



## Oil Spill Conference Identifies Gulf of Mexico Research Priority Areas

The “Collaborative Scientific Research Opportunities Relative to the Gulf Oil Spill” conference brought researchers across the Gulf states and the nation together to identify multidisciplinary research priorities related to the oil spill and foster collaborative research.

In our last newsletter, the plenary presentations were discussed. This issue covers the four breakaway research strands.

Following each plenary session, the conference was divided into crosscutting breakaway strands organized by broadly defined research areas to: a) promote wide-ranging multidisciplinary discussions, b) provide opportunities to learn about the diversity of ongoing research and identify research priorities, and c) encourage researchers to form partnerships for collaborative research.

Each breakaway strand concluded its discussions by identifying the highest priority areas for collaborative research going forward. A summary of their findings is presented on a strand-by-strand basis below.

**Engineering Aspects and the Transport and Fate of Spilled Oil** / Presenter: Doug Blakemore, Chevron

*Properties of Oil.* It is important to understand the properties of the oil in question, how it varies in composition and behavior, how these differences determine the various risks involved, and how it interacts with sea water and various containment and remediation measures.

*Interaction of Oil with Dispersants.* Research questions still remain regarding toxicity, decomposition

characteristics, and biodegradation of dispersants. There is a need for special techniques for analyzing and modeling dispersant properties and behaviors.

*Determining Oil Plume Characteristics and Movement.* Researchers discussed several modeling approaches for better understanding the oil plume’s dynamics from physical, chemical, biological, and toxicological perspectives. Further research is needed.

*Restoration and Remediation Plans.* Development of an effective bioremediation process that meets government deployment standards during an oil spill is necessary.

*Remote Data Retrieval.* The development of a deployable real-time collection and analysis system is needed to enable researchers to gather data remotely and minimize potential negative environmental impacts of data collection.

**Coastal and Ocean Environments: Damage, Remediation and Recovery** / Presenter: Denise Reed, University of New Orleans

*Research Stations.* Standardized research stations are needed to establish baseline data for physical, biological and chemical processes. Research on the fate of oil, restoration and remediation strategies, data management and toxicity is critical for each of the different parts of the Gulf (onshore, nearshore, offshore, etc.).

*Data storage and management.* The establishment of a core data management team is key priority for environmental researchers.



**Human Communities: Disaster Management, Sustainability and Health** / Presenter: Jay Grimes, University of Southern Mississippi

*Communication.* There is a need for disseminating resources back to the community and using credible sources to communicate complex topics, such as risk, to a variety of populations.

*Community Resilience.* The preservation of the culture is important in every situation, for any disaster. While coastal communities have a reputation for resilience, they have their weaknesses as well. It is important to understand and address these weaknesses.

*Data Collection.* Monitoring and surveillance data over a long period of time is important and needs to be properly georeferenced, archived and accessible for the various constituencies that need them.

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*Physical and Mental Health.* It is critical to study the immediate response and long-range physical and mental health of human communities following the release of so many potentially toxic compounds into the atmosphere, as well as the high levels of stress and the emotional toll of such a destructive event.

*Research to Address Short and Long-term Health Effects (Toxicology).* Research is needed to study both short- and long-term effects on human health of the oil spill and the mixture of oil and dispersants.

*Seafood Safety.* Short- and long-term toxicology issues cut across all aspects of human impacts from the spill. Seafood safety and the perception of safety heavily impacts coastal communities, not only because their diets are heavily reliant on seafood, but also because fishing is such a major part of their livelihoods and culture.

**Economics, Policy and Decision Support Systems** / Presenters: Florenz Plassmann, Binghamton University and Geoffrey Parker, Tulane University

*Market-Based Solutions.* There is a crucial need for policies to be in place before a disaster strikes to ensure adequate preparation, and allow industry coalitions, instead of government, to make the first attempt at suggesting a course of action.

This would allow members to share information and risks, similar to the way that banks joined forces in the nineteenth century to build a mutual insurance system to protect against bank runs.

*Economic Impact/Valuation Studies.* Economists need help across other disciplines to assess costs that lie outside of market systems and to determine and verify how parts of the ecosystem work together. Rapid, predictive economic impact modeling (baseline model) using simulation and analysis capabilities would be required.

*Disaster Management Planning.* There is a need for collaborative planning and research regarding: sharing infrastructure and operating costs, mechanisms that support shared resources, and understanding how public policies impede or support response and recovery.

#### **Common Areas for Collaboration across Strands:**

At the end of the event, the strands converged in a discussion of areas in which collaboration would be most appropriate. The following areas were identified as the highest priorities:

*Collaborative research.* Research into ocean and coastal environments

will require the collaboration of researchers from a host of specialties including oceanography, chemistry, biology, microbiology, toxicology, and many others.

*Multidisciplinary model building and computational issues.* An accurate modeling scheme is urgently needed and cannot be accomplished without close partnership across all related disciplines. The models must involve physical, chemical, biological, economic, and other discipline-specific principles while also requiring the computer science, statistical and programming expertise to develop, test and operate the model.

Researchers must work together to accurately address computational fluid dynamics, heat/mass transfer, chemistry, meteorology, environmental science and engineering, air quality, computer science, mathematics, physics, physical oceanography and microbiology.

*Gulf-specific expertise directory.* Acknowledging the diverse perspectives supplied by researchers from different disciplines, the final recommendation was to develop a Gulf of Mexico-specific catalog of experts that would identify multidisciplinary teams and academic institutions, and provide a resource for scientists seeking partnership opportunities.

To download the entire oil spill conference proceedings, visit:  
<http://web.laregents.org/program-evaluations/oilspill2010>