



# Gulf of Mexico

## Oil Spill & Ecosystem Science Conference

January 21-23, 2013  
*New Orleans, Louisiana*

# THANK YOU

We would like to thank the Executive Committee for its time and direction in planning the Conference.

Charles Wilson (Chair), *Gulf of Mexico Research Initiative*

C. Duane Armstrong, *National Aeronautics and Space Administration*

Michael Carron, *Gulf of Mexico Research Initiative*

Rodney Cluck, *Bureau of Ocean Energy Management*

David Conover, *National Science Foundation*

Alyssa Dausman, *U.S. Geological Survey*

Allen Dearry, *National Institute of Environmental Health Sciences*

Robert Detrick, *National Oceanic and Atmospheric Administration*

Robert Dickey, *Food and Drug Administration*

Alan Leonardi, *National Oceanic and Atmospheric Administration*

Jerry Miller, *Office of Science and Technology Policy*

Donald Rice, *National Science Foundation*

Paul Sandifer, *National Oceanic and Atmospheric Administration*

David Shaw, *Gulf of Mexico Research Initiative*

Andrew Shepard, *Gulf of Mexico University Research Collaborative*

Denis Wiesenburg, *Gulf of Mexico Research Initiative*

We also thank the staff of the Gulf of Mexico Research Initiative Administrative Unit and the federal Subcommittee on Ocean Science and Technology, who have been working so diligently behind the scenes to ensure everything runs smoothly.

## Welcome to the first Gulf of Mexico Oil Spill & Ecosystem Science Conference

Many meetings and symposia have taken place in the wake of the Deepwater Horizon incident to decipher its impact and the science needs associated with that goal. This conference marks the first meeting of its size on this topic and, more importantly, the first partnership between federal agencies and private organizations on a science conference encompassing the broad topic of oil spills and ecosystem science, with an emphasis in the Gulf of Mexico. As the first of this scale and scope, the organizers made a leap of faith that the community would rally behind them – and you have. We are excited to be joined by more than 800 colleagues and peers from 14 countries representing academia, government, non-government and private organizations.

The conference program is designed to bring together the research community in the Gulf of Mexico and beyond to share its latest scientific results with three goals to: provide greater context and integration to ongoing research; initiate dialogue with stakeholders about how research will impact processes for policy, conservation and management; and enhance public understanding of the Gulf of Mexico ecosystem. The third goal will be achieved largely through our Public Forum on January 22.

Through a keynote speech by the esteemed Thad Allen and a distinguished panel of speakers, the opening plenary will set the stage for the rest of the conference by bringing us up to speed on why we are here and the status of scientific knowledge. Nineteen scientific sessions will delve deeper into the science, reporting the latest research results. In the Closing Plenary, our panel will summarize some of the new science we've heard and present recommendations on the priority science gaps, which can inform future directives and funding decisions within and among the conference partners.

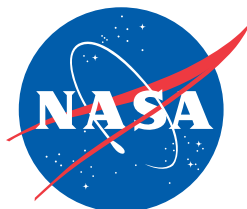
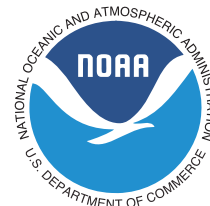
We are pleased to have this opportunity to meet in New Orleans. Louisiana faces many of the environmental issues central to the conference themes and is a hot spot for scientific research on the topic of oil spills and the Gulf of Mexico ecosystem. It is also a fabulous city with much history, culture and cuisine for you to explore. We thank the city for hosting us, and hope you'll make the most of it during your free time.

Again, thank you for your participation. We hope you have a fantastic meeting and plan to join us for future Gulf of Mexico Oil Spill and Ecosystem Science conferences.

## Table of Contents

Our Sponsors . . . . .	2
Stay Connected . . . . .	3
Conference Information . . . . .	4
Meeting Floorplans . . . . .	5
Monday Schedule Overview . . . . .	6
Tuesday Schedule Overview . . . . .	7
Wednesday Schedule Overview . . . . .	8
Keynote Speaker . . . . .	9
Plenary Panel Information. . . . .	10
Plenary Panelists . . . . .	11
Session Descriptions . . . . .	16
Monday Morning Oral Presentation Schedule . . . . .	26
Monday Afternoon Oral Presentation Schedule . . . . .	28
Monday Poster Session. . . . .	30
Tuesday Morning Oral Presentation Schedule . . . . .	32
Tuesday Afternoon Oral Presentation Schedule . . . . .	34
Tuesday Poster Session . . . . .	36
Wednesday Morning Oral Presentation Schedule . . . . .	38
Wednesday Afternoon Oral Presentation Schedule . . . . .	40
Wednesday Poster Session. . . . .	42
Student Awards . . . . .	44

# OUR SPONSORS



# STAY CONNECTED!

In order to keep paper usage at a minimum, the Gulf of Mexico Oil Spill and Ecosystem Science Conference is offering most of its content digitally. All the information you need can be found on the conference webpage: <http://gulfofmexicoconference.org/>. In addition, there are many other ways to stay connected:

## 1) Download the official mobile application for the conference to:

- Get immediate conference updates and schedule changes;
- Find the conference schedule and abstracts;
- Create your own schedule;
- Upload pictures;
- Connect with Twitter and Facebook;
- Network and send direct messages to other conference attendees;
- Find venue-specific and sponsor information;
- Blog about the event;
- Plus more!

## 2) Visit our online searchable abstracts database at:

<http://program.gulfofmexicoconference.org/>.

## 3) Social Networking:



[www.facebook.com/gomri](http://www.facebook.com/gomri)



[#gulfsienceconference](#)

[@gulfresearch](#)

Download our mobile application for the conference by scanning the code:



or by visiting:

<http://delivr.com/1lk5l>

User Name:

**email address used to register for conference**

Password (case sensitive):

**LastnameFirstname**



## REGISTRATION & CHECK-IN TIMES

On-site registration and check-in time for pre-registered attendees will take place in the **Foyer outside the Acadia room**.

Sunday, January 20 . . . . . 1200 – 1700 hrs.

Monday, January 21 . . . . . 0730 – 1700 hrs.

Tuesday, January 22 . . . . . 0800 – 1900 hrs.

Wednesday, January 23 . . . 0800 – 1400 hrs.

## INFORMATION FOR PRESENTERS

Presenters may upload their presentations in the **Regent room**.

Presentations must be uploaded one day prior to presentation.

Upload times are as follows:

Sunday, January 20 . . . . . 1200 – 1700 hrs.

Monday, January 21 . . . . . 0800 – 1000 hrs., 1300 – 1500 hrs.

Tuesday, January 22 . . . . . 0800 – 1000 hrs., 1300 – 1500 hrs.

Wednesday, January 23 . . . 0800 – 1000 hrs., 1300 – 1500 hrs.

## INFORMATION FOR POSTERS

All posters will be displayed in the **Mardi Gras Ballroom** for the duration of the conference. *Pins will be available on-site to hang posters.*

Setup: Sunday, January 20 . . . . . 1200 – 1700 hrs.

Removal: Wednesday, January 23 . . 1630 – 1830 hrs.

*Posters not removed by 1830 on Wednesday will be discarded.*

## EXHIBITS

Exhibits by conference sponsors and partners are located in the **Carondelet room** for the duration of the conference.

Please stop by for more information.

## WIFI/INTERNET

Wifi is available to conference participants throughout the conference venue free of charge.

The network is **IBAHN Conference**. *There is no password.*

## TASTE OF NEW ORLEANS

Whether you are a local Gulf coaster or in town specifically to attend the Gulf of Mexico Oil Spill & Ecosystem Science Conference, one of the best things about New Orleans is the food! The structure and schedule of the conference will allow attendees to get out and taste the best of what New Orleans has to offer. Check out our list of favorite restaurants on the conference webpage.

## MEDIA POLICY

Media representatives are welcome to attend the Gulf of Mexico Oil Spill & Ecosystem Science Conference.

The conference's media policy is designed to ensure a professional forum in which presenters and other meeting registrants can discuss science-based issues freely and in which their concerns about proprietary research data and other information is acknowledged and respected. It is also designed to ensure a forum in which journalists and other media representatives can gather the information they need to deliver factual reporting.

The Gulf of Mexico Oil Spill & Ecosystem Science Conference intends to assist media representatives by keeping them updated through press releases, news updates and social media. The Conference will also help journalists by arranging interviews with Conference speakers and attendees.

In return, the Conference would like all media representatives to:

- Wear the designated media badge given to them by Conference organizers and identify themselves as a member of the press when attending Conference events or talking with any Conference participants.
- Obtain permission from Kristin Kracke, media contact for the Conference, before filming, taping or otherwise recording any activity or interview at the Conference. Broadcast journalists can record the Plenary Panels and Public Forum but audio and video taping of any scientific session is not permitted.

Any media representative who sells, markets or represents a company for purposes of obtaining advertising or subscriptions from any registrant will immediately forfeit press credentials.

## PHOTO POLICY

Attendees are permitted to take photos during the conference and share them on the Conference Mobile App. Official Conference photographs will be taken at the Gulf of Mexico Oil Spill & Ecosystem Science Conference. By registering for this Meeting, you agree to allow the Conference to use your photo in any subsequent Conference-related publication or website.

## AUDIO & VIDEO POLICY

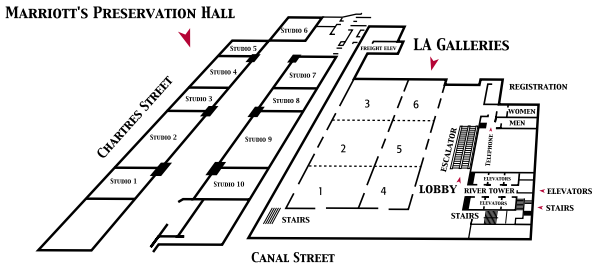
Attendees of the Gulf of Mexico Oil Spill & Ecosystem Science Conference are not permitted to record, film or tape any scientific session.

## CELL PHONES

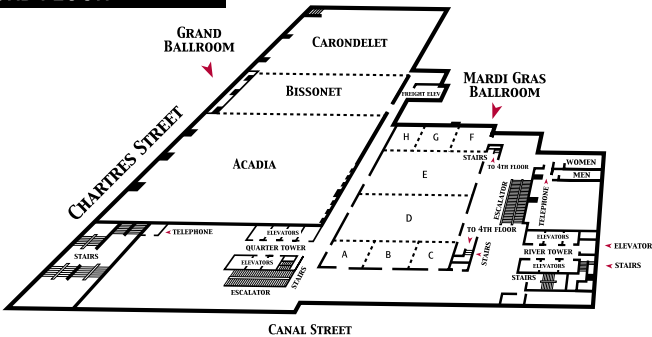
Out of courtesy to our speakers and attendees, we require that all cell phones be turned off during sessions and meetings.

# MEETING FLOORPLANS

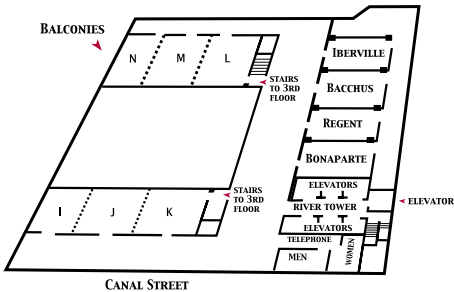
## 2ND FLOOR



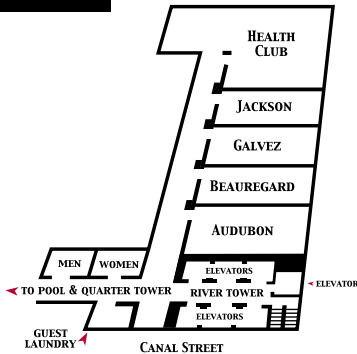
## 3RD FLOOR



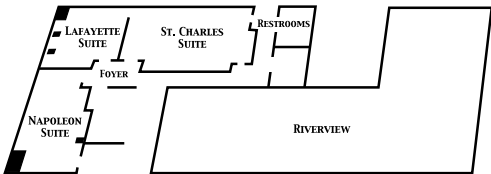
## 4TH FLOOR



## 5TH FLOOR



## 41ST FLOOR



**NEW ORLEANS MARRIOTT**  
 555 Canal Street, New Orleans, LA 70130  
 Phone 504.581.1000

# MONDAY SCHEDULE OVERVIEW

## General Opening Hours

		Location
0730 – 0800	Sponsor Booth set-up	Carondelet
0730 – 1700	Registration open	Foyer (3rd Fl)
0800 – 1000	Presentation Upload available	Regent
0800 – 1830	Poster Hall open	Mardi Gras Ballroom
1300 – 1500	Presentation Upload available	Regent

## Daily Schedule

0800 – 0830	Opening Plenary Session: Welcome Remarks (Dr. Rita Colwell, Gulf of Mexico Research Initiative)	Acadia/Grand Ballroom
0830 – 0900	Opening Plenary Session: Keynote Speaker (ADM Thad Allen, United States Coast Guard, Retired, Booz Allen Hamilton)	Acadia/Grand Ballroom
0900 – 1000	Opening Plenary Session: Plenary Panel Introduction: Dr. Robert Detrick, National Oceanic and Atmospheric Administration Speakers: Dr. John Farrington, Dr. Steven Murawski, Dr. Maureen Lichtveld, Dr. Michael Orbach, Dr. Holly Bamford	Acadia/Grand Ballroom
1000 – 1030	Coffee Break & Sponsor Booths	Carondelet
1030 – 1230	Session 007. Ecosystems of the open ocean: microbes, mammals and models--Analysis and modeling. Oral presentations.	Bissonet
1030 – 1230	Session 009. The submesoscale route to transport and mixing. Oral presentations.	Balcony LMN
1030 – 1230	Session 012. Socio-economic impacts of the Deepwater Horizon oil spill. Oral presentations.	Balcony K
1030 – 1230	Session 016. Time series studies of the impacts of oil and gas releases in the northern Gulf of Mexico. Oral presentations.	Galerie 6
1030 – 1230	Session 017. Technological, environmental and policy developments for improved research in the Gulf of Mexico. Oral presentations.	Acadia
1030 – 1230	Session 018. Remote sensing and the Deepwater Horizon oil spill. Oral presentations.	Galerie 5
1230 – 1400	Lunch Break (lunch is not provided)	
1400 – 1630	Session 004. Dispersants: New developments in science and technology and implications to deep sea oil releases. Oral presentations.	Acadia
1400 – 1630	Session 006. Ecosystems of the open ocean: microbes, mammals and models--Higher trophic level studies. Oral presentations.	Bissonet
1400 – 1630	Session 008. Physical oceanography of the northern Gulf of Mexico. Oral presentations.	Balcony LMN
1400 – 1630	Session 012. Socio-economic impacts of the Deepwater Horizon oil spill. Oral presentations.	Balcony K
1400 – 1630	Session 016. Time series studies of the impacts of oil and gas releases in the northern Gulf of Mexico. Oral presentations.	Galerie 6
1400 – 1630	Session 018. Remote sensing and the Deepwater Horizon oil spill. Oral presentations.	Galerie 5
1630 – 1700	Coffee Break & Sponsor Booths	Carondelet
1700 – 1830	Poster Sessions: 004, 006, 007, 008, 009, 012, 016, 017, 018	Mardi Gras Ballroom

## Other Conference Meetings

1015 – 1245	Metcalf Institute Special Media Session	Galerie 4
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# TUESDAY SCHEDULE OVERVIEW

## General Opening Hours

		Location
0800 – 1900	Registration open	Foyer (3rd Fl)
0800 – 1000	Presentation Upload available	Regent
0830 – 1800	Poster Hall open	Mardi Gras Ballroom
1300 – 1500	Presentation Upload available	Regent

## Daily Schedule

0830 – 1030	Session 001. Chemical methods for comprehensive oil spill analysis. Oral presentations.	Bissonet
0830 – 1030	Session 002. Coastal inshore impacts of oil: From mousse to food webs. Oral presentations.	Balcony IJK
0830 – 1030	Session 004. Dispersants: New developments in science and technology and implications to deep sea oil releases. Oral presentations.	Acadia
0830 – 1030	Session 010. Advances in modeling the Gulf of Mexico. Oral presentations.	Galerie 6
0830 – 1030	Session 011. Public health impacts of the Deepwater Horizon oil spill. Oral presentations.	Balcony LMN
0830 – 1030	Session 015. Biodegradation pathways and environmental impacts of hydrocarbon discharge. Oral presentations.	Galerie 5
1030 – 1100	Coffee Break & Sponsor Booths	Carondelet
1100 – 1230	Session 001. Chemical methods for comprehensive oil spill analysis. Oral presentations.	Bissonet
1100 – 1230	Session 002. Coastal inshore impacts of oil: From mousse to food webs. Oral presentations.	Balcony IJK
1100 – 1230	Session 004. Dispersants: New developments in science and technology and implications to deep sea oil releases. Oral presentations.	Acadia
1100 – 1230	Session 010. Advances in modeling the Gulf of Mexico. Oral presentations.	Galerie 6
1100 – 1230	Session 011. Public health impacts of the Deepwater Horizon oil spill. Oral presentations.	Balcony LMN
1100 – 1230	Session 015. Biodegradation pathways and environmental impacts of hydrocarbon discharge. Oral presentations.	Galerie 5
12:30 – 1400	Lunch Break (lunch is not provided)	
1400 – 1600	Session 001. Chemical methods for comprehensive oil spill analysis. Oral presentations.	Bissonet
1400 – 1600	Session 002. Coastal inshore impacts of oil: From mousse to food webs. Oral presentations.	Balcony IJK
1400 – 1600	Session 004. Dispersants: New developments in science and technology and implications to deep sea oil releases. Oral presentations.	Acadia
1400 – 1600	Session 010. Advances in modeling the Gulf of Mexico. Oral presentations.	Galerie 6
1400 – 1600	Session 011. Public health impacts of the Deepwater Horizon oil spill. Oral presentations.	Balcony LMN
1400 – 1600	Session 015. Biodegradation pathways and environmental impacts of hydrocarbon discharge. Oral presentations.	Galerie 5
1600 – 1630	Coffee Break & Sponsor Booths	Carondelet
1630 – 1800	Poster Sessions: 001, 002, 011	Mardi Gras Ballroom

## Other Conference Meetings

1900 – 2030	Public Forum	Acadia/Grand Ballroom
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# WEDNESDAY SCHEDULE OVERVIEW

## General Opening Hours

		Location
0800 – 1030	Registration open	Foyer (3rd Fl)
0800 – 1000	Presentation Upload available	Regent
0830 – 1630	Poster Hall open	Mardi Gras Ballroom
1300 – 1500	Presentation Upload available	Regent

## Daily Schedule

0830 – 1030	Poster Sessions: 003, 005, 010, 013, 014, 015, 019	Mardi Gras Ballroom
1000 – 1030	Coffee Break & Sponsor Booths	Carondelet
1030 – 1230	Session 002. Coastal inshore impacts of oil: From mousse to food webs. Oral presentations.	Galerie 6
1030 – 1230	Session 005. Ecosystems of the open ocean: microbes, mammals and models--Lower trophic level studies. Oral presentations.	Balcony IJK
1030 – 1230	Session 010. Advances in modeling the Gulf of Mexico. Oral presentations.	Galerie 5
1030 – 1230	Session 013. Hydrocarbon distributions, cycling and impacts in blue water benthic and pelagic environments. Oral presentations.	Acadia
1030 – 1230	Session 014. Oil droplets and particles. Oral presentations.	Bissonet
1030 – 1230	Session 019. Models and observations working together to understand the Deepwater Horizon oil spill. Oral presentations.	Balcony LMN
1230 – 1400	Lunch Break (lunch is not provided)	
1400 – 1630	Session 003. Data management and informatics: Supporting Gulf of Mexico research. Oral presentations.	Galerie 6
1400 – 1630	Session 005. Ecosystems of the open ocean: microbes, mammals and models--Lower trophic level studies. Oral presentations.	Balcony IJK
1400 – 1630	Session 013. Hydrocarbon distributions, cycling and impacts in blue water benthic and pelagic environments. Oral presentations.	Acadia
1400 – 1630	Session 014. Oil droplets and particles. Oral presentations.	Bissonet
1400 – 1630	Session 015. Biodegradation pathways and environmental impacts of hydrocarbon discharge. Oral presentations.	Galerie 5
1400 – 1630	Session 019. Models and observations working together to understand the Deepwater Horizon oil spill. Oral presentations.	Balcony LMN
1630 – 1700	Coffee Break & Sponsor Booths	Carondelet
1700 – 1810	Closing Plenary Session: Plenary Panel Introduction: Dr. Jerry Miller, Office of Science and Technology Policy Speakers: Dr. John Farrington, Dr. Steven Murawski, Dr. Maureen Lichtveld, Dr. Rex Caffey, Dr. Holly Bamford Facilitator: Ms. Heidi Stiller, National Oceanic and Atmospheric Administration	Acadia/Grand Ballroom
1810 – 1820	Closing Plenary Session: Presentation of Student Awards (Dr. Robert Gagosian, Consortium for Ocean Leadership)	Acadia/Grand Ballroom
1820 – 1830	Closing Plenary Session: Closing Remarks (Dr. Rita Colwell, Gulf of Mexico Research Initiative)	Acadia/Grand Ballroom

## Other Conference Meetings

1400 – 1630	Sea Grant Focus Group with Secondary Educators	St. Charles
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# KEYNOTE SPEAKER

## Admiral Thad Allen

*(United States Coast Guard, Retired)*

Admiral Thad Allen (United States Coast Guard, Retired) is a Senior Vice President at Booz Allen Hamilton, and provides thought leadership and client engagement for the Departments of Justice and Homeland Security and also contributes to other initiatives in energy, defense and international markets. He retired from the United States Coast Guard after serving as the 23rd Commandant in June 2010. Prior senior leadership assignments included Chief of Staff of the Coast Guard, Atlantic Area Commander, Commander of the Seventh Coast Guard District (Southeast US and Caribbean Region), and Coast Guard Director of Resources.

In 2005, Allen was selected by President George W. Bush to lead the response to Hurricanes Katrina and Rita as the Principal Federal Official. In 2010, he was selected by President Obama to lead the response to the Deepwater Horizon oil spill as the National Incident Commander.

In 39 years of service in the Coast Guard, Allen served in wide variety of operational assignments including commands at sea and ashore. He is a 1971 graduate of the Coast Guard Academy (BS in Management) and earned Masters Degrees at The George Washington University (Public Administration) and MIT Sloan School of Management (Management Science).

Allen is a Fellow in the National Academy of Public Administration and a member of the Council on Foreign Relations. He serves as a Director with the Coast Guard Foundation and the Partnership for Public Service. From 2010 to 2011, he served as a Senior Fellow at the RAND Corporation.

A native of Tucson, Arizona, Allen now resides in Vienna, VA with his wife Pam. They have three grown children, Amanda, Meghan, and Lucas.



# PLENARY PANEL

A Plenary Panel will help set the stage for the conference during the opening plenary session on January 21, 2013 (**Panel begins at 0900 hrs.**) by providing an update on research that has taken place since the Deepwater Horizon incident, including identifying remaining issues and gaps that may be addressed through the scientific sessions of the conference. The Panel will close the conference on January 23, 2013 (**begins at 1700 hrs.**) by summarizing what was discussed during the conference sessions and presenting research needs and priorities for the future.

*Our distinguished panelists are listed on the following pages.*

## MONDAY – OPENING

- 0800 – 0830 Welcome and opening remarks and introduction of ADM Allen  
*Dr. Rita Colwell, Gulf of Mexico Research Initiative*
- 0830 – 0900 Keynote Address  
*ADM Thad Allen, United States Coast Guard, Retired, and Booz Allen Hamilton*
- 0900 – 1000 Plenary Panel  
**Introduction:** *Dr. Robert Detrick, National Oceanic and Atmospheric Administration and Subcommittee on Ocean Science and Technology*
- Speakers:**  
*Dr. John Farrington, University of Massachusetts-Dartmouth*  
*Dr. Steven Murawski, University of South Florida*  
*Dr. Maureen Lichtveld, Tulane University*  
*Dr. Michael Orbach, Duke University*  
*Dr. Holly Bamford, National Oceanic and Atmospheric Administration*

## WEDNESDAY – CLOSING

- 1700 – 1810 Plenary Panel  
**Introduction:** *Dr. Jerry Miller, Office of Science and Technology Policy and Subcommittee on Ocean Science and Technology*
- Facilitator:** *Ms. Heidi Stiller, National Oceanic and Atmospheric Administration*
- Speakers:**  
*Dr. John Farrington, University of Massachusetts-Dartmouth*  
*Dr. Steven Murawski, University of South Florida*  
*Dr. Maureen Lichtveld, Tulane University*  
*Dr. Rex Caffey, Louisiana State University*  
*Dr. Holly Bamford, National Oceanic and Atmospheric Administration*
- 1810 – 1820 Presentation of Student Awards  
*Dr. Robert Gagosian, Consortium for Ocean Leadership*
- 1820 – 1830 Closing remarks  
*Dr. Rita Colwell, Gulf of Mexico Research Initiative*



## John W. Farrington, Ph.D.

### *The Deep Water Horizon Oil Spill: Fates and Effects Research Progress. Why Was The Spill Plume and Fate and Effects A “Surprise”?*

(Dedicated to the 11 people who lost their lives.) Research and experience with oil spills of the 1950s to 2000s provided U.S government and state agencies with knowledge about how to respond to the DWH spill despite the enormity of the spill and deep water setting. Given rapid response funding from various sources, the scientific research community responded with agility and brought cutting edge scientific methods and discoveries to the study of the spill. Advanced remote sensing methodology, instruments and modeling capabilities of Ocean Observing Systems, new sampling devices, autonomous and tethered underwater vehicles, human occupied submersible vehicles, new analytical chemistry methodologies, and advances in molecular biology for assessing microbial community responses to the spilled oil and gas have provided a rich new knowledge of fates and effects of spilled oil and dispersants in deep water and shallower areas.

Even given that hind-sight is usually 20/20, it is important to state that the DWH spill and its underwater plume were anticipated in rough form by experiences with the 1979 Ixtoc I oil well blowout in the Bay of Campeche, Gulf of Mexico, by experiments and modeling, and by an explicit discussion in the 2003 U. S. National Research Council Review Oil in the Sea III. The interface between scientific recommendations and government responses needs strengthening to avoid future “surprises.” Furthermore, academic institutions, their governing bodies and researchers need to review lessons to be learned from their interactions with the media during the spill and its aftermath.

#### **About Dr. Farrington**

John W. Farrington is Provost and Vice Chancellor for Academic and Student Affairs (Interim) at the University of Massachusetts-Dartmouth and Scientist Emeritus at Woods Hole Oceanographic Institution. He served as Associate Director for Education and Dean of Woods Hole Oceanographic Institution from 1990- 2002, and as Vice President for Academic Programs and Dean 2002-2005. His scholarly interests include marine organic geochemistry, biogeochemistry of organic pollutants (including oil spills and chronic petroleum releases to the marine environment), biochemistry of marine organisms, environmental quality issues, science education, and science-policy and science-religion interactions. Dr. Farrington has been a member of advisory committees for several international, national, state and local agencies and organizations. He has testified several times before the U.S. Congress on matters pertaining to oceanic and coastal environmental quality issues. He testified before the National Commission on the Deepwater Horizon Oil Spill and Offshore Drilling. His honors include the Massachusetts Marine Educators Association Award of Distinction in 1997 and the University of Rhode Island Alumni Association Award for Excellence in Research in 1998. “For leadership in promoting science and its use in sound decision-making,” he was awarded the U.S. Geological Survey Ambassador for Science Award in April 2001. “For distinguished service to the environment and community,” he was awarded the David B. Stone Award from the New England Aquarium in September 2001. In October 2003, he was awarded the Bostwick H. Ketchum Award from Woods Hole Oceanographic Institution “in recognition of achievements in science, education, and policy concerning the input and fate of organic contaminant chemicals in the marine environment.” In November 2003, he received a life appointment as a National Associate of the U.S. National Academies, “in recognition of extraordinary service to the National Academies in its role as advisor to the nation in matters of science, engineering, and health.” In 2009, he received the Doctor Honoris Causa from the University of Concepcion, Concepcion, Chile in 2009, the Samuel P Stone Award for Alumni Achievement in Sciences of the College of Arts and Sciences University of Massachusetts Dartmouth and was elected a Fellow of the AAAS. Dr. Farrington received the Chancellor’s Medal from University of Massachusetts Dartmouth in 2011.



## Steven A. Murawski, Ph.D.

### *If I were Poseidon: Right-Sizing a Coastal and Ocean Observing System for the Gulf of Mexico*

The Deepwater Horizon (DWH) oil spill and ongoing recovery process has again highlighted the criticality of broad-based, goal-oriented ocean and coastal observing to serve the needs of natural resource management and disaster preparedness. Current ocean observing efforts in the Gulf of Mexico are underfunded, fragmented, relatively un-coordinated and obtuse to most of the scientific community and surely the public. A new, right-sized effort must build upon what is working by enhancing the temporal and spatial coverage of some efforts, and embarking on bold, innovative approaches to meet the requirements that are the most acute. The use of cost-effective technologies, proven useful in the DWH response, can help to provide proper baselines for important biological, chemical and physical oceanographic metrics, in a cost-effective manner. If I were the king of the seas, I would employ the following principles in designing the Gulf of Mexico

observing system of the future: (1) understanding DWH (and any other significant, ephemeral event) in the larger Gulf context, (2) monitoring the recovery of the Gulf for broad-based and project-specific outcomes employing an hierarchical, science-based approach, (3) preparing for the next environmental catastrophe, (4) building physical and human capacity to assess resource status and evaluate societal choices and conflicts when making resource management decisions, and (5) demonstrating greater transparency in the operations of those sectors using and those responsible for managing Gulf resources. Specific gaps and priorities require consensus among federal, state, industry and academic partners, but include more comprehensive environmental baselines, improved assessments of the status of fisheries and other biological resources, and improved monitoring of ocean conditions, including hydrocarbon budgets and fates.

#### **About Dr. Murawski**

Steven A. Murawski is Professor and the St. Petersburg Partnership–Peter Betzer Endowed Chair of Biological Oceanography at the University of South Florida, College of Marine Science in St. Petersburg, Florida. Dr. Murawski is a fishery biologist with 37 years of professional experience. Prior to the University of South Florida, he worked at NOAA for 35 years, where he retired as the Director of Scientific Programs and Chief Science Advisor for the National Marine Fisheries Service, directing the activities of 4,000 employees located in 22 laboratories. Since coming to the Gulf of Mexico region he has been actively involved in assessing the environmental impacts of the Deepwater Horizon oil spill, and its implications for fisheries in the Gulf of Mexico. Murawski serves as Principal Investigator for the Center for Integrated Modeling and Analysis of Gulf Ecosystems (C-IMAGE) funded through the Gulf of Mexico Research Initiative. In addition to research on oil spill impacts, he has an active program ongoing to assess the status of fishery stocks in the Gulf of Mexico, with particular emphasis on reef fish stocks. This includes a program to develop new technologies focusing on remote sensing applications. He is involved in research on marine Protected Areas and in climate effects on fisheries. Dr. Murawski continues to be involved in international fisheries and marine science activities, recently serving a term as vice-president and U.S. delegate to the International Council for the Exploration of the Seas, and external advisor to the United Nations Food and Agriculture's Ecosystem Approaches to Management program in Africa. Additionally, he was recently named by the National Academy of Sciences as a member of the U.S. Committee for the International Institute for Applied Systems Analysis, and as a member of the Gulf of Mexico Fishery Management Council's Ecosystem Scientific and Statistical Committee. His Ph.D. in Wildlife and Fisheries Biology was conferred in 1984 from the University of Massachusetts-Amherst.





Maureen Y. Lichtveld, M.D.

***Recipe for a Healthy Gulf Coast:  
Linking Community and Ecosystem Health***

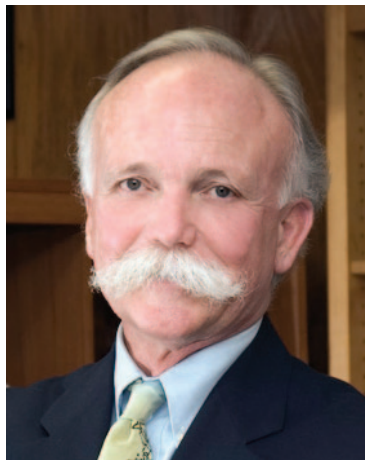
The health of the Gulf Coast ecosystem and that of its communities is inextricably linked. Communities living in this disaster prone area also suffer historic burdens of health disparities and lack access to the basic pillars of public health. Sustainable solutions to persistent threats posed to the ecosystem and human health must be system-driven, interdependently benefiting both environment and people. Research—whether to strengthen the science base or to address critical data gaps—will only be effective if designed in a transdisciplinary fashion and implemented by a collaborative of scientists and communities.

In the aftermath of the Gulf of Mexico oil spill, the Institute of Medicine (IOM) identified five human health research priorities: psychosocial and behavioral effects, emphasizing vulnerability and resilience; exposure to oil, dispersants and by-products of controlled burns; short-and long-term seafood safety; communication and engagement methods in disaster research; and designing a rapid response research framework. The current paucity of human health research compared to that targeting the ecosystem not only limits our ability to effectively implement a research portfolio responsive to IOM's priorities, but also our opportunity to comprehensively examine factors interdependently influencing human- and ecosystem health.

Beyond seeking answers to complex questions within the purview of traditional research, Gulf Coast communities also make the case for capacity building in public health as envisioned by the Gulf Region Health Outreach Program. This conference provides an unprecedented opportunity to set the stage for developing a sustainable Gulf Coast roadmap for both research and capacity building.

***About Dr. Lichtveld***

Maureen Lichtveld has more than 30 years expertise in environmental public health and currently is Professor and Chair of the Department of Global Environmental Health Sciences at Tulane University School of Public Health and Tropical Medicine. Her research interests include environmental health policy, community-based participatory health disparities research, disaster preparedness, and health systems. Dr. Lichtveld is currently the Principal Investigator of the NIH-funded Gulf Coast Research Consortium on Women's Health (GROWH), a community- academic research collaborative addressing reproductive health issues in vulnerable communities post the oil spill. She served as a member of the Planning Committee for the 2010 National Academies Institute of Medicine workshops on the Gulf of Mexico oil spill, which resulted in two reports on the effects of the oil spill on human health and plans for a long-term follow up study. Dr. Lichtveld serves on numerous national and global editorial boards of peer reviewed journals and chaired several professional boards, including the Environmental and Occupational Health Council of the Association of Schools of Public Health (2012), the Science Board of the American Public Health Association (2010), the human health workgroup of the National Science and Technology Council's Joint Subcommittee on Ocean Science and Technology Principal Investigator's conference to address the impact of the Gulf of Mexico oil spill (2010), and the Board of the National Public Health Leadership Society (2011). She received an MPH from the Johns Hopkins University, School of Hygiene & Public Health, Environmental Health Sciences and her M.D. from the University of Suriname.



Michael K. Orbach, Ph.D.  
and Rex H. Caffey, Ph.D.

### ***The Socio-Economics of Gulf of Mexico Oil Spills***

As with many other areas of conservation and natural resource policy and management, our documented scientific knowledge of the social and economic aspects of oil spills lags behind that of the biophysical sciences. This is primarily due to the small amounts of funding and social scientific expertise available compared to the biophysical sciences and restrictions due to litigation. However, it is ironically “fortunate” for the Gulf of Mexico that both natural and human-derived events

such as hurricanes and oil spills have resulted in data sets sponsored by state and federal agencies developed to assess the impacts of these events or to create baselines for such assessments. Several points need to be made concerning social and economic variables related to oil exploration and development, including spills: 1) the social and economic (S/E) portions of the “ecosystem” – which are defined as including human and institutional systems – are just as amenable to scientific description and analysis as are the biophysical systems, often at lower cost; 2) the S/E systems related to oil spills are not independent of other Gulf S/E systems. For example, labor tends to be mobile between the fishing and oil industries, making the assessment of impacts dependent on the nature of such mobility; 3) the field of non-market valuation related to oil spills, for example the value of ecosystem services from coastal marshlands, is underdeveloped; 4) the assessment of overall S/E impact is difficult to represent in one single “optimal” solution, but is rather dependent on the value choices we make with respect to various states of the biophysical and human portions of the ecosystem; and 5) a great deal of the available S/E information available is not used or not used effectively.

#### ***About Dr. Orbach***

Michael K. Orbach is Professor of Marine Affairs and Policy and Director of the Coastal Environmental Management Program in the Nicholas School of the Environment at Duke University. He has worked as Social Anthropologist and Social Science Advisor with the National Oceanic and Atmospheric Administration; Associate Director of the Center for Coastal Marine Studies at the University of California at Santa Cruz; and Professor of Anthropology in the Department of Sociology and Anthropology at East Carolina University. He joined the Duke Marine Laboratory in 1993 and was Director of the Marine Laboratory from 1998 to 2006. Dr. Orbach has performed research and has been involved in coastal and marine policy on all coasts of the U.S. and in Mexico, Central America, the Caribbean, Southeast Asia, Europe, Alaska and the Pacific, and has published widely on social science and policy in coastal and marine environments. He was a formal advisor to both the U.S. Commission on Ocean Policy and the Pew Ocean Commission, has served on the Ocean Studies Board of the National Research Council, and has held numerous other appointments to Boards and Commissions, both public and private.



#### ***About Dr. Caffey***

Rex H. Caffey is a Professor of Natural Resource Economics at Louisiana State University. For more than 20 years, he has conducted applied research and extension programming related to the economic and policy challenges of fisheries and coastal wetlands. In 2011, Dr. Caffey was named Director of Marine Extension for the LSU Agricultural Center and the Louisiana Sea Grant College Program. This coastal network of 18 community-embedded agents has been the primary extension liaison for marine research in Louisiana for more than 40 years. Caffey is also founding Director of the LSU Center for Natural Resource Economics and Policy (CNREP). Established in 2003, CNREP fosters the interaction of social science researchers to address natural resource management challenges at the state and regional level. In the past decade, CNREP has expanded to 28 cooperators at 8 institutions and obtained more than \$10 million in extramural research funds from 43 public and private entities. Through these activities, CNREP has emerged as a primary source of socioeconomic expertise to state and federal agencies in the northern U.S. Gulf of Mexico.

*Note: Dr. Orbach will present during the opening plenary and Dr. Caffey will present during the closing plenary.*



Holly A. Bamford, Ph.D.

### ***Research and Perspective on DWH Progress and Next Steps***

The health of the Gulf of Mexico large marine ecosystem (LME) is of vital importance to the United States for both economic and ecological reasons. The Deepwater Horizon spill created wide-spread economic, environmental, and human health challenges many of which are ongoing. Research conducted since the spill by industry, academia, and the government is helping us better understand the impacts of spills and improve response and recovery efforts. A number of cross-disciplinary studies, such as the impacts of oil on benthos and sediment quality, and impacts of oil and dispersant in coastal ecosystems have filled key gaps in our knowledge and improved our understanding.

Moving forward, there is still a great need for a Gulf-wide integrated ecosystem model with baseline data so when stressors happen, we can understand the impacts and possible solutions. Thus, a real need exists for a mechanism for coordination of the science being done across the Gulf to fill key gaps in our knowledge and improve our

understanding of the Gulf LME. One coordinating mechanism to consider is the Gulf of Mexico Coordinated Ecosystem Restoration Research, Monitoring, Observations, Science, and Technology (CERRMOST) Program under the RESTORE Act. This is a science program to achieve an integrative, holistic understanding of the Gulf of Mexico ecosystem and support restoration efforts and the long-term sustainability of the ecosystem. The coordination and integration of government, academic, and industry science programs is vital to ensure priority research is conducted to provide the integrated interdisciplinary understanding of how the ecosystem works today and will respond to tomorrow's coastal and ocean pressures.

### ***About Dr. Bamford***

Holly Bamford is the National Oceanic and Atmospheric Administration's (NOAA) Deputy Assistant Administrator for the National Ocean Service (NOS), managing the financial and business operations while strategically improving the agency's performance to meet its vast ocean science and service missions. In this position, Dr. Bamford's many responsibilities recently included that of NOAA Incident Coordinator during the aftermath of Hurricane Sandy. Under her leadership, NOS executed emergency response efforts including navigation surveys of the New York port area to quickly restore the region's maritime commerce. Previously, as the first Director of NOAA's Marine Debris Program in 2005, Dr. Bamford brought national recognition to issues related to marine debris and to the program, accomplishments that were recognized with a NOAA Administrator's Award in 2008. Dr. Bamford has a number of widely referenced publications in the field of environmental chemistry and water quality, including papers in Environmental Science & Technology and Environmental Toxicology & Chemistry. She has received a number of awards for her exceptional leadership and partnership skills including a NOAA Bronze Medal and two Coastal America Presidential Partnership Awards. Dr. Bamford has served on a number of science and advisory committees, including Chairperson on the Federal Interagency Marine Debris Coordinating Committee and at the 2007 Ocean Policy Forum in South Korea. She has presented at a number of international meetings and academic institutions and given interviews to national media outlets including CNN, Good Morning America, Rolling Stone Magazine, and the Wall Street Journal.

# SCIENTIFIC SESSIONS

## 001. CHEMICAL METHODS FOR COMPREHENSIVE OIL SPILL ANALYSIS

*Session Chairs:* Christopher Reddy, Woods Hole Oceanographic Institution  
Alan Marshall, Florida State University

This session will feature presentations on state-of-the-art analytical techniques for characterizing the chemical constituents of the Macondo wellhead crude oil as well as its photochemical- and bio-degradation, and other processes after the spill. GCxGC provides the most detailed chemical inventory of volatile organics containing up to ~35 carbons. High-field FT-ICR mass spectrometry reveals >62,000 different chemical formulas (C<sub>x</sub>H<sub>y</sub>N<sub>z</sub>S<sub>w</sub>O<sub>v</sub>) from the wellhead oil, and at least twice that number of species in tar balls collected after the spill. HPLC-2 separates species according to the number of aromatic rings (1, 2, 3, 4, >5) and can also speciate sulfur-containing molecules (RSH, RSR, RSSR, thiophenes). Other relevant instrumentation includes: bulk analysis (CHNO, NMR, optical spectroscopy, etc.), time-of-flight mass spectrometry, and various atmospheric pressure ionization methods for mass spectrometry.

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## 002. COASTAL INSHORE IMPACTS OF OIL: FROM MOUSSE TO FOOD WEBS

*Session Chairs:* R. Eugene Turner, Louisiana State University  
Linda Hooper-Bui, Louisiana AgCenter

Environmental stressors such as those arising from hydrocarbon spills can have visible and immediate direct impacts on coastal ecosystems due to physical and toxic effects on organisms or their habitat. Stressors also have indirect effects because, as they begin to degrade, the compounds enter food webs via primary consumers such as suspension-feeding oysters, deposit-feeding bivalves, and grazing snails. These consumers, in turn, are food sources for organisms at higher trophic levels, including humans. The effects of a major environmental stressor can, therefore, cascade through the community as members of lower trophic levels undergo changes in growth, mortality, and reproductive success, and as species turnover occurs and metabolic pathways are altered for days, weeks and even years. This session invites contributions on how coastal salt marsh food webs were affected, or not, by the Deepwater Horizon oil spill in the Gulf of Mexico. This includes data-rich presentation on soil microbes, the dominant aquatic plant (cordgrass, *Spartina alterniflora*), infauna, fish, bivalves, filter-feeders and the symbiotic invertebrate community.

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## 003. DATA MANAGEMENT AND INFORMATICS: SUPPORTING GULF OF MEXICO RESEARCH

*Session Chairs:* Matthew Howard, Texas A&M University  
Dave Reed, Florida Fish and Wildlife Conservation Commission

Observational and modeling studies of the atmosphere, oceans, estuaries and ecosystems of the Gulf of Mexico and policy studies are increasing in number due in part to \$500M supporting new research between now and 2020. These will be large heterogeneous data sets and model outputs. The challenge is to assemble, analyze and make intelligent decisions based on these data sets. Data management, the stewardship of data, and informatics, the science of processing, managing, and retrieving information are critical to flow of valid data from sensor to desktop and from observations to knowledge. A number of groups such as the Gulf of Mexico Research Initiative Information and Data Cooperative (GRIIDC), NOAA's National Coastal Data Development Center (NCDDC), and the Gulf of Mexico Coastal Ocean Observing System Regional Association (GCOOS-RA), together with many dedicated individual data managers have developed computer system frameworks and tools that allow researchers and resource managers to locate, retrieve and visualize observations and

model output more easily. This session invites all of those people working to integrate comprehensive environmental data sets and model output and other data with application to scientifically-based decision-making especially in the context of oil spill response and restoration and policy to submit abstracts on their work.

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## 004. DISPERSANTS: NEW DEVELOPMENTS IN SCIENCE AND TECHNOLOGY AND IMPLICATIONS TO DEEP SEA OIL RELEASES

*Session Chairs:* **Vijay John, Tulane University**  
**Kalliat Valsraraj, Louisiana State University**  
**Jennifer Field, Oregon State University**

The session will focus on the use of dispersants to mitigate the effects of deep sea oil releases. Topics include (a) understanding dispersant effectiveness in deep sea environments, (b) the fate and transport of dispersed oil and dispersant components with specific relevance to the formation of subsurface plumes, (c) new concepts in the development of improved dispersants, (d) chemical analysis of dispersants, (e) biodegradation of dispersant-oil mixtures, and (f) fate and transport of dispersant and dispersed oil. The session will focus on the fundamental physical and biological sciences related to dispersant development and use.

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## 005. ECOSYSTEMS OF THE OPEN OCEAN: MICROBES, MAMMALS AND MODELS—LOWER TROPHIC LEVEL STUDIES

*Session Chairs:* **Steven Murawski, University of South Florida**  
**Suzanne Fredericq, University of Louisiana at Lafayette**  
**Darryl Felder, University of Louisiana at Lafayette**  
**Janis Kurtz, EPA Gulf Ecology Division**  
**Rebecca Allee, NOAA Gulf Coast Services Center**  
**Cameron Ainsworth, University of South Florida**

The health of offshore ecosystems of the Gulf of Mexico, including fisheries, is an ongoing concern following the Deepwater Horizon (DWH) oil spill, but also because of multiple coincident stressors including ongoing habitat loss, nutrient enrichment, effects of harvesting and input of contaminants. Impacts of human activities on species and on the productivity potential of the region are of importance to regulators and the public, as are public perceptions regarding environmental quality. This session will examine information on the abundance, distribution, and contamination levels of various species and trophic levels, and will explore the development of ecosystem models and other decision support tools. Session components will emphasize synthesis of sampling information on the impacts to species and ecosystems as well as the mechanisms of injury from the DWH oil spill and their recovery potential. Now that some baselines have been determined, how should these data be augmented and analyzed to elucidate impacts and prioritize recovery potentials? How can models be used in concert with empirical sampling? In particular the session will emphasize impacts on low trophic levels (bacteria to plankton and benthos), and high trophic levels (fisheries and protected species like sea turtles, birds and mammals, to human use aspects). The modeling component of the session will examine linkages of food web structure, productivity and biodiversity to single- and multiple simultaneous stressors on the Gulf of Mexico offshore ecosystem.

The Lower Trophic Level Studies section will focus on bacteria, algae, benthos, and plankton studies. Algal studies may include both sessile forms and sargassum. Benthic studies will include deep coral and other biogenic communities in addition to continental shelf sessile communities. Plankton studies will include phyto-, zooplankton ecology.



## 006. ECOSYSTEMS OF THE OPEN OCEAN: MICROBES, MAMMALS AND MODELS—HIGHER TROPHIC LEVEL STUDIES

*Session Chairs:* Steven Murawski, University of South Florida  
 Suzanne Fredericq, University of Louisiana at Lafayette  
 Darryl Felder, University of Louisiana at Lafayette  
 Janis Kurtz, EPA Gulf Ecology Division  
 Rebecca Allee, NOAA Gulf Coast Services Center  
 Cameron Ainsworth, University of South Florida

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The Higher Trophic Level Studies section will include ichthyoplankton, juvenile and adult fish abundance and distribution, toxicology and fish diseases in relation to the DWH spill, monitoring studies of birds, sea turtle populations and marine mammal abundance monitored with aircraft, ships and passive acoustics.

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## 007. ECOSYSTEMS OF THE OPEN OCEAN: MICROBES, MAMMALS AND MODELS—ANALYSIS AND MODELING

*Session Chairs:* Steven Murawski, University of South Florida  
 Suzanne Fredericq, University of Louisiana at Lafayette  
 Darryl Felder, University of Louisiana at Lafayette  
 Janis Kurtz, EPA Gulf Ecology Division  
 Rebecca Allee, NOAA Gulf Coast Services Center  
 Cameron Ainsworth, University of South Florida

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The Ecosystem Analysis and Modeling section will explore the various statistical and population-dynamic modeling approaches being used to investigate Deepwater Horizon oil spill impacts and project the recovery of marine populations and more generally the analysis of offshore ecosystems in relation to anthropogenic stressors. Topics will include data integration, ecosystem classification, tool development, model structure/function, and modeling applications (e.g., bioaccumulation, population-level impacts of disease, predator-prey linkages and ecosystem functioning, ecological indicator testing, and ecosystem recovery). Modeling approaches at the species level are aimed at identifying first-order impacts, while community and ecosystem-based modeling approaches may be used to look for cumulative and synergistic population effects. Model coupling has emerged as one promising tool for integrating physical oceanography with population dynamics and representing population dynamics across multiple spatial and temporal scales. Such attempts often require cross-disciplinary collaboration.

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## 008. PHYSICAL OCEANOGRAPHY OF THE NORTHERN GULF OF MEXICO

*Session Chairs:* Piers Chapman, Texas A&M University  
 Steven DiMarco, Texas A&M University  
 Allan Clarke, Florida State University

The behavior of the BP Macondo oil spill was governed by physics. Of particular interest is the question of how the Deep Water Horizon oil spill was able to go from water a mile deep to reach the zero depth coast in the Northern Gulf of Mexico. This session calls for papers on past, present and planned observational, theoretical and numerical model results for the physical oceanography of the Northern Gulf of Mexico and its impact on the distribution of chemical and biological properties.

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## 009. THE SUBMESOSCALE ROUTE TO TRANSPORT AND MIXING

*Session Chairs:* Tamay Ozgokmen, University of Miami  
 Annalisa Bracco, Georgia Institute of Technology  
 Helga Huntley, University of Delaware

This session aims to bring together biological, chemical, and physical oceanographers to discuss the influence of submesoscale dynamics and coherent structures on the ocean transport, mixing and dispersion. Understanding, sampling and resolving the processes occurring at the submesoscale in the ocean (lateral scales comprised between 100 m and 10 km), is especially important for the multi-scale interactions and energy balance in the ocean, and for biogeochemical transport, dispersion and mitigation of pollutants. Submesoscale and mesoscale processes pose a significant challenge to both observations and modeling, in that the interaction of a wide range of spatial and temporal scales must be captured simultaneously. We welcome presentations related to developments in theory, field observations and numerical modeling studies that shed insight into Lagrangian coherent structures, submesoscale oceanic processes and their impacts on transport, mixing and dispersion.

## 010. ADVANCES IN MODELING THE GULF OF MEXICO

*Session Chairs:* Eric Chassignet, Florida State University  
 Tamay Ozgokmen, University of Miami  
 Shuyi Chen, University of Miami  
 Mohamed Iskandarani, University of Miami

This session will highlight the latest advances made in modeling the Gulf of Mexico from the coastal zone to the deep ocean, including representation of air-sea interaction, extreme events, waves, biochemical and sediments' processes. In particular, we would like to encourage submissions that emphasize cutting-edge computational approaches that would shed light on the complex interaction between multiple spatial and temporal scales occurring in the Gulf of Mexico and uncertainty quantification. This would include direct numerical simulations, large eddy simulations, unstructured mesh models, parameterizations, ensemble methods, mixed-layer dynamics, multi-phase flows, and downscaling.

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## 011. PUBLIC HEALTH IMPACTS OF THE DEEPWATER HORIZON OIL SPILL

*Session Chairs:* Allen Dearry, National Institute of Environmental Health Sciences  
 Julia Gohlke, University of Alabama at Birmingham

Each environmental or man-made disaster, with its potential health consequences, is unique. However, valuable lessons can be learned from each one that can inform responses and public health approaches for future disasters, thereby reducing both acute and long-term adverse health effects. Along the Gulf Coast, communities face multiple interdependent stressors, including a disaster-prone environment, persistent environmental health threats, and historic disparities in health, socioeconomics, and other factors. Recent natural and technological disasters, such as the Deepwater Horizon oil spill, draw attention to the interconnectedness of ecosystems and human health. This session will address an array of response and research activities related to health impacts during and after the oil spill, including: training of oil spill response workers; evaluation of potential health effects in workers and community members; analysis of oil and dispersant composition, exposure routes and effects; physical and mental health outcomes in affected communities; public health surveillance and assessments at the regional, state, and community levels; and means to assess and enhance community resiliency.

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## 012. SOCIO-ECONOMIC IMPACTS OF THE DEEPWATER HORIZON OIL SPILL

*Session Chairs:* David Yoskowitz, Harte Research Institute for Gulf of Mexico Studies, Texas A&M University-Corpus Christi  
 Steven Picou, University of South Alabama

While much of the research being conducted in response to the Deepwater Horizon oil spill is directed to technology, deep-sea environment, and coastal ecosystems, there are many less tangible impacts related to economic gain/hardship and especially to effects on social systems. Many local communities, especially in the north-central Gulf of Mexico coastal region, depend on a combination or alteration of oil and gas employment in the oil patch with natural resource harvesting, i.e., fisheries. Some families depend on only one of these income sources and others a mixture. These economic forces are often supportive and supplemental but often antagonistic. Thus as the fortunes of the oil and gas development and production industry wax and wane in the northern Gulf of Mexico, the economies of many coastal communities follows. Similarly, as the economic viability of fishery resources increases or decreases, communities may switch employment opportunities or suffer the same economic declines as the fishery resources. The fortune of these local and regional economies reflect the multiple stressors that impinge on the coastal ecosystems, such as excess nutrient loading that

leads to oxygen depletion or harmful algal blooms, the continuing loss of the coastal landscape and its ecosystem services of fisheries habitat and storm hazard mitigation. Multiple natural disasters such as hurricanes, and the continuing threat of global climate change and human habitat alteration threaten coastal habitats and affects natural ecosystems and the social community structure that they support. A global economy that reflects increased fuel prices, influx of imported goods such as cultured shrimp, increasing national debt, loss of social services through federal and state budget cuts, and loss of education and human health services is an additional threat to social structure that depends on a healthy, functioning ecosystem for basic ecosystem services. Topics in this session will address, in the broadest sense, the social and economic impact of the Deepwater Horizon oil spill as well as chronic stressors that impact human well-being.

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## 013. HYDROCARBON DISTRIBUTIONS, CYCLING, AND IMPACTS IN BLUE WATER BENTHIC AND PELAGIC ENVIRONMENTS

*Session Chairs:* **Samantha Joye, University of Georgia**  
**Raymond Highsmith, University of Mississippi**

This session will provide a forum for investigators to present results describing hydrocarbon cycling and impacts on a variety of spatial and temporal scales in offshore environments. The session will include talks on a broad array of topics, including biological and chemical oceanography, multiphase transport processes, food webs, microbiology, geochemistry, stable isotopes, modeling, and animal biology at surface and deep-sea conditions (e.g. low temperature, high pressure). Presentations that highlight changes against the natural baseline that resulted from the Deepwater Horizon blowout are particularly encouraged.

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## 014. OIL DROPLETS AND PARTICLES—PHYSICAL PROCESSES AFFECTING THE BREAKUP AND TRANSPORT OF MICRO OIL DROPLETS AND BIOPHYSICAL INTERACTIONS OF PLANKTON, BACTERIA AT OIL-WATER INTERFACES

*Session Chairs:* **Jian Sheng, Texas Tech University**  
**Kathleen Stebe, University of Pennsylvania**  
**Joseph Katz, Johns Hopkins University**

Deepwater Horizon has released 4.9 million barrels of crude oil from deep sub-surface sources. It constitutes the largest marine oil spill in history. The “dissipation” and “cleanup” of the spill may involve the transported oil patches and sub-surface plums first breakup to droplets by physical processes: surface wave, oceanic turbulence, subsurface shear and stratification; and microbial activities at oil-water interfaces expedite degradation and composition. These processes are complex and involving multiple spatiotemporal scales, which has resulted in conflicting field observations. Consequently, we encounter difficulty in predicting the amount of oil released, breakup into droplets, transport of these droplets, and most of all interactions of them with marine microbial and planktonic communities.

In this session, we bring the expertise from biological, chemical and physical science disciplines, e.g. plankton ecology, marine microbiology, interfacial dynamics, and physical oceanography, to address key questions concerning physical and biological processes of droplets – from breakup, transport to degradation. The session will be divided into two main themes and conclude with a short discussion on future research and collaborations:

- (1) Interactions of microbes, planktons and surfactants at the oil-water interface: These interactions include particle migration, micro-organism locomotion near an interface; particle adsorption, aggregation and swimming at the interface; and subsequently their contributions to interfacial instability and emulsification. The effects of particle motility, geometry,

hydrodynamics, and interface properties, especially in the presence of large quantity of dispersant on interaction will be the foci. Additionally, their impact on interfacial stability, droplet breakup, coalescence, promoting oil degradation and consumption will be assessed. The topic may be organized as: (a) particle mobility and locomotion near an interface; (b) particle adsorption, migration and aggregation at the interface; (c) degradation, consumption, and emulsification; (d) effects of dispersant on microbial activities at interfaces and resulting impact on instability and droplet breakup.

- (2) Effects of physical processes on the fate of oil spill, from breakup to transport: This theme may include: (a) Processes involving breakup of large scale oil patches, including subsurface plumes containing gas and oil, as well as oil slicks, by currents, breaking waves, and wind shear. (b) Breakup of oil droplets by canonical micro-scale processes, such as shear, normal strain, and turbulence at the length scales comparable to that of the droplet. (c) Effects of dispersant on physical processes involving in droplet breakup in these settings. (d) Physical processes affecting the transport and settling of droplets including turbulence, shear, gravity, current and stratification as well as the entrainment by bubbles and particles.

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## 015. BIODEGRADATION PATHWAYS AND ENVIRONMENTAL IMPACTS OF HYDROCARBON DISCHARGE—OMICS AND BIOGEOCHEMISTRY APPROACHES

*Session Chairs:* **Joel E. Kostka, Georgia Institute of Technology**  
**Andreas Teske, University of North Carolina Chapel Hill**  
**Arthur Penn, Louisiana State University-School of Veterinary Medicine**

Biodegradation mediated by indigenous microbial communities is the ultimate fate of the majority of oil hydrocarbons that enter the marine environment. Much progress has been made to determine the response of specific microbial taxa as well as higher organisms to oil discharge in marine environments impacted by oil spills or natural seeps. However, the majority of studies of biodegradation and the physiological response to hydrocarbons have been conducted in the laboratory, and our ability to understand and predict the in situ response of organisms to environmental stimuli such as the presence of oil hydrocarbons remains in its infancy. New analytical tools, such as next generation sequencing and stable isotope probing, have greatly improved our ability to interrogate the response of microorganisms and multicellular organisms to hydrocarbon discharge in marine ecosystems. The development and application of omic approaches, in particular, has led to the characterization of novel biochemical pathways of biogeochemical and toxicological significance. This session will focus on research that utilizes the latest molecular and biogeochemical techniques, (including high throughput sequencing, isotope tracers, and omic approaches) to render a predictive understanding of the biogeochemical processes and metabolic pathways that in turn regulate the impacts and biodegradation of petroleum hydrocarbons released into the marine environment. Participation will be encouraged from researchers that employ interdisciplinary approaches including field observations, experimentation, technology development, and numerical modeling.

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## 016. TIME SERIES STUDIES OF THE IMPACTS OF OIL AND GAS RELEASES IN THE NORTHERN GULF OF MEXICO

*Session Chairs:* **Christopher Martens, University of North Carolina at Chapel Hill**  
**Laura Lapham, University of Maryland Center for Environmental Science**

During the Deepwater Horizon petroleum blowout event, chemical and physical partitioning of enormous volumes of natural gas, aqueous soluble and insoluble oil components, dispersants and oil-flocculent materials led to the formation of large sub-surface hydrocarbon intrusions, widespread occurrence of surface oil slicks and sheens and coastal and offshore oiled-sediment accumulations. Recent findings of altered deep-marine benthic ecosystems throughout the Gulf,

such as deep-sea corals and non-bioturbated deep-marine sediments, suggest that oil deposition and ecologic impacts are related. What are the impacts of sub-surface oil and gas intrusions, sinking of aggregated flocculent oil-rich particles to the sediment and oil accumulation in shallow and deep sediments? What was the fate of new carbon derived from the blowout? What physical, chemical and microbial processes controlled degradation of this material on what time scales and at what rates? How rapidly were benthic macrofaunal communities affected? What can be deduced from pre-blowout and rapid response studies and what has been learned so far from post-blowout time series studies? What records do sediment cores hold in terms of baseline environmental conditions that existed prior to oil drilling and quantitative spatial and temporal changes resulting from the blowout and the eventual recovery?

To answer these questions, time-series studies are critical. We welcome contributions from time-series investigations of surface waters, water column and benthic environments that seek to quantify and distinguish natural versus blowout controlled physical, chemical and ecological effects in the water column, the benthic boundary layer and in surficial sediments. Submissions featuring traditional and new technologies utilized to obtain time-series data in the northern Gulf in the years just before or since the 2010 blowout are encouraged. Contributions that reveal linkages between oil deposition, sedimentary chemical environments and impacts on the upper trophic levels (i.e., fisheries with a benthic dependence) are also invited.

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## 017. TECHNOLOGICAL, ENVIRONMENTAL AND POLICY DEVELOPMENTS FOR IMPROVED RESEARCH AND OPERATIONS IN THE GULF OF MEXICO

*Session Chairs:* William Belisle, Southern University at New Orleans  
 Thomas Azwell, University of California, Berkeley  
 Perena Gouma, SUNY Stony Brook  
 Brandon Jones, U.S. EPA Office of Research and Development  
 Mitch Lasat, U.S. EPA Office of Research and Development  
 Anne Sergeant, U.S. EPA, National Center for Environmental Research

The Remediation Technology Session will assess various aspects of the BP Oil Spill in the Gulf of Mexico including remediation and restoration technologies, environmental impacts and concerns, policy developments and outcomes of clean-up efforts to-date as they relate to research and operations in the Gulf. Session objectives will include presentations, discussions and assessments of the water and soil mitigation technologies used, technologies not used, and future technologies regarding the 2010 BP Oil Spill in the Gulf of Mexico. This session explores the development and adoption of innovative oil spill response technologies and restoration tools resulting from the Deepwater Horizon event. Discussion will include a review of current conventional oil spill response tools, as well as a look at new innovations currently being field tested in the Gulf and beyond. This session aims at inviting industry experts in the oil-spill remediation field and leading business that were involved in the Gulf Oil Spill Clean Up practices and which have used the state-of-the-art in methods and materials for remediation. This session will also include presentations and discussions concerning the water and soil mitigation technologies for oil spills according to the US Environmental Protection Agency.

The session will also explore the use of the Alternative Response Technology Evaluation System (ARTES) during the Deepwater Horizon event. The ARTES program is used to facilitate the development and adoption of innovative oil spill response technologies.

The U.S. EPA plays a major role in responding to both inland and coastal spills ensuring that all cleanup activities are truly protective of the environment. During the last two decades, EPA's research has produced new approaches for effective treatment of commercial oil spills including the development of bioremediation agents and dispersants, guidance documents for implementing bioremediation, a clearer understanding of the environmental fate, impact and persistence

of oil spills, and development of new spill treatment approaches. The April 20, 2010 Deepwater Horizon oil spill in the Gulf of Mexico revealed an urgent need to further investigate the environmental and human health impacts of oil spills and the mitigation approaches necessary during the removal process. Given the economic importance of commercial and recreational fisheries, it is imperative to better understand the effects of oil spills on pelagic and coastal ecosystems and to develop technologies to minimize these effects. A special Congressional appropriation enabled EPA to conduct studies to better understand the environmental impact of oil spills on ecosystems and human health and to develop tools, models, methods, and sustainable innovative technologies for environmental remediation and restoration.

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## 018. REMOTE SENSING AND THE DEEP WATER HORIZON OIL SPILL

*Session Chairs:* Duane Armstrong, NASA Stennis Space Center

Eric Lindstrom, NASA

Ian MacDonald, Florida State University

Chuanmin Hu, University of South Florida

Satellite and airborne sensors played critical roles in the response to the Deepwater Horizon oil spill. Remote sensing data were used to detect, track and help forecast the trajectory of the oil slick, and to detect and monitor the impact of the oil spill on coastal wetlands, tidal channels and embayments. Baseline ecosystem data, acquired by satellite and airborne instruments prior to landfall of any oil, were collected for vast stretches of the Gulf Coast. Additional ecosystem data were collected after the oil made landfall to assess the impact on critical habitats such as marshes, seagrass beds, barrier islands and fisheries, and have been collected in the two years since the spill to assess the long-term impact and recovery of the region. New measurement, monitoring, analysis and forecasting capabilities were developed and deployed. This session solicits oral and poster presentations that highlight the latest results and future plans to improve remote sensing detection and monitoring of oil spills and assessments of their environmental impacts.



## 019. MODELS AND OBSERVATIONS WORKING TOGETHER TO UNDERSTAND THE DEEPWATER HORIZON OIL SPILL

*Session Chairs:* Brad Rosenheim, Tulane University  
 Annalisa Bracco, Georgia Institute of Technology  
 Haosheng Huang, Louisiana State University  
 Dubravko Justic, Louisiana State University  
 Clint Dawson, The University of Texas at Austin  
 Oliver Fringer, Stanford University

*“All models are wrong; some are useful.”* – an observational scientist

*“All observations are right; there are generally so few they are useless.”* – a modeler

These adages summarize general sentiments voiced in scientific circles. In principle, physical models are powerful tools that can both benefit from physical observations and explain why observed phenomena occur. In practice, it is often difficult to reconcile models and observations even in the best planned experiments. The research recently funded by GoMRI and focused on the Gulf of Mexico provides a suite of examples of modeling and experimental work planned in tandem. These couplings occur at several different spatial and temporal scales and they interface regional physical, chemical and biological oceanography down to mm scale fluid dynamics.

This session seeks abstracts focusing on both difficulties and successes of coupling circulation, biogeochemical, sediment and oil models and observations at all spatial and temporal scales. Particularly, we seek abstracts focusing on, but not limited to, the following aspects of modeling and measuring the Gulf of Mexico: development of mathematical models and numerical simulators to investigate flows across scales and observations of multiscale phenomena; multiphysics/multimodel couplings to bridge different scales; estuarine-shelf exchange processes in models and observations in the northern Gulf of Mexico; oil spill trajectory modeling and development of spill remediation tools in the coastal zone. Ultimately, the unprecedented concentration of work in a tightly constrained geographic area on an equally tightly constrained topic may help reconciling the adages above.

# MONDAY MORNING ORAL PRESENTATION SCHEDULE

Session Name	1030	1045	1100	1115
<b>Session 007:</b> Ecosystems of the Open Ocean: Microbes Mammals and Models—Analysis and Modeling	Development of an Atlantis Ecosystem Model to Study Food Web Impacts of DWHOS <i>Cameron Ainsworth</i>	Atlantic Bluefin Tuna (Thunnus thynnus) Spawning and Larval Habitats in the Northern Gulf of Mexico: Overlap Between the Habitats and Oiled Surface Waters During May 2010 <i>James Franks</i>	Biological-Physical Ocean Modeling in the Gulf of Mexico <i>Sergio DeRada</i>	Did Dissolved Hydrocarbons Impact the West Florida Continental Shelf? <i>Robert Weisberg</i>
<b>Session 009:</b> The Submesoscale Route to Transport and Mixing	Submesoscale, Wave-Influenced Currents in the Upper Ocean <i>James C. McWilliams</i>	Near-Surface Horizontal Velocity Gradient Estimates from Hundreds of Simultaneous GLAD Drifter Observations Near the Deepwater Horizon Site <i>Bruce Lipphardt</i>	Surface Relative Dispersion Measurements in the CARTHE's Grand Lagrangian Deployment (GLAD) Experiment. <i>Angelique Haza</i>	Ensemble Forecasting in the Gulf of Mexico during the CARTHE-GLAD Experiment <i>Patrick Hogan</i>
<b>Session 012:</b> Socio-economic Impacts of the Deepwater Horizon Oil Spill	Session Introduction	Value of Gulf Ecosystem Services <i>Andrew Shepard</i>	The Economic Effects of the BP Oil Spill on the South Alabama Economy after Tropical Storm Lee <i>Louis Mancuso</i>	Changes in Coastal Alabama Household Income and Activity Following Deepwater Horizon Oil Spill – Baldwin and Mobile Counties, Aug 2010 and Aug 2011 <i>Melissa Morrison</i>
<b>Session 016:</b> Time Series Studies of the Impacts of Oil and Gas Releases in Northern Gulf of Mexico	Impact to Deepwater Corals from the Deep Water Horizon Disaster <i>Charles Fisher</i>	Time-Series Monitoring the Subsurface Oil Plume Released from Deepwater Horizon MC252 in the Gulf of Mexico <i>Kenneth Lee</i>	Large-Scale Tracking of Oil-Derived Hydrocarbons in the Water Column of the Gulf of Mexico after the Deepwater Horizon Blowout <i>Kathleen Watson</i>	Testing the Mechanisms of Sedimentary Oil Deposition in the Deep-Sea <i>David Hollander</i>
<b>Session 017:</b> Technological, Environmental and Policy Developments for Improved Research and Operations in the Gulf of Mexico	Summary of EPA's Five-Year Oil Spill Research Strategy <i>Albert Venosa</i>	Post-Remediation Restoration of Heavily Oiled Louisiana Salt Marshes <i>Michael Blum</i>	Gulf of Mexico Research Priorities Identified Based on Input from Thousands <i>Stephen Sempier</i>	Advanced Oil-Water Separation Technology for Oil Spill Cleanup and Other Oil & Gas Remediation Problems <i>Eric Hoek</i>
<b>Session 018:</b> Remote Sensing and the Deep Water Horizon Oil Spill	UAVSAR Response to the Deepwater Horizon Oil Spill <i>Cathleen Jones</i>	Oil Detection and Latent Impact Monitoring in Coastal Marshes with Polarimetric SAR <i>Elijah Ramsey</i>	Fine-Scale Features on the Sea Surface in SAR Satellite Imagery <i>Alexander Soloviev</i>	Analysis of the BP Oil Spill Deep Water Horizon Extent Using Synthetic Aperture Radar Satellite Imagery <i>Oscar Garcia-Pineda</i>

1130	1145	1200	1215	Room
Modelling Nutrient Cycling in the Gulf of Mexico: A Real-time Decision Support for Managers and Field Work <i>Clelia Marti</i>	Eutrophication, Hypoxia, Ocean Acidification, and Oil Spill: Potential Interactions of Multiple Environmental Stressors in the Northern Gulf of Mexico <i>Wei-Jun Cai</i>	Oil spills and Overfishing Led to Increments of Harmful Algal Blooms on the West Florida Shelf, with Public Health Consequences: An Isomorph? <i>John Walsh</i>	Can We Disentangle the Effects of a Big Oil Spill and a Big Fisheries Closure? An Analysis of Fisheries-Independent Trawl Data for Louisiana <i>Joe Neigel</i>	Bissonet
Initial Dispersion of a Deep Tracer in the Gulf of Mexico <i>James Ledwell</i>	Submesoscale Impact on Eulerian and Lagrangian Transport in the Northern Gulf of Mexico <i>Annalisa Bracco</i>	Geodesic LCS-Core Analysis of Simulated Currents During GLAD <i>Maria Olascoaga</i>	Can Satellite Chlorophyll Data Be Used to Monitor Submesoscale Transport and Mixing in the Ocean ? <i>Marina Lévy</i>	Balcony L-M-N
Impact of the Deepwater Horizon Well Blowout on the Economics of US Gulf Fisheries: A Method for Preliminary Assessment <i>Andres Cisneros-Montemayor</i>	Surviving the Spill: The Seafood Supply Chain in Alabama and Mississippi After the Deepwater Horizon Disaster <i>Stefanie Christensen</i>	Enhancing Community Resiliency through Cooperative Extension Training <i>Paul Monaghan</i>	Mitigation of the Human Dimensions of Spills in Coastal Louisiana: Collaboration Between NOAA's Office of Response and Restoration and LA Sea Grant <i>Heather Ballestero</i>	Balcony K
In Situ, Time Series Measurements of Benthic Boundary Layer Water Chemistry in the Northern Gulf of Mexico Using the Chimney Sampler Array (CSA) <i>Christopher Martens</i>	Deep-Water Sediment Biogeochemical Time-Series Data from MIMOSA (Microbial Methane Observatory for Seafloor Analysis) <i>Laura Lapham</i>	Organic Carbon Remineralization Stoichiometry – a Useful Indicator for Detecting Oil Degradation in Water Column <i>Xinping Hu</i>	Pre-and Post-Spill Porewater DIC Concentrations and d13C Signatures of Gulf of Mexico Sediments <i>Andreas Teske</i>	Galerie 6
Affinity-Based Hydrocyclone Filter for Oil-Water Separation and Oil Spill Cleanup <i>Volodymyr Tarabara</i>	Foundations for a Kinetic Model of Weathering Complex Petroleum Products in Natural Waters <i>John McIlroy</i>	Cleanup of Heavily Oiled Salt Marsh During the Deepwater Horizon Oil Spill: I. Adaptive Field Testing and Operational Treatments <i>Scott Zengel</i>	Microbial Biosurfactants for Potential Use in Oil-Spill Remediation <i>Andrew Nyman</i>	Acadia
On the Utility of Remote Sensing Data for Oil Spill Applications <i>Chet Pilley</i>	none	Satellite Remote Sensing of the Deepwater Horizon Oil Spill: What Have We Learned with MODIS and MERIS? <i>Chuanmin Hu</i>	Surface Oil Drift Rates Estimated from Natural Seeps <i>Ian MacDonald</i>	Galerie 5

# MONDAY AFTERNOON ORAL PRESENTATION SCHEDULE

Session Name	1400	1415	1430	1445	1500
<b>Session 004:</b> Dispersant: New Developments in Science and Technology and Implications to Deep Sea Oil Releases	API Joint Industry Task Force on Oil Spill Preparedness and Response: Dispersant Research Coordination Update <i>Thomas Coolbaugh</i>	Biodegradation of DOSS and Dispersed South Louisiana Crude Oil at Two Temperatures <i>Albert Venosa</i>	Non-Toxic Sugar-Based Phase Selective Gelators for Crude Oil Gels <i>George John</i>	Properties of New Coagulants of Crude Oil <i>Richard Weiss</i>	Penetration Profile of Louisiana Crude Oil Through Red Mangrove Roots in the Presence and Absence of Dispersants <i>Berrin Tansel</i>
<b>Session 006:</b> Ecosystems of the Open Ocean: Microbes Mammals and Models—Higher Trophic Level Studies	An Overview of Fish Health Indicators in Offshore Waters of the Gulf of Mexico <i>Steven Murawski</i>	Shifts in Reef Fish Community and Trophic Structure Following the Deepwater Horizon Oil Spill <i>Will Patterson</i>	Spatio-Temporal Concentrations and Composition of Polycyclic Aromatic Hydrocarbons in Fish: Evidence for DWH Oil Spill Impact on Mesopelagic and Outer <i>Isabel Romero</i>	Community Structure of Deep Demersal Fishes from Desoto Canyon and Adjacent Habitats of the Eastern Gulf Of Mexico After Deepwater Horizon <i>R. Dean Grubbs</i>	Effects of the Deepwater Horizon Oil Spill on Deepwater Fish Populations from the Northeast Gulf of Mexico. <i>Jim Gelsleichter</i>
<b>Session 008:</b> Physical Oceanography of the Northern Gulf of Mexico	Review of Slope Circulation between the Mississippi Delta and DeSoto Canyon from Observations <i>Peter Hamilton</i>	Grand Lagrangian Deployment: Drifter Observations of Surface Currents and Dispersion Characteristics in the DeSoto Canyon <i>Andrew Poje</i>	Deepwater Mooring Deployment and Oceanographic Conditions on the Continental Shelf and Slope of the North Central Gulf of Mexico - July 2012 <i>Steven DiMarco</i>	Surface Oil Motion Yields New Perspectives on Circulation Processes in the Northern Gulf of Mexico <i>Nan Walker</i>	Upwelling Response to Hurricane Isaac <i>Lynn Shay</i>
<b>Session 012:</b> Socio-economic Impacts of the Deepwater Horizon Oil Spill	The Emerging Role of Land Use Planning for Resiliency to Disasters <i>Emily Powell</i>	Compensation and Relative Deprivation in the Gulf: Challenges to the Recovery Process <i>Brian Mayer</i>	BOEM: Oil Spill Research in the GOM <i>John Primo</i>	The Socioeconomic and Health Care Effects of the Deepwater Horizon Oil Spill (DWOS) Among Women in Southern Coastal Louisiana: the WATCH Study <i>Ariane Rung</i>	Developing a Barometer of Health and Balance: Measuring Community Well-Being for Coastal Counties in the Gulf of Mexico <i>Maria Dillard</i>
<b>Session 016:</b> Time Series Studies of the Impacts of Oil and Gas Releases in Northern Gulf of Mexico	Total Scanning Fluorescence (TSF) Determination of Petroleum in the Water Column in the Vicinity of the Deepwater Horizon Spill <i>Terry Wade</i>	Laboratory Degradation of Oil-Derived Hydrocarbons in Coastal Sediments <i>Daniel Fields</i>	Experimental Time Series Studies of the Impacts of Oil and Dispersant Contamination on Salt Marsh Sediment Geochemistry <i>Rona Donahoe</i>	In Situ Characterization of Distributions of Dissolved Gases and Light Hydrocarbons Using Underwater Membrane Introduction Mass Spectrometry <i>Tim Short</i>	A Technique for Qualitative Observation of Hydrocarbon Seeps Location and Movement Over Varying Temporal and Spatial Scales <i>Kevin Martin</i>
<b>Session 018:</b> Remote Sensing and the Deep Water Horizon Oil Spill	Lagrangian Predictability in the DWH Region from HFR Observations and Model Output <i>Max Yaremchuk</i>	Integration of Satellite Measurements for the Surveillance of Deepwater Horizon Surface Oil, the Loop Current and its Frontal Eddies <i>Nan Walker</i>	Impact of the Deepwater Horizon Oil Spill on the Chlorophyll Concentrations of the Gulf of Mexico- A Remote Sensing Perspective <i>Sonia Gallegos</i>	Quantifying Severity of Plant Stress Induced by Oil Spill Contamination in the Gulf of Mexico Using Hyperspectral Remote Sensing <i>Shruti Khanna</i>	Phytoplankton Anomaly in the NEGOM Linked to the Mississippi River <i>Brendan O'Connor</i>

1515	1530	1545	1600	1615	Room
Microscale Interfaces as a Tool for Characterizing Complex Interfacial Systems <i>Shelley Anna</i>	Molecular Dynamic Simulations of Commercial Dispersant Corexit Composed of Tween 80 and Aerosol OT in Oil/Water Mixtures <i>Ronald Larson</i>	Measurement of the Capillary Force on a Particle at a Fluid Interface <i>Anthony Dinsmore</i>	Using Adipogenic Differentiation of Stem Cells to Determine Potential Adverse Effects of Petroleum/Dispersant Exposure <i>Demetri Spyropoulos</i>	Effects of Oil Dispersants on Sediment Retention and Weathering of Polycyclic Aromatic Hydrocarbons in the Gulf Coast Ecosystems <i>Dongye Zhao</i>	Acadia
Status of Mesophotic Shelf-Edge Reef Fish Communities, Before and After 2010 <i>Kenneth Sulak</i>	Biomarker Enzymatic Activities in Livers of Gulf of Mexico Fishes <i>Margaret James</i>	Hydrocarbon-Induced Biomarker Responses in Gulf Killifish, <i>Fundulus grandis</i> , as an Aquatic Gulf of Mexico Sentinel <i>Kristi Crowe</i>	Deep-Diving Cetacean Monitoring and Temporal Patterns During and After the Deepwater Horizon Oil Spill <i>John Hildebrand</i>	Brown Pelican Foraging and Nesting in Relation to the Deepwater Horizon Oil Spill <i>Scott Walter</i>	Bissonet
Autonomous Ocean Acidification Survey Utilizing the Wave Glider <i>Jamie Griffith</i>	Wind-Driven Shelf Water Flow Near the DeSoto Canyon <i>Allan Clarke</i>	Vertical Distribution of Water Trajectory Analysis Using Oil Rig-Based ADCP Measurements and Optimal Interpolations in the Horizontal <i>Chunyan Li</i>	Observations of Loop Current Circulation Processes and Eddy Separations: April 2009 to November 2011 <i>Kathleen Donohue</i>	Predictability Potentials of the Dynamic Conditions in the Mississippi – Atchafalaya Shelf <i>Yuley Cardona</i>	Balcony L-M-N
Oil and Gas Development in the Gulf of St. Lawrence, Canada : Learning from the Gulf of Mexico Experience <i>Sylvain Archambault</i>	Your Good Humor May Depend on Mother Nature- Identifying Relationships Between Coastal Environmental Health and Well-Being in the Gulf of Mexico <i>Susan Lovelace</i>	The Financial Life Events Checklist: Preliminary Development and Validation for Field Use <i>Sailor Holobaugh</i>	none	none	Balcony K
Multi-Phase Partitioning Behaviour of Xenobiotic Compounds in Crude Oil/ Natural Gas/Seawater Systems <i>Andrew Stopford</i>	Ensemble Dynamics and Bred Vectors <i>Nusret Balci</i>	Developmental Impacts of Macondo-252 Crude and Corexit-9500 on the Embryogenesis of the Gulf killifish, <i>Fundulus Grandis</i> <i>Charles Brown</i>	A Local Non-Parametric Technique for the Calculation of Trends in Multiscale Time Series <i>Darin Comeau</i>	none	Galerie 6
none	Informing Coastal Ecosystem Science with Airborne Coastal Mapping <i>Molly Reif</i>	Data-Based Mechanistic Modeling of Environmental Impacts of Multiple Natural and Anthropogenic Stressors on the Gulf of Mexico <i>Olufemi Osidele</i>	Development of a Lab-on-Chip Based Oil Detection Instrument <i>Wanjun Wang</i>	A Method for the Identification of Hydrocarbon-Transforming Bacteria in the Sea Surface <i>Kate Vella</i>	Galerie 5

# POSTER SESSION MONDAY, JANUARY 21, 1630 – 1830

#	Presenter	Poster Title
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## Session 4: Dispersant: New Developments in Science and Technology and Implications to Deep Sea Oil Releases

68	Paria Avij	Aerosolization of Oil Spill Matter via Bursting Bubbles
69	Jillian Berbakov	Oil-Dispersant Interactions at Different Hydraulic Pressures for Underwater Applications
70	Christopher Chen	Measurement Techniques for Ultrafast Surfactant Dynamics at Oil/Water Interfaces
71	Haobo Chen	Multifunctional Microgels for Release of Rheology Modifiers
72	Megan Creighton	Impacts of Particle-based Dispersants on Benzene Bioavailability and on Viability of <i>Artemia franciscana</i> as a Model Organism
73	Muhammed Ejaz	Surface Grafting of Nanoparticles by Divergent Method, towards Amphiphilic Micelle-like Nanoparticles
74	Jennifer Field	Trace Analysis of Anionic and Nonionic Surfactants from Oil Dispersants in Gulf of Mexico Seawater Using Large Volume Injection Liquid Chromatography
75	Etham Frenkel	Magnetite Nanoparticles Stabilized by p-Amino Benzoic Acid Terminated Carbon Black Particles for Oil Spill Remediation
76	Carol Hall	Simulations-based Design of a Hydrophobically-modified Chitosan Dispersant
77	Francisco Hung	Molecular Dynamics Simulations of Oil Hydrocarbons and Surfactants at Atmospheric Air/Salt Water Interfaces
78	Vijay John	Modified Polysaccharides as Synergistic Dispersants
79	Daehak Kim	Interfacial Activity of Homopolymer Grafted Nanoparticle
80	Stephanie Kover	Photo-induced Degradation of COREXIT Constituents
81	David Riehm	Elucidating Mechanisms of Chemical Oil Dispersant Action
82	Bin Meng	Effect of Pressure on the Aggregation of Surfactant Micelles
83	Matt Perkins	Analysis of DOSS and its Degradates by LVI-LC/ESI-MS/MS
84	Noshir Pesika	Fabrication of a Standard Leaf Mimic to Study Interactions of Oil droplets with Marshland Grasses
85	Abhijit Rao	Surfactant Effect on the Dynamics of BP Crude Oil Droplet in a Water Column
86	Amitava Roy	Structural Changes in BP Crude Oil During Degradation
87	Paul Russo	Characterization of a Natural Surfactant
88	Darrell Sparks	Analysis of Gulf Seafood Samples for Dioctylsulfosuccinate (DOSS)
89	Pranav Vengsarkar	Investigating the Effects of Nanoparticle Size on Pickering Emulsion Formation and Stability
90	Pradeep Venkataraman	Modified Polysaccharides as Synergistic Dispersants
91	Pradeep Venkataraman	Enhanced Removal of Surface Oil Spill using Magnetic Carbon Microspheres and Hydrophobically Modified Biopolymer
92	Lee Joan Villafuerte	Emulsion Stabilization by Silica Particles and Non-ionic Block Copolymers
93	Jiqing Liu	The Response of Bacterial Communities on Oil Addition to Waters from Different Depths at the Deepwater Horizon Site

## Session 6: Ecosystems of the Open Ocean: Microbes Mammals and Models—Higher Trophic Level Studies

1	Matthew Ajemian	Improving Deepwater Horizon Risk Assessment for Large Benthopelagic Rays: Integration of Aerial Observation and Satellite Telemetry
2	LaTrisha Allen	Biomarkers of PAH Exposure in Livers and Bile of Reef Fish from the Northern Gulf of Mexico after the Deepwater Horizon Oil Spill
3	Kaitlin Frasier	Long-term Monitoring of Dolphins in the Gulf of Mexico
4	Sarah Grasty	Development of a Towed Camera System Indexing Reef Fish Density: Applications to MPA Assessment
5	Matthew Long	Effects of the Deepwater Horizon Oil Spill on Epipelagic Fish Populations in the Northeast Gulf of Mexico
6	Travis A. Moore	Trophic Dynamics and Feeding Ecology within the Southeast Florida Coastal Pelagic Fish Complex
7	Debra Murie	Spatiotemporal Effects of the Deep Water Horizon Oil Spill on Productivity of Important Recreational and Commercial Fisheries of the Gulf of Mexico
8	Susan Snyder	Impacts of the Deepwater Horizon Blowout on Burrow-forming Finfishes: An Interdisciplinary Approach
9	Illya Tietzel	Detection of Genes of Oil Spill Microbe Genes in Digestive Tract of Fish After the BP Oil Spill
10	John Wise	Is Exposure to Genotoxic Metals Part of the Toxic Legacy of the Deepwater Horizon Oil Crisis?



**Session 7: Ecosystems of the Open Ocean: Microbes Mammals and Models—Analysis and Modeling**

25	Lindsey Dornberger	End to End Ecosystem Modelling of DWHOS Impacts
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**Session 8: Physical Oceanography of the Northern Gulf of Mexico**

175	Nicolas Choplain	Laboratory Investigation of the De Soto Canyon and its Influence in the Deep-ocean Exchange with the Shelf
176	Kyeong Park	Across-shelf Current and Transport on a Coastal Shelf Directly Influenced by Estuarine Outflow
177	Hui Qian	Circulation Transport and Connectivity in the Gulf of Mexico
178	Lynn Shay	Deep Ocean Response to Hurricane Ivan Along the Northern Rim of the DeSoto Canyon
179	Laura Spencer	Physical Oceanographic Conditions on the Continental Shelf and Slope of the North Central Gulf of Mexico near the Deepwater Horizon Site in 2012

**Session 9: The Submesoscale Route to Transport and Mixing**

180	Darek Bogucki	Upper Ocean Energetics during the Grand Lagrangian Deployment (GLAD) Experiment
181	Angelique Haza	Parametrization of Particle Transport at Submesoscales in the Gulf of Mexico
182	Hao Luo	Modeling Transport and Discharge from Cold Seeps using a High Resolution Regional Ocean Model
183	Kyeong Park	A Modeling Study of Salt Exchange for Mobile Bay, a Northern Gulf of Mexico Estuary
184	Ad Reniers	Inertial Currents in the Northern Gulf of Mexico during the GLAD Experiment
185	Berrin Tansel	Removal of Louisiana Crude Oil from Natural Coastal Surfaces with Corexit 9500A: Factorial Analysis of Environmental Parameters

**Session 12: Socio-economic Impacts of the Deepwater Horizon Oil Spill**

131	Sean Anderson	Public Perceptions of the Deepwater Horizon Oil Spill: Continuing Distrust of Gulf Coast Fisheries
132	Sylvain Archambault	Oil and Gas Development in the Gulf of St. Lawrence, Canada: Is it a Good Idea?
133	Lucy Flores	Potential Relationship between Harmful Algae Blooms and Tourism to Cape Cod, MA
134	Marjorie Fox	The Economic Effects of the BP Oil Spill on the South Alabama Economy after Tropical Storm Lee
135	Jennifer Langhinrichsen-Rohling	Gender Differences in Perceived Levels of Resiliency One Year Post Disaster: Associations with Trust in Various Government Entities
136	Brian Mayer	A Protocol for Rapid Appraisal of Community Social Structure

**Session 16: Time Series Studies of the Impacts of Oil and Gas Releases in Northern Gulf of Mexico**

171	Aisha Agbali	Absolute Nannofossil Abundances in the De Soto Canyon Pre- and Post-spill Sediments
172	Richard Snyder	Polycyclic Aromatic Hydrocarbon Concentrations across the Florida Panhandle Bight Shelf after the BP MC 252 Well Failure
173	Richard Snyder	Coquina ( <i>Donax</i> spp.) as an Indicator of Oil Spill Impact to Sandy Beach Shorelines
174	David Steffy	Increase in Nickel and Vanadium Concentrations in Sea Bottom Sediment Collected from the Continental Shelf off of Western Florida after the Deepwater

**Session 17: Technological, Environmental & Policy Developments for Improved Research & Operations in the Gulf of Mexico**

101	Diane Blake	Reagents for Rapid On-site Analysis of Petrogenic Polynuclear Aromatic Hydrocarbons (PAHs)
103	Ben Hodges	Uncertainty Estimation in Operational Oil Spill Modeling for Bays and Estuaries
104	Chien-Yi Hsiang	Methods for Assessing Effects on Deep-Sea Macrobenthic Communities
105	David Ladner	Dendritic Polymers as Biocompatible Oil Spill Dispersants
106	Fabio Moretzsohn	Applying Lessons Learned from DHW to the Pre-Salt Layer Deep-sea Oil Exploration in Brazil
107	Fabio Moretzsohn	Incorporating Comprehensive Species Data in Ecosystem Science and Recovery Initiatives
108	Margo Moss	Gulf Saver® Bag: A Sustainable Approach to <i>Spartina alterniflora</i> Marsh Restoration
109	Morgan Sinko	Pop Goes the Diesel: A Linoleic Acid/R. rhodochrous Mixture as a Bioremediation Agent of Diesel Contaminants in Saltwater and Freshwater Environments

**Session 18: Remote Sensing and the Deep Water Horizon Oil Spill**

26	Samira Daneshgar Asl	Chronic, Anthropogenic Hydrocarbon Releases in the Gulf of Mexico
27	Nathan Laxague	Polarimetric Remote Sensing of Wind-induced Surface Roughness
28	Olufemi Osidele	A Prototype Location-Based Web Content Management System for Engaging Gulf of Mexico Coastal Communities
29	Ross Reahard	NASA DEVELOP Students Contribute to Oil Slick/Spill Monitoring and Analysis
30	Ajit Subramaniam	Impact of Natural Oil Seeps on Phytoplankton in the Gulf of Mexico

## TUESDAY MORNING ORAL PRESENTATION SCHEDULE

Session Name	0830	0845	0900	0915	0930	945	1000
<b>Session 001:</b> Chemical Methods for Comprehensive Oil Spill Analysis	Mainstreaming New Methods into Oil Spill Science: What Do We Need To Do? <i>Christopher Reddy</i>	Comprehensive Chemical Characterization of Oil Using Two-Dimensional Gas Chromatography with Soft Ionization and Time of Flight Mass Spectrometry <i>David Worton</i>	Quantifying Composition Alteration Through Biodegradation for Deepwater Horizon Oil in Surface Environments Using GCxGC <i>Jonas Gros</i>	Characterization of In-Situ Burn Residues from the Deepwater Horizon Incident <i>Buffy Meyer</i>	GCMS Analysis of TGA Pyrolysates of Tarballs from the BP Oil Spill <i>Jan Gryko</i>	Characterization of Oxygenated Hydrocarbons Formed Upon Oil Weathering After the Deepwater Horizon Disaster <i>Christoph Aeppli</i>	Composition of Polar Components of Oil in the Gulf of Mexico Water Column During and After the Deepwater Horizon Oil Spill <i>Elizabeth Kujawinski</i>
<b>Session 002:</b> Coastal Inshore Impacts of Oil: From Mousse to Food Webs	Session Introduction	Hydrocarbons in Near Shore Coastal Waters One Year After the Deepwater Horizon Oil Spill <i>Ed Overton</i>		Expanded Chemical Profiles of MC252 Crude <i>Scott Milroy</i>	Variations in Organic Carbon Chemistry in the Gulf Coast and Coastal Marshes Following the Deepwater Horizon Oil Spill <i>JoAnn Holloway</i>	Transport and Decomposition of MC252-Oil in Permeable Sediment <i>Markus Huettel</i>	Macondo 252 Oil in Louisiana Salt Marshes <i>R. Turner</i>
<b>Session 004:</b> Dispersant: New Developments in Science and Technology and Implications to Deep Sea Oil Releases	Review of SMART Data For Aerial Dispersant Operations <i>Ed Levine</i>	Grafted Nanoparticle Based Interfacial Agents <i>Ramanan Krishnamoorti</i>	Mechanisms of Micro-Droplet Generation in a Liquid-Liquid System <i>Bahni Ray</i>	Oil Emulsification by Surface-Tunable Carbon Black Particles <i>Arijit Bose</i>	Near Field Oil Droplet Behavior with Application to Sub-Surface Dispersant Effectiveness <i>E. Adams</i>	Salt Effects on Sodium Dodecyl Sulfate Adsorption onto Clathrate Hydrates <i>Oluwaseun Salako</i>	Chemical Dispersant Effectiveness as a Function of Oil-Brine Interfacial Tension Reduction and Mixing Energy <i>Ali Khelifa</i>
<b>Session 010:</b> Advances in Modeling the Gulf of Mexico	Real-Time Coupled Ocean-Atmosphere-Wave Simulations in the Gulf of Mexico <i>Patrick Hogan</i>	An Integrated Ocean Circulation, Wave, Atmosphere and Marine Ecosystem Prediction System for the Gulf of Mexico <i>Ruoying He</i>	A High-Resolution Operational Forecast System for the Gulf of Mexico Based on the Coupled Regional Climate Model <i>Raffaele Montuoro</i>	A Decadal Ocean Reanalysis for the Gulf of Mexico <i>Dong Ko</i>	Interannual Variability of the Gulf of Mexico Loop Current and Eddies from Models and Satellite Observations <i>Eric Chassignet</i>	Evaluating Forecasts Gulf of Mexico Surface Heat Fluxes and Thermal Energy Balances on Seasonal to Diurnal Time Scales <i>Charlie Barron</i>	Upper-Layer Mesoscale Circulation and Deep Currents in the Gulf of Mexico Inferred from the 1/25° HYCOM GOMI <i>Dmitry Dukhovskoy</i>
<b>Session 011:</b> Public Health Impacts of the Deepwater Horizon Oil Spill	NIEHS Gulf Study – Study Overview and the Exposure Assessment Process <i>Richard Kwok</i>	LSU's Women and Their Children's Health (WATCH) Study: Research on the Health of Women and Children After the Oil Spill <i>Edward Tapido</i>	Research on the Mental Health Effects of the Deepwater Horizon Oil Spill Among Women in Southern Coastal Louisiana: the WATCH Study <i>Ariane Rung</i>	Community Assessment of Health Effects Following the Gulf Coast Oil Spill—Alabama 2010 and 2011 <i>Amy Wolkin</i>	Acute Health Effects Surveillance in Response to the Deepwater Horizon Disaster – Alabama, May 15-October 15, 2010 <i>Melissa Morrison</i>	Incidence of Post-Spill Physical and Mental Health Symptoms Among Children Along the Gulf Coast: Findings from the Gulf Coast Population Impact Study <i>David Abramson</i>	Community Attachment, Natural Resource Employment, and Health Impacts Following the BP Deepwater Horizon Disaster <i>Michael Cope</i>
<b>Session 015:</b> Biodegradation Pathways and Environmental Impacts of Hydrocarbon Discharge-Omics and Biogeochemistry Approaches	Omics Reveals Microbial Community Response to Macondo Oil Deep Plume <i>Terry Hazen</i>		Response of Functional Microbial Communities to the Deepwater Horizon Oil Spill and Chemical Dispersant Exposure <i>Jizhong Zhou</i>	Creating a Predictive Model of Microbially Mediated Carbon Remediation in the Gulf of Mexico <i>Jack Gilbert</i>		Bacterial 16S rRNA Pyrosequencing Analysis of the Gulf of Mexico Water Column and Initial Sediment Survey Results <i>Tingting Yang</i>	Stable Isotope Probing to Identify Hydrocarbon-Oxidizing Bacteria in Deep Water Plumes After the Deepwater Horizon Oil Spill <i>Molly Redmond</i>

1015		1100	1115	1130	1145	1200	1215	Room
Ambient Ionization Fourier Transform Ion Cyclotron Resonance Mass Spectrometry for Comprehensive Chemical Fingerprinting of Petroleum and Deposits <i>Leonard Nyadong</i>		Using Electrospray Ionization Time-of-Flight Mass Spectrometry to Quantify Bis(2-ethylhexyl) Sulfosuccinate (DOSS) <i>Susan Chiasson</i>	Molecular-Level Characterization of Petroleum Seeps and Asphalt Volcanoes from the Santa Barbara Basin by FT-ICR Mass Spectrometry <i>Amy McKenna</i>	Fingerprinting Hydrocarbons in Oil, Tarballs, and Sediment from Coastal Texas to Florida During the Deepwater Horizon Oil Spill <i>Thomas Lorenson</i>	Chemical Fingerprinting of Hopane Biomarkers in Deepwater Horizon Oil Spill Samples Collected from Alabama Shoreline <i>Vanisree Mulabagal</i>	Evaluating the Fate, Transport and Degradation State of Oil in the Gulf of Mexico Using Fluorescence EEM <i>Laodong Guo</i>	Optical Fluorescence Signatures of Waters in the Northern Gulf of Mexico During the Horizon Oil Spill: Comparison to Pre-Spill Conditions <i>Eurico D'Sa</i>	Bissonet
Recovery of Ecological Structure and Function of Coastal Marshes Impacted by the Deepwater Horizon Oil Spill <i>Qianxin Lin</i>		Cleanup of Heavily Oiled Salt Marsh During the Deepwater Horizon Oil Spill: II. Comparisons of Ecological Effects and Initial Recovery <i>Scott Zengel</i>	Long -Term Changes in Marsh Vegetation Coverage and Vigor in Barataria Bay and Terrebonne Bay <i>Michael Kearney</i>	Effects of Oil on the Rate and Trajectory of Louisiana Marsh Shoreline Erosion <i>Giovanna McClenahan</i>	Assessing the Affects and Recovery of Sediment-Associated Hydrocarbons on Bioturbation and Sediment Properties Following the BP Oil Spill <i>Samuel Sturdivant</i>	Salt Marsh Sediment Biogeochemical Response to the Deep Water Horizon Oil Spill (Skiff Island, LA, & Cat Island, Marsh Point, & Salt Pan Island, MS) <i>Calista Guthrie</i>	Multiple Stressors Impact Marsh Sediment Bacterial Diversity after the Gulf of Mexico Oil Spill <i>Annette Engel</i>	Balcony I-J-K
Oil Emulsification by Particles and Amphiphilic Polymers <i>Ashley Guerrette</i>	1030-1100 Coffee Break	Accounting for Oil Dispersion in Nearshore Scales in Large Scale Oceanic Flows <i>Juan Restrepo</i>	Surfactant Transport Dynamics and Interfacial Rheology of a Model Oil/ Dispersant/ Aqueous System Using Mixtures of Tween 80 and AOT <i>Matthew Reichart</i>	Effect of Dispersants on Photochemical Transformation of Crude Oil <i>Matthew Tarr</i>	Industry Sponsored Subsea Dispersant Injection Research <i>Tim Nedwed</i>	Distribution of Dispersant-Related Surfactants in the Gulf of Mexico Following the Deepwater Horizon Oil Spill <i>James Gray</i>	Performance of Submersible Optical Sensors Exposed to Chemically-Dispersed Crude Oil: Wave Tank Simulations for Improved Oil Spill Monitoring and Eva <i>Robyn Conmy</i>	Acadia
Deep Currents Near Steep Bathymetry from a Numerical Simulation of DeSoto Canyon <i>Steve Morey</i>		West Florida Continental Shelf Circulation in 2010 <i>Robert Weisberg</i>	Freshwater Pathways in the Mississippi/ Atchafalaya River Plume System <i>Robert Hetland</i>	Did the Mississippi River Plume Influence the Surface Spreading of the Deepwater Horizon Oil Spill Patch? <i>Villy Kourafalou</i>	Investigating Interactions Between a Sand-Starved Barrier Island and an Artificial Berm <i>Joseph Long</i>	Vertical Transport of Passive Tracers in the Cumulus Topped Marine Boundary Layer <i>Ping Zhu</i>	Representativeness Error of Velocity Assimilation into Navy Coastal Ocean Model of Gulf of Mexico <i>Peter Spence</i>	Galerie 6
Characteristics and Predictors of Favorable Mental Health Outcome 9 Months Post Gulf of Mexico Oil Spill <i>Lynn Grattan</i>		Behavioral Health in the Gulf Coast Region Following the Deepwater Horizon Oil Spill <i>Sharon Larson</i>	Risk Assessment Methods to Determine the Safety of Consuming Seafood Following Oil Spills in Marine Waters <i>Susan Klasing</i>	Response to Seafood Safety Concerns Following the 2010 Deepwater Horizon Oil Spill <i>Robert Dickey</i>	Impact of the Deepwater Horizon Oil Spill on Seafood Consumption Rates in Louisiana <i>Daniel Harrington</i>	Integrating Local Communities in the Health Risk Assessment Process Following the Deepwater Horizon Oil Spill--A Focus on Vietnamese-Americans <i>Mark Wilson</i>	Assessing Safety of Inshore-Harvested Seafood from the Gulf of Mexico: Addressing Public Health and Community Concerns After the Deepwater Horizon Oil <i>Andrew Kane</i>	Balcony L-M-N
'Omics' Analyses of the Deep-Sea Microbial Community Response to the Deepwater Horizon Oil Spill <i>Olivia Mason</i>		Microbial Community Composition and Functions in the Gulf of Mexico One Year After the Deepwater Horizon Accident <i>Charles Greer</i>	Marine Snow and Associated Microbial Processes as Drivers for Oil Transformation in Surface Gulf of Mexico Waters <i>Kai Ziervogel</i>	none	Corexit 9500 Substantially Increases the Biodegradation of Otherwise Undispersed Oil <i>Roger C. Prince</i>	Changes in the Redox State in Pore Water and Marine Sediments Following the 2010 BP Blowout <i>David Hastings</i>	New Approach to Detection of Surfactant-Producing Bacteria in the Sea Surface Microlayer <i>Naoko Kurata</i>	Galerie 5

## TUESDAY AFTERNOON ORAL PRESENTATION SCHEDULE

Session Name	1400	1415	1430	1445
<b>Session 001:</b> Chemical Methods for Comprehensive Oil Spill Analysis	Oil Spill Source Identification by Principal Component Analysis of Electrospray Ionization Fourier Transform Ion Cyclotron Resonance Mass Spectra <i>Yuri Corilo</i>	Surrogate Oil for Scientific Testing <i>Michael Green</i>	Airborne Chemical Data Provide Time-Critical Decision Support During Offshore Blowouts <i>Thomas Ryerson</i>	Asphaltene Composition and Content As a Measure of Oil Losses Related to the Deepwater Horizon Oil Spill <i>Michael Lewan</i>
<b>Session 002:</b> Coastal Inshore Impacts of Oil: From Mousse to Food Webs	Microbial Community Analysis of Deepwater Horizon Tarballs <i>Nikaela Flournoy</i>	Louisiana Brackish and Salt Marsh Greenhouse Gas Fluxes Following the Deepwater Horizon Oil Spill and Salinity Manipulations <i>Brian Roberts</i>	Effect of Oil Contamination on Infauna of Louisiana and Mississippi Marshes with Implications for Marsh Functioning <i>Charlotte Brunner</i>	Individually and Combined: Effects of Deepwater Horizon Water-In-Oil Emulsion and the Dispersant, Corexit, Upon Early Fish Development <i>Kevin Kleinow</i>
<b>Session 004:</b> Dispersant: New Developments in Science and Technology and Implications to Deep Sea Oil Releases	Silica Nanoparticle Oil-in-Water Pickering Emulsions in Deionized Water and Artificial Seawater <i>Geoffrey Bothun</i>	Nopal Cactus Extracts for Organic Compounds Water Remediation <i>Jorge Lara</i>	A Smart Oil Spill Dispersant Formulation for Reduced Environmental Impact and Consumption <i>Courtney Ober</i>	Hydrophobic Animals Encounter Hydrophobic Droplets in the Feeding Current: the Role of Dispersants <i>Kara Kunz</i>
<b>Session 010:</b> Advances in Modeling the Gulf of Mexico	Large Eddy Simulations of High Wind Oceanic Boundary Layers and the Impact of Surface Waves <i>Peter Sullivan</i>	Observations and Coupled Model Forecasts from Calm Winds to Hurricane Isaac (2012) During GLAD Field Campaign <i>Shuyi Chen</i>	Wind and Wave Induced Ocean Currents in Hurricane Isaac (2012): Analyses from a Coupled Atmosphere-Wave-Ocean Model and In Situ Observations <i>Milan Curcic</i>	Multi-Phase Air-Oil Interface Model for Hurricane Conditions <i>Alexander Soloviev</i>
<b>Session 011:</b> Public Health Impacts of the Deepwater Horizon Oil Spill	Polycyclic Aromatic Hydrocarbons Research at the National Toxicology Program <i>Cynthia Rider</i>	Methylated Phenanthrenes Are More Potent Than Phenanthrene in a Bioassay of Human Aryl Hydrocarbon Receptor (Ahr) Activation <i>Yue Sun</i>	Autophagy, Apoptosis and Increased Reactive Oxygen Species Induced by Corexit Dispersants in Human Airway Epithelial Cells <i>Danielle Major</i>	Gulf Oil Spill and Related Mental Health Issues: Role of Training and Education in Oil Spills and Other Disaster Responses <i>Joseph Hughes</i>
<b>Session 015:</b> Biodegradation Pathways and Environmental Impacts of Hydrocarbon Discharge-Omics and Biogeochemistry Approaches	Resistance and Alteration of High Molecular Weight NSO Components of Crude Oils to Long Term Environmental Exposure in the Water or Sediment Column <i>Thomas Oldenburg</i>	The Distribution and Cold Active Character of Putative Hydrocarbon Degradation Genes Among the Genomes of Cold Tolerant Microbes <i>Jeff Bowman</i>	A Petroleomic Approach to Environmental Analytical Chemistry <i>Ryan Rodgers</i>	The Use of -Omics to Detect Environmental Stress in the Cnidaria <i>Iliana Baums</i>

1500	1515	1530	1545	Room
<p>Bioremediation of Jiyeih Oil-Polluted Soil Using Autochthonous Microorganisms <i>Hanafy Holail</i></p>	<p>Novel Bamboo-Type TiO<sub>2</sub> Nanotube Arrays with Enhanced Photocatalytic Effect for Decomposition of Dispersed Oil and Organic Pollutants <i>Xinning Luan</i></p>	<p>Radiocarbon Analysis of the Gulf Oil Spill <i>Jeff Chanton</i></p>	<p>Polycyclic Aromatic Hydrocarbons (PAHs) Dynamics in the Northern Gulf of Mexico <i>Puspa Adhikari</i></p>	Bissonet
<p>Biomarkers of Polycyclic Aromatic Hydrocarbons Exhibited in Coastal Species from the Gulf of Mexico After the Deepwater Horizon Oil Spill <i>Arianne Leary</i></p>	<p>Can Exposure to the Deepwater Horizon Oil Spill Be Detected in Marsh Fish Otoliths? <i>Paola Lopez-Duarte</i></p>	<p>Oil Spill Effects on Salt Marsh Fish Assemblages: Selection of Appropriate Indicator Species <i>Paola Lopez-Duarte</i></p>	<p>The Effect of Oil Dispersants and Salinity on the Biodegradation of South Louisiana Crude Oil and Impacts on Gulf Killifish <i>Fundulus grandis</i> <i>Adam Kuhl</i></p>	Balcony I-J-K
<p>The Fate of Corexit Surfactants in Coastal Seawater: Use of LC-Time-of-Flight-MS to Characterize Biodegradation and Sorption <i>Bruce Brownawell</i></p>	<p>Sub-Sea Oil Spill Dispersant Effectiveness. A New Evaluation Methodology <i>Nicolas Passade-Boupat</i></p>	<p>Impact of the Deepwater Horizon Oil Spill and Dispersant Application on Marine Bacterial Populations <i>Suja Rajan</i></p>	<p>Exploring the Effect of Macromolecular Architecture on the Self-Assembly and Stability of Micelles Prepared from Polymer Amphiphiles <i>Scott Grayson</i></p>	Acadia
<p>Estimating Lagrangian Predictability and Uncertainties in the Gulf of Mexico Using RELO Ensemble System <i>Mozheng Wei</i></p>	<p>Contour Dynamics by Optimized Canonical Transformations <i>William Rosenthal</i></p>	<p>Quantifying Initial Conditions Uncertainties in a Gulf of Mexico HYCOM Forecast <i>Mohamed Iskandarani</i></p>	<p>A Practical Probabilistic Approach To Parameter Tuning in ADCIRC <i>Nusret Balci</i></p>	Galerie 6
<p>Academic Initiatives and a Sustainable Community Health Worker Corps: Framing a Holistic Training Approach with Core Competencies &amp; Research Specialty <i>Farah Arosemena</i></p>	<p>The Evaluation and Research Capacity of the Gulf Region Health Outreach Program <i>Ayanna Buckner</i></p>	<p>A New Model of Resilience in Primary Care: Collaborative Telemental Health <i>John Wells</i></p>	none	Balcony L-M-N
<p>Impact of Hydrocarbon/ Dispersant Exposure on Deep-Water Corals: the Transcriptome of <i>Leiopathes Glaberrima</i> <i>Dannise Ruiz Ramos</i></p>	<p>Synergistic Effects of Crude Oil and Corexit Dispersant on a Sponge Holobiont System <i>Jose Lopez</i></p>	<p>Molecular Diagnostics of Coral Exposed to Oil and Dispersants <i>Sara Edge</i></p>	<p>Direct Exposure to Deepwater Horizon Crude Oil Emulsions Elicits Morphology and Gene Expression Changes in Zebrafish Embryos <i>Frances Xin</i></p>	Galerie 5

# POSTER SESSION TUESDAY, JANUARY 22, 1630 – 1800

#	Presenter	Poster Title
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## Session 1: Chemical Methods for Comprehensive Oil Spill Analysis

31	Catherine Carmichael	Variability in Oiled Sand-patties Collected: How Different are Samples Collected within Meters on a Beach?
32	Zeynep Dincer	Relating PAH Content to Overall Stability of Organic Matter Containing DWH Oil
33	Gregory Hall	Precursors of Oxygenated Hydrocarbons in Weathered Oil Identified by Comprehensive Two-dimensional Chromatography and Chemometric Analysis
34	Colin Holmes	Time Evolution of Combustion Enthalpies of BP Oil Spill Residue
35	Jackie Jarvis	Characterization of the Water-Soluble and Interfacially Active Species from the Deepwater Horizon Crude by Electrospray Ionization FT-ICR Mass Spectro
37	Gerald John	Detection and Quantitation of Alkylated Chrysene in Deepwater Horizon (DH)-related Oil Spill Samples by Triple Quadrupole Gas Chromatography/Mass Spec
38	Karin Lemkau	Characterization of Oiled Materials Collected Before and After Hurricane Isaac at Fort Morgan, AL
39	Vladislav Lobodin	Dart Mass Spectrometry for Environmental Analysis of the Macondo Oil Spill
40	Charlotte Main	Comparing Laboratory- and Field-weathered Oil from the Macondo Well
41	Robert Nelson	Advanced Petroleum Fingerprinting Using Comprehensive Two-dimensional Gas Chromatography (GC×GC)
42	Sadegh Partani	Physical Approach to finding Crude Oil Content Index in Liquid Samples at Gulf of Mexico after DWH Oil Spill 2010
43	Matthew Pendergraft	Characterizing Oil Degradation and Mixing in Bulk Samples from Coastal Environments using Ramped-pyrolysis
44	Jagos Radovic	Photooxidation of Triaromatic Steroids in Macondo Well Oil
45	Phoebe Ray	Photochemical and Photocatalytic Transformations of Surface Crude Oil in Seawater Systems
46	Steven Rowland	Characterization of Oxygen Compounds in Environmental and Petroleum Samples by LC FT-ICR Mass Spectrometry
47	Brian Ruddy	New Insights into the Weathering of Macondo Well Oil: Analysis of Contaminated Sands from Pensacola Beach
48	Amber Russell	Portable GCMS for the Analysis of Dredge Material
49	Patrick Williams	Exploring the Heterogeneity of Oil in Sand Patties from the Gulf of Mexico
50	Fang Yin	Quantitation of US EPA Priority Polycyclic Aromatic Hydrocarbons (PAHs) in Deepwater Horizon Related Oil Spill Samples by GC/MS/MS

## Session 2: Coastal Inshore Impacts of Oil: From Mousse to Food Webs

111	Thijs Bosker	The Combined Effect of Environmental and Anthropogenic Stressors on Fish Health
112	Michael Davis	Oiling Increases Marsh Sediment CO2 Effluxes
113	Gregory Dietl	Historical Baselines of Body-size Distributions as Ecological Indicators of Oyster Reef Recovery from the Deepwater Horizon Oil Spill: A Progress Repo
114	Chanda Drennen	Similarity among Microbial Communities from Louisiana Coastal Marshes Reveals Potential to Respond to Disturbance
115	Alexandra Harper	The Deepwater Horizon Oil Spill and the Mercury Cycle: Stable Isotope Tracing of Methylmercury Production and Bioaccumulation in the Northern Gulf of Mexico Foodweb
117	Aixin Hou	Impacts of the Deepwater Horizon Oil Spill on Soil Microbial Communities of Salt Marshes in the Northern Gulf of Mexico
118	Elizabeth Jarrell	Rhizosphere Microbiome Composition and Association with Dominant Plants in a Louisiana Salt Marsh impacted by Oiling
119	Chad Judy	Impacts and Recovery of the Deepwater Horizon Oil Spill on Vegetation Structure and Function of Common Reed <i>Phragmites australis</i> : A Mesocosm Study



126	Urpiana Koklonis	Penetration of Louisiana Crude Oil through Red Mangrove Roots and Leaves in the Presence and Absence of Dispersants: Mass Transfer Analyses Based on M
121	Charles Martin	Investigation of Polycyclic Aromatic Hydrocarbon Accumulation in Coastal Alabama Waterfowl after the Deepwater Horizon Oil Spill
122	Andrew Ogram	Impact of Oil on Concentrations of Microbial Genes Related to Carbon and Nitrogen Cycling in Bay Jimmy, LA Sediments
123	Jason Pietroski	Effects of Weathered Oil on Wetland Soil Denitrification Potential
124	Kristin Rockett	Impact of the Deep Water Horizon Oil Spill on the Plant Community of Dauphin Island and Surrounding Areas
126	Jessie Rosanbalm	Effects of Oil and Dispersants on Phytoplankton Communities in Northern Gulf of Mexico Estuaries: Nutrient and Light Interactions
127	James Wee	The Effects of Light Slop Crude Oil on the Growth of a <i>Skeletonema costatum</i> Strain Isolated from the Lake Pontchartrain Basin Estuary (LPBE)
128	John Weinstein	Spatial and Temporal Trends in PAH Levels of Oysters ( <i>Crassostrea virginica</i> ) from the Florida Gulf Coast Following the Deepwater Horizon Oil Spill
129	Yolander Youngblood	The Effects of the BP Oil Spill on the Epicuticular Wax of Cordgrass
130	Yolander Youngblood	Effects of Hurricane Isaac and BP Oil Spill on Shapes and Patterns of Foliar Epicuticular Wax Found on <i>Sabal palmetto</i> and <i>Serenoa repens</i>

### Session 11: Public Health Impacts of the Deepwater Horizon Oil Spill

137	Lorien Baker	Coping Styles, Resilience, and Depression in People with Income Loss after the Gulf of Mexico Oil Spill
138	Lorien Baker	Anger, Bitterness, and Health Outcome After the Gulf of Mexico Oil Spill
139	Megan Bronson	Electronic Data Collection Tools Used for the Women and Their Children's Health (WaTCH) Study
140	Jeffrey Field	p53 Mutagenesis by Petrogenic Polycyclic Aromatic Hydrocarbon Quinones
141	John Guarisco	Alabama Seafood Testing Program: Results and Evaluation
142	Meng Huang	Metabolism of Representative Alkylated and Oxygenated Petrogenic Polycyclic Aromatic Hydrocarbons in Human Hepatoma (HepG2) Cells
143	Dan Jackson	Seafood Safety Following the Deepwater Horizon Disaster
144	Andrew Kane	Seafood Consumption Survey Tools: Field Guides to Identify Edible Gulf of Mexico Fish Species and Cooked Portion Sizes
145	Samuel Mathews	Healthy Gulf—Healthy Communities: Areas of Concern for Community Agencies
146	Edward Peters	Health Behavior Characteristics Among a Cohort of Women in Coastal Louisiana affected by the Deepwater Horizon Oil Spill (DHOS)
147	Sparkle Roberts	Subjective Medical Symptom Complaints of NE Gulf Coast Residents Post Oil Spill

## WEDNESDAY MORNING ORAL PRESENTATION SCHEDULE

Session Name	1030	1045	1100	1115
<b>Session 002:</b> Coastal Inshore Impacts of Oil: From Mousse to Food Webs	Acute and Sublethal Impacts of MC252 Oil and Dispersant on Early Life Stages of <i>Crassostrea virginica</i> <i>Susan Laramore</i>	Assessment of Oil Impact on Eastern Oyster Health <i>Jerome La Peyre</i>	Acute Toxicity of Three Dispersants Alone and in Combination with Crude Oil on <i>Callinectes Sapidus</i> Megalopae <i>Rachel Fern</i>	Putting the Canary Back in the Coal Mine: Crickets and Ants in the Saltmarshes Post-Macondo Blowout <i>Linda Hooper-Bui</i>
<b>Session 005:</b> Ecosystems of the Open Ocean: Microbes Mammals and Models—Lower Trophic Level Studies	Plankton Dynamics Following the BP Oil Spill <i>Kendra Daly</i>	Response of Zooplankton Assemblages from the Alabama Inner Shelf to the Deepwater Horizon Oil Spill: Fisheries Implications <i>Frank Hernandez</i>	Effects of Crude Oil Exposure on Survival and PAH Bioaccumulation of Adult and Larval Stages of Gelatinous Zooplankton (Scyphozoans and Ctenophores) <i>Rodrigo Almeda</i>	Potential Food Web Impacts Following the Deep Water Horizon Oil Spill: Toxicity Effects on Phytoplankton and Zooplankton <i>Amber Garr</i>
<b>Session 010:</b> Advances in modeling the Gulf of Mexico	BOEM's Recent Advances in Oil Spill Monitoring in the Gulf of Mexico <i>Rebecca Green</i>	Ocean Condition Forecasts Using a Multi-Model Consensus during the Grand Lagrangian Deployment (GLAD) Experiment <i>Emanuel Coelho</i>	Sensitivity of Conditional Probability of Potential Oil Spill Contacts in the Gulf of Mexico to Wind Stress and Surface Currents <i>Li Zen</i>	An Integrated Modeling Framework for Oil Transport from Deep Ocean Leak to Surface Drift and Weathering Processes <i>Novelli Guillaume</i>
<b>Session 013:</b> Hydrocarbon Distributions, Cycling and Impacts in Blue Water Benthic and Pelagic Environments	Vertical Distribution of Hydrocarbons and Intrusion Formation for the Deepwater Horizon Acidental Blowout <i>Scott Socolofsky</i>	Pelagic Methane Oxidation in the Northern Gulf of Mexico: Activity Patterns Before, During, and After the Macondo Blowout <i>Samantha Joye</i>	Dissolved Methane and CO <sub>2</sub> in the Gulf of Mexico Post Deep Water Horizon Oil Spill <i>Cédric Magen</i>	Spills, Seeps, and Pelagic Foodwebs in the Northern Gulf of Mexico: What Do Stable Isotopes Tell Us About Oil, Gas, and Discolored Zooplankton? <i>Sarah Weber</i>
<b>Session 014:</b> Oil Droplets and Particles—Physical Processes Affecting the Breakup and Transport of Micro Oil Droplets and Biophysical interactions of Plankton Bacteria at Oil-water Interfaces	Evapo-Sinking: The Sinking of Surface Spilled Oil Due to Evaporation <i>Louis Thibodeaux</i>	The Fate and Transport of Subsurface Oil Released in a Wave Tank Facility <i>Brian Robinson</i>	Bubble and Drop Formation Under Deep Sea Conditions <i>Katrin Laqua</i>	Settling and Diffusion of Droplets and Particles in Turbulent Flows <i>Joseph Katz</i>
<b>Session 019:</b> Models and Observations Working Together to Understand the Deepwater Horizon Oil Spill	Models Are Wrong, Observations Are Sparse, What To Do? <i>Joseph Montoya</i>		Hunting for Impacts: A New Deep Sea Oil Spill Model For Highlighting Ecotoxicological Effects <i>Sean Anderson</i>	The General NOAA Operational Modeling Environment (GNOME) <i>Christopher Barker</i>

1130	1145	1200	1215	Room
Silent Spring Revisited: Insects and Spiders in Louisiana's Saltwater Marshes After the Macondo Blowout <i>Brooke Hesson</i>	Effects of Oil Contamination on Migratory Shorebirds in the Gulf of Mexico <i>Jessica Henkel</i>	Response of Seaside Sparrows to the Deepwater Horizon Oil Spill <i>Sabrina Taylor</i>	none	Galerie 6
Toxicity of Waters Contaminated by the Deepwater Horizon Oil Spill: Then and Now <i>John Paul</i>	Petroleum Metabolism by Northern Gulf of Mexico Vibrios <i>D. Grimes</i>	Function of Rhodoliths as Seedbanks in Post-Spill NW Gulf of Mexico Deep Banks: A Novel and Unexplored Concept <i>Suzanne Fredericq</i>	Deepwater Horizon Oil Spill: Assessment of Potential Impacts to the Offshore Benthos Along the Northeastern Gulf of Mexico Shelf <i>Jeffrey Hyland</i>	Balcony I-J-K
Reconstruction of the Deepwater Horizon Oil Spill <i>Jorge Zavala-Hidalgo</i>	Validation of Ocean- Atmosphere Coupled Forecasting System for Gulf of Mexico Oil Spill Studies <i>Jaison Kurian</i>	Improving Simulations of the Subsea Oil from the Macondo Well Blowout Using a High-Resolution Application of the Hybrid Coordinate Ocean Model (HYCOM) <i>David Lindo-Atichati</i>	Utilization of the Northern Gulf Operational Forecast System to Predict Trajectories of Surface Oil from a Persistent Source Offshore of the Mississippi <i>Amy McFadyen</i>	Galerie 5
Rates and Fates of Nitrogen and Carbon in the Water Column: Impact of Seeps and Spills on Plankton Biogeochemistry <i>Joseph Montoya</i>	Trace Element Distributions in Waters Influenced by the Deepwater Horizon Oil Well Blowout <i>DongJoo Joung</i>	Nutrient Depletion as a Proxy for Microbial Growth in Deepwater Horizon Subsurface Oil/Gas Plumes <i>Alan Shiller</i>	AUV Sub Sea Surveys <i>Arne Diercks</i>	Acadia
Single-Camera 3D Droplet Tracking in Color <i>Evan Variano</i>	Towards New Phenomenological Models of Subgrid Scale Flux of Oil Droplet for Next-Generation Large Eddy Simulation of Oil Plume-Turbulence Interaction <i>Marcelo Chamecki</i>	Microparticle Assembly at Fluid Interfaces <i>Kathleen Stebe</i>	Surfactant-Particle Interactions in Pickering Emulsions <i>Arijit Bose</i>	Bissonet
Coupling Glider Observations and Ocean Forecasts for a More Effective Ocean Observing System <i>Charlie Barron</i>	The Grand Lagrangian Drifter Experiment (GLAD): A Case Study in Planning and Implementing a Large Scale Model-Oriented Experiment <i>Brian Haus</i>	Lagrangian Coherent Structures in Observations and Models <i>Helga Huntley</i>	Ocean Condition Forecasts During the Grand Lagrangian Deployment (GLAD) Experiment <i>Gregg Jacobs</i>	Balcony L-M-N

# WEDNESDAY AFTERNOON ORAL PRESENTATION SCHEDULE

Session Name	1400	1415	1430	1445	1500
<b>Session 003:</b> Data Management and Informatics: Supporting Gulf of Mexico Research	The Deep-C Data Center <i>Shawn Smith</i>	Draft Specifications of the ECOGIG Data Warehouse Data Model and Physical Architecture <i>Samantha Joye</i>	none	Supporting Gulf of Mexico Research with Historical Data <i>Julie Bosch</i>	NOAA's Management of Subsurface Monitoring Data from the Deepwater Horizon Event <i>Scott Cross</i>
<b>Session 005:</b> Ecosystems of the Open Ocean: Microbes Mammals and Models—Lower Trophic Level Studies	Analysis of Continental Shelf Meiofauna in the Northern Gulf of Mexico Following the Deepwater Horizon Oil Spill <i>Stephen Landers</i>	Effects of BP Deepwater Horizon Oil Spill on Benthic Macrofauna Communities <i>Joseph Lemanski</i>	Sensitivity and Resilience of the Deep-Sea Gorgonian Coral Paramuricea Spp to Oil and Dispersant Exposure <i>Erik Cordes</i>	Growth Rate and Age Distribution of Deep-Sea Coral Paramuricea Sp. in the Gulf of Mexico <i>Nancy Prouty</i>	The Impact of the Deepwater Horizon Oil Spill on Deep-Water Coral Adjacent Macrofauna Benthos <i>Amanda Demopoulos</i>
<b>Session 013:</b> Hydrocarbon Distributions, Cycling and Impacts in Blue Water Benthic and Pelagic Environments	Sediment Flux and Redistribution Near the Macondo Well <i>Vernon Asper</i>	Marine Snow as Drivers for Oil Transformation <i>Uta Passow</i>	none	Deep-Sea Benthos Response to the Deepwater Horizon Blowout <i>Paul Montagna</i>	Dynamics of Hydrocarbon Vents: Focus on Primary Porosity <i>Caroline Johansen</i>
<b>Session 014:</b> Oil Droplets and Particles—Physical Processes Affecting the Breakup and Transport of Micro Oil Droplets and Biophysical Interactions of Plankton Bacteria at Oil-water Interfaces	Relating Interfacial Mechanics and Coalescence Behavior of Irreversibly Adsorbed Tween 80 Layers at Oil/Water Interfaces <i>Matthew Reichart</i>	Effect of a Natural Biomaterial on the Droplet Size of Crude Oil Dispersed in Water <i>Daniela De Lima Stebbins</i>	Oil Droplet-Ambient Particle Aggregation in Marine Environments <i>Christopher Fuller</i>	The Effects of Mineral Fines on Oil Dispersion, Fate and Transport <i>Tom King</i>	Aggregation Between Suspended Droplets of South Louisiana Crude Oil and Suspended Sediment Fines from the Mississippi River Delta <i>Ali Khelifa</i>
<b>Session 015:</b> Biodegradation Pathways and Environmental Impacts of Hydrocarbon Discharge-Omics and Biogeochemistry Approaches	Biodegradation of Emulsified MC 252 Oil in Coastal Salt Marshes <i>John Pardue</i>	The Response of Sedimentary Microbial Communities to the Deposition of Oil Hydrocarbons from the Deepwater Horizon (DH) Oil Spill <i>Will Overholt</i>	The Weathering of Oil from the Sea Surface, Salt Marshes, and Sediments in the Northern Gulf of Mexico after the Deepwater Horizon Oil Spill <i>Liu Zhanfei</i>	Assessing the Impact of the Deepwater Horizon Oil Spill on Indigenous Bacterial Communities: A Biogeochemical and Molecular Approach <i>Tiffany Baskerville</i>	Louisiana Brackish and Salt Marsh Nitrification Potential and Microbial Diversity Following the Deepwater Horizon Oil Spill <i>John Marton</i>
<b>Session 019:</b> Models and Observations Working Together to Understand the Deepwater Horizon Oil Spill	A Nested Grid Based Large Eddy Simulation Tool to Predict Flow, Turbulence and Transport in the Near Field <i>Dongjin Kim</i>	Simulating the Effects of Dispersant, Droplet Size, and Flow Rate on the Subsea Far-Field Biodegrading Oil from the Deepwater Horizon Spill <i>David Lindo-Atichati</i>	Contour-Based Averaging of Oil Location Data and Model Ensembles <i>Arthur Mariano</i>	The Deepwater Horizon Subsurface Plume Formation and Persistence: A Rurulent Diffusion Theory Model for the MC-252 Gulf of Mexico Spill <i>Louis Thibodeaux</i>	Mapping Historical $\delta^{13}C$ Data from Sedimentary Organic Material in the Gulf of Mexico Provides Background for Tracking Oil Contamination <i>Brad Rosenheim</i>

1515	1530	1545	1600	1615	Room
Data Gap Analysis Framework for Objective-Based Coastal and Marine Planning <i>Susan Rogers</i>	High Accuracy Positioning Supports Ecosystem Science and Sea Level Change Impacts in the Gulf Coast and Beyond <i>David Newcomer</i>	Controlled Vocabularies, Metadata Content Standards and the Gulf of Mexico Research Initiative Information and Data Cooperative (GRIIDC) Data System <i>Matthew Howard</i>	Metadata Challenges and Solutions for Highly Varied Data Collections <i>William Nichols</i>	Enabling Large Data Transfer on Standard Networks <i>Felimon Gayanilo</i>	Galerie 6
Assessment of Deepwater Horizon Spill Impacts on Shelf and Slope Decapod Crustaceans <i>Darryl Felder</i>	Biodiversity Discoveries and Gene Expression Studies Applied to Assess the Stress Response of Decapod Crustaceans Affected by the Gulf of Mexico ... <i>Heather Bracken-Grissom</i>	Settlement of Blue Crab Megalopae Before, During and After the Deepwater Horizon Oil Spill <i>Erin Grey-Avis</i>	Estimating Blue Crab Population Connectivity in the Northern Gulf of Mexico with Graph Theory and Lagrangian Particle-Tracking <i>Benjamin Jones</i>	Surprising Patterns of Regional Genetic Differentiation in Blue Crabs, <i>Callinectes sapidus</i> , in the Gulf of Mexico <i>Bree Yednock</i>	Balcony I-J-K
Shift in Sedimentation Patterns and Increased Mass Accumulation Rates Following the BP Blowout Event: NE Gulf of Mexico <i>Rebekka Larson</i>	Using Short-Lived Radionuclide Inventories and Geochronology to Quantify Benthic Foraminifera Response to the BP Oil Blowout <i>Patrick Schwing</i>	Event Stratigraphy of the Deepwater Horizon Blowout and Its Record in the Deep-Sea: A Sedimentological and Geochemical Perspective <i>Isabel Romero</i>	A Preliminary Assessment of DeSoto Canyon Sediment Macrofauna <i>Amy Baco-Taylor</i>	none	Acadia
Biofilms at Oil-Water Interfaces and Their Mechanical Consequences <i>Liana Vaccari</i>	Bacterial Motility Near the Sheared Complex Boundaries Using DHM + Microfluidics Platform <i>Jian Sheng</i>	Steritaxis: Confinement-Imposed Biased Movement of Non-Chemotactic Bacteria <i>Kyriakos Papadopoulos</i>	Bacteria Near a Surface Patterned with Hydrophilic and Hydrophobic Regions <i>Jian Sheng</i>	Does a Higher Ambient Pressure Matter? Oil-Zooplankter Interactions in the Deep-Water-Simulator <i>J. Rudi Strickler</i>	Bissonet
In-situ Seasonal and Annual Changes in Microbial Communities of a Gulf of Mexico Coastal Salt Marsh Affected by the Deepwater Horizon Oil Spill <i>Melanie Beazley</i>	Anaerobic Biodegradation of Benzene in Salt Marsh Sediment of the Louisiana Gulf Coast <i>Kewei Yu</i>	Mesocosm Design for Long-term Degradation of Petroleum Polycyclic Aromatic Hydrocarbons in Emerged and Submerged Coastal Sediments <i>Doorce Batubara</i>	none	none	Galerie 5
Coastal Models of Oil Transport in the Gulf of Mexico During Normal and Extreme Conditions <i>Joel Dietrich</i>	River Diversions, Residence Times and Estuarine-Shelf Exchanges in Deltaic Gulf of Mexico Estuaries: Implications for Oil Spill Trajectory Modeling <i>Dubravko Justic</i>	Development of a High-Resolution, Three-Dimensional Hydrodynamic Model of Galveston Bay <i>Matthew Rayson</i>	3-D Numerical Modeling of the Lake Pontchartrain Basin – Real-time Forecasting. Application to the 2010 Macondo Blowout Oil Spill <i>Joao Pereira</i>	none	Balcony L-M-N

# POSTER SESSION WEDNESDAY, JANUARY 23, 0830 – 1030

#	Presenter	Poster Title
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## Session 3: Data Management and Informatics: Supporting Gulf of Mexico Research

163	Lori Adornato	Development of a Service-Oriented Architecture (SOA) Application in Support of Ecosystem-Based Management
164	Dennis Beckmann	Solving the Scope and Scale Problem of Managing DWH Environmental and IH Data
165	Jill Gautreaux	Use of Weather Surveillance Radar to Identify Critical Habitats used by Intercontinental Migratory Landbirds along the Northern Coast of the Gulf of Mexico
166	Alon McCormick	Imaging Data - Recent Issues of Integrity and Data Processing
167	David Newcomer	NOAA Models and Tools Support High Accuracy Positioning Needed for Ecosystem Restoration and Ecological Research
168	Brad Rosenheim	Cruise Report – CARTE Sediment and Water Column Sampling, DWH Spill Site West to Mississippi Canyon
169	Lauren Showalter	Digital Object Identifier (DOI) Use for Persistent Citation of Datasets
170	Yejun Wu	A Topic Map Approach to Organizing the GoM Oil Spill Incident Topics, Relationships, and Literature

## Session 5: Ecosystems of the Open Ocean: Microbes Mammals and Models—Lower Trophic Level Studies

11	Valerie Cruz	Bathyal Assemblages of Live, Benthic Foraminifera Near the Deepwater Horizon Oil Spill, Northern Gulf of Mexico
12	Bryan Davis	Petroleum Hydrocarbon-Degrading Bacteria Enriched from Deep-Sea Sediments Associated with the Deepwater Horizon Gulf of Mexico Spill
13	Suzanne Fredericq	Assessment of Deepwater Horizon Oil Spill Impacts on Offshore Seaweed Diversity in the NW Gulf of Mexico
14	Wade Jeffrey	Photochemical Degradation and Bacterial Growth Response to Crude Oil
15	Andrew Juhl	Synergy of Oil, Nutrients, and Microbial Predators in Short-term Oxygen Dynamics in the Gulf of Mexico Water Column
16	Sara Kleindienst	The Influence of Dispersants on Pelagic Microbial Oil Degradation in the Gulf of Mexico
17	Ronald Lewis	Assessing Long-Term Damage and Recovery of Benthic Foraminifera Following the Deepwater Horizon Oil Spill, Orange Beach, Alabama
18	James Nienow	Phytoplankton Associations in the Vicinity of DeSoto Canyon, Northwestern Gulf of Mexico: Preliminary Results
19	Ryan Peiffer	The Lethal and Sublethal Effects of Chemical Dispersant on the Ctenophore Mnemiopsis leidyi
20	Adelaide Rhodes	Deep-Sea Benthic Community Structure Following the Deepwater Horizon Blowout
21	Christian Riesenfeld	Microbial Reactivity to Water Masses in the Northeastern Gulf of Mexico
22	John Skutnik	RNA-BOSS: A New Approach to Studying in situ Microbial Gene Expression
23	Sarah Tominack	A Time Series Hydrographic Dataset for the Northeastern Gulf of Mexico
24	Sherwood Wise	Reconstruction of Calcareous Nannoplankton Assemblages Present along the Florida Continental Margin during the 2010 Macondo Oil Spill in the Gulf of Mexico

## Session 10: Advances in Modeling the Gulf of Mexico

151	Hamidreza Arabshahi	A Multiscale Model for the Interaction of Oil, Waves and Currents in Shelf Waters
152	Fernando Arellano Guerrero	Reconstruction of the Subsurface Oil Spill of Gulf of Mexico
153	Matthew Carrier	Assimilation of in-situ Velocity Data in the Northern Gulf of Mexico Using the Navy Coastal Ocean Model 4DVAR (NCOM-4DVAR)
154	Bruno Deremble	Another Oil Model for Deep Water Horizon
155	Robert Helber	Improved Synthetic Ocean Profiles for Data Assimilation
156	Clark Rowley	Forecast Error Estimation in the NRL Relocatable Ocean Ensemble Forecast System
157	Scott Smith	The Impact of Velocity Data Assimilation from Drifters Using the Navy Coupled Ocean 3D Variational Data Assimilation System (NCODA-VAR)
158	Ashley Stroman	Non-hydrostatic Modeling of the Near-field Multi-phased Plume in a Deep Water Blowout



### Session 13: Hydrocarbon Distributions, Cycling and Impacts in Blue Water Benthic and Pelagic Environments

51	Christoph Aeppli	Oil Spill vs Natural Seepage: Contrasting Weathering Characteristics of Oil from the Macondo Well and Southern California Oil Seeps
52	Syam Dodla	Degradation of Crude Oil in Saline Marsh Soil Under Different Redox Conditions
53	Nigel D'souza	Spectral Measurements of Laser-induced Fluorescence of Biological and Organic Constituents in the Gulf of Mexico
54	Virginia Fleer	Methane Concentrations and Methane Oxidation Rates Following the 2010 Macondo Oil Well Blowout
55	Adolfo Gracia	Polycyclic Aromatic Hydrocarbons in Sediments of the Southern Gulf of Mexico
56	Changyoon Jeong	Movement of Petroleum Hydrocarbons in Wetland Soils
57	Barbara MacGregor	Stable Carbon Isotopes of Ribosomal RNA as a Tracer for Microbial Growth Substrates: First Data from Gulf of Mexico Sediments and Sediment Traps
58	Patricia Medeiros	Petroleum Biomarker Levels in the Gulf Sediments Following the 2010 Macondo Blowout
59	Christof Meile	Water Column Oxygen Anomalies in the Aftermath of the BP Oil Spill
60	Catherine Sheline	Investigating the Impact of Oil on <i>Lophelia pertusa</i> (Scleractinia)
61	Ryan Sibert	Depression of Microbial Respiration Rates in Gulf of Mexico Sediments Following the Deepwater Horizon Spill
62	Mauricio Silva	Post-spill Assessment of Mesophotic Reef Communities
63	Marc Slattery	Optimization of Proteomic Profiling in the Deep Sea Black Coral, <i>Leiopathes glaberrima</i>
64	Ana Gabriela Valladares Juarez	Biodegradation of Mineral Oil Components at High Pressure
65	Elizabeth Willis	Examining the Diversity of Petroleum Hydrocarbon-degrading Genes in Gulf of Mexico Deep-sea Sediments
66	Beizhan Yan	Fingerprinting Hydrocarbons from Natural Seeps and Oil Spill-impacted Areas in GOM
67	Clayton Dike	Settling Velocity of Marine Snow Aggregates Near the Sea Floor at the Macondo Well Site

### Session 14: Oil Droplets and Particles—Physical Processes Affecting the Breakup and Transport of Micro Oil Droplets and Biophysical Interactions of Plankton Bacteria at Oil-water Interfaces

195	Rodrigo Almeda	Effects of Crude Oil Exposure on Zooplankton: Lethal Effects and Accumulation of Petroleum Hydrocarbons in Mesozooplankton Communities
196	Shawn Bona	Effects of Crude Oil on Survival, Growth Rates and Swimming Behavior of Barnacle nauplii ( <i>Balanus</i> spp)
197	Jeffrey Motschman	Manufacturing Micro-oil Droplets of Different Sizes and Compositions to Test Oil-animal Interactions
198	Sadegh Partani	Investigation of Physical Role of the Marine Plants (Mangroves) in Oil Content Transport Toward the Coastal Zones
199	Yohei Takagi	Numerical Modeling of Methane Hydration and Droplet Transport for Deepwater Oil Spill
200	Zoe Wambaugh	Bioaccumulation of Petroleum Hydrocarbons by the Calanoid Copepod <i>Acartia tonsa</i>

### Session 15: Biodegradation Pathways and Environmental Impacts of Hydrocarbon Discharge-Omics and Biogeochemistry Approaches

94	Raj Boopathy	Anaerobic Degradation of Petroleum Hydrocarbon in the Sediments of Barataria-Terrebonne Estuary
95	Yucheng Feng	Biodegradation of Naphthalene in Marsh Sediments of the Gulf of Mexico
96	John Kaba	The Effect of Deep Water Horizon Oil on Oxygen Consumption and Dissolved Inorganic Carbon Production in North Florida Beaches
97	Chang Liu	Effect of Biosurfactant and Nitrogen Interaction on Gas Emission, Oil Hydrocarbons Degradation and Microbial Community in a Saline Marsh Soil
98	John Pardue	Biogeochemical Controls on MC252 Biodegradation on a Coastal Headland Beach
99	Verlin Perry	Metabolic Activity of Anaerobic Microbial Communities in Salt Marsh Sediments Impacted by the Deepwater Horizon Oil Spill
100	Deni-Maire Smith	Biochemical Oxygen Demand (BOD) in Oil-polluted Seawater Samples Treated with Cactus Plant-based Mucilage
159	Christopher Hagan	Analysis of Total Petroleum Hydrocarbons and Polycyclic Aromatic Hydrocarbons of Deepwater Horizon Oil Buried in Pensacola Beach Sands and...
160	Jason Jolliff	Oil Slick Dispersion Simulations: Experiments with the BIOCAST System
161	Angie Lindsey	Healthy Gulf, Healthy Communities Regional Forum
162	P. Soupy Dalyander	Surf-Zone Mobilization and Alongshore Movement of Residual Sediment and Oil Balls Left from the Deepwater Horizon Oil Spill

The Gulf of Mexico University Research Collaborative (GOMURC) Board Member institutions provided travel awards to students from the following institutions:

**Texas A&M-Corpus Christi**

**LSU-Baton Rouge**

**Mississippi Research Consortium**

*(any MRC member institution)*

**Florida Institute of Oceanography**

*(any FIO member institution)*

***Congratulations to the student awardees and thank you for presenting your research at the Gulf of Mexico Oil Spill and Ecosystem Science Conference!***

## James D. Watkins Student Award for Excellence in Research

Two students will be recognized, during Wednesday's plenary session, with the James D. Watkins Student Award for Excellence in Research for outstanding student presentation and outstanding student poster. The James D. Watkins Student Award for Excellence in Research strives to recognize outstanding research in order to cultivate the next generation of ocean scientists and encourage excitement for presenting their work. Evaluation criteria include: scientific merit, research capability, design & style, and knowledge of presenter. All student presenters, undergraduate, Master's and PhD graduate students, will be considered for these awards. Award recipients will receive \$500. Thank you to the award judges for their assistance in evaluating student presentations and posters and to the Consortium for Ocean Leadership for sponsoring this award! *Awards will be presented during the closing plenary session on Wednesday.*

## Public Forum: Current Status of the Gulf of Mexico

**January 22, 2013, 1900 hrs.**

*Acadia/Grand Ballroom*

*Moderated by David Conover, Ph.D., National Science Foundation*

Please join us on Tuesday evening, January 22 for a Public Forum, to be held as part of the Gulf of Mexico Oil Spill and Ecosystem Science Conference. This event is free, but registration is required (*note: Registration for this event is separate from general conference registration*).

For more information and to register, please visit:  
**[gulfofmexicoconference.org/program/related-events/](http://gulfofmexicoconference.org/program/related-events/)**



*Speakers:*

**Donald F. Boesch, Ph.D.**

*President of the University of Maryland Center for Environmental Science & member of the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling*



**Steven A. Murawski, Ph.D.**

*Professor & the St. Petersburg Partnership–Peter Betzer Endowed Chair of Biological Oceanography at the University of South Florida, College of Marine Science*



