

GULF OF
MEXICO
RESEARCH INITIATIVE



Improving society's ability to understand,
respond to, and mitigate the impacts from oil spills.

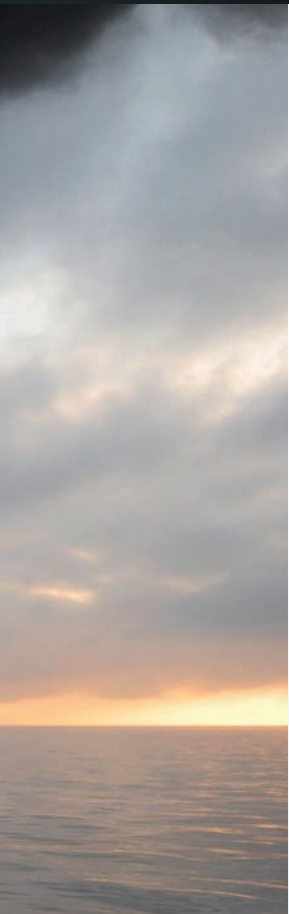


Credit: Teddy Meeks

Gulf of Mexico Research Initiative



Credit: U.S. Navy/Mass Communication Specialist 2nd Class Justin Stumberg



On 20 April 2010, the Deepwater Horizon (DWH) drilling rig operating approximately 50 miles (80 km) off the coast of Louisiana experienced a catastrophic failure that resulted in an explosion and fire, the ultimate sinking of the rig, and the loss of 11 men who were working on the rig. The disaster continued for several months as there was a discharge of approximately five million barrels of light sweet crude oil and gas from an ocean depth of nominally 5000 feet (1525 m) into the Gulf of Mexico.

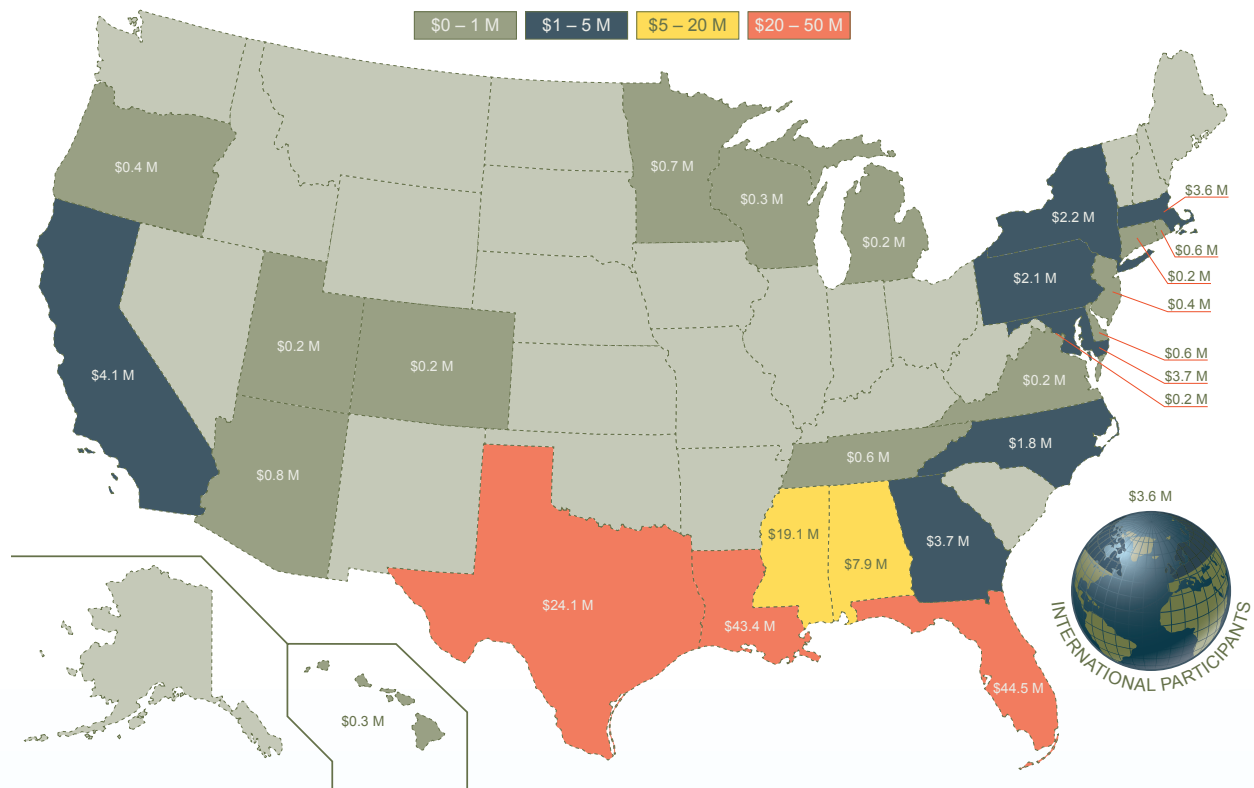
Shortly after the DWH tragedy, BP announced a commitment of up to \$500 million over ten years to fund an independent research program designed to study the impact of the oil spill on the environment and public health in the Gulf of Mexico. The goal of the Gulf of Mexico Research Initiative (GoMRI) is to improve society's ability to understand and mitigate the impacts of hydrocarbon pollution and stressors of the marine environment. Knowledge accrued will be applied to restoration and to improving the long-term environmental health of the Gulf of Mexico.

The scientific direction of the GoMRI and funding decisions are being made by an independent Research Board comprising 20 marine science and public health experts. The initiative is being administered by the Gulf of Mexico Alliance. All data obtained through the GoMRI will be shared openly and results are being published in peer-reviewed scientific journals with no requirement for BP approval.

Research Themes:

The science gaps and research needs identified through several public meetings in the summer of 2010 helped create the following research themes, which the Research Board has adopted to solicit and select science proposals.

- 1** Physical distribution, dispersion, and dilution of petroleum (oil and gas), its constituents, and associated contaminants (e.g., dispersants) under the action of physical oceanographic processes, air–sea interactions, and tropical storms.
- 2** Chemical evolution and biological degradation of the petroleum/dispersant systems and subsequent interaction with coastal, open-ocean, and deepwater ecosystems.
- 3** Environmental effects of the petroleum/dispersant system on the sea floor, water column, coastal waters, beach sediments, wetlands, marshes, and organisms; and the science of ecosystem recovery.
- 4** Technology developments for improved response, mitigation, detection, characterization, and remediation associated with oil spills and gas releases.
- 5** Impact of oil spills on public health.



Year-One Block Grants (June 2010)

\$50 million in funding provided directly from BP to Gulf State Institutions and the National Institutes of Health to establish critical baseline data as the foundation for subsequent research as well as support for studying the health of the oil spill workers and volunteers.

Bridge Grants (RFP-III, July 2011)

\$1.5 million in support to ensure continuity of observations and sampling while the peer-review process was underway for Year 2-4 Consortia.

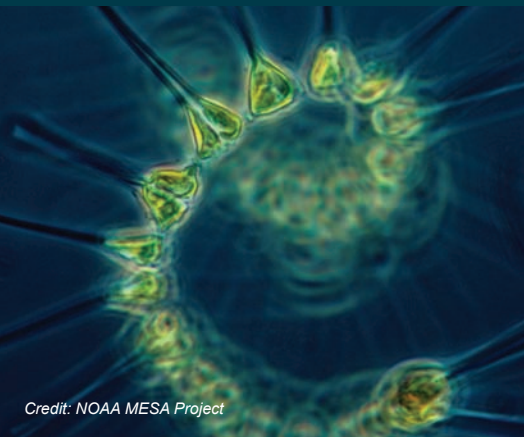
Year 2-4 Consortia Grants (RFP-I, August 2011)

\$112.5 million in grants announced to eight research consortia comprising experts from over six-dozen research institutions in 27 U.S. states and five countries.

Year 3-5 Investigator Grants (RFP-II, Awards to be announced Summer 2012)

\$22.5 million available for grants to individuals or collaborative efforts involving a principal investigator (PI) and up to three co-principal investigators (co-PIs) from no more than three additional institutions.

GoMRI Research Consortia



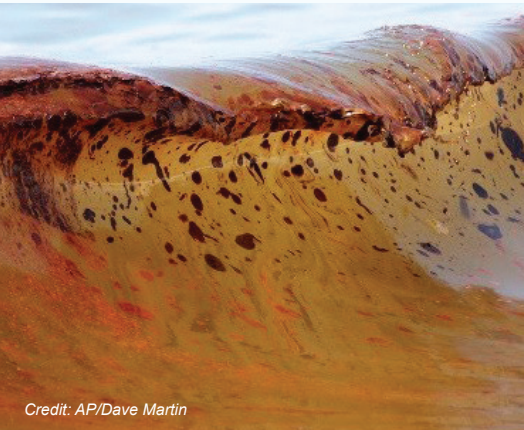
Credit: NOAA MESA Project

Dispersion Research on Oil: Physics and Plankton Studies

Consortium Director: Edward Buskey

*Lead Institution: **University of Texas at Austin –
Marine Science Institute***

Goal: To investigate the breakup of crude oil patches into droplets, and the resulting droplet size distribution under varying environments while also quantifying and modeling the interaction of oil with marine zooplankton and hydrocarbon-degrading bacteria.



Credit: AP/Dave Martin

Gulf Integrated Spill Research

Consortium Director: Piers Chapman

*Lead Institution: **Texas A&M University at College Station***

Goal: To understand and predict the fundamental behavior of petroleum fluids in the ocean environment and develop a multi-scale modeling system validated by field and laboratory experiments to track the pathways of transforming hydrocarbons released from deep oil spills in the Gulf of Mexico.

Deep Sea to Coast Connectivity in the Eastern Gulf of Mexico

Consortium Director: Eric Chassignet

Lead Institution: Florida State University

Goal: To examine geomorphologic, hydrologic, and biogeochemical settings that influence the distribution and fate of the oil and dispersants while also evaluating and predicting the environmental consequences through integrated earth system and food web models.



Credit: Glynn Wilson

The Effects of the Macondo Oil Spill on Coastal Ecosystems

Consortium Director: Nancy Rabalais

Lead Institution: Louisiana Universities Marine Consortium

Goal: To determine the impacts of the oil, dispersed oil, and dispersant on Gulf ecosystems through measuring the effects of stressors on aquatic and wetland soils, marsh plants, insects/spiders, fish, birds, commercial fisheries, and selected mollusk species found in the marsh and pelagic characteristics of adjacent open waters.



Credit: NASA

GoMRI Research Consortia



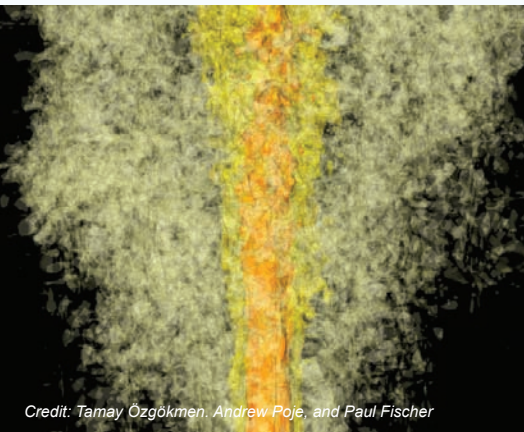
Credit: UNC

Center for Integrated Modeling & Analysis of Gulf Ecosystems

Consortium Director: Steve Murawski

Lead Institution: **University of South Florida**

Goal: To develop and integrate empirically validated models of oil plume fate and ecotoxicology through better understanding of the physical and chemical plume formation and degradation processes to more accurately predict contaminant distribution, composition, and ecosystem impacts.



Credit: Tamay Özgökmen, Andrew Poje, and Paul Fischer

Consortium for Advanced Research on Transport of Hydrocarbon in the Environment

Consortium Director: Tamay Özgökmen

Lead Institution: **University of Miami**

Goal: To accurately predict the fate of hydrocarbons released into the environment, thereby guiding risk management and response efforts to minimize the damage to human health, the economy, and the environment.

Consortium for the Molecular Engineering of Dispersant Systems

Consortium Director: Vijay John

Lead Institution: Tulane University

Goal: To develop new and improved dispersants, particularly suited for deep-sea application through the evaluation of physiochemical aspects of new dispersants and detailed research on physiochemical properties, fate, and transport mechanisms.



Credit: NASA

Ecosystem Impacts of Oil and Gas Inputs to the Gulf

Consortium Director: Raymond Highsmith

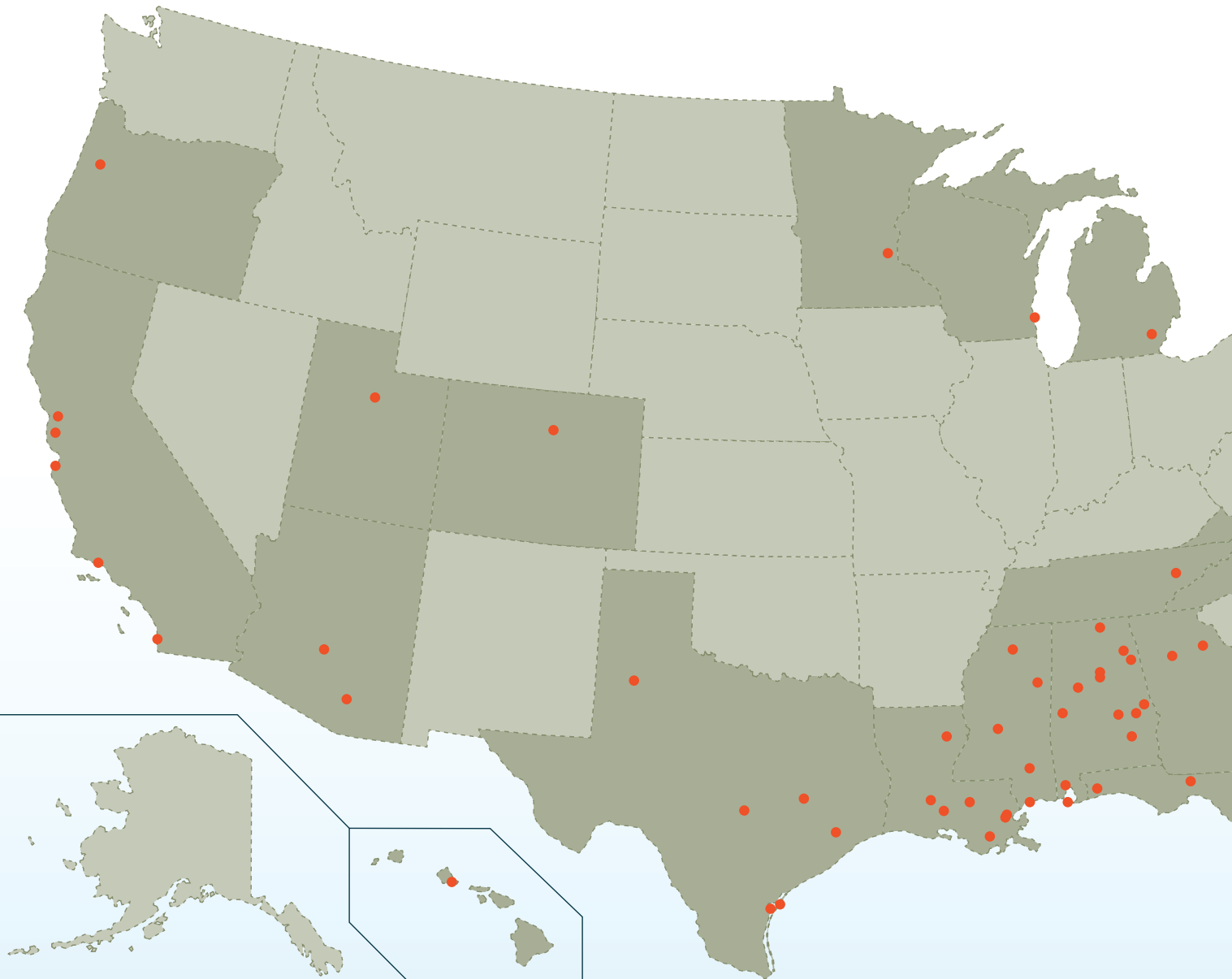
Lead Institution: University of Mississippi

Goal: To understand the impacts of natural seepage versus that of abrupt, large hydrocarbon inputs on coupled benthic-pelagic processes in deepwater ecosystems and to chart long-term effects and mechanisms of ecosystem recovery from the DWH accident.



Credit: National Energy Technology Laboratory

Gulf of Mexico Research Initiative



Participating Institutions

Alabama State University Yr1
 Arizona State University RFP-I
 Auburn University Yr1, RFP-III, RFP-I
 Bioplex Technologies Inc. Yr1
 Brigham Young University RFP-I
 Brown University RFP-I
 Carnegie Mellon University RFP-I
 Citadel College of South Carolina Yr1
 City University of New York RFP-I
 Clarkson University / COSS RFP-I
 College of Staten Island RFP-I
 Columbia University RFP-I
 Connecticut College RFP-I
 Dauphin Island Sea Lab Yr1, RFP-III, RFP-I
 Deltas RFP-I
 Eckerd College Yr1, RFP-I
 Florida Agricultural and Mechanical University Yr1
 Florida Fish and Wildlife Research Institute Yr1
 Florida Gulf Coast University Yr1, RFP-I
 Florida Institute of Oceanography Yr1, RFP-I
 Florida Institute of Technology Yr1
 Florida International University Yr1, RFP-I
 Florida Museum of Natural History Yr1
 Florida State University Yr1, RFP-III, RFP-I
 Georgetown University RFP-I
 Georgia Institute of Technology RFP-I
 Hamburg University of Technology, Germany RFP-I
 Harbor Branch - Florida Atlantic University Yr1
 Harte Research Institute Yr1
 J. Craig Venter Institute RFP-I
 Jackson State University Yr1
 Johns Hopkins University RFP-III, RFP-I
 Louisiana State University Yr1, RFP-III, RFP-I
 Louisiana Universities Marine Consortium RFP-III, RFP-I
 Marine Biological Laboratory RFP-I
 Massachusetts Institute of Technology RFP-I
 Mississippi State University Yr1, RFP-III
 Mote Marine Laboratory Yr1, RFP-III, RFP-I
 Naval Postgraduate School RFP-I
 Naval Research Laboratory at Stennis Space Center RFP-I
 NHL University of Applied Sciences, Netherlands RFP-I
 NOAA/AOML Yr1
 NOAA/NMFS Yr1
 North Carolina State University RFP-I
 Norwegian Meteorological Institute RFP-I
 Nova Southeastern University Yr1, RFP-I
 Oregon State University RFP-I
 Penn State University Yr1, RFP-I
 Princeton University RFP-I
 Roffers Ocean Fishing Forecasting Service Yr1
 Rutgers University RFP-I
 SAIC RFP-I
 Samford University Yr1
 Scripps Institution of Oceanography RFP-I
 SINTEF, Norway RFP-I
 Smithsonian Marine Station Yr1
 Stanford University RFP-I
 Temple University RFP-I
 Texas A&M University RFP-I
 Texas AgriLife Research, Texas A&M University RFP-III
 Texas Tech University RFP-III
 Troy University Yr1
 Tulane University RFP-III, RFP-I
 Tuskegee University Yr1
 University of Alabama Yr1
 University of Alabama at Birmingham Yr1
 University of Alabama in Huntsville Yr1
 University of Arizona RFP-I
 University of Buffalo, SUNY RFP-I
 University of Calgary, Canada RFP-I
 University of California, Berkeley RFP-I
 University of California, Santa Barbara RFP-I
 University of Central Florida Yr1
 University of Colorado RFP-I
 University of Delaware RFP-I
 University of Florida Yr1
 University of Georgia RFP-III, RFP-I
 University of Hawaii RFP-I
 University of Houston RFP-I
 University of Louisiana, Lafayette RFP-III, RFP-I
 University of Maryland RFP-I
 University of Massachusetts at Amherst RFP-I
 University of Miami, RSMAS Yr1, RFP-I
 University of Michigan RFP-I
 University of Minnesota RFP-I
 University of Mississippi Yr1
 University of Mississippi, NIUST RFP-I
 University of New Orleans Yr1
 University of North Carolina RFP-I
 University of North Florida Yr1
 University of Pennsylvania RFP-I
 University of Rhode Island RFP-I
 University of South Alabama Yr1, RFP-III, RFP-I
 University of South Florida Yr1, RFP-III, RFP-I
 University of Southern Mississippi Yr1, RFP-III, RFP-I
 University of Tennessee RFP-I
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 University of West Alabama Yr1
 University of West Florida Yr1, RFP-I
 University of Wisconsin-Milwaukee RFP-I
 USGS Yr1
 USGS Woods Hole Science Center RFP-III
 Valdosta State University Yr1
 Virginia Institute of Marine Science Yr1, RFP-III, RFP-I
 Wageningen University, Netherlands RFP-I
 Woods Hole Oceanographic Institution RFP-III, RFP-I



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