

COASTAL ECOSYSTEMS

The meeting of land and sea along more than 16,000 miles of coastline from Texas to Florida creates a wealth of ecosystems, from mangrove forests to coral reefs. The dynamic mixing of salt water and fresh water and the daily infusions of sediments from rivers nourish areas that provide habitat for wildlife and protection from pollution and storms.

SALTWATER MARSHES

Tough grasses, like cordgrass, thrive in the intertidal zone, with its high salinity levels. Marsh grasses filter pollutants in the water and trap sediment to help build up land.

MARSH PERIWINKLES, feeding on grasses, regulate the growth of healthy marshes and serve as food for turtles, crabs, and birds.

COASTAL PRAIRIES

An endangered ecosystem, coastal grasslands in Texas and Louisiana, fringed by marsh, accommodate migrating waterfowl, shorebirds, and songbirds.

OYSTER BEDS

The Gulf's oyster beds are among the most productive in the world. Oysters filter water, and the reef structure provides habitat for many marine species.

SHORELINE FORESTS

Coastal forests, including pine savannas and banks of live oak, form buffers between shoreline and inland ecosystems and offer vital stopovers for migrating birds.

FRESHWATER RIVERS

Almost 60 percent of the U.S. watershed drains into the Gulf. River sediments have built up the Mississippi Delta, the largest coastal wetland in the lower 48 states.

TURTLES

The Gulf harbors one of the world's greatest concentrations of turtle species. Five threatened or endangered sea turtle species lay their eggs on Gulf beaches.

MANGROVE FORESTS

Mangroves provide a vital line of defense against waves, wind, and erosion. Brown pelicans and frigatebirds are among the many birds that nest inside.

SEA GRASS MEADOWS

Lush meadows flourish in clear, shallow water. Manatees and sea turtles graze the vegetation, and shrimps, crabs, and juvenile fish shelter amid roots.

MANGROVE roots trap sediments, stabilize shorelines, protect against erosion, and build islands.

SARGASSUM SEAS

Hundreds of thousands of acres are blanketed by floating seaweed that provides nurseries for many kinds of fish and habitats for hundreds of species, including shrimps, crabs, and snails.

MARINE ECOSYSTEMS

Between its light-flooded surface and dark, barely explored depths, the Gulf's water world hosts an intricate web of life, from plankton to whales. Many inhabitants move between levels to feed. Others live on organic debris falling from above. Creatures composed mostly of water haunt the deep under crushing pressure, the darkness lit by bioluminescent hunters.

BRIGHT SURFACE

Plankton drifting in the sunlit epipelagic zone create a rich soup to start the marine food chain. Plant plankton account for roughly half of Earth's photosynthesis, generating much of the atmosphere's oxygen. Many fish, crustaceans, and mammals, hiding in deep water by day, rise at night to feed.

TWILIGHT ZONE

As sunlight fades, plants can't survive, giving way in the mesopelagic zone to an animal realm of predators, scavengers, and filter feeders. Many of its inhabitants feed on organic matter falling from above. The huge sperm whale passes through this zone, descending 3,000 feet and deeper to hunt squid.

DARK AND TEEMING

In the bathypelagic zone, more than two miles deep at its outer limit, live animals that have adapted to extreme cold and pressure, including 20-foot-long elbowed squid, bioluminescent fish, and deep-sea jellyfish.

Sunlight helps evaporate volatile oil compounds. Dispersants are applied to speed up the breakdown of oil and prevent slicks from hitting land.

Heavier oil compounds absorb floating sediment and coagulate into asphalt-like tar balls that can wash up on shore or drop to the seafloor.

OIL IN WATER

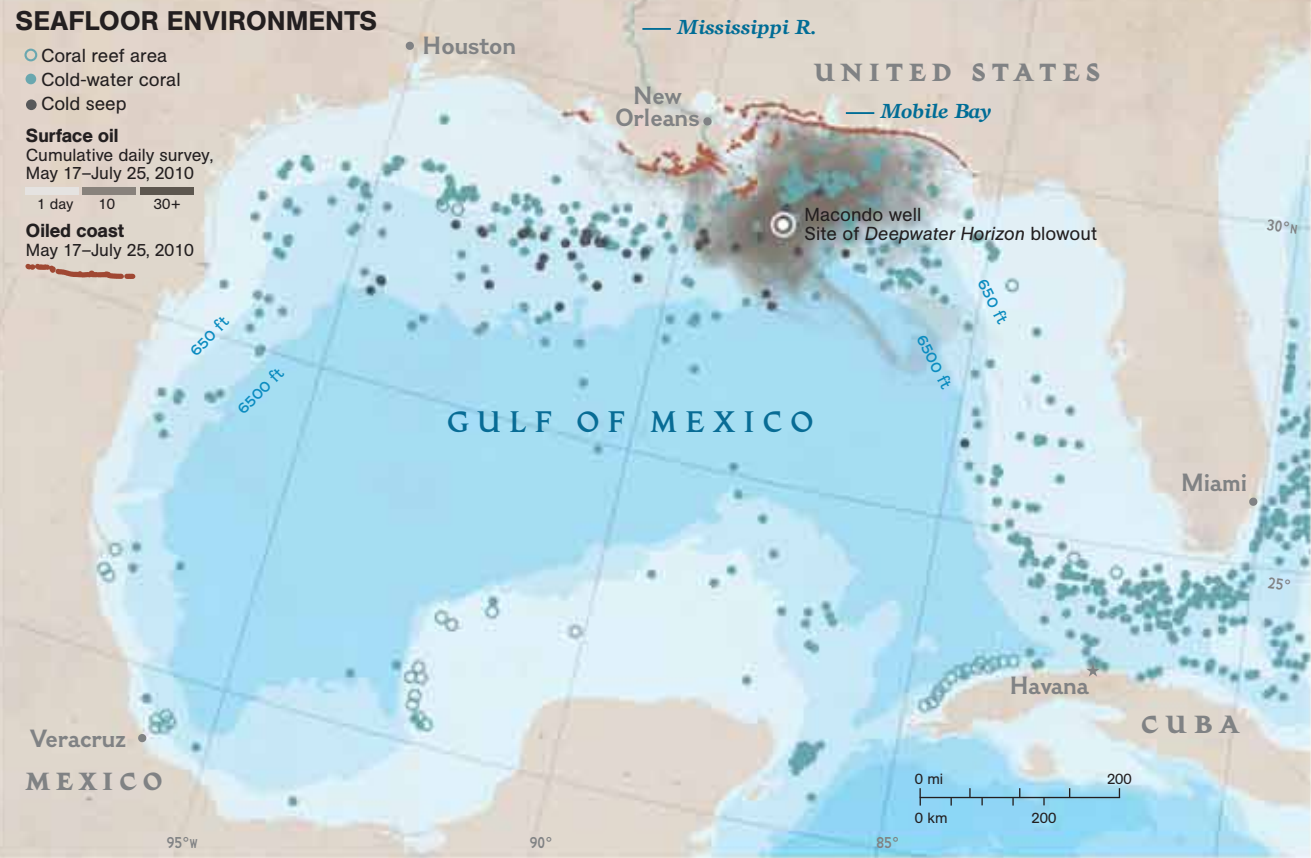
Crude oil contains hundreds of compounds that are toxic to marine life. To break up oil gushing from its Macondo well, BP has used large amounts of chemical dispersants at the surface and in the depths. The environmental impact of oil combined with dispersants in deep water is uncertain, and scientists worry that damage control will further imperil the food web.

Vast numbers of drifting fish eggs and larvae, food for larger creatures like whale sharks, are vulnerable to globules of oil and dispersants that envelop and kill microfauna.



THE GULF OF MEXICO
Layers of Life

The rich habitats of the Gulf of Mexico help make it one of the most ecologically and economically productive bodies of water in the world. Its environments range from sandy, ever shifting barrier islands to muddy, tide-washed marshes, from frigid dark zones miles deep to immense islands of floating seaweed. Even before the *Deepwater Horizon* rig explosion on April 20, 2010, which spewed millions of barrels of oil into the water, the Gulf was battling serious problems, including overfishing, extensive wetlands loss, and a huge oxygen-starved “dead zone” at the mouth of the Mississippi River. The oil spill is affecting every habitat, testing the Gulf’s resilience.



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