Winter 2011/2012

The Portal

Newsletter of the Northern Gulf Institute

NGI Welcomes Dr. Steve Ashby

USM and LSU alum, Dr. Steve Ashby has donned the MSU colors – single-handedly reaching a new level of NGI collaborative spirit! Steve joined MSU upon retiring from the U.S. Army Engineer Research and Development Center in Vicksburg, MS. He brings over thirty years of experience as a Physical Scientist and Research Hydrologist. His recent research includes environmental considerations of shore protection and large scale-ecosystem assessments. Steve has also worked on the design and implementation of water quality studies in freshwater and coastal ecosystems, watershed assessments, and planning and implementation of ecosystem restoration projects. His additional research interests include the biogeochemistry of surface and groundwater systems related to the transport of heavy metals and nutrients. Steve coordinates MSU staff and assets located at Stennis Space Center, including the NGI Program Office staff and new MSU Science and Technology Center located immediately adjacent to the USM Department of Marine Science.

Ashby

So Where's Your Favorite High School Science Teacher Now?

What does your favorite high school science teacher do once she or he retires? NGI knows. Some continue their life of science inquiry and contributions by participating in citizen scientist activities in their communities. NOAA has capitalized on this sector by developing a program that provides training, equipment and technical support to an entire network of citizen scientists who help keep our coastal waters safe. The program is called the Phytoplankton Monitoring Network and NGI has been active in supporting the participants in the northern Gulf region.

The NGI Education and Outreach Program has facilitated several training sessions along the northern Gulf coast over the past 5 years. Phytoplankton Monitoring Network trainer, Jeff Paternoster came to the Gulf coast this fall and conducted two training sessions on the Mississippi coast. Jeff provides ongoing identification and reporting support to the network participants. Two teams are sampling waters along the shores of Hancock County, MS. Thanks to the vision of Network participant, Susan Carron, they meet at the Bay St. Louis Boys and Girls Club to conduct the identification (with a Network microscope) and reporting. They share results with NOAA and the club members.

Future Phytoplankton Monitoring Network citizen scientists are trained in proper phytoplankton sampling at USM's Gulf Coast Research Lab.

Teams will continue monitoring in Harrison and Jackson Counties. Adrienne Flowers of University of Southern Mississippi Gulf Coast Research Laboratory helps support network efforts in eastern Mississippi coastal region. NGI also supports Phytoplankton Monitoring Network coordination in Alabama and the panhandle of Florida.

For more information, please email the NGI Education and Outreach Program at EandO@ngi.msstate.edu or see http://www.chbr.noaa.gov/pmn/.

Researcher Highlight
Dr. Phil Amburn of MSU

Q: Why is your NGI research project important?

A significant part of this project is using scientific visualization to help understand data. A lot of us are familiar with really pretty pictures that come out of modern gaming. Lots of young people have fun playing these games and we are used to fabulous graphics showing us a game environment. There is also a significant benefit that can be gained by scientists and engineers working in this area to have scientific visualization provide them with a unique way to view their data. It has been fun and is something that is giving us the chance to deal with the display of the output of numerical models, and trying to present that data in a way such that scientists, engineers and emergency responders can all benefit from the information.

L to R: Dr. Phil Amburn , John van der Zwaag, and Dr. Robert Moorhead view a FloodViz visualization together.

Q: America is promoting STEM (science, technology, engineering and math) education and career paths. Why did you choose a STEM career?

I get a tremendous amount of satisfaction out of being able to control the computer and make it do what I want it to do. What I think is wonderful about scientific visualization is that I get to match that up with the ability to make pictures, to make some kind of artifacts, that will last. And sometimes it's wonderfully rewarding to actually make some kind of an image of some scientific data that is beautiful as well. And that's when I get to have the most fun at work.

When I get to write software, make software work, and have the computer do what I want it to do.

Q: How do you get other people excited about your research?

One of the things I find exciting is if we could really develop something here at the University that has the chance to become operationally used in the National Weather Service. And the chance of helping forecasters provide better information more quickly to the wide variety of people that are their customers is one of the things that keeps me motivated about doing this project. I find that easy to explain to other people. If we can help forecasters tell us what may be happening, that has got to be something that is useful and beneficial. People understand and relate to that.

It's Wednesday, so it's Time to Learn!

The Dauphin Island Sea Lab's Estuarium features *Boardwalk Talks*, a weekly series of informal conversations regarding scientific issues within the Gulf of Mexico. The topics are broad and are given by various faculty, staff and students at the Sea Lab. NGI provides support for DISL educator Mendel Greaber to coordinate the *Boardwalk Talks* and helps the presenters translate their technical topics into fun and interactive discussions.

Dr. Marcus Drymon does his best Boardwalk Talking with a presentation about sharks called "Unraveling the Myths of the Misundertood".

For more information, you can "like" us on Facebook or "follow" us on Twitter. See a monthly schedule at http://estuarium.disl.org/boardwalk.html.

NGI Media Gets a Face-lift

If you haven't stopped by the NGI website lately, things are different at the organization homepage. Dedicated efforts of many NGI folks have resulted in a new look and increased functionality for the NGI website.

NGI has also joined the leagues of social media users at large. Check out our facebook page and twitter feed: Facebook: www.facebook.com/NorthernGulfInstitute and Twitter: @NGulfInst.

See short videos featuring research by NGI supported scientists -- like Tom Miller of Florida State University -- on the NGI youtube channel: http://www.youtube.com/user/NorthernGulfInst.

We are also now incorporating Quick Response Codes into NGI print materials.

Scan this QR code with your smartphone to link directly with the NGI Homepage.

New Home for NGI Complete

The NGI Program Office has been on the move. In December 2011, NGI co-located with other research programs in the new Mississippi State University Science and Technology Center at the John C. Stennis

Mississippi State University Science and Technology Center

Space Center, MS. The NOAA National Coastal Data Development Center will also be housed in the new facility. In addition, NOAA's renewal of the NGI cooperative agreement establishes a collaborative framework for research and education in the northern Gulf region for the next five years. NGI staff and related community are excited about this next phase and working to continue the mission to conduct research that builds an integrated, comprehensive understanding of natural and human impacts on northern Gulf of Mexico ecosystems and economies to improve its management.

This new facility provides an excellent venue to collaborate on research, host conferences and workshops, and present seminars and educational programs that are relevant to the needs of northern Gulf stakeholders and resource managers.

NGI assists with National GIS Day and other Geospatial Training Events

NGI affiliated researchers served as facilitators for National GIS Day activities at MSU. GIS Day 2011 was sponsored by the Geosciences Department and the Geosystems Research Institute.

Since its inception in 2003, GIS Day has targeted high school students interested in careers involving math and science.

The event is made possible by partnerships with the National Science Foundation-funded INSPIRE program at MSU. About 70 seventh and eighth graders used geographic information systems to locate areas related to flooding, earthquakes and other severe weather. Students participated in hands-on, problem-solving activities that exposed them to the vital role that geography plays in understanding natural disasters.

NGI staff and interns also led a geocaching game at the Stennis Space Center "Bring Your Children to Work" day in June. Approximately 50 middle and high school students participated in the game and each child enjoyed hands-on use of the GPS units.

Researcher Invited to Contribute to Natural Resource Encyclopedia

Fitzpatrick

Dr. Pat Fitzpatrick with MSU has been invited to write an entry entitled "Tropical Cyclones" for the Encyclopedia of Natural Resources. Three volumes under the titles of Land, Air and Water reflect subjects covering the state-of-the-art scientific development and management of natural resources. Manuscript development and review will be completed by the end of 2012, with publication in print and online scheduled for 2013.

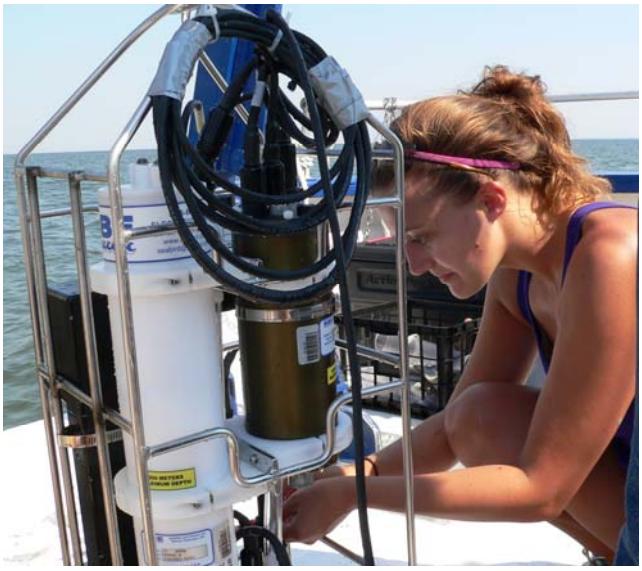
Dr. Fitzpatrick has long been recognized for his expertise in the area of hurricane modeling. He has previously authored many articles and textbooks on the subject and has been awarded several NGI grants to continue his work.

NGI Partners Continue Oil Spill Research

Throughout 2011, researchers supported through NGI and other Gulf consortia continued investigating the impacts associated with the Deepwater Horizon disaster. University of Southern Mississippi principal investigators and students participating in the project "Responses of Benthic Communities and Sedimentary Dynamics to Hydrocarbon Exposure in Neritic and Bathyal Ecosystems: Phase II" (Yeager, Brunner and others) have mounted field expeditions to Louisiana marshes, the Mississippi and Chandeleur Sounds, and the continental slope around the Macondo wellhead to investigate the effects of the Deep Water Horizon oil spill on meio- and macrofauna. In all, over 400 multicores and push cores of sediment were collected by crews on-board the R/V Cape Hatteras (October 20-30), the R/V McIlwain (September 12-16), and a R/V Lemoyne (August 1 and 8).

Several other researchers funded through NGI have been selected for additional funding to continue their research related to the Deepwater Horizon oil spill.

Drs. Frank Hernandez of DISL, Deepak Mishra of MSU's Department of Geosciences and Geosystems Research Institute, and Markus Huettel of FSU's Department of Earth, Ocean and Atmospheric Science were previously funded through the Gulf Research Initiative's initial research support, overseen by the



Jennifer Brizzola, USM grad student, prepares to launch sensors which measure water quality post oil-spill.

Northern Gulf Institute. Huettel collaborated with Joel Kostka from Georgia Tech, and Frank's projects co-PIs are Sean Powers of University of South Alabama and Marcus Drymon of DISL. These three researchers are giving it their all to coordinate the efforts required to maintain this timely and important research. In reaction to the good news, Markus commented, "This will help us to continue and expand our research on oil in Gulf sandy beaches." The researchers lead three of the seventeen projects selected from a very competitive field of 111 proposals.

NGI Researcher wins Poster Contest

Congratulations to John Ramirez-Avila, MSU Postdoc, for winning first place in the poster contest at the American Society of Agricultural and Biological Engineers sponsored International Symposium on Erosion and Landscape Evolution. John's research was supported by NGI.

His poster was titled "The role of stream bank erosion contributions to sediment loads in Town Creek in MS".

Visitor to the Estuarium on Dauphin Island learns about NGI research and education programs.

Making the Rounds with the NGI Research Kiosk

An information kiosk that was paid for by NGI and developed in conjunction with the National Mississippi River Museum and Aquarium is on the road and making the rounds at science and nature centers in the region.

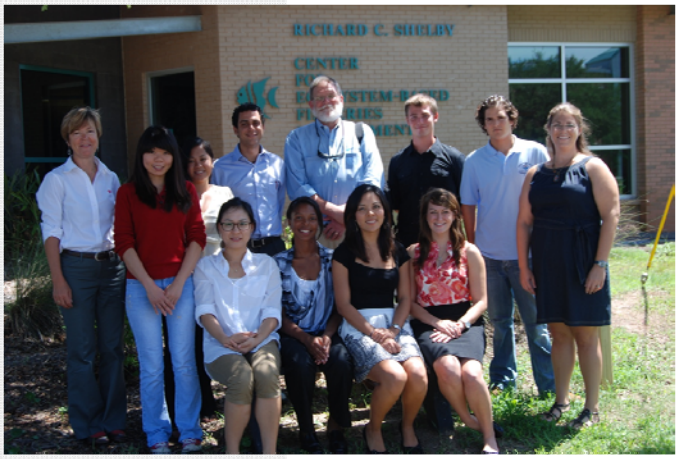
The kiosk features NGI research and education activities on the importance of watersheds in resource management. Its next stops are planned for the Texas State Aquarium in Corpus Christi and the INFINITY Science Center at Stennis Space Center, MS.

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.

Another Successful Year of Diversity Internships

The 2011 NOAA-NGI and the NGI Diversity Internship Summit was held at the Dauphin Island Sea Lab on July 29, 2011. The nine participating interns gave presentations highlighting their unique experiences. Their enthusiasm and gratitude for this opportunity was clearly evident.



Standing from Left: Tina Miller-Way, Zhengzhen Zhou, Joycelyn Carandang, Gabriel Roman-Valentin, Russ Beard, David Benoist, Jose Jarquin, Rachael Nowlin. Seated from Left: Jihyun Lee, Martha Perry, Sachiko Hayasaka, Katie Landry

Interns on a tour of the DISL Estuarium

The Internship Program is open to undergraduate and graduate students who are currently enrolled in a degree-granting program. There is an emphasis on students from communities in the northern Gulf of Mexico region. Individuals from demographic groups underrepresented in the NOAA workforce are especially encouraged to apply.

This Internship Program provides career exploration in a variety of fields studied by NOAA and NGI scientists including but not limited to coastal science, fisheries management, climate change, ecosystem management, engineering and socio-economic data analysis. Students who participate in this 10-week program work with leading scientists and experts in their fields at their respective research institutions and. NOAA and NGI scientists, as well as subject-matter experts from federal, regional and state laboratories and agencies, act as mentors and facilitate intern research.
Interested students can obtain information for the 2012 program online at http://ngi-internship.disl.org/. NGI is also soliciting mentors for the 2012 Program.

The students and their advisors are as follows:

Joycelyn Carding, NOAA Central Library, Silver Springs, MD - mentor Dr. Neal K. Casket

David Banjoist, NOAA Fisheries Service, Southeast Fisheries Science Center - Pascagoula, MS - mentor Mr. Andre Debase and Dr. Lisa Defuse

Gabriel Roman-Valentin, Mississippi State University - mentor Dr. Jairo Diaz-Ramirez

Jose Jarquin, NOAA Fisheries Service, Southeast Fisheries Science Center - Pascagoula, MS - mentor Mr. Andre Debose and Dr. Lisa DeFosse

Katie Landry, National Weather Service, Lower Mississippi River Forecast Center - mentors Mr. David Reed, Mr. Jeffrey Graschel, Mr. David Welch

Martha Perry, Dauphin Island Sea Lab – mentor Dr. Frank Hernandez

Jihyun Lee, Mississippi State University - mentor Dr. Dan Petrolia

Sachiko Hayasaka-Ramirez, Harte Research Institute - mentors Dr. James Gibeaut & Ms. Seneca Holland

Zhengzhen Zhou, Mississippi State University Stennis Space Center - mentor Dr. Laodong Guo

NGI Intern Helps to Populate GulfBase

GulfBase is a database of Gulf of Mexico resources. Developed and maintained by NGI collaborator Harte Research Institute, the vision for GulfBase is that it will "help researchers, policy makers, and the general public work together to insure long-term sustainable use and conservation of the Gulf of Mexico."

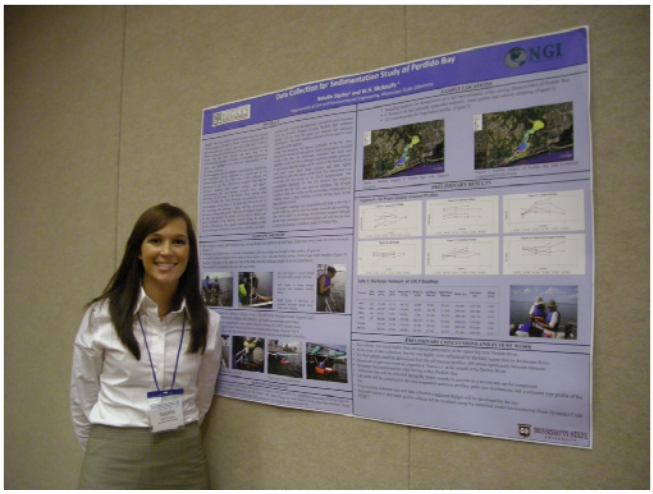
NGI Intern David Parsons supported numerous projects at the NGI Program Office. An important contribution was facilitating numerous researcher entries in GulfBase, helping to highlight the expertise of the NGI organization, which enhances visibility to potential research and education collaborators in the region.

Reaction from the NGI community has been very positive: "This is a cool project. Much needed" responded Todd Davison, NOAA Gulf Coast Services Center and member of the NGI Advisory Council. Martha Segura of the National Park Service and NGI Advisory Council also expressed appreciation: "David, I went ahead and added some information to my profile. Thanks for setting this up."

If you are doing research in the Gulf region and you're not already on GulfBase, it's not too late. Although David returned to his principal endeavor of study, the database can be accessed via the web at http://gulfbase.org, and you can easily create your own profile.

Future Researchers Win Conference Contests

Students supported by NGI from the MSU Civil and Environmental Engineering Department recently competed in paper and poster contests at the Alabama Water Resources Association conference in November. First place honors in the poster contest were awarded to Natalie Sigsby. Natalie contributes to research on the NGI Ecosystem Approach to Management project. Her poster was entitled, "Data Collection for Sedimentation Study of Perdido Bay."



Sigsby

Second place honors went to Rene Comacho and Jennifer Sloan-Ziegler. Their poster covered NGI work with mercury modeling and was entitled, "Preliminary Development of Mercury Fate and Transport Model for Weeks Bay, AL."

NGI Research Featured in Journal Publication

NGI funded research has developed a bioenergetics model for brown shrimp to investigate water temperature and salinity effects on their growth. Negative effects created by freshwater diversions from the Mississippi river were minimized when diversions were performed in February and March. Diversions in later months decreased juvenile shrimp production by as much as 60%. A complete research paper was published online January 10. The full citation is:

Adamack, A. T., C. A. Stow, D. M. Mason, L. P. Rozas, and T. J. Minello. 2012. Predicting the effects of freshwater diversions on juvenile brown shrimp growth and production: a Bayesian-based approach. Marine Ecology Progress Series 444:155-173. DOI: 10.3354/meps09431.

Kudos for Teacher Workshops and Tina Miller-Way!

If Tina Miller-Way is involved, the learning is going to be hands-on and fun! As part of the Integrated NGI Education and Outreach Program, Dr. Miller-Way offers professional development workshop in the NGI region's states, in collaboration with each NGI partner, presenting regional content and local content.

Here's a note of gratitude from one of her fans!

> *Tina,*
> *I want to thank you for a wonderful experience on Dauphin Island this week. This was the best hands-on experience that I have ever had as a science/math educator (12 years). I have already emailed my fellow science teachers and expressed my desire to share much of what I learned this week with them. I wish I could have stayed longer and learned much more from you! Thanks again.*
> *Lori Kerley*

Message from the Director

NGI entered a new phase in the fall of 2011. We've graduated from a new-start cooperative institute, performed well during a comprehensive science and administrative evaluation gaining an "Outstanding" rating, responded to the research coordination challenge presented by Deepwater Horizon, and adjusted to the tightest funding climate the country has faced in 80 years.

NOAA's renewal of the NGI cooperative agreement establishes a collaborative framework for research and education in the Northern Gulf region for the next five years. The NGI mission to conduct research that builds an integrated, comprehensive understanding of natural and human impacts on Northern Gulf of Mexico ecosystems and economies to improve its management and the four NGI research themes are in lockstep with the NOAA mission.

When the founding team convened in the spring of 2006 to develop the plan that became NGI, the collaborative effort between the science leaders took root. Since then, the cooperative spirit has grown throughout the halls of the NGI member institutions, and resonates with the other important regional efforts addressing large issues in the Northern Gulf of Mexico ecosystem.

The Gulf of Mexico Alliance, Sea Grant programs of the Gulf, the EPA Gulf of Mexico Program, and the NOAA Gulf of Mexico Regional Collaboration Team are just a few of the regional groups collaborating with NGI. These relationships have led to protocols and data and knowledge sharing that support the research, education and resource management of the Northern Gulf ecosystem.

During the summer of 2011, the NGI Council of Fellows adopted a new 10-year strategic plan. We have launched a redesigned NGI website with new focus using the latest information technologies and better serving our audiences. The NGI Program Office has moved into the new Mississippi State University Science and Technology Center at the Stennis Space Center, where other agencies will be co-located. If you are a stakeholder vested in a vital and healthy Northern Gulf of Mexico, I invite you to join us in realizing the goals of this long term plan. We look forward to working with you toward improving our understanding of how to be good stewards of the critical resources of the Northern Gulf of Mexico.

Robert Moorhead, PhD
Director, Northern Gulf Institute
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