

# INTERSTATE SANITATION COMMISSION

*A TRI-STATE ENVIRONMENTAL AGENCY*



NEW YORK



NEW JERSEY



CONNECTICUT

1988

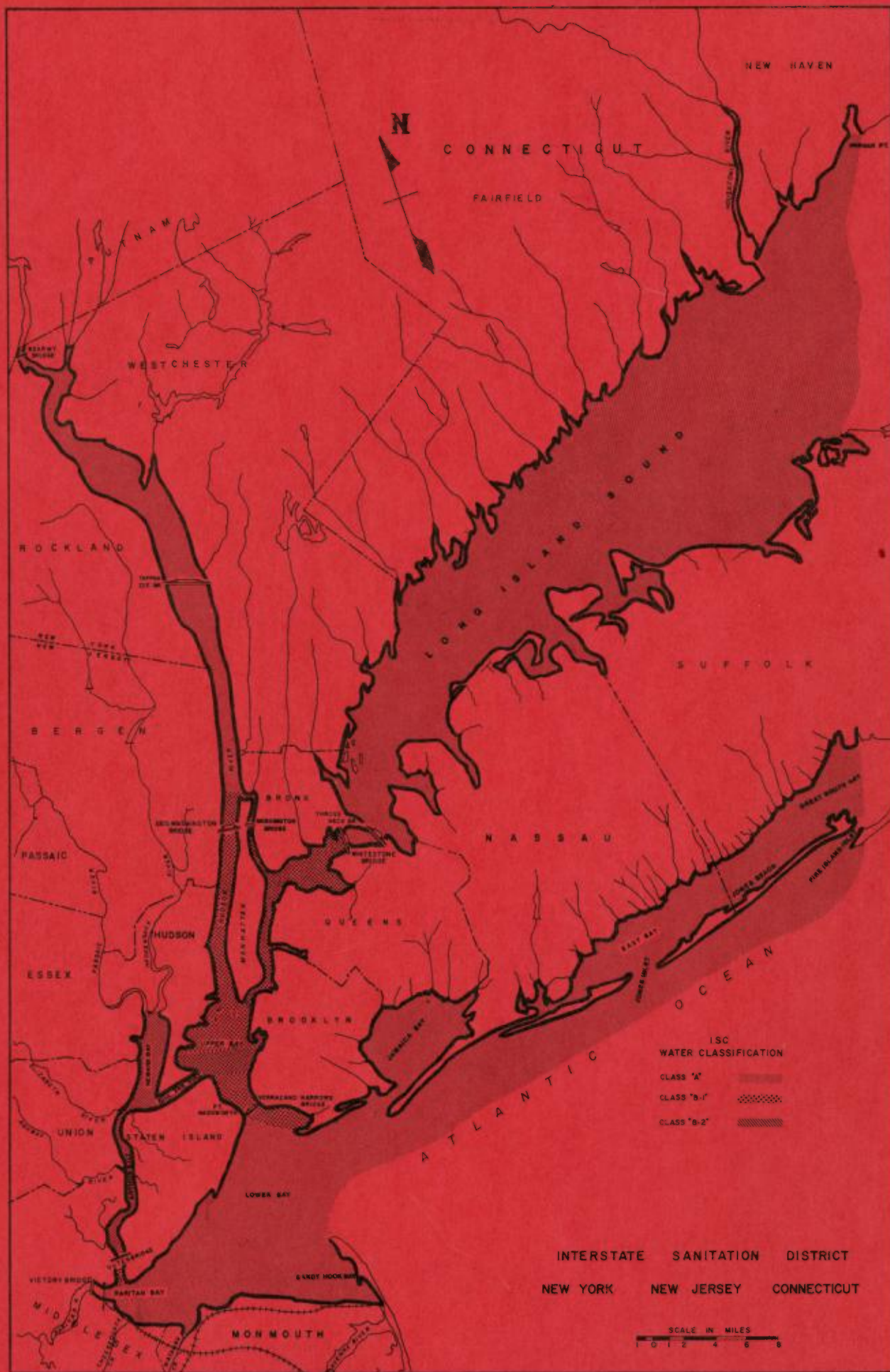
ANNUAL REPORT

NEW YORK

NEW JERSEY

CONNECTICUT





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I N T E R S T A T E A I R P O L L U T I O N P R O G R A M

# INTERSTATE SANITATION COMMISSION

A TRI-STATE ENVIRONMENTAL AGENCY  
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Director -  
Chief Engineer  
Alan I. Mytelka, Ph.D.

January 24, 1989

To His Excellency, Thomas H. Kean  
His Excellency, Mario M. Cuomo  
His Excellency, William A. O'Neill  
and the Legislatures of the States of New Jersey,  
New York, and Connecticut

Your Excellencies:

The Interstate Sanitation Commission respectfully  
submits its report for the year 1988.

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

Respectfully submitted,

For the State of New Jersey

  
Chairman

For the State of New York

  
Vice Chairman

For the State of Connecticut

  
Vice Chairman



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STATEMENT OF THE CHAIRMAN  
OF THE  
INTERSTATE SANITATION COMMISSION

The Interstate Sanitation Commission looks back on 1988 as a pivotal time in the history of the Commission. It has been a year of turbulence that culminated in a solid affirmation of the ISC's hard but fair position of a single high standard of water pollution controls for the entire region -- with partiality toward none.

Our budgetary problems went beyond the general considerations of the economy. Because of our insistence on setting standards and regulations from a regional perspective, this Commission had to battle for its very existence. Thanks to highly vocal support from legislators of both parties throughout the tri-state area as well as from environmentalists and citizen groups, we survived -- stronger and with renewed resolve to fight for the greatest possible improvement in our water quality with whatever the available funds. So that we can devote more of our energies and resources toward this end we are working to have our budget removed from under the control of State environmental departments and treated as a separate, independent line item in State budgets.

Our recently completed regional Combined Sewer Outfall Report represents a major research project which, for the first time, identifies CSOs within our District. It is a significant first step in facilitating the Commission's work on mitigating or eliminating the effects from CSOs.

In general, the Commission has made great strides in its sampling, regulatory and, most certainly, in its enforcement capabilities -- and the environment is the better for it.



Frank A. Pecci  
Chairman

RETIREMENT OF JOSEPH S. CZACHOR  
LABORATORY DIRECTOR

On October 31, 1988, Joseph S. Czachor retired from the position of Laboratory Director of the Interstate Sanitation Commission. He joined the Commission in March 1963 as Senior Chemist and held a series of increasingly responsible positions until his promotion to Laboratory Director.

Upon his retirement, the Commission presented a plaque stating: "To Joseph S. Czachor in grateful appreciation for more than 25 years of service to the Interstate Sanitation Commission." As Laboratory Director, Joe's dedication, diligence and uncompromising standards set the tone for the Commission's work in air and water quality control. His contributions in improving the environment have benefited all citizens within our District.



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## I. SUMMARY OF ACTIVITIES

In 1936, the Interstate Sanitation Commission was formed by a compact between the States of New York and New Jersey for the abatement of existing water pollution and the control of future water pollution in tidal waters of the New York Metropolitan Area. The State of Connecticut joined the Commission in 1941. In 1962, air pollution was added to the scope of the Commission's activities. In 1970, the Commission was designated as the official planning and coordinating agency for the New Jersey-New York-Connecticut Air Quality Control Region.

In mid-June, operations at the Commission were severely disrupted due to the threat by the New York State Department of Environmental Conservation to withhold or to reduce funds legislatively-appropriated for disbursement to ISC. The State's action resulted in ISC employees having forced leaves and, because of the uncertainty, several employees resigning. Most operations, including sampling, were curtailed or severely cut back for several months until the situation was resolved.

This report, which is prepared each year, provides a record of the water and air pollution activities of the Interstate Sanitation Commission. All of the Commission's programs are goal-oriented to better the Region's environment. To address the environmental problems within its area of jurisdiction, the Commission has focused on technical assistance, enforcement, planning, laboratory analysis, monitoring and coordination.

### WATER POLLUTION

The Commission's program for water pollution abatement has continued to provide assistance in effectively coordinating approaches to regional problems. Priorities have been set for enforcement, minimization of the effects of combined sewers, compliance monitoring, pretreatment of industrial wastes, toxics contamination, participation in the National Estuary Program, ocean disposal and monitoring the ambient waters -- especially with regard to opening new areas for swimming and shellfishing.

A great deal of planning and construction is under way which provides for the reduction of pollution from municipal and industrial wastewaters discharging into District waters. It is estimated that more than \$5.4 billion has been allocated by municipalities in the District for this purpose.

The Commission is involved in several legal actions. As a follow-up to the Consent Order signed by the New York City Department of Sanitation regarding operations at the Fresh Kills Landfill on Staten Island, the Commission is monitoring operations at the landfill and has made observations of the garbage



barges en route to the landfill. ISC has filed an action to require the New York State Department of Environmental Conservation to hold a hearing and set aside the discharge permits which that department issued for the 14 New York City sewage treatment plants. ISC is actively involved in the legal action against several Hudson County, NJ communities regarding upgrading their sewage treatment to meet Commission and federal standards. The Commission is still involved, having party status, in the hearings regarding the proposed construction of a Resource Recovery Facility at the Brooklyn Navy Yard. These, and other legal actions, are detailed in the Legal Activities Section of this report.

ISC recently completed a study giving a regional perspective to the combined sewer overflow (CSO) problems that exist in the three member States. This is the first and only effort to gather CSO information on a regionwide basis. The Commission is organizing a CSO conference, to take place in early 1989, to bring together all responsible parties in the area so the CSO problem can be attacked on a regional basis. ISC has also initiated a dry weather discharge enforcement program in an effort to abate these impacts throughout the Region.

A regionwide inventory of waterfront development projects within the District has been updated. A continuing concern is how additional wastewater from residential and mixed-use buildings, as well as hotels, marinas and recreational facilities, will be treated.

The Commission was awarded a grant by the U.S. EPA to continue work on the Long Island Sound Estuary Project, part of the U.S. EPA's National Estuary Program. ISC is also a member of the Management Committee for this study. This year, the New York-New Jersey Harbor was added to the National Estuary Program; ISC is a member of the Management Committee for this and several related studies.

ISC continued to monitor waste discharges from public and private treatment plants to check compliance with the permitted discharge limitations. Intensive surveys were conducted on many of the District waterways using the Commission's research vessel, the R/V Natale Colosi. The Commission sampling in the Atlantic Ocean off the Rockaways showed that the bacteriological water quality criteria for direct harvesting of shellfish are being met on a year-round basis. As a result, New York State has lifted the seasonal restriction on 16,000 acres of shellfish waters used for direct harvesting. ISC also conducted bacteriological sampling in Raritan and Sandy Hook Bays. It is anticipated that the State of New Jersey will do away with the seasonal restriction presently imposed on shellfish waters used for depuration purposes in this area.



In July, a boat inspection trip was held in a portion of the Interstate Sanitation District to give government officials and the private sector a firsthand view of the progress and some of the environmental problems remaining in the region.

The laboratory has maintained its status as a certified laboratory. The gas chromatograph/mass spectrophotometer has greatly enhanced the laboratory's ability to analyze for toxics in water, air, and sediment samples. The laboratory administered the practical examination to applicants for New York State Grades II and III Sewage Treatment Plant Operators' Certification.

Since 1981, the Commission has been involved with the U.S. Army Corps of Engineers' Dredged Material Disposal Management Plan for the Port of New York and New Jersey. Since September 1987, a staff member has been serving as chairman of the Public Involvement Coordination Group.

Since October, a member of the staff is participating on U.S. EPA's technical review group in order to develop an environmental impact statement on the designation of an Alternate Mud Dump Site.

Details of these and other activities are contained in this report.

#### AIR POLLUTION

The Commission continued its role as coordinator of the High Air Pollution Alert and Warning System in the New Jersey-New York-Connecticut Air Quality Control Region. Daily air quality and meteorological data were received at the ISC office and disseminated to all participating agencies.

ISC initiated the Ozone Health Message System to alert the public of unhealthy ambient air conditions. It was designed to provide the region with a single source of precautionary advice on ozone from May to September.

During the 12 months from October 1987 through September 1988, the Commission received 1,053 air pollution complaints -- an increase of 10% over the previous 12-month period. The vast majority of calls came from Staten Island residents. In order to respond in a timely and effective manner, the Commission maintained its 24-hour answering service and its Staten Island field office. This office is staffed seven days a week for at least one shift per day.

The Commission completed preliminary work for an air toxics sampling program. The focus is to determine air pollutant con-

centrations present during odor episodes and air stagnation events.

This year, the Commission engaged in a broad range of air quality activities related to resource recovery. Having gained party status, ISC presented expert testimony at the Brooklyn Navy Yard Resource Recovery Facility Administrative Hearing conducted by NYS DEC. The Commission held meetings and discussions and reviewed environmental impact statements with representatives of the three States to advance interstate considerations.



## II. WATER POLLUTION

### GENERAL

During 1988, over \$5.4 billion was allocated for 156 water pollution control projects in the Interstate Sanitation District which were either completed, in progress, or planned for the future. These monies were allocated in the following manner: over \$143 million for 42 completed projects, \$3.14 billion for 70 projects in progress, and \$2.18 billion for 44 future projects. These expenditures are being used for constructing new facilities and upgrading existing facilities in order to provide adequately treated effluents for discharge into District waters. These figures do not include the monies spent by industries for pollution control.

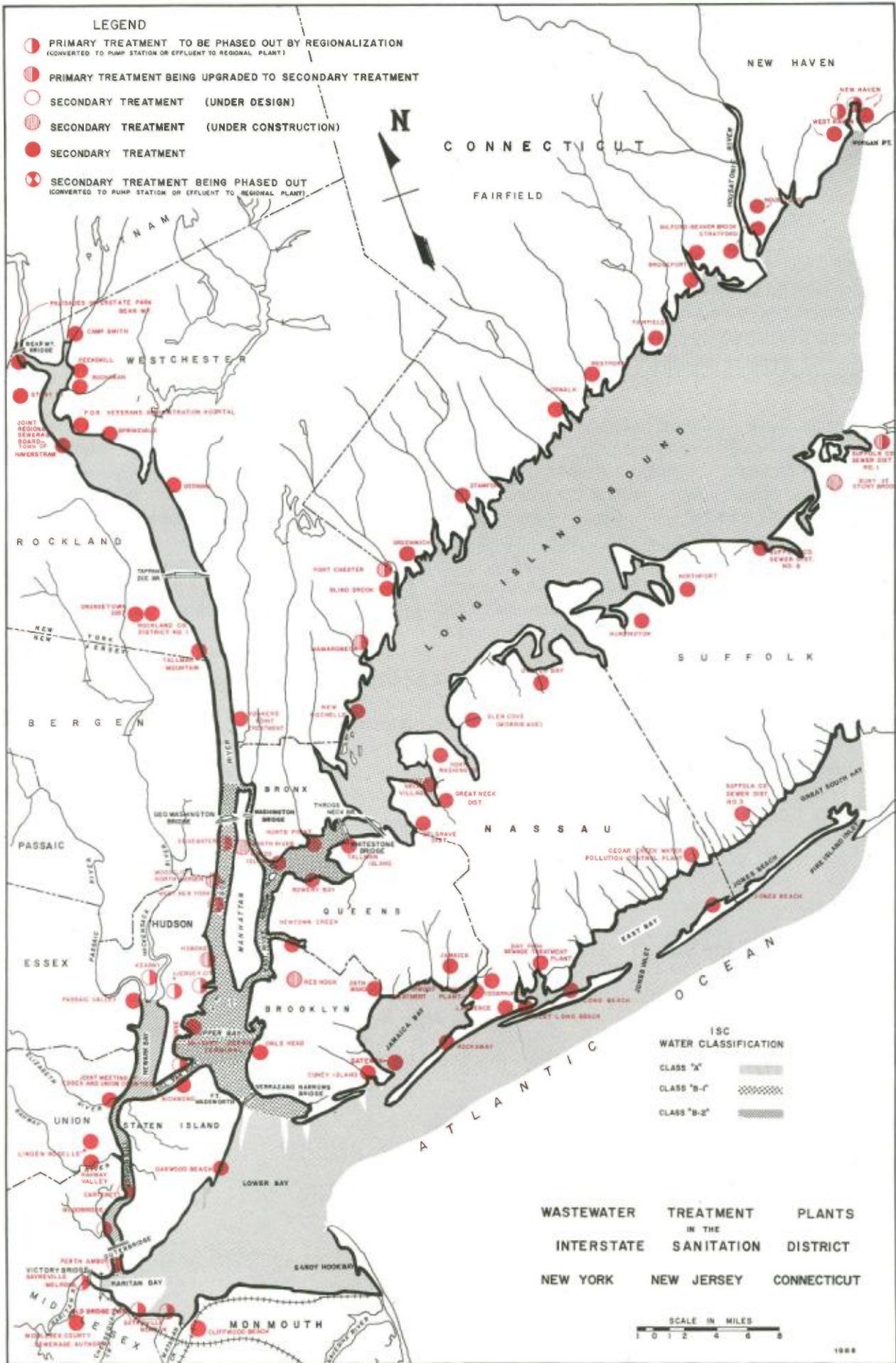
Since the Commission's founding in 1936, the reduction of untreated sewage entering the District waters has been drastically reduced. Only about 2 MGD of sewage is presently discharged to District waters untreated; in 1936, 1,066 MGD was released untreated. The few primary treatment plants still existing in the District are either in the process of upgrading to secondary treatment or being phased out by regionalization. Once universal secondary treatment is attained, the region's primary goal will be the elimination of combined sewer overflows or the amelioration of their effects.

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 information in this section is that which was available through November 1988.

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

LEGEND

- ◐ PRIMARY TREATMENT TO BE PHASED OUT BY REGIONALIZATION  
(CONVERTED TO PUMP STATION OR EFFLUENT TO REGIONAL PLANT)
- ◑ PRIMARY TREATMENT BEING UPGRADED TO SECONDARY TREATMENT
- SECONDARY TREATMENT (UNDER DESIGN)
- ◒ SECONDARY TREATMENT (UNDER CONSTRUCTION)
- SECONDARY TREATMENT
- ⊗ SECONDARY TREATMENT BEING PHASED OUT  
(CONVERTED TO PUMP STATION OR EFFLUENT TO REGIONAL PLANT)



ISC  
WATER CLASSIFICATION

CLASS "A" [diagonal lines]

CLASS "B-1" [cross-hatch]

CLASS "B-2" [horizontal lines]

WASTEWATER TREATMENT PLANTS  
IN THE  
INTERSTATE SANITATION DISTRICT  
NEW YORK NEW JERSEY CONNECTICUT

SCALE IN MILES  
0 1 2 4 6 8



## CONNECTICUT WATER POLLUTION CONTROL PLANTS

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

#### Completed Projects

Engineering studies, accruing costs of \$750,000, have been completed. They contained recommendations to provide secondary treatment at both facilities.

#### Future Projects

Nearly \$24 million is proposed to expand and rehabilitate the East Side plant; construction would start January, 1991. The work would include rehabilitation of the preliminary, primary, and secondary treatment units, and electrical and mechanical equipment, as well as pumps and instrumentation. The East Side plant would be expanded to 10 MGD. The West Side plant will have the same construction agenda, but will be expanded to 30 MGD at a cost of \$27,600,000.

It is proposed that both plants share sludge disposal facilities which will cost \$22,400,000.

Proposed drainage basin improvements would address a massive reduction of combined sewer overflows. A construction start-up date has been set for January 1, 1992 and will cost \$27 million.

Both plants are operating under State Consent Orders to provide secondary treatment. These plants are not meeting specified order dates. Presently, selection of an engineering firm for the design phase as well as a financing agreement with CT DEP are under way.

### Greenwich, Connecticut (Fairfield County)

#### Completed Project

A Phase I 201 Facilities Plan was completed at a final cost of \$135,000; a report was issued.

#### Future Project

This facility is presently operating under a State Consent Order to expand in order to treat excess I/I. It is proposed that a plant expansion to 10.8 MGD and rehabilitative work be undertaken. A construction start-up date has been set for November 30, 1990. Costs have been estimated to be \$30 million.



## Milford - Beaver Brook, Connecticut (New Haven County)

### Completed Project

This facility has met all Consent Order milestone dates. Beaver Brook has attained secondary treatment levels and has accepted partial flows from the decommissioned Town Meadows plant. The Housatonic plant, which was completed last year, accepts the remainder of the flow.

## New Haven - Boulevard, Connecticut (New Haven County)

### Project in Progress

This 13 MGD primary plant is being converted to a 34 MGD pump station and is 50% complete. The \$9.2 million project is scheduled to be in operation by February 28, 1989. At that time, flows will be diverted to the East Shore plant for treatment. The Boulevard plant is presently operating under a State Consent Order to build the aforementioned pump station and cease discharge.

See the New Haven - East Shore write-up for additional information.

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

### Completed Projects

Extensive modifications are complete at this 40 MGD secondary activated sludge plant. The \$8.5 million expenditures were for belt filter presses, a lime stabilization system, a polymer system, screenings and grit removal facilities and additional sludge storage. These new systems went into operation during November.

In 1985, this facility accepted flows from the phased-out East Street plant. In 1989, additional flows from the Boulevard plant will be treated at this plant. Presently, the East Shore plant is operating under a State Consent Order to attain secondary treatment levels.

For additional information, see the New Haven - Boulevard write-up.

### Future Project

A sewer separation program is proposed to begin in July 1989. An estimate of \$119 million was made for the planned work.

Norwalk, Connecticut (Fairfield County)

Projects in Progress

This plant is operating under a State Consent Order to attain secondary treatment levels by January 15, 1991. Several engineering studies are under way or in planning stages as directed by the Consent Order.

A re-estimate of \$1.5 million has been made for all collection system improvements and rehabilitation. Repairs on the Westside interceptor were completed; the Southside interceptor repairs are being studied. Several pump stations are being improved. Sewer separation work is under way.

Stamford, Connecticut (Fairfield County)

Future Projects

The addition of a secondary clarifier, at a re-estimated cost of \$2.2 million, is planned.

Improvements to the collection system are planned at an estimated cost of \$2 million. Construction start-up dates are not available.

This plant is operating under a State Consent Order to investigate plant capacities and make any necessary improvements. The plant is in compliance with specified Order dates.

Stratford, Connecticut (Fairfield County)

Future Projects

This facility is operating under a State Consent Order issued September 1988 to evaluate and correct operating deficiencies. The Consent Order specifies September 30, 1989 as the date when substantial construction should be completed. It is proposed that improvements be made to the collection system.

West Haven, Connecticut (New Haven County)

Completed Projects

The I/I study and the SSES are complete. Final costs are not available.

Upgrading of the dewatering and sludge handling facilities are 100% complete. Final costs amounted to \$2.4 million.

This plant is operating under a State Consent Order to investigate flow capacities and make any necessary improvements.

#### Westport, Connecticut (Fairfield County)

##### Project in Progress

Collection system expansion work has been ongoing for the past 3 years. Pump station rehabilitation and force main and interceptor repairs, as well as an average of nearly two miles of new gravity sewer installation per year, is a continuing agenda item.

##### Future Project

A construction date has been set for May 1989 to install a new chlorine building, a garage, a septic receiving and holding building, and water reuse facilities. A re-estimate of \$1,100,000 was assessed for this work.



## NEW JERSEY WATER POLLUTION CONTROL PLANTS

### Aberdeen Township Municipal Utilities Authority - Cliffwood Beach, New Jersey (Monmouth County)

#### Completed Projects

A 201 Facilities Plan and a stream water quality modeling project were completed. Cost estimates for the two engineering studies were assessed at \$145,000 and \$200,000, respectively.

### Aberdeen Township Municipal Utilities Authority - River Gardens, New Jersey (Monmouth County)

#### Completed Project

A 201 Facilities Plan is complete. It contains recommendations regarding upgrading this plant. The study cost \$145,000.

### Bayonne, New Jersey (Hudson County)

#### Projects in Progress

Construction for Bayonne to divert all wastewater to PVSC by December 30, 1989 commenced during 1988. A pipeline under Newark Bay will be shared by the Jersey City facilities as well. No cost figures are presently available.

Refer to the Jersey City and PVSC write-ups as well as the Legal Activities section of this report for more information.

### Bayshore Regional Sewerage Authority, New Jersey (Monmouth County)

#### Completed Projects

Odor control improvements were completed at a final cost of \$475,000. The work involved the placement of covers over the thickeners and installation of a new carbon scrubber.

A Phase III 201 Facilities Plan is 98% complete. Cost estimates are presently not available.

## Carteret, New Jersey (Middlesex County)

### Completed Project

The CSO Elimination Program is 100% complete. This work included sewer separation and rehabilitation of one pump station. The total project cost was approximately \$8.873 million, of which the federal government's grant covered 55%.

### Project in Progress

A re-estimate of \$15 million has been made for Carteret's portion of the South Bay Project. The work, which is 10% complete, includes a 3.54 MGD pump station and almost 16,000 feet of force main installation; it has an anticipated August 1989 completion date. All flows will then be conveyed through Woodbridge for treatment at MCUA's 120 MGD secondary treatment plant. The final connection is contingent upon the Woodbridge construction.

See the MUA and Woodbridge write-ups for additional information.

## Edgewater, New Jersey (Bergen County)

### Completed Project

Engineering studies and design work are complete for a 6 MGD secondary activated sludge plant. The preconstruction specifications cost \$1 million; a report has been issued.

### Project in Progress

Construction of a 6 MGD secondary facility is 40% complete. The project includes the installation of new headworks, a chlorine contact tank, belt filter presses, sludge thickener and storage tanks, and an influent pump station. The existing clarifiers will be converted to secondary units. A cost of \$9.042 million has been estimated for this work.

The facility is presently operating under federal and State Consent Orders to attain secondary treatment limitations.

### Future Project

A pump station is proposed in order to enhance Edgewater's collection system. No cost estimates or construction specifications are available.

Hoboken, New Jersey (Hudson County)

Completed Project

During 1988, the rehabilitation of the primary facilities was completed. Cost figures are not available.

Future Project

It is anticipated that the construction to upgrade to secondary treatment will commence in 1989. The time frame for completion is subject to negotiations between Hoboken, ISC and U.S. EPA. The expanded plant will also provide treatment for portions of Union City and Weehawken.

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

Hudson County Utilities Authority, New Jersey (Hudson County)

Projects in Progress

Three drainage basins are in the HCUA's jurisdiction -- Area I consists of Jersey City (East and West), western North Bergen, Kearny Point, the western slope of Union City and Secaucus; Area II is comprised of Bayonne; and Area III includes Hoboken, Weehawken, eastern Union City, West New York, Guttenberg and part of North Bergen.

Refer to each municipality's write-up and to the Legal Activities section of this report for more detailed information.

Jersey City - East, New Jersey (Hudson County)

Projects in Progress

Both Jersey City plants will be diverting flows to the PVSC plant for treatment. Jersey City entered into a Consent Order with the Commission and U.S. EPA in which Jersey City agrees to divert flows to PVSC by December 31, 1988. Because of a collapse on the west bank of the Passaic River, Jersey City has submitted a notification under the Force Majeure section of the Consent Order seeking an extension until April 30, 1989. The Commission is currently reviewing the request.

For further information, refer to the PVSC write-up as well as the Legal Activities section of this report.



Jersey City - West, New Jersey (Hudson County)

See the Jersey City - East and PVSC write-ups as well as the Legal Activities section of this report.

Joint Meeting of Essex and Union Counties, New Jersey  
(Union County)

Project in Progress

Approximately \$3.5 million is estimated for design preparations, contract documents and subsequent construction for I/I elimination in this drainage basin. About 20% of the work is complete. A construction contract was awarded recently; work will commence during 1989.

Future Projects

An estimate of \$5.5 million has been assessed to install a diffused aeration system to replace the existing mechanical aeration system. Construction is scheduled to begin in 1989.

Engineering studies are proposed for siting logistics for a dewatering/sludge handling facility.

Kearny, New Jersey (Hudson County)

Future Project

This primary facility is operating under federal and State Consent Orders to cease discharge. It is planned that all flows will be diverted to the PVSC plant for treatment. A 16 MGD pump station with force mains is presently awaiting state approval; an approximate construction start-up date is early 1989. A cost estimate of \$11.5 million will be accrued by the anticipated completion date of June 1990.

For additional information, refer to the PVSC write-up.

Linden Roselle Sewerage Authority, New Jersey  
(Union County)

Project in Progress

A new addition to the administration building is 49% complete. Expenditures are anticipated to exceed \$573,000.

Middlesex County Utilities Authority, New Jersey  
(Middlesex County)

Projects in Progress

Engineering studies are under way to assess plant expansion capacities and land-based sludge management.

The South Bay Project is comprised of four communities which will divert their wastewater to MCUA for treatment. The MCUA facility has completed 90% of the necessary modifications to the collection system in order to accept flows from Carteret, Old Bridge Municipal Utilities Authority, Sayreville (Melrose and Morgan), and South Amboy. It is estimated that the cost of this work will be \$3.6 million. These modifications will also enable MCUA to accept an additional 9 MGD from the primary plants in Perth Amboy and Woodbridge.

Refer to the individual communities for additional costs and construction status.

Future Project

An estimate of \$24,000,000 was made in order to construct a sanitary sewer pipeline and supplemental outfall to Raritan Bay. The pipeline will eliminate bypassing of untreated sewage from the Sayreville pumping station during storm events.

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

Project in Progress

Changes are under way for operation streamlining; there will be no increase in flow capacity. The \$1.5 million project includes replacement of a belt filter press, a sludge pump, woodchip separator and a prefabricated building for vehicle storage. Modifications will be made to the compost shed to provide additional weather protection.

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

Completed Project

Phase III of the 201 Facility Plan is 100% complete and a report has been issued.



## Future Projects

This facility is operating under federal and State Consent Orders to attain secondary effluent limitations by September 1, 1990. A re-estimate of \$13 million has been proposed for a secondary treatment plant with a capacity of 2.91 MGD. The work includes administration building modifications, a chlorine contact tank and building, a grit chamber, inclined plate settlers, primary settling tanks and trickling filters.

Collection system work is awaiting grant approval. The \$3 million project is slated to begin during March 1989. A main pump station and sanitary sewers are proposed for the unsewered areas along the Hudson River waterfront in Guttenberg and North Bergen.

For further information, refer to the Legal Activities section of this report.

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

#### Project in Progress

This 1.4 MGD primary plant is operating under federal and State Consent Orders to cease discharge by April 1, 1989. A new pump station (to replace the existing plant) and force main installation are 85% complete. All work is in compliance with specified Order dates. Subsequently, all wastewater will be treated by the MUA regional facility.

For more information, refer to the MUA write-up.

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

#### Projects in Progress

Headworks rehabilitation is 90% complete. The \$3.0 million job is scheduled for an early 1989 operational start-up.

The PVSC service district is expanding to accept flows from several outlying communities. Costs for pump station construction and force main installation will be incurred by each community. Bayonne, Jersey City (East and West), and Kearny will eventually divert all wastewater to this plant for treatment.

See the individual community write-ups for additional information.



Old Bridge Municipal Utilities Authority  
Middlesex County, New Jersey



Pump Station Building



Activated Carbon Air Filter  
For The Wet Well

Photos Courtesy of Thomas Proctor Company

## Perth Amboy, New Jersey (Middlesex County)

### Completed Projects

A secondary clarifier and 16 catch basins were rehabilitated at costs of \$163,255 and \$125,000, respectively.

### Project in Progress

Just under way is the construction of a 14 MGD pump station with force mains to replace the existing 10 MGD primary plant. An estimate of nearly \$4.3 million was made for this project. Perth Amboy is operating under a State Consent Order to cease discharge and divert all flows for treatment to the regional MUA facility by August 1, 1989.

Refer to the MUA write-up for additional information.

### Future Projects

A proposal was made to initiate sewer separation work in the Budapest area of Perth Amboy. A second proposal was made for the rehabilitation of two pump stations. The total cost for these projects is estimated at \$8 million.

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

### Completed Projects

Major upgrading work, at a cost of \$1.7 million dollars, was completed. An aeration system retrofit, a digester gas conditioning system, installation of two raw sewage pump engines, a boiler and a positive displacement blower were accomplished.

Sandblasting and re-coating of all four secondary clarifiers were completed at a cost of \$36,000.

Replacement of the digester gas detection system was completed at a cost of \$8,000.

Fuel oil and gasoline tanks were replaced by double-walled fiberglass tanks at a cost of \$158,700, including all necessary piping.

A potable water service line, as well as storm drain improvements, were completed at a cost of \$87,350.

A chlorine container handling and transport system was replaced.



### Projects in Progress

Digester cover repair, re-coating, and insulation is 95% complete. Total costs will be \$158,220.

Administrative office modifications are just under way. Improvements will cost approximately \$985,000.

A television security system is 70% complete; installation and equipment cost nearly \$12,500.

### Future Project

Final work planned for the secondary clarifiers calls for the installation of handrails. Other proposed items include outfall line repairs and rehabilitation of the influent screening system.

## Sayreville - Melrose and Morgan Plants, New Jersey (Middlesex County)

### Projects in Progress

A \$10.3 million project is under way for the construction of a gravity interceptor and force main from the Morgan area of Sayreville to convey wastewater to MCUA.

A second project, costing about \$1.75 million, involves two pump stations and force mains to be constructed at the existing Melrose and Morgan sites. Construction for both projects is 10% complete; completion is anticipated for 1989.

These primary facilities are under State Consent Orders to complete necessary construction and cease discharge.

Refer to the MCUA write-up for additional information.

## South Amboy, New Jersey (Middlesex County)

### Completed Projects

As of November 1988, this facility was decommissioned and all flows were diverted to MCUA for treatment. The force main from South Amboy to MCUA was completed at a final cost of \$2.5 million. The new pump station is located on Rosewell Street. Once all punch list items are addressed, the old plant will be demolished. Cost expenditures for the pump station and demolition work are estimated at \$3.6 million.



Refer to the MCUA write-up for more information.

West New York, New Jersey (Hudson County)

Future Projects

West New York will be upgraded to comply with secondary treatment and ISC requirements. The proposed date for construction completion is January 1, 1991.

For further information, refer to the Legal Activities section of this report.

Woodbridge, New Jersey (Middlesex County)

Project in Progress

This 10 MGD primary plant is operating under federal and State Consent orders to cease discharge by September 30, 1989. Work on the new pump station, force mains and interceptors are 50% complete. Upon substantial completion of the work, all wastewater will be diverted for treatment at the MCUA regional facility. All construction will cost an estimated \$42,000,000.

Refer to the MCUA write-up for additional information.

## NEW YORK WATER POLLUTION CONTROL PLANTS

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

#### Completed Projects

The Bay Park Sewage Treatment plant is engaged in a phased construction program to enhance treatment system capabilities and modify and improve aspects of the facility that have exceeded their useful life.

Phases I and II are essentially complete; they included an increase of the secondary capacity of the facility by construction of five aerobic fluidized bed reactors (FBRs) and improvements to preliminary treatment by construction of new bar screens and a grit handling facility. A total of \$37.874 million was accrued for these phases.

At a final cost of \$280,000 an interim heat facility was installed in the effluent screening and disinfection building until a new plant-wide heating system is constructed.

A final expenditure of \$750,000 was made for an interim primary influent conduit which will relieve hydraulic restrictions until the primary sedimentation tanks can be rehabilitated.

#### Projects in Progress

A substantial portion (82%) of Phase III has been completed, including the construction of two new final clarifiers, retrofit of three existing final clarifiers, installation of fine bubble diffusers in the existing aeration tanks, construction of a new aeration tank and the activation of new final screening and disinfection facilities. This phase will cost \$58,000,000.

Due to a variety of operational problems, the fluidized bed reactor system has not achieved design effluent standards. The problems experienced have had a detrimental effect upon plant performance, necessitating that the FBRs be taken out of service. Since the FBR system was constructed under the U.S. EPA Innovative/Alternative Program, a report detailing the first year operational history has been prepared, and an evaluation is in progress to develop modifications to improve the performance of the system.

The inability of the FBR system to achieve expected effluent removals and construction damage to an operational

aeration tank has hampered the plant's capability to meet secondary effluent limitations. Accordingly, an acceleration of Phase IIIA has been instituted, such that a fourth aeration tank shall be available sooner than originally scheduled in order to improve secondary treatment performance.

Just under way is the installation of 4 new multi-fuel engine generators and ancillary equipment. In addition to the existing building to house the generators, construction will include a diesel shop, a motor control center and associated yard piping. Costs are estimated at \$45,440,000.

A second interim heating facility is 70% complete. At a cost of \$710,000, heating will be provided for the anaerobic digesters until such time that the plant-wide system is completed.

A new telemetering system to provide information regarding the status of the sludge force main during operation is 75% complete and will cost \$440,000.

#### Future Projects

Final phases of construction will address fire protection facilities, an effluent pump station, main building improvements, sludge thickening facilities, sludge digestion improvements, primary treatment improvements and a plant-wide instrumentation system. Total costs are estimated to be over \$1.04 billion.

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

#### Completed Projects

At a final cost of \$550,000 the following installations were completed: new comminutors, new filter media and disinfection facilities.

#### Projects in Progress

On December 15, 1988, the construction of a new laboratory, garage, maintenance shop and the installation of a new auxiliary generator began. The costs for all work and equipment is expected to be \$1.05 million.



## Bowery Bay, New York (Queens County)

### Project in Progress

A City-wide CSO abatement program is now in the second phase. The first phase identified the extent to which CSOs result in contravention of water quality standards. The second phase consists of three elements. Tributary Water Quality Improvement Projects involve large canals and creeks with massive CSOs which impact water quality so severely as to impair neighborhood and recreational development. Groups of Tributary Water Quality Improvement Projects are also impacted by CSOs, but are grouped by treatment plant drainage basins. The last element, the Area-wide CSO Projects, are divided into four areas: East River, Jamaica Bay, Inner Harbor and Outer Harbor. These areas are affected by CSOs discharging into open waters.

Facility planning is under way for three of the four areas; a contract will be awarded soon for the fourth area -- Outer Harbor. These programs are being conducted in accordance with SPDES permit requirements.

### Future Projects

Approximately \$11.5 million will be needed to upgrade and rehabilitate this plant. No construction start-up dates are available.

An SSES is planned for this drainage basin.

## Camp Smith, New York (Westchester County)

### Completed Projects

At a final cost of \$160,000, one trickling filter was rebuilt and a new flowmeter system was installed. This expenditure included study, design and all installations.

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

### Completed Projects

This facility has recently completed a major portion of the phased construction expansion and upgrading. A project to increase capacity from 45 MGD to 56 MGD is 99% complete at a cost of \$45 million. The work included the construction of three aeration tanks, six final settling tanks, a return-activated sludge pump station, odor control units at the grit tanks, thickeners, and primary sedimentation build-

ings. Modifications to the aeration system were made, including the addition of three blowers and rehabilitation of the air filtration system. Two raw sewage pumps (30 MGD and 60 MGD) and two outfall pumps (45 MGD each) were installed.

### Projects in Progress

Construction of a new power generation facility with five dual-fuel diesel engine-generator sets was started in October 1986 and is nearly complete. This work has an estimated cost of \$32 million.

Construction of four dissolved air floatation thickeners, an odor control facility and four digesters is under way. This \$55 million phase also includes the rehabilitation of two primary digesters.

### Future Projects

A total of \$50 million is planned for two construction phases which will increase capacity from 56 MGD to 76 MGD. One phase will be the rehabilitation of the influent screening equipment and grit handling equipment, as well as the installation of four new influent screens, one grit tank and a new hypochlorite system.

A second phase will address the construction of six primary settling tanks, four final settling tanks, and a return-activated sludge pump station. In addition, the replacement of four original process air blowers and retrofitting the existing air diffusers with fine bubble diffusers will be completed under this contract.

## Cedarhurst, New York (Nassau County)

### Project in Progress

An engineering study was completed at a cost of \$215,000 and addresses a new treatment process for this 1 MGD secondary trickling filter plant. The study recommends utilizing RBC units with sand filters. An estimate of \$1.5 million was assessed to make this treatment process improvement.

## Cold Spring Harbor Laboratory, New York (Nassau County)

### Project in Progress

An engineering study is under way to determine maximum flow capacities and improve the influent headworks.



## Coney Island, New York (Kings County)

### Projects in Progress

A water quality facility plan for Paerdegat Basin in Jamaica Bay is in progress.

Several construction phases at this treatment facility have begun and others are well under way; combined, 70.6% of the work is complete. Primary settling tanks, plant maintenance, grit removal facilities, a sludge force main, an engine generator, digester facilities, thickeners, aeration facilities and a final settling tank are included in this \$300 million project.

Coney Island is operating under a State Consent Order to attain secondary treatment limitations.

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

### Future Project

An additional \$140 million will be needed to complete phased construction at Coney Island. An operational start-up date has been set for 1994. These phases will provide facilities for disinfection, final settling and sludge thickening.

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

### Completed Project

This facility completed work and met its Consent Order deadline of July 1, 1988, to attain secondary treatment levels.

### Projects in Progress

Work is 90% complete for the installation of a dome-covered trickling filter with a scrubber and sand filter, a new chlorine building and a contact chamber. Final costs are estimated to be \$2 million.

A rehabilitation of a force main, estimated to cost over \$539,000, began recently.

For more information, see the Great Neck Water Pollution Control District write-up.



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

Completed Project

This facility completed all treatment plant process upgradings and met its Consent Order deadline of July 1, 1988 to attain secondary treatment levels.

Projects in Progress

Upgrading and expansion to 3.8 MGD is 50% complete. The construction work includes new headworks, primary and final settling tanks, a new trickling filter, a gas storage tank, a chlorine contact tank, an effluent pump station and a combined outfall for the Great Neck WPCD and the Village of Great Neck. A final cost estimate is nearly \$15 million and an anticipated operational start-up date has been set for 1990.

Collection system upgrading is 30% complete. Over \$4 million will be spent for rehabilitation of three pumping stations and the replacement of force mains and gravity sewers. A completion date has been set for 1990.

Huntington Sewer District, New York (Suffolk County)

Completed Project

A total of \$12,900,000 was spent to upgrade this 2.5 MGD secondary plant which utilizes trickling filters and rotating biological contactors. The new components which were installed include a bar rack, primary clarifiers, RBC units, secondary clarifiers, screw pumps, a contact tank, a digester, a belt filter press, a scavenger waste pretreatment facility and an outfall to Long Island Sound.

Projects in Progress

This plant is operating under federal and State Consent Orders to attain secondary treatment levels.

A \$14,000 engineering study is 75% complete. The study consists of a review of plant hydraulics, processes and operations.

Hunts Point, New York (Bronx County)

Projects in Progress

A water quality study is 93% complete.

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

Future Project

Rehabilitation of various treatment units is estimated to cost \$23 million. A start-up date for construction is not presently available.

Inwood Water Pollution Control Plant - Disposal District No. 1, New York (Nassau County)

Projects in Progress

This plant has had difficulty maintaining a SPDES permit action level of chlorine residual. Modifications to the disinfectant delivery system have begun in order to improve performance. No cost estimates are available.

Additional improvements costing \$400,000 are under way. Variable speed drives are being installed to the pumping systems throughout the plant. A skimming system to remove floating solids, as well as submersible pumps to remove settled solids are being installed in the chlorine contact tank. Modifications to the ventilation system are also being addressed.

Jamaica, New York (Queens County)

Projects in Progress

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

An I/I study is under way.

Long Beach Water Pollution Control Plant, New York (Nassau County)

Project in Progress

This plant is operating under federal and State Consent Orders to attain secondary treatment levels by July 1, 1988. Expansion and upgrading of this 6.4 MGD secondary trickling filter plant to 7.5 MGD is 50% complete. The re-estimated \$7.5 million project is expected to be complete in early 1989.



Mamaroneck, New York (Westchester County)

Future Projects

An operational start-up date of March 1, 1993 is anticipated for a 20 MGD secondary activated sludge plant. This project has been re-estimated to cost \$100 million and construction is anticipated to begin March 1, 1989.

An additional \$26 million is anticipated for the land/water phases to install a new outfall discharging to Long Island Sound.

Presently, this facility is operating under a State Consent Order to attain secondary treatment levels. The Municipal Compliance Plan specifies obtaining operational levels by June 1, 1993.

See the New Rochelle write-up for additional information.

New Rochelle, New York (Westchester County)

Project in Progress

On December 12, 1986, NYS DEC imposed a sewer hookup moratorium on the New Rochelle Sewer District. This plant meets or exceeds the permitted flow capacity. With anticipated development in the area, there is concern that the plant capacity will be exceeded, as well effluent requirements not being met. This issue is presently being addressed. A comprehensive study of flow capacity and I/I reduction is 50% complete. This work will cost \$500,000.

Future Project

This facility is operating under a State Consent Order to accomplish collection system rehabilitation and eliminate two combined sewer overflows. The New Rochelle Sewer District; which is comprised of Larchmont, a small section of Mamaroneck, New Rochelle and Pelham Manor; will go to bid shortly for this work. A cost of \$1 million is anticipated.

Newtown Creek, New York (Kings County)

Projects in Progress

As a result of a recently enacted NYS DEC Consent Order, a facility plan and conceptual design of the facilities has been started. The facilities report is due



to be completed by March 1989.

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

#### Future Project

Work on the final design is expected to begin by August 1989. Construction is expected to begin by November 1991 with costs estimated to be \$100 million.

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

##### Completed Project

An engineering study is 100% complete which assessed the replacement of a grit collection system and installation of a new pump station. This work will be going to bid shortly; no construction start-up dates are available.

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

##### Projects in Progress

The construction of the secondary treatment facilities is 74.3% complete. These facilities will cost \$207.2 million. North River is operating under federal and State Consent Orders. The project is on schedule and is expected to be in compliance by July 1, 1989.

The rooftop park south access bridge is in place. Anticipated final costs for the park will amount to \$35 million.

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

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

##### Projects in Progress

Construction of the Mayflower pumping station is under way. Five contracts have been awarded addressing different phases of construction and installation. A total of \$15.58 million has been allocated.

Construction of the West Branch Interceptor System is under way. Cost estimates are over \$64 million.

A contract for the Richmond Avenue pumping station will be awarded soon; construction will start in February 1989.

This facility is operating under a State Consent Order to complete all collection system projects by December 31, 1993.

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

#### Future Projects

Construction of the Hylan Boulevard interceptor (between Craig and Bayview Avenues) is expected to begin by April 1989.

NYC DEP has requested authorization from the U.S. Army Corps of Engineers to replace a storm sewer outfall in Great Kills Harbor. The proposed work would provide a storm sewer system to eliminate flooding in the immediate area.

#### Orange and Rockland Utilities, New York (Rockland County)

##### Future Project

Cost estimates of \$200 million are anticipated for the coal reconversion project. No start-up date for construction is available.

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

##### Project in Progress

A 201 Facilities Plan study is 95% complete. A total of \$500,000 will be assessed for this work.

#### Owls Head, New York (Kings County)

##### Projects in Progress

A \$250 million upgrade is 74.4% complete. Work is continuing on the digester facilities, engine generator, pump and powerhouse, outfall to Upper New York Bay, disinfection facilities, waterfront facilities for the sludge barge berthing area and primary facilities.

Owls Head is operating under a State Consent Order to attain secondary treatment levels.

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

### Future Project

Upgrading of the primary tanks and final settling tanks is scheduled to be completed by 1995, at an estimated cost of \$200,000,000.

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

#### Completed Project

A Step I 201 Facilities Plan is 100% complete and a report was issued.

#### Future Projects

This plant is operating under a State Consent Order to eliminate I/I and attain secondary treatment limitations.

A plant capacity expansion to 2.8 MGD is to start in early 1989. An approximate operational start-up date has been set for early 1991.

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

#### Project in Progress

A new 6 MGD secondary facility incorporating rotating biological contactors is 80% complete. The \$42.5 million project includes the installation of RBC units, two final settling tanks, gravity thickeners, centrifuges, a fluidized bed sludge burning system, disinfection equipment, and a Long Island Sound outfall.

This facility is operating under a Consent Order to attain secondary treatment limitations by January 1, 1990.

### Port Richmond, New York (Richmond County)

#### Project in Progress

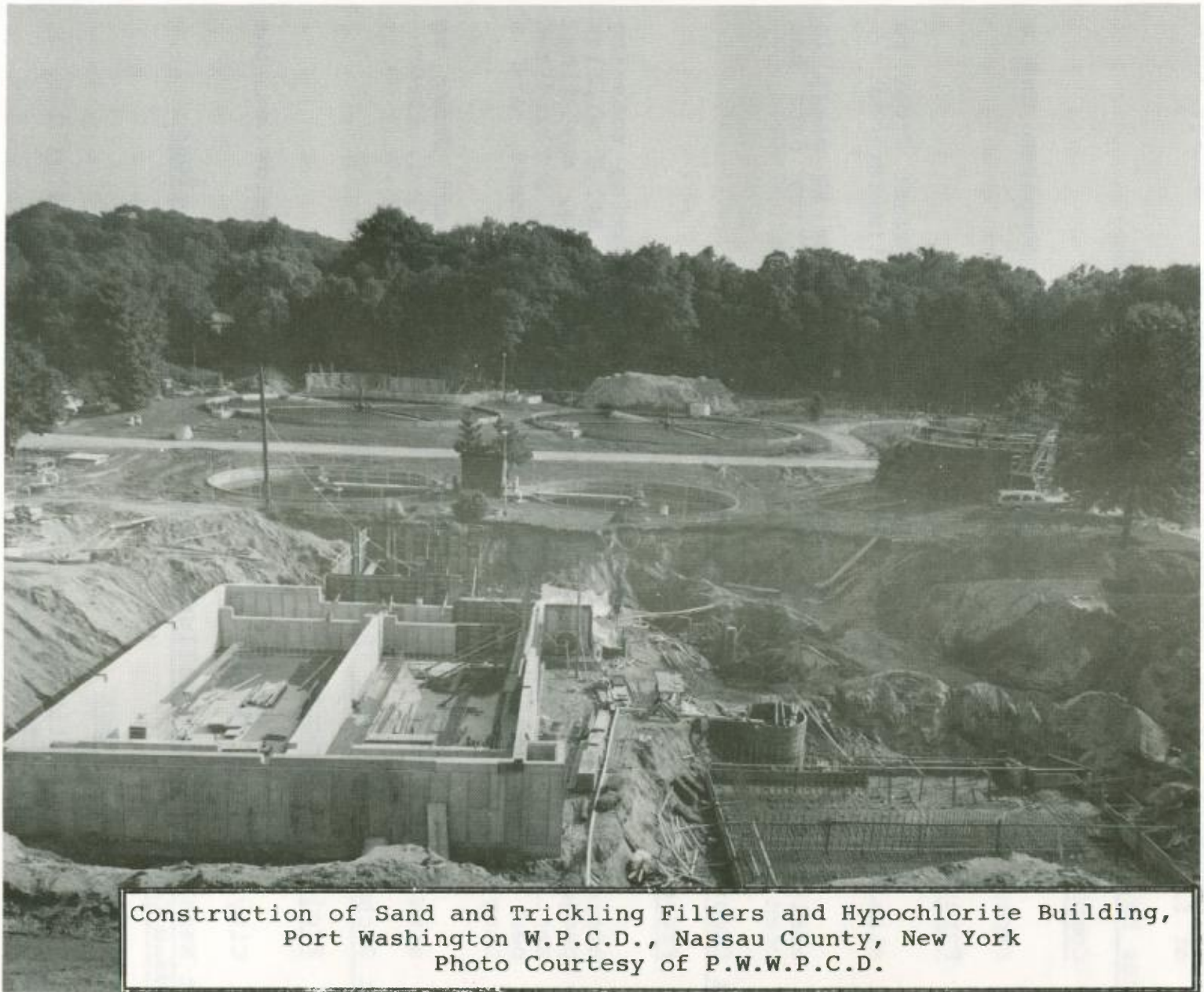
See the Bowery Bay write-up for information on the City-wide CSO project.

### Port Washington Water Pollution Control District, New York (Nassau County)

#### Completed Project

This facility met its Consent Order deadline of July 1, 1988, to attain secondary treatment limits.





Construction of Sand and Trickling Filters and Hypochlorite Building,  
Port Washington W.P.C.D., Nassau County, New York  
Photo Courtesy of P.W.W.P.C.D.

### Projects in Progress

Construction is 50% complete to expand this 3 MGD secondary trickling filter plant to a capacity of 4 MGD. A final cost of nearly \$17 million will provide for new primary and secondary clarifiers, a new trickling filter, a new sand filter, a new chlorine contact tank, sludge dewatering and incineration facilities, and a sewer outfall. The Municipal Compliance Plan specifies a construction completion date of May 15, 1990.

Collection system construction involving gravity sewer replacement and rehabilitation/modernization of two pumping stations is 50% complete. A completion date of May 1990 was set. Final costs are estimated at over \$10 million.

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

#### Projects in Progress

Ongoing construction of the advanced preliminary treatment phase includes work on plumbing, HVAC, electrical and sludge facilities. This \$111,500,000 cost is 93% complete.

The secondary treatment process construction will cost \$40.9 million. Installation of structures and equipment is 86% complete, HVAC installation is 76% complete and electrical work is 52.1% complete.

Two pump stations are over 90% complete. The force main in the existing flushing tunnel at Gowanus Canal is 84% complete. Collection system costs will amount to \$23.5 million.

This facility is operating under federal and State Consent Orders to attain secondary treatment levels by June 1, 1989.

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

### Rockaway, New York (Queens County)

#### Projects in Progress

An I/I study is nearly complete.

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



## Future Projects

Subsequent to the final I/I study, a tentative plan to initiate a SSES may be conducted.

Last year, New York City requested U.S. Army Corps of Engineers' authorization for a dredge permit to install three outfalls in Beach Channel, Jamaica Bay at Rockaway Beach. The permit process is awaiting NYS DEC and NYS Coastal Zone Management approvals. The proposed project would provide separate storm and sanitary sewer systems and eliminate CSO discharges.

## Rockland County Sewer District #1, New York (Rockland County)

### Projects in Progress

The upgrading and expansion construction is 90% complete. The re-estimated \$175 million project consists of a new 16 MGD secondary RBC plant, as well as retrofitting the existing 10 MGD secondary activated sludge plant with RBC units and accompanying support equipment.

Collection system improvements, including 10 new pump stations with force mains and interceptors, are 90% complete. The microcomputer alarm and monitoring system for the pump stations is already in use. The aforementioned main facility cost covers all collection system expenditures.

This plant is operating under a State Consent Order to complete substantial construction by January 1989 and reach operational levels by March 1, 1989. The plant is presently in compliance with specified Order dates.

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

### Completed Project

On July 1, 1988, a new 2.5 MGD secondary facility using a rotating biological contactor process came on-line. The \$5 million cost provided for a preliminary automatic bar screen, an aeration grit tank, primary and secondary clarifiers, sludge thickening and storage tanks and disinfection equipment.

### Project in Progress

Replacement and upgrading of several gravity sewer lines in order to reduce I/I is 50% complete.



Suffolk County Sewer District #1, S.U.N.Y., New York  
(Suffolk County)

Completed Project

An effluent force main connected to the Port Jefferson Harbor outfall is complete. The \$2,300,000 main will be put into service when the S.U.N.Y. plant is completed.

Projects in Progress

Construction of a 2.5 MGD secondary oxidation ditch treatment facility is 90% complete and is anticipated to be operational by March 1989. Over \$13 million is expected to be spent to install an influent pump station, a screen room with rotating hydrosieves, a new process control building, an oxidation ditch, secondary clarifiers, an effluent pump station, a disinfection system and odor control capabilities.

This facility is under a State Consent Order to attain secondary treatment.

Suffolk County Sewer District #3, Bergen Point, New York  
(Suffolk County)

Projects in Progress

Sludge dewatering and conditioning processes are 95% complete. Three belt presses have been installed. Refurbishing of two multi-hearth incinerators with new brickwork is still under way. A re-estimate of \$4 million covers construction modifications, as well as previously completed sludge and odor control studies, and odor control equipment which was installed.

A settlement was reached this year with one of the contractors for the sum of \$3.2 million. These monies are being used for operation and maintenance expenditures, not for capital improvements.

This facility is operating under a State Consent Order to implement improvements and meet secondary effluent limitations. Presently, the State is conducting a process capacity review.

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

Projects in Progress

Several engineering studies are under way at an estimated cost of over \$700,000. Among the issues being addressed are the facility's structure, sludge processes and handling, and equipment improvements.

Tallman Island, New York (Queens County)

Project in Progress

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

26th Ward, New York (Kings County)

Projects in Progress

Facility planning for water quality improvements of Jamaica Bay and small inlets is under way.

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

Wards Island, New York (New York County)

Projects in Progress

An SSES is in progress.

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

Yonkers, New York (Westchester County)

Completed Project

A \$4.2 million upgrade is complete. The work includes new roofs on the sludge storage tanks, an enclosure for the sodium hypochlorite tanks, a grit storage tank and all equipment for the sludge thickening polymer system.

Projects in Progress

On November 18, 1987, NYS DEC imposed a sewer hookup moratorium on the Yonkers drainage basin. This plant meets or exceeds the permitted flow capacity. With anticipated development in the area, there is concern that additional

wastewater flows will cause contravention of effluent water quality regulations. To this end, the Westchester County DEF has recently submitted a draft environmental impact statement and is awaiting the State's response.

#### Future Project

Collection system improvements are proposed for the Yonkers drainage basin. In 1987, Westchester County and NYS DEC signed an agreement that will lead to the reduction of CSO discharges in the Yonkers drainage basin. The agreement outlines a five phase, \$35 million program, with a completion date of 1997. In Phase 1 of the project, which has received funding, swirl concentrators and disinfection capability will be installed at the North Yonkers pump station to provide some treatment for the overflow discharging at this point. It is estimated that this first phase will reduce the volume of the CSO discharges by 50%. The remaining four phases of the project include sewer and regulator improvement for both the North Yonkers and South Yonkers collection system, creation of additional pumping capacity at several pump stations, and installation of treatment facilities at the South Yonkers screen house, similar to those being installed at the North Yonkers pump station. This project will specifically address the overflow problems at the five most frequent discharge points to alleviate the pollution due to CSOs in Yonkers.



## EFFLUENT AND AMBIENT WATER QUALITY MONITORING

During this past year, the Commission continued its monitoring programs of the District's effluent and ambient water quality. Samplings and inspections were conducted by field personnel at industrial, municipal and private wastewater treatment facilities, as well as on intensive surveys throughout the District's ambient waters. Commission laboratory personnel determined compliance with the ISC Water Quality Regulations and N/SPDES permit limitations was determined through analyses for a wide range of parameters.

The Commission laboratory is equipped with a full range of analytical instruments, including a gas chromatograph/mass spectrophotometer (GC/MS). With this instrument, toxics (including the priority pollutants) are measured on samples collected in the field.

The Commission's research vessel, the R/V Natale Colosi, was used extensively on various projects including surface water quality sampling and observations of the Fresh Kills Landfill, marine transfer stations and barges en route.

The laboratory has maintained its New York State and New Jersey wastewater laboratory certifications, and has continued to participate in the U.S. EPA Water Pollution Laboratory Evaluation Program and Water Supply Microbiology Performance Evaluation Study. The ISC laboratory also conforms with all recommended procedures of the U.S. Food and Drug Administration.

### Effluent Monitoring

Investigations of the District's wastewater treatment facilities are coordinated with the State environmental departments and the U.S. EPA. Investigations of private and municipal facilities involve a six-hour period of sampling and inspection of processes, equipment, and plant records; those of industrial facilities generally involve a twenty-four period or a full day's production, if less than twenty-four hours. Sample analysis of all appropriate parameters is carried out in the ISC laboratory. The data generated from these investigations is used to determine compliance with each facility's discharge permit.

### Ambient Water Quality Monitoring

This year, the Commission carried out a number of intensive shoreline and boat surveys in the District's ambient waterways. The boat surveys were conducted using the Commission's research vessel, the R/V Natale Colosi.

During the months of January through May, thirty sampling

trips were conducted involving a total of forty-eight fixed stations -- 24 in the Atlantic Ocean off the Rockaways, and 24 in Raritan Bay/Sandy Hook Bay. The samples were analyzed for coliform densities as requested by the shellfish divisions of the State environmental departments of New York and New Jersey. Two forty-eight hour surveys were conducted in August in two Connecticut harbors, in conjunction with the Connecticut DEP, for wasteload allocation determinations. Several trips were made at the request of the NJ DEP to collect surface water samples from the Arthur Kill/Kill Van Kull for priority pollutant analyses.

During August and September, ten shoreline surveys were conducted involving a total of sixteen stations along the east and west shores of the Hudson River between Bear Mountain and the George Washington Bridge to determine whether the waters are meeting coliform standards for swimming. Samples were also taken and analyzed at a number of outfalls throughout the District.



## SPECIAL INTENSIVE SURVEYS

### Microbiological Surveys to Determine the Feasibility of Increased Shellfish Harvesting in the Atlantic Ocean off the Rockaways, Raritan Bay and Sandy Hook Bay

The following report was issued by the Commission in July 1988.

The Interstate Sanitation Commission conducted a series of water quality surveys in the Atlantic Ocean off the Rockaways, and in Raritan and Sandy Hook Bays from January through May 1988. The study consisted of 30 sampling trips for a total of 48 stations -- 15 trips at 24 stations in the Atlantic Ocean and 15 trips at 24 stations in Raritan and Sandy Hook Bays. A total of 720 samples were taken -- each being analyzed for total and fecal coliforms for a total of 1,440 analyses. On the following pages are maps showing the general areas of sampling and specific sampling station locations.

The Atlantic Ocean area is used for direct harvesting during the summer but is closed for the winter months. The Raritan Bay area in New York waters was designated for depuration but has not been used since 1983; hence it must be re-evaluated. The New Jersey area in Raritan/Sandy Hook Bays is open for depuration from May 1 through September 30 and cannot be used the rest of the year. The field surveys were carefully scheduled to collect the water samples during the worst case conditions -- on the outgoing tide and under wet weather conditions. All samples were taken on the outgoing tide and, whenever possible, for wet weather. The sampling protocol and analysis procedure was in conformance with Section B of the National Shellfish Sanitation Program (NSSP) Operations Manual (1986); a three tube decimal dilution MPN test was used. The testing results were grouped for each of the three areas and are summarized on the following pages.

#### Atlantic Ocean off the Rockaways (New York Waters)

A total of 360 samples were taken at 24 stations -- 15 samples per station -- for the purpose of evaluating approximately 16,000 acres of direct harvesting waters. In 1987, as a direct result of the ISC year-round disinfection requirement, NYS DEC extended the season for direct harvesting from the period of June 1st through September 30th to the period of June 1st through December 14th -- an extra 2½ months. The current survey and analyses show that an even longer shellfishing period can be allowed.

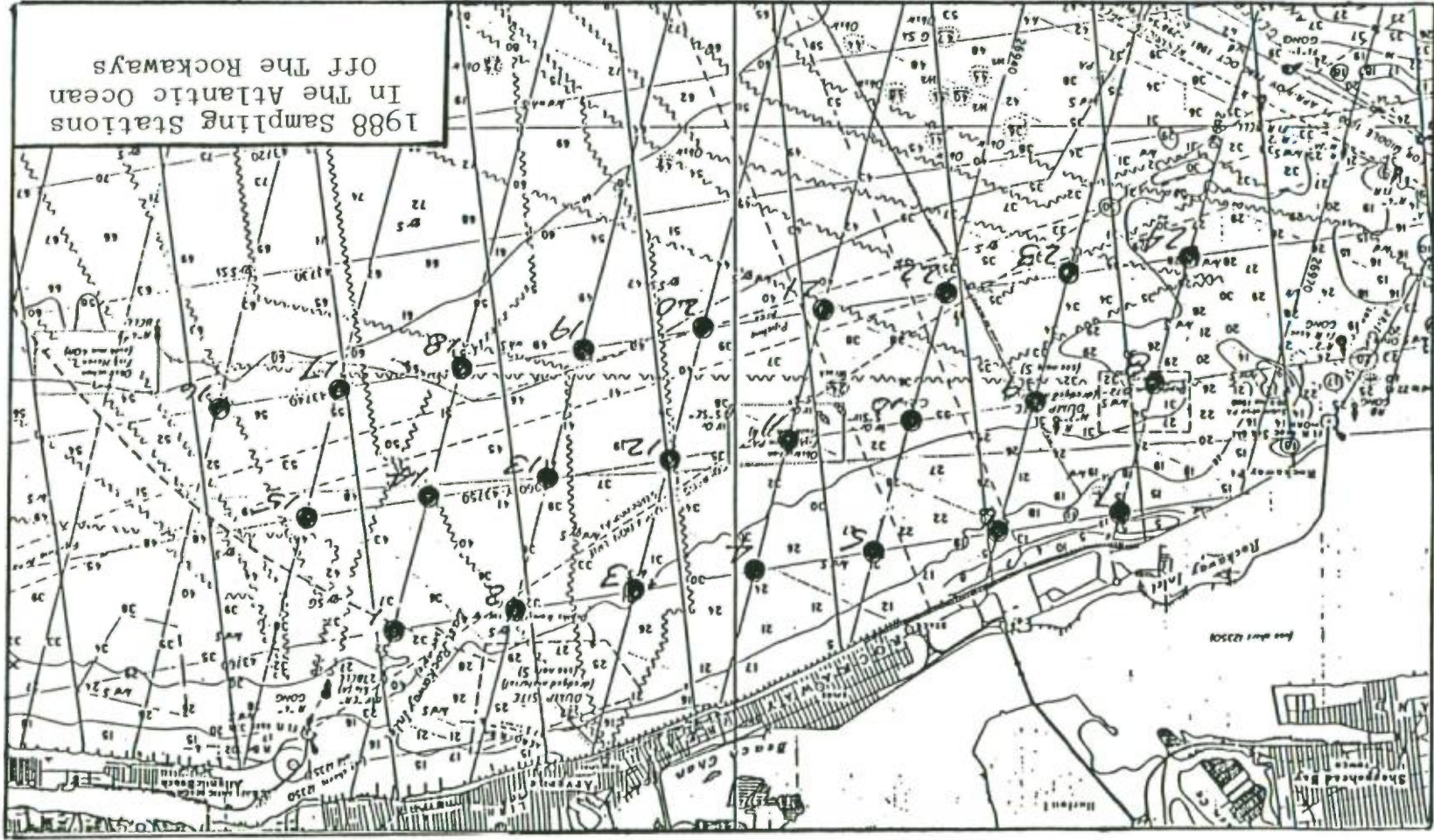
All 24 stations met the total coliform criteria promulgated by the Interstate Shellfish Sanitation Conference in its National





General Sampling Areas in the Atlantic Ocean, Raritan Bay and Sandy Hook Bay

1988 Sampling Stations  
In The Atlantic Ocean  
Off The Rockaways

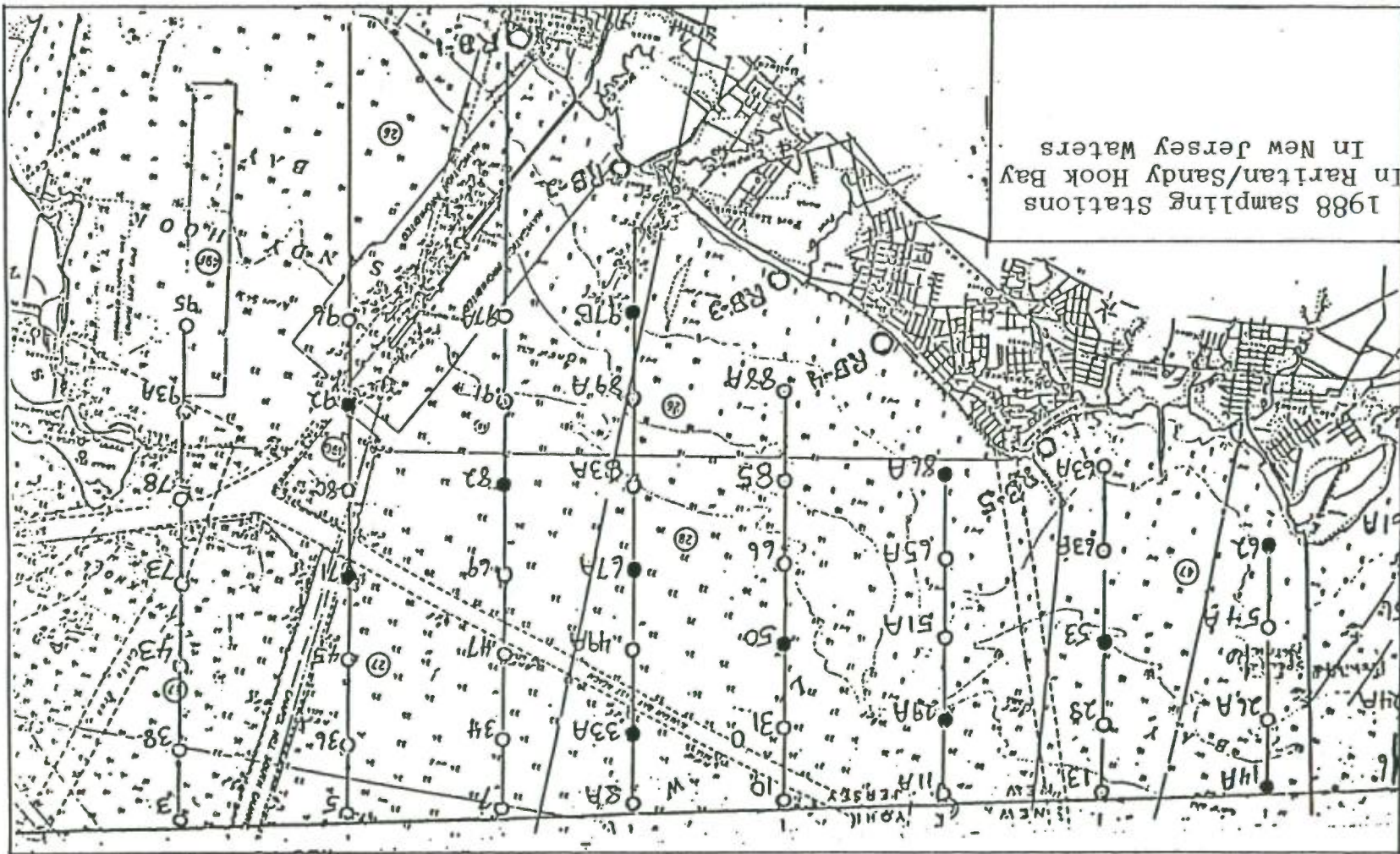








1988 Sampling Stations  
In Raritan/Sandy Hook Bay  
In New Jersey Waters



Summary of Sampling Results in New York State  
 Direct Harvesting Shellfish Waters  
 in the Atlantic Ocean Off the Rockaways\*

Station	Fecal Coliforms(MPN/100 ml)			Total Coliforms(MPN/100 ml)		
	Median	Geometric Mean	% of Samples Exceeding 49	Median	Geometric Mean	% of Samples Exceeding 330
1	< 3	< 4.4	0	< 3	< 4.8	0
2	< 3	< 4.6	6.7	< 3	< 5.5	0
3	3.6	< 4.8	0	3.6	< 6.5	0
4	< 3	< 3.9	0	3.6	< 5.0	0
5	15	< 10.7	6.7	20	< 13.7	0
6	3.6	< 10.1	13.3	3.6	< 11.6	0
7	3.6	< 6.6	0	3.6	< 7.3	0
8	3.6	< 8.7	13.3	3.6	< 10.8	6.7
9	< 3	< 4.4	6.7	3.0	< 5.1	0
10	< 3	< 4.1	6.7	< 3	< 4.8	0
11	< 3	< 3.3	0	< 3	< 3.6	0
12	< 3	< 3.1	0	< 3	< 3.1	0
13	< 3	< 3.3	0	< 3	< 3.4	0
14	< 3	< 3.4	0	< 3	< 3.8	0
15	< 3	< 4.0	0	< 3	< 4.4	0
16	< 3	< 3.8	0	< 3	< 3.8	0
17	< 3	< 4.4	0	< 3	< 4.8	0
18	< 3	< 3.4	0	< 3	< 3.4	0
19	< 3	< 3.5	0	< 3	< 3.8	0
20	< 3	< 3.4	0	< 3	< 4.0	0
21	< 3	< 3.8	6.7	< 3	< 4.5	6.7
22	< 3	< 5.0	6.7	< 3	< 5.5	0
23	< 3	< 4.6	6.7	< 3	< 5.9	0
24	< 3	< 5.1	6.7	< 3	< 7.7	0

\* Source of Data: The Interstate Sanitation Commission Water Quality Survey, 1988.



Summary of Sampling Results in New York State  
Depuration Harvesting Shellfish Waters in Raritan Bay\*

Station	Fecal Coliform (MPN/100 ml)			Total Coliform (MPN/100 ml)		
	Median	Geometric Mean	% of Samples Exceeding 300	Median	Geometric Mean	% of Samples Exceeding 3300
D	3.6	<13	0	23	<28.2	0
E	9.1	< 8.8	0	9.1	<19.4	0
F	9.1	<11.7	6.7	23	<23.6	0
G	15	<15.9	0	23	38.2	0
H	23	<21.5	0	93	58.1	0
I	3.6	< 9.5	0	15	<27.3	0
J	3.6	< 7.6	0	43	<46.6	0
J-1	9.1	<13.5	0	43	<50.9	0
K	9.1	<10.1	0	43	<45.7	0
L	3.6	< 6.5	0	9.1	<11.1	0
17	23	18.8	6.7	43	68.4	0
18	15	<18.1	0	43	51.3	0

\* Source of Data: The Interstate Sanitation Commission Water Quality Survey, 1988

Summary of Sampling Results in New Jersey  
 Depuration Harvesting Shellfish Waters in Raritan/Sandy Hook Bay\*

Station	Fecal Coliform (MPN/100 ml)			Total Coliform (MPN/100 ml)		
	Median	Geometric Mean	% of Samples Exceeding 300	Median	Geometric Mean	% of Samples Exceeding 3300
14A	7.3	<10.6	6.7	23	49.6	0
29A	<3	<5.1	0	23	<26.2	0
33A	9.1	<12.1	0	43	43.7	0
50	3.6	<7.9	0	23	<29.9	0
53	3.6	<6.5	0	23	<46.2	0
62	9.1	<15.8	6.7	93	<71	0
67A	3.6	<5.2	0	23	23.5	0
71	7.3	<7.5	0	43	<28.7	0
82	3.6	<6.2	0	23	<19.7	0
86A	3.6	<5.9	0	15	<29.9	0
92	7.3	<8.9	0	23	<27.4	0
97B	<3	<4.2	0	14	<18.6	0

\* Source of Data: The Interstate Sanitation Commission Water Quality Survey, 1988



National Shellfish Sanitation Program  
Coliform Requirements

Direct Harvesting

One of the following standards shall be met:

The total coliform median or geometric mean MPN of the water does not exceed 70 per 100 ml and not more than 10 percent of the samples exceed an MPN of 230 per 100 ml for a 5-tube decimal dilution test (or an MPN of 330 per 100 ml for a 3-tube decimal dilution test).

OR

The fecal coliform median or geometric mean MPN of the water does not exceed 14 per 100 ml and not more than 10 percent of the samples exceed an MPN of 43 per 100 ml for a 5-tube decimal dilution test (or an MPN of 49 per 100 ml for a 3-tube decimal dilution test).

Depuration

One of the following standards shall be met:

The total coliform median or geometric mean MPN of the water does not exceed 700 per 100 ml and not more than 10 percent of the samples exceed an MPN of 2,300 per 100 ml for a 5-tube decimal dilution test (or 3,300 per 100 ml for a 3-tube decimal dilution test).

OR

The fecal coliform median or geometric mean MPN of the water does not exceed 88 per 100 ml and not more than 10 percent of the samples exceed an MPN of 260 per 100 ml for a 5-tube decimal dilution test (or 300 per 100 ml for a 3-tube decimal dilution test).

Shellfish Sanitation Program. The NSSP's fecal coliform criteria were also met for all samples, except that Stations 6 and 8 (western boundary of the "summer harvesting" area) did not meet the criteria that "not more than 10% of the samples exceed an MPN of 49 per 100 ml"; 13% (2 out of 15) of their samples did not meet this requirement. At stations 6 and 8, the two values that exceeded 49 MPN/100 ml were 93 and 240 MPN/100 ml. At Station 5, the fecal coliform median was 15 MPN/100 ml which exceeded the NSSP criteria of 14 MPN/100 ml; all other fecal coliform criteria were met at this station.

#### Raritan Bay (New York Waters)

This shellfishing area was approved by NYS DEC for depuration purposes before harvesting activities were discontinued in 1983. A total of 180 samples were taken at 12 stations -- 15 samples per station. It was found that the NSSP's requirements for total and fecal coliforms for depuration were both met at all times during the sampling period -- February through April 1988.

#### Raritan/Sandy Hook Bay (New Jersey Waters)

This area encompasses 13,000 acres of seasonally special restricted shellfishing beds around Port Monmouth, New Jersey. The NJ DEP approved the area for depuration harvesting only for the time period from May 1 through September 30. A total of 180 samples were taken at 12 stations -- 15 samples per station. The sampling data show complete compliance with both NSSP's total and fecal coliform criteria for depuration during February, March, and April of 1988.

#### Conclusion

The water quality at all stations in all three study areas (except for three marginal stations in the Atlantic Ocean) showed continuous compliance with the NSSP requirements during this study which was conducted during the time of year when the shellfish beds are presently closed. The regional, year-round disinfection requirement enacted by the Interstate Sanitation Commission, which took effect on July 1, 1986, has already shown positive results -- an extended season in the Atlantic Ocean. The water quality of the three areas sampled has shown a reduction of coliforms, as confirmed by the data of this special study. If no other limiting factors exist, based on these surveys, all three areas should be able to be opened for shellfishing (direct harvesting in the Atlantic Ocean and depuration in Raritan and Sandy Hook Bays) on a year-round basis.

#### Events Subsequent to ISC Report of July 1988

Effective December 14, 1988, NYS DEC removed all seasonal



restrictions from the 16,000 acres of shellfish beds in the Atlantic Ocean off the Rockaways for direct harvesting; this area is now open on a year-round basis. The Commission supported this action by NYS DEC. It is expected the NJ DEP will shortly remove the seasonal restriction in Raritan/Sandy Hook Bay for shellfish waters used for depuration harvesting.

#### Hudson River Coliform Survey

In 1986, the ISC and the environmental departments of New York and New Jersey upgraded a portion of the Hudson River (from its confluence with the Harlem River north to the New York/New Jersey border) to swimmable/fishable -- ISC Classification "A". Several of the beach sites in and north of the upgraded portion of the Hudson River have been closed for swimming for many years due to high coliform bacteria densities and aesthetic blight. A preliminary coliform survey conducted during the summer of 1987, in the upgraded portion of the Hudson River and north to Croton-on-Hudson, yielded encouraging results.

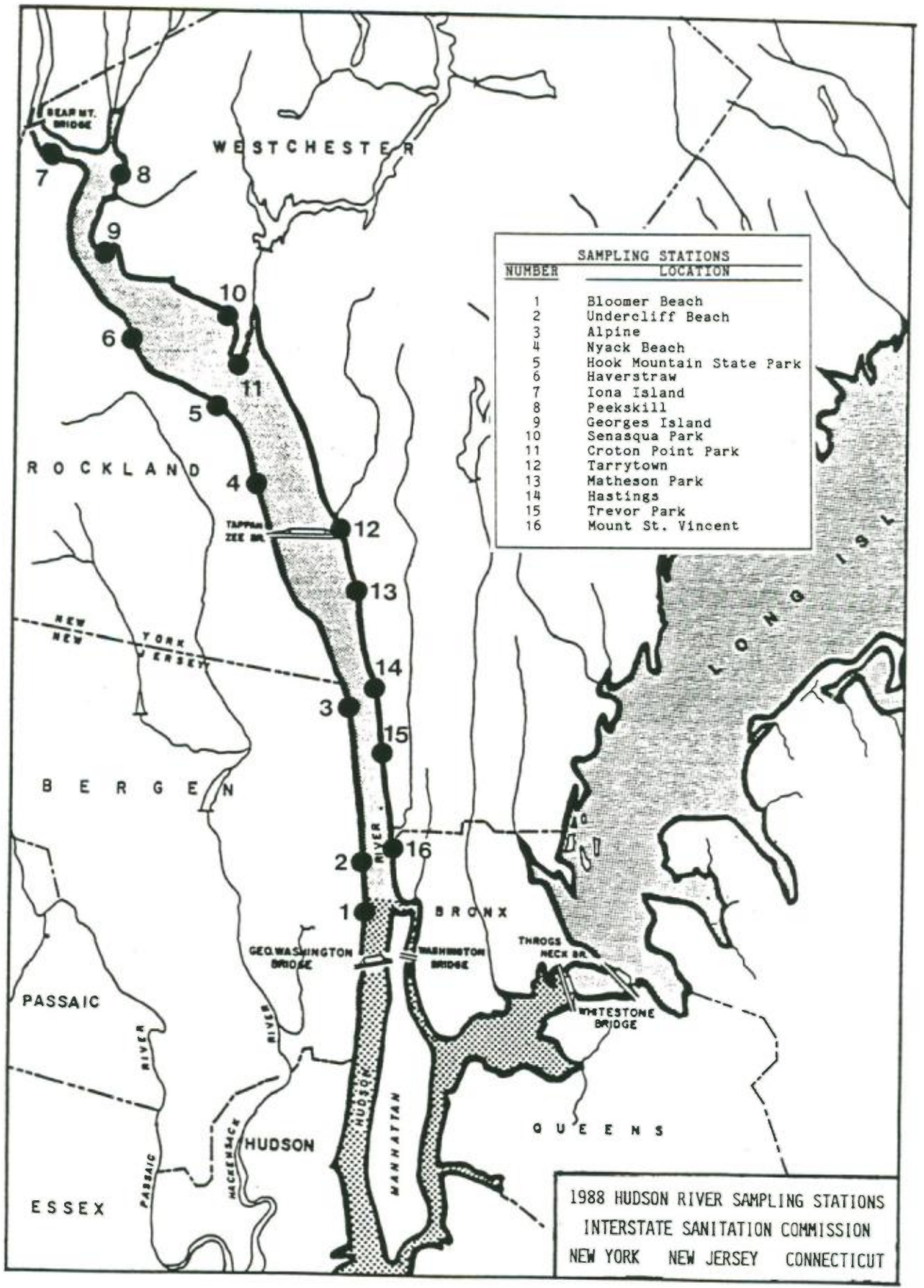
During the summer of 1988, a coliform survey was conducted at 16 stations in the Hudson River. The stations were located from just south of the upgraded portion to Iona Island near Bear Mountain (see map on following page). Prior to conducting the survey, the agencies responsible for opening swimming areas were contacted for the necessary sampling protocols and were also asked for suggested sampling locations. The survey conducted in 1988 reflects the input from those agencies.

The 16 stations along the west and east shores of the Hudson River were sampled 10 times during July and August. The samples were taken at the shoreline from marinas, waterfront parks and beaches. The analyses were performed at the ISC laboratory using the 5-tube, 3 dilution MPN test for fecal and total coliforms. The sampling results and coliform standards to which the results were compared are shown on the following pages.

The sampling results are encouraging. Although seven of the stations did not meet all the applicable coliform criteria, they are not far from the values necessary for swimming purposes. Station 1, Bloomer Beach, just south of the upgraded portion of the Hudson River, came close to meeting the criteria. Station 8, in Peekskill, was not far from a sewage treatment plant outfall and exceeded the swimming criteria.

There is a long stretch on both shores of the Hudson River that are meeting the coliform standards for swimming. If all other applicable criteria are being met, it appears that some areas that have been closed for swimming for over 40 years can again be used for that purpose. Additional water quality improvements are necessary, such as CSO remediation, before the





SAMPLING STATIONS	
NUMBER	LOCATION
1	Bloomer Beach
2	Undercliff Beach
3	Alpine
4	Nyack Beach
5	Hook Mountain State Park
6	Haverstraw
7	Iona Island
8	Peekskill
9	Georges Island
10	Senasqua Park
11	Croton Point Park
12	Tarrytown
13	Matheson Park
14	Hastings
15	Trevor Park
16	Mount St. Vincent

1988 HUDSON RIVER SAMPLING STATIONS  
 INTERSTATE SANITATION COMMISSION  
 NEW YORK NEW JERSEY CONNECTICUT

1988 HUDSON RIVER COLIFORM SAMPLING RESULTS

Station	-- F e c a l C o l i f o r m --			-- T o t a l C o l i f o r m --		
	Value *	% of Values Exceeding 400/100 ml **	Meeting Criteria	Value *	% of Values Exceeding 5000/100 ml ***	Meeting Criteria
1	<170	30	No	820	--	---
2	200	30	No	800	--	---
3	<76	20	No	830	--	---
4	<44	--	Yes	510	0	Yes
5	<80	--	Yes	500	0	Yes
6	200	--	Yes	1200	10	Yes
7	73	--	Yes	830	10	Yes
8	>7300	--	No	>14000	80	No
9	<56	--	Yes	430	0	Yes
10	<67	--	Yes	450	10	Yes
11	<38	--	Yes	280	0	Yes
12	<150	--	Yes	770	20	No
13	<160	--	Yes	800	10	Yes
14	<100	--	Yes	630	10	Yes
15	<330	--	No	>1300	10	Yes
16	120	--	Yes	>2700	30	No

Notes: \* Geometric (logarithmic) mean  
 \*\* Applicable in New Jersey waters  
 \*\*\* Applicable in New York Waters



## COLIFORM STANDARDS FOR BATHING BEACHES

### NEW JERSEY

Fecal coliform levels shall not exceed a geometric average of 200/100 ml nor should more than 10 percent of the total samples taken during any 30-day period exceed 400/100 ml.

### NEW YORK

The total number of organisms of the coliform group shall not exceed a logarithmic mean of 2400/100 ml for a series of five or more samples taken in any 30-day period, nor shall 20 percent of total samples during the period exceed 5000/100 ml.

The fecal coliform density from at least five successive sets of samples collected daily on five different representative days shall not exceed a logarithmic mean of 200/100 ml.

waters in the lower portion of the study area meet swimming criteria.

### Connecticut Harbor Surveys

In August, the Commission conducted two intensive surveys in conjunction with the Connecticut Department of Environmental Protection. Each survey was conducted for forty-eight hours around-the-clock and covered four full tidal cycles. The surveys were conducted in Bridgeport and Greenwich Harbors using the R/V Natale Colosi. Field personnel and engineers from both the Commission and CT DEP took top and bottom samples during low tide. These samples were analyzed by the Commission laboratory for several parameters including nutrients, BOD, and chlorophylls. During high and low tide, in situ measurements of dissolved oxygen, temperature, and salinity were made. Eight stations were monitored in Bridgeport Harbor; seven stations in Greenwich Harbor. Throughout these surveys, CT DEP also sampled the corresponding municipal wastewater treatment plants. The laboratory analyses were provided to CT DEP for wasteload allocation determinations and water quality modeling.

## BOAT INSPECTION TRIP

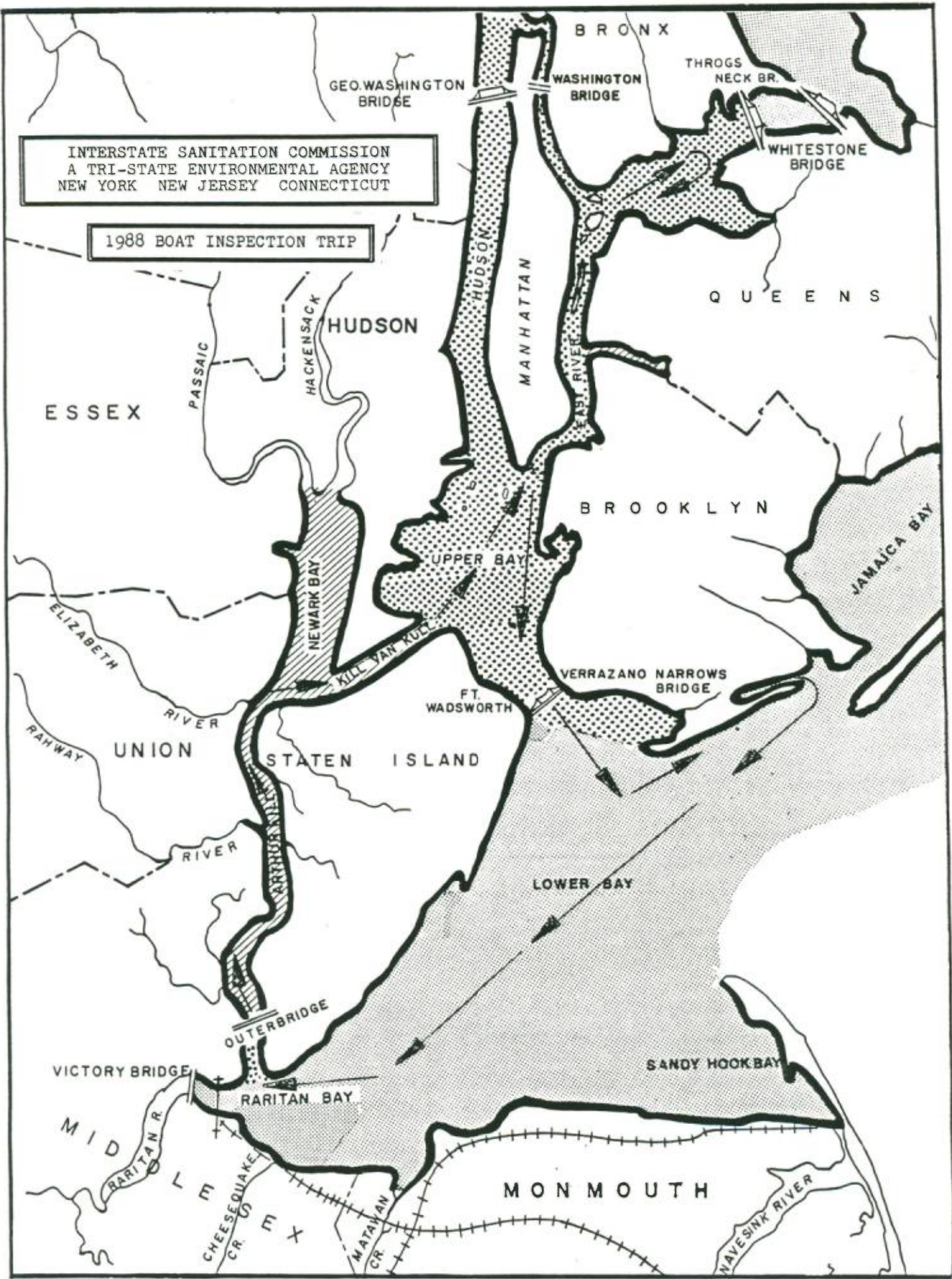
A boat inspection trip was held in July in a portion of the Interstate Sanitation District: Lower and Upper New York Bays, Arthur Kill, Kill Van Kull, and the East River. The map on the following page shows the route which was followed. The waterways inspected during this trip provide for recreational powerboating and sailing; the use of canoes, kayaks and sculls; commercial and recreational fishing, shellfishing and scuba diving, as well as swimming, water skiing and wind surfing. In contrast, New York Harbor is the world's second busiest; entertaining cruise and container ships, fuel tankers, barges and tugs.

ISC Commissioners, elected officials, officials from all levels of government, citizen groups, and the press (represented by newspaper, radio and television media) viewed recreational resources, maritime and urban industries, historical landmarks and waterfront development projects. A running dialogue was provided of issues, sights and points of interest. The opportunity to discuss and observe some of the environmental problems and progress in the District was shared by all.



INTERSTATE SANITATION COMMISSION  
A TRI-STATE ENVIRONMENTAL AGENCY  
NEW YORK NEW JERSEY CONNECTICUT

1988 BOAT INSPECTION TRIP



BRONX

GEO. WASHINGTON BRIDGE

WASHINGTON BRIDGE

THROGS NECK BR.

WHITESTONE BRIDGE

QUEENS

HUDSON

HUDSON

MANHATTAN

ESSEX

PASSAIC

HACKENSACK

BROOKLYN

JAMAICA BAY

UPPER BAY

VERRAZANO NARROWS BRIDGE

FT. WADSWORTH

KILL VAN KULL

UNION

STATEN ISLAND

ELIZABETH RIVER

RAHWAY RIVER

RIVER

LOWER BAY

OUTER BRIDGE

SANDY HOOK BAY

VICTORY BRIDGE

RARITAN BAY

MONMOUTH

MID RARITAN R.

CHEESEWAKE CR.

MATAWAN CR.

NAVESINK RIVER



## NATIONAL ESTUARY PROGRAM

### Long Island Sound Estuary Study

Since fiscal year 1985, Congress has funded a project to carry out a multi-year water quality program including research, sampling, monitoring, and assessment for the Long Island Sound. In March 1988, the Long Island Sound was designated as an estuary of national significance in U.S. EPA's National Estuary Program. This designation will assure continued federal funding for the project until 1991. Overall project coordination is being carried out by U.S. EPA Regions I and II. The study is being conducted by the Commission, the States of Connecticut and New York, the National Oceanic and Atmospheric Administration (NOAA), and the academic community.

The study area for the project includes the East River from Hell Gate to Throgs Neck, and Long Island Sound from Throgs Neck on the west to a line between Watch Island, Rhode Island and Orient Point/Plum Island, New York on the east.

The Commission's involvement with the project includes membership on the Management Committee, the Technical Advisory Committee and several working groups. ISC is also responsible for conducting several parts of the project.

The Commission has assembled and is summarizing data on toxic contaminants in the water column. In addition to characterizing toxics in the water column, ISC is using data prepared by other investigators on toxics in sediments, fish and shellfish to correlate contaminants with sources and make an overall assessment of environmental quality in Long Island Sound.

Since the spring of 1988, the Commission has been using automatic water quality monitoring equipment to collect data required for the development of the hydrodynamic and water quality models being produced for Long Island Sound. The equipment is installed at both ends of the East River -- Throgs Neck and the Battery. Samples are continuously pumped from the East River into the monitoring units where continuous measurements are taken and recorded hourly. At each station, temperature, conductivity and dissolved oxygen (DO) measurements are taken at two depths -- one approximately six feet below the water surface and one approximately eight feet above the bottom. The data are sent to both the hydrodynamic and water quality modelers every two weeks on 5¼" diskettes as ASCII files that are compatible with the modelers' computers.

### New York - New Jersey Harbor Estuary Program

In July 1988, the New York-New Jersey Harbor Estuary was

designated as an estuary of national significance in U.S. EPA's National Estuary Program. The Commission is a member of the Management Committee along with representatives of federal, state and local agencies and members of the Citizens Advisory Committee, Science/Technical Advisory Committee and the Local Government Committee. U.S. EPA Region II is coordinating the project.

In compliance with the United States-Japan Fishery Agreement Act of 1987, a separate but related study -- the New York Bight Restoration Plan -- is being conducted. Because of its inter-relationship with the NY-NJ Harbor Estuary Program, the NY Bight Restoration Plan is using the same Management Committee as the NY-NJ Harbor Estuary Program. The Sandy Hook, NJ-Rockaway Point, NY transect is the dividing line between the two studies. Under the NY Bight Restoration Plan, a floatables management plan, for which ISC is a member of the work group, is presently being developed and is scheduled for completion by the summer of 1989.



## COMBINED SEWER OUTFALL STUDY

The Commission recently published a report in October entitled Combined Sewer Outfalls in the Interstate Sanitation District. It is the culmination of over two years of data gathering and evaluation. The Commission is now in the process of distributing the report, which is accompanied by an invitation to a conference on the combined sewer problems in the District that will take place early in 1989. The following text is excerpted from the the Executive Summary of the Report.

Because combined sewer systems account for much of the infrastructure in its District, the Interstate Sanitation Commission believed that a study to investigate combined sewer overflow (CSO) outfalls in the District would be valuable for long-term pollution control planning. This is especially so because with the ongoing construction to upgrade publicly-owned treatment works (POTWs) throughout the District, CSOs will remain the major regionwide source of untreated sanitary waste discharging into the District. As part of this study, the Commission began to catalogue and to assemble data on CSO outfalls in all of the areas where they exist in its District.

This report has focused on the CSO outfall rather than the overflow. The outfall is the structure through which an overflow from a combined sewer system discharges to a receiving water. A combined sewer system is one in which the municipal wastewater system does not have separate storm and sanitary sewer lines. Under dry weather conditions, a properly functioning combined system carries only sewage. During storms, however, it also collects and transports storm water runoff. These systems are designed to divert the combined wastewater at the regulators when its volume exceeds the capacity of the sewer lines. This diversion protects the sewer lines and the POTW. It also results in the discharge of raw sewage into the receiving water, unless a mechanism for storage or treatment has been incorporated into the system. Such a diversion, with the same results, can occur during dry or wet weather, in combined or separate systems, due to inflow or infiltration into the system or undersized, inadequate or poorly maintained equipment.

The Commission's District is shown on the inside of the front cover of this report. This area includes waterbodies that are heavily polluted with industrial waste, as well as waterbodies that are appropriate for swimming, fishing, shellfishing and other primary contact recreation. It encompasses rich commercial and recreational resources surrounding one of the most populous areas in the world.

This study is the first and only effort to gather CSO data on a regionwide basis. Although municipal CSO or regulator

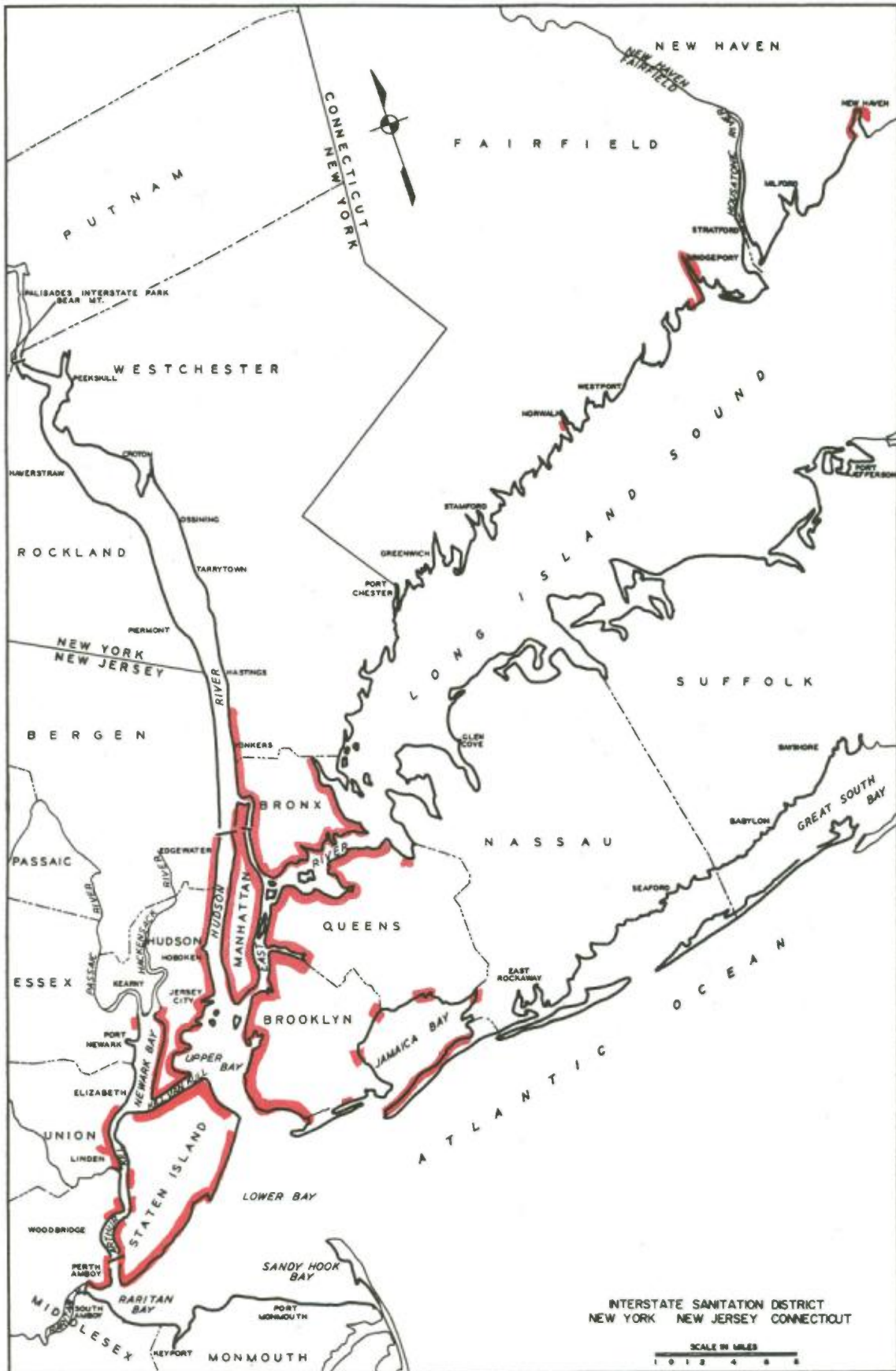
studies analyzed certain municipal systems, any larger analysis was beyond the scope and responsibility of any one of the governmental bodies that had generated such a report. For this reason, the Commission, as the interstate environmental agency in the metropolitan area, undertook this broad investigation.

The highlighted shoreline on the map on the following page shows the areas within the District where CSOs are located. Based on available information, the Commission has identified approximately 680 CSO outfalls in the District. For purposes of this report, the outfalls from the few separated sewer systems or unsewered areas that discharge during dry or wet weather are included in this number.

The discussion of the CSOs in the District is organized by waterbody for this report. The reason for organizing in this way is simply that it provides discrete areas on which to focus efforts to remedy overflows. By viewing the entire District in this manner, it is possible to identify waterbodies where CSOs have the greatest impact and where CSO reduction would lead to the greatest water quality improvement. In addition, this type of analysis by waterbody is particularly helpful when it crosses jurisdictional boundaries, as do most waterbodies in the District. Unsanitary overflows are a regional problem, not confined to one municipality or even to one state.

The chapters discuss the following waterbodies: 1) Western Long Island Sound; 2) the East River; 3) the Harlem River; 4) the Hudson River; 5) the Upper Bay; 6) the Kills and Newark Bay; 7) the Lower Bay; 8) Jamaica Bay/Rockaway Inlet; and 9) the Atlantic Ocean. The final chapter summarizes the conclusions and recommendations from the Report. On the following pages are a map and table delineating the District and tabulating the number of outfalls per waterbody.

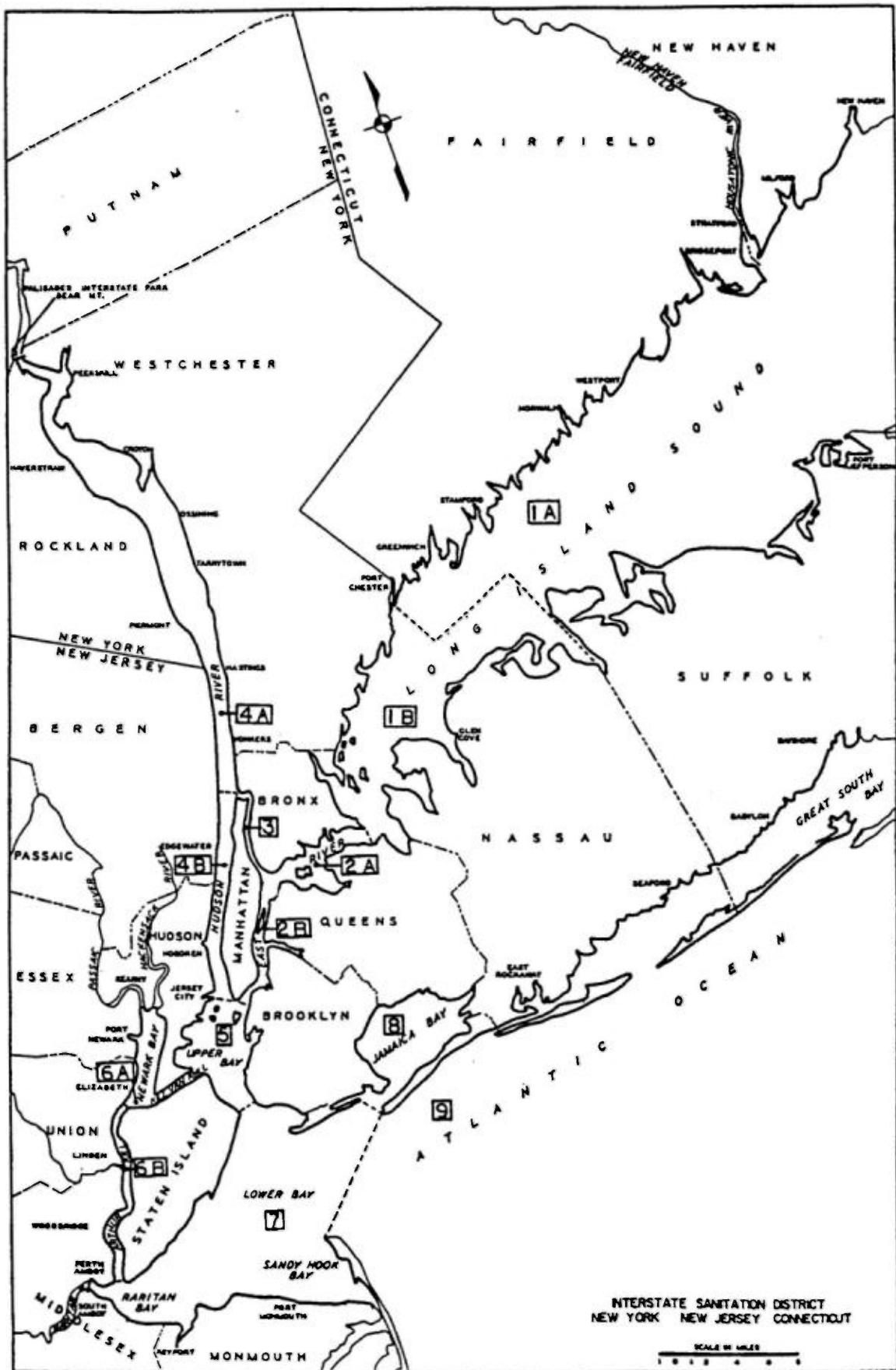




INTERSTATE SANITATION DISTRICT  
 NEW YORK NEW JERSEY CONNECTICUT

SCALE IN MILES  
 1 0 1 2 4 5 6





INTERSTATE SANITATION DISTRICT  
 NEW YORK NEW JERSEY CONNECTICUT

SCALE IN MILES

COMBINED SEWER OUTFALLS IN THE INTERSTATE SANITATION DISTRICT

<u>SEGMENT</u>	<u>WATERBODY (INCLUDING TRIBUTARIES)</u>	<u>NUMBER OF OUTFALLS</u>
1	New Haven Harbor	16
	Bridgeport Harbor	48
	Norwalk River	1
	Eastchester	11
	Little Neck Bay	6
2	East River	202
3	Harlem River	48
4	Hudson River	115
5	Upper New York Bay	59
6	Newark Bay	25
	Kill Van Kull	21
	Arthur Kill	48
7	Lower New York Bay	35
8	Jamaica Bay	41
9	Atlantic Ocean	1
	TOTAL NUMBER OF OUTFALLS = 677	

## WATERFRONT DEVELOPMENT AND INFRASTRUCTURE

The Interstate Sanitation District encompasses thousands of miles of coastline. What is of utmost concern is to ensure that as changes occur, they are carefully planned and that they are not costly in those things most valued. Parks, fisheries, recreation, residential and commercial/industrial facilities, as well as historic preservation, can't be gained without strong concern for the broader questions of environmental conservation.

Since the early 1980's, there has been much interest by numerous developers throughout the Region to begin residential, commercial, and mixed-use projects with accompanying facilities such as marinas, hotels, exhibition space, parking lots, ferry terminals and parks. Negative impacts upon the District's waterways will occur unless the additional wastewater generated is treated properly. To this end, the Commission has prepared a regionwide inventory of waterfront development projects within the District. Effluent projections were calculated per project and then delineated per drainage basin in which the projects are planned, proposed or under way.

There can be no wiser investment for the future than immediate capital and operation and maintenance investments in treatment plants and sewer lines leading to them. The hard won gains in regional water quality cannot be allowed to literally go down the drain. If undersizing treatment facilities or ignoring future pollution abatement practices lead to the Region not being able to reach its desired growth and rich potential, then it would indeed be an economic tragedy and disheartening setback. The Commission will continue to meet with municipalities throughout its District to address this issue.



## CESSATION OF SEWAGE SLUDGE DUMPING IN THE ATLANTIC OCEAN

The New York Bight is that section of the Atlantic Ocean extending from Cape May, New Jersey north and east to Montauk, Long Island; it encompasses an area of more than 11,350 square nautical miles. For the most part, the Bight Apex is outside the Commission's District. Nonetheless, ISC maintains a keen interest in the area. The Bight is rich in living and mineral resources, a major recreational area and supports a healthy commercial and sportfishing industry. It is also a vast archeological treasure trove of historical shipwrecks and provides sea lanes for commerce.

In contrast, the Bight is the sink for the ultimate disposal of municipal and industrial wastes. The permit for the 12-mile site, which has been used as the major depository for municipal sludge since 1924, expired on December 31, 1981. A federal court, acting on a suit by New York City and other jurisdictions, ordered that the dumping be allowed until the U.S. EPA made a final determination on its impact and/or designated a new site. In mid-1985, the U.S. EPA denied a petition to continue use of the 12-mile site because of evidence of increased levels of toxic metals and organohalogens in bottom sediments found at the site, as well as the disappearance of pollution-sensitive crustaceans and other marine life. The new site -- known as the 106-mile dump site -- was selected off the continental shelf about 120 nautical miles southeast of Ambrose Light and 115 nautical miles east of Atlantic City, New Jersey. As scheduled, all sludge was going to the new site as of December 15, 1987.

On September 14, 1988, the Governors of New York and New Jersey announced a joint agreement that would terminate the dumping of sewage sludge in the Atlantic Ocean by 1991 and create a federal trust to finance the development and implementation of environmentally sound alternatives to ocean dumping. Trust funds could also be used for monitoring and enforcement of the ocean dumping law. The agreement contains civil penalties for ocean dumping beyond that date and would not contain waivers or consent decree provisions that would delay the imposition of the civil penalties.

The New York-New Jersey Metropolitan Area Sewage Sludge Disposal Management Program, prepared by the Commission in October 1976, suggested a framework and through technical investigations, determined environmental and socioeconomic alternatives could be implemented to ocean disposal. First, land alternatives such as sanitary landfill, spreading as soil conditioners and fertilizer, various sludge solidification processes, and/or drying and selling for fertilizer and soil conditioning. Secondly, treatment by combustion such as incineration and/or incineration in combination with solid wastes, as well as to include facilities

for power or steam generation. Thirdly, treatment by pyrolysis; and finally, by wet combustion. The conclusions reached in the Commission's 1976 report still hold today. ISC has recently testified at several hearings that the Commission is in favor of the cessation of ocean disposal of sewage sludge.



### III. AIR POLLUTION

#### GENERAL

Since 1962, the Commission has been active in conducting investigations and applied research and in advocating regional viewpoints on environmental issues as part of its interstate air pollution program. During 1988, the ISC continued its investigation of air pollution complaints, particularly on Staten Island. For the 12-month period ending September 30, 1988, a total of 1,053 air pollution complaints were received; an increase of 10% over the previous 12-month period.

The ISC continued its strong participation in the area of resource recovery as a means of municipal solid waste disposal. As a result of gaining party status in the Brooklyn Navy Yard Administrative Hearing, Commission staff members presented expert testimony and filed briefs advocating ISC's position on several environmental issues. The Commission's testimony centered on air and water pollution control considerations related to incinerator operation and maintenance, municipal solid waste transfer and ash disposal at landfills.

In 1988, the Commission joined the member States, New York City and the U.S. EPA in starting a regional Ozone Health Message System. The Commission coordinates the information received from the States and alerts the public to unhealthy levels of ozone during the May through September period when atmospheric concentrations are highest. In mid-May, the New York State Department of Environmental Conservation unexpectedly suspended its participation in the program. Nevertheless, the Health Message System operated successfully during the summer, employing ozone pollution data and meteorological information from New Jersey and Connecticut.

The daily air quality and stagnation advisory reports transmitted by the Commission for use by its three member States and New York City were somewhat truncated after May 1988. NYS DEC, at that time, unexpectedly stopped transmission of its air quality data and stagnation forecasts. It is not known when that agency will resume participation in this program.

The Commission proceeded during the year to design and build a sampling and transfer system to measure air toxics. Methods for manual preparation and initial analytical calibration procedures were also completed. Air toxics sampling is planned when odor episodes and air stagnation events occur.



## REGIONAL AIR POLLUTION WARNING SYSTEM

Since 1970, the Interstate Sanitation Commission has had the responsibility to coordinate the New Jersey-New York-Connecticut Air Quality Control Region's High Air Pollution Alert and Warning System. The Commission may activate this System based on stagnation advisory reports and/or existing pollutant levels. Upon notification of the participating federal, state, and local agencies by the Commission that the System has been activated, data on pollutants are transmitted to and from the Commission using procedures agreed upon by all the participants. Conditions during the past year did not warrant activation of the System.

As worked out by ISC and the member states of the Air Quality Control Region, daily stagnation forecasts for the New Jersey-New York-Connecticut AQCR are prepared by the NYS DEC in Albany and transmitted to the Commission. These forecasts, as well as air quality data it receives from the states, are then transmitted to all participating agencies. Unexpectedly, in May 1988, the NYS DEC abruptly suspended transmission of its meteorological and air quality information to the ISC. It is not known when resumption of this service will take place.

The number of air telemetry stations operated by the three member States in the New Jersey-New York-Connecticut AQCR decreased to 44 in 1988 from the 45 existing in 1987. The Norwalk station in Fairfield County, Connecticut ceased operation. An updated map and list of the stations' locations are shown on the following pages.

In early 1988, the ISC agreed that NYS DEC prepare and issue a simplified daily stagnation report based on a preliminary analysis on those days when meteorological data indicated non-stagnation conditions would likely prevail. NYS DEC then decided to redirect some of its efforts to providing a meteorological forecast to ISC for the Ozone Health Message System, details of which appear elsewhere in this report.

AIR MONITORING TELEMETRY STATIONS  
IN THE  
NEW JERSEY-NEW YORK-CONNECTICUT  
AIR QUALITY CONTROL REGION

<u>ISC NO.</u>	<u>SITE OR CITY</u>	<u>COUNTY</u>	<u>STATE</u>
13	Queens College	Queens	New York
16	Mabel Dean Bacon H.S.	New York	New York
17	Greenpoint	Kings	New York
19	Sheepshead Bay H.S.	Kings	New York
21	Susan Wagner H.S.	Richmond	New York
22	CCNY	New York	New York
23	45th Street	New York	New York
24	Canal Steet	New York	New York
32	Eisenhower Park	Nassau	New York
34	Babylon	Suffolk	New York
35	White Plains	Westchester	New York
36	I.S. 45	New York	New York
37	I.S. 155	Bronx	New York
39	P.S. 321	Kings	New York
40	P.S. 2	Bronx	New York
44	World Trade Center	New York	New York
45	Brooklyn Transit	Kings	New York
46	P.S. 112	Queens	New York
47	Alexander's Dept. Store	New York	New York
48	P.S. 59	New York	New York
51	Bayonne	Hudson	New Jersey
52	Hackensack	Bergen	New Jersey
53	Newark	Essex	New Jersey
55	Perth Amboy	Middlesex	New Jersey
56	Elizabeth	Union	New Jersey
57	Jersey City	Hudson	New Jersey
58	Morristown	Morris	New Jersey
59	Freehold	Monmouth	New Jersey
62	Elizabeth	Union	New Jersey
63	Chester	Morris	New Jersey
65	East Orange	Essex	New Jersey
66	New Brunswick	Middlesex	New Jersey
67	Plainfield	Union	New Jersey
68	Cliffside Park	Bergen	New Jersey
69	Fort Lee	Bergen	New Jersey
71	Bridgeport-Congress St.	Fairfield	Connecticut
72	Stamford-REC Center	Fairfield	Connecticut
74	Danbury	Fairfield	Connecticut
75	Stratford	Fairfield	Connecticut
77	Bridgeport-Edison School	Fairfield	Connecticut
78	Stamford-Trailer	Fairfield	Connecticut
79	Greenwich	Fairfield	Connecticut
80	Bridgeport-City Hall	Fairfield	Connecticut
81	Stamford-Ferguson Library	Fairfield	Connecticut



## AIR POLLUTION COMPLAINTS

In 1988, the Commission continued to receive, respond to and investigate complaints relating to air pollution. The heavily industrialized section of the New York-New Jersey border in the vicinity of Staten Island generates more complaints of disagreeable odors and airborne pollutants than any other single area under the jurisdiction of the Commission.

For the 12-month period ending September 30, 1988, the Commission received a total of 1,053 complaints. This represents an increase of 10% over the comparable 12-month period in 1987, but is significantly less than the 3,475 complaints registered during the comparable period in 1986. The complaints were categorized by the Commission into four groups which are presented in the following tables: (1) community from which complaints were made, (2) type of odor, (3) time of day, and (4) day of the week.

Fifty-five Staten Island communities were the source of at least one complaint to the Commission during the October 1987 - September 1988 period. New Springville led the Staten Island communities in complaints for the third straight 12-month period with 143, or 13.6% of the total. The citizens of Travis reported 106 complaints and five other communities registered at least 50 complaints. From the other boroughs of New York City, Long Island and New Jersey, only 14 complaints were called into the Commission.

On the basis of the descriptions reported by the citizens, odors were classified into ten categories. The leading category of odors reported to the Commission was "chemical and others", which amounted to 41.3% of all complaints. This category contained a considerable number of reported odors that could not be more specifically identified by the complainants. Garbage was the next most frequently reported odor category and represented 25.3% of the total complaints.

The Commission continued to group the complaints received each day into three time intervals -- midnight - 8:00 a.m., 8:00 a.m. - 4:00 p.m., and 4:00 p.m. - midnight -- in order to identify when most of the pollution complaints are made. Again in 1988, over half of the complaints (50.8%) were reported to the Commission during the 8-hour period between 4:00 p.m. and midnight. Because of the heavy complaint load during this time of day, the Commission maintained a field inspector on duty seven days a week to respond to and investigate air complaints. For the second consecutive year, the greatest number of complaints was reported in the month of September when 20.9% of the total complaints were made. This represents more than twice the number



DISTRIBUTION OF AIR POLLUTION COMPLAINTS BY COMMUNITY ON  
STATEN ISLAND FROM OCTOBER 1987 TO SEPTEMBER 1988

COMMUNITY	COMPLAINTS	
	NUMBER	% OF TOTAL
New Springville	143	13.6
Travis	106	10.1
West New Brighton	67	6.4
Annadale	58	5.6
Arden Heights	55	5.2
Westerleigh	53	5.0
Tottenville	52	4.9
Bulls Head	44	4.2
Huguenot	41	3.9
Great Kills	36	3.4
Green Ridge	35	3.3
Mariner's Harbor	34	3.2
Eltingville	34	3.2
Graniteville	25	2.4
Oakwood	22	2.1
Castelton Corners	21	2.0
Port Richmond	20	1.9
Richmondtown	19	1.8
Elm Park	18	1.7
Willowbrook	18	1.7
All Others *	152	14.4
<b>TOTALS</b>	<b>1053</b>	<b>100.0</b>

\* Represents 35 communities from which 15 or fewer complaints were reported per community. In addition, this total includes fourteen complaints from other boroughs, Long Island and New Jersey.

DISTRIBUTION OF AIR POLLUTION COMPLAINTS BY TYPE OF ODOR  
 FROM STATEN ISLAND COMMUNITIES  
 FROM OCTOBER 1987 TO SEPTEMBER 1988

TYPE OF ODOR	COMPLAINTS	
	NUMBER	% OF TOTAL
Garbage	266	25.3
Gassy	110	10.5
Cat Urine	79	7.5
Sulfur/Eggy	59	5.6
Sewage	51	4.8
Burning Rubber/Plastic	34	3.2
Dead Fish/Fishy	19	1.8
Onion/Garlic	0	0.0
Soap/Detergent	0	0.0
Chemical & Others	435	41.3
<b>TOTALS</b>	<b>1053</b>	<b>100.0</b>

DISTRIBUTION OF AIR POLLUTION COMPLAINTS BY TIME OF DAY  
FROM STATEN ISLAND COMMUNITIES  
FROM OCTOBER 1987 TO SEPTEMBER 1988

MONTH	NUMBER OF COMPLAINTS				
	Time of Complaints*			TOTAL	% OF TOTAL
	Midnight to 8:00 AM	8:00 AM to 4:00 PM	4:00 PM to Midnight		
October 1987	9	13	30	52	4.9
November 1987	4	44	26	74	7.0
December 1987	33	21	50	104	9.9
January 1988	9	37	36	82	7.8
February 1988	1	54	26	81	7.7
March 1988	7	21	43	71	6.7
April 1988	5	21	13	39	3.7
May 1988	6	27	32	65	6.2
June 1988	20	27	49	96	9.1
July 1988	17	19	49	85	8.1
August 1988	17	28	39	84	8.0
September 1988	26	52	142	220	20.9
TOTALS	154	364	535	1053	
% OF TOTAL	14.6	34.6	50.8		100.0

\* Includes Weekends and Holidays



DISTRIBUTION OF AIR POLLUTION COMPLAINTS BY DAY OF WEEK  
 FROM STATEN ISLAND COMMUNITIES  
 FROM OCTOBER 1987 TO SEPTEMBER 1988

MONTH	NUMBER OF COMPLAINTS						
	Day of Complaints*						
	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
October 1987	11	6	2	19	5	5	4
November 1987	5	6	7	10	7	16	23
December 1987	7	6	57	6	1	0	27
January 1988	5	14	8	14	9	26	6
February 1988	10	10	10	15	5	7	24
March 1988	7	25	6	15	2	11	5
April 1988	9	3	3	9	8	7	0
May 1988	4	17	12	20	7	1	4
June 1988	14	16	22	28	5	3	8
July 1988	11	6	6	18	12	18	14
August 1988	12	7	20	12	17	8	8
September 1988	43	35	45	25	40	20	12
TOTALS	138	151	198	191	118	122	135
% OF TOTAL	13.1	14.3	18.8	18.2	11.2	11.6	12.8

\* Includes Holidays

registered in any other month during the 1987-1988 reporting period.

The complaints were also analyzed by the day of the week on which they were reported. The number of complaints per day of the week was highest on Wednesdays and Thursdays when 18.8% and 18.2% of the complaints, respectively, were made. The lowest of complaints, 118 or 11.2% of the total, was reported on Fridays. When comparing the latest 12-month period day of the week distribution with those of the previous years, no significant pattern is evident.

The Commission continued to maintain its field office and a 24-hour answering service on Staten Island. The field office staff responds to and investigates air complaints. Inspectors are on duty for two shifts three days a week and one shift four days a week, including weekends and nighttime hours. When no inspector is present in the field office, complaints are handled at the Commission's office during regular office hours. Whenever necessary, Commission personnel are reached at home by ISC's answering service during non-office hours.

## AIR TOXICS STUDY

Progress has continued in the air toxics sampling and analysis program to identify and measure toxic pollutants in the atmosphere. The ISC program focus is on sampling during odor episodes and air stagnation events, but will also include background monitoring activities. The Commission is cooperating with the U.S. EPA and the state agencies within the jurisdiction of the Commission to determine the extent and severity of the atmospheric urban "soup" problem and the means to alleviate it. ISC is a member of the Advisory Group to a bi-state air toxics assessment project for Staten Island and nearby New Jersey.

During the past year, the Commission designed and built an air toxics sampling and transfer system. The system samples the atmosphere, concentrates the air toxics and delivers them to a gas chromatograph-mass spectrophotometer for chemical analyses. The system employs a specially treated stainless steel canister to collect the air sample with maximum recovery. A procedures manual was drafted that describes, in detail, the sampling, transfer, analytical, and canister cleaning methods to be used and the quality assurance/quality control measures to be followed. Initial conditioning and calibration of the gas chromatograph column was also performed. This program is hampered by manpower and funding limitations.



## RESOURCE RECOVERY FACILITIES

The large number of resource recovery facilities, which are in various stages of planning or development, form an increasingly important part of the municipal solid waste disposal strategy employed in the Metropolitan Area. A map and updated list presenting the locations, capacity and status of the resource recovery facilities in or near the New Jersey-New York-Connecticut AQCR appear on the following pages.

During the past year, resource recovery facilities at Long Beach, New York; Warren Township, New Jersey; and Bridgeport, Connecticut became operational, joining the Glen Cove, New York and Peekskill, New York units already in operation. In addition, construction of the RRFs at Hempstead and Babylon on Long Island is essentially complete and the Essex County facility in New Jersey is now under construction. The Islip, New York plant is near completion but vendor financial bankruptcy has delayed start-up of the project. Southold in Suffolk County, New York is proceeding with solid waste/sewage sludge composting disposal instead of incineration.

In New York City, a yearlong administrative hearing for a permit to construct and operate a facility at the Brooklyn Navy Yard was completed in the spring. The NYS DEC Commissioner issued an interim decision during November 1988, requesting the City to provide more detailed plans regarding ash disposal and recycling. The hearing will be reconvened early in 1989.

The ISC continues to be involved in many different facets of pollution control related to resource recovery. The major activity of the Commission during the past year has been its intensive participation in the Brooklyn Navy Yard project, to which ISC has party status in the administrative hearing. The Commission presented expert testimony and filed briefs stating its position in favor of resource recovery facilities as a disposal alternative as long as the inhabitants and environment of the Region are properly protected. Environmental issues important to the Commission and advocated during the hearing are incinerator ash disposal, municipal solid waste transfer and facility operation and maintenance.

LOCATIONS OF EXISTING OR PROPOSED RESOURCE RECOVERY  
FACILITIES IN OR NEAR THE  
NEW JERSEY-NEW YORK-CONNECTICUT AIR QUALITY CONTROL REGION

FACILITY		STATE	COUNTY	CAPACITY (Tons Per Day)
NO.	NAME			
1	Brooklyn Navy Yard (3)	New York	Kings	3000
2	Wards Island (3)	New York	New York	2000
3	Barretto Point (3)	New York	Bronx	2000
4	Maspeth (3)	New York	Queens	2000
5	Fresh Kills (3)	New York	Richmond	3000
6	Peekskill (1)	New York	Westchester	2250
7	Hempstead (2)	New York	Nassau	2250
8	Port Washington (3)	New York	Nassau	1000
9	Glen Cove (1)	New York	Nassau	200
10	Oyster Bay (3)	New York	Nassau	900
11	Long Beach (1)	New York	Nassau	200
12	Babylon (2)	New York	Suffolk	750
13	Huntington (3)	New York	Suffolk	750
14	Islip (2)	New York	Suffolk	400
15	Riverhead (3)	New York	Suffolk	---
16	Southold (5)	New York	Suffolk	---
17	Newark (2)	New Jersey	Essex	2250
18	Oxford Township (1)	New Jersey	Warren	400
19	Ridgefield (3)	New Jersey	Bergen	3000
20	Rahway (3)	New Jersey	Union	1440
21	Passaic (3)	New Jersey	Passaic	1500
22	Rockaway Township (3)	New Jersey	Morris	1500
23	Kearny (3)	New Jersey	Hudson	1000
24	Lafayette Township (3)	New Jersey	Sussex	400
25	Bridgewater (3)	New Jersey	Somerset	700
26	Sayreville (3)	New Jersey	Middlesex	2000
27	Tinton Falls (3)	New Jersey	Monmouth	---
28	Bridgeport (2)	Connecticut	Fairfield	2250

- (1) In Operation
- (2) Under Construction
- (3) Proposed or Under Review
- (4) Co-burning with Sewage Sludge
- (5) Solid Waste/Sludge Composting



## OZONE HEALTH MESSAGE SYSTEM

An Ozone Health Message System was initiated in 1988 to alert the public when unhealthful levels of ozone are present in the atmosphere of the Metropolitan Region. The system is a cooperative, tri-state effort developed over a six-month period by environmental and health representatives from the Commission; the States of New Jersey, New York and Connecticut; New York City and the U.S. EPA. It is designed to provide the Region with a single source of precautionary advice on ozone during the warm weather months from May to September.

The Commission coordinates the efforts of the States and, whenever conditions warrant, announces to the public that elevated levels of ozone exist in the Region. After consultation with the States, the ISC communicates to the press and to the public about ozone conditions by means of "health advisory" or "forecast" messages. Independently, the individual States also issue their own health messages to pinpoint specific areas where ozone readings indicate a special health problem.

Since ozone irritates the respiratory system and may cause decreased lung function, this pollutant especially affects the elderly and those with pre-existing lung disease. Healthy adults and children may feel the effects during high ozone days. Adverse effects may include: shortness of breath, chest pain, throat and eye irritation and wheezing. Whenever ozone reaches or is forecast to attain unhealthful levels, the System advises against strenuous outdoor activities and physical exertion such as jogging, ballplaying and running.

In mid-May, New York State, followed later by New York City, unexpectedly suspended its participation in this public notification program. Nonetheless, the Ozone Health Message System operated successfully throughout the summer employing ozone pollutant data from New Jersey and Connecticut and meteorological forecasts from New Jersey.

Ozone readings were transmitted by the States to the Commission hourly each weekday between 11 a.m. and 3 p.m. A "forecast" message predicting elevated ozone levels was sent by ISC to the public on 19 days during the May - September period in 1988. A "health advisory" message, indicating that at least two monitoring stations recorded ozone levels exceeding the National Ambient Air Quality Standard of 0.12 ppm at a particular hour, was transmitted by the Commission on 16 days, including five days in June, seven days in July and four days in August.

A total of 144 ozone values of 0.12 ppm or higher was recorded during the summer of 1988 from seven continuous



monitoring stations in New Jersey and four stations in Connecticut. Four ozone readings, all in Connecticut, exceeded 0.20 ppm, with the highest value of 0.217 ppm recorded at Bridgeport. The highest ozone reading received from New Jersey was 0.186 ppm at Cliffside Park.

#### IV. LEGAL ACTIVITIES

During 1988, the Commission continued its involvement in ongoing litigation as well as commencing several new cases and enforcement initiatives. In all of these cases, the Commission brought suit to enforce the provisions of the Tri-State Compact. However, in one of the cases, the suit was not initiated to ensure compliance with the Commission's Water Quality Regulations, but rather to ensure the Commission's continued existence and funding.

##### LITIGATION AGAINST HUDSON COUNTY MUNICIPALITIES

The Commission intervened in this consolidated action in the United States District Court in New Jersey against Hoboken, Jersey City, West New York, North Bergen, Bayonne, Union City, Weehawken, Guttenberg, and the Hudson County Utilities Authority in June 1986. In 1987, the Court granted the Partial Summary Judgment filed by the Commission and the U.S. EPA, holding that Bayonne, North Bergen, and West New York had discharged effluents that exceeded applicable Commission and federal standards. Also in 1987, the Commission entered into stipulations of settlement with Union City, Weehawken, and the Hudson County Utilities Authority. The Commission obtained a default judgment against Guttenberg.

In 1988, negotiations on consent decrees with the remaining municipalities progressed. A consent decree for Jersey City was executed by all of the parties in February and, after compliance with the federal notice requirements, signed by the judge in late May and entered with the Court in early June. Negotiations have also been concluded with Bayonne and a consent decree signed. Because its notice has not yet been published in the Federal Register and, consequently, the 30-day notice period has not begun, the consent decree is not final. The consent decree should, however, be entered with the Court early in 1989. The three remaining municipalities -- Hoboken, North Bergen, and West New York -- have all signed letters of intent regarding settlement and the Magistrate on the case has scheduled regular status conferences with him until consent decrees are executed by the remaining parties.

The Jersey City Sewage Authority submitted notification under the Force Majeure section of its Consent Decree on October 31, 1988, that it will not meet the court-ordered deadline for the divergence of its wastewater to the Passaic Valley Sewerage Commissioners treatment plant by December 30, 1988. The ISC inspected the site of the collapsed river bank that is the cause of the delay, and is reviewing Jersey City's request for an extension of the deadline.



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

In November 1986, the Commission intervened in a lawsuit in federal District Court in New Jersey that was originally filed by the Township of Woodbridge, New Jersey against New York City's operation of the Fresh Kills Landfill on Staten Island. In December 1987, the parties signed a Consent Order, motivated at least in part by the Judge's finding of contempt against the City based on a motion made by the Commission.

During 1988, the parties met regularly to monitor implementation of the actions required pursuant to the Consent Order. Among the milestones during 1988, the City of New York hired an independent monitor to investigate landfill operations on a regular basis and an independent consultant to aid the City in refining, to the extent possible, short-term alternatives to prevent debris from escaping the landfill and in determining long-term solutions to the problem. The City also created its own internal mechanism for monitoring operations at the landfill -- the Water Quality Management Team. In terms of hardware installed at the landfill, at they wagon gangplanks have been fabricated and additionally refined for use at unloading pads, a boom with a 15-foot net has been put in place in Fresh Kills Creek, and a hydraulic crane has been delivered and is being tested. Whether based on enforcement of water cleanliness procedures or use of new hardware, less debris than previously is entering the waters of the District.

Garbage still does enter the water, however, because of the variability in performance, the condition of equipment, and resuspension of shoreline debris. Consequently, the Commission and the other plaintiffs, in papers filed in September, have invoked the provision of the Consent Order that enables the Court or Special Master to grant further relief. The Court referred the matter to the Special Master in the case, Nicholas B. Katzenbach. The Special Master conducted a status conference in November and established a schedule for proceeding with the disputed matters. Response papers were filed with the Special Master by the City on November 30, and Reply Briefs by the ISC and other plaintiffs in December. A hearing on the matter is scheduled for mid-January 1989.

## BROOKLYN NAVY YARD RESOURCE RECOVERY FACILITY ADMINISTRATIVE HEARING

The hearing on the City of New York's proposed Brooklyn Navy Yard Resource Recovery Facility continued into 1988 from its commencement in 1987. The Commission had been granted party status at the beginning of the hearing. While the testimony presented in 1987 included the direct case of the Applicant/City



and the NYS DEC, the testimony in 1988 continued with the witnesses for a variety of intervenors, including those of the Commission. After the completion of the intervenors' case, the Applicant/City put on rebuttal witnesses. An initial post-hearing brief preceded the final brief, which was submitted during the summer of 1988. The Commission submitted both post-hearing and reply briefs.

In late November, the Commissioner of NYS DEC handed down an interim decision stating that he had insufficient information on the record to make findings on two matters and ordered the hearing reopened. He solicited additional information on the topics of deposition of ash from the facility and implementation of a recycling program. Because these issues are solely within the control of the City, he recommended that the City consider a co-applicant in the proceeding. Pursuant to the decision, the City has until December 30, 1988 to submit a program of how it will go forward with presenting the additional information required by the Commissioner. The hearing could reconvene early next year on these issues.

#### COMMISSION'S ACTION REGARDING THE WITHHOLDING OF ISC FUNDS BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

In mid-June, calls from Commission staff to State budget officials ascertained that the Commission's quarterly funds were not being disbursed in a normal manner and, in the words of one official, were being "impounded." Because without this quarterly payment the Commission would not be able to operate past early July, the Commission filed an Order to Show Cause and injunction in State court in Albany to require the relevant State officials to disburse the legislatively-appropriated funds for the Commission. Citing both State and federal law, the Commission argued both in its papers and before the court that such non-disbursement by the Executive Branch of legislatively-appropriated funds to the Commission, an agency created by interstate compact, was not legal. The Respondents submitted affidavits stating that the matter would be resolved within the next week and characterized the impoundment as the slow payment of funds. Rather than deciding to require disbursement of funds, the judge stated that the ongoing budget negotiations on the State budget deficit would be concluded within a short time and, as an outcome of those negotiations between the Legislature and Executive, the Commission might well get its full payment without the need for judicial action. The Commission did eventually receive its quarterly payment in August.

#### COMMISSION'S ACTION REGARDING STATE-ISSUED DISCHARGE PERMITS FOR NEW YORK CITY SEWAGE TREATMENT PLANTS

In late November, the Commission filed an Article 78 Pro-

ceeding in State Supreme Court in Queens County pursuant to New York State Civil Practice Law and Rules, asking the court to require the NYS DEC to hold hearings on the permits granted by NYS DEC to the 14 publicly-owned treatment works (POTWs) operated by the City of New York. Provisions of the permits, which were granted in final form in late September, do not adequately protect the waters of the District, do not incorporate the Water Quality Regulations of the Commission, and, in a few cases, undermine the institutional integrity of the Commission.

The Commission had requested a hearing on these permits as early as May 1988, when it submitted its comments on the draft permits. ISC reiterated its request in a supplemental submission in July.

After discovering that the final permits had already been issued, the Commission, in early October, submitted a petition requesting a hearing after permit issuance. The Commission received denial of its request for a post-issuance hearing on December 5, 1988.

Due to the 60-day time limitation for judicial review of administrative actions, on November 24, 1988, the Commission filed its action to require a hearing and set aside the permits pending completion of such a hearing. A hearing date in December has been requested, but it is likely that the matter will not be before the court until early in 1989. The Commission has been joined in this action by the Natural Resources Defense Council.

#### DRY WEATHER ENFORCEMENT PROGRAM

After the upgrading of the remaining POTWs providing less than secondary treatment to a level of treatment that complies with the Commission's Water Quality Regulations, dry weather overflows will comprise a significant source of inadequately treated discharges into the District. The Commission has initiated its dry weather enforcement program in an effort to abate these inputs throughout the Region.

The Commission has sent a notice to the appropriate municipal entities with a copy of the provision of the Commission's Regulations that concerns dry weather overflows. The field staff of the Commission has conducted several investigations of dry weather discharges and it is anticipated that enforcement action may be initiated in the not too distant future.



WASTEWATER TREATMENT PLANTS  
DISCHARGING INTO  
INTERSTATE SANITATION DISTRICT WATERS  
1 9 8 8

Plant	ISC Receiving Water Classification	Date of Const.	Flow MGD		Type of Treatment	Estimated Population Served
			Average	Design		
<u>CONNECTICUT</u>						
<u>Fairfield County</u>						
Bridgeport - East Side	B-1	1973+	7.7 ✓	12.0	Secondary (AS)	45,000
- West Side	B-1	1973+	28.4 ✓	30.0	Secondary (AS)	113,000
Fairfield	A	1982+	7.2 ✓	9.0	Secondary (AS)	50,000
Greenwich	A	1982+	7.9	8.5	Secondary (AS)	48,000
Norwalk	B-1	1980+	9.7	15.0	Secondary (AS)	79,000
Stamford	B-1	1976+	14.3 ✓	20.0	Secondary (AS)	100,000
Stratford	A	1982+	7.2	11.5	Secondary (AS)	51,000
Westport	A	1975+	1.5 ✓	2.8	Secondary (AS)	13,000
<u>New Haven County</u>						
Milford - Beaver Brook	A	1987+	1.8 ✓	3.2	Secondary (AS)	11,500
- Housatonic	A	1987	5.3 ✓	8.0	Secondary (AS)	30,000
New Haven - Boulevard	B-1	1969+	11.6 ✓	13.0	Primary	77,000
- East Shore	B-1	1988+	26.4 ✓	40.0	Secondary (AS)	128,000
West Haven	B-1	1988+	6.6 ✓	12.5	Secondary (AS)	54,000
<u>NEW JERSEY</u>						
<u>Bergen County</u>						
Edgewater	B-1	1958+	2.8	3.0	Primary	21,000
<u>Essex County</u>						
Passaic Valley Sewerage Commissioners	B-1	1988+	231.0	330.0	Secondary (AS)	1,400,000
<u>Hudson County</u>						
Bayonne	B-2	1953	6.8	21.0	Primary	60,000
Hoboken	B-1	1955	15.0	20.7	Primary	45,000
Jersey City - East Side	B-1	1967+	26.5	46.6	Primary	159,000
- West Side	B-2	1967+	14.1	36.0	Primary	115,000
Kearny	B-2	1955	3.7	3.6	Primary	24,000
North Bergen M. U. A. - Woodcliff	B-1	1962	2.7	3.3	Primary	55,000
West New York	B-1	1982+	8.0	10.0	Primary	57,000
<u>Middlesex County</u>						
Carteret	B-2	1950	2.4	3.0	Primary	21,000
Middlesex County Utilities Authority	A	1978+	84.3	120.0	Secondary (AS)	600,000
Old Bridge Township	A	1962	0.9	1.4	Primary	14,000
Perth Amboy	A	1988+	4.8	10.0	Primary	39,000
Rahway Valley Sewerage Authority	B-2	1988+	26.3	35.0	Secondary (AS)	252,000
Sayreville - Melrose	A	1947	0.1	0.15	Primary	1,300
- Morgan	A	1947	0.24	0.3	Primary	3,000
Woodbridge - Sewaren	B-2	1952	5.9	10.0	Primary	55,000
<u>Monmouth County</u>						
Cliffwood Beach	A	1964	0.41	0.75	Secondary (AS)	-
River Gardens	A	1978+	0.16	0.10	Secondary (AS)	-
<u>Union County</u>						
Joint Meeting of Essex & Union Counties	B-2	1978+	65.5	75.0	Secondary (AS)	500,000
Linden Roselle Sewerage Authority	B-2	1982+	10.3	17.0	Secondary (AS)	62,000

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WASTEWATER TREATMENT PLANTS  
DISCHARGING INTO  
INTERSTATE SANITATION DISTRICT WATERS  
1 9 8 8

Plant	ISC Receiving Water Classification	Date of Const.	Flow MGD		Type of Treatment	Estimated Population Served
			Average	Design		
<u>NEW YORK</u>						
<u>Nassau County</u>						
Bay Park	A	1988+	59.1	70.0	Secondary (AS)	510,000
Belgrave Sewer District	A	1988+	1.5	2.0	Secondary (TF)	12,000
Cedar Creek	A	1988+	49.8	56.0	Secondary (AS)	435,000
Cedarhurst	A	1968+	0.9	1.0	Secondary (TF)	7,500
Cold Spring Harbor Laboratory*	A	1975	0.035	0.075	Physical/Chemical	250 - 400
Glen Cove	A	1981+	4.8	8.0	Secondary (AS)	28,000
Great Neck Sewer District	A	1976+	2.5	2.7	Secondary (TF)	15,000
Great Neck Village	A	1968+	0.76	1.5	Secondary (TF)	9,000
Inwood	A	1961+	1.2	2.5	Secondary (TF)	11,000
Jones Beach	A	1985+	0.1	2.5	Secondary (TF)	Seasonal
Lawrence	A	1966+	1.1	1.5	Secondary (TF)	7,000
Long Beach	A	1965+	6.0	6.4	Secondary (TF)	40,000
Oyster Bay Sewer District	A	1963+	1.5	1.2	Secondary (TF)	8,500
Port Washington Sewer District	A	1969+	3.0	3.0	Secondary (TF)	30,000
West Long Beach Sewer District	A	1986+	0.7	1.5	Secondary (TF)	4,000
<u>New York City</u>			Subtotal 132,96			
<u>Bronx County</u>						
Hunts Point	B-1	1978+	148.0	200.0	Secondary (AS)	895,000
<u>Kings County (Brooklyn)</u>						
✓ Coney Island	A	1958+	102.0	100.0	Secondary (AS)	690,000
✓ Newtown Creek	B-1	1967	336.0	310.0	Secondary (AS)	1,100,000
✓ Owls Head	B-1	1952	118.0	160.0	Secondary (AS)	785,000
✓ Red Hook	B-1	1987	44.3	60.0	Secondary (AS)***	262,000
✓ 26th Ward	A	1975+	59.8	85.0	Secondary (AS)	301,000
<u>New York County (Manhattan)</u>						
✓ North River	B-1	1986	171.0	170.0	Secondary (AS)***	1,162,000
✓ Wards Island	B-1	1978+	327.0	250.0	Secondary (AS)	1,300,000
<u>Queens County</u>						
✓ Bowery Bay	B-1	1978+	148.0	150.0	Secondary (AS)	712,000
✓ Jamaica	A	1977+	96.1	100.0	Secondary (AS)	585,000
✓ Rockaway	A	1978+	24.5	45.0	Secondary (AS)	72,000
✓ Tallman Island	B-1	1979+	64.3	80.0	Secondary (AS)	465,000
<u>Richmond County (Staten Island)</u>						
Arthur Kill Correctional Facility*	B-2	1969	0.081	0.1	Secondary (AS)	1,000
Elmwood Park Condominiums*	B-2	1974	-	2.5	Secondary (RD)	1,800
IS-7*	A	1964	0.09	0.13	Extended Aeration w/ Sand Filtration	1,000
Mount Loretto Home - Plant #1*	A	1962	-	-	Septic Tank	250
- Plant #2*	A	1962	-	-	Septic Tank	250
✓ Oakwood Beach	A	1979+	33.3	40.0	Secondary (AS)	286,000
✓ Port Richmond	B-2	1979+	40.6	60.0	Secondary (AS)	210,000
PS-3*	A	1969	-	0.004	Extended Aeration	580
Richmond Memorial Hospital*	A	1985+	-	0.04	Secondary (AS)	400
Saint Joseph's School*	A	1963	-	0.02	Septic Tank with Sand Filtration	1,000
Village Green*	B-2	1970	0.44	1.0	Extended Aeration	5,000
<u>Rockland County</u>						
Joint Regional Sewerage Board-Town of Haverstraw	A	1980+	5.7	8.0	Secondary (AS)	50,000
Orange & Rockland Utilities*	A	1984+	0.005	0.012	Secondary (AS)	Industrial
Orangetown Sewer District	A	1968+	8.4	8.5	Secondary (TF)	50,000

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WASTEWATER TREATMENT PLANTS  
DISCHARGING INTO  
INTERSTATE SANITATION DISTRICT WATERS  
1 9 8 8

Plant	ISC Receiving Water Classification	Date of Const.	Flow MGD		Type of Treatment	Estimated Population Served
			Average	Design		
<u>NEW YORK (Continued)</u>						
<u>Rockland County (Continued)</u>						
Palisades Interstate Park						
Bear Mountain Plant	A	1967+	0.04	0.25	Secondary (TF)	Seasonal
Tallman Mountain Plant	A	1968	-	0.01	Secondary (AS)	Seasonal
Rockland County Sewer District #1	A	1988+	17.3	26.0	Secondary (RD)	170,000
Stony Point	A	1985+	0.9	1.0	Secondary (AS)	10,000
<u>Suffolk County</u>						
Huntington Sewer District	A	1988+	1.5	2.5	Secondary (RD)	15,000
Northport	A	1973+	0.3	0.3	Secondary (AS)	3,500
Suffolk County Sewer District #1	A	1988+	2.1	2.5	Secondary (RD)	33,000
Suffolk County Sewer District #3	A	1975	18.7	30.0	Secondary (AS)	300,000
Suffolk County Sewer District #6	A	1974+	0.7	2.0	Secondary (AS)	9,000
SUNY at Stony Brook	A	1974	-	2.5	Secondary (BO)	20,000
<u>Westchester County</u>						
Blind Brook (Rye)	A	1985+	1.8	5.0	Secondary (AS)	25,500
Buchanan	A	1962	0.2	0.55	Secondary (AS)	2,500
Kings Ferry Sewer Association*	A	1971	0.04	0.05	Secondary (AS)	500
Mamaroneck	A	1965+	14.3	18.0	Primary	80,000
Metro North (Harmon Shop)*	A	1984+	0.13	0.40	Physical/Chemical	Industrial
New Rochelle	A	1982+	14.1	13.6	Secondary (AS)	80,000
Ossining	A	1981	5.0	7.0	Secondary (AS)	49,000
Peekskill	A	1980+	4.9	10.0	Secondary (AS)	35,000
Port Chester	B-1	1985+	4.6	6.0	Primary	26,000
Springvale Apartments Company*	A	1957	0.09	0.1	Secondary (TF)	1,000
Yonkers Joint Treatment	A	1988+	103.0	92.0	Secondary (AS)	500,000
			<u>189.44</u>			
<u>FEDERAL &amp; MILITARY</u>						
Camp Smith - (Westchester Co.)	A	1985+	-	0.24	Secondary (TF)	2,000
FDR Veterans Administration Medical Center (Westchester Co.)	A	1982+	0.2	0.4	Secondary (TF)	3,000
Gateway National Recreation Area (Floyd Bennett Field, Kings Co.)	A	1981+	0.11	0.4	Secondary (TF)	2,000
Military Ocean Terminal (Hudson Co.)	B-1	1982+	0.13	0.18	Secondary (AS)	3,000

NOTES: + Year of major additions or reconstruction  
 \* Private or institutional sewage treatment plant  
 \*\* Under construction  
 \*\*\* Presently providing primary treatment and disinfection; secondary treatment in 1989

- (AS) Activated Sludge
- (BA) Bloc Aeration
- (BO) Biochemical Oxidation
- (EA) Extended Aeration
- (RD) Rotating Disc
- (TF) Trickling Filter

TOTAL 2696.9 MGD

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2 / 16

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124.4 MGD



**INTERSTATE SANITATION COMMISSION  
FINANCIAL STATEMENT FY 1988**

The Commission's accounting records are maintained on a cash basis and are audited annually by each of the participating States on a triennial basis. The following is a statement of cash receipts and disbursements for fiscal year July 1, 1987 to June 30, 1988:

CASH BOOK BALANCE AS OF JUNE 30, 1987 -----\$ 186,248.20

RECEIPTS

Connecticut - FY '88	\$ 94,000.00
New York - FY '88	423,100.00
New Jersey - FY '88	423,000.00
EPA - FY '87	71,800.00
EPA - FY '88	242,200.00
Long Island Sound Study - FY '86	102,236.00
Interest	11,182.90
Miscellaneous Receipts (includes \$7,007.83 for reimbursement of damaged carpet and \$4,662.50 for a vehicle which was totaled in an accident)	18,365.89

TOTAL RECEIPTS

Sub-Total

1,385,884.79  
\$1,572,132.99

DISBURSEMENTS

TOTAL DISBURSEMENTS

1,402,847.44

CASH BOOK BALANCE ON June 30, 1988

\$ 169,285.55  
=====

Checking Account	\$ 13,207.23
Insured Money Market Account	<u>156,078.32</u>
	\$169,285.55 =====

## G L O S S A R Y

AQCR	Air Quality Control Region
BOD	biochemical oxygen demand
CCNY	City College of New York
CSO	combined sewer overflow
DEC	Department of Environmental Conservation
DEF	Department of Environmental Facilities
DEP	Department of Environmental Protection
DO	dissolved oxygen
EPA	Environmental Protection Agency
FBR	fluidized bed reactors
GC/MS	gas chromatograph/mass spectrophotometer
H.S.	high school
HCUA	Hudson County Utilities Authority
HVAC	heating, ventilating, and air conditioning
I/I	infiltration/inflow
I.S.	intermediate school
ISC	Interstate Sanitation Commission
MCUA	Middlesex County Utilities Authority
MGD	million gallons per day
ml	milliliter
MPN	most probable number
MUA	Municipal Utilities Authority
NOAA	National Oceanic and Atmospheric Administration
N/SPDES	National/State Pollutant Discharge Elimination System
NSSP	National Shellfish Sanitation Program
P.S.	public school
POTWs	Publicly Owned Treatment Works
ppm	parts per million
PVSC	Passaic Valley Sewerage Commissioners
RBC	rotating biological contactors
R/V	research vessel
SPDES	State Pollutant Discharge Elimination System
SSES	sewer system evaluation study
SUNY	State University of New York
WPCD	water pollution control district
>	greater than
<	less than