Oil Spill Prevention, Administration and Response (OSPAR) Fund

Annual Report
FY 2007

Motiva Terminal Fire, Port of Providence, July 18, 2006

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

W. Michael Sullivan, PhD, Director

Michael J. Mulhare, P.E., Emergency Response Administrator,
Chief Office of Emergency Response

Introduction

The Oil Spill Prevention Administration and Response (OSPAR) Fund, RIGL Chapter 46-12.7, was created in 1996 (modifying a prior statute adopted in 1990) in the aftermath of the environmentally devastating North Cape oil spill. The fund was created, and is continually supported, by the assessment a $0.05 per barrel fee on petroleum products received at marine terminals in Rhode Island. The purpose of OSPAR is multi-faceted. It provides funds to promptly respond contain and remediate oil spills. OSPAR funds are also utilized to maintain a state of emergency response readiness through responder training and equipment acquisition. The fund further provides, in the event of a significant release, funding for emergency loans to workers affected by a spill as well as damage compensation of legitimate claims that cannot otherwise be compensated by responsible parties or the federal government. The funds and the operations conducted in accordance with the statute are managed by the Rhode Island Department of Environmental Management (DEM).

Section 46-12.7-7 of the statute requires the DEM Director to submit an annual report to the legislature on the OSPAR Fund. This report summarizes the status and use of the fund for FY 2007.

Revenues & Expenditures – FY2007

The OSPAR account started FY 2007 with a balance forward of $3,568,185. During FY 2007, the $0.05 per barrel fee resulted in the collection of $2,063,444 after the ten percent cost recovery. The OSPAR account also received $33,457 as reimbursement for expenditures from the Shellfish Restoration project and $26,708 as reimbursement for costs related to the Motiva dock fire response. Personnel, operating and project expenditures for FY2007 totaled $2,322,266 which included $250,000 for the PORTS Navigational system for Narragansett Bay as well as a transfer of $408,175 from the OSPAR account to the Coastal Resource Management Council for Habitat Restoration projects. A more detailed review of expenditures is provided in the expenditure section of the report.

Figure 1 provides an overview of the OSPAR Fund revenues and expenditure activities since fiscal year 2001.

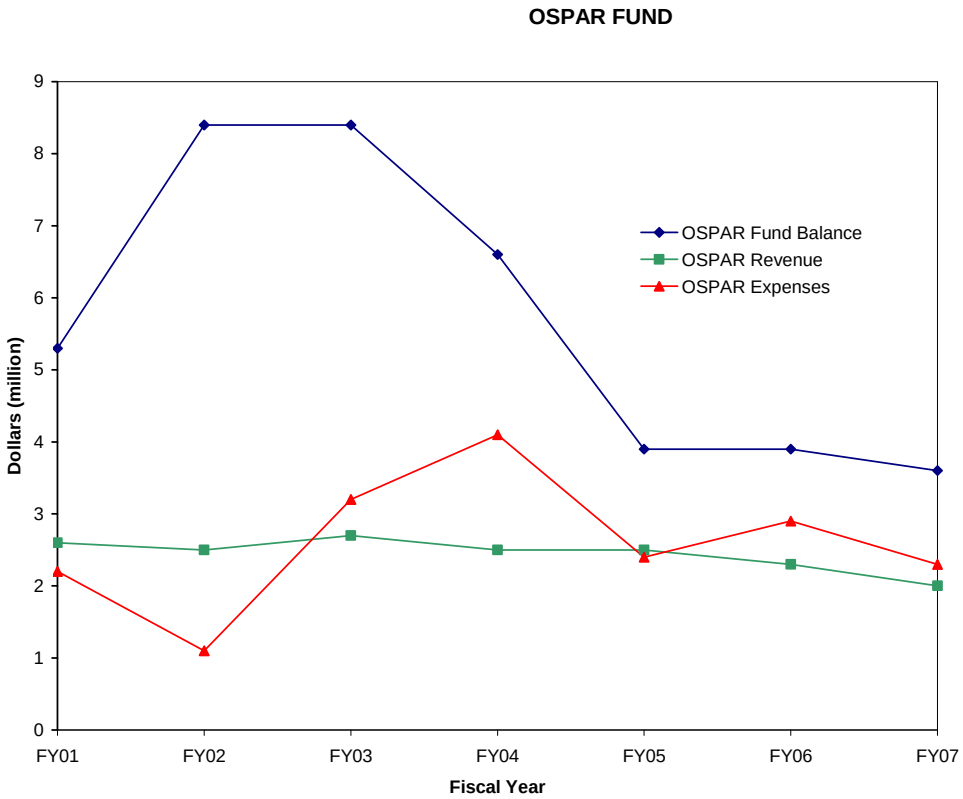

Figure 1. OSPAR Fund

The OSPAR fund reserve balance has not recovered since being utilized as state match for the Providence River dredging project in fiscal years 2003 and 2004. The project restored the shipping channel to the federally authorized dimensions of 40 foot depth and a channel width of 600 feet. Six million cubic yards of dredged material were removed during the project. The fiscal impact to the OSPAR fund was 3.2 million dollars in FY2003 and 4.1 million dollars in FY2004.

Net revenue, while relatively constant, has exhibited a declining trend. This is partially explained by an increase in cost recovery from 7 percent to 10 percent. Fiscal year 2007 revenues were further reduced because the Motiva facility could not unload cargo, for a twelve week period, as a result of the dock fire. Additional pressures placed on the fund have resulted in OSPAR expenses exceeding income in fiscal years 2006 and 2007.

ACTIVITIES– FY2007

Summary

With regard to pre-spill preparedness, the OSPAR Fund was used in FY2007 for personnel and operating expenses and the PORTS Program. Personnel costs assigned to the OSPAR Fund included the following: Office of Emergency Response (full salaries

of Emergency Response Administrator and a technical assistant) and partial salaries of five first responders; DEM GIS Supervisor (partial); staff from DEM Office of Waste Management and Compliance and Inspection engaged in oil-related investigation and remediation activities (partial); and the Office of Legal Services (partial). These salary and benefit costs totaled $900,057. Operating expenses charged to the OSPAR Fund included: vehicle readiness and maintenance ($200,861); emergency response equipment ($18,637); training and travel ($2,176); computer hardware, software and telecommunications ($10,167) and an emergency response vehicle ($36,987). These operating expenses totaled $277,666.

In FY2007 the Office of Emergency Response, which operates as an all hazard response program and incorporates the oil spill prevention and response functions of DEM, continued to be extremely active responding to oil spills, hazardous material incidents and other state emergencies. There were 1,122 emergency response investigations undertaken by the Office during FY2007. The incidents comprised two primary categories, hazardous material responses and oil spills. Sixty-one percent of these responses, a total of 679 incidents, were related to oil spills. The actions of the Office of Emergency Response during this reporting period resulted in removal from the environment of 44,000 gallons of oil and 5,360 tons of oil spill debris.

Figure 2 tracks the number of emergency response activities for a twelve year period. While there is some annual variation in the number of emergency responses, the trend of the data clearly demonstrates a significant increase. Activities undertaken by the Department's emergency response team has doubled since 1996, placing ever increasing pressure on the limited available response resources.

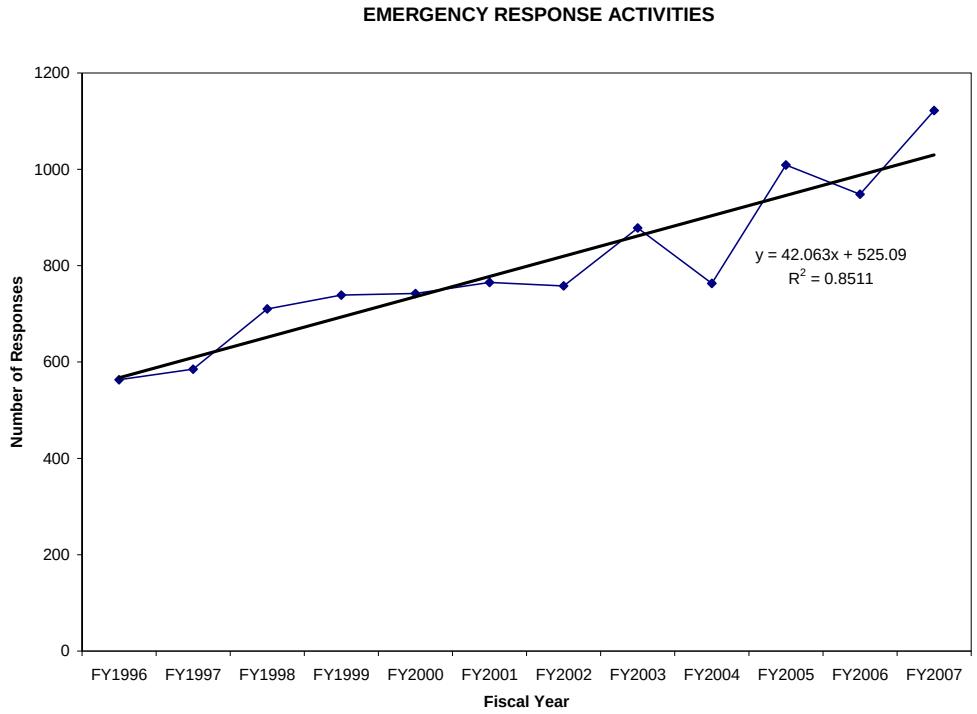

Figure 2. Response Activities

FY2006 EXPENDITURES

Personnel

Full salaries and benefits of DEM Emergency Response Administrator and partial support for four other members of the DEM Emergency Response Team. All five personnel serve as first responders and are also responsible for administering the OSPAR Program both in terms of pre-spill readiness and post-spill response. A technical assistant is also part of the Emergency Response Office and the OSPAR program. Partial support of salary and benefits of DEM GIS Supervisor. This individual is responsible for maintaining a comprehensive internet mapping application for planning, assessment and response to oil spills or other environmental emergencies in RI marine waters. This individual is also responsible for developing and maintaining a complete data inventory on an internal network capable of supporting responders during an oil spill or other environmental emergency. In the event of a spill, the GIS Supervisor coordinates the collection and dissemination of locational data documenting extent of spill, fish kills, etc. In the aftermath of a spill, support is also provided for natural resource damage assessments to aid in the collection of damages from responsible parties. Partial salaries and benefits for personnel from DEM Office of Legal Services, Waste Management and Compliance & Inspection.

$ 900,057

Operating

Vehicle Maintenance & Readiness	$200,861
Training & Travel	$ 2,176
Cell phones, pagers	$ 8,838
Computers- Hardware/Software/Telecommunications	$ 10,167
Supplies: Office, Scientific, Miscellaneous	$ 18,637
Emergency Response Vehicle	$ 36,987

$ 277,666

Capital Projects

Narragansett Bay PORTS (annual maintenance)	$ 250,000
Coastal Institute at the University of Rhode Island	$ 40,631

(*Contracted to finalize plans and emergency response capabilities for RIDEM; cost of project will be reimbursed through*

Department of Homeland Security grant, *See FY2005 OSPAR Report)*	
Alcohol Resistant Foam	$ 82,500
North Cape Shellfish Restoration Project	$ 72,237
	$ 445,368

Other Projects supported by the OSPAR Fund

Coastal Resource Management Council (CRMC)	
Coastal Habitat and Estuary Restoration Project	$ 408,175
Town Pond Restoration Project (*See FY2005 OSPAR Report*)	$ 50,000
Rivers, Bays & Watershed Coordination Team	$ 241,000
	$ 699,175

Total OSPAR Expenditures **$2,322,266**

OIL SPILLCLEAN-UP ACTIVITIES

The DEM emergency response team responded to 679 oil spills during FY2007. This represents a 7 percent decrease in oil spill responses compared to FY2006. The amount of oil products and oil spill debris remediated during these response activities is estimated to be 44,000 gallons of oil and 5,300 tons of oil spill debris

The circumstances causing these releases and the impacts generated were varied. The categories of oil spills and the relative percentages of each spill type are illustrated in figure 3.

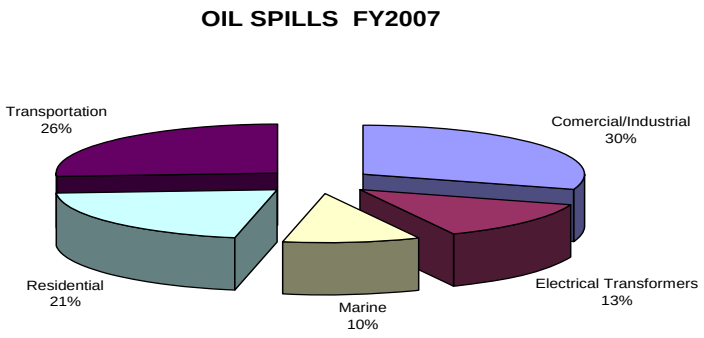

Figure 3. FY2007 Oil Spills by Category

The greatest percentage of spills, 30 percent, was related to commercial/industrial facilities. Transportation spills accounted for 26 percent of the spill events in FY2007. Residential oil spills comprised the next largest category accounting for 21 percent of department responses. Releases from residential heating oil tanks are extremely problematic. Cleanup can be expensive (particularly if the oil migrates into the subsurface) and many homeowner insurance policies do not provide coverage. The department has posted information on the Emergency Response web page regarding how to minimize the risk of a spill or release from a residential oil tank at http://www.state.ri.us/dem/programs/director/emerresp/prevent.htm. Spills from electrical transformers comprised 12 percent of the spill events which is consistent with what was observed during FY2006. Oil spills in Narragansett Bay comprised 10 percent of response activities. The category and percentage of spills has remained relatively constant. Figure 4 compares the categories and spill percentages for the last three fiscal years.

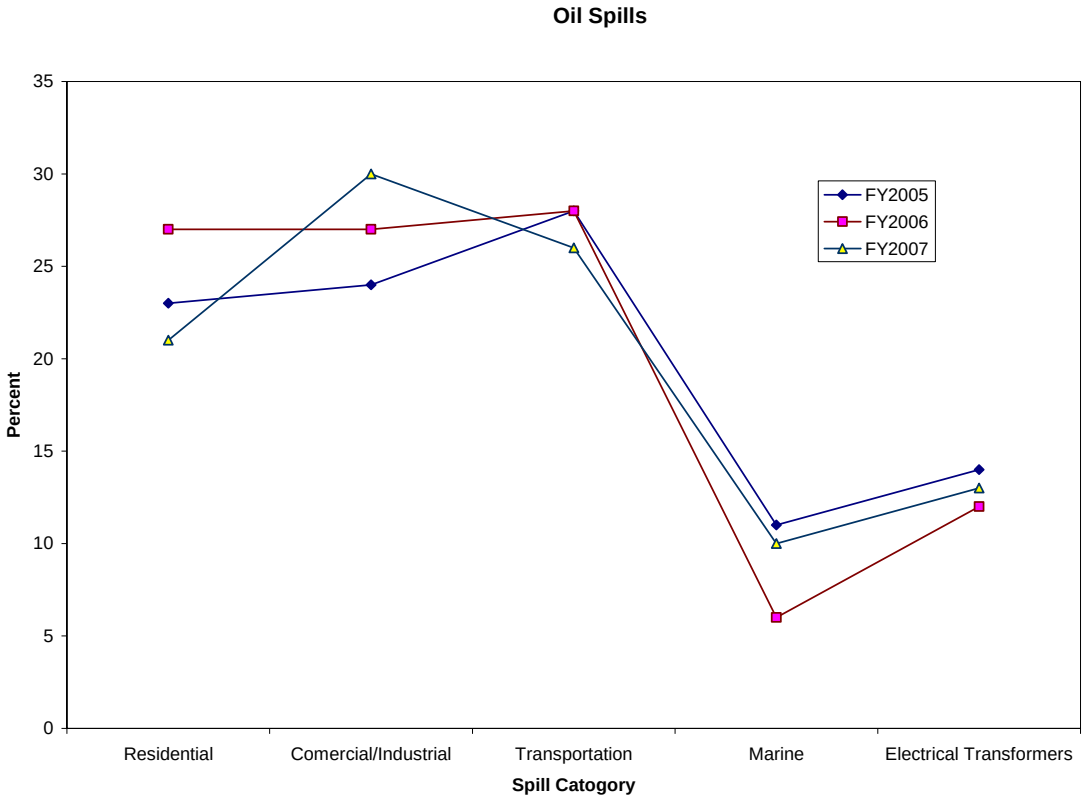

Figure 4. Comparison of Oil Spills FY2005, FY2006 and FY2007

MOTIVA TERMINAL Dock Fire

On July 18th 2006 at approximately 10:30 pm a fire erupted at the Motiva facility dock. The fire occurred as the 600 foot doubled hulled tanker *Nordeuropa,* a Denmark flagged vessel with a capacity of 271,797 barrels, was in the final phase of delivering 75,000 barrels of gasoline to the Motiva facility. There was approximately one half hour remaining to complete product transfer when a storm moves into the area. The storm, in

a period of a few minutes, transcended from light rain to a severe downpour with strong winds and lightning. Initial theories are that the ship or the facility product transfer gantry was struck by lightning resulting in a release of product and ignition.

Figure 5. Fire erupts at the Motiva Dock.

Figure 6. Motiva off loading facility complete engulfed, *Nordeuropa* moves away from dock.

The subsequent investigation into the cause of the fire has disproved the lightning theory. As the storm intensified the *Nordeuropa* was subject to 80 knot winds (< 92 mph) perpendicular to the hull. The intense wind pushed the ship from the dock snapping some of the 12 mooring lines. In addition the 10 inch product transfer line was drawn taught. The cables holding the product transfer line broke. Fuel began flowing

onto the dock below the hose gantry. A blue electrical spark from the damaged gantry ignites the spilling fuel and an intense fire occurs burning the dock and gantry.

Figure 7. Burning gantry; lights of *Nordeuropa* visible.

Figure 8. Fires diminish; burning continues from ruptured dock transfer lines.

The fire further extends onto the ship. The captain takes action to prevent the fire from engulfing the vessel. The *Nordeuropa* crew severs the remaining mooring lines and the

ship moves away from the dock. The fire burning on the dock side of the vessel is extinguished using on board firefighting capabilities.

Figure 9. *Nordeuropa* at *Jamestown* anchorage.

Figure 10. Fire Damage to deck of *Nordeuropa*, Motiva transfer hose remains attached to vessel.

The total time elapsed from the occurrence of the microburst, pushing the ship away from the dock, the start of the fire, and the *Nordeuropa* moving safely away from the dock was only a few minutes. The fire, however, continued to burn through the night, the fire was brought under control and reduced to burning fuel from ruptured dock product lines and burning dock timbers. The timbers and pilings continued to burn and smolder for several days.

Figure 11. Collapsed transfer gantry; fires from burning piers and ruptured product lines.

Figure 12. Arial view of damage to Motiva dock.

It is estimated that approximately 89,000 gallons were released during the incident. The petroleum products released included gasoline, aviation gasoline, diesel fuel, ethanol and heating oil. Most of the product was consumed by the fire. Shoreline and on water surveys were initiated the day following the fire. These surveys continued for several days and were discontinued only when there was no longer a threat of additional releases of product from the Motiva dock. Along with visual observations, water quality samples were collected at established monitoring stations. The data indicated that impact to water quality was minimal with conditions returning to background in a relative short down river distance from the incident. There was a secondary release of approximately 3000 gallons of gasoline that occurred during an attempt to flush product from the damage dock lines. The majority of the gasoline from this secondary release

rapidly evaporated. Water quality sampling confirmed that there was no significant impact from the secondary release.

The fire at the Motiva dock severely damaged the south side off loading equipment. The north side equipment was moderately impacted. Motiva could not accept any deliveries for a period of 12 weeks while interim repairs were made to the north side. Upon completion of the interim repairs the north side of the dock could again accept delivery from barges. During the12 week period Motiva serviced some of it's customers by trucking in supply from other regions. Other petroleum distribution facilities were challenged to make up the short fall. As previously mentioned the temporary closure of the Motiva dock negatively impacted OSPAR fund revenues. The facility could not accept deliveries from Tankers until repairs were completed on the south side of the dock. The rebuilding of the south side facility took nearly 15 months to complete

In the last twenty years, 10 petroleum terminals have closed in Rhode Island, severely reducing instate storage capacity of petroleum products. Had Motiva made the decision not to rebuild the dock and offloading facilities, there would have been a long term impact on the RI fuels supplies. Motiva's determination that it was advantageous to invest the millions of dollars required to rebuild the dock facility as well as develop a bulk ethanol handling facility, has resulted in a state of the art terminal that should serve the needs of the area for many years to come.

Figure 13. Reconstructed dock returned to service; simultaneously accepting deliveries from a barge and a coastal tanker.

PORTS Program

- OSPAR continues to support the Narragansett Bay Physical Oceanographic Real-Time System (PORTS) that began operation in June 2000. PORTS, which is operated by the National Oceanic and Atmospheric Administration (NOAA), is comprised of five monitoring stations located in Narragansett Bay that

monitor stage of the tide, currents, and weather. This data is reported every six minutes to a central receiving computer, which processes the information. Real-time information regarding tides, current and weather can be accessed by telephone at 401-849-8236 and 1-888-301-9983 or on the internet at, http://tidesandcurrents.**noaa**.gov/nb**ports**/nb**ports**.shtml?**port**=nb. NOAA continuously monitors the in-water sensors and conducts data validation. This 24/7 quality control allows NOAA to guarantee the accuracy of the data. As a result, the state-licensed pilots who guide the largest vessels into port in Narragansett Bay are able to make decisions on vessel movements with real-time information. In the last year the host agencies for PORTS including RIDEM have formed a coalition to petition the Federal Government to include the maintenance of the PORTS system as part of the NOAA budget. The following is the body of the letter sent by the coalition to Secretary of Commerce, Carlos M. Gutierrez;

> *"As a coalition comprised of members representing all sectors of the maritime industry, we are pleased that you recognize the importance of international trade and agree with your remarks at the May 2007 International Association of Ports & Harbors' World Ports Conference held in Houston, Texas that ports play an important role in international commerce. As you stated, waterborne commerce is a $1 trillion industry supporting more than 13 million U.S. jobs. More importantly, we agree that ports can only generate economic activity and support jobs if they are well-run, efficient and easy to navigate.*
>
> *The NOAA Physical Oceanographic Real Time System (PORTS) is essential in providing mariners with the oceanographic and meteorological information needed for safe navigation in and out of commercial ports. Therefore it is imperative that funding for PORTS operation and maintenance be included in the federal budget, as authorized by the Hydrographic Services Review Act of 1992. PORTS is used not only by commercial vessel operators, but also by the U.S. Coast Guard, NOAA's Weather Service, passenger ferries, cruise vessels, and recreational boaters, to name a few. Its importance was emphasized recently with the oil spill in San Francisco Bay caused when the COSCO Busan sideswiped one of the towers of the Oakland-San Francisco Bay Bridge. PORTS played a role in confirming the direction of the projected movement of oil, which was helpful during the first 24 hours of the spill when over-flight observations were delayed due to dense fog.*
>
> *Congress recognized the importance of PORTS by including $1.41 million in the Consolidated Appropriations Act of 2008 (Division B) and while this amount is much less than the $4 million required in order to support the operation and maintenance of current and soon-to-be installed sites throughout the country, we are pleased that the benefit of PORTS is recognized by our nation's legislators. The funding is a good value for the nation when compared to the many benefits PORTS provides to various end users.*
>
> *Further, the Department of Commerce is investing a significant amount of money in the Integrated Ocean Observing System (IOOS). PORTS is a major part of the federal backbone essential to the success and growth of IOOS. Without consistent federal funding for the operation and maintenance of PORTS, the IOOS investment is jeopardized when local sponsors are unable to sustain the program.*
>
> *PORTS benefits all sectors of the population. We urge you to include funding for operation and maintenance of this program in the NOAA budget."*

If the efforts of the coalition are successful, the annual operating expenses charged to OSPAR will be reduced by $250,000 dollars.

HABITAT RESTORATION PROGRAM

Annually $250,000 from the OSPAR fund is transferred to CRMC in accordance with RIGL § 46-23.1-3**.** The funding is in support of the Rhode Island coastal and estuarine habitat restoration trust fund. The following short project descriptions are taken from the CRMC web site. Additional information can be found at http://www.crmc.state.ri.us/

Town Pond (Boyd's Marsh) Salt Marsh Restoration, Portsmouth, RI

The Town Pond project area is a 40-acre salt pond complex owned by RIDEM and located between Anthony Road and the south shore of Mount Hope Bay in Portsmouth, RI. The U.S. Army Corps of Engineers has identified the Town Pond project site as eligible for federal restoration activities under Section 1135 of the Water Resources Development Act of 1986 (PL 99-662). The Narragansett Bay Estuary Program (NBEP), R.I. Department of Environmental Management (RIDEM) and the Corps worked with federal, state and local partners through the R.I. Habitat Restoration Team to develop a restoration plan for Town Pond. The project features an innovative restoration design and is the largest wetland restoration project undertaken to date on Narragansett Bay. The design, engineering and permitting phases of the project are complete, and construction is underway to regrade approximately 100,000 cubic yards of existing dredge material. The project will restore more than 20 acres of historic salt pond habitat that has become a monoculture of the invasive reed *Phragmites australis.* This will be accomplished by regarding approximately 100,000 cubic yards of existing dredge material that was disposed at the site as part of a navigational improvement project around 1950. The project will also restore fringing wetlands, coastal grassland habitat, and public access to the shoreline, improving spawning habitat for winter flounder as well as critical habitat for a variety of valuable estuarine plants and animals, including oysters, blue crabs, menhaden and waterfowl such as brant. Additional benefits of the project include the protection of nearby freshwater resources, continued maintenance access to existing electric transmission lines, and improved public access and viewing of the restored habitat. Overall, the project will result in an improvement of the estuarine environment of Mount Hope Bay and Narragansett Bay

Gooseneck Cove Salt Marsh Restoration, Newport

Gooseneck Cove is a city-owned, 63 acre salt marsh and open water cove bordered by Block Island Sound in Newport, RI. The cove is tidally restricted by three structures: the Ocean Drive Causeway, a small dam,

and an unimproved dirt road (Hazard Road). These restrictions impound freshwater and restrict salt water flow in and out of the upper cove, which exhibits signs of habitat and water quality degradation. The goals of this restoration project are to restore the salt marsh plant community, to prevent future subsidence of the marsh, and to improve the cove's water quality by restoring tidal flushing of the cove. The project will also improve public access to the northern cove area for recreational activities such as bird watching, crabbing, and launching canoes and kayaks. These goals will be accomplished by implementing one of several restoration alternatives developed by NOAA and professional consultants. The restoration alternatives include resizing a culvert at Ocean Drive, removing the dam structure and resizing the culvert at Hazard Road, or raising Hazard Road. The preferred restoration alternative will be selected in consultation with the project partners. CRMC funds will be used for construction of the preferred restoration alternative.

Jacob's Point Salt Marsh Restoration, Warren

Jacob's Point salt marsh is a 47 acre marsh along the Warren River in Warren, RI, that is owned by the Warren Land Conservation Trust. The site was identified as a potential restoration project in 1996 through Save the Bay's salt marsh evaluation program. It includes high and low salt marsh communities, *Phragmites australis,* open water and mudflats. Tidal flow into the interior of the marsh is restricted by an earthen footpath with two collapsed stone culverts across the middle of the marsh. This combined with an increased amount of freshwater runoff entering the marsh due to increased development throughout the watershed in the past 20 years has caused a documented increase in *Phragmites australis* in the southern portion of the marsh. It was determined from maps developed by Save the Bay that during the two-year period from 1997 to 1999 the average lateral expansion rate of the *Phragmites australis* was 1.3 meters. The goals of this restoration project are to reintroduce tidal flow to the marsh to reestablish the characteristic high and low marsh plant communities, to decrease the height and vigor of *Phragmites australis,* reduce the mosquito production in the marsh and increase use of the marsh by fish, shellfish and aquatic birds. This will likely be accomplished through removal of sections of the earthen footpath and excavation of choked tidal creeks. A hydrologic model for the site is being finalized by NRCS, and will provide the basis for project engineering plans. Public access to the marsh will be enhanced through continued use of the foot path, educational programming and signage.

Atlantic Mills Fish Passage Restoration, Providence

Atlantic Mills Dam is located at the former Riverside Mills site. The goal of this project is to restore fish passage at this location. Preliminary surveys by state and federal fisheries biologists have found suitable habitat and

conditions for river herring (blueback herring and alewife) and possibly American shad in the lower Woonasquatucket River. Restoration of river herring to the Woonasquatucket River will provide ecological benefits to the river and upper Narragansett Bay by restoring historic anadromous fish spawning and rearing areas. This project is part of a larger restoration effort that will enhance depleted spawning populations of river herring and possibly shad which are an important forage base recreationally and important to pelagic species such as striped bass and bluefish.

Low Ground Pressure Utility Vehicle, (DEM)

The rubber tracked, low-ground-pressure (LGP) utility vehicle that will be purchased with the awarded funds will be used to transport soil excavated from salt marsh water management projects to upland disposal sites. It can also serve as a platform for spraying herbicide as part of *Phragmites* control projects. The machine will be available to salt marsh restoration projects being conducted in Rhode Island at limited or no cost.

Third Beach Dune Restoration, Middletown

This project site is owned by the Norman Bird Sanctuary (NBS) and is located between Third Beach Road and the Sakonnet River in Middletown. In 2003 with tremendous community support, NBS purchased 23 acres of environmentally sensitive beach, dunes, marshland and grasslands, to be preserved as protected conservation land. NBS has developed a comprehensive management plan for the area with assistance from Dr. Numi Mitchell, a biologist from the Conservation Agency. Several restoration activities have taken place since 2003 to improve and restore the wildlife habitat value of the site, including the replanting of native grasses, the removal of twelve cottages located on the dunes, and the installation of guardrails to minimize human disturbance to the dunes. The goal of this project is to create a protective sand berm along Third Beach Road to hold and form the dune and create a visual obstruction for beach users, limiting access to the beach through a designated footpath. This will be accomplished by moving over 200 cubic yards of sand to the restoration site, and planting American beach grass and native shrubs along the berm. The vegetation will help to prevent erosion and preserve the coastal dune habitat, which is utilized by piping plover, an endangered species, among other species.

Rhode Island Oyster Gardening for Recreation and Enhancement, Greenwich Bay, Bristol, Prudence Island

The goal of this project is to successfully reintroduce the American oyster as a viable population in Narragansett Bay and the South County Ponds and to improve the habitat quality of the bay bottom through establishing oyster beds throughout the area. Oysters are known to remove nutrients

contaminating the bay from land-based sources. They also contribute a three-dimensional structure to the bay bottom thereby enhancing the complexity and quality of the benthic habitat. The RI-OGRE program recruits volunteer coastal landowners to assist in rearing juvenile oysters to eventually be free planted in established oyster beds.

Monitoring and Management of Rare Plant, Statewide

This project has two components: 1) Surveys will be conducted in Rhode Island's coastal habitats to update information and assess management needs for rare plant populations; and 2) An invasive species removal project will be performed as a "case study" and to benefit rare plant species at a site located on a rocky shore in Narragansett. For the past fifteen years, NEWFS has collaborated with the Rhode Island Natural Heritage Program (RINHP), New England Plant Conservation Program, and the Plant Conservation Volunteer Corps to conduct field surveys and monitor rare plant populations around the state. The first component of this project will build on these past collaborations to survey and evaluate management needs for rare plant populations in coastal and estuarine habitats. The species to be surveyed will include plant taxa that are listed as rare or endangered by RINHP and RIHNS, and occur in salt marshes, estuaries, rivers, coastal plain ponds, beaches, and dunes in the state. For the second project component, invasive species will be removed from an ecologically important rocky shore natural community located off of South Ferry Road in Narragansett using mechanical removal and/or target-specific chemical applications of herbicide. The site is home to state listed and globally rare plant species, and is currently overrun with three highly invasive non-native species: Japanese honeysuckle (*Lonicera japonica)*, Asiatic bittersweet *(Celastrus orbiculatus),* and black swallowwort (*Cynanchum louiseae).* The goal of the project is to further knowledge of Rhode Island's coastal flora conservation needs and to provide an educational hands-on opportunity to protect the state's coastal ecosystems that will benefit future restoration efforts.

Stillhouse Cove Salt Marsh Restoration, Cranston

Stillhouse Cove, located on the Providence River, is a salt marsh that was impacted by runoff from surrounding high density development and historic filling. Stormwater runoff discharged into the marsh resulting in sediment accumulation on the marsh surface and the colonization of the sediment by *Phragmites australis.* This project is in its second phase and includes removal of fill material from sections of the upper marsh, treatment of *Phragmites*, and seeding of the upland edge of the marsh with warm season grasses. Habitat fund monies will be used for the *Phragmites* treatment and warm season grass seeding portions of the project.

RI BAYS, RIVERS and WATERSHEDS COORDINATION TEAM PROJECTS

In 2007 the general assembly provided OSPAR funding to the RI Bays, Rivers and Watersheds Coordination Team. The following are short project describing how the funds were utilized in FY2007.

Fixed- Site Network in Narragansett Bay

The network was expanded by two stations in 2005 (Mt. Hope Bay and Quonset), bringing the total to 13 locations: 7 buoys and 6 land-based sites. Eight of the 13 stations are maintained under an agreement between the DEM Office of Water Resources and the University of Rhode Island Graduate School of Oceanography. The network is standardized on YSI equipment that uses sensors to measure water quality every 15 minutes, 24 hours per day. Additional equipment upgrades in 2007 improved network reliability. Data was reviewed weekly as part of DEM's tracking of Bay conditions during May-October. Datasets processed and posted to the web (2003-2005, 2006 pending). In 2007, multiple years of data used by DEM to assess compliance with new criteria for dissolved oxygen in estuarine waters and establish a baseline from which to measure improvements.

Large River Water Quality Monitoring

DEM re-established water quality monitoring on two of the State's largest rivers by contracting with the U.S. Geological Survey in February 2007. Five stations are sampled monthly on the Blackstone and its tributary the Branch River, and the Pawtuxet River for a range of water quality parameters including nutrients and pathogens. Samples are analyzed for metals quarterly. Data undergoes federal quality assurance procedures and then is made available via USGS information system – NWIS. Data is important for evaluating long-term trends and tracking pollutant loadings into the upper Bay from the rivers. Data is used in various state water programs. One station is monitored near the MA/RI state line on the Blackstone in order to help define pollutant contributions from the Massachusetts portion of that watershed. Two others are located near the mouths of the Blackstone and Pawtuxet Rivers in order to be representative of the pollutant loadings from these tributaries into coastal waters.

Rotating Assessments of Rivers and Streams

In 2004, DEM Office of Water Resources revised its sampling design for wadeable rivers and streams and adopted a rotating basin approach. Working within available resources, the design has been applied each

year to different watersheds. Rivers and streams are sampled for physical, chemical and biological (macroinvertebrate) parameters. Data are used in various DEM water programs including assessment decisions and TMDL development. This program was aimed at reducing one of the largest data gaps that existed (no data on 62% of river miles in the state in 2004). To date work has proceeded as follows: 2004-2005- Wood River watershed; 2005-2006 Pawcatuck River watershed (partial); 2006-2007 – Pawcatuck River watershed- remaining portions (Queen); Big River, Flat River and south branch of the Pawtuxet River; 2007-2008 – Remainder of the Pawtuxet River watershed. Now in its fourth cycle, the watersheds in which monitoring approach has been applied comprise approximately 42% of the state area. DEM is in the process of drafting and finishing reports for the Wood River Watershed and Pawcatuck watersheds and awaiting data from one contractor (URI) for the Big River etc. (3rd cycle). Sampling initiated in fall 2007 in the remainder of the Pawtuxet River watershed will continue through next summer. DEM's arrangement with URI to execute this program has ended and DEM is currently working with DOH Laboratory to obtain water chemistry sample analyses.

Streamflow Gage Network

The network of continuous streamflow gages was expanded based upon a report which prioritized needed stream gages (DEM/WRB/USGS, April 2004) and updated input from the RI Environmental Monitoring Collaborative. Three permanent gage stations were installed by USGS (under contract to DEM): Blackstone River at Pawtucket, Hunt River at Davisville, and the Pawcatuck River at Kenyon. Several other stations were upgraded to real-time capability. Data from the gages are used by multiple agencies for a number of programs including drought management, water quality restoration, permitting etc.

Economic Monitoring

The Rhode Island Economic Monitoring Collaborative was funded to conduct a baseline industry assessment that would measure the size and performance of the nine water-dependent sectors, primarily focusing on employment and wages. The data collected pertained to: Marine recreation/tourism/events/marinas; Commercial fishing/aquaculture/seafood processing, Boat building/ship building/boating-related business; Water-borne transportation; Defense/homeland security/marine technology; Marine, coastal & inland watershed education/research/advocacy; Waterfront real estate; Water-related utilities; other water-dependent businesses. Data will help direct future more detailed economic monitoring (e.g. value chain mapping) in future years.

OUTLOOK AND PROJECTIONS

OSPAR-related expenditures during FY2008 are expected to be similar to FY2007 absent any major spills and associated response needs. The functional capacity to respond will continue to be stressed by the continued reallocation of OSPAR funds. Currently OSPAR is not maintaining a stable fund balance with costs exceeding revenues. The continued fiscal pressure on the OSPAR fund will have a cumulative impact, compromising the ability of the program to perform the basic readiness and response tenants for which it was established.

CONTACT INFORMATION

For further information regarding this report, the activities of the emergency response team or OSPAR, contact Michael Mulhare, RIDEM Emergency Response Administrator, Chief Office of Emergency Response at 401-222-4700 extension 7124 or at michael.mulhare@dem.ri.gov.