Deepwater Horizon oil spill

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The oil slick produced by the *Deepwater Horizo*n [oil spill](http://www.eoearth.org/article/Oil_spill) covered as much 28,958 square miles (75,000 square kilometers), an area about the size of South Carolina, with the extent and location of the slick changing from day to day depending on weather conditions.  By the first week in June, oil had come ashore in Louisiana, Mississippi, Alabama and Florida, with significant wildlife fatalities in Louisiana. In the weeks following the accident, scientists discovered enormous oil plumes in the deep waters of the Gulf of Mexico, raising concerns about ecological harm far below the surface that would be difficult to assess.

The surface slick threatened the ecosystems and the economy of the entire Gulf Coast region. The U.S. Fish and Wildlife Service reported that up to 32 [National Wildlife Refuges](http://www.eoearth.org/article/History_of_the_U.S._Fish_and_Wildlife_Service_National_Wildlife_Refuge_System) were potentially affected by the spill. Concerns were raised about the environmental impacts of chemicals known as dispersants that have been used to dissipate the oil slick.  By June 2, 2010,  theNational Oceanic and Atmospheric Administration (NOAA) had banned [fishing](http://www.eoearth.org/article/Overfishing) in about 36% of federal waters, or 86,895 sq mi (229,270 sq km) of the Gulf.

By June 9, BP stock had lost close to half its value, more than $82 billion, in the seven weeks since the spill started, although the stock rebounded somewhat on the fall of 2010. According to BP, the cost of the response to September 29 amounted to approximately $11.2 billion, including the cost of the spill response, containment, relief well drilling, static kill and cementing, grants to the Gulf states, claims paid and federal costs.

**Explosion and fire:** The fire aboard the *Deepwater Horizon*reportedly started at 9:45 p.m. CST on April 20, 2010. Survivors described the incident as a sudden explosion that gave them less than five minutes to escape as the alarm went off. Video of the fire shows billowing flames, taller than a multistory building.  After burning for more than a day, *Deepwater Horizon* sank on April 22, 2010.

**Fate of the oil: Geographic extent of the surface oil**

Estimates of the extent of the surface oil slick were derived from data on [wind](http://www.eoearth.org/article/Wind) and ocean current forecasts, as well as analysis of aerial photography and satellite imagery from a variety of sources. The extents may vary widely from day to day because of changes in [wind patterns](http://www.eoearth.org/article/Local_and_regional_wind_systems) and [ocean currents](http://www.eoearth.org/article/Ocean_circulation).  Satellite images analyzed by SkyTruth indicated that the surface slick reached a maximum of 29,000 square miles (75,000 squre kilometers) on May 24. Skytruth estimated the total oil-slick footprint (the area covered at some point in time) at 68,000 square miles (176,119 square kilometers).

On May 19, NOAA concluded that some portion of the oil had reached the Loop Current in the form of "light to very light sheens". The Loop Current is a warm ocean current in the Gulf of Mexico that flows northward between Cuba and the Yucatán peninsula, moves north into the Gulf of Mexico, loops west and south before exiting to the east through the Florida Straits. Once in the Loop Current, oil could be carried into the Florida Keys and the Atlantic Ocean. By May 27, 2010, a change in the current had trapped a slick of oil in a huge circular eddy that scientists said appears likely to push slowly west instead of pumping the oil south into the Florida Keys.

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**Attempts to stop the leak**

BP's long run plan is to complete so-called relief wells that will intercept the existing wellbore at approximately 12,800 feet below the sea floor. Once that is accomplished, heavy fluids and cement can be pumped down hole to kill the well. BP estimated this process will take at least 90 days. On May 2, 2010, BP began drilling the first deep-water intercept relief well, which is located one-half mile from the Macondo well, in a water depth of roughly 4,990 feet. A second relief well was begun on May 16.

BP's engineers sought to cut off the leak by using ROVs to activate the blowout preventer (BOP),  a massive five story, 450 ton stack of shut-off valves, rams, housings, tanks and hydraulic tubing that sits on top of the well. The BOP is designed to quickly shut off the flow of oil or natural gas by squeezing, crushing or shearing pipe if there is a sudden, unexpected spike in [pressure](http://www.eoearth.org/article/Pressure). This procedure failed. Early speculation suggested that gas hydrates formed in the BOP, causing it to malfunction.  A gas hydrate is a crystalline solid consisting of gas molecules, usually methane, each surrounded by a cage of water molecules.  It is similar to ice, except that the crystalline structure is stabilized by the guest gas molecule within the cage of water molecules.  Gas hydrates are common when gas and water mix, and are found on the ocean floor where there are low temperatures and high pressure.

On May 7, 2010, BP maneuvered a 98-ton steel containment dome over the worst of the leaks, and planned to funnel the oil through a pipe to the surface, where it would be collected by a drill ship. This procedure failed when the dome’s opening was clogged with gas hydrates. The dome was moved off to the side of the wellhead and is resting on the sea floor.

The first significant success at reducing the release of oil came on May 17, 2010 when robots inserted a four-inch diameter Riser Insertion Tube Tool (RITT) into the Horizon’s riser (21-inch diameter pipe) between the well and the broken end of the riser on the seafloor in 5,000 feet of water. The RITT was expected to work like a straw, sucking the leaking oil into a tanker waiting on the surface where the oil would be separated and then shipped ashore. BP initially stated that the RITT was recovering 5,000 barrels per day, but on May 21, 2010, BP reduced that estimate, stating that the device was recovering an average of about 2,200 barrels of oil a day. Additional oil continued to flow from the leaks.  BP subsequently reported that from the period from May 17th to May 23rd, the daily oil rate collected by the RITT had ranged from 1,360 barrels of oil per day (b/d) to 3,000 b/d, and the daily gas rate has ranged from 4 million cubic feet per day (MMCFD) to 17 MMCFD. The oil is being stored and gas is being flared on the drillship Discoverer Enterprise, on the surface 5,000 feet above.  The RITT was disabled on the evening of May 25, 2010 in preparation for the "top kill" procedure initiated the following day.

On May 26, 2010, the U.S. government gave BP the approval to proceed with a "top kill" operation today to stop the flow of oil from the damaged well. The procedure is intended to stem the flow of oil and gas and ultimately kill the well by injecting heavy drilling fluids through the blowout preventer on the seabed, down into the well.On May 29, 2010, BP engineers said that the “top kill” technique had failed. Despite successfully pumping of over 30,000 barrels of heavy mud, in three attempts at rates of up to 80 barrels a minute, and deploying a wide range of different bridging materials, the operation did not overcome the flow from the well.

Simultaneously with the top kill, BP attempted what is known as a “junk shot.” This method involves debris such as shredded tires, golf balls and similar objects being shot under extremely high pressure into the blowout preventer in an attempt to clog it and stop the leak. The process was carried out "a number of times" with the U.S. Coast Guard before BP concluded that it had failed.

After consultation with government officials, BP then decided to move on to another option. The company said its next attempt will be a custom-built cap known as the Lower Marine Riser Package (LMRP) Cap Containment System. This first involves cutting and then removing the damaged riser from the top of the failed Blow-Out Preventer (BOP) to leave a cleanly-cut pipe at the top of the BOP’s LMRP. The cap is designed to be connected to a riser from the *Discoverer Enterprise*drillship and placed over the LMRP with the intention of capturing most of the oil and gas flowing from the well.

The next move was a "cut-and-cap" approach. On June 3, 2010, a cap was succesfully placed on top of the BOP after a 20 foot pair of shears had severed the riser from the BOP. About 6,000 barrels were recovered on June 4 and pumped to a recovery ship on the surface. According to BP, by June 8 rate of recovery had risen to about 15,000 barrels per day.

On June 16, 2010, BP began collecting crude oil from a second containment system that is attached directly with pipes and other equipment to the failed blowout preventer. That equipment had already been installed for the failed “top kill” effort weeks ago. The oil is transferred to a ship, the Q4000, which will then clean and burn the oil and gas mixture in a processing device called an EverGreen burner. According to Schlumberger, the device's manufacturer, the EverGreen burner is a single-head, 12-nozzle, well test oil burner for onshore and offshore exploration and development well testing and cleanup that "provides an efficient and cost-effective alternative to oil storage."  The EverGreen burner performs a "fallout-free and smokeless combustion of liquid hydrocarbons."

BP announced that oil stopped flowing at 2:25 p.m. on July 15 after the last of several valves was closed on the cap at the top of the well, marking the first time in 86 days that oil was not flowing into the Gulf.

On August 3, 2020, BP launched a "static kill" attempt.  The method is similar to the top kill that failed in early June and would used existing equipment and plumbing. In the static kill, driiling mud is pumped slower and at lower pressure compared to the top kill because the new cap atop the well had stemmed the flow of oil. After the static kill, BP planned to proceed with killing the well from the bottom with the relief well.

**The cleanup**

BP assumed responsibility for the initial clean up and mitigation efforts. According to BP Chief Executive, Tony Hayward, "we are taking full responsibility for the spill and we will clean it up and where people can present legitimate claims for damages we will honor them." On April 28, the U.S. military announced it was joining the cleanup operation.

The U.S. government established a "unified command" structure to coordinate the response to the spill. The stated purpose of the unified command is to link the organizations responding to the incident and to provide a forum for those organizations to make "consensus decisions." The *Deepwater Horizon* Unified Command include BP, Transocean, and the following federal agencies: Minerals Management Service, NOAA, the Environmental Protection Agency (EPA), Homeland Security, the Coast Guard, the Department of the Interior, the Department of State,  the Department of Defense, the Fish and Wildlife Service, the National Park Service, the U.S. Geological Survey (USGS), the Centers for Disease Control (CDC) and the Occupational Safety and Health Administration (OSHA).

As of June 22, the Unifed Command identified these resources employed to respond to the spill:

* Total response vessels: 6,300
* Total boom deployed: more than 6.7 million feet (regular plus sorbent boom)
* Oily water recovered to date: more than 25 million gallons
* Dispersant used to date: more than 1.345 million gallons
* Oil reccovered to date: 13.5 million gallons
* Overall personnel responding: more than 37,000

**Controlled burns**

On April 28, BP performed the first [controlled burn](http://www.eoearth.org/article/Prescribed_burning) of surface oil, also known as an *in situ* burn.  Fire booms, U-shaped devices that are towed behind two boats and used to pull oil away from the main spill for safe burning, can be used when seas are below 3 feet and when sufficient amounts of oil can be "corralled." Controlled burns continued to be used at the *Deepwater Horizon*spill site through mid-May, 2010 when conditions were right. This represents the first on-water in-situ burning at a spill since the 1989 test burn during the Exxon Valdez oil spill, which was the first time a fire-resistant boom was used at a spill.  By June 22, more than 225 controlled burns have been conducted that removed more than 9.3 million gallons of oil from the open water.

**Chemical dispersants**

The EPA and Coast Guard approved the use of dispersants, a group of [chemicals](http://www.eoearth.org/article/Chemical_risks_for_biodiversity) designed to be sprayed onto oil slicks to accelerate the process of natural dispersion. The dispersants used in the *Deepwater Horizon* clean-up are Corexit 9500 and Corexit EC9527A, also known as deodorized kerosene. The EPA has pre-approved both for emergencies that are three nautical miles (roughly five kilometers ) off the shoreline and in water depths greater than 30 feet (10 meters).  In the weeks following the spill, surface dispersants were applied by aerial means by BP and various federal agencies. By June 16, 2010, 1.3 million gallons of dispersant have been deployed—902,000 on the surface and 423,000 subsea—by far the largest ever use of dispersant in a U.S. oil spill.

Corexit 9500 is known in prior scientific studies to pose a high level of toxicity to primary producer biota in the water column; in addition, it has been shown to accelerate the uptake of certain likely carcinogenic minority components present in petroleum such as [napthalene](http://www.eoearth.org/article/Public_Health_Statement_for_Naphthalene,_1-Methylnaphthalene,_and_2-Methylnaphthalene). The dispersants used are approximately 10,000 times more lethal to biota than crude oil itself. Corexit 9500 and Corexit EC9527A, manufactured by an Illinois company, both contain 2-butoxyethanol, a chemical known to cause respiratory and skin irritation effects in humans. These dispersants have been banned for use by the United Kingdom, due to known biological effects on people and natural systems.

Oil spill dispersants do not actually reduce the total amount of oil entering the environment.1 Rather, they change the inherent chemical and physical properties of oil, thereby changing the oil’s transport, fate and potential effects. Small amounts of spilled oil naturally disperse into the water column, through the action of waves and other environmental processes. The objective of dispersant use is to enhance the amount of oil that physically mixes into the water column, reducing the potential that a surface slick will contaminate shoreline [habitats](http://www.eoearth.org/article/Habitat) or come into contact with birds,marine mammals, or other organisms that exist on the water surface or shoreline.  Conversely, by promoting dispersion of oil into the water column, dispersants increase the potential exposure of oil to fish and bottom dwelling biota such as clams or oysters. Dispersant application thus represents a conscious decision to increase the risk to one component of the ecosystem (e.g.,the water column) while reducing the load on another (e.g., coastal wetland). Decisions to use dispersants, therefore, involve trade-offs between decreasing the risk to water surface and shoreline habitats while increasing the potential risk to organisms in the water column and on the seafloor.

A 2005 study by the National Research Council (NRC) on the [ecological](http://www.eoearth.org/article/Ecology) effects of dispersants concluded that there is insufficient scientific data to assess the net effect of chemical dispersants on [marine](http://www.eoearth.org/article/Marine_ecosystem_services) and [coastal ecosystems](http://www.eoearth.org/article/Coastal_zone).  The NRC stated: "In many instances where a dispersed plume may come into contact with sensitive water-columns or benthicorganisms or populations, the current understanding of key processes and mechanisms is inadequate to confidently support a decision to apply dispersants." EPA Administrator Lisa Jackson acknowledged this point in a testimony before the U.S. Senate Committe on Environment and Public Works on May 18, 2010, when she stated "...the long term effects of dispersants on aquatic life are unknown..."

During the first weeks of May, BP applied dispersant at the sea floor during EPA-sanctioned tests.  On May 7, 2010, after having deployed approximately 15,354 gallons of subsea dispersants, EPA halted subsea dispersant operations, awaiting additional test results in order to resume. Initial studies by EPA indicated that the subsurface application of approximately 10,000-15,000 gallons of dispersants have the equivalent effect on the oil as the surface application of approximately 50,000 gallons of dispersant. Thus, in principle, the subsurface application of dispersants is more efficient than surface application and could result in less dispersant being released into the environment.

On May 15, 2010, the U.S. Coast Guard and the EPA authorized BP to use dispersants undersea. Government officials stated that preliminary testing results indicate that subsea use of the dispersant is effective at reducing the amount of oil reaching the surface – and can do so with the use of less dispersant than is needed when the oil does reach the surface. Some scientists are concerned that this practice may contribute to the formation of the underwater oil plume by shaping the oil into smaller droplets. On May 17, U.S. Rep. Edward J. Markey (Massachusetts) sent a letter to EPA Administrator Lisa Jackson asking EPA to respond to concerns about the potential ecological impacts of dispersants.

On May 19, 2010, the EPA informed BP that the company had to immediately identify and use less-toxic forms of chemical dispersants, suggesting that federal officials were concerned that the unprecedented use of chemical dispersants could pose a significant threat to the Gulf of Mexico's marine life. On May 20, 2010, the EPA began to post data from BP on the company's monitoring and sampling programs at the EPA web site.  Some of the monitoring parameters include: 1) identification of dispersed oil, 2) oil droplet size, 3) dissolved [oxygen](http://www.eoearth.org/article/Oxygen) (DO) and other physical characteristics such as conductivity, temperature and depth (CTD) and, 4) toxicity information.

Some environmental scientists have criticized BP for keeping secret some of the "alternative" chemical ingredients it is using in the oil spill dispersants in its May 20 response to EPA. The EPA says BP and several of the dispersant manufacturers have claimed some sections of BP's dispersant response contain confidential business information (CBI). EPA stated that "by law, CBI cannot be immediately made public except with the company's permission," and that the "EPA is currently evaluating all legal options to ensure that the remaining redacted information is released to the public."

On June 1, the U.S. government BP directed BP directed BP to pay for five additional barrier island projects in addition to the one approved on May 27. BP announced that it supports that decision, and that the company will fund the estimated $360 million it will cost to construct the six sections. The six approved barriers -- four west of the Mississippi River and two to the east -- would rise 6 feet above sea level. They would be 300 feet wide at their base and 25 feet wide at their crown.

**Paying for the clean up**

The Oil Spill Liability Trust Fund (OSLTF), established in the Treasury, is available to pay the expenses of federal response to oil pollution under the Federal Water Pollution Control Act, and to compensate claims for oil removal costs and certain damages caused by oil pollution as authorized by the Oil Pollution Act of 1990 (OPA). The law requires that disbursements under the OSLTF be recovered from responsible parties liable under OPA when there is a discharge of oil to navigable waters. Aggressive collection efforts are consistent with the “polluter pays” public policy underlying the OPA. BP and Transocean have been named as responsible parties, although all claims are being processed centrally through BP.

The OPA requires that responsible parties pay the ***entire*** pricetag for cleaning up after spills from offshore drilling, including lost profits, destroyed property and lost tax revenue, but the statute caps their liability for economic damages at $75 million. In a letter to Homeland Security Secretary Janet Napolitano and Interior Secretary Ken Salazar on May 16, 2010, BP Chief Tony Hayward said the company believes claims related to the spill will exceed the limit.  Howard stated that "we are prepared to pay above $75 million on these claims and we will not seek reimbursement from the U.S. Government or the Oil Spill Liability Trust Fund."

Democratic legislators tried to speed a bill through Congress that would increase the liability cap for oil spills from $75 million to $10 billion.  Bill S.3305, the "Big Oil Bailout Prevention Liability Act" would have capped BP's liability at $10 billion, even if damages from the spill surpass that amount. The bill was killed on May 13, 2010 by Sen. Lisa Murkowski (R-Alaska), a key oil industry ally.

On June 9, BP said cost of the response to date is approximately $1.43 billion, including the cost of the spill response, containment, relief well drilling, grants to the Gulf states, claims paid, and federal costs.  BP said that 42,000 claims have been submitted and more than 20,000 payments already have been made, totaling over $53 million.

**Ecological concerns**

The negative effects of oil on organisms and ecosystems are well-documented. Oil causes harm to wildlife through physical contact, ingestion, inhalation and absorption.  Floating oil can contaminate [plankton](http://www.eoearth.org/article/Plankton), which includes algae,fish eggs, and the larvae of various invertebrates. Long term damage to lower trophic levels is difficult to assess, but could pose ecological risks in the Gulf of Mexico for years, based upon interference with metabolic functions of thousands of species; benthic organisms in the inner and outer continental shelves could be affected from oil coating of substantial portions of the ocean floor. Birds can be exposed to oil as they float on the water or dive for fish through oil-slicked water. Oiled birds can lose the ability to fly and can ingest the oil while preening. Sea turtles such as loggerheads and leatherbacks can be impacted as they swim to shore for nesting activities. [Turtle](http://www.eoearth.org/article/Turtle) nest eggs may be damaged if an oiled adult lies on the nest. Scavengers such as bald eagles, gulls, raccoons, and skunks are also exposed to oil by feeding on carcasses of contaminated fish and wildlife.

Oil has the potential to persist in the environment long after a spill and have long-term impacts on fish and wildlife, interacting with the environment. Long-term effects on birds and marine mammals are less understood, but oil ingestion has been shown to cause suppression to the immune system,[organ](http://www.eoearth.org/article/Organ_systems_and_organs) damage, behavioral changes, skin irritation and ulceration.

The area affected by the *Deepwater Horizon* oil spill has some of the world's most productive marine and [coastal](http://www.eoearth.org/article/Coastal_zone) ecosystems. Southern Louisiana has about 40% of the nation's coastal wetlands.  These wetlands provide a range of goods and services, including flood control, water purification, storm buffer, wildlife habitat, nursery grounds for aquatic life, and recreational areas. Louisiana wetlands have been heavily degraded by human activity. In particular, marsh has been lost--converted to open water--for decades due to oil and gas development, dredging and levee construction for navigation and flood control, and other human disturbance. Louisiana has lost 1,900 square miles of land since the 1930's.  Between 1990 and 2000, wetland loss was approximately 24 square miles per year- that is the equivalent of approximately one football field lost every 38 minutes. Degradation by oil of the [marsh](http://www.eoearth.org/article/Marsh) grass, that is essential for holding sediment in place, could accelerate wetland loss.

Due to pelagic mixing, the crude oil will migrate vertically and affect all depths of the waters of the Gulf of Mexico, including the shallower waters, where substantially more [biodiversity](http://www.eoearth.org/article/Biodiversity) and biological productivity is present.

Scientists at Texas A&M University-Corpus Christi recently completed a comprehensive survey of the Gulf's biodiversity. They found that that the NNE octant of the Gulf (that area containing the *Deepwater Horizon* site) contains 8,332 species of plants and animals. Including only the major taxa of animals at all depths in the region of the spill, there are 1,461 mollusks, 604 polychaetes, 1503 crustaceans, 1,270 fishes, 4 sea turtles, 218 birds and 29 marine mammal species.

The U.S. Fish and Wildlife Service identified 32 National Wildlife Refuges at risk from the *Deepwater Horizon* oil spill that line the coasts of Louisiana, Mississippi, Alabama and Florida. Of particular concern are Refuges in the Southeast Louisiana (SELA) Refuges Complex, including Breton National Wildlife Refuge, the second oldest refuge in the country. The coastal wetlands in this complex support some of the nation's most abundant wildlife, including nesting wading birds and seabirds, passerine birds (songbirds), raptors, as well as wintering shorebirds and waterfowl. For example, coastal wetlands are relied on by all 110 neo-tropical migratory songbird species— as many as 25 million can pass through the area each day during the breeding season.

The wetlands in the Refuges and other coastal regions also support a diversity of fish and shellfish species, including Speckled trout, redfish, flounder, blue crabs and shrimp.  These coastal wetlands are extremely important nursery areas for both fresh and saltwater fish species. Endangered and threatened species at risk from the spill include West Indian manatees, whooping cranes, Mississippi sand hill cranes, wood storks and four species of sea turtles.

The possible impacts of crude oil and chemical dispersants in the open waters of the Gulf of Mexico are largely unknown and extremely difficult to assess. Another area of concern is the Pinnacles Region, an extensive deep (~100 m) reef tract on the Mississippi-Alabama outer continental shelf (OCS). Most of these formations are fossil reefs that are no longer actively accreting, and do not support true reef-building algae or [corals](http://www.eoearth.org/article/Coral_reef). They nonetheless support a well-developed community of reef-dependent and reef-associated organisms and a relatively diverse population of fish and fauna when compared to surrounding soft sediments.

On May 2, 2010, BP announced commitment of up to $500 million to an "open research program" studying the impact of the Deepwater Horizon spill, and its associated response, on the marine and shoreline environment of the Gulf of Mexico. BP stated that it will appoint an independent advisory panel to construct the long term research program.

**Fish and Wildlife Collection Report**

On May 30, 2010, the Unified Area Command published its first "Consolidated Fish and Wildlife Collection Report." These are the consolidated numbers of collected fish and wildlife that have been reported to the Unified Area Command from the U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA), incident area commands, rehabilitation centers and other authorized sources operating within the Deepwater Horizon/BP incident impact area. These data reflect only the initial, field-level, evaluation and they do not reflect a final determination of the cause of injury, or death. Not all of the injured or dead fish and wildlife reflected in these numbers were necessarily caused by the Deepwater Horizon/BP incident. On the June 16 the report included:

**Birds:** 1,746 birds collected, with 1,014 of these visibly oiled. 997 birds were dead; 749 were captured alive.

**Sea Turtles:**528 collected; 400 were dead; 128 were alive.

**Mammals, Including Dolphins:** 51 collected in the spill zone; 47 of those were dead. Determination whether oil was the cause of death is pending for dolphins.

Wildlife biologists believe that many more wildlife will ultimately be killed by the oil, but their toll is hidden because their bodies have sunk in the open ocean, or been eaten by scavengers.

By way of comparison, the Exxon Valdez oil spill killed between 350,000 and 600,000 birds, along with thousands of sea otters and other marine creatures.

**Drilling moratorium**

On May 27, President Barack Obama rescinded his March 31, 2010 proposal for expanded offshore drilling, and instituted a temporary halt to drilling and new safety requirements. Key details of the moratorium and licensing changes include:

* No new drilling will be allowed in water depths greater than 500 feet for six months, including sidetracks and bypasses of currently-drilling wells.
* Drilling on 33 wells will be suspended at the first safe stopping point.
* Workover activities, well completions, abandonment activities, interventions, and waterflood, gas injection, and disposal wells will not be affected.
* Drilling offshore Alaska will be postponed until at least 2011.
* Western GoM Lease Sale 215 and the proposed Virginia Lease Sale 220 have been cancelled.
* The three other remaining GoM lease sales in the 2007 – 2012 OCS Leasing Program are subject to review.
* New standards for equipment and procedures will be implemented, with a focus on blowout preventers (BOPs), well control systems (fluid displacement procedures), casing and cementing.

**The Response by Congress**

The U.S. Congress reacted swiftly to the accident, holding nine hearings and three briefings on the oil spill in the first few weeks, with many more planned.  A month after the accident, 10 different House and Senate committees were probing the*Deepwater Horizon* disaster. The hearings were part political theater, but they also produced important breakthroughs in the investigation.  For example, Reps. Henry Waxman, D-Calif., and Bart Stupak, D-Mich., used their leadership roles on the House Energy and Commerce Committee to persuade BP and Transocean to turn over timelines and test data from the damaged well. Rep. Ed Markey, D-Mass., used his committee chairmanship to successfully pressure BP to release live video of the leak. Hearings in the House also helped pressure EPA to force BP to investigate alternatives to its choice of dispersants to break up the oil

**Economic Impacts**

The economic impacts from the spill originate in the communities affected by the spill, but then ripple throughout the entire nation. Commercial fishermen in the Gulf harvested more than 1 billion pounds of fish and shellfish in 2008. In addition, there are approximately 5.7 million recreational fishermen in the Gulf of Mexico region who took 25 million fishing trips in 2008. Fisherman in areas closed to fishing, or whose catch are harmed by the spill, feel the immediate effects, as do hotels, restaurants and other businesses that are tied to tourism, conventions and recreation in the Gulf Coast. The reduction in the harvest of oysters, shrimp and other seafood caused prices to rise sharply in the weeks following the spill, which in turn caused food prices to rise in restaurants as far away as New York City. The mere threat of oil caused thousands of hotel cancellations in the run-up to the usually hectic Memorial Day weekend.

Florida's Department of Tourism tried to alleviate public concern about its beaches by posting information about Florida’s destinations on its Web site in real time with beach Webcams, Twitter feeds and photos. Gov. Charlie Crist said he had secured $25 million from BP to finance the tourism advertising campaign after an initial $25 million went to disaster preparation and response.

On May 24, 2010, U.S. Commerce Secretary Gary Locke declared a "fishery disaster" in the Gulf of Mexico due to the economic impact on commercial and recreational fisheries from the Deepwater Horizon accident. The affected area includes the states of Louisiana, Mississippi and Alabama. The declaration makes it easier to mobilize federal relief efforts.

The oil spill clean-up also generates economic benefits. Cleanup crews and reporters covering the spill have replaced oil field workers and fishermen in some hotels and restaurants, and some fishermen could use their boats in spill clean up. Companies that specialize in booms, chemical dispersant, hazardous materials training and other spill-related services experienced a significant boom in business.

In a preliminary assessment of the economic damage released on May 17, 2010, Moody's Investors Service suggested that while Louisiana, Mississippi and Alabama may experience short-term economic booms related to clean-up efforts, that will give way to longer term deteriorating revenue for coastal communities. Cities and counties in those Gulf states are likely to experience a decline in property tax values, which will mean a reduction in services or a necessary increase in revenue to maintain current credit rating levels. The long-term economic and financial impact on those states may be manageable, however, especially since there is a short-term economic boom and BP has pledged to pay cleanup costs and damage claims, Moody's said. But it's likely there will be a more severe impact on communities in Florida, which is highly dependent on tourism and sales tax.

The Department of Energy announced that its national laboratories were working with the Department of Homeland Security's National Infrastructure Simulation and Analysis Center (NISAC), which is modeling the economic costs and societal impact of the oil spill on energy and other industries in the Gulf and along the coast to support the response efforts of the National Incident Commander and the Unified Area Command. NISAC is a modeling, simulation, and analysis center within DHS that leverages national expertise to address infrastructure protection.

The *Deepwater Horizon*disaster is widely expected to send insurance costs higher for deepwater drilling.

On June 1, 2010, led by a drop in energy stocks, the Dow Jones industrial average fell 120 points shortly after the Obama Administration announced its criminal investigation into the disaster. BP lost 15 percent of its market value during the day’s trading. Fearful that the spill could ultimately cost BP tens of billions of dollars, by June 15 investors have driven the company’s market valuation down by 48 percent since the spill began, erasing $91 billion of shareholder value.

On June 8, 2010, Sean Snaith, an economist at the University of Central Florida, said that a worst case scenario--i.e., Florida beaches suffer a massive, direct hit from the Gulf oil spill--could cost $10 billion and put about 195,000 people out of work.