BP spill threatens vulnerable ecosystems with destruction

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Thousands of barrels of crude oil continue to stream into the Gulf of Mexico two-and-a-half weeks after the April 20 explosion of oil giant BP's drilling rig Deepwater Horizon, which left 11 workers dead.

On Thursday, a specially designed "containment dome" was shipped close to the spill site. BP hopes to lower the 200-ton device over the collapsed piping on the ocean floor, and pump oil upward to a ship on the surface. Engineers caution that the effort is experimental at such depths, and that it may take days to learn whether or not it will work.

In the meantime, oil continues to gush out into the Gulf of Mexico at a rate of at least 200,000 gallons per day. In closed-door congressional hearings held Tuesday, BP executives admitted that the well could begin to emit as many as 60,000 barrels, or 2.5 million gallons, per day.

The spill already poses an ecological disaster to large areas of coastline along the Gulf Coast, wherever the oil eventually makes landfall.

On Thursday, BP and the US Coast Guard confirmed that the slick had reached Louisiana's Chandeleur Islands. Additional reports cited dying jellyfish in the Chandeleur Sound and oil covered seaweed washing ashore. MSNBC reported Monday that long threads of oil sheen have already entered South Pass, a major Louisiana channel with salt marshes that provide a breeding ground for crab, oysters, shrimp, redfish and other seafood.

Nonetheless, the most serious impact may still be days off, favorable weather conditions having so far kept the oil slick miles from the shoreline. However, experts caution that it is not a matter of if, but rather when, weather conditions change and the oil makes landfall.

The most immediate threat is to the vulnerable ecosystems of Louisiana, Alabama, Mississippi and Florida. The wetlands in these areas are already under severe strain from recent hurricanes and decades of inadequate land use planning and poor water management. As a result the Mississippi Delta loses an average 50 acres of wetlands to the sea each day, as erosion outpaces the natural replenishment of sediments.

Denise Reed, interim director of the Pontchartrain Institute for Environmental Sciences at the University of New Orleans, told the *New York Times*, "The trouble with our marshes is they're already stressed, they're already hanging by a fingernail." The additional impact of oil could mean destruction.

The wetlands along the Gulf Coast provide a number of vital ecological services, not least of which is habitat for seafood. Commercial fishing, together with the oil industry, dominates the local economy. Louisiana is responsible for nearly a third of the country's fish catch. The state is the largest producer of oysters in the world, responsible for about 250 million pounds each year. Oysters, the larvae of shrimp and fish, and crabs are among the most vulnerable marine animals due to their relative immobility.

Charter boat captain Dan Dix spoke of the disaster facing the fishing industry in an interview with Reuters. "Our biggest concern is that the oil comes in in any kind of volume and settles in the cane," he said. "Once it settles it destroys the cane and kills the shrimp. If you kill the shrimp, you kill the fish that feed off the shrimp, and if you kill the fish then there is nothing left in the Gulf of Mexico. That would absolutely be a disaster for years and years."

The government has closed waters for fishing from the mouth of the Mississippi River to waters off Florida's Pensacola Bay.

The potential devastation extends well beyond fish stocks. The wetlands along the coast provide protection from storms and rising sea levels. Healthy wetland ecosystems are able to store water, filter pollution and stabilize shorelines from the forces of erosion. If large amounts of oil wash up, it could kill the grasses that provide the foundation of the ecosystem.

"The vegetation is what holds these islands together," Garret Graves, director of the Governor's Office of Coastal Activities, explained to the *New York Times*. "When you kill that, you just have mud, and that just gets washed away."

The loss of more wetlands would mean greater

vulnerability to hurricanes like Katrina, which devastated the Gulf Coast in 2005. To make matters worse, scientists expect rising sea levels in the Gulf and intense storms to result from climate change.

According to the Fish and Wildlife Service, up to 20 national wildlife refuges face major oil contamination. Breton Island National Wildlife Refuge, which includes Breton Island and all of the Chandeleur Islands in Louisiana, is an essential habitat for dozens of birds, including brown pelicans, laughing gulls, and royal, Caspian and Sandwich terns.

Reidar Hindrum, a scientist and oil cleanup expert who works for Norway's Directorate for Nature Management, told the *World Socialist Web Site* that removing the oil from the mud and grasslands of Louisiana's Gulf Coast will likely prove far more difficult than the cleanup for the Exxon Valdez spill in Alaska's Prince William Sound in 1989.

"It will be very difficult," Hindrum said. "The oil is likely to settle down into the mud. Ultimately to really remove the oil would require removing the vegetation."

The oil spill could not have happened at a worse time for many bird species. David Viker, the Fish and Wildlife Service's assistant regional director for migratory birds in the Southeast Region, noted that we are currently near the peak of the trans-Gulf migration season.

Hindrum, who worked on a Norwegian delegation during cleanup after the Exxon disaster, said that the effects of oil spills on birds and other forms of wildlife continue for years. "We tend to focus on the oil on birds and their feathers," Hindrum said. "But in the long-term, their survival will also depend on how much the prey of the birds is affected."

The Fish and Wildlife Service described a few other nature areas that may see devastation as a result of the oil slick reaching the shore.

• Bon Secour Refuge in Alabama contains 7,000 acres of wildlife habitat for migratory birds, nesting sea turtles and the endangered Alabama beach mouse. Refuge beaches serve as nesting sites for loggerhead and Kemp's Ridley sea turtles. More than 370 species of birds have been identified on the refuge during migratory seasons, including ospreys and herons.

• Grand Bay Refuge spans 10,200 acres in Mississippi and Alabama. Species found at the refuge include the gopher tortoise, red-cockaded woodpecker and brown pelican.

• Mississippi River Delta Refuge covers 48,800 acres of marshlands and open water. It provides sanctuary and habitat for wintering waterfowl, American alligator, Brown Pelican, Arctic peregrine falcon, deer, swamp rabbits and piping plover. The marshes and waterways support a diversity of fish species, including speckled trout, redfish, flounder, catfish and largemouth bass.

A particularly striking symbol of the danger to wildlife in the refuge is the brown pelican, the state bird of Louisiana. It was only recently removed from the endangered species list. The brown pelican nests on wetlands of the Gulf Coast in areas nearest the oil spill.

While thousands of feet of boom have been placed at points around the refuges that the brown pelican inhabits, huge portions of the wildlife refuges remain unprotected. The booms themselves provide only limited protection in the event of rough seas.

"Our experience is that when the wave exceeds three to four meters of height you cannot use the oil booms," Hindrum of Norway's Directorate for Nature Management said. "It can protect only small areas such as bays."

"You can't boom the entire 60-mile-long [Breton Island] refuge," Tom MacKenzie, spokesman for the Fish and Wildlife Service, told *Greenwire*. "We can't protect all the birds. We are focused on the nesting brown pelicans because they are a stationary resource." This piecemeal approach has been criticized by bird advocates, who fear the spill could decimate the bird species in the area.

In addition to booms, a variety of other measures, such as controlled burns and chemical dispersants, have been deployed in an attempt to avoid some of the worst consequences. However these measures are not without dangers of their own.

In particular, the impact from the hundreds of thousands of gallons of chemical dispersants is highly uncertain. Dispersants do not remove oil; rather they dilute the oil slick by breaking it down into small droplets. The precise chemical composition of the dispersants is unknown, as they are protected as company trade secrets. And while there is certainly some benefit to reducing the concentration at the surface, the trade-offs, particularly for marine organisms, are ultimately not well known.

At this stage of the disaster there is inevitably a high degree of uncertainty as to the extent and location of the coming damage, both to the environment and the well being of multitudes of people who depend upon it. However, as the thousands of barrels each day continue to gush forth, it becomes more and more likely that this will be one of the worst environmental disasters in US history.