



## WILDLIFE AND OFFSHORE DRILLING

### The 2010 Gulf of Mexico Disaster: Pelagic Seabirds



SOOTY TERN © KEVIN SCHAFER/KEVINSCHAFFER.COM; OIL RIG © U.S. COAST GUARD

The news is full of pictures of some of the victims of the BP Deepwater Horizon disaster—oiled pelicans, gannets and shorebirds that have died, or in some cases, been rescued. But the list of birds in the path of the oil spill is long, and includes a number of “pelagic” species—those that spend most of their lives far out at sea, out of the public eye. The danger to them may be less visible, but it is no less real.

#### PELAGIC SEABIRDS IN THE GULF OF MEXICO

More than a dozen species of pelagic seabirds use the Gulf of Mexico in the spring and summer. They all spend much of their time in flight or on water, and many are rarely seen on the mainland. Below are examples of the diversity of this amazing group of birds.

##### **Magnificent frigatebird**

With a seven-foot wingspan and a brilliant red-orange throat patch that inflates during courtship, the “magnificent” part of this bird’s name is obvious. “Frigatebird,” named after a fast and agile naval ship, refers to their flight prowess: they can glide, apparently effortlessly, all day. They also steal from other birds by harassing them into disgorging their most

recent meal, then swoop in to catch the food in mid-air. They also skim the surface of the water to catch fish and squid. Their feathers lack the waterproof coating found in other aquatic birds, so magnificent frigatebirds never dive for food or even rest on the surface. Nor do they spend much time on land: their legs are short and awkwardly placed for walking. They nest and roost on trees and bushes in the Caribbean islands, Dry Tortugas, along the coast of Mexico and in the eastern Pacific. The Gulf of Mexico and waters of the Caribbean are among their most important foraging areas.

##### **Sooty tern**

If the record books had an entry for the longest time spent in the air, a sooty tern might just hold it. These birds can stay aloft for months or even years at a time. Like the frigatebirds,

Masked boobies spend much of their time gliding over the open ocean, searching for schools of small fish. To catch their prey, they plunge into the water. This feeding behavior makes them particularly susceptible to becoming coated in oil, which can lead to hypothermia or drowning.



sooty terns have little waterproofing in their wings, so they do all their foraging at the ocean's surface or just above it—they can snag small fish that jump into the air to escape predators in the water. Sooty terns do alight on floating driftwood or on the backs of sea turtles, but they generally spend little time on the surface of the water; since they can sleep while in flight, they don't need to. Sooty terns are one of the largest and most numerous of the tern species, and breed on rocky islands and atolls throughout the tropics. One important colony is in the Dry Tortugas west of the Florida Keys; there are also colonies near the Yucatan, and sometimes small groups breed on Louisiana islands. Their breeding colonies are large and densely packed, with up to a million birds, and riotously noisy.

#### **Black tern**

The seasonal lifestyles of this robin-sized bird are like black and white—literally. Breeding birds are almost entirely black, and they nest in large colonies on inland wetlands and ponds in the northern United States and southern Canada, eating fish and terrestrial insects. In the winter, most of their feathers change to white, and their habitat changes to marine. They feed on small fish off the coasts of northern South America and western Mexico. In between, from July to October, the birds spend much of their time in the Gulf of Mexico. Black tern populations have declined steeply over the past 50 years, probably due to loss of wetlands and pesticide use in their breeding range, and overfishing of prey in their winter range.

#### **Masked booby**

Boobies are the acrobatic divers of the seabird world. Remaining far out to sea for months at a time, they glide on their five-foot wings, until their keen eyes spot schools of small fish—mackerel, anchovies, pilchards or other fish. Then they pull in their wings and dive, plunging straight into the water from a height of up to 300 feet, reaching a depth of 30 feet or more underwater to scoop up prey. Masked boobies are found throughout the tropics, and are often found above schools of tuna, taking advantage of prey fish fleeing toward the surface. Boobies may get their name from their curious courtship displays, which involve stretching and shaking of the head and neck, and strutting “parade” behaviors. In the Gulf of Mexico, masked boobies breed on the Dry Tortugas and on islets and reefs off the northern Yucatan, Mexico.

#### **Audubon's shearwater**

Audubon's shearwater is the smallest member of this group of seabirds. About a foot long and with a two-foot wingspan, their wings seem disproportionately long in flight. They are black above and mainly white below with a short neck. Found in warm waters worldwide, Audubon's shearwater is divided into several subspecies, one of which breeds in the Caribbean and Bahamas. They feed in the *Sargassum*, or gulfweed, beds that are widespread in the region. Their method of feeding resembles that of ducks, floating on the water and dipping their heads under to observe prey, then dabbling or diving short distances to capture small invertebrates and fish.

## Band-rumped storm-petrel

The band-rumped storm-petrel is one of the least understood seabirds. Related to albatrosses and shearwaters but looking more like swallows in flight, these dark birds have a white band across the tail. They are usually seen flying just above the water, pattering the surface with their feet to stir up plankton and other small food items. Band-rumped storm-petrels breed in the Azores, Galapagos and elsewhere, but are found regularly along the Gulf Stream, from Texas to the mid-Atlantic states. The petrels nest in small burrows on remote islands, and come ashore to their nests only at night to avoid predation by gulls and other larger birds.

## IMPACTS OF OIL

The full extent of the impacts of the Deepwater Horizon disaster on these birds may never be known. Unlike pelicans and shorebirds that show up on beaches in distress, these birds that live far out at sea will also die there. Many will never be recovered or recorded. Yet the impacts are very real.

### External

The most visible impact on birds comes from oiling of the feathers, which reduces the birds' buoyancy and insulation. Exposed birds suffer from hypothermia and drowning. This impact is of more concern to the species that sit on the water. Magnificent frigatebirds and sooty terns, which stay above the water most of the time, are less likely to suffer external injury; however, all species are at risk of exposure to oil fumes at the surface. The masked booby, which, like brown pelicans, plunges beneath the surface when feeding, is particularly susceptible to becoming coated in oil.

### Internal

Since each of these sea birds forages at or near the surface of the ocean, they are all at risk of ingesting floating oil or weathered oil byproducts along with their prey. Toxins from oil can cause inflammation of the digestive tract, interfering with nutrient absorption. Oil toxins can also lead to anemia, damaged kidneys and liver, and suppressed immune systems. Oil toxins also interfere with birds' ability to rid their bodies of the excess salt, which is a crucial function for birds that rarely encounter fresh water. Oil pollution has also been linked to reproductive problems, including lowered egg production, eggshell thinning, and reduced growth and survival of chicks.

### Food chain effects

Oil is also toxic to the small fish and marine invertebrates on which the seabirds feed. For instance, when eggs of Baltic herring—relatives of important prey fish in the Gulf—were exposed to oil concentrations of just 3.1 to 11.9 parts per million, 70 percent to 100 percent of juvenile fish were malformed or died within a day of hatching. Oil-exposed herring larvae also exhibit abnormal accumulations of fluid

in their hearts and abdomens, and damage to liver, skeletal, brain and eye cells.

### Indirect effects

The use of chemical dispersants to break the oil into smaller particles helps keep it away from sensitive coasts and wetlands, but has the side effect of keeping many more tiny droplets of oil in the water column. This increases the exposure for animals in the water, like the fish and plankton upon which these seabirds depend.

### Impacts of oil spills combined with climate change and other threats

The seabirds of the Gulf of Mexico would be feeling the impacts of oil even if it weren't in the water. The burning of oil and other fossil fuels is a leading cause of climate change, which is altering life in the Gulf of Mexico in several ways. For instance, climate change is altering the timing, pattern and extent of nutrient upwellings, which govern the population and location of the plankton and small fish these birds rely on for food. Warmer waters in the Gulf of Mexico also promote huge blooms of harmful algae that rob



MAGNIFICENT FRIGATEBIRD © DAVID HOSKING/FLPA/MINDEN PICTURES

Displaying a brilliantly colored throat patch during courtship, it's easy to see how the magnificent frigatebird got the first part of its name. The Gulf of Mexico is one of this bird's most important foraging areas, but the fish they eat there may be tainted with toxic oil.

Audubon's shearwaters are often found feeding in gulfweed beds, floating and tipping below the water to catch prey. Any oil they ingest while feeding could lead to organ damage, suppressed immune systems, reproductive problems or death.



AUDUBON'S SHEARWATERS © DAVID HOSKING/FLPA/MINDEN PICTURES

the waters of oxygen and can contain toxins that damage the liver, nervous system or other tissues of exposed birds. The nesting islands where these birds congregate are also at risk: climate change is elevating the intensity of hurricanes, which can devastate nesting colonies. Furthermore, some of the most important nesting areas are at low elevation and may be submerged by the three-to-four-foot rise in sea level expected during this century.

### WHAT CITIZENS CAN DO

- Never discard fishing line, tackle or other garbage that might entangle or be consumed by seabirds.
- When at sea or on the beach, carefully pick up any discarded trash or fishing line you see and dispose in an appropriate container.
- Reduce your use of chemicals such as fertilizers and pesticides that can wash from gardens and lawns into coastal waters, harming plants and animals.
- Avoid seafood caught by longline fisheries, which can entangle and drown seabirds, unless equipped with bird deterrents.
- Urge your elected officials to pass comprehensive climate change legislation that addresses the impacts of global warming on wildlife and our natural resources.

### WHAT POLICY MAKERS CAN DO

- Ensure that BP funds long-term monitoring and restoration of seabird populations in all Gulf areas affected by

the spill, including mitigation for the long-term damage caused from nonlethal exposure.

- Impose greater safety and environmental standards and develop comprehensive spill response plans on existing offshore drilling operations.
- Prevent expanded drilling operations off the coast to limit future spill risks.
- Enact comprehensive energy and climate change policies to transition away from harmful oil and fossil fuels.

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