

Oil Spill Prevention, Administration and Response (OSPAR) Fund

Annual Report FY 2011



Port of Providence Tri-State Drill

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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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 of 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 2011.

Revenues & Expenditures – FY2011

The OSPAR account started FY 2011 with a balance forward of \$4,667,115. During FY 2011, the \$0.05 per barrel fee resulted in the collection of \$2,082,611 after the ten percent cost recovery fees. Personnel, operating and project expenditures for FY2011 totaled \$1,496,398 that included \$250,000 for PORTS Navigational System for Narragansett Bay as well as a transfer of \$176,000 to Coastal Resource Management Council (CRMC) for the Coastal and Estuarine Habitat Restoration Trust Fund. In addition, \$120,655 was transferred from the OSPAR account to the River, Bays and Watersheds Coordination Teams. A 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 2002.

OSPAR FUND

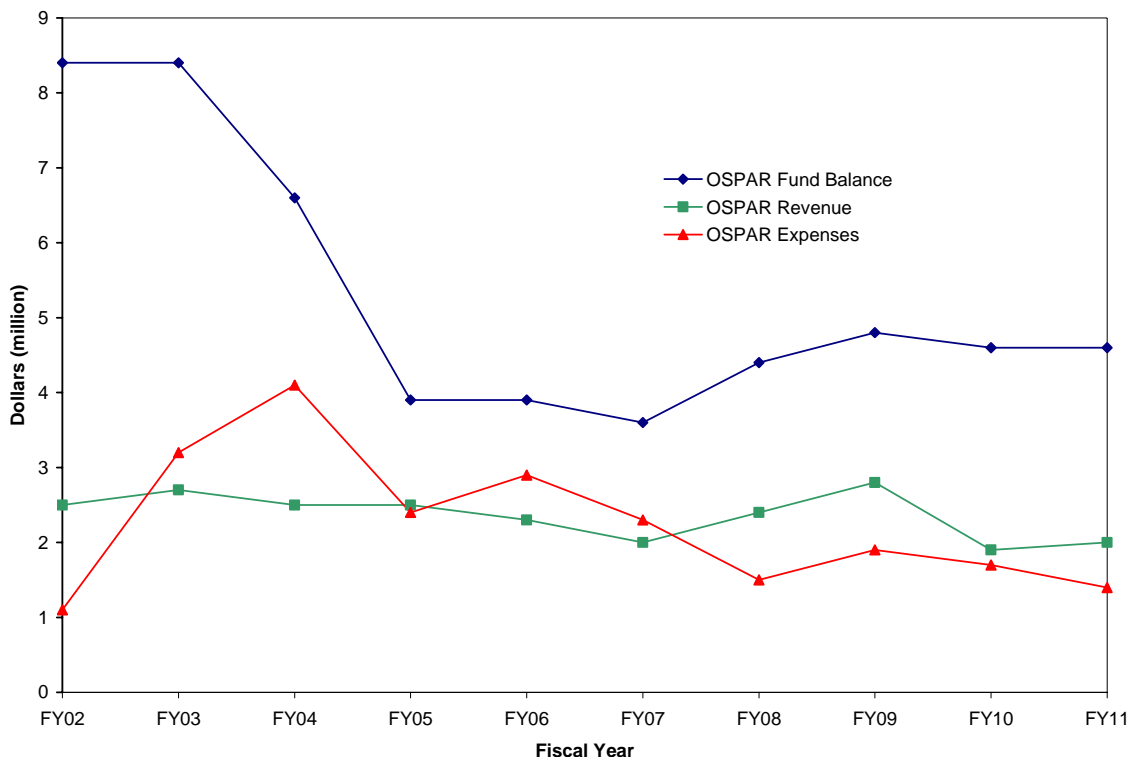


Figure 1. OSPAR Fund

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 OSPAR was 3.2 million dollars in FY2003 and 4.1 million dollars in FY2004.

Previously, net revenue, while relatively constant, had exhibited a declining trend until FY08. This is partially explained by an increase in cost recovery from 7 percent to 10 percent. In FY2011 the revenue and expenses have remained relatively constant.

ACTIVITIES– FY2011

Summary

With regard to pre-spill preparedness, the OSPAR Fund was used in FY2011 for personnel and operating expenses. Personnel costs assigned to the OSPAR Fund included the following: Office of Emergency Response (partial salary of Emergency Response Administrator and full salary of technical assistant) and partial salaries of four first responders; DEM GIS Supervisor (partial); staff from DEM Office of Waste Management.

These salary and benefit costs totaled \$672,090. Major operating expenses charged to the OSPAR Fund included: vehicle readiness and maintenance (\$185,037); emergency response equipment, cleanup services, maintenance and supplies (\$4,114); computer hardware, software, telecommunications and miscellaneous (\$18,660), Pilot Navigation System (\$250,000), Audubon Society Narragansett Bay National Estuarine Research Reserve Coastal Training Program (\$71,919) and Dawley Park building construction (\$154,258). These operating expenses totaled \$683,988.

In FY2011 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 621 emergency response investigations undertaken by the Office during FY2011. The incidents comprised two primary categories, hazardous material responses and oil spills. Sixty-five percent of these responses, a total of 405 incidents, were related to oil spills.

Figure 2 tracks the number of emergency response activities for a ten year period. While there is some annual variation in the number of emergency responses, the trend of the data is now demonstrating a relatively constant average. Activities undertaken by the Department's emergency response team have, on average, been constant since 2001 with annual fluctuations. However, seaweed monitoring continues to be an issue placing ever increasing pressure on the limited available response resources. The downward slide in the last few fiscal years maybe due to the fact that seaweed* related responses have not been included in the tally since it became an issue in 2003.

* The seaweed also known as sea lettuce, or *Ulva Lactuca*, is green algae that grows near and below the low tide mark. Under normal conditions it is beneficial to the environment. However, under certain conditions that may include excessive nutrients and warmer water temperatures, the growth of sea lettuce explodes. When the seaweed dies, wind and ocean currents can push and keep the decaying seaweed to the shoreline where it becomes stranded in the shallow water and forms large green mats. As these mats decay they can produce hydrogen sulfide (H_2S), a gas with a foul or rotten egg odor. The decomposition of excessive sea lettuce in the Conimicut section of Warwick, the Still House Cove section of Cranston and the Riverside Terrace section of East Providence has resulted in the production of significant concentrations of H_2S gas. These episodic H_2S events create nuisance conditions and potential health concerns for those living in the area with compromised respiratory functions. Since the establishment of the program in 2003 several hundred cubic yards of sea lettuce have been removed from the environment and composted by the local cities impacted. From 2003 until 2006 the sea lettuce had been removed manually with OER personnel and prisoners. In 2006 the OER purchased a surf rake and John Deere tractor to more effectively remove the sea lettuce from the beaches, reducing the potential for the formation of H_2S gas. Under the auspices of the OER, two seasonal employees, an equipment operator and a technical support intern, work the beaches to remove the seaweed during the summer months. As a result, complaints have been addressed by the ongoing seaweed removal and continuous field monitoring but have not been included in the tally.

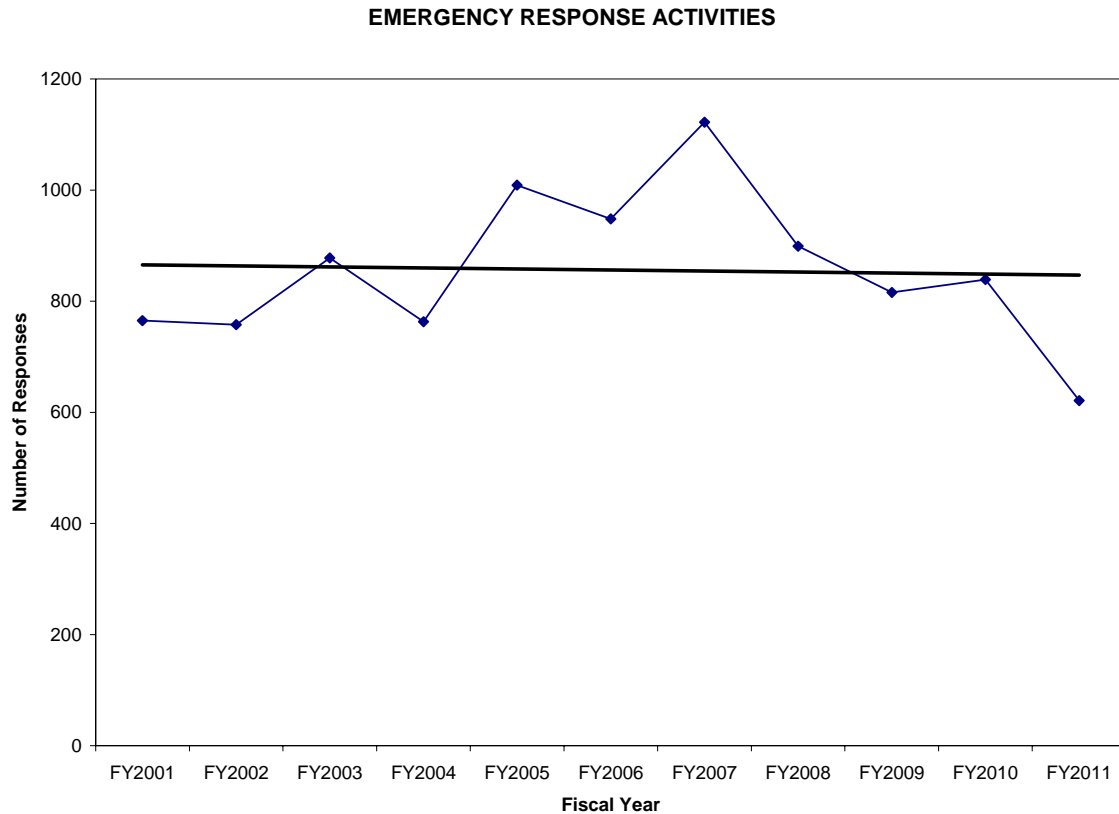


Figure 2 Response Activities

FY2011 EXPENDITURES

Personnel

- Partial salary and benefits of DEM Emergency Response Administrator
- 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 geographic information system (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 spatial 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 Waste Management.

Personnel Costs

	\$ 672,090
Major Operating Expenses	
Vehicle Maintenance & Readiness	\$ 185,037
Cell phones, pagers, IT Support	\$ 18,660
Supplies: Office, Scientific, Miscellaneous	\$ 4,114
Emergency Response Vehicle Purchase/Replacement	\$ 0.00
Equipment, Repairs & Cleanup Services	\$ 0.00
	<hr/> \$ 207,811
Capital Projects	
Narragansett Bay PORTS (Pilot Navigation System)	\$ 250,000
Design/Construction/Utilities Dawley Park ER/OSPAR	\$ 154,258
	<hr/> \$ 404,258
Other Projects supported by the OSPAR Fund	
Coastal and Estuarine Habitat Restoration Trust Fund	\$ 176,000
Rivers, Bays & Watershed Coordination Team	\$ 120,655
Audubon Society – Narragansett Bay Estuarine Program	\$ 71,919
	<hr/> \$ 368,574
Total OSPAR Expenditures	\$1,652,733

OIL SPILLCLEAN-UP ACTIVITIES

The DEM emergency response team responded to 405 oil spills during FY2011. The amount of oil products and oil spill debris remediated or removed from the environment during these response activities was estimated to be **12,011 gallons** of oil and **846 tons** of oil spill debris. The remediation work was completed by the OER, the OER contractors, the responsible party or their contractor. To ensure compliance with state and federal regulations, the work was conducted under the OER purview.

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

FY 2011

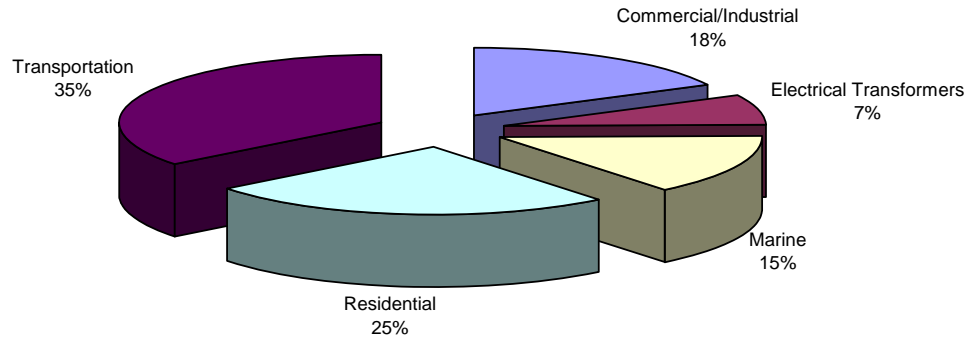


Figure 3. FY2011 Oil Spills by Category

The greatest percentage of spills, 35 percent, was related to transportation incidents. Residential oil spills comprised the next largest category accounting for 25 percent of department responses. Fuel oil spills in residential areas can contaminate drinking water wells, ground water, and soil; foul septic systems, requiring their replacement; cause odor and health problems in the home; and contaminate storm water drains, sewers, drainage ditches and surface water tributaries that lead to the Atlantic Ocean. 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.dem.ri.gov/news/2010/pr/0215101.htm>. DEM continues to conduct public outreach through press releases, television special reports and presentations to oil companies via insurance seminars. DEM also cooperated with the Oil Heat Institute to provide pertinent information to the oil service industry. Commercial/ Industrial spills accounted for 18 percent of the spill events in FY2011. Oil spills in Narragansett Bay comprised 15 percent of response activities. Spills from electrical transformers comprised 7 percent of the spill events. Personnel from the OER met with some of the electric companies to discuss electrical transformer issues and to assure the proper cleanup of mineral oil dielectric fluid (MODF) and PCB contaminated transformer oil. The category and percentage of spills has remained relatively constant.

Figure 4 compares the categories and spill percentages for the last three fiscal years.

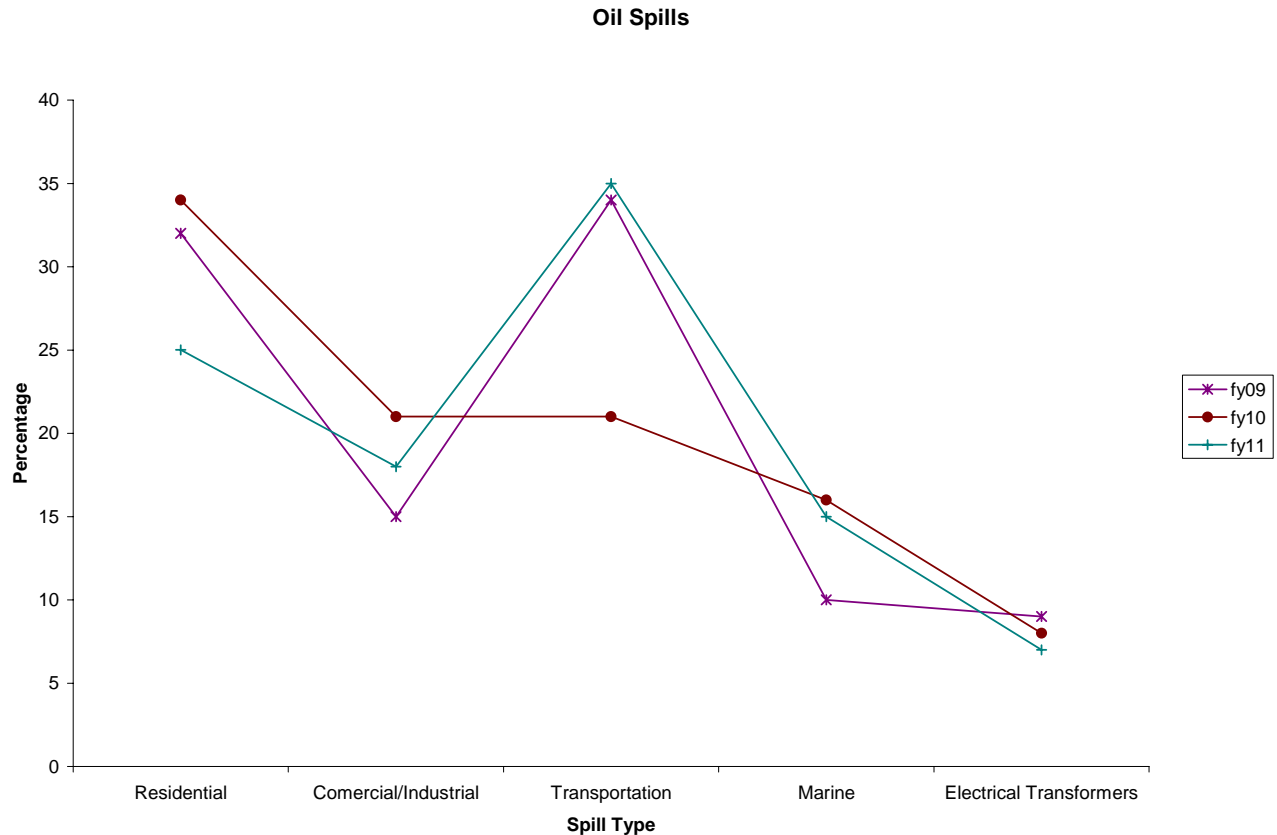


Figure 4 Comparison of Oil Spills FY2009, FY2010 and FY2011

Port of Providence Tri-State Drill Full Scale Exercise (FSE) 2010

PROVIDENCE – The Department of Environmental Management’s Office of Emergency Response, City of Providence, along with officials from Massachusetts and Connecticut, participated in a Tri-State Hazardous Material (HAZMAT) Response exercise at the Port of Providence on Saturday, September 10. The full scale exercise (FSE) was developed by the Exercise Planning Team chaired by James Ball the RI Environmental Response Administrator. During the FSE Mr. Ball was the Lead Exercise Controller and he was assisted by the Fire Venue Controller (Chief Dillon of Providence Fire), the HazMat Venue Controller (Steve Preston of Woonsocket Fire Department), the Motiva Venue Controller (Michael Sullivan of Motiva), Staging Venue Controller (James Gaffey of EPA) and Safety Controllers from OSHA.

The full-scale exercise began at 9 a.m., and simulated a train derailment in a multijurisdictional area. Two separate venues were used to allow first responders to practice response techniques associated with a train wreck involving a HAZMAT incident. Providence & Worcester Railroad provided six rail cars for the exercise to keep the drill as realistic as possible. Participants utilized a previously-developed incident action plan and communications plan as they responded to the simulated incidents.

This exercise allowed emergency responders from multiple states to review their interagency coordination plans in response to a multi-jurisdictional, multi-disciplinary fire and HAZMAT incident. This was the first time that the three states had come together to plan for and participate in a full-scale exercise.

One exercise venue was used for the fire response and the other was used for the HAZMAT exercise. The location of the ethanol fire response was at the end of Terminal Road within the Port of Providence restricted area.

Figure 5 RI and Connecticut Fire Fighters apply notional foam



The fire response required the simulated use of an alcohol resistant-aqueous film forming foam. Six foam task forces composed of fire departments from Providence, Johnston, Woonsocket, Valley Falls, East Providence and Connecticut were used to control the simulated ethanol railcar fire from the land side. Three marine strike team vessels from Rhode Island were used to pump water from Narragansett Bay to supplement onshore water supplies.



Figure 6 RI and CT HazMat Teams applying a patch kit to stop a notional leak

The HAZMAT response simulated procedures to assess and mitigate a leaking rail car not directly involved in a fire. The simulated train derailment was located at Fields Point Drive. The cause of the derailment was unknown. The derailed cars contained ethanol. Ethanol is a highly volatile, flammable, colorless clear liquid and unlike gasoline, is completely soluble in water rendering containment boom and absorbent boom virtually useless during a release. More than two million gallons of denatured ethanol move through the Port of Providence area by rail, barge, and tractor-trailer every week.

First responders participating in the exercise had an opportunity to tour the Motiva facility. Motiva manages a substantial amount of ethanol at its Providence facility and has been designed with many safeguards to help prevent a major fire at its facility. Representatives from Massachusetts and Connecticut were very impressed with the operation and indicated that they were going to bring back some of the ideas for new installations in their states.

Locations that were used in the exercise included Conley's Wharf at 200 Allens Ave., which served as the Staging Area; the Motiva facility at 520 Allens Avenue; Fields

Point Drive, which was used for the HazMat venue and Terminal Road, which was the site of the fire response portion of the exercise.

Exxon Mobil Drill

On August 2 and 3 the DEM Office of Emergency Response (OER) participated in an industry-led oil spill response Functional Exercise (FE) as part of the Preparedness for Response Exercise Program (PREP) with the United States Coast Guard (USCG), United State Environmental Protection Agency (EPA), Rhode Island Emergency Management Agency (EMA), RI Exxon Mobil North American Regional Response Team (NARRT) and many more federal, state, local government agencies and private contractors. The

exercise involved the Exxon Mobil East Providence, Rhode Island terminal, and it included the establishment of a Command Post at the Biltmore Hotel in Providence to address a notional spill of 210,000 gallons of diesel oil. Over 300 responders participated in the FE that consisted of a 210,000 gallon leak at the Exxon Mobile Dock and covered Narragansett Bay from the Hurricane Barrier south to Conimicut Point. The Unified Command group utilized state of the art technologies and software, creating a Common Operating Picture (COP) that clearly demonstrated to all participants exactly what was happening throughout the over 15 square miles affected by the oil spill.

There has not been an oil spill over 10,000 gallons in Narragansett Bay in more than 11 years and this FE was crucial to improving the skill sets of the participating

agencies. State personnel

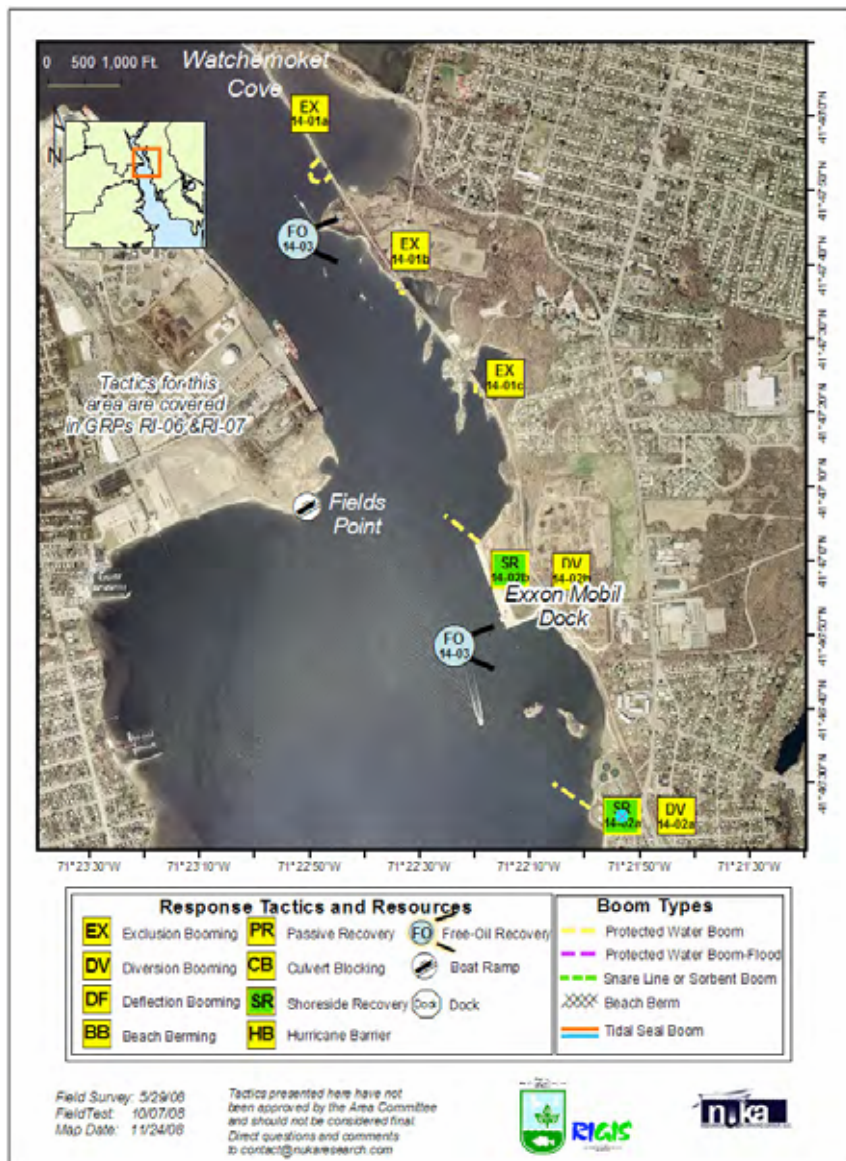


Figure 7 RI GRP Map showing booming locations

filled Incident Command rolls as facilitators, evaluators, Planning Section Unit Leaders, Operation Section Unit Leader and Unified Command, which consisted of USCG (Captain), Providence Fire (Chief), Exxon Mobile (Vice-President) and DEM (Emergency Response Administrator). The VIP list included the Lieutenant Governor Roberts, Mayor Taveras, Commissioner Pare, Coast Guard District Commander, Adjutant General McBride and Congressional staff members on the final afternoon. Mark media were on-site to request information and news briefs, which were provided by Unified Command and evaluated by the contractors hired. The FE culminated in the development of an Incident Action Plan (IAP) that addressed all Unified Command objectives and will be beneficial during actual incidents. The IAP included a Surface Washing Agent Test Use Plan, a Shoreline Cleanup Assessment Technique (SCAT) Plan, Command Message for the media, Organization Chart, News Press Releases and Communication Plan. Exxon Mobil's contractor also completed equipment deployment utilizing the Geographical Response Plan for Rhode Island that was approved by the Area Committee.



Photo by: Paul Bissailon, The Response Group

Figure 8 Boom deployment at the northern end of the Exxon Mobil dock

On August 5th, the contractor deployed boom as indicated in the Watchemoket GRP booming strategies. They deployed 600 feet of 18 inch boom on the northern end of the Exxon Mobil Dock and 600 feet of 18 inch boom east of Pomham Light House.

Capital Terminal Pipe Line Release

On August 31, 2011, while excavating dirt for the new industrial highway, Cardi Corporation working for the RI Department of Transportation (DOT) hit the high pressure pipeline for Capitol Terminal. The line was being used to transfer low sulfur diesel from a barge at Wilkes-Barre Pier up to the tank farm facility located off of Dexter Street. The line was over 1.5 miles of 16 inch pipe which contains over 100,000 gallons during the transfer process. A front end loader hit the buried pressurized pipe shooting diesel 100 feet into the air and spraying the adjacent building as well as Valley Street on the other side of the building. The oil gushed out for several minutes creating a large pool of oil on the right-of-way at the end of Water Street. Within 3-4 minutes the line was shut down and the gushing diesel fuel stopped but not before Valley Street was covered with oil which ran into drains in the street. There was a large body of free oil on the ground at the break site. The operation was to pump the free diesel oil out of the pool and transport it to the terminal



Figure 9 Capitol Pipeline shooting diesel 100 feet in the air.

and later into fractation tanks which were moved to the site. In the meantime cleanup efforts were underway on Valley Street to contain the oil and prevent it from flowing down the storm drain system and into the bay.

On September 1 the Rhode Island DEM (OER), USCG Sector Southeastern New England, East Providence Fire Department and Capital Terminal Company and the potentially responsible party quickly established a unified command to coordinate efforts. Other agencies that assisted with the cleanup included: National Oceanic Atmospheric Administration (NOAA), Local Police, town officials, RI DOT, and USCG Atlantic Strike Team.

This interagency Unified Command, along with several environmental response contractors, performed time critical cleanup activities to recover oil through vacuuming of pooled diesel, high-pressure

flushing of the impacted nearby storm drain system, excavation of oil-contaminated soil, and the installation of six recovery wells.

After all repairs to the pipeline were completed and oil was removed from the pipeline, officials determined that 70,000 gallons of diesel fuel spilled from the rupture. Officials also determined that about 43,000 gallons were recovered from what was spilled and another 1,000 gallons was lost to the atmosphere through evaporation. Approximately 5,680 tons of oil contaminated soil were excavated and disposed of properly. Of the 70,000 gallons released, only about 50 gallons of diesel made its way to the Seekonk River through the storm drain system in the aftermath of the spill. That oil was quickly contained under the I-195 overpass with containment boom and absorbent material. As a result of the cooperation of the agencies involved through the Unified Command, approximately 60% of the diesel fuel spilled was recovered.



Figure 10 pumping the free oil on the ground at the break site.

On September 27, 2011, RIDEM Office of Waste Management was provided a long-term remediation by the responsible party. The plan addressed the remaining subsurface oil in the area surrounding the release site, and the cleanup moved into the remediation phase to continue to minimize the long-term impacts on the environment.

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/nbports/nbports.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. Over the last few years 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. NOAA has not taken over the maintenance expenditures but is still reviewing the possibility.

State-licensed pilots can directly access PORTS information while traversing Narragansett Bay using the Raven Portable Pilot Navigation System purchased with OSPAR funds. The systems have wireless/Bluetooth capability that allows the acquisition of real-time data from PORTS as well as real-time weather information from the National Weather Service. The navigation systems are extremely sophisticated, utilizing a Differential Global Positioning System that accurately and safely determines the position of a vessel being piloted through the bay. The system uses the U.S. Department of Defense Global Positioning System and the Canadian Coast Guard network of differential radio beacons to provide accurate navigation information in conjunction with accurately surveyed maritime charts provided by the U.S. Army Corps of Engineers. It is the only commercially available portable piloting navigation system incorporating U.S. Army Corps of Engineer channel data on customized vector electronic charts with sub-meter positional accuracy necessary for precision navigation in RI waters. The goal of the program is to provide the greatest degree of safety possible for commercial ship traffic in Narragansett Bay and the Ports of Providence and Quonset.

Emergency Response Preparedness

New Building

In FY2011 the Office of Emergency Response continued the site work, which began in 2005, of the former Dawley Park headquarters building. The facility, located on Route 3 Exeter, is ideally suited for the needs of the program. It is centrally located and will provide



needed storage for the department's emergency response equipment. It will also provide a location that can be used for wildlife rehabilitation. In addition, the facility will serve as a remote command center if needed. The office building

was completed in 2010 and the new construction of a four bay metal garage for the storage of the Department's oil skimmers and other response equipment was completed in FY2011. The new building has already been used as a training facility for the OER. Training conducted at the building has included Level A competencies for OER staff and other RI Hazardous Material Teams. The new construction of a four bay metal garage for the storage of the Department's oil skimmers and other response equipment was completed in FY2011.

Training Activities

The Emergency Response team continued to improve its response capabilities through training. During FY2011 team members continued to build on the all hazard model. Members of the Emergency Response team participated in courses, training and exercises that included:

- 8-Hour AWR 147 Rail Car Incident Response Training
- 6-Day All Hazards Incident Management Team Training
- 24-Hour Technician Refresher Training
- 8-Hours Ingestion Pathway Drill
- 3 day Bio-Threat Conference
- 4-Hour Air Monitoring Class
- 8-Hour RIEMA Training Exercise Planning Workshop
- 8-Hour Active Shooter Training
- 5-Hour Rail Car Training
- 8-Hour Hope Valley Equipment Expo and Training
- 8-Hour HazMat IQ Class
- 8-Hour Regional HazMat Team
- 8-Hour Basic Chemistry Class
- 16-Hour USEPA Full Scale Level A Exercise
- 4-Hour Photovac Flame Ionization Detector Training
- 8-Hour Tri-State Functional Exercise
- 5-Day NIMS ICS All-Hazards Planning Section Chief Training
- 4-Hour Univar Full Scale Exercise (FSE)
- 16-Hour USEPA, CST & DEM FSE
- 8-Hour HazMat ID Training
- 8-Hour National Grid Emergency Response to Natural Gas Releases
- 16-Hour Exxon Mobil Functional Exercise
- 8-Hour Port of Providence Tri-State TTX
- 8-Hour HAZWOPER Refresher
- 8-Hour Regional Response Team Meeting
- 24-Hour Plymouth HazMat Training
- 16-Hour Evidence Collection Class

The DEM Emergency Response program also continued to provide training. The training provided included *Hazardous Materials & Criminal Investigation* for the State Police

Training Academy, *WMD Hazardous Material Evidence Collection* with the Cranston Fire Department, *Homeowner Oil Spill Handling* for oil companies, *Chemical Safe Schools* for educators, *Hazardous Materials Recognition & Identification Refresher* for RI DOT and *Environmental Health & Pesticide Safety Education* for the University of Rhode Island.

HABITAT RESTORATION PROGRAM

In June 2002, the RI General Assembly enacted legislation (RIGL 46-23.1) that established a coastal and estuarine habitat restoration program administered by CRMC. Subsidy from the OSPAR fund continues to be transferred to CRMC in accordance with RIGL § 46-23.1-3. The financial support is for the Rhode Island Coastal and Estuarine Habitat Restoration Trust Fund. Habitat restoration projects are selected from recommendations by the RI Habitat Restoration Team established by CRMC, Save The Bay and the Narragansett Bay Estuary Program. Each year the Trust Fund receives \$250,000 from the OSPAR account to fund habitat restoration projects in the state. Since the inception of the Trust Fund CRMC has awarded \$1.87 million for 67 projects, which has leveraged more than \$18 million in matching funds. The following short project descriptions are taken from the CRMC web site. Additional information can be found at <http://www.crmc.state.ri.us/>

Gilbert Stuart Fish Ladder and Eelway Adjustments, South Kingstown

Award: \$1,580

Lead Organization: Gilbert Stuart Birthplace and Museum

Partners: RI Department of Environmental Management

The Gilbert Stuart Birthplace and Museum was awarded funds to remove an Alaskan steep pass fishway, and to reposition the fishway on the dam—which is to be removed and rebuilt—at the head of Gilbert Stuart Stream. These modifications will improve fish passage for diadromous fish species such as alewives and American eel, and will maintain access to 57 acres of lacustrine spawning and rearing habitat at Carr Pond.

Hog Island Salt Marsh Restoration, Portsmouth

Award: \$2,300

Lead Organization: Hog Island Incorporated

Partners: Save The Bay, RI CRMC

This project will restore tidal flow to a currently impounded section of salt marsh on the southeastern side of Hog Island in Portsmouth, RI. The funded project includes excavating beach sand and shell from a tidal creek to allow drainage of impounded water, discourage the growth of *Phragmites australis* and enhance the growth of native salt marsh vegetation. The excavated material will be deposited between the mean high water line and the vegetated area to the east of the creek to prevent the material from migrating back into the creek. The area of salt marsh to be restored is approximately 5 acres.

Shady Lea Mill Fish Passage and Dam Assessment, North Kingstown

Award: \$8,000

Lead Organization: The Mill at Shady Lea

Partners: Save The Bay, RIDEM, Corporate Wetlands Restoration Partnership

The funded project will assess dam removal options at the Mill at Shady Lea in North Kingstown, RI. The long-term goal of the project is to provide fish passage at Shady Lea Mill Dam, restore the mill pond to a natural river channel and to provide fish passage at Silver Spring Lake. This phase of the project is composed of preliminary assessment and design tasks that will allow a better understanding of restoration options at this site.

Fish Passage Improvements to the Palisades Fishway, South Kingstown

Award: \$20,000

Lead Organization: RI DEM

Partners: NOAA, USFWS

The awarded funds will support completion of modifications to the existing Denil fishway and dam flume located at the Palisades Mill off Kingstown Road in Peace Dale, RI. In addition to the fishway repairs, project activities include the installation of an eel ramp. The purpose of the project is to enhance river herring access to over 280 acres of spawning and nursery habitat and provide American eel with over 280 acres of habitat for maturation.

Factory Pond Bypass Fishway, South Kingstown

Award: \$25,000

Lead Organization: Town of South Kingstown

Partners: NOAA, RIDEM, USFWS

This project will make fish passage improvements to a dam and bypass channel on Factory Brook, which discharges to Green Hill Pond, a coastal salt pond in South County, Rhode Island. Green Hill Pond is tidally linked to Ninigret Pond and Block Island Sound via the Charlestown Breachway. The proposed construction work will include dam repair, an emergency spillway on the right bank of the dam, and reconstruction of a bypass channel to afford efficient passage by alewife and American eel. Both the dam and outflow channel were substantially damaged during the floods in spring of 2010.

Goosewing Beach Salt Marsh Restoration, Little Compton

Award: \$27,089

Lead Organization: The Nature Conservancy

Partners: USFWS

The purpose of this project is to restore the ecology of the Goosewing Beach Salt Marsh at Quicksand Pond in Little Compton, RI by controlling the colonization and spread of *Phragmites australis*. This will protect and allow the re-colonization of important native species of coastal marshland vegetation. The control of *Phragmites* will allow for restoration of native coastal shoreline habitat, prevent new invasions that degrade currently available habitat, prevent established *Phragmites* from spreading and creating dense monocultures, and increase the quality and function of habitat for native species. Control efforts will be accomplished through a combination of herbicide applications to kill the *Phragmites*, and mulching of the dead stems to encourage germination of native plants. This will be a comprehensive, multi-year effort. The control of *Phragmites* and the re-establishment or restoration of native vegetation will be carefully monitored,

documented, and shared with the coastal restoration community as a potential model for future restoration projects. The Goosewing Salt Marsh is one of the most prominent coastal features in the Sakonnet landscape. It is a classic coastal marsh associated with a salt pond containing many species of native plants. It supports a complex assemblage of fish, invertebrates, and birds. The total acreage of *Phragmites* to be treated with herbicide is approximately eight acres.

Oyster Restoration and Substrate Enhancement in Ninigret Pond, Charlestown

Award: \$41,031

Lead Organization: The Nature Conservancy

The awarded funds will be used to select sites in Ninigret Pond in Charlestown, RI, for oyster restoration through substrate enhancement. The site selection will be based on review of existing substrate and hydrodynamic data, as well as larvae and spat monitoring. Once optimal sites have been selected, 118 cubic yards of recycled shell or “cultch” will be deployed as artificial reefs to provide a substrate on which oyster larvae can set. Different reef designs will be tested, and monitoring will determine the best method of shell bed construction to restore viable self-sustaining oyster populations in RI.

Fish Passage Improvements to the Main Street Dam and Fishway, South Kingstown

Award: \$45,000

Lead Organization: RI DEM

Partners: NOAA, USFWS, Town of South Kingstown

The awarded funds will be used to complete modifications to the existing Denil fishway located at the Main Street dam in Wakefield. It is expected that the rehabilitation and modification of the existing fishway will provide greatly improved upstream and downstream passage by river herring and American eel. In addition to the proposed fishway repairs, project activities include the installation of an eel ramp and a juvenile fish by-pass channel. The purpose of the project is to enhance river herring access to over 300 acres of spawning and nursery habitat, provide American eel with over 300 acres of habitat for maturation, and ensure safe passage for out-migrating juvenile river herring and eel.

Acquisition of Aerial Imagery and Performance of Field Work to Update Mapping of Eelgrass (*Zostera marina*) in Rhode Island

Award: \$55,000

Lead Organization: Save The Bay

Partners: (RI Eelgrass Task Force) Narragansett Bay Estuarine Research Reserve, Narragansett Bay Estuary Program, USFWS, RIDEM Marine Fisheries Division

This project will update the inventory of eelgrass beds in Rhode Island waters. Save The Bay will work collaboratively with other organizational members of the RI Eelgrass Task Force to acquire and interpret new aerial imagery. Additionally, all agencies will work together to conduct the necessary field work to validate and update eelgrass polygons interpreted from the new aerial imagery. Eelgrass mapping and inventorying are critical to many town planners, state environmental agencies, federal resource agencies and even coastal developers. Mapping is the first step in eelgrass management and restoration.

RI BAYS, RIVERS and WATERSHEDS COORDINATION TEAM PROJECTS

In 2007 the general assemble provided OSPAR funding to the Rhode Island Bays, Rivers and Watersheds Coordination Team (CT). It is a state interagency commission dedicated to the protection, management, restoration, and sustainable development of Rhode Island's fresh and marine water and watersheds. Through strategic coordination of government programs, the CT ensure the well being and sustainable use of Rhode Island's water and watersheds, increases the vitality of our marine economy and water intensive industrial sectors, and prepares Rhode Island for future environmental and socioeconomic imperatives. Additional information can be found at <http://www.dem.ri.gov/bayteam/index.htm>. Listed below are the Strategic Investments by the RI Bays, Rivers and Watersheds Coordination Team to Support a Comprehensive Water Monitoring Strategy for FY2011.

Large River Water Quality Monitoring

2011 OSPAR Contribution: \$78,300 (Contractual for six months)

Other Funds: USGS match

DEM continued its cooperative agreement with the United State Geological Survey to maintain water quality monitoring on three of the State's largest rivers. Six stations were sampled monthly on the Blackstone River and its tributary the Branch River, the Pawtuxet River and the Pawcatuck 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. Three others are located near the mouths of the Blackstone, Pawtuxet and Pawcatuck Rivers in order to be representative of the pollutant loadings from these tributaries into coastal waters.

Streamflow Gage Network

2011 OSPAR Contribution: \$12,315 (operation for three months)

Other funds: USGS federal matching funds, other Bay and Watershed Coordination Team funding

Rhode Island continued to maintain the network of continuous streamflow gages via cooperative agreements with the United State Geological Survey (USGS). Support from the Coordination Team previously allowed three gages to be added to the network in the fall of 2006. These gages were maintained during FY2011 along with seven others also included in the DEM agreement with USGS as well as observations made at groundwater level wells. The streamflow data is made available on a real-time basis via USGS. The data are used by multiple agencies for a number of programs including drought management, water quality restoration, water management, permitting etc.

**Economic Monitoring – Rhode Island Ports
2011 OSPAR Contribution: \$30,040**

The Bays Rivers and Watersheds Coordination Team authorized funding to support collection of economic data related to the operation of ports in Rhode Island and related maritime transportation activities. This was accomplished through a consulting contract with John H. Martin Associates.

Total Coordination Team expenses for FY2011: \$120,655

OUTLOOK AND PROJECTIONS

OSPAR-related expenditures during FY2012 are expected to be similar to FY2011 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. The constant 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 James Ball, RIDEM Emergency Response Administrator, Chief Office of Emergency Response at 401-222-4700 extension 7129 or at james.ball@dem.ri.gov.