Moving Forward: Emerging from the Deepwater Horizon Event

Cooperative Research Opportunities

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BOEMRE

Cooperative Partnerships*

Who are some of the players?

(People who made things happen!)

- **Technology Assessment & Research (TA&R) Program**
  - **BOEMRE:** Michael Else, Sharon Buffington
- ***Lophelia II* Deepwater Coral Study**
  - **NOAA OER:** John McDonough, Felipe Arzayus, Jeremy Potter
  - **NOAA OAR:** Capt. Craig McLean
  - **BOEMRE:** Greg Boland, Bill Shedd, Pat Roscigno, James Sinclair
  - **USGS:** Colleen Charles, Gary Brewer
- **Loop Current Study and Gulf Modeling**
  - **BOEMRE:** Ron Lai, Walter Johnson, Rebecca Green, Joe Christopher
  - **NOAA:** Steve Murawski (now University of South Florida), Bonnie Ponwith, Admiral Philip Kenul, Gustavo Goni, George Halliwell
- **NOAA Vessel Relocation (AMAPPS)**
  - **NOAA NMFS:** Bonnie Ponwith
  - **BOEMRE:** Jim Price, Deborah Epperson, Robert LaBelle

**From the BOEMRE perspective*

Why Partnering Is Important!

Five Reasons Why Interagency & Inter-sector Partnerships are Important:

1. **To address critical national priorities that cannot be accomplished by a single agency or sector;**
2. **To address priority issues that bridge the mandates of individual federal agencies;**
3. **To contribute to the cutting edge of interdisciplinary and inter-sector science and technology;**
4. **To help ensure that institutional resources are invested and leveraged wisely, while planning for the future; and**
5. **To provide the necessary flexibility for supporting new, emerging issues that may not yet be part of a "mandate" but are of interest and value to many.**

Partnership Activities Encompass a Continuum:

"from a more 'global,' less formal, sharing of information between sectors to a high level of interaction where common objectives are planned and implemented among the partnering entities."

- **Coordination** – sharing information on similar projects
- **Cooperation** – working together on parallel projects with common objectives
- **Collaboration** – sharing objectives and working together on common projects

National Oceanographic Partnership Program

Important Reviews, Reports, & Policies
(to focus cooperative efforts, during and after)

- USCG & BOEMRE Marine Board Investigation – initiated April 2010 (ongoing)
- BOEMRE/LSU Gulf conference on baseline socio-economic data and planning for study design
- Increased Safety Measures for Energy Development on the OCS, May 27, 2010
- OCS Safety Board Report a "Blueprint" for Next Steps on Internal Reforms of Offshore Energy Oversight (September 8, 2010)
- Final Report to the President: National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling
- JSOST Deepwater Horizon Oil Spill Principal Investigator (PI) Conference, St. Petersburg Florida (October 2010)

Immediate Cooperative Efforts*

- BOEMRE provided scientific staff and technical direction in the development of and participation in response teams through Unified Command.
- BOEMRE provided data and model results for the prediction of the spilled oil to aid response and clean up activities.
- BOEMRE provided data and publications for baseline assessment.
  - Some studies were ongoing:
    - *Lophelia* II Project with NOAA & USGS – 2008-2011 Deep Water Corals for baseline data
    - Deep water circulation and Loop Current Studies

From the BOEMRE Perspective

- Partnerships are "Reciprocal" & "Infectious!"

- Leadership for ALL!

- Its amazing how much can get done when no one worries about who gets the credit …

Immediate Cooperative Efforts*

- Oceanographic Models and Measurements
  - BOEMRE participated in an interagency oil spill model review team (NOAA, Navy, others).
- Dispersant Issue
  - BOEMRE collaborated with the interagency team.**
- Flow Rate Technical Group
  - BOEMRE provided scientific support to the effort led by Marcia McNutt, USGS.

****From the BOEMRE Perspective***

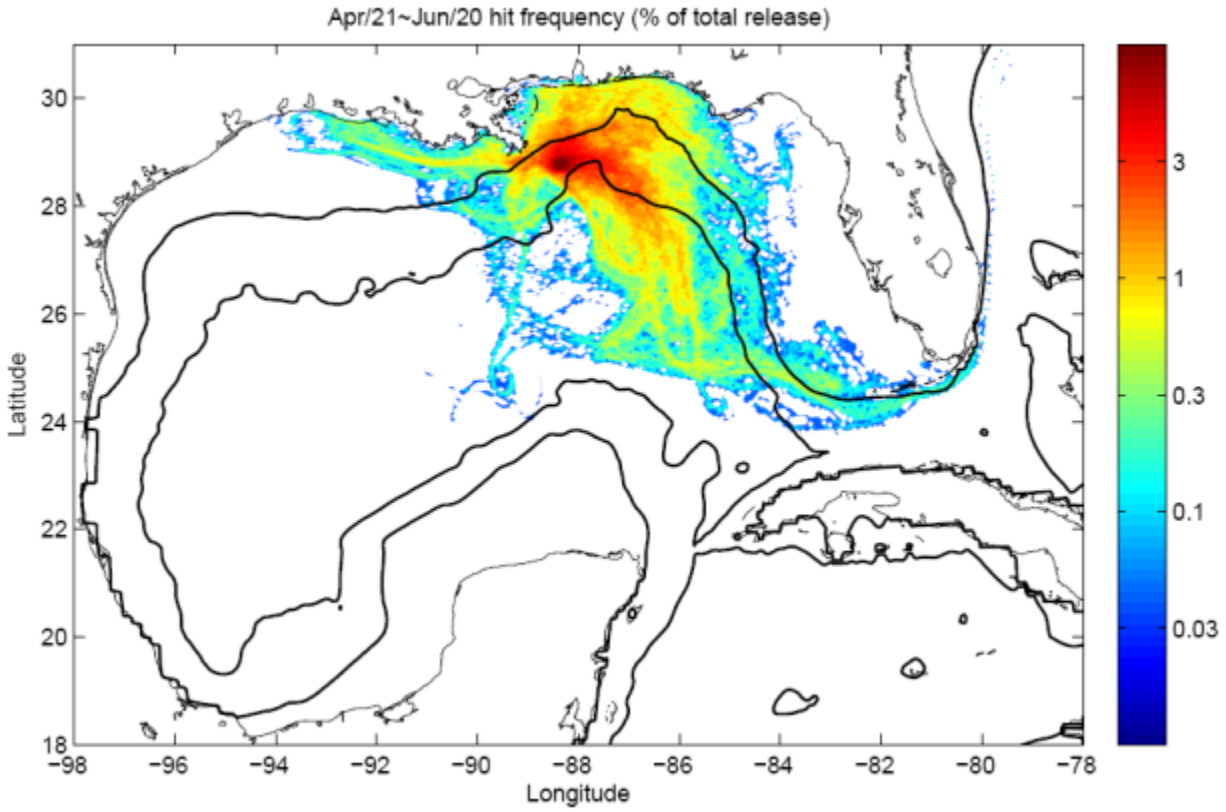
- Partnerships are "Reciprocal" & "Infectious!"

- Leadership for ALL!

- It's amazing how much can get done when no one worries about the credit …

*****Folks, we're not designing a science project here … we're in a RESPONSE SITUATION!***

Climatological (April 2000–2007) Oil Spill Scenarios

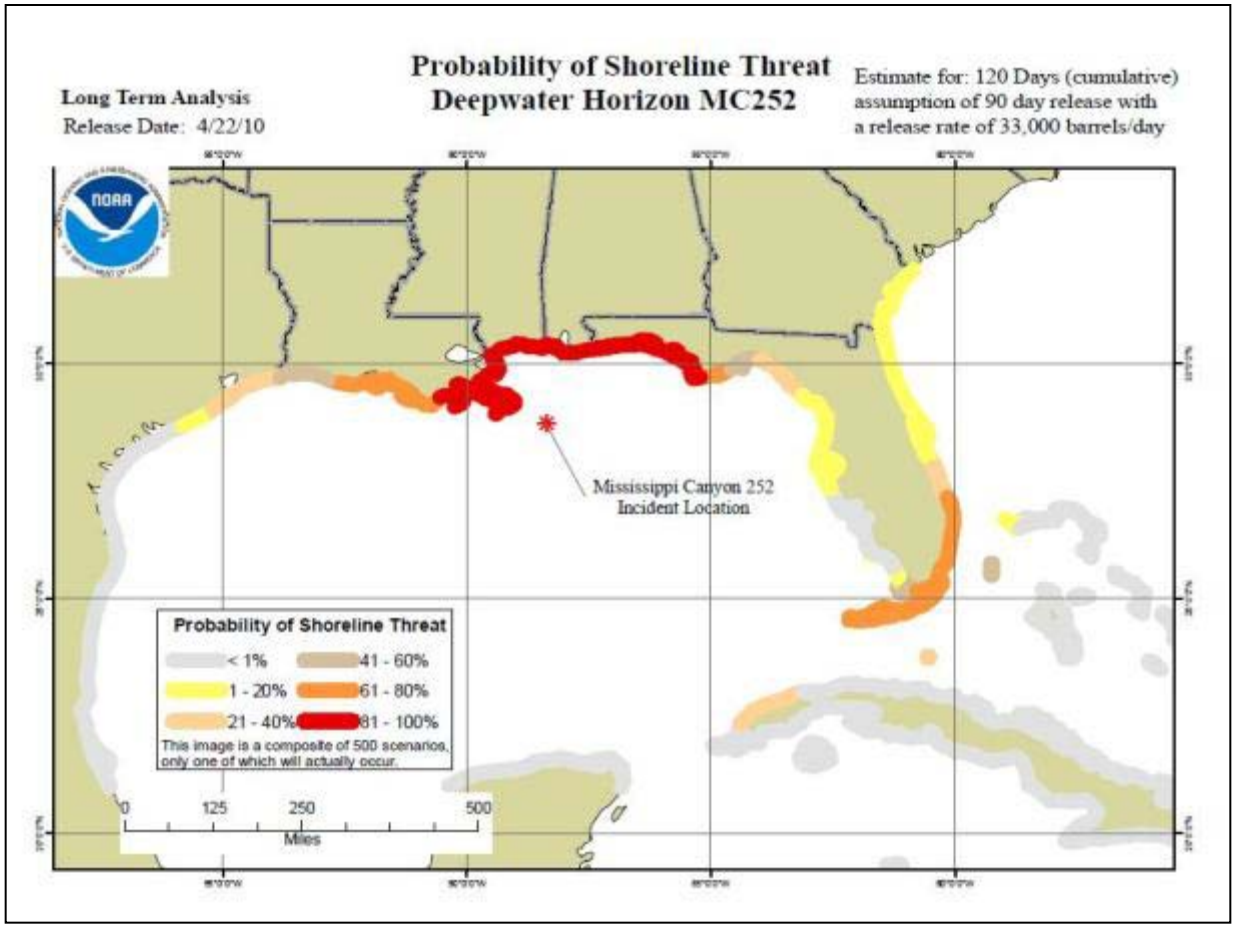


- The Princeton Regional Model has been in active development over the past decade.
- Results were provided to NOAA for oil spill trajectory modeling.

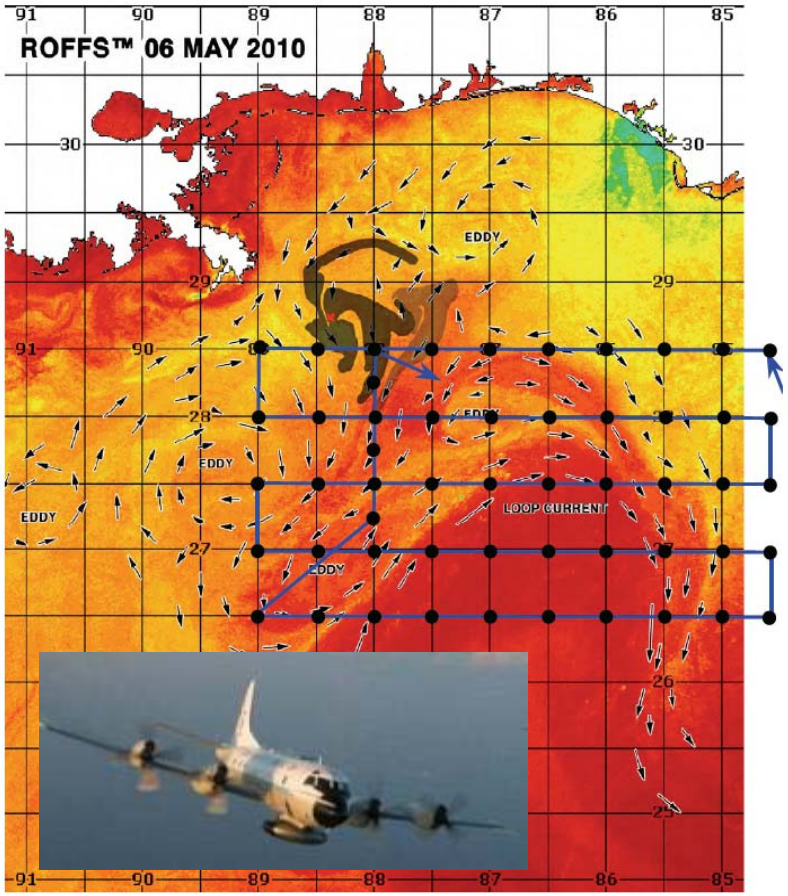
PROFS scenario trajectories, expressed as percent. Note: scale is logarithmic.
http://www.aos.princeton.edu/WWWPUBLIC/PROFS/main.html

NOAA Shoreline Threat Probability Model

BOEMRE participated in an interagency oil spill model review team to ensure the highest confidence in the results. BOEMRE supported ocean circulation and climatological models and provided extensive data to NOAA for oil trajectory and shoreline threat probability modeling.



BOEMRE – NOAA/AOML Airborne Survey of Loop Current Using Airdrop Probes

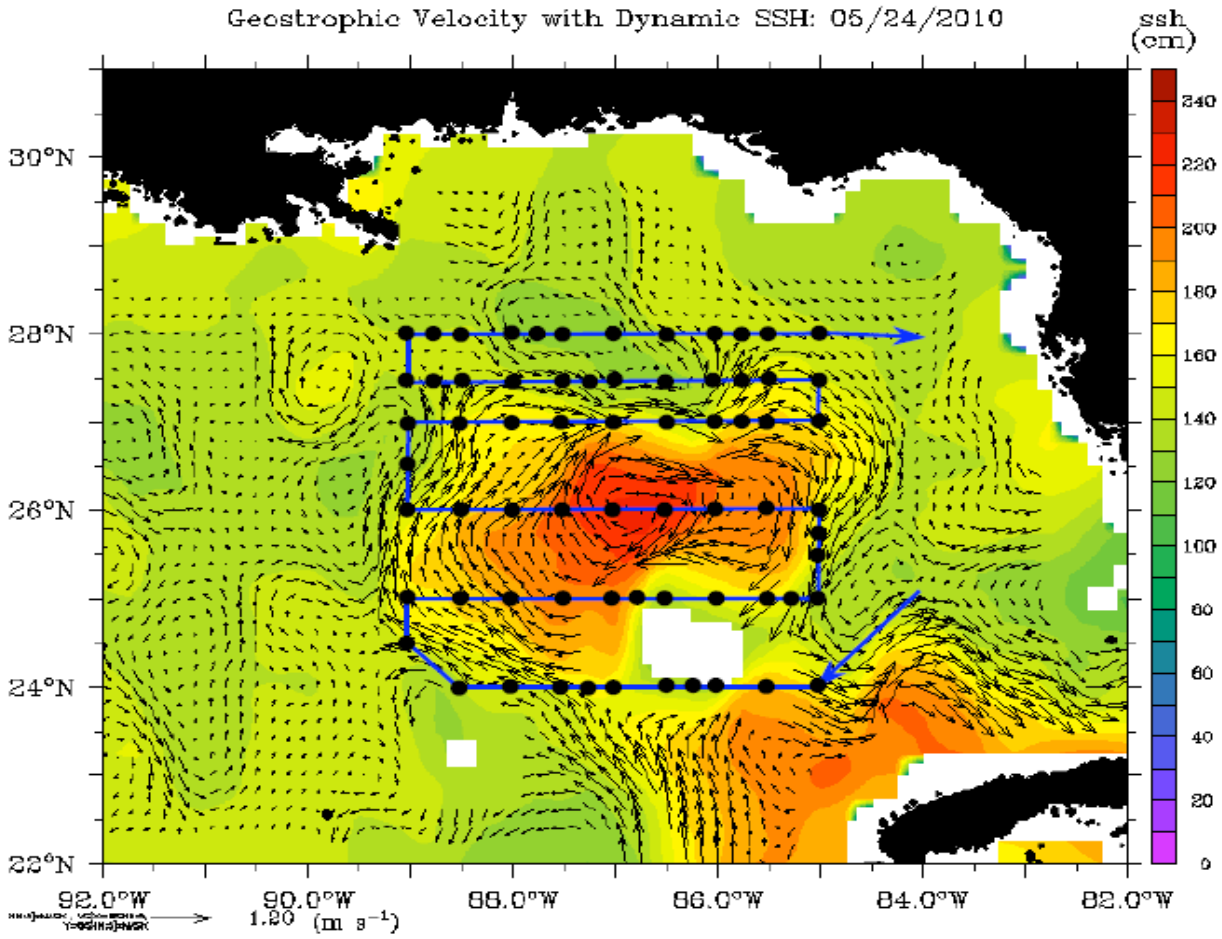


Deployment of bathythermographs

http://www.aoml.noaa.gov/

- BOEMRE – NOAA/AOML ongoing airborne surveys of Loop Current for use in oceanographic models and hurricane study.
- BOEMRE provided $300K for the deployment of 180 AXBT and 60 AXCTD.
- Additional probes acquired by BOEMRE for future Loop Current surveys.

BOEMRE – NOAA/AMOL Airborne Survey Flight Patterns over Loop Current



SSH Image from University of Miami

- Survey revealed that LC was shedding a Loop Current Eddy.
- Eddy shedding resulted in no oil transport into the Loop Current and into the Atlantic.

Loop Current Study

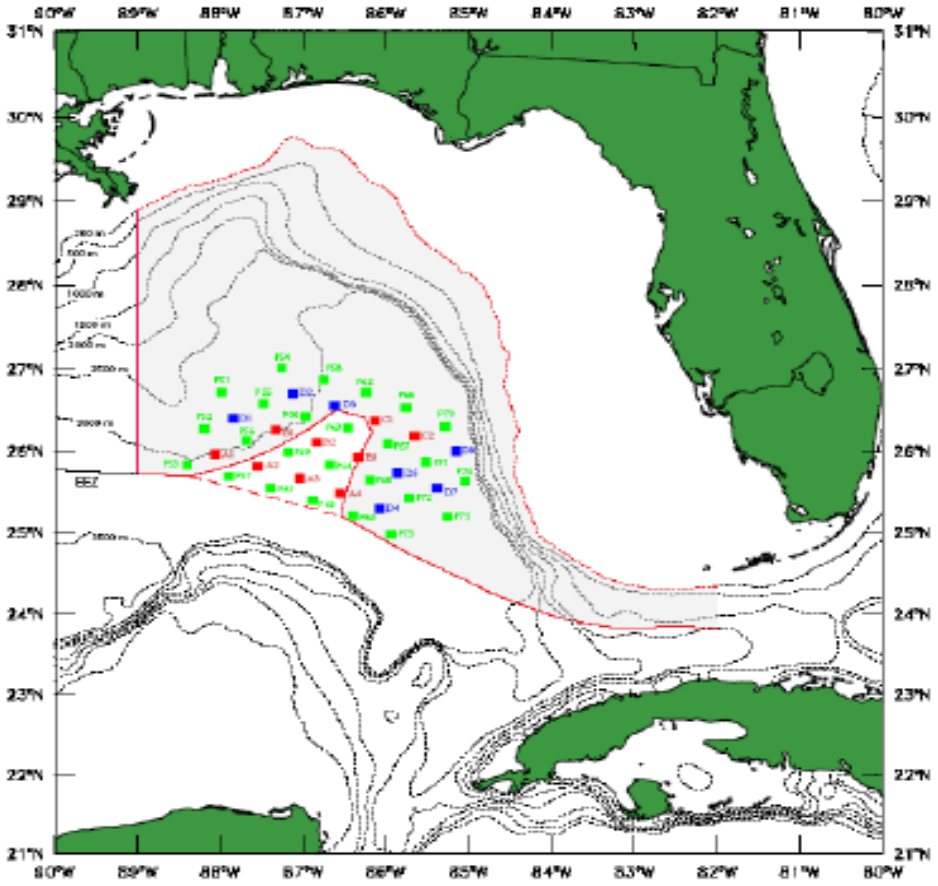


Figure 1. MMS Loop Current Study Site

BOEMRE Loop Current Study (SAIC/Princeton/CU/TAMU)

- Extensive mooring arrays in the center of the LC provided data for hindcast modeling
- Water samples were collected and analyzed at the mooring sites during the rotation to track the extent of DWH spilled oil.

Deepwater Coral Study

National Oceanographic Partnership Program

BOEMRE/NOAA OER/USGS study of deep-water coral habitats (*Lophelia*) identified as source of pre- post-spill data.

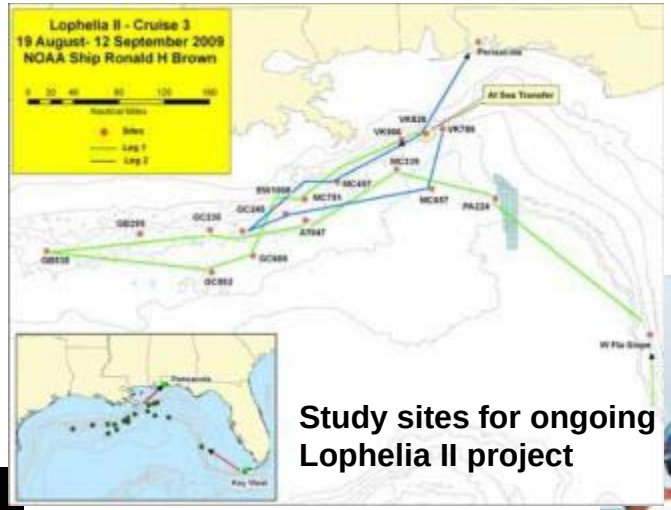
- Photomosaic images acquired at sites near and distant to DWH oil spill location have been revisited producing invaluable comparisons to pre-spill conditions.
- Sediment/larval traps were operating near and distant to DWH oil spill location. These were collected and others deployed.
- 2010 cruise modified to target potential impacted area near the Macondo Well (See ITM session 2B, Wednesday morning)
- BOEMRE/NOAA OER/USGS *Lophelia II* study contractors and baseline data utilized for multiple NRDA cruises

USGS science for a changing world

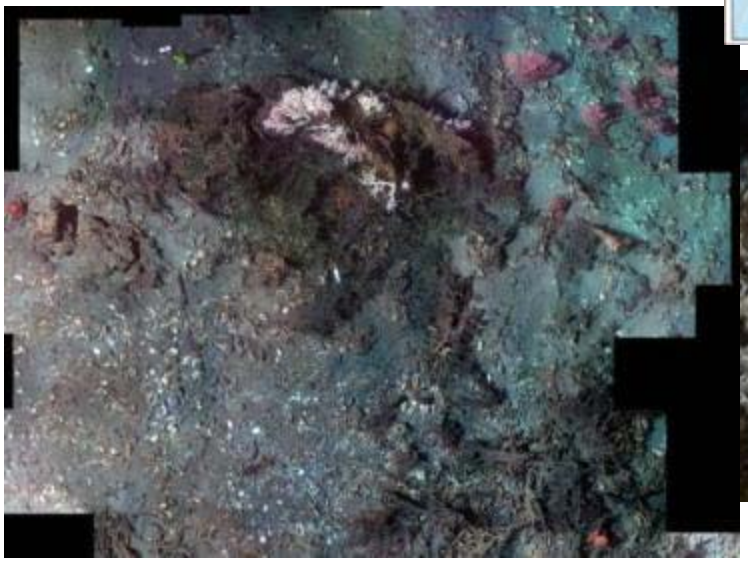
Deepwater Coral Study

National Oceanographic Partnership Program

Modification to add additional field sampling year in 2011 in progress



Study sites for ongoing Lophelia II project



Photomosaic of deep-water coral Madrepora Block GC 852, 4,625 ft depth.

Lophelia deep-water coral

Time-series sediment traps, one was located directly under DWH oil spill and one located outside, both at deep coral sites

Atlantic Marine Assessment Program for Protected Species (AMAPPS)

- Through discussions between BOEMRE and NOAA, it was agreed that observational resources allocated for the AMAPPS would be redirected to the Gulf of Mexico to assist in oil-spill impact assessments.

R/V *Henry Bigelow*

R/V *Gordon Gunter*

Deepwater Horizon Oil Spill Principal Investigator (PI) Conference

- **Sponsored by Joint Subcommittee on Ocean Science and Technology (JSOST) St. Petersburg, Florida, October 5–6, 2010.**
- **Brought together scientific investigators from academia, private research institutes, and agencies actively conducting DWH oil spill related research, monitoring, and sampling.**
- **JSOST member agencies provided the early planning & coordination and the University of South Florida served as host.**

Opportunities: Past and Future

Joint Subcommittee on
Ocean Science and Technology
Interagency Working Group on Ocean
Partnerships

The Doors Remain Open

Coastal Marine Institute