INTERSTATE ENVIRONMENTAL COMMISSION

A TRI-STATE WATER AND AIR POLLUTION CONTROL AGENCY

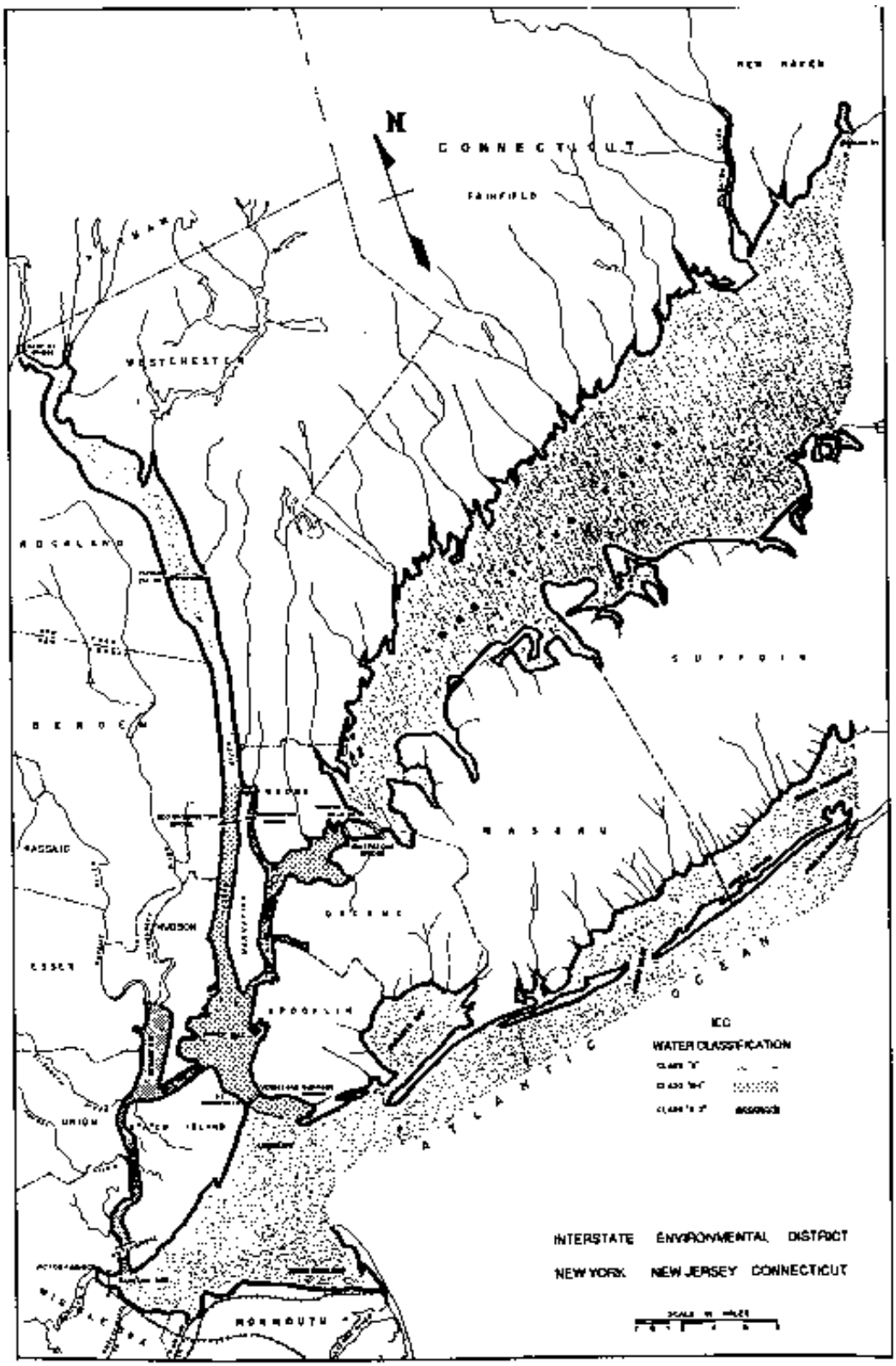
THE START OF A NEW ERA

A NEW NAME IN THE NEW MILLENNIUM

2000

ANNUAL REPORT

NEW YORK NEW JERSEY CONNECTICUT



INTERSTATE ENVIRONMENTAL COMMISSION

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2000

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, 2001

The Honorable George E. Pataki
The Honorable John G. Rowland
The Honorable Christine Todd Whitman
and the Legislatures of the States of
New York,Connecticut, and New Jersey

Dear Governors:

The Interstate Environmental Commission respectfully submits its report for the year 2000.

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

Respectfully submitted,

For the State of New York — Chairperson

For the State of Connecticut — Vice Chair

For the State of New Jersey — Vice Chair

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STATEMENT OF THE CHAIRPERSON OF THE INTERSTATE ENVIRONMENTAL COMMISSION

I can think of no finer way to celebrate the true first year of the new Millennium (and the Commission's 64th anniversary) than to report, at long last, that procedural matters have been cleared away and our name has recently been changed to the more aptly descriptive ***Interstate Environmental Commission (IEC)***.

From our early years in the 1930s and 1940s when the Commission dealt mostly with matters of sewage, we have taken giant strides forward in terms of the scope of our mission and greatly increased responsibilities. Clearly, the name Interstate Environmental Commission more accurately reflects our broad range of programs and activities that include air pollution, resource recovery facilities and toxics, and our continuing emphasis on water quality — an area in which we vigorously act as both a regulatory and enforcement agency.

In this role, after years of litigation before reaching a satisfactory conclusion in the matter of the operations at the Fresh Kills Landfill, our position is that there must be continued vigilance over operations at the Landfill to prevent any reoccurrence of debris fouling Staten Island and New Jersey shorelines and waters.

As the sole interstate pollution control agency for this tri-state region, I take particular pride in noting the Commission's engagement in cooperative environmental studies and programs with such groups as the New York State Department of Environmental Conservation, the New York City Departments of Environmental Protection and Health, the National Park Service and the College of Staten Island. One such focus is on a microbiological study in response to sporadic beach closures at Great Kills Park in Staten Island.

I also think it worthy of note that the Year 2000 marked an even ten years of Commission commitment and participation in an intensive sampling program in the Long Island Sound, as well as our continuing active membership on the Management Committees and various work groups for both the Long Island Sound Study and the New York-New Jersey Harbor Estuary Program. The IEC's far-reaching participation also includes the Long Island Sound Water Monitoring Work Group — a network partnership of 14 citizen organizations and government agencies with a goal of coordinating monitoring programs on every level of government.

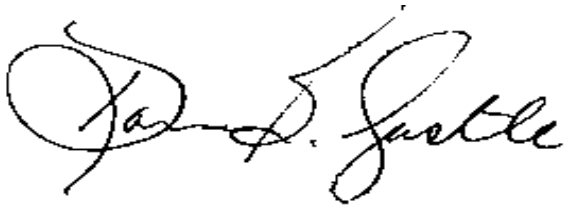
In addition, I am pleased to report on our active role coordinating the Regional Bypass Work Group which addresses the issue of unplanned bypasses of raw and partially treated

sewage. We at IEC are proud that the Commission spearheaded the efforts to put a pollution prediction model and notification protocols in place and, since 1998, we serve as the recipient and clearing center for calls regarding unplanned spills within our region. Also, since we revised our Water Quality Regulations in 1997, it is mandatory that this Commission receive early notification of planned sewage bypasses in order to determine whether these potential bypasses could be avoided or, at a minimum, lessened.

I would also like to emphasize that we are and will continue to work with the states' environmental departments and the U.S. Environmental Protection Agency to assist those agencies with their development of total maximum daily loads (TMDLs), especially for interstate waters.

As I stated last year, the areas of public education and public outreach are of particular interest to me. We have completed the second year of what I envision as a continuing program of working with high school students for hands-on studies in river analyses and marine biology. Several staff members also act as mentors for these high school students doing much needed water quality testing in the Hudson. In addition, we look forward to further increasing our lecture appearances in public schools, colleges and before citizen and environmental groups. Along with my fellow Commissioners, I must share my delight in being the recipient of so many positive comments following our annual boat inspection trip last August. Legislators, environmentalists, leaders of citizens groups and members of the press were grateful for the opportunity to take a close-up look at many of the region's environmental "hot spots" along a route that covered portions of the East River and the Long Island Sound, including stretches of shorelines in the Bronx, Fairfield, Suffolk, Nassau and Westchester Counties.

On a personal note, I want to conclude by offering my heartfelt thanks to my fellow Commissioners, IEC staff, government officials and legislators and volunteer environmentalists who expressed their support at a special ceremony on the campus of the College of Staten Island celebrating my reappointment as an IEC Commissioner and my re-election as Chairperson of an agency we can now proudly call the Interstate Environmental Commission.



Donna B. Gerstle
Chairperson

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I. EXECUTIVE SUMMARY

It was just over 100 years ago that water quality in this region was at a low point due to industrial pollution and raw sewage. The most productive oyster and clam beds in the world were condemned, finfish stocks were depleted and tasted like "oil", health agencies were inundated with patients suffering from dozens of different types of waterborne diseases from using recreational waters, and the air was filled with coal dust. This was a time when interstate conflicts arose regarding the sanitary conditions of the waters surrounding and shared by the States of New York, New Jersey and Connecticut.

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 Interstate Sanitation District and the Interstate Sanitation Commission was enacted in 1936, with the Consent of Congress. The ISC 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 ISC's work over the last 64 years has resulted in the similarity and compatibility that exists throughout the Region.

These standards and regulations have been periodically revised in order to reflect the most recent scientific and technologic information that deals with water quality, living marine resources and best intended uses of the waters. Throughout the 1930s, 1940s, and 1950s, the Commission issued Enforcement Orders for wastewater treatment plant construction that were to be the foundation for many municipalities' current infrastructure.

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. The last step in this process, the Consent of Congress, took place in 2000 and, on October 27, 20100, the President of the United States signed the Bill containing the language that changes the name of this agency from the Interstate Sanitation Commission to the ***Interstate Environmental Commission (IEC)***. The new name — ***Interstate Environmental Commission*** — brings the Commission into the 21st Century and more accurately reflects the Commission's mandates, mission and responsibilities that embrace a broad range of programs and activities that include air pollution, resource recovery facilities and toxics. However, the IEC's continuing emphasis is on water quality — an area in which the Commission is a regulatory and enforcement agency.

The Commission has compiled an outstanding record and its programs and actions have greatly contributed to the improvements in the region's waterways. The Commission's year-round disinfection requirement which took effect in 1986 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 from elevated levels of coliform bacteria or wash-ups of harmful 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 effective. This is truly a regional success story.

During June 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 goals of the IEC are to abate and control water pollution in the Interstate Environmental District and engage in the coordination of interstate air pollution problems and issues in order to achieve a healthy environment and a productive ecosystem. The IEC will implement the goals by:

- coordinating interstate and region-wide programs and enforcing the IEC's Water Quality Regulations,
- providing technical assistance and support to its member States,
- taking the lead on region-wide issues, and
- enhancing public and legislative awareness, and disseminating information.

The staff continues to fulfill IEC's technical and administrative responsibilities within the limitations imposed by the current resources. While somewhat increased, the ambient and effluent water quality sampling programs remain at reduced levels and, 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 continue to be a high priority for the Commission. 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, sampling and data collection, and related Commission activities. During the past eleven 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 eight years, law student internships have been awarded in conjunction with Pro Bono Students America/New York and New Jersey. For the second 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.

This report provides a record of the water and air pollution activities of the Interstate Environmental Commission for the period December 1999 through November 2000. 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, 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. Improving water quality so more areas can be used for swimming and shellfishing remains a high 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 $5.13 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 third 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 15th, a combination of 88 raw sewage, sludge, fuel, and chemical bypasses occurred, few 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:

- participated 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

- received an administrative 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 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.

IEC is continually updating its region-wide inventory of development projects within the District; this effort is presently in its thirteenth 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 tenth 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 fifth year in a row, at the request of NJ DEP, during the winter and spring of 1999-2000, the Commission collected water quality samples needed by NJ DEP to check the sanitary conditions of the shellfish waters of western Raritan Bay. These and other sampling programs are detailed in this report.

Since 1981, the Commission has been involved with the US Army Corps of Engineers' Dredged Material Disposal Management Plan for the Port of New York and New Jersey. This regional effort is to develop solutions that balance dredging requirements of the Port of New York and New Jersey with sound environmental and economic disposal alternatives. By consensus of its organizers, the Dredged Materials Forum has been incorporated into the HEP. The chairpersons of the Forum's work groups were designated as the Dredged Material Management Integration Work Group. The Commission took an active role by participating on the Mud Dump Site Work Group.

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 laboratory has been assisting NYS DEC - Region 2 in their project to assess the overall health of lakes and ponds that are located in all five boroughs of New York City. 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 is seeking acceptance in the National Environmental Laboratory Accreditation Conference.

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

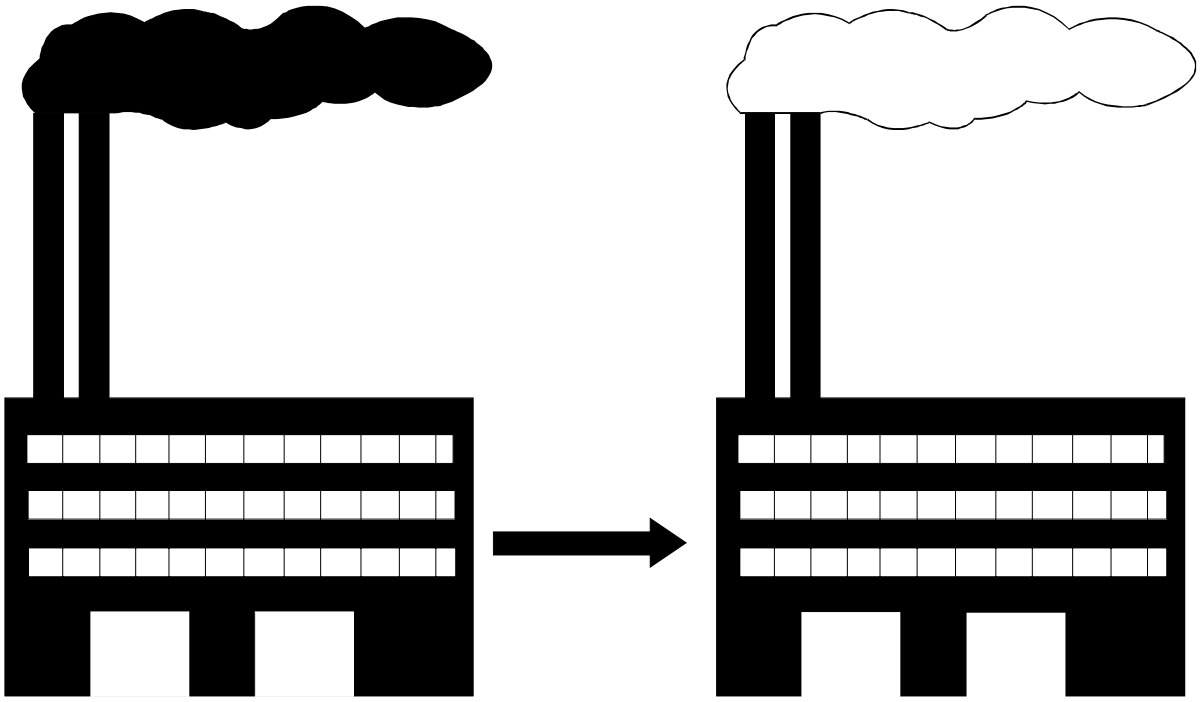
Budgetary restrictions continue to keep the Commission's air pollution monitoring and response programs at a reduced level, including IEC's Staten Island field office remaining closed as has been the case since mid-1989. The Commission's 24-hour-a-day, 7-day-a-week answering service (718-761-5677) remains 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 1999 through September 2000, the Commission received 18 air pollution complaints — a decrease of 30% over the previous 12 months. As has been the pattern, most of the calls originate from Staten Island; this year over 94% of the complaints emanated from that Borough. Unlike past years, this year, no one neighborhood on Staten Island was grossly impacted by odors 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.

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 37 health messages — 17 for ozone and 20 for fine particulates — between June 1st and September 11th to the appropriate government environmental and health agencies throughout the region.



II. WATER POLLUTION

GENERAL

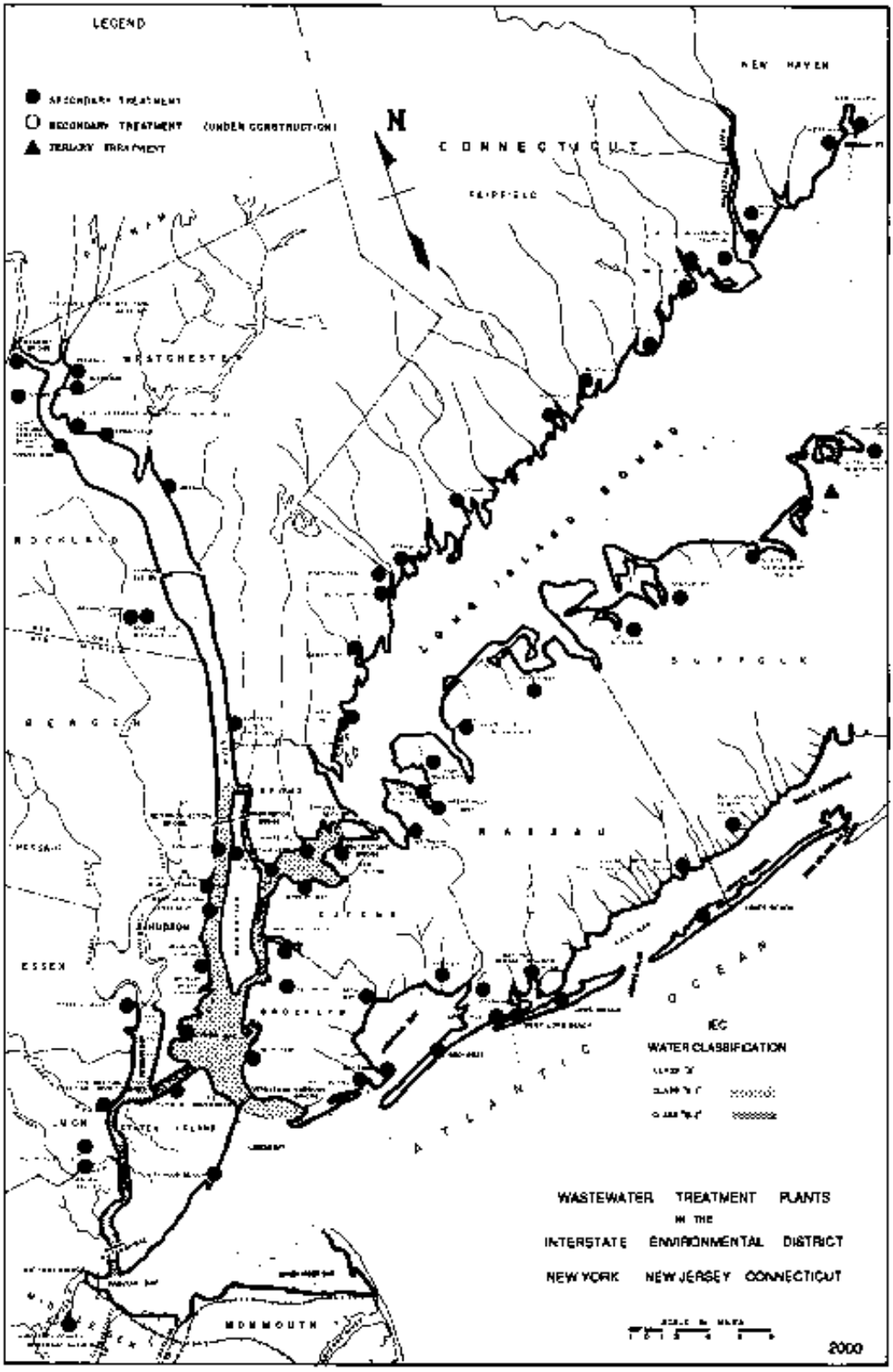
During 2000, in the Interstate Environmental District, approximately $5.13 billion was allocated for 339 water pollution control projects which were either completed, in progress, or planned for the future. These monies were allocated in the following manner: over $159.2 million for 49 completed projects, more than $3.052 billion for 206 projects in progress, and more than $1.92 billion for 84 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 universal secondary treatment 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. The information in this section is that which was available and accurate through November 2000.

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 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 in order to reduce nitrogen loadings into Long Island Sound.

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. The Connecticut Department of Environmental Protection issued Consent Orders requiring nitrogen reduction assessments and implementation of retrofits at selected plants based on cost and feasibility. All 12 Connecticut facilities discharging to the Interstate Environmental District are incorporating interim and permanent denitrification processes.

In 1998, after a year of public review, comment and revision, the LISS Policy Committee adopted the Phase III Actions for Hypoxia Management which establishes a 58.5% reduction in nitrogen loadings over the next 15 years for 11 management zones that comprise the Connecticut and New York portions of the Long Island Sound watershed. Presently, nitrogen removal facilities are operating in Fairfield and Norwalk. Nitrogen removal design work is under way in Stamford, while facility planning is being conducted in Bridgeport, Stratford and Westport. Ten Connecticut plants in the District are operating with interim retrofits and will make additional modifications to reach target nitrogen effluent limits. There are 23 facilities outside the District that are implementing BNR technologies.

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)

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 work is 80% complete at an estimated cost of $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.

An engineering study is under way to assess process modifications required for nutrient removal at both facilities. An BNR pilot program is in the final modeling stage. This assessment is estimated to cost $350,000.

The complete rehabilitation of all unit processes at the East Side plant is 97% complete at an estimated cost of over $37.2 million. Agenda items include the overhaul of the preliminary, primary, and secondary treatment units, and modernization of the electrical/mechanical equipment, as well as pumps and associated instrumentation. All treatment units are expected to be on-line during November 2000.

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.

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 25% 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. Additional nitrogen removal retrofits will be implemented as needed.

Greenwich (Grass Island), Connecticut (Fairfield County)

Completed 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. Additional manhole rehabilitation and sewer lining was completed during 2000 at a final cost of $500,000.

Future Project

Anticipated to begin construction in September 2001, a biosolids handling facility will be installed at a re-estimated cost of $18.0 million. The proposal has a two-year construction schedule which includes a new belt presser, odor controls, truck bay and thickener improvements.

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

Completed Projects

A nitrification inhibition study was completed during August 2000 at a final cost of $240,000.

Plant upgrades were completed during December 1999, with total operations on-line during October 2000. Final costs of $6.8 million provided for upgrading the primary treatment phase including the conversion of a monorake system to a 3-separate chain-and-flight sludge collection process, the replacement of all of the existing antiquated motor control centers, and the installation of covers on the primary tankage for odor control. In addition, the inlet building was modified for bulk chemical storage and handling.

Projects in Progress

On January 4, 1999, the City of New Haven Water Pollution Control Authority entered into a 15-year operations agreement with a consultant. The on-site regional firm has assumed responsibility for the operation, maintenance and management of this facility.

A $100,000 Phase III odor control improvements project is recently under way.

A multi-year long-term CSO control plan is nearly complete with project costs estimated at $2 million. 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 $225 million. The work is approximately 40% complete.

Future Projects

An engineering design study has determined the capacity needs for the Quinnipiac Avenue pump station. Estimated to cost $3.5 million, the pump station will be rehabilitated and the antiquated Barnes Avenue facility and force main will be eliminated. This work will have an approximate operational start-up of March 2003.

Three additional engineering studies are proposed to address alternative standby power for the main sewage pumps, a low level nitrogen removal assessment (~$200,000) and a regional septage study (~$200,000). These projects are anticipated to start January 2001.

Estimated to cost $700,000, 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 and anticipated to be operational during September 2003.

The Boulevard and East Street pump stations will be modified with the installation of new control systems in order to improve operating efficiency. The nine-month construction schedule is planned to start in March 2001 and cost about $700,000.

Norwalk, Connecticut (Fairfield County)

Completed Project

A multi-year phased construction schedule, under way since 1996, is 100% complete and has a final cost of $41 million. Operational start-up was during June 2000 in which the treatment capacity was increased from 15 MGD to 20 MGD. Other plant unit upgrades include odor controls, a new chlorination system, and new tankage for all treatment phases.

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 2001.

Stamford Water Pollution Control Authority, Connecticut (Fairfield County)

Future Project

This facility is operating under a State Consent Order to upgrade and implement nitrogen removal capabilities. Consent Order compliance dates are presently being negotiated. Upgrading and expansion of this 20 MGD secondary facility has been rescheduled to begin during the 2001 spring season. This four-year construction program was also re-estimated to cost $90 million. The plant renovation and upgrade will include high efficiency BNR technology and sludge processing equipment.

Stratford, Connecticut (Fairfield County)

Completed Project

An engineering consultant has recently prepared a facility plan for capacity expansion and plant-wide upgrades. The plan is awaiting CT DEP approval.

Future Project

A proposal for capacity expansion to 13.5 MGD, in conjunction with a facility-wide upgrade, is awaiting CT DEP approval. Design work is planned to begin during the 2001 spring season. Total cost estimates of $60 million have been made.

West Haven, Connecticut (New Haven County)

Completed Projects

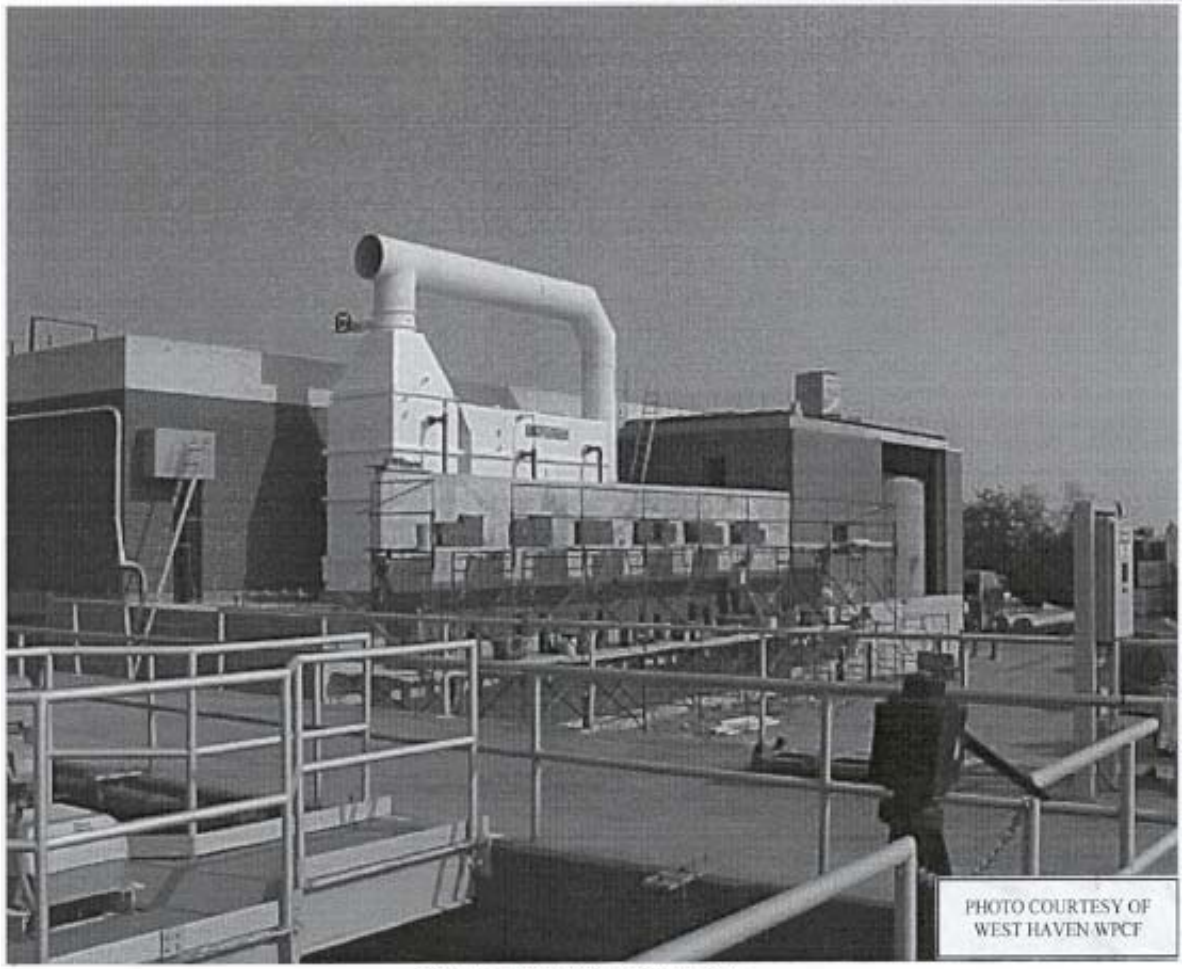
Operational during June 2000, the main pump station wetwell upgrade, as well as three additional pump station upgrades — Cove River, Oyster River and Trumbull — were completed. All punch list items were completed during November; the final work costs were $4.5 million.

An additional hypochlorite tank was installed which enables the facility to eliminate the elemental chlorine gas system.

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. The Judgement specifies completion of substantial construction by September 2000; compliance with the Stipulated Judgement is 98% complete.

WEST HAVEN WATER POLLUTION CONTROL FACILITY
WEST HAVEN, NEW HAVEN COUNTY, CONNECTICUT



ODOR CONTROL PROJECT

Additional design plans are being drawn for I/I lining and repairs ($4 million). Presently, I/I lining and pointing repairs to the brickwork are under way.

An odor control system is being installed and is 35% complete. The $4 million project includes 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. The system is planned to be operational during December 2000.

Future Projects

Eight-thousand linear feet of new 12-inch diameter (12"Ø) force main will be installed to service the Oyster River pump station, with the work planned to begin during March 2001. This $1.25 million project also includes a new septage receiving area pump system design with subsequent construction.

Westport, Connecticut (Fairfield County)

Completed Project

Incurring final costs of $622,000, the odor abatement alternatives identified in a 1999 study were implemented. Construction was completed during June 2000. The work included a VOC collection system, a blower building and a biofilter.

Projects in Progress

This facility is presently 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.

At 90% completeness, the replacement of a secondary digester cover is expected to be on-line this winter at an estimated cost of $300,000. A facility plan is 25% complete and is scheduled to be approved during the summer of 2001.

Future Project

At an estimated cost of $250,000, the Church Street sewer will be replaced during the summer of 2001.

NEW JERSEY WATER POLLUTION CONTROL PLANTS

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 (45% complete) 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 recently closed Military Ocean Terminal treatment plant is now under the auspices of the Bayonne MUA. See the Military Ocean Terminal write-up for additional information.

Edgewater, New Jersey (Bergen County)

Projects in Progress

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 will begin during the winter 2001 season which entails sewer separation in order to eliminate three regulators.

During 2000, Edgewater received an award of $1.76 million (eligible project cost) for CSO abatement projects. The allocation represents a low interest loan from the New Jersey Environmental Infrastructure Trust which 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.

Hoboken, New Jersey (Hudson County)

Since November 1996, this facility has been under the jurisdiction of the North Hudson Sewerage Authority (NHSA) and is called the Adams Street facility. Refer to the write-up under the NHSA - Adams Street.

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 (0% complete) 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.

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

Completed Projects

Nearly complete, two modernization projects were operational during the late 2000 fall season. First, an anaerobic sludge digester was rehabilitated and upgraded at a final cost estimate of $3.02 million. Secondly, the dechlorination system was upgraded and incurred costs of about $1.8 million.

Projects in Progress

Trunk sewer rehabilitation throughout the service area began during May 1997 and is ongoing with a phased construction agenda. A 42-inch diameter (42"Ø) trunk sewer will be under rehabilitation during the period January to May 2001 with estimated costs of $142,000.

Rehabilitation of the grit and screenings facility is 25% complete. It is expected to be finished during the fall of 2001 at an estimated cost of $900,000.

Future Projects

Two additional rehabilitation upgrades are planned for 2001 which will entail sludge thickening and a final clarifier. These proposed projects will incur cost estimates of about $4.1 million.

Kearny Municipal Utilities Authority, New Jersey (Hudson County)

Project in Progress

An evaluation of the Hackensack Avenue sewer began during September 2000.

Recently under way (10% complete), new mechanical bar screens are being installed at the South Kearny pump station. Sewer lining of about 1,200 linear feet of existing sewer, as well as stormwater separation, has begun. These collection system projects are estimated to cost $650,000 and are scheduled to be complete during August 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

The installation of four ultraviolet disinfection units was completed and on-line during February 2000 and fully operational on September 1, 2000. Final costs incurred were $2.5 million.

Project in Progress

Under way during October, a variable speed controller for the influent wastewater pumps is being installed. Associated costs for the 4-month project is $233,000.

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

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 (40% complete and estimated at $283,000) and land-based sludge management improvements ($22 million).

A 16 megawatt power generation facility, fueled by methane gas recovered from a landfill, is 95% complete and is estimated to cost $15 million. This new facility is located

across the Raritan River in New Brunswick, New Jersey, and will supply electricity and steam via subaqueous piping for various treatment processes.

Currently 20% complete, a new maintenance department building is being constructed at a cost of $1.4 million.

Recently under way (5% complete), 3 MGD of secondary effluent will be filtered and reused for pump seal water, odor control systems and other process needs. Anticipated to be operational during March 2001, the cost estimate is $1.5 million.

A new cryogenic oxygen plant for secondary aeration is being built. A nine-month construction agenda will be needed to build a 250 ton per day facility. This $10 million undertaking is anticipated to be operational during June 2001.

Future Project

Planned to begin during February 2001, new disinfection facilities utilizing sodium hypochlorite will be installed and will incur costs of $1.5 million.

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

Completed Projects

Engineering studies addressed I/I with a focus on two pump stations ($50,000) and the Leonardo/Navesink interceptor lines ($100,000). These projects were completed during August 2000 and October 2000, respectively.

Completed on November 1, 2000, the installation of 1,500 linear feet of interceptor lines and four manholes were repaired at a final estimate of $250,000. In addition, emergency repairs of the Fairview force main was completed in July 2000 at a final cost of $350,000.

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 thi19s facility for treatment and began discharging treated effluent outside of the Interstate Environmental District. Recently under way, over $1.05 million will be spent for digester cleaning and improvements.

Military Ocean Terminal, New Jersey (Hudson County)

Future Project

Preliminary plans for this federal facility is a pump station conversion with flow diversions to the PVSC secondary facility for treatment. This property was decommissioned as a military base during the fall of 1998 and is now reverting to the City of Bayonne. Potential uses for this property are being explored by a redevelopment commission.

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

Completed Project

This authority receives secondary treated wastewater from two customer sewerage authorities — Bayshore Regional and Township of Middletown — for discharge outside the Interstate Environmental District into the Atlantic Ocean. These flows are generated from municipalities that originally discharged to the Interstate Environmental District. Under way since the 1998-1999 winter season, pump station modifications incurring costs of over $2.4 million were operational and complete in early October 2000.

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.

Diesel engine rehabilitation is 23% complete and will incur estimated costs of $467,000.

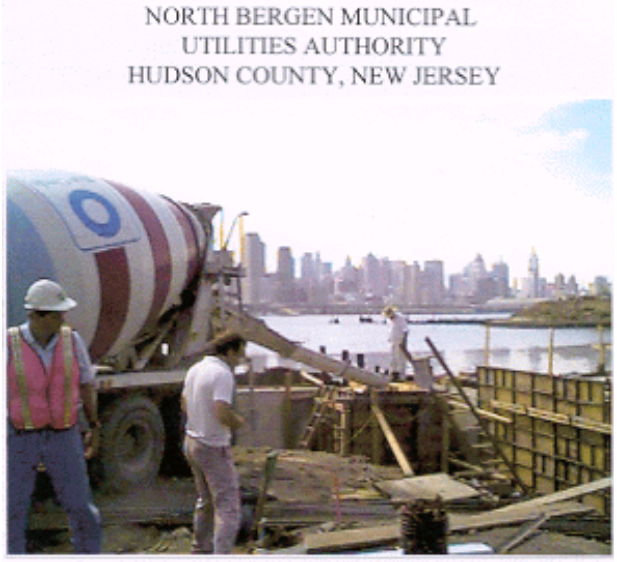
Future Project

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)

Completed Project

A comprehensive CSO control system consisting of 10 outfalls with floatables capture devices was completed and operational on December 17, 1999. The netting is capturing and preventing solid and floatable debris from reaching the Hudson River and tributaries of the Hackensack River which is outside the Interstate Environmental District.



WORKERS PREPARING TO POUR CONCRETE
ON CSO ABATEMENT STRUCTURE

The floatables abatement technology was applied to nine outfalls consisting of three end-of-pipe units, four in-line units and two floating traps. The tenth outfall has a stationary bar rack. During the 2000 operating season, a prediction of 45 tons of debris will be captured. A final cost of $3.9 million was incurred.

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

During the early 1990s, this facility was operated and maintained under the auspices of the Hoboken-Union City-Weehawken Sewerage Authority (HUCWSA). During 1995, this entity was renamed the Tri-City Sewerage Authority. As of November 1, 1996, this entity was again renamed the North Hudson Sewerage Authority and now maintains a second

WPCP under its jurisdiction. Both facilities have been renamed — Adams Street, formerly Hoboken, and River Road, formerly West New York. Refer to the NHSA - River Road write-up for additional information.

Projects in Progress

An engineering study that is planned to be completed in 2001 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.

This facility is operating under a State Administrative Consent Order (May 22, 1995) to eliminate the effects of CSOs. Presently, the facility is meeting all Order dates and is conducting an engineering study dealing with CSO abatement.

Future Project

Anticipated to begin on January 1, 2001, CSO abatement facilities will be installed along the Hudson River. Estimated expenditures will amount to $21 million and will be operational during July 2002.

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

Completed Project

As of November 1, 1996, the North Hudson Sewerage Authority became the official entity to operate and maintain this facility which was formerly known as West New York. The Adams Street facility (formerly named Hoboken) is also under the auspices of the Authority.

Refer to the North Hudson Sewerage Authority - Adams Street write-up for additional information.

Projects in Progress

Because this facility is under new management, all proposed plant modifications and collection system rehabilitative work that had been previously reported are being reconsidered. This facility is operating under two State Administrative Consent Orders to eliminate the effects of CSOs (September 30, 1993) and toxicity and plant performance (May 19, 1995). Presently, this facility is meeting all Order dates.

Future Project

Anticipated to begin on January 1, 2001, CSO abatement facilities will be installed along the Hudson River. Estimated expenditures will amount to $5 million and will be operational during July 2002.

Old Bridge Municipal Utilities Authority, New Jersey (Middlesex County)

Project in Progress

The Old Bridge primary facility was converted to a pump station and diverted flows for treatment at the Middlesex County Utilities Authority on August 2, 1990. This authority received a $2.1 million (eligible project cost) low interest loan during 1999 for the relining of sanitary sewers and manholes (0% complete) 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.

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.

Overall, 60% of a construction upgrade is complete. 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 estimated to cost $4.73 million and is 95% complete.

PVSC received a $23.2 million (eligible project cost) low interest loan for improvements to the sludge handling facilities (46% complete) 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

An engineering study ($305,000) to assess effluent impacts on the Rahway River was recently submitted to NJ DEP for approval.

A plant upgrade completed recently involved the reconstruction of the service building main lift pumps at a final cost of $46,000. Additionally, the reconstruction of the diesel engine exhaust stack was completed at a final cost of $38,000.

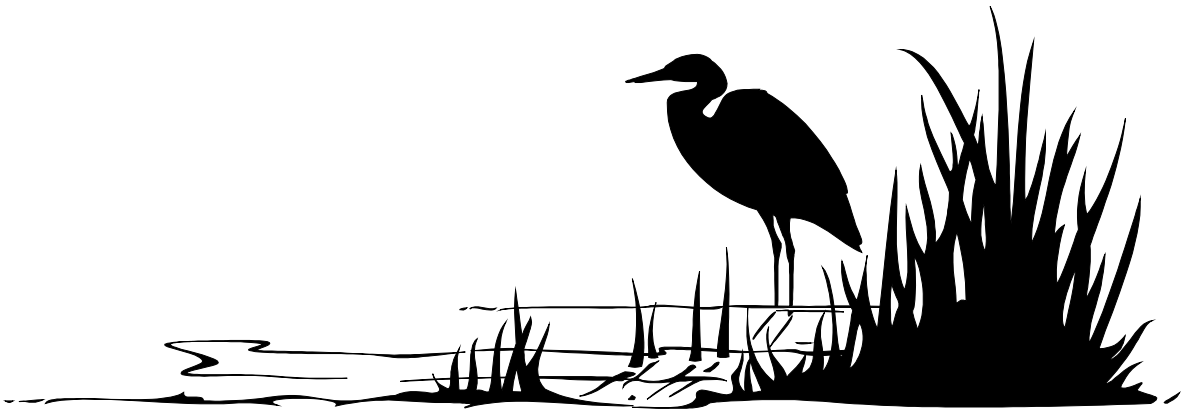
Three upgrades of treatment units were accomplished during the period between November 1999 and March 2000. These upgrades include replacement of the sodium hypochlorite tanks, valves at the sludge storage tanks, and modifications to the sludge pump house. Overall, costs of nearly $375,000 were incurred.

Future Project

A laboratory expansion has been proposed. Construction start-up is planned for the 2001 spring season. Estimated costs are $1.5 million.

West New York, New Jersey (Hudson County)

This plant is now under the auspices of the North Hudson Sewerage Authority and is called the River Road facility. Refer to the write-up under the NHSA - River Road.



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 Interstate Environmental District, management plans receiving implemention funds include the Hudson River Estuary, Long Island Sound and South Shore Estuaries. Many projects in the District are receiving funds and are highlighted under specific municipal treatment plant write-ups.

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 coordinate related projects.

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

Completed Projects

All modifications and additions to the sludge digestion facilities were completed during December 1999. The final cost of over $23.94 million provided for the rehabilitation of both primary and secondary digesters. These modifications to the existing tankage were made to enhance the performance of various process units.

A new administration center was constructed within the existing main building. The complex incorporates new shops for the facility's electrical and HVAC units, as well as lavatory and lunchroom areas for plant personnel. Construction was completed during August 2000 with associated costs of over $15.287 million.

At a final cost of over $17.92 million, additions and modifications to the central heating facilities were completed during September 2000. The principal features of the

project included new boilers and the installation of chiller equipment with associated piping and auxiliary equipment to provide plant-wide heating and cooling.

Project in Progress

Ongoing additions and modifications are 98% complete on a fifth aeration tank which replaces a fluid bed reactor system. Costs are re-estimated at over $10.237 million.

Future Project

Aluminum aeration tank covers will be installed on all five tanks, coupled with the construction of an odor control system. The system will use wet scrubbers to handle the exhaust air drawn from the newly covered tankage. Construction is planned to begin during November 2000 with costs estimated at over $16.9 million.

Belgrave, New York (Nassau County)

Project in Progress

Recently under way, a denitrification pilot study with an one-year agenda will incur costs of $130,000.

Future Project

Beginning during the 2001 winter season, the secondary digesters will be overhauled including the replacement of all valves, piping and covers. In addition, all safety rails and grating will be replaced plant-wide. Final cost estimates are about $830,000.

Blind Brook, New York (Westchester County)

Completed Projects

An engineering study to assess alternatives for preliminary treatment equipment upgrades was completed. New equipment installations include bar screens, comminutors, primary clarifier drive, weirs and skimmer mechanisms. A final cost estimate for all work was about $1.5 million.

Sewage sludge is pumped by force main to Port Chester for processing. As of May 1, 2000, the sludge is trucked out of state for disposal. See the Port Chester write-up for details.

Future Project

Phase II Automation is under design. This phase will increase operator control via a Supervisory Control and Data Acquisition (SCADA) telemetry controls system. Construction and installations are estimated to cost $700,000 and be complete during 2002.

Bowery Bay, New York (Queens County)

Projects in Progress

There are 90 pump stations throughout the 14 drainage basins comprising the New York City collection system. Completed during 2000 at 32 pump stations City-wide were six major upgrades, 13 design plans for major upgrades, 10 minor upgrades and 11 design plans for minor upgrades. Major upgrades are under way at 14 stations, as well as 10 minor upgrades. Additionally, the bid process is under way for four major and one minor upgrade. Cost estimates for these collection system improvements were not available.

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. Presently, seven regulators in three drainage basins are fully operational utilizing a hydraulic modulating system. Nine regulators in two drainage basins are utilizing the hydraulic modulating system, but are manually operated. Vortex valves have been installed at two regulators in different drainage basins. City-wide, the bidding process is under way for 102 regulators that will be installed with overflow alarms. The status of City-wide tide gate reconstruction includes three completed rehabilitations, two gates under construction, and 15 completed designs.

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 WPCPs by sea. Ongoing improvements and modifications include new docking facilities to be built on the East River (Red Hook and Wards Island) and in Jamaica Bay (26th Ward), cake storage facilities and emergency generators. Collectively, the docking facilities are 66% complete with final estimated costs of over $18.4 million. A screenings, grit and grease handling building is also scheduled for Wards Island (over $9.056 million). These projects will incur additional fees including, but not limited to, construction management and design, additional structures and bionutrient management services ($7.685 million).

Due to the vast number of ongoing treatment plant and collection system projects, numerous consultants and contractors are involved and receive construction management fees estimated at over $152.672 million. City-wide, additional consultant fees are slated for FY'01 which address various program management services, technical inspections, concrete

quality assurance, environmental conservation, and health and safety management. These fees are estimated at $22.42 million.

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 thirteenth 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. The swirl concentrators and a retention tank that will service Flushing Bay are under construction at an estimated cost of $272 million. An in-line storage plan with a retention tank located in the Hunts Point drainage basin is at the final facility design stage ($230 million). To address floatables control at its source, City-wide catch basin hood replacements are estimated at $158 million. The collection system improvements are at the facility planning and construction phase. These efforts will also address floatables capture, i.e., in-line netting and booming.

The second geographical area addresses the needs of Jamaica Bay. Holding tanks and in-line storage are the selected CSO abatement alternatives. Approximately $153 million is being spent for design work and construction costs are now estimated at $260 million. Final design for the Paerdegat Basin retention tank is complete and construction is under way ($197 million). The pile foundation for the Paerdegat influent facilities, as well as various modifications, are about to begin at a re-estimated cost of $16.645 million. In addition, water quality facility planning is under way for several Jamaica Bay tributaries.

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 is receiving additional input by the participation of Waterbody/Watershed Stakeholder Teams, a Government Committee of which IEC is a member, and the NYC Citizens Advisory Committee. 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.

Ongoing engineering studies and experiments at the Bowery Bay facility are assessing biological nutrient removal technologies, biological centrate treatment, and sludge thickening with polymer treatment.

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

Future Projects

Several projects will receive funding under the Water/Clean Air Bond Act. These projects are consistent with the Long Island Sound Study (LISS) Comprehensive Conservation and Management Plan (CCMP) priorities. The Bowery Bay WPCP will implement nitrogen removal alternatives by installing a ferric chloride feed system ($191,250 approved) and a new diffuser system ($148,750 approved).

Stabilization construction is slated for FY'01 at a re-estimated cost of $213 million plus $13.7 million in construction management costs.

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

Projects in Progress

Work for the collection system includes the rehabilitation of seven pump stations. The stations are being updated with new pumps, controls and superstructure repairs. Beginning in August 1998, four pump station upgrades were under way. As of January 2000, work was complete at two stations. The estimated costs collectively are $8.749 million and, overall, the work is 80% complete.

Under way since 1999, main plant installations include aluminum covers for the aeration tanks, new effluent channels and a new odor control building. These items are estimated to cost $14.5 million; collectively they are 75% complete and are scheduled to be on-line during June 2001.

Future Projects

Anticipated to begin during February 2001, a new secondary gas compressor facility will be built and incur costs of about $7 million. An engineering study to evaluate long- term alternatives for sludge dewatering is expected to be complete in June 2001. Subsequently, a sludge dewatering facility, estimated to cost $32.344 million, will have a three-year construction schedule ending in 2005.

Coney Island, New York (Kings County)

Projects in Progress

Estimated to cost $66.37 million, a plant support facility consisting of a conglomeration of workshops has been divided into four contracts and is substantially complete. Plant-wide modifications for re-rating of the design flow have been re-estimated at over $42.559 million. Construction management fees for this plant are estimated at over $54.16 million.

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

Future Projects

Structural modifications to handle additional dry and wet weather flows ($55 million) are being planned.

Additional projects at this facility include the reconstruction of the ocean outfall (FY'02 - $2 million), and the building of a new laboratory and a visitors center (over $33 million).

Glen Cove, New York (Nassau County)

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 are under way (2% complete) 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 December 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 50% complete.

Future Project

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.

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

Completed Project

Completed during October 2000, the Steamboat and Red Brook lift stations were upgraded with the addition of new backup generators and soundproofing. The final project cost was $460,000.

Future Projects

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.

Anticipated to begin January 2001, the Spring Lane lift station will be upgraded and will incur costs of about $280,000.

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

Project 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.

Future Projects

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.

Huntington Sewer District, New York (Suffolk County)

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 2001, the installation is estimated to cost $290,000. Planned for the 2001 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. 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.

Approximately $200,000 will be incurred for improvements at the 5th Avenue pump station. The work which is planned to begin during May 2001, includes replacement of pumps, valves, a standby engine generator, controls, an emergency force main connection, site fencing and wet well ventilation.

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 is scheduled to begin during July 2001 with costs estimated at $10.5 million.

The Town of Huntington has approved 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, this project is on hold until the Town can resolve the litigation concerning ownership of the property. Additionally, 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.

Hunts Point, New York (Bronx County)

Projects in Progress

Collection system improvements, rehabilitation and renovations include work on several pump stations throughout the drainage basin. Design and ongoing construction vary from 0% to 99% degrees of completeness. Within the main facility, heating and ventilation installations (over $2.845 million) are 10% complete.

Ongoing engineering studies started in October 1996 address biological centrate treatment and biological nutrient removal. Step II stabilization is in the final design phase.

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

Future Projects

The replacement of the boilers for process heating, re-estimated at over $2.8 million, is now planned for FY'01. CSO abatement projects in the tributaries — Bronx River and Westchester Creek — are in the final design stage. Stabilization upgrades are scheduled for FY'02 at estimates of over $186.985 million.

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

Two in-house experiments involving the heat exchanger and scum dewatering are being conducted by staff and consulting engineers.

In order to comply with SPDES limitations and requirements, plant-wide interim expansions are ongoing. This work is re-estimated to cost over $99.4 million plus over $5.04 million in construction management fees. Performed in two construction phases, the first phase will entail new installations of the following treatment units: a primary tank splitter box, a primary tank, a primary force main, a return activated sludge and waste activated sludge pump station, a chlorine contact tank, odor controls, and an electrical substation. The second phase will include the new installations of various units such as a sludge thickener tank, odor controls, a maintenance building, a sludge degritting and screening wing, emergency lighting and an influent screenings building extension. Phase II preliminary design is under review. Collectively, these phases are 65% complete.

JAMAICA WPCP
QUEENS COUNTY, NEW YORK

DIGESTERS WITH NEW COVERS BEING INSTALLED

CSO abatement projects in this drainage basin include the placement of a retention tank in Fresh Creek; the preliminary design is under way. CSO controls in the Jamaica tributaries involve water quality planning; facility planning is under way.

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

Future Projects

Stabilization modifications, which are alternatives to correct plant performance deficiencies, will be implemented as part of Phase II. These modifications are estimated to cost $72 million with $7.2 million additional costs in construction management fees. Additionally, aeration tank modifications are planned for 2001.

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

Future Project

Originally planned to begin during February 1999, a sewer trunk line will be relocated with a start date of January 2001. The six-month construction agenda also includes a main pump station upgrade and is estimated to cost $1 million.

Lawrence, New York (Nassau County)

Completed Projects

Phase I plant improvement design studies are complete. In addition, a collection system I/I study was completed during late 1999.

Projects in Progress

Recently under way, problems identified in the aforementioned studies will be addressed. Remediation costs are estimated at $600,000.

Long Beach, New York (Nassau County)

Future Project

Rehabilitation of several treatment units are planned at a re-estimated cost of $750,000. The work will address the digesters, trickling filters and the hypochlorite tanks. A construction schedule has not been established.

Mamaroneck, New York (Westchester County)

Projects in Progress

Recently under way, this facility will be retrofitted for a two-year BNR pilot project. The estimated $3.5 million undertaking will be partially funded by the Clean Water/Clean Air Bond Act of 1996.

A $50,000 grant awarded by NYS DEC will be used by a shoreline community council (11 members) to investigate stormwater capture and treatment prior to discharge to Long Island Sound.

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

New Rochelle, New York (Westchester County)

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 and eliminate two storm 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 for all construction phases. The larger scope of work has grossly increased the construction expenditures.

Recently under way, installations of new effluent pumps and new mixing equipment for the secondary process units will incur costs of $1 million. Designs (60% complete) for sludge collection equipment replacement are under way and scheduled to be operational during 2002.

In order to increase remote monitoring of plant processes, Automation Phase II will incur costs of $750,000. This phase will increase operator control via a Supervisory Control and Data Acquisition (SCADA) telemetry controls system.

Future Project

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.

Newtown Creek, New York (Kings County)

Projects in Progress

Upgrading and expansion construction to incorporate a secondary treatment system utilizing step aeration with a reduced contact time is continuing. These interim measures are necessary so that the facility can operate until a new facility plan is implemented. With a 12-year construction schedule, estimates of over $264 million were made for all design and construction phases; this includes disinfection, demolition and remediation, and a biofilter demonstration plant. The interim upgrade work began during July 1993. The major items include modifications to the engine generator stack heights, miscellaneous building and equipment system upgrades (i.e., odor control, tankage covers, digester cleaning and piping, various tank reconstructions, etc.), water main and drainage improvements, and landscaping. Overall, the interim upgrades are 81% complete.

An engineering study, under way since 1996, involves modifications to the step feed tank. Under way since August, an automated effluent disinfection system is being tested.

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

Several new additions are planned for the main facility including a south wing to the main building ($130 million), a support and disinfection building ($237 million), sludge handling facilities (over $452 million), a sludge force main/docking facility ($38 million/FY'03) and aeration upgrades ($3.7 million). Construction management costs associated with these phases are $120 million.

Northport, New York (Suffolk County)

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.

Over $5.682 million was awarded under the auspices of the CW/CA Bond Act during 2000. These funds are for nitrogen removal facilities. In Centerport, $300,000 in Bond Act funds will be used for the Fleets Cove/Knollwood Beach Stormwater Mitigation project. The 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. 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)

Projects in Progress

This facility is operating under a State Consent Order (July 1, 1992) to address issues of capacity, odor, and air emissions. Plant modifications and engineering studies are still under way to address odor control problems. Reconstruction of the primary and final settling tanks, rehabilitation of the digesters, aeration tank covers, odor control equipment and construction management are the main budget items. Modifications that affect all support treatment equipment are presently ongoing at a cost of over $32.24 million, which includes construction management fees. These installations, inspections and repairs will address electrical, instrumentation and control systems; HVAC; and dock storage facilities. Additional installations of various instrumentation and controls, odor controls, and a natural gas system are under way.

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

Future Projects

An alternate odor abatement system, re-estimated to cost $22 million, has been rescheduled and is now planned for FY'01. Estimates of $25 million are proposed for additional odor control; no schedule was available.

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 Project

Reconstruction work is planned for the main facility, including the plant plumbing system. These improvements will be considered as one Staten Island-wide project including the Port Richmond drainage basin. Refer to the Port Richmond writeup for additional information.

Orangetown, New York (Rockland County)

Project in Progress

Repairs are 85% complete on the Nyack trunk sewer; estimated costs are $750,000. An operational start-up is scheduled for December 31, 2000.

Ossining, New York (Westchester County)

Completed Projects

The conversion of the disinfection storage facilities from gaseous chlorine to sodium hypochlorite were completed during early 2000. The final estimated cost of $500,000 also provided for odor abatement modifications. Engineering studies focusing on a furnace upgrade (packed tower odor scrubber) have been canceled. The incinerators were put on standby. The County now ships its sludge out of state for processing. See the Peekskill write-up for details.

Projects in Progress

Facility-wide performance maintenance ($3.5 million) is under way and is expected to be complete during 2002. The upgrade entails the replacement of equipment that has outlived its useful life.

In order to increase remote monitoring of plant processes, Automation Phase II is under design. Construction and installation is anticipated to be complete during 2002. This phase will increase operator control via a Supervisory Control and Data Acquisition

OSSINING WPCP
WESTCHESTER COUNTY, NEW YORK

ODOR CONTROL FACILITY UNDER CONSTRUCTION

(SCADA) telemetry controls system. Estimates for this phase are $600,000.

Future Project

Estimated to cost $8 million, a new final clarifier will be built and anticipated to be on-line during 2003.

Owls Head, New York (Kings County)

Projects in Progress

Engineering studies under way since 1997 involve automatic thickened sludge control pumps, the oxidation reduction potential instrumentation testing for chlorination control, improvements to the engine generators and polymer addition to waste activated sludge for thickener enhancement.

CSO abatement strategies for this drainage basin include regulator improvements which are at the preliminary design stage.

Various plant-wide upgrades are under way with costs estimated at over $3.1 million.

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

Future Projects

Future contracts, both construction and consultation/construction management, are being evaluated for punch list items and landscaping. Estimated costs for these projects are $15.88 million. Plans have been revised from FY'99 to FY'01 for plant-wide improvements ($15.8 million), and screening building modifications ($9.874 million).

Oyster Bay Sewer District, New York (Nassau County)

Completed Projects

At a final cost $135,000, improvements to the Highwood Road pump station were completed during August 2000. This pump station now has a permanently installed standby generator for emergency power. Portable generators are available for the other pump stations during power outages. The replacement of grit chamber chains and sprockets at a final estimate of $45,000 was completed during the 2000-2001 winter season.

The installation ($23,600) of four leaching wells to divert stormwater and filter pathogens prior to discharge to Oyster Bay Harbor was completed with funding from the NYS Clean Water/Clean Air Bond Act.

Future Projects

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).

Peekskill, New York (Westchester County)

Completed Projects

As of May 1, 2000, the County started to phase out the use of incinerators for sludge disposal. A 10-year contract to haul aqueous sludge out of state was finalized at $22.7 million. The sludge produced at this facility was incinerated at the Ossining plant. The total sludge volume from these two facilities will be hauled by four trucks per day, each with a 5,000 gallon capacity. See the Ossining write-up for details.

Disinfection facilities were converted from chlorine gas to sodium hypochlorite. Operational on May 12, 2000; the final estimated costs were $380,000.

Projects in Progress

In order to increase remote monitoring of plant processes, Automation Phase II is under design. This phase will increase operator control via a SCADA telemetry controls system. Construction and installations are scheduled to be complete during 2002 and incur costs of $1.25 million. Performance maintenance design is under way and is expected to be complete during 2003.

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.

Port Chester, New York (Westchester County)

Completed Project

As of May 1, 2000, the County started to phase out the use of incinerators for sludge disposal. A 10-year contract to haul aqueous sludge out-of-state was finalized at $22.7 million. The sludge produced at the Blind Brook facility was incinerated at this plant. The

total sludge volume from these two facilities will be hauled by six trucks per day, each with a 5,000 gallon capacity. See the Blind Brook write-up for additional details.

Projects in Progress

Three major modernization projects are under design and have scheduled completion dates during 2002. In order to increase remote monitoring of plant processes, Automation Phase II will incur costs of $1.4 million. This phase will increase operator control via a SCADA telemetry controls system. Secondly, the disinfection facilities will be upgraded to utilize hypochlorite at a cost of $700,000. Finally, facility-wide performance maintenance to replace outdated equipment will accrue costs of $2.6 million.

Port Richmond, New York (Richmond County)

Projects in Progress

Ongoing I/I work is being done with $1.28 million of allocated funds. Various pump station improvements are being implemented.

At a cost of approximately $1.984 million, reconstruction and installations are ongoing and involve the final treatment phases including digester storage transfer pumps, the digester pump mixing system, various sludge pumps, hypochlorination monitoring, and rooftop heating systems.

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

Future Projects

Modifications and improvements to the existing plant remain postponed. Planned expenditures of approximately $1.171 million would address the replacement of degritter pumps and reconstruction of primary tanks. Also proposed is the installation of climber screens at a cost of $675,000. RFPs for these interim upgrades have been received based on a Staten Island-wide approach which includes the Oakwood Beach drainage basin. Refer to the Oakwood Beach write-up for more information.

Port Washington, New York (Nassau County)

Completed Project

At an estimated final cost of $400,000, pump and control upgrades were completed during February 2000. This work was performed at two pump stations in order to provide variable speed operation.

Project in Progress

Currently in the bid process, a pilot plant will be 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 is anticipated to be on-line during March 2001 at an estimated cost of $500,000.

Future Project

Planned to begin in the spring of 2001, refurbishing of two pump stations and plant-wide repairs and preventive maintenance, such as roofing and various architectural replacements, will be addressed. Cost estimates are $500,000.

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.

Overall, docking facilities ($18.4 million) are 66% complete. Anticipated to be complete during February 2002, these expenditures are providing for piers at 26th Ward and Wards Island.

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 at the bid stage. RFPs have been received for stabilization.

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 $2.7 million the sewer system expansion in the western section of Rockland County, New York, was completed during September 2000. Phased construction

of gravity sewer lines, force mains and pump stations is now providing service to sections of the Village of Pomona and the Town of Ramapo.

Future Project

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. A new treatment plant will service these villages, as well as the unincorporated portion of western Ramapo. Construction is planned to begin in 2002 at an estimated cost of $72 million.

Springvale Sewerage Corporation, New York (Westchester County)

Completed Project

At a final cost of $30,000, an equalization tank was reconstructed with new walkways, decks, fencing and handrails. The 3-month agenda was complete during June 2000.

Staten Island University Hospital, South, New York (Richmond County)

Completed Project

During December 2000, this facility ceased discharge and diverted all flows to the New York City municipal sewer system for treatment at the Oakwood Beach WPCP. All treatment equipment on the hospital grounds will be sold or destroyed.

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. Estimated costs were not available, however, installations of these new sewers will eliminate I/I problems. In addition, this work will 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 being reviewed 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, 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, Bergen Point, New York (Suffolk County)

Completed Projects

A building is being constructed to house three units for pre-treatment of scavenger waste. This project is nearly complete at an estimated cost of $500,000. Concurrently, the aeration tankage diffusers were replaced at a cost of $3.3 million

Projects in Progress

Several engineering studies are under way and/or nearly complete. In-house interceptor flow studies are under way in order to assess I/I. The sludge process evaluation is being finalized. A report indicating the future needs for scavenger waste disposal in Suffolk County was completed at a cost of $100,000. In addition, three studies have recently been initiated and should be complete during 2001: ultraviolet disinfection, sludge centrifuge dewatering, and extraneous flow reduction. A pilot project to determine the efficiency of using natural gas to fuel boilers and sludge incinerators was recently started by a local power utility.

Equipment replacements, a laboratory expansion, new influent screens, and infrastructure repairs are being addressed under a phased agenda. The costs are re-estimated at $6.5 million. In addition, the blowers are being assessed for replacement. The facility's roof is being replaced at a cost of $1 million. Reconstruction due to storm and fire damage of portions of the incinerator building is 65% complete and will incur costs of $3 million.

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. Final State approval and construction plans are imminent. A construction schedule has not been finalized.

Future Projects

Construction is anticipated to begin during 2001 on a planned $6.4 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.

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 made for $9.1 million. A flow study is under way 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 $9.1 million.

Tallman Island, New York (Queens County)

Project in Progress

At an estimated cost of $14.047 million, construction at this facility has started for plant-wide Step II stabilization improvements.

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

Future Projects

Pumps and instrumentation upgrades are planned for FY'01 at estimated costs of $3.387 million.

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)

Completed Project

Meter testing for chlorination was completed during August 2000.

Projects in Progress

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

Overall, docking facilities ($18.4 million) are 66% complete. Anticipated to be complete during February 2002, these expenditures are providing for piers at Red Hook and Wards Island.

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

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

Project in Progress

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

Wards Island, New York (New York County)

Projects in Progress

Engineering studies costing $2.35 million remain ongoing to determine plant expansion logistics and to conduct an SSES. Additional pilot 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.

An interim plant upgrade and capacity expansion to 275 MGD began during FY'95. These interim measures are necessary so that the facility can maintain permit compliance and improve operating conditions for a variety of processes. All of the activities will take place on the existing plant site and at the Manhattan and Bronx grit chambers.

The major aspects of the three-phase interim upgrade include modifications to the chlorine contact tank, replacement of the disinfection system, upgrading of the plant electrical system, headworks replacement, elimination of two stormwater discharges, a skimmings handling facility, a primary sludge pumping facility, main sewage pump headworks, renovation of the process air system, solids handling, and new metering systems. The grit chambers will be renovated with automated equipment, flow metering and odor controls. Phase 3 will address the plant heating system, new influent gates, final sedimentation tank upgrades, and personnel and administration building upgrades. The cost for the two-year construction schedule is approximately $105 million plus $10 million for construction management. An ultimate capacity expansion to a flow of 330 to 350 MGD will follow the interim phase.

Planned modifications, as delineated in NYC's Nitrogen Control Action Plan, include increased sludge age and biological centrate treatment. These projects began during July 1996 and are expected to incur capital costs of about $3.6 million.

A residuals handling facility ($9.056 million) is 76% complete and is scheduled to be on-line during April 2001. Overall, docking facilities ($18.4 million) are 66% complete. Anticipated to be complete during February 2002, these expenditures are providing for piers at the Red Hook and 26th Ward facilities.

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

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

Projects in Progress

Construction of a totally redundant trickling filter plant is 99% complete and is scheduled to be operational during April 2001. The work includes 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 are re-estimated at $2.1 million.

Future Projects

Proposed for a construction start-up during June 2001, 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

Recently completed at an estimated cost of $588,000, the waste gas burners were replaced with automatic igniters and supporting instrumentation. A backup disinfection system was installed and is in operation.

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.

Six major designs are under way and are scheduled to have construction and installations complete between 2001 and 2003. These capital improvements include Phase II Automation ($4.65 million) which will finalize the remote plant-wide data gathering capabilities and plant process monitoring, installation of gravity belt thickeners ($4.5 million) rehabilitation of the grit handling facilities, new disinfection/dechlorination facilities ($3.9 million), odor controls for sludge storage ($2 million), and primary gravity thickener replacements ($850,000) .

Facility-wide, eight construction and equipment upgrade projects are under way and scheduled to be complete between 2001 and 2003. Modernization improvements include installation of baffles and launders (box conduits conveying particulate matter) to increase the performance in the final clarifiers, Hudson River bulkhead inspection and repairs ($500,000), dewatering facilities ($9 million), engine blower rehabilitation and pump replacement ($10.5 million), fire suppression and alarm system ($6.5 million), potassium permanganate (oxidizing agent for odor control) bulk storage facility ($1 million), primary boiler system additions and replacement of sludge collection and process equipment.

Future Projects

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.

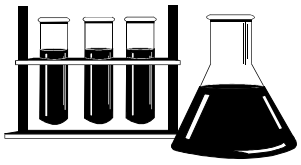
A new maintenance and storage building has been proposed and scheduled to be complete during 2002; cost estimates were not available.

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. These programs remained at reduced levels due to resource limitations. 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.

The summer of 2000 marked the tenth 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 project is performed in support of the Long Island Sound Study and was conducted from July through mid-September in cooperation with several other agencies. During the weekly sampling runs, 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 last 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*.

The R/V Natale Colosi was moved to the New Jersey State Marina at Leonardo during the fall of 1999 so IEC could again participate in a cooperative effort with the New Jersey Department of Environmental Protection and US EPA. In this survey, surface water quality samples were collected to assess the sanitary condition of shellfish beds in western Raritan Bay. All samples were collected subsequent to storm events between December 1999 and March 2000. The Commission plans to conduct sampling in western Raritan Bay throughout the 2000-2001 winter and spring seasons.



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. The laboratory has applied for certification with 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.

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 and 3, 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.

The laboratory assisted NYS DEC, Region 2, in analyzing ambient water quality samples from lakes and ponds located throughout all five New York City boroughs. The 3-year study involves the analysis of a full suite of parameters to determine the general health of urban waterbodies.

During the summer, the laboratory hosted three 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.

STEPPING STONES LIGHTHOUSE, 1877
WESTERN LONG ISLAND SOUND

SPECIAL INTENSIVE SURVEYS

2000 Ambient Water Quality Monitoring in Long Island Sound to Document Dissolved Oxygen Conditions

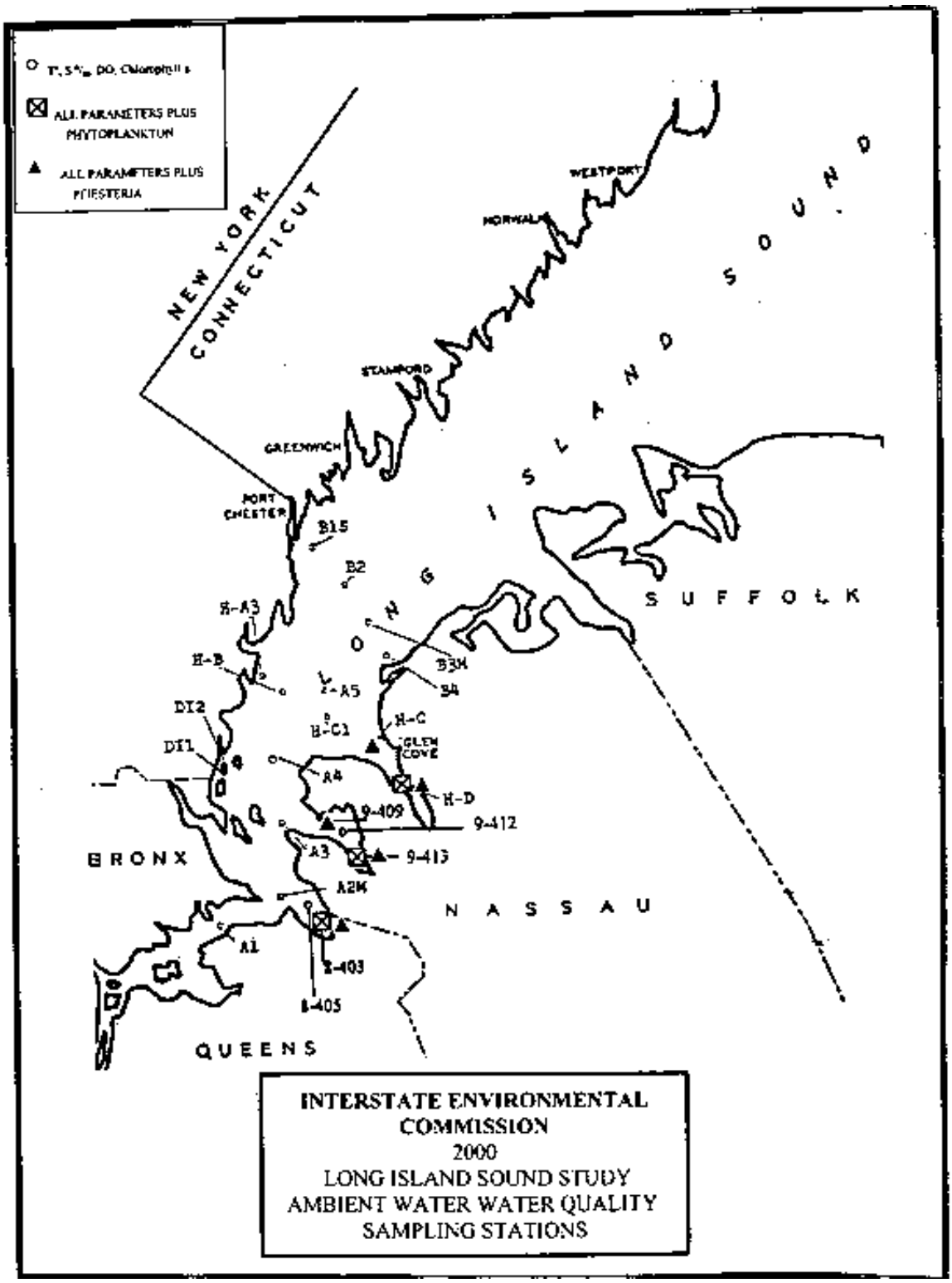
To address an ongoing need to document the hypoxic conditions in Long Island Sound, the US EPA - Region 2 again requested that the Commission conduct an intensive ambient water quality survey in support of the Long Island Sound Study. For the tenth consecutive year, the IEC participated in a cooperative 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 the upper East River. The information will also be used to measure the effectiveness of management activities and programs implemented under the Comprehensive Conservation and Management Plan.

The Commission 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 2000 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, as well as 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 third 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.

Fish kills are common responses to low dissolved oxygen conditions. 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 2000 summer season, there were no reported fish kills. In mid-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 collected by NYC DEP and CT DEP, were filtered, archived and frozen until shipped



INTERSTATE ENVIRONMENTALCOMMISSION

2000 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"

to an independent contract laboratory.

The 2000 survey consisted of 12 weekly sampling runs conducted from July through mid-September. Twenty-one 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, 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.

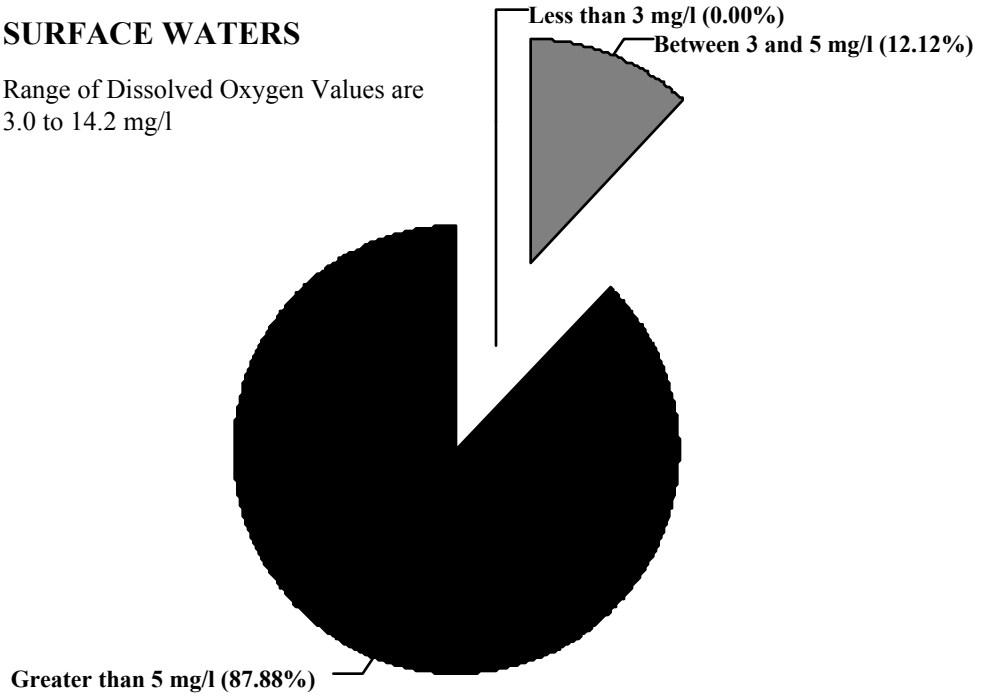
A statistical representation of the dissolved oxygen data acquired during the 2000 ambient water quality monitoring in Long Island Sound is shown on the pie chart entitled "2000 Dissolved Oxygen Monitoring". Measurements of dissolved oxygen concentration in both surface and bottom waters are separated 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 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). As typical, no hypoxic conditions occurred in the surface waters of the Sound; for all stations, the range of dissolved oxygen was 3.0 to 14.2 mg/l. Hypoxic conditions were observed for nearly 16% of the bottom measurements made during the 12-

INTERSTATE ENVIRONMENTAL COMMISSION
LONG ISLAND SOUND STUDY
2000 DISSOLVED OXYGEN MONITORING

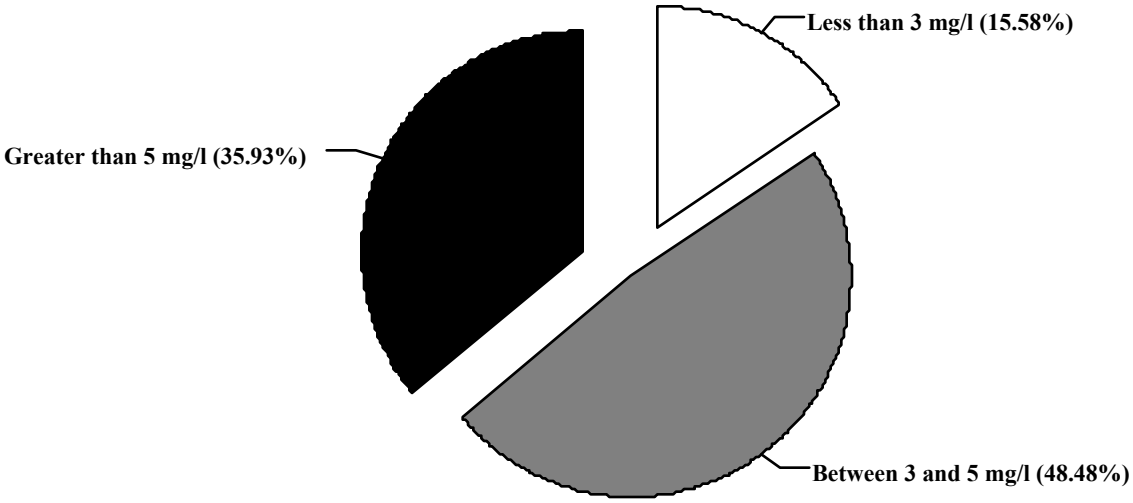
SURFACE AND BOTTOM WATERS

SURFACE WATERS

Range of Dissolved Oxygen Values are 3.0 to 14.2 mg/l



BOTTOM WATERS



Range of Dissolved Oxygen Values are 0.6 to 11.9 mg/l

Surface and bottom waters are shown as a percentage of 231 readings.

week survey; for all bottom stations the dissolved oxygen ranged from 0.6 to 11.9 mg/l. The 2000 hypoxic event lasted from July 10th to July 24th with the lowest DO concentrations measured on July 24th. Except for one station inside Manhasset Bay, all poor dissolved oxygen concentrations were measured in the open water stations.

As shown on the pie charts depicting 1999 and 2000 monitoring data, the condition of the surface waters was somewhat improved in 2000 versus 1999. The 2000 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 87.9%, 12.1% and 0.0%, respectively. In the same category order, the results of the 1999 survey were 73.3%, 26.7% and 0.0%, respectively. According to the measurements of the 2000 survey, 88% of the values measured in the surface waters met the IEC requirement for a "Class A" waterbody versus 73% in 1999. The weather patterns for 1999 were typical of past years: a mild winter followed by a very dry near drought-like spring season followed by a very hot summer with late season torrential rainstorms. In contrast, the 2000 winter was extremely frigid (ice floes present on many waterways) followed by the months of July and August without any 90^0F days, and heavy rains in late July until mid-August causing presumptive beach closures in Nassau and Westchester Counties. The heavy, localized storms (>10" rain as recorded at Central Park, New York) were accompanied by northeast to east winds of over 25 knots.

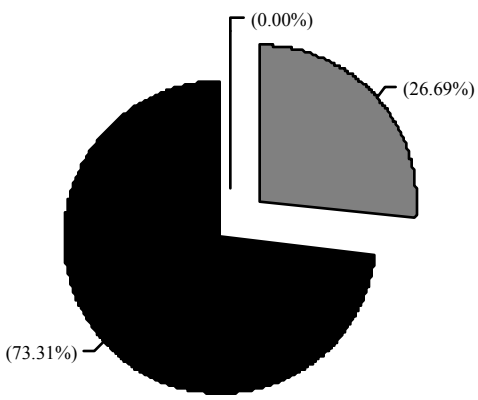
The variations in surface and bottom waters during the summer are predominantly caused by insufficient vertical mixing within the water column. This is primarily a result of water temperature and, to a lesser extent, salinity. During typical northeastern winters, surface waters are cooled by the atmosphere and strong winds. Cold waters are denser and heavier than warm waters. Thus, surface waters tend to sink when they become colder than bottom waters. This circulation pattern continues throughout the winter, promoting vertical mixing within the water column. In contrast, during the summer, surface waters remain warmer than bottom waters because of the sun's radiation. Therefore, circulation does not take place and mixing is only induced by winds or tidal currents. As was previously mentioned, the 1999 and 2000 winter seasons were, on average, three to five degrees warmer resulting in stratification.

There was also some improvement in the bottom waters of the Sound in 2000 as compared to 1999. As displayed in the bottom half of the pie chart entitled "1999 and 2000 Dissolved Oxygen Monitoring", the 2000 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 35.9%, 48.5% and 15.6%, respectively. In the same category order, the bottom water results of the 1999 survey were 22.5%, 52.1% and 25.4%. It is interesting to note that hypoxic levels in bottom waters remained similar from 1995 to 1999, after a considerable improvement from 1994 (33.3% of the values <3 mg/l) to 1995 (21.1% of the values <3 mg/l). According to the measurements of the 2000 survey, 16% of the values measured in the bottom waters were below 3 mg/l versus 25% in 1999. Many different natural and anthropogenic factors (water pollution, municipal water pollution control programs, weather, circulation pattern changes, proliferation or lack of algal blooms, etc.) contribute to hypoxia and year-to-year variability. For 2000, 35.9% 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

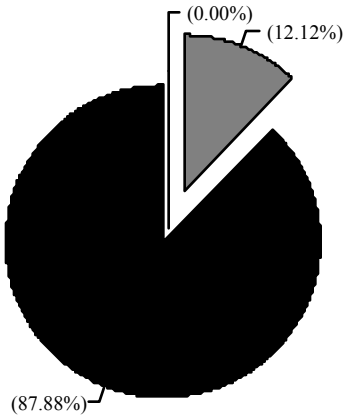
INTERSTATE ENVIRONMENTAL COMMISSION
LONG ISLAND SOUND STUDY

1999-2000 DISSOLVED OXYGEN MONITORING
SURFACE AND BOTTOM WATERS

SURFACE WATERS

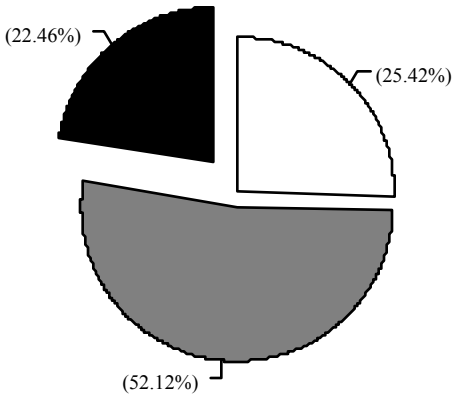


1999

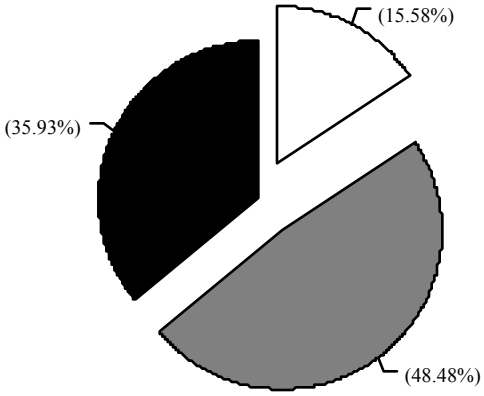


2000

BOTTOM WATERS



1999



2000

Dissolved Oxygen Less Than 3mg/l
Dissolved Oxygen Between 3mg/l and 5mg/l
Dissolved Oxygen Greater Than 5 mg/l

of 5 mg/l for a "Class A" waterbody. Bottom temperatures ranged from 15.6^0 to 22.8^0C.

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 not observed in surface waters during the 2000 sampling; there were no individual surface minimum measurements below 3.0 mg/l. Furthermore, average surface concentrations did not drop below 5.0 mg/l and the maximum surface water dissolved oxygen ranged from 9 to 14.2 mg/l. These high values are indicative of alga respiration. During the extent of the sampling season, a persistent brown algae was present creating very poor underwater visibility. This condition is also confirmed by the highest chlorophyll a concentrations collected in ten years. The highest chlorophyll a values were measured in Manhasset Bay.

The bottom water dissolved oxygen concentration plummeted from July 10th to its lowest value of 0.6 mg/l on July 24th. These values reflect hypoxic conditions. Bottom water DO concentrations increased to above 3 mg/l by the following week, and continued to improve due to ambient conditions of high winds, 100% cloud cover and rain. Although the graph shows the minimum DO below 3 mg/l in late August, this represents only one reading at one station. Interestingly, the low DO concentrations were observed in the open waters of the Sound as opposed to the embayments. Even though ambient temperatures were relatively cool, the bottom DO was poor and no fish kills were observed. Another unique condition in western Long Island Sound is the near absence of lobster. 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 2000 commercial and recreational harvest in the western and central portions of the Sound remained near zero. 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. The US EPA has provided funds for monitoring and to research diseases in lobsters. Congress has appropriated $13.9 million in assistance and research. The State of Connecticut established a Long Island Sound Research Fund to document water quality conditions. The New York State Legislature provided funds to establish a Long Island Marine Disease and Pathology Research Consortium.

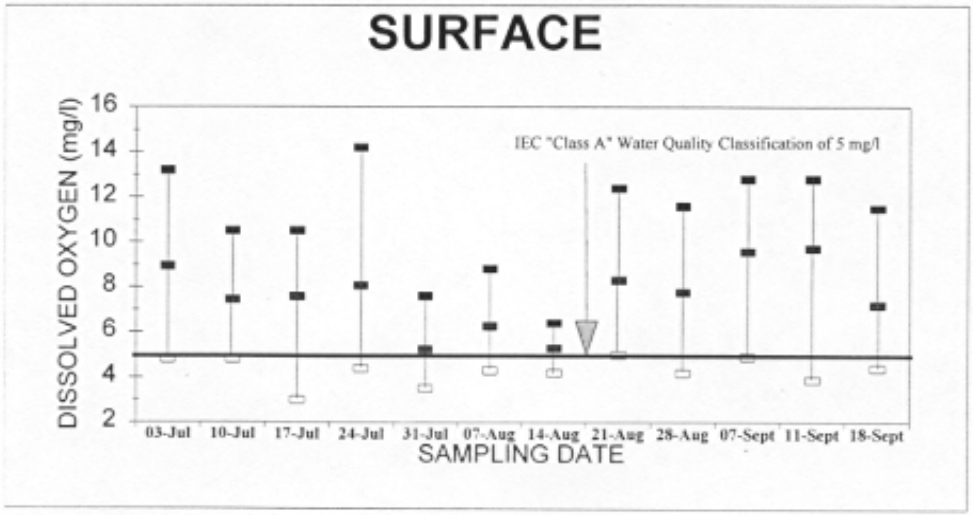
Ambient Water Quality Cooperative Studies

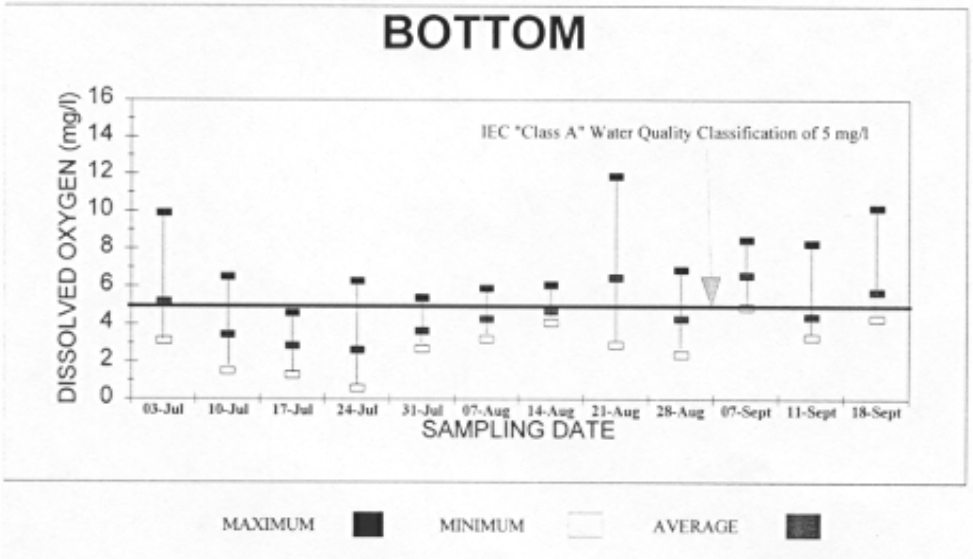
The Commission entered into a cooperative arrangement with Nassau County Health Department in order for the NCHD to be able to characterize normal and excessive phytoplankton conditions in three embayments of western Long Island Sound. Excessive phytoplankton caused by nutrient enrichment in Long Island Sound can contribute to the Sound's hypoxic conditions.

For the third consecutive year, during each of IEC's 12 weekly Long Island Sound sampling

INTERSTATE ENVIRONMENTAL COMMISSION
LONG ISLAND SOUND STUDY
2000 DISSOLVED OXYGEN MONITORING

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





surveys, additional water quality samples were collected, preserved and kept on ice until delivery by sea to NCHD. The NCHD subsequently carried out phytoplankton species identification — dominant, most prevalent and nuisance species. The water quality samples for phytoplankton identification 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 80^0F with salinity below 15 $^0/_{00}$.

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 the Commission's September 18th 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 — was recorded, as well as other general observations at the time of collection.

Since December 1997, IEC and NYS DEC - Region 2 have been collaborating on a water quality assessment project within New York City. The project is being used to assess the overall health of lakes and ponds that are located in all five boroughs of New York City. This local lake survey is a subset of a statewide assessment. Surface water quality samples were collected by NYS DEC staff and then delivered to the IEC laboratory for a variety of analyses (21 different parameters) including, but not limited to heavy metals, nutrients, coliforms and chlorophylls. During the first set of samplings, the lakes monitored were: Richmondtown Mill Pond (S.I.), Wolfe's Pond (S.I.), Harlem Meer (Manhattan), Van Cortlandt Lake (Bronx), Prospect Park (Brooklyn), Conselyea's Pond (Queens), Meadow Lake (Queens), Kissena Lake (Queens), and Oakland Lake (Queens).

During 2000, the majority of the lakes monitored were located on Staten Island (Richmond County),New York: Arbutus Lake, Brady's Pond, Brooks Lake, Cameron Lake, Eibs Pond, Ohrbach Lake and Sharrots Pond. The remaining waterbodies are located in Queens County, New York: Baisley's Pond and Springfield Park Pond.

1999-2000 Microbiological Surveys in the Shellfish Harvesting Waters of Western Raritan Bay

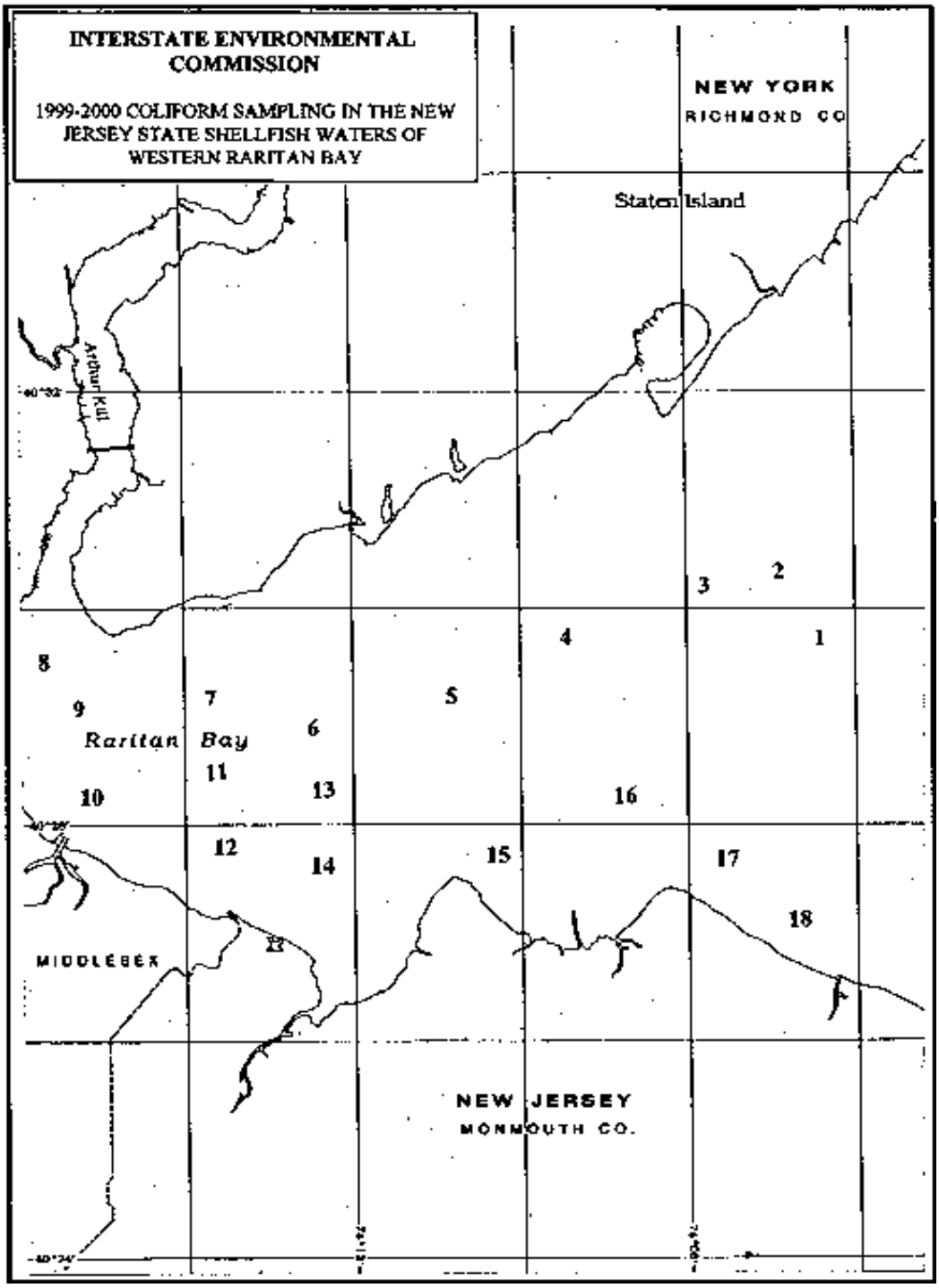
The New Jersey Department of Environmental Protection, Bureau of Marine Water Classification and Analysis (BMWCA), regularly conducts ambient water quality monitoring of the State's 750,000 acres of shellfish harvesting beds. In order to meet the increasing demands for sampling that the shellfish industry has requested, accompanied by a shortfall in staffing, the BMWCA requested the IEC, for the fifth consecutive year, to assist in sample collection in western Raritan Bay during the 1999-2000 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 mid-November 1999, the R/V Natale Colosi was moved to and berthed at the Leonardo State Marina which is operated by the NJ DEP. From November 1999 until mid-April 2000, two survey runs were completed. All sample collection, storage and delivery to the US EPA Edison laboratory adhered to chain of custody procedures and followed standard operating methods as outlined in the NJ DEP Field Sampling Procedures Manual. The Commission, at the request of BMWCA, will again conduct this survey over the 2000-2001 winter and spring seasons.

Great Kills Park Multi-Agency Microbiological Survey

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 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. As of April 1999, NYC DEP



INTERSTATE ENVIRONMENTAL COMMISSION

1999-2000 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

determined that the Oakwood Beach neighborhood that is north of Great Kills Harbor has 500 homes connected to the sanitary sewer, 142 homes with no connection records, and 35 homes that are not connected.

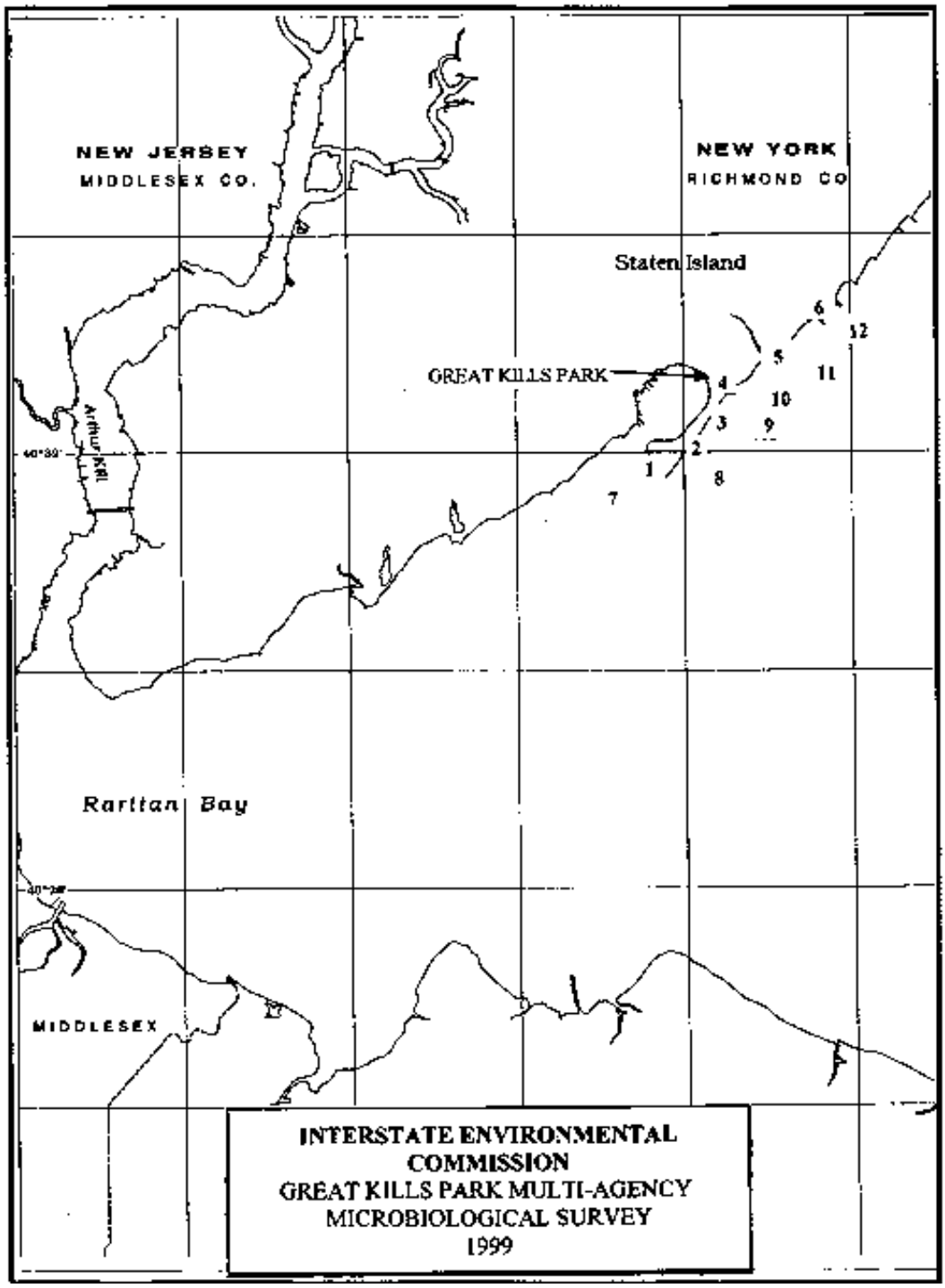
Meetings were conducted prior to the 1999 bathing beach season in order to create a sampling program to locate the source of the bacteria. With staff restrictions/commitments and laboratory capacity limitations, a cooperative water quality sampling and analysis program was devised. Those entities participating 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 and is shown on the following page.

A multi-phase sampling program was conducted in 1999. Phase One entailed sampling every two hours throughout a complete tidal cycle under dry weather conditions (no significant rain during the previous 48-hour period) and conducted prior to the bathing season on May 11th (the 1999 beach opening was May 29th on Memorial Day weekend). 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. The IEC lab analyzed for fecal and total coliforms, fecal streptococcus and enterococcus. In addition, the sampling teams collected additional samples for a NYC DEP contract lab to perform coliphage determinations. Prior to the first sample, NYC DEP established a steady state dye concentration release in Fox Creek prior to its confluence with Raritan Bay, and 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.

Phase Two was initiated subsequent to additional beach closures due to high coliform readings in late July. This phase entailed daily sampling of all twelve stations for eight days: July 27th to 29th and August 2nd to 6th. NYS DEC and NYC DEP personnel collected samples as in Phase One; IEC performed the analyses for fecal and total coliforms, fecal streptococcus and enterococcus; and CSI assisted with the display and analysis of the results. All bird population observations were conducted by NPS staff.

IEC coordinated weekly logistics and summarized and disseminated all results, as well as related research information supplied by the other participants.

While Station #5, the Fox Creek inshore location, showed the highest concentrations of bacteria on both the ebb and flood tides, the results, in general, were inconclusive and the source(s) of the bacteria that was causing contravention of bathing beach criteria remained unknown. In addition to these field collections,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, illegal sanitary hookups from residential or commercial buildings, avian sources, or boat discharges.

Based upon the weekly water quality beach monitoring conducted routinely by NPS, Great Kills Beach was again closed in late August through September 6th, 1999, which encompassed the Labor Day Weekend. The agencies agreed to initiate Phase Three which entailed onshore water quality sampling of Stations #1 through #6 every Monday for four weeks. The stations were sampled by NYS DEC staff and delivered to the IEC laboratory for analysis.

The results of Phase Three 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' Water Quality Sampling Program, 1980 to 1999, inclusive, were reviewed.

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. 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. 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 by NYC DOH, 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 in which samples would be collected by NYS DEC and analyzed by IEC for fecal and total coliforms. Concurrently, NYC DEP would conduct 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. The IEC was designated the lead agency to coordinate sampling, disseminate all IEC laboratory results, as well as the NPS weekly beach sampling results. Additional sampling would be undertaken if the weekly NPS threshold of fecal or total coliform was exceeded.

During the June reconnaissance, a new sampling site, locally known as "the bog", was designated station #4A. A walk through of Fox Creek found contractors rebuilding a portion of the creek outfall, re-contouring of the wetlands south and north of the creek, planting trees, shrubs and grass, as well as installing an automatic storm retention gate on the north fork of Fox Creek. It was agreed that if additional sampling was necessary, samples would be collected in the north and south forks of the creek. On July 11th, the full tidal cycle sampling was carried out. In order to accommodate the large volume of samples, IEC purchased a new dry incubator and NYC DEP loaned and delivered water baths. Again the results were inconclusive, although there were elevated bacteria

concentrations at Fox Creek, station #5.

On August 23rd, 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 August 24th. Water quality samples were taken at all onshore stations #1 through #6, as well as "the bog" (#4A) and 2 stations in Fox Creek: #5A (north branch upstream of the storm gate) and #5B (south branch); a map of these nine stations and a station list are on the following pages.

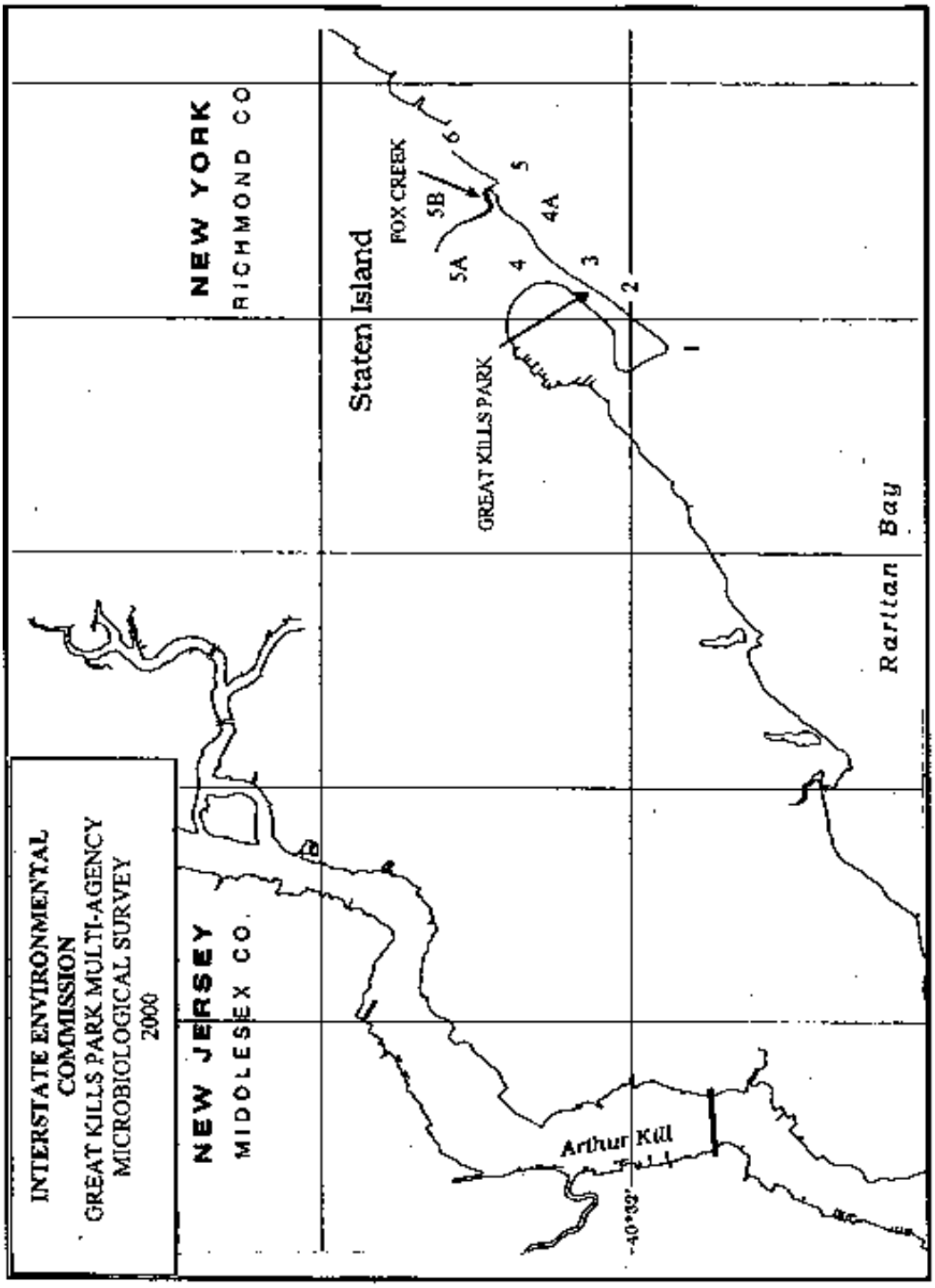
Although the source of the bacterial contamination at Great Kills still has not been identified, additional sampling efforts indicated that Fox Creek and the immediate neighborhood surrounding the creek are contributing to the poor water quality. The results of the contingency response plan and the NPS beach closure criteria are included in the aforementioned table. The beach officially closed on September 4, 2000, 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.

2000 BOAT INSPECTION TRIP

The Commission's 2000 boat inspection trip focused on Long Island Sound. The annual inspection trip provides an excellent opportunity for public officials and other parties interested in protecting the environment to view and discuss water quality issues affecting the Region. The 2000 Boat Inspection Trip was held on August 2nd and covered the upper East River and western Long Island Sound. On the southern side of the Sound, the trip included Little Neck Bay, Manhasset Bay, Hempstead Harbor, Oyster Bay and Huntington Harbor. Crossing the Sound to its northern shoreline, the trip covered Norwalk, Stamford and Greenwich, Connecticut, and New York's shorelines of Westchester and Bronx Counties. The map on the following page shows the six-hour route which was traversed, covering over 70 nautical miles. The waters inspected during the trip provide for recreational powerboating and sailing; the use of canoes, kayaks and sculls; and a major sea-lane for the eastern seaboard. Other primary contact activities supported by these waters include commercial and recreational fishing, shellfishing, crabbing and lobstering; scuba diving; swimming; jet skiing; parasailing; waterskiing; and windsurfing.

IEC Commissioners, officials from all levels of government, citizen groups, and the press viewed bathing beaches and seaside parks, commercial oyster operations, numerous party boats and small recreational vessels, sailing clubs comprised of dozens of vessels, tug and barge transports, urban and maritime industries, historical landmarks and shipwreck sites. The lobster die-off that



INTERSTATE ENVIRONMENTAL COMMISSION

GREAT KILLS PARK
MULTI-AGENCY MICROBIOLOGICAL SURVEY

CONTINGENCY PLAN RESPONSE TO
ELEVATED COLIFORMS VALUES
AUGUST 24, 2000

STATION	TIME (DST)	TC (MPN)	FC (MPN)	STATION DESCRIPTION
1	12:41	230	230	CROOKES POINT - ON SHORE
2	12:32	930	930	GREAT KILLS BEACH - ON SHORE
3	12:20	230	230	GREAT KILLS BEACH - ON SHORE
4	12:15	230	230	GREAT KILLS BEACH - ON SHORE
4A	12:05	930	930	THE BOG - ON SHORE
5	10:45	430	750	FOX CREEK
5A	10:55	11000	2100	FOX CREEK- NORTH BRANCH ABOVE STORM GATE
5B	11:03	11000	4600	FOX CREEK - SOUTH BRANCH
6	10:37	40	<30	NORTH OF FOX CREEK - ON SHORE

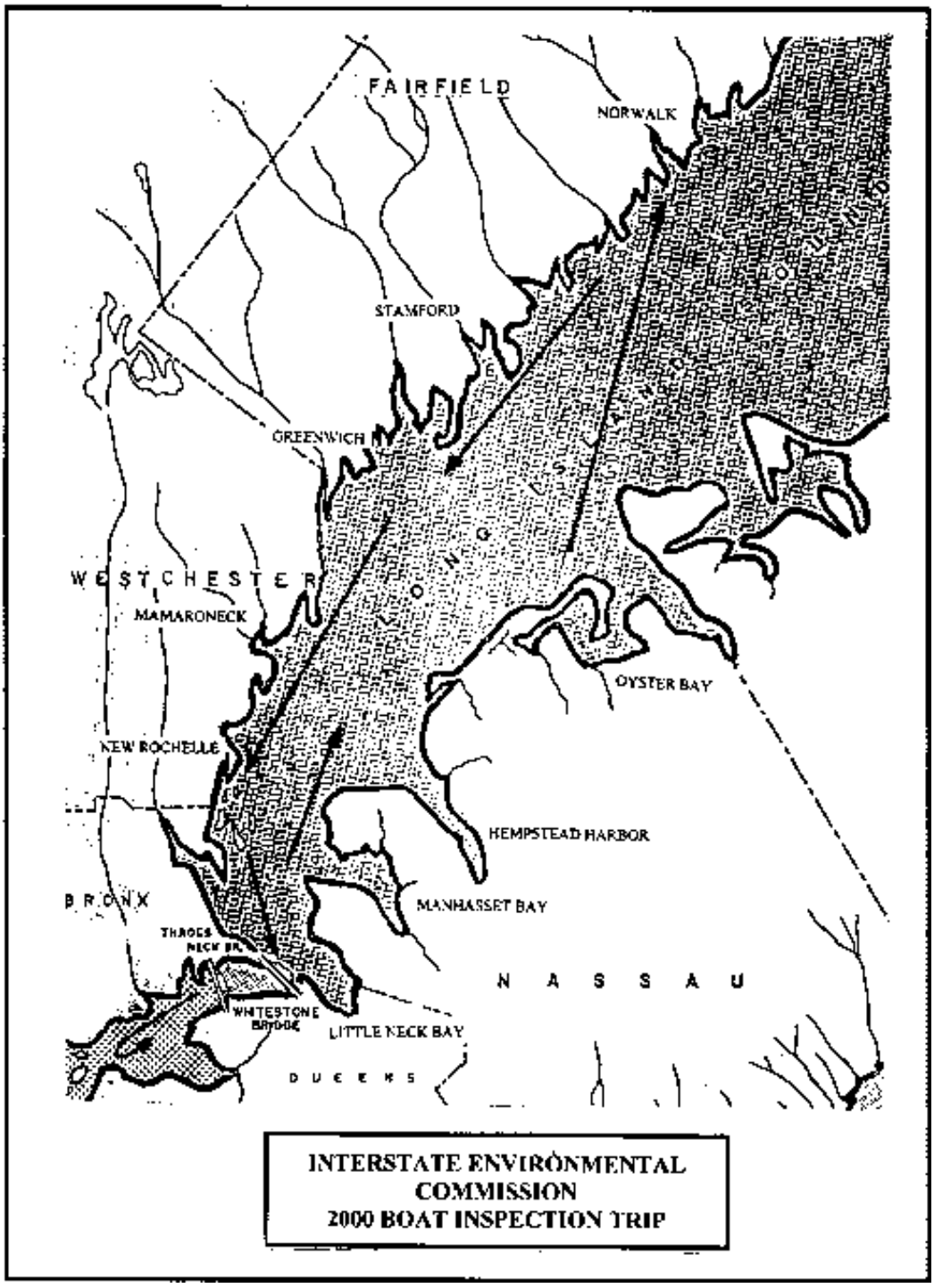
National Park Service Bathing Beach Criteria
Single Values That Trigger Additional Sampling
Fecal Coliform: 200/100 ml
Total Colifom: 2,400/100 ml

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

GREAT KILLS PARK MULTI-AGENCY
MICROBIOLOGICAL SURVEY

STATION #4A, THE BOG, LOCATED NORTH OF GREAT KILLS BEACH

STATION #5A, NORTH BRANCH OF FOX CREEK AT
NEWLY CONSTRUCTED STORM GATE



began in the fall of 1999 and literally devastated the 2000 harvest season in western Long Island Sound was conspicuously evident by the absence of lobster pot markers and lobster boats. A running dialogue of water quality issues, sights and points of interest, recommended fishing and scuba diving sites, as well as local lore dealing with lighthouses, embattlements and shipwrecks were provided throughout the trip.

The attendees viewed ongoing waterfront development, sewage treatment plants, sludge dewatering facilities, prison facilities, electrical/steam generating stations, closed landfills (one of which is being converted to a public golf course), and CSO outfalls in the upper East River. Due to the recent rain events, the waters were dotted with floatables — wood, tree limbs, plastics, styrofoam, and bottles — undoubtably originating from CSOs, SSOs and resuspension from the shorelines.

Attendees enjoyed skyline views; the magnificent homes of Fairfield County; and fragile bird sanctuaries on North and South Brother Islands in the East River, on Huckleberry Island off the Westchester County shore, and on Tavern Island in Sheffield Island Harbor. The inspection trip gave the attendees a firsthand view of the progress that has been made and some of the problems that must still be addressed in the Region.

REGIONAL BYPASS 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, US EPA, US FDA, NYC DEP, and county health officials. The Work Group has expanded to include the US Coast Guard and National Park Service. 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 two calendar years that the model and notification protocols were in place, 1998 and 1999, the Commission received 94 and 97 phone calls and/or E-mail messages, respectively, with regards to unplanned spills within the Interstate Environmental District. The 88 bypass events for the period January to November 15, 2000 is as follows:

	Total Calls in 1999	% of Total	Total Calls in 2000	% of Total
Connecticut	2	2%	5	5.7%
New Jersey	9	9.3%	10	11.3%
New York	86	88.7%	73	83.0%

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:

	Total NY Calls in 1999	Total NY Calls in 2000
Region 1 (Nassau/Suffolk)	2	4
Region 2 (5 NYC Boroughs)	79	61
Region 3 (Westchester/Rockland)	5	8

(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 (~0.0005 MG) or ongoing investigations of illegal discharges were reported by mail. During 2000, the common causes for bypass events were power and mechanical failures at pump stations, pipe breaks and regulator blockages, disinfection system failures and spills caused by vehicle accident or human error. In addition, five bypasses occurred due to intensive storm events. The 88 bypass events were comprised of raw sewage (75), sludge (7), treatment reduction (1), gasoline (1), diesel (3) and chemical (1).

Most significantly, during the period May 28 through September 3, 2000, which represents the "official" bathing season (Memorial Day to Labor Day) 37 releases or 42% of the total occurred. Compared to the bathing seasons for the prior two years, 57 events or 61% of the total occurred in 1998 and 30 events or 32% of the total in occurred in 1999. During late July and August, intensive, localized storms caused many presumptive beach closures in Nassau and Westchester Counties,New York and southwestern Connecticut. A ship collision in Raritan Bay causing the release of diesel fuel required NJDEP to close the shellfish beds from September 15 to 22, 2000. Planned for the pre-2000 bathing season,a general meeting will be hosted by the Commission to update protocols.

US Coast Guard, Pollution Response

Stimulated by the Commission's 1999 Annual Report, the US Coast Guard contacted IEC last February to discuss cooperative field observations. A meeting was held at the Commission offices in order to discuss agency procedures dealing with dry weather inspection of combined sewer overflows, notification protocols, and combined efforts for waterway cruises to observe illegal discharges throughout the New York Harbor Complex which is encompassed by the Interstate Environmental District. In order to help educate the recreational boating community in preparation of OpSail 2000, IEC was able to supply this unit with pamphlets listing pumpout facilities in both New York and New Jersey.

So that the US Coast Guard, Pollution Response team could better understand the logistics of sewage treatment, a tour of NYC DEP's Tallman Island WPCP was coordinated by IEC and took place during April, 2000. The trip consisted of viewing videos dealing with treatment technologies, infrastructure, and disposal of waste streams, and a tour of the plant's process units from influent to

discharge into the East River.

This US Coast Guard unit was added to the Regional Bypass Work Group notification protocols list. During the course of the year, several incidents were reported by the USCG including a large diesel fuel spill at NWS Earle, Leonardo, New Jersey, located in Raritan Bay.

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 2000 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.

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

1999 INDIVIDUAL USE SUPPORT IN THE INTERSTATE SANITATION DISTRICT

Designated Use	Total Square Miles Surveyed	Percent Good (Fully Supporting)	Good (Threatened)	Fair (Partially Supporting)	Poor (Not Supporting)	Poor (Not Attainable)
ESTUARIES (Total Square Miles = 797.55)						
AQUATIC LIFE	387.0	41.89	35.00	13.76	9.35	0.00
FISH CONSUMPTION	797.55	16.93	0.00	79.21	3.86	0.00
SHELLFISH CONSUMPTION	797.5	39.14	0.00	19.42	41.44	0.00
PRIMARY CONTACT	797.5	74.52	0.00	3.69	13.52	8.27
SECONDARY CONTACT	797.55	100.00	0.00	0.00	0.00	0.00

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

Public Health Service, since the 1960s the US EPA took responsibility of the computerized National Water STOrage and RETrieval (STORET) system for housing, managing, and analyzing 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 exists in the STORET system.

The original database underwent a modernization overhaul between 1991 and 1998. The Commission is currently up-to-date in suppling its water quality data in the reformatted version. The Commission's input is represented by over 23,000 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 the Surface Water Quality Standards for the Marine Waters of Connecticut

US EPA has come out with a draft guidance for dissolved oxygen (DO) in marine waters. Based on this, CT DEP developed a proposal to revise the DO standard in some of their Long Island Sound waters, and they held a public hearing in April 2000. Since the interstate waters in Connecticut and New York are also within the Commission's jurisdiction, 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 in Long Island Sound and/or other waters. Thus, the Commission reviewed Connecticut's DO proposal and submitted comments for the record.

Connecticut's current standard for marine dissolved oxygen in the offshore waters of Long Island Sound is a single standard of 6 mg/l. They are proposing to retain the existing standard for the offshore top waters above the pycnocline. However, for the offshore waters below the pycnocline, they are proposing maximum and minimum dissolved oxygen criteria for "a number of days not to be exceeded", and it ranges from 4.8 to 4.3 mg/l for up to 24 days, 4.3 to 3.8 mg/l for 13 days, and 3.8 down to 3.5 mg/l for 7 days. While this proposal would change some of the numerical DO criteria, CT DEP is not proposing a revision of the use classifications and goals, that is, the waters would still be designated to support the same use classifications and goals. NYS DEC is also planning to propose revised marine DO criteria for its portion of Long Island Sound. The CT DEP hearing officer's report on their proposal has not yet been issued.

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 2000, 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.

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. Major issues addressed by the MCWG included establishment of a HEP office, status of individual work groups, data management, stakeholder level of involvement, interaction between agencies, scheduling issues, financial need, document development, and the level of public involvement and education.

The Nutrient, Pathogen 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.

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 2000, 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, 2000, a total of 60 outfalls were inspected during dry weather; 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.

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, formed in December 1996, is a networking partnership of 14 citizen organizations and government agencies working to increase coordination between water quality monitoring programs in LIS 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. A Commission staff member 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

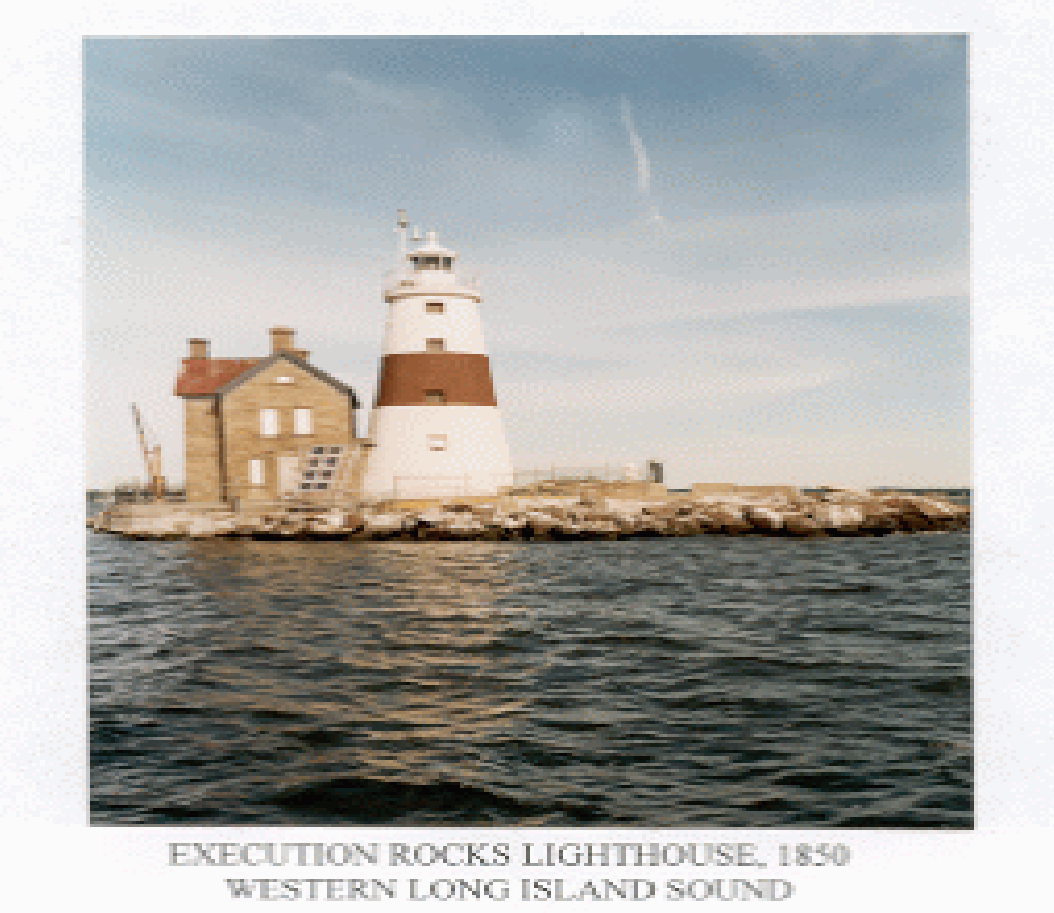
The River Project operates a marine biology monitoring station on Pier 26 which is located on the lower Hudson River in New York City. This non-profit environmental organization is dedicated to the protection and restoration of the Hudson River ecosystem through scientific research and hands-on educational 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. This past 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.



EXECUTION ROCKS LIGHTHOUSE, 1850
WESTERN LONG ISLAND SOUND

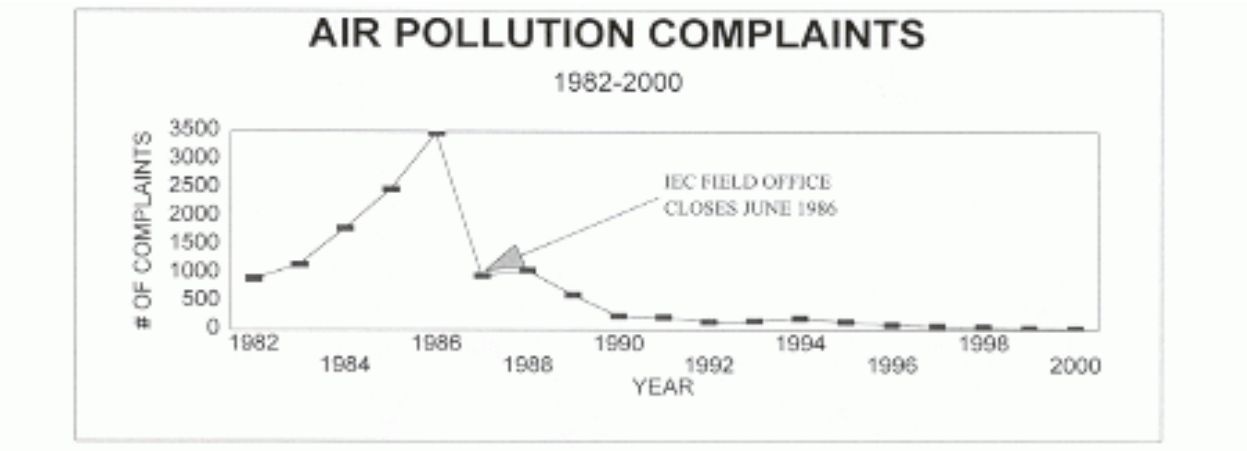
III. AIR POLLUTION

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 2000.

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 18 complaints were received during 2000 and, most significantly, no garbage odors were reported to the Commission.



AIR POLLUTION COMPLAINTS

Staten Island remains as the source of more citizens' complaints than any other area in the Interstate Environmental District. 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 2000 reporting period, complaints were received from 12 different neighborhoods with the majority coming from the northern portion of the Island. 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, 2000, the Commission received a total of 18 complaints; this represents a decrease of 30% from the previous 12-month period. Note that there were 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 7-year period was dwarfed by the thousands of odor complaints registered between 1982 and 1988. Of the 18 complaints received this year, a total of 17 — or over 94% of the complaints — 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 two complaints to the Commission during the reporting period. These neighborhoods represented approximately 38.8% of the total complaints received. Ten 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 majority of the neighborhoods were along the northern Staten Island-Hudson County, New Jersey border. The one complaint not from Staten Island was received from another New York City borough.

Odors were classified into seven categories. The "coffee" category was reported most

DISTRIBUTION OF AIR POLLUTION COMPLAINTS BY COMMUNITY ON STATEN ISLAND FROM OCTOBER 1999 TO SEPTEMBER 2000

COMMUNITY	COMPLAINTS	
	NUMBER	% TOTAL
RICHMOND TERRACE	5	27.85
NEW SPRINGVILLE	2	11.10
ARDEN HEIGHTS	1	5.55
CASTLETON CORNERS	1	5.55
GREAT KILLS	1	5.55
MARINER'S HARBOR	1	5.55
OAKWOOD	1	5.55
OAKWOOD HEIGHTS	1	5.55
PRINCE'S BAY	1	5.55
ST. GEORGE	1	5.55
VILLAGE GREENS	1	5.55
WOODROW	1	5.55
OTHER NON-STATEN ISLAND*	1	5.55
TOTAL	18	100

C REPRESENTS COMPLAINTS RECEIVED FROM OTHER NEW YORK CITY BOROUGHS AND NEW JERSEY.

DISTRIBUTION OF AIR POLLUTION COMPLAINTS BY TYPE OF ODOR FROM STATEN ISLAND COMMUNITIES FROM OCTOBER 1999 TO SEPTEMBER 2000

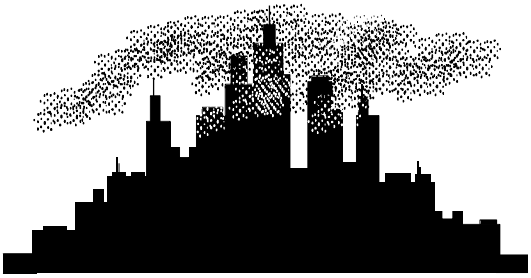
TYPE OF ODOR	COMPLAINTS	
	NUMBER	% TOTAL
COFFEE	4	22.20
URINE	3	16.70
SMOKE	2	11.10
CHEMICAL	1	5.55
GARLIC	1	5.55
GAS	1	5.55
ROTTEN EGGS	1	5.55
OTHER*	5	27.80
TOTAL	18	100

C REPRESENTS ODORS NOT SPECIFICALLY IDENTIFIED BY THE COMPLAINANT.

frequently, representing over 22% of the total. 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 first time that the nuisance odor category of "garbage " was not registered. Citizen complaints are the most frequent source of firsthand information about poor air quality. The odors are usually detected by persons who do not have special knowledge or training in identifying problem emissions; it is their accurate odor descriptions that could lead to the sources of odors.

OZONE HEALTH MESSAGE SYSTEM

For the thirteenth 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 — developed as a cooperative effort by the Commission and environmental and health representatives from the States of New Jersey, New York and Connecticut, New York City and the US EPA — 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 2000, 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 17 ozone and 20 fine particulate advisories from the New Jersey Department of Environmental Protection between June 1st and September 11th. Individual states issue their own health messages which identify specific counties where ozone levels are a special health threat. During 2000, 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 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 might be 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. 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 the Commission's activity, albeit behind the scenes, to provide background and history to community groups seeking information, in particular, community groups involved with the process of siting for garbage disposal in the anticipated wake of the closure of the Fresh Kills Landfill in the year 2001. This summary is by no means meant to be all inclusive, but rather highlights significant legal activities.

For significant portions of 2000, Legal Counsel devoted substantial efforts to ensuring that the Commission was situated to answer an appeal, filed in New Jersey's intermediate Appellate Court by the Passaic Valley Sewerage Commissioners, from an administrative determination favorable to the Commission. The Commission secured the required New Jersey counsel and filed the necessary preliminary documents. The Appellate Court granted the Commission's request for IEC Legal Counsel, who is not a New Jersey practitioner, to appear on behalf of the Commission for the PVSC case only.

The Commission continued to work to ensure that regardless of the pending closure of the Fresh Kills Landfill, that appropriate monitoring and review of procedures would remain in place to guarantee that gains fought for and achieved in preceding years, would be assured.

Aided by the New Jersey Attorney General's Office and the Township of Woodbridge, the IEC continued to work toward the implementation of broad directives that will assist in ensuring that the waters in and around the New York-New Jersey Harbor will be protected from floatable debris emanating from the Fresh Kills Landfill. Toward that end, the parties stipulated to a change in the original Order, providing for alternative fencing, that was approved by the federal Court.

To the extent that an accommodation can be reached with the parties to the federal and state cases pending on nitrogen impacts to the Long Island Sound and East River, it could serve as a prototype for the other settlements.

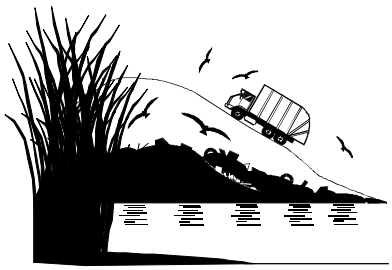
The Commission continued its participation in a clearinghouse to attract area law students who are interested in environmental affairs to work as legal interns, gaining course credit and/or valuable experience in the process. One intern worked for part of the spring and summer under this

program. This program has proven successful in that the interns gain valuable experience and the Commission gets assistance for its Legal Counsel.

LITIGATION AGAINST NEW YORK CITY'S OPERATION OF THE FRESH KILLS LANDFILL

Action by the federal Court to approve a Stipulation and Order agreed upon by the parties, came about in mid-November 2000. This most recent Court Order altered one of the main provisions of the September 1997 Court Order, pertaining to the Fresh Kills Landfill, requiring the extension of the marine fence in the water. Engineers for the City and an Independent Expert (IE), as well as an Independent Monitor for the parties, agreed that alternative measures including shoreline cleanup and the addition of more feet of land based fence, could have the same preventative effect as extending the marine fence. The alternatives have the added attraction of being less costly and do not require the City to secure permits. The lack of unanimity among the parties prior to securing this 2000 Court Order, accounted for a protracted negotiation among the parties during 2000.

One of the main tenets of the substitution — the shoreline cleanup — has already come into question. Some areas of the shoreline at the landfill are located on steep slopes, teeming with debris. The location, with the attendant difficulty of reaching these areas, even prevented City employees from attempting an extraction of debris. The Independent Expert, ordered by the federal Court, dispatched his personnel in flat bottom boats in November, hoping to retrieve debris from the slopes. It became readily apparent that attempts to retrieve debris with cherry pickers and the like, was simply not feasible. Although there has been some discussion of using riprap for stabilization and to prevent the debris from escaping from the landfill, there is not yet uniform agreement among the parties. Any solution proposed would be in place for the long-term, thus it would have to be shown to be reliable. This is a fertile area for development during 2001, as the landfill closure approaches.



It would appear that as closure approaches, little should remain in dispute among the parties. That is not entirely the case. The extent and breadth of the shoreline cleanup; maintaining the schedule for fence construction; 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, remain in contention. These will remain ripe areas for exploration, since post closure, the landfill will be used for receiving containerized garbage for transport elsewhere. In June, the Commission produced a report documenting two serious violations per week for a 15-month period from January 1999 ending with March 2000. These violations are embodied in "Awareness Reports" issued by the City itself. There continue to be issues relative to the inter-relationship of the IMT and the IE. The City and the plaintiffs have divergent points of view, with the plaintiffs taking the view that the IMT's advice and observations do not require IE approval, and the City taking the view that

the IE's word is paramount.

With respect to quarterly reports issued by the IE and the IMT, the required four have been produced, respectively, including an IE's analysis of water quality, undertaken in the summer and fall of 2000. The parties are of different minds regarding the areas and the methods used for some of the trawling studies. An opinion from an engineer with the plaintiffs' representative on the IMT has been sought.

The earlier references to the IE and IMT were grounded 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 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 the year to date.

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

Closure

As a result of waste diversion contracts and recycling, Fresh Kills has been accepting less than 3,000 tons per day of waste since mid-June. This has not come about without a struggle. Numerous lawsuits from Union County, New Jersey, to Greenpoint/Williamsburg, Brooklyn, New York, have been brought and disposed of.

In late April, the City and State signed a modified Consent Order that would have the City agree to penalties for failure to close the landfill on time — December 31, 2001. The new Consent Order also defined requirements for items such as capping and the like.

Linden, New Jersey, is planning to build a transfer station with a capacity of 10,000 tons per day to accommodate New York City's garbage. Garbage will be barged to Linden and will leave, via rail, after it is containerized. The final destination will be the Midwest or the Southeast for landfilling. The final Solid Waste Management Plan recently received the endorsement of the City Council. The City continues to supply the plaintiffs with timely reports on closure.

IMPACTS FROM NEW YORK CITY SEWAGE TREATMENT PLANTS

Nitrogen limits, removal and its effects

An impending global settlement is in the final drafting stages as a result of the outgrowth of two lawsuits — one in federal Court and one in state Court —filed against the City, for violating environmental regulations related to the discharge of nitrogen.

Details of the settlement are sketchy, however, the more salient features appear to be an agreement on a long-term treatment plan for nitrogen removal, continued monitoring, stipulated penalties and,in the federal case,the imposition of a $4 million fund for supplemental environmental projects. Stipulated upgrades will include improvements to the East River and to Newtown Creek, as well as other improvements. Settlement talks followed a lengthy discovery period, extending well beyond the spring and summer which ultimately resulted in the negotiations now ongoing.

The Commission did not participate in either case as a party, 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. 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 Commission successfully defended its right to have the Commission's regulations specifically referenced in the NJPDES permit issued for the Passaic Valley Sewerage Commissioners (PVSC). In an administrative proceeding before the Office of Administrative Law, which closed the record following argument on December 21,1999, the judge granted the IEC's and NJ DEP's motions for summary judgement on the law on February 16, 2000.

The ALJ's Final Decision concluded that the IEC has authority to regulate effluent in the IEC District, including effluent from PVSC. Accordingly, NJ DEP should have included in the final permit the language that had been included in the draft permit. The draft permit included IEC's Water Quality Regulations and required PVSC to comply with them.

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, adopting 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 parameters 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. Morever, 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; etc.

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 interest 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.

On June 15, 2000, the Commission and NJ DEP were notified of an appeal on behalf of PVSC, when a copy of a Notice of Appeal filed with the Appellate Division of the Superior Court of New Jersey was received. This is an appeal from the final Administrative Decision of the New Jersey Commissioner of NJDEP in favor of the IEC. PVSC raised the following issues in its appeal:

- Was the action by NJ DEP omitting IEC's Water Quality Regulations as Permit conditions in PVSC's permit arbitrary, capricious and unreasonable?
- Was the Decision of the ALJ upholding IEC's challenge to PVSC's Permit an abuse of discretion?
- Did the NJ DEP Commissioner properly uphold the ALJ's Decision?

The Commission retained the services of an attorney admitted to practice in New Jersey, a New Jersey requirement. At the same time, a motion for the Commission Counsel to be admitted to the New Jersey Superior Court for purposes of arguing the PVSC case only, was prepared. This is known as a *pro hac vice* motion. The Commission and the NJ Attorney General's Office were then required to file a Case Information Statement, without which the case cannot receive a briefing schedule. The Commission's Case Information Statement was filed along with the *pro hac vice* motion in mid-July.

On September 13, 2000, the Commission was notified that on August 21, the Superior Court of the State of New Jersey, Appellate Division, granted the IEC's motion to permit Counsel to appear *pro hac vice*. This will enable Counsel for the IEC to appear for the purpose of briefing and arguing the PVSC matter for purposes of this appeal only, as Counsel is not admitted to practice in New Jersey.

In mid-November the Appellate Court of the Superior Court of New Jersey advised the parties of a briefing schedule that would require PVSC to file their brief on December 29 and have IEC and NJ DEP reply by January 29, 2001. PVSC would have to reply by February 1, 2001.

WASTEWATER TREATMENT PLANTS DISCHARGI
INTO INTERSTATE ENVIRONMENTAL DISTRICT WATE

2000

PLANT	IEC RECEIVING WATER CLASSIFICATION	DATE OF CONSTR.	FLOW AVG. (MGD)	FLOW DESIGN (MGD)	TYPE OF TREATMENT	SLUDGE (1) GENERATED TONS/YEAR	SLUDGE PERCENT SOLIDS	SLUDGE DISPOSAL METHOD	ESTIMATED POPULATION SERVED
CONNECTICUT									
Fairfield County									
Bridgeport - East Side	B-1	1972+	7.5	10.0	Secondary (AS)	35,000	4 to 6	Incineration at East Shore	44,000
- West Side	B-1	1996+	22.1	30.0	Secondary (AS)	90,000	4 to 6	Incineration at East Shore WPAF	112,000
Fairfield	A	1996+	9.17	9.0	Secondary (AS)	5,000	18	Compost/Landfill	42,000
Greenwich (Grass Island)	A	1993+	10.0	12.5	Secondary (AS)	5,720	14	Landfill	32,000
Norwalk	B-1	2000+	13.1	20.0	Secondary (AS)	56,000	5	Incineration (2)	80,000
Stamford	B-1	1991+	20.24	20.0	Secondary (AS)	19,000	25	Landfill Out of State	110,000
Stratford	A	1992+	8.0	11.5	Secondary (AS)	32,333	6.5	Landfill	50,000
Westport	A	1975+	1.9	2.9	Secondary (AS)	353 (5)	3 to 6	Incineration (2)	14,800
New Haven County									
Milford - Beaver Brook	A	1996+	2.03	3.1	Secondary (AS)	905	13.7	Incineration (2)	19,000
- Housatonic	A	1996+	6.98	8.0	Secondary (AS)	5,995	17	Incineration	22,500
New Haven - East Shore	B-1	1997+	31.35	40.0	Secondary (AS)	38,608	21.7	Incineration	200,000
West Haven	B-1	1996+	7.25	12.5	Secondary (AS)	2,200 (4)	-	Incineration	55,000
NEW JERSEY									
Bergen County									
Edgewater	B-1	1989+	3.67	6.0	Secondary (PO)	13,747	5.23	Beneficial Reuse (2)	16,000
						6,129	3.65	Landfill	
Essex County									
Passaic Valley Sewerage Commissioners	B-1	1988+	282.9	330.0	Secondary (AS)	89,000	55	Landfill	1,300,000
Hudson County									
North Bergen M.U.A. - Woodcliff	B-1	1991+	3.04	2.9	Secondary (TF)	5,999	8.07	Incineration (2)	22,500
North Hudson Sewerage Authority									
- Adams Street (Hoboken)	B-1	1994+	11.9	24.0	Secondary (TF)	6,000	22	Beneficial Reuse (2)	67,000
- River Road (West New York)	B-1	1992+	7.6	10.0	Secondary (TF)	234	6	Beneficial Reuse (2)	56,000
Middlesex County									
Middlesex County Utilities Authority	A	1996+	115.35	147.0	Secondary (AS)	222,917	25.4	Beneficial Reuses	750,000
Union County									
Joint Meeting of Essex & Union Counties	B-2	1999+	66.6	85.0	Secondary (AS)	31,882	33.66	Land Application	500,000
Linden Roselle Sewerage Authority	B-2	1989+	12.92	17.0	Secondary (AS)	40,000	5	Beneficial Reuse	65,000
Rahway Valley Sewerage Authority	B-2	1991+	30.0	40.0	Secondary (AS)	17,900	20.3	Land Application/Composting	300,000

WASTEWATER TREATMENT PLANTS DISCHARGING INTO INTERSTATE ENVIRONMENTAL DISTRICT WATER

2000

PLANT	IEC RECEIVING WATER CLASSIFICATION	DATE OF CONSTR.	FLOW AVG. (MGD)	FLOW DESIGN (MGD)	TYPE OF TREATMENT	SLUDGE (1) GENERATED TONS/YEAR	SLUDGE PERCENT SOLIDS	SLUDGE DISPOSAL METHOD	ESTIMATED POPULATION SERVED
NEW YORK									
Nassau County									
Bay Park	A	1992+	53.5	70.0	Secondary (AS)	34,699	21.61	Compost	499,000
Belgrave Sewer District	A	1995+	1.43	2.0	Secondary (TF)	2,391	4.05	Trucked out to Bay Park	12,000
Cedar Creek	A	1997+	55.98	72.0	Secondary (AS)	46,500	18.4	Compost	550,000
Cedarhurst	A	1968+	0.778	1.0	Secondary (TF)	-	-	Compost	6,000
Glen Cove	A	1981+	3.6	8.0	Secondary (AS)	4,007	21	Landfill	28,000
Great Neck Sewer District	A	1990+	2.5	3.8	Secondary (TF)	150 (4)	23	Landfill	13,400
Great Neck Village	A	1996+	0.91	1.5	Secondary (TF)	61 (5)	4	Landfill	9,000
Jones Beach	A	1990+	0.11	2.5	Secondary (TF)	-	-	Trucked Out	Seasonal
Lawrence	A	1983+	1.29	1.5	Secondary (TF)	22 (4)	-	Compost	5,500
Long Beach	A	1994+	6.4	7.5	Secondary (TF)	2,046	2.5	Landfill	35,000
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+	2.83	4.0	Secondary (TF)	560 (4)	32	Incineration	35,000
West Long Beach Sewer District	A	1986+	0.59	1.5	Secondary (TF)	38 (6)	4.5	Trucked to Bay Park	5,000
New York City									
Bronx County									
Hunts Point	B-1	1977+	121.00	200.0	Secondary (AS)	100,699	27.1	Land Application/Landfill Cover	629,927
Kings County (Brooklyn)									
Coney Island	A	1994+	97.00	100.0	Secondary (AS)	(3)		Land Application/Landfill Cover	602,097
Newtown Creek	B-1	1967+	230.00	310.0	Secondary (AS)	(3)		Land Application/Landfill Cover	1,039,294
Owls Head	B-1	1996+	109.00	120.0	Secondary (AS)	(3)		Land Application	761,479
Red Hook	B-1	1987	34.00	60.0	Secondary (AS)	10,469	20.8	Landfill	192,215
26th Ward	A	1975+	62.00	85.0	Secondary (AS)	70,307	25.3	Land Application/Landfill Cover	271,240
New York County (Manhattan)									
North River	B-1	1986	139.00	170.0	Secondary (AS)	(3)		Land Application/Landfill Cover	584,192
Wards Island	B-1	1979+	198.00	250.0	Secondary (AS)	131,513	26.9	Land Application	1,004,213
Queens County									
Bowery Bay	B-1	1978+	120.00	150.0	Secondary (AS)	47,174	25.8	Land Application/Landfill Cover	727,117
Jamaica	A	1978+	81.00	100.0	Secondary (AS)	18,742	25.5	Land Application/Landfill Cover	632,148
Rockaway	A	1978+	21.00	45.0	Secondary (AS)	(3)		Land Application	94,471
Tallman Island	B-1	1979+	55.00	80.0	Secondary (AS)	21,842	23.2	Land Application/Landfill Cover	388,214

WASTEWATER TREATMENT PLANTS DISCHARGING INTO INTERSTATE ENVIRONMENTAL DISTRICT WATER

2000

PLANT	IEC RECEIVING WATER CLASSIFICATION	DATE OF CONSTR.	FLOW AVG. (MGD)	FLOW DESIGN (MGD)	TYPE OF TREATMENT	SLUDGE (1) GENERATED TONS/YEAR	SLUDGE PERCENT SOLIDS	SLUDGE DISPOSAL METHOD	ESTIMATED POPULATION SERVED
NEW YORK (con't)									
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+	26.00	40.0	Secondary (AS)	36,779	25.9	Landfill	151,585
Point East Condominiums*	A	1986	-	0.16	Extended Aeration w/ Sand Filtration	-	-	-	300
Port Richmond	B-2	1979+	34.00	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
Staten Island University Hospital, South**	A	1995+	0.05	0.06	Secondary (AS)	-	-	Oakwood Beach	-
Treetop Village*	A	1985	-	0.25	Extended Aeration w/ Sand Filtration	-	-	-	-
Rockland County									
Joint Regional Sewerage Board	A	1998+	4.6	8.0	Secondary (AS)	4,697 (5)	19.4	Landfill	33,000
- Town of Haverstraw						2,443	17.9	Landfill	
Orangetown Sewer District	A	1996+	9.15	12.75	Secondary (TF)	4,535	25	Composting	50,000
Palisades Interstate Park									
- Bear Mountain Plant	A	1967+	0.025	0.3	Secondary (TF)	-	-	-	20,000
Rockland County Sewer District # 1	A	1995+	22.3	28.9	Secondary (RD)	2,457 (4)	26	Landfill	160,000
Stony Point	A	1985+	0.85	1.0	Secondary (AS)	893	18	Composting	12,000
Suffolk County									
Huntington Sewer District	A	1988+	1.85	2.5	Secondary (TF)	1,957	18.9	Offsite Landfill	25,000
Northport	A	1972+	0.3	0.34	Secondary (AS)	31 (5)	2.5 to 3	Incineration (2)	3,500
Suffolk County Sewer District # 1	A	1988+	0.78	0.8	Secondary (RD)	315 (4)	2.7	Incineration (41%), Landfill (59%)	12,000
Suffolk County Sewer District # 3	A	1989+	21.33	30.0	Secondary (AS)	57,416	24	Incineration (41%), Landfill (59%)	280,000
Suffolk County Sewer District # 6	A	1973+	0.34	2.0	Secondary (AS)	75 (5)	1.2	Incineration (33%), Landfill (67%)	6,000
Suffolk County Sewer District # 21	A	1989	1.95	2.5	Tertiary (OD)	305 (5)	1.7	Incineration (33%), Landfill (67%)	20,000

WASTEWATER TREATMENT PLANTS DISCHARGINC INTO INTERSTATE ENVIRONMENTAL DISTRICT WATERS

2000

PLANT	IEC RECEIVING WATER CLASSIFICATION	DATE OF CONSTR.	FLOW AVG. (MGD)	FLOW DESIGN (MGD)	TYPE OF TREATMENT	SLUDGE (1) GENERATED TONS/YEAR	SLUDGE PERCENT SOLIDS	SLUDGE DISPOSAL METHOD	ESTIMATED POPULATION SERVED
NEW YORK (con't)									
Westchester County									
Blind Brook (Rye)	A	2000+	3.4	5.0	Secondary (AS)	5,758 (5)	0.5	Pumped to Port Chester	30,000
Buchanai	A	1999+	0.24	0.5	Secondary (AS	2,000	10	Trucked Ou	1,900
Coachlight Sq. Condo. Asso. Inc	A	1992+	0.03	0.0	Secondary (AS	-	-	Trucked Ou	210
Mamaroneck	A	1993+	16.2	20.6	Secondary (AS)	2,700 (4)		Pumped to New Rochelle	80,000
New Rochelle	A	1997+	14.5	13.6	Secondary (AS)	2,800 (4)	-	Landfill	80,000
Ossining	A	1981	6.1	7.0	Secondary (AS)	30,000	3.5	Incineration	40,000
Peekskill	A	1980	6.6	10.0	Secondary (AS)	2,869	2	Incinceration at Ossining	35,000
Port Chester	A	1990+	5.3	6.0	Secondary (RD)	1,853	5	Incineration/Landfill	25,000
Springvale Sewerage Corporation*	B-1	1996+	0.11	0.13	Secondary (RD)	1,251	3	Trucked Out	1,700
Yonkers Joint Treatment	A	1988+	95.1	92.0	Secondary (AS)	37,603	27	Lime Stabilization (2)	477,000
Federal and Military									
Camp Smith (Westchester County)	A	1997+	0.05	0.24	Secondary (TF)	-	-	-	2,400
Veterans Administration Hudson Valley Healthcare System (Westchester County)	A	1982+	0.13	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 a

(+) Year of major additions or reconstruction.
(*) Private or institutional sewage treatment plant.
(**) Facility diverted flow to secondary treatment plant during 2000.
(-) 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
(PO) Pure Oxygen (RD) Rotating Disc (TF) Trickling Filter

INTERSTATE ENVIRONMENTAL COMMISSION
FINANCIAL STATEMENT FY 2000

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, 1999 to June 30, 2000:

CASH BOOK BALANCE AS OF JUNE 30, 1999		$1,155,449.74
RECEIPTS		
Connecticut - FY'00	$ 3,400.00	
New York - FY'00	388,000.00	
New Jersey - FY'00	388,000.00	
EPA - FY'99	131,024.00	
EPA - FY'00	252,700.00	
Interest	44,551.13	
Miscellaneous Receipts	690.65	
TOTAL RECEIPTS		1,208,365.78
Sub-Total		$2,363,815.52
DISBURSEMENTS		
TOTAL DISBURSEMENTS		-
1,196,588.67		
CASH BOOK BALANCE ON JUNE 30, 2000		$1,167,226.85

U.S. Treasury Bills	$ 1,038,959.02
Insured Money Market Accounts	121,482.65
Checking Accounts	6,785.18
	$ 1,167,226.85

G L O S S A R Y

ALJ	administrative law judge
BMWCA	Bureau of Marine Water Classification and Analysis
BNR	biological nutrient removal
BOCES	Board of Cooperative Educational Services
CCMP	Comprehensive Conservation and Management Plan
CES	Center for Environmental Science
CSI	College of Staten Island
CSO	combined sewer overflow
CT	Connecticut
CWA	Clean Water Act
CW/CA	Clean Water/Clean Air Bond Act
DEC	Department of Environmental Conservation
DEP	Department of Environmental Protection
DO	dissolved oxygen
DOH	Department of Health
EPA	Environmental Protection Agency
FDA	Food and Drug Administration
FY	fiscal year
HARS	Historic Area Remediation Site
HEP	Harbor Estuary Program
HUCWSA	Hoboken-Union City-Weehawken Sewerage Authority
HVAC	heating, ventilating and air conditioning
IE	Independent Expert
IEC	Interstate Environmental Commission
IED	Interstate Environmental District
IMT	interim monitoring team
I/I	infiltration/inflow
ISC	Interstate Sanitation Commission
LIS	Long Island Sound
LISS	Long Island Sound Study
MCWG	Management Committee Work Group
MDS	Mud Dump Site
MEG	Model Evaluation Group
MGD	million gallons per day
MUA	Municipal Utilities Authority
NCHD	Nassau County Health Department
NELAC	National Environmental Laboratory Accreditation Conference
NEP	National Estuary Program

G L O S S A R Y
(continued)

NHSA	North Hudson Sewerage Authority
NJPDES	New Jersey Pollutant Discharge Elimination System
NPDES	National Pollutant Discharge Elimination System
NPS	National Parks Service
N/SPDES	National/State Pollutant Discharge Elimination System
NYC	New York City
NYS	New York State
NWS	Naval Weapons Station
PBSA/NY & NJ	Pro Bono Students America/New York & New Jersey
PVSC	Passaic Valley Sewerage Commissioners
QA/QC	quality control/quality assurance
RBC	rotating biological contactor
RBWG	Regional Bypass Work Group
RFP	request for proposals
R/V	research vessel
SBR	sequencing batch reactors
SCADA	Supervisory Control and Data Acquisition System
SCSD	Suffolk County Sewer District
SOP	standard operating procedure
SPDES	State Pollutant Discharge Elimination System
SSES	sewer system evaluation survey
SSO	storm sewer outflow
STP	sewage treatment plant
SUNY	State University of New York
TMDL	total maximum daily load
TSS	total suspended solids
USA	Use and Standards Attainment Project
USCG	United States Coast Guard
UV	ultraviolet
VOC	volatile organic carbon
WMWG	Water Monitoring Work Group
WPCA	Water Pollution Control Authority
WPCP	water pollution control plant