

The Portal

Official Newsletter of the Northern Gulf Institute

NGI Activates Gulf of Mexico BP Research Projects

Only multi-state research institute awarded

NGI research is underway to address regional impacts from the Deepwater Horizon oil spill. The Gulf of Mexico Research Initiative awarded funds to NGI, the only multi-state regional research institution to receive funding from BP for independent university research. Quickly allocating part of its ten million dollar award, NGI funded fast-track high-priority studies with researchers who were in the field to continue critical monitoring and assessment activities in areas affected in the Gulf region. NGI will distribute the remaining initial funds using a peer-reviewed selection process for collaborative research with a focus on observing and understanding regional impacts on coastal ecosystems and society.

The initial award funded nine research institutions who adapted existing activities and resources for oil impact studies. Research activities focus on sampling, assessment, and modeling of oil and dispersants and the organization and distribution of data to support on-going and future research needs. Details for these nine studies are available on the NGI website (see projects with "BP" in their project number) <http://www.northerngulfinstitute.org/research/research.php>.

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Research institutions receiving initial funding were Mississippi State University, University of Mississippi, University of New Orleans, Harte Research Institute, Louisiana State University, The University of Southern Mississippi, Jackson State University, Dauphin Island Sea Laboratory, and Florida State University.

NGI Research Direction and Structure

Impacts on ecosystems provide focus for research

The NGI Council of Fellows recently endorsed a long-term research direction and structure. Research is organized around three overlapping project clusters of “Observe,” “Understand,” and “Apply.” The cluster teams will address the fundamental hypothesis: *Natural and anthropogenic perturbations significantly impact the Northern Gulf of Mexico ecosystem structure, function, and processes.* The three-cluster approach provides an overall framework to organize NGI’s research for Years 6-10 as well as current and future Deepwater Horizon Oil Spill research.

Two NGI Fellows serve as leads on each cluster team. Each team includes representation from each NGI institution as well as one member from the other teams. This approach fosters both cross-cluster coordination and inter-institution collaboration. The broad purposes for the research clusters are to conduct regional observations of northern Gulf ecosystems; synthesize the observations to improve holistic understanding of ecosystem impacts; and develop applications and sampling protocols that support an ecosystem approach to management. Regional management needs provide an overall focus for all three areas. This approach provides a unified program direction that addresses various aspects of the above hypothesis and helps guide the selection of research projects.

Summer Interns Contribute to NGI Work

Real. Live. Research.

Conducting research that matters was the unifying theme of this year’s 2010 NOAA-NGI Summer Diversity Internship program where students gained valuable experience in field and laboratory settings. Dr. Tina Miller-Way and Rachel Nowlin of the Dauphin Island Sea Lab paired students with research mentors who integrated them with NGI projects across the Gulf region. All interns worked with metadata, contributing to the NOAA National Coastal Data Development Center

efforts on the Ecosystem Data Assembly Center project. At the end-of-summer Internship Summit, the students described their work and what they learned:

Carina Lopez-Cabrera studied nitrogen in water and learned how to identify entry points in the watershed. Using her work, she prepared a technical paper for the 2010 Society of Hispanic Engineers conference.

Breawna Kirkpatrick analyzed water samples collected along beaches and inland rivers for the Mississippi Department of Environmental Quality. **Alex Cruz-Benitez** gathered samples from sea grass beds in Florida’s Big Bend region to determine differences among organic species that look similar. **Templeton Tisdale** used the Phytoplankton Monitoring Network database to identify trends for harmful algal blooms.

I experienced different facets of NOAA that I wouldn’t have otherwise considered. I now have an increased understanding of NOAA’s roles and responsibilities and highly recommend this program to students interested in working for NOAA—Jason James

Jason James prepared a digital image collection for NCDDC from images taken with an AUV-mounted camera system. The pictures were from 2009 sea trials at sites close to the Deepwater Horizon site and will contribute to baseline seafloor condition data. **Daniel Baker** gathered samples in response to the oil spill during three research cruises off the coasts of Louisiana and Florida. He used vertical line drops to gather data to help NOAA make decisions about fishing areas. **Rebecca Doss** used analysis of fish eggs and larvae taken from oiled surface waters to contribute to a working molecular database. **Idrissa Boube** conducted analysis on shrimp to identify means for them to develop resistance to disease.

Trent Key participated in the NOAA National Data Buoy Center comparison tests of new and existing sensors for waves and currents. He researched quality assurance in instruments and saw how small flaws can lead to critical monetary and data losses. **Reginald Powe** learned about various models, parameters, and assumptions used to predict weather.

Hua Wang conducted an assessment of costs, benefits, and tradeoffs of rapid land-building techniques to restore wetlands. **Brenda Babin’s** work showed the importance of integrating metadata into all stages of data collection. **Dionne Bryant** created habitat metadata and addressed issues of missing information.

A privilege to work with such a prestigious group of people all aiming for a wonderful cause—Dionne Bryant



Front Row, L-R: Brewana Kirkpatrick, Brenda Babin, Idrissa Boube, Rebecca Doss, Reginald Powe, Hua Wang, Ashley Duckett (HS intern), Carina Lopez-Cabrera. Back Row, L-R: Daniel Baker, Trent Key, Alexander Cruz-Benitez, Templeton Tisdale, and Dionne Bryant. Not pictured: Jason James.

Thanks for the summer of my life!
Carina Lopez-Cabrera



Particle size analysis of silt and clay for nitrogen yields



Sorting organisms by species from water samples in sea grass



Gathering fish eggs and larvae in oiled surface waters off Alabama Coast



Working with data for weather forecasting models



Sediment sampling in Weeks Bay, AL



Analyzing shrimp to learn about resistance to disease



Long-lining for shark observations in Mobile Bay, AL

Meet the 2010 NOAA-NGI Diversity Summer Interns and their Research Mentors

Brenda Babin, Louisiana State University, Oceanography and Coastal Science. Interned at LSU. Dubravko Justic working with modeling and hypoxia was her mentor.

Daniel Baker, University of Mississippi, Marine Biology. Interned at NOAA National Marine Fisheries Service in Pascagoula, MS. Lisa DeFosse working with fisheries sampling and plankton surveys was his mentor.

Idrissa Boube, University of Southern Mississippi, Marine Biology. Interned at the Gulf Coast Research Lab in Ocean Springs, MS. Joe Griffith working with shrimp gene regulation and disease transmission and resistance was his mentor.

Dionne Bryant, Texas A&M, GIS. Interned at the Harte Research Institute. James Gilbeaut working with data management and GIS was her mentor.

Carina Lopez-Cabrera, Polytechnic University of Puerto Rico, Environmental Engineering. Interned at Mississippi State University. Jairo Diaz-Ramirez working with environmental simulations and GIS was her mentor.

Alexander Cruz-Benitez, University of Puerto Rico, Biology. Interned at the Florida State University Coastal and Marine Lab. Chris Stallings working with marine ecology was his mentor.

Rebecca Doss, Auburn University, Biology. Interned at Dauphin Island Sea Lab. Frank Hernandez working in fisheries was her mentor.

Jason James, University of Louisiana at Lafayette, Marine Biology. Interned at the NOAA Office of Coast Survey. Tim Osborn working with data management of deep water imagery was his mentor.

Trent Key, Louisiana State University. Environmental Engineering. Interned at the NOAA National Data Buoy Center. Chung-Chu Teng working in oceanography and observing systems was his mentor.

Breawna Kirkpatrick, Jackson State University, Meteorology. Interned at MS Department of Environmental Quality. Melanie Morris working on data management was her mentor.

Reginald Powe, University of New Orleans, water pollution and remote sensing. Interned at the NOAA National Weather Service. David Reed working on hydrologic data processing and analysis and GIS mapping was his mentor.

Templeton Tisdale, South Carolina State University, Biology. Interned at the NOAA Center for Coastal Environmental Health and Biomolecular Research. Steve Morton working on phytoplankton and harmful algal blooms was his mentor.

Hua Wang, Louisiana State University, Agriculture Economics. Interned at LSU. Rex Caffey working on fisheries economics and management was his mentor.

Luz Molina assists with sample filtrations onboard the Cape Hatteras 2010 GULFCARBON cruise



STUDENT SPOTLIGHT

Graduate Student Researcher Pursues Passion Across Continents

Desire for environmental improvement fits with NGI research

From the waters of the Amazon to the Gulf of Mexico, Luz Molina seeks opportunities to pursue her childhood dream of “helping the world.” Growing up in the large coastal city of Cartagena, Luz observed the effects of large populations on coastal areas. A course in Limnology at the Universidad de los Andes sparked her interest in water pollution. As a student, Luz conducted research along the borders of Columbia and Venezuela, studying water chemistry of the Orinoco, Meta, and Bitá rivers close to the Amazon River. To continue her work, Luz took a research assistant position at the University of Cartagena and worked with the Columbian Navy while searching for research opportunities. That search brought her to The University of Southern Mississippi Department of Marine Science where she has been a teaching assistant for the Biological Oceanography lab and a graduate research student on projects that involve biofuels and ecosystem monitoring and assessment.

Luz analyzes water samples from the Bay of Saint Louis, the Mississippi Sound, and the Mississippi Bight. She is studying different marine microalgae groups and understanding the effects nutrients, temperature, and salinity on the algal species present in coastal waters. This research contributes to NGI research on monitoring and assessing ecosystems in the northern Gulf of Mexico. Seawater samples from monthly cruises are filtered and then analyzed using High Performance Liquid Chromatography – a technique that separates and quantifies algal pigments contained in the collected seawater samples. These pigment concentrations are analyzed with CHEMTAX – a software that helps identify groups of algae present in the samples. Because algae are the base of the food chain, changes in their concentration and composition affect higher consumers.

Algae also serve as markers of long-term environmental changes, and understanding how they are affected by their surroundings will help to predict events such as algal blooms.

Luz worked on this project before the Deepwater Horizon incident, so she anticipates that others studying the effects of the oil spill may use her analyses as baseline data. Her research contributes to her master’s thesis: Phytoplankton abundance and species composition in relation to environmental parameters in coastal Mississippi waters. Luz plans to pursue a Ph.D. as she continues work to improve the environment. For more information about this research, contact luz.molina@eagles.usm.edu.

RESEARCH SPOTLIGHT

A Land-to-Sea Perspective to Monitoring and Assessing Water

Riverine effects on coastal waters is focus of NGI research

Healthy marine life is essential to Gulf of Mexico ecologies and economies. A delicate balance of nutrients and oxygen is at the heart of the Gulf’s health. Understanding the conditions that affect that balance can improve efforts to restore and maintain water quality. Observations of how nutrients and both particulate and dissolved organic matter travel and change as they move from freshwater to saltwater (the coastal transition zone) contribute to a broader ecosystem-level understanding. This knowledge can help improve coastal hypoxia and algal bloom forecasting and informs nutrient management efforts in the watershed.

NGI researchers at The University of Southern Mississippi in collaboration with NOAA’s Atlantic Oceanographic and Meteorological Laboratory and the Cooperative Institute for Marine and Atmospheric Studies are working to understand the effects of rivers and estuaries on coastal ecosystems. Researchers measure freshwater flow rates and nutrient, organic matter, and dissolved carbon dioxide levels. Using data from these measurements, researchers track changes as the water moves offshore through the transition zone. Sampling stations are located in the Mississippi Sound, Mississippi Bight, the Bay of Saint Louis, the Lower Pearl River Estuary, and in the Mississippi River. This time series of observations provide the baseline for trend analysis and advances science understanding of the ecosystem processes that transform riverine inputs of nutrients and carbon into the northern Gulf of Mexico. Understanding the fate and transformation of coastal freshwater and associated nutrient and carbon fluxes will help guide decisions and priorities for Gulf resource managers. For more information contact Stephan Howden stephan.howden@usm.edu or Donald Redalje donald.redalje@usm.edu

CONFERENCE and WORKSHOP SUPPORT

Gulf of Mexico Alliance Governors' Action Plan II Implementation and Integration Workshop

Annual gathering strengthens partnerships for regional ocean governance

NGI researchers and staff joined participants from five states and Mexico for the 2010 Gulf of Mexico Alliance (GOMA) All-Hands Meeting held in August in Biloxi, MS. The focus was on implementing the Governors' Action Plan II and determining priorities for the upcoming fiscal year. Bill Walker, GOMA Management Team Co-Chair and Director of the MS Department of Marine Resources, opened the working meeting with a charge to the Priority Issue Teams to review and revise their annual work plans for updates to the Governors' Action Plan II. Plenary speakers provided information on regional issues important to the Gulf of Mexico:

- Larry McKinney, Director of the Harte Research Institute: Gulf Summit II for long-term recovery for an ecologically and economically sustainable Gulf of Mexico
- The Coastal Environmental Justice Community Ambassadors: Gulf-wide assessment of underserved needs and concerns
- Beverly Banister, EPA Acting Deputy Regional Administrator: Gulf of Mexico Program leadership support for the region and collaboration with GOMA
- David Yoskowitz, Harte Research Institute: Inclusion of ecosystem services in decision making for the Gulf of Mexico
- Sally Yozell, Director of Policy NOAA: Alignment of the Next Generation Strategic Plan goals, the National Ocean Policy priority objectives, and GOMA Priority Issues
- Donna Wieting, Acting Director of NOAA Office of Ocean and Coastal Resource Management: Partnership opportunities and Competitive Grants program
- The Mexican delegation: Involvement in GOMA to include support for rapid coastal water sampling and kiosk exhibits on harmful algal bloom and ocean literacy

To view plenary presentations and Priority Issue Team reports, go to <http://gulfofmexicoalliance.org/community/workshops.html>.

Alabama-Mississippi Bays and Bayous Symposium 2010

Building bridges to coastal health

The 2010 Bays and Bayous bi-annual symposium brought together 400 researchers, industry, and community groups in December at the Mobile Convention Center. The Mobile Bay National Estuary Program and the MS-AL Sea Grant Consortium hosted the gathering for attendees to share knowledge about the northern Gulf coastal ecosystem and processes that alter it. NGI supported the symposium's steering and planning committee and provided conference sponsorship and support for student participation.

There were 109 session presentations that addressed topics of water quality, living resources, habitat management, and sustainable communities. Seventy researchers displayed their work during the poster session. The topics of guest speakers included:

- Restoration of a National Treasure-The Gulf of Mexico, America's Sea: John Hankinson, Executive Director of the Gulf of Mexico Ecosystem Restoration Task Force
- Wetlands, Hurricanes, Restoration, and Oil in the Deep Delta Region of the MS River: Kerry St. Pe', Executive Director of the Barataria-Terrebonne National Estuary Program
- The Way Towards Sustainability: A View from the Technology Group ThyssenKrupp: Andreas Theuer, Head of Corporate Environmental Policies, ThyssenKrupp
- Gulf of Mexico Oil Spills: A Historical and Spatial Perspective: Wes Tunnell, Associate Director of Harte Research Institute for Gulf of Mexico Studies
- Coastal Recovery Commission of Alabama: Ricky Mathews, President and Publisher of the *Mobile Press Register* and Chair of the Coastal Recovery Commission of Alabama

For conference proceedings, go to: <http://www.mobilebaynep.com/wp-content/uploads/2010/07/2010ProceedingsFinal.pdf>.

MS River and Gulf of Mexico Watershed Nutrient Task Force Meeting and Summit

MOA signed with partnering organizations

The 20th public meeting of the MS River and Gulf of Mexico Watershed Nutrient Task Force and the 1st annual MS Nutrient/Hypoxia Summit were held this fall in Tunica, MS. The purposes of the events were to 1) discuss and approve initiatives to reduce nutrient loads to the Gulf, 2) approve the FY 2011 Annual Operating Plan and the FY 2010 Annual Report, and 3) formalize partnerships with a Memorandum of Agreement. The task force work groups presented

updates in the areas of accountability; state nutrient reduction strategies; monitoring, modeling, and research; Iowa drainage and landscape initiative; farmable wetlands; and governance.

Featured speakers included:

- Alan Lewitus, NOAA Center for Sponsored Coastal Ocean Research: Factors influencing the northern Gulf of Mexico's hypoxic zone
- Albert Ettinger, Environmental Saw and Policy Center, and Matt Rota, Gulf Restoration Network: Perspectives of the MS River Collaborative on the health of the MS River
- Phil Bass, EPA Gulf of Mexico Program: The Gulf of Mexico Alliance's activities to reduce hypoxia and impacts of nutrient pollution
- Trey Cooke, Delta Farmers Advocating Resource Management group: A stakeholder's perspective on developing and implementing a nutrient reduction strategy in the MS Delta
- Ann Mills and Jeff Arnold, U.S. Department of Agriculture: The MS River Basin Initiative and Conservation Effects Assessment project

Representatives from 13 state, federal, and regional organizations discussed their efforts to reduce nutrient impacts locally and to the Gulf of Mexico. Mike Carron presented the regional research efforts of NGI. Trudy Fisher, Executive Director of the MS Department of Environmental Quality, presided over the signing ceremony for the MS Nutrient/Hypoxia MOA. For more information visit <http://tetrattech-ffx.com/tfmeeting/public20/index.htm>.

Vibrios in the Environment Conference *2010 Symposium has international reach*

Global interest in vibrios (motile bacterium) was evident from the 28 countries represented by 250 attendees at the November gathering of researchers, health organizations, private industry, and federal agencies in Biloxi, MS. Threats and benefits from vibrios are of interest to the northern Gulf of Mexico region because they thrive in brackish and estuarine waters. NGI helped sponsor this week-long conference addressing the virulence, risk factors, and detection of vibrio species.

Sessions included the ecology of vibrios and their impact on disease, seafood safety, and public health; and vibrio genomic and functional analysis and their role in biodegradation of crude oil. Other topics included affects of vibrios on aquaculture economics and on natural resources such as coral reefs. Researchers discussed ways that vibrios serve as a microbial early warning system of impacts from globalization, such as from ballast discharge by cargo ships, and of climate

change anomalies associated with vibrio diseases. For additional conference information, visit http://www.joss.ucar.edu/vibrios_2010/index.html.

REGIONAL HIGHLIGHTS

The Gulf of Mexico Commission Convenes Gulf Coast Recovery Panel

NGI partners, former director appointed

Mississippi Governor Haley Barbour commissioned a 34-member panel of scientists and business leaders to develop a long-term plan for MS Gulf Coast recovery. The panel held its first meeting in August in Gulfport, MS. NGI Advisory Council members—LaDon Swann, Director of the Mississippi-Alabama Sea Grant Consortium, and Bill Walker, Director of the Mississippi Department of Marine Resources—and former NGI Director David Shaw, Vice President for Research and Economic Development at Mississippi State University, are among those appointed. The panel has a wide charge, from determining preliminary impacts of the oil spill on Gulf ecosystems to improving hurricane protection and habitat restoration. The Gulf of Mexico Commission works closely with the Gulf of Mexico Alliance and various state agencies and will submit a plan to Navy Secretary Ray Mabus, leading the long-term restoration of the Gulf of Mexico.

Sea Grant Updates the Gulf of Mexico Research Plan

Addendum identifies oil spill and coastal research priorities

Four Gulf of Mexico Sea Grant College programs are coordinating a multi-phase effort to update the Gulf of Mexico Research Plan. A Deepwater Horizon Oil Spill Rapid Research Needs Assessment was conducted this summer to identify potential changes in the existing plan resulting from the oil spill. Preliminary results of the first phase of responses from a small group of leaders in the research community identified approximately 23 priority research themes, the top three being Communities, Ecosystem Impacts, and Fisheries.

Research needs for communities include economic impacts and recovery, displaced people, and current status of vulnerability and resilience of coastal communities. Research needs for ecosystem impacts include damage assessment efforts and impacts on food webs, life cycles of marine organisms, and floral and faunal communities. Other ecosystem research needs identified are impacts on barrier island, water column, coastal, nearshore, and deepwater habitats. Research needs for fisheries include impacts on commercial fishing, information to reopen fisheries, and estimating when fishery levels might return to pre-spill amounts. The next phase of this effort is a comprehensive survey that will be sent to thousands of people within the re-

search community. More details from the phase one assessment are available at http://gulfseagrant.tamu.edu/oilspill/pdfs/GMRP_oil_spill_research.pdf

Harte Research Institute Establishes MOA with The Nature Conservancy

Agreement furthers conservation efforts in the Gulf

The Harte Research Institute for Gulf of Mexico Studies (HRI) recently signed a Memorandum of Agreement with The Nature Conservancy. The HRI and The Nature Conservancy work together as members of the NGI Advisory Council to further regional research efforts that support an ecosystem approach to management of the northern Gulf of Mexico. The agreement formalizes their relationship and focuses on increased collaboration for marine science, conservation, and management of the Gulf of Mexico. Both organizations significantly contribute toward the goal of addressing the ecological health of the Gulf. The MOA emphasizes the role of HRI in addressing the impact of the Deepwater Horizon oil spill, its focus on the Gulf of Mexico as a whole, and its research on the Gulf's oyster populations. The Nature Conservancy is the oldest and most respected international conservation organization, committed to preserving plants, animals, and natural communities and to protect the land and waters they need to survive.

First Regional Coordinator of B-WET at Stennis Space Center

Education program addresses regional priorities



The Gulf of Mexico Regional Collaboration Team selected Amy Clark as its first regional coordinator for the Bay-Watershed Education and Training (B-WET) program. Amy began her work in the fall of 2010, promoting locally relevant and experiential watershed education for K-12 students.

Funded by NOAA's Office of Education and administered through the Fisheries Service Southeast Regional Office, the primary delivery of B-WET is through regional competitive funding. The program is based on the recognition that knowledge and commitment built from firsthand experience in the context of one's community and culture is essential for achieving environmental stewardship. A main focus for this regional office is to coordinate program efforts that address the six priority areas identified by the Gulf of Mexico Alliance. Amy will work to develop partnerships in the region that support environmental literacy activities and best practices in education. Included in these efforts are increased strategic planning and communication for education and outreach for the NOAA Fisheries Service Southeast Regional Office.

Amy previously worked for the National Estuarine Research Reserve System in Silver Spring, MD. There she served as the program specialist for the southeast reserves and as a liaison between reserve educators and the NEERS Education Program. For more information, contact Amy at Amy.Clark@noaa.gov or visit <http://sero.nmfs.noaa.gov/grants/B-Wet.htm>.

National Ocean Service Provides Resource for Understanding Ocean-Related Topics

Diving Deeper audio podcasts feature NOAA scientists

The NOAA Office of Ocean and Coastal Resource Management has compiled a library of short interviews with NOAA scientists who explain in lay language topics important to the northern Gulf region. The podcast "What is a Dead Zone" from the Center for Sponsored Coastal Ocean Research includes information about the 2nd largest dead zone in the world, the northern Gulf of Mexico. Researchers from Coastal Services Center discuss "What is Marine Spatial Planning" and "Preparing for Climate-Related Impacts." In the later podcast, the Workshop on Sea-Level Rise Education and Outreach held this past March in Florida, in which NGI participated, is highlighted as a successful example of how to communicate climate issues with community planners. New podcasts are posted monthly, with about 35 currently available. To see the list and listen to discussions, go to <http://oceanservice.noaa.gov/rss/divingdeeper.xml>.

NGI COUNCILS MEET

Council of Fellows Meet at FSU

In October, the NGI Council of Fellows gathered to define the research approach for Years 6-10 and for current and future Deepwater Horizon Oil Spill research. NGI Chief Scientist John Harding and NOAA NGI Science Coordinator Julien Lartigue contributed to



Front to Back, Left to Right: Julien Lartigue, Susan Welsh, Tina Miller-Way, Felicia Coleman, John Harding, George Crozier, Bill McAnally, Mike Carron, Steve Lohrenz, Eric Chassignet, and Chris D'Elia

discussions as the Fellows adopted a three-cluster approach for research: “Observe,” “Understand,” and “Apply.” The Fellows developed a long-term research hypothesis, formed cluster teams to address the hypothesis, designated team leads and work groups, and set a schedule for approval of work plans. The fundamental hypothesis to guide short- and long-term NGI research is *Natural and anthropogenic perturbations significantly impact the Northern Gulf of Mexico ecosystem structure, function, and processes*. Each Fellow presented the status of ongoing oil spill-related research at each of their institutions to inform the planning for future NGI BP research. The Fellows selected NOAA outcomes from the Next Generation Strategic Plan that align with core NGI activities and to which NGI can best contribute.

Executive Council Meets in Silver Spring

The NGI Executive Council and Program Office met in November at NOAA headquarters in Silver Spring, MD. The Program Office provided an update on NGI activities, presented the new three-cluster approach for NGI research, and outlined future opportunities for collaboration and growth. The council in turn provided information about current directions for NOAA programs and identified emergent NOAA initiatives. The council encouraged continued development of NGI’s research approach and provided suggestions for organizational outcomes and activities. A follow-up meeting is planned during the 2011 NGI Annual Conference. Executive Council members at the meeting:

- Bonnie Ponwith, Director NOAA Southeast Fisheries Science Center
- Margaret Davidson, Director NOAA Coastal Services Center
- Al Powell, Director NOAA Center for Satellite Applications and Research
- Gary Carter, Director Office of Hydrologic Development NOAA National Weather Service
- Louisa Koch, Director of Education NOAA Office of Education and Sustainable Development
- Alan Leonardi, Deputy Director NOAA Atlantic Oceanographic and Meteorological Laboratory
- Buck Sutter, Deputy Regional Administrator NOAA Fisheries Service
- Denis Wiesenburg, Vice President for Research The University of Southern Mississippi
- David Shaw, Vice President for Research and Economic Development, Mississippi State University

Advisory Council Meets in Mobile

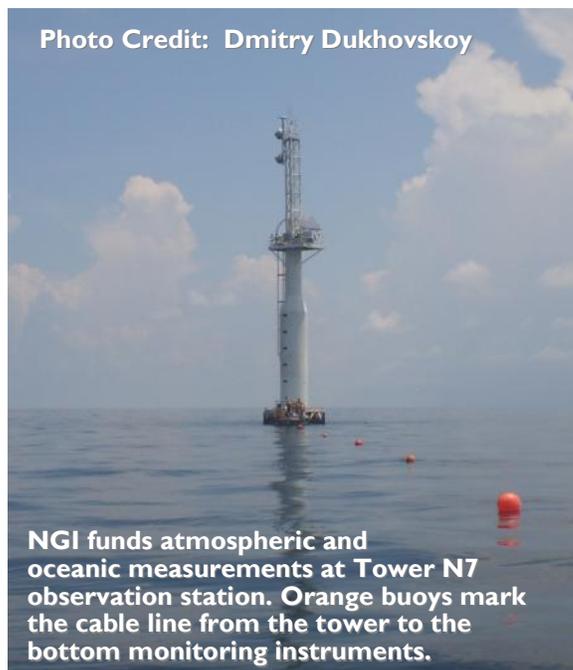
Sixteen attendees gathered at the NGI Advisory Council meeting in December. Members discussed current and future connections with NGI partners and NGI research direction for Years 6-10. Council members highlighted opportunities and challenges for engagement and communication among regional partners and for research that addressed both basic science and end-user needs. Sea Grant representatives spoke about the

importance of involving social scientists in research with a focus on ecosystem valuation. Members offered suggestions on problems that NGI might address, to include a Gulf-wide geospatial system for working waterfront areas and a network for long-term monitoring of restoration sites. The group discussed the importance of conducting research on climate change and its impacts on ecology and the need for continued integration with NOAA line office efforts and regional research plans.

NEWS AROUND NGI

Researchers at FSU have Work Published in *Journal of Geophysical Research*

FSU researchers Flavien Gouillon, Steven Morey, Dmitry Dukhovskoy, and James O’Brien at the Center for Ocean Atmospheric Studies are authors of “Forced tidal response in the Gulf of Mexico” published in the *Journal of Geophysical Research – Oceans* (Volume 115, October 2010). This research was funded by the Office of Naval Research through a Secretary of the Navy grant and a NASA Office of Earth Science grant. Morey and Dukhovskoy, NGI researchers, provided observational data from the U.S. Air Force Tower N7 (a coastal ocean observing station for on-site monitoring). NGI funds surface atmospheric and oceanic measurements at N7.



This study investigates the characteristics of tides in the Gulf of Mexico and the interactions with the tides in the Caribbean Sea and Atlantic. Researchers use model simulations to understand tidal fluctuations in the Gulf of Mexico and their dependence on long tide waves traveling through the connecting waters. For more information about this research and its results, contact Steven Morey at smorey@coaps.fsu.edu.

NGI PI at DISL Leads BP-Funded Research in Alabama

John Valentine, Chair of University Programs at Dauphin Island Sea Lab, serves as the lead PI for the Alabama Marine Environmental Science Consortium's (MESC) research efforts with their \$5 million BP award. Valentine worked with over 100 MESC-associated scientists whose projects were then vetted by a panel of oil experts at Harte Research Institute. The MESC Executive Committee gave a final review and approval of work plans. Funds are being distributed to 105 scientists in 14 MESC institutions. For a list of work plans, PIs, and funding go to http://press.disl.org/_12_4_10bpwork.htm.

FSU Researcher Deploys Bottom Sensors from NOAA Vessel

Catherine Edwards, formerly a Florida State University post-doctorate and now an assistant professor at Skidaway Institute of Oceanography, successfully deployed two bottom moorings from the *RV Gordon Gunter* in September. She set the moorings near a NOAA buoy. While the weather buoy collects data on conditions above the surface, the bottom sensors collect data for conditions in the water column. The ability to combine weather and water data will provide valuable information. NOAA Research Fisheries Biologist Joanne Lyckowski-Shultz along with NOAA NGI Science Coordinator Julien Lartigue and NGI Chief Scientist John Harding assisted Edwards in connecting with researchers at the NOAA National Marine Fisheries Service in Pascagoula, MS, to arrange for ship time.

Catherine Edwards and FSU graduate student Austin Todd prepare to deploy two sensors in the Big Bend Region of the northern Gulf of Mexico



Photo Credit: Dmitry Dukhovskoy

Researchers at USM Receive Creativity Award and Flow Cytometer System

Accuri Flow Cytometers, a company specializing in cell analysis products and software, presented Dr. Karen Orcutt and Dr. Kjell Gundersen with the 2009 Creativity Award and a Flow Cytometer System. Their abstract, Applying quantum dot technology in flow cytometry, detailed research they would perform if provided access to the cell analysis system. They described use of the system to detect the growth physiology of phytoplankton cells and improve understanding of the nitrogen cycle in the northern Gulf of Mexico. Flow cytometry is a technique for examining microscopic particles by suspending them in fluid and passing them by an electronic detection apparatus. Gundersen, an assistant research professor at The University of Southern Mississippi Department of Marine Science, is Co-PI on the NGI project, Monitoring and Assessment of Coastal and Marine Ecosystems in the Northern Gulf.

NGI Researcher at MSU has work published in American Geophysical Union Newspaper

The work of Zhongping Lee, NGI PI and research professor at Mississippi State University, contributed to the article "Global Shallow-Water Bathymetry from Satellite Ocean Color Data" published in the Transactions American Geophysical Union November 2010 *Eos* newspaper (Vol. 91, No. 46). Ocean bathymetry (measurements that determine the topography of the ocean floor) is important for navigation and Earth climate research related to ocean volume, ecology, and circulation. It takes years to obtain high-resolution spatial data from ship surveys and much data is lacking. Lee and coauthors use a physics-based approach called hyperspectral optimization process exemplar (HOPE) that provides an alternative and faster method for estimating bathymetry in shallow coastal regions. HOPE is a method for looking at satellite measurements of ocean color using the knowledge that photons (particles that comes in wavelengths and are units of light) hit the shallow ocean bottom and reflect to the surface, modifying the appearance of ocean color. The results of application of this new method and future plans for more accurate global assessment of shallow waters are discussed in this article. For more information, contact Zhongping Lee at zplee@ngi.msstate.edu.

LSU Researcher Receives Multiple Honors

Irving Mendelsohn, professor in the Department of Oceanography and Coastal Science within the School of the Coast and Environment (SC&E) at Louisiana State University, was recognized with four prestigious honors this past year. The SC&E presented Mendelsohn with their Outstanding Faculty Research Award for his nationally and internationally recognized work on the plant species *Spartina alterniflora* in coastal marshes, mentoring more than thirty graduate students, and

publishing over 125 research papers and book chapters. He was also one of four named from his College as LSU Rainmakers for 2009, a designation for faculty who are nationally and internationally recognized for innovative research, creative scholarship, external funding, and mentoring exceptional graduate students. Aarhus University in Denmark presented Mendelssohn with an honorary doctorate at their 81st anniversary celebration. Mendelssohn was also elected as a Fellow of the Society of Wetland Scientists, their highest honor bestowed to a member. Mendelssohn is a Co-PI on the NGI-funded project, Investigating Material Exchange between the Marsh and Channel along an Estuarine Gradient.

Undergraduate Student Participates in Multi-Year Marine Data Management *NASA, NOAA, and NGI support student's research*

Ryan Keith uses his summer and Christmas breaks to work on marine metadata. During 2009, Ryan, a Biology student at Mississippi State University, worked with the NOAA Office of Ocean Exploration and Research with support from the NASA Space Grant Consortium. He archived data for the NOAA Central Library and participated in an 11-day research trip aboard the *Seward Johnson* with the Harbor Branch Oceanographic



Ryan Keith with NOAA Data Manager Denise Gordon at the National Coastal Data Development Center, Stennis Space Center

Institute. The mission was to study bioluminescence (the production and emission of light by a living organism) in the deep sea around Grand Bahamas Island. In the summer of 2010, Ryan processed data from NOAA ships responding to the Deepwater Horizon oil spill. On a 7-day research trip, Ryan worked with data on fauna from Florida waters. NOAA and NGI collaborated to support Ryan's research during his 2010 Christmas break, as he continues work with pre- and

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post-data on deep sea corals located a few miles from the Deepwater Horizon site.

Welcome Aboard

Christopher D'Elia NGI Fellow at LSU



Christopher F. D'Elia, Dean of Louisiana State University's School of the Coast and Environment, recently joined the NGI community as the LSU Fellow. Dr. D'Elia earned his A.B. in Biology from Middlebury College, his Ph.D. in Zoology from the University of Georgia, and conducted postdoctoral research at the University of California at Los Angeles and at Woods Hole Oceanographic Institution.

Prior to joining LSU, Dr. D'Elia was Associate Vice Chancellor for Academic Affairs for Research and Graduate Studies and Professor of Environmental Science and Policy and Marine Science at the University of South Florida St. Petersburg. He directed the International Ocean Institute-USA and the Center for Science and Policy Applications for the Coastal Environment. He also held professorships in Biological Science and Public Administration and Policy and served as Vice President for Research and Research Foundation Operations Manager at the University at Albany, State University of New York. He was a professor at the Chesapeake Biological Laboratory, University of Maryland Center for Environmental Science.

Leadership positions previously held by Dr. D'Elia include President of the Estuarine Research Federation and Chair of the Board of Directors of the Council of Scientific Society Presidents. He chaired the Mid-Atlantic Regional Marine Research Board and the Public Affairs Committees of the Ecological Society of America and of the American Society of Limnology and Oceanography. He served as President and Co-Chair of the External Relations Committee of the Sea Grant Association and as Director of the Maryland Sea Grant College Program.

Appointments include the Ruth Patrick Distinguished Scholar in Aquatic Science at the Academy of Natural Sciences, Director of the Biological Oceanography Program at the National Science Foundation, Provost and Vice President for Academic Affairs at the University of Maryland Biotechnology Institute, and Fellow of the American Association for the Advancement of Science. Dr. D'Elia has authored over sixty publications on the nutrient dynamics of estuaries, coral reefs, and on science policy. He is a Fellow of the American Association for the Advancement of Science.

Susan Welsh NGI Alternate Fellow at LSU

Susan Welsh, Director of the Coastal Marine Institute in the School of the Coast and Environment at Louisiana State University, recently joined the NGI community as an alternate Fellow. Dr. Welsh also serves as the Director of EnvironMentors, an education and outreach program at LSU that is supported by the National Council for Education and the Environment. She received her B.A. in Earth and Planetary Sciences from The Johns Hopkins University, her M.S. in Oceanography at Florida State University, and her Ph.D. in Geology and Geophysics at LSU.

Prior to her current positions, Dr. Welsh worked as an ocean circulation modeler at FSU and then as a scientific programmer and modeler at the Coastal Studies Institute at LSU. Her dissertation research focused on modeling the currents in the Gulf of Mexico during the Last Glacial Maximum. Her areas of expertise and interest include Gulf of Mexico deepwater circulation, ocean modeling, meteorology, marine geology and geophysics, and physical oceanography. Dr. Welsh is a PI on the NGI-funded project, Impact of the Deepwater Horizon Oil Spill on the Louisiana Coastal Environments.

Felicia Coleman NGI Alternate Fellow at FSU



Felicia Coleman, Director of the Coastal and Marine Laboratory at Florida State University, became an alternate Fellow in spring 2010. She also directs the FSU Certificate Program in Marine Resource Ecology and is a Scholar Scientist in the Department of Biological Science. Dr. Coleman teaches

the FSU Seminar in Marine Ecology and the Internship in Marine Science. She received her B.S. and M.S. from the College of Charleston and her Ph.D. from FSU.

Dr. Coleman's research is funded by NOAA, Sea Grant, National Fish and Wildlife Foundation, the Pew Charitable Trust, and the Florida Department of Environmental Protection. She is a Pew Fellow in Marine Conservation (Pew Charitable Trusts) and an Aldo Leopold Conservation Leadership Fellow (Ecological Society of America).

Leadership positions include service on the Ecological Society of America's Marine Ecology Rapid Response Team, the Marine Protected Areas Federal Advisory Committee, and the Gulf of Mexico Fishery Management Council (GMFMC) Ecosystem Based Management SSC Committee and the Marine Protected Areas Committee. Former committee service includes the Na-

tional Association of State Universities and Land Grant Colleges, National Academy of Science National Research Council panels on Marine Protected Areas and on the Best Scientific Information in Fisheries Management, International Advisory Committee on Marine Reserves (Rome, Italy), and as a GMFMC full council member. Dr. Coleman is Co-PI on the NGI project, Impact of Crude Oil on Coastal and Ocean Environments of the West Florida Shelf and Big Bend Region from the Shoreline to the Continental Shelf Edge.

SAVE THE DATES!

5TH ANNUAL NGI CONFERENCE MAY 17, 18, AND 19, 2011 MOBILE, ALABAMA

NGI CONFERENCE CONTESTS

Entry Deadline April 15, 2011

PHOTO CONTEST

Contestants: Any researcher, associate, graduate or undergraduate student working on NGI-funded research is invited to submit their original photography.

Requirements: Photos are to be unedited originals in JPG or TIFF format, with a minimum of 300 dpi or 5 MP. Photos should be taken in the geographic area as determined by the NGI focus area: the northern Gulf of Mexico, from the Sabine River on the west to the Suwannee River on the east. Include scientific names for any flora or fauna represented in the photographs.

Categories: Contestants may submit up to 2 entries in each of the following categories:

- NGI Research Activities (photos of NGI people in action doing their research)
- Landscapes and Seascapes
- Flora and Fauna
- Coastal Activities

STUDENT POSTER CONTEST

Contestants: Any graduate student working on NGI-funded research is invited to enter.

Requirements: Students must be registered for and in attendance at the 5th Annual NGI conference. Contestants must have conducted the NGI-funded research featured on the poster. Each student may submit only one poster. Contestants must accompany their poster for a designated time period at the NGI conference.

See www.northerngulfinstitute.org for updates on conference and contest entry and information

Dear NGI community,

It has been a busy time since our last Portal. After NGI was awarded \$10 million out of the Gulf of Mexico Research Initiative established by BP, we quickly distributed funds to our member institutions and other Gulf-state universities to continue the critical monitoring and data collection efforts undertaken in response to this disaster. We are in the process of finalizing the selection for the second round of projects funded with this initial award.

We had very successful and productive meetings with all three NGI Councils this fall. The Council of Fellows worked diligently for two days as they collaboratively developed a new research framework and discussed work plans for NGI Years 6 – 10 and future Gulf of Mexico Research Initiative opportunities. The Executive and Advisory Councils gave us positive feedback on NGI's progress to date, offered excellent advice to support our growth, and identified opportunities to pursue in the future. I offer our sincerest thanks to all who participated in these meetings; we value your feedback and guidance.

The recently-adopted research framework provides a strong foundation for NGI to build on in the future. The "Observe," "Understand," and "Apply" research structure fosters coordination and collaboration to address regional needs and improve our holistic understanding of ecosystem impacts. We are excited about this new research structure and are incorporating it into the revised ten-year strategic plan for NGI.

With such positive momentum, collaboration, and growth among the NGI institutions, it is with conflicted feelings that I will be leaving NGI around the New Year to become Executive Director of the Gulf of Mexico Research Initiative (GOMRI). GOMRI is the BP-Gulf of Mexico Alliance program to fund research over the next nine years using the remaining \$460M promised by BP. NGI has accomplished amazing things and we have developed deep professional and personal friendships. Our experienced Program Office staff will continue on-going work and assist in making a smooth leadership transition. I am confident that NGI will remain successful as a NOAA Cooperative Institute, supporting NOAA in meeting its strategic goals and conducting valuable regional research.

Again I want to thank all of you for your support and friendship during the time that I worked for the Institute. If I can ever be of service, please feel free to contact me. I look forward to continued interactions in the future.

With Warmest Regards,
Mike Carron

SUBMIT TO FUTURE ISSUES OF THE NEWSLETTER:

We invite you to send any newsworthy items to be included in upcoming issues. Please send your submissions to: newsletter@NorthernGulfInstitute.org. We encourage you to include any photographs or images with your articles to make them more interesting.



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