

INTERSTATE SANITATION COMMISSION

A TRI-STATE ENVIRONMENTAL AGENCY

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ENVIRONMENTAL CONTROL ACTIVITIES

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INTERSTATE SANITATION COMMISSION

A TRI-STATE ENVIRONMENTAL AGENCY

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ENVIRONMENTAL CONTROL ACTIVITIES

The Interstate Sanitation Commission is a joint agency of the States of New York, New Jersey, and Connecticut. It has responsibilities with respect to regional environmental management. For the most part, its work has concerned water and air quality. However, contamination of one element of the environment, or efforts to avoid it, often have effects on land, water and air resources. As these interrelationships have become more apparent, the Commission's activities have necessarily broadened.

Although pollution of various kinds began to occur at least as early as the first Dutch and English settlements, it became persistent and was recognized to be serious only at the turn of the century. Effects on water began to receive public attention first. It was in 1903 that the New York Bay Pollution Commission was established by the New York State Legislature to study the effects of sewage on the harbor waters. Its report showed an immediate need for sewage treatment. Pollution in the New York Harbor consisted of putrefying deposits of sewage solids on the bottom and shores of the bay and of floating matter of sewage origin. Discharges of oil, refuse and other wastes from industrial plants and shipping augmented the effect of pollution from sewage. Large scale municipal garbage dumping into the waters of the region was a source of interstate friction during the early years of the century. Tidal currents cause water pollution in one state to affect the riverine, harbor and ocean waters in the other state. Litigation between New York and New Jersey brought an opinion from the United States Supreme Court that such a matter might better be settled by an interstate compact than by judicial intervention. There had also been a lawsuit over sewage treatment plant discharges which originated in one state and polluted water in the other.

Although not recognized until several decades later, air pollution from emissions in one part of the region spreads to the atmosphere of the nearby states. Since the winds in this part of the country are generally prevailing westerly, it is popularly supposed that it is only New Jersey air contamination which moves into New York and Connecticut and New York pollution which also plagues Connecticut. The Commission's studies have shown that while more air contamination may move from west to east, significant amounts travel in the other direction. Consequently, many emissions in all parts of the North Jersey-Southeast New York-Southwest Connecticut Region intermingle or otherwise have impacts of interstate significance.

Evidence of these interstate consequences may be seen or smelled along shorelines, in the waters, on vegetation, in deposits of soot, grime and other particulate matter, and in raised levels of discomfort. Conversely, improvements made in one part of the region can have beneficial effects on areas within the other states.

Regional environmental quality is not limited in importance to what can be tested by human senses. Some of the contaminants which cannot be detected by the eye or nose are equal or even greater threats to health and economic welfare.

While these considerations were appreciated much less forty or fifty years ago than they are today, sufficient understanding of the regional aspects of water quality had developed to bring the Interstate Sanitation Commission into existence (initially as a water pollution control agency only) in 1936. The vehicle was the enactment by New Jersey and New York of the Tri-State Compact creating the Commission. Connecticut took similar action in 1941.

The Commission

The agency consists of five Commissioners from each state. They elect a Chairman, two Vice-Chairmen and a Treasurer. The Commissioners meet four times a year to set policy and to make decisions affecting the operation of the agency. An Executive Committee composed of the Chairman and two Vice-Chairmen (one committee member from each of the three states) can act between meetings. The Director and Chief Engineer is responsible for day-to-day operations and is in charge of the staff. The Commission's work is scientific, investigative, administrative, legal, and planning in character. The staff includes professionals, technicians, and a field force with education and experience necessary to carry out the Commission's responsibilities.

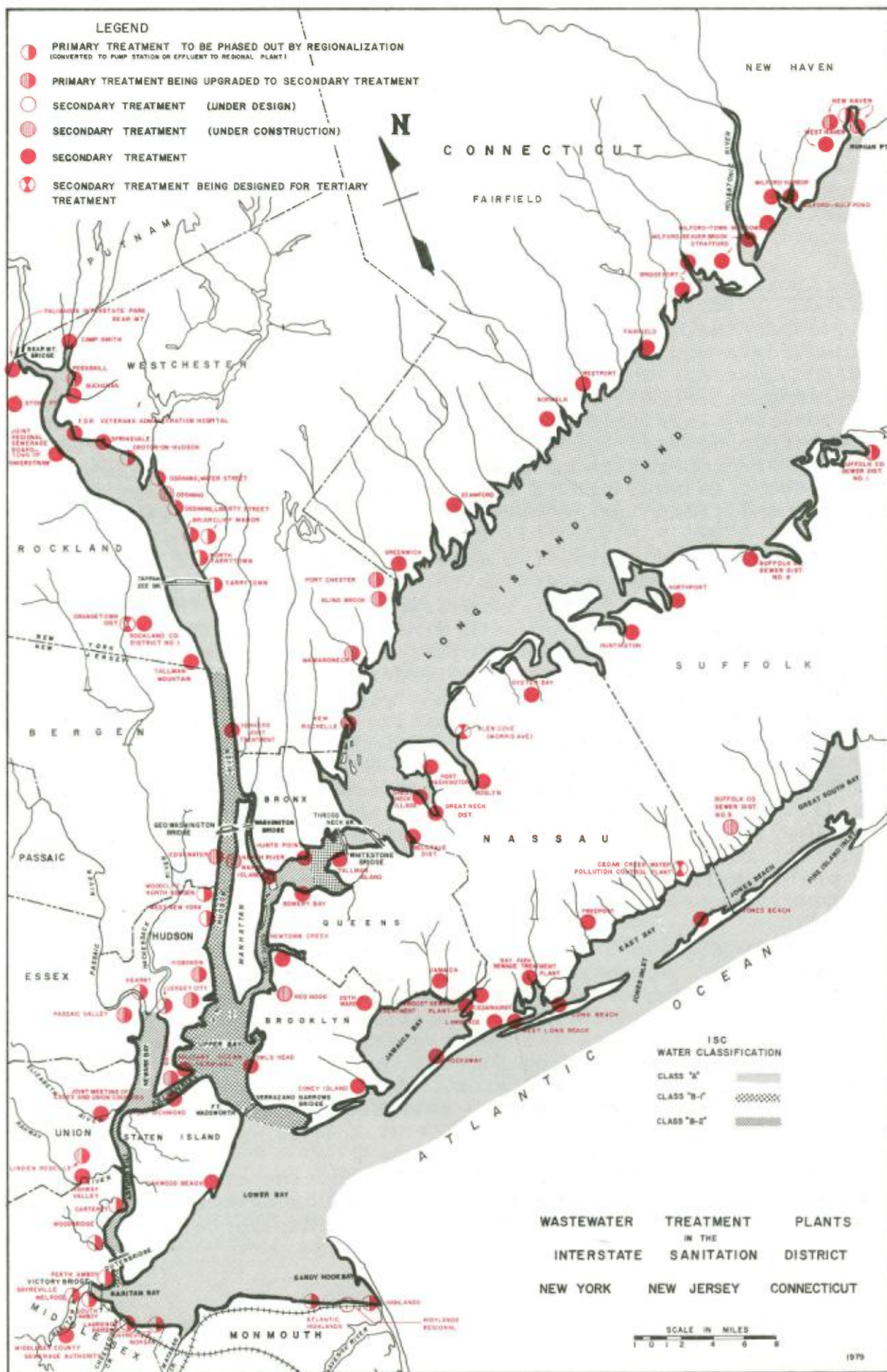
An important asset of the Commission is its laboratory which is used to analyze the environmental samples collected by its own personnel and others. The laboratory functions as a regional resource, not only for the agency's own work but for the member states and the federal government.

Funding

Operating funds are derived from the contributions of the three member states (New York, New Jersey, and Connecticut). This funding is supplemented by federal monies under Section 106 of the Clean Water Act and by funds for special projects.

The Region Served

The compact established the Interstate Sanitation District which is the geographic area on which its water quality activities are based. The District includes all tidal waters comprising the western part of Long Island Sound (the boundary is a line from New Haven to Port Jefferson), all waters of the New York-New Jersey Harbor complex, the Hudson River from its mouth to Bear Mountain Bridge, and the territorial ocean waters off the region



just described.

The air quality activities of the Commission center over the land and water areas within and adjacent to the Interstate Sanitation District, but the Commission's jurisdiction is not geographically limited to that area. It may perform its studies and investigations wherever necessary or appropriate to serve regional purposes.

Water Quality

Since the waters in different parts of the region are intended for a variety of uses, the compact provides for a classification system. The areas in which the waters are used for primary contact recreational purposes and for fish culture and propagation are classified as "A" waters. Class "B" waters are not expected to be used for primary contact recreation, shellfish culture or propagation of fish life. Programs for the inspection of sewage treatment plants and for the survey and analysis of actual conditions in the waters of the region were established.

In the early years, the Commission concentrated on studying the condition of the waters in the different areas of the District and the state of existing sewage treatment. A sampling program was established to determine both the quality of the Interstate Sanitation District waters and to check for plant compliance with the compact and implementing regulations. The Commission made sewage treatment plant construction a primary goal and has been instrumental in requiring many municipalities to begin treatment of their wastes or to improve treatment already being provided. Partly because of the Commission's vigilance and efforts there has been much construction in the years since World War II. However, sewage treatment plants are not yet completed. Some New York City locations still discharge raw wastes and a number of municipalities have not upgraded their facilities to the point where they meet present requirements of the states and the Commission.

The Commission is also concerned with discharges of wastes from industrial sources. Requirements pursuant to the Compact apply to such sources as well as to municipal sewage. Inspections are made of industrial facilities. In addition to monitoring for compliance with its own requirements, the Commission performs compliance monitoring for the United States Environmental Protection Agency and the states. Reports are made on the extent to which discharges meet state, interstate, and federal requirements.

Keeping discharges into the waters of the region within acceptable limits is an objective pursued by several techniques. The Commission helps negotiate voluntary compliance. Another

objective is to achieve equity and balance among discharges and treatment requirements in the several parts of the region. As a matter of policy, the states are expected to undertake enforcement actions. However, the Commission also has enforcement powers and has issued its own abatement orders when necessary. It has also taken enforcement action in the courts when it has seemed more appropriate for the Commission than for a member state to do so.

Construction and proper operation of waste treatment plants is not a complete answer to the water pollution problems of the region, unless accompanied by other measures. The prevalence of combined sewers which carry sewage, industrial wastes and storm-water runoff severely limits the ability of treatment operations to improve and maintain satisfactory water quality. The Commission's studies and surveys have established that these combined sewers discharge tremendous quantities of solids and other accumulated material whenever it rains. They may actually amount to as much as 50% to 75% of sewage and industrial waste solids generated for the entire year. These pollutants are accumulations which settle in the sewers over long periods of time and are flushed directly into the river and harbor areas without ever reaching treatment plants. Much work remains to be done before the combined sewer problem can be ameliorated because corrective action will be costly and presents numerous technical problems. If some major new housing developments and other large contributors to sewage flows in combined sewers were required to install their own treatment facilities and outfalls, increased accumulations of solids which never reach the municipal treatment plants could be prevented. Such an approach would not relieve the need to address the massive existing problem but it could help to keep it from getting worse.

Air Quality

The Commission's interstate air quality program commenced operations in 1962, after New York and New Jersey had enacted supplemental statutes depicting its nature. The program was extended to Connecticut in 1969. Emphasis is on the investigation and study of interstate air pollution problems and general conditions which affect air quality on an interstate basis.

An important part of the program is responding to citizen complaints concerning air quality. If it appears that the cause of the difficulty is a source within the complainant's state, the resident is referred to the appropriate state or municipal agency. However, if the source is unknown or if it seems possible that it emanates from another state, the Commission's own field personnel investigate. To facilitate timely receipt of complaints, an answering service is in continuous operation whenever the Commission office is closed. The result is 24 hour-a-day,

365 day-a-year coverage.

Whenever investigation confirms that a complaint is interstate in character, the Commission notifies the state or local agency with enforcement jurisdiction in the area where the emission originates.

Studies of factors contributing to regional air quality conditions are an integral part of the air pollution program.

Interstate Projects and Programs

The Commission has been in operation for approximately half a century. This period has been long enough to see major changes in the role of government vis-a-vis the environment. The relative positions of the federal government and the states have also undergone dramatic alterations. When the Commission was organized, the federal government did not have a comprehensive environmental program. It engaged in only a few small scale activities related to water pollution and virtually none dealing with air quality. Governmental responsibility for all phases of the environment was lodged with the states, but actual management and regulatory activities were modest and fragmentary by today's standards.

When the Tri-State Compact was enacted, none of the member states had a comprehensive water pollution control law, nor was there any statute like the Federal Clean Water Act. Air pollution control was limited almost entirely to municipal smoke control ordinances. Since a primary function of the Commission is to further coordination on a regional basis, its activities must show sensitivity to the programs of other governmental entities and to fill in the gaps resulting from their individual jurisdictional limitations.

A limited number of illustrations cannot give a full idea of the range of Commission activities, either historically or on a current basis. However, it is hoped that they may serve to represent types of situations, conditions and problems around which the Commission's activities are built.

Treatment Plant Inspections and Water Surveys

The best way to ascertain what the contribution of individual dischargers is to the pollution load carried by the waters of the District, is to inspect treatment facilities (See map of Wastewater Treatment Plants in the Interstate Sanitation District) and analyze samples of the effluents being placed or permitted to flow into the waters. For this purpose, Commission field personnel visit and sample municipal and industrial treatment facilities on a routine schedule. They observe conditions

SUMMARY OF THE ANALYSES OF SAMPLES TAKEN AT
PLANT NAME & ADDRESS

TYPE OF TREATMENT: PRIMARY
DISCHARGE WATERWAY: ANNSVILLE CREEK I.S.C. WATER CLASSIFICATION: A

DATE OF SAMPLING: 07/17/78

SAMPLED BY: INT SANIT COMM
ANALYSES PERFORMED BY: INT SANIT COMM
I.S.C. INVESTIGATION NUMBER: 11212

TYPE OF SAMPLE: COMPOSITE SAMPLE
FLOW RATE (APPROXIMATE) DURING SAMPLING: 3.53 MILLION GALLONS PER DAY

PARAMETER	EFFLUENT	COMPLIES WITH COMPACT REQUIREMENT
FLOATING SOLIDS	YES	NO
TOTAL SUSPENDED SOLIDS	39	YES
FECAL COLIFORM DENSITY (1)	100	YES
CHLORINE RESIDUAL (1)	3.5	
FECAL COLIFORM DENSITY (2)	<10	YES
CHLORINE RESIDUAL (2)	3.3	
FECAL COLIFORM DENSITY (3)	<10	YES
CHLORINE RESIDUAL (3)	3.5	
FECAL COLIFORM DENSITY (4)	<10	YES
CHLORINE RESIDUAL (4)	4.2	
FECAL COLIFORM DENSITY (5)	<10	YES
CHLORINE RESIDUAL (5)	3.8	
FECAL COLIFORM DENSITY (6)	<10	YES
CHLORINE RESIDUAL (6)	3.8	
FECAL COLIFORM DENSITY (AVERAGE) ..	<15	YES
BIOCHEMICAL OXYGEN DEMAND	78	NO
PH	7.0	
OIL AND GREASE (VISIBLE)	NO	YES
TEMPERATURE	23.1	
CHLORIDES	66	
TOTAL CARBON	81	
TOTAL ORGANIC CARBON	52	
TURBIDITY (UNSETTLED SAMPLE)	33	
COPPER (SOLUBLE)	0.08	
COPPER (TOTAL)	0.10	
ZINC (SOLUBLE)	0.04	
ZINC (TOTAL)	0.08	
CHROMIUM (SOLUBLE)	0.01	
CHROMIUM (TOTAL)	0.04	
LEAD (SOLUBLE)	0.10	
LEAD (TOTAL)	0.10	
NICKEL (SOLUBLE)	<0.10	
NICKEL (TOTAL)	0.10	
CADMIUM (SOLUBLE)	<0.01	
CADMIUM (TOTAL)	<0.01	
MANGANESE (SOLUBLE)	0.08	
MANGANESE (TOTAL)	0.10	
MERCURY (TOTAL)	<0.0001	

NOTES:

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

FECAL COLIFORM DENSITY - ORGANISMS PER 100 MILLILITERS
FECAL COLIFORM DENSITY (AVERAGE) - ORGANISMS PER 100 MILLILITERS
CALCULATED USING A GEOMETRIC MEAN
PH - STANDARD PH UNITS
TEMPERATURE - DEGREES CENTIGRADE
TURBIDITY - NTU

at the plants and bring samples to the Commission laboratory for analysis. When special circumstances make it desirable, or in order to conduct compliance monitorings for the U.S. EPA or a state, special inspection visits are also made. Reports of inspections are prepared by the Commission and furnished to the discharger, the state agencies in which the facility is situated and to the U.S. EPA. The information so gathered is also available to all interested persons.

The value of having this kind of surveillance on a regional basis is the independence with which it is done. Under the Clean Water Act, all municipal and industrial dischargers are supposed to keep records on their own performance and to make reports. The individual states can also inspect facilities, although within the District they rely heavily on the Commission in place of using intrastate personnel and resources.

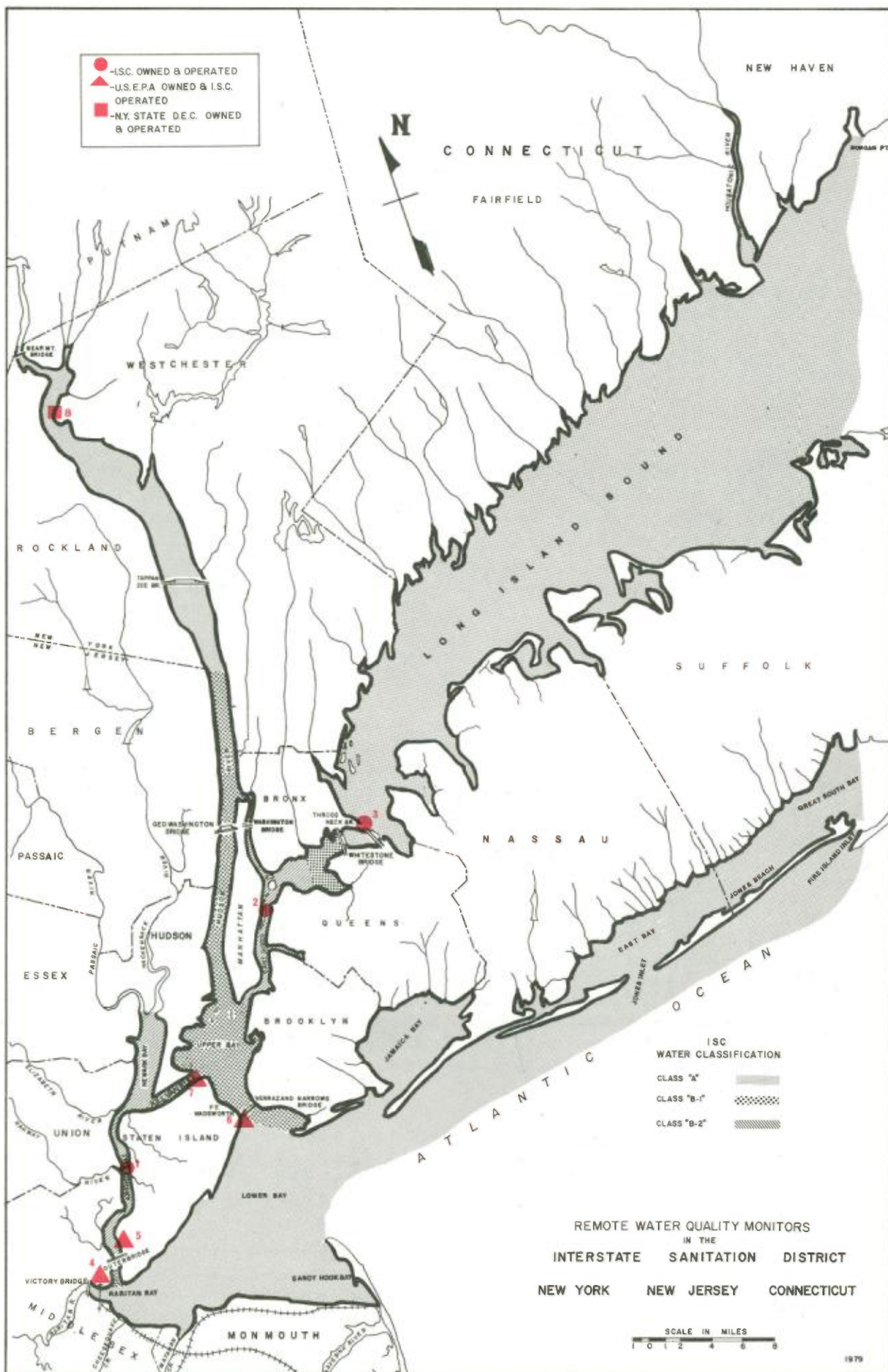
In the Compact, each state has pledged to the others faithful cooperation in abatement of pollution. The parties do not rely on the self-characterizations of performance by dischargers and individual jurisdictions. The Commission provides information from a source which is equally responsible to all states in the region.

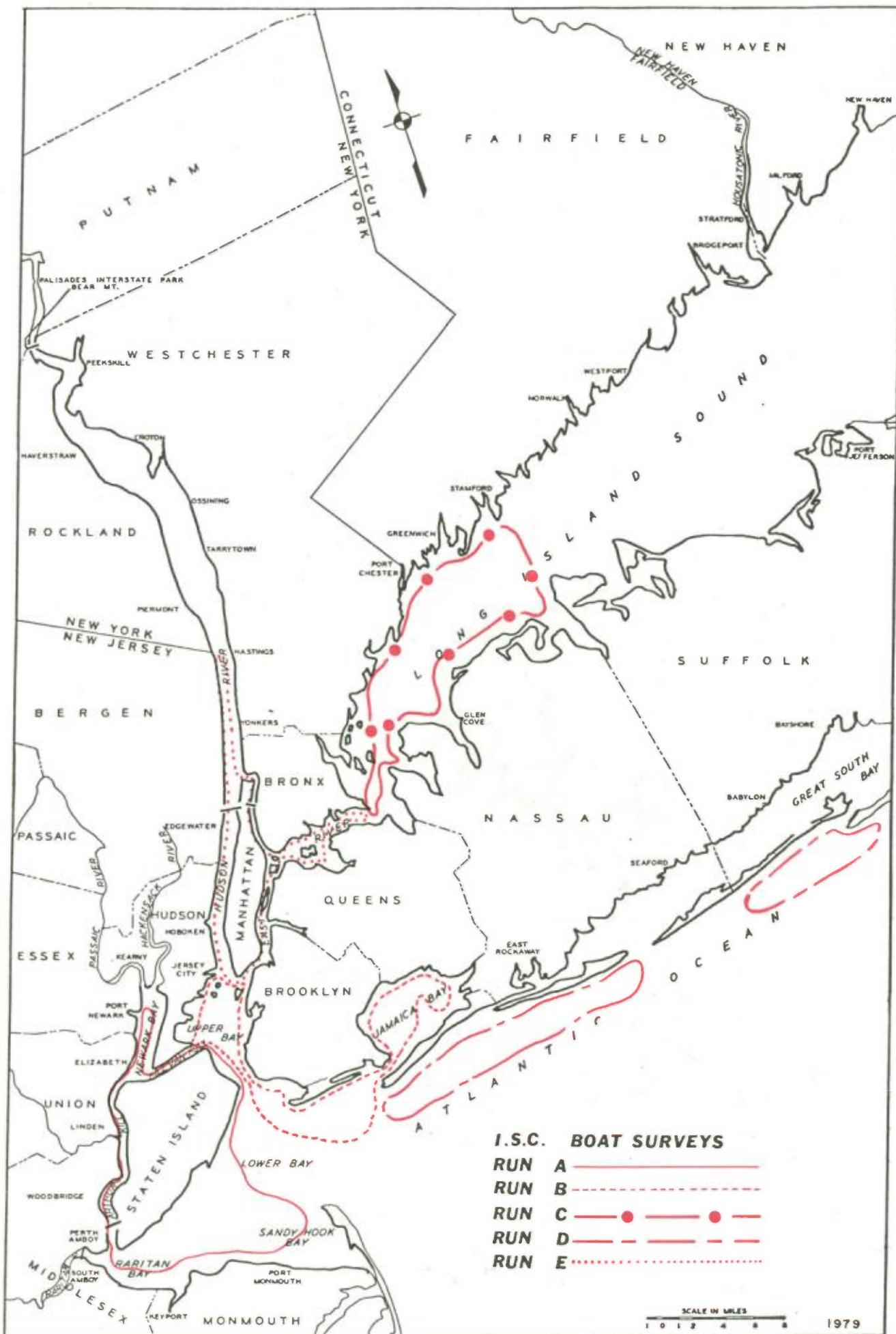
Continual assessment of water quality conditions in the Interstate Sanitation District is another activity of the Commission.

The Commission's monitoring program includes a combination of sampling from boats and remote automatic water quality monitors, some on loan from the U.S. EPA. The remote monitors are electronic devices (See map of the Remote Water Quality Monitors in the Interstate Sanitation District) installed at different locations in the District. Water from the adjacent river or bay is pumped continuously through the monitor which measures temperature, conductivity (a measure of its salinity), dissolved oxygen and pH (acidity). This information is sent by telemetry to the Commission offices hourly, 24 hours a day, 7 days a week.

The data are summarized daily and these reports are sent to the states and the U.S. EPA. A monthly summary is also prepared and distributed. Commission personnel clean and calibrate the monitors at least twice a week, thus assuring a high reliability of the data.

The sampling from boats is done on routes (See map of I.S.C Boat Surveys) which are traversed approximately ten times a year. Samples are usually taken at a depth of five feet below the surface. However, some surveys are conducted at multiple depths. A number of parameters are analyzed immediately on the boat while other samples are preserved for later analysis in the Commission





laboratory. The parameters vary according to the specific concerns at the time the body of water is being sampled. Among those included are temperature, suspended solids, biochemical oxygen demand (BOD), oil and grease, pH, chlorides, carbon, coliforms, nitrogen, heavy metals and toxic organic compounds. Several stations are part of a national network established by the U.S. EPA; they are sampled for specifically designated parameters on each boat survey.

Special boat surveys are done periodically, sometimes in cooperation with other agencies. For example, the Commission has participated in the Hudson River Field Week sponsored by the Hudson River Research Council. Two day samplings of the Hudson River from the Battery to Bear Mountain were done using established stations, but supplemented by transverse and multiple depth samples at a number of locations.

These surveys show that the District waters are still plagued by low dissolved oxygen and are contaminated by fecal coliform bacteria, oily wastes, and heavy metals. The problems will not be alleviated until raw discharges from untreated sewage and malfunctioning combined sewer systems are eliminated. Also important is adequate industrial pretreatment to remove heavy metals and other toxic chemicals.

The Commission does biological analyses on some of the samples collected on boat runs. From time to time the work is adjusted to assist in determining the quality of particular waterbodies. Chlorophyll and phytoplankton content are examined. If samples of bottom muds are collected, the presence and condition of a variety of marine organisms are checked. These observations and analyses are useful in establishing the overall ability of the waters to support marine life. They are also indicative of pollution levels.

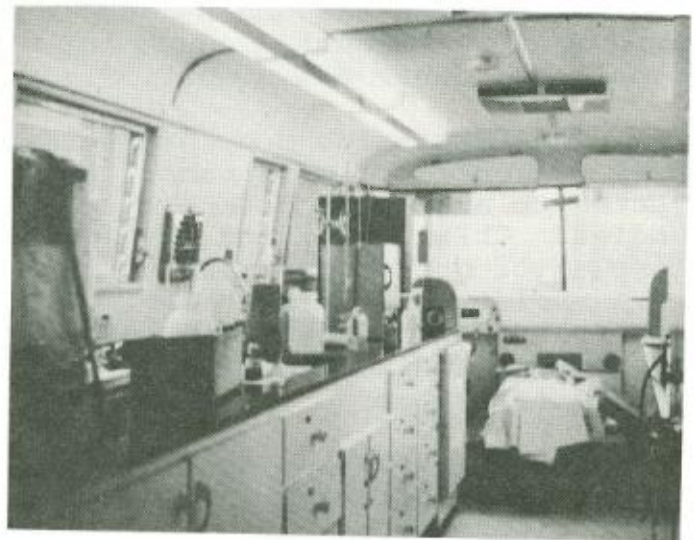
The Commission's treatment plant and natural waterbody monitoring provides the principal source of data on actual water quality conditions in the tidal waters of the region. The Commission uses its data in its own studies. It is also relied upon in projects of others such as the several "208 planning projects" performed by subregional groups during the past few years. Under Section 305(b) of the Clean Water Act, the states report on the status of water quality to the U.S. EPA, on a biannual basis. The Commission uses its data to evaluate the District waters for inclusion in these reports.

The Commission's data processing facilities enable it to store, retrieve, and analyze data in a timely fashion. In addition, the Commission enters its data into STORET, the national water quality data bank operated by the U.S. EPA.



Boat Surveys. Sanitarian retrieving sampler on a Commission boat survey.

Mobile Laboratory. Inside view of water pollution mobile laboratory. Personnel can perform many tests on-site. Laboratory also has facilities to preserve samples for later analysis at the Commission laboratory.



Combined Sewer Overflow Study. Sanitarians preparing to sample a combined sewer as part of a special Commission study.

The individual states and some of the local governments in the region do a limited amount of monitoring in the District for their own purposes. However, no one of them is able to obtain for itself a full examination or analysis of the waterbodies in which they have an interest. The reason is that each of these governmental units has only part of the waters involved within its jurisdiction. Since the waters flow across the political boundaries of the state and local entities, no one of them is regularly able to monitor the contributions to contamination in their own territory made by sources or conditions within the region but beyond their individual borders. The Commission operates throughout the Interstate Sanitation District.

The federal government also has jurisdiction over the entire area. It too studies water quality conditions. However, the federal activities are administratively divided between U.S. EPA Regions 1 and 2, the former including Connecticut waters and the latter those of New York and New Jersey. Furthermore, the responsibility of the federal regions is to implement national programs rather than to undertake indigenous regional action of the state or local government type.

Air Pollution Watch and Warning

As in many metropolitan areas, air pollution levels sometimes may reach a severity which calls for individuals, industrial establishments and governmental agencies to take counteracting measures. Periods of stagnant atmospheric conditions result in failure to dissipate the large accumulations of motor vehicle emissions, contamination from industrial sources and other daily contributions to deteriorated air quality. Because the tri-state region is the nation's largest population center and heavily industrialized, problems can require special attention. Interstate transport of pollutants makes it desirable to keep track of conditions on a regional basis. The Commission is the agency responsible for the operation of the regional watch and warning program.

The Air Quality Control Regional Air Pollution Warning System was first adopted in 1964 and, with technical updates, is still a part of the Commission's contribution to regional cooperation in air pollution problems. The system is activated when unfavorable meteorologic conditions exist and/or the acceptable levels of pollutants are exceeded, creating a possible threat to the public health. The contaminants in the system used as indicators are sulfur dioxide, particulates, carbon monoxide, and oxidants (See Criteria for Air Pollution Warning System Table).

There are telemetry stations operated by various state and local agencies in the region that monitor the air quality (See map of Locations of Air Monitoring Telemetry Stations in the New



Telemetry Receiving Units. Central receivers for remote instrumentation located throughout the Interstate Sanitation District. Three wind speed and wind direction receivers are shown on the left. The receiving unit for the remote automatic water quality monitoring system is shown center and right. This unit produces a printout of the data and punches a paper tape for computer processing.

Teleprinters. Each unit contains a modem which allows communication with a time share computer and with state and federal agencies.



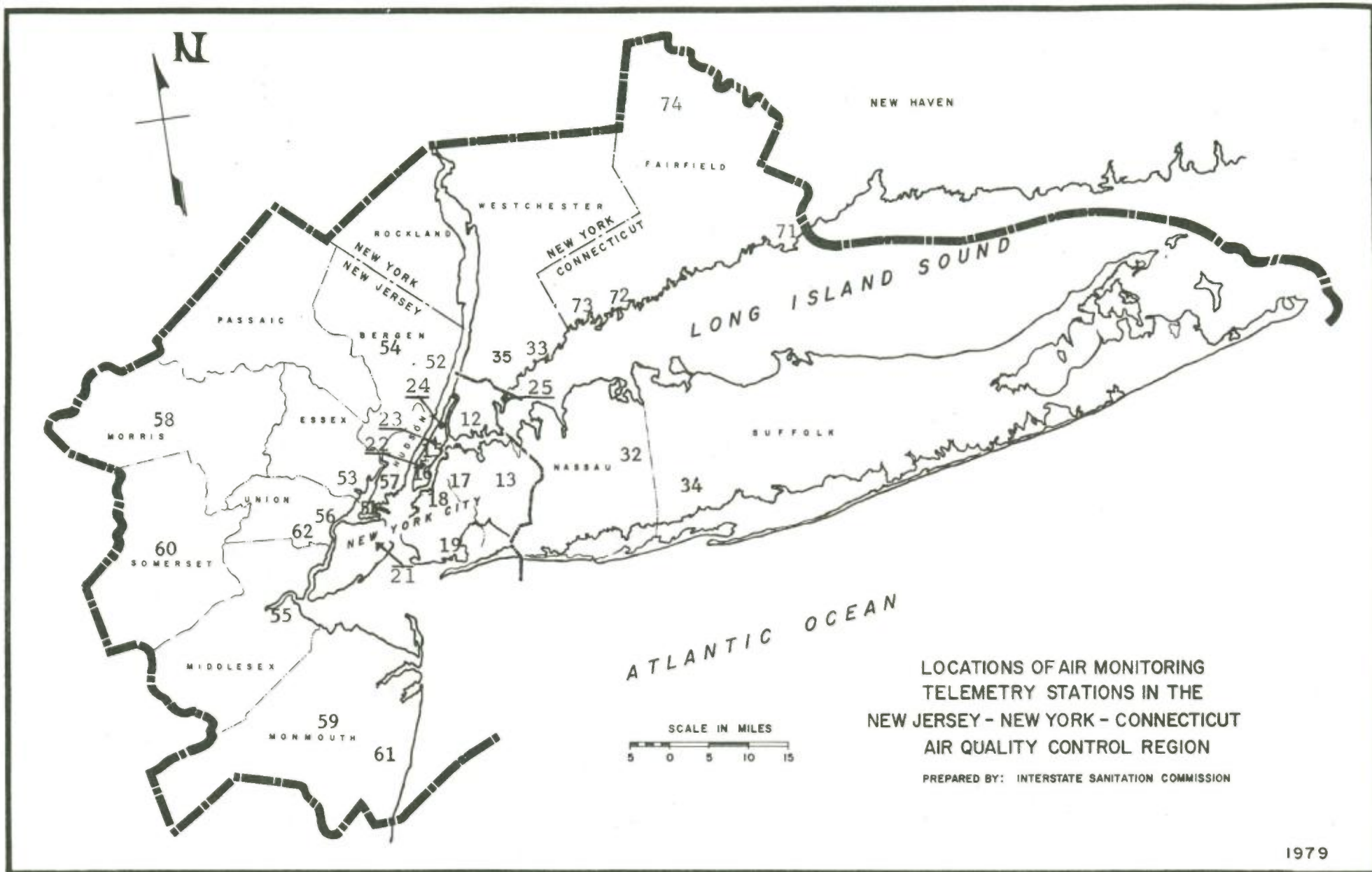
Data Processing. CRT terminal with dual tape cartridges, a printer and a multi-speed modem. This system is used to communicate with time share computers and with state and federal agencies.

C R I T E R I A F O R T H E A I R P O L L U T I O N W A R N I N G S Y S T E M

P R E R E Q U I S I T E	C O N T A M I N A N T	A L E R T			L O W E R I N G O F A L E R T S T A G E	T E R M I N A T I O N
		S T A G E I	S T A G E II	E M E R G E N C Y		
A* 36-Hour Stagnation Advisory with at least 12 hours remaining + Contaminant Concentration at or above a Criteria level at 4 stations or B* Contaminant Concentration at or above a Criteria level at less than 4 stations + Expectation that this condition will persist within part of -- or spread throughout -- the Region or C* Contaminant Concentration at or above a Criteria level + Forecast of sunshine and stagnation the following day which leads to an expectation of adverse con- taminant concentrations throughout a significant portion of the Region.	SO ₂	0.3ppm (6-hr.avg.)	0.5ppm (6-hr.avg.)	0.6ppm (24-hr.avg.)	From Emergency Stage: If contaminant level(s) decrease(s) to less than Stage II and there is expectation of cleans- ing of the atmosphere for a period of 24 hours, Stage I of the Alert is in effect.	A.Where system was entered through "Prerequisite A," termination will occur when the Advisory is rescinded; or B.Where system was entered through "Prerequisite B," termination will occur when contami- nant levels decrease to less than Stage I and there is an expectation of cleansing of the atmosphere for 24 hours; or C.Where system was entered through "Prerequisite C," termination will occur when contam- inant concentrations decrease to less than Stage I and there is no fore- cast of sunshine and/or stagnation on the following day.
	or					
	Particulates	5.0 COHs (6-hr.avg.) or 3.0 COHs (24-hr.avg.)	7.0 COHs (6-hr.avg.) or 6.0 COHs (24-hr.avg.)	7.0 COHs (24-hr.avg.)		
	Product SO ₂ x Particulates	0.5ppm - COHs (24-hr.avg.)	0.8ppm - COHs (24-hr.avg.)	1.2ppm - COHs (24-hr.avg.)	From Stages I and II: These Stages will be lowered only through termination.	
	or					
	CO	15ppm (8-hr.avg.)	30ppm (8-hr.avg.)	40ppm (8-hr.avg.)		
	or					
	Oxidants or		0.25ppm (4-hr.avg.)	0.35ppm (4-hr.avg.)		
	NO ₂	0.8ppm (1-hr.avg.) or 0.2ppm (24-hr.avg.)	1.2ppm (1-hr. avg.) or 0.3ppm (24-hr.avg.)	1.6ppm (1-hr.avg.) or 0.4ppm (24-hr.avg.)		

*THE INTERSTATE SANITATION COMMISSION MAY RECOMMEND CALLING AN ALERT BASED UPON AN EVALUATION OF CONDITIONS WHEN LESS THAN 4 STATIONS ARE AT OR ABOVE A CRITERIA LEVEL.

Revised May 1973



Jersey-New York-Connecticut Air Quality Control Region). When the Warning System is activated, the Commission offices are staffed on a 24 hour basis, and become a clearinghouse for receiving and disseminating the data collected by these other agencies.

The major purpose of the warning system is to alert industries and members of the general public so that they can take actions to avoid or minimize conditions endangering health.

Transport of Pollutants

Studies made by the Commission show that while most of the air pollution generated within the region is dissipated locally, substantial quantities of contaminants do move across state lines. The result of this interstate movement is a significant factor in the quality of the atmosphere in many parts of the region. In fact, truly long distance transport from the Midwest, Southeast and Canada occurs. A number of specific pollutants are under investigation.

Photochemical oxidants (ozone) have been the subject of several projects. A number of aerial ozone investigations have been done. Measurements have been taken from an airplane furnished to the Commission for the purpose by the State of New Jersey. Results indicate that local transportation control plans confined to the study area cannot solve the problem entirely because they would normally have no effect on the upwind ozone concentrations.

Long-range transport of ozone has also been studied using data provided by a 17 state cooperative effort. Combined analyses of the data and weather maps show that most ozone episodes accompany high pressure systems entering the region from the west.

Toxic airborne elements are another subject of great concern. In cooperation with the Institute of Environmental Medicine, New York University Medical Center, the levels and size distribution of various toxic metal elements found in this region were described. Trends at sites in New York, New Jersey, and Connecticut were examined from 1972 to 1976. Metals studied were cadmium, zinc, lead, chromium, and nickel. Lead was the most prevalent element by far, but all parameters decreased during the 5-year study period.

Methods of sampling of outdoor air quality with reference to pollution by suspended particulates were studied by a committee of task forces from the New Jersey Department of Environmental Protection, the New York City Department of Air Resources, the New York State Department of Environmental Conservation, the Polytechnic Institute of New York, the Mt. Sinai School of Medi-

cine, and the Cooper Union. The Commission coordinated the project and produced the final report.

New York Summer Aerosol Studies have been done since 1976 to investigate the properties of aerosol in the area. Samples and measurements of sulfates and aerosol were taken at High Point, New Jersey and in New York City. Results showed that much of the aerosol consists of particles in the submicron size range and is formed photochemically. This creates the haze that causes reduced visibility in the area on days with high ozone concentrations. Results also confirmed that some of the sources of the pollutants are as far away as the Midwestern United States and the Southeastern Middle Atlantic States.

Benzene Study

A pollutant which is suspected of being detrimental to public health is benzene. It is emitted to the atmosphere from a variety of sources, including certain kinds of manufacturing establishments and automobile exhausts. There was concern in New York that benzene levels, due in significant part to emissions from New Jersey sources, might be dangerously high. This led in 1979 to a request from the New York State Department of Environmental Conservation that the Commission study the situation.

At the onset of the study which commenced in September 1979, it was not known to what extent benzene was present in the air of the interstate border areas of New York City, nor was there any authoritative information as to airborne amounts which would properly be considered a danger to health.

Sampling at seven sites on Staten Island, one in Brooklyn, and several in New Jersey began in the fall of 1979. The Commission is also working with the state health departments to determine the possible impact of ambient benzene on the public health.

In order to do the field sampling, the Commission found it necessary to devise special equipment as well as to perform the fieldwork and laboratory analyses. At about the same time, Connecticut wished to ascertain conditions with respect to benzene in the atmosphere of an area outside the Commission's normal geographic ambit. Nevertheless, the Commission has undertaken to construct equipment for Connecticut and provide technical assistance.

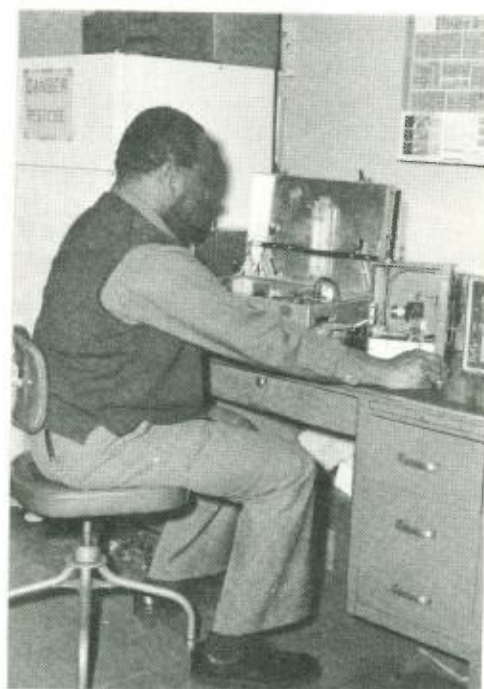
Hazardous Incidents and Materials

The production, transportation and disposal of hazardous substances received very little attention as an environmental and health problem until a few short years ago. Contamination of surface and groundwaters, adverse effects on air quality, and



Mobile Air Sampling Unit. Van is used for on-site measurement of air pollutants and for special studies, such as the benzene sampling program.

Benzene Sampling. "State of the art" benzene sampler built and operated by the Commission.



Gas Chromatograph. This unit is used for the analysis of many parameters, including benzene, PCB's and pesticides.

deterioration of land resources have occurred over many generations as the result of toxic spills and disposal or from long-term storage of poisonous, flammable, corrosive or otherwise dangerous wastes. Accumulations and ever increasing generation of these substances have reached proportions where some of the deleterious effects of long-standing practices have become apparent.

Certain aspects of the situation have regional impacts. Transportation of hazardous substances is of interjurisdictional concern. Also, the short distances between state boundaries in the region served by the Commission mean that a significant number of geographic areas offer opportunities for dangerous occurrences to spread contamination in more than one jurisdiction.

The Commission's work in this field consists of studies to identify elements of hazardous incident and materials management which could benefit from a regional approach. Involved are measures for risk prevention or reduction, planning, preparedness and response. When such are found, the Commission considers its function to be assistance to the jurisdictions involved in developing the requisite cooperative measures.

For example, it has become increasingly recognized that a uniform manifest system for use by states on a regional basis--and perhaps nationally--in connection with shipments of hazardous wastes is highly desirable. A manifest is a document identifying and giving selected information required by law or useful to the parties to the shipment and to state and federal regulatory and planning agencies. The Commission has provided the technical and professional services and administered an effort to develop such a manifest system. The three member states, and in this instance, approximately a dozen others comprising the entire northeastern part of the country, were the jurisdictions directly involved. The objective of the effort has been to provide the states with a multipurpose tool which would gather information that they could use in a variety of waste management activities, including but more extensive than those mandated by the federal government.

Sludge

The effect of treating sewage and other wastes discharged into municipal sewer systems is to produce liquid effluents and sludge. The liquids are discharged into the waters of the region and have a direct effect on their quality. The sludge has been disposed of by several methods, with the largest tonnages being dumped in the nearby ocean. While there has been considerable controversy on the subject, the objective of the U.S. EPA for some time has been to end ocean disposal after 1981. In view of the situation, the Commission in 1974 undertook a study of sludge disposal methods in order to make comparisons among them and to determine what the best alternatives would be for the region.

An exhaustive review of methods already being practiced (both in the region and elsewhere) produced the conclusion that sludge treatment by combustion and some form of land application were the two practicable alternatives to ocean disposal, although each would be much more costly than continuation of present barging.

The study of land application techniques showed that after composting, municipal sludges could be applied to open lands such as highway borders and certain park areas, provided that application rates were kept within prudent limits. More sludge could be beneficially applied to such lands, if pretreatment requirements were instituted or strengthened to remove toxic heavy metals which cannot be sufficiently neutralized or removed in sewage treatment plants.

Of the two leading combustion possibilities, pyrolysis promises to create less air pollution than incineration. However, pyrolysis of sludge is a relatively new approach for which there is little satisfactory experience to date. Accordingly, the Commission undertook a pilot plant testing program involving actual municipal sludges generated in the region so that further experience with the method could be obtained.

The examination of sludge management has been appropriate for regional study rather than for responsibility on a single state or local basis. A number of county and municipal waste systems throughout the region are faced with the need to consider the same choices and have been in a position to benefit from a study designed to take the situations of governments in the region as a whole into consideration.

Moreover, methods for sludge management involve technical and policy considerations of effects on the several environmental media. Continued ocean disposal involves effects on interstate waters. Diminution or cessation of ocean dumping and choice of one of the other available methods raises questions of comparative effects on land resources, water quality and air quality. Thus, the Commission has of necessity dealt with all three of these environmental media.

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