

# **MISSISSIPPI UNIVERSITIES GULF OIL SPILL RESEARCH ACTIVITIES**

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Prepared for:

Louisiana EPSCoR  
Gulf Oil Spill Conference

Presented by:

Alice M. Clark, Ph.D.  
Chair, Mississippi Research Consortium

# Mississippi Institutions of Higher Learning

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Dr. Hank M. Bounds  
Commissioner of Higher Education

Alcorn State University

Mississippi University for Women

Delta State University

Mississippi Valley State University

Jackson State University

University of Mississippi

Mississippi State University

University of Southern Mississippi



# Mississippi Research Consortium (MRC)

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- Created 1986 to build Mississippi's research capacity and technical workforce and advise State government on science and technology
- Chief Research Officers of Mississippi's Research Universities:

Dr. Felix Okojie  
Vice President for Research  
and Federal Relations  
Jackson State University  
[faokojie@ccaix.jsums.edu](mailto:faokojie@ccaix.jsums.edu)

Dr. David Shaw  
Vice President for Research  
and Economic Development  
Mississippi State University  
[dshaw@research.msstate.edu](mailto:dshaw@research.msstate.edu)

Dr. Alice M. Clark, Chair (2009-2011)  
Vice Chancellor for Research  
and Sponsored Programs  
University of Mississippi  
[vcrsp@olemiss.edu](mailto:vcrsp@olemiss.edu)

Dr. Denis Wiesenburger  
Vice President for Research  
University of Southern Mississippi  
[denis.wiesenburger@usm.edu](mailto:denis.wiesenburger@usm.edu)

<http://www.mississippiresearch.org/>

# Deepwater Horizon Response Team (DHRT)

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- Communicate, coordinate, and integrate spill-related activities
- Identify spill-related research capabilities, expertise, unique assets, and needs

Gordon W. Skelton, Ph.D., Director  
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National Institute for Undersea Science & Technology  
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Stephanie Showalter, J.D./M.S.E.L., Director  
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Stennis Space Center  
Mississippi State University  
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Joe Street, Ph.D., Associate Director  
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Stennis Space Center  
University of Southern Mississippi  
[Steven.lohrenz@usm.edu](mailto:Steven.lohrenz@usm.edu)

Tom Lansford, Ph.D., Academic Dean  
& Professor of Political Science  
USM Gulf Coast  
[tom.lansford@usm.edu](mailto:tom.lansford@usm.edu)

# MS Research Universities: Spill-related Capabilities

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- Coastal Observations & Forecasting Oil Transport and Fate
- Environmental Monitoring of Water Quality, Marine Life, and Fisheries
- Impacts and Distribution of Oil at Spill Site and in Offshore Waters
- Application of Sand Berm for Protection against Coastal Erosion
- Understanding Impacts to Human Health and Wildlife Health
- Evaluating Social and Economic Impacts
- Filming and Documenting Events
- Facilitating Community Education, Outreach, and Technology Transfer

<http://www.mississippiresearch.org/>

## *Mississippi's Unique Assets: Selected Examples*

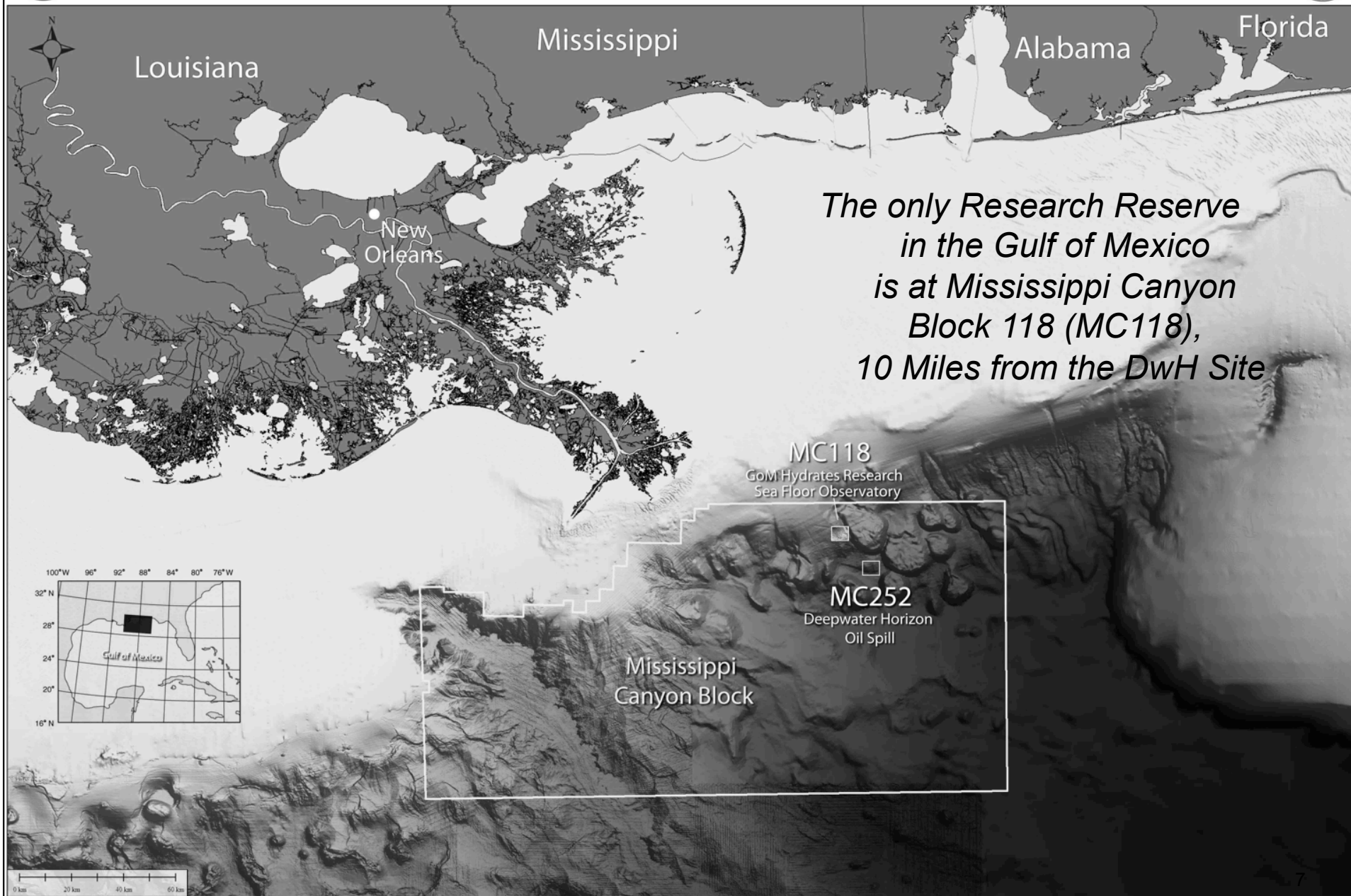
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- Center for Natural Disasters, Coastal Infrastructure, and Emergency Management (JSU)
- The Center for Defense Integrated Data (JSU)
- Northern Gulf Institute (MSU & USM)
- MSU Gulf Coast Extension Center (MSU)
- National Institute for Undersea Science and Technology (UM & USM)
- National Sea Grant Law Center (UM)
- Gulf Coast Research Laboratory (USM)
- USM Department of Marine Science at Stennis Space Center: co-located with NOAA, NASA, and Navy Agencies

***and Mississippi Canyon Block 118...***



## Gulf of Mexico Seafloor Observatory Site Location



## *MS Universities: Institutional and Collaborative Activities*

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- Research
- Education, Outreach, and Technology Transfer
- Communications
- Strategic Planning
- Strategic Alliances



## *MS Universities: Institutional and Collaborative Activities*

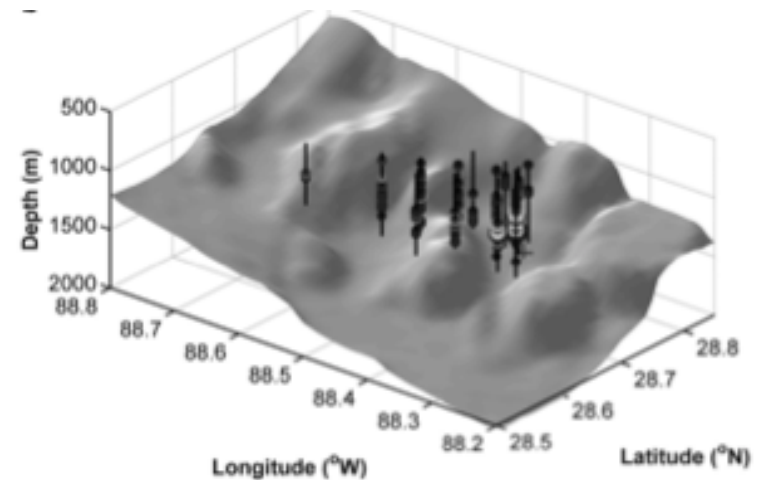
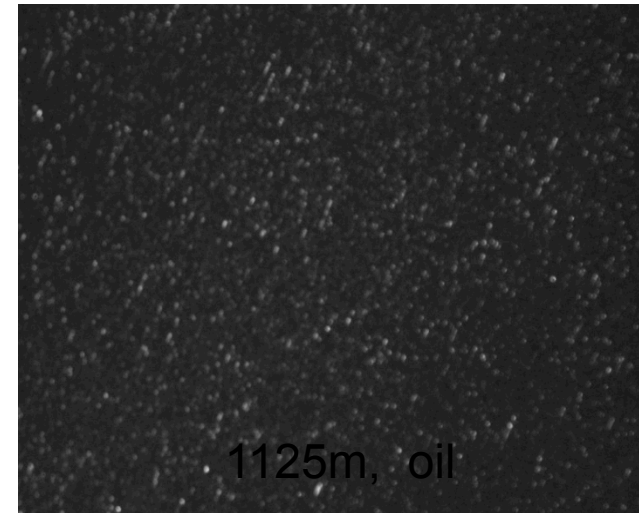
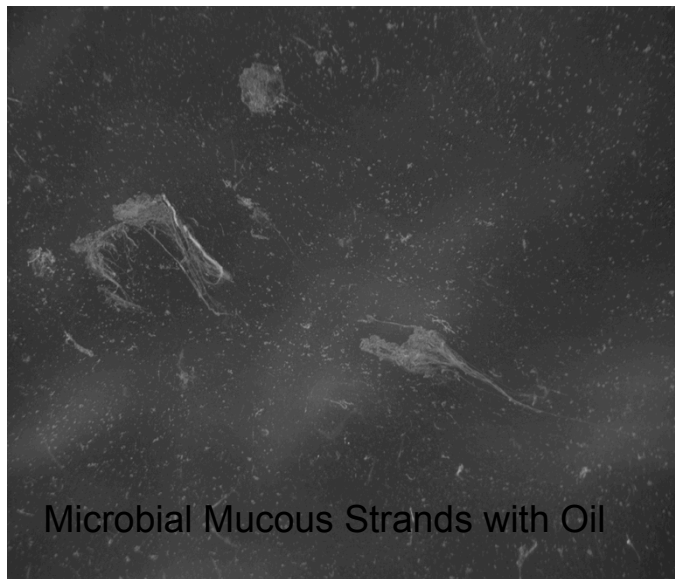
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- **Research – selected examples**
  - Ocean Sciences
  - Social and Economic Sciences
  - Public Health
- **Education, Outreach, and Technology Transfer – selected examples**
- Strategic Alliances
- Strategic Planning
- Communications

# *MS Universities: Ocean Sciences*

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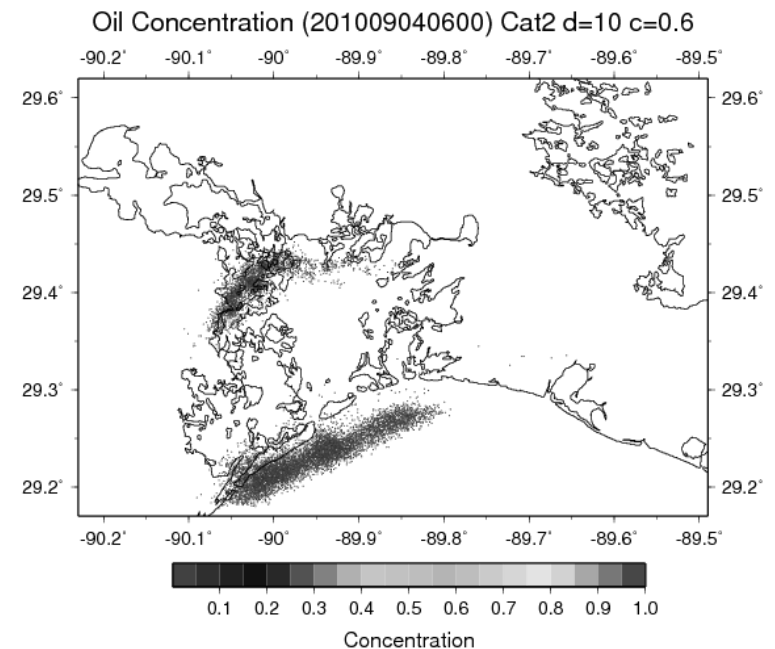
- Discovered and photographed deep subsurface hydrocarbon plume
- Mapping oil distribution and concentration



# *MS Universities: Ocean Sciences*

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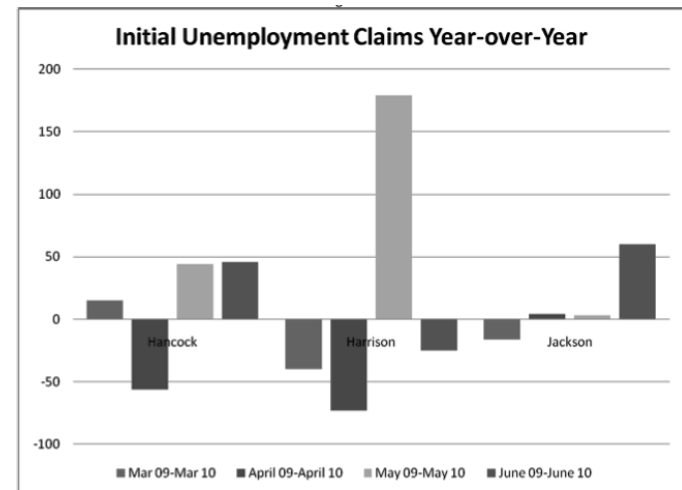
- Modeling hurricane effects on DWH oil spill
- Radar tracking of surface oil trajectories
- Assessing impacts on shallow water habitats, wetlands, and beach sediments, and the science of ecosystem recovery
- Assessing biological degradation of the oil/dispersant and interaction with marine and coastal ecosystems.



# *MS Universities: Social and Economic Sciences*

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- USM-led MRC collaborative economic impact study
- Produced white papers on revenue loss, tax loss, and employment impact from 61 interviews of 44 MS Gulf Coast businesses [www.usm.edu/oilspill](http://www.usm.edu/oilspill)
- Tracked, mapped, and archived claims payments from \$20B BP fund.



- Research to clarify how Gulf States can spend NRDA funds
- Tracking longitudinal human socio-economic impact

# *MS Universities: Social and Economic Sciences*

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- Mapping risks to identify affected MS businesses
- Social climate analysis to predict human behavior in disasters

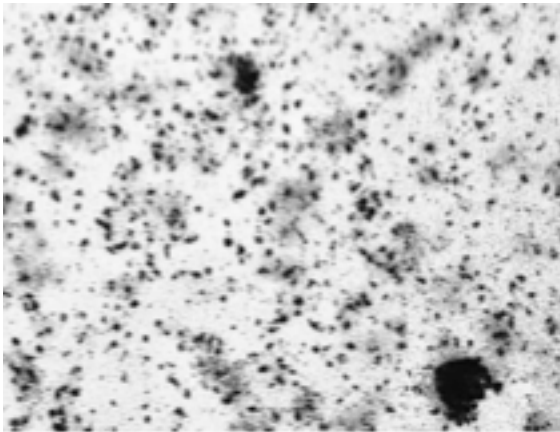


- Surveys to identify gaps in hazard knowledge and understand human response around disasters

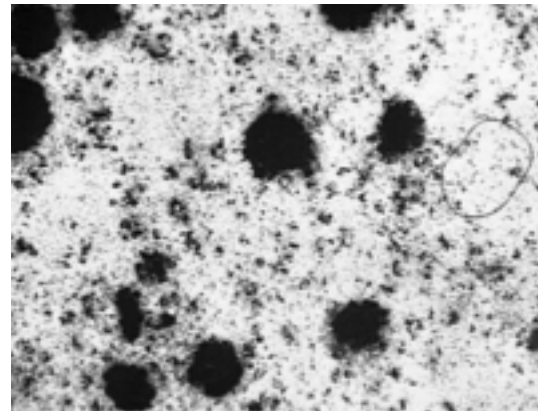
## *MS Universities: Public Health*

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- Use of fish immune systems as models of human immune systems
- Effects of oil/dispersants on human health
- Assessment of mental health impacts to coastal residents
- Long-term cancer incidence studies



Control fish spleen



Exposed fish spleen



# *MS Universities: Education, Outreach, and Technology Transfer*

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- Workshops to help seafood dealers and processors instill consumer confidence in seafood harvested from Gulf waters.
- Providing language interpretation and helping fishermen become cleanup workers
- Developing curricula focused on disasters and coastal hazards
- Informing recreational fishermen about NDRA process
- Developing coastal programs to address mental health issues



## *MS Universities: Institutional and Collaborative Activities*

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- Research
- Education, Outreach, and Technology Transfer
- **Strategic Planning** (*MS Universities Gulf of Mexico Research Plan*)

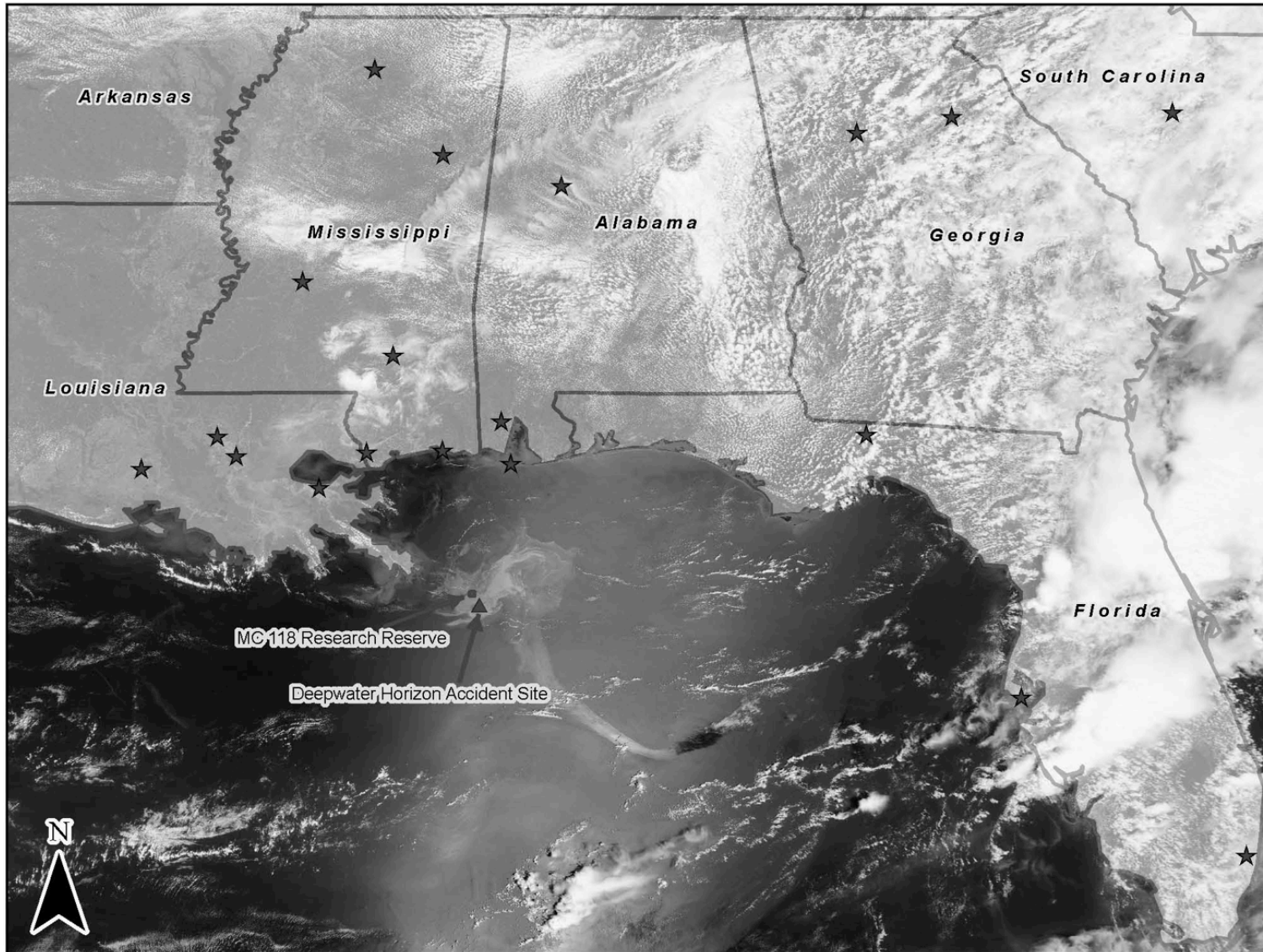
Goals, objectives, and action items organized around three essential dimensions:

- When: Time from the spill.
  - Where: The spatial location relative to the shore.
  - Who/what/how: The nature of the impact.
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- **Communications** - Congressional briefings, Editorials, State agencies and elected officials
  - **Strategic Alliances** - State; Gulf Region; National; Public-Private



# *A Culture of Collaboration*

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