



A DEGRADED GULF OF MEXICO:

Wildlife and Wetlands
Two Years Into the Gulf Oil Disaster



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Introduction

This report gives a snapshot view of the current status of coastal wetlands and six wildlife species (or groups of species) that depend on a healthy Gulf.

The Deepwater Horizon explosion killed eleven people, with the ensuing spill releasing more than 200 million gallons of oilⁱ and very large quantities of hydrocarbon gas.ⁱⁱ Only a small proportion of affected wildlife are ever recovered after oil disasters,ⁱⁱⁱ yet thousands of birds, hundreds of endangered sea turtles and hundreds of dolphins have been found dead in the disaster zone. That was only the beginning of the impacts of the oil spill on the Gulf. The growing evidence reveals that this oil spill is far from over.

Pursuant to the Oil Spill Pollution Act, the federal government is conducting a Natural Resources Damage Assessment (NRDA) to determine impacts of the Gulf oil spill. Only when the results of these confidential studies are finally released, will the public finally gain a better picture of the full impacts of the Gulf oil disaster. But already, the scant NRDA evidence that has been released and other scientific sources, hint at the toll the oil spill is taking on the Gulf of Mexico.

Dolphins: Indicators of Trouble in the Gulf

Since the spill commenced in 2010 through March 25, 2012, some 523 dolphins have been found stranded in the oil spill area. Only 5 percent of stranded dolphins were recovered alive,^{iv} and their prognosis was usually poor. This is more than four times the historical average of stranded dolphins over the same period of time.

In 2010, the year of the Gulf oil disaster, dolphin strandings in Louisiana were seven times larger than the long-term average. The year after the spill, Louisiana strandings reached even higher levels: 179 dolphins were found stranded in 2011, nearly eight times the historical average. In coastal areas of Alabama and Mississippi, also heavily oiled, dolphin strandings in 2011 were four times and five times the long-term average, respectively.^v

There have now been a record-shattering 26 consecutive months of above-average dolphin strandings (24 of those months during the spill or after the well was capped). By comparison, in the last decade the second most consecutive number of months with above average dolphin strandings was 10. The current unusual mortality event (UME) is 2.6 times longer with four times as many stranded dolphins and still isn't over. NOAA observed that "this magnitude of strandings in the northern Gulf is unprecedented."^{vi}

Not surprisingly in light of the continuing UME, many of the dolphins studied in Barataria Bay, which experienced heavy and prolonged oil exposure, are in poor health. Symptoms include anemia, low blood sugar and abnormally low levels of hormones that regulate metabolism and the immune system. Some are underweight and show symptoms of liver and lung disease.^{viii} Dolphins can inhale oil vapors, ingest oil when feeding, absorb it through their skin or eat contaminated fish.

“this magnitude of (dolphin) strandings in the northern Gulf is unprecedented.”

-NOAA^{vii}

As a top level predator, the poor health of dolphins in the most heavily oiled areas suggests possible ecosystem-wide effects of the oil that are now being borne out by other studies. Polycyclic aromatic hydrocarbon (PAH) components of oil from the Macondo well were found in plankton even after the well was capped.^{ix,x}

PAHs can have carcinogenic, physiological and genetic effects. Killifish residing in coastal marshes showed evidence of physiological impairment even to low levels of oil exposure^{xi} and corals hundreds of years old on the Gulf floor were killed by oil from the Macondo well.^{xii} Given the huge quantity of oil spilled, its widespread distribution, the fact that even small amounts of oil can have significant biological effects and that effects may be slow to develop after exposure to oil, our understanding of the full scope of the Gulf oil spill’s effects will likely be unfolding for decades.

Other oil spill disasters have taken years to reveal their full effects^{xiii} and often recovery is still not complete after decades. Now, 23 years after the Exxon Valdez spill in Prince William Sound, clams, mussels, sea otters and killer whales are still considered “recovering,” and the Pacific herring population, commercially harvested before the spill, is showing few signs of recovery.^{xiv} Impacts of the Gulf oil disaster will likewise be unfolding for years, if not decades, and take even longer to understand. What is clear is that the disaster response focused on removing oil, with little action taken to address the long-term wetlands habitat degradation exacerbated by the oil disaster.

In order to restore the Gulf for all of its many cultural, recreational, commercial, environmental and aesthetic benefits, the most important actions needed are:

- 1 Congress must enact legislation dedicating fines and penalties levied against BP and other responsible parties towards long-term restoration of America’s Gulf Coast.**
- 2 Federal and state agencies need to implement a comprehensive Gulf Coast restoration strategy that includes reversing ongoing wetland losses and makes measurable progress on reducing the size of the hypoxic (dead zone) area off the Louisiana Delta.**
- 3 Congress and the Administration must reform oil and gas leasing practices and permitting requirements to better safeguard wildlife and the environment.**
- 4 The amount of resources dedicated to long-term monitoring, assessment and evaluation of the Gulf oil disaster must be significantly increased.**
- 5 The parties responsible for the Gulf oil disaster must increase immediate funding for actions directed at remediation and restoration to effectively minimize and repair the damage they caused.**

The future of Gulf Coast wetlands, wildlife and the way of life of local communities are depending on Gulf Coast restoration to provide a brighter future.

Coastal Wetlands

Status in the Gulf: POOR

Historical: Louisiana is known as the Sportsman’s Paradise because of the vast coastal wetlands, rich in fish and wildlife, created by the Mississippi and other coastal rivers. The Gulf oil disaster hit an ecosystem that was already struggling with eroding wetlands starved of sediments and freshwater by human alterations to the Mississippi River delta. In the 20th century alone nearly a third of Louisiana’s coastal wetlands were destroyed.^{xv} Between 1985 and 2010, the average rate of coastal wetlands loss in Louisiana was a football field size area every hour and the losses have continued in the 21st century, including another 217 square miles lost in Hurricanes Rita and Katrina alone. The cumulative loss of Louisiana’s coastal wetlands is now some 1,900 square miles.^{xvi} The huge net loss has been caused primarily by levees and channelization of the river for flood control, shipping, dredging of extensive canals for oil and gas development and land subsidence which is often triggered by withdrawal of oil and gas.^{xvii, xviii}

Oil Impact: Some 1,050 miles of beaches and wetlands were reported to be contaminated by oil.^{xix} The extent of damage is highly variable depending upon severity of contamination. Oil contamination or efforts to clean it up can damage wetlands, killing vegetation and thereby causing accelerated erosion and conversion of land to open water.

Future Trends: Despite restoration efforts that have slowed the rate of loss, without large-scale restoration Louisiana is projected to lose another 1,750 square miles of coastal wetlands by 2060.^{xx} If that happens, in total, Louisiana will have lost an area of coastal wetlands larger than the state of Rhode Island.

What To Watch For: Inadequate government action to slow, stop and reverse the continued loss of coastal wetlands. Insufficient action and funding from BP to remediate environmental damages caused by their oil spill from the Macondo well.

What We Can Do To Help: Call on the Army Corps of Engineers to expedite implementation of large scale restoration plans for Gulf coast wetlands, including sediment delivery diversions from the Mississippi River to allow wetland creation through sediment deposition. Call on Congress to pass the RESTORE Act, which dedicates Clean Water Act penalties from the BP oil spill to restore Gulf Coast wetlands.

Bottlenose Dolphins

Status in the Gulf: **GOOD (2011) changed to FAIR (2012)**

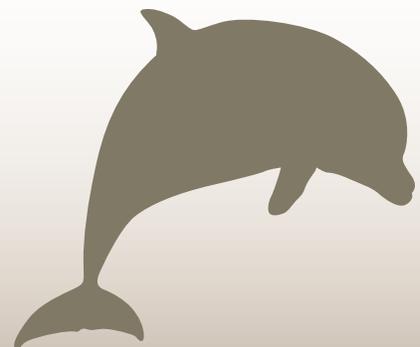
Historical: The Gulf bottlenose dolphin population is estimated at about 44,000.^{xxi} Although a protected species, accidental injury and death from recreational commercial fishing, including shrimping, occurs. Health may be impaired by pollutants such as PCBs.^{xxii} Death can occur from 'cold-stunning' during unusually cold winter weather^{xxiii} and biotoxins (red tide).^{xxiv}

Oil Impact: In the oil spill area, 523 dolphins have stranded (95 percent dead)^{xxv} since the oil spill began. This rate is more than four times higher than the historic average of 120 dolphin strandings during the same time period.^{xxvi} Nearly half of the at least 134 dolphins stranded from January through March 2011 were babies, which is about five times normal rates.^{xxvii} The number of reported strandings throughout the oil spill is only a fraction of total deaths. As few as one in every 50 dead marine mammals in the northern Gulf of Mexico are ever found.^{xxviii} Exposure to the oil can reduce the fitness of dolphins, making them more susceptible to other impacts such as disease and cold water stunning.^{xix} Dolphins studied in heavily-oiled Barataria Bay are in poor health, suffering from anemia, low blood sugar, abnormally low levels of hormones and other symptoms.^{xxx} Direct exposure to oil or reduced food availability due to impacts to prey species could affect dolphin fitness.

Future Trends: The poor health of dolphins in heavily-oiled areas and continuing unprecedented strandings indicate that some local populations are likely in decline. How long these effects will last and how dolphins will fare in less heavily-oiled areas are of concern and unknown. Healthy dolphin populations are dependent upon clean water and healthy, productive ecosystems.

What To Watch For: Dead and sick dolphins, possible decline in the number and health of baby dolphins and the overall population. Declines or displacements of key prey species.

What We Can Do To Help: Dolphin populations, reproductive rates and health need long-term monitoring to determine effects of the oil spill and further understanding of the continuing high rate of strandings. Report stranded dolphins. Support best management practices for commercial fishing.



Atlantic Bluefin Tuna

Status in the Gulf: POOR

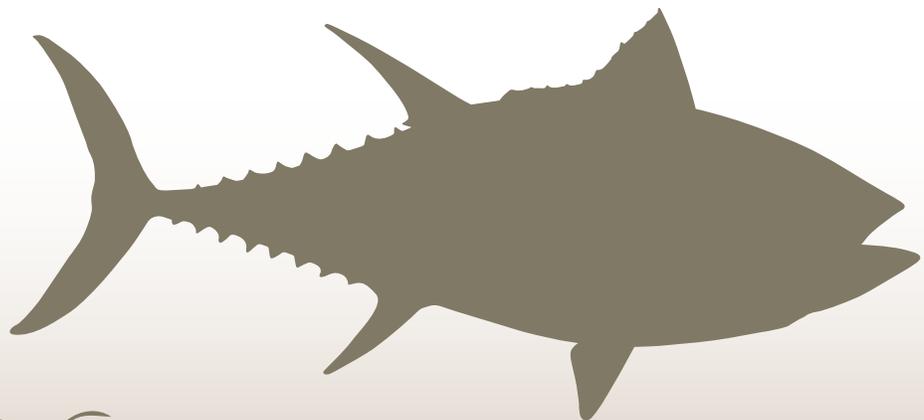
Historical: Considered the greatest big game fish in the world,^{xxx1} the western Atlantic bluefin tuna population has declined by 82 percent from the 1970s.^{xxx2} Commercial over-fishing is the primary reason for their long-term decline.^{xxx3} The bluefin tuna is regarded as the most prized fish species in the ocean, selling for tens of thousands of dollars per fish. They reach average lengths of 6.5 feet and can weigh up to 550 pounds. As top-level predators, they are indicators of ecosystem health.^{xxx4}

Oil Impact: The eastern population of Atlantic bluefin tuna breeds only in two areas of the northern Gulf of Mexico. The spill occurred as the April-May breeding season was underway, when eggs and young are very vulnerable to contaminants such as oil. Contact with oil may have reduced the number of juvenile bluefin produced in 2010 by 20 percent.^{xxx5} For species in peril, reduced reproductive success can be significant. Recent studies projected that the 2011 adult population of Atlantic bluefin tuna are 75 percent lower than the population in 2005.^{xxx6}

Future Trends: Atlantic bluefin tuna have little chance of recovery as long as heavy commercial over-fishing continues. Commercial fishing should be scaled back or, if necessary, stopped altogether until populations recover, and then allowed only at sustainable levels. Breeding areas in the Gulf should be restored to healthy productive conditions.

What To Watch For: Continued decline in the population and average size of bluefin tuna.

What We Can Do To Help: Prohibit commercial fishing of bluefin tuna. Restore Gulf Coast waters to eliminate dead zones created by the over-abundance of fertilizers carried in the Mississippi River.



Shrimp

Status in the Gulf: GOOD

Historical: Several species of shrimp are commercially fished in the Gulf. Brown, white and pink shrimp depend upon shallow wetland/coastal habitats for their early life stages. The large historic loss and continued overall decline of Gulf Coast wetlands - at an average rate of a football field size area lost every 38 minutes^{xxxvii} - has destroyed extensive habitat formerly used by shrimp.

Oil Impact: The Gulf oil disaster contaminated many coastal wetland habitats shrimp require for reproduction. One scientist has opined that brown, white and pink shrimp catch levels are likely to recover to recent pre-spill harvest levels by the end of 2012, but does note that there could be a population decline until coastal marshes recover.^{xxxviii} Preliminary numbers compiled show the Louisiana brown shrimp season in 2011 brought in about 35 percent more pounds of shrimp than any season since 2007; the reduction in 2010 harvest due to fishing closures because of the oil spill may be a factor in the increased harvest. Numbers for the white shrimp are not available, however it appears the catch may have dropped.^{xxxix} Oil continues to be found in marshes. A better understanding is needed of possible effects of low levels of oil toxicity for larval and adult shrimp.

Future Trends: Due to considerable year-to-year variation in shrimp harvest, multi-year trends may be more indicative of possible oil impacts than any single year. The continued decline in coastal wetlands is a long-term threat to shrimp.

What To Watch For: Decline in catch rates with continuing loss of coastal wetlands. Persistence of oil and duration of toxins in coastal marshes.

What We Can Do To Help: Support large-scale restoration of Gulf Coast wetlands.



Sea Turtles

Status in the Gulf: POOR

Historical: Five species of sea turtles occur in the Gulf. Four are endangered, and the fifth has been recommended to be reclassified from threatened to endangered.^{xi} Populations are far below historical levels due to incidental capture in trawling nets and long-line fishing gear,^{xli, xlii, xliii, xliiv} marine debris,^{xlv} loss of coastal nesting beaches, taking of eggs and oil spills.^{xlvi}

Oil Impact: From April 2010 through April 5th, 2011 some 1,149 sea turtles were found stranded, of which 609 were dead or dying.^{xlvii} During the peak of the oil spill in May-June 2010 sea turtle strandings were more than seven times historical averages. The oil spill, commercial fishing and other causes contributed to the reported sea turtle strandings. Commercial fishing briefly increased in the early days of the spill and likely contributed to sea turtle strandings,^{xlviii} but later fishing closures due to oil likely reduced strandings caused by commercial fishing. Of the 609 known dead sea turtles, 481 were Kemp's ridley sea turtles, the most endangered sea turtle species in the world, which nests only in the Gulf of Mexico.^{xlix} Damage to sargassum destroyed foraging habitat and an ecosystem critical to providing protection to young sea turtles in the open ocean.

Future Trends: Perilously low populations render sea turtles very vulnerable to impacts that reduce their numbers. Incidental takes in commercial fishing, marine debris, oil pollution and loss of nesting habitat will continue absent significant action. Climate change looms as a large threat as sea level rise erodes nesting beaches, warmer temperatures affect reproductive success and sex ratios, ocean acidification reduces the ability of sea animals to create shells and stronger hurricanes destroy nesting beaches.^l

What To Watch For: Oiled beaches, stranded sea turtles, declines in number of nests.

What We Can Do To Help: Protect nesting beaches from development and installation of lights (which disorient hatchlings). Encourage the state of Louisiana to enforce federal regulations requiring the use of turtle excluder devices (TEDs) in shrimp trawling to prevent drowning of sea turtles. Where beaches are still contaminated by oil, relocate sea turtle eggs to cleaner sites. Reduce industrial carbon pollution to minimize global warming.



Brown Pelicans

Status in the Gulf: GOOD

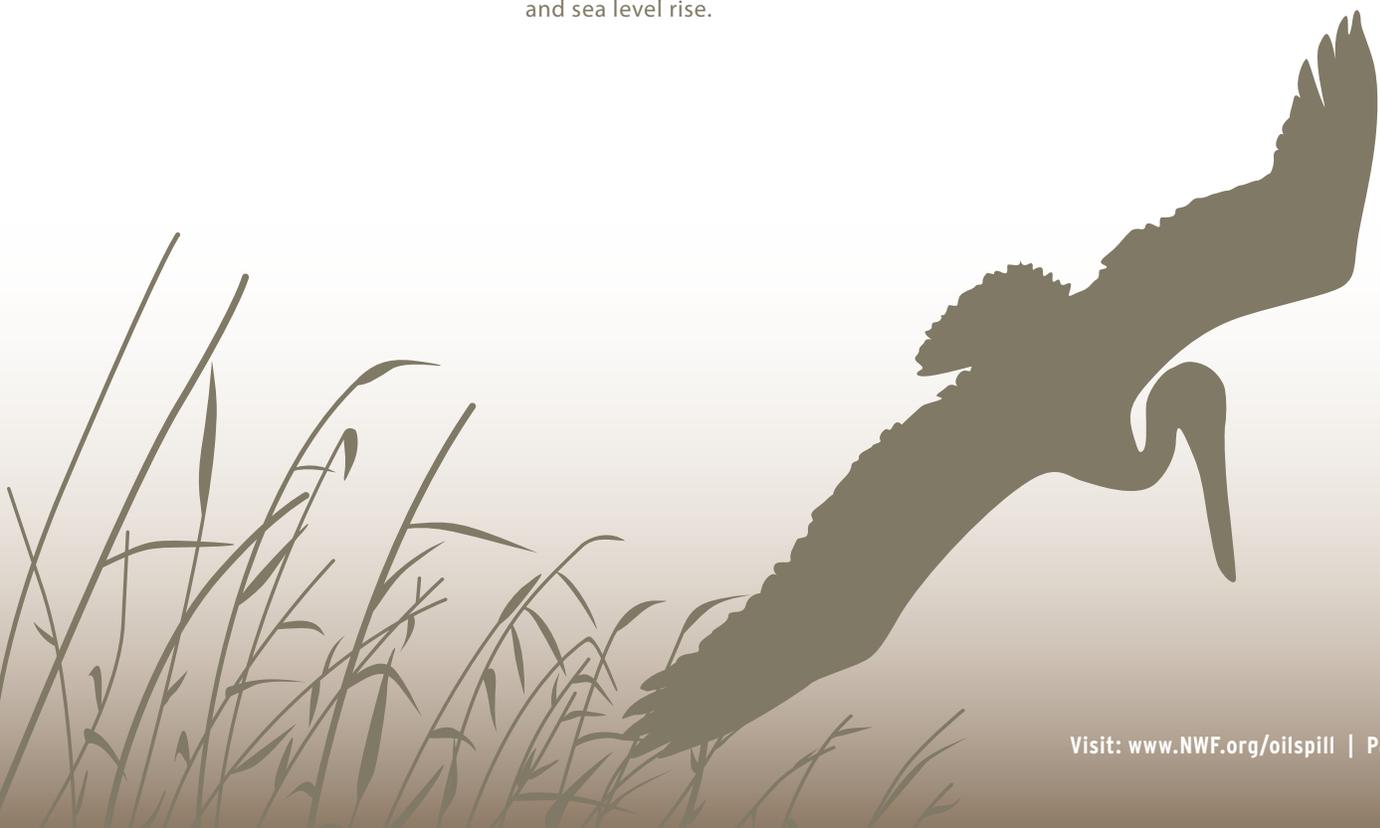
Historical: The brown pelican was listed as endangered in 1970. Killing for feathers and food in the early 20th century had already reduced once abundant pelican populations when the widespread use of DDT caused egg-shell thinning and reproductive failure that nearly led to its demise.^{li} Brown pelicans had completely disappeared from Louisiana. The banning of DDT in 1972 initiated recovery efforts, followed by relocating birds from the Atlantic coast population to Louisiana,^{lii} eventually leading to their removal from the endangered species list in 2009.^{liii} At that time, the Texas/Louisiana population was estimated at about 12,000 pairs.^{liv} Recent strong tropical storms have destroyed some nesting islands.^{lv}

Oil Impact: As of May 2011 some 826 brown pelicans were collected in the oil spill area of which 577 were dead or later died. More than 40 percent of all pelicans collected were visibly oiled and the oiling status of another 29 percent wasn't recorded.^{lvi} Oil contaminated some island mangrove thickets used for nesting. Effects of the oil on prey fish abundance are being studied.

Future Trends: Continued loss of coastal habitats is likely to reduce nesting sites and food abundance. Sea level rise and stronger tropical storms due to sea level rise are likely to accelerate loss of pelican nesting sites (islands and mangroves). Brown pelicans continue to inhabit the Gulf and Pacific coasts and other areas of the Gulf of Mexico.^{lvii}

What To Watch For: Loss of nesting islands and mangroves. Oiled or starving birds.

What We Can Do To Help: Support comprehensive restoration of Gulf Coast ecosystems, including restoration of natural processes that create wetlands and islands from deposition of sediments carried by the Mississippi River. Reduce greenhouse gas emissions to minimize climate change because it contributes to stronger hurricanes and sea level rise.



Deep Sea Coral

Status in the Gulf: **FAIR**

Historical: A variety of deep sea corals live on the Gulf floor, including black corals, some of which have been growing continuously for at least 2,000 years.^{lviii} Human fingernails grow at least 2,000 times faster than black coral.^{lix}

Oil Impact: After the Gulf oil disaster of 2010, some of the once colorful and vibrant corals in the Gulf of Mexico died. Oil from the Macondo well devastated corals living 7 miles away^x while many other areas appear visibly unaffected. The deep sea coral colonies are extremely important havens for marine life.

Future Trends: The full extent of the damage to deep sea corals is still to be determined. Furthermore, it is unknown what the full impact over time will be to corals exposed to oil. Very slow to grow and reproduce, full recovery of damaged areas could take many centuries.

What To Watch For: The discovery of coral deaths in other portions of the Gulf oil spill area.

What We Can Do To Help: Improve regulations governing off-shore oil and gas drilling and development.



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