Spring/Summer 2011

NGI
Northern Gulf Institute
a NOAA cooperative institute

The Portal

Newsletter of the Northern Gulf Institute

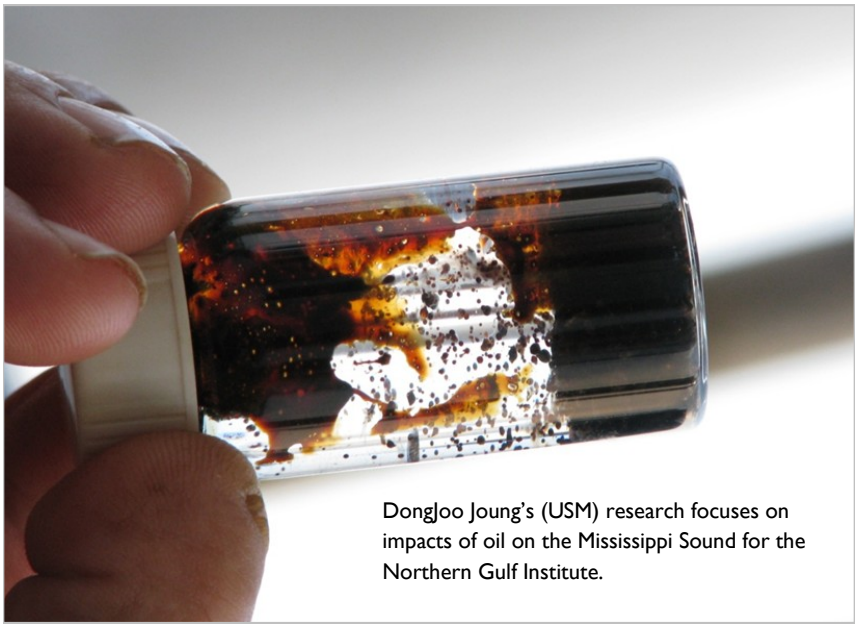
IN THIS ISSUE

www.NorthernGulfInstitute.org

NGI Response to Deepwater Horizon Incident One Year In

A Peculiar Thing Happened on the Way to Conducting NGI Research and Education

The initial release of the BP-funded Gulf Research Initiative awarded $10 million to NGI researchers. In addition to the research funded by BP, several other organizations supported NGI research associated with the Deepwater Horizon event including the National Science Foundation and the National Oceanic and Atmospheric Administration. A special Oil Spill Research Planning Session was held during the 2010 NGI Annual Conference last May. Several members of NGI leadership have had key roles in the selection of projects and coordinating the resources for research. NGI Chief Scientist John Harding stewarded the peer review selection process of NGI BP Gulf Research Initiative projects. NGI researcher John Valentine, Chair of University Programs at Dauphin Island Sea Lab, serves as the lead principal investigator for the Alabama Marine Environmental Science Consortium's



DongJoo Joung's (USM) research focuses on impacts of oil on the Mississippi Sound for the Northern Gulf Institute.

research efforts related to the DwH incident. Past NGI Director Mike Carron was selected by the Gulf of Mexico Alliance to lead the Gulf Research Initiative (GRI). Through an unprecedented number of appearances and contributions to media events, NGI researchers and leaders helped public understanding of the events and the ecosystem impacts in the weeks and months following the disaster.

(Continued on page 2)

(Continued from page 1)

NGI leaders are serving on national and regional level steering committees, state recovery panels, and Gulf of Mexico Alliance leadership teams. They will continue to help guide research on the impacts of the oil spilled from the DwH explosion to benefit resource managers in understanding recovery of the Northern Gulf ecosystem.

NGI GRI research projects focus on monitoring, modeling, and managing the impacts of the Deepwater Horizon oil spill. Researchers collect data on flora and fauna, microbes, and water quality to determine to what extent coastal ecosystems have been disrupted by the spill. Research projects are transitioned to use by coastal managers who will be called on to remediate these ecosystems for years to come.

Research results from NGI GRI projects have been widely disseminated through scientific and popular news outlets. Over sixty professional presentations have been given at scientific conferences and despite the six-month project time frame, six peer-reviewed articles have been published, with dozens more in preparation for publication consideration. NGI researchers have also been quoted in television and newspaper press related to the spill, generating over 100 citations in these venues.

Recent Gulf Research Initiative Projects:

This list includes several projects that have received funding for multiple phases.

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: Radiocarbon and Stable Isotope Tracing

Does the "Priming Effect" Caused by the DWH Oil-spill Result in Increased Microbial and Zooplankton Consumption of Labile and Refractory Dissolved Organic Carbon?

Potential Impacts of the DWH Oil Spill on Fishery Resources: Will There be Reduced Recruitment of Economically Important Shrimp, Crabs, and Finfish in Seagrass and Marsh Nursery Habitats of the North Central Gulf of Mexico?

Deepwater Horizon Oil Deposition in Gulf of Mexico Beaches: Recovery of the Beach Sedimentary Environment.

Impacts of the Deepwater Horizon Accident on Food Web Structure in the North-Central Gulf of Mexico

The Influence of Weather and Ocean Processes Using Numerical Modeling on the Fate and Transport of the Deepwater Horizon Oil Spill

Chemical Effects Associated with Leaking Macondo Well Oil in the Northern Gulf of Mexico

Field Observation and Modeling of the Impact of Oil Spill on Marsh Erosion in Southern Louisiana

Responses of Benthic Communities and Sedimentary Dynamics to Hydrocarbon Exposure in Neritic and Bathyal Ecosystems

NGI BP Earth System Modeling

Automated Mapping of Surface Oil Spill: Surface Physics and Remote Sensing Associated with Movement and Identification of a Slick

An Ecosystem Modeling Framework to Examine Ecological Impacts of the Deepwater Horizon Oil Spill

Evaluating Changes in Fluorescence EEM and Size Spectra During the Degradation of Crude Oil and Dispersant in Seawater

Effects of Oil, Dispersant, and Remediation-related Human Activities on Marsh Plants and Associated Insects and Mollusks

Quantifying the Effects of Oil Exposure on the Carbon Cycling and Diversity of Pelagic Microbial Community of Coastal Al.

Comprehensive Study of the Impact of the Deepwater Horizon Oil Spill on the Health and Productivity of Gulf Coast Salt Marshes

Uncertainty Quantification of Oil Spill Transport

Post Macondo Well Oil Spill Water Quality Sampling- Barataria, Lake Pontchartrain, and Coastal Waters

Macondo 252 Oil Spill Impacts in Louisiana Coastal Wetlands: Effects on Soil-Microbial-Plant Systems

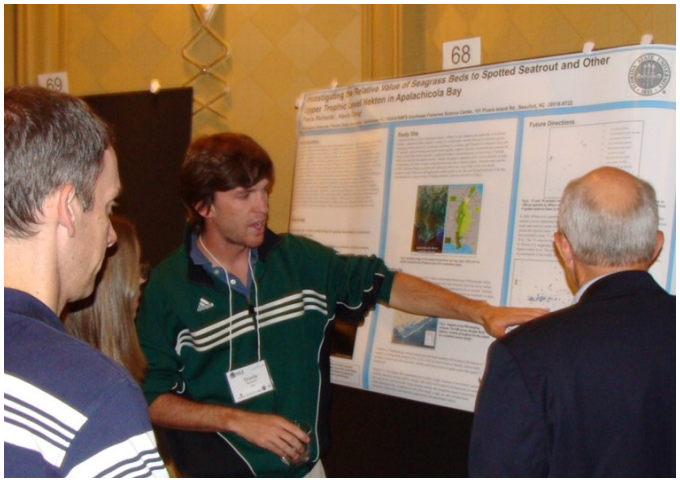
Extend Sulis Toolkit

Aquatic Primary Productivity and Spatial/Temporal Water Quality Variations of the Breton Sound Estuary and Impacts of Oil Pollution

Quantitative Studies of the Effects of Oil Exposure on the Pelagic Microbial Community and Sheepshead Minnow, Using a Global Proteomics Approach

Impacts of the Deepwater Horizon Oil Spill on the Health and Growth of Estuarine Fish and Ecosystem Functionality

Community Earth Modeling System for the NGOM



Travis Richards (FSU) presents his research to poster judges, Alyssa Dausman, Julian Lartigue, and Mike Carron.

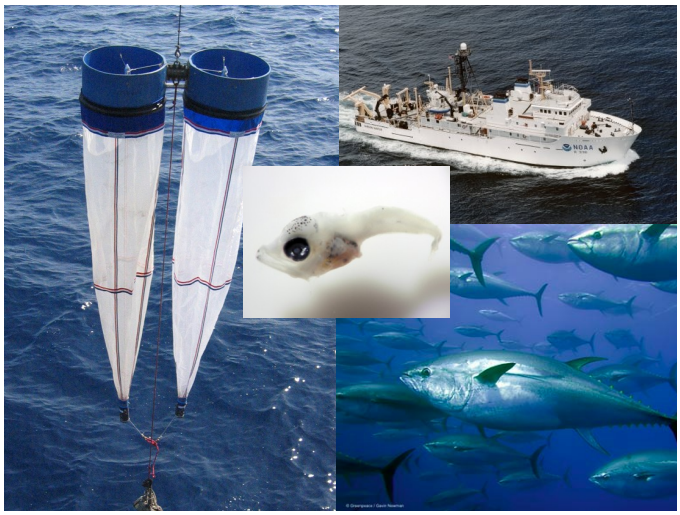
NGI Convenes 5th Annual Conference

Researchers affiliated with the NGI gathered in Mobile, AL for the 2011 NGI Annual Conference on May 17-19, 2011. Research was presented in concurrent sessions representing the interdisciplinary nature of topics covered under the NGI umbrella. The traditional poster and photo contests were also part of the agenda items for this event. Staff and researchers from several government agencies including NOAA, USGS, GOMA, and the National Park Service served as judges.

Conference Highlight: Panel discussion on NGI Research Improving Transition-to-Applications

A highlight of this year's conference was the introduction of a panel discussion which focused on transitioning NGI research to use by government agencies, resource managers, and stakeholders. Panel members included not only NGI researchers, but also representatives from the groups who were currently using the research products after transition.

Goals of this Panel Session:
1) Share the activities which prepare research for transition and prepare research for a favorable reception, 2) Share lessons learned, and 3) Inspire others to take intentional steps toward transitioning research.



Woody Nero, NOAA National Marine Fisheries Service, served on the NGI Transitioning Research Panel and described how the NGI/NOAA Ecosystem Data Assembly Center facilitated his work advising research cruises associated with Blue Fin Tuna in the wake of the Deepwater Horizon oil spill.

Many attendees felt that this panel was a substantial addition to the NGI conference and should become a permanent activity at the event.

Moderator:	William (Bill) McAnally, NGI
Panelists:	Rebecca (Becky) Allee, NOAA
	Felicia Coleman, FSU
	Judy Haner, TNC
	John Harding, NGI
	Redwood (Woody) Nero, NOAA
	Rost Parsons, NOAA
	Jibonananda Sanyal, MSU
	Wayne Wilkerson, MSU

Transition Session Highlights

Good ideas abounded at the Transition Session, a new feature at this year's NGI conference. The experience of NGI researchers who are transitioning their products into use will hopefully help make the path smoother for current researchers who desire similar outcomes for their work.

Some of the lessons learned:

- Know your stakeholders and customers. Start with their needs and communicate with them in their language.
- Focus on outreach. Use multiple sources to get your story out including the web and also the press. Have your elevator talk ready.
- Create partnerships with the right people. Transition requires effort on the part of researchers and users. Remember that volunteers can easily become discouraged.

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.

NGI Contest Winners

Poster Contest

First Place
John J. Ramirez-Avila (MSU)
Assessment and Prediction of Streambank Erosion Rates in the Town Creek Watershed

Second Place
Allen Aven (DISL)
Detection of Belted Manatees using Passive Acoustic Monitors

Third Place (tie)
Elise S. Gornish (FSU)
How to Use Long-term Data to Predict Persisting Effects of the Deepwater Horizon Oil Spill
and
Nicholas Heath (FSU)
Determining the Effects of Stokes Drift on the Movement of Oil in the Gulf of Mexico

Photo Contest

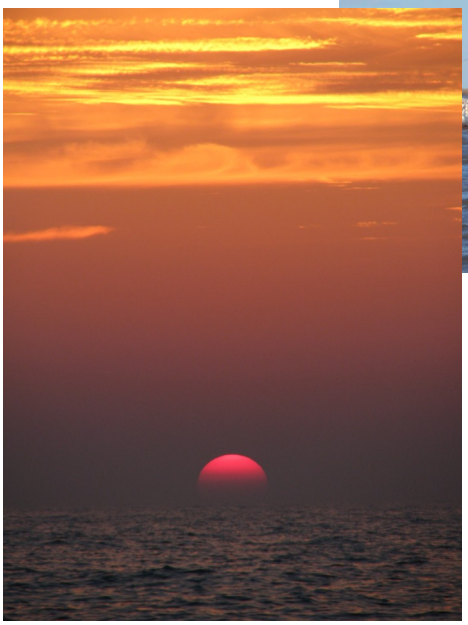
Overall Student Winner
DongJoo Joung (USM)

Overall Researcher Winner
Dmitry Dukhovskoy (FSU)

First Place – Student
Coastal Activities
Jibonananda Sanyal (MSU)

First Place - Researcher
Coastal Activities
Dmitry Dukhovskoy (FSU)

First Place
Flora and Fauna
Ranjit Jadhav (LSU)



First Place
Landscapes & Seascapes
DongJoo Joung (USM)

Past Diversity Interns: Where are they Now?

Now in its third year, the Diversity Internship program continues to spread students around the northern GoM and has shifted to focus on exposing students to careers in NOAA while they receive metadata training. In 2010, 13 students participated in the program. At the 2011 NGI Annual Conference, internship program director Rachel Nowlin updated attendees on several of the prior participants.

The 2011NGI Annual Conference was undergraduate student ***Templeton Tisdale's*** first scientific meeting. It really opened his eyes to the many facets of science in the northern GoM region. Templeton studied harmful algal blooms with Dr. Steve Morton at the Center for Coastal Environmental Health & Biomolecular Research and is planning to attend graduate school at South Carolina State University. He recently co-authored a publication in the Journal of Harmful Algae: "Spatial and Temporal Trends of the Toxic Diatom *Pseudo-nitzschia* in the


Tisdale

Southeastern United States".

Carina Lopez came to the program from the Polytechnic University of Puerto Rico. Carina worked with Dr. Jairo Diaz-Ramirez at MSU. While in Starkville, she participated in Building Bridges Summer Leadership Institute whose mission is to "motivate, empower, and support migrant high school students and to enrich academic, leadership, and social skills." Carina submitted a technical paper to the 2010 Society of Hispanic Professional Engineers Conference and was also invited to speak at the MSU Building Bridges Summer Leadership Institute.

Dionne Bryant completed over 100 metadata records for the Texas A&M Harte Research Institute and was asked to continue working there during Fall 2010.

All interns participate in metadata training while attending the 2011 NGI Annual Conference, however, not all of the interns will create metadata.


Lopez


Bryant

Idrissa Boube spent most of the 2010 summer working on his Master's research studying Taura Syndrome Virus (TSV) resistance in penaeid shrimp. Idrissa received his M.S. this May and currently works as the manager for the USM Gulf Coast Research Laboratory's Molecular Toxicology Lab.


Boube

The NGI Diversity Internship Program welcomed the newest group of interns at this year's annual conference. Building on the success of previous years, this program continues to provide an outstanding experience for those involved.

The Diversity Internship Program is open to undergraduate, M.S. and Ph.D. students. These students are located at a variety of agencies including NOAA labs, NOAA affiliates, federal, regional and state laboratories and universities. The program starts at the NGI Annual Conference and concludes with an Internship Summit. The program itself is a 10-week program, with a 40-hour work week, and a competitive stipend.

Tina Miller-Way and Rachel Nowlin (Diversity Internship Coordinator) with the 2011 Diversity Interns.

Charlie Martin mapping invasive grasses in the Mobile-Tensaw Delta.

Research Spotlight: NGI food web research at Dauphin Island Sea Lab

Dauphin Island Sea Lab's Dr. John Valentine, is leading a study designed to assess the importance of: 1) energetic and nutrient subsidies from vegetated habitats in the Mobile Bay Delta and surrounding terrestrial habitats to the productivity of the base of the Mobile Bay food web and 2) migratory fishes and crustaceans in supporting the growth of higher order consumers living in the oligohaline reaches of this system.

The importance of food web interactions at the interface of terrestrial, aquatic and marine ecosystems is poorly understood within coastal areas of northern GoM. Among the issues which require detailed examination is quantifying the strength of food web linkages among these ecosystems. Another issue is determining the productivity of estuaries in the region and the fate of the extraordinary primary production that characterizes these ecosystems. The intensity of interactions between estuarine-dependent marine fishes and crustaceans, resident aquatic predators and prey, and terrestrial predators is likely to be extraordinary. These trophic interactions must be included in regional management plans.

Dr. Valentine has participated in NGI research since the Institute's inception. A number of researchers also work on NGI projects at the Sea Lab, some of which are former and current students of Dr. Valentine. Featured here are three members of the team at DISL working on food webs.

Researcher Interviews:

Charlie Martin

How did you become interested in studying marine biology?

I became interested in marine biology at a young age. Family vacations to the beach, along with recreational fishing with my father, were early influences on my interests in the field. Later, I developed more interest in the theoretical and scientific approaches to marine biology.

What brought you to DISL?

I took an undergraduate summer course (Marine Ecology with Dr. Valentine, actually) and this led me to pursue my interests further in terms of enrolling in grad school and continuing research.

What appeals to you most about the specific area of work/ studies you do and why?

My study of the biogeographic spread and food web impacts of invasive species interests me for several reasons. Invasive species add a novel aspect to the study of theories in classical community ecology. Not only do invasions interest me from a theoretical scientific perspective, but they are also extremely important for practical, management implications, since they cost taxpayers millions of dollars annually.

Lucie Novoveska

How did you become interested in studying marine biology?

I have always been amazed and inspired by nature. I became interested in biology classes early in school. Coming to the USA opened a door to the field of marine biology, a field that was fascinating to me and needless to say, not common in land locked Czech Republic.

What appeals to you most about the specific area of work/ studies you do and why?

I have broad interests in microalgal ecology. Microalgae are best known for causing harmful algal blooms but there is so much more to them. Microalgae are significant producers of oxygen, support the entire food chain and are used in many industries from cosmetics to biodiesel. It is amazing what a one-celled creature can do!

Has the research that you've done on NGI-funded projects involved work with NOAA researchers or opened up possibilities for future work with/support of NOAA or increased your understanding about NOAA?

Because of my interest in harmful algal blooms, I have organized the Alabama Volunteer Phytoplankton Monitoring Network. The program was solicited by NOAA's National Coastal Data Development Center and Phytoplankton Monitoring Network and was partially funded by NGI. I am the Regional Coordinator for Alabama, responsible for 20 volunteers, who monitor 9 water bodies on a weekly or bi-weekly basis. Our network gave me a chance to interact with NOAA researchers on a regular basis and I greatly benefited from the program.

Lucie Novoveska filtering water to separate algae and water for separate analysis to understand how much nutrient and contaminant are in each of the matrices.

(Continued from page 9)

Matthew Ajemian

How did you become interested in studying marine biology?

As a youth growing up in the New York City metro area, once a year (if I was good) my parents would take me to visit the American Museum of Natural History. It was there, particularly in the Milstein Hall of Ocean Life, where I became mesmerized by the great diversity of marine organisms – especially fishes. Standing under large model replicas like the famous blue whale made me feel meager to some of the ocean's great inhabitants, but it simultaneously piqued my curiosity to learn about all things marine.

What appeals to you most about the specific area of work/studies you do and why?

I take great pride in my involvement in fisheries ecology research because it not only influences management and conservation decisions, but it also provides an opportunity to work with poorly known species (e.g., sharks and rays). Findings stemming from work in our lab are simultaneously utilized by resource managers and natural historians.

Tell how your research fits into Dr. Valentine's larger project, "Food Webs without Borders: a Case for Ecosystem-based Management in the Northern Gulf of Mexico".

Given the suspected highly migratory behavior of cownose rays, their roles as predators of commercially valuable shellfish potentially stretches across a variety of habitats, from offshore gulf waters to inshore estuaries. Thus, mobile cownose rays may provide important linkages between seemingly disparate habitats of the northern GoM, supporting the move towards an ecosystem-based management approach in our region.

Matthew Ajemian tagging and releasing cownose rays off the coast at Dauphin Island.

NGI sponsors Benthic Ecology Meeting

The 40th Annual Benthic Ecology Meeting was held March 16-20, 2011, in Mobile, AL, with approximately 600 marine scientists and graduate students in attendance. The event was organized by NGI researchers from Dauphin Island Sea Lab including Drs. John Valentine, Sean Powers, and Kenneth Heck. Over 260 scientific presentations and an extensive poster session were on the agenda, which also included contests for the poster and oral presentations. NGI co-sponsored the meeting with the Mississippi-Alabama Sea Grant Consortium and the University of South Alabama's Office of Research. More information about the meeting can be found at: http://bem.disl.org.

NOAA Offices Combine Efforts to Host Hypoxia Workshop

Several NOAA programs sponsored the 2nd Annual Workshop to Coordinate Gulf of Mexico Hypoxic Zone Research: Monitoring and Modeling in Bay St. Louis, MS. The workshop, held March 31- April 1, 2011, included representatives from NGI, the NOAA GoM Regional Collaboration Team, the NOAA Center for Sponsored Coastal Ocean Research, the NOAA National Coastal Data Development Center, and the NOAA Coastal Services Center. The workshop was designed to improve coordination of monitoring and modeling of the Gulf Hypoxic zone with the goal of developing a framework for synthesis of zone dynamics for incorporation into the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force. NGI Chief Scientist, John Harding, serves on the meeting steering committee and made presentations at the workshop. Members of the NGI advisory council and NGI researchers also serve on the committee and made presentations. These include Eugene Turner, Russ Beard, Dubravko Justic, and LaDon Swann. For more information, visit: http://www.ncddc.noaa.gov/activities/gulf-hypoxia-stakeholders.

Integrated Ecosystem Assessment Workshop Marks Starting Point for Model Development

Over forty representatives from multiple agencies and scientific disciplines convened in late January at the Gulf Coast Research Laboratory in Ocean Springs, MS. The workshop was convened as a starting point for the development of a conceptual ecological model built from existing efforts and mapping the path for an Integrated Ecosystem Assessment of the north central GoM. The conceptual model will be used to design a quantitative model based on an energy transfer framework and will be used as a module for a larger Earth Systems Model comprising physical, biological, and social-economic parts. The intent of the workshop was to benefit from the collective experience of the attendees, as well as the core modeling group, to acquire expert input on what needs to go into a general ecological model of a coastal watershed prior to addressing a particular question(s). Breakout sessions were held to discuss conceptual model framework, issues of temporal and spatial scale for the model, input variables for the model, and desired model output. Workshop attendees concluded that many issues such as scale and input and output depended highly on what specific questions were being addressed by the model.

Best Management Practices for Storm Surge Inundation Mapping Discussed by Federal, State, and Local Representatives

The NOAA Operational Storm Surge Inundation Mapping Workshop assembled federal, state, and local representatives to discuss best practices in communicating potential storm surge risk, flooding probabilities, and evacuation routes to emergency managers and the public. The workshop was held in mid-March in Bay St. Louis, MS, an area which experienced significant amounts of storm surge, flooding, and evacuation during Hurricane Katrina.

In support of NOAA's Storm Surge Roadmap development, NGI, along with NOAA's Coastal Services Center, Coast Survey Development Laboratory, and National Hurricane Center, sponsored a workshop to discuss and catalogue best practices for coastal inundation mapping. Participants included representatives from these organizations, regional NOAA Weather Forecast Offices, NOAA River Forecast Centers, state and local emergency managers, other interested NOAA and state parties, FEMA, U.S. Army Corps of Engineers, U.S. Navy, and the Weather Channel.

Presentations are available on the NGI web site at www.NorthernGulfInstitute.org under the News and Events section.

NGI Council of Fellows Adopts Ten-Year NGI Strategic Plan

The NGI Council of Fellows formally adopted the NGI 2011-2021 Strategic Plan on June 24, 2011. This revised strategic plan describes our unique identity and capabilities, the purpose of the work we do, our long-term goals and our near-term implementation activities. The NGI Strategic Plan describes a vision that NGI will follow over the next ten years along a course set forth in its mission, goals, and actions. The express vision for NGI is: Research-driven transformations in regional ecosystem-based management enable managers and communities to improve the resilience and health of ecosystems and people and the sustainability of resources in the northern Gulf of Mexico.

Recognizing the importance of accountability, NGI will track progress towards its research and engagement goals. NGI leadership will use this plan to select research in response to changes in priorities, events, and resources. The goals and objectives in this plan and their alignment with national and regional agency outcomes will ensure that NGI research remains relevant and addresses regional priorities.

The NGI Council of Fellows also adopted near-term priorities from the objectives set forth in this long-term strategic plan to guide the development of implementation plans for the next three to five years. These priorities provide a framework for making decisions about effective allocation of resources and directed efforts in areas of strength for NGI. The NGI Strategic Plan is available on the NGI website: www.northerngulfinstitute.org/docs/NGI_Strategic_Plan_2011-2021.pdf.

NGI Council of Fellows work diligently on the strategic plan and goals at their May meeting. Council members from right to left are Eric Chassignet and Felicia Coleman (FSU), Council Chair Bill McAnally (MSU), John Valentine (DISL), and Julien Lartigue (NOAA).

NGI
Northern Gulf Institute
a NOAA cooperative institute

Mississippi State University

The University of Southern Mississippi

LSU

Florida State University 1851

Dauphin Island Sea Lab • Alabama

NGI Administrative Office:
Box 9627
Mississippi State, MS 39762
Ph: 662-325-9573
Fax: 662-325-7692

NGI Program Office:
Building 1103, Room 233
Stennis Space Center, MS 39529
Ph: 228-688-4218
Fax: 228-688-7100

www.NorthernGulfInstitute.org

This newsletter was prepared under award NA06OAR4320264 06111039 to the Northern Gulf Institute by the NOAA Office of Ocean and Atmospheric Research, U.S. Department of Commerce. The Northern Gulf Institute and its academic members do not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation or group affiliation, age, handicap/disability, or veteran status.