



A NOAA-sponsored cooperative institute for developing research at academic institutions in the Northern Gulf of Mexico Region.

The Portal

Official Newsletter of the Northern Gulf Institute

www.NorthernGulfInstitute.org

April 2008

...Worth a Thousand Words

The first annual NGI Graduate Student Photo Contest was a huge success! Working from last year's feedback received from NGI-funded graduate students, the NGI team came up with the idea to host a photo contest as a way to involve more students and to encourage student participation in NGI research projects. Last year the message from graduate students was that they wanted more opportunities to be involved with the NGI. Well, we listened!

We are very excited about the first year of the contest. We had some interesting and beautiful entries, and you'll surely be seeing these photos again because we can't wait to use them in promotions for the NGI. We were extremely fortunate to be able to offer students the incentive of a cash prize donated by Mississippi Power Company and to have professional photographers who served as judges. We hope to continue this contest, so get your cameras out and get busy snapping photos!



To submit info or ideas for upcoming newsletters, please contact:
Debbie McBride, Editor at dmcbride@hpc.msstate.edu, or Joby Prince, Co-Editor at joby@ngi.msstate.edu.

2008 Northern Gulf Institute Annual Conference

May 13-14, 2008
Beau Rivage Resort, Biloxi, Mississippi

As the Northern Gulf Institute settles into its own this second year, the 2008 NGI Annual Conference focus turns to integrating research and outreach efforts. Integrating efforts include integrating research across the entire Northern Gulf ecosystem, between the NGI academic partners, and with several NOAA elements working in the region. It also includes coordinating efforts with other federal, state, and non-governmental organizations. The NGI Annual Conference provides structured and informal forums to ensure these integration successes.

Our keynote speaker this year is Dr. Richard Spinrad, Assistant Administrator, Office of Oceanic and Atmospheric Research at NOAA . The NGI Annual Conference will include demonstrations of real solutions to the NGI customers - the people who work, live and visit the Northern Gulf. Solution elements include highlighting tools and improved understanding of the challenges facing the region. Several conference activities will engage researchers in the mission of research efficiencies, results transition, operations, applications, and adoption.

In addition, this year's conference will engage graduate students in the NGI goals in several ways. Students will attend the regular technical and program sessions, along with special student sessions. Students are being encouraged to present in poster and photography competitions. The Northern Gulf Institute Conference is by invitation only and primarily for those researchers and students involved in NGI-funded research projects.

Last year's event (also held during the month of May in Biloxi) was well attended by over 100 researchers who came together in order to pool their talents to serve the Northern Gulf of Mexico region and find solutions to the Northern Gulf's multitude of problems.

Dr. Sandy McDonald, director of NOAA's Earth Systems Research Laboratory, was last year's Keynote Speaker, and had this to say, "I think there is a great need for our best universities to help NOAA understand some key things - the land and coastal ecosystems and how they interact. We need a better understanding of these things. NOAA and NGI have the most important job in the world - the oceans and atmosphere. We interact with these things every day."

For more information on the 2008 Northern Gulf Institute Annual Conference, go to:
www.NorthernGulfInstitute.org/2008ngiconference.

www.NorthernGulfInstitute.org



NORTHERN GULF INSTITUTE



Dr. George F. Crozier Retires from DISL

Dr. George F. Crozier, Executive Director of the Dauphin Island Sea Lab, retired at the end of 2007. Dr. Crozier's involvement with coastal Alabama began in 1968 as Assistant Director of the University of Alabama's Marine Science Program. In 1971, the Marine Environmental Sciences Consortium (MESC) was enacted by the Alabama Legislature as a vehicle to promote marine science in the state and to minimize duplication of programs in its consortium universities. In 1972, the MESC moved to the former Air Force Radar Base on Dauphin Island. Crozier became its Chief Scientist, finally becoming Executive Director in 1977.

In the 30 years as Director of DISL, Crozier has overseen the expansion of the former military base into a thriving and internationally renowned marine science laboratory. His leadership has encouraged prominent research scientists to engage in interdisciplinary fieldwork, ranging from paleoecology to biogeochemistry, in field sites from the ice shelf of Antarctica to the salt marshes of Dauphin Island. Educational programs at the DISL now reach kindergarten to Ph.D. students, and in the summer, the Sea Lab becomes the largest residential marine education program in the country, with college classes, workshops for educators, programs for high school students, and much more.

Under the direction of Crozier, The Estuarium (the Sea Lab's public aquarium) has become one of the Mobile area's most visited tourist attractions. Its focus on the Mobile Bay estuary system makes it a unique educational and enriching experience for all ages.

Crozier has earned a flotilla of accolades in his 30 years as Director, most notably in 1999 as NOAA's Coastal Steward of the Year, and in 2000 as the recipient of the Alabama Academy of Science's Wright A. Gardner Award. Crozier has battled everything from the "P" word (Proration) to the "H" word (Hurricanes). With grim humor, he has acknowledged the barrage of hurricanes as the "Sea

Lab's Capital Building Campaign." He met those swirling forces with a great deal of passion of his own. He has been outspoken, forthright, and absolutely determined that everyone know that our precious natural resources are ours to treasure, not to squander. If anyone has proven the Biblical axiom of beating swords to ploughshares (or in this case, microscopes), it has been George Crozier who took that old Air Force Base and turned it into one of the most treasured resources of this state. Although reluctant to step into the spotlight for his achievements, proclaiming all of them a result of collaborations, Crozier was feted the first weekend in December by over 300 current and former staff and students.



Crozier joins Bellwether Consulting to continue his work on environmental management. He is also expected to remain emeritus at the Sea Lab, and will be teaching the Coastal Zone Management course for the Summer of 2008.

Mobile Bay Collaboration Network Workshop

A workshop was held in November 2007 involving researchers who have agreed to collaborate in tool development and data sharing. They gathered in Galathea Hall at the Dauphin Island Sea Lab to share



ideas and begin forging a consensus on research priorities. The workshop was attended by approximately 50 researchers and created mutually beneficial interactions among researchers working on collaborative projects and resolve selected questions about data and models.

Teachers' Professional Development Mini-Camp

NGI Chief Scientist Mike Carron and Outreach Coordinator Sharon Hodge participated in the Teachers' Professional Development Mini-Camp last June at Stennis Space Center. The camp was part of the Gulf of Mexico Coastal Ocean Observing System

workshop series co-sponsored by NOAA, USM, Mississippi Department of Marine Resources and Mississippi Alabama Sea Grant Consortium. Mike and Sharon gave an overview of research and outreach programs ongoing at the NGI and entertained questions about the research, science and technology from the teachers.

This summer, NGI is coordinating the Teacher Visits to the NOAA activities at Stennis Space Center.

CSI: Stennis Education Activity

The Northern Gulf Institute Outreach Program hosted GeoChallenge 2007 at the John C. Stennis Space Center, MS. The theme exercise of the event was "CSI: Stennis Space Center" with activities centered around the historic community of Gainesville, located on John C. Stennis Space Center. Over 50 students from Poplarville and Hancock County High Schools (MS) participated in the challenging high-tech hands-on learning event.

Each student "agent" was assigned background research in remote sensing, geographic information systems, global positioning systems and forensic field investigation techniques. On the day of the field investigation, the "agents" were provided GPS points to locate and a crime scene scenario to unravel. The GPS points were paired with GIS data to determine if events surrounding a shootout that actually occurred 100 years ago had forensic value in assessing the guilt or innocence of the alleged shooter. Upon completing the field and laboratory exercises, the student groups reported out on their investigations. Final verdict: too close to call on the shootout, but the students definitely enjoyed experiencing real applications of cutting-edge geospatial technologies.

The event would not have been possible without the support of staff from several Stennis Space Center resident agencies and companies including: NOAA National Coastal Data Development Center, NOAA Gulf Coast Services Center, NASA Engineering and Science Directorate, NASA Education Program, EPA Gulf of Mexico Program, MSU's GeoResources Institute, and NVision, Inc.

NGI Supports “Ecological Impacts of Hypoxia” Conference

The Northern Gulf Institute assisted with a NOAA workshop held in early 2007. The workshop focused on application of the science-to-coastal decision making in three coastal systems noted for seasonally recurring and persistent hypoxic zones - Chesapeake Bay, Gulf of Mexico, and Lake Erie.

The meeting objectives were to assess the state-of-knowledge of hypoxia effects on fish and shellfish populations in a way that can be used to evaluate the resource impact of alternative management decisions, to develop recommendations for applying scientific tools for the management/scientific tools (e.g. indicators, predictive models) for quantifying, preventing and mitigating the effects of hypoxia on fisheries, and to identify research priorities for advancing the state-of-knowledge on the ecological impacts of hypoxia.

For more information, visit:
www.northerngulfinstitute.org/hypoxia.

NGI Hosts Unmanned Aircraft Systems Conference

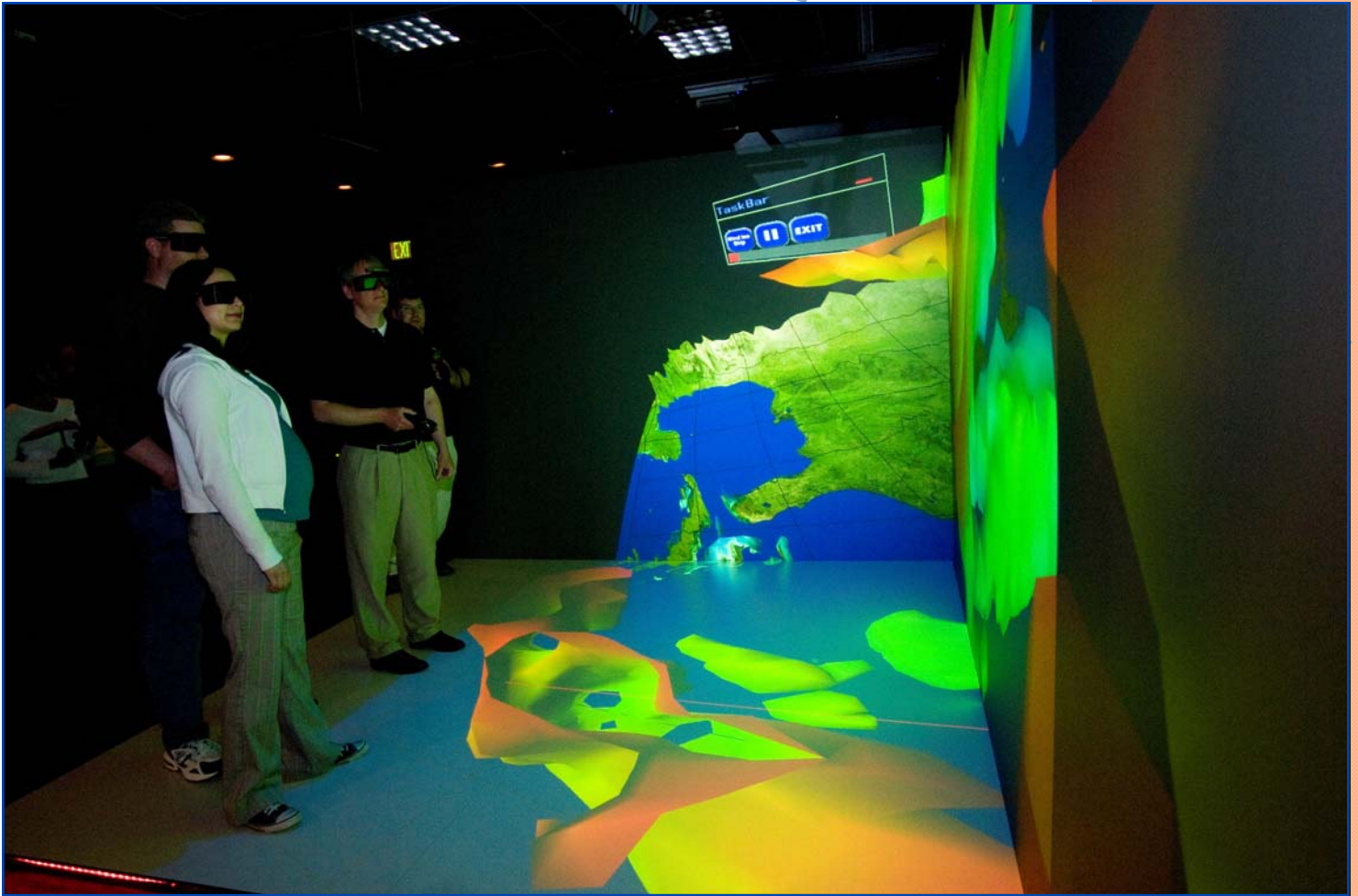
On behalf of NOAA, the Northern Gulf Institute at Mississippi State University hosted a Gulf Region UAS Applications Conference on April 1, 2008, at the Beau Rivage Resort Hotel in Biloxi.

The Conference was a follow-up to a workshop held on July 17 and 18, 2007, at the High Performance Computing Collaboratory at Mississippi State University in Starkville, where scientists, researchers, developers and government officials participated in the workshop. The University of Miami, University of Alaska, Northrup Grumman, Aurora Flight Sciences, National Oceanic and Atmospheric Administration and National Aeronautics and Space Administration were among those represented.

Unmanned planes have the potential to fly farther and stay with a hurricane longer to give hurricane predictors more data. More data is the key to better prediction of hurricane strength and direction. Scientists would also like several different types of aircraft for different missions-some to fly above or through the hurricane and others to fly near the surface of the ocean to get a variety of data, without endangering pilots.

The National Oceanic and Atmospheric Administration has tested and used several unmanned planes, but in the wake of Hurricane Katrina, the agency has focused more on unmanned planes and other methods to improve data collection. The workshop allowed participants to talk about the difficulties, needs and direction for developing new unmanned data collectors.





VERTEX Grand Opening Ceremony

Mississippi State's High-Performance Computing Collaboratory (HPC²) recently held a grand-opening ceremony on April 3, 2008, for its new Virtual Environment for Real-Time Exploration, or VERTEX, facility.

The reception was held at the HPC² Building in the Cochran Research Park, which is located north of campus across state Highway 182. Following brief welcoming remarks by Dr. Kirk Schulz, MSU vice president for research and economic development, a summary of the facility's capabilities was provided by Dr. Robert Moorhead, deputy director of the land-grant institution's GeoResources Institute and NGI-affiliated researcher.

The new facility provides MSU scientists with the capability to create various types of virtual environments. Its modeling software enables in-

depth investigations in a variety of research fields, including hurricane behavior, forest management, architecture, and design development for vehicles, aircraft and submarines, among others.

The Northern Gulf Institute will benefit from this state-of-the-art facility as Dr. Moorhead will be using the VERTEX in his NGI-funded research on visualization of severe storm events.

For more info contact Dr. Robert Moorhead at rjm@gri.msstate.edu.

Subscribe to the NGI Listserve!

To subscribe to the NGI email list, submit "subscribe ngi" in the text body of a message to majordomo@NorthernGulfInstitute.Org with no subject indicated.

NOPP Excellence in Partnering Award to Dr. Eric P. Chassignet of Florida State

The Interagency Working Group on Ocean Partnerships (IWG-OP) of the National Oceanographic Partnership Program (NOPP), recently selected Dr. Eric Chassignet and the partners of the U.S. GODAE: Global Ocean Prediction with the HYbrid Coordinate Ocean Model (HYCOM) for the NOPP Award for Excellence in Partnering.



An objective of NOPP is to support partnerships among federal agencies, academia, industry and other members of the ocean sciences community in areas of data, resources, education and communication. NOPP proposals are selected based on a number of criteria including both the strength of the science and that of the proposed partnerships. Of completed NOPP-supported projects, Dr. Chassignet's partnership has been identified as one of the most outstanding according to the following criteria:

- Ocean sector diversity among the partners;
- Level of effort/involvement by partners;
- Long-term commitment of the partners beyond the NOPP funding period;
- Success of the partnership in meeting its project objectives; and
- Impact of the effort to the ocean research community.

This is a significant achievement, and an award presentation will be held during a NOPP-focused session at Capitol Hill Oceans Week on Thursday, June 5th in Washington, D.C.

NGI Director Selected Fellow of the American Association for the Advancement of Science

Dr. David R. Shaw, director of the Northern Gulf Institute and the GeoResources Institute at Mississippi State University, was recently selected Fellow of the American Association for the Advancement of Science. Receiving the highest professional honor from the association, Dr. Shaw is recognized for efforts to advance science and its applications.

Dr. Shaw has developed a national reputation for his research leadership in spatial technologies and renewable resources. The institutes he leads focus on understanding natural and managed systems using geospatial technologies, as well as upland-watershed systems, coastal waters, habitats, resources, and coastal hazards.

Having adopted the use of spatial technologies in his early MSU research, Shaw was named as the director of the Remote Sensing Technologies Center in 1998. As head of the multi-disciplinary GeoResources Institute, which succeeded the RSTC, he has focused on developing applications of spatial technologies in site-specific agriculture and in assessing natural resources.



Most recently, Shaw was instrumental in forming the NOAA-sponsored Northern Gulf Institute which is located at Stennis Space Center in Mississippi.

NGI “Opens Doors” to Education - Literally!

Overnight visitors to the Mississippi Gulf Coast will soon learn about its natural resources in a very unique way - from their hotel room keycards. Funding provided by the National Marine Sanctuaries Foundation has allowed the Northern Gulf Institute to display various educational messages pertaining to



natural resources and environmental issues on almost 100,000 keys at participating hotels in the Gulf of Mexico region. Hotel keycards have traditionally displayed an advertisement for restaurants and other local businesses, but this is one of the first uses of the product for educational purposes.

The keycard program is an exciting opportunity for NGI, partner hotels, and also local businesses. Each key not only features educational information – it doubles as a coupon. This adds an experiential learning element to each message. For example, hotel guests will learn about the Gulf of Mexico Barrier Islands, and then be able to visit them at a discounted rate through a participating local tourism venue.

Keycards will be used at most participating hotels as early as May 1, 2008. Currently, participating hotels include Holiday Inn - Gulfport, Holiday Inn - Biloxi, Gulf Hills Hotel and Conference Center - Ocean Springs, and Indian Head Station - Ocean Springs. Ship Island Excursions of Gulfport is offering discounted passenger fares on the first of four keycard designs for this program, followed next by the Walter Anderson Museum of Art (Ocean Springs) with discounted museum fees for guests. The third keycard participant is the Biloxi Shrimping Trip Company offering discounted rates on tour

fares. Key Approach, the card manufacturer, has donated its services and shipping costs in support of this program. The fourth and final card is still being developed.

Almost entirely a one-man – er, woman – show, this project was the brainstorm of Joby Prince, a Research Associate at Mississippi State University. For more information on this program, its partners, and its sponsors, please visit the NGI Keycard Program website at www.NorthernGulfInstitute.org/keycards.



Please Join Us at the NGI Speaker Series

The Northern Gulf Institute's Speaker Series began with a great start in January 2008. The Series is presented at various venues of the Stennis Space Center during the lunch hour. It allows professionals from the numerous resident Stennis agencies an opportunity to learn about NGI and NOAA related programs and activities and to come together on a regular basis to exchange ideas.

The first installment featured three visitors from USGS including: Dr. Dawn Lavoie, USGS Gulf Coast Coordinator and a member of the NGI Advisory Council; Dr. John Brock, program manager of the Northern Gulf Coast Ecosystem Change and Hazard Susceptibility Project; and John Barras of USGS National Wetlands Research Center. More information about the USGS Northern Gulf program can be found at ngom.usgs.gov.

The second presentation in the NGI Speaker Series was provided by Todd Davison of the NOAA Gulf Coast Services Center, based at Stennis Space Center. Davison also serves on the NGI Advisory Council. He provided an overview of the NOAA Coastal Services Center functions and of the recently completed Gulf of Mexico Needs Assessment. He explained that the research, information, and needs have been somewhat constant over the past decade, with greatest needs continuing in the areas of delivering the message to the citizens who will use the information.

Dr. Paul Moersdorf, Director of the NOAA National Data Buoy Center based at Stennis Space Center, provided a lunchtime presentation for the third NGI Speaker Series installment. Dr. Moersdorf provided a fascinating overview of the history, operation, and plans of the National Data Buoy Center. When Dr. Moersdorf started at NDBC, the network consisted of 56 data stations and 63 buoys. They now operate 56 coastal stations, 107 weather stations (plus 3), 15 additional "hurricane" buoys, and 39 new tsunami stations. He oversees a \$36,000,000 program with a staff of 42 civilians, 6 Coast Guards, 2 IPAs and 160 contractors. Their data is accessible at www.ndbc.noaa.gov.

Announcements of upcoming series are provided through the NGI listserv or NGI webpage. Please contact Jay Ritchie at the NGI Program Office, 228-688-8775 or jritchie@ngi.msstate.edu for more information about the Series, or if you would like to give a presentation to the Stennis audience.



Research Spotlight Series is Hot Off the Press!

The first of many project info sheets have been developed in a flurry of activity going on at the Northern Gulf Institute. A series of publications has been developed to highlight the research projects from all NGI-funded researchers. Information is being solicited from all researchers, so please share your images and project info with us when we contact you! These 2-page publications will be made a part of the NGI web site soon!

RESEARCH SPOTLIGHT NGI

Sediments in the Mobile Bay Basin



With increasing concerns about contaminants in Gulf waters, NCI researchers are looking for better ways to predict where these are likely to build up. Mercury and PCBs are deposited by the Mobile Bay attached to sediment. Moving water can carry sediments into the Mobile Bay from long distances offshore. Modeling, core analysis and field work are used to understand the sediment transport in the Mobile Bay basin.

Levels of contaminants are not fully understood. Potential sources include atmospheric, industrial activities, human activities, and runoff. Researchers continue to be better able to manage sediment activities and reduce levels of mercury and PCBs released from the Mobile Bay.

Heavy fill and debris from construction in the bay basin. The United States Coast Guard has a lot of debris floating in the area. This debris is being tracked by the NCI researchers. They are looking for ways to reduce the amount of debris that ends up in the bay basin. This is important because debris can be a problem for the general public as well. It can also be a problem for the environment. Debris can be a problem for the environment. It can be a problem for the environment. It can be a problem for the environment.

RESEARCH SPOTLIGHT NGI

Shelter from the Storm



The National Oceanic and Atmospheric Administration (NOAA) is leading the way in understanding and predicting the effects of hurricanes on the Gulf of Mexico. The NCI is part of this effort. We are working to improve our understanding of the effects of hurricanes on the Gulf of Mexico. We are working to improve our understanding of the effects of hurricanes on the Gulf of Mexico. We are working to improve our understanding of the effects of hurricanes on the Gulf of Mexico.

Models: Models are used to represent weather and oceanic conditions brought about by different storms. They can also be used to predict the effects of hurricanes on the Gulf of Mexico. They can also be used to predict the effects of hurricanes on the Gulf of Mexico. They can also be used to predict the effects of hurricanes on the Gulf of Mexico.

Extreme: Extreme conditions are the result of physical and biological processes in a region. Extremes are caused by the effects of hurricanes on the Gulf of Mexico. They can also be caused by the effects of hurricanes on the Gulf of Mexico. They can also be caused by the effects of hurricanes on the Gulf of Mexico.

RESEARCH SPOTLIGHT NGI

Plankton - It's What's for Dinner!



Changes in environmental conditions, such as changes in salinity and the amount of nutrients available, affect the amount and types of plankton present in the water. This could have effects on the growth of early life stages of commercially important fish species and on other stock fish in the years to come. In this research, scientists are measuring the differences in the plankton community between the baseline and future scenarios. They are also looking at how seasonal changes affect plankton communities, and the fish that feed on them.

Plankton: Plankton are those organisms that live in the water column of the ocean, or in the Gulf of Mexico. Plankton are more than just a source of food for other organisms in the food chain. They are also an important component of the marine ecosystem. They are also an important component of the marine ecosystem. They are also an important component of the marine ecosystem.

RESEARCH SPOTLIGHT NGI

Sensor Networks for Emergency Response




While we understand that the words "data" and "info" mean the same thing, computers have to be programmed to receive data in a certain way. In order to receive data in a certain way, computers have to be programmed to receive data in a certain way. In order to receive data in a certain way, computers have to be programmed to receive data in a certain way.

Sensor Networks: Sensor networks are used to monitor environmental conditions. They can be used to monitor environmental conditions. They can be used to monitor environmental conditions. They can be used to monitor environmental conditions.

RESEARCH SPOTLIGHT NGI

Living Safer with Hurricanes




Living on an island along the Northern Gulf of Mexico coast is very special. More people are moving closer to the shore to enjoy the natural beauty of the seascapes and the beauty of the ocean. However, living near the Gulf brings with it increased risks for life and property from tropical storms and hurricanes. Our NCI research is working to improve our understanding of the effects of hurricanes on the Gulf of Mexico. We are working to improve our understanding of the effects of hurricanes on the Gulf of Mexico.

Living Safer: Living safer with hurricanes involves understanding the risks and taking steps to reduce them. This involves understanding the risks and taking steps to reduce them. This involves understanding the risks and taking steps to reduce them.

RESEARCH SPOTLIGHT NGI

Using Computers to Predict Water Quality



High performance computing provides an environment for faster and more complex models to be tested. This, in turn, enables researchers to improve their models and better represent environmental conditions both before and after a water quality study.

Water Quality: Water quality is a measure of the health of a body of water. It is a measure of the health of a body of water. It is a measure of the health of a body of water. It is a measure of the health of a body of water.

RESEARCH SPOTLIGHT NGI

Improving Understanding of Severe Storms




The NCI research team has been studying and testing software and tracking devices that help you see and experience things in 3D. The NCI research team has been studying and testing software and tracking devices that help you see and experience things in 3D. The NCI research team has been studying and testing software and tracking devices that help you see and experience things in 3D.

Severe Storms: Severe storms are a major threat to coastal communities. They can be a major threat to coastal communities. They can be a major threat to coastal communities. They can be a major threat to coastal communities.

RESEARCH SPOTLIGHT NGI

Better Information for A Better Coast



The Mississippi Sound and Light are subject to a larger freshwater input with all of the impacts that it brings from the land. Large river systems with tributaries in the major Mississippi basin have been the focus of our research. We are working to improve our understanding of the effects of these rivers on the Gulf of Mexico. We are working to improve our understanding of the effects of these rivers on the Gulf of Mexico.

Better Information: Better information for a better coast involves understanding the risks and taking steps to reduce them. This involves understanding the risks and taking steps to reduce them. This involves understanding the risks and taking steps to reduce them.

RESEARCH SPOTLIGHT NGI

Oyster Reefs to the Rescue



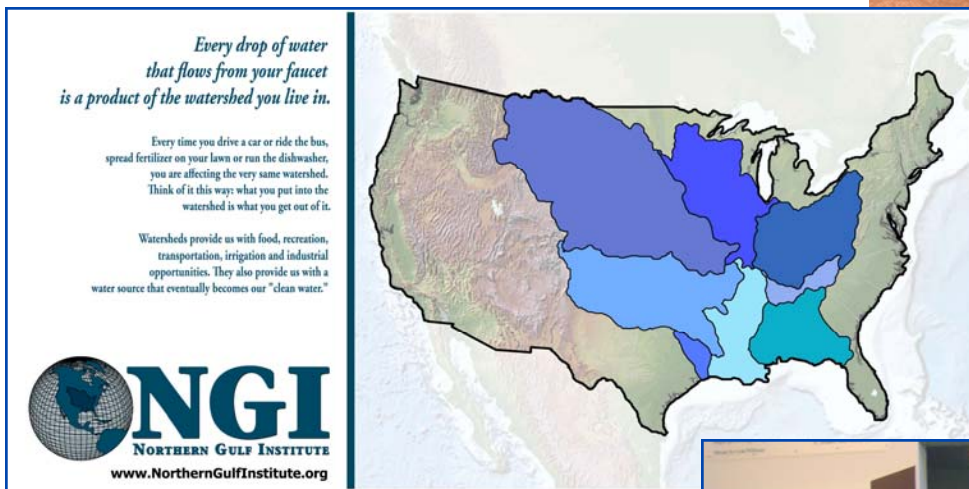
Oyster reefs provide many benefits to coastal communities. They can be a major threat to coastal communities. They can be a major threat to coastal communities. They can be a major threat to coastal communities.

Oyster Reefs: Oyster reefs are a natural barrier against waves and storms. They can be a natural barrier against waves and storms. They can be a natural barrier against waves and storms. They can be a natural barrier against waves and storms.

Discovery Day at DISL - Kids' Play

Discovery Day at Dauphin Island Sea Lab held during March 2008, was a free event for area children, and was held on the North Campus of DISL. The NGI staff participated in the fun-filled day which included environmentally-themed children's activities and an Open House at the research facilities of DISL where the public met the scientists and graduate students to see their on-going research projects.

Close to 3000 visitors toured the laboratories of researchers, and enjoyed a free visit to the Estuarium, the aquarium at DISL and a designated Coastal America Coastal Ecosystem Learning Center. The event also included U.S. Coast Guard boating safety presentations and hurricane preparedness information. The Northern Gulf Institute created a kids' puzzle from the watershed boundaries within the U.S.



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Submit to Future Issues of the Newsletter - Please?

The Portal newsletter is an annual publication of the Northern Gulf Institute. However, our desire is to publish *The Portal* more often, therefore we need your help! We'd like to include articles from all the NGI Partners, so we invite you to send any newsworthy items to be included in upcoming issues.

Please send your submissions to Joby Prince at joby@ngi.msstate.edu. We encourage you to include any photographs or images with your articles to make them more interesting. If you need help with writing your articles, please contact Joby and she will be glad to assist you!