INTERSTATE SANITATION COMMISSION

1978

NEW YORK NEW JERSEY CONNECTICUT

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R E P O R T

OF THE

INTERSTATE SANITATION COMMISSION

ON THE
WATER POLLUTION CONTROL ACTIVITIES
AND THE
INTERSTATE AIR POLLUTION PROGRAM

INTERSTATE SANITATION COMMISSION

10 COLUMBUS CIRCLE • NEW YORK, N.Y. 10019
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January 24, 1979

To His Excellency, Brendan T. Byrne
His Excellency, Hugh L. Carey
Her Excellency, Ella T. Grasso
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 1978.

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,

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For the State of New York — Chairman

John P. Clark
For the State of Connecticut — Vice Chairman

Louis J. Fontenelli
For the State of New Jersey — Vice Chairman

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I. SUMMARY OF ACTIVITIES

The Interstate Sanitation Commission was created in 1936 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 the 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, and in 1970 the Commission was designated as the official Planning and Coordinating Agency for the New Jersey-New York-Connecticut Air Quality Control Region.

This report, which is prepared each year, provides a record of the water and air pollution activities of the Interstate Sanitation Commission on technical assistance, planning, laboratory analysis, monitoring, and coordination of interstate problems to promote water pollution control projects within the Interstate Sanitation District.

WATER POLLUTION

This year, as in the past, the Commission focused its activities on projects that would have the greatest impact on the solution of regional pollution problems. These projects included the elimination of oily wastes from District waters, pretreatment of industrial wastes, compliance monitoring, disposal of sewage sludges, control of combined sewer overflows, and enforcement.

Within the District, approximately $3 billion has been allocated for the next several years to upgrade and expand existing sewage treatment facilities to provide a minimum of secondary treatment.

The Commission continued operation of its remote automatic water quality monitoring system. This system continuously monitors District waters for temperature, conductivity, dissolved oxygen, and pH. Graphs showing the monthly minimum, maximum, and average values for these parameters at each location are presented in this report. A table showing the percent of time that the Commission's dissolved oxygen requirements are met at each location is also included. The table shows that, during the summer months, District waters are grossly deficient in dissolved oxygen.

Surveillance of the water quality throughout the District was also accomplished by boat surveys. During the critical summer months, the surveys were done twice per month. Biological sampling was also done on the boat runs.

As part of an on-going program, the Commission continued to

cooperate with the states and other enforcement agencies. As an active member of the Technical Advisory Committees and Task Forces of the 208 agencies throughout the Region, the Commission has supplied these agencies with both technical assistance and data for input to their water quality models. Other areas of cooperation include monitoring municipal sewage treatment plants and industries to check compliance with N/SPDES permits, assisting the states in certifying discharges into District waters, participating in various actions on behalf of the states and other agencies, and performing laboratory analyses for state and federal enforcement agencies.

AIR POLLUTION

In addition to continuing the coordination of the Air Pollution Warning System in the New Jersey-New York-Connecticut Air Quality Control Region, the Commission's air pollution activities focused on the following: characterization of photochemical oxidant transport, completion of the New York Summer Aerosol Study analysis, toxic airborne element analyses, and completion of the Suspended Particulates Study.

The Commission continued to coordinate the 19-state ozone data sharing and analysis task force to study long-range oxidant transport and also continued an ozone quality assurance program. The results of the photochemical oxidant program defined the frequency and duration of ozone episodes experienced in the northeastern and midwestern parts of the United States for the summer of 1977 and further substantiated that ozone is a regional problem.

Based on the data received from this task force, two ozone analyses were completed. In addition, the Commission, with the assistance of the State of New Jersey, undertook a two day flight to and from St. Louis, Missouri to demonstrate regional ozone concentration uniformity during a particular episode in the eastern U.S.

Trends and particle size distribution have been established for five toxic airborne metals at sites in New York, New Jersey, and Connecticut. Average ambient levels of toxic metals have decreased over the past 5 to 10 years.

The analysis of the New York Summer Aerosol study of 1976 was completed. It was found that the diurnal pattern for the volume of particles was not a strong function of humidity or time of day, and could not be related to traffic or power demand. This indicates the presence of an aged aerosol. It was concluded that sulfate transport affects the Metropolitan Area throughout

the summer.

The Final Report for the Suspended Particulates Study was completed and has been forwarded to the U.S. EPA for reproduction. By means of samples collected from power plants, incinerators, automobiles, and industrial sources, it was suggested that consideration be given to the development of an "elemental fingerprint spectra library" to assist in future source characterization and apportionment studies. Also, regression models were developed for total suspended particulates and carbon monoxide.

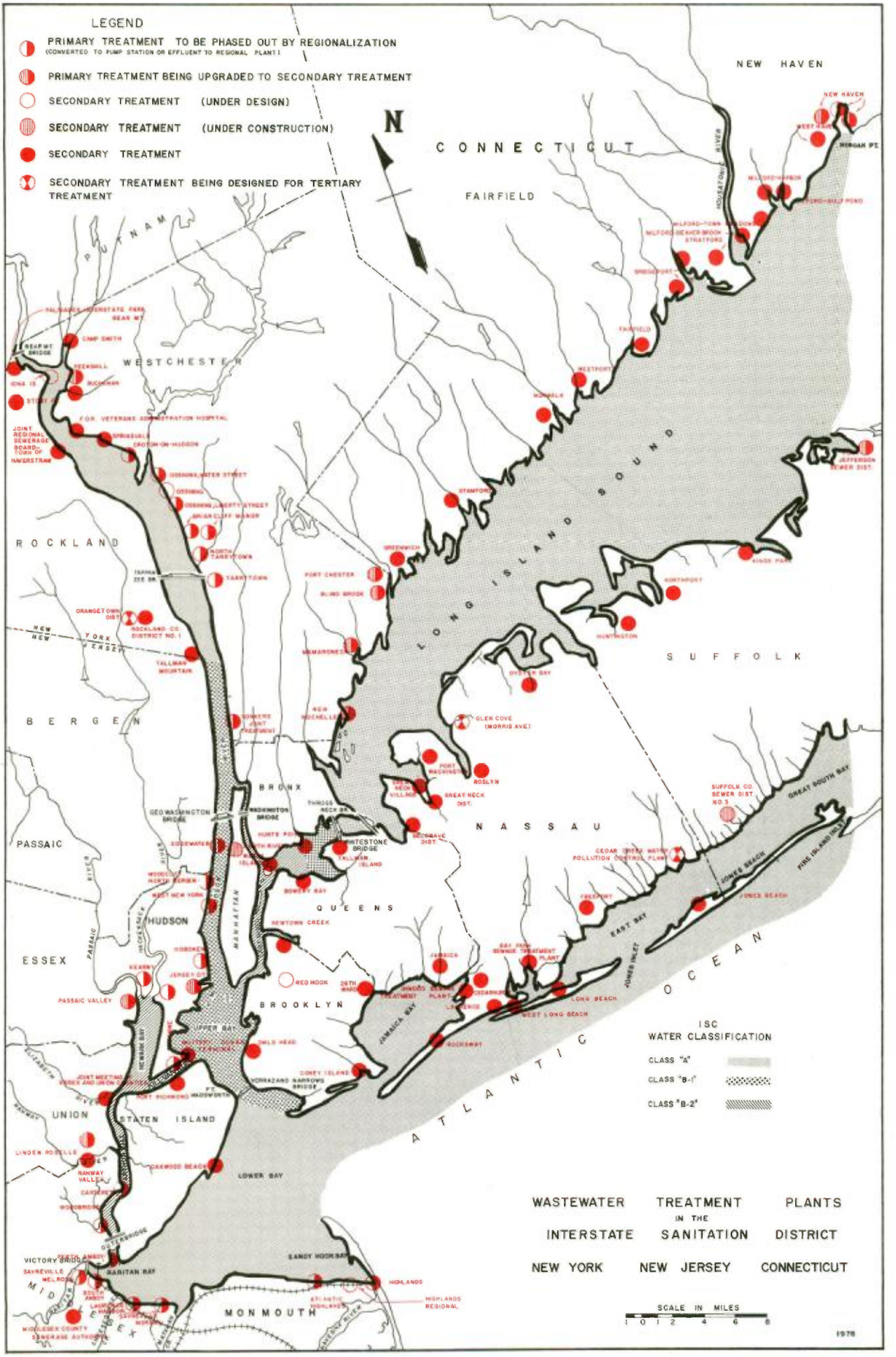
II. Water Pollution

General

During 1978, 99 municipal water pollution control projects were either completed, started or planned in the Interstate Sanitation District. A total of $3 billion was allocated for this work, divided as follows: $564 million on 23 projects completed during the year; $1.69 million on 48 projects under construction; and $212 million for 28 future projects. These monies are being used to construct new facilities and to upgrade existing facilities which should result in less polluted effluents.

The information on the status of the water pollution projects in the District was gathered by the Commission from officials in the state and local governmental water pollution control agencies and sewerage authorities, and is given in detail in this section.

The map of the Interstate Sanitation District on the following page shows the locations of wastewater treatment plants discharging into District waters, the type of treatment at each plant, and the Commission's water classifications. See Appendix A for additional information on each water pollution control plant.


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 DESIGNED FOR TERTIARY TREATMENT
N
NEW HAVEN
CONNECTICUT
FAIRFIELD
WESTCHESTER
PUTNAM
ROCKLAND
BERGEN
PASSAIC
HUDSON
ESSEX
UNION
BRONX
QUEENS
BROOKLYN
STATEN ISLAND
NASSAU
SUFFOLK
MONMOUTH
LONG ISLAND SOUND
ATLANTIC OCEAN
ISC
WATER CLASSIFICATION
CLASS "A"
CLASS "B-1"
CLASS "B-2"
WASTEWATER TREATMENT PLANTS
IN THE
INTERSTATE SANITATION DISTRICT
NEW YORK NEW JERSEY CONNECTICUT
SCALE IN MILES
1 0 1 2 4 6 8
1978

CONNECTICUT WATER POLLUTION CONTROL PLANTS

Bridgeport - East Side Plant, Connecticut

Completed Project

The Evers Street pump station was renovated at a cost of $50,000.

Project in Progress

Comments found under engineering studies for the West Side Plant also apply to this plant.

Bridgeport - West Side Plant, Connecticut

Completed Project

The Rooster River pump station and interceptor were completed this year at a cost of $5.0 million.

Project in Progress

Work was begun on the $20 million interceptor to serve the Town of Trumbull.

The engineering study on identifying and recommending remedies to the problems which have existed at the plant since the upgrading in 1973 is continuing. This study is also considering any work on the sewer system which may be necessary.

Fairfield, Connecticut

Project in Progress

Problems with the existing centrifuge have necessitated consideration of alternate methods of sludge dewatering.

Construction began in September on one of the contracts for the expansion of the plant's drainage basin. Five other contracts should be started by year's end. The entire project will include three new interceptors totaling about 6 miles, a pump station at Sturgess Park and about 27 miles of new lateral sewers.

Some federal monies have already been received for this $18 million project.

Future Project

Three major engineering studies are planned for the near future; an infiltration inflow study, a plant outfall study and a sludge disposal study.

Greenwich Central, Connecticut

Completed Projects

A Phase I Facilities Plan including an infiltration/inflow study was completed in February 1978, at a cost of $1 million. Plans to increase the plant's drainage basin to include the Byram Shore Road area as well as the North Mianus area of Greenwich are now in progress.

Project in Progress

Phase II of the Facilities Plan was begun in November 1978. This phase will include inspection and evaluation of the existing sewer lines and recommend any corrective measures which may be necessary. The cost of the study is estimated to be $535,000.

Engineering work on the North Mianus sewer project was begun in November 1978 and will sewer 200 properties in this area including a water filtration plant which discharges into the North Mianus River. This project is expected to cost $2.8 million.

Future Projects

The existing aeration tanks at the plant are to be lengthened and the final tanks modified at a cost of $1.3 million.

The Byram Shore Road sewer project is scheduled to begin in the spring of 1979. This job is expected to cost $2.7 million and will serve about 170 houses.

Milford - Beaver Brook, Connecticut

Completed Project (All 4 Milford Plants)

A supplement to a Phase I Facilites Plan the has recommended phasing out all existing Milford plants except the Beaver Brook plant and conveying the flows from the other three plants to a new plant to be built on the Housatonic River in the northwest section of Milford.

Milford - Gulf Pond, Connecticut

Completed Project

Refer to description of project at Milford - Beaver Brook.

Milford - Harborside, Connecticut

Completed Project

Refer to description of project at Milford - Beaver Brook.

Milford - Town Meadows, Connecticut

Completed Project

Refer to description of project at Milford - Beaver Brook.

New Haven - Boulevard, Connecticut

Project in Progress

The City of New Haven expects to complete an Environmental Impact Statement in June 1979, which will recommend a location for the upgraded secondary facilities, either Boulevard or East Street. It is likely that the plant which is upgraded will receive the primary treated flows via a force main from the other plant.

Future Project

When the location is determined, a 34 MGD secondary plant will be built at an estimated cost of $60 million.

New Haven - East Shore, Connecticut

Project in Progress

Construction is approximately 75% complete on the upgrading and expansion of the existing plant from 12.5 to 40 MGD.

The Phase I Facilities Plan study continues and will recommend cost effective solutions to existing sewer problems.

The anticipated cost of this project is approximately $33 million.

New Haven - East Street, Connecticut

Refer to New Haven - Boulevard discussion.

Norwalk, Connecticut

Project in Progress

The construction on a supplemental treatment facility to treat excess storm water flow is about 30% complete.

The supplemental treatment plant takes overflow from storm swollen combined sewage (above 30 MGD) and runs it through microscreens, chlorine contact and out into the Norwalk River with better than primary treatment. It has a capacity of 75 MGD, which, added to 30 MGD in the secondary plant, gives the plant a total of 105 MGD capacity to handle storm swollen flows.

Work also continued on several Connecticut Avenue interceptors as well as a pump station.

The estimated cost of these projects is about $7.5 million.

Stamford, Connecticut

Completed Project

Aerators in the secondary tanks have been repaired and are in service.

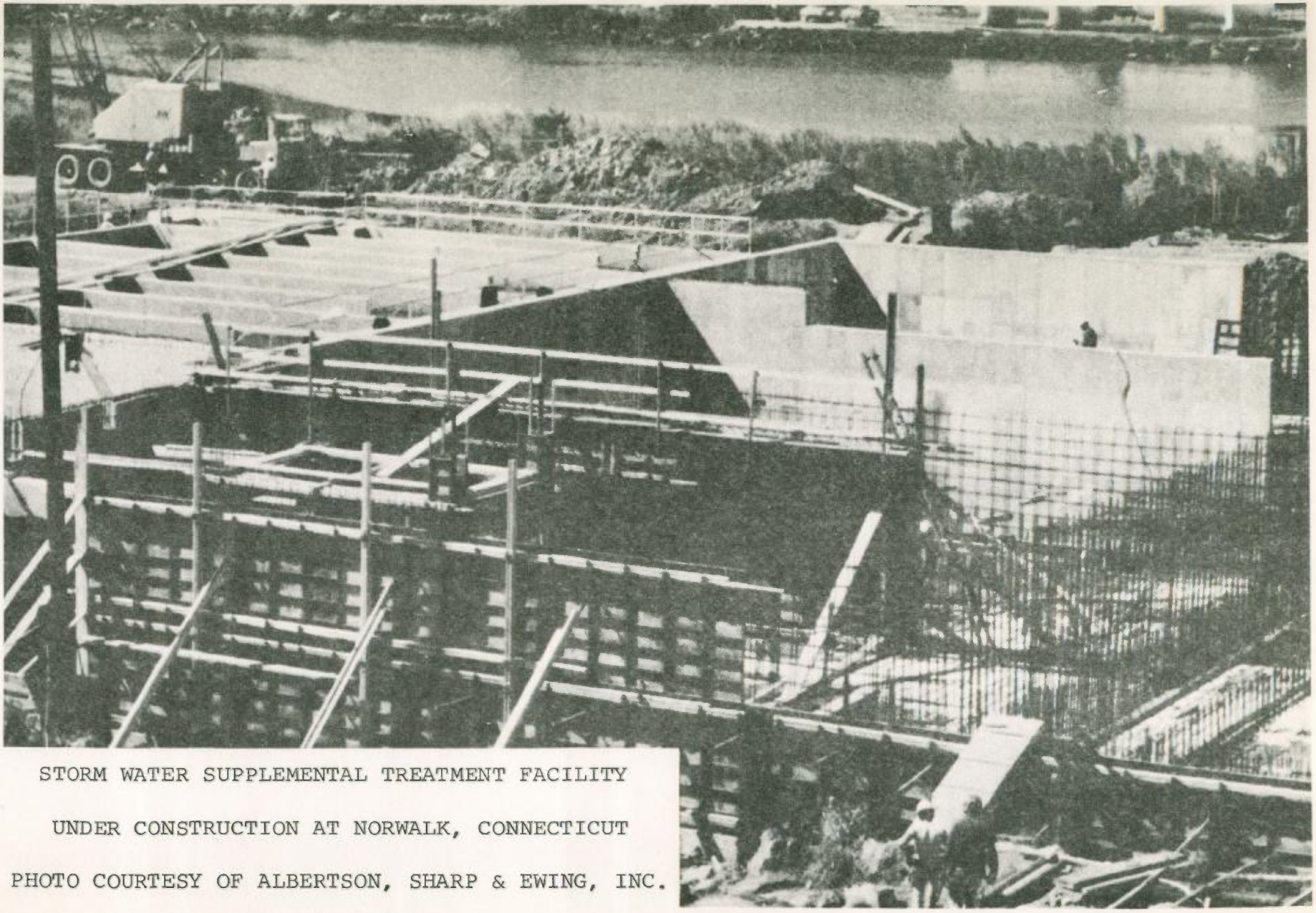
Project in Progress

An engineering study is in progress to evaluate sludge dewatering, degritting and scum handling. Work also is continuing on incineration of dewatered sludge.

The Rippowon River interceptor project was started this year.

Future Project

Several pump stations are scheduled for upgrading and and rebuilding in the near future.



STORM WATER SUPPLEMENTAL TREATMENT FACILITY

UNDER CONSTRUCTION AT NORWALK, CONNECTICUT

PHOTO COURTESY OF ALBERTSON, SHARP & EWING, INC.

Stratford, Connecticut

Project in Progress

Construction began on the upgrading and expansion of the sewers in the Ferndale area of the town, and on the pump station and interceptor at Avon. Two pump stations and associated interceptors to service the Lordship area were also started.

The total estimated cost of these sewerage projects is $6.2 million.

Future Project

Monies have been received and bids have gone out for the required installation of improved sludge handling equipment.

Work should start in the spring of 1979 on the installation of a new gravity thickener and a screen press dewatering system. The estimated cost of this project is $1.9 million.

There is a future town funded project to examine alternate methods of sludge disposal. Composting seems feasible. The project is expected to cost $600,000.

West Haven, Connecticut

Project in Progress

An engineering study is being done to evaluate the existing plant in the light of current technology.

Future Project

The Oyster River trunk sewer project still has not received town funding.

Westport, Connecticut

Project in Progress

Monies have been received and construction is in progress on the Sasco Creek and Compo Beach pump stations and sewers. Four other pump stations are being rebuilt and refitted.

Future Project

While the excavation is in progress for the Compo Beach project, there is a proposal to put in piping which would permit reuse of a portion of the plant's effluent for municipal golf course watering. Federal funds have been requested to assist in this project, but as yet the project has not been approved.

NEW JERSEY WATER POLLUTION CONTROL PLANTS

Atlantic Highlands, New Jersey (Monmouth County)

Refer to Highlands-Atlantic Highlands.

Bayonne, New Jersey (Hudson County)

Future Project

Refer to discussion of Hudson County Regional Sewerage Authority.

Carteret, New Jersey (Middlesex County)

Future Project

This plant is scheduled to be included in the expansion of the Middlesex County Sewerage Authority drainage basin. The existing plant will probably become a pump station when this expansion is completed.

Edgewater, New Jersey (Bergen County)

Completed Project

The rotating disc pilot plant study was completed this year with apparent sucess. A report on the study is being prepared.

Project in Progress

The equipment used in the above study is presently being utilized for secondary treatment of a portion of the plant's primary effluent.

Federal monies were received in October 1978, to fund a Phase I Facilities Plan study, and approval by the New Jersey Department of Environmental Protection is being sought.

Future Project

Based upon the results of the phase I study a plant expansion is planned. At present the proposed expansion will be to a capacity of 4 MGD, utilizing rotating disc secondary treatment.

Highlands, New Jersey (Monmouth County)

Refer to Highlands-Atlantic Highlands.

Highlands - Atlantic Highlands Regional Sewerage Authority, New Jersey (Monmouth County)

Project in Progress

A consultant has been asked to prepare a combination Environmental Impact Statement and Facilities Plan to determine the best location of the plant as well as the best design and methods of tie-in by the communities of Highlands and Atlantic Highlands. These boroughs will be connected to the larger plant and phase out their existing primary plants.

Hoboken, New Jersey (Hudson County)

Project in Progress

The 11th Street pump station has been rebuilt at an approximate cost of $750,000.

Future Project

Refer to Hudson County Regional Sewerage Authority.

Hudson County Regional Sewerage Authority, New Jersey (Hudson County)

Project in Progress

The Step II work (plans and specifications) under the 201 Facilities Plan is essentially complete for the three planning areas which have been designated in Hudson County.

A 56 MGD plant is planned for Area I at the Jersey City-East sewage treatment plant location. It's methodology will be either air or pure oxygen aeration. This area includes Jersey City, western North Bergen, Kearny Point, the western slope of Union City and Secaucus. In this area the secondary plant at Secaucus will remain intact.

In Area II an 11 MGD aeration (air or pure oxygen) will serve Bayonne at the location of the present Bayonne sewage treatment plant.

Area III will be a deep filter plant of 26 MGD capacity to be built at Hoboken. It will serve the communities of Hoboken, Weehawken, eastern Union City, and West New York.

Jersey City - East, New Jersey (Hudson County)

Future Project

Refer to Hudson County Regional Sewerage Authority.

Jersey City - West, New Jersey (Hudson County)

Future Project

Refer to Hudson County Regional Sewerage Authority.

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

Completed Project

This recently upgraded and expanded plant began operation on August 15, 1978. The new facilities are capable of treating 70 MGD of domestic and industrial sewage with removals of 90% of the BOD and suspended solids utilizing step mechanical aeration.

The total cost of the upgrading was approximately $60 million.

Kearny, New Jersey (Hudson County)

Future Project

Refer to Hudson County Regional Sewerage Authority.

Linden Roselle Sewerage Authority, New Jersey (Union County)

Project in Progress

The construction required to upgrade the existing primary plant to a 17 MGD secondary activated sludge plant is about 80% complete. The new plant will achieve 90% removal of both BOD and suspended solids. Equipment in the new plant will include: primary settling tanks, roughing filters, aeration tanks (submerged air), final settling tanks, thickeners and digesters.

The anticipated completion date of this $20 million project is fall 1979.

Middlesex County Sewerage Authority, New Jersey (Middlesex County)

Completed Project

The new 120 MGD secondary plant utilizing the UNOX (registered trade mark of Union Carbide Corp. - pure oxygen) process was begun in the summer of 1978. Some start-up problems were experienced but these should be corrected by the beginning of 1979.

The new units are: grit chambers, primary tanks, oxygenation tanks, final tanks, chlorination facilities, thickening tanks, sludge storage tanks and aerobic digesters.

The total cost of this project was approximately $110 million.

Future Project

It is expected that the communities of South Amboy, Perth Amboy, Carteret and Woodbridge will be connected to this new plant.

The trunks and interceptors for the tie-in of additional plants is progressing on schedule. This sewering project is expected to cost $85.5 million.

Old Bridge Township, New Jersey (Middlesex County)

Completed Project

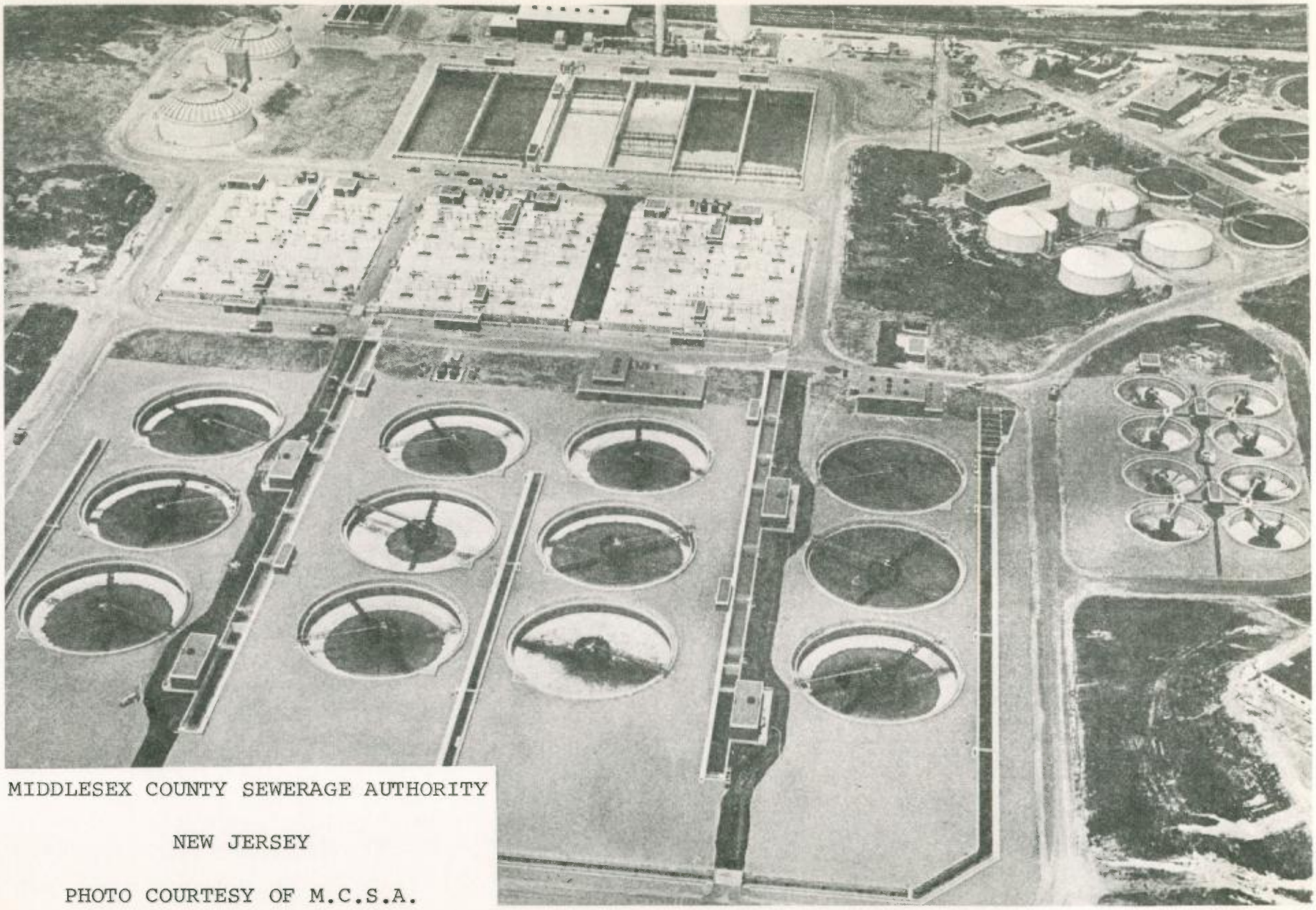
Step I and Step II work under a 201 Facilities Plan to phase out the plant has been completed.

Project in Progress

At present, work is held in abeyance while a decision is made on routing of the force main.

Future Project

Steps III and IV of the Facilities Plan are awaiting funds because of indecision on the location of the main. The force main will be connected to the line from South Amboy and Sayreville and will convey the sewage from these three communities to the Middlesex County Sewerage Authority plant. Completion of this project is hoped for by 1981.



MIDDLESEX COUNTY SEWERAGE AUTHORITY

NEW JERSEY

PHOTO COURTESY OF M.C.S.A.

Passaic Valley Sewerage Commissioners, New Jersey (Essex County)

Project in Progress

Construction on the secondary portion of a pure oxygen activated sludge plant, a wet air oxidation sludge treatment system and a new main pumping station began in November 1978. This portion of the plant is expected to come on-line in 1981 at a cost of approximately $300 million. At that time the existing primary settling basins will be dismantled and new primary clarifiers will be built in their place by 1984.

The total cost of this construction is estimated at $400 million.

Future Project

A program to develop a land based solution for sludge management is proceeding. Sludge dewatering facilities have been planned and the final Facilities Plan should be completed by the spring of 1979.

Perth Amboy, New Jersey (Middlesex County)

Completed Project

Step I work has been completed and federal funding is awaited to connect this plant to the Middlesex County Sewerage Authority system.

Future Project

The existing plant is to be phased out and converted to a pump station. The work on this project will be coordinated with similar jobs by the communities of Carteret and Woodbridge.

Rahway Valley Sewerage Authority, New Jersey (Middlesex County)

Future Project

A consultant has been selected and work should start soon on a $12 million land based sludge management plan.

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

Future Project

Both plants in the borough of Sayreville will be converted to pump stations which will pump the sewage to the

recently upgraded Middlesex County plant. The expected cost of this project is $4 million.

Refer to Middlesex County Sewerage Authority and also to Perth Amboy.

South Amboy, New Jersey (Middlesex County)

Future Project

This plant is one of those scheduled to connect into the expanded Middlesex County Sewerage Authority system. The existing plant will either be abandoned or converted to a pump station.

The cost of this project is included in the $13 million figure mentioned for the Woodbridge project.

West New York, New Jersey (Hudson County)

Future Project

Refer to Hudson County Regional Sewerage Authority.

Woodbridge, New Jersey (Middlesex County)

Future Project

Plans are to convert the existing plant to a pump station. This work is to be coordinated with similar jobs in Perth Amboy and Carteret. The flows from these plants will go to the Middlesex County Sewerage Authority plant.

The total expected cost of this project is $13 million.

Woodcliff - North Bergen, New Jersey (Hudson County)

Future Project

Refer to Hudson County Regional Sewerage Authority.

NEW YORK WATER POLLUTION CONTROL PLANTS

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

Project in Progress

The following three projects started last year: new covers on the primary tanks, a new sludge force main and remodeling of the sludge concentration building. These three projects are nearly completed as of this year. The cost of these jobs was approximately $3 million.

Future Project

The upgrading and expansion of the Bay Park plant has been recommended by the 201 Facilities Plan, but approval of the plan by the US EPA is still pending.

The proposed new units are: grit chambers; primary, secondary and aeration tanks; sludge digester and storage tanks and a blower building.

The estimated cost for the expansion is $76 million.

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

Future Project

The proposed 1980 plant expansion is no longer being considered.

Blind Brook, New York (Westchester County)

Project in Progress

Excavation for the foundation of the plant expansion to be built at this location was begun during the summer of 1978. The upgraded plant will be a 5 MGD secondary plant and will provide 85% removal of both BOD and suspended solids.

The estimated cost of the new facility is $8 million.

Bowery Bay, New York (Queens County)

Completed Project

Expansion of the plant's capacity to 150 MGD and upgrading to step aeration is substantially complete (99+%).

Only a few small details remain for the contractors to complete.

The total cost of this expansion and upgrading was $90 million.

Briarcliff Manor, New York (Westchester County)

Future Project

The two septic tanks at River Road and Scarborough Dock will be abandoned and the flows being treated at these locations will be conveyed to the new regional plant being built in Ossining by the Westchester County Department of Public Works.

Buchanan, New York (Westchester County)

Future Project

Sludge is removed by a private contractor and disposed of at the Yonkers Joint Meeting plant. On site sludge drying beds are planned but their construction awaits funding.

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

Project in Progress

A tertiary pilot plant study is progressing on schedule. This pilot plant is a sand filter and carbon column facility with final settling. The plant employs on site carbon regeneration.

When finished (presently 60% complete) the pilot plant will provide complete (100%) removals of BOD and suspended solids for 5 MGD of the effluent flow treated at the main (secondary) plant.

This pilot plant study is expected to cost $39 million.

Coney Island, New York (Kings County)

Project in Progress

The infiltration-inflow study which began in 1976 was continued during 1978 (Step I facility study).

Future Project

Based upon the results of the infiltration-inflow study

and the Step I Facilities Report, an upgraded plant will be designed to provide 90% removals of BOD and suspended solids. Consulting engineers have been selected and a contract has been negotiated.

Conrail - Harmon Diesel Shop, New York (Westchester County)

Future Project

The effluent from this industrial treatment facility is scheduled to be diverted to the new county plant being built at Ossining.

Croton-on-Hudson, New York (Westchester County)

Future Project

Bids have gone out for the conversion of the existing treatment plant to a 1.5 MGD pumping station. This flow will be conveyed to the new regional plant under construction at Ossining.

Elmwood Homes, New York (Richmond County)

Completed Project

In order to equalize the flow through the plant, an equalization tank and three new pumps were added. These projects cost approximately $200,000.

F.D.R. Veterans Administration Medical Center, Montrose, New York (Westchester County)

Project in Progress

Several modifications were started this year at the head end of this plant. These additions included new automatic bar screens, a new comminutor and a new Parshall flume. The estimated cost of these projects is $85,000.

Freeport, New York (Nassau County)

Project in Progress

The Suffolk Street pump station is being rehabilitated.

Future Project

The existing plant is scheduled to be closed in 1980 and the flow will be diverted to the Nassau County plant at Cedar Creek. The phase-out program includes the rehabilita-

Future Project

It is expected that the Joint Regional Sewerage Board will spend $1 million on sludge composting.

Kings Park State Hospital, New York (Suffolk County)

Completed Project

The Kings Park Liquid Waste Facility was taken over by Suffolk County in January 1978.

Long Beach, New York (Nassau County)

Future Project

This trickling filter plant will be upgraded in accordance with the results of the Nassau/Suffolk 201/208 study.

Mamaroneck, New York (Westchester County)

Project in Progress

A 201 Facilities Plan is in progress to determine the future needs of this primary plant.

New Rochelle, New York (Westchester County)

Project in Progress

The construction for the upgrading of this primary plant to a 15 MGD, pure oxygen, activated sludge plant is 75% completed. The expected completion date is mid-1979 with an anticipated cost of $21 million.

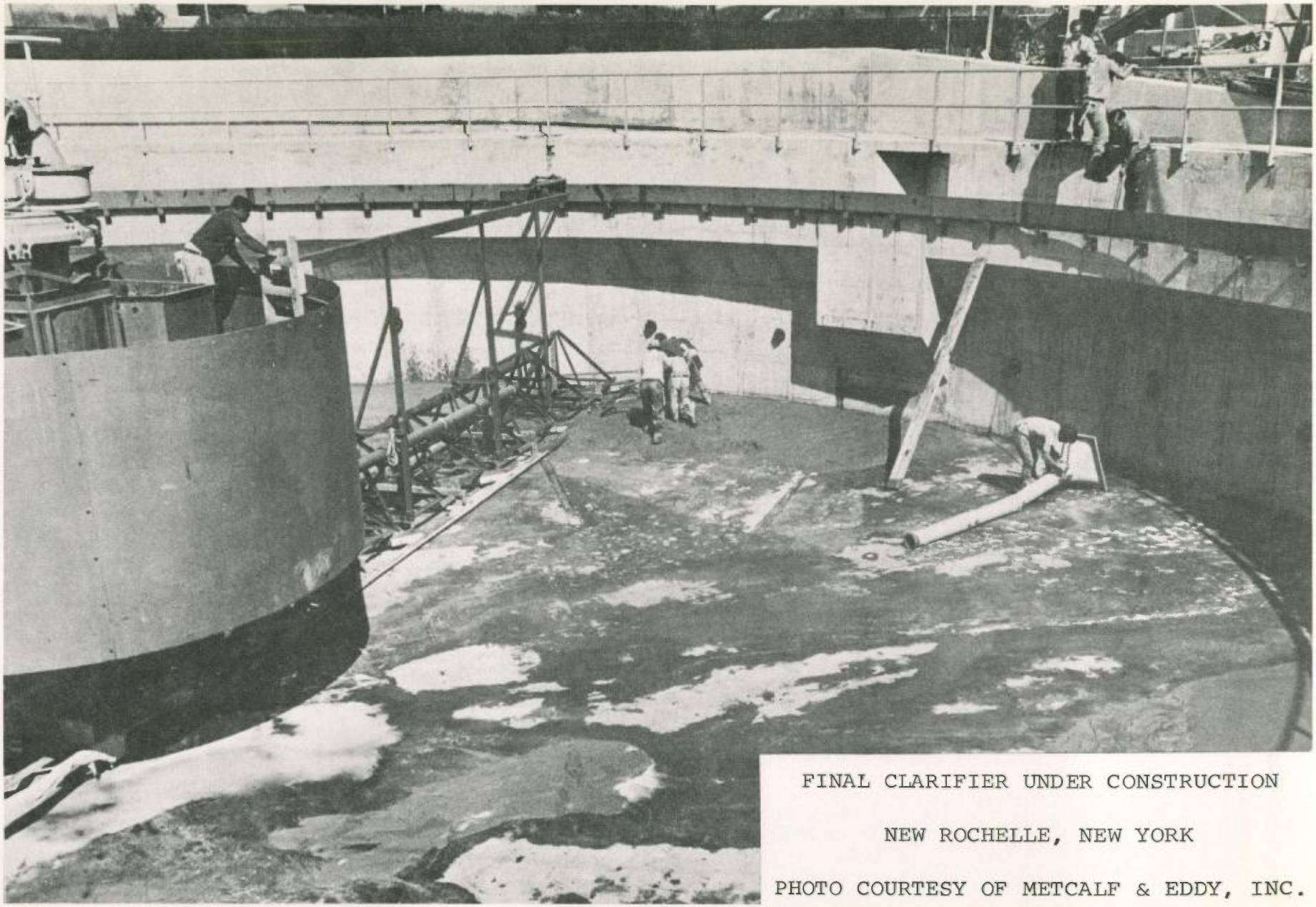
Newtown Creek, New York (Kings County)

Project in Progress

A 201 Facilities Study report is being prepared including an infiltration-inflow study.

Future Project

The Facilities Study will determine the most best effective method of upgrading the existing plant.



FINAL CLARIFIER UNDER CONSTRUCTION

NEW ROCHELLE, NEW YORK

PHOTO COURTESY OF METCALF & EDDY, INC.

North River, New York (New York County)

Completed Project

The plant foundation and five interceptor sewers associated with this totally new plant have been completed.

Project in Progress

The Step I Facility Plan work on the superstructure portion of this 170 MGD plant proceeded well during the year.

Bids were advertised in September for the construction of a $2 million sludge storage tank on top of the plant foundation. Work will begin in early 1979 on this tank and should require about 15 months to complete.

North Tarrytown, New York (Westchester County)

Project in Progress

This primary plant will be phased out as part of the project which will divert the flows from North Tarrytown and Tarrytown to the Yonkers Joint Treatment Plant. The flow from North Tarrytown will be conveyed to Tarrytown where it will be pumped to Yonkers.

The project is 99+% complete and only awaits take-over by the county.

Oakwood Beach, New York (Richmond County)

Completed Project

A main feeder interceptor-tunnel was completed in 1978 at a cost of $30 million. The plant outfall was completed at a cost of $9 million.

Projects in Progress

The construction to upgrade and expand the plant from 15 MGD to 40 MGD is about 90% complete and should cost about $54 million.

The main plant interceptor is about 50% complete and will cost $11 million; work on another interceptor is underway, and will cost an additional $7 million.

Work is also proceeding on the nine mile long sludge force main connecting the plant with the Port Richmond

plant. This will cost an additional $6 million.

Future Project

An Environmental Impact Statement, being prepared by U.S. EPA to evaluate the plans for seven additional interceptors and five pump stations, should be released by year's end.

Construction is expected to start in February 1979 on the structures for two pump stations at Eltingville and at Richmond Hill Road. The cost of the structures (without equipment) is expected to be $4 million and should be completed in the spring of 1980.

Ossining Correctional Facility, New York (Westchester County)

Future Project

Flow from the correctional facility is planned to be diverted to the new county plant being built at Ossining.

Ossining Regional, New York (Westchester County)

Project in Progress

Construction was begun in the spring of 1978 on the new 7.5 MGD plant being built at Ossining. The plant will remove 85% of the BOD and suspended solids.

This regional facility will treat the flows from Water and Liberty Streets, the Correctional Facility, Briarcliff Manor and Croton-on-Hudson.

The estimated cost of the new plant is $21 million.

Owls Head, New York (Kings County)

Project in Progress

A Step I grant infiltration-inflow study, which began in 1976, is not yet completed.

Future Project

Based upon the results of the infiltration-inflow study and the Step I Facilities Report, an upgraded plant will be designed to provide 90% removals of BOD and suspended solids. Consulting engineers have been selected and a contract has been negotiated.

Oyster Bay, New York (Nassau County)

Project in Progress

The future needs of the Oyster Bay Sewer District will be determined by the 201 Facilities Plan currently being prepared.

Peekskill, New York (Westchester County)

Project in Progress

Construction to upgrade the existing 4 MGD primary plant to a 10 MGD activated sludge plant is approximately 80% complete. The new plant will have the capability of removing 85% of the incoming BOD and solids. The expected cost of this construction is $14.4 million.

Future Project

Construction has not yet begun on the $10 million proposed expansion of the sewer system to serve this plant.

Port Chester, New York (Westchester County)

Project in Progress

Construction began this year on the sludge and effluent force mains which will service both the new plant to be built here and the new plant being built at Blind Brook.

Construction also began on the upgrading and expansion of the existing primary plant to a 6 MGD activated sludge plant. The new facility will provide 85% removals of influent BOD and solids and will also provide thermal oxidation of the sludge for both this plant and the Blind Brook plant. The expected cost of the project is $18 million.

Port Jefferson, New York (Suffolk County)

Project in Progress

A Facilities Plan is proceeding under a Step I grant. After the infiltration-inflow study has been completed the Step I work should be finished about mid-1979.

Future Project

The two alternate recommendations will probably be:

1. upgrading to secondary with denitrification and use of

existing outfall; or

2. upgrading to secondary with a new offshore outfall to take advantage of tidal movement and mixing in harbor.

The anticipated completion date for the new facility is 1983.

Port Richmond, New York (Richmond County)

Completed Project

The Hannah Street pump station was substantially completed in 1978 and is presently in an operational testing phase.

Project in Progress

Since August 1977, flows from the already operational interceptors have been receiving secondary treatment. The plant upgrading and expansion is now about 97% complete. When complete, the plant will be capable of 90% removals of BOD and suspended solids and have a 60 MGD capacity.

Completion of this project is expected in early 1979.

The total cost of the Port Richmond Project is expected to be $170 million.

Port Washington, New York (Nassau County)

Project in Progress

Nassau County has contracted with a consultant to implement a 201 Facilities Study to evaluate the sewering needs of the entire Port Washington peninsula, including the village of Roslyn.

Red Hook, New York (Kings County)

Project in Progress

Construction on the foundation for the new 60 MGD step aeration plant began in February and is about 15% complete. The expected completion date for this phase is October 1980.

The tunneled interceptor to the plant was also started in February and is about 10% complete.

A Step I Facilities Report for $2.1 million of eligible work is presently being prepared.

The total estimated cost of this project including sewers and pump stations is $400 million.

Rockaway, New York (Queens County)

Completed Project

The upgrading and expansion of the 30 MGD activated sludge plant to a 45 MGD step aeration plant is substantially complete; only a few details remain for the contractors to complete.

The total cost of this project was about $50 million.

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

Project in Progress

At present a $5.5 million project is underway to rehabilitate some of the facilities at this ten year old plant.

New or refurbished units will include: a new bar screen building, additional flow measurement throughout the plant, conversion of a secondary digester to a high rate digester and some rebuilding and modifications to the "Zimpro" unit.

This work began in the summer and is about 5% complete.

Future Project

A 201 Facilities Plan study has been proposed to evaluate the need for expanding the hydraulic capacity of the existing plant. This proposed expansion is expected to be approximately $35 million.

Roslyn, New York (Nassau County)

Project in Progress

The village of Roslyn is included in the 201 Facilities Plan study being conducted by Nassau County for the Port Washington peninsula.

It is likely that the existing plant will be phased out and the flow conveyed to the Nassau County Cedar Creek plant.

SLUDGE PYROLYSIS PROJECT

The Commission's investigation of the technical and economic aspects of converting multiple hearth furnaces to the pyrolytic mode of operation continued under a Research Grant funded by the U.S. EPA. The project was extended for a fourth pyrolysis testing campaign with the emphasis placed on heavy metals. The purpose of the runs was to compare incineration to pyrolysis on a multiple hearth to determine the potential heavy metals emissions of the two processes.

The fourth campaign took place during the week of August 28th, at the Nichols' Belle Mead facility. Four runs were made: one on a blank, the second on an incineration run, the third on a low temperature pyrolysis run and the fourth on a high temperature pyrolysis run. Analyses of the water samples from the runs are being done by the ISC laboratory. The Monsanto Corporation is analyzing samples for air pollutant parameters.

The final report is due in early 1979.

WATER QUALITY AND EFFLUENT MONITORING

The Commission's effluent monitoring program involves routine sampling and analysis of municipal wastewater treatment plants and industries. Additional sampling of municipal plants and industries is performed to check compliance with their N/SPDES permits.

The quality of the District waters is checked with remote automatic water quality monitors and boat survey sampling and analysis.

Effluent Monitoring

All municipal wastewater treatment plants and many industrial facilities discharging into District waters are routinely sampled by the Commission. The results of the sample analyses are used to determine compliance with the Commission's regulations.

At the request of and in cooperation with the states and the U. S. EPA, sewage treatment plants and industries are also sampled for compliance with their N/SPDES permits. Industrial samplings are done on a 24-hour basis for those industries on a continuous schedule and for a full working day for those on a daily schedule.

In addition to parameters called for by Commission or permit requirements, analyses are done for parameters including, but not limited to, heavy metals and nutrients. Both the boat survey and effluent data are used for the development of baseline conditions and for statistical distributions. These data have been extremely useful in studies such as the recent 208 plans in the District.

Remote Automatic Water Quality Monitoring

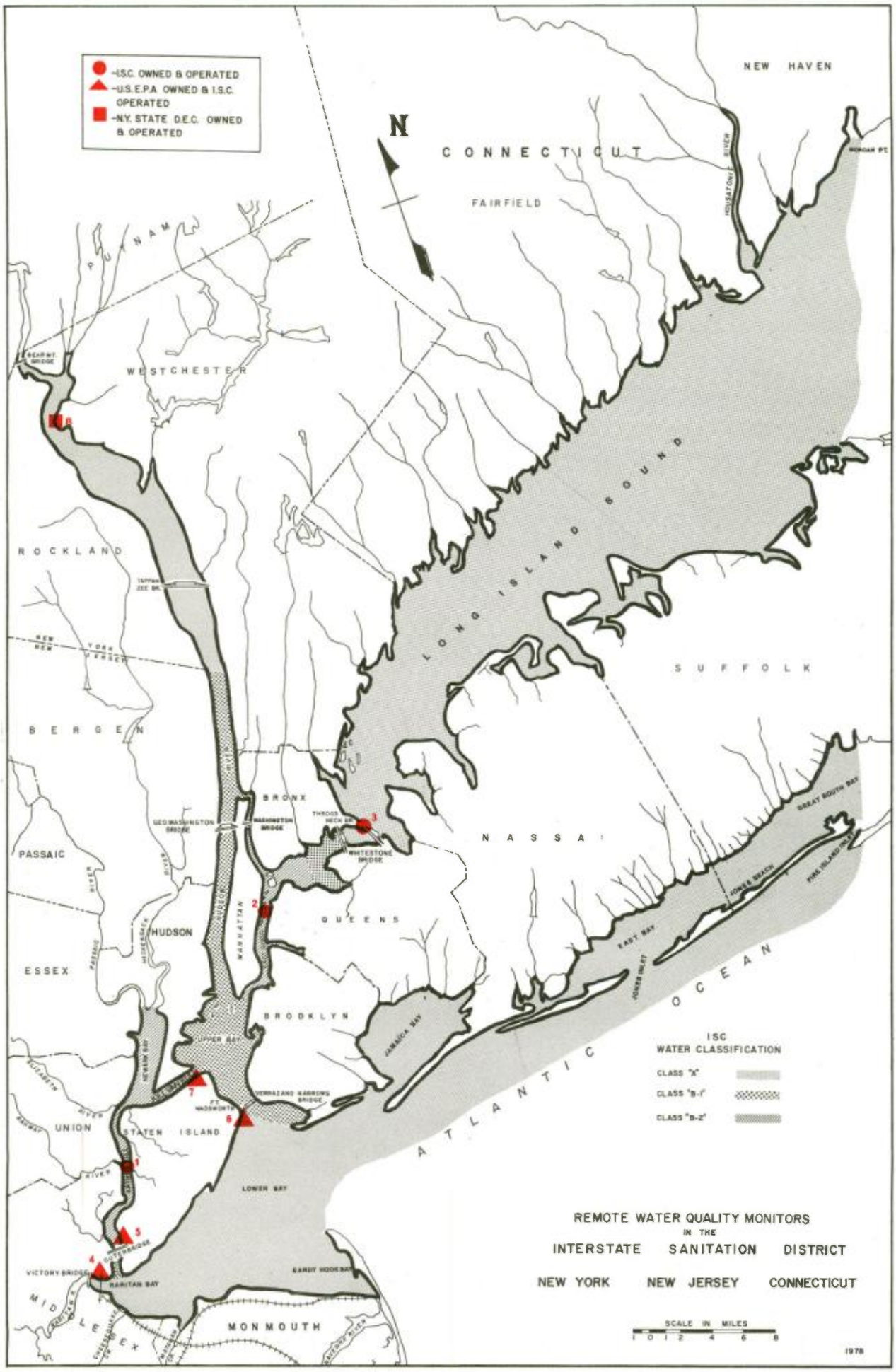
Each of the remote automatic water quality monitoring units continuously measures temperature, conductivity, dissolved oxygen and pH. The data are transmitted hourly to a central receiver in the Commission's office and summary reports are generated daily. These reports and magnetic tapes of the hourly values are sent to the appropriate state and federal agencies.

A map showing the location of the monitors and a list describing the sites is on the following pages. Due to a boat accident at Victory Bridge and a fire at Fort Wadsworth, these units are presently not in operation. Both units will be reinstalled as soon as possible.

Graphs for the past five years showing the monthly maximum,

minimum and average values for each parameter at each station are also included. The monthly maximum and minimum represent the single highest value and the single lowest value for the month, respectively. The monthly average is the average of the daily average values for the month. Dotted lines indicate a month for which less than ten days of data were available.

Following the graphs is a table showing the percent of time that the dissolved oxygen met Commission requirements at each remote automatic water quality monitoring station for the period October 1, 1977 through September 30, 1978. Low dissolved oxygen values are prevalent throughout the Interstate Sanitation District for the months of July, August and September. For the month of August none of the stations met Commission dissolved oxygen requirements even 10% of the time. The Arthur Kill (Station 1) met Commission dissolved oxygen requirements only 6 months out of the 12 months reported. The July 1978 values for dissolved oxygen are much higher than those observed in July 1977. Although still not acceptable, the percent of time that District waters met Commission dissolved oxygen requirements increased from the previous 12 month periods for the months of October 1977 and September 1978.


-I.S.C. OWNED & OPERATED
-U.S.E.P.A. OWNED & I.S.C. OPERATED
-N.Y. STATE D.E.C. OWNED & OPERATED
N
CONNECTICUT
NEW HAVEN
FAIRFIELD
PUTNAM
WESTCHESTER
ROCKLAND
BERGEN
PASSAIC
HUDSON
ESSEX
UNION
BRONX
QUEENS
BROOKLYN
NASSAU
SUFFOLK
STATEN ISLAND
MONMOUTH
MIDDLESEX
LONG ISLAND SOUND
ATLANTIC OCEAN
UPPER BAY
LOWER BAY
RARITAN BAY
SANDY HOOK BAY
JAMAICA BAY
EAST BAY
GREAT SOUTH BAY
JONES BEACH
FIRE ISLAND
GEO. WASHINGTON BRIDGE
WASHINGTON BRIDGE
THROGS NECK BR.
WHITESTONE BRIDGE
VERRAZANO NARROWS BRIDGE
VICTORY BRIDGE
ISC
WATER CLASSIFICATION
CLASS "A"
CLASS "B-I"
CLASS "B-2"
REMOTE WATER QUALITY MONITORS
IN THE
INTERSTATE SANITATION DISTRICT
NEW YORK NEW JERSEY CONNECTICUT
SCALE IN MILES
1 0 1 2 4 6 8
1978

REMOTE AUTOMATIC WATER QUALITY MONITORING STATIONS
IN THE
INTERSTATE SANITATION DISTRICT

INTERSTATE SANITATION COMMISSION OWNED AND OPERATED

1. Arthur Kill - Consolidated Edison Arthur Kill Generating Station, Staten Island, New York

2. East River - Consolidated Edison Ravenswood Generating Station, Long Island City, New York

3. East River - Throgs Neck Bridge, Fort Schuyler, Bronx, New York

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY OWNED AND INTERSTATE SANITATION COMMISSION OPERATED

4. Raritan River - Victory Bridge, Perth Amboy, New Jersey (1)

5. Arthur Kill - Outerbridge Crossing, Staten Island, New York (2)

6. The Narrows - Fort Wadsworth, Staten Island, New York (3)

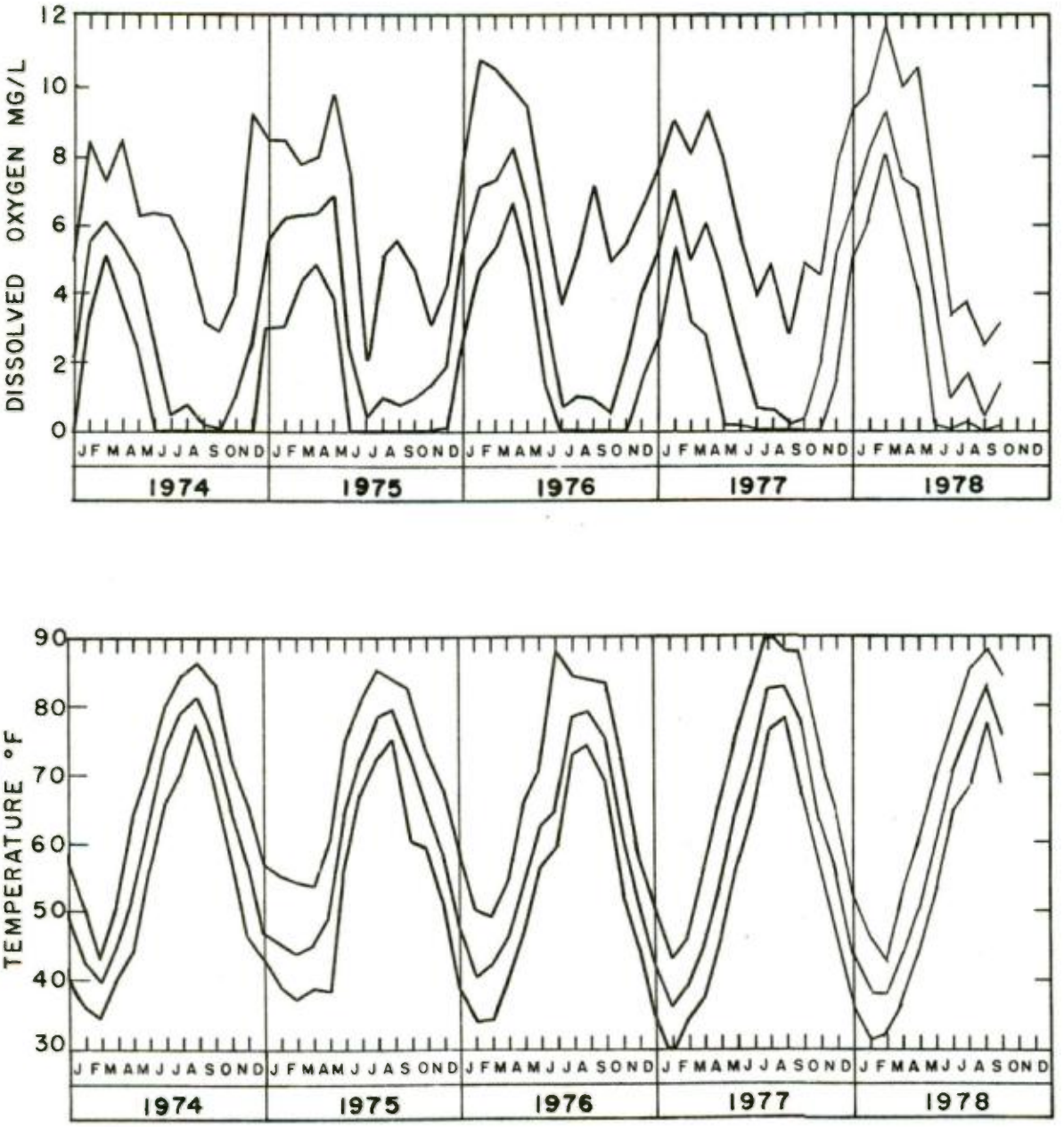
7. Kill Van Kull - U.S. Gypsum Company, Staten Island, New York (4)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION OWNED AND OPERATED

8. Hudson River - Verplanck, New York

(1) Out of service due to boat accident at Victory Bridge pier.
(2) Not presently in service.
(3) Out of service due to fire at Fort Wadsworth pier.
(4) Approximately 150 feet east of U.S. Gypsum Plant

ARTHUR KILL — CON ED. (station no. 1)



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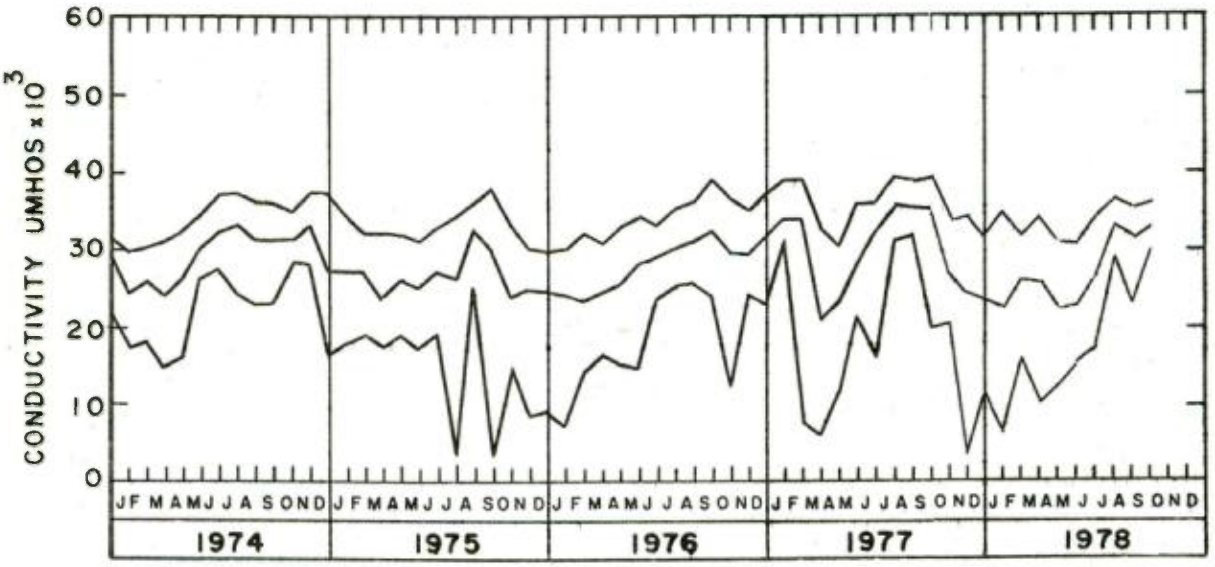
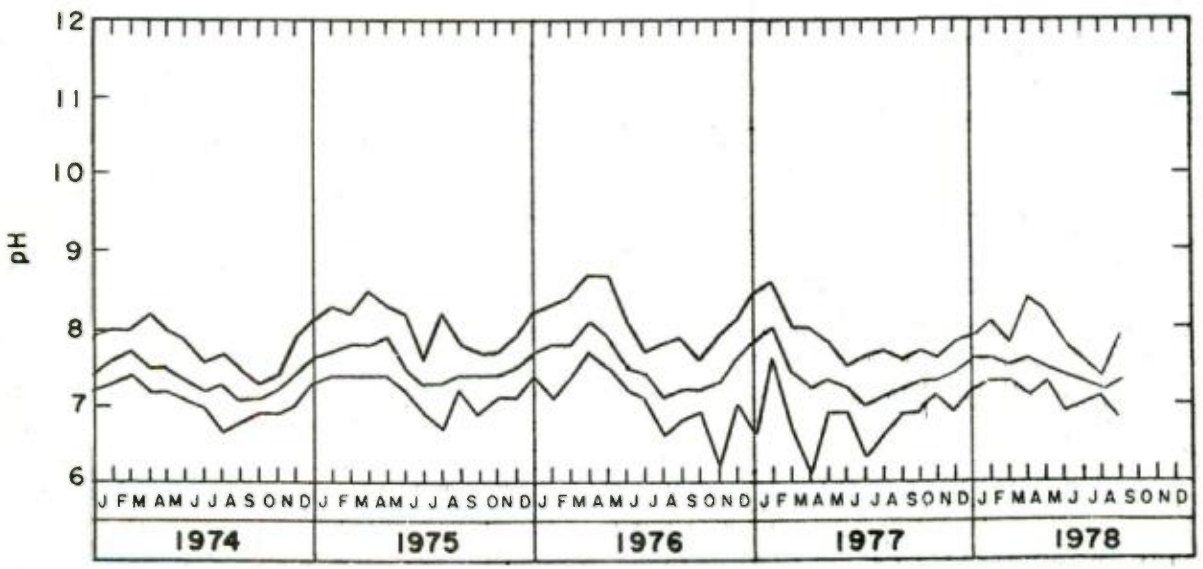
BOTTOM LINE — minimum monthly value

ARTHUR KILL — CON ED. (station no. 1)





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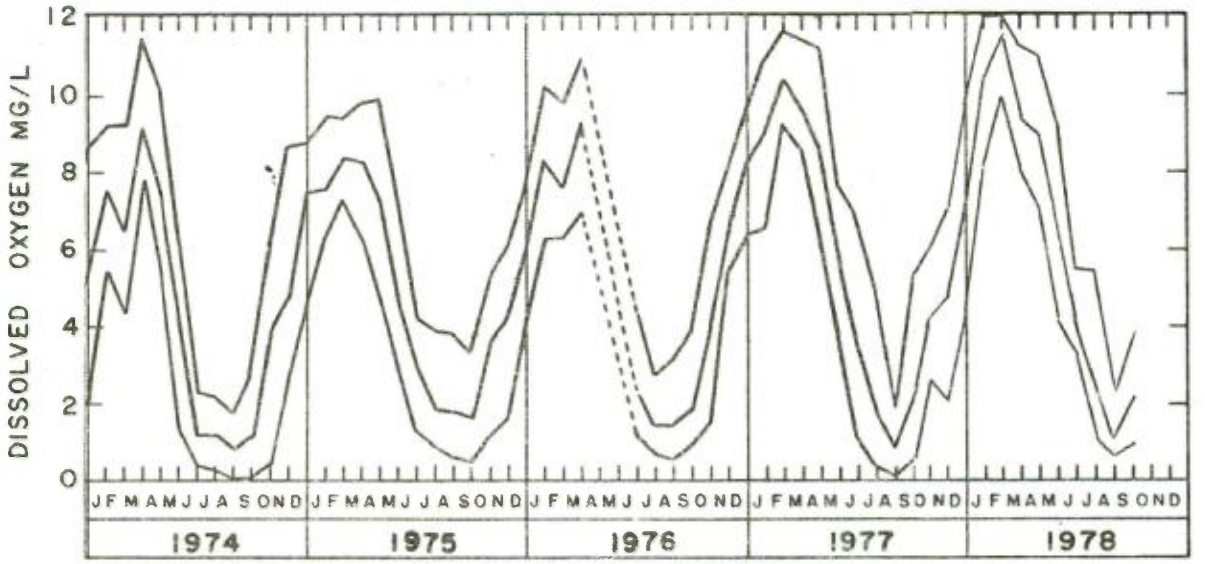
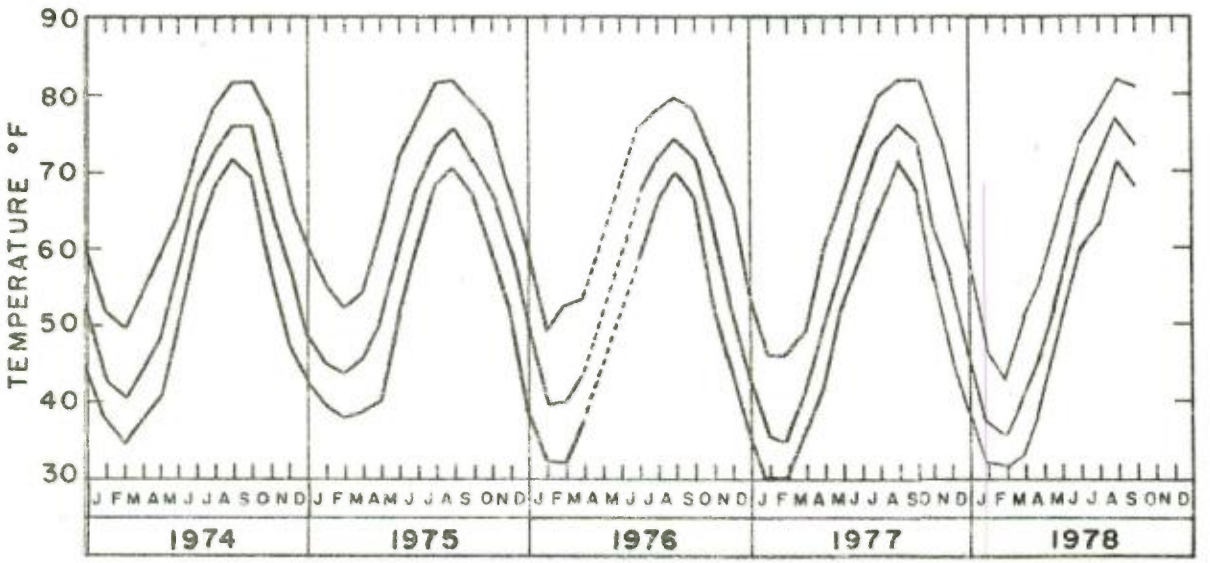
EAST RIVER — CON ED. (station no. 2)





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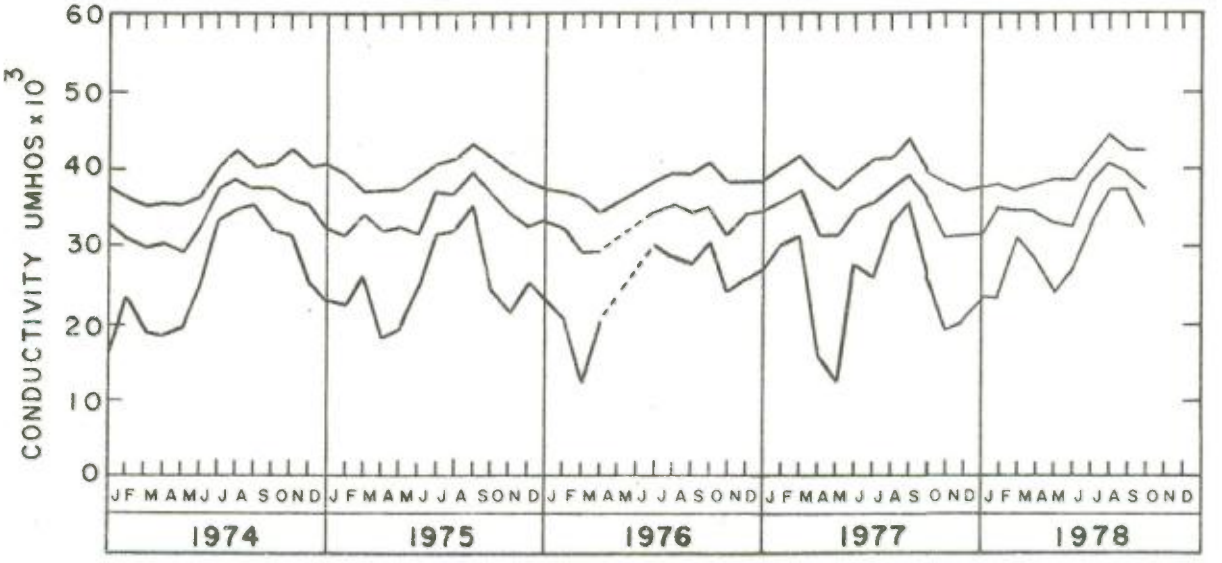

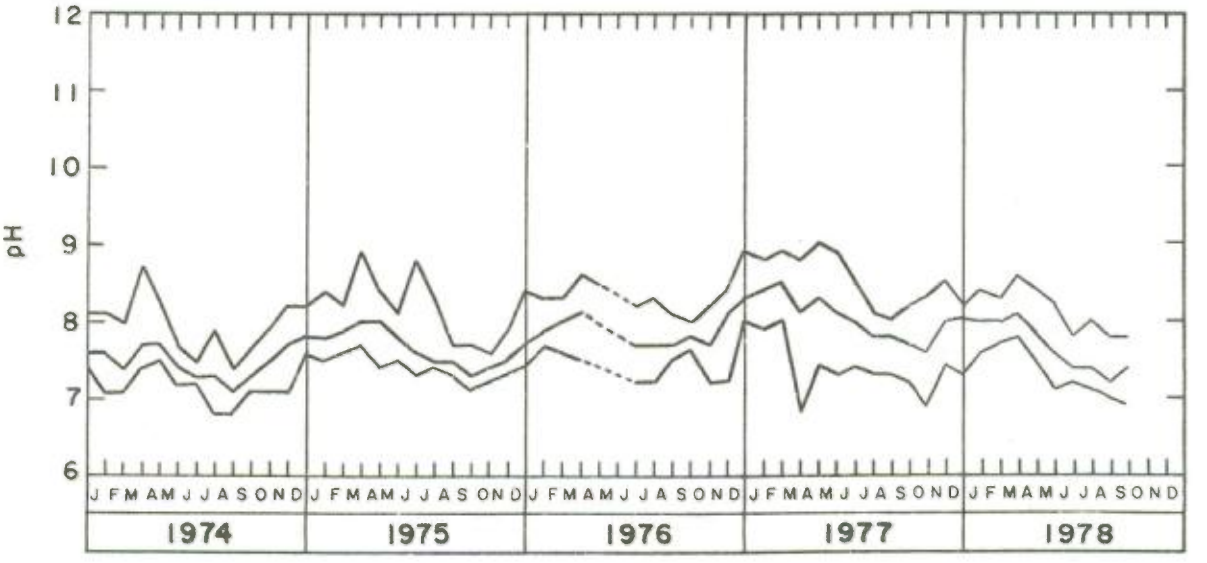

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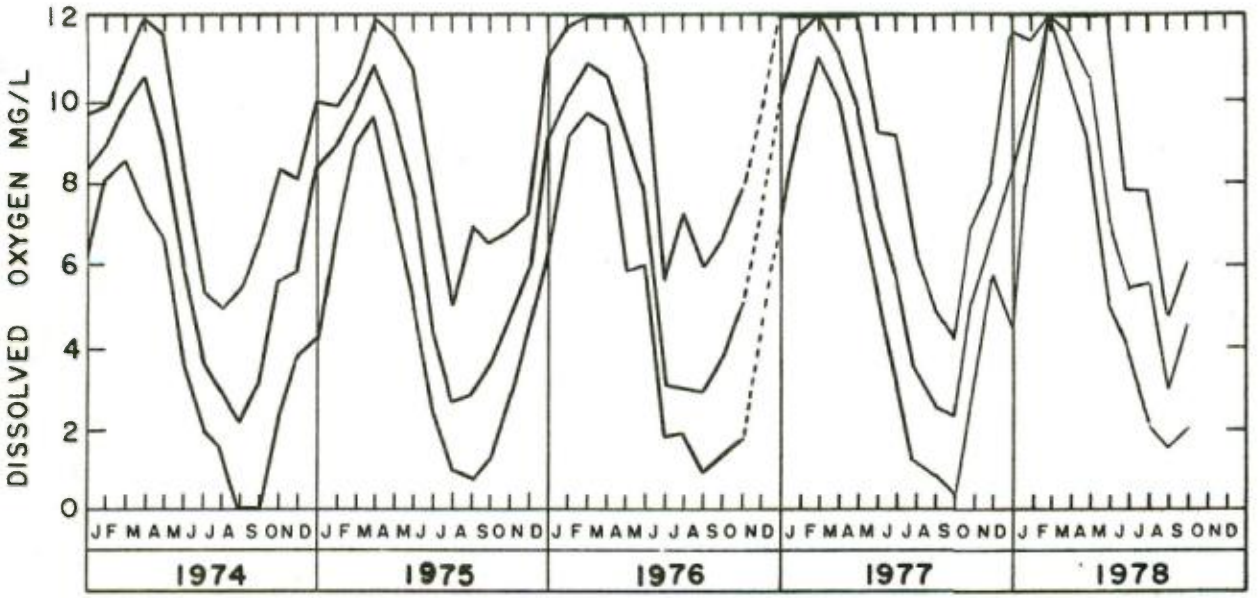
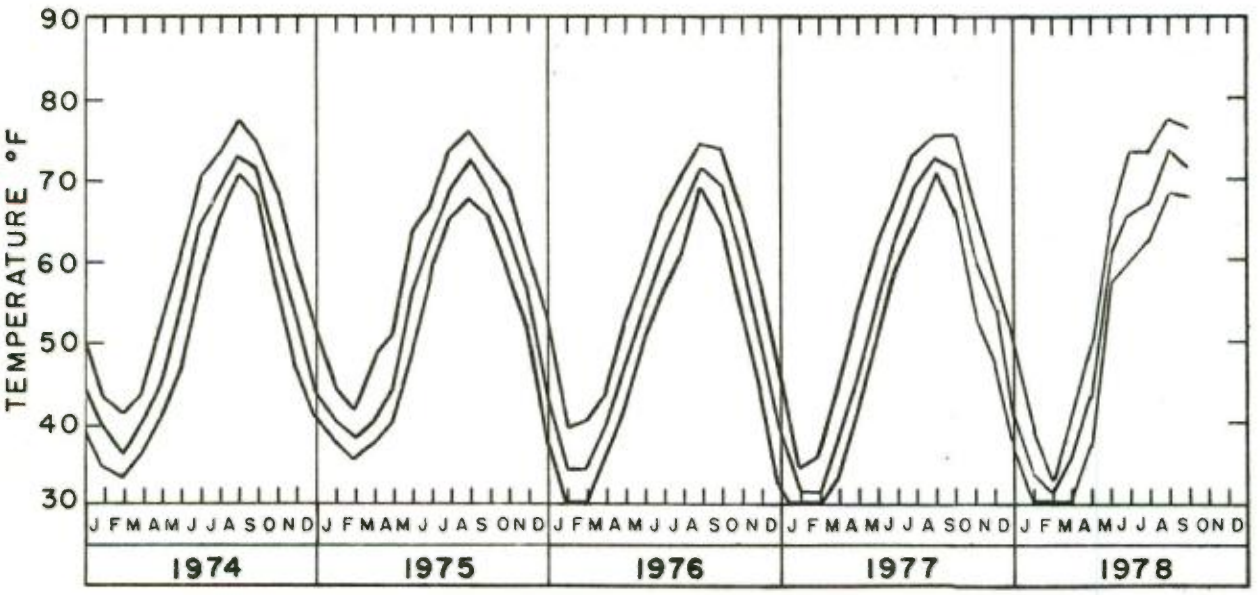
EAST RIVER — THROGS NECK (station no. 3)





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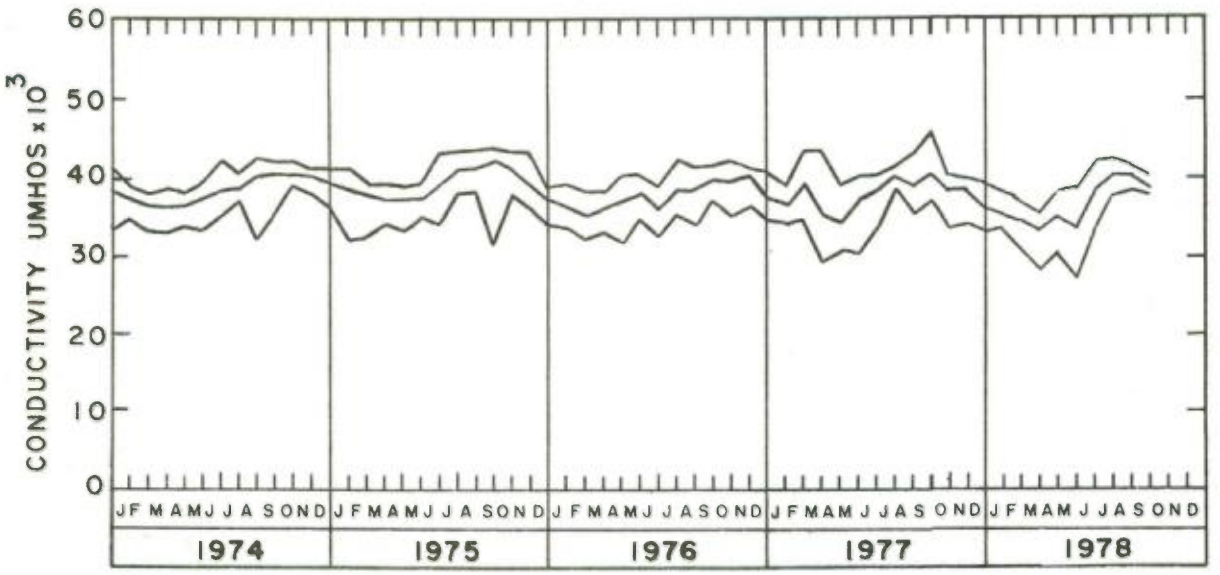

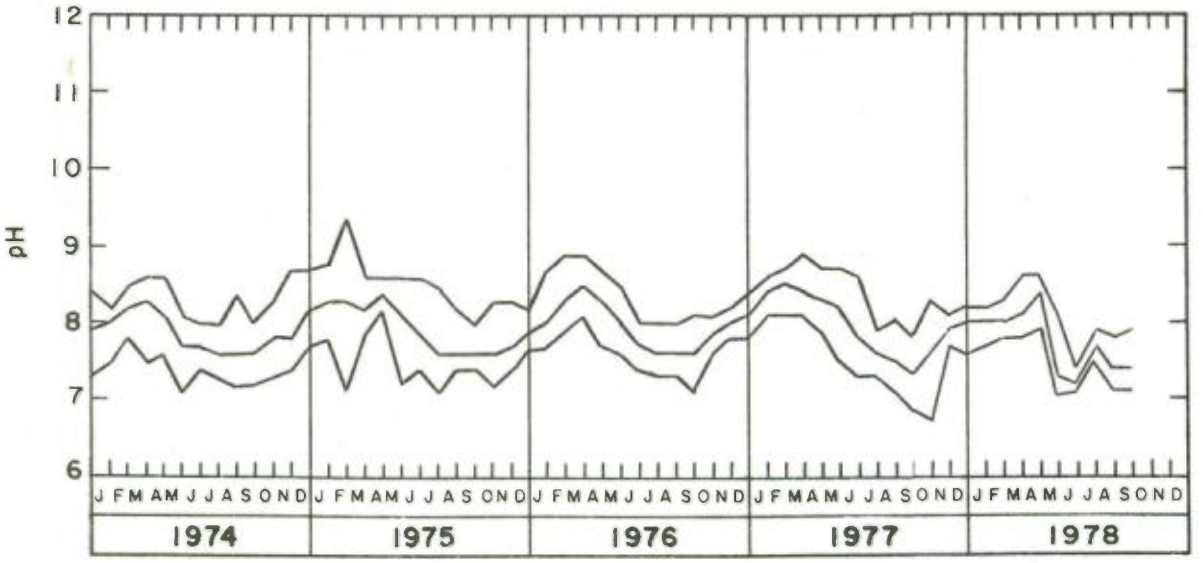

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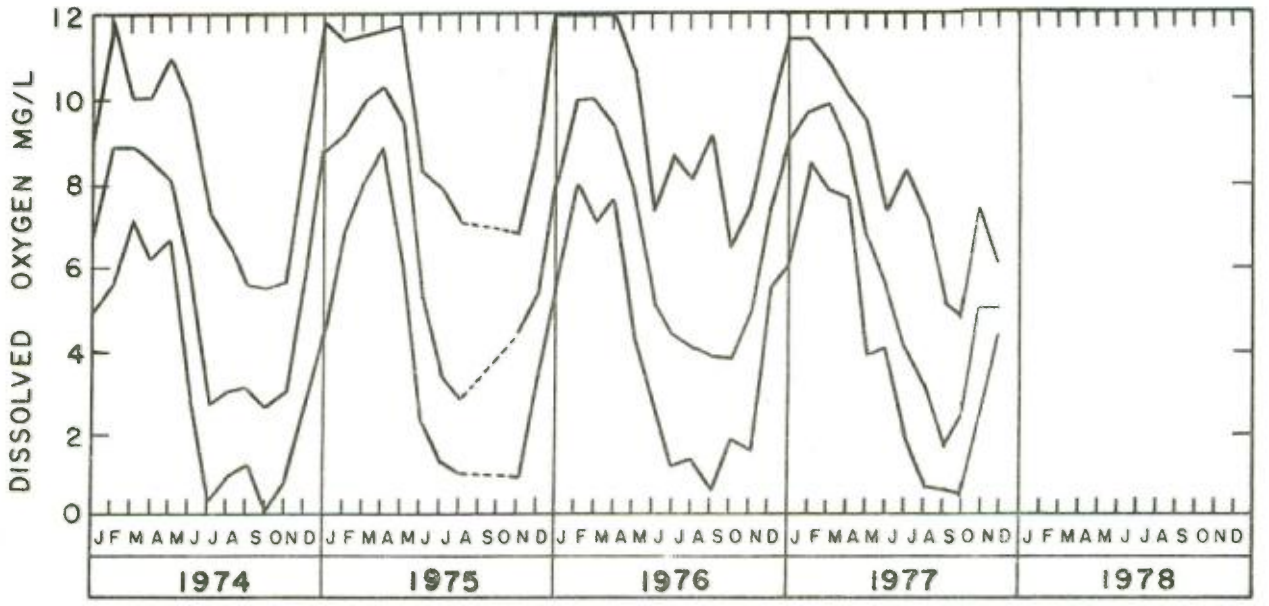
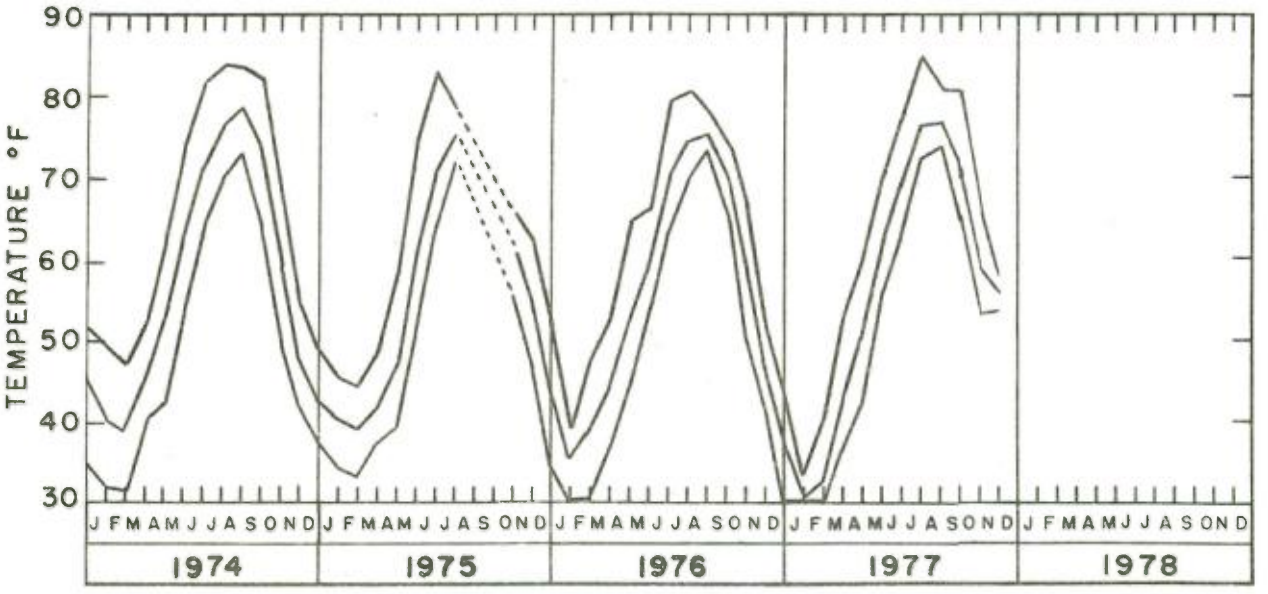
RARITAN RIVER—VICTORY BRIDGE (station no. 4)





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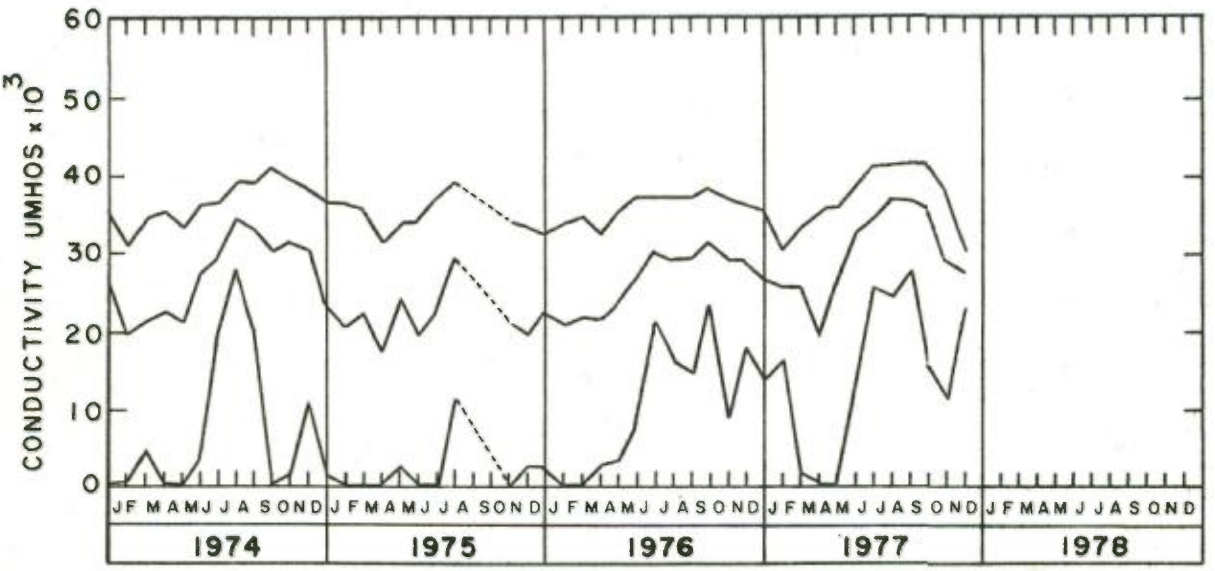
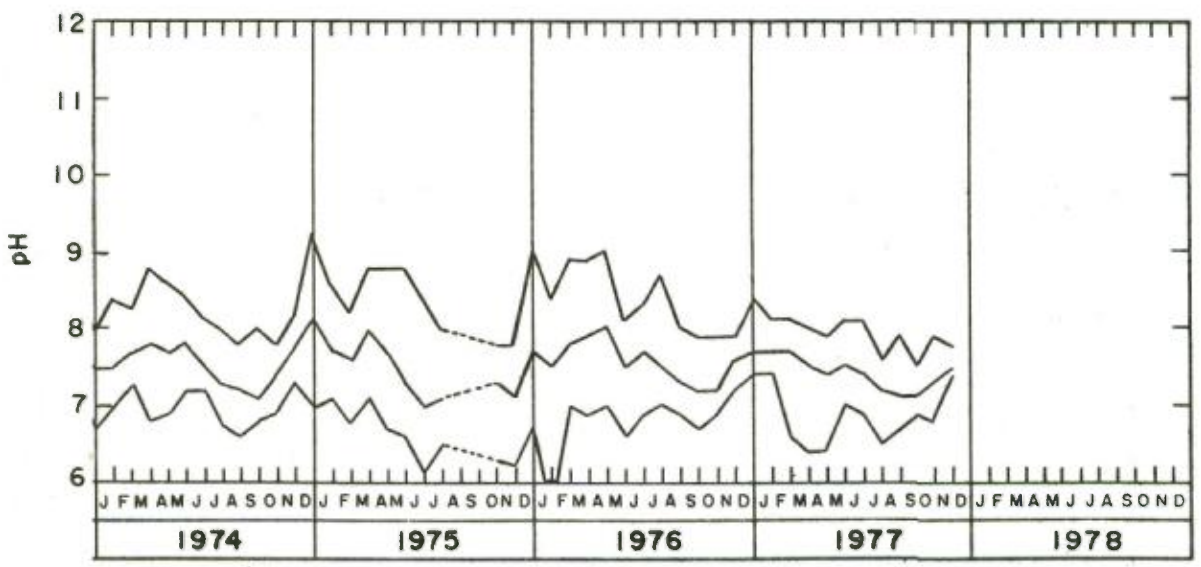
RARITAN RIVER—VICTORY BRIDGE (station no.4)





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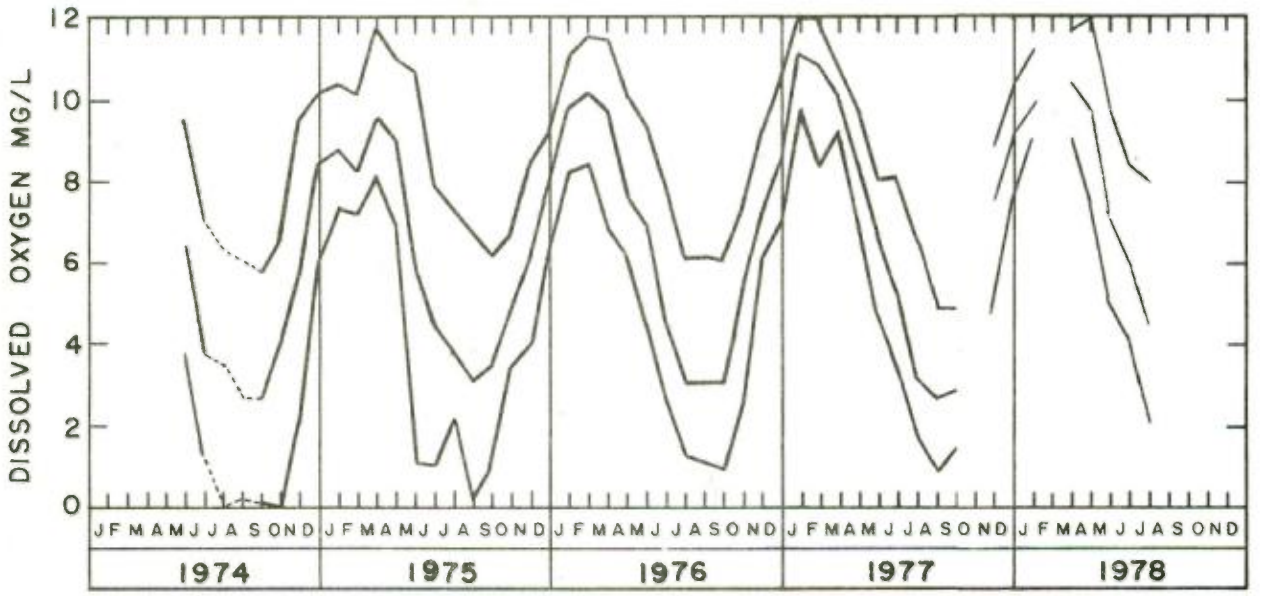
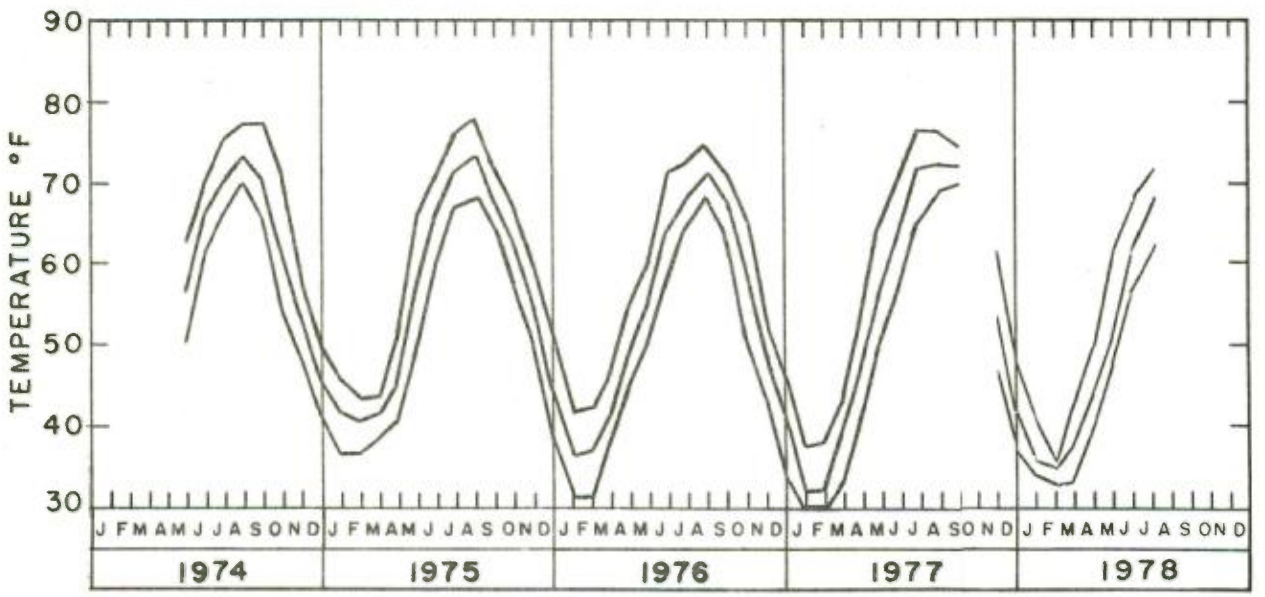
THE NARROWS — FT. WADSWORTH (station no. 6)





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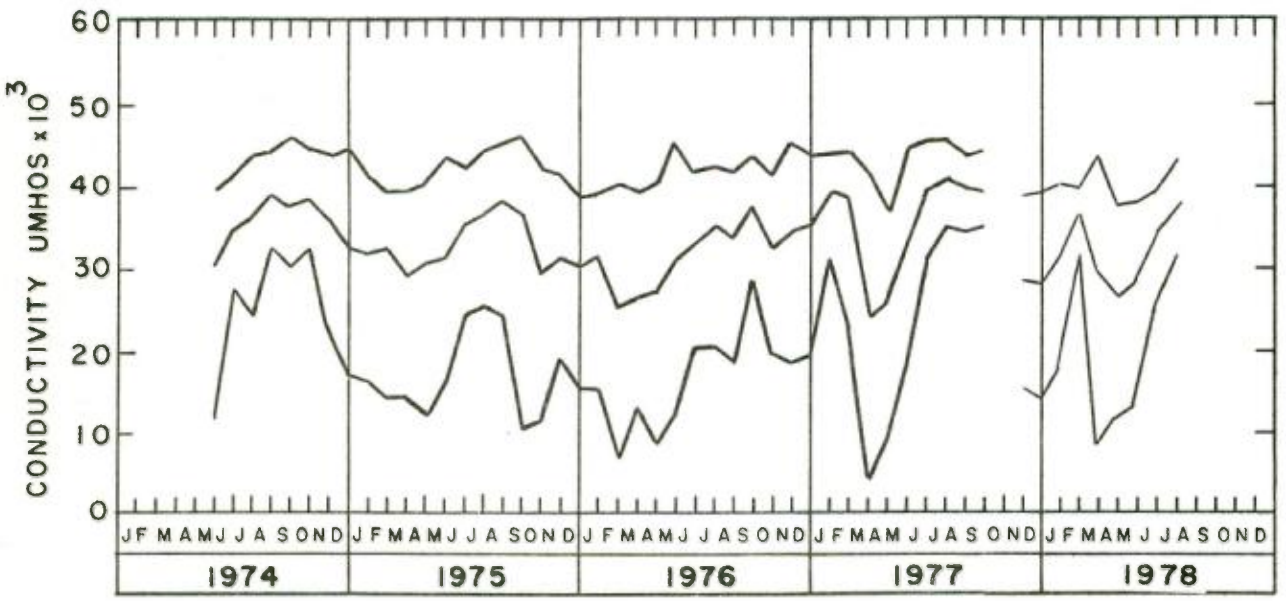

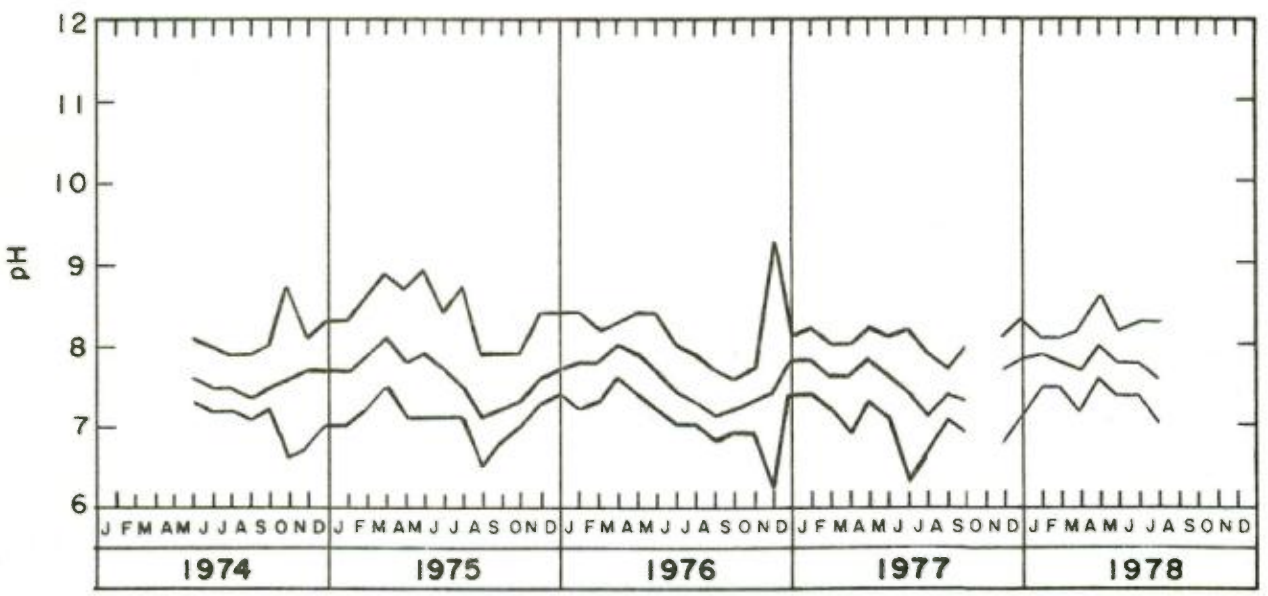

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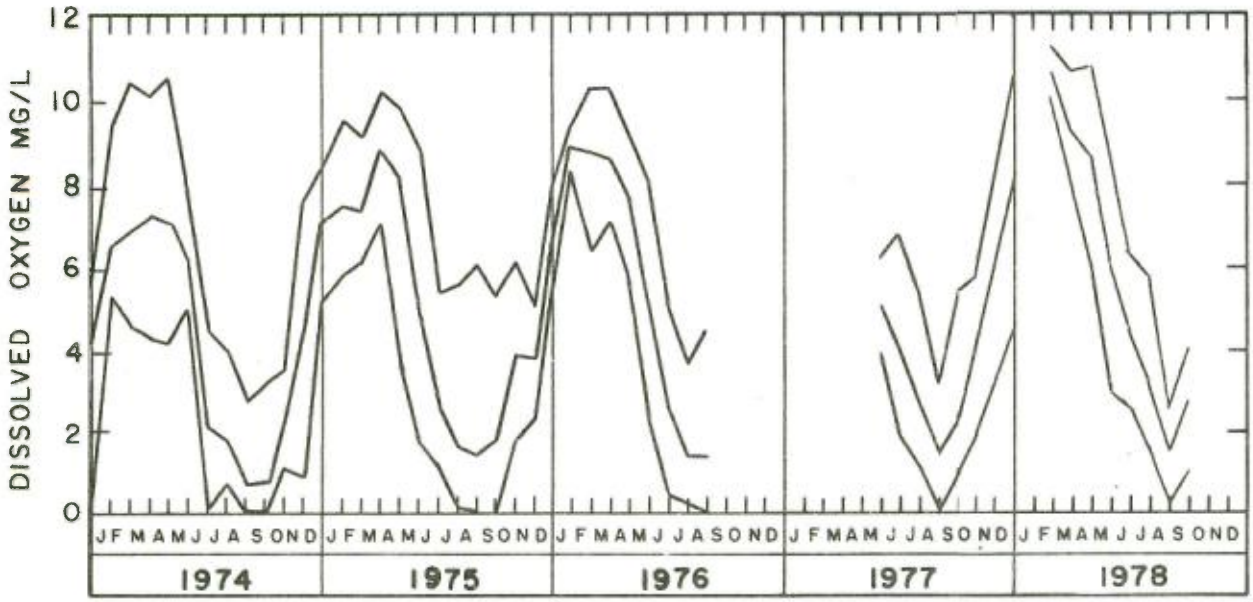
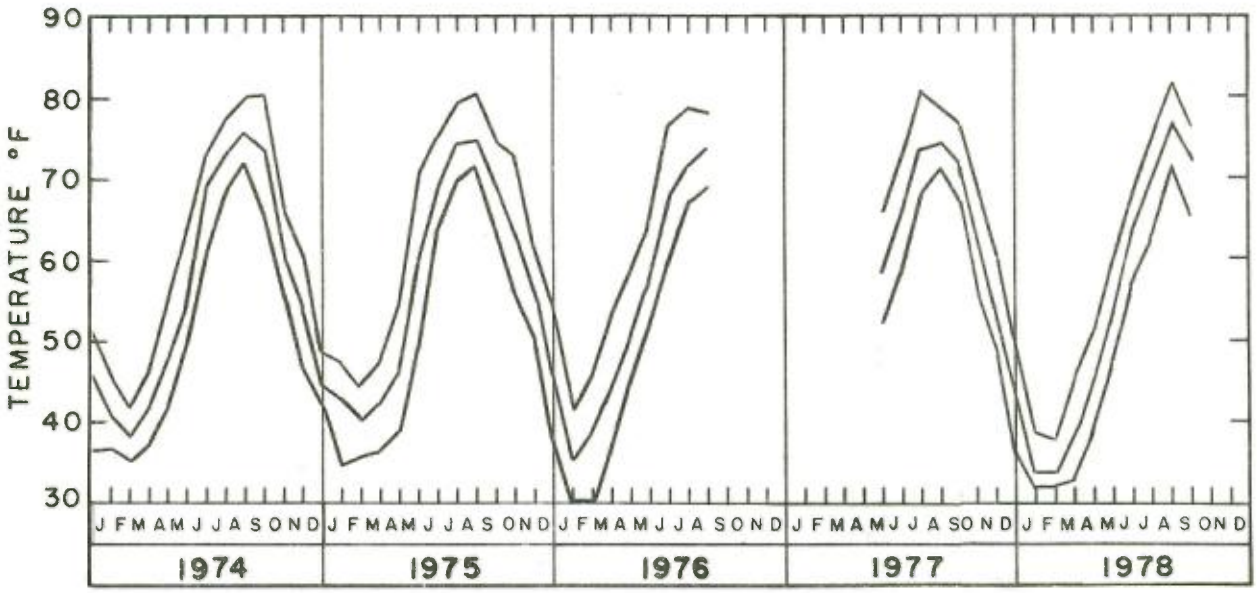
KILL VAN KULL — U.S. GYPSUM (station no. 7)





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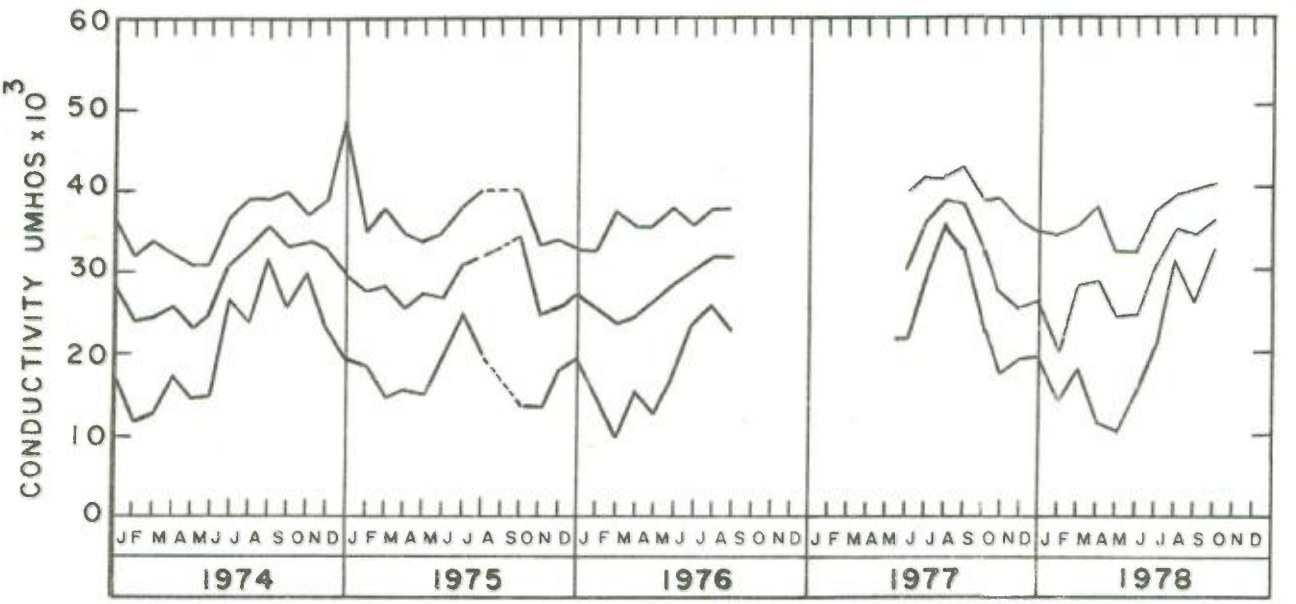

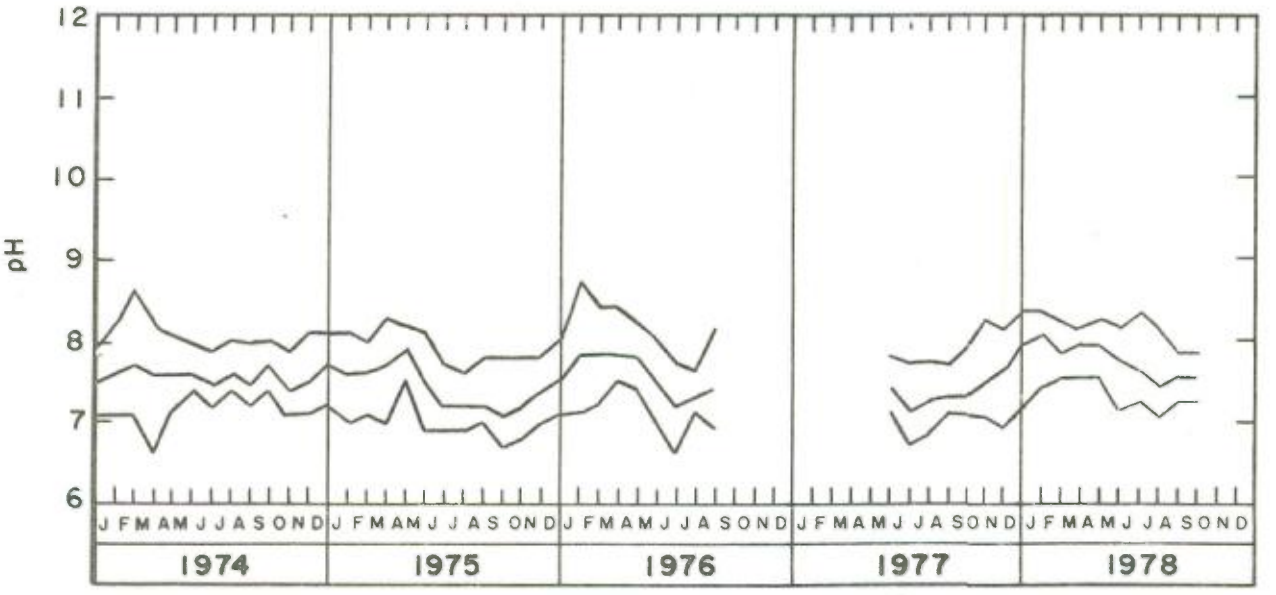

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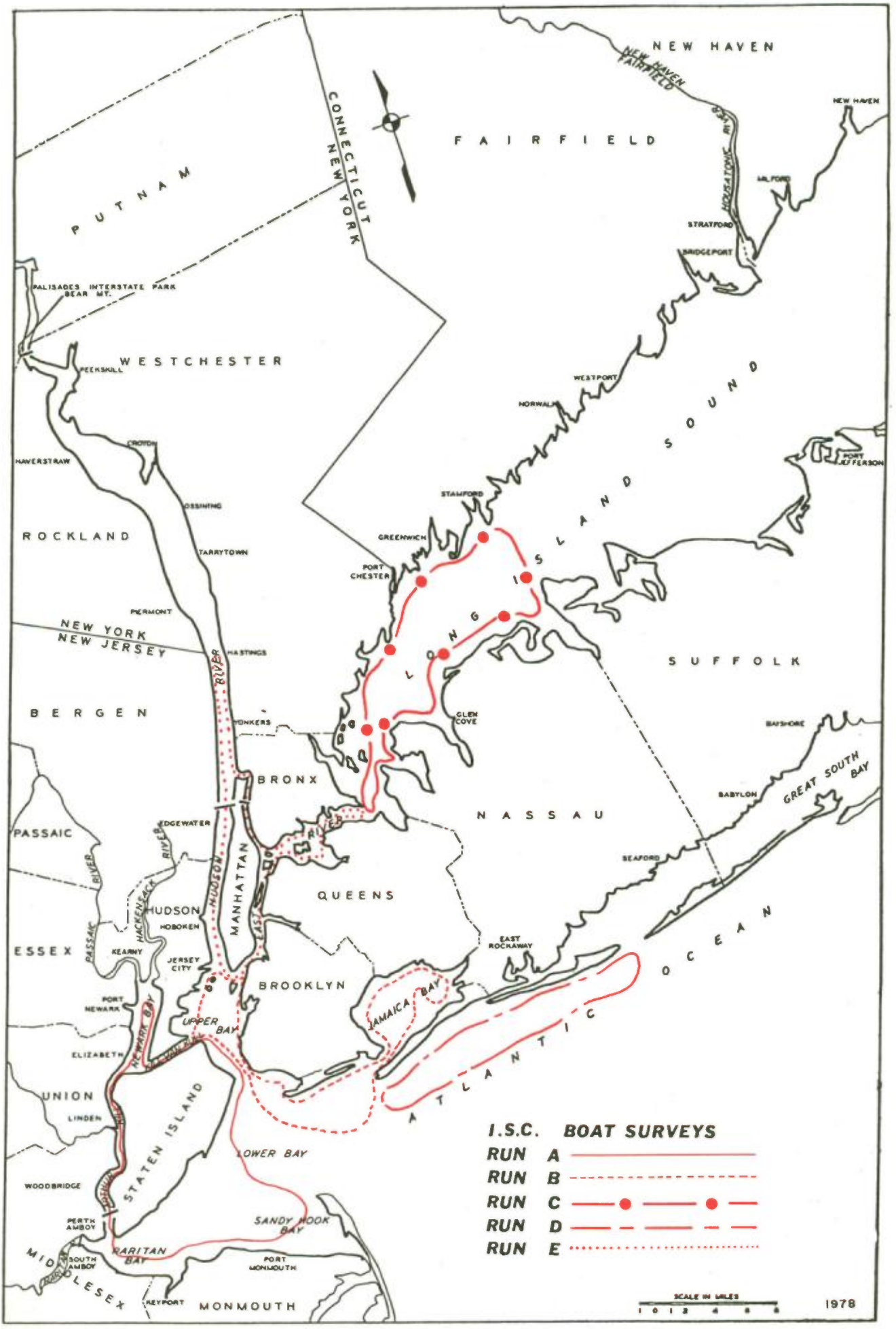
PERCENT OF TIME INTERSTATE SANITATION COMMISSION DISSOLVED OXYGEN REQUIREMENTS WERE MET AT I.S.C. REMOTE AUTOMATIC WATER QUALITY MONITORING STATIONS FOR THE PERIOD OF OCTOBER 1, 1977 THROUGH SEPTEMBER 30,1978

MONTH	STATION 1 AK/CE	STATION 2 ER/CE	STATION 3 ER/TN	STATION 4 RR/VB	STATION 6 NAR/FT WD	STATION 7 KVK/USG
October 1977	68.3	100.0	89.3	91.7	-	99.0
November 1977	98.2	100.0	100.0	100.0	100.0	100.0
December 1977	100.0	100.0	100.0	-	100.0	100.0
January 1978	100.0	100.0	100.0	-	100.0	-
February 1978	100.0	100.0	100.0	-	-	100.0
March 1978	100.0	100.0	100.0	-	100.0	100.0
April 1978	100.0	100.0	100.0	-	100.0	100.0
May 1978	76.9	100.0	100.0	-	100.0	100.0
June 1978	19.7	100.0	100.0	-	100.0	100.0
July 1978	40.1	58.0	77.2	-	89.3	90.7
August 1978	1.1	2.4	9.0	-	-	4.3
September 1978	24.2	59.9	72.1	-	-	86.2

Boat Surveys

Interstate Sanitation District waters are routinely sampled by boat throughout the year. A map of the boat routes and descriptions and locations of the sampling stations are shown on the following pages. During the summer months when District waters have a low dissolved oxygen content, high bacterial contamination, and high temperatures, sampling is done twice a month.


NEW HAVEN
NEW HAVEN
FAIRFIELD
CONNECTICUT
NEW YORK
PUTNAM
PALISADES INTERSTATE PARK
BEAR MT.
WESTCHESTER
PEEKSKILL
HAVERSTRAW
CROTON
OSSINING
ROCKLAND
TARRYTOWN
PIERMONT
NEW YORK
NEW JERSEY
HASTINGS
BERGEN
YONKERS
BRONX
PASSAIC
EDGEWATER
HUDSON
HOBOKEN
ESSEX
KEARNY
JERSEY CITY
PORT NEWARK
ELIZABETH
UNION
LINDEN
WOODBRIDGE
PERTH AMBOY
SOUTH AMBOY
MIDDLESEX
KEYPORT
MONMOUTH
PORT MONMOUTH
SANDY HOOK BAY
RARITAN BAY
LOWER BAY
STATEN ISLAND
UPPER BAY
NEWARK BAY
HUDSON RIVER
HACKENSACK RIVER
PASSAIC RIVER
EAST RIVER
MANHATTAN
BROOKLYN
QUEENS
JAMAICA BAY
EAST ROCKAWAY
ATLANTIC OCEAN
LONG ISLAND SOUND
STAMFORD
GREENWICH
PORT CHESTER
NORWALK
WESTPORT
STRATFORD
BRIDGEPORT
MILFORD
NEW HAVEN
PORT JEFFERSON
GLEN COVE
NASSAU
SUFFOLK
BAYSHORE
BABYLON
GREAT SOUTH BAY
SEAFORD
I.S.C. BOAT SURVEYS
RUN A
RUN B
RUN C
RUN D
RUN E
SCALE IN MILES
1 0 1 2 4 6 8
1978

INTERSTATE SANITATION COMMISSION
BOAT RUN "A"

SAMPLING STATION	LATITUDE	LONGITUDE	DESCRIPTION
AK-18	40° 30'24"N	74°15'34"W	Mid-channel of Ward Point Bend (west) and opposite Perth Amboy Ferry Slip
RB-10	40° 29'04"N	74°15'38"W	Qk Fl G "3" Buoy
RB-14	40° 28'01"N	74°11'18"W	Buoy C "3" off Conaskonk Point at channel entrance to Keyport Harbor
RB-8	40° 27'08"N	74° 06'22"W	E-W: Line of Nun Buoy N "2" at channel entrance to Compton Creek and standpipe on Pt. Comfort. N-S: Approximately 200 yds west of Pews Creek
RB-7	40° 27'39"N	74°02'47"W	Flashing Red Buoy R "4" off the tip of Leonardo (U.S.N.) Pier
LB-1	40° 30'44"N	74°06'03"W	500 feet from Old Orchard Light in line with the beacon at Old Orchard Shore
LB-2	40° 33'45"N	74°04'20"W	B.W. Bell off Midland Beach
UH-13	40° 36'26"N	74°02'45"W	Middle of channel in Narrows under Verrazano Bridge
UH-11	40° 39'05"N	74°05'10"W	Located in the Kill Van Kull, in mid-channel & directly opposite FL G & Black Buoy #3
NB-5	40° 38'47"N	74°09'10"W	Midway between Flashing Red Buoy #14 and Buoy N "2A"
NB-3	40° 39'20"N	74°08'45"W	Northside of C.R.N.J. Bridge over the Newark Bay South Reach channel (mid-channel)
NB-12	40° 41'57"N	74°07'10"W	Newark Bay North Reach at mid-channel northside of LVRR Bridge
AK-3	40° 38'18"N	74°11'45"W	At the center of and on the north side of the B&O R.R. Bridge
AK-7	40° 35'35"N	74°12'22"W	Middle of mouth of Rahway River and in line with shoreline along Tremley Reach
AK-13	40° 33'02"N	74°15'00"W	Mid-channel between Flashing Red Buoy #12 and Flashing Green, Black Buoy #1
RB-15	40° 27'23"N	74°08'56"W	Private Flashing Green Buoy "1" off Belvedere Beach Point Comfort

INTERSTATE SANITATION COMMISSION
BOAT RUN "B"

SAMPLING STATION	LATITUDE	LONGITUDE	DESCRIPTION
LB-3	40° 34'03"N	73° 59'00"W	200 feet south of Steeplechase Pier at Coney Island - N "2S"
LB-4	40° 35'00"N	74° 00'51"W	1/4 mile northeast of Norton Point, near the white nun Buoy
UH-13	40° 36'26"N	74° 02'45"W	Middle of channel in Narrows under Verrazano Bridge
UH-22	40° 38'25"N	74° 02'50"W	In mid-channel of Bay Ridge channel. E-W:Flashing Red Beacon on 69th St. Ferry Dock (Brooklyn). N-S: Fl G Bell Buoy #3 & Fl R Gong Buoy #22
UH-29	40° 42'17"N	75° 59'54"W	Mid-channel of East River in line with Pier #11 (Manhattan) & Pier #1 (Brooklyn)
UH-28	40° 42'20"N	74° 01'36"W	Mid-channel of Hudson River; N-S: Line of black buoys; E-W:Fire boat pier (NY) & railroad pier (NJ)
UH-21	40° 40'23"N	74° 02'28"W	Main ship channel 10 yds to the west of Fl R Bell Buoy #30
UH-3	40° 39'14"N	74° 03'35"W	Passaic Valley Outfalls - E-W: Robbins Reef Light & forward water tower on Naval Dock. N-S: Statue of Liberty & Black Bell Buoy #1-G
AO-1	40° 31'47"N	73° 56'37"W	Flashing Red R "2" Gong (4 sec.)
RI-1	40° 34'00"N	73° 55'51"W	As near the outfall structure of the Coney Island plant as safety permits
RI-2	40° 34'24"N	73° 53'08"W	Under center of bridge from Barran Island to Rockaway
JB-8	40° 36'20"N	73° 48'56"W	Under center of R.R. Trestle
JB-5	40° 35'45"N	73° 48'40"W	At center pier of bridge over Beach Channel-Hammels
JB-7	40° 38'52"N	73° 49'20"W	At mouth of Bergen Basin, southeast of the sludge storage tank
JB-3	40° 37'37"N	73° 53'00"W	In channel 400 ft south of the end of Canarsie Pier
JB-2	40° 36'27"N	73° 53'09"W	Mill Basin - at east end of channel

INTERSTATE SANITATION COMMISSION
BOAT RUN "C"

SAMPLING STATION	LATITUDE	LONGITUDE	DESCRIPTION
LI-15	40° 47'58"N	73°47'38"W	Middle of Throgs Neck Bridge
LI-17	40° 49'43"N	73° 46'46"W	500 yds off Stepping Stone, north of Fl G "12" M Horn
LI-19	40° 51'33"N	73°45'03"W	Off Bell "27" @ Gang Way Rock
LI-24	40° 53'57"N	73° 44'27"W	@ New Rochelle outfall approximately 500 yds south of R "2"
LI-25	40° 55'25"N	73° 42'01"W	Mamaroneck Fl 4 Sec. Bell R "42"
LI-26	40° 58'47"N	73° 38'59"W	Port Chester off N "2"
LI-27	41° 00'08"N	73° 36'04"W	Captain's Harbor - Newfoundland Reef Fl R "4"
LI-28	40° 59'42"N	73° 33'58"W	Greenwich Point R N "34"
LI-29	41° 00'54"N	73° 32'14"W	Stamford between E int G 8M Horn and Fl R
LI-30	40° 59'26"N	73° 30'49"W	Stamford N-S: "32" Fl 4 Sec. Bell & Fl 4 Sec. "15" Bell; E-W: "32A" whistle R N "28"
LI-31	40°53'29"N	73° 30'11"W	Oyster Bay Gong "1"
LI-32	40° 54'39"N	73° 38'07"W	Matinecock Pt. "21" Fl G. 4 Sec. Bell
LI-33	40° 51'42"N	73°40'07"W	Hempstead Harbor midway between R 6 Bell & Fl 4 Sec. "1"
LI-34	40° 50'00"N	73°44'02"W	Manhasset Bay Fl G 4 Sec. "1"

INTERSTATE SANITATION COMMISSION

BOAT RUN "D" (not run this year)

SAMPLING STATION	LATITUDE	LONGITUDE	DESCRIPTION
W-1	40°35'03"N	73°34'33"W	100 ft east of Red Buoy #6 at entrance to Jones Inlet
W-2 A&B	40°33'51"N	73°35'42"W	1 mile south of water tower & building on shore and 1/2 mile & 100 ft out from tip of jetty
W-3 A&B	40°34'05"N	73°33'30"W	1/2 mile east of jetty & 1 mile from shore on a line with the Coast Guard Station
W-10 A&B	40°33'54"N	73°39'12"W	1 mile off shore on a line with edge of apt. bldg. & gas tank. High water tower to East
W-4 A&B	40°31'12"N	73°39'12"W	3 miles off shore south of point W10
W-9 A&B	40°34'24"N	73°44'18"W	Gas tank on shore & red gong buoy R4 off jetty about 1/2 mile west
W-8	40°35'18"N	73°45'27"W	50 ft west of red buoy #6 1/2 mile off shore
W-6 A&B	40°32'36"N	73°51'54"W	South of main bldg. with Twin Towers at Riis Park approximately 1½ miles from shore
W-5 A&B	40°31'18"N	73°48'15"W	A heading of 112° East of point W6 opposite seven high apt. bldgs. on shore approximately 2½ miles out

NOTES: (1) Station designations are those used by NYSDEC

(2) Sampling Depths (below the surface):

10 feet - W-2 A, W-3 A, W-10 A, W-9 A, W-8, W-6 A
15 feet - W-1
18 feet - W-4 A, W-5 A
20 feet - W-2 B, W-3 B, W-10 B, W-9 B, W-6 B
35 feet - W-4 B, W-5 B

INTERSTATE SANITATION COMMISSION
BOAT RUN "E"

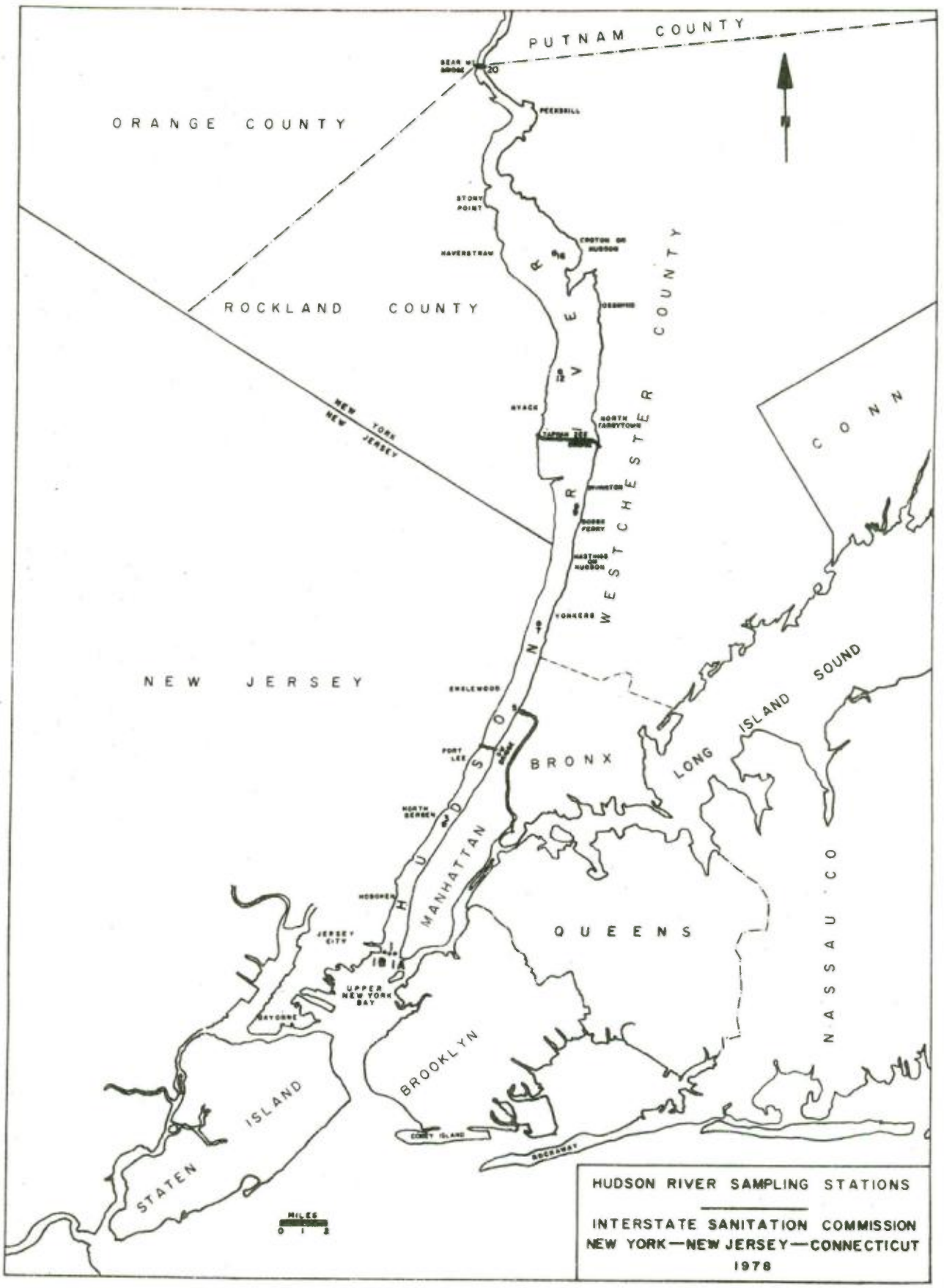
SAMPLING STATION	LATITUDE	LONGITUDE	DESCRIPTION
ER-1	40° 42'24"N	73° 59'27"W	Under Manhattan Bridge - Mid-channel
ER-2	40°42'48"N	73° 58'20"W	Under Williamsburg Bridge-Mid-channel
ER-3	40°44'05"N	73° 58'05"W	Mid-channel of East River; E-W:Pier #73 (School Ship) Manhattan with open pier, ft. of Greene St., Brooklyn; N-S: Poorhouse Flats Range
ER-4	40° 45'22"N	73°57'11"W	Under Queensboro Bridge - East Channel
ER-9	40°47'26"N	73° 54'53"W	Mid-channel of East River; E-W: Fl R Bell Beacon on Wards Island with tall stack on Con Edison's Astoria Plant
ER-11	40°47'50"N	73° 52'02"W	Mid-channel of East River; E-W: Fl R Beacon (College Pt.) with stack on Rikers Island; N-S: Line from center of Sanitation Pier (Hunts Pt.) with Fl R #4 Buoy (Station approx. 250 yds S.E. of #4 Buoy)
HA-1	40°48'40"N	73°56'02"W	Third Bridge after Triboro Bridge
HA-2	40°50'44"N	73° 55'45"W	Hamilton Bridge (middle bridge of 3)
HR-1	40°42'20"N	74°01'36"W	Mid-channel of Hudson River; N-S:Line of black buoys; E-W: Fire boat pier (NY) and railroad pier (NJ)
HR-2	40°45'17"N	74°00'58"W	Mid-channel of Hudson River; E-W: Heliport (NY) & Seatrain pier (NJ)
HR-3	40°47'41"N	73° 59'09"W	Mid-channel of Hudson River; E-W: Soldiers & Sailors Monument (NY) and Circular apartment bldgs. (NJ)
HR-4	40° 51'04"N	73° 57'04"W	Mid-channel of Hudson River; Under George Washington Bridge
HR-5	40°52'40"N	73° 55'02"W	Mid-channel of Spuyten Duyvil Creek; Under Henry Hudson Bridge
HR-7	40° 56'51"N	73° 54'27"W	Mid-channel of Hudson River; E-W: Opposite Phelps Dodge (Yonkers)

1978 Hudson River Survey

In cooperation with the Hudson River Research Council, the Commission participated in Hudson River Field Week - 78. For its contribution, the Commission conducted boat surveys in the Hudson River from the Battery to Bear Mountain on August 9 and 10. In addition to the Commission's previously established stations, transverse and multiple depth samples were taken at the Battery and multiple depth samples were taken at Bear Mountain. Refer to map showing the sampling stations. The samples were analyzed for a full range of parameters including nutrients and heavy metals. The sampling results are shown on the following pages.

As in the past, the lower part of the Hudson River is still plagued by low dissolved oxygen values. A graph is included that shows the dissolved oxygen profile along the Hudson River. The graph is a plot of the average dissolved oxygen values five feet below the surface at each station. The graph shows that Commission dissolved oxygen requirements are not being met in the lower 20 miles. In addition, the Hudson River, especially the lower part, is still contaminated by fecal coliform bacteria and heavy metals. These were essentially the same results obtained during the Commission's 1971 Hudson River Survey.

The severity of these problems, low dissolved oxygen, high fecal coliform bacteria and high heavy metals content, will not be alleviated until raw discharges (both from untreated sewage and sewage from malfunctioning combined sewer systems) are eliminated and until pretreatment to remove heavy metals is required.


PUTNAM COUNTY
ORANGE COUNTY
ROCKLAND COUNTY
WESTCHESTER COUNTY
CONN
NEW YORK
NEW JERSEY
NEW JERSEY
HUDSON RIVER
BEAR MT BRIDGE
PEEKSKILL
STONY POINT
HAVERSTRAW
CROTON ON HUDSON
TARRYTOWN
NYACK
NORTH TARRYTOWN
TAPPAN ZEE BRIDGE
IRVINGTON
DOBBS FERRY
HASTINGS ON HUDSON
YONKERS
ENGLEWOOD
FORT LEE
GEORGE WASHINGTON BRIDGE
NORTH BERGEN
HOBOKEN
JERSEY CITY
UPPER NEW YORK BAY
BAYONNE
BRONX
MANHATTAN
QUEENS
LONG ISLAND
LONG ISLAND SOUND
NASSAU CO
BROOKLYN
STATEN ISLAND
CONEY ISLAND
ROCKAWAY
MILES
0 1 2
HUDSON RIVER SAMPLING STATIONS
INTERSTATE SANITATION COMMISSION
NEW YORK—NEW JERSEY—CONNECTICUT
1978

SUMMARY OF THE ANALYSES OF SAMPLES TAKEN IN INTERSTATE SANITATION DISTRICT WATERS

DATES OF SAMPLING: 08/09/78 & 08/10/78 I.S.C. INVESTIGATION NUMBER: 11231

PARAMETER	I.S.C. STATION NUMBER	HR-1A	HR-1A	HR-1A	HR-01	HR-01	HR-01	HR-01	HR-01	HR-01	HR-1B
	I.S.C. WATER CLASS	B1	B1	B1	B1	B1	B1	B1	B1	B1	B1
	LATITUDE (D-M-S NORTH)	40-42-16	40-42-16	40-42-16	40-42-20	40-42-20	40-42-20	40-42-20	40-42-20	40-42-20	40-42-25
	LONGITUDE (D-M-S WEST)	74-01-12	74-01-12	74-01-12	74-01-36	74-01-36	74-01-36	74-01-36	74-01-36	74-01-36	74-01-57
	SAMPLING DATE	08/09/78	08/09/78	08/09/78	08/09/78	08/09/78	08/09/78	08/10/78	08/10/78	08/10/78	08/09/78
	SAMPLING TIME (EST)	10:00	10:05	10:10	10:20	10:22	10:25	15:30	15:35	15:45	10:32
	SAMPLING DEPTH (FEET)	5	25	50	5	30	60	5	30	60	5
FLOATING SOLIDS		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
TOTAL SUSPENDED SOLIDS		26	15	6	5	6	4	5	8	16	4
OIL AND GREASE (VISIBLE)		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
TEMPERATURE		23.5	23.0	22.0	23.5	22.5	21.5	24.5	22.5	22.0	22.6
PH		6.9	6.9	6.8	7.1	7.2	7.2	7.2	7.2	7.4	7.0
DISSOLVED OXYGEN		2.3	1.0	0.8	2.4	1.4	1.1	********	********	********	2.2
CONDUCTIVITY		27800	34000	35000	28000	32000	36000	34000	38000	38000	30000
CHLOROPHYLL A		********	********	********	********	********	********	0.010	0.004	0.001	********
CHLOROPHYLL B		********	********	********	********	********	********	0.005	0.004	0.004	********
CHLOROPHYLL C		********	********	********	********	********	********	0.011	0.010	0.012	********
FECAL COLIFORM DENSITY		********	********	********	3900	30000	6100	********	********	********	********
TOTAL CARBON		27	30	30	27	29	30	30	31	30	27
TOTAL ORGANIC CARBON		8	7	8	8	10	9	9	10	9	9
ORTHO PHOSPHATE - P		********	********	********	********	********	********	0.12	0.11	0.11	********
TOTAL PHOSPHATE - P		********	********	********	********	********	********	0.17	0.17	0.16	********
AMMONIA - N		********	********	********	********	********	********	0.41	0.45	0.36	********
NITRATE - N + NITRITE - N		********	********	********	********	********	********	0.23	0.19	0.18	********
COPPER (TOTAL)		********	********	********	********	********	********	0.056	0.003	0.033	********
ZINC (TOTAL)		********	********	********	********	********	********	0.063	0.032	0.041	********
CHROMIUM (TOTAL)		********	********	********	********	********	********	<0.0050	0.0060	0.0080	********
LEAD (TOTAL)		********	********	********	********	********	********	0.020	0.005	0.010	********
NICKEL (TOTAL)		********	********	********	********	********	********	<0.005	<0.005	<0.005	********
CADMIUM (TOTAL)		********	********	********	********	********	********	<0.0005	<0.0005	0.0005	********

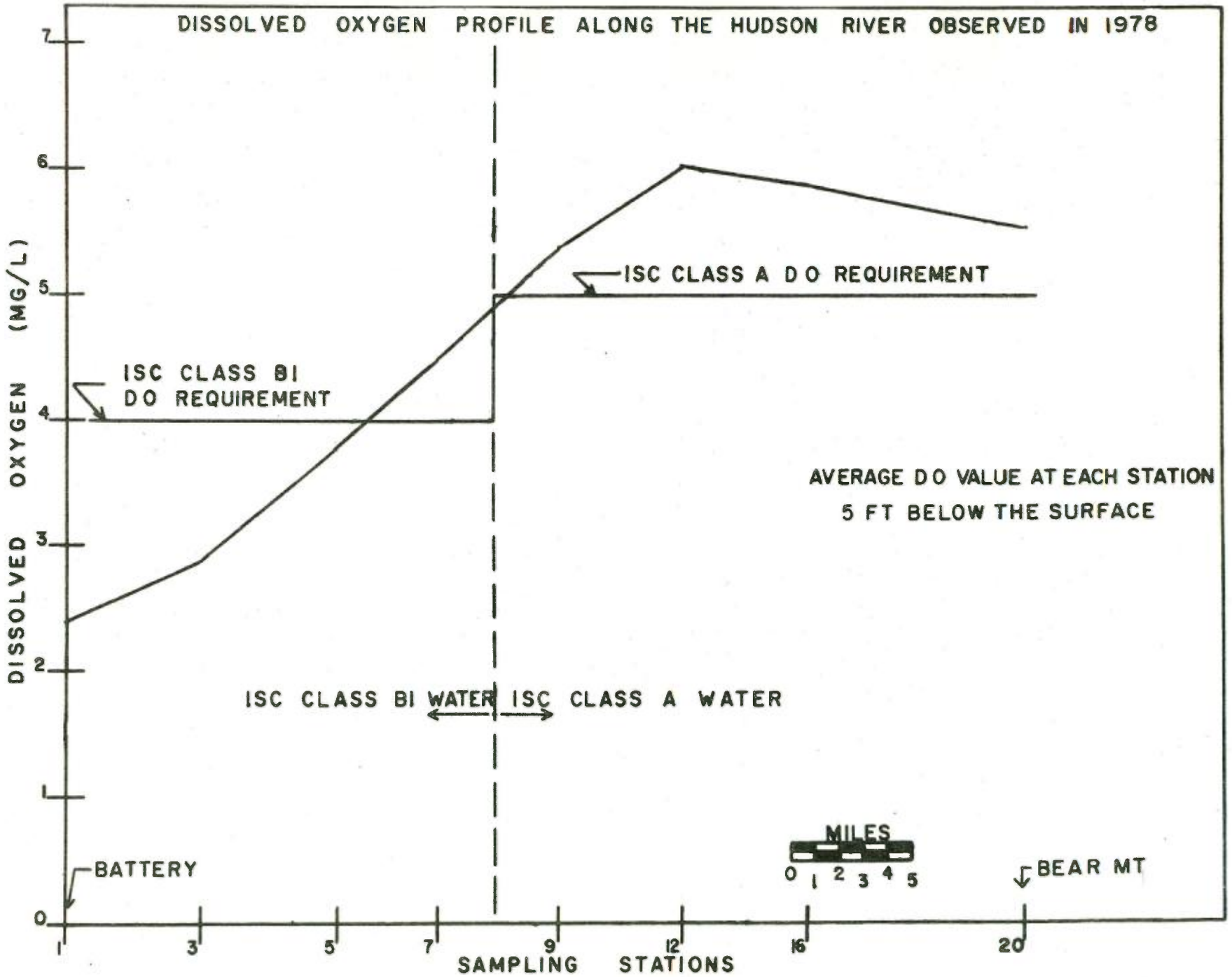
PARAMETER	I.S.C. STATION NUMBER	HR-1B	HR-1B	HR-03	HR-03	HR-05	HR-05	HR-07	HR-07	HR-09	HR-09
	I.S.C. WATER CLASS	B1	B1	B1	B1	B1	B1	B1	B1	A	A
	LATITUDE (D-M-S NORTH)	40-42-25	40-42-25	40-47-41	40-47-41	40-52-40	40-52-40	40-56-51	40-56-51	41-02-04	41-02-04
	LONGITUDE (D-M-S WEST)	74-01-57	74-01-57	73-59-09	73-59-09	73-55-02	73-55-02	73-54-27	73-54-27	73-52-53	73-52-53
	SAMPLING DATE	08/09/78	08/09/78	08/09/78	08/10/78	08/09/78	08/10/78	08/09/78	08/10/78	08/09/78	08/10/78
	SAMPLING TIME (EST)	10:35	10:40	11:20	14:50	12:00	14:00	12:55	13:15	13:45	12:20
	SAMPLING DEPTH (FEET)	20	40	5	5	5	5	5	5	5	5
FLOATING SOLIDS		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
TOTAL SUSPENDED SOLIDS		16	46	4	5	8	13	1	4	6	8
OIL AND GREASE (VISIBLE)		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
TEMPERATURE		22.4	21.5	23.5	24.0	24.0	24.0	24.8	24.5	25.8	25.0
PH		7.0	6.9	7.0	7.1	7.1	7.1	7.3	7.3	7.5	7.3
DISSOLVED OXYGEN		1.7	0.8	3.0	2.8	3.8	3.8	5.0	4.0	6.0	4.8
CONDUCTIVITY		31000	32000	23000	26500	22800	22000	16500	15800	13300	12000
CHLOROPHYLL A		********	********	********	0.007	********	0.007	********	0.009	********	0.013
CHLOROPHYLL B		********	********	********	0.005	********	0.006	********	0.006	********	0.009
CHLOROPHYLL C		********	********	********	0.014	********	0.018	********	0.019	********	0.022
FECAL COLIFORM DENSITY		********	********	3500	********	13000	********	900	********	4000	********
TOTAL CARBON		29	30	27	27	26	26	25	22	22	22
TOTAL ORGANIC CARBON		10	10	10	10	11	11	9	9	8	11
ORTHO PHOSPHATE - P		********	********	********	0.09	********	0.09	********	0.08	********	0.07
TOTAL PHOSPHATE - P		********	********	********	0.16	********	0.17	********	0.13	********	0.13
AMMONIA - N		********	********	********	0.45	********	0.32	********	0.20	********	0.10
NITRATE - N + NITRITE - N		********	********	********	0.34	********	0.37	********	0.48	********	0.53
COPPER (TOTAL)		********	********	********	0.051	********	0.039	********	0.047	********	0.007
ZINC (TOTAL)		********	********	********	0.047	********	0.040	********	0.043	********	0.019
CHROMIUM (TOTAL)		********	********	********	<0.0050	********	<0.0050	********	<0.0050	********	<0.0050
LEAD (TOTAL)		********	********	********	0.010	********	0.005	********	0.010	********	0.010
NICKEL (TOTAL)		********	********	********	<0.005	********	<0.005	********	<0.005	********	<0.005
CADMIUM (TOTAL)		********	********	********	0.0005	********	<0.0005	********	<0.0005	********	<0.0005

PARAMETER	I.S.C. STATION NUMBER	HR-12	HR-12	HR-16	HR-16	HR-20	HR-20	HR-20	HR-20	HR-20	HR-20
	I.S.C. WATER CLASS	A	A	A	A	A	A	A	A	A	A
	LATITUDE (D-M-S NORTH)	41-07-08	41-07-08	41-11-45	41-11-45	41-19-13	41-19-13	41-19-13	41-19-13	41-19-13	41-19-13
	LONGITUDE (D-M-S WEST)	73-54-25	73-54-25	73-55-00	73-55-00	73-59-01	73-59-01	73-59-01	73-59-01	73-59-01	73-59-01
	SAMPLING DATE	08/09/78	08/10/78	08/09/78	08/10/78	08/09/78	08/09/78	08/09/78	08/10/78	08/10/78	08/10/78
	SAMPLING TIME (EST)	14:35	11:25	15:40	10:40	17:55	17:58	18:03	09:00	09:05	09:15
	SAMPLING DEPTH (FEET)	5	5	5	5	5	50	98	5	50	98
FLOATING SOLIDS		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
TOTAL SUSPENDED SOLIDS		9	3	7	8	16	8	10	10	19	55
OIL AND GREASE (VISIBLE)		NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
TEMPERATURE		25.5	26.0	26.5	25.5	25.0	24.0	24.0	25.0	24.5	24.0
PH		7.5	7.5	7.4	7.3	7.4	7.3	7.2	7.3	7.5	7.5
DISSOLVED OXYGEN		5.7	6.4	6.0	5.8	5.6	5.2	5.6	5.6	5.3	5.0
CONDUCTIVITY		12000	9500	7000	6500	3500	3500	3200	2000	3000	3000
CHLOROPHYLL A		********	0.014	********	0.011	********	********	********	0.005	0.005	0.010
CHLOROPHYLL B		********	0.008	********	0.007	********	********	********	0.004	0.007	0.007
CHLOROPHYLL C		********	0.021	********	0.019	********	********	********	0.015	0.023	0.022
FECAL COLIFORM DENSITY		310	********	220	********	29	49	49	********	********	********
TOTAL CARBON		21	21	22	21	23	23	22	20	20	23
TOTAL ORGANIC CARBON		7	9	8	7	9	10	11	7	8	10
ORTHO PHOSPHATE - P		********	0.05	********	0.07	********	********	********	0.08	0.04	0.05
TOTAL PHOSPHATE - P		********	0.12	********	0.12	********	********	********	0.12	0.13	0.23
AMMONIA - N		********	0.13	********	0.10	********	********	********	0.05	0.09	0.09
NITRATE - N + NITRITE - N		********	0.56	********	0.60	********	********	********	0.62	0.63	0.63
COPPER (TOTAL)		********	0.048	********	0.043	********	********	********	0.024	0.001	0.008
ZINC (TOTAL)		********	0.046	********	0.041	********	********	********	0.047	0.020	0.035
CHROMIUM (TOTAL)		********	<0.0050	********	<0.0050	********	********	********	0.0050	0.0060	0.0080
LEAD (TOTAL)		********	0.005	********	0.010	********	********	********	0.010	0.005	0.015
NICKEL (TOTAL)		********	<0.005	********	<0.005	********	********	********	<0.005	<0.005	<0.005
CADMIUM (TOTAL)		********	<0.0005	********	<0.0005	********	********	********	<0.0005	<0.0005	<0.0005

NOTES:

(1) ALL UNITS ARE MILLIGRAMS PER LITER EXCEPT IF LISTED BELOW

TEMPERATURE - DEGREES CENTIGRADE
PH - STANDARD PH UNITS
CONDUCTIVITY - MICROMHOS PER CENTIMETER
FECAL COLIFORM DENSITY - ORGANISMS PER 100 MILLILITERS


DISSOLVED OXYGEN PROFILE ALONG THE HUDSON RIVER OBSERVED IN 1978
DISSOLVED OXYGEN (MG/L)
7
6
5
4
3
2
1
0
ISC CLASS A D O REQUIREMENT
ISC CLASS BI
D O REQUIREMENT
AVERAGE D O VALUE AT EACH STATION
5 FT BELOW THE SURFACE
ISC CLASS BI WATER
ISC CLASS A WATER
MILES
0 1 2 3 4 5
BATTERY
BEAR MT
1
3
5
7
9
12
16
20
SAMPLING STATIONS

LABORATORY

During 1978, as in the past, the Commission's laboratory analyzed samples collected throughout the District. The sources of these samples included municipal sewage treatment plants, industrial facilities and District water surveys. Many of the municipal and industrial samplings were conducted at the request of the states and the U.S. EPA to check for compliance with N/SPDES permit requirements. The laboratory also conducted analyses for the NYSDEC on 44 samples collected in District waters. PCB's and pesticides were included in these analyses. The Commission conducted a 2-day survey of the Hudson River for Hudson River Field Week - 78 sponsored by the Hudson River Research Council. The results of that survey are shown elsewhere in this report.

For Phase IV of the sludge research grant funded by the U.S. EPA, the Commission laboratory coordinated with the contractor, Nichol's Engineering and Research Corporation, and analyzed pyrolyzed sludge samples. These analyses focused on the determination of heavy metals, pesticides and PCB's.

For the first time, the Commission laboratory conducted analyses for the following volatile organics in receiving waters; benzene, toluene and chloro-organic solvents. A flame ionization detector was used for gas chromatographic analysis and a direct aqueous sample injection method was employed.

Routine investigation for pesticides and PCB's in District water samples continued this year. In addition to 14 chlorinated pesticides and PCB's previously analyzed for, four pesticides and two plasticizers were added for this year's investigation. These compounds are: 1- hydroxychlordene, oxychlordane, gamma chlordane, alpha chlordane, dibutyl phthalate and dioctyl phthalate. A total of 48 samples were taken and complete analyses are being performed.

BIOLOGICAL SAMPLING PROGRAM

The Commission's biological sampling program continued this year. Samples from 58 stations in the Interstate Sanitation District were analyzed for chlorophyll a,b,c and pheophytin in November 1977 and March, April, June, July and August 1978. Additionally, throughout the year, samples from areas throughout the District were analyzed for chlorophyll under a sampling agreement with the New York State Department of Environmental Conservation.

A major bloom in Sandy Hook Bay in Mid-June had chlorophyll a values (corrected for pheophytin) ranging from 0.8 to 1.0 mg/l; a ten-fold increase over normal summer values. The phytoplankton causing the bloom was identified as Olisthodiscus luteus and ranged from Atlantic City, New Jersey to Staten Island, New York with cell counts as high as 170 million cells/liter (normal values are in the range of one to ten million cells/liter for all phytoplankton species combined).

January 1978 samples from the Arthur Kill showed a complex community of phytoplankton which included 40 different species. Because of low conductivity values (approximately 15,000 umhos) the samples were atypical and the phytoplankton community included a number of fresh water species as well as the marine species commonly found in the Kill and throughout the harbor. In addition to phytoplankton previously identified by the Commission, 20 more species were identified in District waters in 1978.

Samples of benthic invertebrates were taken at four stations in April, 1978. The sample from The Narrows consisted of black muddy sediments with rock and wood debris and the invertebrates were predominantly tubic worms and ectoprocta.

The sediments from Jamaica Bay were sandy sediments with paper-like litter from cord grass (Spartina sp.) and contained benthic organisms including clams, snails, tube worms, ectoprocta, and microcrustaceans.

PHYTOPLANKTON SPECIES IN THE INTERSTATE SANITATION DISTRICT

Diatoms

Actinoptychus sp.
Amphiprora sp.*
Asterionella japonica
Biddulphia alternans*
Chaetoceros sp.
compressus
curvisetum*
debilis
decipiens
didymus
simplex
Corethron hystrix
Coscinodiscus sp.
Detonula confervacea
Dictyocha fibula*
Diploneis sp.*
Distephanus speculum
Ditylum brightwelli
Ebria tripartita
Euglena sp.**
Fragilaria sp.
Grammatophora marina
Guinardia flaccida
Gyrosigma sp.
Leptocylindrus danicus
minimus
Licomorpha sp.
Lithodesmium undulatum*
Melosira sp.
sulcata
Navicula sp.
Nitzschia closterium
seriata
Rhaphoneis amphiceros*
Rhizosolenia alata
imbricata
setigera
Schröderella delicatula
Skeletonema costatum
Stauroneis membranica*
Stephanopyxis sp.*

Diatoms (continued)

Striatella unipunctata
Surirella sp.
gemma*
Thalassionema nitzschoides
Thalassiosira condensata*
decipiens
gravida*
nordenskioldii
Thalassiothrix longissima

Dinoflagellates

Ceratium sp.
fusus*
Codonella sp.
Dinophysis acuminata
Farella sp.*
Goniaulax sp.
Gymnodinium sp.
Mesodinium sp.
Peridinium sp.
Prorocentrum micans
minimum*
redfieldi*
scutellum*
triangulatum*
Tintinnopsis sp.

Chlorophytes

Ankistrodesmus falcatus
Nannochloris atomus
Scenedesmus sp.

Yellow Algae

Olisthodiscus luteus*

Green Algae

Pediastrum sp.*

* identified in 1978
** Euglenophyta

III. AIR POLLUTION

General

During 1978, the Interstate Sanitation Commission continued to coordinate, participate in, and assist the States of New York, New Jersey, and Connecticut with various projects relating to the control and understanding of air pollution. These activities focus primarily on those air pollution problems which are common to all three states and those which are of an interstate (capable of being transported across state boundaries) nature.

Since 1973, the Commission, in cooperation with the three states, has been coordinating a study on the interstate transport of photochemical air pollution. During 1978, an analysis of ozone concentrations associated with the July 1977 Eastern United States heat wave was completed. The ozone data used in this study were received from the 19 states which participated in the Moodus Conference on Hydrocarbon Control Strategies with additional data received from the southern and plains states. The daily maximum ozone data and trajectory analyses were used to identify and document this particular ozone episode. With the assistance of New York State, the detailed ozone analysis was continued for the 40 episodes observed during the 1976-77 Long-Range Transport Study. Ozone data were again received from the 19 states that participated in the Moodus Conference. In addition, the Commission, in cooperation with the State of New Jersey, undertook a two day flight to and from St. Louis, Mo.. The purpose of the flight was to further investigate the distribution of ozone within a slow moving high pressure system affecting the Northeast Quadrant of the United States.

The Commission continued to receive the observed 1978 daily ozone maximums from the 19 Moodus Data Task Force States. Certified ozone calibrations were obtained from the National Bureau of Standards in June and September.

The analysis of the New York Summer Aerosol Study of 1976 was completed. Of particular importance was the long range transport of sulfate ($SO_4^=$) and total suspended particulates (TSP) in the New York area. Because of the potential impact of transport upon future control strategies, the concept and significance of the transport phenomenon were examined more thoroughly.

Toxic airborne elements in the New York Metropolitan Area have been analyzed. Included are trends at sites in New York, New Jersey, and Connecticut, particle size distribution, and evidence for regional transport.

The final report for the Suspended Particulate Study was completed in 1978. The particle analysis task force compiled

elemental spectra on individual source emission particles which included materials collected from various power plant, incinerator, automobile, and industrial sources. Samples collected at ambient air sampling sites in the New York Metropolitan Area contained individual particles which were identified with major source types. Using these data as a baseline, consideration should be given to the development of an "elemental fingerprint spectra library" to assist in source characterization and apportionment studies.

The Commission continues to maintain its 24 hour-a-day answering service to facilitate the investigation of air pollution complaints which are potentially of an interstate nature.

REGIONAL AIR POLLUTION WARNING SYSTEM

The Interstate Sanitation Commission also coordinates the New Jersey-New York-Connecticut Air Quality Control Regional Air Pollution Warning System. During 1977 and through August 1978, the meteorological conditions were such that it was not necessary to activate the system. However, periodic simulated alerts were continued.

There are 36 telemetry stations operated by various state and local agencies in the New Jersey-New York-Connecticut Air Quality Control Region. A map of the station locations and an updated list of the stations are shown on the following pages.

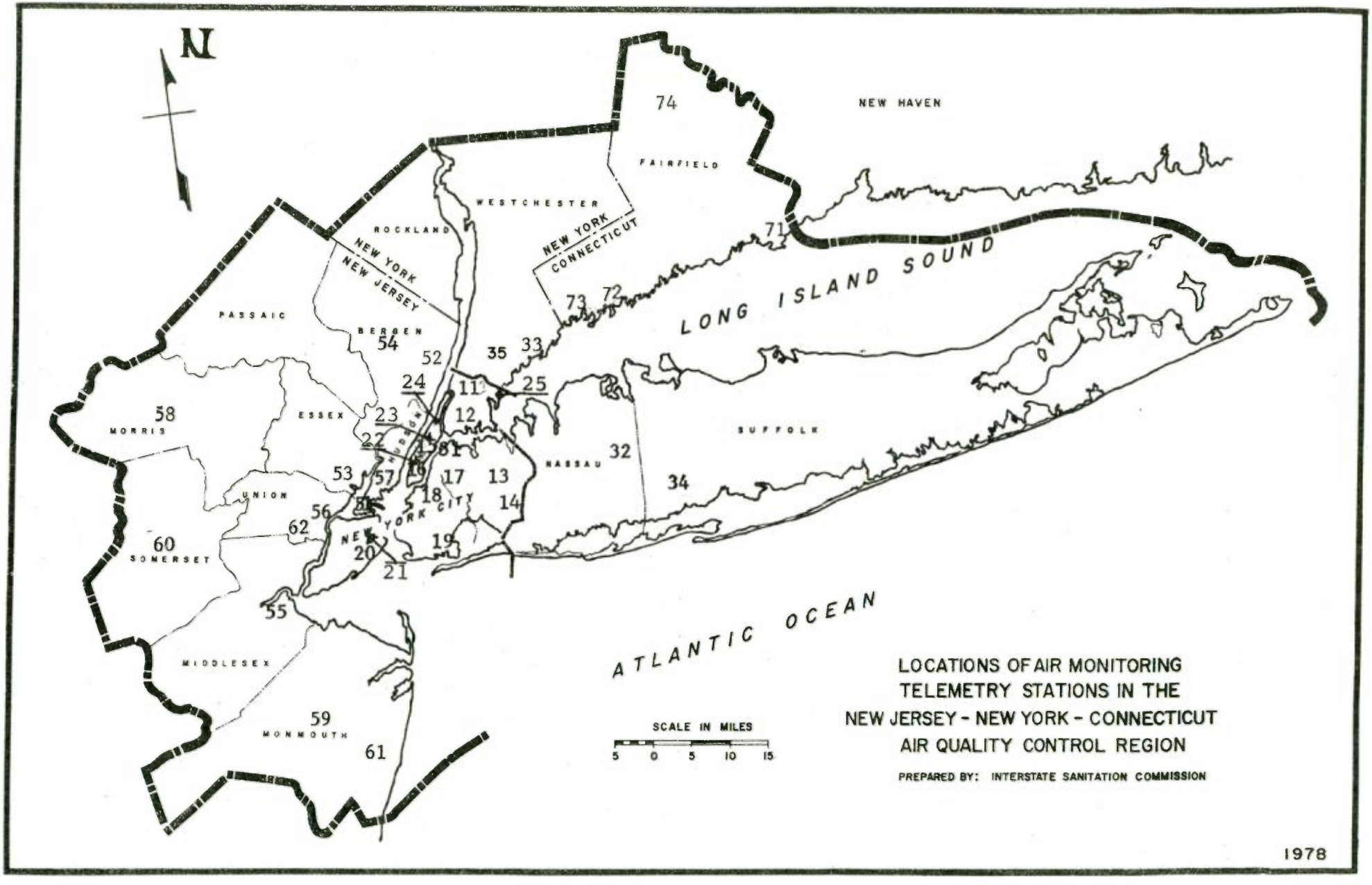
PHOTOCHEMICAL OXIDANT STUDIES

The Commission, in cooperation with the States of New York, New Jersey, and Connecticut, has been investigating photochemical oxidants since 1973. The results and conclusions involving ozone and the phenomenon of transport during specific episodes are given below.

1978 Aerial Ozone Investigation

During July 21-22, aerial ozone measurements were obtained between Trenton, N.J. and St. Louis, Mo. by the Commission in cooperation with the New Jersey Department of Environmental Protection.

The purpose of the St. Louis flight was two-fold: 1) to demonstrate on a large scale the transport phenomenon as it is influenced by a summertime southwesterly flow, and 2) to show that under these conditions the ozone is fairly uniform within the air mass and usually exceeds the National Ambient Air Quality Standard (NAAQS) of 80 parts per billion (ppb).


N
NEW HAVEN
74
FAIRFIELD
WESTCHESTER
ROCKLAND
NEW YORK
NEW JERSEY
NEW YORK
CONNECTICUT
71
LONG ISLAND SOUND
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72
PASSAIC
BERGEN
54
52
35
33
24
11
25
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MORRIS
ESSEX
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12
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81
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SUFFOLK
NASSAU
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UNION
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56
62
YORK CITY
14
NEW
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SOMERSET
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19
21
55
ATLANTIC OCEAN
MIDDLESEX
59
MONMOUTH
61
SCALE IN MILES
5 0 5 10 15
LOCATIONS OF AIR MONITORING
TELEMETRY STATIONS IN THE
NEW JERSEY - NEW YORK - CONNECTICUT
AIR QUALITY CONTROL REGION
PREPARED BY: INTERSTATE SANITATION COMMISSION
1978

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

ISC NO.	CITY	COUNTY	STATE
11	New York (1)	Bronx	New York
12	New York	Bronx	New York
13	New York	Queens	New York
14	New York (1)	Queens	New York
15	New York	New York	New York
16	New York	New York	New York
17	New York	Kings	New York
18	New York	Kings	New York
19	New York	Kings	New York
20	New York (1)	Richmond	New York
21	New York	Richmond	New York
22	New York	New York	New York
23	New York	New York	New York
24	New York	New York	New York
25	New York	Bronx	New York
31	New York (2)	New York	New York
32	Hempstead	Nassau	New York
33	Mamaroneck	Westchester	New York
34	Bablyon	Suffolk	New York
35	White Plains	Westchester	New York
51	Bayonne T (3)	Hudson	New Jersey
52	Hackensack	Bergen	New Jersey
53	Newark T (3)	Essex	New Jersey
54	Paterson	Passaic	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
60	Somerville	Somerset	New Jersey
61	Asbury Park	Monmouth	New Jersey
62	Elizabeth T (3)	Union	
71	Bridgeport	Fairfield	Connecticut
72	Stamford	Fairfield	Connecticut
73	Greenwich	Fairfield	Connecticut
74	Danbury	Fairfield	Connecticut

Notes: (1) Manual Monitoring
(2) No longer exists
(3) T represents comprehensive laboratory trailers. Other stations are fixed in buildings.

The figure on the following page shows the flight path from Trenton to St. Louis on July 21. Ozone concentrations are presented in ppb with the circled values indicating supplementary ground level readings for the corresponding times. Of interest were the very low ground level concentrations in New Jersey and Pennsylvania at take-off. This was because of nocturnal surface ozone decay and the lack of early morning atmospheric mixing. The flight commenced at 9:10 A.M. and ended at 4:15 P.M. with a brief refueling in Huntington, West Virginia.

As indicated in the figure, areas within all states along the flight path exceeded NAAQS for ozone. During the return trip, though not shown here, overall levels were similarly high, with the highest readings for the flight being recorded in Pennsylvania and New Jersey during late afternoon. These were probably a result of the ozone accumulated upwind on July 21st being transported eastward, and some local production on Saturday, July 22nd.

July 1977 Eastern U. S. Heat Wave

During the record breaking heat wave which occurred during July 1977 over most of the eastern half of the U. S., ozone concentration patterns across a 35-state area were examined. The heat wave and ozone episodes were associated with a high pressure system which formed over the southeastern states on July 12 and remained nearly stationary through July 21. This pattern produced a large scale southwesterly flow of air from Texas and Louisiana, up the Mississippi and Ohio Valleys, into the Washington, D. C. - Boston, Mass. Corridor. Ozone concentrations associated with this weather system were in excess of 0.10 ppm over most of the area from the plains states eastward. As the air parcels traveled to the Northeast, ozone levels exceeded 0.20 ppm and on one occasion exceeded 0.30 ppm. Ozone fluxes were discussed and source areas were identified using daily ozone maps, synoptic weather maps, and air parcel trajectories.

The following figures show the ozone distribution for one particularly polluted day (July 19) and 6-day air trajectories for the period ending July 20. Analysis of the July 1977 ozone distributions produced several new findings, some of which are summarized below.

1. Geographical Extent of the Episode.

   This study examined an ozone episode which simultaneously affected nearly two-thirds of the Eastern Quadrant of the U. S. Therefore, in order to effectively reduce ozone concentration during such an episode, the uniform precursor controls which were previously recommended for implementation in the Northeast Quadrant

would have to be extended to include an area of approximately 2 million square miles.

2. Air Mass Source Region.

During 1976 and 1977, most of the high pressure systems associated with ozone episodes in the Midwest and Northeast originated in Canada and tracked eastward. The system responsible for this episode formed over Alabama.

3. Formation of an "Ozone River".

The circulation around the high pressure system created an "ozone river" which traveled northward from the Texas-Louisiana Gulf Coast to the Midwest and then eastward to the Northeast and mid-Atlantic Coast. Ozone concentrations within this "river" averaged about 120-130 ppb and were as high as 247 ppb. The "river" appears to originate in the high hydrocarbon emission density areas between Corpus Christi, Texas and New Orleans, La. It then travels parallel to the Mississippi and Ohio River Valleys into the industrialized and urbanized areas of the Midwest before turning to the urbanized Northeast.

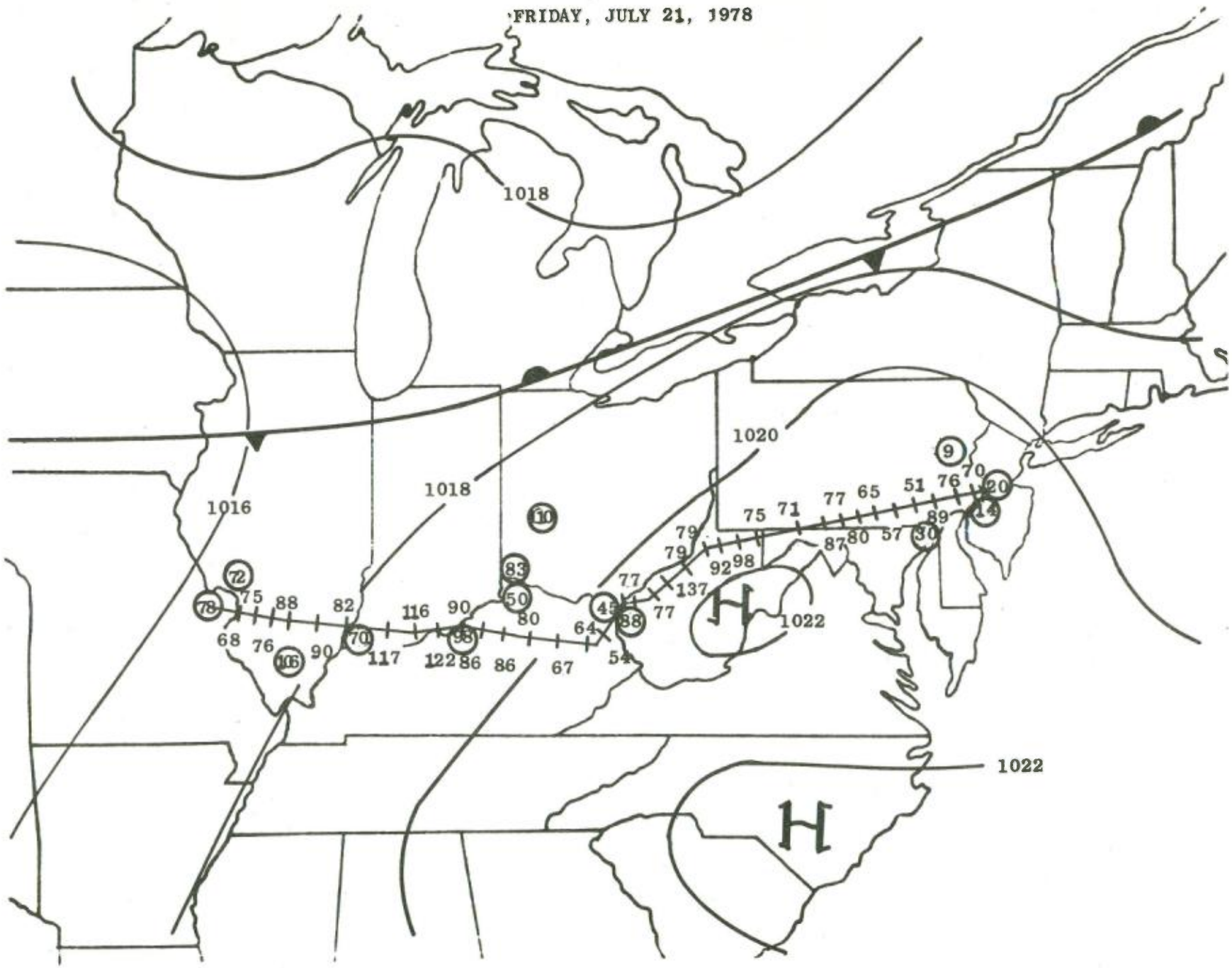
4. Distance of Ozone Transport

Between 7/22 and 7/24, ozone concentrations of 90-130 ppb traveled in excess of 2300 km in 48 hours.

1976-1977 Long-Range Transport Study

Forty episodes involving the accumulation and transport of ozone within a high pressure system have been recorded for April-September, 1976-1977, from the Moodus Data Task Force analysis. Data was furnished by the Moodus Data Task Force, and daily ozone distribution isopleths were constructed and overlayed on daily weather maps. The study was done in response to the need for development of control strategies in the northeast that would effectively deal with stationary and automotive hydrocarbon precursor emissions. A number of these ozone episodes have been analyzed in detail using wind trajectory analysis.

One of the longer and more complex 1977 episodes occurred in the period from May 9 through May 19 (See figures on following pages). On May 9, a high pressure system moved out of Canada into Minnesota with a background ozone level of about 40 ppb. As the system dropped slowly southward, high ozone concentrations spread eastward. The episode was interrupted in the Northeast by the passage of a southward moving cold front on May 13 and 14.


FRIDAY, JULY 21, 1978
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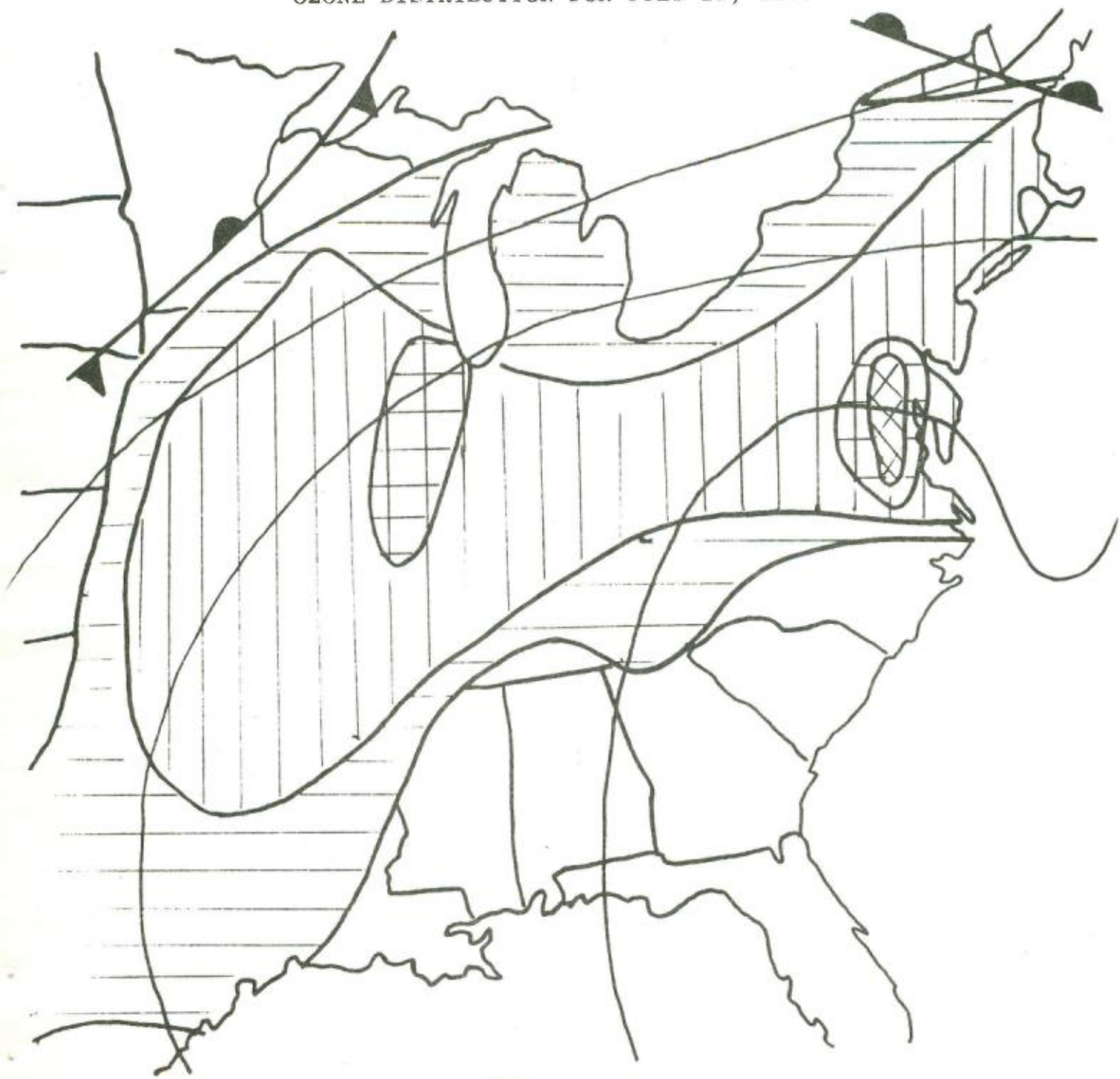
OZONE DISTRIBUTION FOR JULY 19, 1977



KEY

80 ppb

80–99 ppb

100–149 ppb

150–199 ppb

200 ppb

A) Six day forward trajectory from Houston, Texas beginning at 1300h on 7/14. B) Six day backward trajectory terminating in New York City on 7/20 at 1300h. C) Six day backward trajectory terminating in Washington D.C. on 7/20 at 1300h. Numbers along trajectory path refer to the 1300h portion of the air parcel on the date indicated.

By May 16 the front, now in the southeastern states, dissipated and the new air mass merged with the previous one. The areas of high ozone expanded around the major precursor emission areas. On May 17, the center of the high moved off the Atlantic Coast, and the Northeast was affected by the return flow. The backward air parcel trajectories (terminating at 1300 hours), illustrated in the following figure, show that on May 17, the air parcels arriving in New York City had been over the Youngstown, Ohio area about 24 to 48 hours previously. Transport of ozone in these air parcels accounts for a large portion of the ozone peak observed in New York City on this day. Studies involving ozone decay rates above the nocturnal inversion layer indicate that ozone could be conserved in amounts sufficient to exceed standards at downwind locations on subsequent days.

As shown by trajectories for May 18, the advection of air parcels which had been stagnating in the midwest for approximately one week continued, resulting in high ozone concentrations in the Northeast Corridor. On May 19 a cold front moved through the Northeast ending this episode.

Conclusions from the Moodus study:

1. Most of the ozone episodes were still associated with high pressure systems that originated in Canada and proceeded across the Northeast, while the most extensive buildup of ozone still occurred on the return flow of a high, with significant long-range transport involved.

2. There were fewer episodes recorded in 1977 than in 1976, but the average duration of an episode remained about seven days for the two studies.

3. High concentrations of ozone still persist throughout the eastern part of the country, requiring development of thorough and uniform control strategies to effectively reduce precursors available for the production of ozone. The extent of these controls should include at least the eastern half of the country.

QUALITY ASSURANCE PROGRAM

Certified ozone calibrations were obtained from the National Bureau of Standards in June and September. The June results were made available to the New York State Department of Environmental Conservation and the New Jersey Department of Environmental Protection, and the September results to the Connecticut Department of Environmental Protection.

TOXIC AIRBORNE ELEMENTS IN THE NEW YORK METROPOLITAN AREA

In order to continue the development of feasible strategies for the control of particulate pollution, knowledge of the temporal and spatial distribution of the composition and concentration of the air borne particles is required. This study, completed in cooperation with the Institute of Environmental Medicine, New York University Medical Center, described the levels and size distribution of various toxic metal elements found in the New York Metropolitan Area and examined trends at sites in New York, New Jersey, and Connecticut from 1972 to 1976. Toxic metals studies were cadmium, zinc, lead, chromium, and nickel.

Conclusions emerging from this study and analysis include:

1. That average ambient air levels of toxic metal elements in the New York City atmosphere have decreased over the past 5 to 10 years.

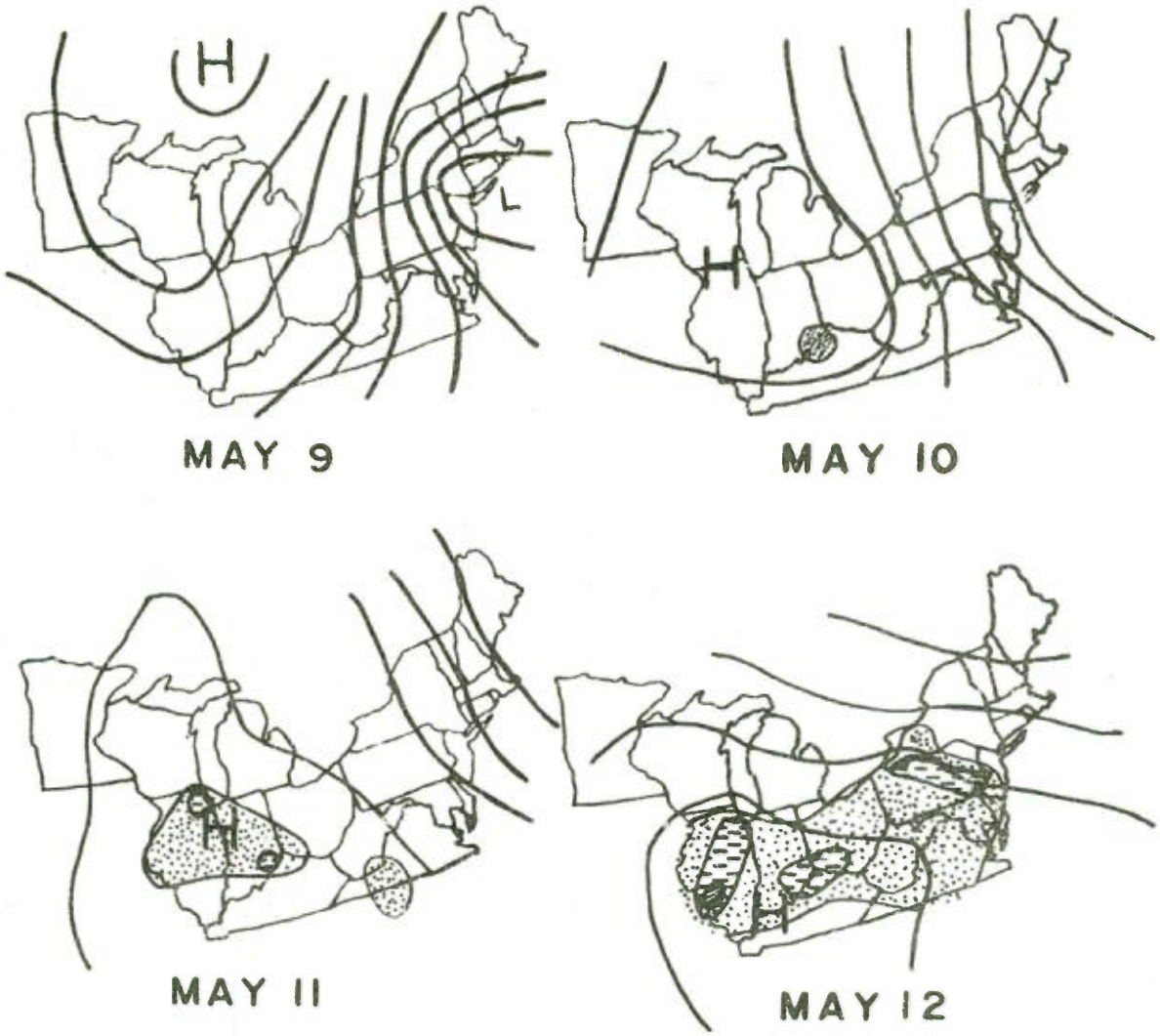
2. That lead was, by far, the most significant element. The average for the five years was around 1200 nanograms per cubic meter; about four times the concentration of zinc, the metal with the next highest concentration.

3. That the occurrence of higher levels of some of these toxic elements at High Point, New Jersey (located in northwest NJ), when compared to the periodic and average values in New York City, indicates regional transport may exist. High Point is not influenced by local sources, however, industrial centers such as Allentown-Bethlehem, Pa., located at least 100 km. upwind on a general southwesterly wind flow influence the area periodically.

REGIONAL ASPECTS OF HAZARDOUS CHEMICAL SPILLS

The New York State Department of Environmental Conservation has requested that the Commission assist in the improvement of capabilities to cope with spills of hazardous chemical substances. Preliminary indications are that the resources and organizational factor in each of the three states participating in the Commission vary widely. The nature of the metropolitan area for which the Commission functions makes opportunities for spills with interjurisdictional effects significant and numerous.

As a first step in assessing the problem, the Commission, with the active cooperation of New York State, New Jersey, Connecticut, U. S. EPA, and the Port Authority of New York and New Jersey held an all day workshop on November 20, 1978. Following the workshop, the Commission has undertaken to prepare materials and make arrangements for a previously agreed upon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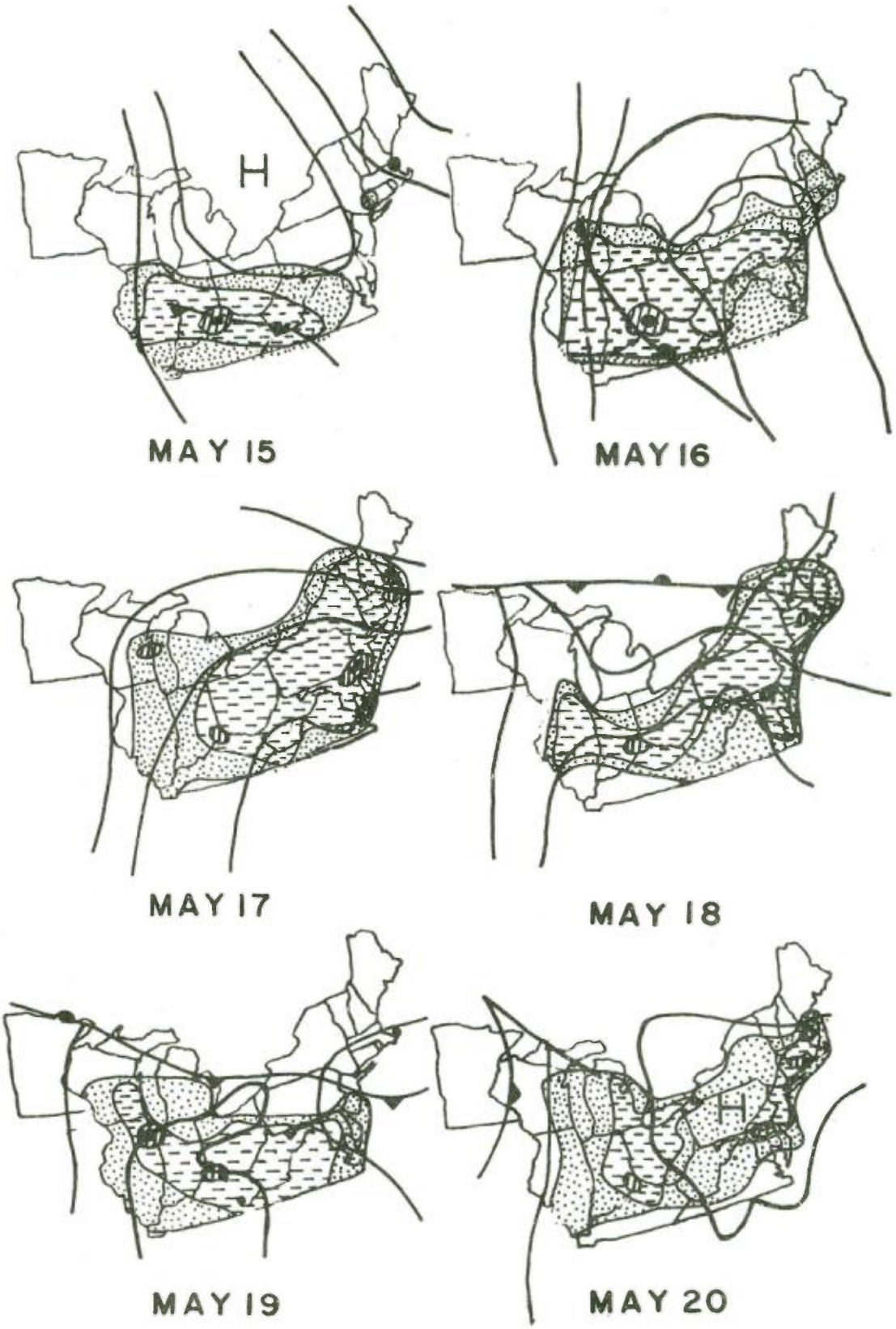
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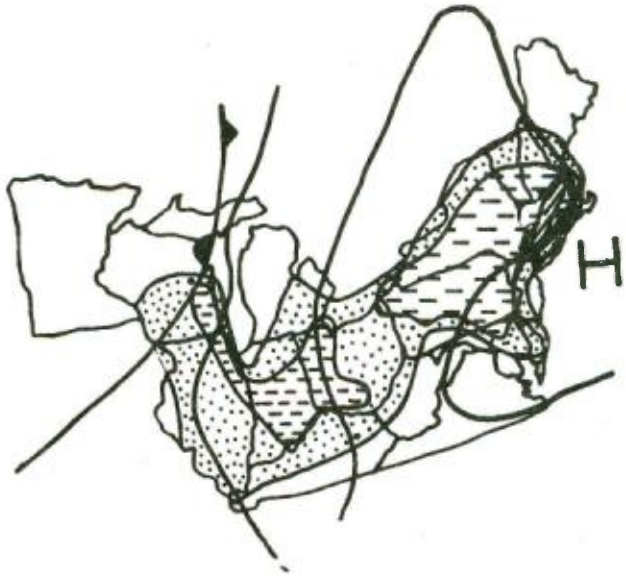
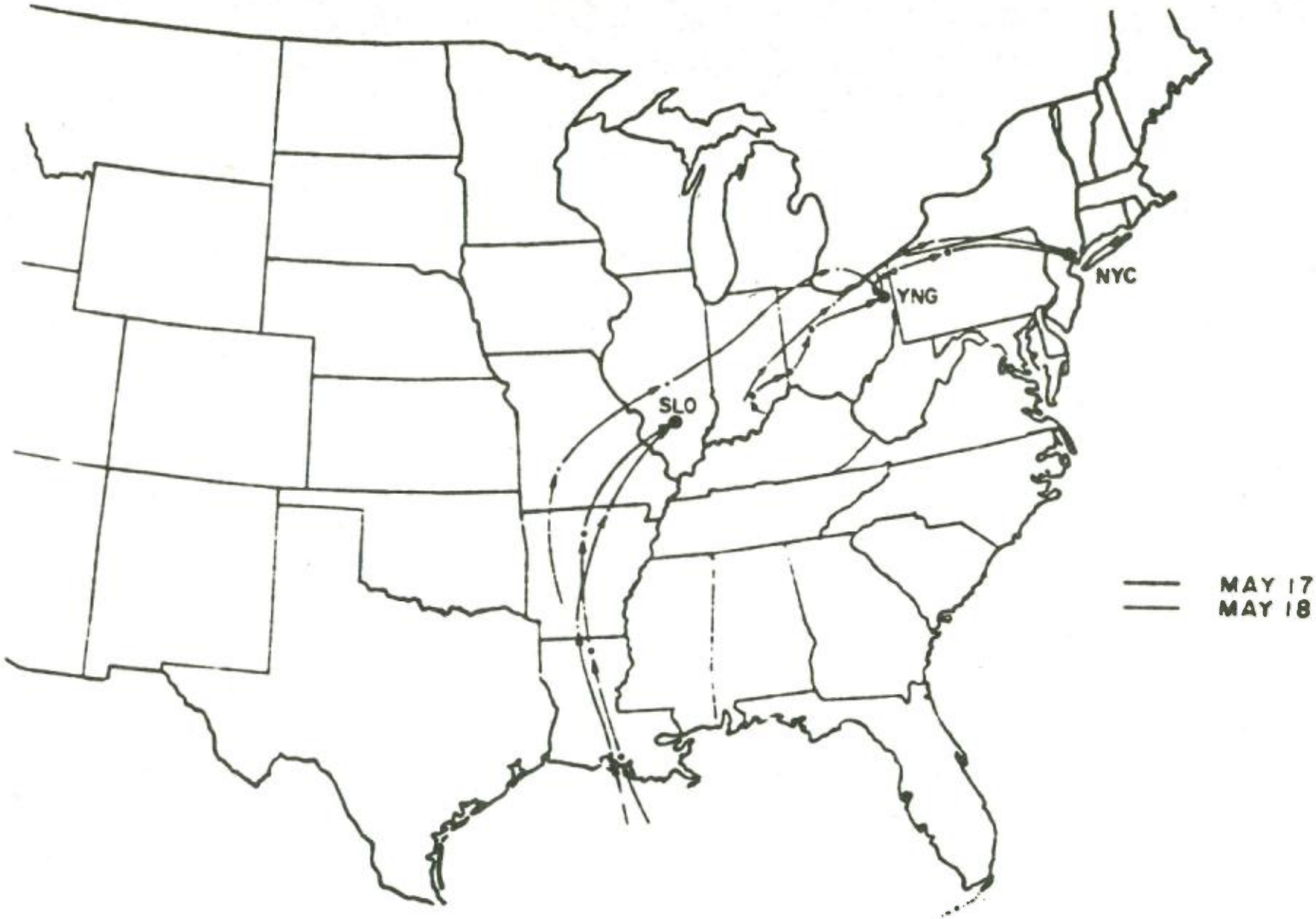


MAY 21

O_3 Conc.	
	80-99 ppb
	100-149 ppb
	150-199 ppb
	>200 ppb



Backward air parcel trajectories ending at the 1300h terminating in Salem, Ill., Youngstown, Oh., and New York City, N.Y. Segments of trajectories are in six-hour intervals for the days May 17 and 18, 1977.

second meeting of appropriate agency representatives to determine how a project to develop a Regional Spill Control Plan could best be conducted.

The present intention is to hold this second meeting early in 1979 and then to pursue the work in whatever way is determined to be most feasible.

NEW YORK SUMMER AEROSOL STUDY, 1976

The New York Summer Aerosol Study of 1976 (NYSAS) was designed to obtain information on the nature of the New York Metropolitan summer aerosol. Participating with Yale University, the Commission discussed the details of the interrelationships among the physical and chemical characteristics of the summer aerosol measured at the New York City site, and suggested probable causes for these relationships. A few of the results are summarized below.

1) The diurnal pattern for the volume of particles between 0.1 and 1.3 micrometers (μm), the size range that accounts for the most serious adverse effects (visibility degradation, lung penetration, etc.), was not a strong function of humidity or time of day, and could not be related to the diurnal traffic or power demand pattern. The lack of an afternoon peak in this size range (0.1-1.3 μm) and in the light scattering coefficient suggests the absence of a photochemically generated aerosol in the light scattering range and indicates the presence of an aged aerosol. This finding is in conflict with the results obtained in the ACHEX Study* conducted in California where the diurnal pattern recorded for particle size range 0.1-1.0 μm clearly showed an afternoon peak corresponding to a photochemically generated aerosol resulting from local pollutant emissions (see figures next page).

2) It was determined that as much as 73% of the sulfate and 35% of the total suspended particulate were transported through High Point to New York City.

3) The facts that: a) a high correlation coefficient was found between the light scattering coefficient and sulfate concentration (r-0.85), b) most of the $SO_4^=$ was

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*G. M. Hidy, 1974, Characteristics of Aerosols in California (ACHEX). Volumes 1,2,3 & 4. (Prepared for California Air Resources Board) Rockwell International, Thousand Oaks, Calif.

found in the fine particle range, c) the $SO_4^=$ was correlated with NH_4^+, and d) the lack of a diurnal peak in light scattering (described above) support the conclusion that $SO_4^=$ transport affects the metropolitan area throughout the summer.

SUSPENDED PARTICULATES STUDY

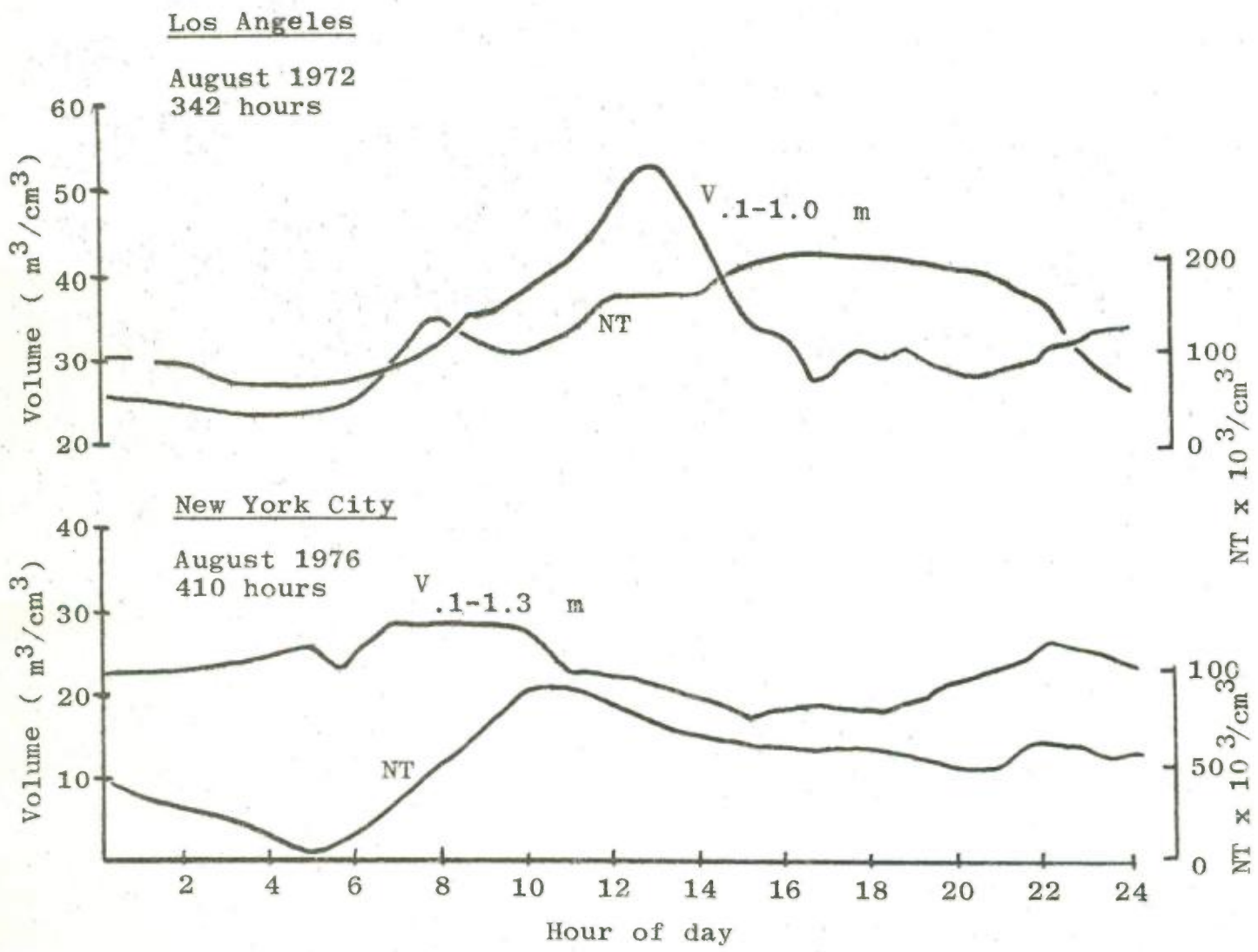
Ambient air and source sampling methods were examined by five task forces to determine their applicability to projects associated with the control of suspended particulates. Participants for this study included the New Jersey Department of Environmental Protection, the Polytechnic Institute of New York, the Mt. Sinai School of Medicine, the Cooper Union, the New York City Department of Air Resources, the New York State Department of Environmental Conservation, and the Interstate Sanitation Commission. The chemical and physical analyses, conducted on various filter media, determined individual particle composition and size, organic tracers, organic fraction mass, total suspended particulates (TSP) and trace elements.

Using an electron microprobe the particle analysis task force compiled elemental spectra on individual source emission particles which included material collected from power plant, incinerator, automobile, and industrial emissions. Fingerprints were obtained for each source type. Subsequently, samples collected at ambient air sampling sites in the New York Metropolitan Area (see figure following page) contained individual particles that could be identified as coming from the fingerprinted sources. Based on these comparisons it is projected that an elemental fingerprint spectra library for characteristic source particles can be constructed to assist in source characterization studies.

The near-street TSP task force examined four-hour high-volume measurements of TSP taken on glass and nuclepore filters during 1974 at a site in Newark, New Jersey and for nine months in 1975 at a site in Brooklyn, New York. Carbon monoxide (CO) and meteorological data supplemented the particulate data set.

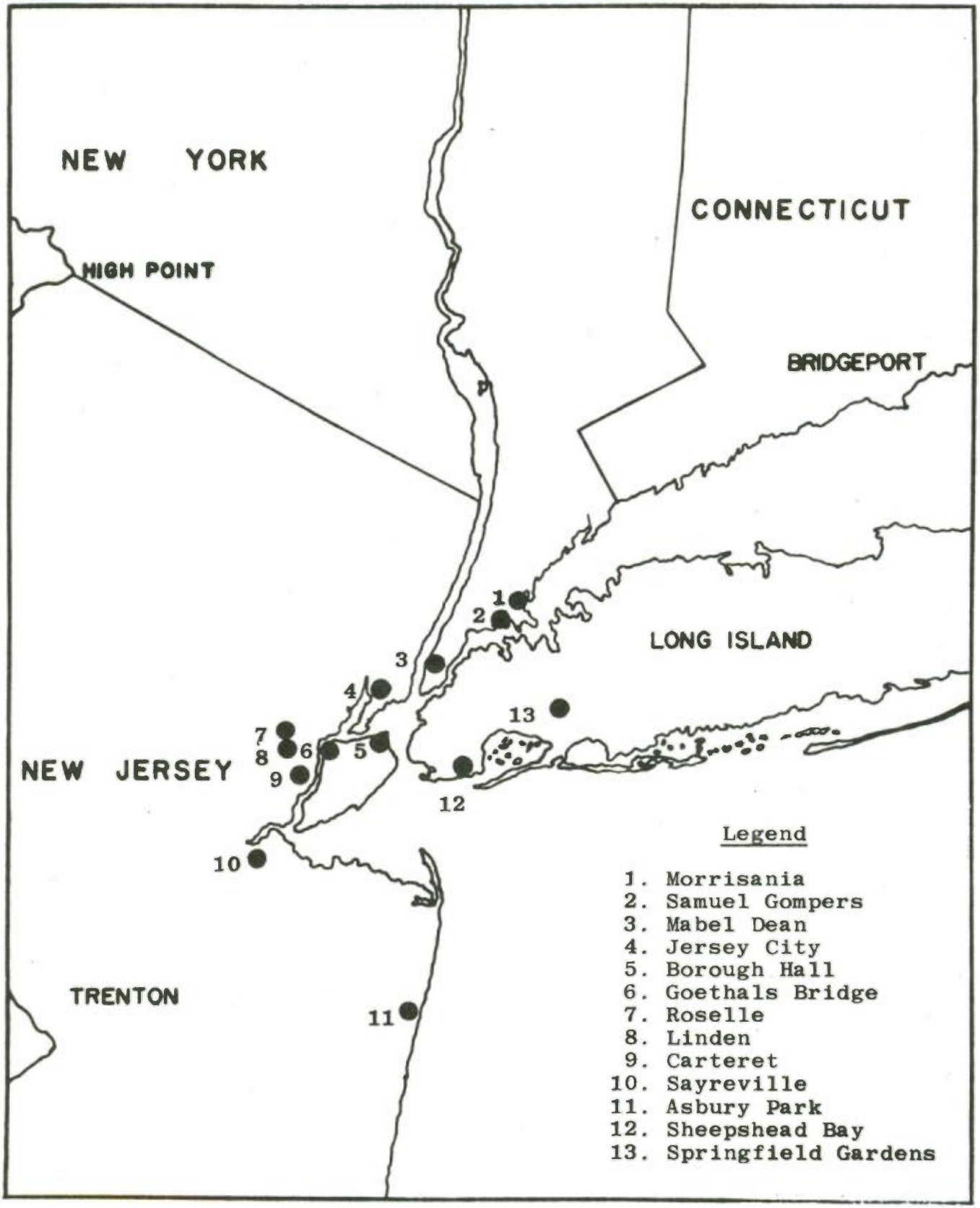
Monthly average concentrations of TSP at the two sites were relatively constant, with months having a high frequency of northwest winds averaging about 15% lower than the overall site average. The overall diurnal patterns at the two sites showed only morning peaks for TSP, while CO was marked by both a morning peak and a stronger afternoon peak.

A robust statistical analysis, known as "moving window statistics", was applied to the TSP, CO, and elemental data. This graphical technique was useful in sorting out the directional trends in the data, and delineated the different behaviors of the



The diurnal pattern for total number of particles and volume of particles between 0.1 m - 1.3 m for New York and Los Angeles. Los Angeles data was obtained from the ACHEX study (1972) and represents average hourly values determined from a total of 342 size distribution measurements. The New York total number (NT) and $V_{.1-1.3}$ curves were developed from 410 size distribution measurements taken during the NYSAS and presented as median values.

AMBIENT SAMPLING LOCATIONS



pollutant levels as functions of the wind segments associatd with the observations.

The directional and diurnal behaviors of the elements measured were similar to those of TSP. It is assumed that Pb and Br are auto related and they, along with the fuel-dominated S, did not exhibit afternoon peaks in the afternoon. Enrichment factors were calculated for the elemental data. The largest factors were obtained for Pb and Br, indicating the magnitude of the impact of automobiles on the levels measured at the two urban sites. High enrichment factors were also found for S, probably caused by the ubiquitous burning of sulfur-bearing fossil fuel in the Northeast Quadrant of the U. S.

Multi-variable regression models linear in the logarithms of the variables (wind speed, mixing height, temperature, time of day, wind direction sector, and relative humidity) were developed for TSP and CO. The dependence of the pollutant on wind speed was found to be on the order of -0.2, a much weaker dependence than the traditionally assumed inverse proportionality.

The regression models also were used to predict pollutant levels on days on which programmed street washings occurred. The street washings were limited to streets in the immediate vicinity of the sites. The conclusion of this analysis was that the street washings did not decrease the level of TSP.

Routine techniques for determination of particulate mass were employed by the material balance task force on 24-hour samples from New York City sites. The analyses accounted for approximately seventy percent of the mass, with sulfate, benzene extractable organics, and free carbon comprising the major fractions. The remaining fractions are suspected to be silicates and polar organics. Eight trace metals which include V, Cr, Fe, Ni, Cu, Zn, Pb, and Mn were found to account for approximately 5% of the particulates throughout the city.

IV. LEGAL ACTIVITIES

The activities of Counsel can be divided into two categories. One is the furnishing of advice and the provision of routine servicing in the day-by-day operations of the Commission. This work is substantial, but the individual items composing it are seldom of the kind that would warrant specific mention in an annual report. Accordingly, no further mention will be made here of these activities. The other category is composed of the legal ingredients of Commission policy and matters of particular current interest in the water and air quality programs and activities of the Commission. Such items may continue or recur and so require attention in successive annual reports. Some arise at a particular time and are settled or cease to be of concern. The bulk of this report is devoted to these several items of major interest, both those which recur and those which deserve special note as activities during 1978.

NPDES and SPDES Permits

Under Section 402 of the Federal Water Pollution Control Act of 1972, as amended, the U. S. Environmental Protection Agency issues permits for effluent discharges into the waters of the United States. Since public waters of the states are also waters of the United States, discharges into waters of the Interstate Sanitation District are unlawful unless in accordance with permits satisfying the terms of Section 402 of the Federal Act. In the case of permits which are rapidly issued or denied, this observation may be taken as accurate. However, some permit proceedings under Section 402 have become protracted because of requests for Adjudicatory Hearings and the controversies surrounding the circumstances involved in the particular instances. Under such conditions, the application of any substantive discharge limitations and requirements applicable pursuant to the federal law may be in suspension until the Adjudicatory Hearing Proceeding has run its course or a settlement of the issues has been accomplished.

Although the Interstate Sanitation Commission has regulatory requirements and jurisdiction of its own, the contents of U.S. EPA permits issued under the National Pollutant Discharge Elimination System (NPDES) are important to the Commission's responsibilities. This is true in part because U.S. EPA is a major policy and enforcement agency, and in part because the federal statute requires that NPDES permits be consistent with applicable state law, including interstate agency requirements. Accordingly, the Commission has participated in a number of Adjudicatory Hearing Proceedings arising out of permits for discharges into waters of the Interstate Sanitation District.

Since controversy gets more attention than a routine admin-

istrative process, it is easy to form a distorted view of the entire permit system. For the most part, the Commission has merely examined the notices and accompanying information which it receives in order to assure itself that requirements embodied in its regulations are properly reflected in the individual NPDES permits for discharges into the Interstate Sanitation District. A relatively small number of cases has required considerable time from the Commission staff because the controversies involved have not yielded easily to negotiation or because of the intrinsic importance of the particular instances.

The legal and technical staff of the Commission have participated in meetings and other proceedings in efforts to arrive at reasonable settlements of outstanding controversies.

While initially all permits pursuant to the federal statute were issued by U.S. EPA, an increasing number of states have been qualifying for assumption of permit program responsibilities. Both New York and Connecticut operate state (SPDES) permit systems which qualify, and in the case of new permits and renewals, it is increasingly the agencies of these states which have the administrative responsibility. The Commission has similar interests in the functioning of these permit systems as it does in NPDES. However, no instances of Adjudicatory Hearing Proceedings analogous to those conducted by the U.S. EPA have yet arisen in areas for which the Commission has water quality responsibilities. New Jersey does not yet have a SPDES program and all permit proceedings in the New Jersey part of the Interstate Sanitation District consequently continue to be administered by the U.S. EPA.

New York State Power Authority

The Power Authority of the State of New York (PASNY) has filed an application for licensure of a fossil fuel power plant. Involved is the siting of the facility as well as the several permits and licenses required for its construction and operation. Under New York Law all of the procedures for the obtaining of requisite permits and licenses occurs in a consolidated proceeding.

Four sites are or have been under consideration: The Arthur Kill, Hart Island, and two locations in upstate New York far removed from any waters of the Interstate Sanitation District. The Commission has taken no position with respect to any of the issues related to the upstate sites. It is participating with respect to the Arthur Kill and the Hart Island sites. However, the latter does not presently appear to be under serious consideration and all of the hearings in which the Commission has participated have concentrated on the advantages, disadvantages and requirements for licensure at an Arthur Kill site.

As in NPDES and SPDES matters, the Commission takes the position that any permits for effluent discharges must embody the requirements of the Interstate Sanitation Commission along with those otherwise applied by the State of New York.

After a considerable portion of the testimony was put on the record, the Power Authority requested a suspension of the proceedings. It informed the Hearing Officer that it was making an effort to examine other sites within New York City in order to determine whether one or more other suitable locations could be found.

Persons and groups opposing a Staten Island site sought to secure from PASNY a withdrawal of the application for an Arthur Kill location and a declaration binding PASNY to an abandonment of any further consideration of Staten Island. Instead, PASNY has merely sought to postpone continuation of the possibility of alternatives within New York City. The Hearing Officer has not required PASNY to withdraw its application but had indicated he will expect reasonably early word from PASNY as to whether it will substitute a new site or go forward with the hearing on its application as presently before the proceeding.

The Commission expects to continue its participation in the proceeding whenever it resumes.

Port Chester Litigation

The suit described in recent annual reports by which certain Connecticut plaintiffs have sought to obtain more expeditous construction of added facilities for treatment and disposal of wastes from Port Chester, New York is still on the docket of the U. S. District Court for the Southern District of New York. During the year there appears to have been some progress in removing obstacles to construction, but actual work has not yet commenced. The Commission has continued to furnish reports of its inspections to the court and to the parties.

This is a matter of long standing concern. The Commission is hopeful that the suit will prove to be the most appropriate legal procedure for precipitating the needed improvements at Port Chester and that there will be tangible progress.

Freedom of Information

In recent years, the states have become increasingly concerned about access to their records. The right to know has become established as belonging to members of the public generally and without need to establish a special reason why the information is desired. All three of the member states of the Commission now have freedom of information laws under which inquirers

must be afforded opportunities to examine and obtain information from the files of state agencies. However, the provisions, procedures and practices in the three states vary to some extent from one to the other.

The Interstate Sanitation Commission has traditionally followed freedom of information principles in practice. Upon inquiry, it has allowed persons to visit its offices and there examine such documents and data of the Commission as the inquirer might wish to see. Until September 1978 the Commission did not have a written set of principles or procedures on the subject. The immediate cause for the Commission's development of a procedure formally adopted by it was an inquiry received from New York State in 1978.

During the summer, the Commission staff developed a draft of a policy and procedure on access to its records. At its September meeting, the Commission considered the matter and adopted three motions which together constitute its formal policy and procedure on the subject. The texts of these three motions are appended to this report.

WASTEWATER TREATMENT PLANTS
Discharging into the
INTERSTATE SANITATION DISTRICT WATERS
1978

Plant	ISC Receiving Water Classification	Date of Const.	Flow MGD Average	Flow MGD Design	Type of Treatment	Estimated Population Served (1970-77)
CONNECTICUT						
Fairfield County						
Bridgeport - East Side	B-1	1973+	-	10.0	Secondary (AS)	100,000
- West Side	B-1	1973+	-	28.0	Secondary (AS)	175,000
Fairfield	A	1973+	8.5	9.0	Secondary (AS)	46,000
Greenwich - Central	A	1964+	8.0	8.5	Secondary (AS)	45,000
*Handy & Harmon	A	1973	-	0.25	Physical/Chemical	Industrial
Norwalk	B-1	1975+	10.7	10.0	Secondary (AS)	80,000
Stamford	B-1	1976+	16.0	20.0	Secondary (AS)	80,000
Stratford	A	1974+	10.2	11.5	Secondary (AS)	45,000
Westport	A	1975+	1.7	1.6	Secondary (AS)	10,000
New Haven County						
Milford - Beaver Brook	A	1969	1.6	3.1	Secondary (AS)	10,000
- Gulf Pond	A	1976+	3.2	2.9	Secondary (AS)	15,000
- Harborside	A	1937	0.7	0.5	Secondary (AS)	4,000
- Town Meadows	A	1953	1.6	1.2	Secondary (AS)	6,000
New Haven - Boulevard	B-1	1969+	13.0	13.5	Primary	76,000
- East Shore	B-1	1969+	8.8	12.5	Primary	55,000
- East Street	B-1	1968+	14.7	22.5	Primary	66,000
West Haven	B-1	1974+	10.3	23.5	Secondary (AS)	55,000
NEW JERSEY						
Bergen County						
Edgewater	B-1	1958+	2.8	2.6	Primary	25,000
Hudson County						
Bayonne	B-2	1954	13.7	21.0	Primary	73,000
Hoboken	B-1	1958+	15.5	20.0	Primary	50,000
Jersey City - East Side	B-1	1963+	34.1	46.6	Primary	110,000
- West Side	B-2	1963+	25.3	36.0	Primary	160,000
Kearny	B-2	1955	3.3	4.0	Primary	30,000
West New York	B-1	1954	9.7	10.0	Primary	60,000
Woodcliff - North Bergen	B-1	1962	1.7	4.4	Primary	17,000
Middlesex County						
Carteret	B-2	1952	3.1	3.0	Primary	24,000
Middlesex County Sewerage Authority	A	1965+	95.2	120.0	Secondary (AS)	525,000
Old Bridge Township Sewerage Authority (Laurence Harbor)	A	1962	0.9	1.0	Primary	13,000
Perth Amboy	A	1978+	4.1	4.0	Primary	39,000
Rahway Valley Sewerage Authority	B-2	1973+	38.6	35.0	Secondary (AS)	215,000
Sayreville - Melrose	A	1949	0.06	0.5	Primary	3,000
- Morgan	A	1952	0.2	0.3	Primary	8,000
South Amboy	A	1939	0.7	1.0	Primary	11,000
Woodbridge	B-2	1955	3.7	10.0	Primary	50,000
Monmouth County						
Atlantic Highlands	A	1927	0.4	0.6	Primary	5,000
Highlands	A	1928	0.6	1.2	Primary	5,000
Union County						
*Exxon Company (Bayway Refinery)	B-2	1970	13.0	15.0	Intermediate (AS)	Industrial
Joint Meeting of Essex & Union County	B-2	1975+	76.1	70.0	Secondary (AS)	500,000
Linden-Roselle Sewerage Authority	B-2	1952+	13.3	17.0	Primary	109,000
Essex County						
Passaic Valley	B-1	1937+	250.0**	-	Primary	2,899,000

WASTEWATER TREATMENT PLANTS
Discharging into the
INTERSTATE SANITATION DISTRICT WATERS
1 9 7 8

Plant	ISC Receiving Water Classification	Date of Const.	Flow MGD Average	Flow MGD Design	Type of Treatment	Estimated Population Served (1970-77)
NEW YORK						
Nassau County						
Bay Park	A	1978+	60.2	60.0	Secondary (AS)	556,000
Belgrave Sewer District	A	1974+	1.5	1.5	Secondary (TF)	12,000
Cedar Creek	A	1971	18.8	45.0	Secondary (AS)	180,000
Cedarhurst	A	1967+	0.9	1.0	Secondary (TF)	7,500
*Cold Spring Harbor Laboratory	A	1975	0.04	0.075	Physical/Chemical	100 - 400
Freeport	A	1960+	4.8	4.0	Secondary (TF)	40,000
Glen-Cove - Morris Avenue	A	1964+	6.0	4.0	Secondary (TF)	27,000
Great Neck Sewer District	A	1976+	2.8	2.7	Secondary (TF)	17,000
Great Neck Village	A	1967+	1.0	1.5	Secondary (TF)	11,000
Inwood	A	1961+	1.6	2.5	Secondary (TF)	9,000
Jones Beach	A	1966+	0.07	2.5	Secondary (TF)	Seasonal
Lawrence	A	1966+	1.4	1.5	Secondary (TF)	7,000
Long Beach	A	1965+	7.3	6.4	Secondary (TF)	40,000
*Long Island Lighting Company (Glenwood Landing)	A	1929	-	-	3-Septic Tanks	Industrial
Oyster Bay Sewer District	A	1965+	1.7	1.2	Secondary (TF)	7,500
Port Washington Sewer District	A	1969+	3.4	3.0	Secondary (TF)	30,000
Roslyn	A	1950+	0.5	0.52	Secondary (TF)	4,500
West Long Beach Sewer District	A	1950+	0.7	0.7	Secondary (TF)	3,600
NEW YORK CITY						
Bronx County						
Hunts Point	B-2	1977+	153.5	200.0	Secondary (AS)	770,000
Kings County (Brooklyn)						
Coney Island	A	1965+	110.0	110.0	Secondary (AS)	535,000
Newtown Creek	B-2	1967	280.3	310.0	Intermediate (AS)	2,500,000
Owls Head	B-1	1952	101.1	160.0	Intermediate (AS)	750,000
26th Ward	A	1975+	92.6	85.0	Secondary (AS)	385,000
New York County (Manhattan)						
Wards Island	B-2	1948+	192.1	220.0	Secondary (AS)	1,470,000
Queens County						
Bowery Bay	B-2	1978+	96.9	150.0	Secondary (AS)	1,000,000
Jamaica	A	1978+	101.6	100.0	Secondary (AS)	415,000
Rockaway	A	1978+	20.8	45.0	Secondary (AS)	90,000
Tallman Island	B-1	1964+	66.9	60.0	Secondary (AS)	251,000
Richmond County (Staten Island)						
*Arthur Kill Correctional Facility	B-2	1969	-	0.1	Secondary (AS)	1,000
*Elmwood Homes	B-2	1978+	0.5	1.0	Extended Aeration	8,000
*Elmwood Park Condominiums	B-2	1976	0.01	2.0	Secondary (RD)	700
*Heartland Village	B-2	1978+	0.5	1.0	Extended Aeration	7,000
*IS-7	A	1965	0.13	0.075	Extended Aeration w/ Sand Filtration	1,600
*Mount Loretto Home - Plant #1	A	1962+	-	-	Septic Tank	500
- Plant #2	A	1962+	-	-	Septic Tank	200
*Nassau Smelting & Refining	B-2	1973	-	0.43	Physical/Chemical	Industrial
Oakwood Beach	A	1956	20.2	15.0	Secondary (AS)	85,000
Port Richmond	B-2	1977+	32.8	60.0	Secondary (AS)	60,000
*Richmond Memorial Hospital	A	1936	-	-	Septic Tank	-
*Saint Joseph's School	A	1963	-	0.02	Septic Tank with Sand Filtration	900
*Village Green	B-2	1970	0.2	0.2	Extended Aeration	2,000
Rockland County						
*Clevepak Corporation	A	1976+	0.7	3.0	Secondary	Industrial
Joint Regional Sewerage Board	A	1971	2.7	8.0	Secondary (AS)	40,000
*Kay-Fries Chemicals, Inc.	A	1972	-	0.5	Extended Aeration	Industrial
*Orange & Rockland Utilities	A	-	-	-	Secondary (AS)	Industrial
Orangetown Sewer District	A	1968+	6.9	7.1	Secondary (TF)	60,000

WASTEWATER TREATMENT PLANTS
Discharging into the
INTERSTATE SANITATION DISTRICT WATERS
1 9 7 8

Plant	ISC Receiving Water Classification	Date of Const.	Flow MGD Average	Flow MGD Design	Type of Treatment	Estimated Population Served (1970-77)
NEW YORK (Continued)						
Rockland County (continued)						
Palisades Interstate Park						
(Bear Mountain Plant)	A	1951+	0.06	0.25	Secondary (TF)	Seasonal
(Tallman Mountain Plant)	A	1969	0.004	0.01	Extended Aeration	Seasonal
Rockland County Sewer District #1	A	1968+	14.7	10.0	Secondary (AS)	121,000
Stony Point	A	1969	0.8	1.0	Secondary (AS)	10,000
Suffolk County						
*Harbor Club Apartments	A	1967	0.04	0.1	Extended Aeration	400
Huntington Sewer District	A	1969+	1.9	1.6	Secondary (TF)	8,000
*Kings Park	A	1974+	0.7	2.0	Secondary (AS)	8,000
Northport	A	1973+	0.3	0.3	Secondary (AS)	3,000
***Port Jefferson Sewer District	A	1975+	2.1**	2.5	Primary	17,000
Westchester County						
*American Yacht Club (Rye)	A	-	Seasonal	-	2-Septic Tanks	Seasonal
Briarcliff Manor - River Road	A	1977+	-	0.04	Septic Tank	200
- Scarborough Dock	A	1977+	-	0.11	Imhoff Tank	1,000
Buchanan	A	1962	0.17	0.55	Secondary (AS)	2,500
*Coach Light Square Condominiums	A	1971	0.05**	0.06	Secondary (AS)	800
*Con Rail Harmon Shop (Croton)	A	1973+	0.1	0.1	Physical/Chemical	Industrial
Croton-on-Hudson	A	1950	1.0	0.75	Primary	6,500
*Fee Oil Terminal	A	1954	-	-	Septic Tank	-
North Tarrytown	A	1940+	2.2	1.7	Primary	8,000
Ossining - Liberty Street	A	1939	0.7	1.0	Imhoff Tank	6,000
- Water Street	A	1939	1.7	2.0	Primary	12,000
*Ossining Correctional Facility	A	1950+	0.3	0.6	Primary	-
Peekskill	A	1953	3.4	4.0	Primary	21,000
Port Chester	B-1	1965+	7.8	6.0	Primary	27,000
*Shenerock Shore Club (Rye)	A	-	Seasonal	-	Septic Tank	Seasonal
*Springvale Apartments Company	A	1959	0.1	0.1	Secondary (TF)	1,000
Tarrytown	A	1940+	1.5	1.5	Primary	14,000
Westchester County D.P.W.						
Blind Brook (Rye)	A	1963+	3.4	5.0	Primary	15,500
Mamaroneck	A	1965+	17.7	18.0	Primary	95,000
New Rochelle	A	1955+	17.7	15.0	Primary	80,000
Yonkers Joint Treatment	B-1	1960+	80.0	60.9	Primary	585,000
FEDERAL & MILITARY						
Camp Smith (Westchester Co.)	A	1965	0.03	0.24	Secondary (TF)	-
FDR Veterans Administration Hospital (Westchester Co.)	A	-	0.23	0.4	Secondary (TF)	3,000
Gateway National Park (Floyd Bennett Field, Kings Co.)	A	1942	0.13	0.4	Secondary (TF)	700
Military Ocean Terminal (Hudson Co.)	B-1	1972+	0.13	0.18	Secondary (AS)	2,000

\+ Year of major additions or reconstruction

* Private, institutional or industrial sewage treatment plants

** Estimated Flows

*** Includes flows from SUNY & Stony Brook

(AS) Activated Sludge

(TF) Trickling Filter

(RD) Rotating Disc

PROCEDURE FOR ACCESS TO RECORDS

The Commission adopted the following:

1. a. It is the policy of the Commission to provide access to its records by members of the general public who express an interest therein. Such access shall be provided at the offices of the Commission during regular office hours. A records officer of the Commission may require that the request be made in writing and specify with reasonable particularity the documents or types of records desired for inspection.

   b. In order to assure that the records of the Commission are maintained in good order and so as not to interfere unduly with the conduct of normal work, the Commission will retrieve from its files the item or items in its possession which are the subject of a request. Except with the special written permission of the Commission, none of its records or other file materials may be removed from the office of the Commission where kept, provided that a member of the Commission staff may use a record or file material at whatever place is made necessary or convenient in furtherance of the Commission's work.

   c. Records of the Commission may be inspected and may be copied by the person so requesting at his or her own expense. The Commission may furnish copies of its records to an agency of a member state and to the federal government without charge. The guiding principle shall be that the governmental entities contributing to the financial support of the Commission will not be charged for copies of records or other file material unless furnishing them without charge would place an unreasonable financial burden on the Commission. In the discretion of the Commission, members of the general public may be provided with copies without charge if the number of pages and cost to the Commission is not great and if administrative convenience will be served by not making a charge. Except as otherwise provided in or pursuant hereto, copies of records or file material made by the Commission and furnished to requesters shall be at a charge fixed by the Director and Chief Engineer with the approval of the Commission. Such charges shall include a per page charge, and a charge for any data retrieval involved. Charges shall be reasonably calculated to cover costs to the Commission.

   d. The Commission recognizes that the laws of one or more of its member states may provide for or require confiden-

tiality or restrictions on dissemination of certain records or information in order to protect trade secrets. The Commission also recognizes that it is required to observe the conditions of any grant or contract it may have or receive from the federal government and that it is obligated to observe any applicable limitations contained in federal law which, in particular instances, may restrict the availability of data or information. Unless such laws or requirements make necessary the withholding or limitation of access to its records in a particular instance, the policies and procedures set forth herein shall apply.

e. The Executive Director and Chief Engineer of the Commission shall be its records officer and shall administer this Procedure for Access to Records. The Executive Director and Chief Engineer may designate any other full-time employee of the Commission also to perform the functions and responsibilities of a records officer.

2. The per page reproduction charge shall be 25 cents.

3. The Commission recognizes that data retrieval costs are likely to vary from instance to instance and that it is not practicable to fix them according to a predetermined schedule. Accordingly, the Commission directs and approves the calculation by its staff of such costs in each instance in accordance with the principles contained in its procedure.

G L O S S A R Y

BOD	biochemical oxygen demand
CO	carbon monoxide
DEC	Department of Environmental Conservation
DEP	Department of Environmental Protection
EPA	Environmental Protection Agency
h	hour
km	kilometers
MGD	million gallons per day
mg/l	milligrams per liter
NAAQS	National Ambient Air Quality Standard
NH_4^+	ammonium
NOAA	National Oceanic & Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
O_3	ozone
PASNY	Power Authority of the State of New York
PCB	polychlorinated biphenols
ppb	parts per billion
ppm	parts per million
$SO_4^=$	sulfate
SPDES	State Pollutant Discharge Elimination System
STP	sewage treatment plant
TSP	total suspended particulates
µg	micrograms
µm	micrometers
WPCP	water pollution control plant