

Deep Trouble: The Gulf Coast Oil Spill

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This photograph was taken from a helicopter as it circled the burning oil rig on the night following the accident.

Explosion Aboard the *Deepwater Horizon*

On the night of April 20, 2010, an explosion lit up the sky in the Gulf of Mexico. A fireball rocked the *Deepwater Horizon* oil-drilling rig as it worked forty-two miles off the coast of Louisiana. Within seconds, fire **engulfed** the *Deepwater Horizon*. The 126 workers on the rig found themselves caught in a fiery **inferno** with nowhere to escape but the ocean itself.

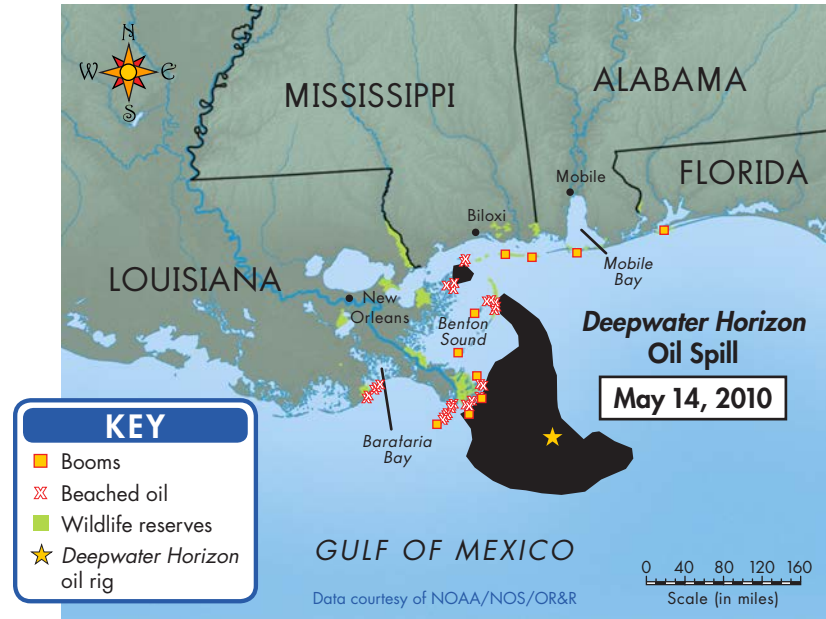
Eleven of the 126 rig workers died in the explosion. The others were rescued by nearby ships, and the injured were flown to a hospital in Alabama. For two days, ships attempted to put out the flames by spraying huge amounts of water onto the massive oil rig. But on April 22, 2010, a second explosion sent the *Deepwater Horizon* to the bottom of the ocean. The loss of life, the injuries, and the destruction of the oil rig were a major disaster. But at the time of the accident and in the days that followed, no one knew just how serious the disaster would become.



Fireboats battled the blaze aboard the *Deepwater Horizon*.

The Bigger Problem

The *Deepwater Horizon* accident was much worse than was first feared because the safety valve on the well failed. Safety valves on oil wells are designed to shut off the flow of oil in emergencies. But for some reason, the safety valve on the well beneath the *Deepwater Horizon* didn't close. Because of that failure, about 60,000 barrels of oil leaked into the ocean each day. By May 3, the **oil slick** covered an area of 2,500 square miles — larger than the state of Delaware. By July 15 when the well was capped from the top, about 5 million barrels of oil had leaked into the Gulf of Mexico.





Workers tried to catch the oil leaking from the well in a big metal box, but it didn't work.

Over one thousand people went to work on solving the problems created by the leaking well in the days, weeks, and months following the explosion. Small robotic submarines were sent to the ocean floor to examine the damage and try to stop the leak. The small submarines were used to flip a switch that was supposed to close the safety valve, but all attempts to stop the leak failed.

As the first edges of the oil slick neared the Gulf Coast shores, another solution was tried. The idea was to build a large metal box to place over the leaking well. The oil that collected inside the box would be pumped out into tanker ships that would haul the oil away. Unfortunately, when this plan was tried, the box became blocked with frozen crystals of natural gas. The cold temperatures and high pressures at the seafloor kept the box from working.



Crew members work on an offshore oil rig in the Gulf of Mexico.

Plans were also made to drill relief wells next to the leaking well. The relief wells would connect with the original well and would be used to pump mud or concrete down the pipes to try to plug it. On September 16 a relief well finally reached the original well. Mud and cement were pumped into the well to seal it shut. On September 19 the well was declared plugged from the bottom for good.

Why Oil Spills Are Disasters

The harmful effects of oil spills become clear when the oil gets close to and reaches the shore. Oil spills can cause tremendous damage to **marine** life, the environment, and the economy. Countless birds, fish, and other animals can be killed as the oil reaches the areas where they hunt and live. Beaches and **wetlands** can become **contaminated** with **toxic** oil. Wildlife refuges that are home to rare animals can be destroyed.



Rare birds such as these brown pelicans off the Louisiana coast are threatened by the oil spill.

Many coastal towns rely on oyster beds, fishing, and the shrimping industry for jobs. Other towns have beautiful beaches and fishing areas that attract tourists and other people for recreation. All of these important parts of the Gulf Coast's economy can be severely damaged or even destroyed by spilled oil. The possible effect on the lives of people who live in the path of the spill is enormous. Some estimates put the damages to fishing and tourism from the *Deepwater Horizon* oil spill at more than \$5 billion.



Shrimping boats put out of work by the oil spill help with the cleanup effort.



The *Development Driller III* rig that was chosen to drill the relief well is similar to the *Deepwater Horizon*.

The Risks of Oil Rigs

The work done by oil rigs always carries the risk of leaks and explosions. Fires, mechanical failures, and severe weather such as hurricanes can cause accidents at any time. Explosive natural gas often bubbles up from oil wells. If a natural gas cloud reaches the surface, a single spark can touch off a huge explosion. In addition, oil can leak from underwater pipes that carry oil from offshore wells to **refineries** on land.



Offshore oil wells and oil tankers have both been involved in large oil spills in the past.

Other Big Oil Spills

Some of the world's biggest oil spills have been the result of shipwrecks. One of the most famous spills was caused by the ship *Exxon Valdez* in the unspoiled waters off the coast of Alaska. More than 10 million gallons of oil leaked from the ship, causing major damage to the environment. Hundreds of thousands of animals died from contact with the oil, and the effects of the spill were felt for years afterward.

However, the worst oil spill ever was created on purpose. In 1991, Iraqi soldiers released oil into the Persian Gulf to try to prevent enemy soldiers from landing on their shores. Up to 520 million gallons of oil were released into the water, creating an oil slick that covered 4,000 square miles.

Cleaning Up Oil Spills

Trying to clean up oil spills is difficult and expensive. Cleaning up the spill caused by the *Deepwater Horizon* explosion will cost the company that owns the well billions of dollars. There is no easy way to remove oil from the environment once it's been spilled. Authorities used a variety of methods to deal with the damage from the spill.

Methods of Cleaning Up Oil Spills

Absorption: Special towels are used to **absorb** oil that is coating sand and other material along the shore.

Burning: When conditions are fairly calm and the oil is fairly thick, it can be set on fire. Burning removes oil from the surface but fills the air with harmful black smoke.



Chemicals:

Planes flying over an oil spill drop chemicals that break the oil into tiny droplets that



sink below the surface. Natural bacteria living in the ocean water then eat the droplets.



Containment:

Booms, or long floating tubes, are strung out to form a barrier to prevent the oil from spreading.

Microbes: Tiny, microscopic oil-eating organisms are spread over the spill. They eat and digest the oil.

Power washing: Power sprayers are used to remove oil from rocks and other objects that get coated with oil that comes ashore.

Skimming:

Ships with special equipment are used to skim oil collected within floating booms.





President Obama talks about the spill on May 2, 2010.

The Offshore Drilling Debate

As long as the world depends on oil for energy, there will be pressure to look for new sources of oil. Many people oppose offshore drilling and the use of tanker ships to move oil across the oceans. They say the risks of oil spilling and leaking are not risks worth taking.

Many others argue that our growing energy needs make drilling through the ocean floor necessary. Scientists know that big pockets of oil lie beneath the ocean floor in many regions of the world. Those who favor offshore drilling believe that taking proper safety **precautions** will **minimize** the risks involved. But as the *Deepwater Horizon* accident and others like it show, we can never **guarantee** that large oil spills won't happen.

Glossary

absorb (<i>v.</i>)	to soak up or take in (p. 13)
contaminated (<i>adj.</i>)	covered with harmful substances (p. 9)
engulfed (<i>v.</i>)	sourrounded completely (p. 4)
guarantee (<i>v.</i>)	to promise or ensure (p. 15)
inferno (<i>n.</i>)	a fire that burns fiercely or with great intensity (p. 4)
marine (<i>adj.</i>)	relating to, found in, or living in the sea (p. 9)
minimize (<i>v.</i>)	to lessen or reduce as much as possible (p. 15)
oil slick (<i>n.</i>)	a thin layer of oil floating on water (p. 6)
precautions (<i>n.</i>)	actions done as protection against possible undesirable events (p. 15)
refineries (<i>n.</i>)	factories that purify raw materials (p. 11)
toxic (<i>adj.</i>)	poisonous; dangerous to life (p. 9)
wetlands (<i>n.</i>)	areas of land that are marshy or swampy (p. 9)