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Discovery Porthole

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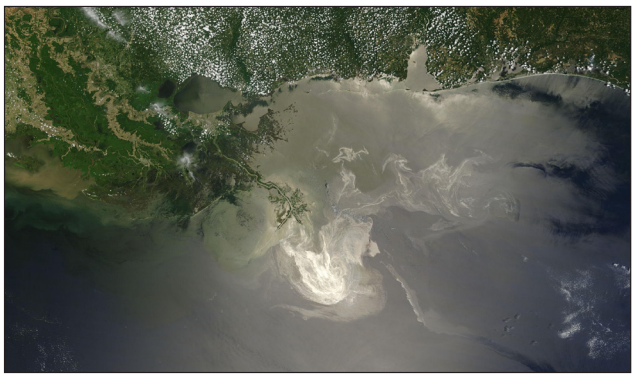
An Overview of the Deepwater Horizon Oil Spill

On April 20, 2010 the Deepwater Horizon oil rig exploded off the coast of Louisiana. The resulting oil spill lasted 87 days and created the largest accidental release of oil the world had ever seen. While much of the northern Gulf of Mexico was spared, receiving little to no oil, other areas were heavily impacted. Several different methods were used to contain and clean up the oil, with varied success. Efforts to remove oil from the water and beaches are onging where necessary. Scientists continue to monitor coastal habitats to document and understand both the short- and long-term effects.



Satellite image of the Gulf of Mexico showing the spreading oil sheen May 24, 2010. (Photo/NASA)

From April 20th until the well was finally capped on July 15th, an estimated 4.9 million barrels (200 million gallons) of ***Louisiana sweet crude oil*** leaked into the Gulf of Mexico. Approximately 34 million gallons (17%) was recovered directly from the well head. In an effort to reduce the impact of the remaining oil, the chemical dispersant Corexit was applied to the oil. Close to 1 million gallons of Corexit was used near the well head at a depth of 5,000 ft. and another million was sprayed at the surface. The dispersant broke up the oil into small droplets which was believed to make it easier for ***oil-eating microbes*** to break down the oil further. Large skimming vessels were used to suck up oily water from the surface of the water resulting in the collection of 3% of the total oil volume. Additionally, attempts were made to corral the oil and prevent it from entering sensitive areas using containment and absorbent boom. Satellite imagery showing visible patches of oil helped in determining where boom should be placed and when. Some of the corralled oil, approximately 11 million gallons, was burned offshore.

Oil began washing ashore in Louisiana shortly after the spill began, threatening ***saltmarshes*** and ***oyster reef*** habitats. Soon after, tar balls appeared on popular beaches in Mississippi, Alabama and Florida. Workers were contracted by BP across the gulf coast to monitor the beaches for debris from the Deepwater Horizon explosion, tar balls and ***oiled wildlife***. Tar balls were mostly picked up by hand and layers of oil were sifted from beach sands by heavy machinery. Crews continue to patrol beaches and remove tar balls when they wash ashore. Scientists across the gulf coast and beyond are conducting their own monitoring programs in an effort to better understand how coastal habitats were affected by the oil spill and to assess their recovery. It will likely take many years of monitoring and testing to comprehend the full impact of the spill on the Gulf of Mexico and coastal habitats.

Scenes from the 2010 gulf oil spill (Left to Right): Oiled marsh grass and absorbent boom (Photo/PJ Hahn), oiled brown pelican (Photo/ Charlie Riedel), snare boom (Photo/Ryan Moody), and shrimp boats corralling oil with boom. (Photo/DISL)

Education Extension

Key Terms: *ecosystem, habitat, oil spill, dispersant, hydrocarbon*

Classroom Activity: Still the Spill

Protecting the estuaries and coastal habitats of the northern Gulf of Mexico was of utmost importance during the Deepwater Horizon oil spill. A variety of materials were used to protect habitats and clean up the oil as it came ashore. Dispersants, chemicals that break down hydrocarbons, were used in some locations.

Supplies: *aluminum or plastic pans, vegetable oil, sand or dirt, liquid dish soap, cotton balls, pipettes, spoons, popsicle sticks, foam, measuring cups*

Directions: 1) Discuss the Deepwater Horizon oil spill with students. 2) Talk about the habitats and plants and animals that were threatened by the oil. 3) Divide students into groups and provide them with the supplies above. 4) Allow students a couple of minutes to discuss protection and clean-up plans. 5) SPILL! 6) After a short period of time, give dispersant to half of the groups. 7) End and discuss; how much oil did you collect; which tools helped protect the shore; which tools helped remove the oil; what were the complications; what was the effect of the dispersant; what would have happened in a different habitat (i.e. salt marsh or seagrass bed)?

Ocean Literacy Principles: 1. The Earth has one big ocean with many features, 5. The ocean supports a great diversity of life and ecosystems, 6. The ocean and humans are inextricably interconnected

National Science Standards: A. Science as Inquiry: Abilities necessary to do scientific inquiry; C. Life Science: Populations and ecosystems; G. History and Nature of Science: Science as a human endeavor

Visit **http://dhp.disl.org/resources.html** for lesson plans and additional marine-related activities.

****Use the key terms above to search for additional lesson plans on the web!***

Did You Know...

Louisiana sweet crude oil is used in the production of gasoline and other fuels. "Sweet" refers to the smell which comes from the low sulfur content.

Oil-eating microbes, including bacteria, archaea and fungi, occur naturally in the marine environment consuming oil from natural oil seeps in the sea floor.

Saltmarshes provide nursery habitat for many species of crabs, shrimp and fish. Scientists are monitoring oiled saltmarshes in Louisiana and Mississippi and documenting oil impacts and marsh recovery.

Oyster reefs of the northern gulf are of great commercial importance. To protect Lousiana oysters from approaching oil, reefs were flooded with river water. Unfortunately, the fresh water killed a large number of them.

Oiled wildlife, like birds, sea turtles and dolphins, were documented during the oil spill. Some were taken to rehabilitation centers to be cleaned and released. Many others were found dead.

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The Northern Gulf Institute (NGI) is a National Oceanic and Atmospheric Administration (NOAA) Cooperative Institute addressing the research needs of the northern Gulf of Mexico. Mississippi State University leads this collaboration of the University of Southern Mississippi, Louisiana State University, Florida State University, Alabama's Dauphin Island Sea Lab, and NOAA scientists at laboratories and operational centers.

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