THE NEWS FROM THE GULF of Mexico during the spring and summer of 2010 was horrific. Eleven lives were lost in the initial explosion of the Deepwater Horizon rig, thousands of barrels of oil were flowing into the Gulf of Mexico every day, and no one could predict when it would stop, or what the long-term impacts would be.

Today, much has changed. The federal government, the five Gulf states, and the companies responsible for the disaster have reached a series of settlements that could make as much $16 billion available for restoration of the Gulf. Scientists with federal and state agencies have spent the intervening years assessing the ecological impacts of the spill and making recommendations about what should be done to restore the Gulf. A massive document collecting all these studies—known as the Programmatic Damage Assessment and Restoration Plan—was recently made public. Much of the information in this document comes from this comprehensive damage assessment.
The Kemp’s ridley is the smallest sea turtle in the world and it nests almost exclusively in the Gulf of Mexico. Once on the brink of extinction, the species had been making remarkable steps towards recovery over the past three decades. The oil disaster may have changed the outlook for the Kemp’s ridley. The damage assessment estimates that as many as 20 percent of the Kemp’s ridley adult females were killed during the disaster – which may explain why the species’ nest counts have been significantly below expectations since 2010.

**WHAT CAN BE DONE:**
The federal government is using some of the oil spill funds to benefit sea turtles by improving scientific monitoring and by reducing accidental deaths from shrimp trawls. Projects to restore wetlands and estuaries across the northern Gulf – such as the Lake Hermitage marsh creation in Louisiana or the Salt Bayou marsh restoration on the Texas side of Sabine Lake – should also benefit the Kemp’s ridley, in part by increasing the supply of food sources such as blue crabs.

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The damage assessment found that at least 93 species of birds across all five Gulf coast states were exposed to BP oil. Species that were particularly impacted include brown and white pelicans, laughing gulls, black skimmers, white ibis, double-crested cormorants, common loons, and several species of terns. The scientists predicted that the loss of birds as a result of the BP oil disaster would have “meaningful effects on food webs of the northern Gulf of Mexico” by altering the number and distribution of prey species.

**WHAT CAN BE DONE:**
Conserving the full range of habitats along the Gulf – barrier islands, beaches, dunes, marshes, forested wetlands, and prairies – is critical for a resilient Gulf generally, and for coastal bird populations specifically. One promising development: The National Fish and Wildlife Foundation recently piloted a science-based tool to identify high-priority Mississippi coastal areas for protection, including key habitats that could help sustain Gulf health in the face of sea-level rise.

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Many species of Gulf fish spawn during the spring and summer, producing embryos and larvae that float near the ocean’s surface. Unfortunately, this was the exact time of year when the Deepwater Horizon spill occurred. Studies have shown that even small amounts of oil exposure can be fatal to larval fish. In light of this research, the damage assessment estimates that the oil spill killed between two and five trillion larval fish.

**WHAT CAN BE DONE:**
Coastal estuaries – the areas where fresh water from rivers meets the salty water of the Gulf – function as nurseries for many species of fish. However, over the past hundred years, most of the rivers that flow into the Gulf have been leveed, dammed, deepened or straightened, their seasonal cycles altered, and their water diverted for cities or agriculture. Proposals aimed at restoring a more natural balance between fresh and salt water on a system-wide scale include the C-43 West Basin Reservoir in the Everglades, sediment diversions in Louisiana, and efforts to protect and restore freshwater inflows into Texas estuaries.
The damage assessment stated that nearly all of the populations of dolphins and whales in oiled areas have “demonstrable, quantifiable injuries.” Bottlenose dolphin populations along the Mississippi and Louisiana coasts were the most affected and could ultimately decline by more than half before they recover. Part of the problem? In the five years after the disaster, more than three-quarters of pregnant bottlenose dolphins in the oiled areas failed to give birth to a viable calf.

**WHAT CAN BE DONE:**
Efforts to restore the Gulf’s estuaries and wetlands will likely increase coastal fish populations and could improve the outlook for dolphins. More immediately, the federal government is taking steps to help dolphins and whales by researching causes of illness and death and by seeking to reduce dolphin entanglement in fishing gear.

**MANY DOLPHIN AND WHALE SPECIESharmed**

The tiny population of Bryde’s whale in the northern Gulf of Mexico is something of an enigma. Estimated at just 26 individuals, it is perhaps the only baleen whale that regularly inhabits the Gulf and it lives only in the DeSoto Canyon off the northern Gulf coast. The damage assessment found that Bryde’s whales were the most affected species of marine mammal living in deeper waters. Scientists believe that nearly half of these whales were exposed to oil and that nearly a quarter died as a result. The Deepwater Horizon disaster puts the ultimate survival of Bryde’s whales in the Gulf in even greater jeopardy.

**WHAT CAN BE DONE:**
In addition to the impacts of the Deepwater Horizon, Bryde’s whales face threats from vessel collisions and potential harm from acoustic impacts from shipping and oil and gas exploration. The federal government is looking at ways to decrease these threats, but the outlook for the Bryde’s whales in the Gulf remains dire.

**THE LAST STRAW FOR BRYDE’S WHALES?**

Like salmon, Gulf sturgeon are born in fresh water but spend most of their lives in the sea, returning to fresh water to spawn. These massive fish were once harvested for flesh and eggs, dramatically reducing their numbers. However, many of the rivers the Gulf sturgeon needs for spawning have been dammed or altered over the past century, limiting its ability to reproduce. The damage assessment estimated that nearly two-thirds of the Gulf sturgeon that spawn in six river systems were exposed to oil. Studies indicate that these exposed fish suffered immune system dysfunction and damage to their DNA.

**GULF STURGEON POPULATIONSaffected**

**WHAT CAN BE DONE:**
Gulf sturgeon restoration will focus on providing access to appropriate spawning grounds, through fish ladders, habitat improvements, and other means. In addition, efforts to restore oysters in estuaries such as Mississippi Sound, Mobile Bay, Pensacola Bay and Apalachicola Bay would increase foraging habitat for juvenile Gulf sturgeon.
As many as 8.3 billion oysters were lost as a result of the oil spill and disaster-response effort. In a normal year, the Gulf produces roughly two-thirds of the commercially harvested oysters in the United States. According to the damage assessment, the subsequent “dramatic decreases in oyster densities and the associated reproductive injury imperils the sustainability of oysters in the northern Gulf of Mexico.”

WHAT CAN BE DONE:
Oyster reefs improve water quality and clarity while creating habitat for fish, crustaceans and other wildlife—all while protecting shorelines from storms and supporting the commercial fishing industry. However, even before the spill, many estuaries in the Gulf had lost most of their historical oyster reefs. Using oil spill funds to rebuild lost natural reefs and restore oyster populations should be a high priority.

A study by the National Academy of Sciences found that chemical dispersants did not accelerate oil biodegradation and may have even suppressed it. A separate Florida State University study found that dispersants were able to eliminate about 21 percent of the oil on the surface of the Gulf, but at the cost of spreading the remaining oil over a 49 percent larger area. As the toxicity of oil often increases when mixed with dispersants, it is likely that the use of dispersants exacerbated the Deepwater Horizon disaster’s impacts on fish and wildlife.

WHAT CAN BE DONE:
Many scientists are now cautioning against the large-scale use of chemical dispersants in future spills. Researchers are looking into ways to enhance the breakdown of oil with natural microbes as a safer alternative. More research in this area is needed.

In total, more than 770 square miles of sea floor around the wellhead—an area more than 20 times the size of Manhattan—was damaged by oil from the Deepwater Horizon. These deep water impacts include damage to fragile reef ecosystems, where corals can be hundreds of years old. There is no known way to restore or duplicate these delicate ecosystems. Furthermore, the fate of as much as 30 percent of the oil remains unknown to this day.

WHAT CAN BE DONE:
We need to ensure that a disaster of this magnitude never happens again. The U.S. Department of the Interior has recently finalized a rule, aimed at preventing future disasters, which would require better blowout preventers and more stringent design and monitoring standards.

HELP US HELP GULF WILDLIFE
The National Wildlife Federation, our partners and our affiliates are all working to make sure that money from the various settlements is used to right the wrongs of the spill and to tackle the underlying problems and ongoing stressors facing the Gulf of Mexico.

READ THIS DOCUMENT ONLINE, GET LINKS TO OUR SOURCES AND DONATE AT
RestoringTheGulf.nwf.org

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