

Oil Spill Impacts on Sea Turtles



The five species of sea turtles that exist in the Gulf were put greatly at risk by the Gulf oil disaster, which threatened every stage of their life cycle, from egg to adulthood. Scientists will be watching the impacts for years to come.

Already, data from the Sea Turtle Stranding and Salvage Network indicates a five-fold increase in sea turtle strandings in the aftermath of the Gulf oil disaster. Between 1986 and 2009, an average of nearly 100 sea turtles were found stranded annually in the oil spill area. Since the spill, roughly 500 sea turtles have been found stranded each year, most of

which were the Kemp's ridleys.

How Many Sea Turtles Were Immediately Affected by the Gulf Oil Disaster?

During the six months following the start of the Gulf oil disaster, **1,066 sea turtles** were collected in the spill area. Of those, more than 450 showed clear signs of oiling.

Was the Oil Spill the Cause of All These Deaths and Injuries?

These numbers include all sea turtles collected in the oil spill area. While the actual cause of death has yet to be determined for most of the animals, **it is clear that a large proportion of the deaths and injuries were related to the oil spill**, as the number of animals collected--especially the birds and sea turtles--was far beyond what is usually found in that area.

Will the Total Number of Sea Turtles Affected Ever Be Known?

No. Although the sea turtles tallied in these maps may include some that were injured or died of causes unrelated to the spill, given the vastness of the Gulf **others surely disappeared without being observed or collected by authorities**. Scientists are also concerned about other impacts on sea turtles that can be even more difficult to discern, ranging from the effects of oil exposure on reproduction and other physiological functions, to the loss of important foraging or nesting habitat.



What is the Most Concerning Thing About These Numbers?

Unfortunately, the sea turtle species that was hardest hit by the spill was the Kemp's Ridley, the most endangered sea turtle in the world, and one that can least afford to

suffer such losses. Of the more than 600 dead sea turtles, **nearly 500 were Kemp's Ridley sea turtles.**

How Did Sea Turtle Strandings Differ From Previous Years?

In the months after the explosion of the Deepwater Horizon, sea turtle strandings increased to **more than six times the average strandings** during those same months in the last two decades.

The chart on the next sheet shows monthly averages for 22 years of strandings, compared to the corresponding months in 2010, when the Gulf oil disaster occurred.

How Does Oil Impact Sea Turtles?

Studies have noted that sea turtles do not instinctively avoid oil slicks, putting them at greater risk for exposure when they surface for air. Juveniles and adults also sometimes mistake tar balls for food and will directly ingest the oil.

Effects include:

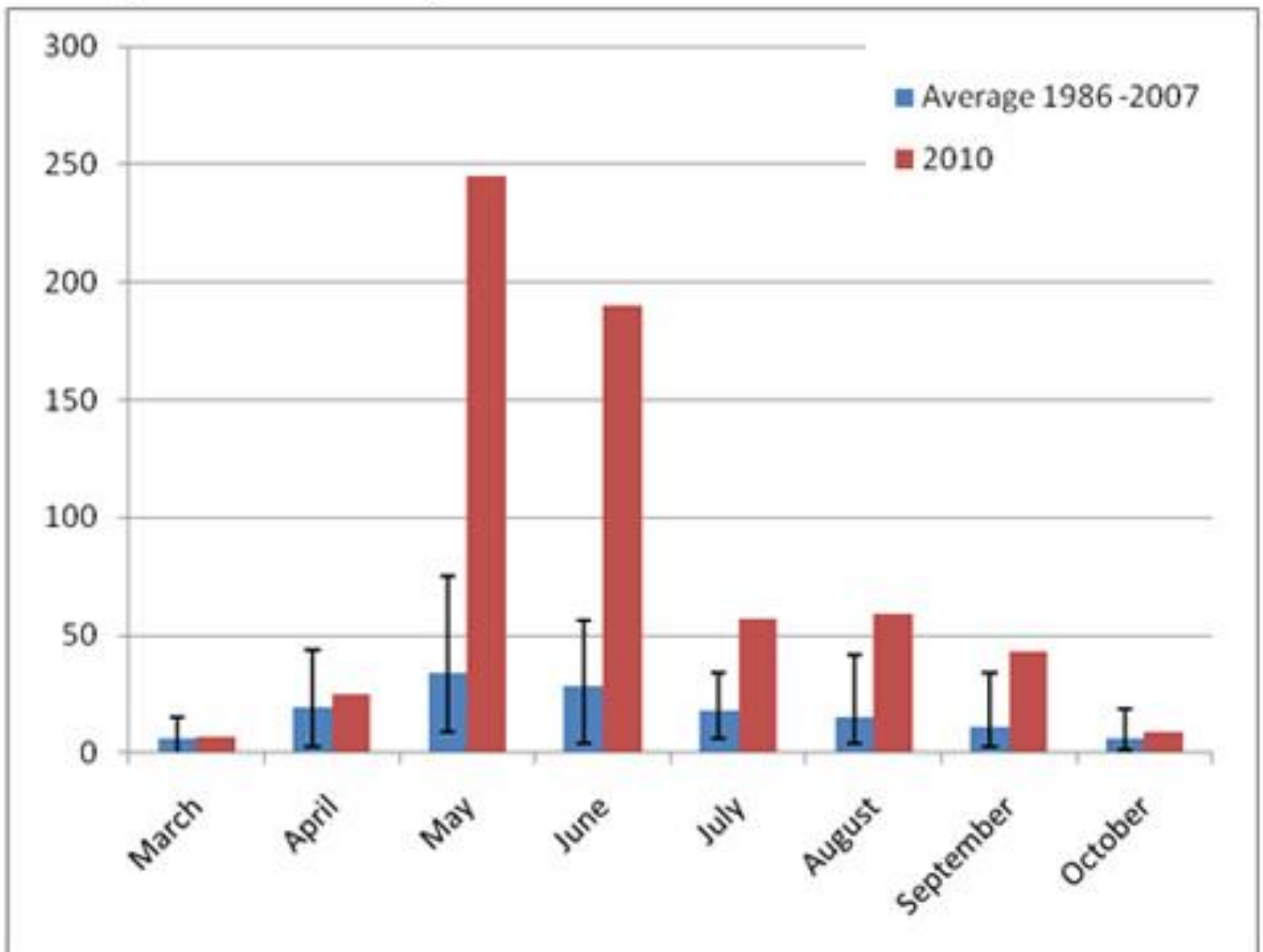
- Burning in mucous membranes of the eyes and mouth
- Irritation or inflammation of the skin
- Gastrointestinal inflammation, ulcers, bleeding, poor digestion
- Respiratory irritation, inflammation, pneumonia, emphysema
- Organ damage, suppression of the immune system, reproductive failure

How Does Oil Threaten Hatchlings?

Sea turtle hatchlings undergo an intense struggle that begins with forcing their way through the leathery eggshell, making their way to the surface, crawling across the wide expanse of the sand to the ocean - -and that's only the start of their journey. Few hatchlings make it to adulthood in prime conditions. Add oil and dispersants to the mix, and the results could be devastating.

- If the hatchlings emerge on oiled beaches, they can suffer **surface exposure to oil** as they make the trek toward the water.
- Once in the ocean, young turtles spend much of their time on the surface where they are more likely to **run into an oil slick.**
- Sea turtle hatchlings rely on floating vegetation for places to seek cover from predators and to rest. Sargassum, a type of seaweed, is common habitat for young turtles, but was suffocated by oil, depriving the seaweed of vital sunlight. Without sargassum, many sea turtle hatchlings (and the array of other marine species that use sargassum for feeding, breeding or nurseries) **have no refuge in the open ocean.**

Monthly Sea Turtle Strandings In 2010 Compared To Long-term Averages



Note: The black error bars represent the maximum and minimum number of strandings over the 22 years of records.

The above chart shows monthly averages for 22 years of strandings, compared to the corresponding months in 2010, when the Gulf oil disaster occurred.

What Was Done to Help Sea Turtle Hatchlings Survive?

The Sea Turtle Conservancy, with support from the National Wildlife Federation, helped state and federal agencies execute a plan to relocate sea turtle hatchlings in the vicinity of the Gulf oil disaster to the east coast of Florida.



Trained personnel carefully dug up nests by hand in the late stage of incubation, and transported the eggs to a secure facility, where they were held until the eggs hatched. The turtles were then released on beaches along the Atlantic.

The relocation was done with full knowledge that some of the eggs might not survive. However, biologists predicted that if nothing was done and hatchlings were allowed to enter the Gulf, they would be put at high risk for encountering oil and the exposure would likely be fatal.

Over 14,000 sea turtle hatchlings were safely released into the Atlantic.

Oil Spill Impacts on Mammals

The Gulf oil disaster poses several threats to sperm whales, bottlenose dolphins, blue whales, West Indian manatees and other marine mammals in the Gulf.



How Many Dolphins and Whales Were Affected?

During the six months following the

Deepwater Horizon explosion, about 100 marine mammals were collected in the spill area. Since the spill there have been a record-shattering 26 consecutive months of above-average dolphin strandings.

The following map shows when and where dead dolphins and whales were picked up after the oil spill began:

Where Did These Numbers Come From?

This map is based on the **consolidated numbers from the National Oceanic and Atmospheric Administration (NOAA)**. These records were used to map the animals collected each day. There are minor variations from official government records in the total number of animals shown, for several reasons. The date marked on each map is the date the data were posted online by the government. Since then, a few additional animals have been collected. Furthermore, due to the time needed to process and verify data, animals collected just a week to 10 days prior to the date of data release may have not yet been recorded.



Was the Oil Spill the Cause of All These Deaths and Injuries?

These numbers include all mammals collected in the oil spill area. The actual cause of death has yet to be determined for most of the animals.

Will the Total Number Ever Be Known?

No. Although the marine mammals tallied in these maps may include some that were injured or died of causes unrelated to the spill, given the vastness of the Gulf others surely disappeared without being observed or collected by authorities.

Scientists are also concerned about other impacts on mammals that can be even more difficult to discern, ranging from the effects of oil exposure on reproduction and other physiological functions, to the loss of important habitat.

How Does Oil Impact Marine Mammals?

- Oil can cause chemical burns and irritation from direct contact.
- Oil can cause ulcers and internal bleeding if ingested.
- Oil floating at the surface can emit toxic fumes that surfacing whales and dolphins will breathe.
- Oil can coat baleen—comblike growths in the mouths of toothless whales used for filtering prey out of ingested water—and make it ineffective for capturing prey.
- The spilled oil and toxic chemical dispersants used by BP to break up the oil is potentially harming prey species deep under water. Even if not killed outright, prey animals are likely to absorb the toxins and pass them on to marine mammals. This factor could impair reproduction in both mammals and their prey.

"The spill is from the Gulf floor, so contaminating the entire water column, from top to bottom, is a very grave concern for all marine life in the area," says NWF senior wildlife biologist Doug Inkley.

In other spills, marine mammals have suffered major losses to their populations. Two orca pods affected by the Exxon Valdez lost 40 percent of their numbers and still have not fully recovered; the pods' reproductive success appears to have suffered long-term damage.

How Does Oil Impact Terrestrial Mammals?

Other terrestrial mammals, including river otters, mink and swamp rabbits are also at risk from the spill, as they are potentially going to lose habitat and food sources as oil washes into coastal wetlands.

Oil Spill Impacts On Birds



The Gulf oil disaster put shorebirds, waterfowl and marsh birds at great risk.

How Many Birds Were Affected by the Gulf Oil Disaster?

During the six months after the explosion of the Deepwater Horizon, **more than 7,000 birds** were collected in the spill area, of which nearly 3,000 (about 40%) showed visible signs of oiling.

The following map animation shows when and where injured and dead birds were picked up after the oil spill.

Was the Oil Spill the Cause of All These Deaths and Injuries?

These numbers include all birds collected in the oil spill area. While the actual cause of death has yet to be determined for most of the animals, it is clear that **a large proportion of the deaths and injuries were related to the oil spill**, as the number of animals collected--especially the birds and sea turtles--was far beyond what is usually found in that area.

Why is the Total Number of Birds Collected Lower than What the U.S. Fish and Wildlife Service has Reported?

Each bird collected (dead or alive) was recorded and entered in the USFWS database. According to USFWS, some of the collected live birds later died in captivity and were entered into the database a second time. As a result, USFWS says that **"approximately 10 percent of the grand total represents live birds that later died, so those individuals are counted twice."** Prior to making our maps showing the accumulation of birds collected, we corrected the data set so that birds collected alive that later died were counted only once, and reported as dead birds.



Will the Total Number of Birds Affected Ever Be Known?

No. Although the birds tallied in these maps may include some that were injured or died of causes unrelated to the spill, given the vastness of the Gulf **others surely disappeared without being observed or collected by authorities.** Scientists are also concerned about other impacts on birds that can be even more difficult to discern, ranging from the effects of oil exposure on reproduction and other physiological functions, to the loss of important foraging or nesting habitat.

What Bird Species Were Hit Hardest by the Gulf Oil Disaster?

The U.S. Fish and Wildlife Service released data around the species impacted by the Gulf oil disaster in September, thanks in part to a Freedom of Information Act request submitted by the National Wildlife Federation.

As of May 12, 2011 the top bird species collected in the spill area were:

- **Laughing gull** - 2,981
- **Brown pelican** - 826
- **Northern gannet** - 475
- **Royal tern** - 289
- **Black skimmer** - 253

How Does Oil Affect Birds?

Oil causes birds' feathers to mat and separate, causing the bird to lose its buoyancy and the ability to regulate body temperature. Contact with oil on their skin or face can cause skin and eye lesions.

Birds need to preen their feathers to keep themselves warm and dry, remove parasites and keep their feathers in good shape. Birds may ingest oil while preening their feathers or by eating contaminated food. Internal exposure to oil can lead to ulcers, pneumonia, liver damage, and other life-threatening conditions.

Migratory Birds and the Gulf Coast Region

The Gulf Coast is a critical stopover point or destination for many migratory species. Bird banding data from the past 50 years shows that birds migrating either through or to the Gulf region were also recorded throughout North America.