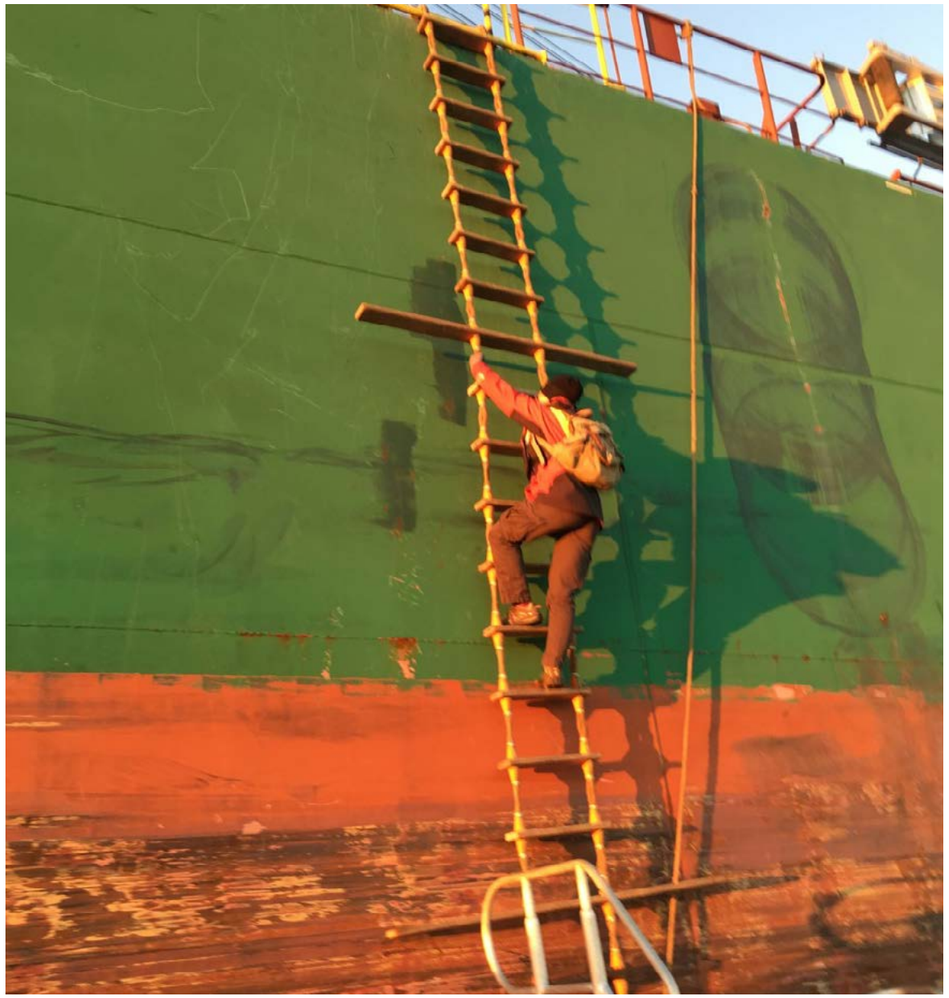
SPILL PREVENTION AND RESPONSE

SP-1

SPILL PREVENTION AND RESPONSE

Continue implementation of advanced technology to improve coordination of ship movements in Tampa Bay



OBJECTIVES:

Secure permanent funding for the PORTS navigational system; track and monitor technological advances in navigation to improve maritime safety; support dedicated funding for Cooperative Vessel Tracking Service; Support development of programming, training and research to improve maritime and port safety, security and sustainability through the Center for Maritime and Port Studies at University of South Florida.

STATUS:

Ongoing.

RELATED ACTIONS:

SP-2 Evaluate and update oil and hazardous material spill response plans for priority preas

FW-6 Preserve the diversity and abundance of bay wildlife

BACKGROUND:

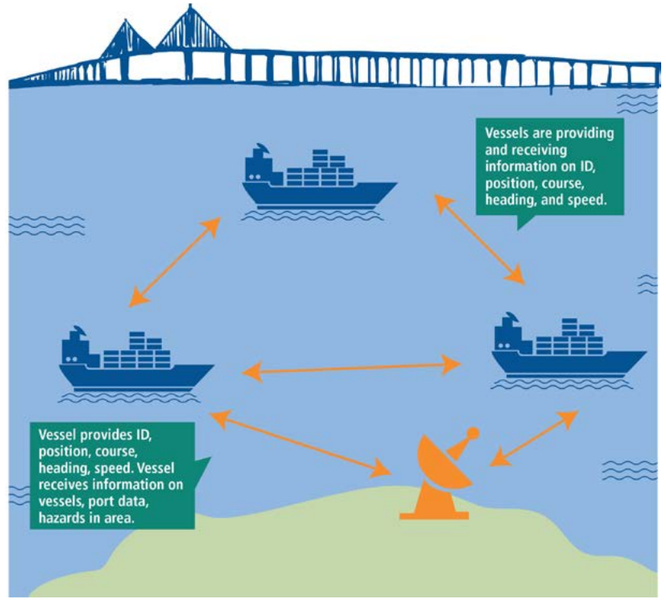
This action has been substantially completed since it was first included in the original Comprehensive Conservation Management Plan (CCMP) for Tampa Bay. However, ongoing funding remains uncertain, including money for navigational enhancements that would expand the versatility of the system and improve the overall safety of maritime operations.

The Physical Oceanographic Real-Time System (PORTS) continues to provide real-time information about tides, winds and currents in Tampa Bay to all mariners, including recreational boaters, through a network of data collection buoys and sensors located at key positions around the bay. PORTS is maintained by NOAA's National Ocean Service and housed at the University of South Florida Department of Marine Science. The system can be accessed online or by telephone.

At left: Carolyn Kurtz is one of 21 highly skilled harbor pilots who guide foreign-flagged and cruise ships through Tampa Bay. Photo courtesy Carolyn Kurtz.

PORTS is currently funded through $150,000 in annual phosphate severance fees paid to Hillsborough County, along with a $4,800 contribution from the Tampa Bay Pilots Association. Funding covers operations, maintenance, system improvements and enhancements.

Significant additions to the original system include additional monitoring sites and recently added fog visibility sensors and wave sensors. Additional ocean acidification monitoring equipment (with funds provided by EPA's Climate Ready Estuaries Program (CRE) will be co-located on an existing PORTS platform in 2017. The current annual budget is marginally adequate for current system needs, but does not allow for additional proposed sensors, including infrared technology to detect visibility near Egmont Key and at the two branches of the Y-shaped shipping channel inside the bay.



How AIS Works: An Automatic Identification System (AIS) deploys small transponders on ships to continuously relay signals about their position to other vessels, shore stations or satellites equipped with AIS receivers. The information is displayed on an electronic chart. AIS technology is universally used in the global maritime industry to prevent ship collisions. Recreational mariners, especially those who cruise long distances, also are adopting its use.

A new wave buoy was installed in 2015 at the Egmont Channel approach, at a cost of about $115,000. It is used by harbor pilots to determine whether it is safe to board their assigned ships. This is currently the only buoy that provides wave heights; as such, it is valuable for professional mariners, ocean researchers and recreational boaters alike.

Recent and future system enhancements will require a funding increase of at least $25,000 per year. Current funding from Hillsborough County cannot be increased and may disappear within the next few years as phosphate mining in the county (and the associated annual

phosphate severance funds provided to the County) winds down. The Tampa Bay Harbor Safety and Security Committee (THSSC) is spearheading the search for permanent funding.

A PORTS tide monitoring station at Port Manatee. The PORTS network collects real-time information on winds, tides and currents to improve safe navigation for mariners. Photo by Mark Luther.

In addition to PORTS, maritime safety has been greatly enhanced by the implementation of a coordinated Cooperative Vessel Traffic Service (CVTS), staffed 24/7 by either Coast Guard or Port Tampa Bay personnel. The CVTS automatically identifies, locates and tracks ships by electronically exchanging data with other nearby ships, base stations, and satellites, similar to an air traffic control system. This information supplements marine radar, which continues to be the primary marine navigation technology. Transitioning the system to a full vessel traffic service, which has greater authority than the current voluntary system, would require additional staff, which are not currently allocated and would require dedicated funding by the Coast Guard.

Tampa Bay is on the cutting edge of another evolution in maritime navigation: Virtual, or electronic, Aids to Navigation (ATONs). Virtual channel markers, linked to transponders and Automatic Identification System (AIS) displays now on all large vessels, may eventually replace physical buoys and markers, with their ongoing maintenance/repair costs and safety concerns. Tampa Bay is one of a handful of pilot sites where the Coast Guard is testing virtual ATONs. Full implementation throughout the bay would cost an estimated $4 million, and likely would require funding through federal sources other than the Coast Guard, or through the local port/maritime community. The cost for smaller commercial vessels (such as charter fishing or sailing boats) and recreational boaters to upgrade to the AIS-integrated navigation systems necessary to utilize virtual ATONs is an important consideration.

Research into future tools to reduce the potential for ship groundings or collisions; improve port and vessel security; and foster the overall, long-term sustainability of Tampa Bay's economically important maritime commerce is being assisted by the development of a new Center for Maritime and Port Studies at University of South Florida. The Center will support research into maritime technologies and train the next generation of maritime professionals, with environmental sustainability as a key component of instruction.

STRATEGY:

Activity 1 Continue to track and support permanent funding and enhancement of PORTS through local, state, federal or private funding sources.

- Explore potential for funding by all three counties bordering the bay, by consortium of maritime industries and area ports, through state-administered sources such as the Coastal Protection Trust Fund, or a combination of those. Stopgap temporary operating expenses could be sought through RESTORE Act funding components.
- Leverage maintenance and operation of existing PORTS stations with enhancements to other needed monitoring programs, such as monitoring of ocean acidification or the Gulfwide sampling network coordinated by the Gulf of Mexico Alliance.

Responsible parties: Tampa Harbor Safety and Security Committee (lead), Port Tampa Bay, Port Manatee, Port of St. Petersburg, Tampa Bay Pilots Association, Hillsborough, Pinellas and Manatee counties, maritime industries, USF College of Marine Science (PORTS ocean acidification monitoring platform), Agency on Bay Management (advocacy and support for funding)

Timeframe: Ongoing

Cost and potential funding sources*:* $$$ Trust funds, grant funds, permanent funding from responsible parties; EPA CRE funds for ocean acidification monitoring

Location: Baywide

Benefit/Performance measure: Safe maritime operations and vessel movements; in-bay monitoring from PORTS platforms

Results: Improved protection of bay waters, wildlife and economy by avoiding ship groundings and collisions; improved understanding of water quality status from mid-bay continuous monitoring

Deliverables: Annual report on status of operation and funding of PORTS presented to ABM *(concurrent with report on CVTS as noted in Step 1)*

Activity 2 Continue to monitor implementation of Cooperative Vessel Traffic Service. Explore potential for full-time dedicated staffing.

Responsible parties: Coast Guard (lead), Port Tampa Bay, Agency on Bay Management advocacy and support for funding

Timeframe: Ongoing

Cost and potential funding sources: $$$-$$$$ based on salary estimates for 3-4 civilian positions to implement and maintain the Cooperative Vessel Traffic Service; possible funding through Coast Guard

Location: Baywide

Benefit/Performance measure: Safe maritime operations and vessel movements

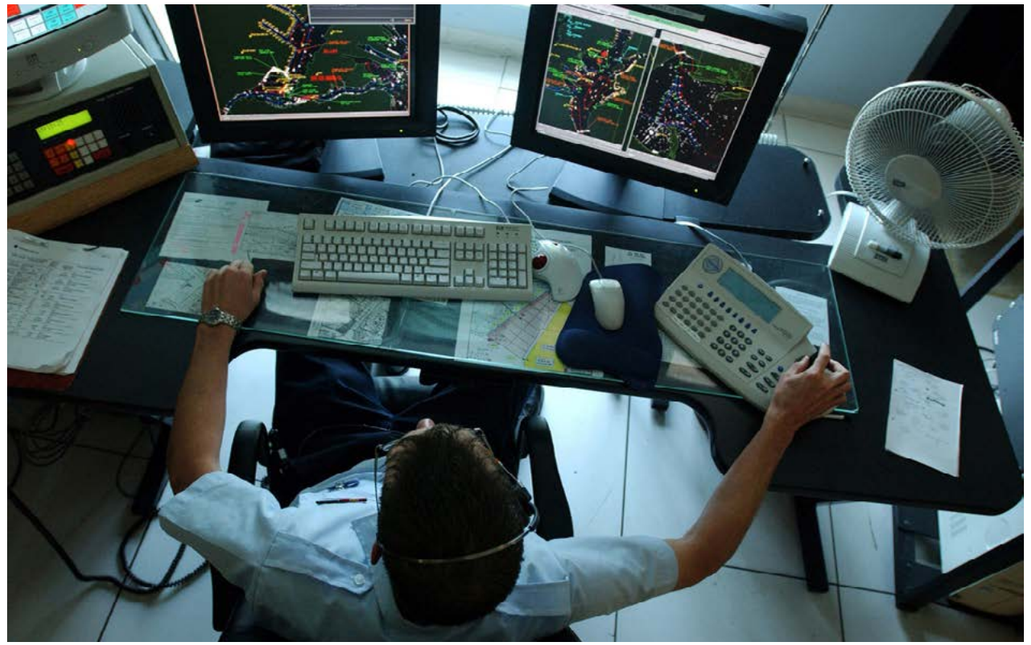
Results: Improved protection of bay waters, wildlife and economy

Deliverables: Annual report on CVTS presented to ABM (possibly concurrent with annual report on status and needs of PORTS)

Activity 3 Support implementation of new navigation technologies, including use of electronic, or "virtual" channel markers, as appropriate in Tampa Bay.

Responsible parties: Coast Guard (lead), HSSC, Port Tampa Bay, Port Manatee, Port of St. Petersburg, Tampa Bay Pilots Association

Cruise ships are an increasingly important segment of the maritime portfolio. Photo courtesy Port Tampa Bay.



A Coast Guardsman managing maritime traffic using AIS and radar. Photo courtesy U.S. Coast Guard.

***Timeframe**:* pilot project underway now; additional implementation pending evaluation

***Cost and potential funding sources**:* $$$$ Responsible Parties; potential grant funds

Location: Baywide

Benefit/Performance measure: Innovative, cost-effective technology to improve bay waters and economic viability.

Results: Enhanced knowledge of bay conditions for safe vessel operations.

Deliverables: Virtual channel markers and associated access to baywide system.

Activity 4 Support development of programming, training and research to improve training on maritime and port safety, security and sustainability through the Center for Maritime and Port Studies at University of South Florida.

Responsible parties: University of South Florida, Port Tampa Bay

Timeframe: Ongoing

Cost and potential funding sources: $$$$ NOAA, NSF, RESTORE Grants

Location: Center located in Tampa, with baywide reach and benefits

Benefit/Performance measure: Improved knowledge of port safety and environmental sustainability issues by maritime personnel.

Results: Improved protection of vessels and bay waters; enhancement of environmental sustainability at Tampa Bay ports.

Deliverables: Interdisciplinary training and certificate program through the Center for Maritime and Port Systems, University of South Florida.

SPILL PREVENTION AND RESPONSE

SP-2

SPILL PREVENTION AND RESPONSE

Evaluate and update oil and hazardous material spill response plans for priority areas

OBJECTIVES:

Monitor implementation of oil and hazardous material spill response plans. Encourage greater participation of bay area environmental community in review of Area Contingency Plan. Improve communication between stakeholders regarding planning and response for spills. Support maintenance of pre-staged equipment and deployment training for priority areas in the bBay.

STATUS:

Maintain and expand action to encourage greater communication and participation among stakeholders, including increased engagement between United States Coast Guard, spill responders and the environmental community and periodic training for partners and volunteers.

RELATED ACTIONS:

SP-1 Continue implementation of advanced technology to improve coordination of ship movements in Tampa Bay

PA-2 Provide for and manage recreational uses of the bay

FW-6 Preserve the diversity and abundance of bay wildlife

PE-1 Promote public involvement in bay restoration and protection

BACKGROUND:

No major oil spills have occurred in Tampa Bay since 1993, when a three-vessel collision at the mouth of the bay spilled 300,000 gallons of oil. The last major chemical spill was in 2004, when 65 million gallons of acidic process water was released from a containment system at the Mosaic fertilizer manufacturing plant into Archie Creek and Hillsborough Bay during Hurricane Frances.

At left: Extensive mangrove islands and seagrass beds place Hillsborough County's Cockroach Bay Aquatic Preserve at high risk of significant damage from oil spills.

The United States Coast Guard Area Contingency Plan (USCG ACP) is the guiding document for response and cleanup of oil or other hazardous material spills in Tampa Bay. Now completely digital, the ACP comprehensively describes response protocols, provides an inventory of equipment and personnel and identifies sensitive areas and natural resources. It is reviewed annually, and individual elements are updated as needed. A full-scale test of the Plan is conducted every four years, at a cost of more than $100,000, with smaller "tabletop" tests done more frequently.

Spatial analysis tools developed by the Florida Fish and Wildlife Conservation Commission (FWC) for the Florida Marine Spill Analysis System are an important component of the Plan. The tools allow users to view geographic data, maps and imagery depicting sensitive ecological resources, public beaches and populations — or create custom maps to predict potential spill impacts. The vulnerability of coastal resources to spill impacts is characterized using an Environmental Sensitivity Index, with 10 being most sensitive and 1 being least sensitive. Areas of Tampa Bay considered most at risk from spills include the Cockroach Bay and Terra Ceia Aquatic Preserves, and the waters around Fort DeSoto Park. A powerful feature is the ability to produce real-time maps during a spill; this asset helped coordinate deployment of equipment and personnel in Florida during the 2010 Deepwater Horizon spill in the Gulf of Mexico.

The last major oil spill in Tampa Bay occurred in August 1993, when two barges and a freighter collided near the mouth of the bay, causing a fire on one of the barges. Some 330,000 gallons of heavy fuel oil was spilled, fouling 13 miles of beaches, injuring hundreds of seabirds, and damaging mangroves, seagrasses and salt marshes. Photo courtesy of NOAA.

Unannounced drills to test the region's readiness to respond to a major spill are conducted four times each year by the USCG. These involve agencies across all levels of government, as well as a regional oil spill cooperative of industries that handle hazardous cargo, such as petroleum products and chemicals used in fertilizer processing. The Tampa Bay Regional Planning Council assists with these exercises through the Local Emergency Planning Committee (LEPC). The LEPC also helps to collect and track information about hazardous materials over a 6-county region.

A Tampa Bay Spill Committee composed of representatives of the USCG, local and state environmental agencies, port tenants, law enforcement, and emergency responders meets monthly

The U.S. Coast Guard Air Station in Clearwater provides air reconnaissance and support for spill monitoring and cleanup operations throughout the Gulf of Mexico.

to work cooperatively on ways to reduce spills, including regular inspections of facilities with chemical or petroleum products.

Additionally, facilities that handle anhydrous ammonia have an Ammonia Working Group that meets monthly to review safety and discuss best practices for operation and maintenance.

Spill planning and response also is a key concern of the Tampa Harbor Safety and Security Committee. The staff coordinator of the Agency on Bay Management is a member of this committee; an alternate is needed to ensure consistent representation.

About 8,000 feet of oil boom is pre-staged in four trailers at the Cockroach Bay Aquatic Preserve for rapid deployment and anchoring to prevent oil from reaching sensitive areas. The equipment is old and not regularly inspected or maintained. The most recent training session in deploying the boom was held after the Deepwater Horizon spill. This is the only pre-staged equipment for an ecologically sensitive area within Tampa Bay; other important areas that could benefit from pre-spill planning, equipment storage and deployment training include Weedon Island Preserve, Fort De Soto Park, Terra Ceia Aquatic Preserve and the Richard T. Paul Alafia Bank Audubon bird sanctuaries.

During the 1993 oil spill, Tampa Bay wildfire rescuers gained international attention for their success in rehabilitating oiled birds. Today, there is a potentially severe shortage of locally-based trained volunteers, certified rehabilitators and facilities to handle oiled wildlife, especially seabirds.

Following the Deepwater Horizon oil spill in 2010, TBEP staff provided input to state and federal damage assessment efforts. Tampa Bay monitoring programs provide important baseline information for assessing pre-spill conditions and for predicting spill trajectories in the bay. Baseline monitoring, coupled with regional, state or national modeling efforts (such as NOAA's Operational Nowcast and Forecast Hydrodynamic Model Systems), is a powerful tool for forecasting spill behavior and impacts. Post-spill research being conducted by the University of South Florida, FWC and others is providing new and important insights into the long-term ecological effects of spills.

In general, the Tampa Bay region has made significant strides in spill readiness and demonstrated an admirable spirit of cooperation among public and private interests. More active and consistent engagement with the environmental community will help ensure that up-to-date information about vulnerable coastal resources is incorporated in the ACP, and that the bay's most vulnerable areas and wildlife populations are broadly recognized priorities for protection in the event of a spill.

STRATEGY:

Activity 1 Continue to update the Area Contingency Plan. Conduct drills to test response capabilities. Work with USCG to ensure availability of adequate spill containment equipment to protect the bay's most ecologically vulnerable areas.

Responsible parties: USCG (lead), NOAA, FWC, DEP, local governments/agencies, port tenants, LEPC

Timeframe: Annual review and revision prior to start of hurricane season with comprehensive updates to individual elements as needed.

Cost and potential funding sources*:* $–$$$
USCG or industry sponsors

Location: Baywide

Benefit/Performance measure: Timely updates to ACP. Large-scale test response protocols every 3–5 years. "Tabletop" exercises annually. Unannounced drills annually.

Results: Comprehensive and coordinated spill planning and response will reduce potential for resource damage and facilitate rapid cleanups.

Deliverables: Updated Area Contingency Plan (digital). Full-scale test of ACP every 3-5 years. "Tabletop" tests annually. Unannounced drills four times per year.

Activity 2 Inspect, repair or replace pre-staged boom, absorbent pads and storage trailers at Cockroach Bay Aquatic Preserve. Conduct periodic training workshops for interested partners or volunteers in deploying equipment. Expand pre-spill equipment staging and deployment training to other sensitive areas, including Weedon Island Preserve, Fort De Soto Park, Terra Ceia Aquatic Preserve and the Richard T. Paul Alafia Bank Bird Sanctuary. Work with on-site managers to develop specific plans for identifying most-sensitive areas and barrier or containment plans. Alternatively, rapid-response trailers could be maintained at central locations in each county or stored on port-owned property, ready to mobilize wherever equipment is needed to keep oil from reaching sensitive areas.

Responsible parties: Hillsborough County, Pinellas County, Manatee County, FDEP Aquatic Preserves Program, Audubon Florida, FWC, NOAA, Tampa Bay Watch

Timeframe: Inspection of equipment at Cockroach Bay in 2016. Repair or replacement in 2017–2018, pending funding. Training workshops and pre-staging of equipment in other priority areas beginning in 2018.

Cost and potential funding sources*:* $–$$$
EPC Pollution Recovery Fund, TBERF, USFWS, TBEP Bay Mini-Grant, RESTORE Act grant programs, mitigation activities

Location: Cockroach Bay Aquatic Preserve, Weedon Island Preserve, Fort De Soto Park, Terra Ceia Aquatic Preserve and the Richard T. Paul Alafia Bank Bird Sanctuary

Benefit/Performance measure: Prevention of contamination of highly sensitive habitats through site-specific planning, pre-staging of containment equipment and deployment of responders.

Results: Protection of key locations in Tampa Bay,

including priority parks and preserves, and important bird-nesting colonies.

Deliverables: Site-specific spill containment and response plans. Pre-staged mobile storage units equipped with oil boom and absorbent pads. Database of trained volunteers willing to deploy equipment.

Activity 3

Increase engagement between the USCG, spill responders and the environmental community. Encourage regular participation in the Agency on Bay Management by the USCG. Designate an alternate from ABM to serve on the Tampa Harbor Safety and Security Committee and encourage participation in this committee by additional environmental partners, such as FDEP Office of Aquatic Preserves, Audubon Florida, NOAA and Florida Sea Grant. Encourage ongoing involvement of area environmental managers in Area Contingency Plan reviews and updates.

Responsible parties: USCG, Tampa Harbor Safety and Security Committee, Agency on Bay Management, NOAA, FDEP, Florida Sea Grant, county environmental lands managers

Timeframe: 2017-2018

Cost and potential funding source: No funding required; staff time only

Location: Baywide

Benefit/Performance measure: Improved communication and coordination between spill responders and environmental community.

Results: Better protection of natural resources in the bay.

Deliverables: Area Contingency Plan and other spill planning and response documents.

Activity 4

Support training of personnel and adequate facilities to care for oiled wildlife, especially birds. Conduct training workshops for volunteers in oiled wildlife response, led by experienced local rehabilitators or outside groups with spill response expertise, such as Tri-State Bird Rescue in Delaware.

Responsible parties: USCG, NOAA, FDEP, FWC, ports and port tenants, The Florida Aquarium, Clearwater Marine Aquarium, Lowry Park Zoo

Timeframe: Inventory of local personnel and resources updated in 2017. Training workshops initiated in 2018 and ongoing at periodic intervals afterwards

Cost and potential funding sources: $–$$$$ TBERF or other grants; funding from ports and/or port tenants or NGOs

Location: Baywide

Benefit/Performance measure: A trained corps of volunteers with expertise in capturing and treating oiled wildlife. Adequate facilities, equipment and supplies to house and care for wildlife at temporary "triage" units as well as permanent rehabilitation facilities.

Results: Improved survival rates for wildlife impacted by spills.

Deliverables: Database of trained volunteers. Inventory of locally available personnel, facilities and supplies. One or more permanent seabird rescue facilities in Tampa Bay.

Activity 5

Continue to support research into the long-term impacts of oil spills, projected pathways and distribution of spills in Tampa Bay; and collection of baseline data on resources potentially impacted by spills. Additional monitoring needs are identified in bay Habitats and Research and Monitoring elements of the CCMP.

Responsible parties: NOAA, FDEP, FWC, USF College of Marine Science, Gulf of Mexico Program

Timeframe: Ongoing for specific research related to Deepwater Horizon spill and baseline monitoring programs for seagrasses and other critical coastal habitats

Cost and potential funding sources*:* $$–$$$$ Grant funding through RESTORE Act programs

Ongoing research conducted by the University of South Florida is providing important insights into the long-term impacts of the 2010 Deepwater Horizon spill in the Gulf of Mexico. Photo courtesy of USF.

Location: Baywide

Benefit/Performance measure: Improved understanding of the long-term effects of oil and chemical spills, including toxicological and reproductive ramifications, on the ecological resources of Tampa Bay and the Gulf of Mexico.

Results: Identification and enhanced protection and monitoring of vulnerable resources.

Deliverables: Published research results. Monitoring data collected and evaluated on a regular basis to inform management and protection of bay resources during a spill and restoration or mitigation of impacts following a spill.