

FY 2007-2008 Annual Report



Louisiana Universities Marine Consortium



Our Mission

“To increase society’s awareness of the environmental, economic and cultural value of Louisiana’s coastal and marine environments by conducting research and education programs directly relevant to Louisiana’s needs in marine science and coastal resources and serving as a facility for all Louisiana schools with interests in marine research and education.”

Message from the Director

The Louisiana Universities Marine Consortium's facility and its staff directly serve Louisiana's needs in marine science through research and education. LUMCON's DeFelice Marine Center is Louisiana's single, modern, coastal laboratory housing a premier faculty of nationally and internationally renown researchers. The facility also supports the research activities of many collaborators and visitors from Louisiana, the U.S. and the world.

The research conducted at LUMCON serves Louisiana in the areas of human health, sustainable living resources, and water quality conditions providing basic information on the environmental health of our surrounding ecosystems and information for decision-makers, such as those guiding coastal restoration. From the uptake of mercury in red and gray snappers and the subsequent mercury levels in hair samples of Louisiana fisherman to the buildup of toxins in the meat of blue crabs from cyanobacteria in the eutrophied waters of the Barataria estuary, LUMCON's research directly serves human health needs in a community that depends on fish and shellfish for both commercial supply and recreation. LUMCON's commitment to monitoring water quality conditions extends from its coastal Environmental Monitoring System to two real-time hypoxia observing system stations in the Northern Gulf of Mexico expanding researchers' abilities to better understand the development of hypoxia in different locations, providing fishers with ready information on water conditions, and enabling managers to make better decisions regarding protecting these waters.

LUMCON's education programs provide Louisiana citizens with a better understanding of Louisiana's coastal resources, how they are changing, how the ecosystem works, and what citizens need to know for their part in maintaining a thriving natural system. Kindergarten through graduate level students on field trips constantly fill LUMCON's halls and grounds. Faculty at LUMCON teach formal college courses both in the summer and year-round via video distance learning. LUMCON opened its doors to the public for an Open House allowing visitors a first-hand experience of LUMCON's research.

In the following pages, we share with you highlights of the 2007-2008 fiscal year. It was a good year at LUMCON with active research and education programs, involvement of the staff in science, education and public activities, high activity in the vessel fleet, and as many visitors as could be fit into the still unrepaired housing facilities (post Hurricane Katrina in 2005). We continue to push on with rebuilding and repairing and engaging scientists, educators and the many visitors who pass through our doors.



Nancy Rabalais

The W. J. DeFelice Marine Center

- * October 25th, 2007 hosted a Joint Senate committee meeting on Coastal Restoration and Flood Control meeting along with Senator Reggie Dupre and Representative Damon Baldone where the Terrebonne Parish Levy Board & Conservation District President Tony Alford received a federal check for \$40 million for their Navigational Canal Lock project from Scott Angelle, the Secretary of the Department of Natural Resources.
- * October 26th 2007 hosted the Breaux Act Project Dedication ceremony for federal, state and local government officials as well as the public who left on excursions by boats, seaplanes and helicopters to six project sites for review.
- * February 22-24, 2008 hosted the 9th Annual Graduate Student Symposium for over 80 students with 56 oral presentations and 13 poster presentations, for the Marine Environmental Researchers, a graduate student organization at LSU, the University of South Alabama and the University of Southern Mississippi.
- * April 26, 2008 hosted and held by the LUMCON employees on a Saturday volunteered to host their Open House to share science with over 500 attendees; held a photography competition that included over 112 photographs.
- * June 25, 2008 LUMCON's environmental monitoring became a host site for scientists from Los Alamos, New Mexico to implement a Lightning Mapping Array System along with Nicholls State University, Louisiana State University, the Port Fourchon Authorities and the Associated Branch Pilots sites to form a new dual VLF-VHF lightning geolocation array in the New Orleans area.
- * June 30, 2008 completed Reconstruction of Terrebonne Bay's Monitoring station.



Faculty Research

- * Fisheries scientist Dr. Ed Chesney, as part of a collaborative effort by a team of aquaculture and fishery scientists, is working on a planning project to develop offshore aquaculture in the northern Gulf of Mexico. The goal is to plan, execute and evaluate a pilot-scale demonstration of finfish aquaculture in the northern Gulf's Exclusive Economic Zone following rigid criteria established to protect the environment and marine species.
- * Dr. Chesney is testing the utility of a novel commercially produced liquid feed for growth of fish larvae in aquaculture systems. This effort is funded by Louisiana Sea Grant and collaborating with Cargill-Burris, LLC, a Louisiana aqua-feed company.
- * Dr. Chesney, in a collaborative effort with LSU engineer Dr. Ron Malone, Aquaculture Systems Technologies and Cargill-Burris Aqua Feeds, is testing a commercial scale fingerling production system that uses a re-circulating bio-filtration system to maintain water quality. The goal is to refine the guidelines for the use of airlifts instead of pumps as a means to reduce the costs associated with re-circulating aquaculture grow-out systems and improve production. This project is funded by Louisiana Sea Grant.
- * Dr. Chesney is working with the is working with the Harvard School of Public Health on a NOAA Oceans and Human Health Initiative funded project studying on the accumulation rates of mercury within the marine food chain. The project also surveyed local fishermen to understand their fish eating habits and to test them for accumulation of mercury in their hair. Results of the study revealed that Louisiana recreational fishermen accumulate mercury at rates higher than the average American. The project was funded by the NOAA Oceans and Human Health Initiative.
- * Dr. Mike Dagg, along with Dr. Brian Roberts and Dr. Rodney Powell, worked on the contribution of dissolved organic carbon (DOC) released from Louisiana's coastal marshes during periods of flooding



then transported into the local bays and the coastal ocean. Some of this DOC becomes incorporated into the food web of these systems, enhancing biological production.

- * Dr. Dagg is examining food web structures on the continental shelf of the Gulf of Alaska. The coastal ecosystem supports large copepods in the spring and juvenile pink salmon in the summer. His work is to understand what controls their productivity and how productivity and pathways will be modified by climate change.
- * Dr. Rodney Powell, in collaboration with Dr. Bin Li from the Department of Experimental Statistics at LSU, is using a new statistical technique known as multiple additive regression trees on 5000+ nutrient data to understand high spatial resolution measurements of nutrients on the Louisiana coast.
- * Dr. Paul Sammarco has been studying how oil and gas production platforms in the northern Gulf of Mexico affect the biogeographic expansion of corals throughout the region. These artificial islands offer hard substratum and habitat to many organisms, including Caribbean reef corals, which would otherwise be absent, except for the only two true coral reefs in this region – the Flower Garden Banks. The most significant advance for this year was the enactment of the Alternate Energy/Alternate Uses Act, which allows offshore platforms to be used for alternate energy sources and to serve as artificial reefs. The Gulf of Mexico holds the highest density of offshore platforms in the world.
- * Dr. Sammarco's lab applied DNA techniques to determine the genetic affinities of the most abundant corals found in the northern Gulf of Mexico and how the populations on the platforms are related to those on the Flower Garden Banks, other platforms, and other reef systems in the Bahamas and the Florida Keys. The Flower Garden Banks are generally self-seeded and thus fragile and vulnerable to environmental perturbations. The reef-building corals on the platforms are being seeded by the Flower Garden Banks. The non-reef building corals exhibit no affinity to the Flower Garden Banks and are generally related to each other at the same level across the Gulf.



Faculty Research continued

- * The Mississippi River and Midwestern floods of 2008 contributed substantially to the formation and distribution of low oxygen waters in the Gulf of Mexico, known as the 'Dead Zone.' The river reached the historic peak flow in April, and the high water and associated flux of nutrients, particularly nitrate-nitrogen, led to an earlier hypoxia season. The continued high discharge and nutrient flux of the Mississippi River contributed to low oxygen events east of the Mississippi River delta in Chandeleur Sound and the area



offshore of Mississippi Sound. The record flow and higher nitrate concentrations from increased production of corn for ethanol production contributed to a nitrogen loading from the river by May that was 7.4 % higher than in 2007. The size of the summer 2008 hypoxic zone was predicted by Dr. Gene Turner of LSU to be 4.7 % larger. Initial SEAMAP (Southeast Area Monitoring and Assessment Program) groundfish surveys in June to mid July verified this prediction. The cruise conducted by Dr. Nancy Rabalais for the determination of hypoxia distributions took place on July 21-29, 2008. The area, while the second largest on record, did not meet the prediction because of water column mixing during Hurricane Dolly.

- * An additional real-time hypoxia observing system went on line in fall 2007 off Caminada Pass in 15 m water depth. This station was critical in observing the high Mississippi River discharge in spring as well early and significant phytoplankton blooms and formation of hypoxia earlier in the year. The effort joins the hypoxia research of Dr. Rabalais of LUMCON and Dr. Greg Stone of LSU in the WAVCIS/BIO2 efforts.



- * Collaborative work by Dr. Rabalais and scientists from the Harvard School of Public Health on mercury methylation and mercury accumulation in sediments continued. The most recent results come from post Hurricanes Katrina and Rita sediment samples on the continental shelf affected by the 2005 tropical storm season that demonstrated the effects of resuspension events associated with hurricane activity as a mechanism by which mercury (Hg) speciation and methyl mercury (MeHg) production are influenced. The amount of redistributed Hg associated with hurricanes was estimated to be five times greater than the combined annual Hg input from the Mississippi/Atchafalaya River System and atmospheric deposition.

- * The LUMCON phytoplankton group, led by Wendy Morrison, documents the phytoplankton communities and harmful algal bloom (HAB) species in the area of hypoxia ('Dead Zone') and the Barataria Bay estuary. They continually

contribute this information on HAB incidents to the international compilation. The taxonomic guide to phytoplankton of the Louisiana coastal area has become more of an entity with Brenda Leroux Babin's development of a relational database allowing for searches on the individual species as well as the associated ecological parameters. Dr. Rabalais and Dr. Sibel Bargu of LSU are collaborating on phytoplankton toxins, their growth limitations or stimuli, and the accumulation of phytoplankton toxins in crabs in the upper Barataria estuary and the implications for human health.

- * Dr. Brian Roberts, in collaboration with Dr. Pat Mulholland of Oak Ridge National Laboratory, has maintained his continuous record of daily rates of primary production and ecosystem respiration in Walker Branch, a forested stream in the eastern Tennessee that began in January 2004. In the past year, this continuous record proved extremely valuable by allowing Dr. Roberts and colleagues to document some unexpected effects of climate change by capturing the cascading responses of the stream ecosystem following a severe spring freeze event that affected a broad region of the southeast and south central U.S. Dr. Roberts has also begun examining the controls on interannual variability in stream metabolism rates.

- * Dr. Roberts, working with Dr. Mike Dagg and Dr. Rodney Powell, has been studying temporal and spatial variability in marsh and coastal ocean influences on the relative contribution of bacteria and phytoplankton to ecosystem respiration in Terrebonne Bay, Louisiana.



- * Dr. Roberts, in collaboration with Dr. Rabalais and Dr. Gene Turner of LSU, has recently begun project in the Atchafalaya River/Bay ecosystem that is funded by the Louisiana Board of Regents Support Fund. This project aims to fill in an important gap in the current understanding of the transport and transformations of nutrients and organic matter as it is transported below current monitoring stations on the river and passes through the Atchafalaya River delta estuary to the "Dead Zone" region of the northern Gulf of Mexico.

Education

Between individuals who visited the LUMCON Marine Center and those that Marine Education visited outside of the LUMCON Marine Center, there was a total of 16,500 contact hours with K-12 students, teachers, and members of the public from July '07 through June '08. The breakdown reported to the Louisiana Division of Administration every year is given below, but the real impact lies in increased understanding of science, marine literacy, awareness of the coastal ecosystem and the human component within it, and the desire to work toward a sustainable coastal Louisiana for the benefit of its citizens, culture and economy.

2007-2008 Participation	Group Type		
Field Trips to Marine Center	K-12, Public	Teacher	Total
Number of field trips	65	6	71
Number of participants	1,723	122	1,845
Number of contact hours	9,542	1,316	10,858
Outreach			
Number of outreach events	6	8	14
Number of outreach participants	2,455	1,324	3,801
Number of outreach contact hours	4,025	1,596	5,621

Noteworthy events in K-12 and Teacher Education during 2007-2008 were:

- * A successful LEAD Camp (Louisiana Environmental Awareness and Discovery) was hosted from July 1 -7 for students from around the state.
- * LEAD Camp students volunteered at the Coastal Classroom display/activity for La Fete d'Ecologie and several activities for the LUMCON Open House.
- * LUMCON held the first From H-2-O water quality workshop for teachers.
- * LUMCON hosted a teleconference with students from Texas and Florida. Students from Legion Park Elementary School in Houma shared their findings about the water quality in Bayou Terrebonne.
- * Murt Conover was invited to present at the Project WET National Conference in New Orleans.

Educators from around the state remain enthusiastic about the Bayouside Classroom Program, and its popularity is spreading around the Gulf coast region.

- * 2007-2008 was a record year for the number of teachers and students collection data using Bayouside Classroom. Twenty-three teachers from Louisiana sampled with students this year.
- * The From H-2-O water quality workshop trained teachers how to use Bayouside Classroom. The new workshop format of experienced teachers mentoring new participants has generated new interest in Bayouside Classroom.
- * Bayouside Classroom was again used as a service-learning project at Tulane University. Twenty students samples sites around New Orleans and presented their findings to educators and scientists at a Marine Center workshop.
- * Students that participated in Bayouside Classroom within Terrebonne Parish completed a pre- and post-test about what they had learned. The students averaged a 30% increase from pre- to post-test.

LUMCON's University Education Program continues to serve undergraduate and graduate students with the Spring semester distance video course on "Changing Coastal Oceans," and a variety of summer school classes. This summer the courses were Coastal Landscape Photography, Coral Reef Ecology, Marine Field Ecology, and Coastal Field Geology. Thirty-nine students gained credit at their home universities for the courses enrolled at LUMCON.

The LUMCON faculty advise four graduate students, one at Nicholls State University and three at Louisiana State University. These students have the advantage of the resources of the Marine Center for their research projects, including research cruises on the *R/V Pelican* and the *R/V Acadiana*.

LUMCON led university-level field trips continue to make good use of the Marine Center, the small boats and the *R/V Acadiana*. The universities include those from Louisiana (Louisiana State University, University of Louisiana at Lafayette, University of New Orleans, Centenary College, Southeastern Louisiana University, Baton Rouge Community College, Our Lady of Holy Cross College, Southern University, Tulane and Loyola) and from across the U.S. (Missouri, North Carolina, Washington, Massachusetts, Alabama, Mississippi, Texas, Maryland, Arkansas, Georgia, Oklahoma, Illinois, California, Maine, Connecticut, New Hampshire and Florida). The diversity of colleges and universities speaks praise to the facility, its unique location, its educators and the education opportunities that are provided.

The LUMCON Marine Center serves as a perfect location for groups that need meeting facilities, with the added advantage of location in the expansive coastal marshes of south Louisiana where the environment and environmental concerns are so obvious. Groups meeting at LUMCON were the National Wildlife Federation, Leadership Terrebonne, the Louisiana Herpetological Society, and the Sacred Heart Service Project.

Similar to K-12 outreach, the university education program moves to the community with attendance at the Barataria-Terrebonne National Estuary Program Management Conference meetings, career and professional days at Nicholls, Tulane and Loyola, leadership in the BTNEP Invasive Species Rapid Assessment project, taking the best of the Coastal Landscape Photography class to the Turchin Center for the Visual Arts in Boone, North Carolina, and visiting universities across the state to encourage participation in LUMCON's many educational offerings.

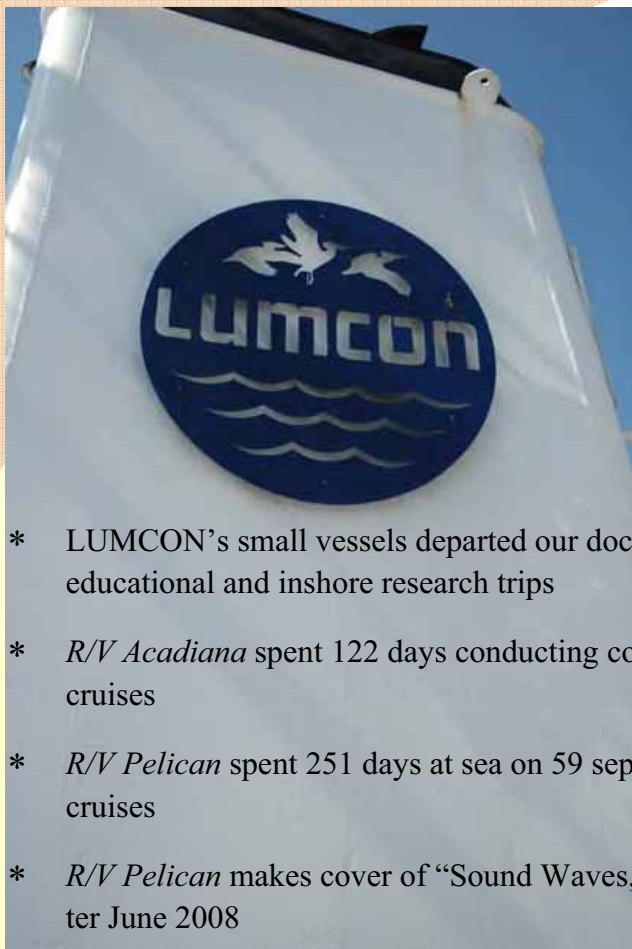


LUMCON Summer interns: Julie Seneff from Baton Rouge Community College, Jorge Rodriguez from the Universidad Metropolitana in San Juan, Puerto Rico and Elizabeth Bennett from Nicholls State University.

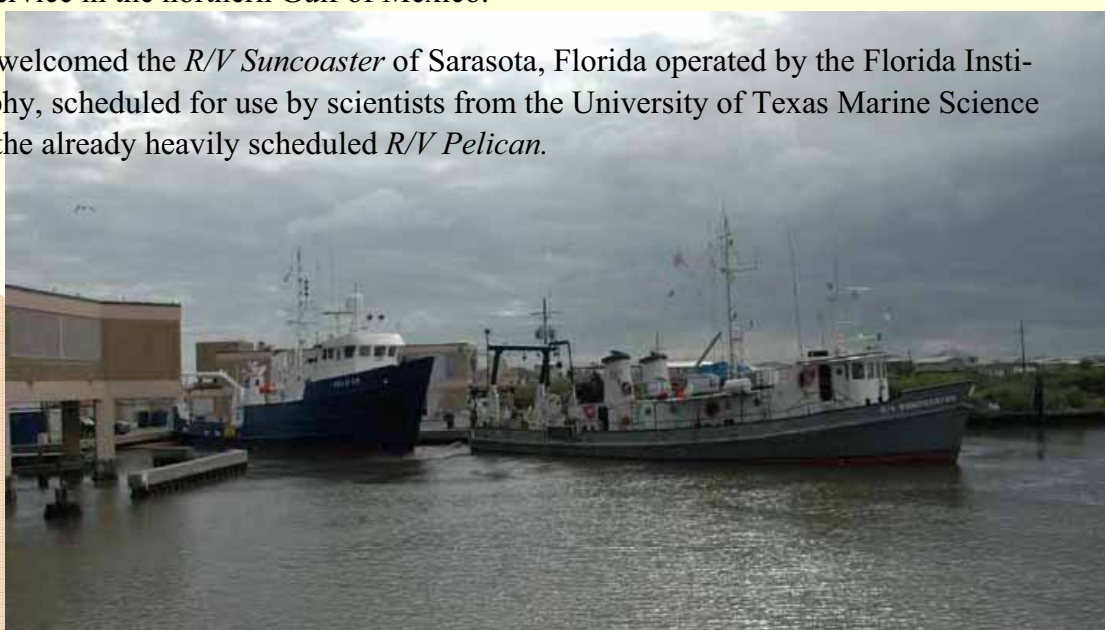
Devin Peairs, intern from Bookhaven Academy High School in Brookhaven, MS.



Vessel Operations



- * LUMCON's small vessels departed our dock 197 times for conducting educational and inshore research trips
- * *R/V Acadiana* spent 122 days conducting coastal research and educational cruises
- * *R/V Pelican* spent 251 days at sea on 59 separate oceanographic research cruises
- * *R/V Pelican* makes cover of "Sound Waves," the USGS monthly Newsletter June 2008
- * *ROV Phantom II* trip provided valuable documentation of coral reefs forming on offshore platforms for 'Rigs-to-Reefs' platforms for the Minerals Management Service in the northern Gulf of Mexico.
- * LUMCON harbor welcomed the *R/V Suncoaster* of Sarasota, Florida operated by the Florida Institute of Oceanography, scheduled for use by scientists from the University of Texas Marine Science Institute in lieu of the already heavily scheduled *R/V Pelican*.



2007-08 Employees

Andrews, John, *Able-bodied Seaman*
Babin, Brenda Leroux, *Information and Technology Manager*
Benoit, Bruce Wayne, *Information Technology Specialist*
Bonvillain, Shanna, *Assistant Librarian*
Bordelon, Michael, *Deckhand R/V Pelican*
Boudreaux, Heidi, *Finance Manager*
Bourge, Beth, *Purchasing/Accounts Payable*
Chauvin, Christian, *Instrument Technician*
Chesney, Edward Jr., *Associate Professor*
Cologne, Debra, *Cafeteria/Dormitories*
Conover, John, *Librarian*
Conover, Murt, *Marine Education Associate*
Cotten, Nicole, *Marine Education Associate*
■ Crochet, Beau, *Information Technology Specialist*
Dagg, Michael, *Professor*
Delatte, Michael, *Marine Technician R/V Pelican*
Delaune, Wilton, *Facility Technician, Fourchon*
DeLuca, Nina, *Senior Research Associate*
Domangue, Van, *Captain R/V Acadiana*
Dortch, Quay, *Adjunct Professor*
Duplantis, Gwendolyn, *Cafeteria/Dormitories*
Endsley, Reid, *Facility Technician*
Faulkner, Louis, *Captain R/V Acadiana*
Feigler, Bruce, *Security Guard*
Fiand, Kai-Felix, *Instrument Technician*
Finelli, Chris, *Adjunct Associate Professor*
Foret, Poule, *Cafeteria/Dormitories*
Guidry, Chuck, *Administrative Assistant*
Hebert, Holly, *Database Specialist*
Hebert, Jaimee, *Personnel/Payroll Officer*
Hebert, Trudy V., *Public Information Specialist*
Hughes, Joseph, *Relief Mate R/V Pelican*
Hughes, Randal, *Chef R/V Pelican*
Johnson, Carolyn, *Cafeteria/Dormitories*
LaFleur Jr., Gary, *Summer Instructor*
LeBoeuf, Craig, *Captain R/V Pelican*
LeBouef, Sam, *Vessel Technician*
LeCompte, Kenneth, *Security Guard*

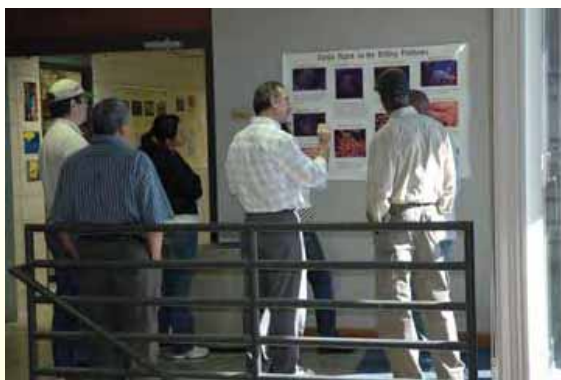
Lirette, Angela, *Research Technician*
Luke, Charo, *Grants/Contracts Officer*
Malbrough, Joseph, *Marine Superintendent*
Martin, Russell, *Facility Technician*
Mendenhall, Warren, *Research Technician*
Morrison, Wendy, *Senior Research Associate*
Pennington, Jack, *Chief Engineer R/V Pelican*
Pontiff, Gene, *Security Guard*
Powell, Rodney, *Associate Professor*
Pride, Lora, *Research Associate*
Rabalais, Nancy, *Executive Director & Professor*
Ren, Ling, *Postdoctoral Research Associate*
Richardi, Danielle, *Research Assistant*
Roberts, Brian, *Assistant Professor*
Robichaux, Richard, *Facility Technician*
Sammarco, Paul, *Professor*
Semmler, Carrie, *Research Assistant*
Sevin, Carl, *Vessel Technician*
Sevin, Cindy, *Receptionist*
Simoneaux, Wayne, *Marine Center Superintendent*
Sipiorski, Dennis, *Summer Instructor*
Small, Zackary, *Ordinary Seaman*
Strozyk, Margaret, *Seamen, R/V Pelican*
Thibodeaux, Keith, *Security Guard*
Thomas Jr., Joseph, *First Mate R/V Pelican*
Walker, Jerry, *Facility Technician*
Westmoreland, Jordan, *Marine Tech. R/V Pelican*
Whatley, Tanya, *Cafeteria/Dormitories*
Wicher, Lillie, *Administrative Assistant*
Wike, Max, *Relief Crew R/V Pelican*



Publications

- * Atchison, A. D., **P. W. Sammarco**, and D. A. Brazeau. 2008. Genetic Connectivity in Corals on the Flower Garden Banks and Surrounding Oil/Gas Platforms, Gulf of Mexico. *Journal of Experimental Marine Biology and Ecology*, 365:1-12.
- * **Baustian, M. M.**, S. J. Bentley, and J. H. Wandersee. 2008. Innovative assessment tools for a short, fast-paced summer field course. *Journal of College Science Teaching*, July/August 2008: 54-60.
- * Bank, M. S. **E. J. Chesney**, J. P. Shine, A. Maage, and D. B. Senn. 2007. Mercury bioaccumulation and trophic transfer in sympatric snapper species from the Gulf of Mexico. *Ecological Applications*, 17(7): 2100-2110.
- * **Chesney, E. J.**, 2008. Foraging behavior of bay anchovy larvae, *Anchoa mitchilli*. *Journal of Experimental Marine Biology and Ecology*, 362:117-124.
- * **Dagg, M.**, J. Ammerman, R. Amon, W. Gardner, R. Green, and S. Lohrenz. 2007. Review of water column processes influencing hypoxia in the northern Gulf of Mexico. *Estuaries and Coasts*, 30: 735-752.
- * **Dagg, M.**, S.-I. Uye, L. Valdés, and R. Harris. 2008. Human and climate forcing of zooplankton populations: Introduction. *ICES Journal of Marine Science*, 65: 277-278.
- * **Dagg, M.**, R. Sato, H. Liu, T. Bianchi, R. Green and **R. Powell**. 2008. Microbial food web contributions to bottom water hypoxia in the northern Gulf of Mexico. *Continental Shelf Research*, 28: 1127-1137.
- * **Dagg, M. J.**, T. Bianchi, B. McKee and **R. Powell**, 2008. Fates of dissolved and particulate materials from the Mississippi River immediately after discharge into the northern Gulf of Mexico, USA, during a period of low wind stress. *Continental Shelf Research*, 28: 1443-1450. Glibert, P. M., et al., including **N. N. Rabalais**. 2008. Ocean urea fertilization for carbon credits poses high ecological risks. *Marine Pollution Bulletin*, 56:1049-1056.
- * Hill, W. R., S. E. Fanta, and **B. J. Roberts**. 2008. ^{13}C dynamics in benthic algae: Effects of light, phosphorus, and biomass development. *Limnology and Oceanography*, 53(4): 1217-1226.
- * Kelly-Gerreyn, B., **N. Rabalais**, J. Middelburg, S. Roy, K.-K. Liu, H. Thomas, and J. Zhang. 2008. Continental Margins: Linking Ecosystems. *Eos, Transitions American Geophysical Union*, 89(7): 64.
- * Liu, H., **M. Dagg**, J. Napp, and R. Sato. 2008. Mesozooplankton grazing in the coastal Gulf of Alaska: *Neocalanus* spp. vs other mesozooplankton. *ICES Journal of Marine Science* 65: 351-360.





- * **Rabalais, N. N.**, R. E. Turner, B. K. Sen Gupta, D. F. Boesch, P. Chapman, and M. C. Murrell. 2007. Characterization and long-term trends of hypoxia in the northern Gulf of Mexico: Does the science support the Action Plan? *Estuaries and Coasts*, 30(5): 753-772.
- * Riley, K. L., **E. J. Chesney** and T.R. Tiersch. 2008. Field collection, handling and refrigerated storage of sperm of Red snapper and Gray snapper. *North American Journal of Aquaculture*, 70:356-364.
- * **Roberts, B.J.**, and P. J. Mulholland. 2007. In-stream biotic control on nutrient biogeochemistry in a forested headwater stream, West Fork of Walker Branch. *Journal of Geophysical Research (Biogeosciences)*, 112, G04002, doi: 10.1029/2007JG000422.
- * Sato, R., Y. Ishibashi, Y. Tanaka, T. Ishimaru, and **M Dagg**. 2008. Productivity and grazing impact of *Oikopleura dioica* (Tunicata, Appendicularia) in Tokyo Bay. *Journal of Plankton Research*, 30: 299-309.
- * Sutor, M. and **M. Dagg**. 2008. The effects of vertical sampling resolution on estimates of plankton biomass and rate calculations in stratified water columns. *Estuarine Coast and Shelf Science*, 78: 107-121.
- * Turner, R. E., **N. N. Rabalais** and D. Justić. 2008. Gulf of Mexico hypoxia: alternate states and a legacy. *Environmental Science and Technology*, 42: 2323-2327.
- * Turner, R. E., **N. N. Rabalais**, R. B. Alexander, G. McIsaac, and R. W. Howarth. 2007. Characterization of nutrient, organic carbon and sediment loads from the Mississippi River into the northern Gulf of Mexico. *Estuaries and Coasts*, 30(5): 773-790.

Community Contributions

Brenda Leroux Babin

- Member, Data Management and Communication Committee, Gulf Coast Ocean Observing System Regional Association
- Member, Advisory Committee, Nicholls State University, Computer Science and Computer Information Systems Curriculum
- Member, Dissolved Oxygen Lead, and Quality Assurance of Real-time Oceanographic Data (QARTOD)
- Member, QARTOD to Ocean Geospatial Consortium (Q2O) working group

Ed Chesney

- Member, CALFED Science Advisory Panel to consider the emergency use of water for fisheries management
- Member, Louisiana Sea Grant Academic Advisory Panel
- Panelist, Rhode Island Sea Grant

John Conover

- Chair, Louisiana Academic Library Information Network Consortium Grant Committee (LALINC)
- LUMCON alternate representative, BTNEP Management Conference
- Member, Action Plan Team for Protection of Habitat for Migratory and Resident Birds, BTNEP

Murt Conover

- Member, La Fete d' Ecologie Planning Committee, BTNEP
- Member, Children's Museum Exhibit Task Force, Coastal Wetlands Planning Protection Restoration Act, BTNEP
- Alternate-Representative, Executive Board, South Louisiana Children's Discovery Center (Wild in the Wetlands Planning Group)

Nicole Cotten

- Member, BTNEP Invasive Species Rapid Assessment Project Planning Committee
- Co-curator, Turchin Center for the Visual Arts, *In Black & White: Louisiana's Retreating Coast & Communities*
- Participant, GOM Program Environmental Educa-

tion Alliance

- Member, Terrebonne Parish Science Fair Judging Committee

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, special volume of *Continental Shelf Research*
- Co-editor, with Roger Harris (Great Britain), Luis Valdéz (Spain) and Shin-ichi Uye (Japan), special volume of *ICES Journal of Marine Science*

Joe Malbrough

- Vice Chair of Research Vessel Operators Committee, a part of the University-National Oceanographic Laboratory System, UNOLS

Russell Martin Jr.

- Duck carving presentation for Fletcher Technical Community College

Rodney Powell

- Ocean Carbon and Biogeochemistry Scoping Workshop on Terrestrial and Coastal Carbon Fluxes in the Gulf of Mexico, St. Petersburg, FL

Nancy Rabalais

- Member, National Sea Grant Advisory Board
- Member-at-Large, Executive Board, Southern Association of Marine Laboratories
- Member-at-Large, for UNOLS Council, University National Oceanographic Laboratory System
- Member, Board of Trustees & Membership Committee Chair, Consortium for Ocean Leadership
- Member, Gulf of Mexico Coastal Ocean Observ-

ing System-RA; chair, HABIOS working group
Co-Chair and Organizer with Jan Newton and other,
2008 Ocean Sciences Meeting, Session on Hypoxia in Estuaries and the Coastal Ocean; Commonalities, Comparisons, Contradictions, Climate Change

Member, National Research Council Committee on The Mississippi River and the Clean Water Act Scientific, Modeling, and Technical Aspects of Nutrients Pollutant Load Allocation and Implementation

Member, Review of Water and Environmental Research Systems (WATERS) Network Committee

Member, The Mississippi River and the Clean Water Act Committee

Chair, Executive Board, NOAA's CREST program, Coastal Restoration and Enhancement through Science and Technology: LUMCON representative for CREST Technical Advisory Board, 2007-present

Tier 2 expert, Gulf and South Atlantic Regional Panel (GSARP), Invasive Species Experts Database

Co-Chair, with Jack Middelburg, Continental Margins Task Team, IMBER/LOICZ Continental Margins Open Science Conference, Shanghai, China

Co-Chair, Scientific Steering Committee, Land Ocean Interactions in the Coastal Zone, International Geosphere Biosphere Programme

Co-Chair with Bob Christian, Session Impacts of Climate Variability and Change on the Coastal Environment, Estuarine and Wetland Ecosystem Functioning, International Symposium on the Effects of Climate Change on the World's Oceans, Gijón, Spain

Member, SCOR Working Group #128 on Natural and Human Induced Hypoxia and Consequences for Coastal Areas

Science Advisor, Björn Carlson Foundation for the Baltic Sea – Baltic Sea 2020

Brian Roberts

Member, ASLO Early Career Committee

Member, NSF funded Metabolic Theory of Ecology in Stream Ecosystems Working Group

Paul Sammarco

Executive Director-Elect of the Association of the Marine Laboratories of the Caribbean

Regional Editor, *Marine Biology*

Chair and Organizer, Environmental Bio-Indicators - Coral Reef Roundtable, 14th International Conference on Environmental Bioindicators

Member, Organizing Committee, 2nd Annual Conference, International Society of Environmental Bioindicators, Hong Kong

Wayne Simoneaux

Design Advisor, South Louisiana Children's Discovery Center (Wild in the Wetlands Planning Group)

Governance

The LUMCON Executive Board shifted leadership several times.

Chair of the Executive Board was **Dr. William Jenkins**, President Emeritus of Louisiana State University and A&M College and Interim Chancellor. He was replaced by **Dr. Michael V. Martin**, the new Chancellor of LSU, in July 2008.

The 1st Vice Chair position was held by **Dr. Ray Authement** of the University of Louisiana at Lafayette, until July 2008 when **Dr. E. Joseph Savoie, Jr.** replaced him as President of ULL. Dr. Authement served LUMCON since its inception. Dr. Savoie resigned as Commissioner of Higher Education to move to ULL. His position as Commissioner of Higher Education was filled by **Dr. Sally Clausen**, President of the University of Louisiana System and former President of Southeastern Louisiana University. LUMCON welcomes Dr. Clausen and her continued support of LUMCON.

Dr. Stephen Hulbert of Nicholls State University serves as 2nd Vice Chair.

Also serving on the LUMCON Executive Board are **Dr. Brooks Keel**, LSU, **Dr. Robert Stewart**, ULL, and **Dr. David Boudreaux**, Nicholls.

The next rotation of the Executive Board will occur in the fall of 2009.

Grants

Bargu, S., Principal Investigator, LSU, N. N. **Rabalais**, Co-Investigator, Distribution and potential toxicity of the diatom *Pseudo-nitzschia* spp. in Mississippi River influenced Louisiana coastal waters, Louisiana Board of Regents Quality Support Fund, Funding to LSU, Match by LUMCON, Jun 2007 - May 2009.

Chesney, E. J., Principal Investigator, Intensive propagation of marine finfish in recirculating systems: Improving survival and grow out efficiency during the larval stage, LA Sea Grant, \$109,548, Feb 2006 - May 2008.

Chesney, E. J., Principal Investigator, Development of formulated diets for pompano, Part II: Replacement of fishmeal with plant proteins, LA Sea Grant, \$26,320, Feb 2006 - May 2008.

Chesney, E. J. Principal Investigator, and N. N. **Rabalais**, Co-Investigator, Coastal eutrophication and hypoxia: implications for mercury methylation, mercury biomagnification, and human health, NOAA Human Health Initiative, with D. Senn, Harvard School of Public Health, \$82,000, Sep 2004 - Aug 2007.

Chesney, E. J., Principal Investigator, Assist in the environmental impact determination at the MC-20 Site in the Gulf of Mexico, Waldemar S. Nelson, \$51,000, Apr 2008 - Dec 2008.

Chesney, E. J., Principal Investigator, Propagation of marine finfish commercial scale performance & economics for profitable growout in recirculating systems, LA Sea Grant, \$55,428, Feb 2008 - Jan 2009.

Conover, J., Principal Investigator, LSU/LA Oil Spill Bibliography-2nd Year, LSU/LA Oil Spill, \$52,664, May 2007- Jul 2008.

Conover, J., Principal Investigator, Promoting awareness of innovative education strategies and published research to educators of the BTES, BTNEP-EPA Minigrant Program, \$2,500, Jun 2008 - Jun 2009.

Dagg, M. J., Principal Investigator, US GLOBEC: NEP Phase IIIB-CGOA: Links between climate and planktonic food web dynamics, NSF Biological Oceanography, \$116,194. Sep 2006 - Aug 2009.

Dagg, M. J., Principal Investigator and **R. T. Powell**, Co-Investigator, Long-term estuary assessment group (LEAG): River and estuarine contributions to coastal hypoxia in the northern Gulf of Mexico, NOAA, \$49,000, Sep 2005 - Aug 2008.

Dagg, M. J., Principal Investigator, GLOBEC 2000, Responses of the *Neocalanus* spp. microplankton community to physical forcing in the coastal Gulf of Alaska, National Science Foundation, Feb 2001 - Jan 2008.

Malbrough, J., Principal Investigator, ET Support Services, National Science Foundation, \$30,208, May 2006 - Apr 2009.

Malbrough, J., Principal Investigator, Ship Operations, National Science Foundation, \$32,220 30,000; \$264,247, Mar 2005 - Feb 2010.

Rabalais, N. N., Principal Investigator, Toxin detection in potentially harmful algae and their consumers in the Barataria Bay system: Implications for humans, EPA, Gulf of Mexico Program, \$138,244; \$69,848, Oct 2006 - Sep 2009.

Rabalais, N. N., Principal Investigator, NGOMEX06, Integrated observational studies of hypoxia in the northern Gulf of Mexico, NOAA, Center for Sponsored Coastal Ocean Research, \$2,260,022, subcontract of \$906,320 to R.E. Turner et al., LSU; \$29,900; \$624,329, Aug 2006 - Jul 2009.

Rabalais, N. N., Principal Investigator, Refining knowledge of hypoxia dynamics: The interaction of physics and biology, EPA Gulf of Mexico Program, \$150,000, subcontract of \$56,376 to G. A. Stone, LSU, Dec 2005 - Dec 2008.

Rabalais, N. N., Principal Investigator, Guide to phytoplankton (including harmful algae) from Louisiana estuarine and coastal waters, EPA Gulf of Mexico Program, \$91,400, Dec 2005 - Dec 2008.

Rabalais, N. N., Principal Investigator, MULTISTRESS: Cumulative coastal stressors: northern Gulf of Mexico. NOAA Coastal Ocean Program, Nancy Rabalais, \$1,123,711, collaborative award to lead LSU, R. E. Turner et al., \$4,990,832, Sep 2002 - May 2009.

Rabalais, N. N., Principal Investigator, T-1 Line /LA-DL-CVLINE, LA Board of Regents, \$8,100, Mar 2007- Feb 2008.

Rabalais, N. N., Principal Investigator, Gulf of Mexico literacy project: Louisiana component, State of Florida Department of Environmental Protection, \$20,860, Sep 2007-Mar 2009.

Rabalais, N. N., Principal Investigator, with S. Bargu, LSU, The potential effects of environmental stressors on the diatom *Pseudo-nitzschia pseudodelicatissima* and cyanobacteria - common HAB species in Louisiana, LA Sea Grant, \$12,702, Nov 2007 - Oct 2008.

Rabalais, N. N., Principal Investigator, and **B. L. Babin**, Co-Investigator, Standardization of Local Data Network Nodes in the GCOOS-RA, Texas A&M University Foundation, DOC/NOAA, \$22,701; \$22,156, Jan 2008- Dec 2009.

Rabalais, N. N., Principal Investigator, and **B. L. Babin**, Co-Investigator, Operation of LUMCON Doppler Radar Profiler, Minerals Management Service, Coastal Marine Institute, Louisiana State University, \$215,472, Dec 2007-Oct 2009.

Rabalais, N. N., Principal Investigator, and D. Daigle, Co-Investigator, Coastal Restoration through Enhanced Science and Technology (CREST), NOAA Office of Response and Restoration, \$909,686 through 2007, \$1,442,000 through 2008, May 2006 - Apr 2011.

Rabalais, N. N., Principal Investigator, and C. Finelli, Co-

Investigator, Career Development Plan-Interdisciplinary Research & Education in Marine Habitats, University of North Carolina, Wilmington, \$20,948, Jan 2007- May 2008.

Rabalais, N. N., Principal Investigator, and **J. Malbrough**, Co-Investigator, Oceanographic Instrumentation, NSF, \$96,400, May 2006 - Apr 2008.

Rabalais, N. N., Principal Investigator, and **J. Malbrough**, National Science Foundation, Oceanographic Instrumentation, \$31,612; \$27,000, Aug 2007- July 2009.

Rabalais, N. N., Principal Investigator, and **J. Malbrough**, Ship Time for Navy Projects, Office of Naval Research, \$958,697, Apr 2007- Dec 2008.

Rabalais, N. N., Principal Investigator, N-GOMEX2003: Hypoxia Studies in the northern Gulf of Mexico, NOAA, \$1,656,205, May 2003 - Apr 2008.

Roberts, B. J., Principal Investigator, **N. N. Rabalais** and **R. E. Turner**, Co-Investigators, Critical Biogeochemical Processes in the Atchafalaya River Delta. LA BoR Support Fund Contract # LEQSF (2008-11)-RD-A-22, \$137,457, Jun 2008- Jun 2011.

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, LSU-Coastal Marine Institute, \$308,482, Sep 2006 - Dec 2009.

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, LSU-Coastal Marine Institute, \$352,304, Oct 2004 - Sep 2008.

Sparks, S. Principal Investigator, The Gulf of Mexico Program 2008, EPA/Gulf of Mexico Program, \$78,950. Oct 2007-

Dec 2009.

St. Pé, K., Principal Investigator, BTNEP, Effects of stormwater discharge at Pointe aux Chenes pumping station, EPA, Gulf of Mexico Program, \$214,200. Sep 2002 - Dec 2009.

St. Pé, K., Principal Investigator, BTNEP, Debris removal within Barataria Basin: Barataria Preserve, LA Dept. of Natural Resources, \$84,275.76. Oct 2006 - June 2009.

St. Pé, K., Principal Investigator, BTNEP, Continued restoration of the marsh and maritime forest ridge habitats at Port Fourchon, LA Dept. of Natural Resources, \$54,264, Oct 2006 - June 2009.

St. Pé, K., Principal Investigator, BTNEP, GOMP/Assessment status on non-indigenous invasive species, US EPA, \$54,000, Aug 2002 - Nov 2007.

St. Pé, K., Principal Investigator, BTNEP, A vegetative model for restoration, conservation, and habitat enhancement -Year 3, US EPA, \$179,750, Aug 2002 - Dec 2008.

St. Pé, K., Principal Investigator, BTNEP, Barataria Basin marine debris removal project. NOAA, Gulf of Mexico Program, \$121,331, Jun 2006 - Aug 2009.

St. Pé, K., Principal Investigator, BTNEP, Louisiana exotic invasive species symposium, US EPA, \$27,000, Jul 2005 - Jun 2009.

St. Pé, K., Principal Investigator, BTNEP, US EPA, FY03, \$510,000; FY04, \$506,685; FY05, \$506,984; FY06, \$511,966; FY07, \$492,600, FY08, \$418,000, Oct 2003 - Sep 2009.

Visser, J., Principal Investigator, Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA), Priority Project List Number 18, Dept. of Defense, Army Corps of Engineers, \$103,400, Jan 2008 - Dec 2008.



Barataria-Terrebonne National Estuary Program

- * One of the most important aspects of BTNEP is educational initiative. Each of the fifty-one (51) action plans that comprise the Comprehensive Conservation and Management Plan (CCMP) requires some level of education. Since BTNEP is involved in the implementation of many different action plans, continuing educational initiatives are critical to its success. The level of agreement that went into the development of the CCMP is a basic, fundamental requirement of a restoration plan. Hurricanes continue to demonstrate the vulnerability of communities that have lost protection. The Coastal communities can not afford further delays to meaningful restoration nor delays in implementation.
- * BTNEP continues to hold organized volunteer planting events at the **Maritime Forest Ridge and Marsh Restoration Project**. Frequently used to illustrate the viability of creating a functioning wetland and ridge habitat by the benefits of dredged materials. The successes of this project are used to bolster the advocacy of using dredges and pipelines from the Mississippi River to re-build lost wetland habitats by conducting tours to the sites with federal and state agency administrators, educators, and elected officials.
- * BTNEP has made remarkable progress in efforts to gain acceptance of the Pipeline Sediment Delivery (PSD) restoration strategy. As aggressive advocates for the large-scale use of PSD to restore the Barataria-Terrebonne system, this strategy is gaining favor for open discussion among several state and federal agencies as well as several academic scientists. A direct result of BTNEP's efforts over the past 5 years.
- * BTNEP continues to coordinate major surveys of plovers (killdeer) along the Barataria-Terrebonne coast. This project is adding considerably to knowledge of plover use of this region. This project is a direct result of the collaborative, consensus approach used by the NEPs and identified by the BTNEP Migratory Bird Action Plan team as a critical data need.

BTNEP Personnel

Kerry St. Pé, *Program Director*

Andrew Barron, *Water Quality Coordinator*

Dean Blanchard, *Habitat Enhancement Coordinator*

Richard DeMay, *Senior Scientist*

Sandra Helmuth, *Office Manager*

Mel Landry, *Public Involvement Coordinator*

Michael Massimi, *Invasive Species Coordinator*

Shelly Sparks, *Media Relations Coordinator*

Susan Testroet-Bergeron, *Education Coordinator*



Financial Report

EXPENDITURES	BUDGET	EXPENDITURES	BALANCE
Salaries and Wages	1,775,782	1,775,782	0
Student Wages	15,000	15,000	0
Fringe Benefits	483,835	483,835	0
Travel	20,500	20,500	0
Operating Services	346,327	346,327	0
Supplies	96,963	96,963	0
Professional Services	0	0	0
Acquisitions: Library	125,397	125,397	0
Other Acquisitions	64,000	40,473	23,527
IAT-UPS- TRANSFERS, OTM Charges	341,915	341,915	0
STATE FUNDS EXPENDITURES*	3,269,719	3,246,192	23,527
*With Statutory Dedication Funds			
<u>OTHER FUNDS</u>			
Barataria-Terrebonne National Estuary	1,030,134	793,519	236,615
Restricted Fund (Research, IDC, FEMA)	2,824,533	2,344,359	480,174
Vessel Operations	2,000,000	1,891,352	108,648
Cafeteria / Dormitory	130,000	127,661	2,339
TOTAL EXPENDITURES	\$9,254,386	\$8,403,082	\$851,304

SOURCE OF REVENUE:	FY08 BUDGET	DRAWN	BALANCE
State General Fund	3,222,486	3,198,959	23,527
Restricted Fund: (Research, IDC, FEMA)			
Federal Funds	2,934,667	3,005,891	-71,224
Self Generated Fees	70,000	70,000	0
Interagency Trans.	850,000	80,000	770,000
Ancillary Funds:			
Vessel Operations	2,000,000	1,873,332	126,668
Cafeteria Dormitory	130,000	127,667	2,333
Statutory Dedications: Fac. Pay	43,933	43,933	0
Statutory Dedications: High Ed Init	3,300	3,300	0
TOTAL REVENUE	\$9,254,386	\$8,403,082	\$851,304

Prior Year-End Fund Balances:

Restricted Fund: (Research)

Federal/Self-Gen. Fees, IAT, IDC Funds	-216,111
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Ancillary Funds:

Vessel Operations w/IDC	806,094
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Cafeteria / Dormitory	136,959
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Act 971 Carryover (Prev. Maint.)	0
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	<u>726,942</u>
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Serving Louisiana's Marine Science Research and Education Sunrise to Sunset



Front cover photo; Grand Prize and People's Choice Award Winner for LUMCON's "Boats of Louisiana Photography Contest for Open House 2008" taken by Penny Bentz of Schriever, Louisiana. Back cover photo: Honorable Mention Award Winner for photograph taken by Gwen Duplantis, from the employee division.