New England Interstate Water Pollution Control Commission

7th Annual Report 1954
To Their Excellencies, the Governors of Connecticut, Massachusetts, New Hampshire, New York, Rhode Island, Vermont, and the Legislatures of the Respective States:

On behalf of the Commission, I am honored to submit herewith its Seventh Annual Report setting forth the Commission's activities and achievements during the past year.

The accomplishments recorded in this report represent further progress in preserving and improving the quality of our interstate waters that they may continue to bring social and economic prosperity to the area. The progress of the Commission illustrates, particularly, the effectiveness of interstate cooperation in dealing with a regional resource problem.

The Commission expresses its appreciation for the interest and support of the many persons and agencies concerned with water resources conservation. Especially gratifying and an added incentive to the Commission has been the cooperative response and assistance of the State governments in furthering the programs of pollution control.

Respectfully submitted,

Roger L. Putnam
Chairman

September 1, 1954
NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION

ORGANIZATION 1953-1954

OFFICERS
HARRY MANSON, Chairman
ROGER L. PUTNAM, Vice-Chairman
JOSEPH B. HANLON, Treasurer

COMMISSION MEMBERS

CONNECTICUT
DEXTER D. COFFIN
President, C. H. Dexter & Sons, Inc., Windsor Locks
LEO A. KRAUS
Chairman, Redevelopment Commission, Waterbury
STANLEY H. OSBORN, M.D.
Commissioner of Health
LEON F. SALLEY
Personnel Counselor, Bigelow-Sanford Carpet Company, Inc., Thompsonville
WILLIAM S. WISE
Director, State Water Commission

NEW HAMPSHIRE
JOHN M. ALLEN
President, Penacook Fibre Company, Penacook
WILLIAM A. HEALY
Director, Division of Sanitary Engineering, State Department of Health
HARRY MANSON
Chairman, Water Pollution Commission
EDWARD R. THORNTON
Commissioner, Public Utilities Commission
WALTER G. WHITE
Chairman, Water Resources Board

RHODE ISLAND
LACHLAN F. BLAIR
Chief, Planning Division, State Development Council
HAROLD N. GIBBS
Fish and Wildlife Expert, Barrington
WILLIAM J. HALLORAN
Chairman, Blackstone Valley Sewer District Commission
THOMAS E. HARDING
Deputy Director, State Department of Public Works
WALTER J. SHEA
Chief Sanitary Engineer, State Department of Health

MASSACHUSETTS
JOHN F. CASEY
Chief Sealer of Weights and Measures, Somerville
LOUIS D’ALLESANDRO
President-Treasurer, Crown Oil Burner Manufacturing Company, East Boston
JOSEPH B. HANLON
Superintendent, Sewage Treatment Plants, Metropolitan District Commission
SAMUEL B. KIRKWOOD, M.D.
Commissioner, Department of Public Health
ROGER L. PUTNAM
Chairman of the Board, Package Machinery Company, Springfield

NEW YORK
MORRIS M. COHN
Editor, Case-Sheperd-Mann Publishing Corp., New York City
HERMAN E. HILLEBOE, M.D.
Commissioner, State Department of Health
HAROLD KELLER
Commissioner, State Department of Commerce
MILTON J. NEUBAUER
Chemical Engineer, West Virginia Pulp & Paper Co., Mechanicville
GEORGE TOWNE
President, Adirondack Conservation Council, Ticonderoga
WALTER J. SHEA, Chairman
Chief Sanitary Engineer, Rhode Island Department of Health

VERMONT
ROBERT B. AIKEN, M.D.
Commissioner, State Health Department
GEORGE W. DAVIS
Director, State Fish & Game Service
GEORGE H. PLUMB
Lawyer, Bennington
FREDERICK W. SHEPARDSON
Malteks Company, Burlington
PHILIP SHUTLER
Commissioner, State Water Conservation Board

R. W. THIEME
Sanitary Engineer, Vermont Water Conservation Board
WARREN J. SCOTT
Director, Bureau of Sanitary Engineering Connecticut Department of Health
CLARENCE I. STERLING, JR.
Chief Engineer, Massachusetts Department of Public Health
WILLIAM S. WISE
Director, Connecticut State Water Commission

TECHNICAL ADVISORY BOARD

EARL DEVENORD
Director, Bureau of Environmental Sanitation, New York Department of Health
WILLIAM A. HEALY
Director, Division of Sanitary Engineering, New Hampshire Department of Health

STAFF
JOSEPH C. KNOX, Secretary
EDITH F. HUGHES, Assistant

OFFICE: 73 TREMONT STREET, BOSTON 8, MASSACHUSETTS
ADMINISTRATION

Administration of the New England Interstate Water Pollution Control Compact is delegated to a commission composed of five members from each of the signatory States. The members are appointed in the manner and for the terms provided by the ratification law of each State. In general, each State has representation from the State health department, the State water pollution control board, municipal interests, industrial interests, and fisheries or conservation. A wide variety of viewpoints is thus represented in the adoption of policies and procedures by the Commission.

An important adjunct to the Commission is the Technical Advisory Board (TAB) whose membership consists of the directors of the State agencies in charge of water pollution control. To the Board are assigned the technical phases of the work relative to water quality standards, stream classification studies, and methods of wastes treatment and disposal.

In accordance with the By-Laws of the Commission, the officers consist of a Chairman, Vice-Chairman and Treasurer who serve for a one-year term. During the year the officers were: Harry Manson, New Hampshire, Chairman; Roger L. Putnam, Massachusetts, Vice-Chairman; and Joseph B. Hanlon, Massachusetts, Treasurer. The counsel and able leadership of these officers were of immeasurable value in the administration of the affairs of the Commission.

Two new Commissioners took office this year. Louis D’Allessandro was appointed by Governor Herter of Massachusetts to succeed Commissioner Daniel T. Galvin whose term expired, and Lachlan F. Blair was appointed by Governor Roberts of Rhode Island to fill the vacancy caused by the resignation of Louis B. Wetmore. Commissioner Leo A. Kraus of Connecticut was reappointed by Governor Lodge for a second three-year term. Resolutions in appreciation of the services of Commissioners Galvin and Wetmore were adopted by the Commission.

At the Annual Meeting of the Commission on June 23, 1954 at Lake George, New York, Vice-Chairman Roger L. Putnam of Massachusetts, a Springfield industrial executive and former mayor of that city, was elected Chairman for the year 1954-55. Walter J. Shea, Chief Sanitary Engineer of the Rhode Island State Department of Health was elected Vice-Chairman and John F. Casey of Massachusetts, Treasurer.

MEETINGS

Four regular meetings including the annual meeting were held by the Commission during the year. Arrangements were made in conjunction with each meeting for trips to inspect new sewage treatment works construction or pollution control programs in the vicinity. These included inspections by boat of the sanitary conditions of the Piscataqua River and Great Bay area in New Hampshire and Maine, and of Lake George in New York. The Commission meeting at Providence, Rhode Island, provided an opportunity for the members to visit the recently constructed sewage treatment plant of the Blackstone Valley Sewer District at Bucklin Point and the new East Providence Sewage Treatment Plant. At the Boston meeting the Commission participated in the dedication and the inspection of the facilities of the new Lawrence Experiment Station of the Massachusetts Department of Public Health in Lawrence.

Throughout the year the Technical Advisory Board and its subcommittees on the classification of certain rivers conferred on matters pertaining to the engineering phases of the Commission’s activities. The calendar of meetings of the Com-

Officers of the Commission for 1954-55. Elected at the Lake George Meeting (left to right): Walter J. Shea, Rhode Island, Vice-Chairman; John F. Casey, Massachusetts, Treasurer; and Roger L. Putnam, Massachusetts, Chairman.
MEETINGS OF THE COMMISSION AND THE TECHNICAL ADVISORY BOARD

1953

September 15, Portsmouth, New Hampshire
Subcommittee on Thames River Classification
September 15-16, Portsmouth, New Hampshire
Regular Meeting of Commission
October 28, Bellows Falls, Vermont
Subcommittee on Connecticut River Classification
December 15, Lawrence, Massachusetts
Technical Advisory Board
December 15-16, Boston, Massachusetts
Regular Meeting of Commission

1954

March 4, Boston, Massachusetts
Technical Advisory Board
March 10, Southbridge, Massachusetts
Subcommittee on Thames River Classification
March 22-23, Providence and Barrington, Rhode Island
Regular Meeting of Commission
April 21, Hartford, Connecticut
Connecticut Commissioners
May 17, Lebanon, New Hampshire
New Hampshire and Vermont Members of Technical Advisory Board (Connecticut River Classification)
June 2, Danville, Connecticut
Public Meeting on Quinebaug River Classification
June 22, Lake George, New York
Technical Advisory Board
June 23, Lake George, New York
Annual Meeting of Commission

New York Joint Legislative Committee on Natural Resources
Resources for the Future, Inc.
Upper Hoosac Valley Watershed Association
Vermont Water Conservation Board
Water Pollution Control Division, Public Health Service
Westfield River Watershed Association

PUBLIC RELATIONS

The circulation of the quarterly News Letter instituted by the Commission in 1950 as a medium for disseminating information on pollution control activities in the New England-New York area has increased steadily during the year.

Recognizing that the success of pollution control endeavors is contingent upon the support of an informed public, the Commission and the States have laid particular emphasis on their educational programs. Press releases, feature news articles and the distribution of pertinent literature dealing with local and State-wide problems have added materially, while TV, radio programs and personal appearances at community and civic gatherings have produced very effective results. Exhibits as an additional means of telling the story of clean waters are being used by several States. Because of the many requests received by the Commission for exhibit material at meetings of the various groups and associations concerned with water resources conservation in the area, a table-size display has been constructed. It describes the functions and duties of the Commission as enumerated in the Compact, illustrates the water classification plan adopted by the Commission and displays a map of the Compact area showing the major river basins.

Exhibit Describing the Compact Is Available for Display Purposes at Group Meetings and Conventions of Organizations Interested in Water Resources Conservation
CLASSIFICATION OF WATERS

The New England Interstate Water Pollution Control Compact is based on a classification system in order to provide a balanced use of the waters in the area for the various purposes required. These include drinking water supply, industrial and agricultural uses, bathing and other recreational purposes, maintenance and propagation of fish life, shellfish culture, navigation and disposal of wastes. The Compact directs the Commission to establish such a classification system or plan with reasonable physical, chemical and bacteriological standards of water quality for various classes of use. Each signatory State agrees, under the terms of the Compact, to prepare and submit classifications of its interstate waters to the Commission for approval and then to establish programs of treatment of sewage and industrial wastes to bring about the improvements required to meet the approved classifications.

The first task of the Technical Advisory Board of the Commission was the preparation of water quality standards which were submitted to and adopted by the Commission in 1948. They were revised in 1949 and again in 1950 as the result of experiences in the practical application of the standards in classification studies. The 1950 Tentative Plan for Classification of Waters, which is reproduced in this report, defines the classes of waters according to (1) Suitability for Use and (2) Standards of Quality, and is the basis of all classifications approved by the Commission to-date.

THAMES RIVER BASIN

A Subcommittee on Classification of the Thames River Basin was established by the Technical Advisory Board in 1951 in accordance with a vote of the Commission to proceed with

NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION
TENTATIVE PLAN FOR CLASSIFICATION OF WATERS
(As Revised and Accepted December 8, 1950)

<table>
<thead>
<tr>
<th>CLASS A</th>
<th>CLASS B</th>
<th>CLASS C</th>
<th>CLASS D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SUITABILITY FOR USE</strong></td>
<td><strong>STANDARDS OF QUALITY</strong></td>
<td><strong>STANDARDS OF QUALITY</strong></td>
<td></td>
</tr>
<tr>
<td>Suitable for any water use. Character uniformly excellent.</td>
<td>Suitable for bathing and recreation, irrigation and agricultural uses; good fish habitat; good aesthetic value. Acceptable for public water supply with filtration and disinfection.</td>
<td>Suitable for recreational boating, irrigation of crops not used for consumption without cooking, habitat for wildlife and common food and game fish indigenous to the region.</td>
<td>Suitable for transportation of sewage and industrial wastes without nuisance, and for power, navigation and other industrial uses.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dissolved oxygen</th>
<th>Not less than 70% sat.</th>
<th>Not less than 75% sat.</th>
<th>Not less than 80% sat.</th>
<th>Present at all times</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil and grease</td>
<td>None</td>
<td>No appreciable amount</td>
<td>Not objectionable</td>
<td>Not objectionable</td>
</tr>
<tr>
<td>Odor, scum, floating solids, or debris</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Sledge deposits</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Color and turbidity</td>
<td>None</td>
<td>Not objectionable</td>
<td>Not objectionable</td>
<td>Not objectionable</td>
</tr>
<tr>
<td>Phens or other taste producing substances</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Substances potentially toxic</td>
<td>None</td>
<td>None</td>
<td>Not in toxic concentrations or combinations</td>
<td>Not in toxic concentrations or combinations</td>
</tr>
<tr>
<td>Free acids or alkalis</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>Not in objectionable amounts</td>
</tr>
<tr>
<td>Coliform bacteria</td>
<td>*Within limits approved by State Department of Health for uses involved.</td>
<td>Bacterial content of bathing waters shall meet limits approved by State Department of Health and acceptability will depend on sanitary survey.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*See water used for the taking of market shellfish shall not have a median coliform content in excess of 70 per 100 ml.

Note: Waters falling below these descriptions are considered unsatisfactory and as Class E.

*These standards do not apply to conditions brought about by natural causes.

For purpose of distinction as to use, waters used or proposed for public water supply shall be so designated.
the classification of the waters of this major interstate river of the Compact area. The Thames River Basin is located for the most part in Connecticut but includes a large area in Massachusetts and a relatively small area in Rhode Island. It was agreed that the classification study to be undertaken by the Subcommittee would include only those waters of the basin drained by the Quinebaug River and its tributaries. The Quinebaug River rises in Massachusetts and enters Connecticut a few miles south of Southbridge in Massachusetts. A short distance below the Connecticut line, the Quinebaug is joined by the French River which also originates in Massachusetts and enters Connecticut just below the twin industrial communities of Dudley and Webster. Below this junction, the Quinebaug flows southward a distance of 40 miles through Putnam and Danielson to its confluence with the Shetucket River above Norwich to form the Thames River. During 1952 the water pollution control agencies of the three States conducted sanitary surveys of the watershed in their respective States and the Massachusetts and Connecticut agencies conducted a coordinated sampling program. In order to obtain additional analytical data the sampling program was extended into the low flow period of 1953. A proposed classification was prepared by the Subcommittee and in accordance with policy, a public meeting was held at Danielson, Connecticut, on June 2, 1954. This hearing was attended by representatives of municipalities, industries and other interests in the basin. A complete picture of the present condition of the river and its tributaries was presented at the meeting and suggestions and comments were received regarding the proposed future use classification.

The classifications were submitted to the Commission by Connecticut, Massachusetts and Rhode Island at the Annual Meeting in June 1953 and have now been officially approved by the Commission. The present condition of the Quinebaug River as it enters Connecticut from Massachusetts is Class D and the French River is Class E or nuisance condition at the boundary. The classification approved by the Commission provides for Class C water in the Quinebaug and Class D water in the French at the State line. Due to indications of industrial changes in the French River valley in Massachusetts, the approved classification provides for a re-evaluation of the conditions in this valley within a ten-year period with a view toward a higher classification for the French River as it enters Connecticut. Elsewhere the classification provides for a general upgrading of water quality in practically all sections of the river with the lowest classification being C in sections immediately below certain municipalities and industries.

In accordance with the terms of the New England Interstate Water Pollution Control Compact, the States of Connecticut, Massachusetts and Rhode Island are now pledged to establish the necessary programs for the construction of sewage and industrial waste treatment works to bring about the water quality improvements necessary to meet the approved classification.

WALLOOMSAC RIVER BASIN

The Commission approved a classification for the Vermont portion of the Walloomsac River, which is an interstate tributary of the Hoosic River in New York. A proposed classification for the river was prepared by Vermont and discussed at conferences held by the State water pollution control agencies of Vermont and New York. Following concurrence by the two States, the classification was adopted by the Vermont Water Conservation Board and approved by the Commission. The Walloomsac River is in a nuisance condition in Bennington and as it crosses the New York line. The approved classification provides for Class B quality water throughout the town to a proposed municipal sewage treatment plant. The water immediately below the proposed treatment plant will be Class D with gradual improvement to Class C quality before it reaches the Vermont-New York boundary.

CONNECTICUT RIVER BASIN

It was the consensus of the Commission at its meeting in September 1953 that the signatory States should proceed with the classification of the main stem of the Connecticut River because of its importance as an interstate waterway. The watershed of the Connecticut River is the largest in New England, containing over 11,000 square miles in the States of New Hampshire, Vermont, Massachusetts and Connecticut. The Connecticut River has a watercourse distance from its source to Long Island Sound of about 400 miles and is considered one of the major river systems of the country. A Subcommittee on Classification of the Connecticut River, consist-
ing of the directors of the State water pollution control agencies of the four States involved, was established by the Technical Advisory Board. A program for a coordinated sampling schedule to be carried out by the State agencies at selected stations on the Connecticut River, particularly in the vicinity of State lines, was arranged and is now underway. The sampling tests of 24-hour duration on various days of the week will provide reliable information on present water conditions to serve as the basis for continued cooperative studies by the States.

Coordinated with the Connecticut River sampling program at the State lines are cooperative studies by New Hampshire and Vermont on the Wilder Lake section of the Connecticut River. This section extends some forty miles from the Wilder Dam near White River Junction to Woodsville, New Hampshire. This particular study was initiated because of plans for the possible recreational development of this section and is closely tied in with the over-all plan for ultimate classification of the main stem of the Connecticut River.

**HOOSIC RIVER BASIN**

The Technical Advisory Board established a Subcommittee on Classification of the Hoosic River to coordinate the work of Vermont, Massachusetts and New York in preparing their classifications for this important interstate river. The Hoosic River has a total drainage area of 713 square miles, of which 204 are in Vermont, 177 in Massachusetts and 332 in New York. The Hoosic River flows from Vermont into Massachusetts above North Adams and re-enters Vermont near Williamstown. Below North Poultney it enters New York and flows to its confluence with the Hudson River. The Subcommittee has arranged a coordinated sampling program which is now underway to assist the three States in the classification studies in their respective sections of the river.

**LAKE CHAMPLAIN BASIN**

Lake Champlain has a total drainage area of about 5,000 square miles in Vermont and New York. For a distance of 120 miles Lake Champlain and the Poultney River form the boundary between the two States. Since 1951 each State has been conducting studies with a view toward ultimate classification of the waters of the basin within its boundaries. New York completed its studies in the basin during the year and Vermont conducted surveys and sampling on several tributaries of Lake Champlain including the Metta- wee, Castleton and Poultney Rivers, which are interstate rivers in the southern part of the basin. The Technical Advisory Board established a Subcommittee on Classification of the Lake Champlain Basin in order to facilitate and coordinate the studies by New York and Vermont.
OTHER INTERSTATE RIVER BASINS

Massachusetts cooperated with New Hampshire in surveys and studies undertaken by the latter to recommend classifications for Salmon Brook and Beaver Brook, both of which are interstate streams and tributaries of the Merrimack River. Prior to New Hampshire holding a public hearing on the proposed classification for these streams, the Massachusetts Department of Public Health concurred with the recommendations of New Hampshire for water quality at the State lines.

In connection with the Pawcatuck River Basin in Rhode Island and Connecticut, the classification for which was approved by the Commission in 1953, both States have proceeded with pollution abatement plans to meet the approved classification. In Rhode Island the Bradford Dyeing Association has been working with the University of Rhode Island on the design of treatment works for its textile finishing wastes. Final plans providing for lagoons have been completed and construction is scheduled to start in early 1955. The Pawcatuck Fire District on the Pawcatuck River in Stonington, Connecticut, has had plans prepared and approved for a system of sewers and a sewage treatment plant. The State Water Commission is now pressing the District to proceed with construction.

New Hampshire and Vermont have continued making excellent progress in classification studies of various tributaries of the Connecticut River, and Massachusetts and Rhode Island initiated a study of the Taunton River and Mt. Hope Bay. New Hampshire completed certain preliminary studies in the Great Bay area of the Piscataqua River, which is the boundary between New Hampshire and Maine. Massachusetts and New Hampshire are undertaking a study of the Spicket River which is an interstate tributary of the Merrimack River.

The tentative plan prepared by the Technical Advisory Board for classification studies of interstate waters by the State water pollution control agencies during 1954-55 is as follows:

CONNECTICUT

(1) Coordinated sampling program with Massachusetts on the Connecticut River at Massachusetts-Connecticut line.

MASSACHUSETTS

(1) Coordinated sampling programs with New Hampshire and Connecticut on the Connecticut River at the State lines.
(2) Classification study with Rhode Island of Taunton River and Mt. Hope Bay.
(3) Classification study of Massachusetts portion of Spicket River (tributary of Merrimack).

NEW HAMPSHIRE

(1) Cooperative study with Vermont on Wilder Lake section of Connecticut River.
(2) Coordinated sampling program with Massachusetts on the Connecticut River at the New Hampshire-Massachusetts line.
(3) Classification study of tributaries of Pemigewasset River (tributary of Merrimack).
(4) Classification study of New Hampshire portion of Spicket River (tributary of Merrimack in Massachusetts).

NEW YORK

(1) Complete report on classification studies of Lake Champlain Basin.
(2) Classification hearings on Lake Champlain Basin.
(3) Classification study of Hoosic River.

RHODE ISLAND

(1) Classification study with Massachusetts of Taunton River and Mt. Hope Bay.

VERMONT

(1) Cooperative study with New Hampshire on Wilder Lake section of Connecticut River.
(2) Classification studies:
   (a) Batten Kill (tributary of the Hudson in New York);
   (b) Ompompanoosuc River (tributary of Connecticut River);
   (c) Lower reaches of Lamoille and Winooski Rivers (tributaries of Lake Champlain);
   (d) Hoosic River.
POLLUTION CONTROL PROGRAMS OF THE STATES

The States in the New England Interstate Water Pollution Control Compact are to be commended for the progress shown during the year in the execution of their pollution abatement programs. Particularly is the water classification approach to the problems of both intrastate and interstate water pollution control proving effective. Classification provides a framework for presenting a composite picture of the present condition of a river and the ultimate water quality objectives to be achieved. It presents a feasible and economic plan for pollution abatement, incorporating both the results of comprehensive studies by the State water pollution control agencies and the desires of all interests concerned as expressed at public hearings and group conferences. Classification focuses publicity on the problem by providing the citizens and their municipal leaders and the industries and other groups concerned with a definite basis for supporting remedial measures. The effect of the classification of additional waterways by the States and the Commission annually is reflected in an increase in the construction of sewage and industrial waste treatment facilities.

The task confronting the pollution control agencies would be practically impossible were it not for the support and approbation being received from the public, municipal officials, industries, and the many organizations concerned with the conservation of water resources. The concern of the public in stream pollution was shown by the results of a recent questionnaire regarding the relative importance of the five conservation problems in the Connecticut River Valley. Forty-five per cent of the returns favored action against water pollution while the second selection for first place was represented by only 21 per cent.

Industry is cognizant of its responsibility to the community and to the general public in water pollution control and is becoming more and more active in the over-all picture. This is indicated by the increasing number of waste treatment installations and requests to the State pollution control agencies for advice and assistance on industrial waste problems. The State agencies are assisting industry in this respect through their expert personnel and laboratory facilities. Many of the larger industries, on their own initiative, are sponsoring research on wastes treatment at considerable expense. Industries’ top-management is encouraging water pollution control by promoting the formation of industrial task committees for the exchange of ideas and the preparation and publication of literature on wastes treatment and disposal.

It is anticipated that the watershed associations being organized in the area to promote the conservation of natural resources will be of material aid in the pollution control work of the States as each association has incorporated a clean water program in its list of objectives. The Connecticut River Watershed Council sponsored the establishment of several watershed associations on tributaries of the Connecticut River including the Hockanum, Farmington and Coginchaug Rivers in Connecticut, the Westfield River in Massachusetts, the Ashuelot River in New Hampshire and the Black River in Vermont. Three watershed associations have been organized in the Hoosic River Valley: the Upper Hoosac Valley Association in Massachusetts, the Walloomsac Watershed Association in Vermont, and the Little Hoosic Watershed Association in New York.

The educational programs sponsored by the States and civic organizations continue to be a most effective influence in enlisting public cooperation and support. In this connection the National Wildlife Federation adopted “Pollution Control” for its annual educational campaign for 1954 and “Water Pollution Control Week” was proclaimed by several Governors in the New England area.

A summary of the outstanding achievements of each State in the furtherance of its program for the control of water pollution follows.

CONNECTICUT

The State Water Commission and the State Department of Health are the cooperating agencies administering pollution abatement work in Connecticut. The Water Commission has broad powers to enforce pollution control measures while the Department of Health is restricted in authority to the prevention of pollution which may adversely affect the public health. The latter supervises the operation of sewage treatment plants but both agencies must approve plans for such works.
The water pollution control program in Connecticut received its greatest stimulus, since the passage of the State Water Commission Act in 1925, from the recent Superior Court decision ordering Norwich, on the Thames River, to comply with an order of the State Water Commission requiring the construction of necessary sewage collection and treatment facilities. The Superior Court ruled on March 4, 1954 that "In matters which do not concern the inhabitants of a municipality alone, but which are of statewide interest or concern, a municipality can be compelled to carry out the plans of the State and to perform the duties which it imposes." The Supreme Court of Errors sustained this decision on July 20, 1954.

The State Water Commission issued orders to Danbury for the construction of additional sewage treatment facilities and to New Milford and Southington requiring the preparation of plans and the construction of sewage treatment works. Some thirty other municipalities were requested to take formal steps to eliminate pollution within their boundaries. Fourteen communities which have had construction plans prepared were asked to start construction on treatment works while eleven other communities were urged to engage consulting engineers to prepare preliminary plans and cost estimates.

Considerable progress was made during the year in the Quinnipiac and Hockanum River Valleys where policies for abating pollution on a river basin basis were adopted by the State Water Commission. Located in the Quinnipiac Valley are the industrial communities of Meriden, Wallingford and Southington. The Hockanum, which is a tributary of the Connecticut River, is also a highly industrialized river. The State Water Commission adopted a policy of requesting monthly progress reports from each of the 37 communities of the State where the sewage collection and treatment problem exists. These reports serve not only as a constant reminder to the communities but enable the State Water Commission to take appropriate action when satisfactory progress is not being made.

The State Water Commission has continued its survey of all waste-producing industries in the State and also its special industrial waste research and investigations at Wesleyan University. As in previous years, the Connecticut Department of Health conducted its program of bathing beach surveys and sampling in the coastal areas of the State. The staffs of the State Water Commission and the State Department of Health participated in the coordinated studies with Massachusetts and Rhode Island which resulted in the classification of the Quinebaug River and its tributaries; and with Massachusetts, New Hampshire and Vermont in the sampling program on the Connecticut River.

MAINE

With the enactment of the state water pollution control law in 1953 the Maine Water Improvement Commission embarked upon a program to classify the inland and tidal waters of the State. The Maine law is similar to the ones previously enacted by New York, Vermont and New Hampshire and most closely resembles the New Hampshire law in that the Maine Water Improvement Commission makes investigations, holds public hearings and submits its recommended classifications as legal proposals to the Legislature for enactment into law. In 1953 the Legislature approved classifications representing about 30 per cent of the total estimated miles of waterways in the State. These included the upper tributaries of several of the larger rivers of the State, namely, the Androscoggin, Kennebec, Penobscot, Aroostook, St. Croix and St. John Rivers. Classification studies since that time have been made and hearings held on surface waters in Washington and Hancock Counties in the easterly coastal section; the coastal streams between the Penobscot and Kennebec Rivers in Waldo, Knox and Lincoln Counties including the Sheepscot, Medomak and St. George Rivers; and tributaries of the Penobscot and St. John Rivers. Studies were completed on some of the tributaries of the Kennebec and Androscoggin Rivers and studies are underway on tributaries of the Saco River. It is planned to submit to the

New Hampshire Posts the Ponds and Lakes of the State Which Have Been Classified for Recreational Use
1955 Legislature recommended classifications for 7,500 miles of streams, lakes and ponds.

Data obtained since 1950 on water pollution have been tabulated and summarized, and it is proposed to publish this material as an addenda to the 1950 "Report on Water Pollution in the State of Maine." The Department of Sea and Shore Fisheries continued its research in certain coastal areas to determine the extent of oil pollution and its effect on shellfish and other sea foods. Research has also been continued relative to the treatment and disposal of various industrial wastes.

**MASSACHUSETTS**

Under the General Laws, the Massachusetts Department of Public Health has oversight of the inland waters of the Commonwealth and administers the water pollution control program. The Department confers with and advises municipalities and industries relative to sewage and waste treatment methods, and approval by the Department of all plans for the construction of sewerage systems and waste treatment and disposal works is required. The pollution abatement program for many years has included the collection of samples at approximately 270 stations established at strategic locations on the rivers of the Commonwealth. These samples are taken at least once a month throughout the summer and fall seasons when river flows are lowest and the analytical results provide up-to-date information on stream conditions. With the completion of the new Lawrence Experiment Station, the field and laboratory phases of the pollution control activities of the Department will be centered at Lawrence.

In accordance with resolves of the Legislature, the Department in conjunction with other State agencies submitted reports to the 1954 Legislature on the need of reconstructing the Clinton sewage treatment works operated by the Metropolitan District Commission and on the feasibility of extending the North Metropolitan Sewerage System to serve the town of Wilmington. The Legislature subsequently authorized and appropriated funds for the Metropolitan District Commission to construct a new sewage treatment plant at Clinton. By direction of the 1954 Legislature, studies involving the Department were made relative to the polluted condition of the Lees River and to the matter of drainage in the valleys of the Charles, Mystic and Neponset Rivers.

The Department participated in the coordinated sampling program with Vermont and New York on the Hoosic River and with Connecticut, New Hampshire, and Vermont on the Connecticut River. In cooperation with New Hampshire the Department made classification studies of Salmon Brook, Beaver Brook and the Spicket River, which are interstate tributaries of the Merrimack River. Studies were continued with Rhode Island in connection with pollution of the Taunton River and Mt. Hope Bay.

**NEW HAMPSHIRE**

The New Hampshire Water Pollution Commission has recorded considerable progress in classifying the waters of the State as provided under the Water Pollution Control Act of 1947. The Commission conducts surveys and investigations, holds hearings and submits recommended classifications to the Legislature for enactment into law. In the 1949, 1951 and 1953 Sessions of the Legislature about 40 per cent of the total stream mileage of the State was classified.

During the year, surveys and field work were completed and public hearings held on Beaver Brook, Salmon Brook, Pennichuck Brook and Partridge Brook. Beaver Brook and Salmon Brook are interstate streams involving Massachusetts and agreements were reached between the two States on the proposed classifications at the State lines. Beaver, Salmon and Pennichuck Brooks are tributaries of the Merrimack River and Partridge Brook is a tributary of the Connecticut River. Recommended classifications for these streams will be submitted to the 1955 Session of the Legislature. Classification studies were completed on the lower portion of the Baker River and thirteen other tributaries of the Pemigewasset River, which is a tributary of the Merrimack River. It is proposed to hold public hearings relative to these waters and to submit recommended classifications to the 1955 Legislature. Approximately 75 per cent of the Baker River watershed was classified in a previous session of the Legislature.

In connection with the classification of interstate waters, the New Hampshire Water Pollution Commission has participated in a coordinated sampling program with Vermont on the Wilder Lake section of the Connecticut River and with Massachusetts on the Connecticut River at the New Hampshire-Massachusetts line. New
Hampshire and Massachusetts have cooperated in studies of the Spicket River, an interstate tributary of the Merrimack River. The Commission made sampling and survey studies of Wolfeboro Bay on Lake Winnipesaukee and the Great Bay tidal area near the New Hampshire-Maine boundary. The effectiveness of postchlorination and prechlorination of sewage treatment plant effluents was studied; “live box” studies were made at selected stations on several rivers to note the effect of pollution on brook trout; and gill netting operations were conducted to determine quantitatively the native fish life present.

There have been many requests received from individuals and organizations throughout the State for “A Guide to Classified Waters in New Hampshire” which lists the waterways classified to-date by the Legislature and illustrates the classifications on an area basis. All lakes and ponds in the State which have been classified for recreational purposes are being posted requesting the cooperation of the public in preventing the discharge of wastes and other polluting materials.

NEW YORK

Under the comprehensive pollution control law enacted in New York in 1949, the New York Water Pollution Control Board has recorded outstanding progress in its long-range program of water pollution control for the 70,000 miles of waterways and 3,500,000 square miles of inland waters in the State. During the year the Board held public hearings on the classification of 7 basins resulting in the adoption of classifications for Saw Mill River, Ramapo and Mahwah Rivers, Hudson River, Shinnecock Bay-Mecox Bay and Lake Erie-Niagara River. The Board now has underway water pollution control programs in various stages of development in 30 drainage basins involving a total area of approximately 17,400 square miles. Classifications have been officially adopted by the Board after public hearings for 19 basins with a total area of 6,075 square miles and public hearings have been held in connection with proposed classifications for 2 basins having a total area of 1,970 square miles. Classification surveys have been completed and reports are in preparation for 9 watersheds totaling 9,355 square miles. Water pollution abatement programs for the installation of sewage and industrial waste treatment facilities required to meet the adopted classifications are now underway in

Mobile Laboratory Plays Important Part in Stream Classification Surveys in New York

12 basins involving a total area of 2,690 square miles.

In 1951 the Board initiated a classification study of the entire watershed of Lake Champlain in that State and during the past year completed all the field work including surveys and sampling. The Lake Champlain report was prepared for publication and the present schedule calls for formal classification hearings to be held in 1955.

In preventing new sources of water pollution, the New York Water Pollution Control Board is empowered, under the 1949 law, to force compliance without waiting for waters to be classified. In such instances plans for the construction and operation of treatment works must be approved by the Board. The average number of plans reviewed and approved annually in the three years prior to 1949 was about 500 while for the past five years the average was 700 annually with over 800 in 1954. This indicates that much tighter controls over construction of new treatment and disposal facilities have been established under the new law.

RHODE ISLAND

The Department of Health which has the responsibility for pollution control in the inland and tidal waters of the State has continued its very effective pollution abatement program. In this highly industrialized and densely populated State, the program is now mainly in the construction stage. However, cooperative studies for classification purposes were conducted with Massachusetts on the Taunton River and Mt. Hope Bay, and with Connecticut and Massachusetts in the Quinebaug River Basin. The program of the Department has been accelerated by
the cooperation of the public in approving bond issues for financing large construction projects involving millions of dollars. In this connection newspaper articles, radio and TV programs have been very helpful in enlisting public support of pollution abatement projects. While many of the diversified industries are located in areas served by public sewers, the problem of industrial waste treatment in other sections is a major one. The Department has assisted the industries in studies to develop practicable and economic methods of waste treatment and disposal.

VERMONT

The water pollution control law enacted in 1949 directs the Vermont Water Conservation Board to classify the waters of the State. The completion of extensive classification studies and surveys in many sections of the State over the past several years was followed by public hearings and the adoption of classifications. The studies were greatly facilitated by the Board’s laboratories at Montpelier and the mobile laboratory which was acquired last year.

The proposed classifications for Nulhegan River, Paul Stream and Willard Stream which are Connecticut River tributaries, were presented at public hearings and these waters were officially classified. The necessary improvements required by the classifications have been initiated in these three basins. The survey work on the tributaries of St. Albans Bay on Lake Champlain was completed, public hearings held and the waters were officially classified. Classification hearings were held on the upper part of the Winooski River and its tributaries, on the Waits River and its tributaries and on the Wells River and its tributaries. The Winooski is a tributary of Lake Champlain and the Waits and Wells are tributaries to the Connecticut River.

Due to complaints of nuisance conditions on the La Platte River, a tributary of Lake Champlain, a survey was made and public hearings held. Classification proceedings are now in the final stage for the La Platte and its tributaries. The Mettawee, Castleton and Poultnay Rivers, which are interstate tributaries of Lake Champlain, were surveyed and sampled with the use of the mobile laboratory.

The staff of the Board is working with New Hampshire on the coordinated sampling programs on the Wilder Lake section of the Connecticut River and with Massachusetts and New York on the Hoosic River. Survey studies are being initiated on the Ompompanoosuc, a tributary of the Connecticut River; the Clyde River, a tributary of Lake Memphremagog at Newport; the Batten Kill, a tributary of the Hoosic River; and the lower portions of the Lamoille and Winoski Rivers, both of which are important tributaries of Lake Champlain.
CONSTRUCTION OF POLLUTION CONTROL WORKS

Substantial progress in the construction of pollution control works during the year is a tribute to the intensive work carried on by the State water pollution control agencies and to the cooperation being received from municipalities and industries. The long-range construction programs of the States have been advanced immeasurably by the adoption of stream classifications, which provide definite plans of action for promotion and support by all interests concerned.

SEWAGE WORKS

The construction of sewage works is particularly encouraging in view of large municipal expenditures occasioned by population growth in many communities. The necessity of extending public utilities and enlarging school facilities in these municipalities has not appreciably affected the planning and construction of sewage treatment works.

Sewage works completed in the New England Interstate Water Pollution Control Compact area during the year cost approximately $6,000,000 and included three new sewage treatment plants. Construction continued on sewage works projects estimated to cost about $39,000,000 and construction was started on seven new projects involving expenditures of over $16,000,000. Since 1949 construction of sewage works valued at over $106,000,000 has been completed or started in the New England Compact area. These works include 41 new sewage treatment plants serving a total population of over 2,000,000 and in addition treating large quantities of industrial wastes.

INDUSTRIAL WASTE FACILITIES

While the extension of sewerage systems and the construction of large interceptors have eliminated the need for a few industries in urban areas to construct private waste treatment facilities, the problem of industrial waste treatment still must be met by nearly 2,000 industries in the Compact area. The cooperation of industry is commendable and many industrial waste treatment works were installed during the year but data on costs and capacities are not sufficient to permit the presentation of complete information showing industry's part in the pollution control program. To aid industry in the construction of facilities, the Commission has endorsed, in prin-

ciple, the several bills in Congress which would provide accelerated amortization of the costs of the works for Federal income tax purposes and the Commission will be represented at the tax revision hearings when these bills are considered. The matter of State aid to industries is now being studied by a committee appointed by the Commission. This committee will ascertain the need and desirability of the States proposing legislation similar to that recently enacted in Wisconsin which permits accelerated amortization for State income tax purposes and exemption from local taxation during the period of amortization.

CONSTRUCTION PROGRESS

To illustrate the outstanding achievements in the planning and installation of sewage and industrial waste treatment facilities the work in each State during the year is briefly described.

CONNECTICUT

The modernized and enlarged primary treatment works at Norwalk were placed in operation. The new pumps, screens, sludge digesters and dewatering facilities cost about $1,100,000. Milford completed and placed in operation at the Town Meadows its second activated sludge treatment plant which cost $1,000,000. Also completed and placed in operation was the East Hartford sewage treatment plant constructed by the Metropolitan District of Hartford at a cost of $1,250,000. The plant includes primary treat-
ment, separate sludge digestion and chlorination. The new sedimentation and chlorination plant with separate sludge digestion and vacuum filtration was placed in operation at Stratford involving an expenditure of $813,000. A contract was awarded and construction started on a primary sewage treatment plant for Groton which will cost about $700,000. Plans were approved for the new treatment plant for Manchester which is estimated to cost $900,000. Detailed plans and specifications were completed for additions to the Danbury treatment plant. The estimated cost of the work to include an additional trickling filter and final settling tank is $400,000. An engineering study was conducted by consulting engineers for a tri-city sewage treatment plant for the communities of Ansonia, Derby and Shelton on the Housatonic River.

The industrial waste treatment facilities at Case Brothers' plant in Manchester were completed and in-plant changes at the Lydall & Poulds plant in Manchester were made to facilitate the treatment of the wastes. At the MacLachlan and Neumann-Endler hat manufacturing establishments in Danbury, industrial waste treatment works were constructed. Plans were approved for waste treatment facilities at five other industrial concerns in Danbury. Construction was started on the installation of waste treatment works for the New Departure Division of General Motors Corporation at Meriden. A contract for a similar installation at the Division's operations at Bristol is about to be awarded.

MASSACHUSETTS

Construction of a deep sea outfall to eliminate the discharge of sewage through several outlets onto the shores of Nahant was completed. The second section of the interceptor to convey sewage to the new Fall River sewage treatment plant was completed and a contract awarded for the third section. Additions to the sewage treatment plants at Wrentham State School, Medfield State Hospital and Tewksbury State Infirmary were also completed. The construction of a sewage treatment plant for the Ballardvale section of Andover and the rehabilitation of the treatment plants at Concord and Marion were started.

New Departure Division of General Motors Corporation Installs Treatment Facilities for Plating Room and Soluble Oil Wastes at Its Meriden Plant in Connecticut
In connection with the pollution abatement program of the Boston Metropolitan District Commission, construction of the $6,000,000 rock tunnel under Boston Harbor to convey sewage from the North Metropolitan Sewerage District to the proposed Deer Island treatment plant is nearing completion, and contracts were awarded for the $12,000,000 rock tunnel under the harbor to convey sewage from the Boston Main Drainage System to Deer Island. Plans were approved for the construction of the treatment plant at Deer Island and work continued on the extension of the South Metropolitan Sewerage System to serve Natick and Framingham. The installation of a sewerage system was completed for Bedford with disposal of the sewage through the North Metropolitan Sewerage System.

Plans for the rehabilitation of the sewage pumping stations in New Bedford, to eliminate overflows into the Acushnet River, were approved and construction started. Additional sewers to intercept industrial wastes discharged into New Bedford Harbor are being designed. Preliminary plans were approved and final plans are being prepared for a sewage treatment plant for Holyoke. Also approved for other Connecticut Valley communities were preliminary plans for a Chicopee River interceptor in Chicopee, a Connecticut River interceptor in West Springfield, and sewage treatment plants for Russell and Longmeadow. The acquisition of land for the construction of municipal sewage treatment works was approved for Dartmouth, Ipswich, Northboro, Shrewsbury and Somerset. Consulting engineers were engaged by Billerica, Randolph, Scituate, Ware and Westwood to conduct studies and prepare plans for treatment works.

The Fitchburg Paper Company on the Nashua River placed in operation the primary treatment works for the removal of suspended material from its deinking wastes. Among the industrial waste treatment facilities installed during the year were those of the H. P. Hood dairy in East Bridgewater, the Brockton Egg Auction Cooperative in Avon and the Parks Shellac Company in Somerset.

NEW HAMPSHIRE

The new sewage treatment plant for Meredith on Lake Winnipesaukee was placed in operation. The cost of the plant, which includes Imhoff tanks, trickling filters, sedimentation and chlorination, was $150,000. Underway is the continuing installation of a system of sewers for the town. Preliminary construction started on the sewage treatment plant for the Portsmouth Air Force Base at Newington. The plant is designed for primary treatment with separate sludge digestion and chlorination. Disposal of the effluent will be in the tidal waters of the Piscataqua River.

The resort hotels at Jackson have provided sewage treatment works to meet the Ellis River classification and the Sullivan County commissioners are planning the construction of a small
treatment plant to conform with the classification adopted for the Little Sugar River. Dover has engaged consulting engineers to make a complete study of the municipal sewerage system with a view toward eventual treatment of all sewage and industrial wastes.

RHODE ISLAND

The new sewage treatment plant for East Providence was completed at a cost of about $1,500,000 and placed in operation. The plant provides secondary treatment and chlorination and is part of the State program to reduce pollution of the Providence River. Plans for the Newport sewage treatment plant were completed and submitted for approval. The plant will provide primary treatment for the sewage from Newport, the Naval installations and sections of Middletown. It is designed for an average flow of 5.6 million gallons per day and including the outfall is estimated to cost $1,400,000. For the entire Newport pollution abatement project the Navy appropriated $1,243,000 and the city $2,000,000. Work continued during the year in connection with the reconstruction and modernization of the Providence Sewage Treatment Plant and the enlargement and modernization of the Woonsocket Sewage Treatment Plant. At the Providence plant the reconstruction involving all phases except the sludge filters and incinerators is estimated to cost $3,500,000. Enlargement of the Woonsocket plant will relieve the overload on the activated sludge plant and treat the industrial wastes from over thirty plants which now discharge into the Blackstone River. The estimated cost of the work is $2,000,000.

The start on the second phase of the pollution abatement program of the Blackstone Valley Sewer District was made possible by approval of a bond issue in the amount of $7,500,000 in November 1952. In 1953 the first phase of construction, which included the treatment plant at Bucklin Point, was completed at a cost in excess of $8,000,000. The second phase includes the exten-
sion of the Blackstone Valley Interceptor from Pawtucket to Lincoln to intercept additional sewage from parts of these municipalities and Valley Falls; and the construction of the Moshassuck Valley Interceptor to convey sewage to Bucklin Point. Plans for the second phase were completed and approved during the year and a $650,000 contract awarded in connection with the Moshassuck Valley Interceptor which will serve those sections of Central Falls, Pawtucket and Lincoln located in the valley.

Treatment works to reduce the toxicity of the wastes from the United Wire & Supply Corporation at Cranston were completed. The city, under an agreement, constructed and will maintain the outfall from the plant to the Pawtuxet River. Plans were completed for treatment works at the Bradford Dyeing Association plant on the Pawtucket River and for several other plants where public sewers are not available.

VERMONT

The new sewage treatment plant for Burlington on Lake Champlain was placed in operation and has been visited by officials of many Vermont municipalities considering the installation of sewage treatment facilities. The plant, which provides primary treatment and chlorination for an average flow of 3.7 million gallons per day, cost $750,000 including the intercepting sewers. Underway in the northerly section of Burlington is a program of installation of sewers with the ultimate construction of a small sewage treatment plant.

Completed and placed in operation were sewage treatment facilities for the Vermont State Hospital at Waterbury on the Winooski River. Of the primary type, the plant includes sedimentation, separate sludge digestion and sludge drying beds. Funds for the $100,000 plant were appropriated by the 1953 Legislature. In the design of the plant, provision was made for its enlargement to treat the sewage from the village of Waterbury.

Barre has initiated a program for the construction of intercepting sewers and has prepared and submitted for State approval, plans for a municipal sewage treatment plant.
The program of surveys, investigations and research on industrial wastes, which was initiated by the New England Interstate Water Pollution Control Commission in 1949 to aid the many waste-producing industries in the Compact area, was continued during the year. Until 1953 the program was financed by annual grants from the Public Health Service under the provisions of the Federal Water Pollution Control Act of 1948. Funds for continuing the work since that time have been made available from the appropriations to the Commission by the signatory States. The various projects conducted under the program have been carried out in accordance with agreements made annually with the University of Rhode Island and Wesleyan University in Connecticut. At the University of Rhode Island the projects have been conducted by the Engineering Experiment Station under the direction of Professor Henry Campbell and at Wesleyan University, the studies were supervised by Professor M. G. Burford at the Hall Laboratory of Chemistry. An initial survey of industrial wastes showed that the textile industry was the largest contributor of wastes in the Compact area and was faced with many difficult problems of treatment and disposal. Accordingly special emphasis has been placed on textile wastes in the research program. Since its inception the program has been coordinated with the research work of governmental and industrial agencies to prevent any duplication.

The project at Wesleyan University during the year involved a study of wool mill wastes, the report on which would provide a companion report to the cotton finishing wastes report published by the Commission in 1953. The aim of the project was to determine the polluting characteristics of each waste from wool mills, the extent of its contribution to the total pollution, its polluting power based on the weight of the cloth treated, the comparison of alternate processes, the original source of the polluting substances, the determination of the polluting characteristics of the pure processing chemicals, the possibility of substituting low oxygen-demanding chemicals for high ones, and the water demand of each process. The study was conducted at a
Connecticut woolen mill located near Wesleyan University. The mill uses all the processes typical of a wool mill from the scouring of grease wool to the finishing of the cloth. The report was published by the Commission in June 1954, under the title “Pollution Sources in Wool Scouring and Finishing Mills and Their Reduction Through Process and Process Chemical Changes”. As in the case of the study of cotton finishing wastes, the report shows the possibilities of substantial reductions in pollution by changes in processes and the process chemicals used. Copies of this publication were distributed to all wool mills in the New England Compact area and to pollution control agencies and technical libraries throughout the country.

The Experiment Station of the University of Rhode Island did not undertake any projects for the Commission during the year because its entire staff was engaged in waste treatment studies for several Rhode Island textile mills. In this connection the continuing work of the Experiment Station with the Bradford Dyeing Association, one of the largest textile finishing plants in the Compact area, included studies on the recovery of caustic and the possible segregation of cleaner wastes at the plant, the reduction in the alkalinity of the wastes by the introduction of carbon dioxide from the flue gas, and experiments to determine the removal of biochemical oxygen demand in the plant wastes by lagooning.

Agreements for projects in 1955 at the University of Rhode Island and Wesleyan University are now being prepared and provide for

Experimental Apparatus at the University of Rhode Island for Studying Alkaline Reduction in Textile Wastes by the Absorption of CO₂ from Flue Gas

INDUSTRIAL WASTE REPORTS
ON
COMMISSION PROJECTS

Survey of Textile Wastes—N.E.I.W.P.C. Compact Area
(University of Rhode Island—1950)

Textile Wastes—a Review 1936-1950
(Wesleyan University—1950)

Survey of Industrial Wastes—N.E.I.W.P.C. Compact Area
(University of Rhode Island—1951)

Survey of Wastes from a Small Textile Mill Processing Wool and Cotton
(Tufts College—1951)

A Study of Cotton Finishing Wastes
(University of Rhode Island—1951)

A Survey of Three Textile Mills in Connecticut
(Wesleyan University—1951)

Industrial Wastes in the New England Interstate Water Pollution Control Compact Area
(University of Rhode Island—1952)

Industrial Waste Surveys of Two New England Cotton Finishing Mills
(Wesleyan University and University of Rhode Island—1953)

Treatment Plants for Cotton Finishing Wastes
(University of Rhode Island—1953)

Pollution Sources in Wool Scouring and Finishing Mills and Their Reduction Through Process and Process Chemical Changes
(Wesleyan University—1954)

*Published by the Commission for distribution
further studies relating to textile wastes. The project at the University of Rhode Island pertains to the design, operation and efficiency of textile waste treatment plants, while at Wesleyan University a study will be made of possible pollution reduction in synthetic fibre mills through process and process chemical changes. The Wesleyan report will be prepared in similar form to the cotton finishing and wool wastes reports, for publication by the Commission. Both studies will be financed from appropriations to the Commission from its member States.

The Commission has continued its cooperation with the many organizations and associations concerned with the treatment and disposal of industrial wastes including the National Task Committee on Industrial Wastes, the National Council for Stream Improvement (of the Pulp, Paper and Paperboard Industries) Inc., the Manufacturing Chemists' Association, Inc., the National Association of Manufacturers and the American Association of Textile Chemists and Colorists. The sectional stream pollution committees of the A.A.T.C.C. in New England have been especially active. The Rhode Island Section prepared a glossary on waste treatment and stream pollution and a paper on the biochemical oxygen demand of textile chemicals for publication in the trade journals.

Relative to research on the treatment and disposal of wastes from the paper industry, the National Council for Stream Improvement continued its project at Bates College dealing with the effects of spent sulfite liquor upon receiving waters. The Council plans to negotiate a contract with the University of Maine to study waste treatment methods for Maine's paper and pulp industry. Of great interest was the recent report of the Brown Company at Berlin, New Hampshire, on pilot plant experimental work which indicated the possibility of building a multi-million dollar plant for the manufacture of the synthetic solvent furfural from the sulfite waste liquor.

The Connecticut State Water Commission continued its detailed study of all the industrial wastes in the State and approximately 50 per cent of the communities have now been covered. For the past four years, the commission has held conferences with the brass companies throughout the State to discuss a program of pollution abatement and now has underway a demonstration study and survey at the Scovell Manufacturing Plant at Waterbury. In connection with the Connecticut research on algae control, the construction of a pilot plant was completed at the Fairfield State Hospital to carry out the experimental work. Members of the staff of the State Water Commission assisted in the recent wool mill study sponsored by the Commission at Wesleyan University.

The official dedication of the new Lawrence Experiment Station of the Massachusetts Department of Public Health was held on December 15, 1953 inaugurating a new era in the Station's history of contributions to the science of sanitary engineering. Under the long-range research program at the Station, the studies of the operation of trickling filters will be resumed as soon as possible, and several other problems involving fundamental studies of sewage treatment have been planned. Special field and laboratory studies on industrial wastes conducted by the Station during the year in cooperation with plant management involved tannery, textile, chemicals, plastic and fly ash problems.
POLLUTION CONTROL LEGISLATION

STATE LEGISLATION

Massachusetts, New York and Rhode Island were the only States in the Compact area to hold legislative sessions in 1954. In these States the Legislatures convene annually while in the other States biennial sessions are held.

The Massachusetts Legislature enacted pollution control legislation providing for the establishment of systems of sewers and the construction of sewage treatment and appurtenant works. In Rhode Island there were enacted two important amendments to the General Laws in connection with oil pollution prevention and the sanitary control of shellfish areas.

In Maine the Legislative Research Committee voted to study the matter of pollution of Maine waters. Public hearings were held by the Committee and a report covering all phases of the subject will be submitted to the 1955 Legislature.

LEGISLATION ENACTED IN MASSACHUSETTS

Chapter 374 of the Acts of 1954:
Authorizes the city of North Adams to contract with the town of Clarksburg for the reception and disposal of sewage from said town.

Chapter 399 of the Acts of 1954:
Extends the North Metropolitan Sewerage District to include the town of Wilmington and appropriates $1,600,000 for a trunk sewer connection.

Chapter 452 of the Acts of 1954:
Authorizes the construction of additional intercepting sewers in the North Metropolitan Sewerage District and appropriates $750,000 for the purpose.

Chapter 462 of the Acts of 1954:
Directs the Metropolitan District Commission to provide a new sewage treatment plant for the town of Clinton and appropriates $650,000 for its construction.

Chapter 502 of the Acts of 1954:
Authorizes the town of Shrewsbury to construct a sewerage system including treatment works and provides for a bond issue of $2,750,000.

Chapter 612 of the Acts of 1954:
Authorizes the establishment of the Hillcrest Sewer District in the town of Leicester.

Chapter 66 of the Resolves of 1954:
Provides for a joint board consisting of the Departments of Public Works and Public Health to investigate the polluted condition of the Lees River in the town of Swansea and report its findings and recommendations to the Legislature.

Chapter 82 of the Resolves of 1954:
Provides for a joint study and legislative report by the Departments of Public Health, Public Works and Commerce and the Metropolitan District Commission relative to the feasibility of improving the drainage of the Charles, Neponset and Mystic Rivers.

LEGISLATION ENACTED IN RHODE ISLAND

Chapter 3324 of the Public Laws January Session 1954:
Amends the General Laws by authorizing the Department of Health to prosecute for failure to adopt preventive measures against oil pollution when ordered by the Department. Prior to the amendment no prosecution could be instituted until oil pollution occurred. The amendment also facilitates the enforcement of orders by eliminating the requirement of a hearing before court proceedings are instigated.

Chapter 3371 of the Public Laws January Session 1954:
Amends the General Laws by detailing the standards that must be used as a basis for declaring water polluted and unfit for the taking of shellfish for human consumption. The amendment will avoid any question of the constitutionality of action taken in declaring areas polluted without specific standards in the law.

FEDERAL LEGISLATION

The following bills introduced into the 1st Session of the 83rd Congress (January 3—August 3, 1953) in relation to water pollution control and water resources remained in committee during the 2nd Session.

H.R. 234—
A bill to encourage the prevention of water pollution by allowing amounts paid for industrial waste treatment works to be amortized at an accelerated rate for income tax purposes. Byrnes; Committee on Ways and Means. (H.R. 606 and 2535 were similar bills.)
H.R. 326—
A bill to prohibit the establishment of a valley authority in any State affected thereby until the people of the affected area have voted affirmatively for such valley authority. McDonough; Committee on Public Works.

H.R. 495—
A bill to establish a Merrimack Valley Authority. Lane; Committee on Public Works.

In July 1953 the Committee on Ways and Means considered H.R. 234 and similar bills at the revenue revision hearings. A statement adopted by the Commission on June 23, 1953, urging favorable action on these bills to aid industry financially in providing waste treatment facilities, was presented at the hearings. While the 83rd Congress failed to pass any of these so-called accelerated amortization bills, the Internal Revenue Code of 1954 provides certain liberalized depreciation procedures applicable to waste treatment works.

Introduced into the 2nd Session of the 83rd Congress which convened on January 6, 1954 were the following bills:

H.R. 7168—
A bill authorizing an appropriation of $40,000,000 a year to the Department of Health, Education, and Welfare for each of the fiscal years during the period July 1, 1954 to June 30, 1959 for making loans to municipalities for construction of sewage treatment works as provided under the Federal Water Pollution Control Act. Bailey; Committee on Public Works.

H.R. 8250—
A bill authorizing an appropriation of $3,000,000,000 to offset declining employment by providing for Federal assistance to States and local governments in projects of construction, alteration, expansion, or repair of public facilities and improvements. Kelley; Committee on Public Works.

H.R. 8302—
A bill to extend the provisions of the Federal Water Pollution Control Act of 1948 to June 30, 1958. Dondero; Committee on Public Works.

H.R. 8782—
A bill to provide grants to municipalities for the construction of sewage treatment works to prevent and abate pollution of the Connecticut River and its tributaries. Grants of 50 per cent of the estimated cost of constructing treatment works including preparation of reports, plans and specifications would be authorized upon approval of the Chief of Engineers and the Secretary of the Army. Boland; Committee on Public Works.

S. 2938—
Housing Act of 1954—Reserve of Planned Public Works. This section of the bill authorizes the Housing and Home Finance Administrator to make funds available to public agencies to aid in financing the cost of surveys, designs, plans, and specifications to encourage the maintenance of a continuing and adequate reserve of planned public works. The bill authorizes an appropriation of $10,000,000 for this purpose. Capehart; Committee on Banking and Currency.

S. 3315—
A bill to assist smaller municipalities to finance vitally needed and specific types of public works by providing a guaranty by the United States of approved bonds hereafter issued by these municipalities. Long; Committee on Public Works.

S. 2938 was the only one of the above bills acted upon favorably by the 83rd Congress. It was enacted as Public Law 560 which authorizes the advancement of funds to public agencies to plan needed public works. For the purpose of this Third Advance Planning Program, Congress appropriated $1,500,000 of which $15,000 is allocated for a national survey of existing public plans. Water, sewer and sanitary facilities are given top priority and the advances are for the preparation of preliminary plans only. The act limits expenditures in each State to five per cent of the funds appropriated and the advance to any applicant cannot exceed $10,000. Advances will become due and payable in full whenever any portion of the work contemplated is placed under construction.
COOPERATION WITH FEDERAL AGENCIES

The Commission and the States cooperated throughout the year with those agencies of the Federal Government concerned with water resources conservation, development and utilization, more especially the Public Health Service and the New England-New York Inter-Agency Committee (NENYIAC).

PUBLIC HEALTH SERVICE

Pollution control activities on the Federal level are carried out by the Division of Water Pollution Control of the Public Health Service, which is directed under the Federal Water Pollution Control Act of 1948 to assist interstate and State pollution control agencies in the furtherance of their programs by rendering technical assistance and providing financial aid. In the Compact area the activities of the Public Health Service are administered through the Northeast Drainage Basins Office at Boston. While in previous years that office prepared Federal-State cooperative reports on pollution in the river basins of the area, the staff has concentrated its efforts during the year on the pollution control phase of the New England-New York Inter-Agency Committee study which is scheduled for completion in 1955.

The Public Health Service through its Division of Water Pollution Control issued several publications which were distributed throughout the area by the New England Interstate Water Pollution Control Commission and the States. These publications include: "Handbook of Selected Biological References on Water Pollution Control, Sewage Treatment and Water Treatment", "Selected Bibliography of Publications on Industrial Wastes Relating to Fish and Oysters", and "Selected Bibliography of Publications Relating to Undesirable Effects Upon Aquatic Life by Algicides, Insecticides and Weedicides". The first in a series of Industrial Waste Guides prepared by the National Technical Task Committee in cooperation with the Public Health Service was released and is entitled "An Industrial Waste Guide to the Milk Processing Industry". The second, entitled "An Industrial Waste Guide to the Meat Packing Industry" is being printed. The Sanitary Engineering Center of the Public Health Service at Cincinnati issued a booklet containing a list of publications pertaining to environmental health subjects which include sewage and industrial waste treatment and water pollution control.

NEW ENGLAND – NEW YORK INTER-AGENCY COMMITTEE

The Committee is nearing the completion of its study initiated in 1950 under a directive from President Truman to conduct a comprehensive survey of the natural resources of the area under the following subjects: power, navigation, flood control, forest management, fish and wildlife conservation, mineral development, industrial and municipal water supply, pollution control, recreation and soil conservation. As established, the Committee consists of representatives of six Federal Departments and the Federal Power Commission and a representative of each State appointed by the Governor. During the past year the Committee was as follows:

NEW ENGLAND – NEW YORK INTER-AGENCY COMMITTEE

REPRESENTATIVES OF FEDERAL AGENCIES

Department of the Army (Chairman Agency)
Colonel B. B. Talley, Corps of Engineers

Department of Agriculture
Harris W. Soule, Soil Conservation Service

Department of Commerce
C. E. Swain, Bureau of Public Roads

Department of Health, Education, and Welfare
Leonard W. Trager, Public Health Service

Department of the Interior
David R. Gascoyne, Fish & Wildlife Service

Department of Labor
Arthur C. Gernes, Defense Manpower Commission

Federal Power Commission
John H. Spellman, Federal Power Commission
The Pollution Control Study and Report Group met at Boston on several occasions during the year at the request of certain States to discuss the pollution reports being prepared and to establish policies and procedures. As of June 30, 1954, pollution reports on the 28 river basins included in the study had been prepared and distributed to the group members. Final reports, after comments and revisions, had been completed for 17 basins and the others were in the process of revision.

**STATUS OF FINAL BASIN REPORTS OF POLLUTION CONTROL STUDY AND REPORT GROUP**

<table>
<thead>
<tr>
<th>COMPLETED</th>
<th>UNDER REVISION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Androscooggin</td>
<td>Black</td>
</tr>
<tr>
<td>Connecticut Coastal</td>
<td>Connecticut</td>
</tr>
<tr>
<td>Housatonic</td>
<td>Genesee</td>
</tr>
<tr>
<td>Kennebec</td>
<td>Hudson</td>
</tr>
<tr>
<td>Maine Coastal</td>
<td>Lake Champlain</td>
</tr>
<tr>
<td>Massachusetts Coastal</td>
<td>Lake Erie and Niagara</td>
</tr>
<tr>
<td>Merrimack</td>
<td>Lake Memphremagog</td>
</tr>
<tr>
<td>Narragansett Bay</td>
<td>Lake Ontario</td>
</tr>
<tr>
<td>New Hampshire Coastal</td>
<td>Oswego</td>
</tr>
<tr>
<td>Pawcatuck</td>
<td>St. Lawrence</td>
</tr>
<tr>
<td>Penobscot</td>
<td>Thames</td>
</tr>
<tr>
<td>Piscataqua</td>
<td></td>
</tr>
<tr>
<td>Presumpscot</td>
<td></td>
</tr>
<tr>
<td>Rhode Island Coastal</td>
<td></td>
</tr>
<tr>
<td>Saco</td>
<td></td>
</tr>
<tr>
<td>St. Croix</td>
<td></td>
</tr>
<tr>
<td>St. John</td>
<td></td>
</tr>
</tbody>
</table>

The comprehensive report of the Committee is being prepared in 41 volumes and public hearings on a regional basis will be conducted in late 1954 and early 1955 in order to obtain the views of all interested parties on the findings of the Committee. Prior to each hearing, copies of the report will be available for public inspection in the region where the hearing is scheduled. Following consideration of the views expressed at the public hearings, the report will be submitted for comment to the Governors of the States in the area and to the heads of participating Federal agencies. On or before July 1, 1955 the report in its final form will be transmitted to President Eisenhower. In discussing the report, Chairman Talley of the Committee recently stated, “The report does not recommend specific construction of any project at any time or by any interest. Rather, the report serves as a guide for those who may be responsible for the implementation of these programs in the future”.

**STATE REPRESENTATIVES ON POLLUTION CONTROL STUDY AND REPORT GROUP**

**Connecticut**
- Warren J. Scott, Department of Health

**Connecticut**
- William S. Wise, State Water Commission

**Maine**
- Dr. Dean Fisher, Department of Health and Welfare

**Massachusetts**
- Clarence L. Sterling, Jr., Department of Public Health

**New Hampshire**
- William A. Healy, Department of Health

**New York**
- A. F. Dappert, Water Pollution Control Board

**Rhode Island**
- Walter J. Shea, Department of Health

**Vermont**
- Philip Shutler, Water Conservation Board

**New England Interstate Water Pollution Control Commission**
- Joseph C. Knox
FINANCES

Funds for the operation of the Commission are appropriated annually in accordance with Article VIII of the Compact, under which the States agree to appropriate such sums as shall be recommended by the Commission. Article VIII specifies the extent to which each State is obligated on the basis of population and valuation within the Compact area. For the year ended June 30, 1954, the Commission recommended that the States contribute the amounts to which they are obligated, a total of $17,500.

The annual budget adopted by the Commission for the fiscal year ended June 30, 1954 was $21,300, consisting of $18,300 for administrative expenses and $3,000 for industrial waste surveys and research. The total disbursements for the year amounted to $19,163.71.

The accounting records of the Commission were audited at the end of the fiscal year 1953-54 by Scovell, Wellington & Company, accountants and auditors, as they have done annually since the Commission was established. The books and records of the Commission are available for examination by authorized representatives of the signatory States.

The Auditors’ Report and their Statement of Receipts and Disbursements for the year follow.

STATEMENT OF RECEIPTS AND DISBURSEMENTS

For the Year ended June 30, 1954

Cash balance, June 30, 1953
Represented by
Cash in Springfield Safe Deposit and Trust Co. $12,986.97
Cash in office 100.00 $13,086.97

Receipts
State appropriations
Connecticut $3,000.00
Massachusetts 6,500.00
New Hampshire 1,000.00
New York 4,500.00
Rhode Island 1,500.00
Vermont 1,000.00 17,500.00
Bank interest on savings account 186.80

Total receipts 17,686.80

Disbursements
Salaries $11,620.00
Office rent 1,920.00
Furniture and fixtures 54.17
Printing, stationery and postage 1,672.18
Industrial waste projects 1,400.00
Meetings 792.66
Office supplies 145.37
Telephone and telegraph 303.71
Travel 818.69
Electricity 56.82
Subscriptions 204.25
Sundry 175.86

Total disbursements 19,163.71

Cash balance, June 30, 1954
Represented by
Cash in Springfield Safe Deposit and Trust Co. $ 1,323.26
Cash in Provident Institution for Savings 10,186.80
Cash in office 100.00 $11,610.06

AUDITORS’ REPORT

We have examined the statement of receipts and disbursements of New England Interstate Water Pollution Control Commission for the year ended June 30, 1954. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying statement fairly presents the receipts and disbursements of New England Interstate Water Pollution Control Commission for the year ended June 30, 1954, and the balance of cash on hand at that date.

/s/ SCOVELL, WELLINGTON & COMPANY

Boston, Massachusetts
August 10, 1954