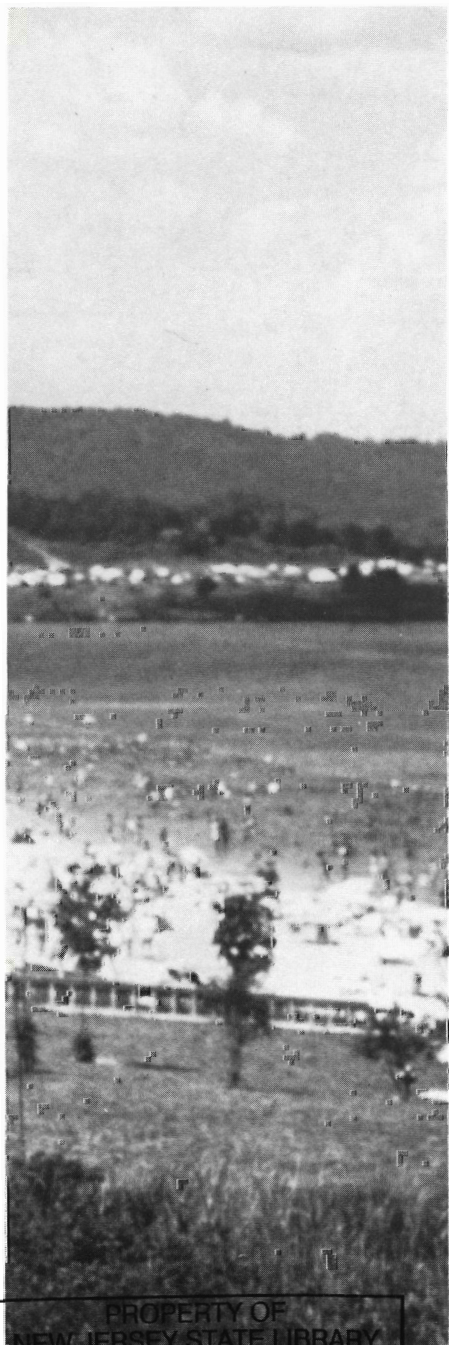




Annual Report 1983

New Jersey Department of Environmental Protection



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Let's Protect Our Earth

Let's protect our earth



The Honorable Thomas H. Kean
Governor of the State of New Jersey

Members of the New Jersey Legislature

The attached annual report outlines the progress made by the Department of Environmental Protection during the period January 1, 1983 to December 31, 1983.

It was a year of progress based on foundations laid in the past—the successful rearing of trout at the new Pequest Hatchery; construction of new recreational facilities; acquisition of more open space; initial cleanup of dioxin and drum dump sites; development of hazardous waste disposal facility siting criteria; upgraded shellfish harvesting areas; a national leadership role in acid rain policy development; protection of fisheries from offshore drilling activities; expansion of the Medical Surveillance Program for worker protection; improved contract administration oversight to speed up hazardous waste cleanups; and the introduction of automated office equipment to improve worker productivity.

It was also a year in which foundations were laid for future progress—passage of Green Acres, Shore Protection and Water Supply ballot questions for the enhancement and protection of natural resources; the adoption of a hazardous waste site cleanup plan; passage of Right to Know legislation to identify hazardous substances in the workplace and the community; protection of potable water supplies under the Safe Drinking Water Act; and preventive measures to detect and clean up property and facilities under the Environmental Cleanup Responsibility Act.

1983 was marked by the strengthening of cooperative efforts between and among citizen, government, industry and academic communities to respond to the environmental challenges facing New Jersey.

Your leadership and that of the New Jersey Legislature and the New Jersey Congressional Delegation has resulted in our state being in the forefront of environmental protection efforts at the state and national level.

Sincerely,

ROBERT E. HUGHEY
Commissioner

New Jersey Department of Environmental Protection

Let's Protect Our Earth

On Earth Day, April 22, 1970, the New Jersey Department of Environmental Protection (DEP) was created to unite the state's environmental protection efforts and eliminate unnecessary duplication. Public demand that the environment be healthy, clean, and productive to provide a strong economic and recreational base has defined the DEP's role. The department manages and protects New Jersey's natural, cultural, and recreational resources, as well as education programs.

Today, the department has seven major divisions and several specialized offices employing 2,300 persons. Over the years, many innovations and model programs have been developed by DEP, earning New Jersey recognition across the nation as a leader in environmental protection.

Contents

	Page
<i>Fish, Game and Wildlife</i>	<i>1</i>
<i>Parks</i>	<i>3</i>
<i>Forestry</i>	<i>4</i>
<i>Green Acres</i>	<i>5</i>
<i>Coastal Resources</i>	<i>6</i>
<i>Natural Resources</i>	<i>7</i>
<i>Water Resources</i>	<i>8</i>
<i>Air Quality</i>	<i>9</i>
<i>Radiation</i>	<i>11</i>
<i>Environmental Labs</i>	<i>12</i>
<i>Waste Management</i>	<i>13</i>
<i>Pesticide Control</i>	<i>14</i>
<i>Science/Research</i>	<i>15</i>
<i>Planning</i>	<i>17</i>
<i>Regulatory Services</i>	<i>18</i>
<i>Noise</i>	<i>18</i>
<i>Management/Budget</i>	<i>19</i>
<i>DEP Directory</i>	<i>20</i>

Special thanks to all those who helped in the preparation of this report.

Fish, Game and Wildlife

The Division of Fish, Game and Wildlife was established to protect and manage the state's wildlife and to codify and enforce regulations relating to wildlife species.

To achieve its goal of maintaining the density and diversity of NJ's wildlife resources, the Bureau of Wildlife Management develops and implements programs and associated regulations ranging from the management of native species to the reintroduction of wild turkeys and other rare species.

The Bureau of Marine Fisheries and the Bureau of Shellfisheries manage the state's marine resources. Marine Fisheries works closely with other state and federal agencies to develop programs for commercial and recreational fishing interests. Shellfisheries issues shellfish licenses and leases shellfish growing land to commercial fishermen.

The Bureau of Freshwater Fisheries provides for freshwater protection and habitat development for recreational anglers. It is responsible for trout and other fish stocking programs.

Since 1982, New Jersey residents have been "checking off" on their state income tax forms to contribute to the NonGame and Endangered Wildlife species program. This program develops strategies to retain and protect the state's nongame and endangered wildlife species and their essential habitats.

The Division's scope of activity in 1983 included new programs which contributed to public enjoyment of the state's varied natural resources.

A new Northern District Regional Office, "Hedge Haven" in Hampton, Hunterdon County, has combined the Bureaus of Wildlife Management, Nongame and Endangered Wildlife, Law Enforcement and Hunter Education into one office. Greater public service is being provided along with savings from reduced operating expenses due to consolidation.

In the fields of fishery and wildlife management, the first South Jersey turkey hunting season, scheduled for May 1984, was established. The first brook, brown and rainbow trout have been successfully reared at the new Pequest Fish Hatchery and initial results are impressive. New Jersey deer hunters set a record harvest for the third consecutive year. In addition, the state record for muskellunge, 37.8 pounds, was broken and a world record striped bass of 78.8 pounds was caught off a jetty in Atlantic City.

New access sites were dedicated during the year. The Mad Horse Creek Boat Ramp in Salem County will provide additional access to the Delaware Bay and the Kingswood Ramp in Hunterdon County will increase access to the upper Delaware River.

The "Skillful Angler Award" was

inaugurated in cooperation with the Fisherman Magazine. This reporting system recognizes trophy fish, both salt and freshwater, in certain weight classes. Recognition pins will be awarded for the various fish categories.

"Operation Game Thief" was inaugurated in cooperation with the State Federation of Sportsmen's Clubs. This program established a procedure by which citizens can anonymously report violations of the state fish and game laws and receive financial rewards following convictions.

This year the division investigated the use of computerization of the programs, budgets and filing of information using desktop mini-computers with a tie-in to the departmental data base system.

The division participated in the Department of Environmental Protection's Acid Rain Conference which was held in conjunction with New York and Pennsylvania. This important conference focused on the Northeast's acid rain problems including its effect on natural resources.

Nongame and Endangered Species activities in New Jersey resulted in five broods of peregrine falcons in the wild in the bald eagle translocation program. Six eagles acquired from Canada were released into South Jersey to further reestablish the New Jersey eagle population.

Taxpayer donations to the Nongame



Wildlife Conservation Fund showed another increase in 1982, demonstrating New Jersey residents' concern about their wildlife resources. Last year approximately 5.2% of all New Jersey taxpayers contributed to the fund. This represents an 11% increase in donations from the previous year.

In the interest of consolidation of game rearing facilities and economy, the Forked River State Game Farm was leased to the state Department of Corrections and arrangements were made for the division to buy pheasants and quail for liberation purposes at a cost lower than the commercial price.

Legislation signed into law during the year authorized increased penalties for the unlawful taking of clams and oysters, and higher fish and game license fees.

The Wildlife Education Unit has moved from their old offices into the new Pequest Natural Resource Education Center. The unit began preparing the facility and grounds for the 200,000-500,000 people that are expected to visit the Hatchery/Education Center each year. Although the grand opening of Pequest is expected toward the end of 1984, the center has already been used for meetings, hunter education courses, mini-workshops and department training sessions.

The annual Wildlife Workshops for teachers continued to be one of the Education Unit's most important events.

These workshops have served as a model to aid other states and conservation organizations in developing similar programs.

HARD CLAM RELAY

The New Jersey hard clam relay may sound like another marathon race, but is in fact an innovative shellfish resource management program benefitting both clambers and consumers.

The clam relay, started in 1970, was originally intended to discourage the illegal harvesting of contaminated clams from polluted waters by removing them. Large concentrations of the shellfish made them tempting targets for quick and easy collection by unscrupulous clambers. However, the adaptability of the clam to reproduce in polluted waters still kept the shellfish population at high levels.

Recognizing the ability of the clam to cleanse itself, shellfish managers changed the focus of the relay program and looked upon the polluted clams as a resource. Under state supervision, private clambers harvested clams from polluted waters and replanted them in specially designated lots in clean waters. The self-cleansing process, called depuration, takes about 30 days. After laboratory tests confirm the clams are no longer contaminated, they are ready for re-harvesting and market.

The clam relay program was expanded in 1981 and 1982 to take clams from the Shark River, Sandy Hook Bay, Shrewsbury River, and the Navesink River for depuration in Barnegat Bay and Tuckerton Cove.

The hard clam relay program has increased legal harvest opportunities for clambers and benefitted the consumer by assuring a supply of uncontaminated shellfish.

Legislation was passed this year which requires a state waterfowl stamp for hunting waterfowl in New Jersey. The stamp will sell for \$2.50 for New Jersey resident hunters and \$5.00 for non-

resident hunters. The minimum penalty for hunting waterfowl in N.J. without the stamp is \$25.00 and the maximum is \$1,000.

The legislation also enables the state to benefit from the sale of limited edition prints reproduced from the stamp design. It is estimated that \$600,000 will be raised in the first year by the state from the sale of waterfowl stamps and royalties from art prints. The money will be used to purchase, manage, improve, and protect wetlands which are vital to the well being of waterfowl resources and other wetlands associated resources.

The Education Unit administered and coordinated the mandatory Trapper Education Course with cooperation from the Bureau of Wildlife Management and local trapping organizations. For the first time ever, Trapper Education received Federal Aid and was funded on its own this past fiscal year. A total of 426 students were certified at the 15 courses taught throughout the state.

The division continued to use Operation Good Neighbor in areas where hunting is perceived to be a problem by township officials. This highly successful program uses "safety zone" posters to avoid closure of land to hunting in these areas. A combination of hard work and cooperation among division biologists, conservation officers and sportsmen is the reason for the success of Operation Good Neighbor. ○



Parks

New Jersey's Division of Parks and Forestry has been providing outdoor recreation and forest management programs since the beginning of the twentieth century.

The State Park Service provides for the maintenance, operation and protection of 35 state parks, 11 state forests, 5 recreation areas, 33 natural areas, 25 historic sites and 3 state marinas to provide recreational opportunities for the public.

Over 8,500,000 people visited N.J. state parks, forests, marinas, and historic sites this year.

During 1983, Federal Jobs Bill monies enabled the division to undertake major landscaping projects at Spruce Run Recreational Area, Fort Mott and Washington Crossing State Parks, Spring Meadow Golf Course, and the Lenoardo, Forked River and Senator Frank S. Farley State Marinas.

New facilities completed during 1983 include the Liberty State Park Environmental Center, Island Beach Maintenance Complex, Lebanon Administration and Maintenance Complex, and the Batsto Visitors Center.

Other improvements include new sanitary facilities at Stokes State Forest; dam rehabilitation at Double Trouble

State Park; new dams at Hopatcong State Park, Musconetcong and Saxton Falls; bridge rehabilitation at Hampton Bogs; a comfort station at Washington Crossing amphitheater, restoration at Rockingham historic site, and improvements to the East Millstone Canal House.

In 1983, through the Homeowners Firewood Program, a total of 4,700 cords of wood were made available to the public throughout the state at a cost of \$10 per cord.

The Youth Recreation Opportunity Program enabled a total of 84,916 inner city youths to enjoy summer day trips to state parks, forests, recreational areas and other cultural places. A total of 82 agencies consisting of municipalities and non-profit organizations were granted \$352,872 for this purpose. The campership portion of this program enabled over 700 youth from low to moderate income families to participate in a day camp or residential camping experience. A total of \$58,312 was allocated to 15 agencies for this purpose. The average attendance was 8 days per youth.

A new type of concession operation was initiated on a trial basis during July at Bass River State Forest. This concession authorized the selling of campsite firewood by an outside vender to the campers. The concessionaire provides his own firewood and sells a

predetermined bundled quantity to campers at a cost of \$2 per bundle. This type of operation relieves the state of the responsibility for staffing, harvesting and transport of the wood.

A thirteen minute slide program entitled "The New Jersey State Park Service", was completed and distributed to twenty areas in the summer of 1983. This program provides the public with a clearer understanding of what the State Park Service is all about. It is being used for visitor orientation and awareness: public relations, recreational and environmental shows, out-reach and other related programs.

More than four hundred people were on hand for Governor Kean's dedication of the Swan Collection at Washington Crossing State Park in May. The Swan Collection, on long-term loan to the state from H. Kels Swan, is exhibited in the park's visitors center. More than eight hundred Revolutionary War items are on display.

The 50th Anniversary of the Civilian Conservation Corps was celebrated at Parvin State Park on May 16, 1983. The CCC has contributed much to this park including construction of trails and cabins; expanding a pond into what is now known as Parvin Lake and the construction of another lake at Parvin known as Lake Thundergust. An estimated 5,000 people attended this celebration which included an antique



Forestry

car show and tanks from the New Jersey National Guard.

An audio/slide program was developed for beach buggy enthusiasts at Island Beach State Park to interested patrons. The program is presented at the Island Beach Control Center located at the main entrance of the park. The program describes and explains the legitimate use of beach buggies within the park.

During July and August, DEP, in conjunction with the N.J. State Council on the Arts, sponsored free performances of mime, theater, dance, folk, Bluegrass, and popular music, puppet shows and craft shows to the public at 14 state parks, forests and marinas. A total of 20,803 visitors attended these programs throughout the summer.

An estimated 13,000 people visited the Ethnic Festival held at Liberty State Park in September. Visitors had the opportunity to see costumes of various ethnic groups and to taste ethnic foods prepared by the various cultures.

The first "Friends of the Parks" dinner meeting was held during the year. Governor Kean spoke to the representatives of the volunteer organizations which assist the State Park Service at various parks and forests, and historic sites. A "Friends of the Parks" slide program was premiered at this dinner. ○



The State Forestry Service was created to manage the forest environment for recreation, wood fiber, water supply, wildlife and other amenities; to prevent insect and disease damage and to protect life and property threatened by wildfire.

During 1983, 1,091 forest fires burned a total of 7,129 acres, a decrease from 1982. This reduction, which is far below average, was attributed to the above average rainfall during the spring fire season as well as an intensified fire prevention program.

The rural forestry assistance program was reorganized to advocate the use of consulting foresters to provide technical forestry advice to private landowners. Accomplishments for the program include preparation of 292 forest management plans covering 26,446 acres; reforestation of 168 acres; 387 acres of timber stand improvement; 3,724 acres of prescribed burning; and improved harvesting on 1,732 acres resulting in the harvest of 2,549 cords of firewood and 743,000 board feet of sawtimber.

Work continued on the pitch x loblolly pine tree improvement project to produce genetically improved seedlings and to find an economical method for mass production.

180,000 seedlings were harvested from both the Jackson Nursery and the Washington Crossing Nursery. The Washington Crossing Nursery was closed in 1983 after 57 years of continuous operation with all seedling production transferred to the improved Jackson Nursery site.

The Stokes State Forest Management Plan was completed. Field work was completed for Lebanon and Belleplain State Forests and High Point State Park.

There were five commercial sales on



state lands that covered a total of 640 acres and contained 2,457 cords of firewood, 1,081 cords of cedar, and 240,000 board feet of sawtimber with a total value of \$67,015 for the products sold.

3,760 permits worth \$37,600 were sold for the Homeowner Firewood Program involving 10 state forests and parks. 6,969 acres were prescribed burned representing 37% of the total acreage planned. Thirty acres of reforestation were completed on state lands.

PREScribed BURNING

PREScribed BURNING (Rxb) is the skillful application of FIRE to natural fuels under controlled conditions. The fire is confined to a predetermined area under conditions of fuel moisture and weather that will produce the desired intensity of heat and rate of spread to accomplish planned management objectives. In New Jersey, prescribed burning is used primarily for hazard reduction to reduce dangerous accumulations of leaves and pine needles which add fuel to the forest fire problem in the Pine Barrens.

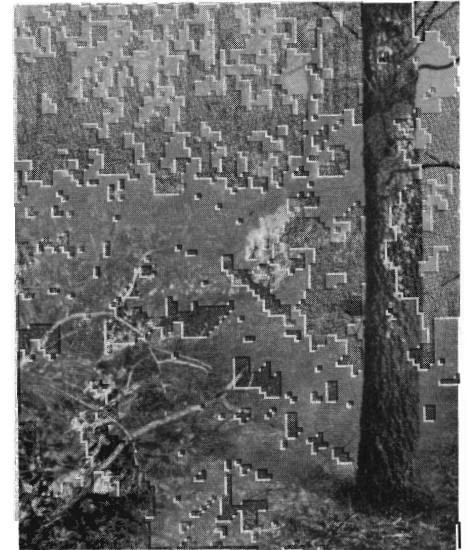
In 1983 a total of 9,459 acres was prescribed burned on State Park, Forest, and Fish and Game land.

A ground egg mass survey was taken during 1982-83 in 28 state forests and parks comprising 116,259 acres to locate gypsy moth infestations. As a result of this survey, an aerial spray program was recommended for 3,457 acres.

An aerial survey of 186,568 acres of state lands revealed that 25,227 acres of woodlands were defoliated by gypsy moths.

In 1983, 17 communities were designated as Tree City, U.S.A. by the National Arbor Day Foundation for the effective management of their tree resources.

The Board of Tree Experts certified 12 applicants bringing the total to 165 certified tree experts. ○



Green Acres

The Green Acres Program was born out of a 1961 bond issue that demonstrated the voters' belief that a highly urbanized state must set aside a sufficient amount of open space. The voters have reaffirmed this conviction by approving subsequent bond issues in 1971, 1974, 1978 and 1983 for a total of \$675 million.

Through its initial \$60 million funding, Green Acres was able to add to existing state park, forest and wildlife management lands and also provide matching grants for county and municipal open space. As the program progressed, planning documents were developed to guide the expenditure of the bond money.

The 1983 bond issue introduced the "Green Trust" a concept designed to continue the local assistance program through revolving low-interest loans. A portion of the funds are still available as grants for incentive purposes.

Green Acres has an administrative section and four main bureaus. The State Land Acquisition Bureau acts as DEP's real estate agent. The Planning Bureau provides guidance for open space and recreation projects by overseeing the Statewide Comprehensive Outdoor

Recreation Plan. The Bureau of Grants provides financial assistance to local municipalities to preserve open space and develop recreation facilities. Legal Services prepares and handles all documents and contracts pertaining to the program's real estate transactions.

1983 brought the passage of an innovative Green Acres bond issue. The key element of the referendum was the introduction of the Green Trust, an innovative, low interest loan program for local government designed to maintain acquisition and development capability far beyond the limitations of past bond issues.

The revolving loan approach will provide a long term lower cost funding source by avoiding the higher debt service costs of bonding.

The balance of the year proved just as rewarding. One hundred and fourteen local grant projects were approved in 1983. Thirty-six of these were for acquisition grants to municipalities totaling \$9,351,174 and seventy-eight were for development projects totaling \$12,131,956.

Local acquisition accounted for 2,515 acres. Some outstanding projects

completed include: the conversion of one of Ft. Lee's few remaining vacant sites into a multi-purpose recreation area, the redevelopment of Berkeley Island for increased access to Barnegat Bay and Cedar Creek, the metamorphosis of Bridgeton's Cohansey riverfront, and the enhancement of areas along the state's two historic canals—Morris Canal Park in Roxbury Township and Turning Basin Park along Princeton's stretch of the Delaware and Raritan.

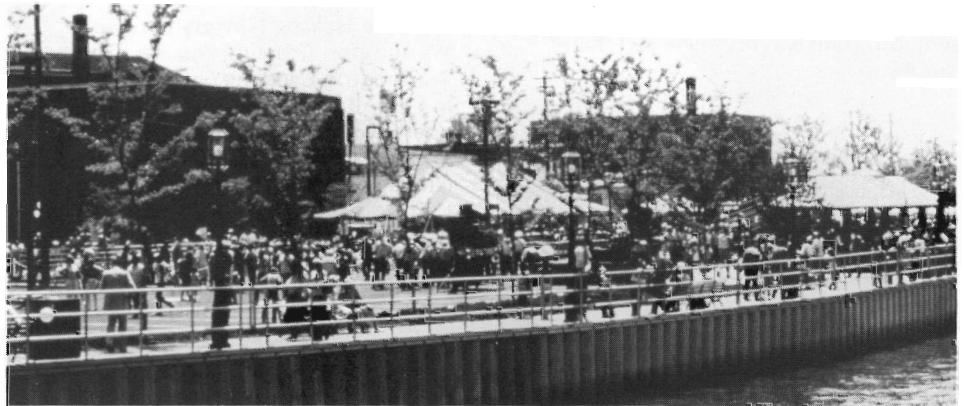
State acquisition for recreation and conservation areas totaled 11,500 acres through obligations and expenditures of \$9,900,000. Areas expanded included the Delaware and Raritan Canal, Kittatinny Mountain, Liberty and Allamuchy State Parks, and the Pinelands where over 10,000 acres were acquired. Major additions included Wharton (509 acres) and Bass River (612 acres) state forests. The purchase of 8,722 acres in Lacey Township served to link Double Trouble State Park to the Greenwood Forest Wildlife Management Area.

The divisions of Parks & Forestry and Fish, Game, and Wildlife continued to use Green Acres funds as an important part of their development program.○

Bridgeton Before



Bridgeton After



Coastal Resources

The Division of Coastal Resources implements New Jersey's Coastal Management Program, guided by a set of policies which form the basis for decisions made under the Waterfront Development Act, the Wetlands Act, the Coastal Area Facility Review Act (CAFRA) and the Tidelands statutes.

Coastal Project Review reviews all permit applications to assure compliance with the appropriate laws and for a wide variety of environmental, social and economic impacts.

A planning and management agency, Coastal Planning and Development refines and updates the Coastal Management Program, administers the local coastal grant program, conducts studies, and determines whether federal activities affecting the coast are consistent with the program.

Coastal Enforcement and Field Services provides an interdisciplinary inspection team, inspecting for illegal development, enforcing permit decisions, and assisting potential permit applicants. The Coastal Engineering unit plans and designs shore protection projects and conducts waterway maintenance including limited dredging activities.

The Tidelands Bureau reviews all applications for grants, leases and licenses of state-owned tidelands for the Tidelands Resource Council. If a site proposed for development includes state-owned tidelands for which no tidelands conveyance has been issued, the applicant must apply to the Council for a grant, lease or license.

The Division of Coastal Resources

issued 651 permits under CAFRA, the Wetlands Act, and the Waterfront Development Act, in concert with the plan for the management of New Jersey's coastal zone. Two hundred seventy three Tidelands licenses and grants were awarded, resulting in income to the fund for the support of free public schools of almost \$4 million.

DEP's authority to enforce its policy on affordable housing as a condition of a CAFRA permit was upheld by the State Supreme Court in an August 1983 decision.

In November, voters approved a \$50 million Shore Protection Bond Issue, enabling funding of additional shore protection projects. Major projects are planned for Sea Bright/Monmouth Beach, Atlantic City and Stone Harbor/Avalon. All funds from the 1977 bond issue have been allocated.

Dredging and Shore Protection projects in 1983 included:

- beach restoration in Atlantic City and Avalon.
- maintenance dredging of Nacote Creek in Galloway Township.
- maintenance dredging of the Point Pleasant Channel in Point Pleasant Beach, which had not been dredged in many years.
- maintenance dredging of Hereford Inlet. The navigation channel is now 200 feet wide and 15 feet deep.
- hydrographic surveys for 30 tidal navigation channels throughout the state for use in identifying future dredging projects.

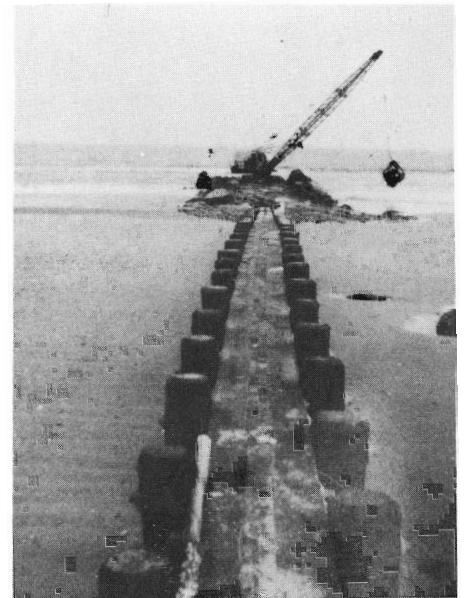
In addition to beach nourishment and structural engineering, an experimental program was initiated using artificial seaweed (Seascape) to control erosion at

Stone Harbor Point.

Local Coastal Grants were awarded to Long Branch, Asbury Park, and Keyport for waterfront and downtown revitalization plans; to Bayonne for a marina feasibility study; to Ocean City for a wetlands management and access plan; to Salem for a port district recreational access plan; to Oceanport for a waterfront park plan; and to Wallington and East Rutherford for a riverfront walkway.

In the northern part of the state, the Governor formed the Hudson River Waterfront Committee to facilitate development along the derelict and underutilized waterfront area, and named Commissioner Hughey to the steering committee. In the southern part of the state, the division is participating on a Delaware Valley Regional Planning Commission committee to identify Delaware Riverfront sites for redevelopment.

Major progress was made on the Hudson River Walkway Study this year. A walkway plan and design guidelines were prepared in draft for the Hudson River from the George Washington Bridge to Bayonne, and were presented at a public meeting. The plan will be implemented as individual developers apply for Waterfront Development Permits. Public access in the form of the walkway will be required as a part of each project. In cases where access along the waterfront is not possible, the developer will be required to provide the north/south walkway connection along the landward edge of the property. The final report, as well as a brochure for public distribution, will be completed early in 1984. ○



Natural Resources

Office of New Jersey Heritage

New Jersey's federally certified historic preservation program, the Office of New Jersey Heritage, identifies and lists historic sites for the State and National Registers, reviews publicly funded projects on recognized sites, certifies projects for federal preservation tax incentives and administers matching survey, planning and development

The Office awarded and administered \$437,000 in matching grants for survey and planning activities. Approximately 3,900 new properties were identified as eligible for the State and National Registers, of which 19 individual and district sites (comprising some 1,470 properties) were listed on the Registers.

The Office received 165 requests to review publicly funded projects for compliance with the federal National Historic Preservation Act of 1966. The evaluation establishes whether a building or site is registered or eligible for registration because of significant historical, architectural or archeological value.

Under the provisions of the 1981 Economic Recovery Tax Act, owners of properties within designated historical areas may be eligible for tax credits as an incentive to restore structures with income generating potential, usually for residential or office use. 86 projects valued at \$69.5 million were reviewed, which included the creation of 632 new housing units, primarily in inner city locations. An additional \$513,000 in federal Jobs Bill monies was directed toward restoration projects.

Groundwork was laid for the "Main Street" program to revitalize downtown commercial districts through the coordinated efforts of local groups. The keystone of the program is the adaptive reuse of structures while retaining unique design and historical aspects of the area.

Office of Natural Lands Management

The Office of Natural Lands Management identifies and develops strategies to protect unique, rare, endangered and scenic habitats. The office leads the preparation and implementation of management plans for state designated natural areas, and planning and development for the State Trail System and for implementing the Wild and Scenic Rivers Act and the newly passed Open Lands Management Act. In addition, it works with the Natural Lands Trust, a non-profit corporation established to accept land donations for preservation.

The protection of unique natural resources and features such as rare plant and wildlife habitats or special geologic formations is the focus of the Natural Areas System. Sites throughout the state are reviewed to determine their eligibility for inclusion on the Register of Natural Areas.

Placement on the Register does not alter land ownership, change land use or impose any regulatory requirement. The value of the listing lies in the official recognition of the importance of natural

resources in any state or local land use decisions.

The use and development of state owned designated Natural Areas will be guided by management plans. The first such plan was completed for the Island Beach Northern Natural Area with three additional plans in preparation.

During the year, the Natural Lands Trust was revitalized through appointments by the Governor to fill existing vacancies. Yearly meetings have been established, with the Office of Natural Lands Management serving as staff to the Trust. Promotion of the Trust and its purpose, identification of potential land donations, and an active solicitation program are the goals for the coming year.

This office is currently investigating Cedar Creek for designation under the State Wild and Scenic River Act. The eventual goal of the program is to revise the wild and scenic rivers regulations and to ensure local participation in the planning and implementation of a particular designation to protect unique natural resources.

A proposed trail route for the Cedar Creek trail to be located entirely on state and county owned land has been initiated. The Office is coordinating the efforts of a number of local and state groups to protect the remaining six miles of the forty mile Batona Hiking Trail in the Pinelands.

One of the goals for the coming year will be to identify the existing and proposed trails on state land and to serve as an advocate for local development of proposed trails. The State Trails Plan will provide the guide in identifying these scenic, recreation and connecting trails which comprise the State Trails System. ○



Water Resources

The Division of Water Resources is a diversified agency with a variety of programs designed to protect the state's surface and groundwater resources.

The Water Quality Management Element implements the New Jersey Pollutant Discharge Elimination System, which monitors programs for surface water discharges and industrial and municipal groundwater discharges.

The Water Supply and Watershed Element allocates the available supply of surface and groundwater, develops programs for protection from floods and for safe drinking water supply.

The Construction Grants Administration guides the construction and management of municipal wastewater treatment systems. The New Jersey Geological Survey delineates and assesses groundwater contamination and water supplies, and keeps a geological, topographical and mineral resource inventory.

Monitoring and Planning keeps track of current quality of waters in the state, assessing the specific problems in watersheds, finding the sources of pollution, and recommending water quality criteria and standards. Other programs include Lakes Management and Shellfish Control.

The last decade has seen a concerted public and private effort to improve the water quality of the state's waterways.

One significant achievement was the completion of the 1982 *Water Quality Inventory Report*. This report provides a review of surface and ground water quality in the state. The report addresses potable water supplies, shellfish harvesting classifications and recommendations for improving surface water quality. On the average, water quality has been stable with some improvements over the past five years. Many coastal bays and estuaries improved significantly, resulting in the upgrading of over 7,000 acres of shellfish harvesting areas. Natural ground water quality is generally very good throughout New Jersey. Daily usage of water has been estimated to be over 500 million gallons in the southern portion of the Coastal Plain region.

Other water quality projects completed were: development of a Statewide Water Quality Management Plan; development of Water Quality Management and Implementation Rules; a joint DEP/EPA study of impacts on the Great Swamp Wildlife Refuge in the Passaic River Basin; a study of the water quality relationships between water supply projects and wastewater treatment in the Passaic and Raritan Rivers; and implementation of the County Environmental Health Act.

A new important and urgent responsibility for DEP is the implementation of A280, an amendment to the Safe Drinking Water Act. This Act will

ensure proper sampling and analysis of water supplies throughout the state. This falls under the jurisdiction of the Bureau of Potable Water, which also administers the National Safe Drinking Water Act.

The adoption of the rehabilitation loan program will allocate \$100 million from the Water Supply Bond fund for the rehabilitation of obsolete and inefficient water supply systems, the interconnection of systems to improve their ability to function during drought and emergencies, and remedial work in contaminated well fields.

The long awaited feasibility studies for the Camden Tri-County area, the South River Basin and Atlantic City well field area were approved and \$2 million was appropriated. These studies will determine potential new water supply projects, and outline the optimum solutions to contaminated well field problems.

The Construction Grants Administration this year certified fourteen wastewater treatment facility grants at a cost of \$117 million and six grant increases for projects were certified at a cost of \$8.9 million. To date, the total investment of EPA grants in wastewater facilities in New Jersey is \$2.2 billion.

A significant effort in investigating potential sources of groundwater contamination resulted in the initiation of remediation measures for the cleanup

Continued on page 9



of 53 sites totalling some \$35 million in remediation efforts.

The Geologic Survey investigated and assisted in over 300 private-sector clean-ups and 56 Federal Superfund (CERCLA) sites throughout the state. Over 350 ground water contamination sources have been assessed, and abatement remedies for the cleanup of threatened potable water aquifers have been recommended.

In the Ramapo River Basin and portions of the Rockaway and Pequannock Basins, the survey delineated glacial buried rock aquifers. This information will be used for the development of a ground water model of the aquifer by the United States Geological Survey, as well as proper water supply management and aquifer protection.

Under the Five Year Synoptic Water Level Program, the Survey obtained water level measurements from hundreds of wells within the central and southern coastal plain counties of New Jersey. These results will be used to develop new water level maps for aquifers which are impacted due to heavy ground water withdrawal.

The "Ground Water Pollution Index," published in 1983, catalogs over 500 ground water pollution cases throughout the state. Those cases listed illustrate aquifers most seriously impacted by either illegal disposal of hazardous waste or accidental spills from gasoline and fuel oil tanks.○

Air quality, pesticide control, radiation protection, emergency response, noise control and the environmental lab are all important components of the DEP's Division of Environmental Quality. The air pollution control program is responsible for achieving and maintaining clean air for the protection of the public, implementing the New Jersey Air Pollution Control Act and satisfying the requirements of the federal Clean Air Act. To this end, the program monitors air quality; analyzes, inspects and regulates emissions from stationary sources; and controls air pollution from mobile sources through the state's vehicle emission testing program. These programs work together to achieve the standards established in an air pollution control plan which is developed each year.

Through the efforts of the Bureau of Air Quality Management and Surveillance, the Air Program demonstrated its commitment to meeting National Air Quality Standards in 1983. A major revision of the State Implementation Plan was completed for the attainment and maintenance of ozone and carbon monoxide air quality standards. This plan was approved by EPA. A state plan for lead was also drafted during the year.

The weather for 1983 was characterized by unusually hot, dry and

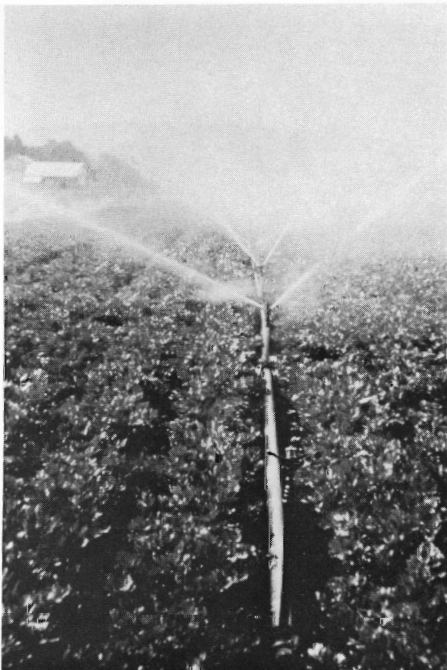
sunny days during the summer, followed by several periods of stagnation in the fall. This resulted in the highest number of unhealthy smog days ever reported by the department's air quality network, since monitoring efforts began in 1973. Ozone—the technical name for smog—is a secondary pollutant caused by organic emissions from industry and automobiles. When these emissions combine with sunlight they form the brown hazy eye irritant known as smog.

Carbon monoxide levels in urban areas also increased in the late fall. Almost all carbon monoxide emissions are caused directly by automobiles. However, two cities previously designated as violating the carbon monoxide standard—Asbury Park and Paulsboro—were reclassified this year, and are now in compliance with the standard.

The prime industrial pollutants, sulfur dioxide, particulate matter (smoke) and oxides of nitrogen, all remained at the same air quality levels in 1983 or continued the downward trend experienced in recent years.

The bureau is also addressing newly emerging air quality issues. A program was designed to monitor for toxic metals and carcinogenic organic substances in the atmosphere. DEQ took the lead on acid rain policy and program development for the state and was active in developing an acid rain policy for the Coalition of Northeastern Governors, chaired by Governor Kean.

A major change occurred in the motor



vehicles inspection system this year. The Bureau of Mobile Source Control and Enforcement Data Management, working with the Division of Motor Vehicles, is implementing a new program to license private garages to perform initial vehicle examinations. This allows motorists the choice of inspection centers. The bureau provides training and certification to the mechanics at the private stations.

To comply with this new legislation, specifications for emission test equipment were adopted. Newly licensed garages are required to purchase this equipment. All garages will be required to purchase the new equipment beginning May 1, 1985.

During 1983, over three million initial emission examinations were conducted in the state operated inspection lanes.

Efforts to assure that appropriate pollution control technology will be used on proposed resource recovery facilities included issuance of *Air Pollution Control Guidelines for Resource Recovery Facilities and Incinerators* and public meetings to receive comments on those guidelines. Commitments were obtained from two major applicants for facilities in Middlesex and Essex Counties to install scrubbers and meet stringent air contaminant emission rates. New Jersey is one of two states now requiring scrubbers on all major mass-burning incinerators. Other states, however, are now using the New Jersey guidelines to develop similar requirements.

The Bureau of Engineering and Technology expanded its review role related to air contaminant emissions from active and inactive landfills and hazardous waste sites. The integrated, multi-disciplinary review is carried out in cooperation with the Division of Waste Management which regulates solid and hazardous waste sites and facilities. Joint reviews reduce the possibility of shifting the discharge of pollutants from one place to another.

Implementation of the hazardous waste incinerators rules adopted in 1982 included evaluation of hazardous waste test burns for the EPA Mobile Incinerator and for the burning of the pesticide Silvex at the Rollins hazardous waste incinerator in Logan Township. Both tests showed highly efficient destruction of organic hazardous waste. Evaluation began of two applications to burn PCB's in incinerators.

In consultation with the Hazardous Waste Advisory Council, the Air Pollution Control Program developed siting requirements to protect air quality for New Major Commercial Hazardous Waste Facilities.

Significant coal burning review activities in 1983 included participation in the New York State hearings on the Consolidated Edison applications to burn coal in two New York City generating facilities. New York State subsequently required Con Ed to install scrubbers on these plants if they convert to coal burning. Within New Jersey, the department required that Atlantic

Electric use a lower sulfur coal at its B.L. England generating plant in Cape May.

The newly adopted "clean coal conversion incentive," was invoked when the U.S. Gypsum plant in Clark was granted a permit to install fluidized bed coal boilers with limestone injection to control sulfur dioxide. Under the incentive, U.S. Gypsum may burn higher sulfur oil for three years to help finance the state-of-the-art air pollution controls in the new boiler resulting in long term air quality improvement.

Progress was made in allowing industry to control air pollution for multiple sources in the most cost-effective manner without affecting air quality. The EPA approved New Jersey's sulfur dioxide bubble rule which allows higher sulfur oil to be used in the boiler if a nearby boiler is burning natural gas. Under the regulation to control the emissions of volatile organic substances (VOS), 11 volatile organic bubbles were approved in 1983. These involved the reduction of VOS emissions by about 3,300 tons per year.

The Air Pollution Control Program accepted federal delegation to administer the Prevention of Significant Deterioration (PSD) regulations and four newly promulgated New Source Performance Standards (NSPS). These delegations put all air pollution permitting responsibilities in the hands of the state and eliminates the need for applicants to obtain permits from both the state and EPA for air pollution control. ○



Radiation

Radiation Protection administers programs regulating the usage of radiation sources and materials, prepares plans dealing with radiological emergencies, and administers a program to license and maintain educational standards for nuclear medicine and x-ray technologists. Emergency Response is charged with responding to nuclear and chemical accidents and developing emergency preparedness plans.

DEP investigation of a former radium manufacturer uncovered residential areas in Essex County with very high levels of radon gas, which is created by the decay of radium. The unhealthful radon levels were identified in approximately 40 homes out of more than 500 sampled in Montclair, West Orange, and Glen Ridge. Remedial action was taken on the homes with the highest radon levels. The radon investigation /remediation was a joint project of DEP/EPA with assistance from the New Jersey Department of Health, the federal Center for Disease Control, local health officers, and other sections of DEP.

New Jersey moved toward multi-state participation in a regional solution to low level radioactive waste disposal by enacting the Northeast Interstate Low Level Radioactive Waste Management Compact. The compact provides an equitable and environmentally sound

regulatory structure for radioactive waste disposal in the northeast.

As part of the division's continuing program to assess radiological contamination at DOE owned sites in New Jersey all below ground structures at the New Brunswick Laboratory were examined, and contaminated material was disposed of.

New Jersey is one of 13 states which requires all operators of medical X-ray equipment to be licensed. To qualify for the licensing exam, a technologist must complete a state approved training program. In 1983, 2,114 applications for various licensure categories were received, and 1,591 licenses were issued when the applicant passed the examination. To date, 17,413 individuals are licensed in radiologic technology by the Department of Environmental Protection.

During 1983, the New Jersey Radiologic Technology Board of Examiners mandated completion of a new curriculum for dental X-ray technologists which resulted in evaluating and approving 38 dental facilities. A new curriculum for chest radiography was also approved and four facilities had to be evaluated and approved. There are now 81 approved educational programs being conducted throughout the state.

This year the bureau participated in a

pilot study sponsored by the Food and Drug Administration's National Center for Devices and Radiological Health to measure patient chest X-ray exposures and to evaluate X-ray film developing procedures. The results of the study are being used in a survey procedure for state radiological health programs in an effort to decrease radiation exposure during chest X-ray procedures.

New Jersey has been at the forefront nationally for over ten years in the development and implementation of emergency plans for accidents that may occur at the nuclear power plants operating in or near New Jersey.

DEP is continuing its efforts to develop its emergency preparedness program for nuclear power plants and one of the major accomplishments this year has been the establishment of a functional Nuclear Engineering Program.

This program has expanded the department's ability to perform nuclear power plant accident assessments that include consideration of in-plant conditions that could potentially impact the local environment. This kind of engineering analysis provides a broadened base of technical data on which the DEP can rely to make more timely and accurate recommendations to protect the public if they are needed during the unlikely event of a reactor accident in or near New Jersey.



Environmental Labs

In addition, the U.S. Nuclear Regulatory Commission (NRC) is providing more opportunity for states with operating nuclear power plants to participate with them in the regulation of those plants.

The state received outstanding marks for its nuclear drill exercise from the Federal Emergency Management Administration, which monitors the performance of the participating agencies.

This year, more than 80 DEP employees participated in a night drill at the Salem Nuclear Generating Station. Specialized tasks, including aerial monitoring, decontamination, nuclear engineering and radiological assessment were performed.

The division's emergency response team presented more than 30 courses on hazardous materials, decontamination, radiation emergencies and protective clothing and equipment to state, county, municipal and volunteer emergency units.

In-house training to state employees has been streamlined to comply with the new "Right to Know Law" and New Jersey "OSHA" legislation. Such items as respiratory protection, protective clothing, and hazard identification and handling, are now routinely given to the employees of the department. These programs have gained state and national recognition. ○

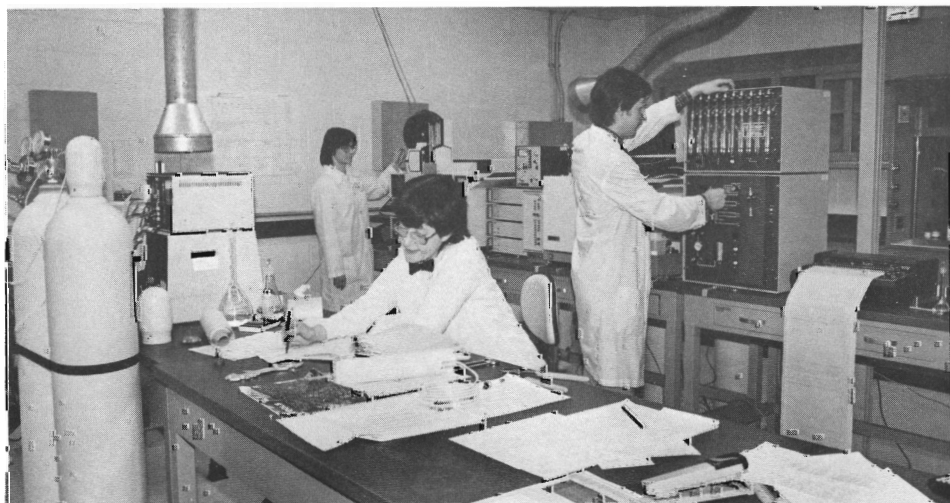
New Jersey is one of a few states in the nation to have an operating Pesticide/Toxic Substance Laboratory. The laboratory has the capability of analyzing samples ranging from air and water to sludge, oil and industrial residue. In 1983, the laboratory provided analytical service to other agencies within DEP, local municipalities and other states.

In January, the laboratory completed its move of the Radiation Section into the new Pesticide/Toxic Substance Building along with the installation and calibration of all the radiation instrumentation. The real-time radiation monitoring network which monitors the radiation levels around the Oyster Creek and Salem Nuclear Power Plants and transmits the data to Trenton became operational this year.

The Radiation Section has received a U.S. Nuclear Regulatory Commission contract to act as a Quality Assurance agent to the nuclear generating station in New Jersey. In addition, the Radiation Section is now providing support to the

Bureau of Radiation Protection in the analysis of soil and water samples from radiologically contaminated sites in New Jersey.

In the Pesticide/Toxic Substance Section, the laboratory completed the installation of its first mass spectrometer and received delivery and installed a second mass spectrometer. The laboratory became certified for Safe Drinking Water analysis and undertook a number of important environmental projects such as the characterization of impurities in waste oil, a study of priority pollutants in a New Jersey estuary, a research project on the sampling and analysis of the pesticide chlordane and a study of trace metals in air. The laboratory began to accept water samples from local municipalities and pesticide residue and formulation samples from another state. Finally, in a further effort to respond to emerging analytical needs, the laboratory expanded its capabilities in the area of RCRA (Resource Conservation and Recovery Act) analysis. ○



Waste Management

The Division of Waste Management works to develop environmentally sound waste disposal practices throughout New Jersey. The Bureau of Solid Waste and Resource Recovery Planning directs and coordinates the development and implementation of District (County) solid Waste Management Plans, develops planning guidelines, rules and regulations and coordinates resource recovery project development, including a grant program.

The Bureau of Hazardous Waste Classification and Manifests operates a manifest program which tracks and identifies the generation, transport and disposal of hazardous waste throughout the state. This bureau also disseminates regulatory information and determines the degree of hazard for different wastes.

The Hazardous Site Mitigation Administration is responsible for managing hazardous waste site cleanup in New Jersey. Many sites must be submitted for Superfund approval and are ranked using the federal system. Other actions are handled through the State Spill Fund. Responsibilities include site investigations and contract activities for the actual cleanup.

The Enforcement and Field Operations element enforces the laws and regulations through administrative and court orders. It also coordinates and provides technical expertise and support for containment and removal of oil and other hazardous substance spills.

Finally, the Field Engineering, Permits and Licensing element reviews engineering designs and registration applications for the construction and operation of hazardous and solid waste facilities.

The Division of Waste Management has geared up to meet the challenges posed by years of illegal and uncontrolled disposal of hazardous waste. The element responsible for eliminating or lessening the potential public health and environmental impacts posed by the numerous sites throughout the state is the Hazardous Site Mitigation Administration (HSMA).

Through early aggressiveness in site identification and early assessment, New Jersey leads the way in the national competition for federal Superfund dollars. During the year, EPA amended the National Priorities List (NPL) to include an additional 20 sites, bringing New Jersey's total to 85 sites.

In order to effectively manage the cleanup of these sites, the DEP has developed a comprehensive management plan. The "Management Plan for the Cleanup of Hazardous Waste Sites in New Jersey 1983-1986" outlines a systematic approach to remedial action. This plan facilitates the coordination of enforcement and cleanup actions and identifies future funding needs and sources. In order to estimate project cost and duration, the sites included in the work plan were separated into size categories based on the anticipated extent of soil groundwater contamination and complexity of cleanup procedures.

The plan now addresses 106 of New Jersey's worst hazardous site problems, 85 of which are on the NPL. As a planning document, the schedule will change as cleanups are completed and new sites identified and prioritized. The DEP plan is being used as a national model for other states to follow.

By the end of 1983, agreements had been signed with the EPA for 17 sites to complete feasibility studies, design and construction. New Jersey has requested and anticipates receiving \$36.54 million dollars out of the federal Superfund appropriation for fiscal year 1984. Successful cleanup of 33 small drum dump sites, has also been accomplished using funds from the state's Spill Compensation Fund and Hazardous Discharge Fund.

New Jersey was the first state to identify and control the threat posed by dioxin at sites around the state where it was manufactured or was a byproduct of the manufacturing process. With EPA, the department has controlled the threat and removed the dioxin from public areas in order to protect New Jersey residents.

The problem of managing wastes produced by New Jersey's citizens and industry continued to present significant challenges to the department. Substantial progress was made in the areas of hazardous waste control, prevention of future abandoned sites, encouragement of recycling, and the provision of new solid waste disposal capacity. However, remaining landfill capacity in the state is extremely limited, and slow progress (in some areas of the state) in moving forward with the development of new facilities presents New Jersey with a potential crisis. We begin 1984 with increased awareness of the need for substantial progress in the solid waste field during this critical year.

There were a number of major steps forward during the year, which will go toward alleviating waste disposal concerns. Final site selection is underway



for a large resource recovery facility to serve Bergen County. A complete engineering design and permit application was received for a facility to serve Essex County. Substantial progress was made on the review of a facility in Middlesex County, as well as several smaller resource recovery facilities.

New legislation has been prepared to clear the path for private sector construction and operation of resource recovery plants under contracts with counties and to provide funds through a landfill surcharge to assist in these efforts.

The Cape May County Utilities Authority began construction of a new state-of-the-art landfill facility to serve that county. Fifteen older landfills were closed during the year, having reached capacity, or having been forced to close for other environmental reasons.

However, the steps forward were also accompanied by setbacks. The closure of several regional landfills, especially in the northeastern part of the state, resulted in the department and Board of Public Utilities having to act under the emergency provisions of the Interdistrict and Intradistrict Waste Flow Rules, and to direct waste flows substantial distances to existing, available facilities.

In dealing with hazardous wastes, the department continued development of its regulatory program under the Resource Conservation and Recovery Act (RCRA), and is preparing to apply for full assumption of the program from the federal government, on a timetable consistent with that law. Several regulatory and legislative changes were adopted which will allow this important responsibility to be transferred to New

Jersey.

The Hazardous Waste Facility Siting Commission, charged with the development of comprehensive siting policies and a management plan for the establishment of large new treatment, storage, and disposal facilities, continued its progress. Siting criteria have now been developed which will allow for the proper placement of new facilities, and ensure the protection of both residents and natural resources. In September, regulations were adopted embodying these siting criteria, and the development of maps outlining actual siting areas is underway.

1983 also saw the passage of the Environmental Cleanup Responsibility Act (ECRA). This important legislation requires the owners of industrial properties to ensure that their land and facilities are not contaminated with hazardous substances prior to any transfer of title or control. The Act was passed late in the year, and took effect January 1, 1984. Emergency regulations have been adopted and final rules are being developed to ensure that this important new tool will be fully used to prevent the abandonment of contaminated sites.

The Office of Recycling, which provides technical assistance to local governments, industry, and the public, also manages a grant program for local governments and a loan program for recycling industries. Approximately \$2,985,000 was awarded to 241 municipalities in 1983 for an average rebate of \$8.06 per ton of material recycled. At year's end, 515 local recycling programs served New Jersey residents. ○

Pesticide Control administers certification exams and registers applicators, dealers, businesses, and pesticides products and enforces product use regulations.

The Bureau of Pesticide Control had a very active year in 1983. New programs were implemented as a result of major revisions in the pesticide regulatory code. This includes pesticide operator and dealer registration programs, an aquatic permit program for pesticide applications to water systems; and public notification requirements prior to large scale applications. A new licensing fee structure has also been implemented, with the fees returned to the bureau for program support.

A model ordinance was developed and implemented in 1983. The model is used as guidance for local governments to regulate pesticides in their communities. To date, six municipalities have adopted local ordinances.

During 1983, complaint investigations and inspections almost doubled over the 1982 level. This was largely due to cases where termite control pesticides were improperly applied to building structures. Investigations and monitoring of these cases generated an expansion into a new, specialized technical field of pesticide control.

Another major step was the beginning of a study of the feasibility of organizing a central collection system for pesticide disposal for small quantity generators. The system would mainly be targeted to homeowners with no environmentally sound option for proper disposal of small quantities of unwanted or unuseable pesticides. ○



Science/Research

The Office of Science and Research provides scientific and technical support to all divisions within the DEP. It documents sources and effects of toxic substances and cancer causing agents and develops approaches to reduce the public exposure to these potentially harmful substances. The research program assures a sound scientific base for the department's regulatory and legislative actions.

The Water and Biota Unit evaluates the exposure of the public to toxic and cancer-causing chemicals in drinking water and aquatic organisms. Monitoring and Development assesses the level and nature of a wide range of toxic substances in the state's air, water and soil.

Geographic and Statistical Analysis is responsible for the Geographic Information System, a department computer mapping program. The Industrial Investigation Unit surveys industry, determining the manufacture, use, emission and disposal of over 150 chemicals. This unit will help to implement the 1983 Community Right to Know Act.

Quality Assurance assures the accuracy of all analytical information generated department-wide by enforcement, clean-up, research and regulatory activities. The Risk Assessment Unit assesses the degree of potential human health hazards from exposure to toxic substances.

With the Department of Environmental Protection's understanding that accurate and reliable scientific information is needed to support sound and cost-effective regulatory decisions, the Office of Science and Research (OSR) has been

actively addressing important environmental and public health issues regarding exposure to toxic and carcinogenic substances in New Jersey.

This role was exemplified in May when the Office of Science and Research initiated an investigation to determine the presence of dioxin, a highly toxic compound, within New Jersey. Based on information gathered by the Industrial Survey project, a list of potential dioxin sites was compiled and subsequently tested, resulting in the discovery of sites where dioxin levels were present. This initial study evolved into a major joint investigation and remediation program by DEP, DOH and EPA.

Another major health issue to surface in 1983 was the discovery of radon in several New Jersey communities. OSR participated in this investigation in the communities of Glen Ridge and Montclair, by evaluating the potential health risk to the community residents and by providing advice regarding the necessary corrective measures to reduce human exposure. These investigations demonstrate the usefulness of risk assessment as a tool to evaluate level of human exposure and possible health effects.

With the continuation of OSR's statewide program to characterize and understand the accumulation of toxics in fish, a follow-up report entitled "PCBs in Selected Finfish with Limited Chlordane Data" was released. In response to the potential public health implications posed by these findings, fishing advisories and limited closures were announced. Due to the migratory nature of these fish, OSR is currently designing a study involving other coastal states and

the federal government to evaluate regional PCB contamination patterns.

QUALITY ASSURANCE OR WHAT'S IN A NUMBER

PPM? PPB? PPT? mg/l? mg/M³? These are some of the units used to express the levels of pollutants. You may see these terms in a newspaper or a report. But what goes into the number that you see? The increased interest and concern about environmental and health effects of many kinds of pollutants—coupled with the ability to detect almost infinitesimal levels of pollutants—makes it vital that sampling and analysis be properly done to obtain environmental measurements which are scientifically valid and defensible. This responsibility rests with the Office of Quality Assurance.

A Quality Assurance program has three major objectives—proper sample collection, proper sample analysis, and proper sample accountability.

Sample Collection involves a number of critical factors—sampling locations, sampling frequency and duration, use of proper containers, proper storage, and timely transport of samples—all of which determine whether valid data can be obtained.

Sample Analysis is the next step in determining the presence of pollutants. All analyses must be performed at labs which are DEP certified. Certification involves the ability to demonstrate technical proficiency in conducting analyses on unknown test samples. Accuracy, precision, and repeatability of sample analyses must be within acceptable standards of performances.

Chain of custody is the final link in a quality assurance program to ensure accountability from start to finish—from field to the laboratory to the courtroom if needed. Samples are identified and tracked through each transfer point to preclude tampering and to identify each person handling the sample. Correct sample custody procedures are important in legal proceedings.

OSR continued to provide technical and scientific support to departmental enforcement activities, hazardous waste site cleanups, investigations, policy development and routine divisional programs. For example, the Office of Quality Assurance has been established within OSR. By coordinating the development of quality assurance project plans for all monitoring programs



which use environmentally-related data, the office will assure the generation of accurate and reliable information throughout the department.

The computer mapping and analysis capabilities of the Geographic Information System (GIS), developed within OSR, is being used by several agencies, including the Hazardous Waste Facilities Siting Commission, the Division of Fish, Game and Wildlife and the U.S. Soil Conservation Service. It is anticipated that the role of the GIS will continue to expand to serve the department's diverse needs.

Various long term scientific research projects were initiated and/or completed in 1983. These investigations are designed to determine the occurrence of toxic pollutants in air and water and to develop new methodologies for measuring the effects of toxics in environmental media. The studies are instrumental in understanding the fate and dynamics of toxics in the environment and will result in recommendations for future DEP regulations.

An integrated toxic air pollutant study entitled "Airborne Toxic Elemental and Organic Substances" (ATEOS) demonstrated that urban and rural differences in levels of toxic air pollutants exist in New Jersey and that many traditional pollution sources are responsible for many of the pollutants measured in the study. Continuing analysis of results will help determine how to best regulate these toxic substances.

A study evaluating biological effects of industrial effluents using the Ames mutagenicity bioassay was completed.

The Ames test is a cost-effective method for evaluating the mutagenic potential of environmental samples, and provides additional information on the hazardous nature of industrial effluents by examining effects on biological systems. The results of this study will provide the department with a potential regulatory tool for ensuring compliance with established discharge limits.

The need for rapid on-site environmental analysis is necessary to perform community exposure assessments. The Mobile Monitoring Unit (MMU), a state-of-the-art self-contained analytical laboratory has been developed to provide this service. Within the past year the MMU has been instrumental in providing air quality analysis at sewage treatment plants, landfills and industrial sites. Future applications of this mobile laboratory will include water quality testing and community health assessments in emergency response situations.

Several ongoing toxic monitoring projects involve sewage treatment plants as a potential source of water and air contamination due to toxic and carcinogenic substances inherent in some processes. As a followup to these findings, OSR has implemented a study on the emission and discharge of toxic pollutants from sewage treatment plants. This comprehensive multimedia study will use biological testing, air and water monitoring, and fish tissue analysis.

The recent passage of major legislation affecting the environment entrusts the department with significant responsibilities in implementing these mandates. The "Worker and Community Right to Know Act" enacted in August,

requires the department to provide information to communities and local emergency response personnel regarding the use, emissions and disposal of toxic substances. OSR is responsible for carrying out key provisions of the act, including the development of the Environmental Hazardous Substances List of those chemicals which pose a potential public health threat and the development of an environmental survey providing information on industrial use, storage, transportation and disposal of environmentally hazardous substances.

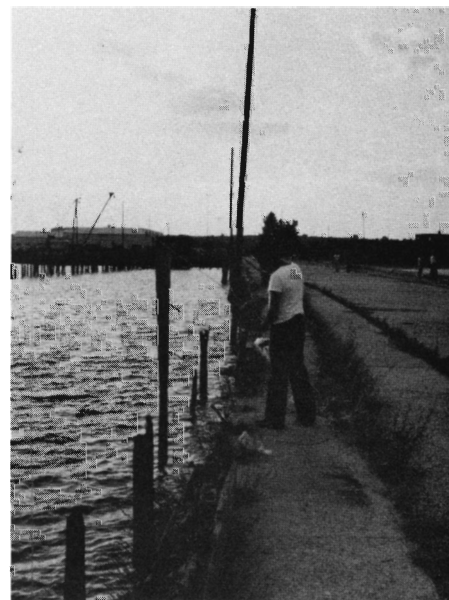
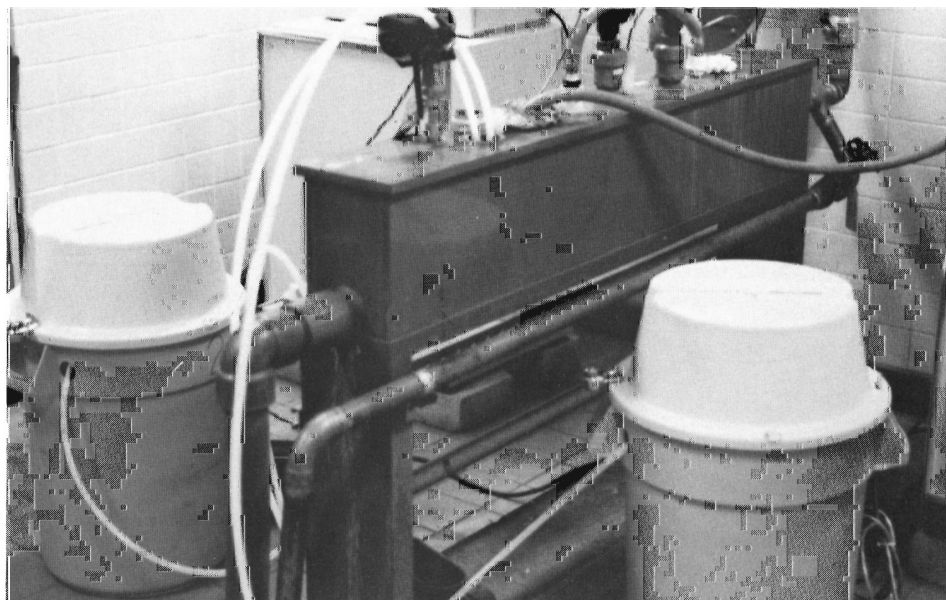
WORKER AND COMMUNITY RIGHT TO KNOW ACT

The New Jersey Worker and Community Right to Know Act enacted on August 29, 1983 establishes a comprehensive system to collect, interpret and disseminate information about hazardous substances in the workplace and the environment. It guarantees New Jersey citizens access to the identity of hazardous substances to which they may be exposed at their workplace or in their communities.

The Act applies to 40,000 employers and 1,300,000 workers and is administered by the Departments of Environmental Protection, Health, Labor and Treasury.

DEP has the primary community related responsibilities regarding the presence, use, storage and emission of hazardous substances. Information will be gathered through survey questionnaires, computerized, and made available to police, fire and health departments.

The passage of Assembly Bill 280 requires the state to conduct periodic monitoring of public water supplies for hazardous contaminants and to develop drinking water standards for specified organic compounds. OSR will work with the Drinking Water Quality Institute and the Division of Water Resources in the development of the standards and will assist in the development of new methods for monitoring and analysis of drinking water supplies. ○



Planning

The Planning Group provides five types of services to the department. Planning Integration and Coordination brings together division and department-wide planning strategies. Project review encompasses both state and federal environmental impact assessments. Regional programs such as Ocean Waste Management, Outer Continental Shelf exploration, activities of the Pinelands Commission and Hackensack Meadowlands Development Commission are coordinated by the Planning Group.

The office provides over-sight on the Geographic Information System and serves as DEP's liaison to several interagency groups.

During 1983, which was the first full year of the Planning Group's operation, the staff's major effort was directed toward opening lines of communication among DEP's divisions to promote cross-fertilization of ideas, to avoid duplication of effort and to coordinate the review of

major projects.

The seven-year ban on uranium mining in New Jersey enacted by the legislature in 1981 gave DEP the responsibility of recommending a permanent solution. This year the Planning Group held two public hearings in Morris and Passaic Counties, the part of New Jersey where the uranium industry has expressed interest in mining. A background document was prepared to fully inform the public on the anticipated environmental and public health issues prior to the hearings. The next step will be a report to the Legislature and Governor.

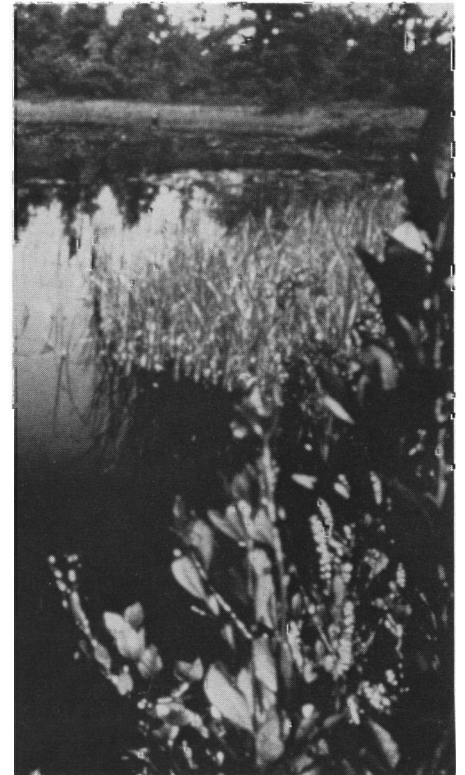
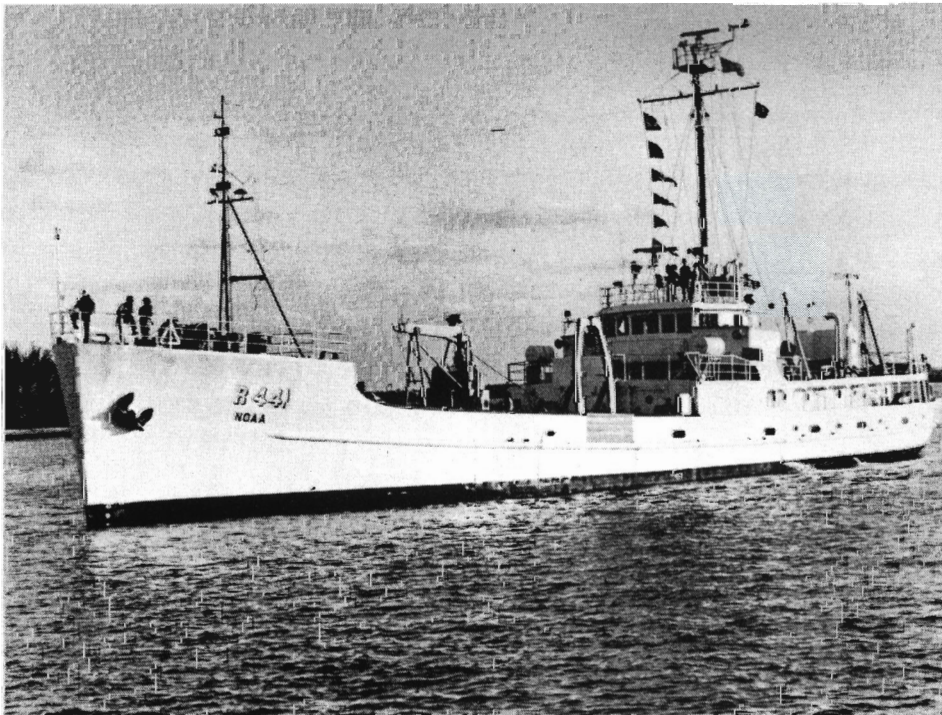
The protection of New Jersey's \$1 billion fishery industry from the impacts of offshore drilling continued to be a major issue in 1983. In April, Governor Kean and the Department of the Interior signed an agreement that would protect our fisheries from contamination from offshore drilling activities.

The further protection of the ocean was addressed by the Planning Group and DEP's Ocean Waste Management Committee. The Committee met regularly to discuss all aspects of ocean dumping. A written position paper

setting forth DEP's position on ocean waste management provided the basis for the Department's testimony before Congress on this issue calling for a phase out of sewage sludge dumping at the 12 mile site.

Other activities included the review and preparation of environmental reports for 263 New Jersey Economic Development Authority projects. This is the largest number of NJEDA projects ever reviewed by DEP during a one-year period. The environmental reports noted any objections to the proposals, and the permits and/or approvals that might be required from the Department for these projects. In addition, three Pollution Control Equipment Certifications were prepared for the signature of the Commissioner.

Of the over 25 major projects DEP reviewed during 1983 under the National Environmental Policy Act, two are of major significance, the proposed Merrill Creek Reservoir in Warren County and the proposed New Port City Development in Jersey City, a large-scale project to revitalize the Hudson River Waterfront expected to move forward in the coming year. ○



7. National Oceanic and Atmospheric Administration (NOAA) research vessel George B. Kelez.

Regulatory Services

The Office of Regulatory and Governmental Affairs deals with legal, legislative, regulatory and public participation activities of the department. The Regulatory Services office reviews and approves all regulatory proposals, coordinates and screens departmental requests for formal Attorney General opinions, reviews draft contracts, permits, and grant or loan agreements for legal sufficiency and enforceability, coordinates administrative enforcement actions, and reviews pending legislation and drafts legislation when necessary.

The Legislation and Public Participation section monitors all federal and state legislative activity related to the department. In addition, this section prepares a monthly calendar of hearings, council meetings and other events open to the public.

The Office of Audit provides the department with timely internal financial and operational audits of its programs, and the Office of Special Projects coordinates all Harbor Clean-up Activities.

During the course of 1983, the major activities of this Office included:

- The negotiation of "Superfund" contracts and cooperative agreements with the federal

Environmental Protection Agency, allowing the initiation of cleanup activities at a number of sites;

- The coordination of DEP's response to the dioxin emergency declared by the Governor;
- The development of a computerized system to track the progress of all DEP enforcement cases;
- The preparation and adoption of regulations to implement the "Environmental Cleanup and Responsibility Act" and the "Sanitary Landfill Facility Closure and Contingency Fund Act.";
- The negotiation of privately funded clean-ups of sites listed in DEP's Management Plan for the Cleanup of Hazardous Waste Sites;
- The implementation of new procedures to prepare enforcement cases for litigation prior to referral to the Office of the Attorney General;
- The preparation and filing of 26 claims totalling \$1.269 billion, against "Superfund" for natural resource damages in New Jersey;
- The development of regulations to implement the "Worker and Community Right to Know Act";
- Development of a computerized tracking system for state legislation affecting the department.○

Noise

Noise Control determines causes, effects and hazards of community noise and enforces community noise standards in cooperation with local government. The Environmental lab does chemical and biological lab work for other DEP programs, municipalities, other states and private industry, specializing in radiological and chemical pollutant analysis.

The Office of Noise Control continued to rely on volunteers from United Progress Inc. to allow it to carry out its functions without burdening the department's resources. Backlogged claims relating to industrial/commercial stationary sources were substantially reduced in those counties nearest the Trenton office where the volunteers performed their inspections.

Non-paid senior student interns from Stevens Institute of Technology were assigned to the office in order to study "Fire Sirens and Alternatives" and "Auto Race Track Noise and Its Abatement." The reports prepared by these students added to the information on these subjects and will prove helpful for future controls.

A proposed revision updating the industrial/commercial stationary source regulation was completed and approved by the Noise Control Council. The Council also drafted Model Noise Control Ordinances for stationary and mobile sources.○



Management/Budget

DEP's Division of Personnel and Data Processing Services and the Division of Fiscal and Support Services provide the support services for program operations.

Personnel monitors affirmative action in the department, provides recruitment, placement, job classification, payroll processing, compensation administration, job specification development services, new employee training, and on-going staff training. It also administers the employees services program and the office of labor relations.

Data Processing maintains the department's data center, services the expanding DEP user community, and develops new data processing systems.

The Division of Fiscal and Support Services plans, budgets and manages the finances of the DEP including oversight of all federal grants and bond fund administration. It also manages purchasing and contract administration. Printing, mailing operations, and office automation planning are other responsibilities of the division.

Division of Personnel and Data Processing Services

During the past year, the Medical Surveillance Program instituted by the Department in 1981 was formalized and expanded to include not only those employees who regularly work with hazardous and toxic materials but also those employees who, because of the nature of their work, might come into

contact with such materials. Also of note was the development of a Stress Management Component to aid employees in coping with the stress of hazardous work.

In an effort to improve overall management dynamics, the department implemented a dual level training program for managers to improve their skills and channel creative efforts toward improving productivity.

Looking ahead, major legislation in the form of the Right-to-Know Act and State OSHA gives the department significant responsibilities as an employer, as well as in its regulatory role. The division will be carrying out programs to help DEP meet these responsibilities.

Another new program is the Field Location Outreach Program. This program was designed to provide service to those employees in numerous field locations throughout the state who rarely, if ever, have the need to come to Trenton.

Major structural reorganizations for the Division of Waste Management and the new Office of New Jersey Heritage were accomplished during the year. Plans for the coming year include major reorganizations for the Divisions of Water Resources, Environmental Quality, Parks and Forestry, and Fish, Game, and Wildlife.

Division of Fiscal and Support Services

During the year the division moved ahead on implementation of the Governor's Management Improvement

Plan (GMIP). This included clerical accounting consolidation, office automation and working with Civil Service on revision of certain titles. The introduction of office automation equipment to the department has proceeded rapidly. All divisions have now received or ordered office automation equipment.

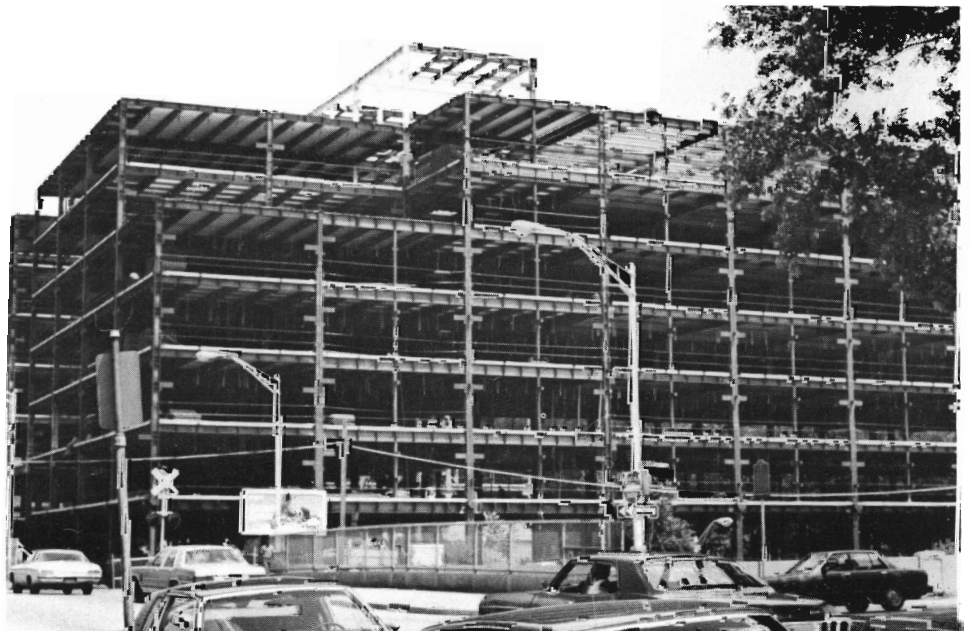
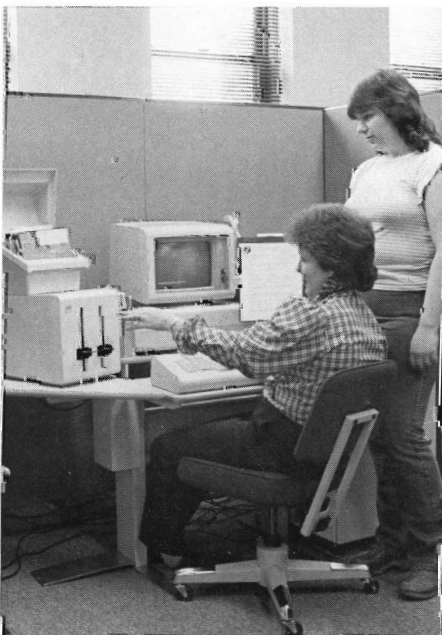
A new Contract Administration Unit was established to support the contracting necessary to implement the New Jersey Management Plan for Hazardous Waste Cleanup. Six contracts for site cleanup were awarded in 1983. The unit has also provided major support on the preparation and awarding of water supply studies.

The Fiscal Integrity Unit has been assisting the Spill Fund Administrator's office in the administration of that fund and coordinated the use of the fund with Superfund monies. Approved Superfund monies for New Jersey thus far total \$28,565,291.

Centralization of fee collections has proven highly successful in reducing the need for staff and freeing program personnel for program work. Ten new activities were added to the centralized system during the year.

Decentralized word processing is being encouraged throughout the department. An Office Automation Unit has been established and a Steering Committee representing the major department units has been set up.

Work on construction of the new DEP building has begun. The division is coordinating this activity by serving as liaison with the Division of Building and Construction.○



DEP Directory

Commissioner Robert E. Hughey 292-2885

Deputy Commissioner Richard T. Dewling 292-0432

Asistant Commissioners

George J. Tyler (*Environmental Management & Control*) 292-8058

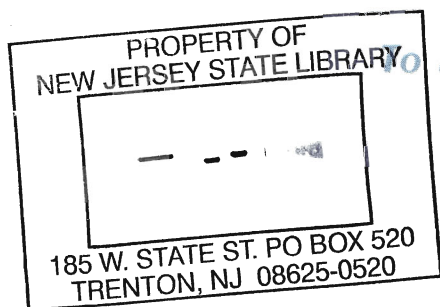
Sidney Ytkin (*Management & Budget*) 292-2916

Helen Fenske (*Natural Resources*) 292-3541

Donald T. Graham (*Regulatory & Governmental Affairs*) 292-9289

Air pollution Report & Forecast (recording) 392-1436
 Coastal Resources 292-2795
 Emergency Response (24 hour hotline) 292-7172
 Enforcement
 —air/noise/radiation/pesticide 633-7994
 —coastal resources 292-5120
 —waste (solid/hazardous) 984-3697
 —water resources 292-0580
 Environmental Cleanup Responsibility Act 633-7141
 Environmental Education & Awareness 984-7478
 Environmental Impact Statements 292-2662
 Environmental News 984-6773
 Environmental Quality 292-5383
 —air pollution 292-6704
 —environmental laboratory 292-9271
 —noise control 984-4161
 —pesticide control 292-8393
 —radiation protection 292-7654
 Fiscal & Support Services 292-9230
 Fish/Game/Wildlife 292-2965
 —endangered & nongame program 292-9101
 —freshwater fisheries 292-8642
 —marine fisheries 292-1056
 —shellfisheries 292-1055
 —wildlife management 292-6685
 Green Acres 292-2454
 Harbor Cleanup 292-5990
 New Jersey Outdoors 292-2477

Parks & Forestry 292-2733
 —forestry service 292-2520
 —natural lands management 984-1339
 —New Jersey Heritage (historic preservation) 292-2023
 —park service 292-2772
 Permits
 —air quality 984-3032
 —coastal (CAFRA, riparian, wetlands) 292-0060
 —hazardous & solid waste 292-5196
 —pesticide certification 984-4159
 —water permit information (flood control, sewers, diversion, NJPDES, facilities) 633-7026
 Personnel & Data Processing 292-1898
 Planning Group 292-2662
 Regulatory & Governmental Affairs 292-9320
 Resource Interpretive Service 292-3541
 Right to Know 292-6714
 Science & Research 984-6070
 Waste Management 292-1250
 —hazardous site mitigation 984-2902
 —recycling 201-648-6295
 —resource recovery 292-8879
 —solid waste planning 292-8879
 Water Resources 292-1638
 —construction grants 292-8961
 —geological survey 292-1185
 —water quality 292-5262
 —water supply 984-7696
 (All numbers are in the 609 area code unless otherwise noted.)



To Report Abuses of the Environment
 Call DEP HOTLINE
 (24 hours a day)
 (609) 292-7172

