



What's at Stake: The Ecological and Economic Future of the Florida Keys

In the Florida Keys, the natural and human communities are intertwined. The health of living barrier coral reef that exists nowhere else in North America is tied to that of the mangrove trees that fringe the islands and the submerged seagrass beds and patch reefs in between. The Florida wildlife that thrives in this unique environment relies on these habitats to be healthy, just as we, in turn, depend on them to support food, recreation, and valuable jobs. But these resources—and the livelihoods and way of life they support—are threatened by the growing Gulf oil disaster. We must protect our valuable marine life to ensure the ecological and economic future of the Florida Keys.

For more information,
please contact:
Alison Chase at
achase@nrdc.org.

The Florida Keys are an undisputed ecological treasure

- Located just off the tip of Florida, the Florida Keys consists of 1,700 islands that stretch more than 200 miles to the south and west, ending just above Cuba.¹ The Keys marine ecosystem is the only complete tropical marine ecosystem in the continental United States.²

- The Florida Keys National Marine Sanctuary, covering approximately 2,900 square nautical miles of coastal and ocean waters and the submerged lands surrounding the Florida Keys, was designated in 1990 to ensure the protection of the area's treasures for current and future generations.³

- Just six miles from the Florida Keys is North America's only living barrier coral reef and the third longest barrier reef in the world.⁴

- A vast and abundant diversity of wildlife make their home in the waters of the Florida Keys, including marine mammals like bottlenose dolphins, Florida manatees, and humpback whales; fish like snapper, grouper, tarpon, blue

marlin, and hammerhead sharks; shellfish like spiny lobster and stone crabs; and reptiles like the American alligator.⁵ Five of the six species of marine turtles found in U.S. waters can be found in the Florida Keys National Marine Sanctuary (Kemp's ridley, green, leatherback, loggerhead, and hawksbill).⁶ The Keys ecosystem supports more than 6,000 species of plants, fish, and invertebrates.⁷

- Mangrove forests occupy almost a half million acres of Florida's coastline and are prevalent in the Keys. Mangrove roots trap and cycle sediments and important nutrients through the larger ecosystem, and these unique trees serve as critical nursery habitat for fisheries and shellfish and as nesting and feeding areas for coastal and migratory birds.⁸

- The Florida Keys contains the world's largest seagrass bed—seagrass meadows help maintain water clarity by trapping fine sediments between their leaves, stabilize the ocean floor with their roots, serve as food for marine mammals like manatees, and provide essential habitat for fish and invertebrates.⁹



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The Florida Keys economy relies on a healthy ocean ecosystem and wildlife

Table: GDP Contribution by Ocean Sector – Monroe County

Ocean Sector Industry	GDP Contribution
Tourism & Recreation	\$1,217,717,546
Living Resources	
Fish Hatcheries & Aquaculture	
Fishing	
Seafood Markets	
Seafood Processing	\$25,191,364
Transportation	\$9,862,568
Construction	\$5,901,727
All Ocean Sectors Combined	\$1,296,066,631

“A 50 percent drop in tourism and related spending on Florida’s western coast as a result of the oil spill could result in an economic loss of more than \$10 billion and put nearly 195,000 people out of work”

■ A recent economic analysis found that a 50 percent drop in tourism and related spending on Florida’s western coast as a result of the oil spill (from the western edge of the Panhandle to the Keys) could result in an economic loss of more than \$10 billion and put nearly 195,000 people out of work.¹⁰

■ In 2004, ocean sector businesses from just Monroe County (where the Keys are located) contributed almost \$1.3 billion to the state’s gross domestic product (GDP). (See Table).¹¹ The tourism and recreation sector accounted for nearly 94 percent of this, and employed more than 15,000 people.¹²

■ A 2008 report by the National Marine Fisheries Service found that the commercial fishing industry in Florida (defined as the commercial harvest sector, seafood wholesalers and distributors, seafood processors and dealers, and seafood retailers) generated nearly \$5.7 billion in sales and more than \$3.1 billion in income.¹³

■ Key West is among the nation’s top 20 producers of seafood by dollar value of the dockside catch. In 2008, more than 10 million pounds of fish and shellfish worth nearly \$39 million were brought in to the Key West port alone.¹⁴ It should be noted that this is simply the dockside value; the true value of the fish increases as it moves up through the value chain and is sold at retail to consumers.

■ In 2008, expenditures from recreational anglers in western Florida generated \$5.65 billion in total sales to the regional economy and supported approximately 54,600 jobs.¹⁵ On the East Coast of Florida, expenditures from recreational anglers generated more than \$4 billion in total sales to the regional economy and supported more than 35,000 jobs.¹⁶

■ Seventy to ninety percent of the Gulf region’s commercially important fish species depend on coastal resources like seagrass beds for shelter or food during at least one stage of their life.¹⁷

■ Florida’s coastal resources are estimated to provide an average of more than \$11 billion annually in storm protection services.¹⁸

■ The Florida Keys coral reefs are the top dive destination in the world.

■ Roughly 300 species of birds live or migrate through the Florida Keys.¹⁹ In 2006, more than 3 million people participated in bird watching in Florida; Florida wildlife watchers in general spent more than \$3 billion on expenditures (e.g., equipment purchases like binoculars and cameras).²⁰

The Gulf oil disaster poses a grave threat to Florida Keys marine life—and the food, recreation, and valuable jobs that rely on these resources

■ The Florida Keys’ coral reef ecosystem is already stressed from pollution, water warming, and acidification. Submerged plumes of oil droplets and natural gas could prove deadly to corals, as oil could kill the algae and microorganisms that coral depend on for food.

■ Mangroves rank second of the 28 shoreline ecosystems analyzed by the National Oceanic and Atmospheric Administration in vulnerability to oil, taking into account the threat to plant and animal life and difficulty of cleanup.²¹

■ All six species of marine turtles found in U.S. waters are threatened with extinction.²² Oil in the waters can cause turtles to experience skin irritation and increased susceptibility to infections. Inhaled chemicals can damage turtles’ respiratory and gastrointestinal tracts, as well as damage their liver and kidney functions. Turtles that have ingested tarballs can experience

“floating syndrome” where gas prevents the turtle for diving and feeding, which can lead to starvation. Oil on developing sea turtle nests can increase egg mortality and lead to potential deformities in hatchlings.²³

- Shorebirds like sandpipers travel from South America to the Arctic to breed and are currently in peak migration.²⁴ Long-term chronic effects from consuming oil-contaminated prey can lead to reproductive failure—for example, years after the *Exxon Valdez* spill, black oystercatchers that foraged in contaminated areas had smaller eggs and reduced breeding levels compared to other populations.²⁵

- The loss of just 3 individuals of the Gulf of Mexico’s population of sperm whales—of which there are only 1,400 to 1,600—could risk the population’s long term survival, especially considering an individual will birth just 3 to 4 calves over their entire life. Sperm whales surface to breathe and can ingest oil; oil can also impact the whales’ prey like squid. After the *Exxon Valdez* disaster, some populations of killer whales were reduced as much as 40 percent.²⁶

- The entire western Atlantic breeding population of bluefin tuna migrates through the Florida Straits and into the Gulf to spawn from mid-April to June.²⁷ The Atlantic bluefin tuna has been petitioned to be added to the federal endangered species list.

The Gulf oil spill could have long-term impacts on Florida’s ecosystems

The most difficult assessment to make is what the long-term impacts of oil on Florida’s resources will be. Much depends on the winds, weather, currents, and how much shoreline and open ocean life are contaminated by the oil and the materials used to disperse the oil. We do know that oil spills have consequences that last for decades:

- Scientists investigating the long-term impacts of the *Exxon Valdez* spill estimate that about 20,000 gallons of oil from that spill remain in Prince William Sound, continuing to harm threatened and endangered species and undermine their recovery.²⁸

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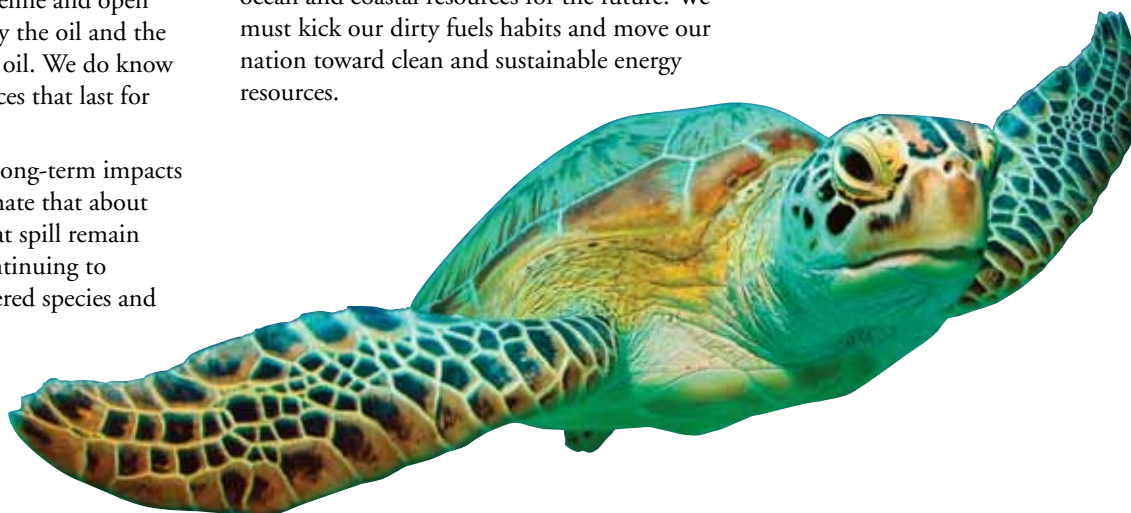
- Marine mammals, sea birds, fish, shellfish, and other sea life are extremely vulnerable to oil pollution and the long-term toxic effects can impair reproductive success for generations. Studies have shown that tiny amounts of oil—as little as one part per billion—can harm pink salmon and cause their eggs to fail.²⁹ The Prince William Sound Pacific herring fishery still has not recovered from the *Exxon Valdez* spill.³⁰

- Researchers discovered long-term effects on shellfish, crabs, seabirds, whales, and sea otters in years following oil spills in Alaska, Massachusetts, and Spain—issues ranged from altered blood chemistry and higher levels of stress hormones to erratic behavior, contaminated eggs, and long-term population declines.³¹

We must protect our valuable ocean resources for the future

Fishing, wildlife watching, tourism, and so many other ocean uses depend on healthy ocean and coastal ecosystems. When those ecosystems are degraded because of water pollution, habitat loss, destructive fishing practices, and other human impacts, the economy suffers.

Offshore drilling poses significant risks to our valuable ocean and coastal resources and economies. We need to protect and restore our ocean and coastal resources for the future. We must kick our dirty fuels habits and move our nation toward clean and sustainable energy resources.



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