

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

ANNUAL REPORT 2004



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Cover

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

MESSAGE FROM ACTING DIRECTOR FREDERICK VINCENT

March 2005

Dear Reader:

I am pleased to present the Department of Environmental Management's Annual Report for 2004. 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.

Perhaps the greatest environmental accomplishment of 2004 was the overwhelming approval by Rhode Island voters of the \$70 million Open, Space, Recreation, Bay and Watershed Protection bond issue on the November ballot. This referendum received a 76 percent approval rating – the highest of all bonds – by Rhode Island citizens. Bond funds will be used for open space protection, state and local recreation development, improvements to wastewater treatment plants, bolster efforts to make the state's polluted water bodies fishable and swimmable, and permanently protect groundwater and public drinking water supplies.

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

Frederick J. Vincent

PROGRAM OF THE YEAR

OFFICE OF MANAGEMENT SERVICES

The year 2004 was a particularly productive year for DEM's Office of Management Services. If you are one of the many Rhode Island residents that owns a registered boat or holds a recreational or commercial fishing license, there's a good chance that you're familiar with Management Services' energetic and efficient staff.

The Office not only provides the public with excellent service in the boat registration and licensing program, but also manages all financial, budget, and business support services for DEM. In addition, the office oversees the operation of the central mailroom, central file storage area, travel, vehicle use and procurement, physical inventory, and debt collection.

Throughout each year, Management Services' staff works diligently to maintain over 150 separate accounts. Their responsibilities include federal grant accounting, revenue accounting, budget planning and maintenance, fiscal and financial reporting, cost and general accounting, data processing, information management, and minority business enterprise procurement.

The Office made several noteworthy contributions to DEM in 2004. They include the development of a new cost allocation system that automatically shifts eligible costs to specific federal grant accounts, a task that was previously performed manually by Department accountants. This system has also proven to be a highly useful model for state government.

2004 also marked the third year in a row in which the boat registration and licensing program has provided users with the ability to renew boat registrations on-line. The program also launched a freshwater fishing portal, enabling users to purchase fresh water fishing licenses from the convenience of their home. Management Services was also instrumental in helping DEM end the past two fiscal years with a slight budget surplus.

For their dedication and successful effort, we all all Office of Management Services staff our thanks: Rose-Anne Daignault, Janice Breault, Jean Thompson, Diane Alardi, Donna Brennan, Glenn Miller, Connie Finlay, Wellington Hall, John Dellacioppa, Christine Caroppi, Terrence Maguire, Matthew Theroux, Charles Lane, Raymond Macera, Ellen Morin, Harold Puckett, Sharron Garrick, Sandra Caliri, Linda Jacques, Margaret McGrath.

Clean Air

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

State Adopts California Emissions Standards

In December, DEM filed regulations adopting the latest California Low Emission Vehicle II (LEV II) new vehicle emission standards for new vehicles sold in Rhode Island beginning with model year 2008. The California LEV II program requires reductions in tailpipe and evaporative emissions from new passenger cars, light-duty trucks, and sport utility vehicles sold in the state. The standards also require that 10 percent of the autos and light trucks be so-called zero-emission vehicles.

The California LEV II program will provide substantial reductions in new vehicle exhaust emissions over the next two decades. It will reduce hydrocarbon emissions in Rhode Island by 16 percent, air toxics emissions by 25 percent, and greenhouse gas emissions by two percent, by the year 2020. Vehicles in Rhode Island contribute more than 80 percent of the toxics in our air, which pushes the toxic levels above health benchmarks, according to DEM's air quality monitoring data.

Under the federal Clean Air Act, individual states must adopt either the federal Environmental Protection Agency's national auto emissions standards or the California Low Emissions Vehicle emissions standards. California's standards provide additional emissions reduction benefits over and above what the federal program is expected to achieve. Rhode Island joined Connecticut, Massachusetts, Vermont, Maine, and New York in adopting the California program.

School Bus Idling Program

DEM, with the Department of Elementary and Secondary Education and the Department of Health, in June launched a new program to protect school children and their bus drivers from breathing excessive amounts of diesel exhaust emissions. The three agencies invited all Rhode Island school superintendents to join the program, *Breathe Better Rhode Island*, by pledging to limit school bus idling time and to take other steps to reduce diesel exhaust emissions. Thirteen school districts were on board by the beginning of the school year.

According to the US Environmental Protection Agency, exposure to diesel exhaust, even at low levels, is a serious health hazard and can cause respiratory problems such as asthma and bronchitis. Asthma affects more than one in nine children in New England, and is currently the number one cause of missed school days for children in the United States.

State officials have been working with the Asthma Regional Council of New England, to develop a number of strategies to protect the health of school bus riders and drivers. These include such steps as shutting off bus engines immediately upon reaching destinations and not restarting them until ready to depart; minimizing the potential for diesel exhaust to be drawn into buses and schools by moving bus parking areas away from school air intake vents; limiting early-morning idling time during winter months and providing an indoor waiting space for drivers who arrive early and need to keep warm; and applying idling control measures to other diesel equipment, including all construction and delivery vehicles on school property.

The program has been endorsed by the American Lung Association of Rhode Island, the RI Parent Teacher Association, and two transportation companies that serve many school districts, First Student, Inc. and Laidlaw Education Services of Southern New England. Funds to create and implement the outreach program came from a \$15,000 federal EPA grant.

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 2004 there were four summer days when ozone levels were considered unhealthy, compared to 11 days in 2003.

In order for ozone to form in abundance, two essential ingredients are necessary - pollutant emissions and meteorological conditions favorable to ozone production. The cool, cloudy, and dry summer of 2004 was not conducive to ozone formation. In Providence, only one day exceeded 90 degrees, compared to four days during the previous year. Emissions, which fuel the photochemical reactions that create ozone, have steadily declined over the years thanks to tougher governmental regulations and industrial cooperation to curb automotive, industrial, and household pollution. But ozone levels build only when weather conditions permit, and that didn't happen often in the summer of 2004.

Fine Particles

In 2004, DEM began using its continuous monitoring system to make daily predictions of fine particulate air quality. The daily predictions, along with additional information about fine particulate pollution are now available on DEM's website at www.state.ri.us/DEM, by clicking on Topics, then Air, then Air Quality Forecast from the homepage. 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

DEM continued to operate a monitoring site in the metropolitan Providence area to gather data on air toxics in 2004. In March, the Department began operating an additional monitoring site that will continue for one year in the Olneyville section of the Woonasquatucket watershed; monitoring will continue at that site for a one-year period.

After an extensive stakeholder process, DEM adopted revisions to the air toxics requirements in Air Pollution Control Regulations No. 9 and 22 that took effect in April. The amendments added all federal hazardous air pollutants and several additional toxic pollutants to the list of regulated air toxics, updated acceptable ambient levels, and updated air quality modeling procedures.

T.F. Green Airport Monitoring Grant

In May, DEM was awarded a \$500,000 grant from the US Environmental Protection Agency to conduct an air monitoring study in the vicinity of T.F. Green Airport in Warwick. The study will be conducted by DEM in partnership with the City of Warwick, and will characterize ambient air toxics in the heavily settled neighborhoods surrounding the airport. Scheduled to begin in April 2005, the primary goals of the air monitoring study are to determine the level of air toxics Warwick residents are being exposed to, assess whether different neighborhoods have different exposures, and find out if exposures in Warwick are different than other parts of Rhode Island.

Compliance

DEM's Office of Air Resources conducted inspections at 70 dry cleaning facilities from June to December to determine drycleaners' compliance with a new air pollution control regulation that governs perchloroethylene emissions. When released into the atmosphere, perchloroethylene increases the risk of adverse health impacts such as cancer. During the inspections, DEM staff

informed the drycleaning establishments about the new regulatory requirement and provided explanations about any deficiencies discovered at the drycleaning facilities. DEM also offered compliance assistance to 65 drycleaning establishments that failed to follow the new regulation.

Greenhouse Gas Stakeholder Process Making Major Strides

The hard work of the RI Greenhouse Gas Stakeholder Group over the past few years paid off in 2004, with the passage of several laws and the start of a major program to help businesses replace inefficient equipment. The initiatives would reduce carbon dioxide by over 148,000 tons, produce savings of \$414 for each ton of carbon reduced, and save one million gallons of gasoline by 2020. They would also help stabilize natural gas and electricity prices, and reduce dependence on imported fossil fuels. In June, Governor Donald L. Carcieri signed the Renewable Energy Standard law, requiring electricity suppliers to purchase more renewable energy every year, reaching 16 percent by 2020. The state's new programs to help businesses lower energy costs offer technical and financial assistance to encourage replacement of existing equipment and systems with energy efficient alternatives.

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.”

PROTECTING NARRAGANSETT BAY

Passage of Environmental Bond Bolsters Water Protection Efforts

The \$70 million environmental bond issue that was overwhelmingly approved by voters in November included \$27 million in loans and grants for bay, watershed, and drinking water protection. The \$10.5 million investment in wastewater improvement loans will finance a revolving loan fund that will leverage nearly \$30 million for improvements to wastewater treatment plants. The nutrient removal and other water quality projects at wastewater treatment facilities will enable us to make substantial progress toward reducing nitrogen discharges and other pollutants.

The \$8.5 million investment in clean water grants will leverage \$17 million and will allow more progress toward the goal of making the state’s polluted water bodies fishable and swimmable. It will help our communities control storm water pollution; help farmers, marina operators, and other businesses reduce pollution that runs into the Bay and its tributaries after rainfalls; and help restore habitats along the waters’ edge to keep pollutants from reaching streams, lakes and coastal waters.

The \$8 million investment in drinking water protection will allow the Rhode Island Water Resources Board to permanently protect groundwater and public drinking water supplies, including future well sites, to accommodate residential demand and economic development.

“*Bay Line*” Service Introduced

In 2004, a series of initiatives were undertaken at the behest of Governor Carcieri to protect Narragansett Bay as the result of the fish kills and many beach closures experienced during the summer of 2003. In June, DEM, in conjunction with the Department of Health, initiated a 24-hour “*Bay Line*” telephone information line that offered Rhode Islanders a new service for reporting and receiving information about conditions in Narragansett Bay and associated coves,

embayments and tributaries. The new information line was developed to help foster cooperation and coordination among Rhode Island residents and state officials with regard to monitoring the health of the Bay and responding to Bay problems. In addition to providing Rhode Islanders with a central telephone number to leave a recorded message about any sign of Bay-related environmental problems, “Bay Line” also provided updates on the overall health of the Bay, and referral numbers for information about current restrictions on beaches and fishing.

During its initial season, about 60 messages were received, and many other callers listened to weekly updates on Bay conditions. General questions ranged from where to dig steamers to how to clean a beach. Callers with questions were re-contacted with information, and, in several instances, were also forwarded literature. Emergency response crews responded to odor complaints, tested for hydrogen sulfide, and, with the City of Warwick, removed decaying seaweed from a portion of the Conimicut shoreline.

Reports of Bay conditions, updated weekly on *Bay Line*, were compiled from data provided by a network of monitoring stations in the Bay, and was supplemented by field observations made by DEM personnel. The reports indicated cool water temperatures during the summer helped keep oxygen levels relatively high throughout the season, and helped reduce the number and extent of algae blooms. An abundance of decomposing seaweed caused odors at the mouth of the Providence River, and in the Conimicut and Sabin Point areas, locally reducing oxygen levels and resulting in the mortality of some juvenile soft shell clams. There were no significant fish kills in 2004.

Bay Assessment and Response Team Created

Another related initiative was the new Bay Assessment and Response Team (BART) which is designed to facilitate timely and well-coordinated responses to any major Bay-related environmental emergency. Headed by DEM's emergency response coordinator, BART includes professional staff from DEM, the Department of Health (HEALTH), and the University of Rhode Island. A comprehensive information center is available on DEM's website, www.state.ri.us/DEM, where educational information about Narragansett Bay, the BART protocol, links to other Bay-related websites, and contact information can be found in one convenient place.

‘No Discharge’ Law Enforced in Rhode Island Waters

In another Bay initiative, DEM's Division of Law Enforcement conducted patrols periodically

throughout the summer to check for boaters' compliance with the state's "no discharge" law, which prohibits the discharge of boat sewage into Rhode Island's waters. Officers conducted over 30 boardings and reported a high degree of compliance with the "no discharge" law; however, they did make six arrests for non-compliance and issued one written warning. The initiative continued throughout the winter, and will be stepped up when the busy recreational boating season begins in the spring. In a related action, DEM's Office of Water Resources inspected all 56 pump-out facilities, including pump-out boats, operating at marinas throughout the state. With the exception of six facilities temporarily closed, due predominantly to mechanical difficulties, all facilities were found to be fully operational.

Bay Monitoring Stations

The various Bay-related initiatives undertaken in 2004 implemented specific recommendations set forth by Governor Carcieri's Bay Planning Commission. Among them was the establishment of 10 monitoring stations in the Bay to provide a continuous Bay-wide network to monitor oxygen, temperature, salinity, pH levels, and, in some cases, water clarity and the presence of algae blooms. This network was set in place by DEM, working together with the University of Rhode Island, the Narragansett Bay National Estuarine Research Reserve, the Narragansett Bay Commission, and Roger Williams University. Further, additional monitoring was conducted several times throughout the summer in areas of concern during predicted periods when tidal currents and mixing were low and oxygen levels expected to drop. DEM also tested an underwater videography system to monitor buildup of seaweed within parts of the upper Bay and note changes that were visually observable on the bottom.

WORKING TOGETHER WITH MUNICIPAL OFFICIALS

In 2004, DEM and HEALTH officials met with officials from many of the Bay communities to outline the state's plans and enlist community support for joint response activities, should they become necessary. The combination of a centralized communication system available to the public, an enhanced Bay-wide monitoring system, and a ready-to-go team of experts and partners to respond to Bay emergencies, ensures that the state is well-equipped to address any major problems or concerns associated with Narragansett Bay, should they develop.

WATER QUALITY

Monitoring Water Quality

Monitoring and assessment are essential components of a comprehensive water quality program. The important role of monitoring was acknowledged by the legislature in 2004 with the passage of statutes that created the Rhode Island Environmental Monitoring Collaborative (RIEMC) and a mandate for development and implementation of a comprehensive monitoring strategy. In October, DEM completed a draft statewide strategy for monitoring surface waters which, when implemented, will build capacity to support statewide assessment of water quality conditions in Rhode Island's rivers, streams, lakes, ponds and coastal waters. The draft strategy is being refined through further review of the RIEMC and the newly established coordination team for Narragansett Bay and its watershed. DEM expects to finalize the plan in fall 2005.

An expanded monitoring effort is clearly needed in light of existing gaps in available data. According to the 2004 State of the State's Waters Report, data is lacking for 64 percent of Rhode Island's river and stream miles, 25 percent of lake acreage, and 25 percent of coastal water square miles. Additionally, little data is available on the presence of fish tissue contaminants in Rhode Island waters. DEM took several steps in 2004 to address these gaps. In Narragansett Bay, collaboration among agencies participating in the fixed-site monitoring network, which includes DEM, Narragansett Bay Commission, University of Rhode Island Graduate School of Oceanography, and Narragansett Bay National Estuarine Research Reserve, was improved through expanded monitoring sites and joint data processing. Federal funding from the Bay Window program will allow for additional expansion of the monitoring network in 2005. The network provided critical data needed to track the potential for low dissolved oxygen conditions in the Bay throughout the summer and early fall. Also in 2004, DEM worked with the University of Rhode Island's civil and environmental engineering program and ESS Group on a monitoring project in the Wood River. This collaborative project demonstrated a sampling design which has been recommended for further use as part of a rotating basin approach to monitoring rivers and streams.

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 in Rhode Island. In July, DEM submitted a draft 2004 list to EPA for preliminary review and approval. DEM revised the draft document based on comments received from the US Environmental Protection Agency in December.

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. Compliance with the state's water quality standards is 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 2004, the Department actively worked on restoration plans in various stages of development for 45 water bodies. DEM received EPA approval on TMDLs for three water bodies – Yawgoo Pond, Barber Pond, and Chickasheen Brook; and submitted restoration plans for four waterbodies to EPA for final approval – Green Hill and Ninigret Ponds and their tributaries, Factory Pond and Teal Brooks. DEM also submitted draft restoration plans for four water bodies to EPA for preliminary review – Mashapaug Pond, Kickemuit River and Upper Kickemuit River, Sands Pond (Block Island); and worked to finalize TMDLs for Greenwich Bay and its embayments, Apponaug, Brush Neck, Buttonwoods, Greenwich, and Warwick Coves, and eight tributary streams. TMDL development work continued on the Blackstone River and its tributaries, Mill and Peters River and associated ponds, Scott Pond and Valley Falls Pond, as well as for Woonasquatucket River and Palmer River. TMDL development was initiated on 12 ponds impacted by excess phosphorus – Gorton, Warwick, Spectacle, Roger Williams, Almy, Brickyard, Upper Dam, Sand, Prince's, Hundred Acre, Belleville, and North Easton's Ponds. Lastly, the expansion of water quality monitoring in Upper Narragansett Bay in 2004 will assist DEM and others track nutrients and dissolved oxygen conditions in the Bay, and will support future TMDL development work as well.

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.

In November, Rhode Island voters overwhelmingly supported the Open Space, Recreation, Bay and Watershed Protection Bond referendum that targeted \$20 million to improve and safeguard the state's water resources, including Narragansett Bay. This multifaceted bond will be used to make improvements to wastewater treatment plants; help communities tackle non-point sources of pollution, such as stormwater; and help farmers, marinas and other businesses abate pollution at the source. The bond is expected to leverage nearly \$47 million from federal, state, local and private sources to better protect Narragansett Bay and its watershed.

Reducing Nitrogen Discharges from Treatment Facilities

In 2004 DEM continued to work with wastewater treatment facilities to implement interim and permanent system changes to reduce the amount of nitrogen discharged. In July, DEM issued "14-day" draft RI Pollution Discharge Elimination System (RIPDES) permit modifications establishing nitrogen limits for four facilities -- the Narragansett Bay Commission's Fields Point and Bucklin Point plants, the East Providence Water Pollution Control Facility, and the Woonsocket Wastewater Treatment Facility. The proposed permit changes would establish seasonal total nitrogen limits from May through October, and also require the wastewater treatment facilities to continue to operate all available treatment equipment throughout the rest of the year in order to maximize the benefits of the wastewater treatment facility improvements. In December, DEM public noticed the final draft RIPDES permit modifications and accepted public comment.

As part of Rhode Island's nutrient removal initiative, in October, DEM and the New England Interstate Water Pollution Control Commission provided biological nutrient removal training for wastewater treatment facility operators. The training focused on opportunities for plant modifications and/or operational changes to achieve interim reductions in nutrient discharges prior to the completion of permanent upgrades. DEM also continued to work with the US Environmental Protection Agency and Massachusetts to pursue nitrogen reductions from the Massachusetts wastewater treatment facilities that impact the Providence and Seekonk Rivers.

As a result of regulatory actions, training, and a strong response by the facilities, significant progress toward reducing nitrogen discharges from the state's wastewater treatment facilities is well underway. By summer 2005, plant modifications are expected to result in a 34 percent

reduction in the amount of nitrogen discharged from the state's 11 wastewater treatment facilities since 1995-1996.

Storm Water Management

Although considerable progress has been made to control 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 2004, the Department developed two important guidance documents –the Urban Design Manual and the revised Rhode Island Storm Water Design Manual. DEM worked closely with municipalities to provide guidance and training workshops for municipal officials to help them meet the Phase II RIPDES storm water 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 discharge. Under the general permit, municipalities were required to submit management plans to DEM by March. The Department initiated a prioritized review process based on the requirements of the general permit to provide feedback to the municipalities on the management plans.

RIPDES Permit Status

DEM focused its efforts on reducing the backlog of RIPDES minor permit applications in 2004, and issued 21 individual permits during the year. The Department re-issued the general permit for discharges associated with the treatment of groundwater contaminated by #2 fuel oil, and re-issued five permits under this general permit. Also in 2004, 12 permittees were either terminated because their discharge to surface waters was eliminated, or were moved from an individual permit to a general permit. This reduced the combined major and minor permit backlog from 86 percent to 32 percent. DEM also negotiated four new consent agreements establishing enforceable compliance schedules for permittees to comply with their re-issued individual permits.

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

Passage of Environmental Bond Issue Bolsters Land Protection Efforts

In November, Rhode Island voters soundly approved a \$70 million Open Space, Recreation, Bay and Watershed Protection Bond. The referenda, which appeared as Question 8 on the ballot, will provide \$25 million for open space protection and \$18 million for state and local recreational development. The \$25 million for open space protection will leverage donations and federal grants to provide \$65 million to protect our communities’ most productive farms and most valued open space, natural areas, shorelines, drinking water supplies and scenic areas. \$10 million of this will be available as grants to communities and land trusts. The \$18 million for state and local recreational development will leverage matching funds resulting in \$29 million for parkland, playgrounds, ball fields, trails, greenway links, the Roger Williams Park and Zoo, historic Fort Adams and other recreational facilities.

The environmental bond issue also included \$27 million for bay, watershed, and drinking water protection.

Open Space Grants Awarded

Governor Donald L. Carcieri and DEM awarded 15 grants totaling \$3.86 million in October to communities and land trusts that will protect 1,541 acres of open space and farmland throughout the state. Of the total grants awarded, more than \$3.3 million is state funding and represents the last round of grants from the 2000 Open Space Bond issue. The additional funds were provided by the federal National Park Service Land and Water Conservation Fund. The state grants will be matched by local bond funds and federal grants to generate over \$16.3 million in land preservation efforts throughout Rhode Island.

The awards will protect such diverse and important resources as a 15-acre tract along Bailey Brook in Middletown, adding to land already protected in the Kempenaar Valley; 170 acres of

forested land in Exeter straddling the Queen's River, which is considered one of the most pristine rivers in southern New England; and 23 acres of freshwater marsh and surrounding upland in Cumberland that provides important wildlife and rare species habitat. Many of the properties are located in or adjacent to planned greenways throughout the state.

Open Space and Green Space

2004 was an important year for land conservation efforts in Rhode Island, with more than 2000 acres protected from development. Working through its land acquisition program, local grants program, and the Agricultural Land Preservation Commission, DEM protected 1,286 acres in 21 separate projects during the 2004 fiscal year, including over 250 acres of important active farmland protected by the agricultural program through the purchase of development rights. The total appraised value of this land was in excess of \$15 million. The Nature Conservancy, exclusive of their work with federal, state and local projects, protected another 537 acres in FY 2004, and the US Fish and Wildlife Service protected 26.3 acres of land.

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. The total appraised value of land purchased in FY 2004 was \$15.2 million. Of this amount, approximately \$2.5 million was donated land value from private property owners. Of the remaining \$12.7 million, \$3.6 million was from state bonds for state land acquisition, farmland preservation, or local matching grants, and \$751,700 was from federal funds. Overall, the state's bond dollars were matched at a ratio of 3.5:1.

Prime Forested Land in South Kingstown Preserved

The 160-acre Faella property in South Kingstown was among the notable parcels that were protected through DEM's efforts during FY 2004. This valuable property abuts the state's Great Swamp Management Area and contains over 2,000 feet of frontage on the Chipuxet River. The land primarily consists of forested wetlands and some forested upland. The property contains a unique strand of Giant Rhododendron in the understory of a red maple swamp. The land provides good wildlife habitat and is available for public use for hiking, nature observation, hunting and fishing. The total purchase price for this parcel was \$400,000, with funds provided by the state's open space bond program and The Nature Conservancy through a grant from The Champlin Foundations.

Recreational Development Grants Awarded

In April, Governor Donald L. Carcieri and DEM awarded \$4.6 million in open space recreational development matching grants for 41 projects in 26 communities across the state. The grants will fund a variety of recreational and community development projects throughout the state including new soccer fields, basketball courts, playgrounds and beach pavilions.

The awards provided \$430,604 in funding for 19 small recreation development projects including the development of a skate park at Paine Field in Coventry, construction of two new tennis courts at Ninigret Park in Charlestown, and renovation and upgrade of basketball courts at Braga Park in Newport. The grants also provided \$3,888,200 for 17 large urban and suburban projects, including construction of a new bathing beach pavilion, restrooms and concession stand at Atlantic Beach in Westerly; construction of a new soccer field, walking paths and basketball court at Glenlyon Park in East Providence; and construction of a new municipal soccer complex in Pawtucket. Also awarded was \$375,000 in grants to five distressed communities for recreational development projects including a municipal soccer complex and pitch & putt in Woonsocket, an overlook and trail system in Providence, and reconstruction of two basketball courts and a new skate park in West Warwick.

Funding for the grants came from \$3.6 million in state monies and \$1 million from the National Park Service Land and Water Conservation Fund.

New Equestrian Facilities at State Parks

DEM, in partnership with The Champlin Foundations and the Department of Transportation, dedicated new equestrian facilities at Sunset Stables in Lincoln Woods State Park and Goddard Memorial State Park in August. The new centers will allow DEM to provide increased public access to equestrian recreation in the state's most densely populated urban areas. The new, identical facilities consist of a 40' wide by 97' long pre-engineered steel structure built by Morton Buildings. Inside each building are 12 horse stalls, a tack room, washroom, mechanical room, and an overhead hayloft. English and Western horseback instruction, guided trail rides, and pony rides are offered daily at both facilities.

The total cost for the project was \$825,587. Of that amount, \$525,000 was provided from The

Champlin Foundations; the Federal Highway Administration, through the RI Trails Program, provided \$280,280; and the state provided \$20,307 through in-kind contributions.

New Covered Bridge Welcomes Visitors to Lincoln Woods

DEM, in partnership with the National Park Service and the Town of Lincoln, in October dedicated a new covered bridge and handicapped-accessible fishing platform at the Table Rock Road entrance to Lincoln Woods State Park. Following ribbon-cutting ceremonies, a blue 1963 Ford Falcon owned by Ray Chevalier of Glocester, president of the Falcon Club, made the maiden drive over the covered bridge.

The new 51-foot long structure is one of a handful of covered bridges in Rhode Island. It features a pre-stressed box beam superstructure, timber approach and bridge rails, and a timber truss. New concrete abutments were constructed behind the stone abutments from the old bridge, adding strength to the rustic style of the new structure. A fenced, handicapped-accessible fishing platform ranging from five to eight feet wide has been incorporated along the entire length of one side of the bridge. The new covered bridge will accommodate two lanes of motor vehicle traffic, and replaces a bridge that was built in the 1930s and demolished last year.

Funding for the \$700,000 construction project included \$376,411 from the federal Land and Water Conservation Fund, and the balance from state recreational bond funds.

Groundbreaking for New Soccer Complex in Pawtucket

In October, Governor Donald L. Carcieri joined officials from DEM, City of Pawtucket, and the John H. Chafee Blackstone River Valley National Heritage Corridor Commission at groundbreaking ceremonies for the new \$2.1 million Pawtucket Municipal Soccer Complex. When completed in fall 2005, the six-acre site will feature two regulation and two youth soccer fields and lights for nighttime use, walking trails, landscaping, a concession stand, restroom facilities, and a parking lot. The facility will be home to the Pawtucket Youth Soccer League, which has over 1,000 children enrolled, and will serve as home field for the city's three high school and junior high school soccer teams.

The new facility will be located at 10 Dean Street, which was home to the Newman-Crosby Steel plant from the turn of the 20th century until 1989. All the buildings on the property were demolished in 1992 and 1993. The City of Pawtucket acquired the brownfields site from

Newman-Crosby Steel in 2004 and agreed to make improvements that would make the property suitable for outdoor recreation.

Funding for the \$2.1 project included \$450,000 in state open space and recreation bond funds, \$1.2 million from the City of Pawtucket, \$400,000 in federal funds through the National Park Service, and \$200,000 in federal brownfields cleanup funds through the US Environmental Protection Agency.

Forest Legacy Program Protects Valuable Forestland

In 2004 DEM continued negotiations with landowners to acquire conservation easements on two parcels of forestland totalling 540 acres through the federal Forest Legacy Program. Also in 2004, the Department received a \$324,000 Forest Legacy grant to acquire an additional 165 acres of forestland. The three acquisitions will be completed in 2005.

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 1,186 acres of conservation easements. The federal program is funded through the USDA Forest Service.

Brownfields Redevelopment

In 2004, DEM entered into seven Brownfield Settlement Agreements covering 54 acres of property that will be cleaned up and brought back to beneficial reuse.

During the year, four targeted brownfield assessments were initiated, with three scheduled for completion in 2005. Among the assessments undertaken and completed by DEM in 2004 was on a vacant parcel of land in the Olneyville section of Providence, the site of the proposed new Joslin's Children Center. DEM performed the environmental investigation on behalf of the Joslin Community Development Corporation to determine if contamination is present in the soils or groundwater associated with the property, and what needs to be done, if anything, to clean it up. The non-profit Joslin Community Development Corporation is leading a coalition of groups planning to redevelop the site as a children's center to provide learning, developmental, health,

and social services to disadvantaged children of the Olneyville neighborhood and beyond.

Also in 2004, 51 brownfield sites were cleaned up or closed out under the voluntary clean-up program, resulting in the remediation of approximately 160 acres.

EMERGENCY PREPAREDNESS

Emergency Response

In 2004, DEM's emergency response staff responded to more than 800 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: 85,657 gallons of hazardous chemicals, 5,588 tons of hazardous waste contaminated soil, 229 tons of hazardous chemicals, 1,780 pounds and 41 tanks of propane, 31 vehicle batteries, and 100 pounds of mercury.

From October to December, DEM worked extensively with local and federal officials and representatives from New England Gas Company to respond to a mercury release from a vacant New England Gas Company facility in Pawtucket. Staff received commendations from local, state, and private parties for their effective response to this major health threat.

Domestic Preparedness

Throughout 2004, DEM continued to play a significant role in preparing and responding to the threat of terrorism. The Department's emergency response staff inspected and evaluated, using field screening devices, 54 suspect items at a central processing facility set up by the state fire marshall's office, which were then delivered to the state health laboratory for final analyses. Emergency response staff also responded to five locations where individuals came into direct contact with suspect material and required on-site assistance.

SOLID WASTE AND HAZARDOUS WASTE

'FIRST' Investigative Team Saves State Time and Money

In December, DEM introduced its Field Investigation and Remediation Support Team, known as FIRST, at the site of an ongoing project in West Warwick. The investigative team - a highly

trained group that uses specialized equipment to search out and remediate underground contamination at selected sites, is expected to save DEM and cities and towns throughout the state hundreds of thousands of dollars annually.

FIRST got its start during the Pascoag drinking water well contamination emergency in 2001. Faced with a bankrupt responsible party and a multi-million dollar cleanup, DEM staff from the Office of Waste Management's leaking underground storage tank program conducted almost all of the investigation work, and contractors were used primarily for the remediation phase. The team's success, which has saved an estimated \$350,000 at the Pascoag project alone, has led to its expansion to include staff from several other DEM waste management programs including landfills, brownfields, and superfund.

Pooling equipment, personnel resources, and expertise, FIRST performs investigation and remediation work for those programs in varied ways. It employs a powerful Rapid Site Assessment procedure to collect and analyze air, soil and water samples and provide initial findings within hours using a mobile lab and specialized equipment. Several significant pieces of equipment, including a Geoprobe, a field Gas Chromatograph (GC), and an X-ray Fluorescence (XRF) analyzer, are used in FIRST's Rapid Site Assessments. All of the equipment was purchased with EPA funds and DEM legal settlement fees.

Among the investigations FIRST tackled in 2004 include the West Warwick project, where more than 10 monitoring wells were installed and soil and air samples collected to gather additional information about the status of the town's old landfill. The joint project with the Town of West Warwick saved the municipality about \$24,500. Also in 2004, FIRST completed the portions of four leaking underground storage tank contamination investigations that the owners could not afford, at combined estimated savings of \$24,000. The team also examined five additional leaking tank incidents at estimated additional savings of over \$40,000. Those investigations are part of a DEM-EPA initiative to close old leaking underground storage tanks. The information derived from the investigation will support quicker, more effective cleanups for these sites.

Abandoned Vessels Removed from Weaver Cove

DEM, with the US Coast Guard Marine Safety Office (USCGMSO), in February oversaw the removal and demolition of three abandoned vessels from Weaver Cove in Portsmouth. The vessels posed an environmental hazard, in addition to being eyesores. The vessels, abandoned at

the south pier of Hinckley Yacht Services in the late '90s, included a former 320-foot US Navy landing ship tank, LST 1148 *Sumner County*, last operated as the barge *Alex*; the 215-foot freighter *Yukalpeten*; and the 88-foot tug *Electra*. A cleanup contractor had notified DEM in July 2003 that there may be PCB-contaminated oil and water in the tanks of the LST. DEM tests confirmed the presence of PCBs at concentrations as great as 22,000 ppm, 440 times the Rhode Island hazardous waste threshold of 50ppm. At the time of the July investigation, the LST was in danger of sinking. DEM requested that the USCG MSO Providence become involved in mitigating the pollution threat posed by the vessel. The Coast Guard MSO retained emergency response contractors, who stabilized the vessel and removed the bulk of the contaminated material present. Approximately 15,000 gallons of water and oil containing PCBs were removed from the LST at an estimated cost of \$225,000. Funding for this removal action was obtained from the National Pollution Funds Center. The *Yukalpeten* and *Electra* were both previously cleaned by environmental contractors under supervision of DEM and the Coast Guard. However, residual product could not be removed until the boats were dismantled.

Re-Licensing of Central Landfill

In August, DEM issued a license to the RI Resource Recovery Corporation 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 license expires in July 2007, at which time the Corporation must renew its Phase V operating plan. The proposed double-lined Phase V landfill overlaps portions of the existing landfill and will accommodate approximately 7.5 million tons of additional waste capacity. The Corporation has estimated that Phase V will extend the life expectancy of Central Landfill for an additional 7.1 years.

Prior to approving the license application, DEM required the Corporation to address a range of issues, including storm water, leachate, and erosion controls; wetlands, groundwater, and air quality protection; and final facility closure plans. As part of the license review process, DEM held informational workshops in January and February and a public hearing in March on the landfill application. The process provided an opportunity for the public to comment on the license application and for DEM and the Corporation to address substantive comments received from the public before a final decision was rendered. A number of the terms and conditions of approval were developed in response to comments received during the public hearing process and DEM's review of the application.

Waste Cleanups and Facilities

In 2004, remediation work was completed to close out 51 sites in the State Site Investigation and Clean-up program, and investigations were completed for 64 sites. At the end of the year, the program had 572 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 2004 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. At the end of the year, the landfill closure program included 21 participating former landfill sites.

Remedial Design Work at Former West Kingston Town Dump/URI Disposal Area

In December, DEM, in cooperation with the US Environmental Protection Agency, the University of Rhode Island, and the Towns of South Kingstown and Narragansett, presented the final remedial design plan and results of field activities conducted at the West Kingston Town Dump/URI Disposal Area Superfund Site in South Kingstown. The field activities included test pits, landfill gas monitoring, soil sampling, residential well sampling, survey work, installation of groundwater monitoring wells, surface water and sediment sampling. Information from the work has been used to engineer the final design of the multi-layer hazardous waste cap at the site. Construction of the design plan is expected to begin in 2005.

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 INDUSTRIES

Commercial Fisheries

DEM began reconstruction of the northwest bulkhead at the Port of Galilee in May. The \$1.3 million reconstruction project, which should be completed during 2005, will improve working conditions and services for the fishing fleet and lead to cleaner water around the port. The 550-foot northwest bulkhead had deteriorated, and parts of the old timber sheathing were collapsing. The construction project includes installing new steel sheeting, an anchor tieback system, and fenders, and reconnecting the existing timber piers to the new bulkhead. The parking area will be reconstructed and paved, and a Vortechs storm water collection and treatment system will be installed. Such a system uses centrifugal force to separate storm water from other parking lot contaminants and provides for a cleaner discharge of storm water.

Galilee is homeport to 230 commercial fishing and charter vessels. It is the largest commercial fishing port in Rhode Island, and one of the largest on the East Coast. The northwest bulkhead is the shoreline anchor for several wooden piers. These piers accommodate approximately 40 boats, including commercial inshore lobster boats, and both large and small commercial charter boats.

DEM also made renovations to State Pier 4 in Jerusalem. The decking on the pier was replaced and four benches installed on the east end of the pier. State Pier 4 is widely used: commercial lobstermen use the pier to load and unload gear; it's a popular area for recreational fishermen; and it also offers tourists a panoramic view of Point Judith Pond. That project was funded with \$15,000 from the state capital development fund, and by \$5,000 in contributions from both the Town of Narragansett and the Small Craft Access Trust fund.

Cooperative Fisheries Management Projects Underway in 2004

A cooperative project overseen by DEM to conduct a pilot industry-based survey of Southern New England Yellowtail Flounder continued in the spring and fall of 2004 when commercial fishing vessels completed over 600 tows throughout the Southern New England and Mid-Atlantic area, collecting biological information on 14,900 individual yellowtails. Data is being used to assess species abundance and distribution, and to refine existing or recommend new management

measures for this species. Surveys will resume in the spring and fall of 2005. The fishing industry has been intensely involved in designing and participating in the survey, which is 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 participate in the project.

In May, close to 250,000 pounds of quahaugs were transplanted by local shellfishers under the direction of DEM. They were transplanted from overcrowded beds in Warwick Cove and Greenwich Cove to the cleaner waters of the High Banks Shellfish Management Area of Narragansett Bay, from Wickford to Bissel Cove, and from Bristol Harbor to the Bristol transplant bed. The transplanted quahaugs will be given two years to grow and spawn before they are harvested.

Several North Cape shellfish restoration projects were conducted in 2004. Using volunteer support, restoration work included raising scallop seed and transplanting two million scallops in Ninigret 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 three 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.

Rhode Island's 80-plus charter and party boat captains continued to participate in a 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 362,000 recreational marine anglers — more than half from out-of-state — made over 1.5 million trips, catching 4.3 million pounds of sport fish and releasing about 55 percent in 2004. Nationally, in

2004, 10.3 million recreational marine anglers made 72 million fishing trips, catching 416 million fish, and releasing more than half of them.

Other Fisheries News

DEM's 2004 fisheries report, *Rhode Island Fisheries Stock*, notes that considerable progress was made in the previous year to address excessive fishing rates and rebuild fish stocks to healthy levels. In 2003, four fish stocks - striped bass, summer flounder, black sea bass, and weakfish - were fully rebuilt, and a record number of species were removed from the list of overfished stocks. The report also credits the fishing industry for making a great effort to end overfishing practices for stocks considered depleted and at low levels of biomass, such as winter flounder, lobster, horseshoe crab, and sturgeon. The report was produced pursuant to legislation regarding commercial fishing licenses adopted by the General Assembly in 2002.

In June, Governor Donald L. Carcieri, US Senator Lincoln Chafee, DEM, the National Marine Fisheries Service, and members of the Chafee family took part in commissioning ceremonies for DEM's new 50-foot marine fisheries research vessel, the *John H. Chafee*. The event was held at DEM's Fort Wetherill Marine Fisheries Center in Jamestown, where the vessel is docked. The new, 50-foot research vessel replaces DEM's venerable *R/V Thomas J Wright*. It is faster, wider, safer and more efficient, and allows for 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 allows it to be used for a far wider variety of projects than was previously possible. Its major role is 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.

The US Federal Court in May ruled in favor of DEM and denied the claims of a local fisherman who had filed a legal challenge to DEM's lobster conservation regulations and to the federal action that preceded them. The state regulations were established to increase the dwindling lobster population in the Northeast and Mid-Atlantic areas by preventing overfishing and restoring egg production. They were promulgated in response to a 1997 coast-wide mandate by the Atlantic States Marine Fisheries Commission (ASMFC), and were required by the federal government. The decision ensures the authority of DEM ASMFC to continue managing marine

resources in a responsible way.

Students in 14 Rhode Island schools raised salmon in their classrooms in a program sponsored by DEM's Division of Fish and Wildlife to introduce youngsters to aquaculture while complementing the Department's established salmon restoration program. Participating schools in eight communities from Woonsocket to Wood River Junction were loaned equipment by DEM to construct an incubator system for salmon eggs, which were hatched in the classrooms and raised to the fry stage for stocking in the Pawcatuck River and its tributaries. The overall lesson was to teach young people how to become stewards of their environment and take responsibility for their actions concerning the environment. The federally funded education program, at a cost of about \$900 per school, was first introduced in the United States about 10 years ago by the Connecticut River Salmon Association and is now used in all New England states. This year marked its introduction to Rhode Island schools through DEM's aquatic resource education program.

Agriculture

DEM's agriculture staff works with the state's 850-plus farmers, developing and promoting farm viability programs, 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 May, 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. Rhode Island's agriculture is unique in that nearly all the produce grown in the state is purchased in-state. In a recent national survey, Rhode Island was ranked number two in the country for direct marketing sales from farms to consumers, on a per farm basis; and the state ranks among the top five nationally in farm income per acre.

The kickoff of the Rhode Island *FarmWays* program to develop and promote agri-tourism in Rhode Island was held in September. The program has been established in partnership with DEM's Division of Agriculture, the RI Center for Agricultural Promotion and Education (RICAPE), and the University of Rhode Island's Office of Cooperative Extension. Under the *FarmWays* program, RICAPE will work with farmers to assess their needs, increase agri-tourism on their farms, provide professional development and training, and help them market their products and services. Tourism is the number two industry in the state, and Rhode Island's farms,

their scenic landscapes and local products, are already a component of the tourism industry. The program is intended to enhance that relationship for the benefit of both sectors.

DEM was awarded a \$198,551 grant from the US Department of Agriculture (USDA) to implement a Senior Farmers' Nutrition Program. More than 10,000 seniors within certain income limits were each provided with \$20 worth of coupons that could be exchanged for fresh produce at farmers' markets and roadside stands throughout the state. The innovative program enabled participating seniors to obtain fresh, nutritious, locally grown fruits, vegetables and herbs from about 20 farmers' markets operating in Rhode Island, including four farmers' markets located in state parks. DEM also coordinated a traveling farmers' market that visited senior centers to make it even easier for seniors to redeem their coupons. The Senior Farmers' Nutrition program is modeled after the Special Supplemental Nutrition Program for Women, Infants and Children (WIC), administered by the RI Department of Health, which provides farmers' market coupons to low-income mothers and children in Rhode Island. DEM coordinates the seniors' program in conjunction with the RI Department of Elderly Affairs.

DEM and Brown University were awarded a \$21,500 grant from the Rhode Island Foundation to work with local farmers and institutional dining services to provide local fresh agricultural products in institutional settings such as colleges. Fashioned after a student initiative at Brown University called Community Harvest, which aims to increase the amount of foods purchased by the University's dining services directly from regional producers, the new Sustainable Food Initiative program expands that program by offering it to other college and university food services institutions, assisting in logistics, and facilitating contracts and purchases. DEM's Division of Agriculture and Division of Planning and Development are providing daily assistance as well as office space and supplies. Additional support for the Initiative comes from a \$10,000 grant from the US Environmental Protection Agency, and \$3,000 from Brown University's Center for Environmental Studies.

Cottrell Homestead in West Kingston was named Rhode Island's 2004 Outstanding Dairy Farm of the Year by the Rhode Island Green Pastures Committee. The Rhode Island Green Pastures Committee chose the Cottrell Homestead because of its outstanding relationship with the community, its active involvement with the future viability of dairy farming in Rhode Island, and its continuing efforts to implement best management practices. Currently, several hundred thousand dollars worth of improvements to manure management and water quality are being

constructed, with funding from the US Department of Agriculture and DEM. The Cottrells are involved in maintaining the future of dairy farming in Rhode Island beyond their own farm boundaries. As active members of the Rhode Island Dairy Farms Cooperative, they work with other dairy farms in their state to market their own milk under the "*Rhody Fresh*" label. The *Rhody Fresh* milk project is important to the viability of dairy farming in Rhode Island, and has received grant funds from DEM and the Rhode Island Foundation, and an operating loan from the RI Economic Development Corporation. Milk sales remain strong and well beyond the expectations of the dairy farmers themselves, evidence of public interest and support toward maintaining agriculture in Rhode Island and purchasing local farm products.

Protecting Livestock and Eradicating Animal Diseases

As a critical part of a plan to eliminate the low pathogenic avian influenza found in 2003 at the Little Rhody Egg Farm in Foster, all poultry at the farm were euthanized in April 2004. The poultry house and adjacent processing equipment were thoroughly cleaned and disinfected, testing was continued, and the poultry house left empty for 30 days. DEM spent close to \$25,000 and provided staff to oversee and participate in the cleanup operation. Looking ahead, the farm owner revamped his operation in order to run a state of the art facility for producing eggs in Rhode Island. In the meantime, he continued his egg processing operation with eggs from other flocks to make sure he supplied his customers with the highest quality in eggs. The virus found at Little Rhody Egg Farm posed no threat to human health or food safety. However the disease, which had been circulating in New England for several years, can have a significant economic impact on the poultry industry and once established, can spread rapidly from flock to flock. Therefore, the farm had been under quarantine, with a 200-yard quarantine zone and a two-mile restricted movement zone, and strict biosecurity has been followed since the disease first surfaced.

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 facilities.

Forestry

DEM in 2004 forwarded a final draft *RI Forest Resources Management Plan* to the RI Statewide Planning Program for review and adoption as part of the state guide plan. Developed by DEM's Division of Forest Environment in cooperation with the RI Statewide Planning Program, the 70-plus page *RI Forest Resources Management Plan* establishes a vision, goals, and policies, and

provides many recommendations for managing the state's forest resources effectively. As an element of the state guide plan, by law its goals and policies must be reflected in future updates of local comprehensive plans. The *RI Forest Resources Management Plan* carries forward many of the relevant policies and themes of its predecessor, last revised in 1984, and adds new policies or emphases to reflect current issues in forest management. The Plan addresses forest resource management, information and education, forest health, commercial forest products, and water resources. Three new issues - sustainability, recreation and tourism, and fragmentation - are also addressed. The 15-month preparation and development process included: soliciting opinions and concerns of small forest landowners via a questionnaire mailed to more than 2,800 people in 13 rural communities; holding five focus group discussions with forest landowners, environmental groups, forest resource professionals, commercial forest users, and forest recreation users; and holding a general public information session to gather additional information. Funding for the project was provided through a U.S. Forest Service grant of \$35,000.

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 70 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 2004, DEM awarded a total of \$5,600 in challenge grants to five 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. All five projects funded through the most recent round of funding are for production of forest-grown edible mushrooms. High interest in mushroom growing was stirred by a speaker at a forest-based industry program sponsored by DEM in November of 2003.

NATURAL RESOURCES

Habitat Restoration Design Completed for Town Pond

The design phase of the habitat restoration plan for Town Pond in Portsmouth was completed by DEM in 2004. An Army Corps of Engineers' navigation improvement project in the early 1950s transformed the former open water area, filling it with dredge material in order to halt tidal exchange to the interior marsh. The recommended restoration plan is to restore a combination of 50 percent salt marsh and 50 percent open water/intertidal habitats, with on-site disposal of excavated dredge material. About 99,800 cubic yards of dredge material would be excavated to promote restored tidal exchange to Town Pond. Over time, the interior marsh will be transformed to a high value salt pond and salt marsh habitat. The plan would also protect nearby freshwater resources, allow continued maintenance access to existing electric transmission lines, and provide for public access to and viewing of the restored habitat.

HUMAN HEALTH AND SAFETY

Mosquito-Borne Disease

DEM again distributed mosquito larvicide to Rhode Island communities, and held mosquito control training sessions for municipal and state workers. Cities and towns placed the larvicide, Altosid pellets, in municipal catch basins several times during the mosquito season to try to limit the population of mosquitoes that can carry West Nile Virus. Catch basins are considered prime breeding areas of mosquitoes in both urban and suburban settings, and the use of larvicide is the best way for communities to reduce mosquito numbers and risk.

Rhode Island saw no human cases of West Nile Virus in 2004, and no mosquito pools tested positive for the disease; however, the National Centers for Disease Prevention and Control reported 2,470 human cases and 88 deaths from West Nile Virus nationwide.

It was a higher than average year locally for Eastern Equine Encephalitis, which claimed the lives of two people in nearby Massachusetts. Six mosquito pools in Rhode Island, 15 in eastern Connecticut and 25 in southeastern Massachusetts tested positive for EEE, as did a horse from Tiverton who was euthanized.

DEM and the Department of Health continued their joint education efforts emphasizing personal protection, prevention of mosquito breeding grounds, and larval control. DEM trapped mosquitoes on a weekly basis throughout the state from the end of May through mid-October, and issued weekly updates to the media on test results. Since West Nile Virus is now firmly

established throughout the states, DEM cut back on its bird surveillance, with selective sampling. Of nearly 60 birds tested, three tested positive for EEE and five tested positive for West Nile Virus.

Well Testing

Results of private well sampling undertaken by DEM and the Department of Health (HEALTH) in the spring, in response to elevated nitrate levels in a limited number of monitoring wells near turf farms in Richmond and South Kingstown, indicated that high nitrate levels are localized, and specific to field, geologic and well characteristics. The test results did not indicate high nitrate levels to be widespread geographically. The homeowner wells that tested high were generally shallow, hand dug, or gravel packed wells, and downgradient of groundwater flow from the turf fields. Deeper wells, which are less vulnerable, had lower concentrations of nitrates. Nitrates exist naturally in the environment and are a component of many common foods, but higher levels can occur with the use of fertilizers for agricultural or residential purposes and near failing septic systems. Elevated nitrates in groundwater in agricultural areas in the United States are not uncommon, and results in Rhode Island are similar to what has been documented in other areas of the country. The combination of the agricultural activity, South County's porous soil conditions, and the condition and depth of the shallow dug wells in the area are all contributing factors to the situation.

DEM's Division of Agriculture, the University of Rhode Island, the University of Connecticut, and the US Department of Agriculture are working with farmers to recommend a standard for nitrate application on turf, and will continue to monitor groundwater in and around sod farms in South County and nearby areas. Farmer response has been proactive, and farmers are agreeable to the continued monitoring and development of best management practices.

DEM and HEALTH also tested 17 monitoring and private drinking water wells near turf fields in the same area to investigate the current level of the herbicide Dacthal and any breakdown products or related contaminants that may be present in the groundwater. Contaminants – mostly the less toxic breakdown products of Dacthal – were found in 13 of the wells, at levels substantially below the guidelines for exposure to the breakdown product. The results indicate that water quality does not currently pose a health concern to residents but that the drinking water wells are vulnerable to contaminants applied at the surface.

DEM and HEALTH issued reminders that it is prudent for all Rhode Islanders who are dependent on private wells for drinking water to have those wells tested yearly as a routine home-maintenance activity. The responsibility for such routine testing rests with the homeowner, but the cost is modest. Private wells and the groundwater that they draw from can be affected by a wide range of nonpoint sources of pollution, such as runoff from roads, agricultural fields, home lawns, and failing septic systems and cesspools.

Chronic Wasting Disease Surveillance

In 2004, DEM continued 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 made permanent its previous temporary 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. The new permanent regulations also prohibit feeding and baiting of white-tailed deer. Baiting deer has always been illegal; the ban on feeding was first adopted in emergency regulations since feeding is highly associated with disease transmission. Several exceptions are allowed such as some bona fide agricultural practices and the incidental feeding of deer that may occur at raised backyard birdfeeders.

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 2004, DEM's Dam Safety program continued 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, which began in the northern part of the state in 2003, is proceeding geographically to the south. Information on the dam's location, height, and

general condition are being collected. At the end of 2004, about 65 percent of the project had been completed, with 322 inspections performed.

Reconstruction of the high-hazard Stillwater Dam in Smithfield is ahead of schedule. Begun in the summer of 2004, the \$2.5 million project, which includes a new spillway and many upgrade and erosion control features, is about 75 percent complete on this state owned facility.

Animal Care

DEM held four workshops around the state to discuss proposed new regulations governing animal care. The proposed new regulations concern the feeding, sheltering, care, and management of animals housed in licensed animal care facilities and controlled adoption organizations. They apply to all pet shops, kennels, dog pounds, animal shelters, animal dealers, aviaries, animal rescue organizations, livestock rescue, and animal care facilities in Rhode Island.

The proposed regulations cover a wide variety of animal care issues pertaining to dogs, cats, rabbits, rodents, birds, fish, reptiles, amphibians, and small pets including ferrets, guinea pigs, hamsters, gerbils, and chinchillas, as well as livestock and exotic animals. The issues include veterinary care, quarantines, reportable diseases, physical structures and construction guidelines for buildings in which animals are housed, space requirements, cleaning and maintenance of facilities, animal rescue and foster care, biosecurity, and care of animals in public settings such as petting zoos and traveling shows.

In July, DEM temporarily closed the East Providence Animal Shelter after one of six baby raccoons harbored at the facility tested positive for rabies. An estimated 30 to 50 individuals had been exposed to the animals and were encouraged to undergo a series of rabies vaccination shots as a precaution. Though the pen was kept locked and not freely accessible to the general public, employees at the shelter, volunteers and a few of their family members had significant exposure to the raccoons. City of East Providence employees and their families with access to a restricted parking lot behind the shelter also had possible contact with the raccoons. It is possible that other members of the public may also have petted the raccoons through the chain-link enclosure.

The raccoon strain of rabies virus is widespread among wildlife in Rhode Island. The virus is transmitted to humans through exposure to the saliva of a rabid animal. Rabies is an infection of the brain and nerves and is uniformly fatal in humans. Fortunately, vaccination is effective in

preventing rabies infection. DEM and the Department of Health offer rabies awareness information to the public. The primary measures Rhode Islanders can take to avoid rabies exposure are: vaccinate pets, avoid touching, feeding or any contact with wild or unfamiliar animals, and keep garbage in sturdy cans with tight-fitting lids.

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 2004 brought more than six million visitors to DEM's state parks and beach system, including close to three million visitors to Rhode Island state beaches. In addition, more than 230,000 "camper nights" were recorded at DEM owned and operated campgrounds. More than \$4 million in revenue was generated by beach and campground attendance in 2004, with entrance to state parks remaining free of charge.

On Governor's Bay Day, held on the last Sunday in July, family-oriented events took place at six main locations across Rhode Island and included a picnic at Goddard Park, in addition to the traditional celebrations held in recent years at other state parks and beaches. 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.

DEM's Division of Fish and Wildlife aquatic resource education program began a new "*Schooner Explorations*" marine heritage educational program for both youths and adults on the 91-foot schooner *Quinnapiack* in 2004. Day programs, for youths aged 10 through 16, included hands-on experience in sail handling, navigation, seamanship, setting a trawl net, boating safety, and marine biology. The youngsters were exposed to Narragansett Bay fisheries resources, environmental issues, and Rhode Island's maritime heritage. As music is part of Rhode Island's maritime heritage, traditional Irish, Cape Verdean, folk, bluegrass, and sea chantey music were included in all sailing programs. Evening sails for adults were also offered, as well as family sails on Saturday and Sunday.

Bikeways

Site excavation work was completed and foundations poured for 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 a private food concession offering Dunkin Donuts and Baskin Robbins Ice Cream.

In conjunction with the Central Falls Mayor's Office, DEM presented preliminary plans for the Central Falls portion of the Blackstone Bike Path to the city council in April. The proposed Central Falls portion of the bikeway, will begin north of the Amtrak Bridge at High Street and parallel the river northward. The bikeway will leave the river and rejoin High Street in front of the Central Falls Senior Center. The relocated bikeway, measuring a bit less than a mile, will connect recently completed community projects, open space, and projects like Central Falls Landing, a new walking park, Pierce Park and proposed redevelopment of the Kings Auto parcel. Final design and engineering of the Central Falls portion was to be completed by early 2005. The 17-mile Blackstone River Bikeway, when completed, will extend from Pawtucket to the Massachusetts state line in North Smithfield. The bikeway is being constructed in segments. Construction is complete on two heavily used segments totaling six miles in Cumberland and Lincoln, and is underway on a one-mile segment in those two communities.

Boating

Five new marine pump-out facilities, funded via grants awarded by DEM in 2003, were completed in 2004. Fifteen pump-out boats and 41 shoreside facilities are now 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 pump-out facilities has been provided to DEM through the federal Clean Vessel Act Pump-out Grant program, administered by the US Fish and Wildlife Service.

Fishing

DEM's Division of Fish and Wildlife stocked 1,000 winter trout and close to 200 surplus domestic Atlantic salmon broodstock in several locations throughout the state. The stocking was done in anticipation of the winter ice-fishing season. The salmon, mostly between five and eight pounds each, with a few over 14 pounds, were from the US Fish and Wildlife Service's Nashua, NH National Fish Hatchery. Tests by the US Fish and Wildlife Service indicate that domestic Atlantic salmon produced by national fish hatcheries in the Northeast do have low levels of PCB contamination, but the PCB levels do not exceed existing federal consumption safety levels. To

protect public health, the US Fish and Wildlife Service, in conjunction with the Environmental Protection Agency, recommends that those eating these salmon restrict themselves to one meal per month.

Site preparation began for construction of a new hatch house at DEM's Lafayette hatchery in North Kingstown. The new hatch house is expected to be operational by spring of 2005 and will allow for increased production under more up-to-date conditions. The new hatch house will include an egg hatching area and a number of shallow troughs for the fry. New technology will be used to adjust the water chemistry to benefit the early life stages of the young fish before they are transferred to the outdoor raceways to continue their growth. DEM's Division of Fish and Wildlife will have the ability to raise up to 200,000 trout over a two-year period at the new hatch house, compared with the 45,000 to 50,000 raised in the current facility over that timeframe. Seventy-five percent of the cost of the \$810,000 project is funded by the Federal Aid in Sportfish Restoration program, with the remainder from Rhode Island Trout Conservation Stamp receipts.

The state's hatcheries are an integral part of the Rhode Island recreational fishing experience, and the new hatch house at Lafayette will provide DEM's Division of Fish and Wildlife with the opportunity to expand the trout stocking program and provide the public with on-site educational opportunities. Currently, more than 70,000 two-year old brook, brown, and rainbow trout with an average individual weight of about one pound are stocked in more than 80 ponds and streams every year for opening day of the fishing season. About 25,000 recreational fishing licenses are issued to Rhode Island residents every year by DEM, as well as close to 16,000 trout stamps, and more than 20,000 anglers turn out for opening day. An additional 60,000 to 90,000 trout are stocked in the state's freshwaters throughout the fishing season.

Hunting

DEM asks Rhode Islanders every year 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 2004, DEM reported 233 turkey brood sightings, including 440 adults and 1,570 poults, for a ratio of 3.6 young per hen. The overall statewide turkey population is estimated at 6,000 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 from late January through mid-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 2004-2005 deer hunting seasons show that 2,684 deer were taken, an increase of 20 percent from last season. DEM's Division of Fish and Wildlife attributes the increase to liberal hunting seasons, especially on Prudence Island, and the lack of acorns which kept deer on the move. 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.”

DEM Received Grant for Auto Salvage Yard Compliance Program

In December, DEM was awarded a \$200,075 grant by the US Environmental Protection Agency to help auto salvage yards voluntarily come into compliance with environmental regulations and reduce threats to human health and the environment. The grant was one of only 10 State Innovation pilot grants awarded nationally by EPA this year. Twenty-five states had competed for the grants.

Rhode Island is home to 85 auto salvage yards that are subject to a number of state environmental regulations. Until now, there has not been an overall program to help auto salvage yards come into, or stay in, compliance and to help them find the least costly ways to run their businesses without posing threats to human health and the environment.

Under the grant, DEM's Office of Technical and Customer Assistance will take a non-regulatory approach, and, using an environmental performance program model, offer facility self-certification; provide on-site compliance, pollution prevention, and technical assistance; and measure improvements in selected environmental business practices. DEM's goal is 75 percent industry-wide participation with a 25 to 50 percent improvement in selected environmental indicators.

The University of Rhode Island's Center for Pollution Prevention and Environmental Health is a primary partner with DEM in the project, and will be performing much of the work. DEM will design the program with input from the auto salvage industry, through a formal stakeholder process. Initial visits to auto salvage yards by program staff were expected to begin in early 2005.

Auto Body Repair Self-Certification Program

The Department successfully completed its first full round of the voluntary auto body repair self-certification Environmental Results Program, with 171 of the 367 Department of Business Regulation licensed auto repair facilities electing to participate in the program. The initiative

addresses training requirements, hazardous waste management, air quality regulations, wastewater discharge standards, occupational health and safety, and pollution prevention techniques, and is designed to help operators of auto body shops bring their facilities into full compliance with environmental regulations. In 2004, DEM staff reviewed over 2,000 individual checklist data entries and 234 'return to compliance' plans from 109 facilities; completed on-site, multimedia post-certification audits of 18 facilities; and 24 enforcement inspections of facilities that did not participate in the voluntary program. Richard Enander, Ph.D. of DEM gave presentations on the self-certification program at an Association of State & Territorial Solid Waste Management Officials conference in Washington, D.C. and at a US Environmental Protection Agency workshop in Sacramento, California.

Exterior Lead Paint Removal Contractor Certification Program

DEM, using funding provided through the US Environmental Protection Agency, developed a certification program for painting contractors, remodeling and renovation industries that engage in the removal of exterior lead paint. The program will be rolled out in spring 2005, and is designed to provide a more efficient way to regulate painting contractors that come under DEM's air pollution control regulations concerning the removal of exterior lead based paint from exterior surfaces. In 2004, DEM and the University of Rhode Island Center for Pollution Prevention developed outreach materials, an exterior lead paint contractor database of about 500 individual businesses, a certification workbook and checklist, and a website that will be a resource for homeowners and contractors. Two internal stakeholders meetings with representatives from the Department of Health and the Housing Resources Commission were held in 2004, as well as an external stakeholder meeting that included industry, trade association, health and safety representatives.

Industry Outreach and Technical Assistance: OTCA & the URI Center for Pollution Prevention

In conjunction with the University of Rhode Island Center for Pollution Prevention, DEM's Office of Technical and Customer Assistance provided pollution prevention support and technical assistance through 145 site visits, 120 phone calls, 75 emails, 10 workshops and seminars, and five mailings. Working with the University of Rhode Island Center for Pollution Prevention and the Narragansett Bay Commission, DEM in 2004 provided chemical engineering assistance to 16 Rhode Island companies in the textile manufacturing, metal finishing, autobody repair, and chemical manufacturing industries. Among the benefits realized by companies participating in the

assistance programs are improved compliance status, more efficient operations, and substantial cost savings.

Underground Storage Tanks

DEM developed a new self-certification program that allows owners of underground storage tank facilities to certify their compliance, using a workbook and checklist, with applicable environmental regulations. The initiative is modeled after DEM's successful autobody repair self-certification environmental results program. Legislation passed by the General Assembly in 2001 require that all underground storage tanks subject to registration be inspected every two years. Along with the self-certification program, DEM will randomly inspect about 100 facilities per year. There are over 500 regulated facilities in the state, mostly gas stations, with over 1,900 underground storage tanks.

Compliance and Inspection – Keeping a Level Playing Field and Protecting the Environment

In 2004, DEM issued 116 Notices of Violation, settled 101 formal enforcement actions by executing Consent Agreements, and took 364 informal enforcement actions. The Department assessed \$1,826,709 and collected \$908,736 in cash payments, and agreed to 11 supplemental environmental projects worth almost \$1.1 million in settlement of outstanding enforcement actions. In 2004 the Department also spent considerable time recovering \$54,411 in costs that were incurred for emergency response efforts. The Office of Compliance and Inspection responded to 3,300 complaints and conducted 2,904 inspections during the year. In addition, 585 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, 62 wetland restorations were completed, and 12.7 acres of freshwater wetlands and 10.8 acres of perimeter wetlands were restored in 2004.

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 2004, the Division of Law Enforcement's radio room handled 22,457 calls from the public, and of those, responded to and investigated 826 incidents. Environmental Police Officers made 430 arrests, issued 1,244 written warnings, responded to and investigated 26 motor vehicle accidents, and investigated 117 boating accidents, an increase of more than 80 complaints investigated over 2003. The Division also responded to 5,769 animal complaints in 2004.

Periodically throughout summer 2004, DEM's Division of Law Enforcement conducted directed patrols to check for boaters' compliance with the state's "no discharge" law, which prohibits the discharge of boat sewage - treated and untreated - into Rhode Island's waters. Particular emphasis was placed on the waters near City Park, Goddard Park, and Oakland Beach, all in Warwick, Warren Town Beach in Warren, and King Park in Newport. These beaches are thought to be particularly susceptible to water quality impacts from illegal boat discharges. The action supported the Governor's Narragansett Bay and Watershed Planning Commission's recommendation to ensure compliance with the law, and Governor Carcieri's direction to DEM to intensify enforcement. The boater discharge issue is one of several being addressed by DEM as part of the state's ongoing, broad-based initiative to protect Narragansett Bay.

Criminal Investigations

In 2004, DEM's Office of Criminal Investigation reviewed 2,713 complaints, initiated 39 new criminal investigations, and continued 31 investigations from previous years. The new cases consisted of 14 hazardous waste investigations, 14 solid waste investigations, three water pollution investigations, as well as investigations concerning false documents and violations of animals and animal husbandry laws.

Three unconnected investigations that were conducted in 2004 resulted in three solid waste disposal companies and/or their owners being charged with multiple counts of disposing out-of-state generated solid waste at the State Central Landfill in Johnston. The three parties admitted to the illegal activity and were fined a total of \$93,000 that was paid to the DEM's Environmental Response Fund.

Several complaints about diseased puppies that had died immediately after being purchased via the Internet were reported to the DEM's Division of Agriculture. A criminal investigation that included the execution of a search and seizure warrant at the suspected breeder's residence in

Coventry produced evidence of an illegal and unlicensed pet shop operating at that location. The investigation also revealed that French & English Bulldog puppies and parrots were being illegally imported into the state from outside the US. The breeder pled guilty to all the charges, and was fined the maximum penalty allowable under Rhode Island statute. The individual also ceased selling animals via the Internet.

The Department continued with its Environmental Crimes Training Program. DEM investigators trained 101 local police at the RI Municipal Police Training Academy, 29 cadets at the Providence Police Academy, and 40 cadets at the RI State Police Training Academy.

In cooperation with federal agencies, DEM's criminal investigators conducted an in-service training class for 32 members of the FBI's Boston Emergency Response Team. The instructor presented a two-part ground search training program that covered metal detection theory, operation and setup, and a field exercise using metal detectors in a mock crime scene.

In 2004, DEM's Office of Criminal Investigation, in partnership with the Northeast Environmental Enforcement Project, conducted an outreach program designed to make elementary school-aged children aware of environmental criminal activity. The program, called SOAR – Safety, Observation, Awareness, and Reporting, included a presentation describing environmental laws, criminal activity, and suggestions for action. A short video featured a boy and his mother observing environmental criminal activity, and discussed what they saw and how they should report it. The students were also provided with a comic book about environmental crimes that linked to an Internet-based environmental crime investigative game. DEM criminal investigation staff members conducted presentations for approximately 475 elementary school students at five schools and at the Audubon Society's educational facility in Bristol.

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

Staff from DEM’s Sustainable Watersheds office worked with the Woonasquatucket Watershed Council and other stakeholders to assist the six watershed communities of Providence, North Providence, Johnston, Smithfield, North Smithfield and Glocester inventory and map their important natural, cultural, and recreational resources. Community priorities were then linked throughout the watershed to demonstrate how those resources 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 were initiated in 2004 to assist four communities in the Woonasquatucket watershed implement conservation development so that new growth can minimize impacts to the environment and preserve meaningful open space. Funded by a \$75,000 US Forest Service grant, the project was completed in December with a final plan provided to each of the watershed communities.

Narrow River Watershed Project

DEM received a \$77,000 grant from the US Environmental Protection Agency to assist the Narrow River Watershed Council and the Town of Narragansett identify the best means to abate storm water runoff into the Narrow River. This project will demonstrate innovative storm water runoff abatement methods that can be used as a model in similar watersheds. A consultant was hired to initiate the project at the end of the year.

Conservation Development Guidance Manual

In 2004, DEM’s Sustainable Watersheds Office produced a conservation development guidance manual for community officials and developers. The publication explains how new growth can

more effectively minimize impacts to the environment and preserve meaningful open space. Conservation development is a new and creative land use management technique. The manual, funded by a \$50,000 US Environmental Protection Agency grant, is used as a textbook at the University of Rhode Island and will be used to train local officials in a cooperative effort with Grow Smart Rhode Island and the University. Also in 2004, a training course on conservation development was designed for local officials and developers.

Woonasquatucket Land Use Project

Using a \$40,000 US Environmental Protection Agency grant, DEM assisted the City of Providence, the Woonasquatucket Watershed Council, and the neighborhoods of Smith Hill, Manton, Valley, and Olneyville determine the most appropriate redevelopment options within the Woonasquatucket River corridor. The project was completed in 2004, and included a report recommending land use changes within the Woonasquatucket River corridor.

Salt Pond Watershed Action Plan

DEM's Sustainable Watersheds Office teamed up with the Coastal Resources Management Council, URI's Coastal Resources Center, and the Salt Pond Coalition to acquire funds 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. A consultant was hired and the project was initiated in 2004.

Urban Environmental Design Manual

In 2004, DEM produced the Urban Environmental Design Manual, a publication containing illustrations, model ordinances, and practical advice on appropriate restoration strategies using real world sites. Throughout the year, the Sustainable Watersheds Office worked 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. 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 2004, DEM assisted the Governor's Growth Planning Council select pilot growth centers in East Providence and Burrillville. These growth centers will be used to identify discretionary state funds and technical assistance available 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 greenfields. Also in 2004, a pilot coordinated permit review program was initiated to facilitate the review of permit applications within growth centers.

Scituate Reservoir Watershed Greenspace Project

In 2004, DEM was awarded \$50,000 from the National Parks Service and \$67,000 from the Providence Water Supply Board to initiate a greenspace project within the Scituate Reservoir watershed. The project will assist the five watershed communities of Scituate, Foster, Gloucester, Johnston, and Cranston identify and map their important natural, cultural and recreational resources. Strategies will be developed to protect these resources, and technical assistance will be provided to adopt and implement conservation development measures to help the communities minimize impacts to the environment and community character from new growth.

Greenwich Bay Riparian Restoration Project

The US Forest Service provided funding to DEM to identify and map riparian buffers within the Greenwich Bay watershed. The condition and width of all riparian buffers was assessed and mapped for the coastal areas and all rivers and streams within the watershed. This information will be used to establish priorities for the restoration of riparian buffers within the watershed. The project will continue into 2005.

COMMUNITY OUTREACH

Hawkes Environmental Award

Peggy Sharpe, a champion of Rhode Island's environment for more than three decades, was presented with DEM's 12th annual Alfred L. Hawkes Environmental Achievement Award at a luncheon in her honor in May. Sharpe first became involved in environmental affairs in the 1960s, as a member of the India Point Park Committee. In the 1970s, when Rhode Island faced a major military base closing that left much of the land along Narragansett Bay open to new development, Sharpe joined others in legal action to force the federal government to prepare a full Environmental Impact Statement on the matter. Sharpe's contributions to environmental protection continued to evolve, as she focused her efforts on promoting waste reduction and recycling. From 1978 to 1993, she served as chair of the Citizens Advisory Board of the Rhode Island Solid Waste Management Corporation, and in the late 1980s, was a member of the Corporation's Source Reduction Task Force. She serves on the Board of Directors for the

Conservancy's Rhode Island chapter, and is an active member of the Board of Directors for the Conservation Law Foundation.

Forestry

In October, DEM and the Rhode Island Chapter of the Society of American Foresters sponsored their 12th 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 on Providence Water Supply land in Scituate, and was well attended.

DEM, along with representatives from the University of Rhode Island and the RI Nursery and Landscape Association, participated in Arbor Day ceremonies at URI in April. DEM announced the award of \$156,755 in *America the Beautiful* grants from the US Forest Service, matched by more than \$227,000 in local funds, to six communities and seven non-profit organizations. The grants will enable them to plant more than 250 trees, conduct tree awareness programs, take inventories of town trees, and develop sustainable tree management plans. Over the past 12 years, DEM's Division of Forest Environment has awarded more than \$1.6 million in *America the Beautiful* grants, matched by nearly \$2.8 million in local funds.

Spring Flower and Garden Show

Rhode Island State Parks, Peaceful Retreats 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 exhibit allowed the viewer to experience the open air "Chapel by the Sea," located within Colt State Park in Bristol. This retreat, situated in a peaceful, historic setting overlooking Narragansett Bay, has become a popular wedding, meeting, and ceremonial area that serves thousands of patrons each year. The exhibit also featured a display of functional landscapes representing the diversity of the state's public recreational resources, and highlighted the specialized requirements of each. DEM's Division of Agriculture was also present at the flower show, offering an educational exhibit and a number of free consumer brochures.

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. Individuals

seeking summer employment had an opportunity to obtain application forms at DEM's boat registration booth.

Wetlands Staff Take Part in The Home Show

2004 marked the second year that staff from the Department's wetlands and ISDS programs participated in The Home Show, sponsored by the RI Builders Association at the RI Convention Center in March. Those attending the show had an opportunity to meet DEM wetlands staff, ask questions about wetlands rules, and learn about the permit process. More than 7,500 pieces of literature, including fact sheets, and educational brochures were distributed to those who had questions. Many Rhode Islanders who build new homes, remodel or expand existing homes, or make other improvements to their properties must first obtain DEM permits. 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. More than 30,000 people attended the five-day show.

Earth Day 2004

Earth Day 2004 drew over 11,700 people to Roger Williams Park Zoo in Providence for Conservation Week and the Earth Day Festival. The Festival featured more than 30 exhibits in the upper Zoo, offering those who attended a chance to learn more about what they can do to help protect the environment. Children's activities included making recycled bookmarks with Recycling for RI Education, creating models of food chains at the Earth Day booth, and painting a monster mural of zoo animals.

More than 9,100 volunteers joined together in over 100 Earth Day cleanups across the state, picking up tons of trash and tires. DEM provided site coordinators with posters, gloves, and Earth Day 2004 refuse bags to assist with their cleanups. RI Resource Recovery Corporation waived tipping fees for Earth Day cleanup debris, and DEM awarded \$200 mini grants to local organizations to enhance their cleanups. Many local businesses also joined the cleanup effort by donating food, drinks, and other items. Local cleanup coordinators reported picking up some unusual pieces of debris along with usual litter, including a bathtub, car, several appliances, and hypodermic needles.