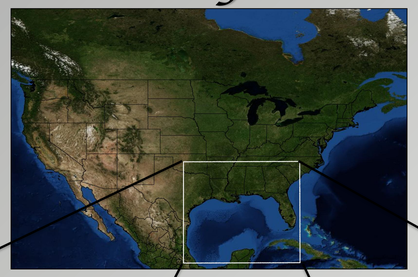
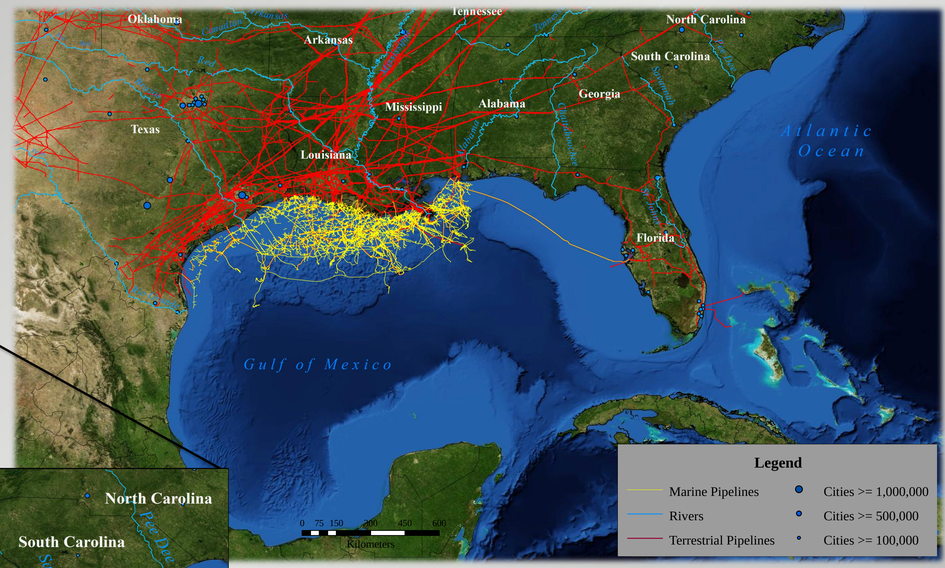
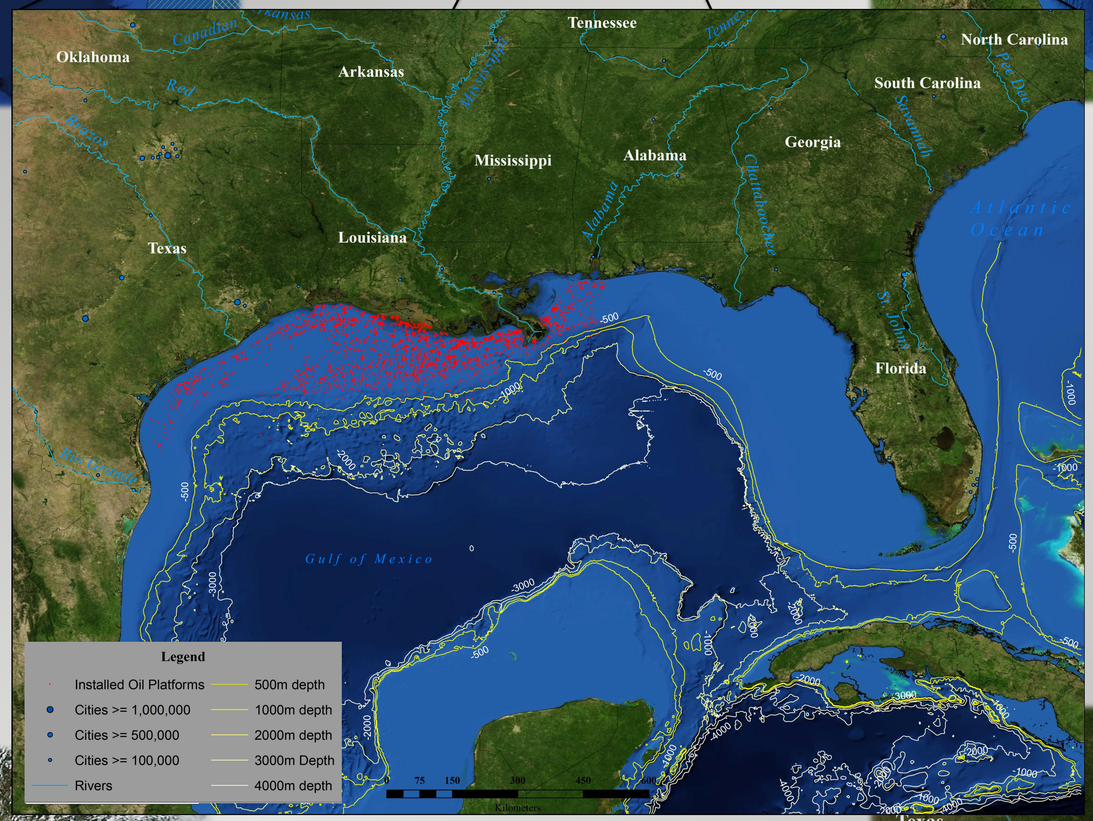
The Gulf of Mexico Oil Emphasis



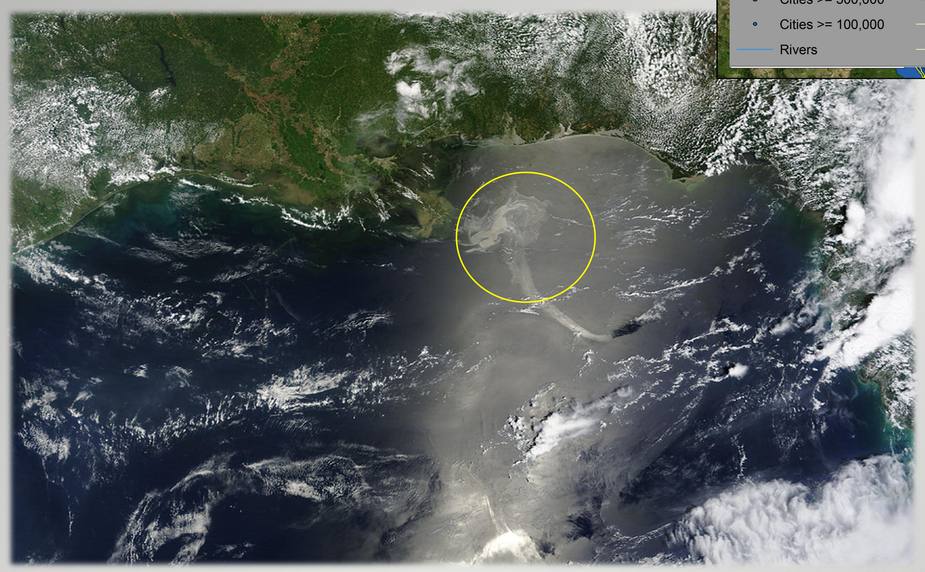




Above- Map of the Gulf of Mexico and selected essential fish habitat (EFH) in relation to the May extent of the BP oil spill. May oil spill extent was digitized using ArcGIS10.The spill extent intersects all three EFH's depicted and likely more due to the extreme depth of the blowout and its interaction with organisms inside the water column. The main fishery of the Gulf, Brown and White shrimp, saw a decrease of 27% from pre spill conditions in 2009 compared to post spill in 2010 (NOAA fisheries office of Science and Technology). Red Drum and other reef fish have seen an increase of almost three fold in numbers from pre spill conditions to post spill conditions (Gulf Spill Effects, The Bad and the Good). Data for the EFH was obtained from the Environmental Response Management Application (ERMA). ERMA was developed through a joint partnership between NOAA and the University of New Hampshire's Coastal Response Research Center.

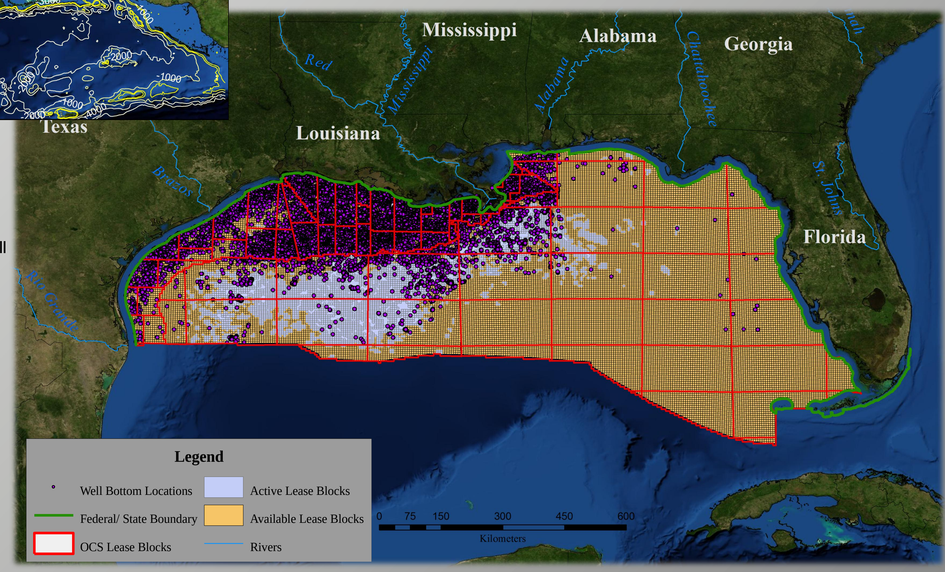
Above- For every platform in the Gulf, an associated oil line must be put in place to transport the oil to shore. From there the oil is connected to more oil lines and distributed to the greater United States for Refinement and use. Comparing the locations of oil lines to EFH shows a direct interaction between locations. Many of the oil lines go through sensitive environmental areas including coral reef beds, marsh lands, marine and terrestrial sanctuaries. A blow out or interruption in the oil lines would impact first the EFH's and other sensitive environmental areas surrounding the coast.

Below- Satellite imagery from NASA's Terra Satellite. The data is 1km spatial resolution in true color taken on May 17th 2010, about one month after the oil spill began. The yellow circle highlights the oil slick extent as seen from the satellite. This data is available at 2km, 500m, and 250m resolution. The Terra satellite collects images daily and records in true color, bands 7-2-1, and also provides an image of a NDVI index. Data was downloaded from the NASA website at: http://rapidfire.sci.gsfc.nasa.gov/imagery/subsets/?subset=USA7.2010137.terra.1km



Above- The Gulf of Mexico and the active drilling platforms. There are over 4000 active platforms drilling in the Gulf of Mexico. Many occur in shallow waters, but with more and more drilling occurring the quest for oil continues to expand to deeper waters. Coupled with the deep drilling is the intense pressure that the ocean and subsurface are placing on the gas hydrate. Because of the high pressures, blowouts at these depths are much more of a concern. The Ixtoc 1 explosion and Macundo well explosion are two examples of blowouts at extreme depths are pressure.

Bottom- Within the Gulf of Mexico there are 29,097 available lease blocks. Of those, 6,312 have been purchased and are considered active. The purple dots represent well bottom locations. The majority of those wells are located in shallow waters off the coast due to their ease of accessibility. As these wells become exhausted, the push to deeper waters in search of gas hydrate increases which also increases the chances of another Macondo well blow out. The total number of well bottoms is 51,787 and growing. As illustrated, the majority of the lease blocks are not active.



Coordinate System: WGS 1984
Projection: Geographic
Datum: WGS 1984
Units: Degree

Data Sources: ESRI, NOAA, ERMA, BOEM, BSEE, NASA satellite imagery, Northern Gulf of Mexico Ecoregional Plan, Gulf of Mexico Coastal Ocean Observing System (GCOOS)

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Works Citec: "Gulf Spill Effects, The Bad and the Good." *Oil Spill Intelligence Report* 23 November 2010: 1-3. Report., NOAA fisheries office of Science and Technology. *Fishery Market News, Monthly Gulf Coast Shrimp Statistics*. Catch Results. New York: NOAA, 2010. Document