

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

ANNUAL REPORT 2003



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Chepiwanoxet Point in Greenwich Bay, looking east
Courtesy of the City of Warwick

MESSAGE FROM GOVERNOR DONALD CARCIERI

Dear Fellow Rhode Islanders,

Rhode Island's abundance of natural resources makes our state a great place to live and work. In recent years, we have worked hard to preserve and open to the public thousands of acres of open space. But as the 'Ocean State,' we take special pride in the many miles of beautiful and accessible waterfront which line our coasts, and in the Narragansett Bay, which forms the heart and soul of our small state.

Rhode Island's natural wonders also require consistent and careful tending. Recent experience has reminded us that we cannot relax our efforts to protect – and improve – our environment. The Narragansett Bay, in particular, continues to be faced with a number of environmental challenges.

Our past and future success in protecting the Bay, as well as our groundwater, land, and air resources, depends on the work of the Rhode Island Department of Environmental Management. While the challenges we face are substantial, I am committed to supporting the Department of Environmental Management in its mission to preserve the beauty and health of our natural environment.

Donald L. Carcieri
Governor

MESSAGE FROM ACTING DIRECTOR FREDERICK VINCENT

Dear Reader:

I am pleased to present the Department of Environmental Management's Annual Report for 2003. The report offers numerous examples of the progress made last year toward meeting DEM's goals of protecting and preserving the environment. The document is organized according to the single set of goals that have been adopted by DEM and the US Environmental Protection Agency to measure and improve environmental results.

If you have any comments about the report, please feel free to contact my office at 222-2771.

Frederick J. Vincent
Acting Director

CLEAN AIR

“The air throughout the state will be healthy to breathe and air pollutants will not damage our forests, land and water bodies.”

Ozone

Rhode Island has experienced great improvements in air quality since the 1980s, as evidenced by a dramatic decrease in the level of summertime smog – or ozone – in the air we breathe. Despite this overall improvement, Rhode Island, like most states in the Northeast, does not meet the national air quality standard for ozone. In 2003 there were 10 summer days when ozone levels were considered unhealthy, and one day when Rhode Island failed to meet the federal one-hour standard for ozone.

In March DEM submitted an attainment plan to the US Environmental Protection Agency, as required by the federal Clean Air Act, that establishes how the state will achieve compliance with the one-hour ozone national standard by 2007. The plan focuses on existing state and federal emission control programs, and indicates that nitrogen oxide emissions from areas upwind are the most important reason for Rhode Island's continuing non-attainment problem. The 2007 target date is based on the time it will take for the emission control programs most important to Rhode Island to reach full effectiveness, and on the corresponding attainment date set by nearby upwind states.

EPA approved Rhode Island's one-hour ozone attainment plan in May. Key strategies include a federal program to reduce power plant emissions in upwind states, new EPA rules for cleaner diesel engines and diesel fuel, and EPA rules for cleaner gasoline. The state's Greenhouse Gas Action Plan (*see section below*) will also contribute to reducing emissions of the volatile organic compounds and nitrogen oxides that form ozone.

Rhode Island continues to reduce vehicle emissions that contribute to ozone and air pollution. In January, the Division of Motor Vehicles, in conjunction with DEM, implemented a new inspection program for on-board diagnostic systems in newer vehicles that replaced exhaust emissions testing. Reviewing the emission control systems allows for faster inspections and easier diagnosis of needed repairs. The Department also helped the Rhode Island State Police prepare to do roadside testing of heavy-duty vehicle emissions.

Fine Particles

In 2003, DEM implemented a continuous monitoring system that will enable the Department to make daily predictions of fine particulate air quality. The Department worked with EPA and other states to build forecasting and public outreach tools to tell people how they can protect themselves on particulate alert days – when the levels of fine particles in the air are high – and educate them on ways to reduce particulate emissions. Studies have shown that fine particle pollution can pose a year round health threat in Rhode Island, particularly for children and other people easily affected by air pollution.

Air Toxics

In 2003 DEM continued to operate a monitoring site in the metropolitan Providence area to gather data on air toxics. The Department also collected air samples at two locations in the Olneyville section of the Woonasquatucket watershed to determine the best location for further sampling in that area.

An air toxics stakeholder group reviewed proposed amendments to air toxics rules throughout the spring and summer. The proposed amendments would result in updated air quality levels used to protect public health. Specifically, the amendments would add all federal hazardous air pollutants to the list of regulated air toxics, update acceptable ambient levels, and update air quality modeling procedures. Those amendments will be finalized in 2004. Meanwhile, rules were amended to tighten requirements for dry cleaners, requiring older machines to be replaced with new machines that have lower perchloroethylene emissions.

Multi-Pollutant Legislation

In 2003 DEM participated in the debate on national legislation to reduce nitrogen oxides, sulfur dioxide, mercury, and greenhouse gas emissions from large power plants. The Department is working with regional organizations, including the Ozone Transport Commission, to ensure the legislation meets the goals of the Northeast states by attaining ozone standards in a timely manner, while also substantially reducing sulfur dioxide and mercury emissions.

Compliance

The Department initiated enforcement actions and offered compliance assistance to several companies that failed to follow applicable regulations while performing degreasing operations.

The actions were taken as the result of inspections made by DEM's Office of Air Resources staff, who, in 2002, visited 44 companies in the Olneyville section of the Woonasquatucket River watershed and discovered six degreasing operations that needed to be brought into compliance. Degreasing involves the use of toxic solvents that, when released into the atmosphere, increase the risk of adverse health impacts such as cancer.

Greenhouse Gas Stakeholder Process

In 2003 the greenhouse gas stakeholder group, comprised of more than 30 representatives from government, business, industry, citizen groups, and environmental organizations, began to implement recommendations from the *Greenhouse Gas Action Plan*. The group developed and submitted two pieces of legislation – one requiring that 20 percent of electricity sold in Rhode Island come from renewable sources, and the other creating incentives to encourage the purchase of energy-efficient vehicles. The Rhode Island State Energy Office and Narragansett Electric initiated a technical and financial assistance program to help businesses reduce the use of oil and gas in space, water, and process heating.

Stakeholders also developed for consideration and future implementation three “lead by example” recommendations for state government that would save money and reduce conventional air pollutants and greenhouse gas emissions. Requiring energy efficient renovations and new construction in state facilities and public schools could save taxpayers \$39 million in operating costs over the next 15 years. Requiring all office equipment, appliances, lighting, and vehicles purchased by the state to meet the highest energy-efficiency standards available would also produce tangible savings. Further, buying additional energy efficient vehicles for the state fleet and adopting energy efficient maintenance practices would also ensure savings. These strategies are under active consideration.

CLEAN AND PLENTIFUL WATER

“Rhode Island’s rivers, lakes and coastal waters will be safe for fishing, swimming, and other direct water contacts, and will support healthy ecosystems. Surface and groundwater will be clean sources of drinking water. There will be an adequate water supply for all uses.”

Greenwich Bay Fish Kill

On August 20, about one million fish, primarily juvenile menhaden, washed ashore along Greenwich Bay in Apponaug Cove and Greenwich Cove in Warwick. A massive slick of dead fish, extending from Cedar Tree Point to Buttonwoods, was also observed that afternoon. In addition to the juvenile menhaden, several hundred small crabs and some larger blue crabs, horseshoe crabs, grass shrimp, blackfish, and American eels were also observed along the shore or floating at the surface. The fish kill was followed a week later by a massive die-off of juvenile soft-shell clams. Discolored water and noxious odors also permeated the western shore of the bay.

In response, Governor Carcieri issued an urgent request for DEM to assess the causes and impact of the fish kill in Greenwich Bay. The Department submitted a detailed report to the Governor in September that included some important long-term challenges affecting the health of the Narragansett Bay, and recommendations that would prevent, or at least minimize, the recurrence of a similar event.

A major finding of the DEM report was that the fish kill was not a simple or isolated event. It was part of a much larger event going on in Greenwich Bay and other parts of Narragansett Bay in 2003, and part of a trend that has been observed for many preceding years and will likely continue. Further, the findings indicated there is no magic solution, no quick fix. Future fish kills may not be entirely preventable, nor is there any guarantee that any action or combination of actions would reduce the risk of a recurrence significantly within a short period of time.

The fish kill happened during a summer that also saw an extraordinary number of beach closings around Narragansett Bay, including locations that have not been usually affected in previous years. However, while some of the same factors have contributed to poor water quality at beaches

and to the fish kill - an unusual amount of rain and storm water runoff - the phenomena are clearly different.

The fish kill was caused by the absence of dissolved oxygen (anoxia) in the waters of Greenwich Bay, particularly in its deeper waters and near its western shore. The condition caused fish and other marine animals living in these areas of the bay to suffocate. This conclusion was based on continuous measurements made by DEM in the western bay before the event was reported, and by surveys made throughout the bay on the day the kill was first reported. While the immediate cause for the kill was lack of oxygen, there is a broad and complex range of factors resulting in a severe and prolonged pattern of oxygen depletion. They include factors that cannot be controlled, at least not quickly or directly, such as rain, wind, temperature, geology and hydrodynamics. They also include pollution from various sources, including effluent from wastewater treatment facilities and septic systems, storm water runoff and groundwater flow from polluted areas, and possibly discharge from vessels using the Bay.

THE DEM report noted that although Rhode Island has had much success in improving water quality in Narragansett Bay, events like the Greenwich Bay fish kill demonstrate that the progress made to date is not good enough. The report made the following recommendations:

- Conduct a public workshop on the fish kill
- Consider new bond funding to revitalize assistance programs
- Accelerate nutrient upgrades at sewage treatment facilities
- Improve septic system management
- Improve storm water management
- Improve monitoring and assessment
- Improve Bay planning

Governor's Narragansett Bay and Watershed Planning Commission

In October, Governor Carcieri fulfilled his promise to develop a long term, statewide strategy to protect Narragansett Bay by issuing an Executive Order establishing the Governor's Narragansett Bay and Watershed Planning Commission. Chaired by former Governor J. Joseph Garrahy, this broad-based Commission includes representatives from DEM, Coastal Resources Management Council, RI Economic Development Corporation, Save The Bay, the General Assembly, industry

and business organizations, state and federal agencies, academic institutions, non-profit and public advocacy organizations, and commercial and recreational fishermen.

The Governor's Bay Commission is tasked with developing a unified strategy for identifying and pursuing solutions to the many issues facing the future of the Narragansett Bay. The Commission will also advise the Governor on Bay and watershed-related issues; recommend changes to rules, regulations, and statutes; develop a plan to educate the public about environmental issues impacting the Bay and its watershed; and increase public participation in the Bay and watershed planning process. In addition, the Commission will identify federal programs that can provide technical or financial assistance in the development and implementation of the Bay plan.

As part of his overall Narragansett Bay and watershed focus, Governor Carcieri is proposing legislation that would establish a mandatory phase-out program for high-risk cesspools that pose the most significant threat to human health and/or the environment. In November and December, DEM assisted with the development of the bill for introduction before the General Assembly in January 2004.

The first meeting of the full Commission was held in mid-December at the State House. The Commission's Steering Committee formed ten study panels to address the major issues the Commission was charged to address by March 2004, such as nutrient and bacteria reduction; habitat restoration; sustainable fisheries and aquaculture; monitoring, assessment, data management and environmental response; and public access and recreational opportunities.

Monitoring Water Quality

Monitoring and assessment are essential components of a complete water quality management program. Although progress has been made, the state still has a long way to go to fully assess its ground and surface waters to determine if they meet standards for fishing, swimming and human consumption. The most recent statewide assessment in 2002 indicates that while only 21 percent of the state's lake and pond acreage have not been assessed, water quality data is not available for 64 percent of the state's river miles. Almost all of the state's estuarine waters have been assessed for compliance with the National Shellfish Sanitation Program requirements, and 30 percent are considered impaired. During the last two years using federal funds, DEM conducted biological monitoring on streams in the Blackstone River and Wood-Pawcatuck River watersheds that were not previously assessed. Additional information on the quality of the state's surface and ground

waters is available in the 2002 State of the State's Waters Report by clicking on Publications and then on 305(b) on DEM's website at www.dem.state.ri.us

Working with our contractor, Midwest Biological Institute in Ohio, DEM made considerable progress in developing a comprehensive statewide monitoring strategy and also made progress in tracking more water bodies and in refining our assessment procedures. In July, DEM hosted a workshop that gathered over 35 representatives of government, academia and environmental groups to review gaps in current monitoring programs and design options for strengthening monitoring efforts. Input from the meeting is being used to draft a strategy that, as required by EPA, will identify costs and resources needed to implement the recommended monitoring approaches. The recommendations are expected to propose implementing a rotating basin approach for rivers and streams and expanding the network of fixed continuous monitoring stations in Narragansett Bay.

Impaired Waters and Water Quality Restoration

The federal Clean Water Act requires Rhode Island to monitor the condition of the state's waters, identify water bodies that do not meet state and federal water quality standards, and list these impaired waters on the 303(d) List of Impaired Waters. DEM finalized the document in July with approval by EPA.

To compile Rhode Island's list of impaired waters, DEM utilizes water quality data collected by state, federal and local agencies; universities; and volunteer monitoring organizations. Most of the baseline monitoring consists of quarterly and seasonal sampling programs. Stations are assessed based on biological data, chemical data, or both.

EPA requires the development of water quality restoration plans, officially known as Total Maximum Daily Loads – TMDLs – for each water body identified as being impaired by pollution. The list of impaired waters establishes a priority ranking for development of these restoration plans, and, as such, serves to direct water quality monitoring and restoration planning efforts in Rhode Island.

Throughout 2003, the Department actively worked on restoration plans in various stages of development for 40 water bodies. DEM received EPA approval on TMDLs for five water bodies – Crooked Brook, Saugatucket River and its tributaries, Rocky Brook, Indian Run, and Mitchell

Brook. The Department also submitted restoration plans for five additional water bodies to EPA for final approval – Sakonnet River at Portsmouth Park, The Cove at Island Park, Yawgoo Pond, Barber Pond, and Chickasheen Brook. Draft restoration plans for another 16 water bodies were also submitted to EPA for preliminary review – including Green Hill and Ninigret Ponds and their tributaries, Factory Pond and Teal Brooks; Greenwich Bay and its embayments, Apponaug, Brush Neck, Buttonwoods, Greenwich, and Warwick Coves, and six tributary streams.

To develop water quality restoration plans, DEM works with communities and interested parties to identify pollution sources and devise strategies to bring pollution to acceptable levels that allow the water body to meet water quality standards. Statewide, the most common pollutants are nutrients (nitrogen and phosphorus) and pathogens (bacteria), but in some areas the concern is with toxic chemicals or metals, or with habitat degradation. To address these issues, Governor Carcieri in December proposed a \$15 million clean water bond that would enable Rhode Island to improve and safeguard the state's water resources, including Narragansett Bay. This multifaceted bond would be used to tackle major pollution sources that have not been addressed by current state programs, and would leverage at least another \$15 million from federal, state, local and private sources to better protect Narragansett Bay and its watershed.

Funding Assistance

In 2003 DEM awarded close to \$1.5 million in non-point source pollution abatement grants for 29 projects that will improve water quality throughout Rhode Island. The grants were given to 17 Rhode Island communities, three environmental non-profit agencies, a conservation district, the University of Rhode Island, and DEM for water quality restoration and onsite wastewater management projects. Funds, awarded through the state's non-point source pollution management program, included \$1,359,293 provided by the US Environmental Protection Agency from the federal Clean Water Act, and \$105,852 from the state's Clean Water Environmental Trust Fund.

The projects address storm water discharges, sewage disposal, wetlands impacts, and aquatic habitat degradation problems and support innovative management of storm water and other pollutants. The funds also support community efforts to implement water quality restoration plans and to comply with RI Pollutant Discharge Elimination System (RIPDES) Phase II Storm water requirements. In addition, grants ranging from \$10,000 to \$25,000, and requiring a 20-40 percent match, were awarded for development and implementation of community onsite wastewater management plans in six communities.

Water Quality Restoration Projects
(Total Awards \$1,359,293)

Barrington--Allin's Cove Water Quality Restoration	\$13,500
Burrillville--Salt Storage Facility	\$60,000
Coventry--East Shore Drive Stormwater Improvements	\$39,000
Coventry--Salt Storage Facility	\$60,000
Coventry--Sandy Bottom Road Wetland Restoration	\$60,000
Cumberland--Salt Storage Facility	\$40,000
DEM Parks and Recreation--Charlestown Breachway Composting Toilets	\$72,000
DEM Sustainable Watersheds--Narrow River TMDL Implementation	\$76,962
East Providence--Salt Storage Facility	\$40,000
Hopkinton--Landfill Abatement	\$25,000
Kickemuit River Association--Blue Tab Project for the Identification of Homes not tied into Sewers	\$2,000
Middletown--Salt Storage Facility	\$60,000
Newport--Salt Storage Facility	\$40,000
Pawtuxet River Authority-- Riparian Buffer Restoration Strategy for the Lower Pawtuxet and Pocasset Rivers	\$46,000
Portsmouth--Identification of Illicit Discharges to Storm Drain System	\$24,913
Save The Bay--Demonstrating Innovative Stormwater Management at the Bay Education Center	\$150,000
Smithfield--Stillwater Reservoir Pollution Abatement	\$109,918
Southern RI Conservation District--Discouraging Waterfowl in Fry Brook	\$10,000
URI Graduate School of Oceanography--Restoration of Water Quality and Eelgrass Habitat in the RI Coastal Salt Ponds	\$40,000
URI Pollution Prevention Center--Pollution Prevention Assessments in the Woonasquatucket River	\$40,000
Warren--Fecal Coliform Abatement at Warren Town Beach	\$25,000
Warren--Restoration of Belcher Cove	\$25,000
Warwick--Brushneck Cove Infiltration	\$300,000

Onsite Wastewater Management Projects
(Total Awards \$105,852)

Sponsor & Project Name	Award
Bristol--Onsite Wastewater Plan	\$10,000
Jamestown--ISDS Riser/Filter Retrofit	\$25,000
Johnston--OWMP Implementation	\$25,000
North Smithfield--Onsite Wastewater Plan	\$10,000
Smithfield--ISDS Outreach and Repair Project	\$10,852
Westerly--Septage Acceptance Plant	\$25,000

Also in 2003, the Department provided funding for wastewater treatment plant improvements through bond funds provided by the Pawtuxet River Authority and State Revolving Fund loans. In addition to supporting treatment facility upgrades, the loan funds are also being used to extend sewer lines in several communities, purchase open space, and to construct the Narragansett Bay Commission's three mile combine sewer overflow storage tunnel. The recipients are listed below:

Pawtuxet River Authority Bond Funds	
Cranston	\$524,177
State Revolving Loans	
Burrillville	\$5,600,000
Cranston	\$2,000,000
Middletown	\$1,000,000
Narragansett	\$4,200,000
Narragansett Bay Commission	\$40,000,000
South Kingstown	\$500,000
Warwick	\$20,000,000

Brayton Point Power Plant

DEM played a key role in protecting Rhode Island's waters through its direct involvement in the development of a discharge permit for the Brayton Point Power Station from EPA and the Massachusetts Department of Environmental Protection. The permit, issued in September 2003, sets new, stricter limits for water pollution generated from the Somerset, Massachusetts power plant into Mount Hope Bay. Studies have shown that elevated temperatures of water discharged from the facility have had serious negative impacts on fish in Mount Hope Bay. Owners of the Brayton Point facility appealed the permit and DEM, along with the RI Attorney General's Office, filed a petition to intervene in the appeal.

RIPDES Permit Status

DEM continues to make steady progress in reducing the backlog of Rhode Island Pollution Discharge Elimination System (RIPDES) permit applications, and focused its efforts this year on reducing the backlog of minor permits. Thirteen minor permit applications were re-issued in 2003. This reduced the backlog in processing applications from a high of 86 percent to 61 percent. Since 1999, the backlog in processing major permits dropped from 76 percent to just eight percent.

Reducing Nutrients at Wastewater Treatment Facilities

Revised RIPDES permits require major wastewater treatment facilities to reduce the amount of nutrients they discharge. In 2003, DEM approved the final designs for nutrient removal at the East Greenwich Wastewater Treatment facility, with completion of construction work required by March 2006. Also, improvements that will reduce nutrient discharges are currently underway at three wastewater facilities in the state, and planning and design work is ongoing at four treatment facilities.

Storm Water Management

Although considerable progress has been made in controlling point sources of pollution, such as discharges from wastewater treatment plants, the state continues to face challenges in abating water pollution from non-point sources such as storm water runoff. In 2003 the Department worked closely with municipalities and issued a general permit to help them meet new Phase II RIPDES regulations. The regulations require the state's 33 municipalities with storm sewers in urbanized areas to develop local storm water management programs and obtain permits for their storm water discharges. The general permit allows municipalities and other public entities to obtain permit coverage through a streamlined application and permitting process.

PRESERVE AND RESTORE THE LAND

“Land will be preserved and protected through purchasing land and development rights; planning for growth; reducing and controlling the risks from releases of harmful substances; promoting waste diversion, recycling and innovative waste management practices; and cleaning up contaminated properties for beneficial reuse.”

LAND PRESERVATION AND RESTORATION

Open Space and Green Space

2003 was a very successful year for land conservation efforts in Rhode Island, with 3,938 acres protected from development. DEM, working through its land acquisition program, local grants program, and the Agricultural Land Preservation Commission, protected 1,844 acres in 25 separate projects during the 2003 fiscal year, including over 200 acres of important active farmland protected by the agricultural program through the purchase of development rights. Municipal and private land trusts participated in the preservation of an additional 1,304 acres of land. The Nature Conservancy, exclusive of their work with federal, state and local projects, protected another 576 acres of land in FY 2003. These projects included significant acquisitions in the Queen's River watershed in South County and on Block Island. The US Fish and Wildlife Service added a total of 214 acres to its refuges at Ninigret and Block Island, and to the Chafee Refuge in Pettasquamscutt Cove at the south end of the Narrow River. In total, the conservation programs protected 31 percent more land than the annual goal of 3,000 acres set when the state's Open Space 2000 bond was promoted and approved.

Significant parcels protected during FY 2003 include the 227-acre Kilmartin property in Gloucester, which was combined with another 130 acres of Kilmartin land to provide a connection between DEM's Durfee Hill Management Area and the Gloucester Land Trust's Sprague Farm. The Knight property in Cranston, which contains over 250 acres of farmland and forested lands, is another significant parcel protected in FY2003. That property, now owned by the City of Cranston and managed by the West Bay Land Trust, is located along the city's Historic Farm loop and was protected through the state's Agricultural Land Preservation Program and DEM's local matching grants program.

DEM's Land Acquisition Program attempts to maximize its leveraging potential through combining funding of various programs for many of the acquisition projects. The programs work together and with other local and federal programs to stretch each state bond dollar. In FY 2003, \$11.4 million in land value was preserved. Of this amount, approximately \$1 million was donated land value from private property owners. Of the remaining \$10.4 million, only \$4.5 million was from state bonds for state land acquisition, farmland preservation, or local matching grants. Overall, the state's bond dollars were matched at a ratio of 2.5, up from last year's 1:1 ratio.

Borders Farm Preservation

In December, DEM joined the RI Agricultural Land Preservation Commission, US Department of Agriculture - Natural Resources Conservation Service, and The Nature Conservancy to announce the acquisition of development rights to the 197-acre Borders farm, located near the Scituate Reservoir. Protection of the development rights to the Borders property by the RI Agricultural Land Preservation Commission will ensure continued agricultural use of this prime farmland and the protection of an important scenic vista in the Town of Foster. The farm was the site of reintroduction of wild turkeys to Rhode Island in the 1980s, and provides forest and meadow habitats for many common and rare species including gray and red foxes, raccoons, deer, otters and fishers.

Borders is the 56th farm that the state has protected through the efforts of the RI Agricultural Land Preservation Commission and a multitude of partnering agencies. Including the Borders acquisition, 4,254 acres of farmland have been preserved since 1985 through the state farmland protection program.

Conservation Easement Protects 105 Acres in Cumberland

Through a cooperative partnership effort between DEM, the RI Water Resources Board, the Town of Cumberland, and the Pawtucket Water Supply Board, more than 105 acres of forested land in Cumberland has been protected from development. In December, a conservation easement was entered between the State of Rhode Island and the Town of Cumberland to protect the property. The protected land falls within two public drinking watersheds - the Sneece Pond watershed, which is managed by the Cumberland Water Department, and the Arnold Mills watershed, managed by the Pawtucket Water Supply Board. The property is predominantly an oak-hickory forest, and will remain as such.

Open Space and Recreational Trail Grants

During an October ceremony at the Norman Bird Sanctuary in Middletown, DEM and the RI Department of Transportation awarded 24 projects a total of \$4.48 million in open space and recreational trail grants. Ten greenways land acquisition and bikeway development projects were awarded a total of more than \$2 million in funds from the 1998 \$15 million state Open Space bond fund. The greenways grants provide funding for such diverse projects as burying overhead electric lines as part of the I-195 Relocation Project at India Point Park in Providence, to protecting more than 500 acres of coastal forest that abut the Weetamo Woods greenway in Tiverton. Communities and organizations receiving the grant money include East Greenwich, Foster Land Trust, Glocester Land Trust, Newport, Norman Bird Sanctuary, Providence, Scituate, Smithfield, Tiverton Land Trust, and Westerly Land Trust.

Also, 14 recreational trail improvement and trail equipment projects were awarded a total of \$394,000 in federal transportation grants through the Recreational Trails Program. The grants will fund projects at motorized and non-motorized recreational trail facilities throughout Rhode Island. Communities and organizations receiving the grant money include Charlestown, Cumberland, Foster/Glocester Regional School System, Groundwork Providence (two awards), Hopkinton Land Trust (two awards), Newport, Pawtucket, Pawtuxet River Authority, Richmond, South County Bridal Lanes Association, South Kingstown Land Trust, and Warwick.

Forest Resources

DEM's Division of Forest Environment began the process of updating the state's Comprehensive Forest Resources Plan, which was last revised in 1985. More than 2,800 survey questionnaires were sent to private landowners with more than 10 acres of forestland in 14 rural communities identified by the RI Statewide Planning Program. Results were being tabulated at the end of 2003, with focus group meetings being planned for 2004.

In 2003 the Department protected 471 acres in Hopkinton and 72 acres in Coventry through the Forest Legacy program. The goal of the Forest Legacy Program is to preserve traditional forest values and uses by preventing the conversion of forestland to non-forest uses. Under the program, high priority areas are identified for protection; discussions are then held with property owners and, for those who opt to enroll in the program, funding opportunities are made available to help secure protection of the lands via easements or direct acquisition. To date, the Forest Legacy Program has acquired a total of 1,929 acres of conservation easements and the Department has pending plans to protect on an additional 768 acres involving four separate properties.

Brownfields Redevelopment

DEM, along with the RI Economic Development Corporation, was awarded a \$3 million grant from the US Environmental Protection Agency in June to bolster the state's brownfields Cleanup Revolving Loan Fund. The loan fund is used to help assess, cleanup, and redevelop abandoned, contaminated brownfields parcels in the state. The funding for Rhode Island is a direct result of landmark federal brownfields legislation written by Senator Lincoln Chafee and enacted by Congress in 2002. This new brownfields law is giving a tremendous boost to the environmental health of Rhode Island's urban communities.

In October, the state was awarded \$860,000 in additional funding through EPA to support brownfields projects, which includes an additional \$200,000 specifically earmarked for DEM targeted brownfields assessments and remediation work. Assessment work at two brownfields sites – Stillwater Mill in Burrillville and the Joslin Community Center in the Olneyville Section of Providence – began in late 2003, and should be completed in 2004.

In 2003, DEM entered into eight Brownfield Settlement Agreements covering 66.3 acres of property that will be cleaned up and brought back to beneficial reuse. We also assisted municipalities and non-profit organizations in preparing grant applications for brownfield projects and writing 10 letters of support for projects seeking competitive funding grants from EPA.

In October, Bristol's Thames Street Landing brownfields redevelopment project received the 2003 National Phoenix Award for Outstanding Project in New England, and was among the top 10 finalists nationally for this prestigious award. The Thames Street property owners worked with staff from DEM, the Town of Bristol, and consultants that supported the redevelopment effort to prepare and submit the award application. The project is catalyzing the redevelopment of a larger area of the Bristol waterfront, with economic benefits on the local and state level.

EMERGENCY PREPAREDNESS

MTBE

In June, DEM secured an additional one million dollars in funding from the Environmental Protection Agency to expedite and expand the cleanup of methyl tertiary butyl ether (MTBE)-contaminated groundwater in the Pascoag Utility District. The funds are being used for a second groundwater treatment system for the 14-acre area where the MTBE plume is most concentrated,

and to develop a plan for a third water remediation system near the well field shut down by the contamination. Throughout the summer, significant testing for a third system was performed to evaluate different technologies for water treatment. At the end of December, more than 3,000 equivalent gallons of gasoline, three million gallons of petroleum-contaminated groundwater, and 1,000 cubic yards of contaminated soil had been recovered, treated, and disposed of from the former Main Street Mobil gas station, the source of the contamination.

Emergency Response

In 2003, DEM's emergency response staff responded to more than 900 incidents that threatened the environment from pollutants and hazardous materials, providing initial on-site response and support to state and municipal fire and emergency teams and providing advice and oversight for clean-ups. The actions of the Emergency Response program removed the following materials from the environment: 15,462 gallons of hazardous chemicals, 282 cubic yards of hazardous waste contaminated soil, 18,729 pounds of hazardous chemicals, 25,930 cubic yards and 21,281 pounds of non-hazardous pollutants, 600 pounds and 140 tanks of propane, 1,000 pounds of asbestos, 46 vehicle batteries, 41 pounds of mercury, 4,489 tons and 13,663 cubic yards of solid waste, 20,100 abandoned tires, and lead paint debris from 42 sites.

The oil spill that had the greatest impact on Rhode Island last year occurred in Massachusetts off Gooseberry Point, five miles from the state border. On April 27, the barge *Bouchard 120* ran aground, releasing an estimated 98,000 gallons of number 6 heating oil near the entrance of Buzzards Bay. The Buzzards Bay area of Cape Cod was devastated by the spill, and beaches and wildlife in Rhode Island as far west as Narragansett and Block Island were affected, with tar balls washing ashore and oiled birds. The cleanup and removal of the tar balls, as well as bird recovery and impact assessment, continued for four weeks.

Domestic Preparedness

DEM has a significant role in preparing and responding to the threat of terrorism. In 2003, the Department's emergency response staff inspected and evaluated, using field screening devices, over 250 suspect items at a central processing facility set up by the state fire marshal's office, which were then delivered to the state health laboratory for final analyses. Emergency response staff also responded to several other locations where individuals came into direct contact with suspect material and required on-site assistance. DEM's environmental police officers assisted the US Coast Guard with homeland security by providing armed escort service for liquefied natural gas tankers entering the Port of Providence.

SOLID WASTE AND HAZARDOUS WASTE

Solid Waste Management Plan

In 2003 DEM, in partnership with the RI Resource Recovery Corporation, worked to update the state Guide Plan Element on Solid Waste to address concerns about the rate of disposal, reduce the volume and toxicity of waste, increase recycling rates, and improve waste management methods.

Re-Licensing of Central Landfill

DEM performed a thorough review of the RI Resource Recovery Corporation's application to open and operate the 32-acre Phase V at the Corporation's Central Landfill in Johnston. Phases I through III are filled and closed, and Phase IV is nearing capacity. The proposed double-lined Phase V landfill would overlap portions of the existing landfill and accommodate approximately 7.5 million tons of additional waste capacity. DEM was expected to issue a Notice of Intent to Issue a License to the Corporation in early 2004 that outlines requirements the Corporation must complete before a final decision on the license can be made.

Waste Cleanups and Facilities

In 2003, remediation work was completed to close out 39 sites in the State Site Investigation and Clean-up program, and investigations were completed for 37 sites. At the end of the year, the program had 550 actively listed sites.

DEM also closed out 62 cases involving leaking underground storage tanks in 2003. Of the 62 tanks, 25 were heating oil tanks covered under state regulations, and 37 were federally regulated tanks.

Landfill Closure Program

DEM continued its efforts in 2003 to assist municipalities address liabilities associated with former landfills that are not listed on the federal Superfund list. There are about 100 former landfills in the state that were not properly closed, half of which involve some degree of municipal liability. Using grant funds from the US Department of Agriculture, DEM performed three investigations at landfills in Exeter, Richmond, and Glocester. At the end of the year, the landfill closure program included 16 participating former landfill sites.

Remedial Design Work at Former Rose Hill Landfill

In April, DEM, in cooperation with the US Environmental Protection Agency, began remedial design work at the Rose Hill Regional Landfill Superfund Site in South Kingstown. Field activities, including baseline monitoring, test pits, leachate sampling, residential well sampling, survey work, surface water and sediment sampling, were conducted throughout the year. Data gathered during these investigations is required to complete the engineering design plans, and will also aid in identifying any potential future re-use of the site. DEM and EPA reviewed the preliminary remedial design for the site and provided written comments to the design contractor in December. The final remedial design plan for the site is expected in mid-2004.

Davis Liquid Waste Superfund Site Settlement

In 2003, DEM received approximately \$2.1 million in legal settlement funds from potential responsible parties associated with the Davis site, after all appeals were exhausted in US District Court. A significant amount of the settlement funds were used to reimburse the state treasury for cleanup costs at the Smithfield Superfund site, and \$300,000 was earmarked for future brownfields work in the Woonasquatucket and Pawtuxet River Valley watersheds.

Rusting Excavator Lifted from Blackstone River

In August, DEM oversaw the removal of a 60-ton rusting excavator abandoned on an island in the Blackstone River, adjacent to the Blackstone Bike Path in Lincoln. The hulking relic was used in the 1960s and 1970s to mine gravel for the former JM Mills landfill in Cumberland, and was abandoned in the 1980s when it broke down on the island. DEM was contacted about the excavator by a local resident who was seeking help in having it removed. With \$16,000 in funding from DEM, the removal was completed under an arrangement with the US Army Corps of Engineers after a land bridge to the island had been built.

Healthy Communities and Healthy Ecosystems

“The health of people, communities and ecosystems will be protected, sustained, and restored using integrated and comprehensive approaches.”

NATURAL RESOURCES

Habitat Restoration

The Lonsdale Drive-in Environmental Restoration project, located within the Blackstone River Valley National Heritage Corridor near the Valley Falls marshes, was completed in September. The Lonsdale Drive-in site was used as a pasture for many years until the early 1950s, when 23 acres were paved to construct the drive-in. DEM purchased the property in 1998, with the intention of restoring wetlands and riparian habitat. Thirteen acres of asphalt were removed, a movie screen, speaker stands and other equipment were demolished, and about 60,000 cubic yards of material were excavated from the site. Once the land was cleared, a seven-acre wetland area was constructed, 13 acres of upland riparian habitat were restored, and much of the existing forested riparian habitat along the Blackstone River was preserved. The area now provides shelter to waterfowl and habitat for declining grassland bird species. Numerous deer, foxes and coyotes have already been sighted on the premises, and the scattered trees and shrubs that were planted on the property provide shelter and nesting habitat for songbirds. The Lonsdale Drive-in Environmental Restoration project was a true collaborative effort, with many partners working together to assure its success, including the RI Natural Heritage Program, University of Rhode Island, the US Army Corps of Engineers New England District Office, US Fish & Wildlife Service, National Marine Fisheries Service, US Environmental Protection Agency, RI Coastal Resource Management Council, Rhode Island’s Congressional delegation, private industry, and DEM. The total cost of the restoration project was \$2.6 million in combined state and federal funds and private donations.

Restoration of five acres of habitat in the Potters Cove area of the Narragansett Bay National Estuarine Research Reserve on Prudence Island was completed in 2003. The project restored unimpeded tidal flows and fish access to a pond and salt marsh by replacing culverts that had been crushed by the passage of cars over roads near the marsh. Potters Cove is an important feeding, spawning and nursery area for more than 12 species of fish. Partners in the \$40,000

restoration project included DEM, National Oceanic and Atmospheric Administration, US Department of Agriculture, Fish America Foundation, Town of Portsmouth, and the Eastern Rhode Island Conservation District.

In August, DEM expanded its ban on feeding waterfowl in state parks and management areas to encompass the whole state. Problems often arise when humans feed waterfowl: the birds become more tame than wild, and they begin to rely on humans as a food source. When the birds gorge themselves on bread and stop eating their natural foods, which are more nutritious, they become malnourished. Birds can also become a water quality issue because of the high levels of fecal coliform and nitrogen in their waste. DEM's Division of Water Resources developed an educational brochure that explains the dangers to both the birds and to the environment from feeding waterfowl. It points out that high levels of fecal coliform bacteria in the water cause beach closures and the prohibition of shellfishing in certain areas. This pollution directly affects the enjoyment of local waters and impairs the livelihood of local shellfishermen.

NATURAL RESOURCES INDUSTRIES

Commercial Fisheries — Responding to Industry

The commercial fisheries industry is a major contributor to the state's economy. More than 3,000 boats, from quahaug skiffs to draggers, are engaged in commercial fishing in Rhode Island. In 2003, 103 million pounds of fish were landed in Rhode Island, with a dockside value of more than \$64 million. Nearly 800 workers are employed in 69 fish wholesale businesses and fish processing plants in the state.

In February, Rhode Island became the first state to offer seafood dealers an internet-based fish landing reporting system that is viewed as a model by other states and the federal government. It provides real-time data, allowing commercial fishermen to make timely business decisions on upcoming trips and allowing fisheries managers to make quick decisions on opening and closing quota-managed fisheries. Six of the 12 largest wholesale seafood dealers in the state currently report using the system, and additional dealers will be integrated into it. The system was developed, with federal funding, in cooperation with the Atlantic Coast Cooperative Statistics Programs, NOAA Fisheries, several other state environmental agencies, and industry.

In 2003 DEM began a new weekly trip limit monitoring program for the commercial summer flounder and scup fishery, giving participants more flexibility in harvesting catch and reducing discards, while still meeting the objectives of the quota management program. Also, in response to significant industry concerns about the decline of the lobster import/export business in the state, DEM filed emergency regulations that enhance the competitiveness of Rhode Island lobster dealers in the interstate wholesale market and support the interests of lobstermen in the region.

Working in Partnership

A cooperative project overseen by DEM to conduct a pilot industry-based survey of Southern New England Yellowtail Flounder was launched in the spring. Commercial fishing vessels completed over 300 tows throughout the Southern New England and Mid-Atlantic area, collecting biological information on more than 10,000 individual yellowtails. Data is being analyzed to determine species abundance and distribution and will be used to refine existing or recommend new management measures for this species. A second survey was conducted in the fall and will resume in the spring and fall of 2004. The fishing industry was intensely involved in designing and participating in the survey, which was funded by the National Marine Fisheries Service under the Cooperative Research Partners Initiative. Marine biologists from DEM's Division of Fish and Wildlife and the Northeast Fisheries Science Center also participated in the project.

In May, about 400,000 pounds of quahaugs were transplanted by local shellfishers under the direction of DEM from overcrowded beds in Warwick Cove and Greenwich Cove to the cleaner waters of the High Banks Shellfish Management Area of Narragansett Bay. The transplanted quahaugs will be given two years to grow and spawn before they are harvested. Governor Carcieri tapped his contingency fund to enable the project to proceed.

Several North Cape shellfish restoration projects were conducted in 2003. Using volunteer support, restoration work included raising scallop seed and transplanting two million scallops in Point Judith Pond and other South County coastal ponds, and raising and transplanting four million quahaug seed into closed sanctuaries and open shellfishing areas within several coastal ponds. In addition, oyster beds were created using one million oyster seed set on shell. The North Cape shellfish restoration program seeks to compensate for the losses associated with the environmental damages sustained when the tank barge North Cape ran aground off Moonstone Beach in South Kingstown in 1996, spilling 828,000 gallons of heating oil into Block Island Sound and Rhode Island's coastal ponds. More than 10 million surf clams and other shellfish,

fish, and birds were killed as a result of the spill. DEM and the National Oceanic and Atmospheric Administration direct the restoration effort.

In June, Rhode Island's 80-plus charter and party boat captains were invited to participate in a new data collection survey system designed to provide improved catch and effort statistics for recreational marine fisheries. With this system, randomly selected charter fishing boat captains report their fishing effort from the previous week, and an observer collects catch and discard data on selected large party boat trips. The estimated impact of recreational anglers can be seen in the most recent statistics provided by the National Marine Fisheries Service. In Rhode Island, nearly 300,000 recreational marine anglers — more than half from out-of-state — made over 1.4 million trips, catching 4.1 million pounds of sport fish and releasing about 50 percent in 2003. Nationally, in 2003, 10 million recreational marine anglers made 72 million fishing trips, catching 402 million fish, and releasing more than half of them.

Other Fisheries News

On January 1, DEM began implementing a new commercial fishing license program as required by the 2002 fisheries licensing reform act. Under the new system, existing fishermen were able to maintain their former levels of participation while new entry was facilitated through the availability of a new type of license, which allowed access to a limited number of species. In 2003, 266 of the new licenses were issued. A lottery system allowed 50 of these new license-holders to enter the lobster fishery on a limited basis.

Construction of a new, 50-foot research vessel to replace DEM's venerable R/V Thomas J Wright neared completion in December. The R/V John H. Chafee will be faster, wider, safer and more efficient, and will allow trips that are longer and further afield than those that can be undertaken using the Wright. The new vessel also has more modern deck apparatus, such as an oceanographic winch, which will allow it to be used for a far wider variety of projects than is currently possible. Its major role will be to continue and expand the monthly and seasonal fish trawl surveys, first begun in 1979 using the Wright, that are the basis for stock assessments and fish conservation measures. Funding for the new vessel came from a federal grant secured by the late Senator John H. Chafee, and from state boat registration fees.

Honor Program Terminated

The Honor Program, an industry-based component of the North Cape lobster restoration program, was terminated in June as a result of irregularities uncovered by a DEM investigation. Under the

Honor Program, participating fishermen v-notched lobsters then returned them to the water to be left until they molted and their notches disappeared, extending their reproductive lives by allowing them to produce more eggs. The fishermen turned in the v-shaped pieces along with a form that detailed their fishing activity that day, including the number of lobsters they had notched, and were paid the prevailing market rate for each lobster so claimed. As a result of the investigation, one lobsterman pled no contest to charges of obtaining money under false pretenses and filing false documents, and four others were indicted on similar counts. In a separate matter associated with an earlier component of the North Cape lobster restoration program, DEM, the Internal Revenue Service, and the National Marine Fisheries Service investigated concerns raised by local lobstermen that culminated with the sentencing of a claims adjuster for filing numerous false claims. As part of his plea bargain, the claims adjuster contributed \$25,000 to Rhode Island's oil spill response fund.

Showcasing Agriculture

DEM's agriculture staff works with the state's 700-plus farmers, helping implement best management practices, offering conservation techniques, certifying health of livestock, and promoting Rhode Island farm products under the theme, "Rhode Island Grown - Take Some Home." Rhode Island Agriculture Day, hosted at the State House Rotunda by DEM in March, recognized farmers and the agriculture community for the importance the \$100+ million industry has to the state. Farming is an integral part of the state's economy and provides a valuable contribution to Rhode Island's open space and quality of life.

Assisting Rhode Island's Farm Community

In 2003 DEM's Division of Agriculture, together with all other New England state agriculture offices, formed a cooperative marketing program, "Harvest New England," to support the sale of New England food products through supermarket channels. Under the program, a companion to the local "Rhode Island Grown-Take Some Home" program promoted by DEM, supermarkets can buy from farmers throughout New England and can assure product freshness while keeping transportation costs and energy use down. Available products include fruit and vegetables, milk and dairy products, eggs, meat, fish, maple syrup, honey, and processed foods. Several supermarket chains, including Shaws and Stop and Shop are already participating in the program, which is financially supported via US Department of Agriculture farm viability funds awarded to the states. Rhode Island contributed \$25,000 of its federal funding to the program.

As a boon to farmers and consumers alike, Farmers' Markets operated at four state parks on a weekly basis from spring through October. At Fishermen's Memorial State Park in Narragansett, Haines Memorial State Park in East Providence, Goddard Memorial State Park in Warwick, and Colt State Park in Bristol, consumers found, according to season, bedding plants, flowers, local vegetables and fruits, maple syrup, honey, jams, jellies and baked goods. These four markets, as well as others within the state, accepted farmers' market checks from the Special Supplemental Nutrition Program for Women, Infants and Children.

Dutra Farm in Jamestown, which dates back to colonial times, was named Rhode Island's 2003 Outstanding Dairy Farm of the Year by the Rhode Island Green Pastures Committee in August. The Rhode Island Green Pastures Committee chose the Dutra Farm because of its outstanding relationship with the community, its use of good management practices, and its commitment to open space preservation in Jamestown. The 140-acre Dutra Farm, one of the most beautiful dairy farms in the Northeast, is recognized by tourists and residents alike for its contribution to the state's charm and preservation of open space.

This Egg's a Winner

A Rhode Island egg, decorated by Joan Creamer of East Greenwich to depict the elegance of Newport mansions in an earlier era, represented Rhode Island at the White House in April for the annual display of decorated eggs from each state, and won top honors. DEM's Division of Agriculture and Resource Marketing sponsors the yearly egg-decorating event in Rhode Island for the White House display.

Protecting Livestock and Eradicating Animal Diseases

In February, DEM banned the import of all species of birds and hatching eggs from all states with known infections of Exotic Newcastle Disease, which was confirmed in California, Nevada and Arizona early in the year. One of the most infectious avian diseases in the world, Exotic Newcastle Disease is a contagious and fatal viral disease affecting all species of birds including those often kept as pets, such as parrots. Backyard flocks of poultry, especially the gamecock species (often used for illegal cockfighting), are also a high risk. The 2003 outbreak was directly linked to this type of activity.

Since March 2003, when a moderate form of avian influenza was found in Connecticut, DEM has worked with the state's poultry industry and to control avian influenza should it be found in the Ocean State. DEM's animal health staff consulted with each of the state's commercial poultry

dealers and initiated surveillance and testing in cooperation with the farmers. A moderate form of avian influenza that poses no threat to human health or food safety, but can strike poultry quickly and spread rapidly from flock to flock, was detected in the spring at a large commercial egg farm in Foster. DEM quarantined the premises and worked with the affected farmer to contain and eliminate infection at the farm. The same form of avian influenza was also found and eradicated at a live poultry market in Providence in the spring. DEM has been working with farmers for the past several years on ways to minimize biosecurity risks in general. Those steps include restricted access, strict cleaning and disinfection, reporting any illness, and minimizing traffic to and from the facilities. In 2003, there were approximately 60,000 birds at six commercial poultry locations in Rhode Island, and another estimated 30,000 birds in so-called "backyard" flocks, which include farms with less than 500 birds and individual residences with poultry raised for fairs, shows and other exhibitions.

Forestry

Forests cover nearly 60 percent of Rhode Island's landscape, contributing over \$530 million to the state's economy as well as providing clean air and water, habitat for wildlife, and aesthetic benefits. Although small-forest and wood-related businesses contribute over \$120 million a year to the state's economy, management for traditional wood-based forest products is difficult in Rhode Island because of small parcel sizes. More than 80 percent of privately owned forestland is in parcels of less than 10 acres, too small to be eligible for tax benefits in the state's Farm, Forest and Open Space law, or for protection via title or conservation easement purchase under the forest legacy program.

In 2003, DEM awarded a total of \$8,242 in challenge grants to nine forest landowners to enable them to start alternative forest-based businesses. Such businesses – producers of edible, medicinal, floral and wood products, and those offering forest-based recreation activities – generate revenue to help landowners pay property expenses, reducing the likelihood that the land will be subject to sale and development. The grants, funded by the US Department of Agriculture's Forest Service, reimbursed landowners half of the cost of supplies and materials needed to initiate their businesses. As part of the ongoing campaign to educate landowners about the potential of alternative forest-based business, DEM, in partnership with the Rural Lands Coalition, hosted a highly successful free workshop in November to show forest landowners how to cultivate mushrooms on their property to mitigate their property expenses.

In October DEM, in conjunction with the Southern New England Forest Consortium, Inc., conducted a survey assessing the impacts of Hemlock Woolly Adelgid in Rhode Island. The state is generally infested with Hemlock Woolly Adelgid, an invasive insect that is responsible for the decline and death of substantial numbers of hemlock trees in the eastern United States. Hemlock mortality is now significant in urban, suburban and forested areas of the state. The survey collected data on the location of hemlock resources, levels of pest densities, tree health conditions, and the economic impacts of this pest in Rhode Island. Information gathered by the study will be used to assess the success of hemlock treatments, ascertain property owners' attitudes and commitment to long-term pesticide options, and economic impacts of Hemlock Woolly Adelgid on forestry-related industries. Funding for the survey was provided through the US Forest Service Cooperative Forest Health Program.

HUMAN HEALTH AND SAFETY

Mosquito-Borne Disease

Mosquito-borne disease had a high impact in Rhode Island in 2003. The state saw its first death from West Nile Virus (WNV), when an older man from Providence County succumbed in November and five other Rhode Islanders contracted the virus, which is established throughout the state. During the 2003 season, the National Centers for Disease Prevention and Control reported 8,470 human cases and 189 deaths from WNV nationwide. Rhode Island and neighboring states experienced a higher than average risk year for Eastern Equine Encephalitis (EEE), a generally deadlier but less common mosquito-borne virus. EEE, historically found in the southern and southeastern parts of Rhode Island, was also found in North Central and Northwestern Rhode Island, and is now presumed likely in all areas of the state. Because of the heightened health risk late in the year, Health and DEM officials recommended the rescheduling or cancellation of some outdoor public assemblies in high risk areas. By the end of the mosquito season, 17 samples of mosquitoes in five communities had tested positive for EEE, and five horses and several birds died of the disease. Fortunately, no human cases of the disease were reported.

DEM and the Department of Health continued their joint education efforts emphasizing personal protection, prevention of mosquito breeding grounds, and larval control. DEM purchased and distributed larvicides and held mosquito control training sessions for municipal and state workers assigned to apply them, trapped mosquitoes for testing several times a week, and conducted bird

surveillance that found more than 600 birds statewide with mosquito-borne disease. In August, the Department's "marsh walker," a low ground pressure vehicle, was used at an East Bay salt marsh to open up clogged ditches and create fish reservoirs that will enable fish to access and consume mosquito larvae, providing a significant public health benefit to the area.

Chronic Wasting Disease Surveillance

In 2003, DEM was awarded a \$44,000 grant from the US Department of Agriculture to conduct additional surveillance for Chronic Wasting Disease (CWD) in Rhode Island's white-tailed deer herd. DEM, in collaboration with Connecticut and Massachusetts, has joined much of the country in conducting a systematic surveillance program, assisted by hunters who donate heads of deer harvested during Rhode Island deer hunting seasons for testing. In an effort to prevent the introduction of CWD into Rhode Island, DEM continued its ban on the import of cervids such as deer and elk and certain of their parts from states where the disease has been found, as well as from areas bordering those states. CWD is a progressive neurological disease that is fatal to deer and elk. Although there is currently no evidence that the disease is naturally transmissible to humans or to animals other than cervids, DEM continues to recommend that hunters follow simple precautions when dressing and preparing venison.

Dam Safety

Rhode Island is home to more than 500 dams, with nearly 60 classified either high or significant hazard, meaning that their failure would likely produce loss of life or property. In June, the Dam Safety program began to inventory all dams in the state. This includes an inspection of any dam not previously inventoried that may pose a threat to public safety or property in the event of its failure or mis-operation, and inspection of any inventoried dam that has not been inspected in the past five years. The project began in the northern part of the state and is proceeding geographically to the south. Information on the dam's location, height, and general condition are being collected. At the end of 2003, about 25 percent of the project had been completed, with 155 inspections performed.

Also in 2003, DEM applied for a three-year Federal Emergency Management Agency grant totaling \$118,965, and received a \$39,655 award for the first year. The money is being used to perform detailed dam break analyses that will allow for the development of emergency action plans for selected high hazard dams. DEM also continued to move forward under its Capital Development Projects program, undertaking the engineering evaluation, design, and

reconstruction of DEM-owned dams. In 2003, design was completed for the reconstruction of the high-hazard Stillwater Dam in Smithfield, with the project going out to bid in 2004.

RECREATION

State Parks and Beaches

DEM manages a system of 11 state parks, a dozen state beaches, a golf course, the East Bay Bike Path and portions of the Blackstone River Bikeways, parkways, and several secondary state parks, historic sites and monuments, keeping these facilities well-maintained and providing an exemplary level of service to patrons. The summer of 2003 brought close to two million visitors to Rhode Island state beaches. More than 430,000 visits to state campgrounds were also recorded. More than \$3.3 million in revenue was generated by beach and campground attendance in 2003, with entrance to state parks remaining free of charge.

Governor's Bay Day, formerly celebrated on Saturdays, was changed to the last Sunday in July to allow greater opportunity for families to enjoy the activities together. Family-oriented events took place at six main locations across Rhode Island and included several new venues such as sailing opportunities and windsurfing lessons at Fort Adams and a concert at Misquamicut, in addition to the traditional celebrations held in recent years at Colt and Roger Wheeler state parks. Governor's Bay Day, created in 1989 in recognition of the successful response to the World Prodigy oil spill, offers an opportunity to draw Rhode Islanders' attention to the special places and treasured natural resources located along Narragansett Bay.

The Senator John H. Chafee Memorial Statue at Colt State Park was transferred to the state from the John H. Chafee Foundation in a moving ceremony in June. The Foundation was responsible for construction of the bronze statue, located adjacent to the public boat ramp in Colt State Park overlooking Narragansett Bay. Funding for the project, in excess of \$100,000, was raised through private donations. The handsome bronze statue is a fitting memorial to the late Senator John Chafee's leadership in the acquisition of Colt State Park in 1965 during his term as Governor.

State Comprehensive Outdoor Recreation Plan

In 2003 DEM and the RI Statewide Planning Program drafted the State Comprehensive Outdoor Recreation Plan, last updated in 1992. The long range plan, which serves as the recreation, open space and conservation elements of the State Guide Plan, sets forth an action program to improve

Rhode Island's outdoor recreation system and protect the natural resources on which that system depends. The plan calls for increasing open space protection and revitalizing urban centers. It also warns that maintaining and expanding recreational opportunities will be very challenging in the face of continuing state and federal budget constraints; and therefore calls for creative ways of funding and providing facilities and services through partnerships with the private and non-profit sectors.

Bikeways

The public had the opportunity to view the design plans for the proposed 10-mile Trestle Trail Bike Path and Equestrian Trail in western Coventry, which will be constructed on an abandoned railroad right of way. As requested by the Trestle Trail Local Residents Design Committee, DEM installed a 100-foot test section of reinforced gravel bike path with an adjacent equestrian trail at the western end of the existing Coventry greenway for testing. This surface is being proposed as an alternative to asphalt, for approximately 2.25 miles of the bike path west of Greene, through the Nicholas Farm Management Area.

In December, DEM entered a lease agreement with Park Management - 295, Inc. to operate a Dunkin Donuts and Baskin Robbins franchise at the new Blackstone Valley Visitor Center and Park Entrance on Interstate Route 295 in Lincoln. The new visitor center, which will be completed in 2005, is a cooperative effort between DEM, the Department of Transportation, and the Federal Highway Administration. The facility will be a major gateway to the Blackstone River Bikeway, which is managed by DEM, and the John H. Chafee Blackstone River Valley National Heritage Corridor. Located on the northbound side of the highway, the 9,700 square foot facility will include many tourist, park and bikeway amenities, in addition to the private food concession offering Dunkin Donuts and Baskin Robbins Ice Cream.

Boating

In 2003 DEM awarded \$138,793 in grants for new or upgraded marine pump-out facilities. The grant projects will add three new pump-out boats and two new stationary pump-out locations to the dozen pump-out boats and 39 shoreside facilities already available to boaters in Rhode Island waters. There are an estimated 54,000 boats that use Rhode Island waters each year, including more than 44,000 registered in Rhode Island. Rhode Island in 1998 became the first state in the nation to ban boat-based sewage discharges in all state waters, including all of Narragansett Bay and all coastal waters within three miles of the Rhode Island shoreline. Funding for the projects

was provided to DEM through the federal Clean Vessel Act Pump-out Grant program, administered by the U.S. Fish and Wildlife Service.

Fishing

DEM's Division of Fish and Wildlife stocked hundreds of surplus domestic Atlantic salmon broodstock during the winter to take advantage of the ice fishing and winter river fishery. The eight to ten pound fish were from the US Fish and Wildlife Service's hatchery in White River Junction, Vermont. An additional 200 six to 12 pound sea-run Atlantic salmon were also stocked. Up to two dozen of the larger salmon might have contained an internal tag, used to identify and track the fish. When federal officials released those salmon to the ocean two years ago, some were tagged with a passive integrated transponder tag which transmits a code that indicates when they return from the sea to spawn in their stream of origin.

More than 20,000 anglers turned out at dawn on opening day of the trout season in April. Approximately, 70,000 two-year old brook, brown, and rainbow trout with an average weight of about one pound were stocked in more than 80 ponds and streams for opening day, including, for the first time, the Eight Rod Farm Management Area Pond in Tiverton. It was another good year for trout fishing, the result of an upgrade of hatchery facilities made possible by funding from the Trout Conservation stamp program and Rhode Island's Federal Aid in Sportfish Restoration Program.

In 2003 DEM asked all anglers to keep fishing areas free of debris and fishing line, and to take particular care in disposing of monofilament fishing line. Ospreys and gulls, as well as other birds, collect line for nesting material, causing hazards for their young and themselves. Anglers can recycle the used line by depositing it in small brown drop boxes that are attached to posts or trees at a number of state fishing areas. The drop boxes, constructed by Eagle Scouts, provide a safe repository for the used monofilament line, which is then collected by DEM staff to be sent to a fishing tackle manufacturer for recycling. Drop boxes are available at about a quarter of the state's 80 fishing sites. Although many anglers and some fishing groups, such as RI B.A.S.S. Federation, Trout Unlimited, and the RI Saltwater Anglers Association have pointedly addressed litter cleanup in their bylaws and/or public actions, evidence at most fishing sites shows that there is much more to be done.

The start of reconstruction of the Table Rock Road Bridge at Lincoln Woods State Park in Lincoln commenced at the beginning of winter. The old 53-foot-long bridge, built in the 1930s, is being removed, and replaced by a two-lane covered bridge of the same length. A fenced, handicapped-accessible fishing platform ranging from five to eight feet wide will be incorporated along the entire length of one side of the structure. Although the stone abutments for the old bridge will be retained, new concrete abutments will be constructed behind them, adding strength to the rustic style of the new structure.

Hunting

The Great Swamp Shooting Range in West Kingston, closed in 2001 for upgrades, re-opened in April. The range, operated by DEM's Division of Fish and Wildlife, is used for hunter education training and small caliber shooting practice. The only public range in Rhode Island, it serves about 800 small-caliber-firearms owners a year through a no-cost permit system. Upgrades to the range include a heightened backstop, handicapped access, and improved parking. They also include the addition of side berms, a redesigned firing line with shelter, new shooting benches and target stands, and the addition of a sitting area for those not on the firing line. The improvements result in a safer range of the same size with the capability to serve shooters for many years to come. Funding for the \$180,000 project included \$135,000 from US Fish and Wildlife Service hunter education funds, \$35,000 from Rhode Island hunting license fees, and \$10,000 from the Narragansett Bay Resources Foundation.

Each year, DEM asks Rhode Islanders to assist its Division of Fish and Wildlife's wild turkey project by reporting any sightings of wild turkey hens with or without broods of young turkeys, known as poults. DEM biologists use the information to evaluate each year's reproduction of wild turkeys, the survival of the poults, and the population of the state's wild turkey flock. In 2003, DEM reported 71 turkey brood sightings during the previous year, including 124 adults and 530 poults, for a ratio of 4.3 young per hen. The overall statewide turkey population is estimated at 5,000 birds. The distribution and density of the turkey population continues to improve in Rhode Island, following DEM Fish & Wildlife's trap and transfer program, increasing recreational opportunities and chances for the public to see a bird. The wild turkey restoration project began in 1980 with releases of wild, trapped birds that established new turkey flocks in Exeter, Burrillville, Little Compton, West Greenwich, Foster, Scituate, and Tiverton.

Along with other Atlantic Flyway states, Rhode Island offered hunters a special late Canada goose hunting season in January and February, limited to specific areas of the state that have fewer migratory birds than others. The special season was established to help reduce the state's growing resident Canada goose population. The flocks tend to congregate and cause such problems as eating winter crop cover and pulling up grass from the roots in both farming and recreational areas. These problems result in numerous nuisance complaints to DEM and the US Fish and Wildlife Service.

Preliminary deer hunting figures for the 2003-2004 deer hunting seasons show that 2,242 deer were taken, an increase of 155 from the previous season. The increase was primarily due to increased harvests during the archery seasons. Weather played a role in depressing harvests during traditional firearms seasons. Prudence and Patience Island archery hunters, benefiting from an increased quota, took 304 deer. While the harvest exceeded the quota of 275, the season was permitted to continue, as the initial weights of the animals were very low. Data on health, weight, age, sex, and antler beam are analyzed after the season, providing a major source of information to guide the Division's deer management program. DEM continues to focus on managing the antlerless population on private land to keep the deer herd in balance with habitat and the concerns of the residents. Deer have high reproductive capabilities, and can double in population within five years, if not controlled. This is especially apparent on islands, where a rapid increase in the number of deer can cause severe habitat damage and increase the risk of Lyme disease.

COMPLIANCE ASSISTANCE AND ENFORCEMENT

“Environmental performance will be improved through compliance with environmental requirements, preventing pollution, and promoting natural resource stewardship. The health of human beings and the environment will be protected by encouraging innovation and by providing incentives for governments, businesses, and the public to become better stewards of the environment.”

Auto Body Repair Self-Certification Program

The Department continued to implement its auto body repair self-certification program for shop owners, spray painters, and technicians. The voluntary program addresses training requirements, hazardous waste management, air quality standards, occupational health and safety, and pollution prevention techniques, and can help operators of auto body shops bring their facilities into full compliance with environmental regulations. Of the 367 licensed auto body shops that received certification workbooks and checklists last year, 171 facilities submitted completed checklists to DEM. In December, Office of Technical and Customer Assistance staff member Tom Armstrong gave a presentation on RI’s auto body self-certification program at an EPA workshop in Michigan that was attended by EPA staff and representatives from environmental agencies in Michigan, Florida, Minnesota, and Wisconsin.

Exterior Lead Paint Removal

In 2003, a self-certification program for the exterior lead paint removal sector was initiated through a partnership between DEM, Department of Health, RI Housing & Mortgage Finance Corporation, URI Center for Pollution Prevention, and EPA. The program is designed to improve compliance with environmental regulations by painting contractors and those in the remodeling/renovation industries who engage in exterior lead paint removal. During the year, a steering committee finalized the program’s structure and produced an informational brochure and fact sheet, participation form, and checklists for painting contractors and property owners and occupants.

Dry Cleaner Certification

Using funding from an EPA grant, DEM worked with the URI Center for Pollution Prevention and Environmental Health to develop a pollution prevention and compliance certification program for the dry cleaning industry. In 2003, DEM and URI staff reviewed the database of dry cleaning companies, overall compliance status, and began to develop a compliance certification workbook, checklists, and a fact sheet. Also during the year, project staff visited several dry cleaning establishments and discussed issues related to pollution prevention, inspection and maintenance of equipment to prevent chemical leaks, and technology alternatives with shop owners.

On Site Pollution Prevention Technical Assistance

In 2003 DEM, working in partnership with staff from URI's pollution prevention program, met with several auto body shop owners to address their concerns about the wastewater generated from car washings. Often, wash water is allowed to drain onto the ground and driveways without any control, resulting in a potential release of pollutants to waterways via nearby storm drains. To resolve this issue, DEM and URI staff worked with shop owners to develop cost-effective ways to eliminate wastewater discharge and possibly re-use the wash solution.

Mercury

The General Assembly amended the state's comprehensive mercury reduction law in 2003 to extend product phase-out dates, collection plan dates, disposal ban dates, and change product labeling and disclosure requirements for mercury-added novelties. Changes to the Mercury Reduction and Education Act also exempt items that have a button cell battery as their only mercury component from the ban on the sale, use, or distribution of mercury-added novelties. Further, the amendments exempt specialized lighting used in the entertainment industry from product phase-out requirements, restructure the mercury advisory group, and create a 14-member oversight commission.

In 2003 DEM continued to work with the Department of Health, Rhode Island Resource Recovery Corporation, Clean Water Action, Boy Scouts and Girl Scouts of America, and CVS/Pharmacy to collect over 300 mercury-containing items at three mercury thermometer and thermostat take-back events held in March in April. In November, the RI Chemical Safe Schools Committee, led by DEM and the Department of Health, held two mercury thermometer and

thermostat take-back events in Providence and Warwick. Approximately 1,000 individuals participated in the take-back events and about 64 pounds of mercury were collected, primarily from thermometers and home thermostats.

Mercury is found in numerous products in the home and workplace and exposure to mercury, such as through spills and releases, is toxic and can lead to health problems.

RI Chemical Safe Schools

In 2003 DEM, along with representatives from the Department of Health, Department of Education, Department of Labor and Training, the RI State Fire Marshals Office, Brown University, Community College of RI, URI, RICOSH, and independent environmental consultants, actively participated in the RI Chemical Safe Schools Committee.

Through a series of targeted outreach and training efforts, the Committee provided information to a wide range of organizations about the safe management of chemicals in schools. A series of workshops were held throughout the year, with programs on lab safety and hazardous waste, mercury elimination, toxics in schools, indoor air quality, developing a chemical hygiene plan, and waste management in K-8 science programs.

The workshops sparked interest in providing services to schools in other ways. As a result of mailings to 376 educational facilities, DEM, in association with Stericycle, organized mercury collection activities at seven schools; about 30 pounds of mercury was collected from thermometers, switches and thermostats. In addition, several schools sponsored thermometer take-back events with guidance from DEM. Also in 2003, DEM's Emergency Response staff visited 10 schools and consulted with several others about chemicals at the facilities; and assisted schools by removing mercury and chemicals from school buildings and provided information on contractors licensed to dispose of chemicals.

Compliance and Inspection

In 2003, DEM issued 101 Notices of Violation, settled 71 formal enforcement actions by executing Consent Agreements, and took 1,223 informal enforcement actions. The Department assessed \$1.83 million in administrative penalties and collected \$956,495 in cash payments, and agreed to nine supplemental environmental projects worth over \$1.15 million in settlement of outstanding enforcement actions. In 2003 the Department also spent considerable time recovering \$251,529 in costs that were incurred for emergency response efforts. The Office of

Compliance and Inspection responded to 3,187 complaints and conducted 3,245 inspections during the year. In addition, 635 inspections of regulated or licensed facilities were conducted by Bureau of Environmental Protection staff to monitor compliance with environmental laws and regulations.

Also as a result of emergency response and enforcement actions by DEM's Office of Compliance and Inspection, 42 wetland restorations were completed, and 3.6 acres of freshwater wetlands and 5.5 acres of perimeter wetlands were restored in 2003.

Law Enforcement

The Division of Law Enforcement provides 24-hour patrols on the state's waters, enforcing Rhode Island's marine safety laws and regulations, and conducting investigations of all boating accidents that result in personal injury, death, or severe property damage. The Division also enforces Rhode Island's laws and regulations governing the state's multi-million dollar commercial fish and shellfish industries, and the recreational take of fish and wildlife. In 2003, the Division of Law Enforcement's radio room handled almost 23,000 calls from the public. Environmental Police Officers made 331 arrests, issued 1,176 written warnings, and investigated 30 boating accidents. The Division also responded to 4,405 animal complaints in 2003, an increase of more than 500 complaints investigated over 2002.

Criminal Investigations

In 2003 DEM's Office of Criminal Investigation reviewed 2,708 complaints, began 38 new criminal investigations and continued 30 investigations from previous years. The new cases consisted of nine hazardous waste investigations, 13 solid waste investigations, seven water pollution investigations, six false document investigations, and three internal investigations.

In December, Metals Recycling LLC paid \$250,000 into the state's environmental response fund under the terms of a settlement agreement approved by the RI Superior Court. This closed a five-year investigation by the Office of Criminal Investigation related to illegal operation, storage, transportation, and disposal of hazardous levels of PCB-contaminated automobile shredder residue. Metals Recycling LLC also paid a \$200,000 penalty to the US Environmental Protection Agency for illegal storage and transportation of hazardous levels of lead-contaminated automobile shredder residue, as a result of information obtained from DEM's criminal

investigation. Automobile shedder residue from Metals Recycling LLC is not accepted at the Central Landfill, and is disposed of at approved locations outside Rhode Island.

In 2003, the Office of Criminal Investigation used metal detection equipment to assist the FBI's Boston Anti-Terrorism Squad in the search for hidden weapons by a suspected terrorist. DEM's criminal investigators also assisted the Massachusetts Environmental Strike Force in a search for buried drums of hazardous waste, and helped local police departments search for evidence in cadaver/missing person investigations.

The Department continued with its Environmental Crimes Training Program. Our investigators trained 98 local police at the RI Municipal Police Training Academy, and conducted two in-service training courses for 25 DEM personnel on the operation and use of metal detection equipment, and on probable cause and search warrants. Investigators also presented environmental crimes awareness classes to 89 elementary school students.

CROSS GOAL STRATEGIES/OPEN & EFFECTIVE GOVERNMENT

“The Department will be supported at a level sufficient to carry out its mission through a variety of sources including state and federal funds, as well as user fees and donations. Partnerships and regional collaboration will continue to play a key role in carrying out the Department’s mission. Information management and technology will be applied to the fullest extent to enhance the effectiveness of the Department’s work and to provide service as cost effectively as possible. The Department will continue to improve accountability, accessibility, responsiveness and service delivery to meet the needs of the public it serves.”

Protecting Rhode Island’s Natural Resources

Woonasquatucket Greenspace Project

Using a \$75,000 grant from the US Department of Agriculture’s Forest Service, DEM’s Sustainable Watersheds Office and the Woonasquatucket Watershed Council assisted the six watershed communities inventory and map all of their important natural, cultural, and recreational resources through the Woonasquatucket Greenspace Project. In 2003, a series of meetings were held in Providence, North Providence, Johnston, Smithfield, North Smithfield and Glocester so residents could learn about the Woonasquatucket Greenspace Project. Community priorities were then linked throughout the watershed to demonstrate how resources that transcend political boundaries can be protected and restored. The plan emphasized the need to preserve and restore riparian vegetated buffers along rivers and streams to protect water quality, habitat, and provide recreational opportunities. Efforts have been initiated to assist four communities with implementing conservation development so that new growth can minimize impacts to the environment and preserve meaningful open space.

Narrow River Watershed Project

The Department received a \$77,000 grant from the US Environmental Protection Agency to assist the Narrow River Watershed Council and the Town of Narragansett abate storm water runoff into Narrow River. The project began in 2003 and will demonstrate innovative ways to abate storm water runoff that can be used as a model in similar watersheds.

Conservation Development Guidance Manual

In 2003 DEM published a conservation development guidance manual for municipal officials and developers that explains how new growth can effectively minimize impacts to the environment and preserve meaningful open space. The publication includes guidelines that communities and developers follow to implement conservation development – new and creative land use – techniques. The conservation development manual is also being used as a textbook for the community planning graduate course at URI, and will be used as a resource in training sessions for local officials hosted by Grow Smart RI and URI. The project was funded by a \$50,000 grant from the US Environmental Protection Agency.

Woonasquatucket Land Use Project

In 2003 the Department received a \$40,000 grant from the US Environmental Protection Agency to assist the Woonasquatucket River Watershed Council, the City of Providence, and the Smith Hill, Manton, Valley and Olneyville neighborhoods identify appropriate redevelopment options within the Woonasquatucket River corridor.

Watershed Action Plans

DEM's Sustainable Watersheds Office teamed up with the Coastal Resources Management Council, URI's Coastal Resources Center, and the Salt Pond Coalition to prepare a comprehensive watershed action plan for Green Hill Pond. The project will identify actions needed to abate water quality problems in Green Hill Pond, and will be used as a model for other salt ponds. Also in 2003, DEM prepared a draft watershed action plan for the Buckeye Brook watershed, which will assist the Buckeye Brook Watershed organization become a designated watershed council.

Blackstone Watershed Integrated Water Resource Project

In May, the US Environmental Protection Agency, in a cooperative effort with the US Army Corps of Engineers, awarded a \$1.35 million grant through their joint Urban Rivers Restoration Initiative to DEM. The funds will be used by the Sustainable Watersheds Office to support ongoing efforts to clean up and revitalize the Blackstone and Woonasquatucket Rivers. A major project will demonstrate how innovative waste water treatment technologies and storm water control best management practices can be used to make infrastructure improvements that encourage development in existing villages. This additional growth will reduce the development pressure in green fields.

Urban Environmental Design Manual

The Sustainable Watersheds Office began working with the cities of Pawtucket, Central Falls, and Providence, and a broad based stakeholder group, to develop practical and cost effective techniques and designs to improve the environment as land is redeveloped. The information will be compiled in a reference manual containing illustrations, model ordinances, and practical advice on appropriate restoration strategies using real world sites. Funding for the project was provided by a \$50,000 grant from the Blackstone Heritage Corridor and \$50,000 from the US Environmental Protection Agency.

Growth Centers

In 2003, the Sustainable Watersheds Office assisted the Governor's Growth Planning Council select pilot growth centers — places where development can be encouraged and expedited because there are no, or only minor, environmental or fiscal impacts — in East Providence and Burrillville. These growth centers will be used to identify available discretionary state funds and technical assistance to encourage communities to direct their new development to compact mixed use growth centers. Compact growth in existing developed areas reduces the pressure to develop in green fields.

Community Outreach

Work Plans

DEM program managers regularly monitor progress toward meeting the goals outlined in the Department's Strategic Work Plan. Overall, the Department met 64 percent of its targets as of June 30. Significant progress was made with respect to the climate change/greenhouse gas initiative, nutrient reduction, storm water management, land protection, habitat restoration, and marine fisheries. Budget and staff constraints contributed to delays or curtailment in some programs. Due to resource constraints, water quality restoration efforts were stalled, as was the development of a comprehensive water quality monitoring plan. The Work Plan and Progress Report are available on the Department's website at www.state.ri.us/dem by clicking on Publications then 2003-2004 Strategic Work Plan.

Hawkes Environmental Award

Eugenia Marks, Director of Policy and Publications for the Audubon Society of Rhode Island, was presented with the Department's 11th annual Alfred L. Hawkes Award for Conservation and Environmental Accomplishment in May. A tireless advocate for Rhode Island's natural environment, Marks is actively involved in a myriad of environmental issues including wetland and watershed protection. It was particularly fitting that Marks was a recipient of this award, for she began her career with the Audubon Society of Rhode Island over 20 years ago under the progressive leadership of Alfred Hawkes.

Forestry

In October, DEM and the Rhode Island Chapter of the Society of American Foresters sponsored their eleventh annual "Walk in the Forest" program to educate school classes and the general public about the benefits of healthy forests and how foresters care for them. The annual event took place this year at the 68-acre Aperia Institute for Environmental Living in Coventry, and was very well attended.

On Arbor Day in April, Freedom Trees were planted across Rhode Island at local events. Project "Freedom Trees" was a unique, ambitious, comprehensive statewide Arbor Day program to plant a tree in every one of the 39 cities and towns in the state at noon, with church bells ringing to celebrate the event. The Freedom Trees program was developed by the Rhode Island Tree Council, of which DEM is a member, in partnership with the Rhode Island Federation of Garden Clubs, to pay homage to our hard-won American freedoms and to continue the important task of re-greening our state's cities and towns. The project was an outstanding success, with trees planted at 71 sites throughout the state.

In 2003 DEM, in conjunction with the RI Tree Council, provided \$145,000 in urban forestry grants to eight Rhode Island communities, two nonprofit agencies, and the Tree Council to purchase and plant more than 270 trees, perform tree inventories, and conduct education and outreach activities.

Spring Flower and Garden Show

Rhode Island State Parks, Recreational Opportunities of the Future was the theme of DEM's Division of Parks and Recreation display garden at the Rhode Island Spring Flower and Garden Show in February. This year's garden blended functional landscapes representing the diversity of the state's public recreational resources, while highlighting what may be a new opportunity for

campers at Burlingame State Park Campground in Charlestown. The display depicted a spring woodland, with the Division's new 16-foot Pacific Yurt – a large domed tent – located along a meandering stream with a series of small waterfalls. The Department is considering the acquisition of several such yurts for rental to groups in the future.

Boating

In January, DEM sponsored an informational booth at the Providence Boat Show. Staff were available to assist residents renew current boat registrations, and to answer questions about registering new boats. DEM staff also provided information on boater education courses that are now mandatory for all boaters born after January 1, 1986 who operate a boat with a motor greater than 10 horsepower, and for all operators, regardless of age, of personal watercraft.

Wetlands Information Offered at The Home Show

In an effort to build upon successful wetland outreach efforts of the past few years, staff from the Department's wetlands program participated in The Home Show, sponsored by the RI Builders Association at the RI Convention Center in March. More than 30,000 people attended the show and had an opportunity to meet DEM wetlands staff, ask questions about wetlands rules, and learn about the permit process. Many Rhode Islanders who build new homes, remodel or expand existing homes, or make other improvements to their properties must first obtain DEM permits.

To facilitate compliance with state environmental laws and associated DEM regulations, DEM places considerable emphasis on public education and outreach. The Home Show provided an excellent venue to interact with a broad segment of the population and provide existing and prospective homeowners with important environmental information.

Urban Environmental Program

Seventy fifth-grade students from Pawtucket took daily environmental field trips throughout southern New England in July and August, as part of the Project Discovery Oceanography and the Environment Summer Institutes. The program is run by the University of Rhode Island's Urban Field Center in collaboration with DEM, and receives financial support from the Pawtucket school system. Among other events, students viewed the life stages of fish at a fish hatchery and had a fishing lesson; took educational walks in the forest; and learned about dairy and produce farming on visits to two farms under the tutelage of DEM staff. Now in their eighth year as a collaborative project, the Institutes are designed to motivate students to study math and science and to see themselves as college material. The overall goal is to show that science and

math are important in the everyday world, and to introduce the students to people who work in interesting fields where those subjects are necessary.

Earth Day 2003

DEM teamed up with the Rhode Island Earth Day Committee and Roger Williams Park Zoo to celebrate the 33rd Anniversary of Earth Day — April 22, 2003 — with the annual Earth Day Festival at the Zoo. The Festival featured more than 33 environmentally conscious companies and non-profit organizations from throughout the area in an environmental fair showcasing what they are doing to protect the planet. During an awards ceremony, DEM and the Rhode Island Earth Day Committee honored corporate Earth Day sponsors, individuals and organizations that have demonstrated a commitment to the conservation of Rhode Island's environmental treasures. Several thousand free tickets to the Earth Day Festival were distributed to volunteers at neighborhood cleanups, and the Rhode Island Public Transit Authority provided free transportation to the Zoo from downtown Providence and offered the first 500 riders one free ticket for admission to the zoo.

The festival was a culmination of Earth Day community cleanups and events throughout the month of April. Primary sponsors of the Rhode Island Earth Day Festival included the Rhode Island Resource Recovery Corporation, Verizon, TransCanada's Ocean State Power facility, National Grid, Lincoln Environmental and Metech International.