

# MPA NEWS



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## Gulf of Mexico Oil Spill: The Experiences of MPA Managers So Far, and What Lessons Can Be Learned

It is mid-July and the Deepwater Horizon oil well blowout in US waters of the Gulf of Mexico is still spewing crude oil from the underground field into the water column. The spill began nearly three months ago, and several million barrels of oil have been released from the seafloor wellhead. Oil company BP and the US Coast Guard continue efforts to shut off the well's flow. The latest efforts involve installing a new cap on the broken wellhead and drilling relief wells kilometers below the seafloor. Neither strategy is guaranteed to be successful.

The spill is an environmental catastrophe. Thick sludge has come ashore in many areas of the US Gulf Coast, oiling wildlife, beaches, and mangroves. BP's heavy use of dispersant chemicals, applied at the source of the blowout, has resulted in large plumes of emulsified oil suspended in the water column. The US National Marine Fisheries Service has closed a large area of its Gulf waters to fishing in order to ensure public safety. (For updates on the fishing closure, go to [http://sero.nmfs.noaa.gov/deepwater\\_horizon\\_oil\\_spill.htm](http://sero.nmfs.noaa.gov/deepwater_horizon_oil_spill.htm).)

There are several dozen MPAs in the US Gulf of Mexico; a full list is at [http://mpa.gov/pdf/helpful-resources/horizon\\_spill\\_mpas\\_june\\_2010.pdf](http://mpa.gov/pdf/helpful-resources/horizon_spill_mpas_june_2010.pdf). While some of the MPAs have experienced direct impacts from the spill, others are still waiting and watching - hoping the currents and weather keep the spill's worst effects from their sites. In any case, each MPA has mobilized a response team and prepared for any impacts from the spill. This month, MPA News hears from three sites on their response so far.

### Breton National Wildlife Refuge

Background: The Breton National Wildlife Refuge is the oldest MPA in the US. It was designated in 1904 to protect its populations of seabirds and shorebirds, which nest on the refuge's Chandeleur and Breton Islands. Among its species is the brown pelican, which was removed from the US Endangered Species List last year following evidence of population recovery.

By James Harris, Supervisory Wildlife Biologist, Southeast Louisiana Refuges, US Fish and Wildlife Service

#### On impacts of the spill

"Of the national wildlife refuges in Southeast Louisiana, the most heavily impacted one at this time is Breton NWR. There has been some direct oiling of the beach/marsh habitats but it is scattered and not as heavy as that found elsewhere along the coast. There has been some oiling of adult pelicans, a small number of pelican chicks, and some royal and sandwich terns. This oiling has been light to moderate in most cases and the birds act and behave normally. No actions are needed at this time to remove birds or clean habitats within the colonies."

#### On management response

"When the spill happened, the first thing we did was conduct a general assessment of the islands, documenting the conditions so that we could come back later and determine if anything had changed. We looked at the number of birds, the species of birds, and any potential early impacts they exhibited, because the birds don't stay on the islands all day - they go out into the ocean to forage for food. So even before oil came to the refuge, the birds could potentially encounter oil or oiled debris farther out into the Gulf.

"Refuge managers took steps to ensure that all possible protective measures that could be taken were deployed in a timely manner. This included the deployment of containment boom, Navy Sea Boom, absorbent boom, and pom-pom boom, as well as the regular maintenance of each of these. The efforts have paid off: the boom has done its job for the most part in preventing large amounts of oil from reaching the islands and impacting the nesting colonies. We monitor the colonies on almost a daily basis now so we can detect changes and take the appropriate action when needed."

#### On lessons learned

"There are several lessons that can be learned from our experience for both planning and management.

"In management:

1. Do all you can to make sure that your areas provide the best quality habitat. Healthy habitat can support more wildlife per unit area and is more resilient if recovery is needed.
2. If protective measures can be built into the area's management plans, do so. By this I mean restoring beaches, marshes, or other habitats where they can act to protect a larger area.
3. If protective measures cannot be built into the system, then choose areas for restoration, intensive management, etc. that are more naturally protected by topography, hydrology, etc.

"In response planning:

1. Response time is key. While we had the benefit of several days and even weeks in some cases to prepare for oil to reach the shore, most times you do not have this luxury. Protective strategies (i.e., identifying your highest priority areas for protection) - and the equipment to implement these strategies - must be readily available and quickly accessible.
2. Work ahead of time with the other agencies and groups that will be involved in a spill response to make sure everyone understands what your needs are and why your needs should be met. Get to know the people involved and communicate.
3. Stay involved during the response. As other issues arise in other areas, you must make sure that your needs do not go unaddressed."

For more information:

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### Flower Garden Banks National Marine Sanctuary

Background: This MPA, off the coast of the states of Texas and Louisiana, is named for its colorful "gardens" of corals and sponges, which provide important habitat for shallow-water Caribbean reef species. The site contains a working gas-production platform. More than two-dozen additional oil and gas platforms are within kilometers of the MPA boundary. MPA News reported on Flower Garden Banks National Marine Sanctuary in the [February 2002](#) and [May 2004](#) issues.

By G.P. Schmahl, Superintendent, Flower Garden Banks National Marine Sanctuary

#### On impacts of the spill

"As of the date of this writing (7 July 2010), the Flower Garden Banks NMS has not been directly impacted by the Deepwater Horizon blowout. The sanctuary is located approximately 320 miles west of the blowout site, and prevailing winds and currents have carried the spilled oil mostly to the north and east. However, recent tropical weather activity in the Gulf of Mexico has facilitated a more westward movement of the spill. NOAA's Office of Response and Restoration has been issuing an oil spill trajectory analysis on a daily basis. This information may be viewed at [www.geoplatform.gov/gulfresponse/index.html](http://www.geoplatform.gov/gulfresponse/index.html). As of 7 July, the edge of the projected 'uncertainty zone' - the area in which models predict oil could be present but has not been seen physically - has reached within 60 miles of the sanctuary. So the potential for impact is of significant concern.

"Spilled oil from the Deepwater Horizon could reach the sanctuary in two primary ways. First, oil could float on the surface from the blowout site. If this were to occur, it is likely that by the time it got to the sanctuary, it would be significantly weathered, and arrive as clumps of emulsified oil and tarballs. As long as the blowout is stopped sometime soon, it is expected that the amount of oil that could reach the Flower Garden Banks on the surface would be limited, and the impact would hopefully be minimal.

"The other pathway of spilled oil is much harder to track and evaluate. The extensive use of dispersants at the blowout site has resulted in a significant component of the oil breaking down into much smaller particles. There is concern that this dispersed oil will enter the food chain in a number of ways, as well as form subsurface plumes that could be transported by deepwater currents in directions quite different from surface currents. If such a plume were to reach the Flower Garden Banks, the impact could be extremely significant, and could cause mortality of the coral reef or deep coral community."

### On management response

"The primary actions that the sanctuary has taken to date are associated with evaluating the existing (pre-oil) condition of sanctuary resources and establishing a sampling program to determine whether hydrocarbon contaminants associated with the Deepwater Horizon blowout have reached this area.

"A number of interagency technical working groups have been created to develop assessment protocols for various components of the ecosystem (birds, marine mammals, sea turtles, marshes, coral reefs, etc.). Each group contains representatives of the primary federal and state natural resource agencies as well as representatives of BP as the responsible party for the cleanup. The first stage of this assessment is to ensure that for those areas that are not yet significantly impacted by the spill, there is adequate baseline information on the status of marine resources to document detrimental changes caused by the spilled oil. The sanctuary is fortunate: there is a long-term coral reef monitoring program that has been in place since the early 1980s.

"The other component of the baseline assessment is to determine what the background levels of hydrocarbon contamination are at the sanctuary. The sanctuary has already collected sediment samples from the three banks within the MPA (East Flower Garden, West Flower Garden and Stetson Banks), and will deploy semi-permeable membrane devices (SPMDs) at the banks as well. SPMDs are passive sampling devices that accumulate organic compounds in an aquatic environment. These will be periodically retrieved and analyzed for the presence of hydrocarbons."

### On lessons learned

"MPA managers must be involved in planning and decision processes related to offshore oil/gas exploration and development in the area of influence for their MPAs. The extent of this area will depend upon a variety of environmental factors (current and weather patterns, etc.).

"In the Gulf of Mexico, this involvement can occur at two levels. The first is during consideration of the environmental analysis and area-wide planning for future oil and gas lease sales. It is at this point that overall policies are established for protection of marine resources and oil spill response. All MPAs and other features of importance should be identified upfront in the oil and gas planning process so that basic levels of protection can be established.

"The second area of involvement must include participation in the review of development proposals within the immediate area of the MPA. In the case of our sanctuary, an agreement with the US Minerals Management Service allows the sanctuary to review and comment on any offshore oil and gas development proposal within approximately 4 miles of its boundaries. This ensures that the sanctuary is aware of all activity in the vicinity, and allows concerns and questions to be raised in the review process. Administrators of MPAs should have good working relationships with the regulatory entities that govern oil and gas exploration so that their concerns can be addressed.

"MPAs must have a monitoring program for their resources of concern so that possible negative impacts related to this oil and gas activity can be identified as early as possible. The Deepwater Horizon incident is an extreme case scenario. It is more likely that areas may be subject to less severe, but perhaps chronic impacts from smaller spills and releases. The monitoring program should be sensitive enough to identify even subtle changes to biological communities."

#### For more information:

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## Florida Keys National Marine Sanctuary

Background: The Florida Keys National Marine Sanctuary contains the third-longest barrier reef system in the world. The sanctuary extends off the southern tip of the state of Florida, and its western boundary is 450 nm from the Deepwater Horizon site. Since the spill first occurred, there have been fears the Loop Current in the Gulf of Mexico would pick up the spilled oil and carry it eastward through the Florida Keys, eventually transporting it northward up the US Atlantic Coast.

By **Karrie Carnes**, Communications Coordinator, Florida Keys National Marine Sanctuary, and **Scott Donahue**, Florida Keys NMS Acting Science Coordinator

### On impacts of the spill

"The Florida Keys have been extremely fortunate with the way Mother Nature has worked so far. There have been no direct impacts yet from the Deepwater Horizon blowout. Oceanic currents and the eddy Franklin, which pinched off from the Loop Current in June, continue to keep oil hundreds of miles away from the Keys.

"Given the distance of the wellhead from the Florida Keys, the forecasts are that any oil product - if it were to arrive here - would be highly weathered and likely in the form of tar balls. In mid-May, tar balls were reported at several locations in the Florida Keys. The tar balls were sent for testing but none were determined to be related to Deepwater Horizon. The US Coast Guard experienced a 400% increase in pollution reports in May in the Florida Keys, and attributed this to an increase in awareness of what tar balls look like and heightened vigilance by the public. Coast Guard investigators have been unable to identify the different sources of the tar balls found to date in the Keys. They may be attributed to natural seeps in the seafloor, or to the more than 2000 large cargo ships and tankers that transit the Florida Straits each month."

### On management response

"In early May, in preparation for the potential need to activate an incident command post in the Florida Keys, the Unified Command [which oversees the national response to the Deepwater Horizon spill - [www.deepwaterhorizonresponse.com](http://www.deepwaterhorizonresponse.com)] identified members of such a command post. These included the US Coast Guard, NOAA's Florida Keys National Marine Sanctuary, US Department of the Interior, Florida Department of Environmental Protection, Monroe County Department of Emergency Management, and BP. The members have since been engaging with each other via teleconferencing, e-mail, and face-to-face meetings to ensure planning efforts are well-coordinated.

"The sanctuary leads the Environmental Unit of the command post. The Environmental Unit has provided recommendations for response options that would be appropriate both for the type of product most likely to impact the Keys (i.e., tar balls) and for the range of habitats that exist in the sanctuary. Any necessary response would need to be the right response, at the right time, and for the right habitat type. The shoreline response matrix for tar balls, created by the Environmental Unit, consists of 19 countermeasure types (from "no action" to manual removal, water washing, vacuuming, in situ burning, nutrient enhancement, and more) and accounts for 10 shoreline types (exposed rocky shores, man-made structures, sand beaches, gravel beaches, exposed tidal flats, sheltered tidal flats, mangroves, etc.). If and when something happens here from the spill, we are truly prepared."

### On lessons learned

"The real-time response to tar balls in mid-May, coupled with a Coast Guard nearshore oil spill exercise in February 2010, helped solidify the interagency collaboration necessary to respond to any impacts from Deepwater Horizon. Even before the spill we already had a great working relationship with other agencies in the Keys. There are ten state parks within the Keys, four national wildlife refuges, and three national parks, and the Coast Guard is active in monitoring and surveillance efforts in the region. Since the spill, people from these agencies who already met regularly to discuss various resource management issues have continued to collaborate to ensure the preparedness of the Florida Keys.

"The Florida Keys are one of the best-studied reef ecosystems in the world. With 16 years of water quality monitoring and decades of coral reef monitoring, we have our finger on the pulse of the ecosystem down here. Having this monitoring infrastructure in place will be essential to assessing any future impacts from the spill."

#### For more information:

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## **BOX: Past coverage of oil spills & response planning in MPA News**

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- Case Study of a Spill Response: How Galápagos Managers Handled the Jessica Spill
- Tips on Oil Spill Response Planning

### **September 2006**

- Oil Spills in Lebanon and the Philippines Highlight Spill Threat to MPAs
- Advice for MPA Managers on Oil Spills: Interview with Jim E. Peschel

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