



# DEP

NEW JERSEY  
DEPARTMENT OF  
ENVIRONMENTAL PROTECTION  
ANNUAL REPORT  
FISCAL YEAR  
**1978**





Brendan Byrne  
Governor



Daniel J. O'Hern  
Commissioner

The cover illustrations originally appeared in the magazine NEW JERSEY OUTDOORS, the bi-monthly publication of the New Jersey Department of Environmental Protection. The front cover photo is by David Campione. David Bast photographed the scene on the back cover.



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This report on the activities of the New Jersey Department of Environmental Protection for the 1978 Fiscal Year reflects the astute and dedicated stewardship of Rocco D. Ricci, whom I succeeded as Commissioner only a month before the end of the fiscal year. Since then hardly a day has passed in which I have not had occasion to reflect gratefully on the spirit of dedication with which he and his predecessors imbued this agency.—DANIEL J. O'HERN, COMMISSIONER

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## IN BRIEF

The New Jersey Department of Environmental Protection (DEP) moved ahead during the 1978 Fiscal Year in preserving and enhancing the air, land and water elements which make up the environment of the state's residents.



Among noteworthy steps taken in diverse areas were a comprehensive study of the frequency and types of human cancers in the state, tighter regulations to control disposal of hazardous wastes, improving sewerage facilities, and hence water quality too; opening of an important new state park, and preparation of a mechanism to preserve the New Jersey Pinelands area.

Cancer is a tragedy shared by the entire world, and it is being fought by scientists throughout the world. Yet cancer's secrets remain unknown. Because the incidences of some types of cancer in New Jersey surpass national averages, DEP's Program on Environmental Cancer and Toxic Substances has been gathering statistical data about cancer victims in this state.

Such information reveals possible relationships between geographical areas, ethnic backgrounds, occupations, lifestyles and proximity to various commercial activities. Clues emerging from this ongoing study may trigger important lines of cancer research.

Evidence that many cancers result from exposure to certain agents in our environment emphasizes the importance of regulations imposed during the fiscal year by DEP's Solid Waste Administration. These regulations establish a manifest system for chemicals and other hazardous wastes to constantly pinpoint the location of such waste, from its source to its disposal point. Keeping records on its collector and hauler, as well as its final resting place, will aid in foiling attempts at illegal disposal and assure safe handling.

Water quality is especially difficult to maintain in America's most densely populated state, where availability of pure water in sufficient amounts is essential. Providing necessary levels of sewage treatment is a key response to both priorities.

During the fiscal year DEP awarded a total of \$65.5 million in U.S. Environmental Protection Agency grants to local agencies for improving wastewater treatment. Also, 20 state sewerage facilities grants were awarded, at a total value of \$18.9 million, from money available through the 1969 Water Conservation Bond Act and the 1976 Clean Water Bond Act.

Important contributions to bay water quality resulted from the startup of a previously funded Ocean County Sewerage Authority plant and collection systems for Point Pleasant and Brick Town-



ship.

An estimated 4.6 million persons will have potable water supplies improved by 117 water

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supply facilities projects for which construction permits were issued by DEP. The total construction cost will be \$44.6 million.

New Jersey's newest state park was dedicated near Freehold on June 25, 1978. It is Monmouth Battlefield State Park, a 1,519-acre tract for which the dedication ceremony drew an audience of 70,000 persons. There was a reenactment of the Battle of Monmouth as one of the final acts of America's Bicentennial observance.



Preservation of the natural values of the New Jersey Pine Barrens progressed during Fiscal 1978 as one of DEP's key priorities. The Governor's Pinelands Review Committee adopted a million-acre study area overlying the Cohansey aquifer, a vast underground reservoir of pure water. A two-level protection strategy was developed. The first level would be a protection area of some 1 million acres in the seven Pinelands counties of Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester and Ocean. The second level is seen as a core preservation area of about 365,000 acres which can be selected as a Pinelands Wilderness Area.

Governor Brendan Byrne during Fiscal 1977 earmarked \$10 million in Green Acres money to buy sensitive areas for preservation. Selection of those areas deemed most vulnerable to development continued through the year.

DEP imposed stringent standards for surface and groundwater in a 760-square-mile area of the Central Pine Barrens on January 23, 1978. At the same time, the Central Pine Barrens was designated a "critical area for sewerage purposes," calling for DEP review and approval of any on-site underground sewage disposal facility before a building permit may be issued.

At the national level members of the New Jersey Congressional delegation worked to win adoption of the Pinelands Protection Bill, which was included in the National Parks and Recreation Omnibus bill. Final action was expected early in Fiscal 1979.

Liberty State Park in Jersey City continues to draw more visitors than any other state facility. Nearly 800,000 persons arrived during the fiscal year to hear free concerts, picnic, fish and to view

the striking vista framed by the Manhattan skyline, with Ellis Island and the Statue of Liberty in the foreground.

The Passaic River Citizens Task Force worked with the U.S. Army Corps of Engineers on development of a plan of study for longrange flood control planning, as well as identifying actions which can be taken to provide interim relief. The Task Force aided in conducting public information meetings on the Corps plan of study.

## AIR

Air quality in New Jersey continues to improve, thanks to DEP's effective automotive emissions testing and to pollution control devices being built into new cars. New Jersey's air quality would be even better were it not for pollutants blowing into the state from elsewhere.

Air quality trends remained good. Early 1978 found an overall reduction of six percent in particulates over a three-year period in highly urbanized areas. In more remote areas, levels remained practically the same.

Despite unusually cold winter weather which resulted in higher fuel consumption during 1977 all New Jersey air monitoring stations complied with federal health standards for sulfur dioxide levels, which began declining in 1960 due to limits on the amount of sulfur in fuel. The improvement continued in more polluted areas through 1977, although cleaner areas experienced some increase during the year.



Improvement (a reduction of 29 percent since 1974) continued for carbon monoxide, which comes mainly from automobiles. But temporary incidents in which primary standards were exceeded occurred at 13 of 22 monitoring locations. Such excesses are predicted until 1980.

Nitrogen dioxide levels showed a consistent decline, down by 22 percent from 1974 through 1977.



## The Traveling Pollutant, Ozone

Unwanted levels of ozone remain in New Jersey, both in urban and non-urban areas, although violations of the standard fell by 250 percent during the 1974-77 period. New Jersey's problem is aggravated by ozone which is carried into the state from elsewhere by prevailing air currents.



In an effort to bring about uniform air quality standards from state to state, DEP in May, 1978, filed suit in U.S. Court of Appeals to have the federal government establish a national ozone (smog) control program. Six northeastern states and the District of Columbia have joined DEP in the suit.

New Jersey's air quality index registered a dramatic improvement over the prior year. The following totals are for daily readings made at 20 sampling stations around the state for carbon monoxide, sulfur dioxide and particulates, and for ozone measured at six stations:

**"Good" days numbered 100 in Fiscal 1978 and 12 in Fiscal 1977; "satisfactory" days, 4,648 compared with 4,278 the prior year; "unsatisfactory" days, down to 1,241 from 1,448, and "unhealthful" days, down to 629 from 1,152. Days in which sampling stations were not working because of equipment failures were 682 in Fiscal 1978 and 410 in Fiscal 1977.**

It is estimated that New Jersey drivers saved about 30 million gallons of gasoline during Fiscal 1978 because of better operating efficiency required by the state motor vehicle emissions testing program. Extra proof of the program's success comes from the fact that, despite an increase in vehicle use, the trend in airborne carbon monoxide remained downward.

## LAND

Public use of New Jersey state parks, forests and other recreation facilities administered by the

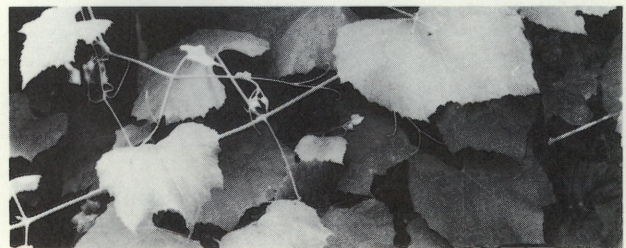
Division of Parks and Forestry continued to grow during Fiscal 1978, with a total of 4,974,301 visitor days, compared to 4,777,222 visitor days during Fiscal 1977.

Use of four state-owned marinas also rose. A total of 3,590 boat-days were accounted for in the marinas at Leonardo, Forked River, Atlantic City and Fortescue. This was up from 3,363 boat-days in Fiscal 1977. There is a total of 710 berths for permanent and transient public use. Marina income in the latest fiscal year was \$457,907, compared with \$419,787 the prior year.

At the end of Fiscal 1978, the Division of Parks and Forestry was administering a total of 252,963 acres of public lands. This includes 1,618 acres acquired during the year.

Lands administered by the Division of Fish, Game and Shellfisheries totaled 147,620 acres and those of the Division of Water Resources, 7,705 acres.

Green Acres Program land acquisitions authorized during the fiscal year totaled 9,998 acres at a total cost to the state of \$55,765,229. Of this, 6,941 acres were for state acquisition and 3,056 acres for local acquisition. Costs authorized for the state purchases totaled \$17,619,902 and for state matching grants toward local purchases, \$14,346,357. Authorized for improvements to state properties was \$16,047,470, and for state matching grants toward local improvements, \$7,751,500.



## Open Space Preservation

Land acquired through Green Acres during the fiscal year, including earlier authorizations, totalled 4,439 acres. Of this, 712 were local acquisitions and 3,539 state acquisitions. Money expended came to \$5,161,534 for state acquisitions and \$2,621,981 in local matching grants. Development and improvement matching grant expenditures totaled \$586,548. Expended for improvements to state lands was \$5,694,508.

A total of \$1,510,051 was spent from the 1969 Water Conservation Act Bond Issue for 288 acres. This brings a total of 5,403 acres acquired under the Act, at a total cost of \$20.3 million. Acquisition



is still underway for the Round Valley north dam outlet, South River Tidal Dam and reservoir sites at Six Mile Run, Manasquan, Hackettstown and the Raritan Confluence.

The U.S. Heritage and Conservation Recreation Service (formerly the Bureau of Outdoor Recreation), through the Land and Water Conservation Act of 1965, approved matching grants to New Jersey of \$3,006,000 for development and \$400,000 for state land acquisition.

Completed during Fiscal 1978 were first phase construction at Monmouth Battlefield State Park, a temporary bathhouse at Wawayanda State Park, water supply storage facilities at Round Valley Recreation Area and comfort stations at Washington Crossing State Park.

Construction projects begun during the fiscal year at state park facilities, and scheduled completion months were: Wharton State Forest, Atsion Lake day-use facilities, March, 1979; Spruce Run Recreation Area, day-use area, January, 1979; Ringwood State Park, sanitary sewer facility, August, 1978; Liberty State Park, administration building and terminal restoration, both October, 1979. Sanitary facility construction was also begun at Jenny Jump State Forest and Stephens and Hacklebarney State Parks, all to be completed in August, 1978.



The addition of 103 sites brought a total of 414 New Jersey sites listed by the National Register of Historic Places. Fifty-two were added to the New Jersey Register of Historic Places.

Heavy rain and snowfall during Fiscal 1978 brought a sharp reduction in the number and scope of New Jersey forest fires. A total of 1,541 fires burned off 11,438 acres. This is in contrast to the prior fiscal year when abnormally dry weather resulted in 2,800 fires which burned 41,000 acres.

A strong upturn in wood residue recycling was reported during Fiscal 1978 by the Forest Management Section of the Bureau of Forestry. A total of 2,073,733 cubic feet of wood, including sawdust and chips, was directed to New Jersey's wood utilizing industries. The value of the material was \$337,973. The Section, funded by a \$45,000 grant from the U.S. Forest Service, brings together pro-

ducers of wood wastes with customers for the materials. Among secondary benefits of the program is reduction in the state's volume of solid waste. The prior fiscal year saw 650,000 cubic feet of wood residue, valued at \$140,000, enter recycling channels.

### Planning For the Future

Important progress in DEP planning activities came during the fiscal year. The new Statewide Comprehensive Outdoor Recreation Plan (SCORP) was completed and work began on development of a Wild and Scenic Rivers program. Initial studies centered on Cedar Creek and the Mullica River to determine their compatibility with the Program. Work began also on preparation of a statewide Trails Master Plan.

Rules and regulations for components of the New Jersey Natural Areas System were prepared and 38 areas totalling 22,750 acres of DEP administered lands were designated as parts of the System.

The Farmland Preservation Project, an experimental program in four Burlington County municipalities where Green Acres money would be used to purchase development easements on prime agricultural land, awaited decision on continuation. Alternative methods of preservation were under consideration.

Eleven miles of flood plains were delineated, bringing the total delineated along the state's 6,500 miles of streams to 654 miles. By the close of the fiscal year 1,482 miles of flood plains in 194 municipalities were in the process of being delineated. Costs were \$3,815,009 from federal sources and \$347,369 for the state.

A total of 595 stream encroachment permits were sought by property owners. Of those, and others received late in Fiscal 1977, 575 were granted and 36 rejected. Four denials were reversed through appeals.

## WATER

Continuing efforts to protect the quality and amount of potable water in New Jersey were enhanced on September 17, 1977 when Governor Byrne signed the New Jersey Safe Drinking Water Act into law. It provides legal framework for New Jersey to carry out requirements of the Federal Safe Drinking Water Act, and to assume enforcement responsibility for its provisions.

Bans on new connections to overloaded sewerage systems were continued. During the fiscal



year 11 bans were lifted, three were imposed and six were modified. At the end of the fiscal year 48 full bans and 19 partial bans remained in effect.

### **Future Planning**

Work continued on the Statewide Water Supply Master Plan in DEP's Division of Water Resources. It will incorporate data on present and potential supplies, project future water supply demands and evaluate alternative steps needed to meet future needs. Specific program and project recommendations will be made to meet the most urgent of those future water supply needs.

Water quality management planning has made progress in both the areas under DEP jurisdiction (Upper Delaware, Lower Delaware, Upper Raritan, Northeast and Monmouth County) as well as the seven designated county and regional planning agencies responsible for the program in the rest of the State. The Governor has conditionally certified plans for three of the areas in the State: Middlesex County, Burlington, Camden and Gloucester Counties and Mercer County. The plans for the rest of the State will be completed in 1979. A sample of major plan recommendations includes population and flow projections, definition of treatment levels of municipal and industrial dischargers, measures for protection of high quality waters from further degradation, management practices for agriculture, construction, surface mining, and recommendations for additional legislation for septic tank management.

The Division of Water Resources personnel have been cooperating in the Delaware River Basin Commission's "Basin Comprehensive Study" (Level B), which began in 1976 and is to be completed in mid-1979. It will delineate water supply and quality demands and other factors in the Delaware River and its drainage area in New Jersey, New York, Pennsylvania and Delaware. Management options will be spelled out for each state in the basin area with specific emphasis on needs for environmental quality, economic development and water supply potentials. In New Jersey there will be an assessment of contamination of basin groundwater and the Delaware River.

With an inventory of 550 New Jersey lakes showing 39 percent to be in various stages of eutrophication (buildup of rotting aquatic vegetation with resulting losses in dissolved oxygen), the Lakes Management Program focused on aiding publicly owned lakes.

## **COASTAL AREA**

Drilling for oil in the Atlantic Ocean off New Jersey, growth of the casino industry in Atlantic City and an end to ocean dumping of sludge by Camden were three major developments during the fiscal year for the state's coastal area.

The U.S. Supreme Court in February, 1978 upheld federal sale of leases to drilling sites in the Atlantic, ending litigation about offshore oil exploration. By the end of the fiscal year four wells were being drilled off New Jersey.

Defined at a total of 880,640 acres, or 18 percent of the state's land area, the coastal area is especially sensitive to environmental damage stemming from random development. The Coastal Area Facility Review Act (CAFRA) requires DEP to approve or reject proposed construction projects in much of the coastal area.

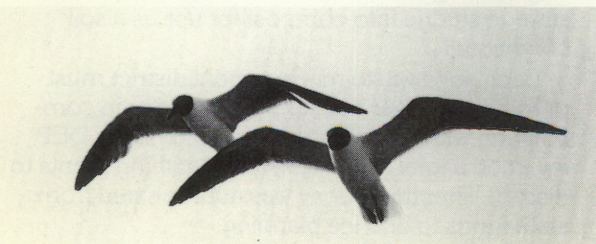
In Atlantic City, Resorts International opened the first hotel-casino in May, 1978. DEP's Division of Marine Services granted a provisional CAFRA permit to Resorts International for a 4,336-space parking lot. The Division during the fiscal year approved two hotel-casino CAFRA applications and began review of three similar applications as well as two for housing developments in Atlantic City.

Operation of Camden's \$1.7 million sewage sludge composting plant began on June 15, 1978, ending the need to dump the city's sludge into the Atlantic Ocean. DEP certified grant applications totalling \$1,184,000 to help four other sewerage authorities obtain dewatering equipment in further steps to end ocean disposal of sludge.

### **Our Fragile Shore**

During the fiscal year, 39 applications for CAFRA construction permits were approved, for a total of 3,588 residential units, 11 sewerage projects and four other projects. Six applications representing a total of 1,162 residential units and one sewerage project were denied.

The Federal Coastal Zone Management Act





encourages states to submit their coastal management programs to federal review. DEP took the first step in this process with publication of the New Jersey Coastal Management Program-Bay and Ocean Shore Segment and Draft Environmental Impact Statement. It underwent public hearings and revision for submission to the U.S. Department of Commerce for program approval.

Sale or lease of 27 acres of riparian lands (land either now or formerly washed by mean high tide) from state ownership brought proceeds of \$1,894,475. The law requires that riparian receipts be deposited in the Fund for the Support of Free Public Schools.

One thousand acres of wetlands in Ocean, Cape May and Salem Counties were added to the approximately 242,500 acres already under state regulatory control.

Destruction of New Jersey's wetlands, vital to fish and shellfishery resources as well as offering a buffer zone between the sea and the land, was proceeding at some 1,900 acres per year before regulatory controls were imposed in 1973. Losses since then have been limited to a fraction of that figure.

Of 23 shore protection projects along New Jersey's 120-mile Atlantic coastline, 18 stemmed from damages of a coastal storm on February 5-6, 1978. The others had been scheduled. The projects may include work such as beach reconstruction, bulkheads, jetties or dune protection. All are funded equally by state and local governments. Their total cost was \$2.6 million.

In the state dredging program, six projects costing a total of \$473,000 were pursued to improve 5-1/2 miles of navigation channels.

Improvements in bay and estuary shellfish water resulted in 335 acres transferred from fully closed to approved or seasonally approved categories. Continued improvement of shellfish waters around the state is closely tied to improvements in sewage treatment facilities. Ocean waters approved for shellfishing decreased by 5,136 acres.

## SOLID WASTE

Increased enforcement activities, together with continuing encouragement of resource recovery planning and development of action programs for New Jersey's 22 solid waste management districts highlighted the fiscal year of DEP's Solid Waste Administration.

It was a year which ended New Jersey efforts to prohibit solid and liquid wastes disposal by neighboring states. The U.S. Supreme Court voted 7-2 on June 23, 1978, to overturn a New Jersey statute

prohibiting importation of wastes for disposal on grounds that it violated the Commerce Clause of the U.S. Constitution.

The result is that New Jersey will continue to be the repository for 1.99 million tons of solid waste and 36.8 million gallons of liquid waste each year. This is in addition to its own annual production of 11.3 million tons of solid waste and 272.8 million gallons of liquid and sludge waste for which New Jersey must find disposal space.



During the fiscal year, Solid Waste Administration inspections totaled 3,540, compared with 3,068 the prior year. These resulted in 569 enforcement actions, up from 463 in Fiscal 1977. Penalty and settlement money collected came to \$79,596, an increase of \$11,071.

### Regional Management

The Solid Waste Management Act, which established the 22 districts throughout New Jersey (one for each county plus the Hackensack Meadowlands District) requires that DEP foster a statewide management plan encouraging maximum practicable use of resource recovery procedures. It is estimated that solids disposed of in the state each year include 600,000 tons of iron and steel, 30,000 tons of aluminum, almost 500,000 tons of glass and nearly 4 million tons of paper.

DEP encourages source separation of recyclables as well as development of systems to extract both burnable waste components for energy production and recyclables from bulk waste. In cooperation with the Department of Community Affairs, DEP approved a contract between the City of Newark and Combustion Equipment Associates to prepare refuse derived fuel from the city's wastes. The City of Camden in June, 1978, began using the state's first facility to convert sewage sludge into compost for use as a soil conditioner.

Each solid waste management district must prepare a 10-year master plan, alone or in combination with other districts. In April, 1978, DEP awarded a total of \$750,000 in matching grants to districts after the money was appropriated from state funds to finance planning.

Scheduling of district solid waste management



plans calls for review of finished plans by the Commissioner by September 22, 1979, for all but the Atlantic, Cape May, Cumberland, Hunterdon, Morris, Salem, Sussex and Warren districts. Those have a March 22, 1980 deadline. Districts covering Bergen, Essex, Hudson, Passaic, and Union Counties and the Hackensack Meadowlands originally had a March 22, 1979 deadline, but were granted an additional six months.

A joint planning district has been agreed to by the Bergen, Hudson, Passaic and Union Counties and Meadowlands districts. The combined district is considering a tentative plan which includes facilities to recover resources from 5,500 tons of solid waste per day.

During the fiscal year 3,494 collector-haulers were registered with DEP. Most of the material they collected was consigned to 276 registered land disposal facilities in New Jersey.

## **RADIATION PROTECTION**

Protecting the New Jersey public from cumulative exposures to minor radiation sources as well as from theoretical nuclear accidents is the duty of the Bureau of Radiation Protection of DEP. It is a responsibility which broadens with the growth of medical and industrial technologies.

Interim regulations controlling the handling and transportation of radioactive materials went into force when Governor Brendan Byrne signed Assembly Bill 1953 on September 6, 1977, establishing the legal framework for such rules. Public comments on the law and its applications were gathered at a fact-finding meeting on February 15, 1978. Interim rules will be replaced by permanent regulations during the 1979 fiscal year.

An average 55 percent decrease in dental patient exposure to X-rays has been achieved through an inspection and training program involving 2,600 New Jersey dentists. About half of more than 2,000 dental X-ray units examined required changes to minimize patient exposures. Those units are used in making some 75,000 X-ray films per week.

A similar program involves 132 mammography units used in breast X-ray examinations. Since this program began in September, 1977, 54 units have required follow-up action either to reduce exposure or to improve techniques or X-ray images. The units are used for mammography examinations of some 15,000 patients per year. Both the dental and mammography programs were originated by the U.S. Food and Drug Administration.

## **NOISE CONTROL**

DEP's Office of Noise Control found 42 facilities in New Jersey violating noise control regulations. All are conducting abatement work to reach compliance. Twenty-three other facilities have completed abatement measures. The Office of Noise Control held workshops during the fiscal year to acquaint local officials with a model community noise control ordinance.

## **PESTICIDES CONTROL**

Near tripling of field inspections by the DEP Office of Pesticides Control during the fiscal year revealed 147 violations. Of them, 105 were violations of federal regulations and were referred to the U.S. Environmental Protection Agency (EPA). The remaining 42 were for violations of New Jersey applicator or manufacturer regulations. Most were brought into compliance and the rest were in process at the end of the fiscal year.

Two-part applicator certification tests were administered to 1,535 persons. Private and commercial applicators receive the same first half of the test while commercial applicators undergo various category tests.

Dealers registered to sell restricted pesticides increased by 32, to a total of 827. A total of 615 companies registered 5,195 products classified as economic poisons. There were 776 pesticide applicator businesses registered, as well as 4,143 commercial applicators and 3,103 private applicators.

## **WILDLIFE**

The reintroduction of bobcats into their former habitat in the state's northern woodlands was begun with release of two animals trapped in Maine. More will be released when they become available.

Despite continuing loss of wildlife habitat to development, population densities of most New Jersey game species remained at high levels. State-owned fish and wildlife management areas totaled 147,620 acres at the end of Fiscal 1978, compared



with 145,860 acres the prior year.

DEP's Division of Fish, Game and Shellfisheries reported reproductive success after reintroduction of the wild turkey to the state. Twenty-two turkeys were released during Fiscal 1977, and a tally in September, 1977, revealed a minimum of 55 turkey poults. By winter, 94 turkeys were counted.

During Fiscal 1978 the Division's three game farms produced 64,310 pheasants and 13,070 bobwhite quail for release on lands open to public hunting.

Hunters bagged an estimated 374,000 pheasants, 151,000 quail, 47,000 grouse, 690,000 rabbits, 232,000 squirrels and 59,000 woodcock. A record total of 14,419 deer were killed. Of the total, fall bow and arrow hunting accounted for 2,381, the six-day firearm season, 7,829; winter bow and arrow hunting, 210, and one-day either-sex hunting, 3,999. The first three figures are new records.

Trapping in New Jersey produced raw fur worth an estimated \$3.2 million, with a \$9.6 million retail value. A byproduct was an estimated 192,000 man-days of recreation.

### **Fish Aplenty**

The Division's Bureau of Fisheries released 614,810 trout, all of them above the minimum catchable size, into New Jersey public waters. More than 500,000 of these were reared at the State Fish Hatchery and the rest in federal hatcheries. A total of 5,080 largemouth bass, 6,190 channel catfish and 3,400 bluegills made up the warmwater fish stocking program during the fiscal year.

The capability of rearing northern pike and tiger muskellunge at the State Fish Hatchery was achieved, so that releases of these large game fish can begin. Tiger muskellunge, a hybrid fish which rapidly reaches weights of 25 pounds or more, will be stocked at Spruce Run Reservoir.

The continuing Lakes Bay to Great Bay relay of hard clams saw a total of 4.6 million clams moved. Another 1.2 million hard clams were moved from the Manasquan and Shark Rivers during a three-week depletion relay. Oyster shells were planted in the state's oyster seed beds for the first time in four years, while oystermen removed 385,140 bushels of seed oysters from state beds for planting in leased waters. A program was begun to control Delaware Bay oyster losses caused by the oyster drill, a destructive marine organism.

extent to which New Jersey residents and their environment are exposed to carcinogenic or other toxic substances.

The office of DEP's Assistant Commissioner for Science is in charge of the toxics program, in addition to ongoing services such as geology, environmental and historical review and environmental analysis.

During its first two years, DEP's toxics program has pursued two courses: The Risk and Health Assessment Section relates environmental data to health effects. The Environmental Fate Section is concerned with the behavior of toxic substances in the environment, and their effect on natural resources. This group also conducts substantial environmental monitoring.

During Fiscal 1978, results of the first half of a statewide test of well water for the presence of 50 dangerous substances were announced. The substances fall into the categories of pesticides, organic compounds and metals. It was found that almost all wells tested showed traces of some of the chemicals under investigation. It also illustrated that low levels of pesticides are more prevalent in agricultural areas, while most wells contaminated by organic chemicals are in urbanized industrial areas.

### **Trouble Spots**

Discovery of a cluster of leukemia cases (five children in the same school) in Rutherford in March, 1978, led to intensive research by DEP and the New Jersey Department of Health into potential causes. There was also an abnormally high number of Hodgkin's disease cases in the town. Concentrated studies of air, water and soil, plus searches for ionizing radiation and measurements of microwave radiations failed to pinpoint any factor which could clearly be connected to the disease clusters.

An explosion and fire which killed six persons and injured a dozen others on December 8, 1977, at the Rollins Environmental Services, Inc., plant in Logan Township, Gloucester County, brought a quick response from DEP personnel. It was feared that smoke from the fire could have endangered nearby residents because of the varied assortment of chemicals stored in the treatment facility for toxic wastes. There was also a chance that heat could have acted on stored polychlorinated biphenyls (PCBs) to form highly toxic chlorinated dibenzofuran (DBF). This led to a DEP quarantine of the site until it was certain that no dangerous levels of DBF existed. Follow-up monitoring continued for a month.

Stored pesticides were washed into a stream by fire hoses on April 28, 1978, when fire destroyed a farm market in Mount Laurel, Burlington County.

## **SCIENCE**

DEP's Program on Environmental Cancer and Toxic Substances stems from Governor Brendan Byrne's 1976 directive that DEP act to reduce the



The response team from DEP's Program on Cancer and Toxic Substances subsequently tested fish from Strawbridge Lake in Moorestown and found high pesticide levels in their bodies. A ban was issued by the Department of Health and DEP against fishing, swimming or boating on the lower part of the lake, and the public was warned not to

eat fish from the north branch of Pennsauken Creek, downstream from the lake. When monitoring was extended into other areas of the same watershed, it was found that one or more other sources of pesticide are involved. A major investigation to find those sources continued into FY '79.

## DEPARTMENT OF ENVIRONMENTAL PROTECTION REVENUES, EXPENDITURES, TRUST FUNDS FOR 1978 FISCAL YEAR

### REVENUES

Water Fees and Charges .....	3,001,926
Licenses & Fees .....	9,633,571
Publications-Sales .....	230,396
Federal Funds .....	23,378,375
All Other Sources .....	3,876,191
Total .....	40,120,459

### EXPENDITURES

Regular Operating .....	33,217,626
Debt Service—Interest .....	21,267,609
Sub-Total .....	54,485,235
State Aid .....	5,896,654
Capital .....	490,626
Debt Service—Redemption .....	17,035,000
Sub-Total .....	23,422,280
Trust Funds .....	33,874,932
Dedicated & Special .....	1,599,321
Federal .....	16,132,443
TOTAL EXPENDED .....	129,514,211

**Let's protect our earth**



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

