



The Deepwater Horizon Oil Spill and the Gulf of Mexico Fishing Industry

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Summary

On April 20, 2010, the Deepwater Horizon oil drilling rig was destroyed by an explosion and fire, and the oil well began releasing oil into the Gulf of Mexico. The oil spill caused significant economic harm to the Gulf fishing industry because of fishery closures and consumer concerns related to the safety of Gulf seafood. Intermediate and long-term concerns are related to impacts on marine populations and degradation of fisheries habitat necessary for spawning, development of early life stages, and growth.

The closing and opening of fishing grounds has involved a tradeoff between ensuring public safety and providing fishing opportunities to recreational and commercial fishermen. In addition to public health concerns, uncertainties related to Gulf seafood safety could further compromise the reputation of Gulf seafood. Most areas have been reopened and landings of commercial and recreational species are recovering. For Gulf waters re-opened through November 15, 2010, sensory analyses of seafood samples have found no detectable oil or dispersant odors or flavors, and results of chemical analyses have been well below levels of concern. However, some scientists and the public remain skeptical of claims that Gulf seafood is safe. This may inhibit the recovery of Gulf recreational and commercial fisheries.

Under the Oil Pollution Act (OPA), harmed individuals and businesses may make claims for economic injuries to the responsible party, in this case BP. Although many in the fishing industry have benefited from their damage claims and associated payments, ongoing issues include the legitimacy of some claims, lack of transparency in the claims review process, eligibility to make a claim, and level of payments. Other assistance to the fishing industry includes BP grants to states, National Oceanic and Atmospheric Administration (NOAA) fishery disaster assistance, the BP Vessels of Opportunity Program, and Small Business Administration efforts.

Environmental restoration of fisheries habitat and Gulf ecosystems would support the long-term recovery and productivity of Gulf fisheries. The federal government's role in restoration is defined in statute by OPA and in NOAA regulations, which require development of a Natural Resource Damage Assessment (NRDA). NRDA restoration plans are currently being developed by state and federal trustees. The Obama Administration also has committed to developing a separate long-term Gulf of Mexico plan to restore the environment, economy, and public health of residents. Implementation of the plan will require sustained funding and a governance structure to oversee and coordinate restoration efforts.

The 112th Congress may continue to conduct oversight of efforts to promote fishing industry recovery, adequate compensation to fishermen and businesses, and Gulf restoration. Ongoing efforts by federal agencies and states to ensure seafood safety and to regain and maintain the reputation of Gulf seafood are the most immediate challenges currently faced by the fishing industry. As the NRDA process moves from the planning to restoration phase, questions may arise regarding the level of the potential settlement and the types of restoration activities identified by the trustees. In contrast to NRDA, three bills have been introduced in the 112th Congress to address elements of the Administration's restoration plan. All three bills would establish a Gulf Coast Ecosystem Restoration Fund and require 80% of any amounts collected by the United States as penalties, settlements, or fines under the Federal Water Pollution Control Act to be deposited into the fund. They would also establish a governing body to distribute funding and coordinate restoration efforts. Potential issues involve the allocation of funds, focus of restoration projects, and coordination with other restoration efforts.

Contents

Introduction	1
Commercial and Recreational Fisheries	2
Impacts of the Oil Spill on Gulf Fisheries	3
Impacts on Landings and Markets	3
Closing and Reopening Areas.....	3
Impacts on Fisheries.....	5
Impacts on Markets.....	6
Environmental Impacts of the Oil Spill.....	7
Financial Assistance	8
Claims and Compensation.....	8
Vessels of Opportunity Program	10
Other BP Assistance for the Gulf Fishing Industry.....	10
NOAA Fishery Disaster Assistance and Other Federal Efforts	11
Restoration.....	11
Natural Resource Damage Assessment	12
Gulf Coast Restoration Plan	13
Congressional Actions and Potential Concerns	14

Tables

Table 1. Commercial Fisheries Statistics by State in 2008.....	2
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Contacts

Author Contact Information	14
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Introduction

The Deepwater Horizon oil spill has caused significant socioeconomic injuries to the Gulf of Mexico fishing industry. Immediate economic injuries occurred because large areas of federal and state waters in or adjacent to the spill area were closed to fishing as a precautionary measure to ensure the safety of seafood. Perhaps of greater concern are intermediate and long-term harm to Gulf of Mexico ecosystems. Seafood production is dependent on Gulf ecosystems for spawning areas, nurseries, and growth.

Over 84 days beginning on April 20, 2010, the Deepwater Horizon oil well released over 200 million gallons (4.9 million barrels).¹ During the spill, oil was dispersed through the application of 1.8 million gallons of surface and subsurface chemical dispersants. By June 2, 2010, the area of federal waters closed to fishing had grown to its maximum of 88,522 square miles or nearly 37% of federal waters in the Gulf of Mexico.² The maximum portions of state waters closed to fishing during the spill were Alabama (40%), Florida (2%), Louisiana (55%), and Mississippi (95%).³ Survey teams also have documented 1,053 total linear miles of oiled shoreline.⁴

At issue for Congress is whether current efforts will be sufficient to restore the fishery to pre-spill conditions. Congress may continue to conduct oversight of efforts to promote fishing industry recovery and Gulf restoration. Immediate issues are likely to focus on providing financial compensation to fishermen, ensuring seafood safety, and maintaining Gulf seafood markets.

Congress also may consider long-term efforts to restore the Gulf environment and related fishery productivity. In addition to restoration requirements defined in statute by the Oil Pollution Act (OPA, P.L. 101-380) and National Oceanic and Atmospheric Administration (NOAA) Natural Resource Damage Assessment (NRDA) regulations under OPA, the Administration has proposed a long-term plan to restore the Gulf region. The plan would redirect Clean Water Act penalty revenues for this purpose⁵ and establish a Gulf Restoration Council to coordinate restoration efforts. Congress may consider the Administration's proposal and related issues such as the allocation and use of restoration funds.

The primary objective of this report is to summarize information related to damages caused by the oil spill to Gulf fisheries and efforts to mitigate these damages. Many uncertainties exist because of the complexity and scale of Gulf fisheries and ecosystems that have been affected by the oil spill. Direct and indirect damages to fisheries and the Gulf environment are still being assessed and these efforts are likely to continue for years to come.

¹ U.S. Department of the Interior, Press Release, "U.S. Scientific Teams Refine Estimates of Oil Flow from BP's Well Prior to Capping," August 2, 2010, at <http://app.restorethegulf.gov/release/2010/08/02/us-scientific-teams-refine-estimates-oil-flow-bps-well-prior-capping>.

² As of February 15, 1,041 square miles of federal waters remained closed to fishing, <http://sero.nmfs.noaa.gov/ClosureSizeandPercentCoverage.htm>.

³ Gulf Coast Claims Facility, *Measures of the Effects of the Gulf Oil Spill on Individuals and Businesses and Proposed Compensation Schema*, January 24, 2011, http://www.gulfcoastclaimsfacility.com/exhibit_c.pdf.

⁴ *NRDA by the Numbers - January 2011*, http://www.gulfspillrestoration.noaa.gov/wp-content/uploads/2011/02/NRDA_by_the_Numbers_1_11_FINAL.pdf.

⁵ According to 26 U.S.C. 9509(b)(8) the potential Clean Water Act penalties would be deposited into the Oil Spill Liability Trust Fund.

Commercial and Recreational Fisheries

Other than Alaska, historically, the Gulf region has produced the greatest amount of seafood by volume and value in the United States. In 2008, Gulf commercial fishery⁶ landings totaled 1,273 million pounds with a dock-side value of \$697 million.⁷ When related processor, wholesale, and retail businesses are included, the seafood industry of the Gulf states supported over 213,000 full- and part-time jobs with related income impacts of \$5.5 billion.⁸ The top commercial species by value were shrimp (\$366 million), menhaden (\$64 million), oysters (\$60 million), and blue crab (\$39 million).⁹ **Table 1** provides commercial landings and revenue for major species by state in the Gulf of Mexico region.

Table 1. Commercial Fisheries Statistics by State in 2008

Landings and revenue in thousands

State	Total Landings and Revenue		Revenue for Major Commercial Species			
	Landings	Revenue	Shrimp	Menhaden	Oysters	Blue Crab
West Florida	58,643	\$162,182	\$ 23,265	\$ 15	\$ 5,473	\$ 3,300
Alabama	24,534	\$ 44,234	\$ 38,355	\$ 59	\$ 243	\$ 1,533
Mississippi	201,822	\$ 43,697	\$ 17,146	\$18,534	\$ 6,869	\$ 447
Louisiana	915,956	\$272,857	\$130,623	\$45,768	\$38,852	\$32,185
Texas	72,469	\$174,621	\$157,182	0	\$ 8,835	\$ 2,341
Totals	1,273,424	\$697,591	\$366,571	\$64,376	\$60,272	\$39,806

Sources: National Marine Fisheries Service, *Fisheries of the United States 2009*, Silver Spring, MD, July 2010, p.6. <http://www.st.nmfs.noaa.gov/st1/fus/fus09/index.html>, http://www.st.nmfs.noaa.gov/st1/fus/fus09/03_recreational2009.pdf.

NOAA Fisheries Office of Science & Technology, Fisheries Statistics, Queried commercial landings and revenue February 10, 2010, http://www.st.nmfs.noaa.gov/st1/commercial/landings/annual_landings.html.

Recreational fisheries also make significant contributions to the region's economy by supporting businesses such as charters, bait and tackle shops, restaurants, and hotels. In 2008, 5.7 million Gulf recreational fishermen, both visitors and residents, took 24 million fishing trips.¹⁰ In 2008, recreational fishermen spent over \$12.5 billion on durable equipment¹¹ and trips in the Gulf

⁶ The term fishery includes the resource, fishermen, and related businesses.

⁷ National Marine Fisheries Service, *Fisheries of the United States 2009*, Silver Spring, MD, July 2010, p.6, <http://www.st.nmfs.noaa.gov/st1/fus/fus09/index.html>http://www.st.nmfs.noaa.gov/st1/fus/fus09/03_recreational2009.pdf.

⁸ National Marine Fisheries Service, *Fisheries Economics of the United States 2008*, Economics and Sociocultural Status and Status Trends Series, Silver Spring, MD, April 2010, p. 119, http://www.st.nmfs.noaa.gov/st5/publication/fisheries_economics_2008.html. Hereinafter cited as NMFS 2010. Job and income figures include commercial fisheries for the entire state Florida.

⁹ NOAA Fisheries Office of Science & Technology, Fisheries Statistics, Queried commercial landings and revenue, February 10, 2010, http://www.st.nmfs.noaa.gov/st1/commercial/landings/annual_landings.html.

¹⁰ National Marine Fisheries Service, *Fisheries of the United States 2008*, Silver Spring, MD, July 2009, p. 38 (data on recreational trips and fish caught do not include Texas), <http://www.st.nmfs.noaa.gov/st1/fus/fus09/index.html>http://www.st.nmfs.noaa.gov/st1/fus/fus09/03_recreational2009.pdf.

¹¹ Includes vehicles, boats, fishing tackle, and other items.

region.¹² Some of the main species targeted by recreational fishermen include snappers, several types of drum, sheepshead, and Spanish mackerel. Although recreational expenditures cannot be directly compared to commercial revenues, these figures provide an indication of the magnitude of economic activity related to these fisheries. Commercial and recreational fisheries are among the main activities supporting the economy and social well-being of many Gulf coastal communities.

Impacts of the Oil Spill on Gulf Fisheries

The Deepwater Horizon oil spill has directly harmed the fishing industry through closures and changes in seafood demand. Large areas of federal and state waters were closed to fishing as a precautionary measure to ensure the safety of seafood. During the closures fisheries landings and associated revenues decreased significantly in central Gulf fishing ports. It is likely that demand for Gulf seafood has decreased because of changes in consumer perceptions related to the spill. The spill also has harmed the Gulf environment, resulting in mortality of organisms, eggs, and early life stages and harm to habitat and other elements of the Gulf ecosystem. The scale and nature of the spill make it difficult for the public or government to quantify these effects.

Impacts on Landings and Markets

Closing and Reopening Areas

The closing and opening of areas has involved a tradeoff between ensuring public safety and providing fishing opportunities to recreational and commercial fishermen. In addition to public health concerns, marketing of oil-tainted products would further compromise the reputation of Gulf seafood. On the other hand, closures directly constrain recreational and commercial fishermen and delays in reopening areas are costly to the fishing industry.

On May 2, 2010, 12 days following the explosion and fire of the Deepwater Horizon, NOAA closed 6,817 square miles of the Gulf of Mexico to commercial and recreational fishing. The closure was implemented to ensure potentially contaminated seafood would not enter markets and pose a risk to human health. The closure grew to include portions of Louisiana, Mississippi, Alabama, and Florida state waters. At the peak of the closure, 88,522 square miles, or nearly 37%, of all federal waters in the Gulf of Mexico were off-limits to fishing.¹³ The maximum proportions of state waters closed to fishing during the spill were Alabama (40%), Florida (2%), Louisiana (55%), and Mississippi (95%).¹⁴ Since the flow of oil from the well-head was stopped in July, most of Louisiana state waters and all of Mississippi, Alabama, and Florida state waters have been re-opened to fishing. As of January 24, 2011, only 1,041 square miles of federal waters immediately surrounding the well-head remain closed to commercial and recreational fishing.¹⁵

¹² NMFS 2010, p. 120.

¹³ See <http://sero.nmfs.noaa.gov/ClosureSizeandPercentCoverage.htm>.

¹⁴ Gulf Coast Claims Facility, *Measures of the Effects of the Gulf Oil Spill on Individuals and Businesses and Proposed Compensation Schema*, January 24, 2011, http://www.gulfcoastclaimsfacility.com/exhibit_c.pdf.

¹⁵ “On November 23, 2010, 4,213 square miles were closed to the royal red shrimp fishery as a precautionary measure because tarballs were caught in nets by a commercial vessel trawling for royal red shrimp. On February 1, 2011, the area was reopened to royal red shrimp fishing after shrimp sampling and testing from the area showed no oil or (continued...)”

FDA, NOAA, and coastal states established a protocol to determine when areas may be re-opened to fishing.¹⁶ Once areas have been determined to be free of oil from the spill, re-opening has been considered on a species-by-species basis. Seafood samples of the species in question must pass both sensory and chemical analyses to ensure there are no harmful oil residues.¹⁷ For sensory testing, edible portions of the species are tested by a panel of experts who check samples for oil and dispersant odor and taste. If all tested samples for a given site pass the sensory test, additional samples undergo chemical analysis to test for polycyclic aromatic hydrocarbons (PAHs) and dispersants. All seafood samples from an area must pass both tests for the area to be reopened to fishing.

Some have criticized the testing protocols because they believe seafood sampling coverage has been insufficient, the setting of PAH levels of concern should have incorporated additional factors, and the list of toxic substances being tested is too narrow.¹⁸

NOAA has collected samples from federal waters while state personnel have collected samples from state waters. On August 19, 2010, FDA officials stated the following in congressional testimony:

To date all samples have passed sensory testing for oil or dispersants and, as with the surveillance sampling, the results of all chemical analyses have shown PAH levels well below the levels of concern, usually by a factor of 100 to 1,000 below those levels, essentially at the same level as were seen before the spill.¹⁹

For federal waters reopened through November 15, 2010, sensory analyses have found no detectable oil or dispersant odors or flavors, and results of chemical analyses have been well below levels of concern.²⁰ Further, NOAA and FDA sampling from commercial landing sites and markets have not found seafood contaminated by oil or dispersant. According to the FDA, “fish and shellfish harvested from areas re-opened or unaffected by the oil spill are considered to be safe to eat.”²¹

(...continued)

dispersant contamination,” http://sero.nmfs.noaa.gov/sf/deepwater_horizon/FB11-010_Reopening_RoyalRed_020211.pdf.

¹⁶ Food and Drug Administration, Overview of Testing Protocol to Re-open Harvest Waters that Were Closed in Response to the Deepwater Horizon Oil Spill, September 2010, <http://www.fda.gov/Food/ucm217598.htm>.

¹⁷ Food and Drug Administration, *Gulf of Mexico Oil Spill: Questions and Answers*, <http://www.fda.gov/Food/FoodSafety/Product-SpecificInformation/Seafood/ucm221563.htm>.

¹⁸ Bob Marshall, “Safety of Gulf Seafood Debated 8 Months After BP Oil Spill,” *The Times-Picayune*, December 19, 2010, http://www.nola.com/news/gulf-oil-spill/index.ssf/2010/12/safety_of_gulf_seafood.html.

¹⁹ U.S. Congress, House Committee on Energy and Commerce, Subcommittee on Energy and Environment, *The BP Oil Spill: Accounting for the Spilled Oil and Ensuring the Safety of Seafood from the Gulf*, 111th Cong., 2nd sess., August 19, 2010.

²⁰ National Oceanic and Atmospheric Administration, “NOAA Reopens More Than 8,000 square miles of the Gulf of Mexico to Fishing,” press release, November 15, 2010, http://www.noaa.gov/stories/2010/20101115_reopening.html.

²¹ FDA, Gulf of Mexico Oil Spill Update, Information current as of September 8, 2010, <http://www.fda.gov/food/ucm210970.htm>.

Impacts on Fisheries

The areas affected by the closures are some of the richest fishing grounds in the Gulf for commercial species such as shrimp, menhaden, and oysters. Although many factors influence commercial landings, when compared to the same period in 2009 (January through December), total Gulf landings for all shrimp species in 2010 decreased by 35.6 million pounds (27%).²² On the state level, shrimp landings decreased by 32% in Louisiana, 60% in Mississippi, 56% in Alabama and nearly 15% in Texas, while increasing by nearly 15% for the Florida west coast. Menhaden landings in Louisiana also decreased by 171 million pounds (17%). The decreases in landings resulted in lower revenues in the harvesting sector. Immediate losses were dependent on target species, location, and alternative fishing opportunities. Landings information for other species and associated revenue information are not available at this time.

In addition to impacts resulting directly from oil, the oyster industry has been harmed by efforts to protect Louisiana estuaries from oil intrusion. Following the oil spill, the state of Louisiana released freshwater from the Mississippi River into estuaries in greater amounts than usual in an attempt to keep oil from reaching Louisiana's estuaries. The strategy may have had limited success in keeping oil offshore, but with unintended consequences. The freshwater releases decreased salinity on the oyster grounds below the level that oysters can tolerate and resulted in significant mortality of oysters, by some estimates 50% of Louisiana's annual oyster crop. Some of the oyster industry's immediate concerns are related to documenting damage caused by the spill and freshwater diversion and effects of the spill on consumer perceptions and oyster markets. Prior to the oil spill, long-term restoration proposals to divert the Mississippi River for wetlands restoration raised concerns because of likely impacts on the productivity of oyster grounds. Some in the oyster industry have questioned whether current restoration efforts may need to consider retiring oyster grounds and developing new areas that are less likely to be affected by river diversions associated with restoration activities.²³

Seafood Safety Concerns Related to Oil and Dispersants

Crude oil contains a mixture of chemicals including polycyclic aromatic hydrocarbons (PAHs) that may accumulate in the tissues of marine organisms. The presence of PAHs can make seafood unfit for human consumption because some PAHs have been shown to be carcinogenic. Petroleum products may also taint seafood with an oily smell and taste. The Food and Drug Administration (FDA) considers tainted fish to be adulterated and does not permit the sale of adulterated foods.²⁴ Unlike oil, dispersants have a low potential to bio-accumulate in fish because they are quickly diluted in water. Dispersants biodegrade in weeks to months, further decreasing the likelihood that they would remain in ecosystems as some components of crude oil might.²⁵ With time and distance from the point of application, concentrations decrease rapidly.

The primary concern with dispersants is not necessarily related to their toxicity, but how dispersants may alter the fate of oil in the environment. According to a consensus statement developed by a diverse group of scientists, the use of Corexit dispersants (the type of dispersant used in the Gulf of Mexico) increases the concentration of

²² NOAA Fisheries Office of Science and Technology, *Fishery Market News*, Monthly Gulf Coast Shrimp Statistics, December 2010, http://www.st.nmfs.noaa.gov/st1/market_news/doc45.txt. (Hereinafter cited as NOAA Fishery Market News).

²³ See <http://www.houmatoday.com/article/20101216/articles/101219646>.

²⁴ 21 U.S.C. § 331 and 21 U.S.C. § 342(a).

²⁵ Crude oil also degrades, but it is made-up of different components, which degrade at different rates.

hydrocarbons in the water column and can increase the toxicity of oil because dispersants can work as a delivery system, allowing dispersed oil to enter organisms more readily.²⁶ According to a 2005 National Research Council Report,

In many instances where a dispersed plume may come into contact with sensitive water column or benthic organisms or populations, the current understanding of key processes and mechanisms is inadequate to confidently support a decision to apply dispersants.²⁷

On the other hand, a May 2010 FDA memorandum concluded that “the available information indicates that dispersants have little or no effect on the accumulation potential of oil contaminants, nor do they themselves accumulate in seafood.”²⁸ There remains considerable uncertainty related to the effects of dispersed oil on marine organisms. The NRC report’s recommendations included the setting of priorities for dispersant research, including the need to fund a series of toxicity studies to determine the mechanisms of both acute and sublethal toxicity to organisms from exposure to dispersed oil.

Impacts on Markets

The Gulf oil spill has affected both the supply of Gulf seafood and the demand for Gulf seafood. Fishery closures constrained harvesters and disrupted seafood supplies for the region’s processors, distributors, and buyers. The disruption of seafood supplies resulted in the loss of some of the region’s seafood markets. Impacts on specific markets vary depending on the magnitude of changes in supply from the harvest sector, whether the market is local, regional, or national, and the availability of alternative supplies. The disruption in Gulf supplies is likely to have induced buyers to use substitutes such as products from other regions or imports. Many in the Gulf seafood industry are concerned that once seafood buyers switch seafood suppliers, it may be difficult to regain markets.

Many in the Gulf seafood industry fear it also will be difficult to regain consumer trust in their products. A study conducted by MRops, a marketing research company commissioned by the Louisiana Seafood Promotion Board, reported that 70% of consumers polled expressed some level of concern about seafood safety following the Gulf oil spill and 23% have reduced their consumption of seafood.²⁹ This study implies that consumer concerns with safety have caused a decrease in demand for Gulf seafood and seafood in general.³⁰

Supply effects on prices depend on the scale of the reduction in supply relative to the total market supply. The decrease in supply and related price increases are likely to have been greater for fresh markets near the area of the spill and for local specialties such as oysters.³¹ With regard to

(...continued)

²⁶ Susan D. Shaw, *Consensus Statement*, Maine Environmental Research Institute, “Scientists oppose the use of dispersant chemicals in the Gulf of Mexico,” July 16, 2010, <http://meriresearch.org/Portals/0/Documents/CONSENSUS%20STATEMENT%20ON%20DISPERSANTS%20IN%20THE%20GULF%20updated%20July%2017.pdf>.

²⁷ National Research Council, *Oil Spill Dispersants, Efficacy and Effects*, Washington, DC, 2005, p. 11.

²⁸ Kiros Hailemariam, *Oil Spill Chemical Dispersants*, Department of Health and Human Services, Food and Drug Administration, May 14, 2010.

²⁹ Kevin McGill, “Survey measures post-spill seafood attitudes,” *Bloomberg Businessweek*, January 31, 2011, <http://www.businessweek.com/ap/financialnews/D9L3IP000.htm>.

³⁰ A change in demand results in a shift in the demand curve, in this case to the left, as opposed to a change in quantity demanded, movement along the demand curve.

³¹ Louisiana is also a major producer of oysters nationally.

demand, concerns with seafood safety are likely to put negative pressure on prices. Initially, prices of some Gulf seafood products increased because supplies were constrained by fishery closures. On average, reported Gulf shrimp prices have remained higher in 2010 than during 2009.³² Oysters have also increased in price, likely in part because of the decrease in Louisiana production which is over 37% of national production and 62% of production in the Gulf region.³³ As areas have been reopened and supply has rebounded, there have been some reports that prices of some products have decreased relative to previous years. In addition to the effects related to the oil spill, prices also depend on additional factors such as the availability of substitutes, consumer income, and consumer tastes and preferences.³⁴ The length of time it will take to regain markets and consumer trust remains an open question.

Environmental Impacts of the Oil Spill

The Deepwater Horizon oil spill has harmed living organisms that inhabit ocean and coastal areas of the Gulf of Mexico, although the magnitude of damages are subject to considerable uncertainty. Coastal areas are especially vulnerable because oil can be stranded in wetlands and other coastal ecosystems after being washed in by waves and tides. The uptake of dissolved components of oil is toxic for fish, shellfish, other invertebrates, and plankton. Oil also may coat small animals and plants that inhabit shoreline areas and suffocate them. Many scientists are concerned that oil suspended in the water column may have caused mortality of plankton, including eggs and larvae of many fish such as bluefin tuna. Oil also may have remained on or near the bottom of the Gulf and affected deep corals and other bottom-dwelling organisms. Sublethal effects reduce the overall health of organisms, resulting in decreased growth and reproduction. Initial harm to marine organisms, such as direct mortality and reduced health, decrease the reproductive capacity of marine populations and may reduce future abundance.

Early life stages of many species develop in coastal areas such as estuaries and wetlands and move offshore as they grow to their adult stage. As a result, the health of coastal areas can have long-term implications for the fishery industry. Ninety-seven percent of commercial fish and shellfish landings by volume are composed of species that depend on estuaries and wetlands at some point in the life cycle, and landings from the Louisiana coastal zone account for nearly one-third of the fish volume harvested in the continental United States.³⁵ The presence of oil in the environment may alter migration patterns, decrease food availability, and disrupt life cycles. According to a study of oil impacts on Louisiana fisheries, populations of shrimp, crab, and menhaden are most likely to be harmed by the effects of oil on their eggs and larvae.³⁶

The impacts of oil in coastal areas affects more than individual fish species. The Gulf is composed of inter-related ecosystems that stretch from estuaries and coastal wetlands to the pelagic zone (open ocean). Species directly affected by the spill could affect other species because of ecological interactions. For example, oil in coastal areas has affected structure-

³² NOAA Fishery Market News 2010.

³³ NOAA Fisheries Office of Science & Technology, Fisheries Statistics, Queried commercial landings and revenue February 10, 2010, http://www.st.nmfs.noaa.gov/st1/commercial/landings/annual_landings.html.

³⁴ Shrimp prices have generally been higher for reasons unrelated to the oil spill.

³⁵ National Oceanic and Atmospheric Administration, *Shorelines and Coastal Habitats in the Gulf of Mexico*, Factsheet, http://www.noaa.gov/factsheets/new%20version/shorelines_coastalhabitat.pdf.

³⁶ Innovative Emergency Management Inc., *A Study of the Economic Impact of the Deepwater Horizon Oil Spill*, Greater New Orleans Inc., October 15, 2010.

forming organisms, such as marsh grasses and oysters. These organisms provide shelter and a surface for attachment by other marine organisms. Survey teams have documented 1,053 total linear miles of oiled shoreline in the Gulf.³⁷ Robert Barham, Louisiana Wildlife and Fisheries Secretary, has reportedly voiced concerns over long-term implications of the oil spill on Gulf wildlife, such as effects on the food web.³⁸

Fisheries surveys from Dauphin Island Sea Lab, conducted after the oil spill off the coasts of Mississippi and Alabama, have found that the abundance of some fish species appear to have increased in 2010. Some scientists have speculated that these populations have increased because of the oil spill-related fisheries closures and reduced harvest.³⁹ Some scientists expressed concern that the effects of the fishing closures may make it difficult to determine the direct impact of the oil spill on marine populations. The complexity of coastal ecosystems and scale of the Gulf oil spill are likely to contribute to considerable uncertainty regarding the magnitude and duration of spill-related damages to living resources.

Financial Assistance

Several mechanisms exist to provide short- and long-term assistance to the fishing industry. Financial assistance to compensate for economic injuries to individuals and businesses affected by an oil spill are defined in statute by the Oil Pollution Act. Another source of assistance can be provided in cases where a fishery failure is declared by the Secretary of Commerce under the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA, P.L. 109-479). Additional sources of assistance have been provided through BP grants, the Vessels of Opportunity Program, and the Small Business Administration.

Claims and Compensation

Following the Exxon Valdez oil spill in 1989, a compensation and claims process was established under OPA for costs/damages resulting from oil spills, including lost profits and earnings resulting from property loss or natural resource injury.⁴⁰ In general, claims for damages must be presented first to the responsible party (e.g., BP).⁴¹ If the party to whom the claim is presented denies all liability, or if the claim is not settled by payment within 90 days after the claim was presented, the claimant may elect either to initiate an action in court against the responsible party or to present the claim directly to the Oil Spill Liability Trust Fund.⁴²

³⁷ *NRDA by the Numbers - January 2011*, http://www.gulfspillrestoration.noaa.gov/wp-content/uploads/2011/02/NRDA_by_the_Numbers_1_11_FINAL.pdf.

³⁸ Nikki Buskey, "Official Says That BP Won't Pay for Seafood Program," *Daily Comet*, October 27, 2010.

³⁹ See <http://www.fishbio.com/environmental-consulting-and-environmental-research-news/marine-news/10043-fish-numbers-triple-after-oil-spill-fishing-closures.html>.

⁴⁰ OPA § 1013 (33 U.S.C. 2713). Implementing regulations are found in 33 C.F.R. Part 136.

⁴¹ 33 U.S.C. § 2713(a). Under OPA, the term "claim" means "a request, made in writing for a sum certain, for compensation for damages or removal costs resulting from an [oil spill] incident." 33 U.S.C. § 2701(3).

⁴² The Oil Spill Liability Trust Fund (OSLTF) was established under OPA and consolidated the liability and compensation requirements of certain other prior oil pollution laws and their supporting funds. The OSLTF may be used for a variety of purposes related to oil spills, including payment of claims for uncompensated removal costs and damages. See http://www.uscg.mil/npfc/About_NPFC/osltf.asp.

In response to economic harm caused by the oil spill and to fulfill obligations as a responsible party, BP established a claims process and multiple claims centers.⁴³ On May 3, 2010, BP began paying emergency compensation to individuals and businesses. BP stated that emergency payments would continue as long as individuals and businesses could show they were unable to earn a living because of injury to natural resources caused by the oil spill. Payments were based on one month of income and would be adjusted with additional documentation.⁴⁴ On June 16, 2010, President Obama announced that BP had agreed to set aside \$20 billion to pay economic damage claims caused by the oil spill. Some members of the fishing industry criticized BP's administration of the claims process because they maintained that the claims process was slow, some individual payments were inadequate, and required proof of past earnings might not reflect potential earnings (if the spill had not occurred) for 2010.

On August 23, 2010, the Gulf Coast Claims Facility (GCCF) took over the administration of claims from BP to address the issues with BP's claims process.⁴⁵ Up until the change, BP had paid out \$395.6 million, of which approximately \$111 million went to the fisheries industry. Although still funded by BP, GCCF was established by the Administration and BP to provide an independent claims process.⁴⁶ Some have argued that the process is not independent because the GCCF is directly financed by BP. GCCF provides information on how to file a claim, how to check the current status of a claim, and other general information concerning the process. GCCF offered emergency payments equivalent to six months of lost income to claimants until November 23, 2010. As of February 12, 2011, the GCCF had made emergency payments of approximately \$751 million to individuals and businesses in the fishing industry.⁴⁷ Some claimants have voiced concerns with the transparency of the claims process, the lack of information in GCCF responses to claims, and the adequacy of payments, but the actual proportion of unsatisfied fishing industry claimants is not known at this time.

Under GCCF procedures, claimants will have three years to estimate damages and submit claims for final payment. Acceptance of a final claim would resolve all claims by that party against BP including past and future alleged damages.⁴⁸ Individuals and businesses that have received emergency payments from the GCCF are eligible for a quick payment final claim, which offers a fixed amount of \$5,000 for individuals and \$25,000 for businesses. Those who do not choose or are not eligible for the quick payment may submit a full review final payment claim for all documented losses and damages. The alternative to a final payment is to make an interim payment claim for past damages that have not been compensated. Individuals and businesses receiving interim payments are not required to sign a release of liability and may file a final claim at a later date. For many in the fishing industry, their dilemma is related to uncertainty in determining the extent and duration of damages to fisheries resources. Some have questioned whether three years is a sufficient period to fully determine the damages of the oil spill. Many individuals and businesses are faced with the decision on whether to take a final settlement or, as many have already done, to file a lawsuit, which may present uncertainty as to payment size and timing.

⁴³ Pursuant to OPA (33U.S.C. 2713-2715).

⁴⁴ U.S. Congress, House Committee on the Judiciary, *Testimony of Darryl White, Vice President, Resources, BP America*, 111th Cong., 2nd sess., May 27, 2010. Hereinafter cited as, BP 2010.

⁴⁵ See <http://www.whitehouse.gov/the-press-office/fact-sheet-claims-and-escrow>.

⁴⁶ See <http://www.gulfcoastclaimsfacility.com/faq#Q1>.

⁴⁷ See <http://www.gulfcoastclaimsfacility.com/reports>.

⁴⁸ See <http://www.gulfcoastclaimsfacility.com/>.

On February 2, 2011, the GCCF released a draft proposal, *Payment Options, Eligibility and Substantiation Criteria, and Final Payment Methodology*, for public comment.⁴⁹ The proposal establishes principles for governing final and interim claims for individuals and businesses. GCCF also released a report, *An expert opinion of when the Gulf of Mexico will return to pre-spill harvest status following the BP Deepwater Horizon HC 252 oil spill*, to provide supplemental information for the GCCF final payment methodology.⁵⁰ The report predicts that regional catches for major Gulf fisheries will likely continue along the same harvest trends of recent years by 2011.⁵¹ However, the report recognized there may be exceptions for specific areas and fisheries, especially for some oyster beds that may not recover for 6 to 10 years. Furthermore, the report acknowledges that a definitive assessment of recovery time is impossible, and the true loss to ecosystems and fisheries may not be known for years or even decades. Some have criticized the report because it assesses recovery of Gulf fisheries without allegedly understanding the ecological and long-term affects of the oil spill.⁵²

Vessels of Opportunity Program

The BP Vessels of Opportunity Program was designed to provide local boat operators with the opportunity to assist with response activities such as transporting supplies, assisting with wildlife rescue, and deploying containment booms. Only captains and employees who completed training and met other conditions were allowed to participate in the program. Approximately 3,500 commercial and charter fishing boats were employed over the life of the program. As of January 20, 2011, the program had made payments of \$594 million for vessels and crew in Louisiana, Mississippi, Alabama, and Florida. In September 2010, the program was concluded in Florida, Alabama, and Mississippi, but as of January 2011, a small number of vessels remained active in Louisiana. The GCCF has decided that the earnings from the Vessels of Opportunity Program would not be deducted from payments made to claimants.⁵³

Other BP Assistance for the Gulf Fishing Industry

On November 1, 2010, BP agreed to provide Louisiana with \$48 million for seafood safety (testing programs) and marketing.⁵⁴ Testing for oil and dispersants in seafood will be funded at \$6 million per year for three years and Louisiana seafood marketing will be funded at \$10 million

⁴⁹ Gulf Coast Claims Facility, *Payment Options, Eligibility and Substantiation Criteria, and Final Payment Methodology*, February 2, 2010, <http://www.gulfcoastclaimsfacility.com/METHODOLOGY.%20FEB.2.%20FINAL%20DRAFT.pdf>.

⁵⁰ John W. Tunnell, Jr., *An expert opinion of when the Gulf of Mexico will return to pre-spill harvest status following the BP Deepwater Horizon MC 252 oil spill*, Harte Research Institute for Gulf of Mexico Studies, Commissioned by Kenneth R. Feinberg, Claims Administrator, Gulf Coast Claims Facility, Corpus Christi, TX, January 31, 2011, http://www.gulfcoastclaimsfacility.com/exhibit_c.pdf.

⁵¹ The four major fisheries considered in the report are shrimp, oysters, blue crab, and finfish. The finfish category grouped together commercial fish species.

⁵² Brett Michael Dykes, "Feinberg: The Gulf will fully recover from the oil spill by 2012," *The Lookout*, February 2, 2011, http://news.yahoo.com/s/yblog_thelookout/20110202/us_yblog_thelookout/feinberg-the-gulf-will-fully-recover-from-oil-spill-by-2012.

⁵³ See http://www.sbp.net/index.php?option=com_content&view=article&id=1966:gulf-coast-claims-facility-will-not-deduct-vessel-of-opportunity-earnings-from-claims-payments&catid=84:oil-spill&Itemid=252.

⁵⁴ BP, "Seafood Safety, Tourism, and Restoration Funding Announced," press release, November 1, 2010, <http://www.louisianagulfresponse.com/go/doc/3047/940587/>.

per year for three years. The three-year commitment would reset for both programs if oil triggers the closure of new fishing areas. Louisiana had proposed funding of \$173 million for a long-term seafood testing and marketing campaign, but BP refused to fund the program. Previously, BP agreed to provide \$20 million over three years to fund seafood inspections and marketing efforts in Florida.⁵⁵ BP also has agreed to provide \$13 million to Louisiana to fund a three year study to monitor effects of the oil spill on Gulf fisheries.⁵⁶

NOAA Fishery Disaster Assistance and Other Federal Efforts

On May 24, 2010, Secretary of Commerce Locke determined that the ongoing oil spill had caused a fishery failure in the states of Louisiana, Mississippi, and Alabama. On June 2, 2010, the Secretary added Florida to the earlier determination. Both determinations were made under Section 312(a) of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA). Under this section of the act, states must provide a 25% match to federal funds. The Administration requested \$15 million to address the fishery failure and \$5 million in economic development assistance through the Economic Development Administration. The Supplemental Appropriations Act of 2010 (P.L. 111-212) included a total of \$28 million for fishery disaster assistance and \$5 million for economic development assistance. NOAA is expected to allocate \$15 million of the fishery disaster assistance for a strategic marketing plan and health and safety assurance program for Gulf coast seafood. The remaining \$13 million of fishery disaster assistance is intended to address economic impacts on fishermen and fishery-dependent businesses only if resources provided under other authorities are insufficient. The Supplemental Appropriations Act of 2010 also included \$10 million for expanded stock assessments for Gulf fish species and \$1 million for a National Academy of Sciences study of the long-term effects of the oil spill.⁵⁷ In addition, the Small Business Administration has offered economic injury disaster loans and has deferred required payments for some existing loans.⁵⁸

Restoration

Gulf fisheries production is dependent on healthy Gulf ecosystems, including the quantity and quality of fisheries habitat. Restoration of Gulf ecosystems would likely maintain and enhance current fisheries production.⁵⁹ The two main restoration efforts focusing on oil spill damages are the Natural Resource Damage Assessment (NRDA) and the Administration's Gulf Coast Restoration Plan.

⁵⁵ Cristine Blank, "BP to Fund Florida Seafood Testing Marketing," *Seafood Source.com*, October 25, 2010, p. <http://www.seafoodsource.com/newsarticledetail.aspx?id=4294999754>.

⁵⁶ Louisiana Department of Fisheries and Wildlife, "Governor Jindal Announces Funding for Fisheries Monitoring Program, Calls on BP to Fund Long-term Seafood Program," press release, August 18, 2010, <http://www.wlf.louisiana.gov/category/newsletter/ldwf-news?page=11>.

⁵⁷ See <http://www.commerce.gov/print/news/press-releases/2010/09/17/us-commerce-secretary-gary-locke-announces-26-million-gulf-states-fis>.

⁵⁸ For more information related to disaster assistance see CRS Report RL34146, *FEMA's Disaster Declaration Process: A Primer*, by Francis X. McCarthy.

⁵⁹ An exception might include Gulf oysters because oyster reefs depend on the current circulation and mixing of fresh and salt water. Alteration of freshwater flows would likely change the quality of oyster habitat.

Natural Resource Damage Assessment

The federal government's role in restoration is defined in statute by OPA and in NOAA regulations for developing a NRDA. NRDA addresses natural resource damages, restoration of resources that are injured, and lost services that result from an oil spill. The parties responsible for causing the oil spill are responsible for NRDA damages.⁶⁰ In contrast to financial compensation for individuals and businesses, NRDA focuses on restoration and compensation for harm to public natural resources. Designated federal, state, tribal, and sometimes foreign trust agencies are responsible to act on behalf of the public. OPA directs trustees to undertake two main actions: (1) return injured natural resources to their baseline condition (the condition that existed prior to the spill), and (2) compensate for interim losses. Restoration actions focus on returning natural resources to the baseline level with as much certainty and as quickly as possible. Compensation covers actions to address interim losses of natural resources and services until resources have recovered. Compensatory actions provide services of the same type and quality and of comparable value as those lost or injured. Damage assessment is required to quantify the extent of injuries to natural resources and to determine the type and amount of restoration and compensatory actions needed. The process of recovery is broken down by the regulations into three main phases:⁶¹

- **Pre-assessment phase**—determines whether natural resource injuries have occurred or are expected and whether to continue to the next phase.
- **Restoration planning phase**—evaluates potential injuries to natural resources. This phase includes an assessment of the nature and extent of natural resource injuries and development of plans for restoring resources and compensating the public for interim losses.
- **Restoration phase**—the final restoration plan is presented to responsible parties to implement or fund the plan. This provides the opportunity for settlement of damage claims without litigation. However, OPA authorizes trustees to bring civil action for damages.

As of January 2011, trustees were continuing with the restoration planning phase of the process that was begun in August of 2010. Efforts required during this phase include defining the baseline condition of the ecosystem and damages caused by the oil spill. Quantifying these conditions and damages are often hindered by limited scientific understanding of physical and biological processes in coastal and marine areas, natural variability of marine systems, and a paucity of related scientific data. These factors are coupled with uncertainties about acute and chronic effects of oil on marine organisms. In the face of these uncertainties, it is possible that questions related to restoration and compensation will arise, including basic questions about what constitutes ecosystem recovery and how to determine when it has occurred.

⁶⁰ Thus far responsible parties include British Petroleum Exploration and Production Inc., Transocean Holdings Inc., Triton Asset Leasing GmbH, Transocean Offshore Deepwater Drilling Inc., Transocean Deepwater Inc., Anadarko Petroleum, Anadarko E&P Company LP, and MOEX Offshore 2007 LLC.

⁶¹ Department of Commerce, "Natural Resource Damage Assessments; Final Rule," 61 *Fed. Reg.* 441-442, January 5, 1996.

Gulf Coast Restoration Plan

On June 15, 2010, the Administration committed to developing a long-term Gulf of Mexico restoration plan for post-spill recovery needs as well as long-term restoration. In contrast to the environmental damages addressed by NRDA, the Administration's plan would address a broader array of restoration needs, many of which pre-date the oil spill. In September 2010, the Administration released *America's Gulf Coast; A Long Term Recovery Plan After the Deepwater Horizon Oil Spill*.⁶² The report put forward a plan to restore the environment, economy, and public health of residents. It stressed the need for inclusive engagement and collaboration among governmental, private, and non-profit organizations and for a significant sustained commitment of resources over many years. The report recommends that Congress dedicate a significant amount of any civil penalties recovered from responsible parties under the Clean Water Act to restore the Gulf coast.⁶³ Further, it recommends that Congress create a Gulf Coast Recovery Council to coordinate efforts taken by concerned parties. The report recommended that the Administration immediately establish a Gulf Coast Ecosystem Task Force to coordinate Gulf restoration efforts until the Council is established. In January 2011, the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling released its report to the President.⁶⁴ Two of the Commission's recommendations for restoration focus on these points.

Congress should dedicate 80 percent of the Clean Water Act penalties to long-term restoration of the Gulf of Mexico.

Congress and federal and state agencies should build the organizational, financial, scientific, and public outreach capacities needed to put the restoration effort on a strong footing.

On October 5, 2010, President Obama signed Executive Order 13554 to establish the Gulf Coast Ecosystem Restoration Task Force.⁶⁵ The task force is chaired by the Administrator or representative of the Environmental Protection Agency and composed of representatives of the Departments of Defense, Justice, Interior, Agriculture, Commerce, and Transportation; and the Office of Management and Budget; the Council on Environmental Quality; the Office of Science and Technology Policy; the Domestic Policy Council; representatives appointed by the Governors of the Gulf states of Texas, Louisiana, Mississippi, Alabama, and Florida; and may include representatives of affected tribes. The task force's main goal is to develop a "Gulf of Mexico Regional Ecosystem Strategy." The strategy will set goals, develop performance indicators, and set up a process to coordinate intergovernmental restoration efforts. The Task Force first met on November 8, 2010.

⁶² Ray Mabus, *America's Gulf Coast, A Long-term Recovery Plan After the Deepwater Horizon Oil Spill*, September 2010, <http://www.restorethegulf.gov/sites/default/files/documents/pdf/gulf-recovery-sep-2010.pdf>.

⁶³ Normally fines and penalties are deposited in the federal treasury.

⁶⁴ National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, *Deep Water, The Gulf Oil Disaster and the Future of Offshore Drilling*, Report to the President, January 2011, https://s3.amazonaws.com/pdf_final/DEEPWATER_ReporttothePresident_FINAL.pdf.

⁶⁵ Executive Order 13554, "Establishing the Gulf Coast Ecosystem Task Force," 75 *Federal Register* 62313 - 62317, October 8, 2010.

Congressional Actions and Potential Concerns

The 111th Congress held 62 hearings related to the Gulf oil spill and at least 14 were directly related to natural resources and impacts on small businesses. The 112th Congress may continue to conduct oversight of efforts on fishing industry recovery, adequate compensation, and Gulf restoration. Ongoing efforts by federal agencies and states to ensure seafood safety and to regain and maintain the reputation of Gulf seafood are the most immediate challenges. As the NRDA process moves from the planning to restoration phase, questions may arise regarding the level of the potential settlement and the types of restoration activities identified by the trustees.

In contrast to restoration efforts developed under NRDA that are based on existing law, funding and governance of the Administration's comprehensive and long-term Gulf of Mexico restoration plan would require congressional action. To fully implement and fund the Administration's plan, Congress may consider whether to commit Clean Water Act civil penalties for this purpose as was recommended by the Administration's Gulf recovery plan and the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling. Congress also may consider how the fund should be allocated and whether to establish a Gulf Restoration Council to coordinate restoration efforts. Several bills were introduced during the 111th Congress that included these elements of the Administration's plan, but no action was taken on any of them. An ongoing issue, especially for Gulf states, is the allocation and permitted uses of funding under the Administration's restoration plan.

Three bills have been introduced in the 112th Congress that address elements of the Administration's restoration plan, including the Gulf Coast Restoration Act (H.R. 56) and Title IV of Recommendations of the BP Oil Spill Commission Act of 2011 (H.R. 501), which are identical, and the Gulf of Mexico Economic and Environmental Restoration Act of 2011 (H.R. 480). All three bills would establish a Gulf Coast Ecosystem Restoration Fund and require 80% of any amounts collected by the United States as penalties, settlements, or fines under the Federal Water Pollution Control Act (33 U.S.C. § 1319, § 1321) to be deposited into the fund. They would also establish a governing body to distribute funding and coordinate restoration efforts such as a Gulf Coast Ecosystem Restoration Task Force (H.R. 56 and H.R. 501) or a Gulf of Mexico Recovery Council (H.R. 480). In contrast to H.R. 56 and H.R. 501, H.R. 480 would provide a formula for allocating funding among Gulf states, and establish and fund four Gulf of Mexico programs, including an observation system, a grant program for Sea Grant colleges, a seafood marketing program, and a clean energy program.

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