

What's at Stake: The Economic Value of the Gulf of Mexico's Ocean Resources

The Gulf of Mexico's economic health depends on functioning and resilient ocean and coastal ecosystems. But these marine resources are threatened by the growing *Deepwater Horizon* oil slick. Our marine resources must be protected so that they can continue to provide the services we depend on well into the future.

Overview of the Value of the Gulf of Mexico's Ocean

- In 2003, the Gulf of Mexico's ocean economy employed more than 562,000 people, paid wages of more than \$13.2 billion, and contributed over \$32 billion to the region's gross state product.¹ Tourism and recreation comprised 71 percent of the employment in the Gulf region's 2003 ocean economy.² Unfortunately, beach communities in the Gulf region are already reporting hotel-reservation cancellations and fishing tournament postponements due to the spill.³

State	Sales (\$ in thousands)	Income (\$ in thousands)	Jobs
Alabama	\$445,449	\$244,568	9,750
Florida (East & West Coasts)	\$5,657,246	\$3,108,084	108,695
Louisiana	\$2,033,587	\$1,059,617	43,711
Mississippi	\$390,702	\$197,903	8,575
Texas	\$2,013,272	\$994,140	42,541
TOTAL:	\$10,540,256	\$5,604,312	213,272

- A 2008 report by the National Marine Fisheries Service (NMFS) found that eastern Florida and the Gulf region's commercial fishing industry (defined as the commercial harvest sector, seafood wholesalers and distributors, seafood processors and dealers, and seafood retailers) generated more than \$10.5 billion in sales, more than \$5.6 billion in income, and supported more than 200,000 jobs in 2008. (See Table 1).⁴

- A 2006 NMFS report noted that 6.2 million recreational anglers in the Gulf region spent \$2.2 billion on more than 23 million fishing trips in 2006 – of these anglers, 3.3 million – 54 percent of the total – were from coastal counties in the Gulf region.⁵ A similar NMFS report in 2008 noted that 3.2 million resident recreational anglers took a Gulf of Mexico fishing trip in 2008.⁶
- Western Florida experienced the greatest economic boost from recreational fishing in the Gulf region as noted in the NMFS report: in 2008, expenditures from recreational anglers contributed \$5.65 billion in total sales to the regional economy and added approximately 54,600 jobs.⁷

The Value of the Gulf Region's Ecosystems

While some ocean ecosystem benefits, such as the market value of commercially harvested fish, are regularly calculated, many values that result from healthy, functioning ocean ecosystems are rarely tallied, but provide a large pool of extended benefits. Such ecosystem services include "... *provisioning services* such as food, water, timber, and fiber; *regulating services* that affect climate, floods, disease, wastes, and water quality; *cultural services* that provide recreational, aesthetic, and spiritual benefits; and *supporting services* such as soil formation, photosynthesis, and nutrient cycling."⁸

Provisioning services

- In 2008 according to NMFS, the commercial fish and shellfish harvest from the five U.S. Gulf states was estimated to be roughly 1.3 billion pounds valued at more than \$661 million.⁹ It should be noted that the landed value is simply the immediate offloaded "ex-vessel" market value of the catch; the value of the fish increases as it moves up through the value chain and is processed and sold at retail.¹⁰
- The Gulf region contains four of the top seven fishing ports in the nation by landed weight – Empire-Venice, Intracoastal City, Pascagoula-Moss Point, and Cameron – and has ten of the top twenty-five fishing ports in the nation by dollar value of landings – Empire-Venice, Brownsville-Port Isabel, Dulac-Chauvin, Port Arthur, Key West, Intracoastal City, Galveston, Palacios, Lafitte-Barataria, and Apalachicola.¹¹

Table 2: 2008 Landed Value of the Commercial Catch of Key Gulf Region Species

Species Name	Alabama	Florida (West Coast)	Louisiana	Mississippi	Texas	TOTAL \$ by Species
Shrimp (all species)	\$38,355,214	\$23,260,840	\$130,622,865	\$17,146,081	\$157,181,783	\$366,566,783
Oysters	\$243,414	\$5,472,823	\$38,818,750	\$6,869,160	\$8,835,023	\$60,239,170
Blue Crab	\$1,532,669	\$3,285,845	\$32,024,696	\$446,756	\$2,341,503	\$39,631,469
Red Snapper	\$237,141	\$2,945,188	\$2,037,903	<i>Data not disclosed</i>	\$2,743,582	\$7,963,814
TOTAL \$ by State:	\$40,368,438	\$34,964,696	\$203,504,214	\$24,461,997	\$171,101,891	\$474,401,236

- In 2008, the combined value of several key species groups for all five states in the Gulf region – shrimp, oysters, blue crab and red snapper – was more than \$474.4 million. (See Table 2.)¹²
- Unfortunately, many of the Gulf region’s key species are likely to be the first casualties of the *Deepwater Horizon* oil spill. Oysters are largely stationary and cannot flee the low dissolved oxygen areas caused by oil on the water’s surface.¹³ The timing of this spill will impact the newly spawned larvae of shrimps and crabs – the catch of the future – as they are largely immobile and likely to be closer to the water’s surface and any floating oil.¹⁴

Regulating services

- Ocean resources help protect the shore against storms and floods.¹⁵ Coastal wetlands alone provide the United States with \$23.2 billion in storm protection services annually.¹⁶ The hurricane-ravaged Gulf cannot afford to lose wetlands – especially as estimates state that the wetlands in the Mississippi Delta are already shrinking at a rate of approximately a football field an hour due, partially, to construction of onshore infrastructure to support the oil industry, like roads and pipelines.¹⁷ Even though containment booms are in place to protect many of the region’s wetlands, high winds can push waves of oil over the barriers and into the estuaries.¹⁸
- The Gulf region has two of just ten national seashores within the National Park Service and has seven of only twenty-eight estuaries of national significance in the federal government’s National Estuary Program. (See Table 3).¹⁹ The Gulf Islands National Seashore, which includes western Florida and Mississippi coastline, has important nesting beaches for four species of sea turtles – loggerheads, green, Kemp’s Ridley, and leatherback.²⁰ All six species of marine turtles found in U.S. waters are threatened with extinction.²¹

Table 3: National Estuary Program Estuaries & National Seashores in the Gulf Region	
State	Estuary & Seashore Names
Alabama	• Mobile Bay
Florida (West Coast)	• Gulf Islands National Seashore • Charlotte Harbor • Sarasota Bay • Tampa Bay
Louisiana	• Barataria-Terrebonne Estuarine Complex
Mississippi	• Gulf Islands National Seashore
Texas	• Padre Island National Seashore • Coastal Bend Bays and Estuaries • Galveston Bay

Cultural services

- In 2006, more than 7 million people participated in bird watching in eastern Florida and the Gulf region; wildlife watchers in this region in general spent nearly \$7 billion on expenditures (e.g., equipment purchases like binoculars and cameras). (See Table 4).²²
- Gulf Coast wetlands provide important stopover habitat for an estimated 75 percent of the waterfowl migrating along the Central Flyway.²³ Currently, it is peak spring migration for colorful songbirds that winter in South and Central America, like warblers, orioles, and hummingbirds.²⁴ Nesting season begins soon for terns, plovers, and egrets. All of these species depend on the Gulf marshes to refuel after long flights and could be impacted by oiled resources.²⁵

Table 4: 2006 Economic Value of Wildlife Associated Recreation

State	Number of Birdwatchers (in thousands)	Expenditures by Wildlife Watchers (in thousands)
Alabama	828	\$450,004
Florida (East & West Coasts)	3,101	\$3,081,496
Louisiana	552	\$312,430
Mississippi	535	\$175,846
Texas	2,476	\$2,939,018
TOTAL:	7,492	\$6,958,794

- Using the National Oceanic and Atmospheric Administration’s National Survey on Recreation and the Environment (NSE) estimates for statewide participation and a variety of literature that details economic value estimates for several recreational types (including travel cost and contingency valuation methods), the estimated annual economic value of recreational activities like beach visitation, recreational fishing, SCUBA diving, and snorkeling for the Gulfshore is calculated to be between \$8.3 and \$34.2 billion.²⁶

- Also according to NSE estimates, Florida and Texas rank among the nation’s top five destinations for Americans who swim, fish, dive, and enjoy coastal resources like beaches and wetlands.²⁷

Supporting services

- Our oceans provide important supporting services, such as cycling carbon dioxide through the water where it is used by phytoplankton to grow and phytoplankton, in turn, supports the food web.²⁸
- Healthy ocean habitats are critical to ensuring that ocean life flourishes. More than 75 percent of the nation’s commercial fish and 80 to 90 percent of its recreational fish spend part of their lives in estuary habitats.²⁹ Louisiana’s coastal wetlands, for example, support the fishing industry by providing breeding areas and nurseries for a variety of fish and shellfish.³⁰

The Long-term Impacts on the Gulf Region’s Ecosystems

The most difficult assessment to make is what the long-term impacts of oil on the Gulf region’s resources will be. Much depends on the winds, weather, 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 decadal consequences:

- Scientists investigating the long-term impacts of the *Exxon Valdez* spill estimate that nearly 20,000 gallons of oil from that spill remain in Prince William Sound, continuing to harm threatened and endangered species and undermine their recovery.³¹
- 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.³²
- 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.³³

We Must Protect the Gulf Region’s Ecosystems for the Future

We must ensure that we have an independent investigation to understand what happened with the demise of *Deepwater Horizon*, the ensuing spill, and its ramifications. The investigation should assess the causes of the current spill, how such spills can be avoided in the future, the adequacy of containment and clean-up measures for spills generally, and the implications of these findings for drilling in, or adjacent to, sensitive or ecologically important areas. We must learn from this spill and protect our fragile and valuable ocean resources for the future.

- ¹ Colgan, Charles. 2008. "The Ocean Economy of the Gulf of Mexico in National Perspective" in The Changing Coastal and Ocean Economics of the Gulf of Mexico. Edited by Judith Kildow, Charles Colgan, and Linwood Pendleton, University of Texas Press. (pp. 2, 3). Please note that this analysis relied on 2003 data from the National Ocean Economics Program (<http://www.oceanoeconomics.org/>). The author estimated the ocean economy of Florida by using only those counties adjacent to the Gulf of Mexico, from Monroe County north; Florida counties on the Atlantic coast were excluded.
- ² Colgan, Charles. 2008. "The Ocean Economy of the Gulf of Mexico in National Perspective" in The Changing Coastal and Ocean Economics of the Gulf of Mexico. Edited by Judith Kildow, Charles Colgan, and Linwood Pendleton, University of Texas Press. (pp. 2, 3). Please note that this analysis relied on 2003 data from the National Ocean Economics Program (<http://www.oceanoeconomics.org/>). The author estimated the ocean economy of Florida by using only those counties adjacent to the Gulf of Mexico, from Monroe County north; Florida counties on the Atlantic coast were excluded.
- ³ Howell, Katie. "As Cancellations Mount, Gulf Coast Resorts Fear a Lost Summer." New York Times. 5 May 2010.
- ⁴ NMFS. Fisheries Economics of the United States 2008: Economics and Sociocultural Trends Series. (pp. 11, 121). http://www.st.nmfs.noaa.gov/st5/publication/fisheries_economics_2008.html. Please note that the results from this study cannot be directly compared to the work of the National Ocean Economics Program; the analyses use different data and models. Also, note that Florida commercial fishing numbers include both West and East Coasts – the tables do not separate the state into West and East Coasts.
- ⁵ NMFS. Fisheries Economics of the United States 2006: Economics and Sociocultural Trends Series. (pp. 115-6, 134). http://www.st.nmfs.noaa.gov/st5/publication/economics_communities.html. Please note that the results from this study cannot be directly compared to the work of the National Ocean Economics Program; the analyses use different data and models. Also, note that the Marine Recreational Information Program does not collect participation (number of anglers) or effort (number of trips) data for Texas; this data was not available in the report. To calculate trip and equipment expenditures and impacts, effort and participation was estimated based on 2008 data provided by the Texas Parks and Wildlife Department.
- ⁶ NMFS. Fisheries Economics of the United States 2008: Economics and Sociocultural Trends Series. (pp. 118, 133). http://www.st.nmfs.noaa.gov/st5/publication/fisheries_economics_2008.html. Please note that the results from this study cannot be directly compared to the work of the National Ocean Economics Program; the analyses use different data and models. Also, note that the Marine Recreational Information Program does not collect participation (number of anglers) or effort (number of trips) data for Texas; this data was not available in the report. To calculate trip and equipment expenditures and impacts, effort and participation was estimated based on 2008 data provided by the Texas Parks and Wildlife Department.
- ⁷ NMFS. Fisheries Economics of the United States 2008: Economics and Sociocultural Trends Series. (pp. 118, 136). http://www.st.nmfs.noaa.gov/st5/publication/fisheries_economics_2008.html. Please note that the results from this study cannot be directly compared to the work of the National Ocean Economics Program; the analyses use different data and models.
- ⁸ Millennium Ecosystem Assessment. 2005. Ecosystems and Human Well-being: Synthesis. Island Press: Washington, DC. (Preface, p. 5). <http://www.millenniumassessment.org/en/Synthesis.aspx>.
- ⁹ NMFS. Fisheries Statistics. 2008. Accessed 7 May 2010. www.st.nmfs.noaa.gov.
- ¹⁰ Getner, Brad. April, 2009. PowerPoint Presentation: Economics of Fishing. http://www.gentnergroupp.com/?page_id=8.
- ¹¹ NMFS. Fisheries Statistics. 2008. Accessed 7 May 2010. www.st.nmfs.noaa.gov.
- ¹² NMFS. Fisheries Economics of the United States 2006: Economics and Sociocultural Trends Series. (p. 115). http://www.st.nmfs.noaa.gov/st5/publication/economics_communities.html; NMFS. Fisheries Statistics. 2008. Accessed 7 May 2010. www.st.nmfs.noaa.gov; Gulf of Mexico Fishery Management Council staff. Personal Communication. 7 May 2010.; NMFS's Fisheries Economics of the United States 2006: Economics and Sociocultural Trends Series identified blue crab, oysters, shrimp, and red snapper as key species or species groups for all five states in the Gulf region. The 2008 data is the latest commercial fishing catch data from NMFS. Blue crab includes the categories: blue crab, peeler blue crab and soft blue crab. Shrimp includes the categories: brown shrimp, Dendrobranchiata shrimp, other marine shrimp, pink shrimp, rock shrimp, royal red shrimp, seabob shrimp and white shrimp. Please note that the data for Mississippi red snapper was not disclosed.
- ¹³ Kirkham, Chris. "Louisiana fishers fear lasting damage to livelihoods from Gulf oil spill." Times-Picayune. 29 Apr. 2010.;
- ¹⁴ Marshall, Bob. "Gulf spill is really a river of oil, environmentalists say." Times-Picayune. 29 Apr. 2010.
- ¹⁵ Kirkham, Chris. "Louisiana fishers fear lasting damage to livelihoods from Gulf oil spill." Times-Picayune. 29 Apr. 2010.
- ¹⁶ UNEP. 2006. Marine and coastal ecosystems and human well-being: A synthesis report based on the findings of the Millennium Ecosystem Assessment. UNEP. (p. 1). http://www.unep.org/pdf/Completev6_LR.pdf.
- ¹⁷ Joint Ocean Commission Initiative. (April 2009). Changing Oceans, Changing World: Ocean Priorities for the Obama Administration and Congress. (p. 5). http://www.jointoceancommission.org/resource-center/1-Reports/2009-04-07_JOCI_Changing_Oceans,_Changing_World.pdf.
- ¹⁸ Kaufman, Leslie and Campbell Robertson. "In Gulf oil spill, fragile marshes face new threat." New York Times 1 May 2010.
- ¹⁹ Marshall, Bob. "Gulf spill is really a river of oil, environmentalists say." Times-Picayune. 29 Apr. 2010.
- ²⁰ National Park Service Public Use Statistics Office. "National Park Service Park Type Report for: 2009." Accessed 6 May 2010. <http://www.nature.nps.gov/stats/>; EPA. "NEP Profiles." Accessed 3 May 2010. www.epa.gov/owow/estuaries/profiles.html.
- ²¹ National Park Service. "Gulf Islands: Sea Turtles." Accessed 6 May 2010. <http://www.nps.gov/guis/naturescience/sea-turtles.htm>.
- ²² NOAA. "Marine Turtles." Accessed 6 May 2010. www.nmfs.noaa.gov/pr/species/turtles.
- ²³ U.S. Department of the Interior, Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau. 2006 National Survey of Fishing, Hunting and Wildlife-Associated Recreation: Alabama. (pp. 37, 39); U.S. Department of the Interior, Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau. 2006 National Survey of Fishing,

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- Hunting and Wildlife-Associated Recreation: Florida. (pp. 37, 39).; U.S. Department of the Interior, Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau. 2006 National Survey of Fishing, Hunting and Wildlife-Associated Recreation: Louisiana. pp. (37, 39).; U.S. Department of the Interior, Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau. 2006 National Survey of Fishing, Hunting and Wildlife-Associated Recreation: Mississippi. (pp. 37, 39).; U.S. Department of the Interior, Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau. 2006 National Survey of Fishing, Hunting and Wildlife-Associated Recreation: Texas. (pp. 37, 39). Please note that birdwatchers numbers only include the population that is 16 years or older. These numbers reflect the total number of birdwatchers, both state residents and non-residents. Also, note that Florida includes both West and East Coasts – the tables do not separate the state into West and East Coasts.
- ²³ Twilley, Robert. Coastal Wetlands & Global Climate Change: Gulf Coast Wetland Sustainability in a Changing Climate. Dec. 2007. (p. 1). <http://www.pewclimate.org/docUploads/Regional-Impacts-Gulf.pdf>.
- ²⁴ Straub, Noelle. “As Oil Drifts Closer, Resource Defenders Gird for Worst Along Gulf Coast.” New York Times. 30 Apr. 2010.
- ²⁵ Straub, Noelle. “As Oil Drifts Closer, Resource Defenders Gird for Worst Along Gulf Coast.” New York Times. 30 Apr. 2010.
- ²⁶ Pendleton, Linwood H., 2009. “The Economic Value of Coastal and Estuary Recreation” in The Economic and Market Value of America’s Coasts and Estuaries. Edited by Linwood Pendleton, Coastal Ocean Values Press, Washington, DC (p. 135). Please note that data is based on NOAA’s 2000-2001 National Survey on Recreation and the Environment.
- ²⁷ Kildow, J., Colgan, C. and L. Pendleton. 2008. “The Coastal and Ocean Economies of the US Side of the Gulf of Mexico” in The Changing Coastal and Ocean Economies of the Gulf of Mexico, University of Texas Press. (p. 7). Please note that data is based on NOAA’s 2000-2001 National Survey on Recreation and the Environment.
- ²⁸ Nellemann, C., Corcoran, E., Duarte, C.M., Valdes, L., DeYoung, C., Fonesca, L., Grimsditch, G. (Eds.) 2009. Blue Carbon. A Rapid Response Assessment. UNEP. (p. 27). <http://www.grida.no/publications/rr/blue-carbon/ebook.aspx>.
- ²⁹ Restore America’s Estuaries. “Why Restore Estuaries?” 2009. Accessed 6 May 2010. www.estuaries.org/why-restore-estuaries/.
- ³⁰ Howell, Katie. “Gulf Coast Fishermen Fear That They Will Be Left With ‘Crippled Industry’.” New York Times. 3 May 2010.
- ³¹ Walsh, Bryan. “Still Digging Up *Exxon Valdez* Oil, 20 Years Later.” Time 4 Jun. 2009.
- ³² National Research Council. 2003. Oil in the Sea III: Inputs, Fates, and Effects. Washington, DC: National Academies Press. (pp. 127-128).; Australian Maritime Safety Authority. “The Effects of Maritime Oil Spills on Wildlife Including Non-Avian Marine Life.” Last updated 8 May 2002. Accessed 13 Aug. 2009. http://www.amsa.gov.au/Marine_Environment_Protection/National_Plan/General_Information/Oiled_Wildlife/Oil_Spill_Effects_on_Wildlife_and_Non-Avian_Marine_Life.asp#4gen.
- ³³ Hotz, Robert Lee. “Threats to Wildlife Often Linger Long After Accidents.” Wall Street Journal. 1 May 2010.