Louisiana Universities Marine Consortium
Annual Report 2005-2006

Message from the Executive Director

Dr. Nancy N. Rabalais

What an interesting year! Within the first two weeks of our fiscal year starting July 1, I stepped into the directorship of LUMCON followed by two hurricanes, Cindy and Dennis. Within the first two months, there was Hurricane Katrina, with its devastation to coastal Louisiana. Within the first three months, the forces of Hurricane Rita added their insults to our landscape and lives. Within the first four months, the state budget was reeling from the loss of revenues from the important New Orleans metropolis, which was barely out of flooded waters and not anywhere near beginning recovery.

The remainder of the year through the end of June 2006 brought reminders of our fragile coastline and our part in its destruction and protection, the need to continue educating the public about Louisiana's landscape and resources, and a mandate to continue with excellent research programs that serve the body of science and the knowledge necessary to sustain viable resources within Louisiana and the world's oceans. Instead of hosting the many groups that could not be taken care of in our recovering facilities in Cocodrie, the education department took their programs to students of all ages rather than hosting them at the Marine Center. LUMCON's 'Coastal Classroom' banner flew proudly at numerous festivals, environmental education activities, public school activities in the marine sciences, and overhead at Marine Center activities. Research programs were immediately deployed following Katrina and Rita to assess the condition of the Gulf of Mexico, particularly in relation to presence of toxic substances, movements of sediments and hurricane effects on the low dissolved oxygen area in the Gulf (commonly called the 'Dead Zone').

The LUMCON Marine Center was suitably recovered to host an Open House in March 2006, opening its doors to the community of residents, supporters and those just looking to have a good time while learning something about the marine environment. Approximately 1000 visitors toured the Open House to view the science laboratories, hear guest speakers on important Louisiana marine resource issues, deploy instruments, test waters, view microscopic life, visit the research vessel *R/V Acadiana*, vote in LUMCON's first photography contest, take a scavenger hunt and compete in the cast net throwing competition.

LUMCON's research portfolio continues to expand our knowledge of estuaries, coastal waters and open ocean ecosystems and supports issues of importance to Louisiana's needs in marine science and coastal resources. Our research focuses on restoring diminishing coastal habitats, enhancing fish populations and fisheries, improving water quality, understanding the Mississippi River and its influence on the Gulf of Mexico and Louisiana coastal ecosystems, examining the interactions of the petroleum industry with the coastal landscape, studying living resources in their physical, chemical and biological settings, and analyzing changes in nutrients, carbon, sediments, and chemistry in Louisiana's waters and the global ocean.

We continue to work with the Office of Risk Management, Office of Facility Planning and Control, and FEMA on insurance claims from hurricanes Katrina and Rita. The estimated total cost of hurricane damage is over $1 million, and damage repair was less than 15% complete at the end of the fiscal year. Major items to be repaired are the roof, the downstairs fishery lab, the bulkhead and the dock at the Fourchon field laboratory, and the downstairs lobby area of the Marine Center.

One of the many shocking impacts of Hurricane Katrina was the virtual stoppage of communication, hard wire telephone, cellular phones, satellite phones, and limited access once lines came back on. This was a general failure throughout the primary impact area of Hurricane Katrina. The recovery of communications was halting, slow, inconsistent and took too long. What were minor inconveniences in communications for LUMCON were life threatening conditions for many citizens of coastal Louisiana in the 2005 hurricane season. We have in place now a better communication system for emergencies, and far-too-frequent power shortages and Internet disruptions. Alternate contact information for phones and emergency messages are in place, as well as a system to implement a failover mail and web server that would take over during Internet outages.

This past year was a learning experience in the ultimate sense of experiential education. The learning was intimate, critical and rewarding. We take with us into the next year the lessons learned from the difficulties of the 2005 hurricane season. We have a renewed drive to work within the capabilities of our coastal system and the political framework to continue to make a difference for Louisiana and global marine science and to conduct the science that will sustain our offspring for generations to come.

Nancy Rabalais

W.J. DeFelice Marine Center

Louisiana Universities Marine Consortium (LUMCON) was established in 1979 by an act of the Louisiana Legislature to coordinate and stimulate marine research and education in Louisiana. The Consortium's base of operations is at the W.J. DeFelice Marine Center in Cocodrie. It lies within the expansive wetlands of the Mississippi River deltaic plain between the Atchafalaya and Mississippi rivers. The Marine Center offers coastal field and laboratory facilities to researchers, educators, students and public groups.

Aquariums in the facility display local marine and estuarine organisms collected from LUMCON's ponds, nearby marshes, open bays and the northern Gulf of Mexico.

LUMCON's observation tower rises 65 feet above sea level. Visitors who ascend the 72 steps from the main lobby are greeted with a bird's-eye-view of Cocodrie's surrounding marshes, camps, marinas and oil field structures. Two webcams facing east and west in the tower record current visible weather conditions, which can be viewed at weather.lumcon.edu.

An interactive model of a LUMCON environmental monitoring station is located at the south end of the bricked hallway. LUMCON maintains five monitoring systems that record atmospheric and hydrologic information along the Louisiana coast.

LUMCON's library houses Louisiana's most comprehensive collection of up-to-date marine science journals. The library subscribes to 130 journals and has a total holding of approximately 250 journals, 4000 monographs and 3500 government documents. The library staff maintains an electronic library, which allows patrons to access articles from around the world.

Six resident marine scientists and their research teams focus on the following themes: river/ocean interactions, coastal productivity, processes influencing coastal change, human and industrial environmental impacts, and living resources. The research addresses issues of the Gulf Coast reiogn, but also extends beyond our coast and nation.

While bayou water is suitable to maintain local estuarine animals, saltier water is needed to support many of the marine organisms LUMCON uses for research and display. LUMCON's *R/V Pelican* collects water in the Gulf of Mexico where there is minimal sediment load and salinity is 35 psu. The salt water is transferred to holding tanks located under the building and is circulated through ultraviolet light and sand filters to kill germs and parasites and to remove large particles. Bayou water and offshore marine water can be pumped to labs located within one laboratory wing of the Marine Center.

Construction of the W.J. DeFelice Marine Center was completed in 1987. The facility includes two buildings: a 75,000 ft complex that accommodates LUMCON's research and educational programs and a 5,424 ft physical plant building. To overcome the difficulty of building in soft marsh soils, the two buildings were constructed on over 800 pilings, each measuring 120 feet long. The main floor of the research and education building was built 18 feel above mean sea level to guard against flood damage. The offices are located on the exterior side of the building and the laboratories on the more protected interior. This design keeps the scientists' offices close to their laboratories and minimizes potential storm damage to research equipment.

The Marine Center's 26,000 ft of laboratory space is divided into a wet wing and a dry wing, with the wet wing containing running seawater to support research projects. LUMCON's laboratories contain state-of-the-art analytical instruments, microscopes, seawater systems, environmental chambers and many types of scientific equipment. A large wet lab houses several fish holding tanks, food culture facilities, and a racetrack flume that is used by researchers to study the effects of water movement on geological, biological, and chemical processes.

Nazan Atilla, Ph.D
Senior Research Associate
Rabalais Lab

Joe Thomas
First Mate
R/V Pelican

Brenda Leroux Babin
Information & Technology Manager

Heidi V. Boudreaux
Personnel/Payroll Officer

Ivy Boudreaux
Maintenance Technician

Beth Bourge
Accounts Payable
Purchasing

Jennifer Conover
Marine Education Associate
Aquarist and Curator

Nicole Cotten
Marine Education Associate
Summer ProgramCoordintor

Beau Crochet
Information & Technology Specialist

Wilton DeLaune
Maintenance Technician

Nina DeLuca, Ph.D
Senior Research Associate
Rabalais Lab

Shanna Duhon
Library Assistant

Amy Wilson-Finelli
Research Assistan
Powell Lab

Reid Endsley
Maintenance Technician

Roseline Foret
Cafeteria/Dorms

Daniel “Chuck” Guidry
Administrative Assistant
Vessels

William “Bill” Hebert
Financial Operations Manager

Carolyn Johnson
Cafeteria/Dorms

Craig LeBouef
Captain, *R/V Pelican*

Samuel LeBoeuf
Engineer

Charo Luke
Grants/Contracts Officer

Joseph Malbrough
Port Captain

Russell Martin
Maintenance Technician

Warren Mendenhall
Research Assistant II
Rabalais Lab

Wendy Morrison
Research Associate II
Rabalais Lab

Jack Pennington
Engineer

Kenneth LeCompte
Security Guard

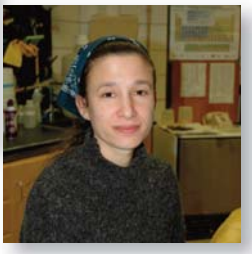
Lora Pride
Research Associate I
Rabalais Lab

Charles Purdy
Security Guard Supervisor

Jean Rabalais
Research Assistant
Dagg Lab

Steve Rabalais
Director of Facilities and Operations

Danielle Richardi
Marine Communications Science Writer



Jose Montoya
Marine Technician
R/V Pelican

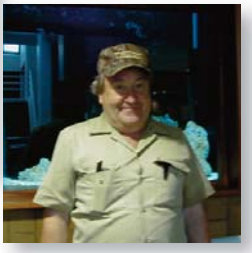
Adam Sapp
Research Associate I
Rabalais Lab

Carl Sevin
Vessels Deck Hand

Cindy Sevin
Cafeteria/Dorms Supervisor and Receptionist

Wayne Simoneaux
Marine Center Superintendent

Donald "DJ" Subervielle
Maintenance Technician



Gerry Walker
Maintenance Technician

Lillie Wicher
Executive Assistant

Christian Chauvin
Monitoring Technician

Not Pictured:
GwenDuplantis
Cafeteria/Dorms

Stephen Rodriquez
Mate/ Deck Hand

Michael Authement
Security Guard

Gene Pontiff
Security Guard

Open House

In Spring 2006, the staff at LUMCON's W.J. DeFelice Marine Center opened the doors to the public. A day was spent sharing LUMCON, its facilities and its programs with more than seven hundred fifty visitors from communities throughout Louisiana and as far away as Mexico and California. Seven-hundred twentytwo guests were from Louisiana and percentages of the out-of-state visitors are represented in the figure below. Open house guest speakers included Dr. Jessica Kastler, Dr. Denise Reed, Dr. Ed Chesney, Dr. Allyse Ferrara, and LUMCON's executive director, Dr. Nancy Rabalais. The winners of LUMCON's first photography contest were announced and guests enjoyed delicious red beans and rice. An interactive cast net throwing contest was organized by Kerry St. Pé, Director of the Barataria-Terrebonne National Estuary Program. A variety of videos were played throughout the day including the following: *After the Storm* (Gulf hypoxia) and *Hurricane Katrina:The Storm That Drowned a City*. In addition, guests toured the Marine Center and visited labs and classrooms. Some of the stops along the way included a scavenger hunt, and a water sampling project in LUMCON's Front Pond. Visitors toured one of LUMCON's Research Vessels, the *R/V Acadiana*. The open house was a great success due to the efforts of everyone involved.

John Conover
Librarian

Library

The Library strives to maintain a strong research collection in marine science materials. Recent developments have taken place that help to strengthen both the library's collection and institutional ties with other libraries through cooperative endeavors at the state level.

The library suffered slight damage to the collection from roof damage and subsequent leakage during rain following Hurricane Katrina. As of June 2006, the library had almost completed the process of incorporating water-damaged publications. Two titles, *American Scientist* and *Archiv für Hydrobiologie*, suffered slight to moderate damage to both bound and unbound issues. Of these items, most of the *American Scientist* bound volumes were treated and restored to the collection. Bound volumes of *Archiv für Hydrobiologie* were the most affected by water damage and were still being treated for water damage.

Louisiana state law requires that all agencies submit public documents to Louisiana's Recorder of Documents to be distributed through the Louisiana Depository Program (RS 25:124). Due to an error at the State Library in Baton Rouge, LUMCON had never been notified to participate in the program, even though it partially fits the definition of a state agency. In late 2005, LUMCON Library notified the Recorder of Documents of the oversight, and the facility became in compliance with state law. LUMCON documents, such as Annual Reports, newsletters, and program announcements, will now be accessible at several academic and public libraries throughout the state.

John Conover, LUMCON's Librarian, received news in October 2005 that the LSU's Sea Grant Library was in the process of being decommissioned. From visits to Sea Grant, LUMCON's library was able to increase journal holdings and replace missing issues from long-lost items (both journals and proceedings). New Journals added to LUMCON were *Kuwait Bulletin of Marine Science*, *South African Journal of Marine Science*, and the *African Journal of Marine Science*.

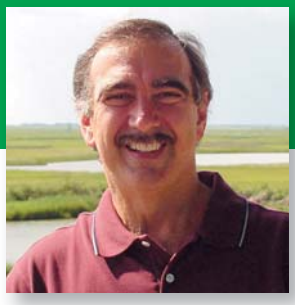
Journals with Missing Issues were *Atoll Research Bulletin*, *Journal of Sedimentary Petrology*, *Journal of the World Aquaculture Society*, *Louisiana Conservation Review, Louisiana Conservationist*, *Marine Chemistry*, *Marine Geology*, *Sedimentary Geology*, and *Sedimentology*.

Proceedings with Missing Volumes were *Proceedings of the World Mariculture Society* and *Proceedings of the Gulf and Caribbean Fisheries Institute*.

The Library completed visits to LSU's Sea Grant Library in April 2006. Hundreds of Sea Grant publications, journal issues, dissertations, and monographs were added to LUMCON's collection by John and Library Assistant, Shanna Duhon.

In June 2006, John Conover received a two-year grant from the Louisiana Oil Spill Research and Development Program (OSRADP) for the creation of an annotated bibliography focusing on dispersants used in oil spill clean-up efforts. The bibliography, an online, fully searchable database, will eventually house over 2,000 citations and abstracts. As of June 2006, citations had been culled from the literature and index searches from 1965 through the early 2000s.

John Conover represented LUMCON at the annual Southeast Affiliate of Iamslic Libraries (SAIL) conference held at the Gulf Coast Research Laboratory in Ocean Springs, Mississippi, May 2006.



Dr. Paul Sammarco
Professor

Coral Reef Ecology

Dr. Paul Sammarco's research focuses on coral reef ecology and coral recruitment to natural and artificial hard subtrates. He liaised with Congress, federal agencies, the State Legislature, and oil and gas companies regarding coral colonization of offshore platforms. This research was also the subject of a variety of interviews on radio (NPR and WWL), television (e.g., US-PBS, German-PBS), and newspapers and magazines.

The scientist's offshore platform-coral research now covers most of the northern Gulf of Mexico. This year, the field trips covered the central and eastern sectors of this region. His lab has found coral from the Matagorda Island area off Corpus Christi, TX to the Main Pass area off Mobile, AL. They occur on most of the continental shelf, except in the innermost parts, and are concentrated at the shelf edge. The highest densities and diversity of corals may be found around the NOAA National Flower Garden Banks Marine Sanctuary, about 110 nmi SE of Galveston, TX. The studies revealed that brooding corals are much better adapted to colonize habitats in a patchy environment than their broadcasting counterparts. Brooders also show stronger genetic affinities between populations.

A first report published by Mr. S. Kolian and Dr. Sammarco on alternative uses of offshore platforms has achieved international recognition, and a second report has received substantial attention from the Governor of Louisiana, Congress, and the Louisiana Recovery Authority (LRA; committee to guide the rebuilding of Louisiana's industries in a post-Hurricane Katrina environment). Concepts from these efforts have been incorporated into new MMS regulations regarding the long-term fate and use of offshore oil and gas platforms. Associated pending legislation renames the MMS, provides for the sharing of royalties from offshore activities to the Gulf States (particularly Louisiana), facilitates the long-term preservation of offshore oil and gas platforms, reduces liability for new owners, and promotes their use for alternative purposes. During June 2006, this bill had passed the House and was under debate in the Senate. The bill, along with the President's recently passed National Energy Act (2006), is a crucial step to transforming industry in the northern Gulf from oil and gas production to alternate uses.

Not Pictured:
Roger Harris
Graduate Student
University of Louisiana at Lafayette

Jennifer Lentz
Graduate Student
Louisiana State University

Jeremy Dunn
Graduate Student
Nicholls State University

Dr. Rodney Powell
Associate Professor

Trace Metals and Nutrients

Dr. Powell's laboratory continued its work on trace metals and nutrients in the coastal zone and open ocean. While no cruises were conducted, his lab remained busy analyzing samples collected on previous cruises to the Mississippi River Plume as well as from the 2002 IOC Pacific Ocean cruise from Japan to Hawaii (see publication). Ongoing field work included the maintenance of a nitrate sensor deployed in the Mississippi River at the Audubon Zoo dock in New Orleans, Louisiana. Unfortunately, some data were lost due to hurricanes Katrina and Rita but much valuable information remains. Notable features include the increase in concentration of nitrate before the river flow increases and the concentration of nitrate remaining high after river flow has begun to decrease. Future research will attempt to explain these variations in nitrate concentrations.

Fish Ecology

Dr. Ed Chesney
Associate Professor

Expansion of the mariculture industry is currently limited by the technical knowledge needed to efficiently and cost-effectively rear marine finfish. Many species of tropical and subtropical marine fishes are difficult to spawn and propagate in captivity because of the small sizes of their larvae, their need for live feeds as larvae and complicated spawning cycles and behaviors as adults. With Sea Grant funding Dr. Chesney and his collaborators have been working towards improving methodologies for spawning and rearing marine fishes for use in marine aquaculture. These efforts have blossomed through collaborations with researchers at LSU and industry partners. The research is focused on establishing more reliable culture techniques for commercially important marine finfish of the Gulf coast. Topics of study include cryopreservation of sperm and refrigerated storage of sperm for mass production of larvae, feeding behavior of larvae, live feeds production, improved feeds for high value species and the use of a commercially available feed product to improve the survival and growth of marine fish larvae in mass culture. As a part of the effort Dr. Chesney and his collaborators actively engaged in outreach, working directly with commercial partners to transfer this knowledge directly to the marine fish culture industry. In addition, his lab collects and maintains animals and culturing of plankton. The Chesney lab also carries out experimental protocols, data collection and analysis. Research assistant, Jennifer Wilbanks, aids in catching the fish used as a brood stock for the larval studies and takes excellent care of them (feeding, water quality analysis and control, parasite/disease detection and prevention, and tank system maintence). She cultures rotifers, a type of zooplankton, to be used as live food for the redfish larvae and grows phytoplankton to feed zooplankton. As for experiments, Jennifer sets them up, runs and breaks them down. Moreover, she collects data (larval measurements, for example) at necessary points throughout experiments.

Not Pictured:

Craig Gothreaux
Graduate Student
Louisiana State University

Michelle Satterwhite
Graduate Student
Louisiana State University

Zhengzhong Zhang
Graduate Student
Louisiana State University

Coastal Marshes and Estuaries

Dr. Denise Reed
Adjunct Professor

Dr. Reed's research focuses on the geomorphology and hydrology of coastal marshes and estuaries and on sediment dynamics, deposition, and accretionary processes needed for marshes to combat relative sea-level rise.

Dr. Mike Dagg
Professor

Coastal Land Loss and Hypoxia

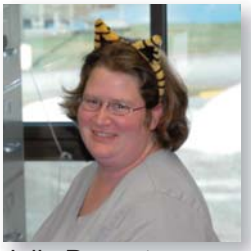
Is there a link between coastal land loss and bottom water hypoxia in the northern Gulf of Mexico? Extensive coastal land loss in Louisiana exists where coastal marsh is converted to open water. Marsh soil is rich in organic matter, both dissolved and particulate, and we are investigating how much this material can contribute to the development and/or maintenance of bottom water hypoxia in the coastal Gulf of Mexico. Regular flooding and draining of coastal marshes is associated with winds and tides. We are examining whether water draining off the marsh transfers organic matter into the coastal ocean, where it can be used by bacteria and ultimately contribute to oxygen consumption in bottom waters that frequently become hypoxic. We are approaching these issues in several ways. First, we examine the properties of water adjacent to the marsh before, during and after marsh flooding events as well as the associated water on the marsh during flooding events. Secondly, we monitor water properties in mid-Terrebonne Bay during periods of high salinity (oceanic influence) and low salinity (wetland influence). Finally, we examine the activity of the portions of the food web that are supported by dissolved organic matter in the coastal ocean.

For the third study, we have a scientific manuscript nearing completion titled “Does the microbial food web contribute to bottom water hypoxia in the northern Gulf of Mexico?” Authors are: Michael Dagg, Riki Sato, Hongbin Liu, Thomas Bianchi, Rebecca Green, and Rodney Powell. In this paper we present results from two preliminary studies designed to examine the significance of this pathway. In both studies, we observed high production rates of the microbial food web supported by dissolved organic carbon. We postulated that the source of this dissolved organic carbon was mainly the nearby coastal wetlands. By now focusing on the first and second parts of our study, we hope to verify this linkage between Louisiana coastal land loss and coastal ocean food webs.

Dr. Chris Finelli
Associate Professor

Water Flow and Water Quality

Dr. Finelli’s lab is interested in the effects of water flow on ecological processes. Recently, they completed a study of water quality along the Bayou Lafourche-Bayou Terrebonne-Bayou Petit Caillou complex in Terrebonne Parish, LA. Their results show degraded water quality, including persistent hypoxia, along much of the bayou. Water quality was consistently highest in Cocodrie and Thibodaux, two points that receive flushing from tides or the Mississippi River. The lowest water quality was found in downtown Houma and in Chauvin, where the bayou is stagnant and receives pollutant input from developed areas. In addition to these results, they measured the effects of Hurricanes Katrina and Rita on local water quality. Importantly, they documented persistent increased salinity in Houma resulting from Hurricane Rita. Their work suggests that increasing flow into the bayous might mitigate the effects of poor water quality and hurricanes by flushing the bayou with fresh water. He has also studied how water flow influences oxygen transport and photosynthetic efficiency in corals.



Julie Prerost
Graduate Student
Louisiana State University

Dr. Nancy Rabalais
Executive Director
Professor

Hypoxia and Phytoplankton Ecology

The complexities of the Mississippi River watershed to the Gulf of Mexico ecosystem continuum is a major research focus in the Rabalais' laboratories. Similar studies are underway in the Barataria Bay estuary. The interactions of the physical, chemical and biological processes, their changes over time with changing nutrient, fresh water and sediment inputs, and the subsequent ecosystem responses are addressed by this research group.

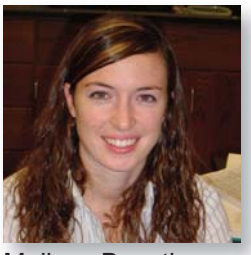
One of the manifestations of excess nutrient loading combined with a stratified coastal ecosystem is hypoxia, or low oxygen, which was first documented in the northern Gulf of Mexico off the Louisiana coast in 1972. Sporadic occurrences were observed in subsequent years, but the first concerted, continuous and consistent documentation of temporal and spatial extent of hypoxia and the associated dynamics began in 1985 and continues to present under funding from the NOAA Center for Sponsored Coastal Ocean Research. Since then, the research team and collaborators progressively unraveled the dynamics of coastal hypoxia adjacent to the Mississippi River.

The development of hypoxia in the 2005 season began as usual in spring with sporadic episodes, but then enlarged and was more prevalent in June on the western Louisiana coast than the eastern, the latter being the norm. Before the late July 2005 mapping of hypoxia, Hurricanes Cindy and Dennis affected the Louisiana shelf, causing the area to be less than predicted but still fairly well formed on the western shelf. Hurricane Katrina made landfall at the end of August and disrupted hypoxia, but it reformed in the shallow waters of the Louisiana Bight a few weeks later. A series of frontal passages and Hurricane Rita in September dissipated the hypoxia for the remainder of the year. Besides the disruption of the larger hypoxic area, Hurricane Katrina destroyed the LSU/LUMCON hypoxia observing system located offshore of Terrebonne Bay. Recovery of that system through rebuilding and re-instrumenting continued for a year. Additional funding from the Gulf of Mexico Program will supplement oxygen measurements on another LSU/LUMCON observing system off Grand Isle.

The hypoxia group also maintains a series of multi-parameter sonde units deployed in four upper lakes within the Barataria Bay estuary (funded by NOAA's Center for Sponsored Coastal Ocean Research). They are located in Lake Cataouatche, Lake Salvador, Lac des Allemands and Little Lake. These meters are recording temperature, salinity, dissolved oxygen, turbidity and phytoplankton biomass to track daily, seasonal and annual changes in these ecosystems in response to nutrient inputs, diversions of Mississippi River water, changes in salinity and changes in turbidity.

Associated modeling studies with R. E. Turner of LSU showed that while freshwater inflows and their influence on density stratification are important determinants of bottom oxygen depletion in the Gulf of Mexico, nitrogen (specifically nitrate + nitrite) more so than phosphorus, dissolved silicate, or their molar ratios, appears to be the major driving factor influencing the size of the hypoxic zone. Hind casting this relationship also supports the limited observational data and more substantial historical sediment records that hypoxia was limited in extent in the early 1970s.

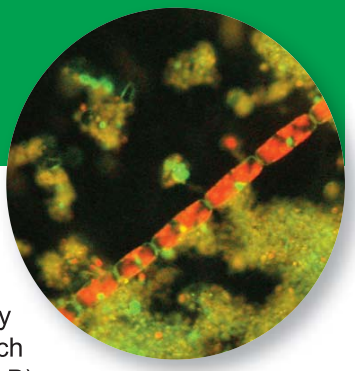
R. E. Turner and N. N. Rabalais continue to work with several mid-western states to develop a collaborative research program, called the Green Lands/Blue Waters Initiative, to facillitate sustainable agriculture and reduce nutrients to the Gulf hypoxic zone. The hypoxia research group actively participates in the Louisiana Hypoxia Working Group, the Lower Mississippi River Subbasin Committee, and the Mississippi River/Gulf of Mexico Nutrient Task Force, along with NOAA's National Estuarine Eutrophication Assessment, EPA's development of nutrient criteria for estuaries and coastal waters, and the USGS development of a water quality monitoring and assessment program.

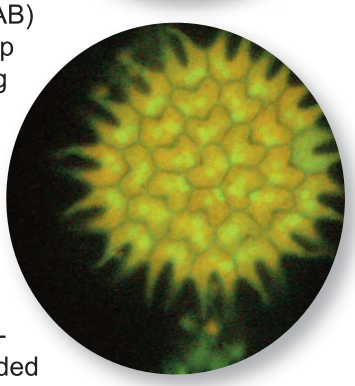


Melissa Baustian
Grauduate Student
Louisiana State University

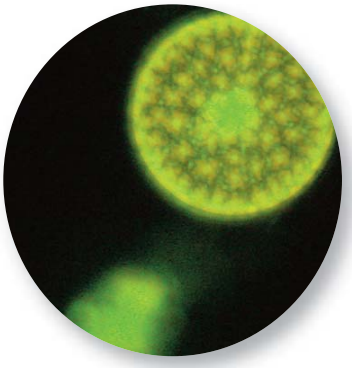
David Senn, Harvard School of Public Health, continued his research program on the production of methylmercury in areas of hypoxia with LUMCON collaborators Nancy Rabalais (sediments) and Ed Chesney (fish). This study is investigating the hypothesis that mercury methylation rates are impacted by coastal eutrophication and hypoxia in the Gulf. It is exploring spatial and temporal differences in mercury chemistry and methylation and demethylation rates in sediments and whether these differences translate into spatial differences in mercury levels in fish and in exposure of recreational anglers to mercury as determined through mercury biomarker levels (hair samples).

Dr. Quay Dortch
Adjunct Professor
NOAA ECOHAB



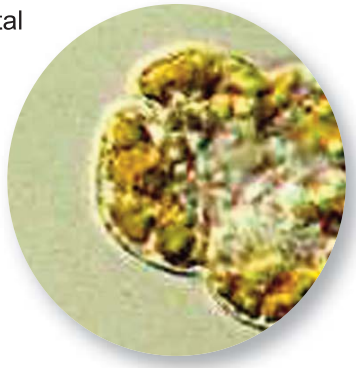


The phytoplankton group, trained and mentored by Quay Dortch, LUMCON adjunct faculty member, continues to enumerate the various forms of phytoplankton collected in the offshore Gulf of Mexico waters and throughout the Barataria Bay estuary (funded by NOAA's Center for Sponsored Coastal Ocean Research). Dr. Dortch is the director of NOAA's Ecology of Harmful Algal Blooms (ECOHAB) program, but remains aconstant advisor to the Phytoplankton Group in its continued studies. These studies are critical to understanding the production and flux of carbon in the nutrient-enhanced Mississippi River plume and their role in the coastal food web. The taxonomic skills of this group support the enumeration of harmful algal bloom species in the study areas, the experiments, and from samples brought to LUMCON by state agencies. The group supports the efforts of the Louisiana Department of Health and Hospitals in their responses to red tide events, or other noxious algal blooms. The group also maintains a diverse photo database of phytoplankton from the Louisiana coastal zone, which they are compiling into a Guide to the Phytoplankton, a web-based taxonomic guide available to the public and for training purposes (funded by Gulf of Mexico Program).

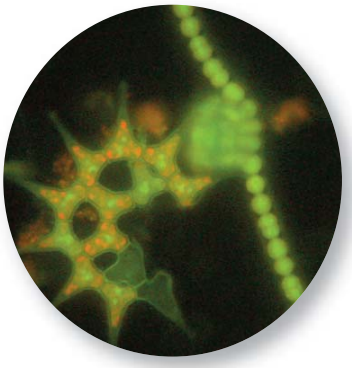


Postdoctoral Research Associate, Ling Ren, completed her microcosm experiments on nutrient limitation within the upper Barataria Bay system. The most northern three lakes range from oligotrophic to hypereutrophic and receive nutrient inputs from the atmosphere and surrounding landscape. Two of these lakes receive direct input from a diversion of the Mississippi River at Davis Pond. One set of experiments determined the response of phytoplankton to the addition of different combinations of nutrients over a four season cycle. The second set followed the progression of the phytoplankton communities from the lakes to a gradient of input of Mississippi River water, which has a concentration of dissolved inorganic nitrogen 80 times higher than the ambient receiving waters.

Dr. Ling Ren
Postdoctoral
Research Associate



The quantity and types of nutrients that enter local bays and the coastal Gulf of Mexico partially determine the abundance and types of phytoplankton that grow in these waters. We examine ambient water quality, phytoplankton community composition, and the response of phytoplankton to changes in nutrients in local waters. The phytoplankton research group is highly skilled in phytoplankton identification in estuarine and offshore waters. We maintain a long-term phytoplankton database with ancillary physical, biological, and chemical variables that dates back to 1990. We also maintain a list of harmful algal bloom species and their occurrences. LUMCON responds to requests from state and federal public health agencies concerning harmful algal blooms that may be toxic to humans through the consumption of shellfish or exposure through activities on the water.



Dr. Jessica Kastler
Marine Education Instructor
Education Program Coordinator

Marine Education

K-12, Teacher and Public Education Highlights

Educators completed preparations on a consistent exhibit to be used at outdoor venues, such as the Wooden Boat Festival (Madisonville) and the Voice of the Wetlands Festival (Houma). Other outreach events included Girl Fest, organized in January 2006 for Girl Scouts in the Greater New Orleans area, and Ocean Commotion, organized by Louisiana Sea Grant for grades K-8. LUMCON presented three interactive displays at Ocean Commotion: 1) Plankton Races Settling Demonstration, 2) Bayouside Classroom Water Quality Analysis, and 3) Fish and Invertebrate Touch Table, all unified under the new banner 'LUMCON, Your Coastal Classroom,' appliquéd by Ms. Jennifer Conover.

Marine Education worked with the Finelli Research Group and Bayouside Classroom teachers to participate in the first World Water Monitoring Day. America's Clean Water Foundation (ACWF) coordinates this annual event for about 80 countries. LUMCON staff participated in all Louisiana events. The largest was the Bayouside Classroom event held October 13 and attended by Ms. Roberta Savage, Executive Director of the ACWF, Ms. Karen Gautreaux, Deputy Secretary of the Louisiana Department of Environmental Quality, and professional colleagues who attended to highlight the resiliency shown by children and teachers of Terrebonne in the aftermath of Hurricane Rita's flooding.

Approximately 60 children sampled Bayou Terrebonne at Houma Junior High School, and 23 children sampled Bayou Little Caillou at Little Caillou Elementary School. Ms. Savage presented the students with a plaque from the children of Hualien, Taiwan. The Taiwan students' homes were hit by a strong typhoon just after their World Water Monitoring Day, and sent the plaque to show solidarity with the children of south Louisiana who were affected by Hurricanes Katrina and Rita. Eight Bayouside Classroom sites participated in World Water Monitoring Day sampling, and Grace King High School and St. Scholastica High School sampled on Lake Pontchartrain with LDEQ and the Lake Pontchartrain Basin Foundation. The connection between Taiwan and Terrebonne Parish students continued at the First Annual WWMD Workshop, developed and implemented by Dr. Kastler with WWMD founder Ms. Robbi Savage, when a 20-person delegation from several schools and Taiwan National University traveled to LUMCON for several days of water quality training and sampling with the students from Terrebonne Parish.

Occurrences in K-12, Public and Teacher Education

-Renewal of the NSF COSEE Central Gulf of Mexico grant from 2006-2010

-Development and regular update of presentation on coastal geology, hurricane effects and restoration. Presented to the following: Teachers (October 2005, November 2005, February 2006); Thomas Jefferson School for Science, Technology and Math (February 2006); and General public Sci-Port Discovery Center (March 2006)

-Teacher professional development: Storm Effects Workshop, October 2005 (Students and Teachers as Educational Partners in Science, Sponsored by BTNEP); Bayouside Classroom Workshop, April 2006 (STEPS, sponsored by BTNEP); Learning Science Inquiry in the Salt Marsh (January 2006, June 2005)

-New activities developed for outreach: Marsh Creature Suncatchers (grades 2-8); LUMCON Marine Science Activity Book (24 pages, grades 4-8); Marsh Critter Door Hangers (grades K-4)

-Bayouside Classroom aligned to Louisiana Comprehensive Science Curriculum in Grades 7, 8, 10, by Terrebonne Parish teachers (courtesy of Terrebonne Parish Public School, Mr. Paul Johnson)

-Entergy Stewardship Grant purchased 10 sets of sampling equipment for each of 14 participating teachers in Terrebonne Parish Public Schools.

2006 Internship Program

LUMCON's summer internship program provides undergraduate and graduate students with an important opportunity to design and conduct their own research experiments while working side-by-side with established scientists. "It brings you real-life, hands-on marine science experience with world-reknowned experts," said Marine Education Associate Nicole Cotten.

Elizabeth Robinson is a junior majoring in biology at Centenary College. Robinson interned with Dr. Nancy Rabalais' lab, an opportunity that has allowed her to participate in an eight-day research cruise mapping hypoxia in the northern Gulf of Mexico. The time spent at LUMCON was positive for Robinson. For her research project, Robinson used high performance liquid chromatography (HPLC) to determine the presence of algae in sediment samples collected from the sea floor.

Leah Bailey graduated with her bachelor's degree in biology from Louisiana State University in spring 2006. This past fall she entered the master's program in marine biology at California State University, Monterrey. Bailey completed her internship with Dr. Chris Finelli's lab. Bailey's research project focused on the predatory avoidance of marsh periwinkle snails to blue crabs.

The summer 2006 intern field trip was to the USGS National Wetlands Center in Lafayette, Louisiana. Students received a behind-the-scenes tour of the facility's research laboratories and mapping facilities as well as learned about internship and employments opportunities. They also visited the Tabasco factory and Jungle Gardens on Avery Island.

To learn more about LUMCON's summer internship program, visit: *http://www.lumcon.edu/education/university/summer/internships.asp*

"It was wonderful. I loved it" - Leah Bailey

2006 Summer Courses		
Course Name	**Instructor**	**Students**
Coastal Landscape Photography	Gary LaFleur (Nicholls), Dennis Sipiorski (SLU)	16
Marine Field Geology	Sam Bentley (LSU)	8
Introduction to Marine Science, Special Topic	Mike Dagg, Rodney Powell	1
Coral Reef Ecology	Paul Sammarco	7
Wetland Vegetation	Jenneke Visser (LSU)	7
Marine Field Ecology	Frank Jordan (Loyola), Jessie Kastler	12

Vessel Operations

R/V Pelican

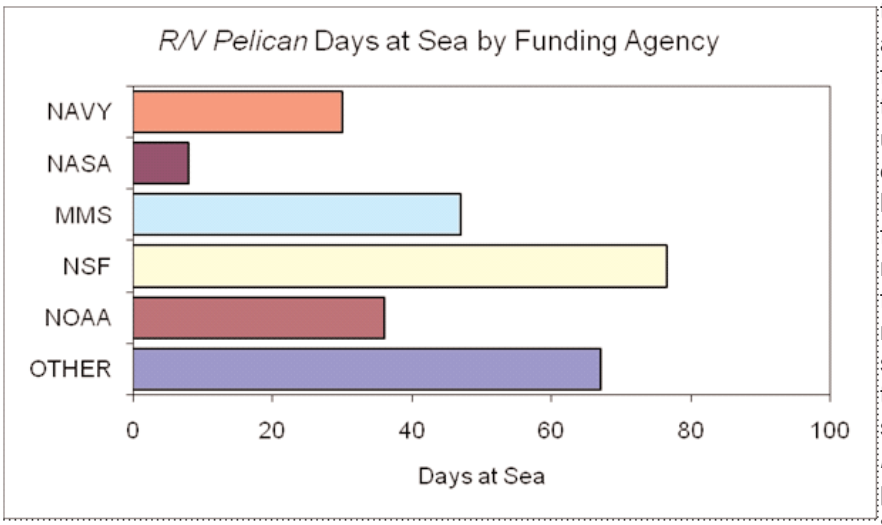
LUMCON owns and operates the *R/V Pelican*, a 116 ft University-National Oceanographic Laboratory System (UNOLS) vessel. The *R/V Pelican* was built in 1985 at Allied Shipyard in Larose, Louisiana, with funding provided by the State of Louisiana. It was designated as a University-National Oceanographic Laboratory System (UNOLS) vessel in 1986, and is one of three UNOLS vessels home-ported in the Gulf of Mexico. The *Pelican* is an important asset to researchers in the Gulf, accommodating approximately 80% of the UNOLS-Gulf of Mexico vessel days at sea.

In 2002-03, the State of Louisiana and the National Science Foundation (NSF) provided funds to refit and expand the length of the *Pelican*. The ship was dry docked for six months at Conrad Shipyard in Morgan City, Louisiana, where 10 feet were added to her stern. As part of the $3 million refit, Conrad Shipyard gutted the interior of the ship and replaced all walls, floors, and overhead coverings with new modern sound proofing materials. Bilage, ballast, potable, and seawater systems were upgraded, and all piping associated with these systems was replaced. The ship's steering system, internal communication system, alarm system, navigation panels and the entire electrical system, including fixtures and panels, were also replaced. The engine and generators were removed and rebuilt, and the generators were shock mounted to improve the overall acoustic qualities of the ship. The NSF provided funding for a new main deck Dynacon trawl/coring winch, a new Appleton folding boom crane, and a 75 KHz RDI phased array Acoustic Doppler Current Profiler.

The vessel is available for research and educational programs of Consortium members, state and federal agencies, other non-profit organizations, and oceanographic industries. The *R/V Pelican* will continue to serve science in this region of the world's ocean and provide opportunities for ocean scientists in the Gulf of Mexico and Carribean Sea. This year's cruises included a two and a half months, August 17 to October 31, of work in the Caribbean Sea. While there, she worked for several research groups and operated out of the University of Puerto Rico at Mayagüez. The ports of call included San Juan, LaParguera, Ponce and Mayagüez, Puerto Rico, Aruba, and Chaguaramas, Trinidad.

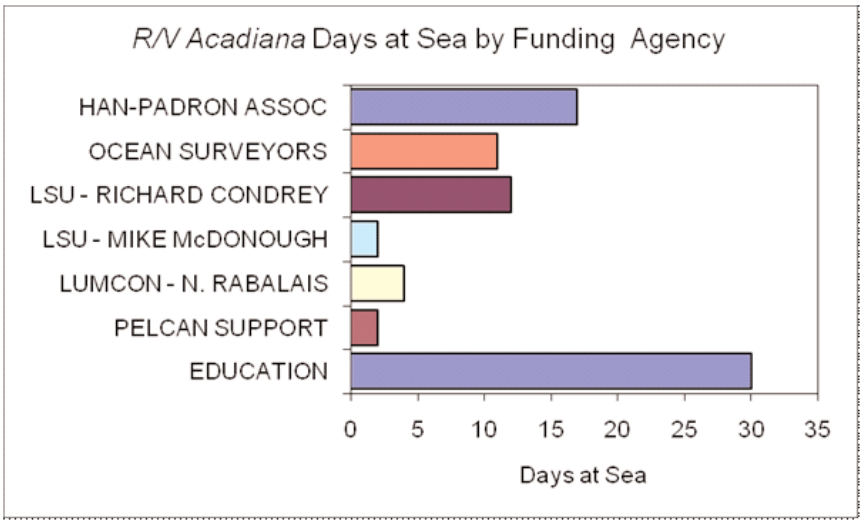
While the *R/V Pelican* was serving scientists at sea, several LUMCON scientists represented her and LUMCON's vessel operations at a series of University-National Oceanographic Laboratory System (UNOLS) meetings. UNOLS oversees direction of National Science Foundation-owned and -funded research vessels. LUMCON's Executive Director, Nancy Rabalais, and Port Captain, Joe Malbrough, attended the UNOLS scheduling meeting in early October. Nancy Rabalais also attended the Fleet Improvement Committee and the UNOLS General Meeting. In October, Brenda Leroux Babin, the Information and Technology Manager, represented LUMCON at the International Marine Technician conference

In August, the ship went online with HiSeasNet utilizing a SeaTel 4006 1, Ku-band antenna, which gives its crew the ability to check email and connect to the Internet while at sea. The National Science Foundation (NSF) funded the hardware, the installation of the system, and the first year's charges. Subsequent user fees will become part of the *R/V Pelican*'s daily rental rate. Shipboard scientists can download imagery and large documents necessary for their research at sea. The captain uses the new communication system to check weather forecasts and RADAR data to stay safe and current. The HiSeasNet system also allows the shipboard scientists to communicate with scientists onshore using a free Internet-based phone service. The system was invaluable to the *R/V Pelican* crew in Puerto Rico as they watched the progression of several hurricanes and tropical storms moving through the Atlantic.



R/V Acadiana

The *R/V Acadiana* was built in 1986 with funding from the State of Louisiana and has been the primary vessel for research activities in the shallow bays and near-shore coastal areas inaccessible to deeper draft vessels. The 58-foot vessel typically spends an average of 95 days annually in support of research programs and teaching activities along the coasts of Louisiana, Texas, Mississippi, and Alabama. The *Acadiana* is used approximately 50% of the time as a support vessel for the LUMCON Marine Education Program. In this capacity, the *Acadiana* is used to transport students to Terrebonne Bay near the DeFelice Marine Center where they are introduced to various oceanographic sampling techniques. Students sample the water column in the bay using the ship's installed hydrographic sampling equipment and retrieve marine organisms from the bottom with a 25' otter trawl. The remainder of the year the *Acadiana* conducts research cruises in support of activities as diverse as surveys of hypoxic bottom waters in the Gulf of Mexico, to archeological expeditions in search of Civil War relics in the lower reaches of the Mississippi and Atchafalaya rivers.



R/V Eugenie

Tulane University purchased the *R/V Eugenie* (ex. *R/V Onrust*) from the State University of New York in 2001, and in 2003, asked LUMCON to assume responsibility for managing and operating the vessel. The *Eugenie* is the vessel of choice for Tulane scientists studying linkages between the Mississippi River and the Gulf of Mexico. These studies have taken the *Eugenie* as far west as Galveston, Texas, and as far east as Mobile, Alabama.

Small Boats

LUMCON maintains a fleet of small outboard boats ranging in size from 14 to 30 feet. All of these boats are trailerable and are available for scientists and educators working in Louisiana's coastal environments.

R/V Dos-Gris - 30' aluminum pontoon
R/V Whiskey Pass - 23' aluminum V hull
R/V Gray Goose - 20' custom cabin hull
R/V Fearman - 19' aluminum Monark
R/V Big Al - 17' aluminum Monark
R/V Silver Bullet - 16' aluminum Scully craft
R/V Marsh Bug - 16' Alumitech airboat
R/V Swamp Thing (Fourchon) - 14' jo boat
R/V Dinghy - 14' jo boat
R/V Odie - 14' aluminum Scully craft

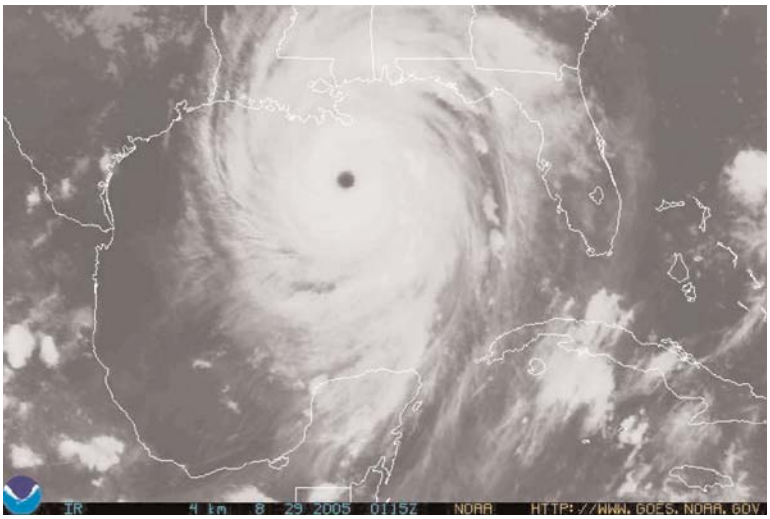
Two Practice & Two More Than Real

Four events in summer 2005—two practice and two real—forged the near- and long-term prospects of LUMCON and south Louisiana. Tropical Storm Cindy came ashore on July 6 in the same location as her evil step sister, Katrina. Cindy was not upgraded to a hurricane until the end of the 2005 season, but we knew it was a hurricane as we prepared for it and then experienced floods and damaged homes. Hurricane Dennis made land fall along the Mississippi, Alabama and Florida panhandle a few days later on July 10. There was widespread flooding and coastal erosion along the shoreline destined to greet Katrina later in the summer. On August 29 catastrophic Hurricane Katrina devastated southeastern Louisiana and coastal Mississippi and Alabama, and Hurricane Rita followed on September 24 leveling southwestern Louisiana. The loss of human lives, homes, culture and economic structure, and the displacement of people and families were truly beyond belief.

LUMCON Marine Center interior patio during the Rita flooding.

Hurricane Katrina maintained its Category 5 status until the eye was just off the southeastern coast of Louisiana. Then it roared ashore with 150 mph winds and tidal surges of 20 to 30 feet. Because the LUMCON Marine Center was in the northwest quadrant as Katrina moved inland, the water level in the marina dropped as the winds worked with the barometric pressure to push water out of local waterways. The water breached levees, coastal highways, bridges and an expansive landscape to the east. Although there was no downstairs flooding, wind damage was considerable to LUMCON's roof and was followed by subsequent interior water damage, especially in the dormitory, apartment, cafeteria, finance and library areas. The storm shutters held, as did the tower windows, even when hit with large flying roof pieces. Temporary patches were in place soon after the storm and contractors began to waterproof and re-insulate the entire roof two weeks later.

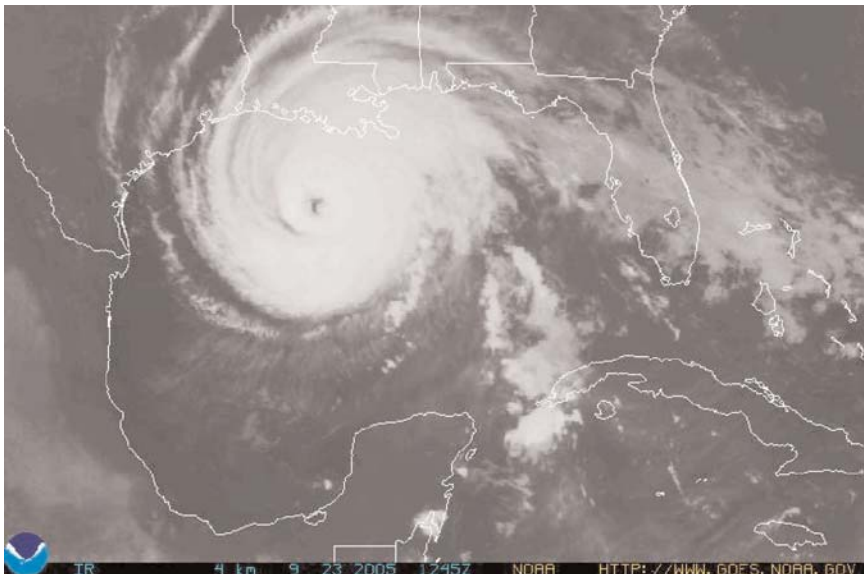
Hurricane Rita bore down on Louisiana as a Category 5 then passed the shoreline as a Category 3. But the damage was well underway before the eye crossed the southwestern Louisiana shore with tidal surges of 20 feet or more. The flood water came along its eastern wall and affected most of the Louisiana coast and into the still flooded areas of New Orleans. Rita put floodwaters of three feet above the LUMCON Marine Center slab and into the ground floor along with mounds of marsh grass debris. After the water receded, there were four inches of mud everywhere, including the lobby, downstairs laboratory, pump room, storage areas, parking, grounds, sidewalks, stairwells, on the old roof that had been pitched to the ground level and on new materials not yet used to repair the Katrina damage. Flooding was severe as far north as Houma and several evacuated LUMCON vehicles and boat motors succumbed to the influx of salt water.



Hurricane Katrina, 29 August 2005

Evacuation of employees, vessels and essential equipment proceeded well in all storms. The *R/V Pelican* returned from up the bayou within a few days of Katrina and immediately went back to work in the Gulf

of Mexico. It returned to Cocodrie after Rita and another cruise was underway as soon as floodwaters receded from the roads enough to allow trucks to transport science and vessel crews to the ship. The *R/V Acadiana* went to Houma for Katrina but stayed at the dock for Rita.



Hurricane Rita, 23 September 2005

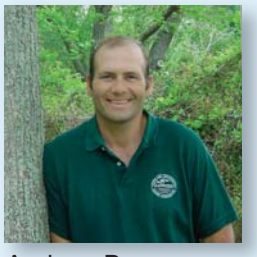
Research facilities damaged in Hurricanes Katrina and Rita were several observing systems and the downstairs fisheries laboratory, respectively. The WAVCIS/BIO2 observing system, a collaborative effort of Dr. Greg Stone of LSU and Dr. Nancy Rabalais of LUMCON, suffered considerable damage. Only the bottom-mounted, upward-directed ADCP (acoustic Doppler current profiler) and a single oxygen meter were recovered from multiple instruments and the destroyed conduit, cabling, controllers, recorders and transmitters at the Chevron/Texaco platform in 65 feet water depth off Terrebonne Bay. LUMCON's environmental monitoring system continued to record at Tambour Bay, Audubon Park, and the LUMCON Marine Center with the exception of wind speed in Cocodrie. The other stations at Southwest Pass and Lake Pontchartrain were either damaged or lost communications or both. The fisheries laboratories of Dr. Ed Chesney suffered considerable damage in Hurricane Rita, either from flooding or lack of sufficient electrical power.

Our employees evacuated from harm's way from both storms and were safe, but not all the homes were. The State's coast was a disaster area, but the LUMCON Marine Center withstood the storms well compared to the devastation around us. A year and a half later, large portions of coastal Louisiana and Mississippi resemble war zones. The LUMCON Marine Center continues to spring leaks in rain storms, the dormitories are not fully recovered and occupied, nor are the Fourchon field laboratory and the Marine Center downstairs lobby repaired. Still, we continue to host visitors from near and far, conduct research across a breadth of coastal issues facing Louisiana, and continue to education the public, school children and college students from Louisiana and around the country.

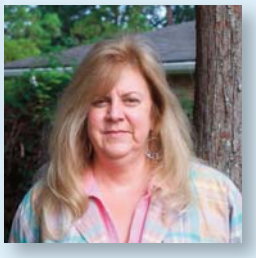
Hurricanes Katrina and Rita reminded us of the power of hurricanes, what we already knew about the fragility of Louisiana's coastal defenses, and how these wetlands and barrier islands have been lost over decades of interacting human and natural forces. Business as usual can no longer be Louisiana's plan of action. Coastal restoration, flood protection, navigation interests and proper maintenance of the necessary infrastructure cannot be independent of each other, but need to be integrated. The critical need for protecting society, culture, natural resources and economic sustainability, while enhancing the recovery of valuable coastal resources, is an opportunity we should approach thoughtfully and carefully. Planning the future of coastal Louisiana must be coherent, multi-purpose, feasible and timely


Mississippi Gulf Coast post Katrina

Barataria-Terrebonne National Estuary Program



Andrew Barron
Nonpoint Source Pollution Program Coordinator



Susan Testroet-Bergeron
Education Coordinator

Joni Blanchard
Public Involvement Coordinator

Michael Massimi
Invasive Species Coordinator

Not Pictured:

Dean Blanchard
Habitat Enhancement Coordinator

Richard DeMay
Environmental Scientist 3

Sandra Helmuth
Environmental Program Analyst 2

Kerry St. Pé
BTNEP Executive Director

Throughout the 2005-2006 Fiscal Year, the Barataria-Terrebonne National Estuary Program (BTNEP) staff continued to partner with organizations in meeting the intentions of the Comprehensive Conservation Management Plan (CCMP). BTNEP continued to make progress on completing 'backlogged' work plan projects that suffered delays during early, low staffing periods of the program and prioritized activities and projects related to the two major hurricanes of 2005, Katrina and Rita.

Educating the national, state, local and international media is an important objective. BTNEP has become a well established, credible source of factual information regarding restoration activities within the region. As a result, the program is frequently contacted by representatives of all media types. Interviews from international, national and local television news shows; national and in-state newspapers; local and national radio programs; national and local documentaries; and even IMAX movies are examples of media addressed by BTNEP during FY 2005-2006. BTNEP posted a major K-4 education curriculum on the web and hosted nine teacher workshops during the summer of 2006 to train teachers on the use of this curriculum.

BTNEP efforts to promote stewardship and educate the public on invasive species issues were enhanced with the launching of a first round of invasive species awareness workshops. The program coupled its invasive species program with a newly-established volunteer program with invasive plant removal projects.

Last year's addition of an AmeriCorps Vista member resulted in the successful start of the BTNEP Mini-Grants Program. Six of 25 proposals received from the public were awarded full or partial funding through the program.

In April of 2006, BTNEP hosted the 5th Annual "Back to the Bayou" paddling trip on Bayou Lafourche. This event is an essential component of a campaign to raise appreciation and stewardship for this historic waterway and has blossomed into a showcase of the unique cultures along of the bayou. Many of the participants are from out-of-state and witness the unique culture, issues, and ecology represented along Bayou Lafourche. Each day ended with cultural events beginning with presentations at Madewood Plantation on the first night and peaking with a joint celebration with the United Houma Nation.

BTNEP continued to organize volunteer planting events at the Maritime Forest Ridge and Marsh Restoration Project at Port Fourchon. Also, BTNEP frequently conducts tours of the project site with federal and state agency administrators, educators, elected officials, and media. BTNEP coordinates surveys of plovers and their habitats of this region.

BTNEP has made remarkable progress in its efforts to gain acceptance of the Pipeline Sediment Delivery (PSD) restoration strategy as a means of quickly restoring various coastal landscape features. Particularly following the impacts of Katrina and Rita, BTNEP has become an aggressive advocate for the large-scale use of PSD as a principal means of obtaining the sediment quantities needed to restore the B-T system. The use of this technique would be consistent with the objectives of the BTNEP Comprehensive Conservation and Management Plan. PSD, in a report to the Louisiana Department of Natural Resoruces, was shown to be a promising method, as compared to large river water diversions, to deliver critically needed sediments for rebuilding marsh habitats in a reasonable time period,

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Chesney, E.J. and **N.N. Rabalais**, co-Principal Investigators, Coastal Eutrophication and Hypoxia: Implications for Mercury Methylation, Mercury Biomagnification, and Human Health, National Oceanic and Atmospheric Administration Ecosystem Health, collaborator with D. Senn, Harvard School of Health, $82,000 to LUMCON, 9/04-9/07.

Chesney, E.J., Principal Investigator, Intensive Propagation of Marine Finfish in Recirculating Systems: Improving Survival and Growout Efficiency during the Larval Stage. Louisiana Sea Grant, $109,548, 02/2006 – 07/2008.

Chesney, E.J., co-Principal Investigator, Development of Formulated Diets for Pompano, Part II: Replacement of Fishmeal with Plant Proteins. Louisiana Sea Grant, with R. Reigh, Principal Investigator, $26,320 to LUMCON, 02/2006 – 01/2008.

Conover, J., Principal Investigator, Dispersants: An Electronic Bibliography on Effectiveness, Technological Advances, and Toxicological Effects, Louisiana Oil Spill Research and Development Program, $19,958, 05/2006-04/2007.

Dagg, M.J., co-Principal Investigator (with S. Strom), Responses of *Neocalanus* spp. – Microplankton Community to Physical Forcing in the Coastal Gulf of Alaska, National Science Foundation – Biological Oceanography, $590,460, 2001-2007.

Dagg, M.J., co-Principal Investigator (with several others), Long-term Estuary Assessment Group (LEAG): Science in Service of Policy in the Mississippi River/Gulf of Mexico Estuary, National Oceanic and Atmospheric Administration-Coastal Ocean Program through Tulane University's Center for Bioenvironmental Research, $22,000, 2005-2006

Finelli, C., Principal Investigator, Expanding and Enhancing the Bayouside Classroom Science & Stewardship Program, Entergy, $22,257, 2006.

Finelli, C., co-Principal Investigator, Collaborative Research + RUI: The Effects of Water Movement and Zooplankton Escape Behavior on Planktivory by Coral Reef Fishes in Different Microhabitats, National Science Foundation, with Ed Buskey, University of Texas Marine Science Institute and Ray Clarke, Sara Lawrence College, $383,724 ($81,243 to LUMCON), 2003-2006.

Finelli, C., Principal Investigator, Supplement to Career Development Plan: Interdisciplinary Research and Education in Marine Habitats, National Science Foundation, $551,755, 2001-2006

Kastler, J., co-Principal Investigator, Regional Center for Ocean Science Education Excellence (COSEE)-Central Gulf of Mexico, with S. H. Walker (University of Southern Mississippi) and others, $498,218, 9/01/05–08/31/09.

Rabalais, N.N., Principal Investigator, Refining Knowledge of Hypoxia Dynamics: The Interaction of Physics and Biology, Gulf of Mexico Program, $300,000, 10/1/05 – 9/30/07.

Rabalais, N.N., Principal Investigator, Guide to Phytoplankton (including Harmful Algae) from Louisiana Estuarine and Coastal Waters, Gulf of Mexico Program, $101,000, 10/1/05 – 9/30/07.

Rabalais, N.N., Principal Investigator, MULTISTRESS: Cumulative Coastal Stressors: Northern Gulf of Mexico. National Oceanic and Atmospheric Administration-Coastal Ocean Program, Nancy Rabalais, $1,123,711, collaborative award to lead LSU, R. E. Turner et al., $4,990,832, 9/1/2002 – 8/31/07.

Rabalais, N.N., Principal Investigator, NGOMEX02, Hypoxia Studies in the Northern Gulf of Mexico, National Oceanic and Atmospheric Administration-Coastal Ocean Program, Principal Investigator, $1,656,205, 5/1/2003 – 4/30/06, collaborative award to R. E. Turner et al., Louisiana State University.

Rabalais, S.C., Principal Investigator, Shipboard Scientific Support Equipment, National Science Foundation, $46,804, 08/15/05–07/31/07.

Rabalais, S.C., Principal Investigator, Oceanographic Instrumentation, National Science Foundation, $96,400. 05/15/06–04/30/08

Rabalais, S.C., Principal Investigator, Oceanographic Technical Services 2006–2008, *R/V Pelican*, National Science Foundation, $44,395, 05/01/06–04/30/07

Sammarco, P.W., Principal Investigator, Determining the Geographical Distribution, Maximum Depth and Genetic Affinities of Corals on Offshore Platforms, Northern Gulf of Mexico, Minerals Management Service via Louisiana State University, Coastal Marine Institute (CMI), $302,850, 9/1/04-8/31/06.

Sammarco, P.W., Principal Investigator, Deep-Water Coral Distribution and Abundance on Active Offshore Oil and Gas Platforms and Decommissioned 'Rigs-to-Reefs' Platforms, Minerals Management Service via Louisiana State University, Coastal Marine Institute, $351,723, 2006-2008.

Sammarco, P.W., Principal Investigator, Determining the Geographical Extent, Maximum Depth, and Genetic Affinities of Corals on Offshore Oil and Gas Platforms, northern Gulf of Mexico, Minerals Management Service via Louisiana State University-Coastal Marine Institute, extension, $369,104, 10/1/2004 – 9/30/2006.

FY 2005-06 BUDGET

EXPENDITURES	FY 2005-06 BUDGET	FY 2005-06 ACTUAL EXPENDITURES THRU 6/30/06	FY 2005-06 BUDGET BALANCE 6/30/2006
STATE FUNDS			
Salaries and Wages	1,598,156	1,598,156	0
Student Wages	15,000	15,000	0
Fringe Benefits	390,583	390,583	0
Travel	15,570	15,570	0
Operating Services	354,338	354,338	0
Supplies	125,463	125,463	0
Professional Services	2,269	2,269	0
Acquisitions:			
Library	106,702	106,702	0
Other Acquisitions	5,477	5,477	0
IAT-UPS- TRANSFERS, OTM Charges	321,523	321,523	0
STATE FUNDS EXPENDITURES*	2,935,081	2,935,081	0

*With Statutory Dedication Funds

LIBRARY ACQUISITIONS WILL BE SUPPLANTED WITH $28,525 IN OTHER FUNDS

OTHER FUNDS			
Barataria-Terrebonne National Estuary	1,547,653	692,936	854,717
Restricted Fund (Research, IDC, FEMA)	2,307,014	2,018,607	288,407
Vessel Operations	2,000,000	1,560,993	439,007
Cafeteria / Dormitory	130,000	95,699	34,301
TOTAL EXPENDITURES	$8,919,748	$7,303,316	$1,616,432

SOURCE OF REVENUE:	FY06 BUDGET	FUNDS DRAWN OR COLLECTED	FY06 BUDGET BALANCE
State General Fund	2,903,746	2,903,746	0
Restricted Fund: (Research,IDC,FEMA)			
Federal Funds	2,934,667	2,508,086	426,581
Self Generated Fees	70,000	70,000	0
Interagency Trans.	850,000	133,457	716,543
		0	
Ancillary Funds:		0	
Vessel Operations	2,000,000	1,560,993	439,007
Cafeteria Dormitory	130,000	95,699	34,301
Statutory Dedications:Fac.Pay	31,335	31,335	0
Statutory Dedications: Def. Elim.	0	0	0
TOTAL REVENUE	$8,919,748	$7,303,316	$1,616,432

Prior Year-End Fund Balances:	
Restricted Fund: (Research)	
Federal/Self-Gen. Fees, IAT, IDC Funds	162,144
Ancillary Funds:	
Vessel Operations	462,465
Cafeteria / Dormitory	153,082
Act 971 Carryover (Prev. Maint.)	0
	777,691

Community Contributions

Brenda Leroux Babin, member, Data Management and Communication Committee, Gulf Coast Ocean Observing System Regional Association; member, Nicholls State University, Computer Science and Computer Information Systems Curriculum Advisory Committee.

Ed Chesney, advisor to the CALFED IEP (Interagency Environmental Program) work plan to evaluate the strategy for understanding the current decline of pelagic fishes in the central valley of California; special CALFED committee to consider the emergency use of water for reducing impacts of water withdrawal on endangered fishes in the central valley of California.

John Conover, chair, LALINC Grant Committee (Louisiana Academic Library Information Network Consortium); LUMCON representative, Barataria-Terrebonne Estuary Management Conference; member, Action Plan Team for Protection of Habitat for Migratory and Resident Birds, BTNEP.

Mike Dagg, chair, Biological Oceanography Committee of PICES, the North Pacific Marine Science Organization; member, Science Advisory Board, North Pacific Research Board; member, science sub-panel on development of Integrated Research Ecosystem Plan for the Bering Sea; member, Editorial Advisory Board, Continental Shelf Research; organizer, Symposium on Coastal Ecosystem Responses to Changing Nutrient Inputs from Large Temperate and Sub-Tropical Rivers.

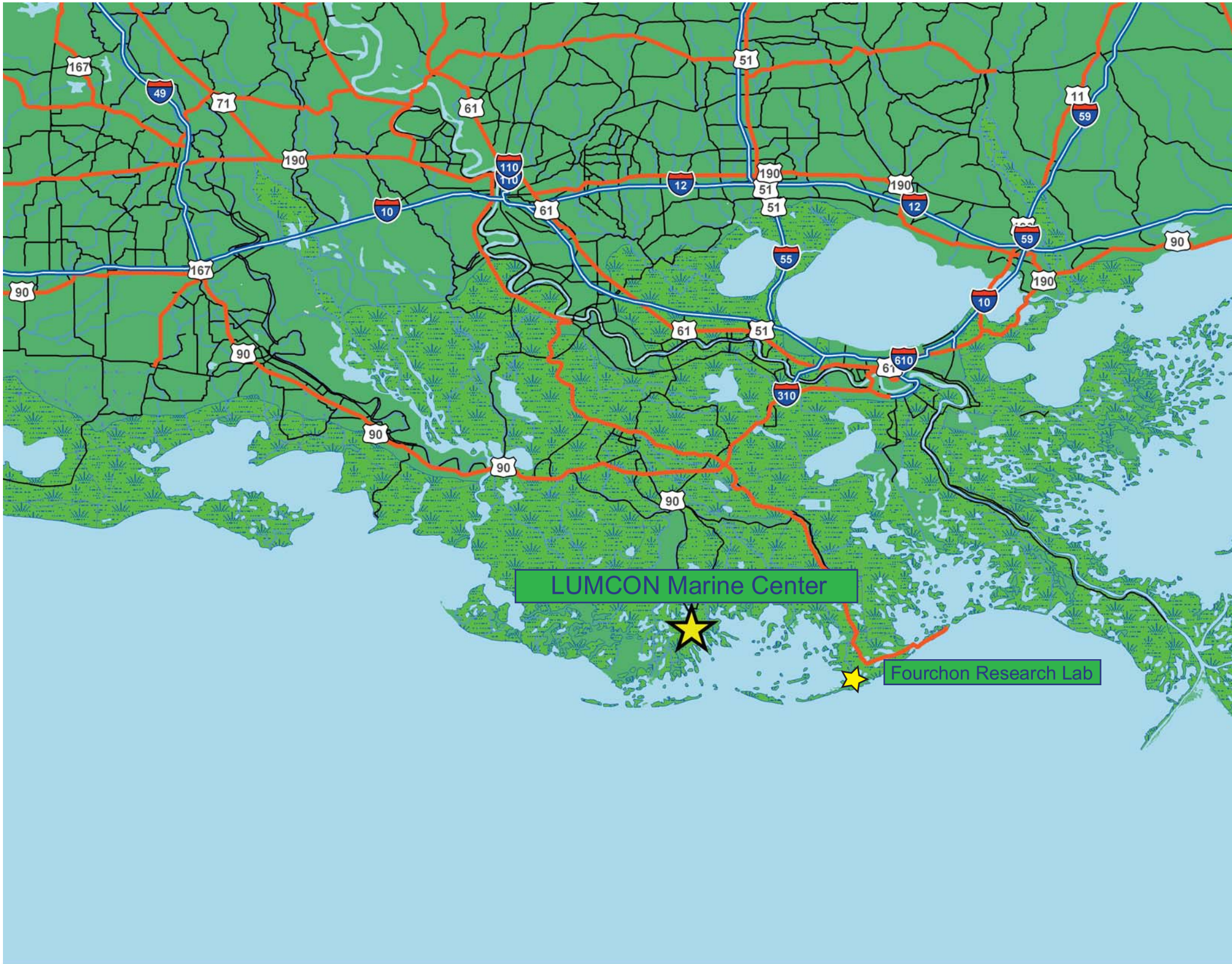
Chris Finelli, member, Citizen's Water Quality Monitoring Program Advisory Committee and Action Plan Team for Water Quality BTNEP; member, Nicholls State University, Masters Program in Environmental and Marine Biology, Curriculum Advisory Committee.

Jessica Kastler, LUMCON representative, Barataria-Terrebonne Estuary Management Conference; chair-elect (member since 2004), Education and Outreach Committee, Gulf Coast Ocean Observation System; member, Outreach Committee, National Marine Educators Association; Region 3 director, Louisiana Association of Science Leaders; member, Education Action Plan Team, Education Committee, Citizens Monitoring Advisory Committee, and Water Quality Action Plan Team Barataria-Terrebonne National Estuary Program; member, Executive Board, South Louisiana Children's Discovery Center (Wild in the Wetlands Planning Group).

Rodney Powell, co-editor, Marine Chemistry Special Issue; co-editor, G-Cubed Themed Section

Nancy Rabalais, member, National Research Council committee on the Mississippi River and the Clean Water Act; working group to develop national workshop on Research Priorities in Ocean Science and Technology; vice chair and member, Land Ocean Interactions in the Coastal Zone; member, SCOR (Scientific Committee on Ocean Research) Working Group 128 on Natural and Human-Induced Hypoxia and Consequences for Coastal Areas; member, Nicholls State University, Masters Program in Environmental and Marine Biology Curriculum Advisory Committee; member, Executive Board, NOAA CREST program, Coastal Restoration and Enhancement through Science and Technology; member Louisiana sub-basin working group for Hypoxia Task Force, 2002-present; member, Working Group for Post-Hurricane Planning for Greater New Orleans and the Louisiana Coast, Institute of Water Resources, U.S. Army Corps of Engineers, 2005 to 2006; member, Board of Directors, GCOOS, Gulf of Mexico Regional Association for Ocean.US; advisor, NOAA/EPA National Estuarine Eutrophication Assessment and Development of Nutrient Criteria to Estuaries.

Paul Sammarco, editor, Marine Biology; chair and organizer, Environmental Bio-Indicators - Coral Reef Roundtable, 14th International Conference on Environmental Bioindicators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