience and interact with a wide range of professionals. Since the Commission began its relationship with Our World Underwater in 1989, all scholarship recipients have enjoyed a hands-on experience. Since none of the recipients hosted by IEC have been from this region, their experience is compounded by this being their first visit to the Northeast, as well as by them also being afforded the opportunity to view this urban environment from the water.

### Hudson River Fisheries History Museum

On November 8, 2001, the Pace Law School's Hudson River Fisheries History Museum was officially opened. The museum is located at the Pace Environmental Litigation Clinic on the campus of Pace University, SUNY, in White Plains, New York. The Clinic houses attorneys and student lawyers who serve as a public interest law firm primarily for the Hudson Riverkeeper and other grassroots civic and environmental groups. The first Waterkeeper was founded by a coalition of fishermen who mobilized to reclaim the Hudson from its polluters. They launched a boat, found sympathetic attorneys and began tracking down and prosecuting polluters. Their tough, hands-on, community oriented brand of environmental activism, and the Hudson River's recovery have inspired the creation of rapidly growing numbers of Waterkeepers on waterways across the North American continent. This museum is devoted to the history of American environmental law and the role of the commercial fishermen and anglers in that movement. The Commission supplied photos from its archives that were scanned and incorporated into this permanent exhibit.



### III. AIR POLLUTION

#### GENERAL

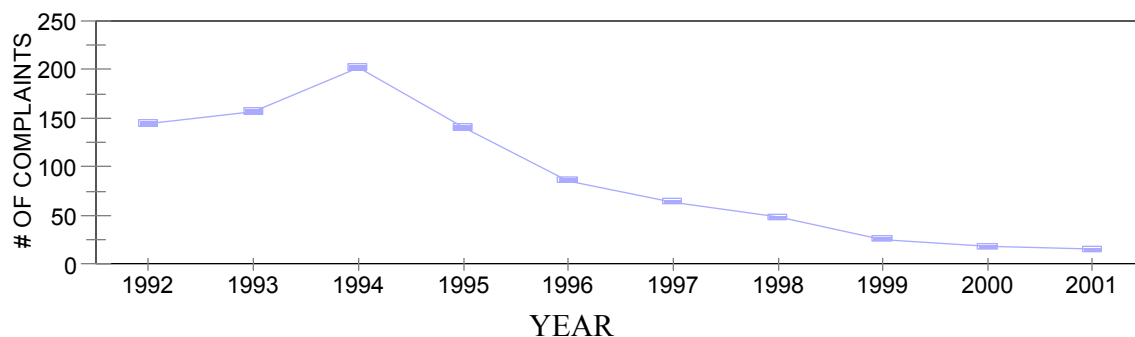
In the late 1950s, the Commission published a report called *Smoke and Air Pollution*, and a supplement that identified the problems of the region regarding interstate air pollution. As a result of that information, in 1962, after passage of supplemental statutes in New York and New Jersey, the Commission's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

The first Air Pollution Warning System was put into operation in 1964 and, through coordination by the Commission with its member states, has been periodically updated and strengthened in the light of accumulating knowledge of air pollution abatement practices. 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 2001.

Since the late 1960s, the Commission has maintained round-the-clock response for air pollution complaints. Staten Island — one of the five New York City boroughs — remains as the source of more citizens' complaints than any other area in the Interstate Environmental District. 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. To better serve the needs of the public by faster response to complainants, a field office was established on Staten Island in September 1982. Unfortunately, due to budget constraints and staff shortfalls, the office closed seven years later. However, the field office received hundreds of odor complaints annually; peaking in 1986 with nearly 3,500 complaints. To date IEC has received and responded to nearly 14,000 complaints. Only 15 complaints were received during 2001 and, most significantly, no garbage odors were reported to the Commission for the second consecutive year.

### AIR POLLUTION COMPLAINTS

1992-2001



## AIR POLLUTION COMPLAINTS

Within the Interstate Environmental District, 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 2001 reporting period, complaints were received from 10 different neighborhoods. Since 1989, budget cuts necessitated the closure of IEC's Staten Island field office from which Commission staff responded to and conducted field investigations of citizens' complaints — including nights, weekends and holidays. The field office received hundreds of odor complaints annually, peaking in 1986 with nearly 3,500 complaints. The closing of the Staten Island field office still generates expressions of frustration to the Commission by concerned citizens.

The Commission still maintains an answering service (718-761-5677) to receive complaints. The answering service operates 24-hours-a-day, 7-days-a-week, and complainants are contacted during regular office hours. When available, IEC personnel are dispatched to investigate ongoing complaints and, 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, 2001, the Commission received a total of 15 complaints; this represents a decrease of 16.7% from the previous 12-month period. Note that there were 18 complaints in the 1999-2000 period, 26 complaints in the 1998-1999 period, 48 complaints in the 1997-1998 period, 64 complaints in the 1996-1997 period, 86 complaints in the 1995-1996 period, 140 complaints in the 1994-1995 period, and 202 complaints in the 1993-1994 period. This pattern shows a significant yearly decrease in complaints. It should also be observed that the total number of complaints for this 8-year period was dwarfed by the thousands of odor complaints registered between 1982 and 1988. Of the 15 complaints received by the Commission this year, 100% originated from Staten Island. The accompanying tables enumerate the complaints categorized by the community from which they originated and by the type of odor.

Only two Staten Island communities were the source of at least three complaints to the Commission during the reporting period. These neighborhoods represented approximately 46.4% of the total complaints received. Eight communities throughout the Island reported one complaint each. It should be noted that this is the least amount of neighborhoods reporting odor complaints since detailed records have been kept; 63 communities were impacted in 1986. Over the years, the majority of the complaints received by the IEC tend to come from the same group of neighborhoods. This year, the reporting neighborhoods were throughout Staten Island.

Odors were classified into five categories. The "other" category was reported most frequently, representing over 33% of the total. This category reflects those "nonspecific" descriptions, i.e., bad or awful or nauseating. Citizen complaints are the most frequent source of firsthand information about poor air quality. The odors are usually detected by persons who do not

**DISTRIBUTION OF AIR POLLUTION COMPLAINTS BY  
COMMUNITY ON STATEN ISLAND  
FROM OCTOBER 2000 TO SEPTEMBER 2001**

COMMUNITY	COMPLAINTS	
	NUMBER	% TOTAL
NEW BRIGHTON	4	26.4
SUNSET HILLS	3	20.4
CASTLETON CORNERS	1	6.7
GRANITEVILLE	1	6.7
MARINER'S HARBOR	1	6.7
NEW SPRINGVILLE	1	6.7
OAKWOOD HEIGHTS	1	6.7
ROSSVILLE	1	6.7
TRAVIS	1	6.7
WOODROW	1	6.7
TOTAL	15	100.0

**DISTRIBUTION OF AIR POLLUTION COMPLAINTS BY TYPE OF ODOR  
FROM STATEN ISLAND COMMUNITIES  
FROM OCTOBER 2000 TO SEPTEMBER 2001**

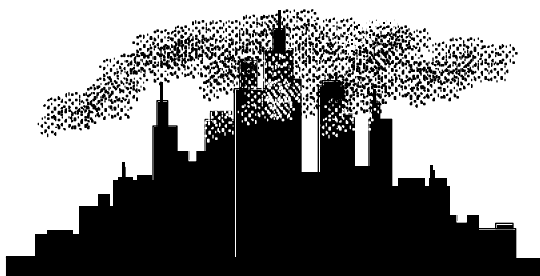
TYPE OF ODOR	COMPLAINTS	
	NUMBER	% TOTAL
CHEMICAL	4	26.7
GAS	2	13.3
SULPHUR	2	13.3
HORSE MANURE	1	3.8
PETROLEUM	1	3.8
OTHER*	5	33.3
TOTAL	15	100.0

\* Represents odors not specifically identified by the complainant.

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 first time this type of nuisance odor was reported the most by citizens since the IEC began statistical analysis of odor types in 1983. This is the second time in that many years that the nuisance odor category of “garbage ” was not registered.

### OZONE HEALTH MESSAGE SYSTEM

For the fourteenth 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 USEPA. It serves as a central source of precautionary advice on ozone to the Region during the warm weather months (May to September) when higher concentrations of ozone occur. 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.



During 2001, the Commission continued to participate in this program, although still at a reduced level due to resource limitations. IEC took an active role in alerting the public to unhealthful conditions. During the warm weather months, when elevated levels of ozone existed in parts of the Metropolitan Area, the IEC relayed “health advisory” messages to the appropriate government environmental and health agencies. The IEC received 26 ozone and 12 fine particulate (soot and dust) advisories from the New Jersey Department of Environmental Protection between May 3rd and September 24th. This period of poor air quality began one month earlier than in 2000. Individual states issue their own health messages which identify specific counties where ozone levels are a special health threat. During 2001, 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

The Office of Legal Counsel, along with all the other sectors of the Commission, has been re-energized with the adoption of a new name. The change of the name from Interstate Sanitation Commission to Interstate Environmental Commission is an acknowledgment of the Commission's rightful place among other environmental entities. This enhanced stature emblazoned Legal during 2001 to shore up sufficient resources to further develop and to respond adequately to the Commission needs by the addition of staff.

The Office of Legal Counsel is proactive in risk analysis. More often than not, issues arise that do not immediately present themselves as requiring the response of Legal Counsel. Invariably, after some time has passed, it is apparent that legal consequences may flow from actions taken or from having restrained from taking action. A proactive Legal Counsel should be well equipped to address these needs, and with the addition of appropriate staff, has taken steps in that direction. The summary of legal activities that follows is by no means meant to be all inclusive, but rather highlights significant legal activities.

Legal carries out numerous functions of which ensuring compliance with those statutory responsibilities granted to the Commission is the most compelling. In some instances, but notably fewer than are anticipated, ensuring statutory compliance could necessitate the commencement of an administrative proceeding or court case. In significantly more instances, the Commission's regulatory authority is recognized through negotiation and advice accepted by the regulated community. At times, informing the public about the Commission's function has the benefit of answering questions before they are asked. It warrants mention that some of the work that Counsel is called upon to do falls into a less visible, but not less significant arena — that of enforcing Commission policy in water and air pollution abatement as part of general housekeeping. An example of this type of work is Counsel's role, albeit behind the scenes, to provide information, background and history to advocacy groups and to those conducting public hearings, as occurred late in 2001, following the tragedy of September 11th. The aftermath of the disaster has raised questions regarding appropriate protocols used during the debris disposal operation, given the changed nature of the debris that is flowing to the Fresh Kills Landfill. The re-opening of the Fresh Kills Landfill will have Legal continue to examine contractual issues and other issues related to the adequacy and appropriateness of the debris control measures and the protocols followed there.

As the parties were poised to consider whether and under what circumstances to scale down the monitoring at the landfill, to agree on debris control measures, and to fashion a stipulation to terminate the landfill litigation, the attack on the World Trade Center occurred. The construction of the alternative fence ordered by the Court in November 2000 was completed by March, and the parties were negotiating approaches to the few remaining issues.

Although the Passaic Valley Sewerage Commissioners filed an appeal to New Jersey's intermediate Appellate Court from an administrative determination favorable to the Commission in

2000, the appeal was not perfected until 2001. Briefs, responsive papers and replies were filed during 2001. The Commission had been led to believe that this appeal would be fast-tracked, however, it now appears to be on a regular schedule.

The litigation in both federal and State court over nitrogen impacts to the Long Island Sound and East River has been all but settled. Final approvals of the financial arrangements are all that remain.

#### LITIGATION TO MITIGATE NEGATIVE EFFECTS OF NEW YORK CITY'S OPERATION OF THE FRESH KILLS LANDFILL

The first three quarters of 2001 saw the parties to this landfill case poised, with some differences yet to be resolved, to consider how to satisfactorily address the remaining issues. Both the City and the plaintiffs had to consider when and under what circumstances to approach a scaled down level of monitoring, how to complete a cleanup of the shoreline, and how to address a satisfactory approach to actual closure of both the landfill and this case. The City was processing the finalization of a closure plan, but had not yet officially closed the landfill. In fact, with some minor exceptions, the garbage unloading operation at the Fresh Kills landfill had all but ceased on March 22, 2001, when the last ceremonial barge was unloaded, several months before the legally required closure deadline. Indeed, all of the parties understood that there was value in embracing a fiscally conservative position, given the relatively short life anticipated for the landfill. The September 1997 Order had mandated that certain contingencies be implemented in lieu of requiring a single-barge enclosed unloader for garbage disposal and the parties appeared to be able to reach agreement on most of those contingencies. The September 11th tragedy altered the landscape.

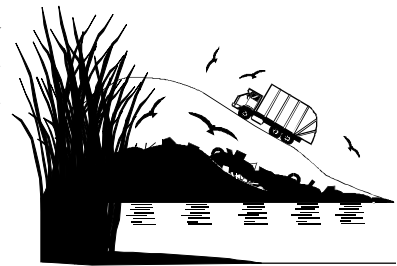
The marine unloading operation of debris from what had been the World Trade Center, following the events of September 11th, resumed on September 13, 2001. The City agreed to permit most, if not all, of the debris (except for ferrous metals, which are being recycled) from the World Trade Center, to be permanently disposed of at the landfill. The Fresh Kills Landfill had been scheduled for closure by operation of State law on January 1, 2002. Section 27-0706 of the New York State Environmental Conservation Law and of Chapter 1 of Title 16 of the Local Law, mandating closure, were both enacted in 1996. It is believed that it could take up to one year to complete the clean up operation at "ground zero." This continued use of the landfill beyond January 1, 2002, will require some de facto or de jure change in the State law. The recent tragic events have raised questions regarding whether and to what extent certain other provisions of the September 1997 Order have viability and applicability. The Court Order established an interim monitoring team which includes a plaintiffs' representative. It further required the continuation of the court-appointed monitor and an independent expert. The contract terms for the court-appointed monitor, the independent expert and the plaintiffs' representative on the interim monitoring team expire when . . . *the Fresh Kills landfill closes December 31, 2001 or such date as the landfill ceases to accept waste for disposal* . . .



Certain debris control measures ordered by the Court that were no longer required when the garbage unloading operation had all but ceased, have resumed post-September 11th. To the extent to which it may be necessary to continue and augment the use of monitors will depend upon whether there is any change in the type of debris disposed of at the landfill. The stays imposed by the Court subject to certain contingencies tied to a specified timetable, namely, closure, may have been inextricably altered. The use of barges, skimmer boats, booms and other debris control measures connected to this case could be impacted by the continued use of the landfill beyond the January 1, 2002, closure date.

With the approach of closure, the issues that remained in contention among the parties include the extent and breadth of the shoreline cleanup; the IE reports on water quality and analysis of the source of debris in the Arthur Kill; the continuing monitoring of the Independent Monitoring Team (IMT); and the IE's role. These will remain ripe areas for exploration since, post-closure, the City's plan is to use the landfill for receiving containerized garbage for transport elsewhere.

One of the Commission's charges is to protect against the escape of debris into the waterways surrounding the landfill. A means of ensuring that this concern is addressed is to monitor the cleanup of the shoreline. During the course of operating the landfill, debris accumulated along the shoreline and may have even been deliberately placed in some sections of the landfill along the shoreline. Under certain conditions when it is rainy or windy, conditions are ripe for erosion. These factors can contribute to debris becoming dislodged and ending up in the water. Another item that concerns the plaintiffs is the continued viability of the Superboom and Outerboom as the last protections against debris escaping from the landfill. Maintaining the marine fence that was extended on land and the future uses of the booms are items that remain to be resolved.



The plaintiffs, in conjunction with the IMT, have consistently called upon the City to develop a schedule for the stabilization of the shoreline. The IE has given this condition studied thought and has posited several remedies for the cleaning of the entire shoreline. The IE's concern with cleanups extends to three specific areas including 1) loose debris inboard of the unloading plants; 2) debris along the edges of the haul roads and fences; and 3) debris entangled in the vegetation along the shorelines and hillsides of the landfill. In addition, it has been acknowledged that there will be a need to shore up the shoreline.

As operations were scaled down at the landfill, discussions ensued among the parties regarding whether and how to address monitoring requirements. Certain things occurred that had begun to shape the plaintiffs' views as to who could best perform the necessary monitoring function. Among the things that were taken into consideration was how information flowed to all the parties. Although both the independent expert and the plaintiffs' representative on the monitoring team were required to keep the plaintiffs abreast of developments at the landfill, in practice, the plaintiffs have gleaned more information from the plaintiffs' representative on the interim monitoring team. This is

cause for some concern since more often than not the independent expert has had earlier and more easy access to personnel at the landfill. An example of this concern surfaced late in the year 2000 and early in 2001. The Superboom remained out of service for approximately three months. The plaintiffs learned about this breach from their representative on the IMT. After the plaintiffs complained to the City, they were advised that the Superboom could have been operated manually, however, the City acknowledged that such operation was not optimal. These, among other issues, will continue to shape the discussions throughout 2002.

The earlier references herein to the IE and IMT are found in a September 1997 Court Order mandating their hire. Both were fully operational in 1999 and have continued to perform despite the City's contract hold ups and other impediments, such as requiring special passes for landfill entry. While the IE presumably works for the parties, the IMT was meant, in the Court's view, to establish eyes and ears for the City and the plaintiffs. The Court saw fit to maintain the independent monitor as part of the team. At the end of 1997, 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 which were the IMT and the IE. The failure on the part of the City to implement certain measures could result 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 most recent November 2000 Court Order with its appendices included an overview to the Court of all the Orders prior to 2000.

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, at that time, 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 is committed to ensuring that floatable debris is prevented from entering the waterways around the landfill.

#### ADDRESSING NITROGEN IMPACTS OF SOME NEW YORK CITY SEWAGE TREATMENT PLANTS

In the latter part of 2001, substantial progress was made toward a final settlement of two cases pending in State and federal Court against the City for violating environmental regulations related to the discharge of nitrogen at New York City sewage treatment plants. By November 2001, legal agreement was reached and the financial aspects of the matters were awaiting approval. The agreements require sign-off by the City's Comptroller's Office, after which they will be lodged with the federal court for comment and will then be subject to public comment. The process requires that there be an omnibus agreement, i.e., no agreement on the federal case unless there is agreement on the state case.

This matter commenced with a citizen suit against the City in federal Court and the State of New York suing the City in state Court. In settling the cases, the State has dictated that three Consent Orders be executed by the City within 75 days of their signing, after which they will go out for public comment. The three Consent Orders involve the Newtown Creek facility on the lower East River; Jamaica Bay; and for the design, construction and operation of the upper East River facilities to remove nitrogen at Bowery Bay, Tallman Island, Wards Island and Hunts Point.

In the case of Newtown Creek, the Order modifies an existing Order that dealt with an upgrade. The Newtown Creek Order works in conjunction with the Order for the upper East River facilities. Newtown Creek will ultimately be upgraded to full secondary treatment and will have nitrogen removal consistent with the Tallman Island demonstration project that will be accomplished not by removing nitrogen at the Newtown Creek facility, but by removing it further up on the East River. The State agrees with the City that they can make up the difference of the nitrogen that is not being removed at Newtown Creek by building a facility on the upper East River. The City has satisfied the State in a research demonstration project, that the City can meet secondary treatment in a different process mode at Newtown Creek than had been originally anticipated. With respect to Jamaica Bay, the City would reconstruct the 26th Ward Treatment Plant, which discharges into Jamaica Bay and do a major comprehensive study looking at outfall relocation as a possibility, since treatment alone may fall short of meeting the water quality standards in Jamaica Bay.

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 comprehensive records kept by the Commission, comparing Connecticut's permits to those in New York.

The nitrogen settlement is a consequence of two lawsuits filed in 1998, one in the Eastern District Federal Court, which is in Brooklyn, and the other in state Court in New York. The Brooklyn federal Court was selected because most of the sewage treatment plants alleged to be in violation of nitrogen permit limits are located in that federal district. The NYS DEC filed an action against the City in state Court. The Long Island Soundkeeper, Inc.; the Riverkeeper, Inc.; John Cronin, the Hudson Riverkeeper; the American Littoral Society; Andrew Willner, the Baykeeper, and other private citizens alleged in federal Court that for every month since January 1996, when nitrogen limits were imposed (using aggregates), the City has consistently been in violation of those limits. In a decision as early as 1994, the NYS DEC Commissioner had approved the nitrogen permit conditions for incorporation into the SPDES 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 litigation ensued.

Both actions allege that these violations of the nitrogen loading limits contribute to the severe hypoxic conditions in Long Island Sound and Jamaica Bay, causing damage to those ecosystems. The proximate location of these plants, which discharge 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, accounted for the concern on the part of the State of Connecticut. The Commission, as an interstate agency, was uniquely situated as a player in this matter.

#### ADJUDICATORY HEARING CONCERNING THE DELETION OF IEC'S REGULATIONS FROM THE PASSAIC VALLEY SEWERAGE COMMISSIONERS' DISCHARGE PERMIT

The Passaic Valley Sewerage Commissioners' (PVSC) appeal from an administrative determination unfavorable to them, was lodged with New Jersey's intermediate appellate court in 2000. The Commission successfully defended its right to have the Commission's regulations specifically referenced in the NJPDES permit issued for the Passaic Valley Sewerage Commissioners. The appeal was perfected in the spring of 2001, after PVSC filed their brief and the Commission filed its responsive papers. During the summer, PVSC sought leave to extend the time for their reply to IEC papers, and made a formal request for oral argument. Although it had appeared early on that this case might be fast-tracked, with the filing of last minute requests, it does not appear that the early argument will be scheduled.

The administrative proceeding below in 2000 granted IEC's and NJ DEP's motions for summary judgement, concluding that the IEC has authority to regulate effluent in the IEC District, including effluent from PVSC. It further recognized that NJ DEP should have included the language referencing IEC's Water Quality Regulations in the final permit which had been included in the draft permit.

The decision recognizes that the Clean Water Act (CWA) provides the IEC with an independent mechanism to have more stringent effluent limitations for its entire district. The ALJ refused to accept PVSC's insistence that the only means of dealing with Article XII of IEC's Compact was to repeal it. The decision states that the federal government, through the CWA, has decided on a method of ensuring clean water and established a nationwide program which superceded a 1910 stipulation, referred to in Article XII. It goes on to say that the new federal schemes recognized the authority of interstate agencies to provide more stringent regulations over waters in their districts. The decision recognized that the 1910 Stipulation, embodied in Article XII of the IEC's Compact, provided what is now considered a rudimentary method of pollution control. The CWA history demonstrates that Congress specifically repealed any jurisdictional limitation on PVSC, based upon federal enforcement actions like the 1910 Stipulation, in favor of its legislative scheme which relied on state and interstate action.

The Final Decision rendered by the NJ DEP Commissioner in May of 2000, which adopted the ALJ's final decision, were both outgrowths of a mid-1996 Commission filing of a Notice of Intent to Request an Adjudicatory Hearing with the NJ DEP. The resulting hearing contested the deletion

of IEC's Regulations from the discharge permit issued for the treatment plant of the Passaic Valley Sewerage Commissioners. Since the early 1980s, when NJ DEP specifically insisted that the Commission's regulations be included in the permit, they have always been part of the PVSC permits. The draft permit contained references to the IEC Water Quality Regulations and included them under "Special Conditions." The June 27, 1996, final permit issued to PVSC deleted any reference to provisions of the IEC, citing Article XII of the IEC's "Tristate Compact for Pollution Abatement" as authority for the removal of the Commission's Regulations. The final permit contained adjustments made to accommodate comments made by consultants for PVSC during the draft permit process. All IEC discharge limitations were removed as were references to IEC in four other sections.

The language of Article XII of IEC's Compact deals with controlling future pollution, abating existing pollution, and working in cooperation with the states, and is not meant to be read alone. The applicable language reads as follows:

*The provisions of this act shall not affect the discharge from the outfall pipes of the Passaic Valley sewerage system into the water of New York harbor; provided, however, that said discharge shall be in accordance with the terms and provisions of the stipulation entered into on April fourteenth, one thousand nine hundred and ten, between the United States of America and Passaic Valley Sewerage Commissioners.*

The IEC Article is meant to be read in conjunction with the 1910 Stipulation. The Stipulation does not in any manner whatsoever suggest that PVSC does not come under the jurisdiction of the IEC, nor does it suggest that PVSC is not subject to IEC's Regulations.

Historically, concerns about discharges from the area around Passaic Valley surfaced as early as 1896, when a series of commissions were appointed by the Governor of New Jersey and the legislature to study the problem created by the drainage of 84 percent of the Passaic River's polluted water into Upper New York Bay. The reports of these commissions resulted in the creation of the Passaic Valley sewerage district, and PVSC, with a directive to cease disposing of sewage into the Passaic River and to prepare plans and specifications for the construction of a trunk sewer to dispose of sewage. The act authorizing the construction provided for further study to ascertain whether or not the discharge polluted the waters of New York State so as to create a nuisance. New Jersey's study found that the discharge did not pollute so as to create a nuisance; New York's study found that the discharge did pollute so as to create a nuisance. The failure to reach a compromise resulted in the first case of New York suing New Jersey, which was dismissed without prejudice after the Stipulation was filed. The United States government entered the lawsuit believing that PVSC's plans were so indefinite and inadequate that navigation would be obstructed and waters would be unhealthy. The intervention of the federal government resulted in a more thorough and comprehensive method of treatment that was ultimately adopted in the 1910 Stipulation.

Even though screening, sedimentation and dispersal were the approved methods of disposing



of sewage in large volumes, the Stipulation mandated two additional items: 1) compliance with the requirements of the Stipulation, or 2) requisite additional lawful arrangements. Moreover, the Stipulation permitted the government to have unrestricted opportunity to inspect the inner workings of the facilities, and full compliance with the Stipulation was an express condition of any permit issued for construction or operation of the sewer system.

The inclusion of the Stipulation in Article XII in 1936 (when the Commission came into existence) was no doubt deemed necessary, recognizing the state of technology that existed for sewage treatment at that time. The Stipulation called for the requirement of certain screens through which waste matter was to have passed; it called for self-cleaning mechanical screens having clear openings; sedimentation basins were required; tanks of a prescribed capacity were required; scum basin boards were required; the sewage and waste thus screened and settled was to flow into a pump well, and then pumped under pressure through a tunnel to a point in New York Bay where it would be dispersed through a series of outlets forty feet or more below the surface of the water at mean low tide.

In 1910, no doubt, when no secondary treatment existed, there had to be a concern about the quality of PVSC's discharges. Accordingly, the War Department of the United States Government granted PVSC permission to discharge sewage into the harbor providing certain terms were met to protect vessels and fish life.

In 1903, PVSC recommended to the legislature an intercepting sewer along the west bank of the Passaic River from the Great Falls at Paterson to a pumping station on the Newark meadows, the sewage to be pumped through a steel main under Newark Bay into a main sewer across Bayonne to an outfall in New York Bay near Robbins Reef Light. Following a thorough investigation in 1905 and 1906, the New York Bay Pollution Commission reported upon this adversely. When the report suggesting the discharge of the sewage from this large and rapidly growing district into New York Bay was made public, there was criticism concerning the discharge of the sewage in its raw form into the harbor. PVSC applied to the War Department for permission to construct the outlet sewer into the harbor. New York State sought an injunction to prevent the discharge of the Passaic Valley sewage into the harbor. The United States Government intervened in the suit as co-plaintiff. The War Department granted PVSC permission to discharge sewage into the harbor providing certain terms were met to protect fish life. That agreement (the 1910 Stipulation) did not terminate the suit between the State of New York and PVSC.

In fact, the United States government took the position that they were not essentially interested in the pollution of the waters as affecting health conditions surrounding the City of New York. Its interest in the matter concerned the health of the troops and government employees. The interests of the City of New York in the effects of harbor pollution were and remain vastly greater than those of the United States Government.

IEC's request for an administrative hearing seeking to maintain its jurisdiction over PVSC resulted in an Order granting the administrative hearing and citing case law for the proposition that



federal statutes have supplanted the arrangements contemplated in the 1910 Stipulation. The Order further supported the conclusion that NJ DEP had authority to impose conditions on discharges from PVSC's plant well above and beyond those provided in the 1910 Stipulation. IEC made it clear to NJ DEP that there would not be a need to proceed with an adjudicatory hearing if the Commission's Regulations were reinserted into the permit.

On March 31, 1997, the Commission received an administrative decision regarding the hearing request, at which time IEC had asked that its regulations be reinserted into the PVSC permit. After analyzing all of the background and information provided to the NJ DEP, the NJ DEP Commissioner decided to grant IEC's hearing request.

Following IEC's success at the administrative hearing, in May 2000, the NJ DEP Commissioner rendered a Final Decision, holding that the permit issued to the Passaic Valley Sewerage Commissioners must include the stricter water quality requirements of the Interstate Environmental Commission. The NJ DEP Commissioner upheld the Initial Decision of the ALJ who relied upon IEC's argument, and that the Initial Decision was supported by substantial evidence, and that the proper standard of review had been used. PVSC was given 45 days to appeal.

In mid-November 2000, the Appellate Court of the Superior Court of New Jersey advised the parties of a briefing schedule. With some minor exceptions, the parties have attempted to maintain that schedule throughout 2001, and are awaiting a date for oral argument.

WASTEWATER TREATMENT PLANTS DISCHARGE  
INTO INTERSTATE ENVIRONMENTAL DISTRICT WAT

2001

	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
<b>PLANT</b>									
<b>CONNECTICUT</b>									
Fairfield County									
Bridgeport - East Side	B-1	2001+	8.0	12.0	Secondary (AS)	35,000	5 to 6	Incineration at East Shore	44,000
- West Side	B-1	1996+	26.7	30.0	Secondary (AS)	90,000	4 to 6	Incineration at East Shore	112,000
Fairfield	A	1996+	8.82	9.0	Secondary (AS)	5,000	18	Compost	43,000
Greenwich (Grass Island)	A	1993+	9.6	12.5	Secondary (AS)	8,736	14	Landfill	38,000
Norwalk	B-1	2000+	12.7	18.0	Secondary (AS)	56,000	5	Landfill	80,000
Stamford	B-1	1991+	18.89	20.0	Secondary (AS)	20,000	25	Landfill	90,000
Stratford	A	1992+	8.3	11.5	Secondary (AS)	32,333	6.5	Landfill	50,000
Westport	A	1975+	1.9	2.9	Secondary (AS)	248	3 to 6	Incineration (2)	14,800
New Haven County									
Milford - Beaver Brook	A	1996+	1.93	3.1	Secondary (AS)	846	13.5	Incineration (2)	19,000
- Housatonic	A	1996+	7.11	8.0	Secondary (AS)	3,045	18	Incineration	27,000
New Haven - East Shore	B-1	1997+	31.32	40.0	Secondary (AS)	37,697	22.8	Incineration	200,000
West Haven	B-1	1996+	7.28	12.5	Secondary (AS)	8,700	27	Incineration	53,000
<b>NEW JERSEY</b>									
Bergen County									
Edgewater	B-1	1989+	3.5	6.0	Secondary (PO)	13,754 6,129	5.5 3.65	Beneficial Reuse (2) Landfill	16,000
Essex County									
Passaic Valley Sewerage Commissioners	B-1	1988+	273.7	330.0	Secondary (AS)	100,452	52.4	Landfill Cover	1,400,000
Hudson County									
North Bergen M.U.A. - Woodcliff	B-1	1991+	2.96	2.9	Secondary (TF)	6,918	7.95	Incineration (2)	22,500
North Hudson Sewerage Authority									
- Adams Street (Hoboken)	B-1	1994+	10.9	24.0	Secondary (TF)	6,330	23	Incineration	80,000
- River Road (West New York)	B-1	1992+	7.7	10.0	Secondary (TF)	4,977	22	Incineration	63,500
Middlesex County									
Middlesex County Utilities Authority	A	1996+	116.77	147.0	Secondary (AS)	213,788	25	Beneficial Reuse	750,000
Union County									
Joint Meeting of Essex & Union Counties	B-2	2001	63.8	85.0	Secondary (AS)	20,489 1,472	33.32 91.87	Land Application	500,000
Linden Roselle Sewerage Authority	B-2	1989+	12.92	17.0	Secondary (AS)	45,000	4.9	Beneficial Reuse	65,000
Rahway Valley Sewerage Authority	B-2	1991+	29.4	40.0	Secondary (AS)	19,000	21.7	Land Application/Composting	300,000

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WASTEWATER TREATMENT PLANTS DISCHARGE  
INTO INTERSTATE ENVIRONMENTAL DISTRICT WATERSHED

2001

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
<b>NEW YORK</b>									
Nassau County									
Bay Park	A	1992+	53.4	70.0	Secondary (AS)	32,219	22.96	Compost	525,000
Belgrave Sewer District	A	1995+	1.58	2.0	Secondary (TF)	2,602	3.85	Trucked out to Bay Park	12,000
Cedar Creek	A	1997+	57.73	72.0	Secondary (AS)	43,862	18.9	Compost	550,000
Cedarhurst	A	1968+	0.776	1.0	Secondary (TF)	-	-	Compost	6,000
Glen Cove	A	1981+	3.4	8.0	Secondary (AS)	4,015	24.51	Landfill	28,000
Great Neck Sewer District	A	1990+	2.8	3.8	Secondary (TF)	200 (4)	22 to 30	Landfill	13,400
Great Neck Village	A	1996+	0.91	1.5	Secondary (TF)	61 (5)	4	Landfill	9,000
Jones Beach	A	1990+	0.12	2.5	Secondary (TF)	-	-	Trucked Out	Seasonal
Lawrence	A	1983+	1.27	1.5	Secondary (TF)	17.8 (6)	7	Compost(30%)/Trucked Out(70%)	5,500
Long Beach	A	1994+	5.3	7.5	Secondary (TF)	547	3	Landfill	36,000
Oyster Bay Sewer District	A	1992+	0.978	1.8	Secondary (TF)	35 (5)	4	Trucked Out	8,500
Port Washington Sewer District	A	1991+	2.9	4.0	Secondary (TF)	526 (4)	30	Incineration	35,000
West Long Beach Sewer District	A	2001+	0.57	1.5	Secondary (TF)	40 (6)	4.5	Trucked to Bay Park	5,000
<b>New York City</b>									
<b>Bronx County</b>									
Hunts Point	B-1	1977+	120.0	200.0	Secondary (AS)	106,976	27.7	Land Application/Landfill Cover	629,927
<b>Kings County (Brooklyn)</b>									
Coney Island	A	1994+	97.0	100.0	Secondary (AS)	(3)	-	Land Application/Landfill Cover	602,097
Newtown Creek	B-1	1967	246.0	310.0	Secondary (AS)	(3)	-	Land Application/Landfill Cover	1,039,294
Owls Head	B-1	1996+	107.0	120.0	Secondary (AS)	(3)	-	Land Application	761,479
Red Hook	B-1	1987	33.0	60.0	Secondary (AS)	12,796	22.6	Landfill	192,215
26th Ward	A	1975+	62.0	85.0	Secondary (AS)	64,870	25.5	Land Application/Landfill Cover	271,240
<b>New York County (Manhattan)</b>									
North River	B-1	1986	131.0	170.0	Secondary (AS)	(3)	-	Land Application/Landfill Cover	584,192
Wards Island	B-1	1979+	194.0	250.0	Secondary (AS)	133,595	27.1	Land Application	1,004,213
<b>Queens County</b>									
Bowery Bay	B-1	1978+	114.0	150.0	Secondary (AS)	46,283	25.5	Land Application/Landfill Cover	727,117
Jamaica	A	1978+	81.0	100.0	Secondary (AS)	22,141	26	Land Application/Landfill Cover	632,148
Rockaway	A	1978+	20.0	45.0	Secondary (AS)	(3)	-	Land Application	94,471
Tallman Island	B-1	1979+	56.0	80.0	Secondary (AS)	24,273	23.9	Land Application/Landfill Cover	388,214

WASTEWATER TREATMENT PLANTS DISCHARGE  
INTO INTERSTATE ENVIRONMENTAL DISTRICT WAT

2001

	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
<b>PLANT</b>									
<b>NEW YORK (con't)</b>									
Richmond County									
(Staten Island)									
Atlantic Village*	A	1985	-	0.075	Secondary (AS)	-	-	-	-
Elmwood Park Condominiums*	B-1	1974	-	2.0	Primary	-	-	-	20,000
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	A	1979+	28.0	40.0	Secondary (AS)	37,165	25.9	Landfill	151,585
Point East Condominiums*	A	1986	-	0.16	Extended Aeration w/ Sand Filtration	-	-	-	300
Port Richmond	B-2	1978+	35.0	60.0	Secondary (AS)	(3)	-	Landfill	172,268
PS-3	A	1969	-	0.004	Extended Aeration	-	-	-	1,000
PS-42	B-2	1967	-	0.002	Secondary (AS)	-	-	-	1,100
Saint Joseph's School*	A	1963	0.041	0.02	Septic Tank with Sand Filtration	-	-	-	1,200
Treetop Village*	A	1985	-	0.25	Extended Aeration w/ Sand Filtration	-	-	-	-
Rockland County									
Joint Regional Sewerage Board	A	1998+	4.3	8.0	Secondary (AS)	4,693	20.2	Composting	33,000
- Town of Haverstraw									
Orangetown Sewer District	A	1996+	10.64	12.75	Secondary (TF)	4,401	25	Composting	50,000
Palisades Interstate Park									
- Bear Mountain Plant	A	1967+	0.030	0.3	Secondary (TF)	-	-	-	20,000
Rockland County Sewer District # 1	A	1995+	22.1	28.9	Secondary (RD)	1,918 (4)	26	Composting	160,000
Stony Point	A	1985+	0.91	1.0	Secondary (AS)	848	18.4	Composting	12,000
Suffolk County									
Huntington Sewer District	A	1988+	1.79	2.5	Secondary (TF)	2,513	18.5	Landfill	25,000
Northport	A	1972+	0.3	0.34	Secondary (AS)	31.3 (5)	2.5 to 3	Incineration (2)	3,500
Suffolk County Sewer District # 1	A	1988+	0.82	0.85	Secondary (RBC)	282 (5)	2.7	Incineration (14%), Landfill (86%)	12,000
Suffolk County Sewer District # 3	A	1989+	21.37	30.0	Secondary (AS)	54,389	23.6	Incineration (14%), Landfill (86%)	280,000
Suffolk County Sewer District # 6	A	1973+	0.34	2.0	Secondary (AS)	85 (5)	1.2	Incineration (14%), Landfill (86%)	6,000
Suffolk County Sewer District # 21	A	1989	2.06	2.5	Secondary (OD)	355 (5)	1.7	Incineration (14%), Landfill (86%)	20,000

WASTEWATER TREATMENT PLANTS DISCHARGE  
INTO INTERSTATE ENVIRONMENTAL DISTRICT WATERSHED

2001

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
<b>NEW YORK (con't)</b>									
Westchester County									
Blind Brook (Rye)	A	2000+	3.2	5.0	Secondary (AS)	1,122 (6)	<0.5	Pumped to Port Chester	30,000
Buchanan	A	1999+	0.24	0.5	Secondary (AS)	2,000	-	Trucked Out	2,100
Coachlight Sq. Condo. Asso. Inc.*	A	1992+	0.001	0.05	Secondary (AS)	-	-	Trucked Out	210
Mamaroneck	A	1993+	14.4	20.6	Secondary (AS)	4,064 (5)	0.2618	Pumped to New Rochelle	80,000
New Rochelle	A	1997+	14.1	13.6	Secondary (AS)	2,800 (4)	-	Landfill	80,000
Ossining	A	1981	5.8	7.0	Secondary (AS)	39,261	3.1	Incineration	40,000
Peekskill	A	1980	6.5	10.0	Secondary (AS)	690 (5)	2.1	Incineration at Ossining	35,000
Port Chester	A	1990+	5.3	6.0	Secondary (RD)	1,704 (5)	5	Incineration/Landfill	25,000
Springvale Sewerage Corporation*	B-1	1992+	0.11	0.13	Secondary (RBC)	152 (5)	3	Trucked Out	1,700
Yonkers Joint Treatment	A	1988+	81.3	92.0	Secondary (AS)	36,460	27.3	Landfill	477,000
<b>Federal and Military</b>									
Camp Smith (Westchester County)	A	1997+	-	0.24	Secondary (TF)	-	-	-	2,400
Veterans Administration Hudson Valley Healthcare System (Westchester County)	A	1982+	0.14	0.4	Secondary (TF)	-	-	Trucked Out	Patient Count
Gateway National Recreation Area (Floyd Bennet Field, Kings County)	A	1981+	0.08	1.0	Secondary (TF)	-	-	Landfill	5,000

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 rounded to the nearest ton.

(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.

(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 FINANCIAL STATEMENT FY 2001**

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, 2000 to June 30, 2001:

**CASH BOOK BALANCE AS OF JUNE 30, 2000** \$1,167,226.85

## **RECEIPTS**

Connecticut - FY'01	\$ 3,470.00
New York - FY'01	388,000.00
New Jersey - FY'01	388,000.00
EPA - FY'00	127,606.00
EPA - FY'01	257,400.00
Interest	67,052.18
Miscellaneous Receipts	<u>13,031.64</u>

TOTAL RECEIPTS 1,244,559.82

Sub-Total \$2,411,786.67

## **DISBURSEMENTS**

TOTAL DISBURSEMENTS 1,302,258.01

**CASH BOOK BALANCE ON JUNE 30, 2001** \$1,109,528.66

U.S. Treasury Bills	\$ 937,465.70
Insured Money Market Accounts	162,380.82
Checking Accounts	<u>9,682.14</u>
	<u>\$ 1,109,528.66</u>
	=====

## GLOSSARY

<b>ACP</b>	asbestos concrete pipe
<b>AC/DC</b>	alternating current/direct current
<b>ALJ</b>	administrative law judge
<b>AWPCP</b>	auxiliary water pollution control plant
<b>BEACH</b>	Beaches Environmental Assessment and Coastal Health Act
<b>BMWCA</b>	Bureau of Marine Water Classification and Analysis
<b>BNR</b>	biological nutrient removal
<b>BOCES</b>	Board of Cooperative Educational Services
<b>CCMP</b>	Comprehensive Conservation and Management Plan
<b>CES</b>	Center for Environmental Science
<b>CSI</b>	College of Staten Island
<b>CSO</b>	combined sewer overflow
<b>CT</b>	Connecticut
<b>CWA</b>	Clean Water Act
<b>CW/CA</b>	Clean Water/Clean Air Bond Act
<b>DEC</b>	Department of Environmental Conservation
<b>DEP</b>	Department of Environmental Protection
<b>DPR</b>	Department of Parks and Recreation
<b>DO</b>	dissolved oxygen
<b>DOH</b>	Department of Health
<b>EPA</b>	Environmental Protection Agency
<b>FDA</b>	Food and Drug Administration
<b>FY</b>	fiscal year
<b>HARS</b>	Historic Area Remediation Site
<b>HEP</b>	Harbor Estuary Program
<b>HVAC</b>	heating, ventilating and air conditioning
<b>IE</b>	Independent Expert
<b>IEC</b>	Interstate Environmental Commission
<b>IED</b>	Interstate Environmental District
<b>IMT</b>	interim monitoring team
<b>I/I</b>	infiltration/inflow
<b>ISC</b>	Interstate Sanitation Commission
<b>LIS</b>	Long Island Sound
<b>LISS</b>	Long Island Sound Study
<b>MCUA</b>	Middlesex County Utilities Authority
<b>MCWG</b>	Management Committee Work Group
<b>MDS</b>	Mud Dump Site
<b>MEG</b>	Model Evaluation Group
<b>MGD</b>	million gallons per day
<b>MUA</b>	Municipal Utilities Authority
<b>NCHD</b>	Nassau County Health Department
<b>NELAC</b>	National Environmental Laboratory Accreditation Conference
<b>NELAP</b>	National Environmental Laboratory Accreditation Program

## GLOSSARY



(continued)

<b>NELEOM</b>	Northeast Laboratory Evaluation Officers and Managers
<b>NEP</b>	National Estuary Program
<b>NHSA</b>	North Hudson Sewerage Authority
<b>NJPDES</b>	New Jersey Pollutant Discharge Elimination System
<b>NPDES</b>	National Pollutant Discharge Elimination System
<b>NPS</b>	National Parks Service
<b>N/PDES</b>	National/State Pollutant Discharge Elimination System
<b>NRDC</b>	Natural Resources Defense Council
<b>NYC</b>	New York City
<b>NYS</b>	New York State
<b>NWS</b>	Naval Weapons Station
<b>O &amp; M</b>	operation and maintenance
<b>PBSA/NY &amp; NJ</b>	Pro Bono Students America/New York & New Jersey
<b>PVSC</b>	Passaic Valley Sewerage Commissioners
<b>QA/QC</b>	quality control/quality assurance
<b>RAS</b>	return activated sludge
<b>RBC</b>	rotating biological contactor
<b>RBWG</b>	Regional Bypass Work Group
<b>RFP</b>	request for proposals
<b>R/V</b>	research vessel
<b>SBR</b>	sequencing batch reactors
<b>SCADA</b>	supervisory control and data acquisition system
<b>SCSD</b>	Suffolk County Sewer District
<b>SOP</b>	standard operating procedure
<b>SPDES</b>	State Pollutant Discharge Elimination System
<b>SSES</b>	sewer system evaluation survey
<b>SSO</b>	sanitary sewer overflows
<b>STORET</b>	<u>STO</u> re and <u>RE</u> Trieve, EPA's national water quality data base
<b>STP</b>	sewage treatment plant
<b>SUNY</b>	State University of New York
<b>SWEM</b>	system-wide eutrophication model
<b>TMDL</b>	total maximum daily load
<b>TSS</b>	total suspended solids
<b>USA</b>	Use and Standards Attainment Project
<b>USCG</b>	United States Coast Guard
<b>UV</b>	ultraviolet
<b>VFD</b>	variable frequency drive
<b>VOC</b>	volatile organic carbon
<b>WHEACT</b>	West Harlem Environmental Action
<b>WMWG</b>	Water Monitoring Work Group
<b>WPCA</b>	Water Pollution Control Authority
<b>WPCP</b>	water pollution control plant